Texas Department of Transportation

83
18-10
35B
35
2022-1
44
237-2
ENCINAL
2022-2
18-11
237-3
44
237-4
18-3
37-10
18-4
Webb
2150-2
2150-3
542-3
59
255
1472
3586-1
3338
3532-2
18-5
35
542-2
2150-4
18-6
86-14
20
542-1
59
2895
2050
1943-1
3543-1
400
35A
18-8
2988-2
86-1
86-2
LAREDO
359
86-3
Oilton
86-4
Aguilares
Mirando City

2

STATE OF TEXAS
STATE HIGHWAY DEPARTMENT

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT.

8	TEXAS
21	WEBB
CONTROL NO. 18	SECTION 3
CONTROL NO. 18	SECTION 4
F.A.R. 165 ABCD REOP.	

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	DIVISION MAP
3-4	TYPICAL CROSS SECTIONS
5	HAUL DIAGRAM
6-7	ESTIMATE AND QUANTITY SHEET
8-46	PLAN AND PROFILE SHEETS
47-55	BRIDGE LAYOUTS
56-71	STRUCTURAL DETAILS
72-73	CROSS SECTIONS AT CULVERT SITES
74-238	DETAILED CROSS SECTIONS

56-C-7- Lengthening Details. Std.
57- C-6 Lengthening Details
58 MBC-5 & MBC-9 Lengthening Details.
59 CH-7
60 CB-6-Slab & B-4 Bent Widening Details
61 CB-6 Slab & B4 Bent (23° Skew) Widening Details.
62 A-9-10-6" & A-9-120" Widening Details.
63-64 A-9-13, A-9-14 & A-9-15' Widening Details.
65 A-9-15' (23° Skew) Widening Details.
66 G-265-24' & 26' Span Widening Details.
67 G-266- 32' Span Widening Details.
68 R2
69 Markers M-1
70 Standard Barricades & Warning Signs.
71 Superelevation & Widening Standard SWC-1

SCALES: PLAN: 1 IN. = 100 FT.
PROFILE: 1 IN. HOR. = 100 FT., 1 IN. VERT. = 10 FT.
CROSS-SECTIONS: 1 IN. HOR. AND VERT. = 5 FT.
OTHERS AS NOTED.

	ORIGINAL	FINAL
NET LENGTH OF CONTROL 18-4-3	= 45,890.0 FT. = 8.691 MI.	45878.2 FT. = 8.688 MI.
NET LENGTH OF CONTROL 18-3-3	= 52,085.7 FT. = 9.864 MI.	52085.7 FT. = 9.864 MI.
TOTAL NET LENGTH OF PROJECT F.A.R. 165 ABCD REOP.	= 97,975.7 FT. = 18.555 MI.	97963.9 FT. = 18.552 MI.

WEBB COUNTY
FROM 0.9 MILES NORTH OF JUNCTION WITH HIGHWAY NO. 4 TO LA SALLE COUNTY LINE

SUMMARY OF APPROVED FIELD CHANGES

F.C. No.	Description	Limits
1.	Relocation near Callaghan	1416+28 to 1428+00
2.	Remove 2 C.G.M.P. Culverts	1122+79 to 1127+00

21 586

W-402

5074

STA. 1040+20 BEG. OF CONTROL 18-4-3 BEG. OF F.A.R 165 ABCD REOP.
= STA. 1040+20 END OF CONTROL 18-5-6
= STA. 1038+67 OLD FAP 165-C

STA. 1030+72 END OF U.S.W.P.G.C. PROJ. NO. WPGH 165-B

STA. 1499+10 END OF CONTROL 18-4-3
= STA. 1498+00 END OF OLD FAP 165-C

STA 1499+10 BEG. OF CONTROL 18-3-3
= STA 1498+00 BEG. OF OLD FAP 165-D

STA 2019+95.7 END OF CONTROL 18-3-3 END OF F.A.R 165 ABCD REOP.
= STA 2019+66 END OF OLD FAP 165-D.
= STA 2328+48 END OF FAP 348-B (LA SALLE COUNTY)

Highway No. 4 To Catarina 43.9 Miles

Sandy Road

County Road

34' Crown 20' Asphaltic Surface on Caliche Base

19.1 Miles To Laredo

WEBB
Unincorporated
Population-25

Missouri Pacific R. R.

CALLAHAN
Unincorporated
Pop.-30

CACTUS
Unincorporated
Pop.-50

SAN ROMAN

San Roman Ranch

CHILTON
Unincorporated
Pop. 30

RODRIGUEZ
Unincorporated
Pop.-30

VIDALES

ENCINAL
Unincorporated
Pop.-800

Emergency Landing Field

18' Rock Asphalt Pavement on Caliche Base

EQUATION STA. 1438+72.7* = 1438+84.5 - 11.8 Ft.
See F.C. No. 1

S-8 S-9 S-10 S-11 S-12 S-13 S-14 S-15 S-16 S-17 S-18 S-19 S-20 S-21 S-22 S-23 S-24 S-25 S-26 S-27 S-28 S-29 S-30 S-31 S-32 S-33 S-34 S-35 S-36 S-37 S-38 S-39 S-40 S-41 S-42 S-43 S-44 S-45 S-46

COUNTY
COUNTY

WEBB
LASALLE

Grading, Drainage Structures and Pavement under construction, Prop. 34' Crown 20' Duraco Pavement on caliche base.

DETOURS, TRAFFIC, ETC.

Due to the lack of available detours, the highway shall at all times be kept open to traffic. It shall be the entire responsibility of the Contractor to provide for the passage of traffic in comfort and safety at all times.

Class "D" barricades will be required at all times at each end of the section of the highway under construction as directed by the Engineer.

SPECIFICATIONS APPROVED BY THE CHIEF OF THE U. S. BUREAU OF PUBLIC ROADS, FEB. 26, 1926, AND SPECIFICATION ITEMS SUBSEQUENTLY APPROVED, LISTED AND DATED AS FOLLOWS, SHALL GOVERN IN THEIR REVERSE CHRONOLOGICAL ORDER:
ITEMS 1 TO 9 INCLUSIVE, APPROVED JULY 15, 1931.
ITEMS 10 TO 14 & 16 TO 18 INCLUSIVE, APPROVED NOV 1, 1935
REQUIRED SPECIAL PROVISIONS FOR REGULAR FEDERAL AID HIGHWAY PROJECTS APPROVED SEPT 4, 1935.

DELIVERY POINTS FOR MATERIALS			
RAILROAD DEL. POINT	RAILROAD	DISTANCE FROM PROPOSED PROJECT	CAR CAPACITY
SAN ROMAN	I.G.N.	0.10 MILE	11
WEBB	I.G.N	"	25
CALLAHAN	"	"	63
CACTUS	"	"	6
CHILTON	"	"	6
RODRIGUEZ	"	"	12
ENCINAL	"	.5 Mile	AMPLE
VIDALES	"	1 Mile	5

NO EXCEPTIONS — NO EQUATIONS 1438+72.7* = 1438+84.5 - 11.8'
NO R.R. CROSSINGS ELIMINATED OR RETAINED

NOTE: FEDERAL PROJECT MARKERS OF APPROVED DESIGN HAVE BEEN ERECTED AT EACH END OF PROJECT.

LAYOUT SCALE: 1 IN. = 4 000 FT.

CONVENTIONAL SIGNS
STATE OR NATIONAL LINE
CITY OR VILLAGE LINE
COUNTY LINE
BASE OR SURVEY LINE
RIGHT OF WAY LINE
RIGHT OF WAY MARKERS
FENCE LINE
MAIN ROAD
TRAVELLED WAY
CULVERT OR BRIDGE
POWER LINE
TELEGRAPH OR TELEPHONE

COUNTY WEBB
DIV. NO. TWO
PROJ. NO. F.A.P. 165 ABCD Reop. Units III & IV
LETTING DATE July 20, 1936
DATE AGREED Nov. 3, 1937

STATE HIGHWAY DEPARTMENT — U.S. BUREAU OF PUBLIC RO...

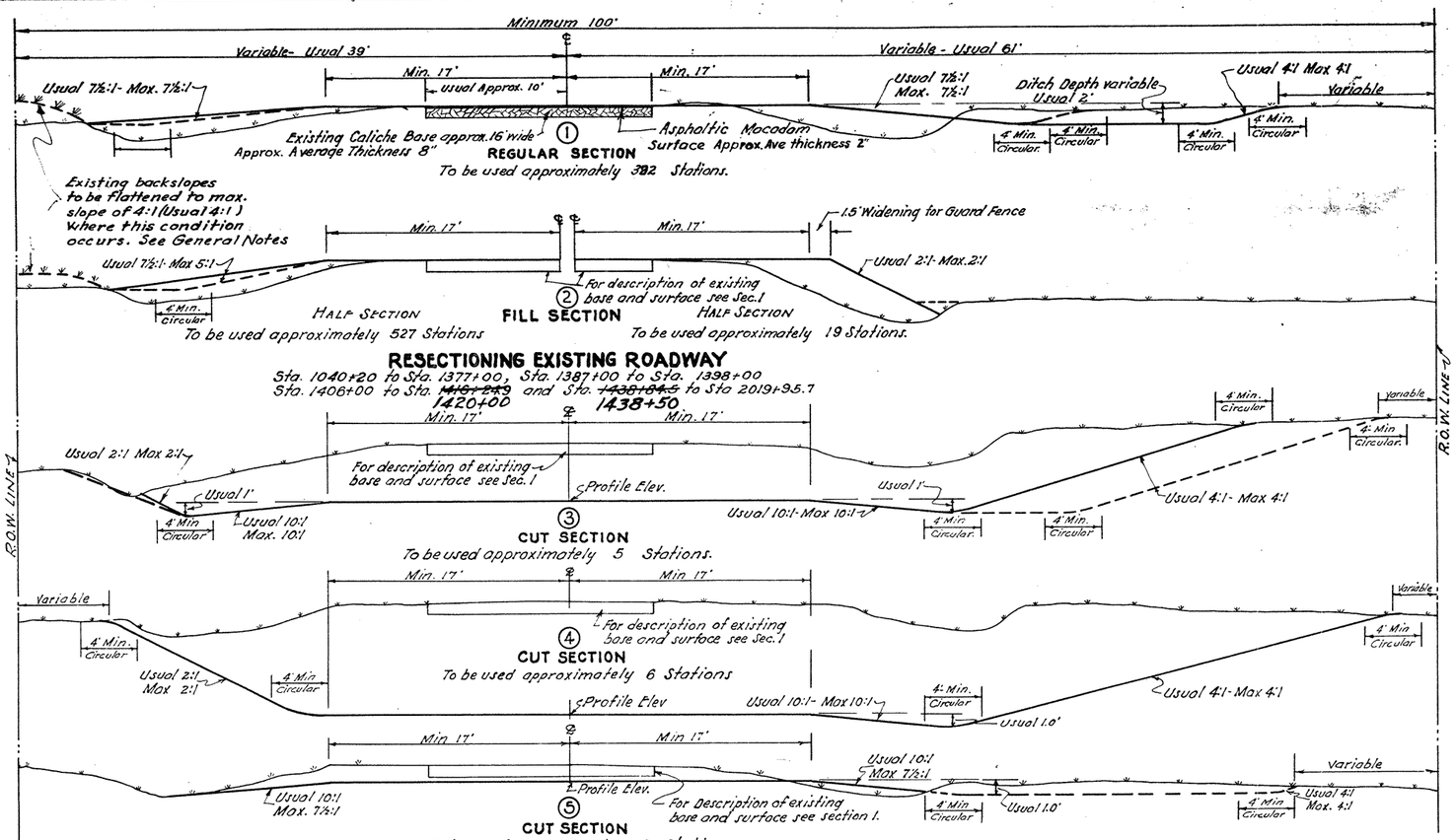
CORRECT: 3-14, 1936
J. R. Buckley
DIV. OFFICE RESIDENT ENGINEER

RECOMMENDED FOR APPROVAL: [redacted]
BRIDGE ENGINEER

RECOMMENDED FOR APPROVAL: [redacted]
DIVISION ENGINEER

RECOMMENDED FOR APPROVAL: 3-14, 1936
[redacted]
ENGINEER OF MAINTENANCE

APPROVED: [redacted]
CHIEF ENGINEER



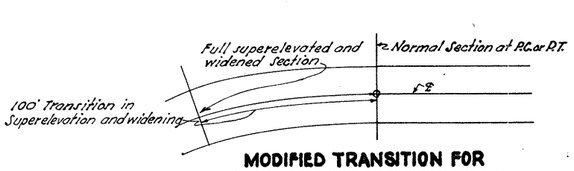
GENERAL NOTES

1. Where required by fixed features or unusual conditions, the governing slopes shown hereon may be varied when specifically directed by the Engineer.

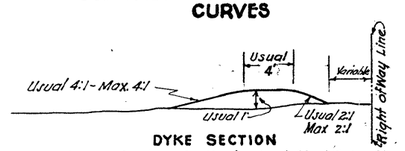
2. In the construction of Sections 3, 4, 5, 6, 7 & 8, the existing base and surfacing material is to be removed and stock piled as provided in Special Item "Salvaging and Replacing old Surface Material."

3. All curves on the relocated section are to be superelevated and widened in accordance with attached Standard "SWC-4," except that at the beginning and end of the relocation the transitions are to be modified as shown hereon.
On the section of the Highway where the existing roadway is to be resectioned, the curves which are all 1°30' or less, are not to be superelevated or widened.

4. Where directed by the Engineer the remaining existing backslopes along the left side of sections 1 & 2 as shown by broken ground lines are to be flattened by either excavating or constructing an embankment on the existing backslope as the case may require. A uniform circular section shall be constructed as directed by the Engineer.

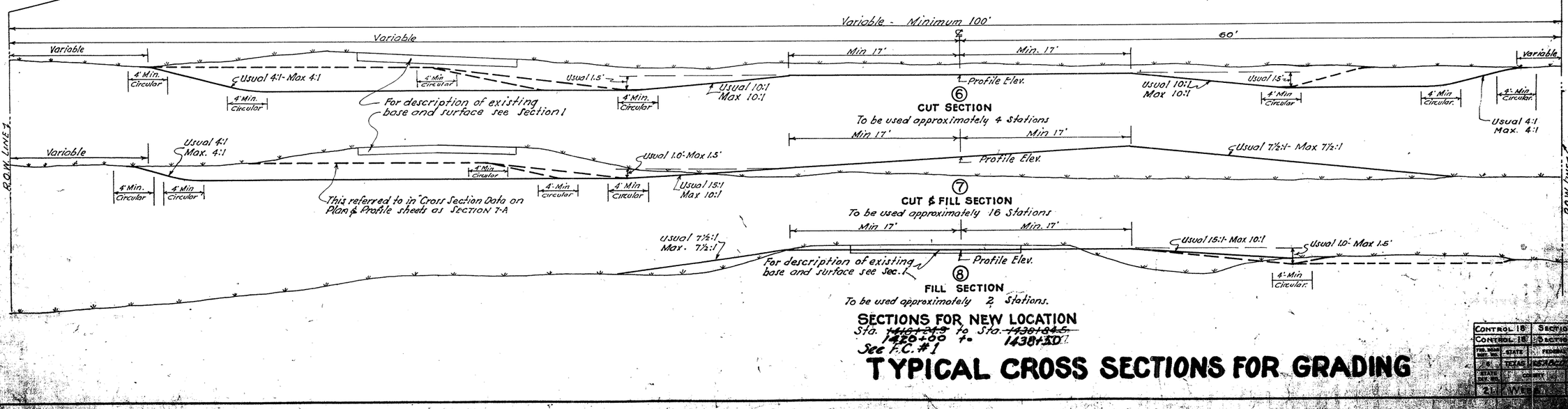


MODIFIED TRANSITION FOR SUPERELEVATING AND WIDENING CURVES



DYKE SECTION

To be used where indicated by letter "D" in the "Cross Section Data" on the plan profile sheets. or where directed by the Engineer. To be used approx. 161 stations.



SECTIONS FOR NEW LOCATION

Sta. ~~1407+24.9~~ 1420+00 to Sta. ~~1438+84.5~~ 1438+50

See P.C. #1

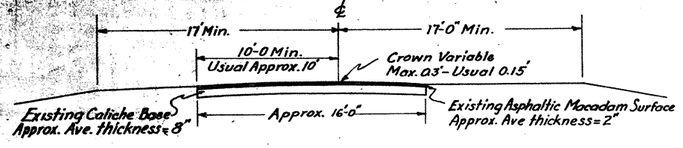
TYPICAL CROSS SECTIONS FOR GRADING

CONTROL 18	SECTION 3
CONTROL 18	SECTION 4
FED. ROAD DIST. NO.	STATE
8	TEXAS
STATE DIST. NO.	COUNTY
21	WEBB

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO. — ALIGNMENT CHECKED, RT. OF WAY CHECKED, DATE, BY

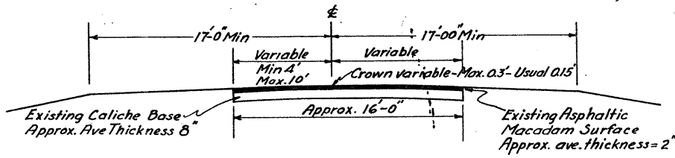
PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO. — GRADES CHECKED, B. M.'S NOTED, STRUCTURE NOTATIONS CHKD., DATE, BY

50 75



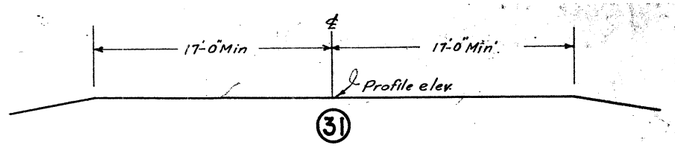
(11)

COMPLETED GRADED ROADBED



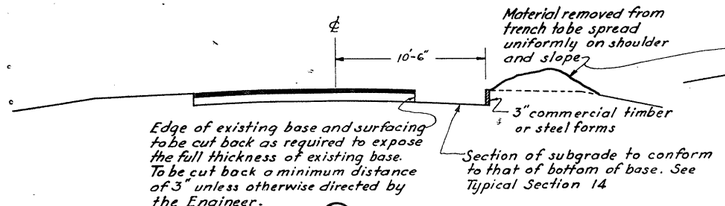
(21)

COMPLETED GRADED ROADBED



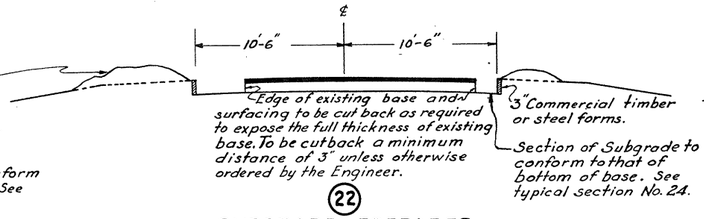
(31)

COMPLETED GRADED ROAD



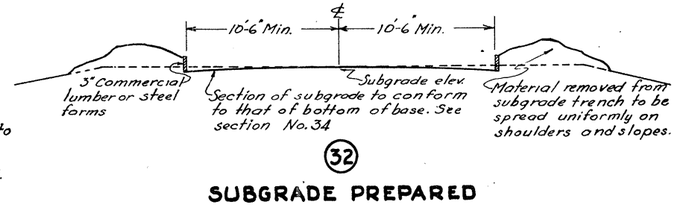
(12)

SUBGRADE PREPARED



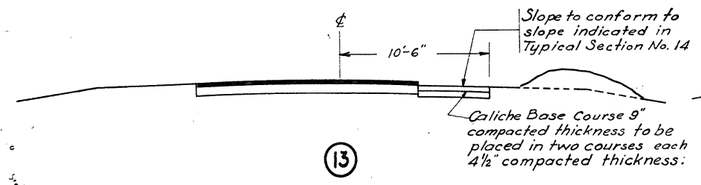
(22)

SUBGRADE PREPARED



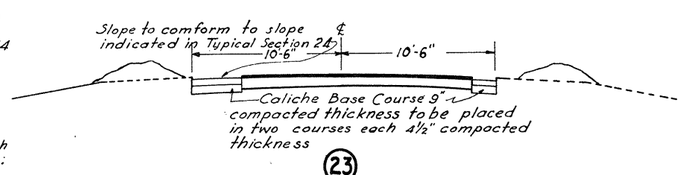
(32)

SUBGRADE PREPARED



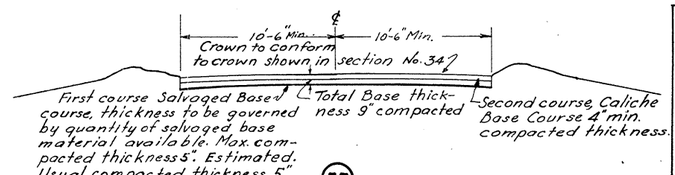
(13)

BASE WIDENING COMPLETED



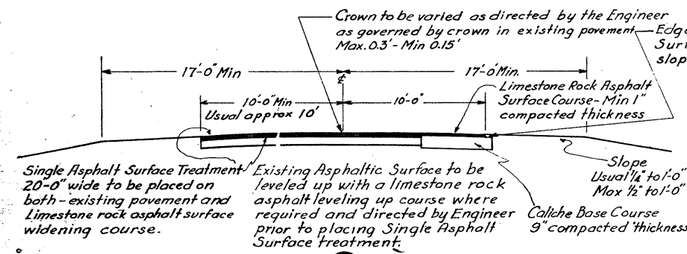
(23)

BASE WIDENING COMPLETED



(33)

BASE COURSE COMPLETED



(14)

COMPLETED ROADBED

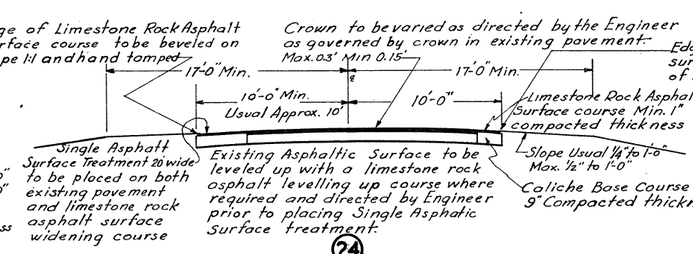
WIDENING EXISTING PAVEMENT

(WIDENING RIGHT SIDE ONLY)

Proposed between the following stations

Sta. 1040+20 to 1059+00
Sta. ~~1065+00 to 1105+00~~ 1064+00 to 1104+00
Sta. 1110 +00 to 1377 +00
Sta. 1387 +00 to 1398 +00
Sta. ~~1406+00 to 1416+24.9~~ 1406+00 to 1420+00
Sta. ~~1438+34.5 to 2019+05.7~~ 1438+50 to 2019+35.7

NOTE: The above sections indicate the construction proposed throughout the mayor portion of the project, where the alignment of the existing pavement is satisfactory, in which case the centerline is located approximately parallel to, and a minimum distance of 10'-0" from left edge of the existing pavement.



(24)

COMPLETED ROADBED

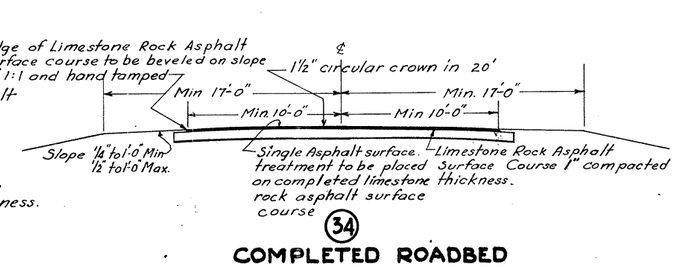
WIDENING EXISTING PAVEMENT

(WIDENING BOTH SIDES)

Proposed between the following Stations

Sta. 1059+00 to ~~1065+00~~ 1064+00
Sta. ~~1105+00~~ 1104+00 to 1110 +00

NOTE: The above sections indicate the construction proposed where base widening is required on both sides to correct short irregularities in alignment of existing pavement.



(34)

COMPLETED ROADBED

FULL WIDTH NEW PAVEMENT

(GRADE LINE REVISIONS & RELOCATION)

Proposed between the following Stations

Sta. 1377+00 to 1387+00
Sta. 1398+00 to 1406+00
Sta. ~~1416+24.9~~ to ~~1438+34.5~~
1420+00 to 1438+50

NOTES

WIDENING EXISTING PAVEMENT

All excavation involved in the preparation of subgrade including all existing base and surfacing material to be removed shall be measured and paid for as "Subgrade Excavation" in accordance with Special Provisions to Special Item "Fine Grading Subgrade."

The existing pavement is not super-elevated on curves (which are all 1°30' or less) and the completed widened pavement on curves is not to be super-elevated or widened.

FULL WIDTH NEW PAVEMENT

All excavation involved in the preparation of subgrade shall be measured and paid for as "Roadway Excavation" in accordance with Special Provisions to Special Item "Fine Grading Subgrade"

All curves are to be superelevated and widened in accordance with attached Standard SWC-1 except that at the beginning and end of the relocation a modified transition as indicated on Sheet 3 will be used.

GENERAL

Where required by fixed features the governing slopes and crowns indicated hereon may be varied when specifically directed by the Engineer

SINGLE ASPHALT SURFACE TREATMENT

1. Asphalt (AA-1 (135-C) ----- 0.30 gal. per Sq. Yd.
2. Aggregate (broken Stone) ----- 1 Cu. Yd. per 70 Sq. Yd.

NOTE:

These rates are the basis of estimate and may be varied by the Engineer in order to suit the varying conditions encountered during construction.

BASE & SURFACE EXCEPTIONS — NONE

TYPICAL CROSS SECTIONS FOR SURFACING

CONTROL	SEC.	TOT.
CONTROL 18	SEC. 3	
CONTROL 18	SEC. 4	

FED. ROAD DIST. NO.	STATE	PROJECT NO.
6	TEXAS	[illegible]
STATE DIV. NO.	COUNTY	SHEET NO.
21	WEBB	

PLAN — DATE — SURVEYED — PLOTTED — ALIGNMENT CHECKED — RT. OF WAY CHECKED — NOTE BOOK — NO.

PROFILE — SURVEYED — PLOTTED — H. & V. NOTED — STRUCTURE NOTES CHKD. — NOTE BOOK — NO.

Source No. 1
Lab. No. 34-4302
Owner Jesus Salinas
Caliche 18,971 Cu. Yds. Est.
Stripping 7,588 Cu. Yds. Est.
Clearing and Grubbing 2.36 Ac. Est

Dead Haul 28438 Feet
27658' South on Highway No. 2

785'

SOURSE No. 1

| | | |

Source No. 1-AX
Lab. No. 37-211
Owner George Reuthinger
Caliche 19398.5 C.Y.
Stripping 45.66 C.Y.
Clearing & Grubbing 2.01 Ac.

Dead Haul 22608 Feet
17658' South on Highway No.2

4950'

SOURCE 1-AX

1040+20
204 x 17 = 3468
1051+72
260 x 18 = 4680
1064+92
272 x 19 = 5168
1078+12
244 x 20 = 4880
1091+32
276 x 21 = 5796
1104+52
256 x 22 = 5632
1117+72
252 x 23 = 5796
1130+92
236 x 24 = 5664
1144+12
237 x 25 = 5925
1157+32
260 x 26 = 6760
1170+52
234.5 x 27 = 6331.5
1183+72
232 x 28 = 6496
1196+92
260 x 29 = 7540
1210+12
272 x 30 = 8160
1223+32
288 x 31 = 8928
1236+52
299 x 32 = 9568
1249+72
290 x 33 = 9240
1262+92
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34

1262+92
249 x 34 = 8466
1276+12
240 x 35 = 8400
1289+32
291 x 36 = 10476
1302+52
276 x 37 = 10212
1315+72
300 x 38 = 11400
1328+92
292 x 39 = 11388
1342+12
268 x 40 = 10720
1355+32
272 x 41 = 11152
1368+52
364 x 42 = 15288
1377+00
1381+72
1387+00
332 x 43 = 14276
1394+92
1398+00
452 x 44 = 19888
1406+00
1408+12
260 x 45 = 11700
1416+24.9
1421+32
428 x 46 = 19688
1434+52
1438+72.7 = 1430+84.5 Eq
308 x 47 = 14476
1447+84
280 x 48 = 13440
1461+04
292 x 49 = 14308
1474+24
292 x 50 = 14600
1487+44
240 x 51 = 12240
1499+10
44 x 51 = 2244
1500+64
272 x 52 = 14144
1513+84
272 x 53 = 14416
1527+04
252 x 54 = 13608
1540+24
260 x 55 = 14300
1553+44
252 x 56 = 14112
1566+64
35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57

Grade Line Revision
Relocation

1566+64
224 x 57 = 12768
1579+84
264 x 58 = 15312
1593+04
252 x 59 = 14868
1606+24
240 x 60 = 14400
1619+44
228 x 61 = 13908
1632+64
264 x 62 = 16368
1645+84
208 x 63 = 13104
1659+04
244 x 64 = 15616
1672+24
240 x 65 = 15600
1685+44
264 x 66 = 17424
1698+64
272 x 67 = 18224
1711+84
264 x 68 = 17952
1725+04
260 x 69 = 17940
1738+24
216 x 70 = 15120
1751+44
224 x 71 = 15904
1764+64
228 x 72 = 16416
1777+84
220 x 73 = 16060
1791+04
236 x 74 = 17464
1804+24
248 x 75 = 18600
1817+44
228 x 76 = 17328
1830+64
228 x 77 = 17556
1843+84
228 x 78 = 17784
1857+04
260 x 79 = 20540
1870+24
58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

1870+24
200 x 80 = 16000
1883+44
244 x 81 = 19764
1896+64
240 x 82 = 19680
1909+84
200 x 83 = 16600
1923+04
248 x 84 = 20832
1936+24
224 x 85 = 19040
1949+44
232 x 86 = 19952
1962+64
240 x 87 = 20880
1975+84
220 x 88 = 19360
1989+04
252 x 89 = 22428
2002+24
268 x 90 = 24120
2015+44
140 x 91 = 12740
2019+95.7
81 82 83 84 85 86 87 88 89 90 91 92

SUMMARY
FINAL QUANTITIES

DESCRIPTION	CONTROL 18-43	CONTROL 18-33	TOTAL	UNIT
Caliche Base Course	9798.5	9600.0	19398.5	CU.YD
Material Hauled Add'l ½ Mile	342,150.5	680,476.0	1022626.5	CU.YD
Stripping	2192.0	2374.0	4566	CU.YD.
Clearing and Grubbing	0.99	1.02	2.01	ACRES.

FINAL
HAUL DIAGRAM
FOR
CALICHE BASE COURSE

CONTROL 18	SECTION 3	JOB NO.
CONTROL 18	SECTION 4	JOB NO.

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	(65 ARC)	47
STATE DIV. NO.	COUNTY		TOTAL SHEETS
21	WEBB		

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
QUANTITIES CHECKED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
STRUCTURE NOTATNS.CHKD.
DATE
BY

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
NO.
GRADES CHECKED
MASS DIAG. CHECKED
STRUCTURE NOTATNS.CHKD.
DATE
BY

5078

SP

SUMMARY OF STRUCTURES OVER 20 FOOT SPAN

PERMANENT BRIDGE NUMBERS	SHEET NUMBER PLAN PROFILE	SHEET NUMBER LAYOUT	STATIONS BEGINNING	STATIONS END	LENGTH FEET	DESIGN WIDENING DETAILS FOR	DESCRIPTION OF EXISTING STRUCTURE	TO BE WIDENED LEFT	TO BE WIDENED RIGHT	COMPLETED RDWY. WIDTH	STRUCTURAL EXCAVATION COMMON CU.YDS.	STRUCTURAL EXCAVATION ROCK CU.YDS.	CLASS "A" CONCRETE FOR EXT. STRUCT. CU.YDS.	CLASS "A" CONCRETE HI. EARLY STR. CU.YD	REINFORCING STEEL LBS	RAILING TYPE K LIN. FT.
						CONTROL NO. 18-4-3										
31	11	47	1103+41	1103+95	54.0	CB-6, A9-15, & B-4 on 23°Rt. Fwd skew	Slab bridge, 3-16' clear spans, 20' Roadway width	5'-0"	9'0"	34'	335 959.00			146.54 146.79	15106 15176	108.0 108.0
30	13	47	1154+38	1154+61.25	23.25	C-6	2-10'x7'x20' Multiple Box Culverts.	5'-0"	9'-0"	34'	47 78.69			55.85 56.09	2346 2346	46.0 46.0
29	14	48	1177+46.5	1177+78.5	32.0	CB-6, A9-10'-6" & B-4	Slab bridge, 2-14' clear spans, 20' Roadway width	5'-0"	9'-0"	34'	224 247.07			85.72 85.70	7223 7223	64.0 64.0
28	17	48	1253+09.7	1253+32.95	23.25	C-6	2-10'x8'x18'-10" Multiple Box culverts.	4'-5"	10'-9"	34'	78 116.04			63.92 62.98	2609 2609	46.0 46.0
26	19	49	1324+89.3	1325+12.55	23.25	C-6	2-10'x7'x18'-10" Multiple Box Culverts.	4'-5"	10'-9"	34'	51 66.78			58.26 58.49	2423 2423	46.0 46.0
25	21	50	1354+14.3	1354+50.3	36.0	CB-6 - A-9-13, & B-4	Slab bridge, 2-16' clear spans, 20' Roadway width	4'-6"	9'-6"	34'	280 217.22			108.20 108.25	10547 10547	72.0 72.0
24	~~23~~ 23-A	50	1410+98.4	1411+30.48	34.08	MBC-5	6- 5'x5'x24' Multiple Box Culverts.	2'-6"	7'-6"	34'	34 21.76		37.04 38.43		4551 4551	
			TOTALS								1049 1106.56		37.04 38.43	518.49 518.30	44805 44876	382.0 382.0
						CONTROL NO. 18-3-3										
23	28	51	1555+95.8	1556+30.3	34.5	G-266 & A9-15	Girder Bridge, 1-32' clear span 20' Roadw. width	4'-9"	9'-3"	34'	172 228.41	82 28.53		110.84 110.04	14835 14937	69.0 69.0
22	29	51	1574+08.7	1574+37.2	28.5	G-265 & A9-14	Girder Bridge, 1-26' clear span, 20' Roadway width	4'-4"	9'-8"	34'	203 179.20			101.83 100.79	13277 13277	57.0 57.0
21	32	52	1657+73.5	1658+00	26.5	G-265 & A9-15	Girder Bridge, 1-24' clear span, 20' Roadway width	4'-0"	10'-0"	34'	200 226.34			92.32 92.89	12687 12675	53.0 53.0
20	33	52	1667+42	1667+78	36.0	CB-6, A9-15 & B-4	Slab Bridge, 2-16' clear span, 20' Roadway width	4'-2"	9'-10"	34'	260 172.32			123.10 123.03	11781 11787	72.0 72.0
19	33	53	1676+03.8	1676+35.8	32.0	CB-6, A9-12 & B-4	Slab Bridge, 2-14' clear span, 20' Roadway width	4'-3"	9'-9"	34'	162 149.06			97.55 97.54	8450 8450	64.0 64.0
18	40	53	1857+92.5	1858+52.5	60.0	CB-6, A9-13 & B-4	Slab Bridge, 3-18' clear span, 20' Roadway width	4'-11"	9'-1"	34'	300 265.10			146.73 146.92	13808 13908	120.0 120.0
17	42	54	1906+89.3	1907+33.3	44.0	CB-6, A9-13 & B-4	Slab Bridge, 2-20' clear span, 20' Roadway width	4'-11"	9'-1"	34'	216 207.62			127.89 128.25	12886 12785	88.0 88.0
16	44	54	1952+53.5	1952+81.0	27.5	MBC-9	6-4'x4'x24', Multiple Box Culverts	2'-11"	7'-1"	34'	33 41.50		24.04 25.24		2606 2606	
15	45	55	1995+84.9	1996+32.9	48.0	CB-6; A9-12 & B-4	Slab bridge 3-14' clear spans, 20' Rdw. width	4'-10"	9'-2"	34'	185 208.11			120.96 120.92	11113 11113	96.0 96.0
			TOTALS								1731 1671.66	82 28.53	24.04 25.24	821.22 820.38	101449 101498	619.0 618.0

SUMMARY OF SMALL STRUCTURES

PLAN & PROFILE SHEET NO.	STATION	DESIGN	DESCRIPTION OF EXISTING STRUCT.	TO BE WIDENED LEFT	TO BE WIDENED RIGHT	COMPLETED ROADWAY WIDTH	STRUCTURAL EXCAVATION COMMON CU.YDS.	CLASS "A" CONCRETE FOR EXT. STR. CU.YDS.	CLASS "A" CONCRETE HI. EARLY STR. CU.YDS	REINFORCING STEEL LBS.	VIT. CLAY PIPE (DOUBL STR) 24" DIAM LIN.FT.	RELAYING CULVERT PIPE 18 DIAM & UNDER LIN.FT.	RELAYING CULVERT PIPE OVER 18" DIAM LIN.FT.	RAILING TYPE K LIN. FT.
			CONTROL NO 18-4-3											
12	1122+75.0	Relay Culvert Pipe 35' Rt. CH-7-B	30"x20' CGMP 25' Rt.	See F.C. No. 2			2.8 0	2.10 0		100 0			20 0	-
12	1132+75.0	Relay Culvert Pipe 35' Lt. CH-7-B	30"x20' CGMP 30' Lt.				24 15.78	2.10 2.19		100 100			20 20	-
14	1188+54.0	CH-7 B	1-24"x28.3' Vit. Clay Pipe Culv. 2-CH-7-B	6'-0"	9'-0"	43.3'	4 2.66	1.52 1.52		76 76	15 15			-
19	1315+99.6	Widening Details CB-6 & A9-14	1-20' Clear Span, 20' Roadway width	3'-6"	10'-6"	34'	230 242.40		97.69 97.63	9513 9513				44 44
22	1391+61.0	Widening Details C-7	1-4'x2'x24' C-7 Concrete Box Culvert	5'-7"	12'-5"	42'	6 5.17	7.34 7.56		699 699				
~~24-24-A~~	~~1431+16.5~~	Widening Details C-7	1-4'x2'x24' C-7 Concrete Box culvert	~~4'-5"~~	~~10'-3"~~	~~42'~~ 42'	6 5.46	8.64 7.57		839 703		See F.C. #1		
	1431+04		TOTALS				298 271.87	21.70 18.84	97.69 97.63	11327 11091	15 15		40 20	44 44
			CONTROL NO. 18-3-3											
27	1530+86.6	Widening Details MBC-5	3-4'x4'x24' MBC-5 multiple box culv.	2'-6"	7'-6"	34'	8 9.46	14.81 15.24		1504 1501				
30	1607+42.6	Widening Details C-6	2-8'x3'x18'-10" C-6 Multiple Box Culverts	5'-0"	10'-2"	34	17 14.92	29.02 30.77		1231 1297				
31	1630+41.0	Widening Details C-7	1-4'x2'x24' C-7 Concrete Box Culvert	6'-3"	11'-9"	42'	6 6.95	7.34 7.87		699 699				
35	1718+18.2	Widening Details C-7	1-8'x3'x24'-C-7 Concrete Box Culvert	5'-0"	13'-0"	42'	16 11.93	20.40 20.58		1707 1707				
36	1767+58.8	Widening Details C-7	1-8'x2'x24'-C-7 Concrete Box Culvert	7'-7"	10'-5"	42'	13 11.39	17.17 17.57		1551 1561				
37	1783+12.9	Widening Details C-7	1-10'x2'x24' C-7 Concrete Box Culvert	7'-9"	10'-3"	42'	20 11.61	22.89 23.56		2022 2022				
39	1831+45.1	Widening Details C-7	1-10'x4'x24' C-7 Concrete Box Culvert	6'-11"	11'-1"	42'	26 32.54	30.48 31.34		2412 2412				
40	1861+65.0	Relay Culvert pipe 38' Rt. CH-7-B	1-30"x20' CGMP 19' Rt.				26 18.48	2.10 2.19		100 100			20 20	-
44	1973+93.6	Widening Details MBC-9	4-4'x4'x24' MBC-9 Multiple Box Culv.	2'-8"	7'-4"	34'	10 7.74	17.88 18.60		1910 1916				
45	1987+77.0	Relay Culvert Pipe 35' Lt. CH-7-B	1-18"x20' CGMP 30' Lt.	See F.C. No. 2			16 0	0.98 0		52 0		18 0		
			TOTALS				158 120.02	163.07 167.42		13188 13208		18 0	20 20	

STRUCTURES TO BE REMOVED BY THE CONTRACTOR AT UNIT CONTRACT PRICE

STATION	DESCRIPTION	SIZE
	CONT. 18-4-3	
1095+82	2-CH-2 Headwall	24"
1122+75	30"x20' CGMP 25' Rt.	30"
	CONT. 18-3-3	
1524+25	Wooden Bridge	10'x12'
1542+12	Cast Iron Pipe	12"
1543+23	Wooden Bridge	12'x12'
1987+77	18"x20' CGMP 35' Rt.	18"

ESTIMATE & QUANTITY SHEET

SHEET NO. 1 OF 2 SHEETS.

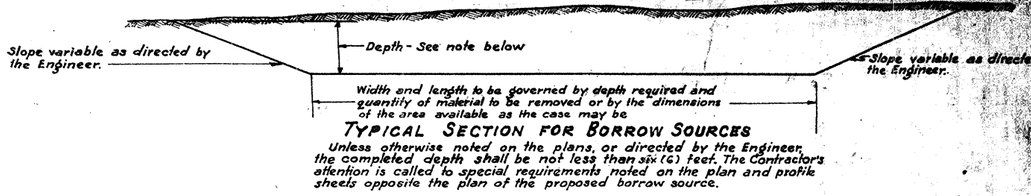
CONTROL NO. 18-4-3 SHEET 1 OF 2
CONTROL NO. 18-3-3 SHEET 2 OF 2

PLAN: SURVEYED, PLOTTED, ALIGNMENT CHECKED, RE-DRAWING CHECKED, NOTE BOOK NO.

PROFILE: SURVEYED, PLOTTED, GRADES CHECKED, NOTE BOOK NO., STRUCTURE ROTATN'S CHK'D.

DATE / BY

50794



TYPICAL SECTION FOR BORROW SOURCES

Unless otherwise noted on the plans, or directed by the Engineer, the completed depth shall be not less than six (6) feet. The Contractor's attention is called to special requirements noted on the plan and profile sheets opposite the plan of the proposed borrow source.

SUMMARY OF GRADING

SHEET NO.	STATIONS		CLEARING AND GRUBBING (R-O-W) Acre	COMMON ROAD EXCAVATION CU.YDS.	COMMON CHANNEL EXCAVATION CU.YDS.	COMMON BORROW CU.YDS.	QUARTER HAUL YD. QTRS.	RIGHT OF WAY MARKERS EACH	CLEARING AND GRUBBING (Borrow Sources) Acre	BLADING EMBANK HRS.
8	1040+20	1041+00	0.11 0.11	18		0		1 0		
9	1041+00	1067+00	4.78 4.78	2145 1782		0	98 153	2 2		
10	1067+00	1093+00	4.78 4.78	1795 1775		3068 0	5154 3900	1 1		
11	1093+00	1119+00	3.67 3.07	151 242	184 419.8	5520 6335	5297 5403	4 4	2.53 2.43	
12	1119+00	1145+00	6.22 6.22	7 39		4233 4770	6524 7201	2 2		
13	1145+00	1171+00	4.78 4.78	0	36 0	7632 8071	6326 6916	1 1	2.30 2.43	
14	1171+00	1197+00	4.78 4.78	375 442	55 365	4824 5461	4100 4576	1 1	2.07 2.53	
15	1197+00	1223+00	4.78 4.78	391 550		2374 2909	5466 6305	1 1		
16	1223+00	1249+00	4.78 4.78	211 259		2821 3240	4110 3957	1 1		
17	1249+00	1275+00	4.78 4.78	223 343	428 2710	4981 5744	5229 6232	2 2	258	
18	1275+00	1301+00	4.78 4.78	69 118		4467 4927	12094 11739	1 1		
19	1301+00	1327+00	4.78 4.78	1157 966		5076 6230	3692 3627	1 1	2.07 1.90	
20	1327+00	1353+00	4.78 4.78	2734 2681	7 43.1	2364 2232	5082 4550	1 1		
21	1353+00	1379+00	4.78 4.78	330 557		492 335	10036 8826	3 3		
22	1379+00	1405+00	4.78 4.78	10694 10137		0	886 935	2 2		
23-23A	1405+00	1431+00	6.51 6.07	5448 3991		0	2306 1988	4 3	.14	1.4
24-24A	1431+00	1457+00	5.49 4.89	1152 613		1197 3527	8582 12947	2 2	6	6
25	1457+00	1483+00	4.78 4.78	1106 980	5 1.2	4305 4372	8093 8168	3 3		
26	1483+00	1499+10	2.35 2.56	1832 1853		1190 912	831 712	2 2	2.07 2.07	
TOTAL FOR CONT. 18-4-3			92.48 91.46	29820 26700	715 777.6	54544 59065	93926 95259	35 33	11.04 13.90	20 20
26	1499+10	1509+00	1.82 1.82	1434 1341		502 652	767 1005			
27	1509+00	1535+00	4.78 4.78	2827 2935		3635 2569	7805 5513	1 1		
28	1535+00	1561+00	4.78 4.78	994 1086		3983 2823	4430 3490	1 1	2.85 2.63	
29	1561+00	1587+00	4.78 4.78	1126 1003		6691 5683	12399 10356	1 1		
30	1587+00	1613+00	4.78 4.78	1618 1464	12 1.7	2856 2574	2065 2208	0 0	2.07 2.07	
31	1613+00	1639+00	4.78 4.78	486 478		4408 3970	7572 6970	1 1		
32	1639+00	1665+00	4.78 4.78	446 430		6357 6484	5494 5619	2 2	2.07 2.07	
33	1665+00	1691+00	4.78 4.78	518 378		4722 6315	3797 5052	1 1	2.07 2.07	
34	1691+00	1717+00	4.78 4.78	59 67		5224 4914	5011 4619	4 4	2.30 2.07	
35	1717+00	1743+00	4.78 4.78	118 208	35 850	6484 5656	7194 6933	4 4	0.05	
36	1743+00	1769+00	4.78 4.78	1195 1053		2900 2506	2465 2078	1 1	2.53 2.43	
37	1769+00	1795+00	4.78 4.78	537 398		6054 5970	13952 12768	1 1		
38	1795+00	1821+00	4.78 4.78	1856 1980		3870 4005	8519 9173	1 1		
39	1821+00	1847+00	4.78 4.78	2191 2137	58 267	4015 4724	4514 5212	1 1		
40	1847+00	1873+00	4.78 4.78	1610 1805	12 0	4606 5112	3430 3812	1 1	1.15	
41	1873+00	1899+00	4.78 4.78	1892 1741	12 22	2910 3163	7267 6996	2 2		
42	1899+00	1925+00	4.78 4.78	612 718	36 1850	6320 6602	6970 6060	1 1	1.61 4.04	
43	1925+00	1951+00	4.78 4.78	1215 1446	3 34	3761 3911	9578 10150	1 1		
44	1951+00	1977+00	4.78 4.78	390 459	102 1448	4797 4847	7818 7894	1 1		
45	1977+00	2003+00	4.78 4.78	195 238		6408 6565	5565 4566	2 2	1.15	
46	2003+00	2019+95.7	3.12 3.12	123 180		2915 2800	4178 3693	2 1		
TOTAL FOR CONT-18-3-3			95.76 95.76	21502 21543	602 1488	93478 92148	131385 124071	29 28	15.50 19.79	

ESTIMATE SUMMARY

	ITEM	DESCRIPTION	CONTROL 18-4-3 GRADING, SMALL DRAIN. STRUCTURES AND PAVEMENT	CONTROL 18-4-3 LARGE DRAINAGE STRUCTURES	CONTROL 18-4-3 TOTALS	CONTROL 18-3-3 GRADING, SMALL DRAIN. STRUCTURES AND PAVEMENT	CONTROL 18-3-3 LARGE DRAINAGE STRUCTURES	CONTROL 18-3-3 TOTALS	GRAND TOTALS (FOR BIDDING PURPOSES ONLY) EST.	GRAND TOTALS (FOR BIDDING PURPOSES ONLY) FINAL	UNIT
	10	CLEARING AND GRUBBING (RIGHT-OF-WAY)	92.48 91.46		92.48 91.46	35.76 35.76		35.76 35.76	188.24	187.22	ACRE
	10	CLEARING AND GRUBBING (OUTSIDE OF RIGHT-OF-WAY)	12.20 14.89		12.20 14.89	16.70 20.75		16.70 20.75	28.90	35.64	ACRE
⊕	11&SPEC.	COMMON ROAD EXCAVATION	30558 26700		30558 26700	21502 21543		21502 21543	52060	48243	CU. YD.
	12	COMMON CHANNEL EXCAVATION	715 777.6		715 777.6	602 488.8		602 488.8	1317	1266.4	CU. YD
	13	BLADING EMBANKMENT	20 20		20 20				20	20	HOUR
	16	COMMON BORROW	54544 59065		54544 59065	93478 92148		93478 92148	148022	151213	CU. YD.
	17	STRIPPING	3696 2192		3696 2192	3892 2574		3892 2574	7588	4866	CU. YD
	18	QUARTER HAUL	93926 95259		93926 95259	131385 124071		131385 124071	225311	219330	YD. QTR.
	85&SPEC.	CLASS A CONCRETE (FOR EXTENDING STRUCTURES)	21.70 18.84	37.04 38.43	58.74 57.27	163.07 147.42	24.04 25.24	187.11 172.66	245.85	229.93	CU. YD
	85&SPEC.	CLASS A CONCRETE (HIGH EARLY STRENGTH)	97.69 97.63	518.49 518.30	616.18 615.93		321.22 320.98	537.40	536.81	CU. YD	
	SPECIAL	REINFORCING STEEL	11327 11091	44805 44875	56132 55966	13188 13208	101449 101435	114637 114643	170769	170618	POUND
	94	RELAYING CULVERT PIPE -18" DIAM AND UNDER				18 0		18 0	18	0	LIN. FT.
	94	RELAYING CULVERT PIPE-OVER 18" DIAM.	40 20		40 20	20 20		20 20	60	40	LIN. FT.
	118	RAILING TYPE K	44 44	382 382	426 426		619 619	619 619	1045.1	1045	LIN. FT.
	SPECIAL	24" DOUBLE STRENGTH VITRIFIED CLAY PIPE	15 15		15 15				15	15	LIN. FT.
	SPECIAL	REMOVING OLD STRUCTURES	1 2		1 2	3 4		3 4	4	6	EACH
	SPECIAL	COMMON STRUCTURAL EXCAVATION (CULVERTS)	298 271.47	34 0	332 271.47	158 120.02	33 0	191 120.02	523	391.49	CU. YD.
	SPECIAL	COMMON STRUCTURAL EXCAVATION (BRIDGES)		1015 1065.6	1015 1065.6		1698 1671.66	1698 1671.66	2713	2736.66	CU. YD.
	SPECIAL	ROCK STRUCTURAL EXCAVATION (BRIDGES)					.82 28.53	82 28.53	82	28.53	CU. YD.
	SPECIAL	RIGHT OF WAY MARKERS	35 33		35 33	29 28		29 28	64	61	EACH
	SPECIAL	FINE GRADING SUBGRADE	333633 318945		333633 318945	293932 277352		293932 277352	627565	596297	SQ. YD.
	SPECIAL	SUBGRADE EXCAVATION	7436 7740		7436 7740	9378 9318.7		9378 9318.7	16814	17058.7	CU. YD.
	35-MOD.	CALICHE BASE COURSE	92399798.5		92399798.5	9732 9600		9732 9600	18971	19398.5	CU. YD
	35-MOD.	MATERIAL HAULED ADDITIONAL QUARTER MILE	363101342185		363101342185	737028680476		737028680476	1100129	1022665.8	CU. YD.
	SPECIAL	SALVAGED BASE COURSE	1871 19915		1871 19915				1871	19915	CU. YD
#	31-MOD.	EXTRA ROLLING SUBGRADE AND BASE COURSES.	70 41		70 41	74 27		74 27	144	68	HOUR
#	31-MOD.	TRUCK COMPACTION	2813787.5		2813787.5	296278.75		296278.75	577	665.25	HOUR
#	31-MOD.	SPRINKLING SUBGRADE AND BASE COURSES.	2812893.4		2812893.4	296353.84		296353.84	577	643.18	M. GAL
	SPECIAL	LIMESTONE ROCK ASPHALT SURFACE COURSE	1884 1548.708		1884 1548.708	1656 1235.88		1656 1235.88	3540	2784.588	TON
#	SPECIAL	TACK COAT	6673 5493		6673 5493	5879 3405		5879 3405	12552	8898	GALLON
	SPECIAL	LIMESTONE ROCK ASPHALT LEVELING UP COURSE	900 311.826		900 311.826	1,100 620.934		1,100 620.934	2,000	932.760	TON
#	SPECIAL	TACK COAT FOR LEVELING UP COURSE	1800 1842		1800 1842	2200 2085		2200 2085	4000	3927	GALLON
	SPECIAL	ASPHALT (OA-135-C)	30653 30685		30653 30685	34725 34560		34725 34560	65378	65245	GALLON
	SPECIAL	AGGREGATE	1460 1456		1460 1456	1654 1666		1654 1666	3114	3122	CU. YD.

Markers M-1 shall be installed in all structures in this project in accordance with the standard detail therefor.

Payment for removing portions of existing headwalls, grouting, cleaning, etc. involved in the extension of existing vitrified clay pipe culvert shall be included in the unit price bid per cubic yard for Class A Concrete (For Extending Structures.)

The removal of portions of existing structures as provided for on the detail plans for the extension of existing structures shall include the removal of the existing railing on the structures and the salvaging of the existing rails. The rails shall be carefully removed and placed in neat piles along the right of way at convenient loading points which will not interfere with traffic or construction in such manner that the rails will be damaged for future use as little as possible.

⊕ The quantities of Common Road Excavation shown in the estimate summary includes the quantities involved in the preparation of subgrade for full width new pavement

\# "Clearing and Grubbing (Right-of-Way)" includes all areas within the right-of-way classified as "Clearing and Grubbing." "Clearing and Grubbing (Outside of Right-of-Way)" shall include all areas outside the right-of-way, (such as borrow sources, caliche sources, roads to borrow and caliche sources, and all such additional areas outside the right-of-way as shown on the plans or as designated by the Engineer) on which Clearing and Grubbing is involved.

\# For the items "BLADING EMBANKMENT"; "EXTRA ROLLING SUBGRADE AND BASE COURSES"; "TRUCK COMPACTION"; "SPRINKLING SUBGRADE AND BASE COURSES"; "TACK COAT"; AND "TACK COAT FOR LEVELING UP COURSE" NO. L.R.A. LEVELING-UP COURSE, standard Spec. Item 4.3 which allows only a 20% variation in quantities is hereby amended to allow a 40% variation. By this amendment no revised consideration as provided in Item 4.3, may be demanded for increased or decreased quantities of work under these items unless the quantities of same are increased or decreased by more than 40% of the quantities stated in the proposal.

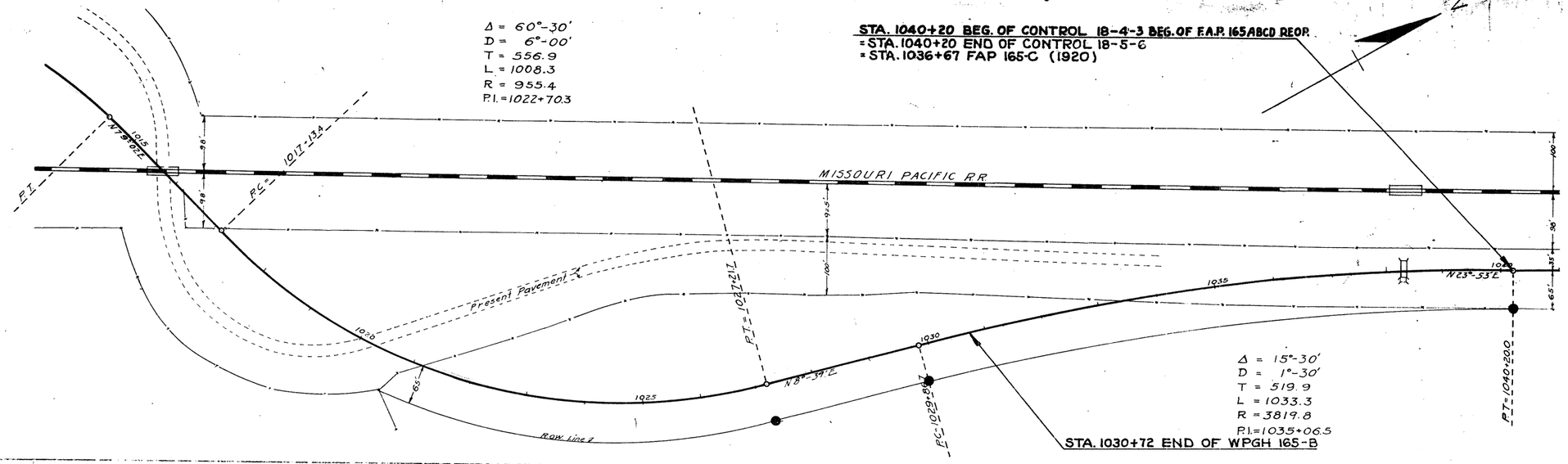
ESTIMATE & QUANTITY SHEET

SHEET 2 OF 2 SHEETS

CONTROL 18	SECT. 3
CONTROL NO. 18	SECT. 3
NO.	DATE
1	8-1-73
2	9-1-73

PLAN: SURVEYED, PLOTTED, CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., DATE, BY

PROFILE: SURVEYED, PLOTTED, CHECKED, DESIGNED, R. M. SIGNED, STRUCTURE NO(S) IF NO. GIVEN, NOTE BOOK, NO., DATE, BY



GROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH — FEET	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE SHRINKAGE
40 +20	10	34	10		D							

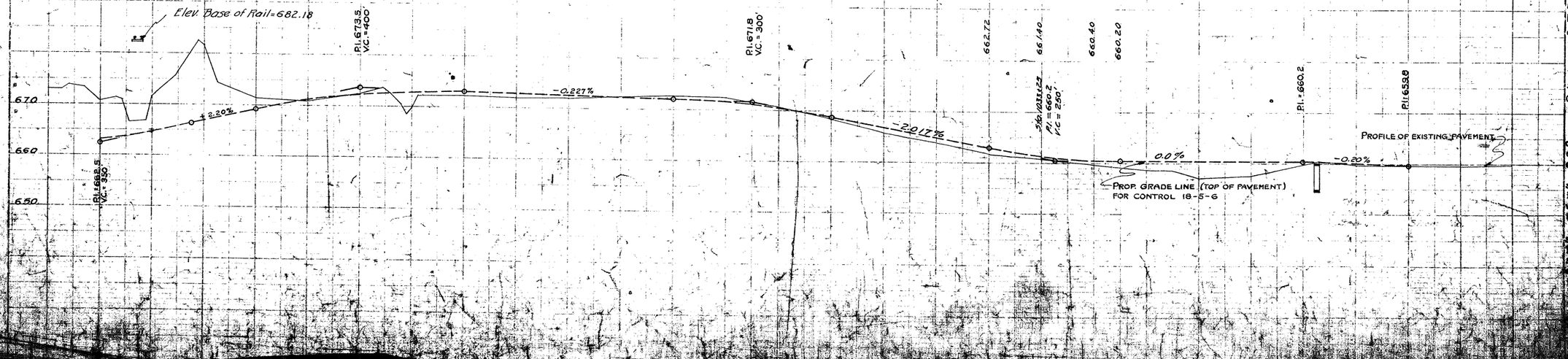
Type of soil: Sandy Loam

Clearing & Grubbing (R.O.W.) — 0.11 — SHEET TOTALS: EST. 0.11, FINAL 0.11, UNIT Acres

Shrinkage 20.70 %

Common Road Excav.	0 18	0	18 Cu Yds.
Common Borrow Embankment	~~308~~ 75	~~308~~	75 Cu Yds.
Common Road Excav.	0 18		18 Cu Yds.
Common Borrow Embankment Quarter Haul	~~308~~ 75		75 Cu Yds.
	See Next Sheet 0		0 Yd Qtrs.

Embankment is to be constructed from excess roadway excavation on U.S. Works Program Grade Crossing Project No. WPGH 165-B, Control 18-5-6, by Contractor on that project.



PROJECT NOTES

ALL OBSTRUCTIONS WITHIN THE RIGHT OF WAY IS TO BE REMOVED BY THE COUNTY UNLESS OTHERWISE NOTED.

GRADED SIDE ROAD APPROACHES TO PUBLIC ROADS ARE TO BE CONSTRUCTED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.

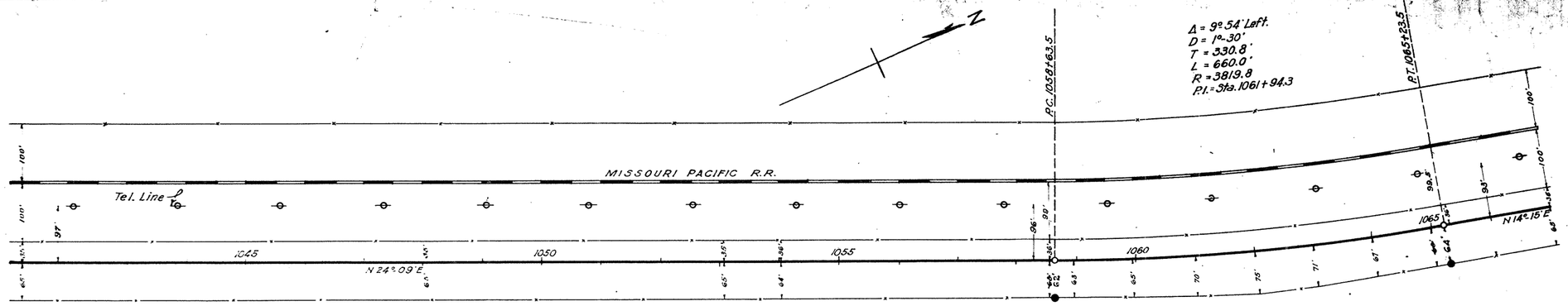
"CROSS SECTION DATA" IS DESIGNATION ONLY AND MAY BE VARIED BY ENGINEER WITHIN THE LIMITS INDICATED ON THE GOVERNING "TYPICAL CROSS SECTIONS". THE LETTER "D" APPEARING IN THE CROSS SECTION DATA INDICATES THAT A DYKE OR LEVEE IS TO BE CONSTRUCTED AS SHOWN ON THE TYPICAL CROSS SECTIONS.

FINAL PROJECT NOTE

From the [illegible] the embankment [illegible] constructed by the [illegible] on WPGH 165-B from [illegible] excavation from [illegible]

The final embankment shown on these plans [illegible] the above stations [illegible] work done under this [illegible] (FAP 165 ABCD).

The final embankment shown on these plans [illegible] the shrinkage [illegible] shown. The [illegible] embankment [illegible] the % of [illegible] the [illegible] [illegible]



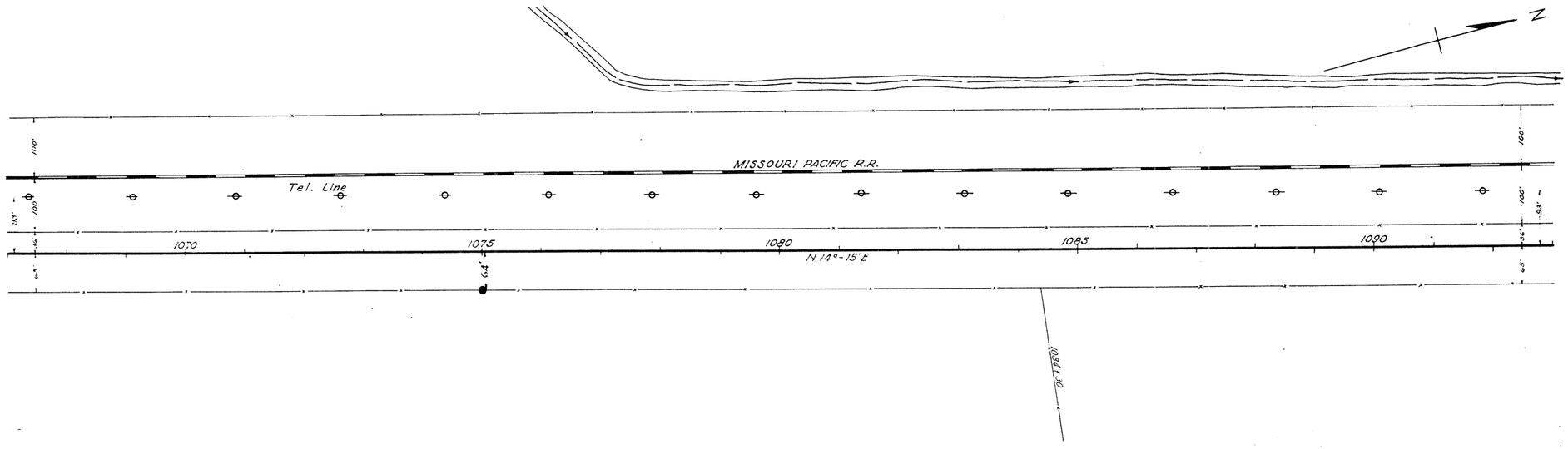
9

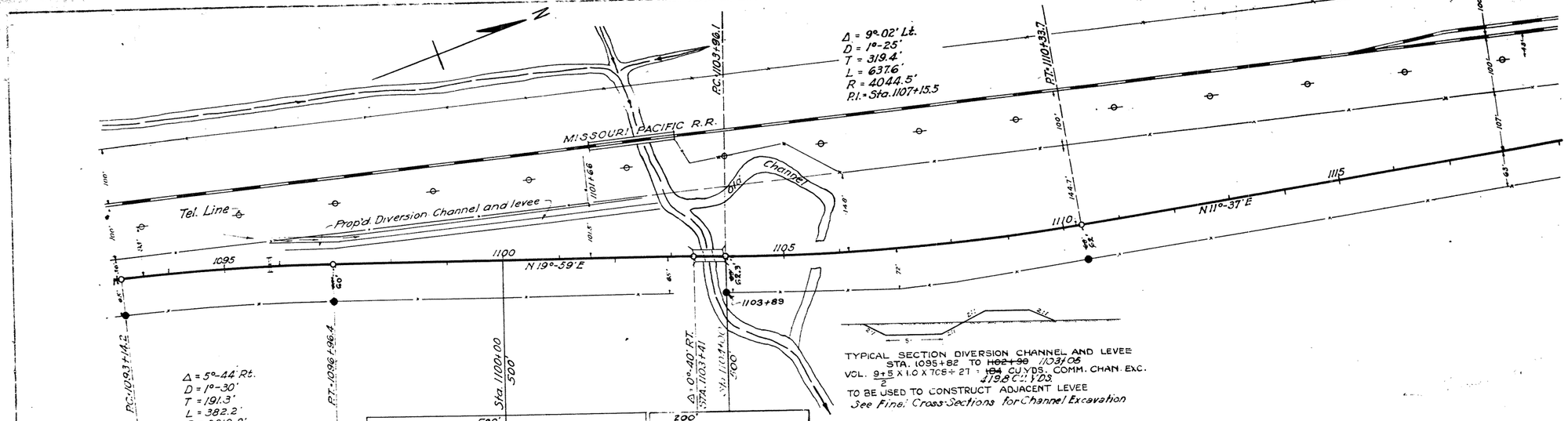
STATION NUMBER	BERM (OR BORROW) WIDTH-FT.	SLOPE (RATIO TO 1)	DITCH (OR POINTOW) DEPTH-FT.	DITCH (OR BORROW) WIDTH-FT.	SLOPE (RATIO TO 1)	CROWN WIDTH — FEET	CUT — SQUARE FEET				FILL — SQUARE FEET			
							A	B	C	D	A	B	C	D
+20						10	34							
41						10								
42						10								
43						10	2	4	0	1	8	5		
44						10	2	4	0	1	8	5		
45						10	2	4	0	2	2	1		
46						10	2	4	0	2	3	1		
47						10	2	4	0	2	3	1		
48						10	2	4	0	2	2	1		
49						10	2	4	0	2	1	1		
50						10	2	4	0	2	3	1		
51						10	2	4	0	2	1	1		
52						10	2	4	0	2	0	1		
53						10	2	4	0	2	0	1		
54						10	2	4	0	2	2	1		
55						10	2	4	0	2	1	1		
56						10	2	4	0	2	2	1		
57						10	2	4	0	2	2	1		
58						10	2	4	0	2	2	1		
59						10	2	4	0	2	2	1		
60						10	2	4	0	2	1	1		
61						10	2	4	0	2	1	1		
62						10	2	4	0	2	1	1		
63						10	2	4	0	2	1	1		
64						10	2	4	0	2	1	1		
65						10	2	4	0	2	1	1		
66						10	2	4	0	2	0	1		
67						10	2	4	0	2	1	1		

Type of soil	Sandy Loam	SHEET TOTALS EST.	FINAL	UNIT
Clearing & Grubbing (R.O.W.)	2600 x 80 = 4.78 Acres	4.78	4.78	Acres

Shrinkage = 20.70 %

| | | | | | | | |


N
MISSOURI PACIFIC R.R.
Tel. Line
1070
1075
1080
1085
1090
N 14°-15' E
110'
100'
100'
64'
64'
64



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.
1093				10.	3 4	7½	2	2	12	2	10.0
94				10.	"	7½	2	2	12	2	10.0
95				10.	"	7½	2	2			0.0
+82											
96				7½		7½					
97				7½	"	7½					
98				7½	"	7½					
99				7½	"	7½					
11 00				7½	"	7½					
01				7½	"	7½					
02				7½	"	5					
+80				7½	"	5					
03				7½	"	5					
+25				1½	"	5					
+40					"	1½					
04											
+15				5		1½					
+30				5	"	5					
+60				5	"	5					
05				5	"	5					
+20				5	"	5					
+35				5	"	5					
+55				5	"	5					
06				5	"	5					
07				5	"	5					
+40				7½	"	7½					
08				7½	"	7½					
+50				7½	"	7½					
09				7½	"	7½					
10				7½	"	7½					
11				7½	"	7½					
12				7½	"	7½					
13				10	"	7½					
14				10	"	7½					
15				10	"	7½					
16				10	"	7½					
17				10	"	7½					
18				10	"	7½					
19				10	"	7½					

SHEET TOTALS	EST.	FINAL	UNIT
	3.01	907	Acres
	~~5.53~~	2.43	Acres
	~~151~~	242	Cu.Yds.
	~~5520~~	6335	
	~~5471~~	7058	Cu.Yds
	~~194~~	4198	Cu.Yds.
	~~5297~~	5403	Yd.Hrs.

Type of soil: Sandy Loam

Clearing & Grubbing (R-O-W)

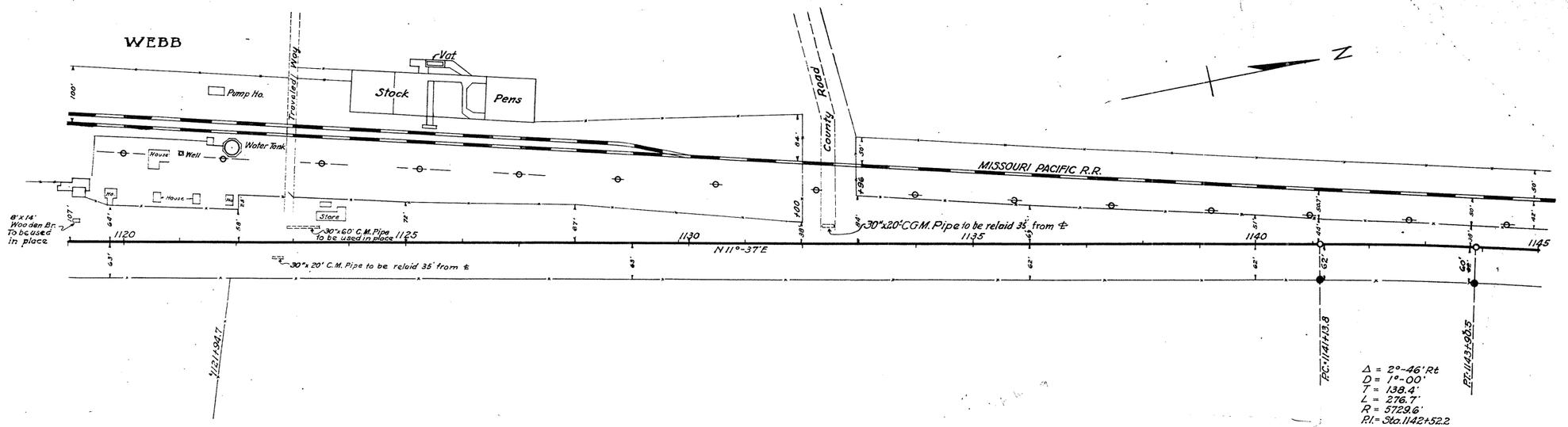
" " (Borrow Sources)

2600x80+1300x57'+1300x87 =

~~500~~ x ~~200~~ + ~~335~~ X ~~130~~ = 500 x 200 ÷ 190 x 30 = 2.43 Ac.

Shrinkage = 20.70 %

| | | | | | | | | | | |



STATION NUMBER	BERM (OR BORROW) WIDTH-FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH-FT.	DITCH (OR BORROW) WIDTH-FT.	SLOPE (RATIO TO 1)	CROWN (RISE) FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH-FT.	DITCH (OR BORROW) WIDTH-FT.	SLOPE (RATIO TO 1)
1119					10	3.4	7½			
20					10	"	7½			
21					10	"	7½			
22					10	"	7½			
+80					10	"	7½			
23					10	"				
+10						"	7½			
+60						"	7½			
+67					7½	"	7½			2.0 R
24					7½	"	7½			1.3 R
25					7½	"	7½			1.2 R
26					7½	"	7½			1.1 R
27					7½	"	7½			1.0 R
28					7½	"	7½			0.5 R
29					7½	"	7½			0.7 R
30					7½	"	7½			1.0 R
31					7½	"	7½			0.7 R
32					7½	"	7½			0.5 R
+40					7½	"	7½			
+67						"	7½			
+84						"	7½			
33					7½	"	7½			0.5 R
34					7½	"	7½			0.5 R
35					7½	"	10			0.7 R
36					7½	"	10			0.7 R
37					7½	"	10			0.7 R
38					7½	"	10			0.6 R
39					7½	"	10			1.0 R
40					7½	"	10			0.5 R
41					7½	"	10			1.1 R
42					7½	"	10			0.5 R
43					7½	"	7½			
44					7½	"	7½			
45					7½	"	5			

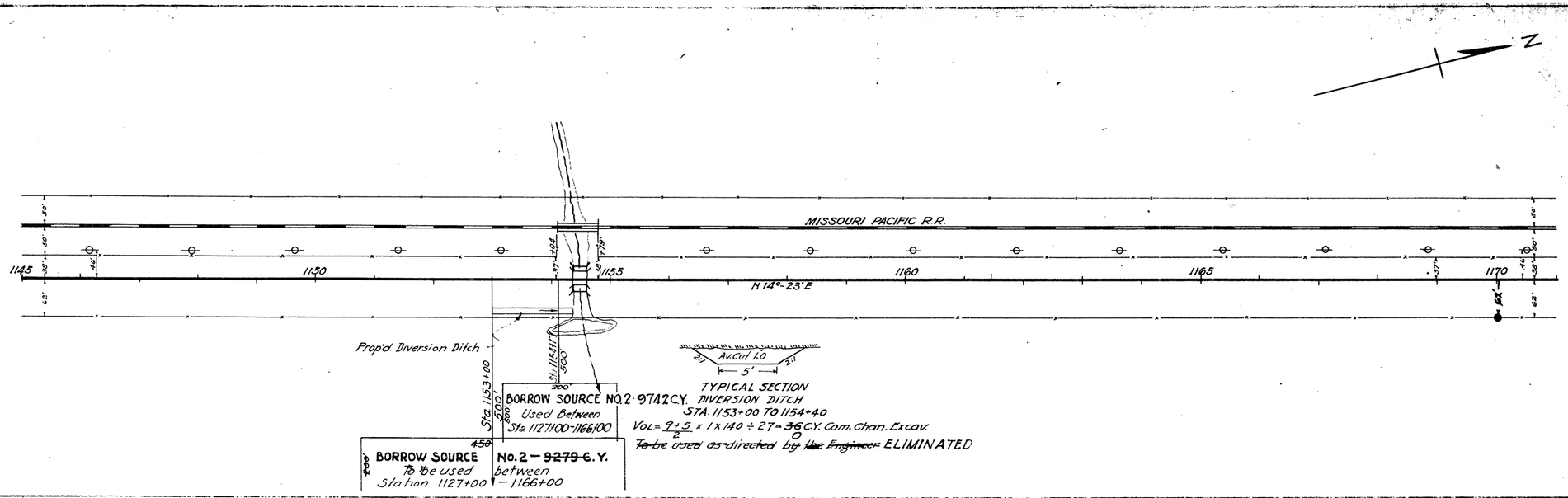
Type of soil: Sandy Loam

Clearing & Grubbing (R.O.W.) = 300'x24' + 600'x38' + 500'x15' + 1100x23 + 2600x80 = 6.22 Acres

SHEET TOTALS	EST.	FINAL	UNIT
	6.22	6.22	ACRES

Shrinkage = 20.70 % Swellage = 5.58 %

| | | | | | |



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (ON BORROW) DEPTH FT.	DITCH (OF BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH — (FEET)	SLOPE (RATIO TO 1)	DITCH (OF BORROW) DEPTH FT.	DITCH (OF BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	REMARKS
1145					7½	34	5						
46					7½	-	5						
+55					7½	-	5						
47					7½	-	5						
+45					7½	-	5						
+65					7½	-	5						
48					7½	-	5						
49					7½	-	5						
50					7½	-	5						
51					7½	-	5						
52					7½	-	5						
53					5	-	5						
54					5	-	5						
+15					5	-	5						
+31					1½	-	1½						
+38					Bridge								
+61													
+69					1½	34	1½						
55					5	-	5						
56					5	-	5						
57					7½	-	5						
+35					7½	-	5						
+70					7½	-	5						
58					7½	-	5						
+40					7½	-	5						
59					7½	-	5						
60					7½	-	7½						
61					7½	-	7½				1.0 R		
62					7½	-	7½				1.0 R		
63					7½	-	7½				0.9 R		
64					7½	-	7½				0.8 R		
65					7½	-	7½				0.8 R		
66					7½	-	7½				1.0 R		
67					7½	-	7½				0.8 R		
68					7½	-	7½				0.7 R		
69					7½	-	7½						
70					7½	-	7½						
71					7½	-	7½				1.0 R		

Type of Soil — Sandy Loam

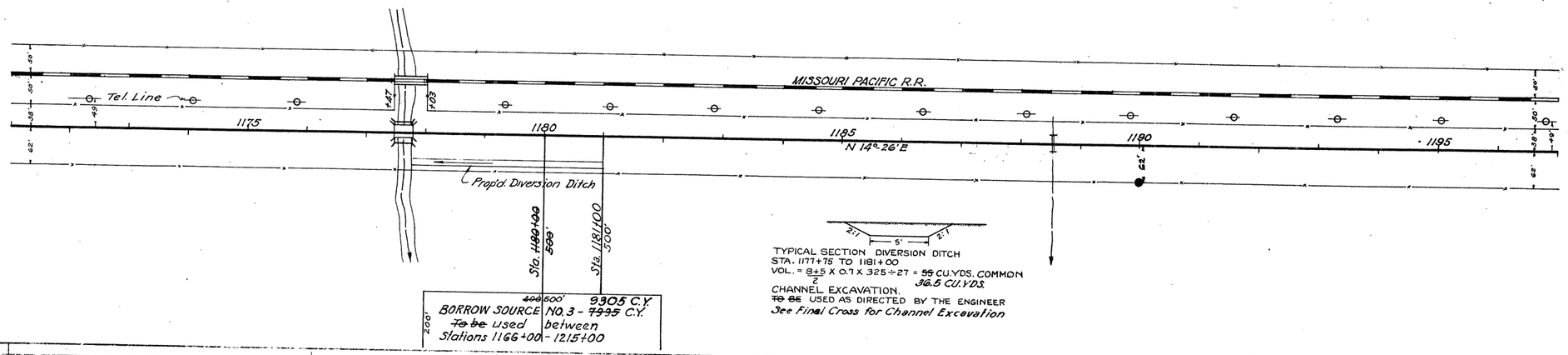
Clearing & Grubbing (R-O-W) — 2600 x 80 =

" " (Borrow Sources) — ~~450 x 200 + 330 x 30~~ = 500 x 200 + 190 x 30 = 2.43 Ac.

SHEET TOTALS	EST.	FINAL	UNIT
	4.78	4.78	Acres
	~~2.30~~	2.43	Acres

Swell = 5.58 % Shrinkage = 0.89 %

| | | | | | | | | | | | | |



TYPICAL SECTION DIVERSION DITCH
STA. 1177+75 TO 1181+00
VOL. = $\frac{8+5}{2}$ X 0.7 X 325 ÷ 27 = ~~55~~ CU.YDS. COMMON
36.5 CU.YDS.
CHANNEL EXCAVATION.
~~To be~~ USED AS DIRECTED BY THE ENGINEER
See Final Cross for Channel Excavation

BORROW SOURCE NO. 3 - ~~7995~~ C.Y. 9905 C.Y.
~~To be~~ used between
Stations 1166+00 - 1215+00

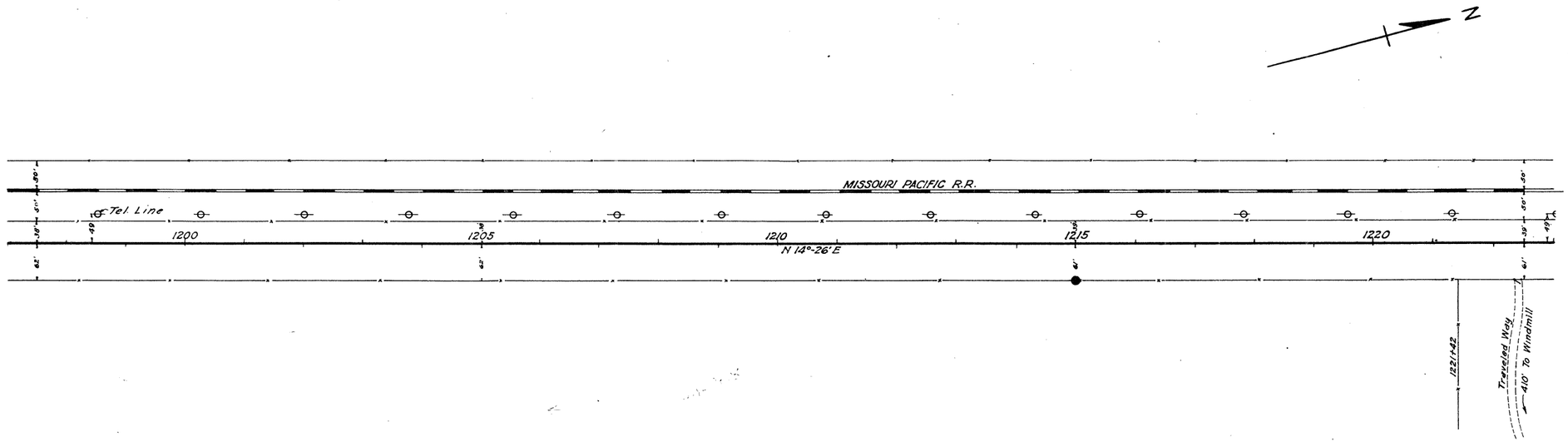
Type of soil — Sandy Loam

Clearing & Grubbing (R-O-W) — 2600 x 80 =
~~400~~ x ~~200~~ + ~~230~~ x ~~30~~ = 500 x 200 + 340 x 30 - 253 Ac.

(Borrow Sources)

Shrinkage = 0.89%

| | | |



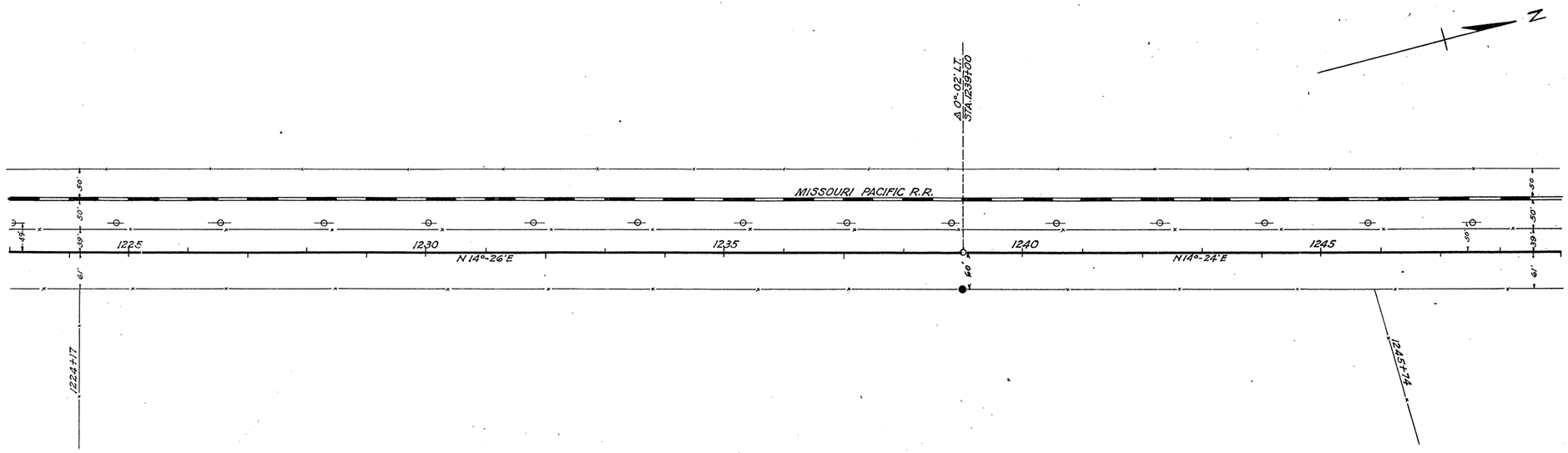
CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN-WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE CUT OR FILL
1197			7½	34	7½		7½				12	R
98			7½	"	7½		7½				12	R
99			7½	"	7½		7½				14	R
1200			7½	"	7½		7½				17	R
01			7½	"	7½		7½				18	R
02			7½	"	7½		7½				20	R
03			7½	"	7½		7½				20	R
04			7½	"	7½		7½				23	R
05			7½	"	7½		7½				20	R
06			7½	"	7½		7½				10	R
07			7½	"	7½		7½				18	R
08			7½	"	7½		7½				10	R
09			7½	"	7½		7½				10	R
10			7½	"	7½		7½				13	R
11			7½	"	7½		7½				15	R
12			10	"	10						12	R
13			10	"	10						10	R
14			10	"	10	23	1.5	6	2	1.0	9	R
15			10	"	10	23	1.5	6	2	1.0	8	R
16			10	"	10	23	1.5	10	2	1.1	8	R
17			10	"	7½	23	2.5	2	1.0	8		R
18			10	"	7½	23	2.4	2	1.0	8		R
19			10	"	10						9	R
20			10	"	10						10	R
21			10	"	10						8	R
22			10	"	10	23	1.5	4	2	0.3	11	R
23			10	"	10	23	1.5	6	2	0.9	8	R

		SHEET TOTALS	
Type of Soil	Sandy Loam	EST. FINAL	UNIT
Clearing & Grubbing	R-O-W 2600 x 80 = 4.78 Acres	4.78 4.78	Acres

Shrinkage = .089%

| | | | | | |



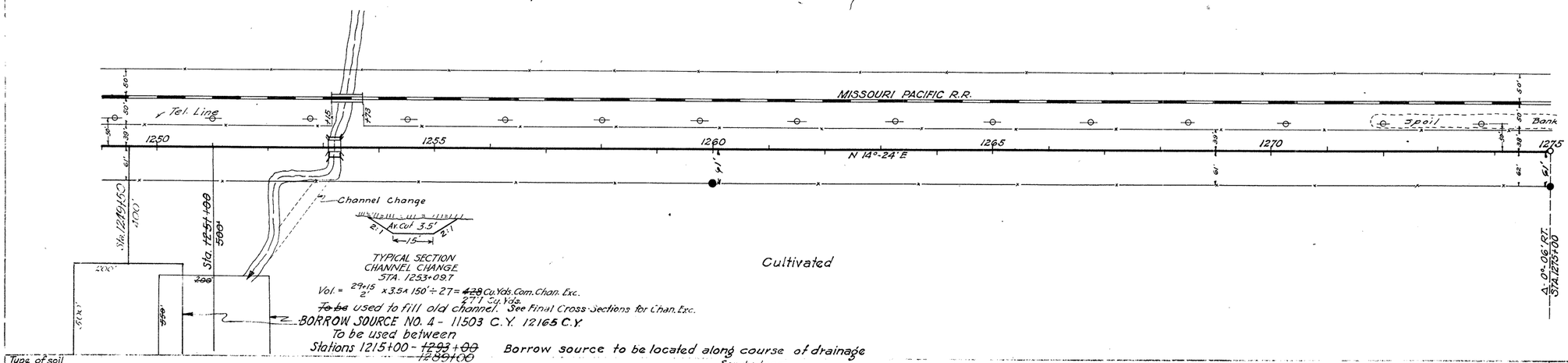
Type of Soil — Sandy Loam

Clearing & Grubbing (R-O-W) — 2600 × 80 = 4.78 Acres

		SHEET TOTALS EST.	FINAL	UNIT
		~~4.78~~	4.78	Acres

Shrinkage = 0.35%

| | | |



TYPICAL SECTION
CHANNEL CHANGE
STA. 1253+09.7

Vol. = $\frac{29+15}{2}$ x 3.5 x 150' ÷ 27 = ~~428~~ Cu.Yds. Com. Chan. Exc.
277 Cu. Yds.
~~To be~~ used to fill old channel. See Final Cross-Sections for Chan. Exc.

BORROW SOURCE NO. 4 - 11503 C.Y. 12165 C.Y.
To be used between
Stations 1215+00 - ~~1293+00~~ 1290+00

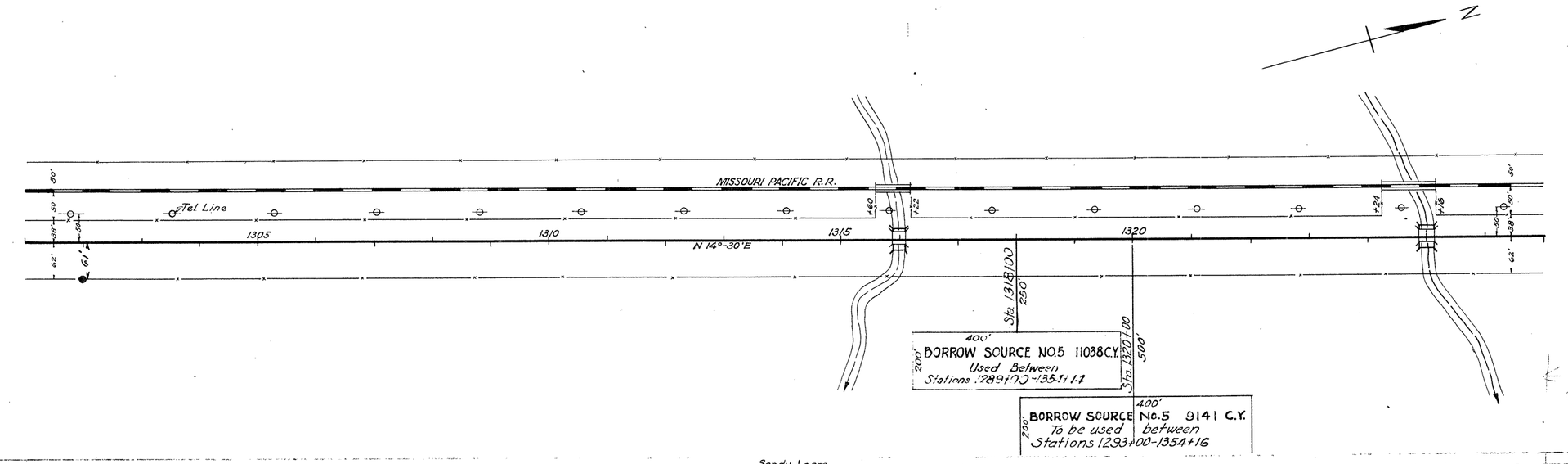
Borrow source to be located along course of drainage

Type of soil — Sandy Loam

Clearing & Grubbing (R-O-W) 2600 x 80 =
" " (Borrow Sources) 500 x 200 (90 x 30) 2.36 Ac.
" " (Channel) 200 x 40 = 0.18 Ac.

Stripping = 0.95%

| | | |



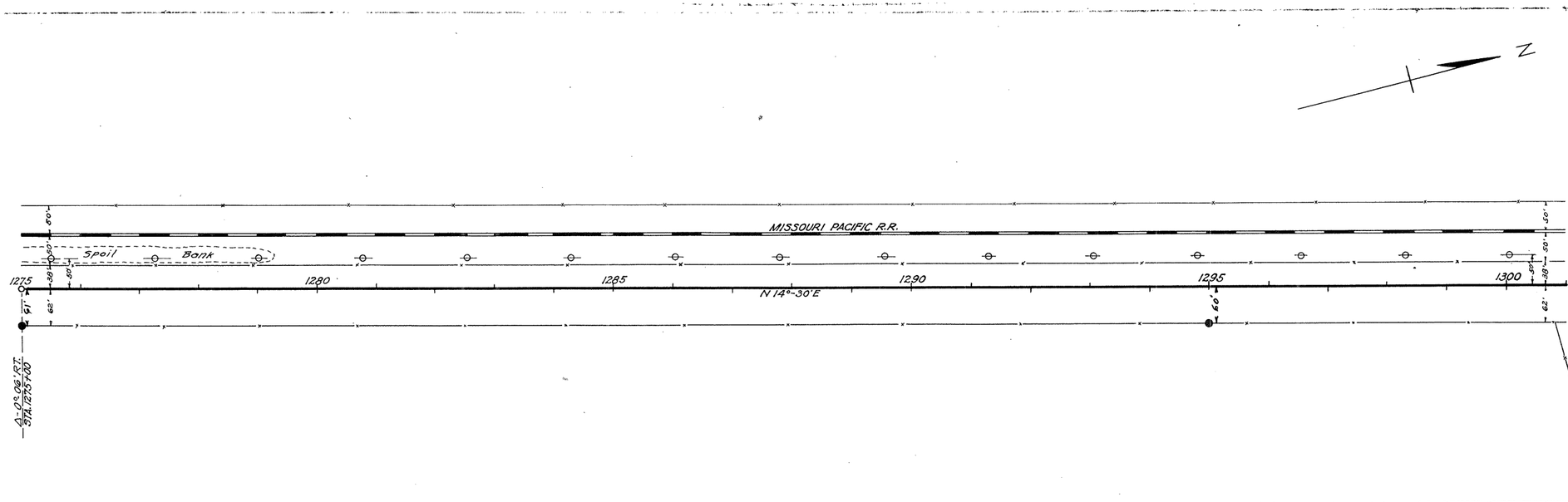
Type of Soil — Sandy Loam

Clearing & Grubbing (R.O.W.) — 2600 x 80 =

" " (Borrow Sources) — 400 x 200 + 338 X 30 = 400 x 200 + 90 x 338 = 1.90 Ac.

Shrinkage = 37.4%

| | | |



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS SECTION NO.
1275				10	3:1	34	10			3:1	R	2	
76				10	"	"	10			3.8	R	2	
77				10	"	"	10			3.6	R	2	
78				10	"	"	10			3.0	R	2	
79				10	"	"	10			3.3	R	2	
80				10	"	"	10			2.7	R	2	
81				10	"	"	10			1.8	R	2	
82				10	"	"	10			1.3	R	2	
83				10	"	"	10			1.5	R	2	
84				10	"	"	10			1.0	R	2	
85				10	"	"	10					2	
86				10	"	"	10					2	
87				10	"	"	10					2	
+35				10	"	"	10					2	
+60				10	"	"	10			0.2	R	2	
88				10	"	"	10					2	
89				10	"	"	10					2	
90				10	"	"	10			0.0		2	
91				10	"	"	10					2	
92				10	"	"	10			0.5	R	2	
93				10	"	"	10			0.9	R	2	
94				10	"	"	10			0.5	R	2	
95				10	"	"	10			0.4	R	2	
96				10	"	"	10					2	
97				10	"	"	10					2	
98				10	"	"	10					2	
99				10	"	"	10					2	
1300				10	"	"	10					2	
01				10	"	"	7½	20	2	4	2	0.2	R 1

Type of soil
Clearing & Grubbing (R-O-W) — Sandy Loam 2600 x 80 = 4.78 Acres

SHEET TOTALS

	Sta.	FINAL	UNIT
	~~4.78~~	4.78	Acres

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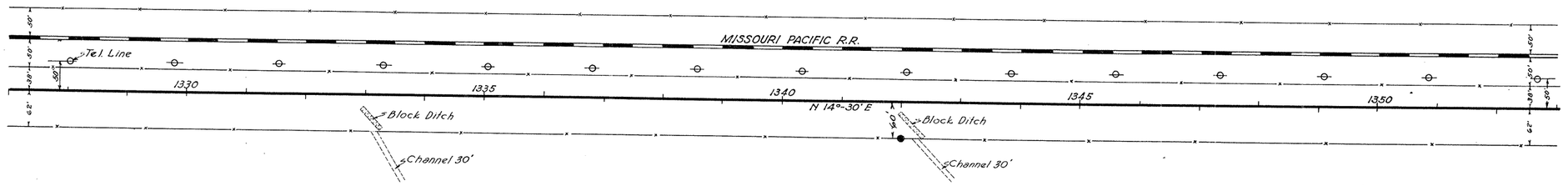
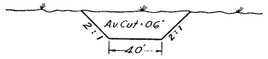




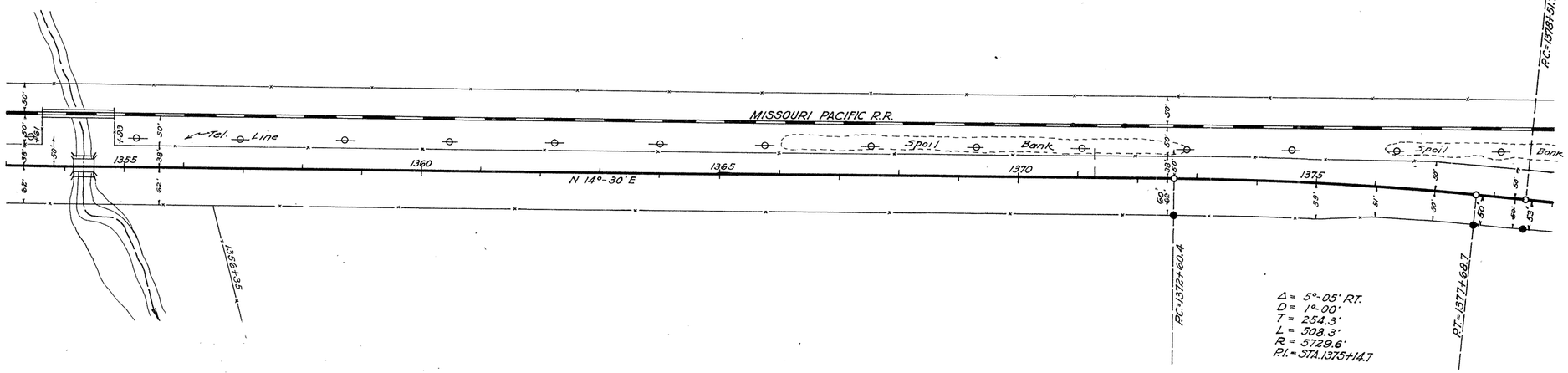
TYPICAL SECTION--DIVERSION CHANNEL
334 Cu.Yds. Sta 1333+10 & Sta 1342+20 9.7 Cu.Yds.
Vol = 40(6.1+0.6)30x2÷9 Cu.Yd. Com.Chan.Exc.
To Be Used As Directed By The Engineer.
See Final Cross-Sections for Channel Excavation

Type of soil
Clearing & Grubbing (R.O.W.)
Sandy Loam
4.78 Acres

	SHEET TOTALS Est.	Final	Unit
	4.78	4.78	Acres

Shrinkage = 3.74 %

	1327	28	29	1330	31	32	33	34	35	36	37	38	39	1340	41	42	43	44	45	46	47	48	49	50	51	52	53	Est.	Final	Unit
Common Road Exc.	~~135~~	109	~~174~~	150	~~165~~	159	~~167~~	156	~~156~~	141	~~130~~	130	~~120~~	122	~~124~~	132	~~102~~	91	~~98~~	78	~~115~~	109	~~111~~	104	~~106~~	96	~~96~~	100	83	87	~~87~~	80	93	89	85	85	~~70~~	72	67	63	~~106~~	96	~~124~~	128	~~109~~	113	~~83~~	94	~~30~~	41	~~0~~	0	~~2734~~	2631	Cu Yds.
Common Borrow Embankment	~~213~~	244	~~193~~	212	~~168~~	205	~~161~~	203	~~186~~	203	~~212~~	200	~~234~~	190	~~251~~	200	~~272~~	215	~~261~~	217	~~256~~	212	213	187	~~158~~	158	~~151~~	135	~~145~~	123	~~132~~	131	~~120~~	137	~~112~~	138	~~112~~	127	~~134~~	131	~~132~~	133	~~122~~	138	~~161~~	163	~~227~~	203	~~322~~	275	~~475~~	383	~~2364~~	2232	" "
Com. Channel Exc.																																																			~~5098~~	4863	Cu Yds.



Type of soil — Sandy Loam

Clearing & Grubbing (R-O-W) — 2600 × 80 =

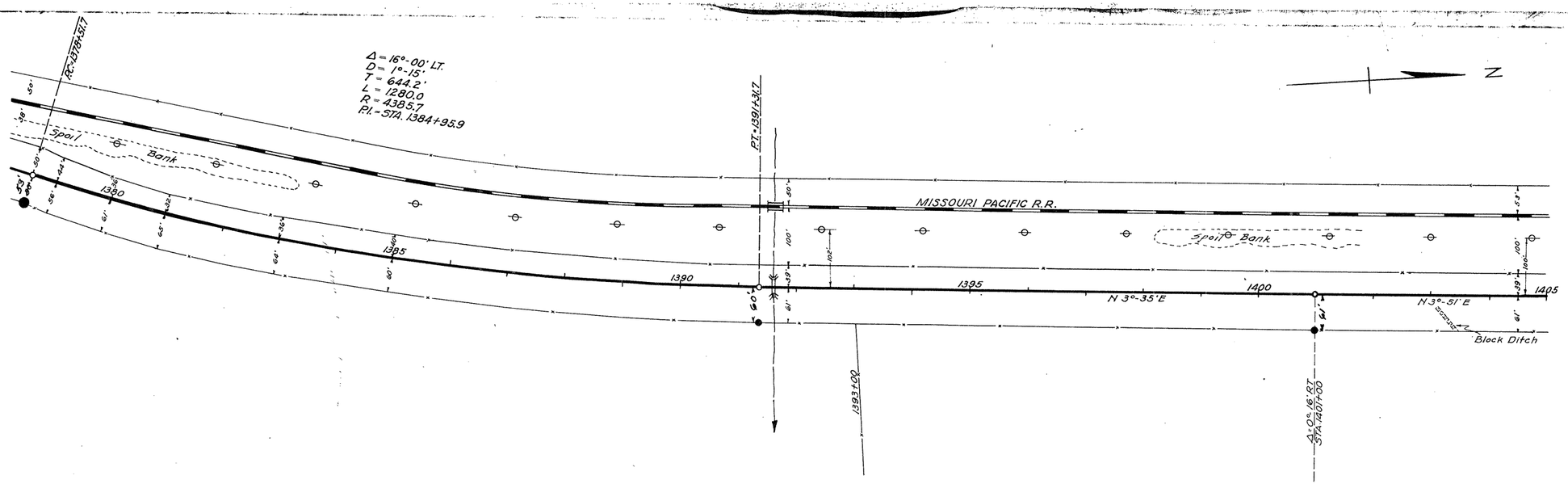
SHEET TOTALS

	NO.	UNIT
Y	4.78	4.78 Acres

Shrinkage = 3.74%

Shrinkage = 10.17%

| | | |



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH — (FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE CROSS SECTIONAL AREA
1379				10	3:1	10	V	1	4	2:0	6R	3
80	4	—	—	8	3:1	10	V	1	4	1:5	10R	4
81	2	—	—	11	3:1	10	V	1	4	1:2	5R	4
82	2	—	—	14	3:1	10	V	1	4	9	18L	4
83	2	1	V	10	3:1	10	V	1	4	11	37L	3
84			1.9	10	"	10	V	1	6	9	40L	3
85				10	"	10	1.6	"	6	14	40L	3
86				10	"	10	1.8	1	4	2	31L	3
87			1.5	6	10	"	10	1.8	1.5	4	3	16L
88				10	"	7½	1.8	2	10	3	9R	1
89				10	"	7½					18R	2
90				10	"	7½					15R	2
91				10	"	7½					12R	2
92				10	"	7½						2
93				10	"	7½					17R	2
94				10	"	7½					12R	2
95				10	"	7½					12R	2
96				10	"	7½					10R	2
97				10	"	7½					11R	2
98				10	"	10	2.1	1.5	4	6	7R	5
99				10	"	10	2.7	1	4	2	8R	5
1400	2	1	V	10	"	10	2.0	1	4	2	17R	4
01	3.5	—	—	8	3:1	10	1.6	1	4	2	20R	4
02	3.5	—	—	8	3:1	10	1.8	1	4	2	28R	4
03	2	1	V	10	3:1	10	2.5	1	4	2	25R	3
04	3	1	V	10	"	10	2.8	1	4	3	23R	3
05				10	"	10	2.8	1	4	11	28R	5

Type of soil — Sandy Loam

Clearing & Grubbing (R-O-W) — 2600 x 80 = 4.78 Ac.

SHEET TOTALS

	STA.	FINAL	UNIT
Clearing & Grubbing	4.78	4.78	Acres

Shrinkage = 10.17 %

Shrinkage = 3.94 %

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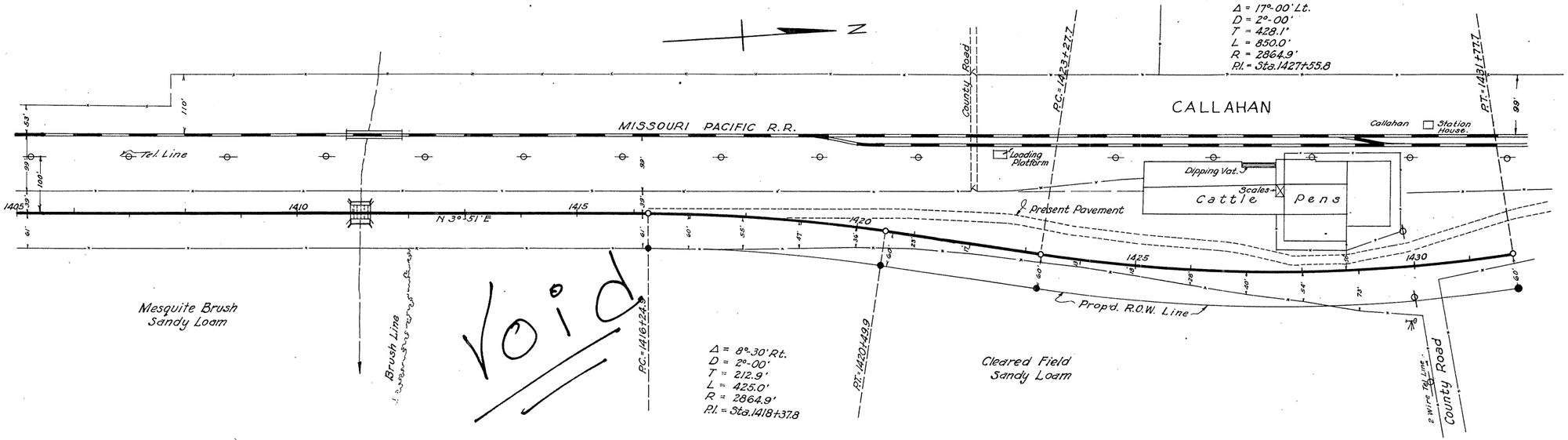

CROSS SECTION DATA

STATION NUMBER	BERM (OR BOARD) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BOTTOM) DEPTH FT.	DITCH (OR ROADWAY) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH — (FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR ROADWAY) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS SECTION NO.
14 05			10	34	10	29	1	4	11		28 R	5	
06			10	"	10						22 R	5	
07			10	"	7½						23 R	2	
08			10	"	7½						15 R	2	
09			10	"	7½						7 R	2	
10			7½	"	7½						10 R	2	
+89				"	1½								2
+ 964													
11													
+305				"	1½								2
+37				"	1½								2
12			7½	"	7½								2
13			7½	"	7½								2
14			7½	"	7½								2
15	2	9	7½	"	7½								2
16	2	7	7½	"	10								2
17	2	6	7½	34.7	10								8
18	2	11	7½	36	15	20	1	8	4	.5 R			8
19	2	19	7½	"	15	20	1	8	3	1.9 R			6
+30	2	20	7½	"	15	20	1	8	3	1.9 R			6
+60	2	23	7½	"	15	20	1	6	3	1.3 R			6
+85	2	26	7½	"	15	20	1	4	3	2.0 R			6
20	2	28	7½	"	15	19	1	4	3	1.8 R			6
+10	2	29	7½	35	15	19	1	4	3	2.1 R			6
21	4	1	8½	15	34.5	15	20	1	4	3	1.7 R		6
22	4	1	39	15	34	15	21	1	4	3	1.2 R		6
23	4	1	52	15	34.5	15							7
24	4	1	48	15	35	11½							7
25	4	1	46	15	"	11½							7
26	4	1	34	15	"	11½							7
27		1	23	15	"	11½							7
28		1	28	15	"	11½							7
+50	4	1	5	15	"	11½							7
29	4	1	5	15	"	10							7
+40	4	1	6	15	"	10							7
+ 75	4	1	3	15	"	10							7
30	4	1	7	15	"	15							7A
31	4	1	7	15	"	15							7A

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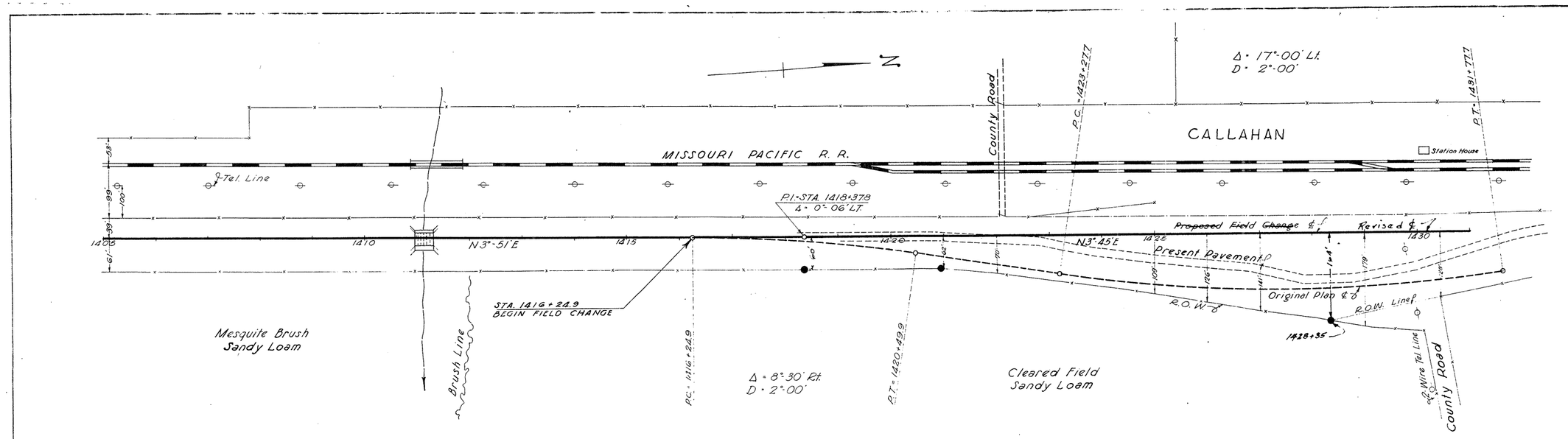
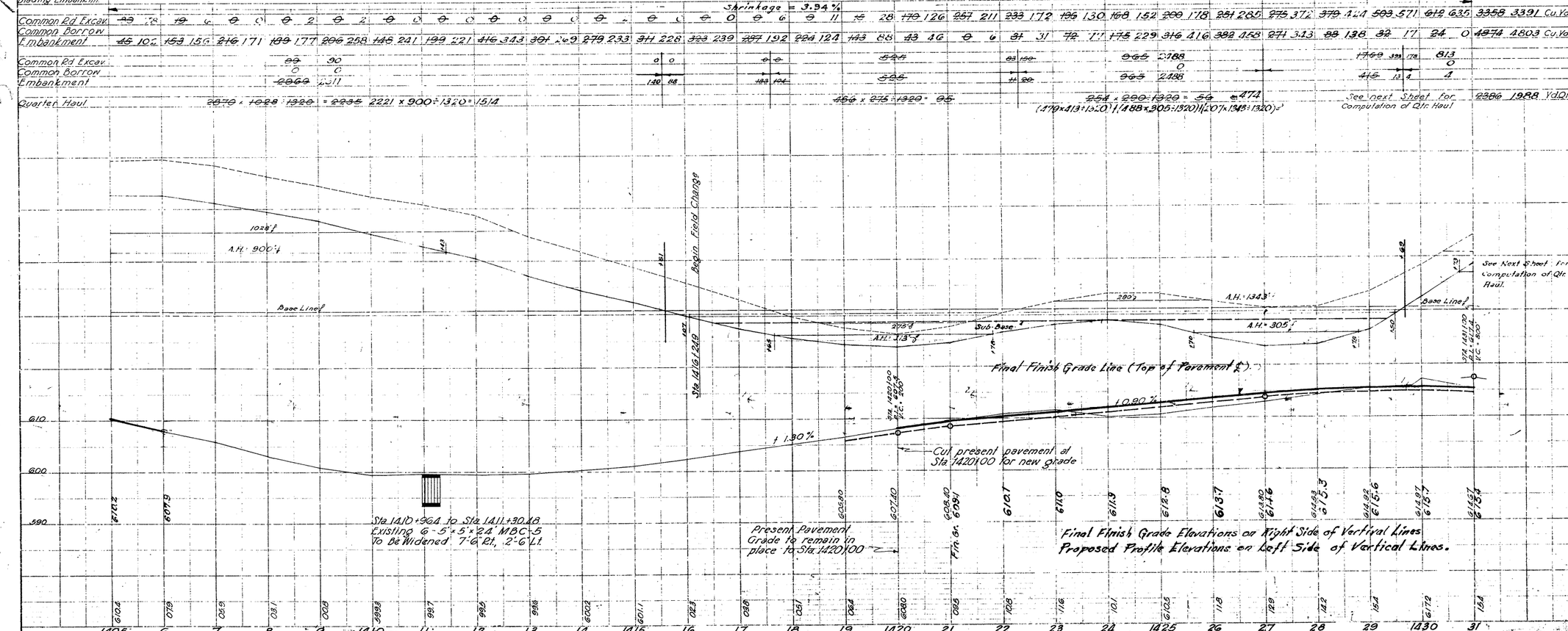


CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100	TYPICAL CROSS-SECTION NO.
1405			10	34	10	28	1	4	11			28.2	5
06				10		10						2.2	5
07				10		7½						2.3	2
08				10		7½						1.5	2
09				10		7½						.7	2
10				7½		7½						10.	2
+89						1½							2
+96.4			Bridge										
11			Bridge										
12				7½		7½						20.	2
13				7½		7½						10.	2
14				7½		7½						10.	2
15				7½		7½						10.	2
16				7½		10						10.	2
17			2 5	10	34	10						20.	2
18			2 10	10		10						20.	2
19			1 8	10		10						20.	2
1420			1 4	10		10	3	1				20.	6
21			1 3	10		10	3	1				13.	6
22			1 3	10		10	3	1				15.	6
23			1 3	10		10	3	1				20.	6
24			1 3	10		10						22.	6
25				10		10						22.	8
26				10		10						22.	8
27				10		10						21.	8
28 D				10		10						20.	8
29 D				10		10						20.	6
1430 D				10		10						20.	6
31 D			10	34	10							20.	6

		SHEET TOTALS EST.	FINAL	UNIT
Type of Soil	Sandy Loam			
Clearing & Grubbing	1125 × 80 = 2.07 Acres; 475 × 80 = 0.87 Ac.; 735 × 130.4 = 2.19 Ac.; 265 × 154.5 = 0.94 Ac.	6.07	6.07	Acre
Blading Embankmt	14 Hrs.	14	14	Hour
Common Rd Excav	Shrinkage = 3.94 %	3358	3391	Cu.Yd.
Common Borrow Embankment		4874	4803	Cu.Yd.
Common Rd Excav		1769	813	
Common Borrow		0	0	
Embankment		415	4	
Quarter Haul	See Next Sheet for Computation of Qtr. Haul	2386	1988	Yd.Qtr.



SHEET NOTES:

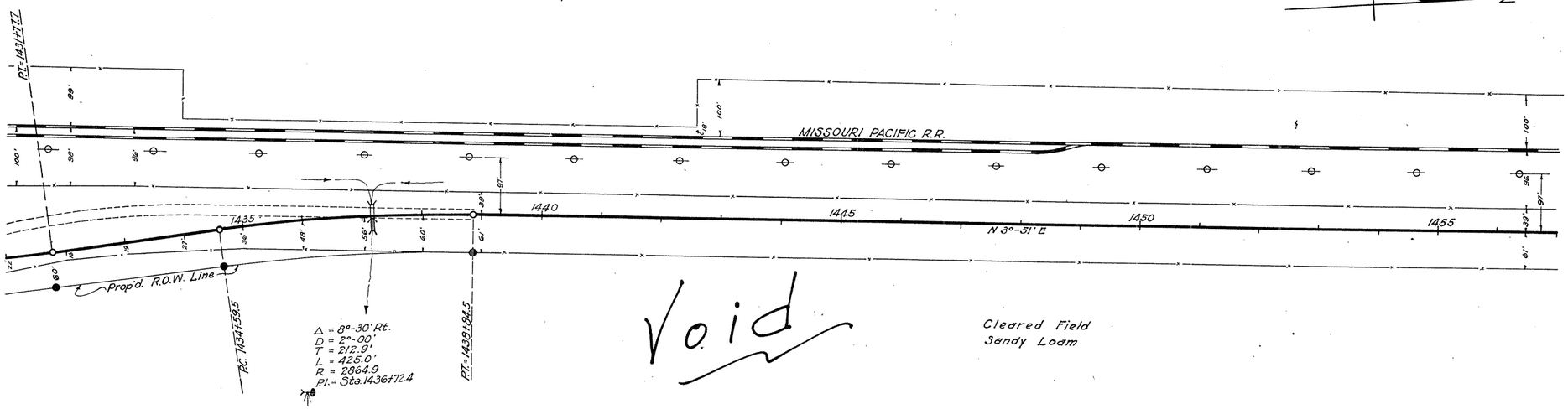
B.M. No. 27 - 60' Lt. Sta 1406+50
USCEGS X-38 Elev = 607.32
B.M. No. 28 - 50' Lt. Sta 1418+00
R.R. Spike in Fence Post Elev. 603.94
B.M. No. 29 - 25' Lt. Sta 1430+00
Spike in Tel. Post Elev. 616.53

NOTE: The quantities of "Common Road Excavation" shown include the quantities involved in the preparation of sub-grade for full width new pavement.

FIELD CHANGE NO. 1

CONTROL	SECTION	JOB	SHEET NO.
18	4	13	23

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	IG5-ABCD Reop Unit III	23
STATE DIST. NO.	COUNTY	STATE PROJECT NO.	SHEET NO.
21	WEBB		2



Void

Cleared Field
Sandy Loam

Type of soil — Sandy Loam

Clearing & Grubbing (R.O.W.) — 800' × 118' = 2.17 Acres — 1800 × 80 = 3.31 Acres.

Blading Emb't. — 6 hrs.

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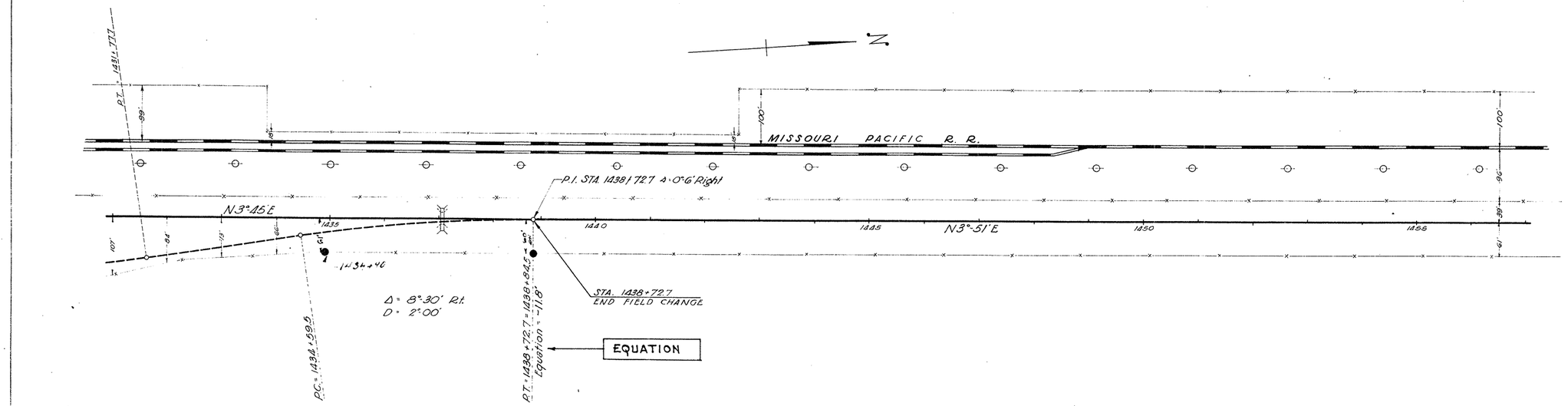
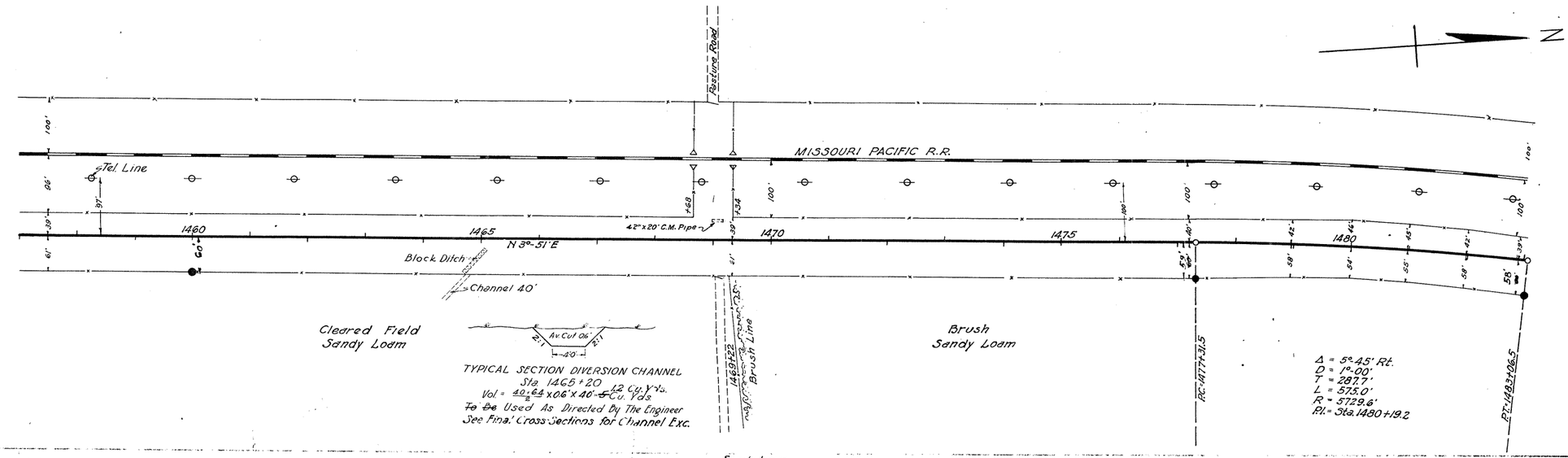


CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS-SECTION NO.
1431	D	2	V	10	34	10							20 R G
1+46	D	2	V	10	"	10							20 R G
32	D	2	V	10	"	10							20 R G
33	D			10	"	10							20 R G
34				10	"	10							19 R G
35				10	"	10							19 R B
36				7½	"	7½							19 R B
37				7½	"	7½							19 R B
104				7½	"	7½							19 R B
38				7½	"	10							19 R 2
1+27				5	"	12							19 R 2
39				5	34	10							19 R 2
40				5	"	10							19 R 2
41				7½	"	10							19 R 2
42				10	"	10							19 R 2
43				10	"	7½							25 R 2
44				10	"	7½							23 R 2
45				10	"	7½							24 R 2
46				10	"	7½							33 R 2
47				10	"	7½							19 R 2
48				10	"	7½							22 R 2
49				10	"	7½							19 R 2
50				10	"	7½							23 R 2
51				10	"	7½							23 R 2
52				10	"	7½							22 R 2
53				10	"	7½							20 R 2
54				10	"	7½							2
55				10	"	7½							2
56				10	"	7½							2
57				10	"	7½							2

				SHEET TOTALS EST.	FIELD
Type of Soil	Sandy Loam				
Clearing & Grubbing	130×110×0.33 =	260×88×0.62 =	383×80×0.70 =	4.89	4.89 Acre
Blading Embankmt			1816 × 80 = 3.34 acres	0	Hour
Common Rd Excav	~~460~~ 39	~~218~~ 18	~~92~~ 33	35	1 ~~19~~ 1 ~~29~~ 10 ~~32~~ 8 ~~17~~ 5 ~~0~~ 0 ~~0~~ 0 ~~0~~ 4 ~~0~~ 4 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE, PER 100	TYPICAL CROSS SECTION
1457						10	3	4	7½				2
58						10	"		7½				2
59						10	"		7½	1	8	2	8.3 .2L 1
60						10	"		7½	1	8	2	5.3 .8L 1
61						10	"		7½	1	8	2	5.3 .3L 1
62						10	"		7½	1	8	2	5.3 .5L 1
63						10	"		7½	1	8	2	5.3 .5L 1
64						10	"		7½	1	8	3	7.3 .7L 1
65						10	"		7½	1	8	2	15.3 .5L 1
66						10	"		7½	1	8	2	10.2 .2L 1
67						10	"		7½	1	8	2	8.2 .2R 1
68						7½	"		7½	1	8	2	6.2 .2R 1
+92						7½	"		7½	1	8	2	10.3 .2R 1
69							"		7½	1	8	2	12.3 .2R 1
+12							"		7½	1	8	2	7.3 .0R 1
+20						7½	"		7½	1	8	2	8.3 .9R 1
70						7½	"		7½	1	8	2	13.3 .0R 1
71						7½	"		7½	1	8	2	19.3 1.5R 1
72						7½	"		7½				1.8R 2
73						7½	"		7½				2.0R 2
74						7½	"		7½				2.2R 2
75						7½	"		7½				1.9R 2
76						7½	"		7½				1.7R 2
77						7½	"		7½				1.8R 2
78						7½	"		7½				2.0R 2
79						7½	"		7½				1.4R 2
80						10	"		7½				.9R 2
81						10	"		10				.7R 2
82						10	"		10				2
83						10	"	10	13	15	6	D	1

Type of soil: Sandy Loam

Clearing & Grubbing (R-O-W): 2600 x 80 = 4.78 Acres

SHEET TOTALS	EST.	FINAL	UNIT
	4.78	4.78	Acres

Shrinkage = 3.94%

| | | | | | | |

STA. 1499+10 END OF CONTROL 18-4-3
= STA. 1498+00 END OF FAP 165-C (1920)

BEG OF CONTROL 18-3-3
= STA. 1498+00 BEG. OF FAP 165-D (1920)

N

Tel Line

MISSOURI PACIFIC R.R.

N 3°-36' E

N 13°-03' E

PT = 1483+06.5

Sta. 1490+00

500'

PC. 1490+39.4

PT = 1497+29.4

Δ = 3°27' Rt.
D = 0°30'
T = 345.2'
L = 690.0'
R = 11549.2'
PI = Sta. 1493+84.6

Brush
Sandy Loam

400'
200'
BORROW SOURCE NO. 8
~~8356~~ Cu. Yds. 10324 C.Y.
To be used between
Sta. ~~1452+00~~ - 1517+00
~~1438+93~~

Sandy Loam
2600 x 80 =
400 x 200 + 340 x 30 =

Shrinkage = 3.94%

		SHEET TOTALS	
		S.F.	FINAL UNIT
Type of soil			
Clearing & Grubbing	R-O-W	4.78	4.78 Acres
" "	Borrow Sources	2.07	2.07 Acres

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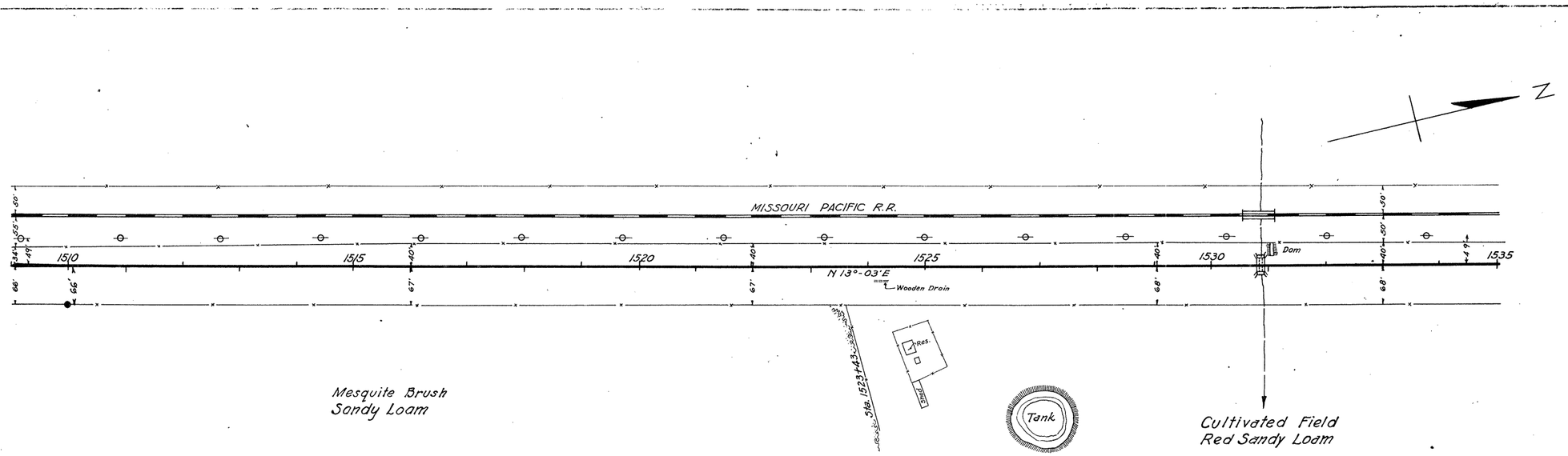

CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BORROW) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS SECTION NO.
1509	10	34	7½	12	2	4	D	1.7L					1
10	10	"	7½	12	2	4	D	2.0L					1
11	10	"	7½	12	2	4	D	1.1L					1
12	10	"	7½	12	2	4	D	1.8L					1
13	10	"	7½	12	2	4	D	1.6L					1
14	10	"	7½	14	2	4	D	1.3L					1
15	10	"	7½	16	2	4	D	1.2L					1
16	10	"	7½	16	2	4	D	.9L					1
17	10	"	7½	16	2	4	D	.3L					1
18	10	"	7½	14	2	4	D	.6L					1
19	10	"	7½	14	2	4	D	.6L					1
20	10	"	7½	11	2	4	D	1.2L					1
21	10	"	7½	8	2	4	D	1.0L					1
22	10	"	7½	8	2	4	D	1.0L					1
23	10	"	7½	10	2	4	D	1.6L					1
24	10	"	7½	10	2	4	D	1.3L					1
25	10	"	7½	14	2	4	D	1.3L					1
26	10	"	7½	18	2	4	Rt.	6L					1
27	10	"	7½										2
28	7½	"	7½										2
29	7½	"	7½										2
30	7½	"	7½										2
+74	2	37	2										2
+796	Culvert												
+936	"												
31	35	5	2										2
+17	5	"	5										2
+30		"	7½										2
+36		"	7½										2
+50	5	"	7½										2
32	7½	"	7½										2
33	7½	"	7½										2
34	10	"	7½										2
35	10	"	7½										2

Type of soil: Sandy Loam

Clearing & Grubbing (R-O-W): 2600 × 80 = 4.78 Acres

SHEET TOTALS

	EST.	FINAL	UNIT
	4.78	4.78	Acres

Shrinkage = 3.34%

Shrinkage = 2.08%

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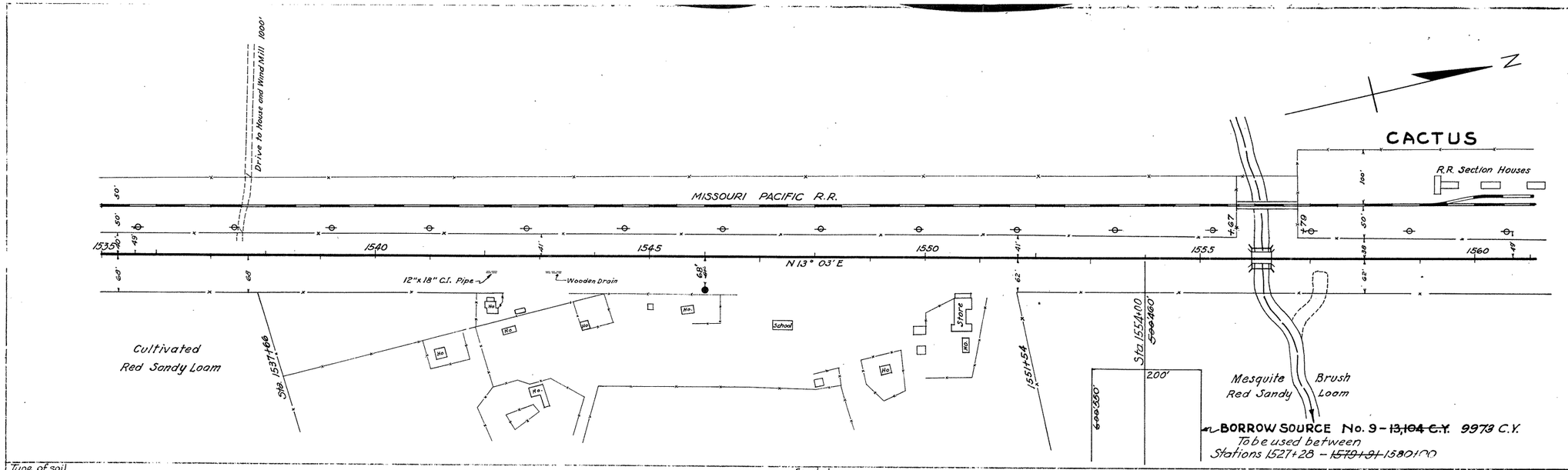

CROSS SECTION DATA.

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS-SECTION NO.
1535					10	34	1½						2
36					10	"	10					13R	2
37					10	"	10					9R	2
38					10	"	10	7	1.5			8R	2
39					10	"	10	5	1.5			11R	2
40					10	"	10					15R	2
41					10	"	10					26R	2
42					10	"	10					31R	2
+06					10	"	10					31R	2
+22					10	"	10					31R	2
+27					10	"	10					31R	2
43					10	"	10					40R	2
+06					10	"	10					40R	2
+10					10	"	10					41R	2
+30					10	"	10					39R	2
+38					10	"	10					42R	2
44					10	"	10					37R	2
45					10	"	10					42R	2
46					10	"	10					50R	2
47					10	"	7½					52R	2
48					10	"	10					45R	2
49					10	"	10					35R	2
50					10	"	10	0	1.5	10	31	1R	1
51					10	"	10	0	1.5	10	31	1L	1
+50					10	"	10	18	1.5	4	31	4L	1
52					10	"	7½	13	2	4	3	7L	1
53					10	"	10	16	1.5	4	3	8L	1
54					10	"	7½	20	2	4	3	7L	1
55					10	"	7½						2
+40					7½	"	7½						2
+87					1½	"	1½						2
+958					Bridge								2
56						"							2
+10					1½	34	1½						2
+60					7½	"	7½						2
+87					7½	"	7½						2
57					10	"	7½						2
+15					10	"	7½						2
+28					10	"	5						2
+42					10	"	5						2
+58					10	"	7½	18	2	12	5		1
58					10	"	7½	18	2	10			1
59					10	"	7½	18	2	7	4		1
60					10	"	7½	18	2	6	3	3L	1
61					10	"	7½	18	2	6	4	3L	1

Type of soil: Sandy Loam

Clearing & Grubbing (R-O-W): 2600 x 80 =

" " (Borrow Sources): ~~600~~ x ~~200~~ + ~~138~~ x ~~30~~ = 550 x 200 / 150 x 30 = 263

SHEET TOTALS

	EST.	FINAL	UNIT
	4.78	4.78	Acres
	~~2.85~~	2.63	Acres

Shrinkage = 2.08 %

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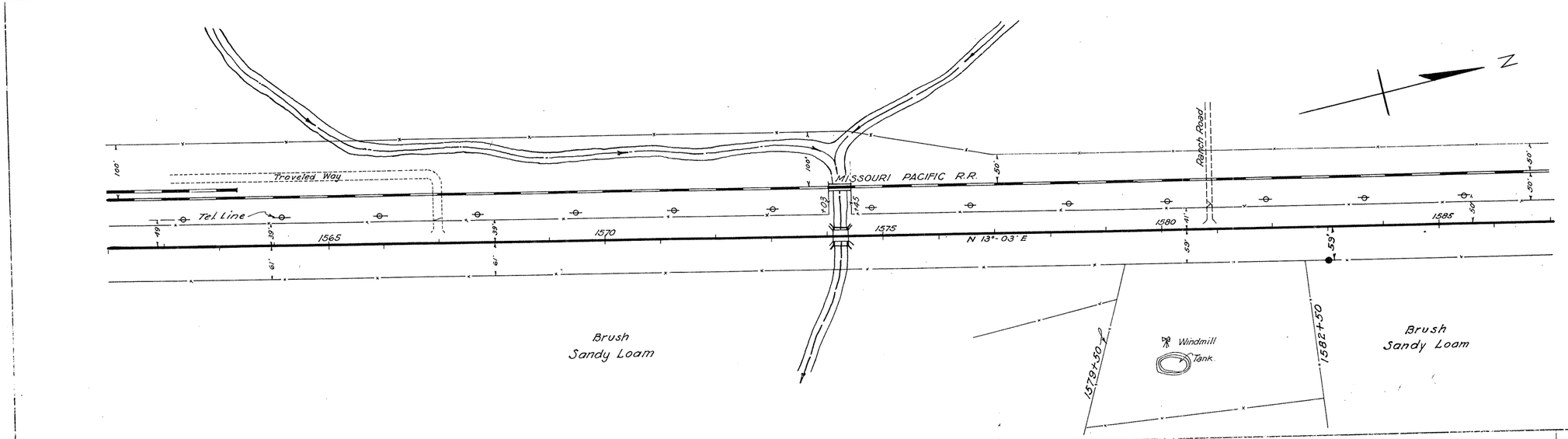

STATION NUMBER	BERM FOR BORROW WIDTH FT.	SLOPE (RATIO TO 1)	DITCH FOR BORROW DEPTH FT.	DITCH FOR BORROW WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT	SLOPE (RATIO TO 1)	BERM FOR BORROW WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS SECTION NO
1561						1034	7½	18	2	6	4	.3L	1
62						10	✓	7½	18	2	7½	5	.3R	1
63						10	✓	7½	18	2	10	4	.4R	1
64						10	✓	7½					.8R	2
65						10	✓	7½	18	2	6	4	.3L	1
66						10	✓	7½	18	2	12	4	.4L	1
67						10	✓	7½						2
68						10	✓	7½						2
69						7½	✓	7½						2
70						7½	✓	5						2
71						7½	✓	5						2
+42						5	✓	5						2
72						5	✓	5						2
73						5	✓	5						2
+30						5	✓	5						2
+80						5	✓	5						2
74						1½	✓	1½						2
+087						Bridge								
+37.1														
+47						1½	34	1½						2
75						5	✓	5						2
76						7½	✓	7½						2
77						7½	✓	7½						2
78						7½	✓	7½						2
79						7½	✓	7½	18	2	6	2	.4L	1
+60						7½	✓	7½	18	2	6	2	.4L	1
+86						7½	✓	7½	18	2	6	2	.4L	1
80						7½	✓	7½	18	2	6	2	.3R	1
+20						7½	✓	7½	18	2	6	2	.4R	1
+30						7½	✓	7½	18	2	9	2	.9R	1
81						10	✓	7½	18	2	6	2	1.0L	1
82						10	✓	7½	18	2	4½	2	.9R	1
83						10	✓	10	18	1	5	7	2.0R	1
84						10	✓	10	18	1	5	6	3.7R	1
85						15	✓	10	18	1	5	6	2.5R	1
86						15	✓	10	18	1	5	6	2.5L	1
87						15	✓	10	18	1	5	5	3.5R	1

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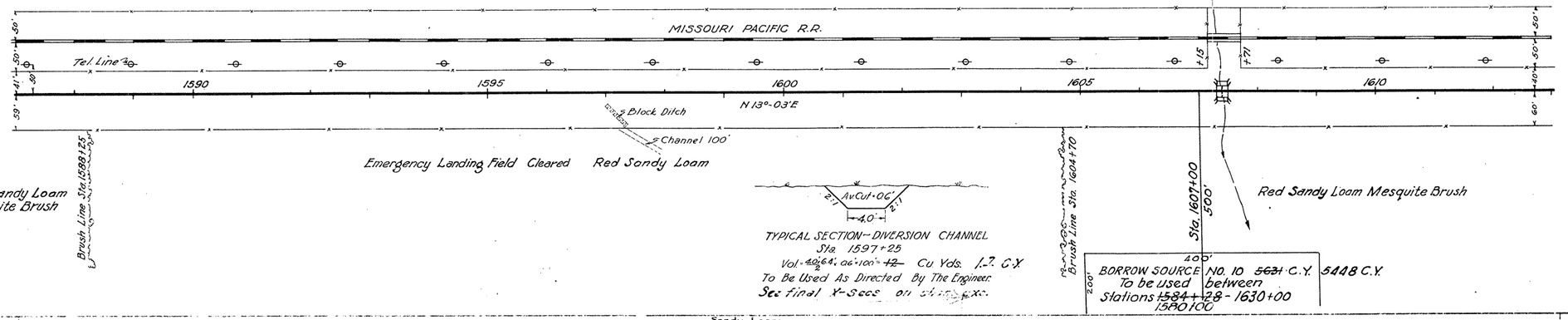

CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR ROADWAY) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS-SECTION NO.
1587			15	34	10	18	15	5	3	.5R	1		
88			15	"	10	18	15	7	2	.5R	1		
89			15	"	10	18	15	7	2		1		
90			15	"	10	18	15	7½	2	.2R	1		
91			15	"	10	20	15	4	2	.5R	1		
92			15	"	10	21	15	4	2	.6R	1		
93			15	"	10	18	15	10	2	1.0R	1		
94			15	"	10	18	15	15	3	1.6R	1		
95			15	"	10	17	15	12	3	1.5R	1		
96			15	"	10	16	15	15	5	1.0R	1		
97			15	"	10	15	15	10	8	1.2R	1		
98			15	"	10	14	15	4	D	.7R	1		
99			15	"	10	14	15	4	D	.4R	1		
1600			15	"	7½	7	2	4	D	.2L	1		
01			10	"	7½	8	2	4	D	1.7L	1		
02			10	"	7½	8	2	4	D	2.5L	1		
03			10	"	7½	11	2	4	D	1.8L	1		
04			10	"	7½	14	2	4	D	1.4L	1		
05			7½	"	7½	14	2	4	D	1.0L	1		
06			7½	"	7½				D		2		
07			5	"	5				D		2		
+25				"	1½						2		
+61			1½	"	1½						2		
08			7½	"	7½						2		
09			7½	"	7½						2		
10			7½	"	7½						2		
11			10	"	7½						2		
12			10	"	7½					1.0R	2		
13			10	"	7½	18	2	20	5	.8R	1		

		SHEET TOTALS EST.	FINAL	UNIT
Type of soil	Sandy Loam			
Clearing & Grubbing	R.O.W. 2600 x 80 =	4.78	4.78	Acres
" " "	(Borrow Sources) 400 x 200 + 340 x 30 =	2.07	2.07	Acres

Shrinkage + 0.67%

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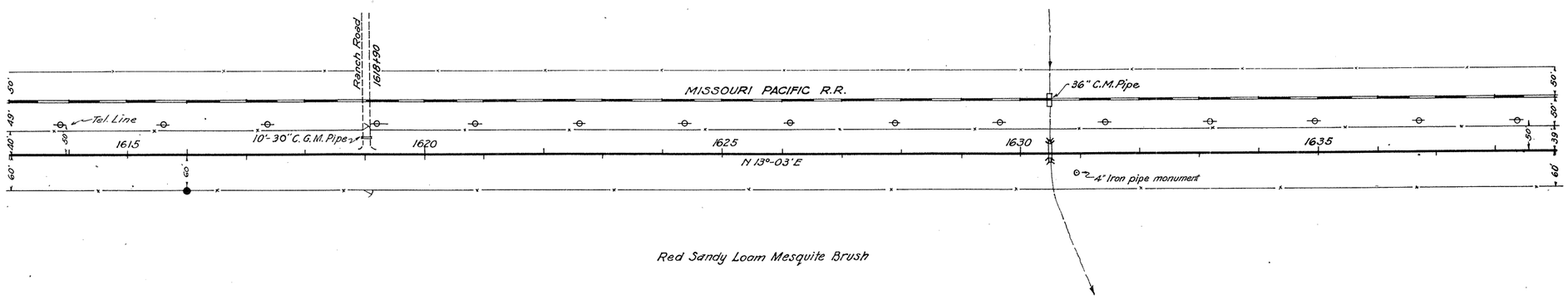


CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS-SECTION NO.
1613			1.0	3.4	7½	18.2	2	0.5	.8	R			1
14			1.0	"	7½	18.2	0	5.5	.8	R			1
15			1.0	"	7½	18.2	7	3.3	1.0	R			1
16			1.0	"	7½	18.2	0	6.3	1.3	R			1
17			1.0	"	7½	18.2	7	3.3	1.3	R			1
18			1.0	"	7½	18.2	10	7½	1.3	R			1
+70			1.0	"	7½	18.2	7	7½	8.8	L			1
+80			1.0	"	7½	18.2	6	8.8					1
+90			1.0	"	7½	18.2	7	3.3	1.0	R			1
19			1.0	"	7½	18.2	6	3.3	.5	L			1
20			1.0	"	7½	18.2	15	4.4	.7	R			1
21			1.0	"	7½								2
22			1.0	"	7½						1.2	R	2
23			1.0	"	7½								2
24			1.0	"	7½								2
25			1.0	"	7½								2
26			1.0	"	7½								2
27			1.0	"	7½								2
28			1.0	"	7½								2
29			1.0	"	7½								2
30			1.0	"	7½								2
31			7½	"	7½						1.1	R	2
32			7½	"	7½						1.8	R	2
33			7½	"	7½						2.0	R	2
34			7½	"	7½						2.2	R	2
35			7½	"	7½						1.7	R	2
36			7½	"	7½						2.3	R	2
37			7½	"	7½						2.1	R	2
38			7½	"	7½						.8	R	2
39			7½	"	7½						2.3	R	2

Type of soil: Sandy Loam

Clearing & grubbing (R-O-W): 2600 x 80 = 4.78 Acres

	SHEET TOTALS EST.	FINAL	UNIT
	4.78	4.78	Acres
Common Road Exc.	486	478	Cu Yds
Common Borrow Embankment	4408	3970	
	4894	4448	Cu Yds
Common Road Exc.		406 478	
Common Borrow Embankment		2732 2333	
Quarter Haul		3218 2811	
		2732 X 2035 ÷ 1320 = 4212 2333 x 2092 ÷ 1320 = 3697	
	7572	6970 Yd. Qtrs.	

Shrinkage = 0.67%

Swellage = 10.50%

Common Borrow from Source No.10
500' Rt. of Sta. 1607+00

Common Borrow from Source No.11
500' Rt. of Sta. 1656+00

1676 1637
1676 1637
1676 X 2646 ÷ 1320 = 3360 1687 x 2639 ÷ 1320 = 3373

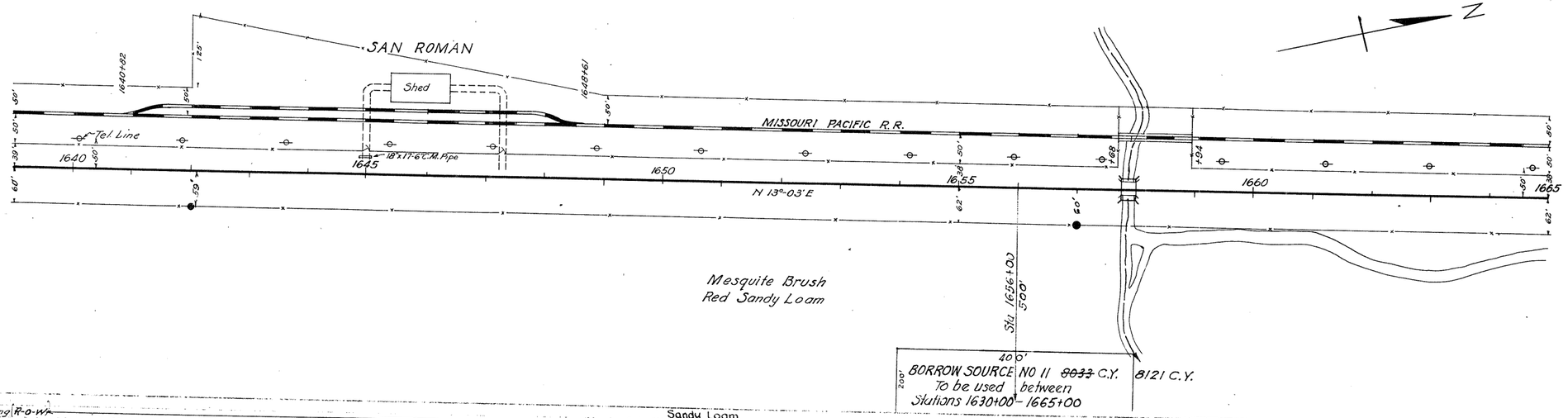
SHEET NOTES

B.M. No. 41 - 50' Lt. Sta. 1617+30
U.S.C. & G.S. V38 - Elev. 558.45

B.M. No. 42 - 60' Lt. Sta. 1630+30
R.R. Spike in tel. pole - Elev. 547.72

Sta. 1618+90 - 30" C.G.M. Pipe under Ranch Road to be used in place

CONTROL NO. 18	SECTION 3	JOB NO.
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL AID PROJECT NO. ESTABLISHED FOR ...
STATE DIST. NO. 21	COUNTY WEBB	STATE PROJECT NO.



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR ROADWAY) DEPTH FT.	DITCH (OR SUBGRADE) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS SECTION NO.
1639	•		7½	3	4	7½						23R	2
40			7½	11		7½						34R	2
41			7½	11		7½						35R	2
42			7½	11		7½	25	2				20R	1
43			7½	11		7½	22	2				28R	1
44			7½	11		7½	18	2	15	4	.3R	1
+85			7½	11		7½	18	2	8	3			1
+90			7½	11		7½	18	2	8	3	.5L	1	
45			7½	11		7½	18	2	8	3	.6L	1	
+07			7½	11		7½	18	2	8	3	.5L	1	
+12			7½	11		7½	18	2	12	3	.5L	1	
46			7½	11		7½							2
47			7½	11		7½						.8R	2
48			7½	11		7½						.6R	2
49			7½	11		7½						.5R	2
50			7½	11		7½						1.0R	2
51			7½	11		7½	18	2	7½	3	.7R	1	
52			7½	11		7½	18	2	8	3	.5R	1	
53			7½	11		7½	18	2	6	3	.4R	1	
54			7½	11		7½						.2R	2
55			7½	11		5							2
56			5	11		5							2
57			4	11		5							2
+62				11		1½							2
58				11		1½							
+12				11		1½							2
+20			2	35	5								2
+50			2	11	5								2
+75			4	34	5								2
59			5	11	5								2
60			7½	11	5								2
61			7½	11	5								2
62			7½	11	5								2
63			7½	11	5								2
64			7½	11	5								2
65			5	35	5	2							2

SHEET TALLY		
	SHEET TOTAL	JOB TOTAL
	4.78	4.78 Acres
	2.07	2.27 Acres
	~~446~~	~~430~~ Cu. Yds.
	~~6357~~	~~6484~~
	~~6803~~	6914 Cu. Yds.

Type of soil: Sandy Loam

Clearing & Grubbing (R-O-W)

" " (Borrow Sources) 2600 x 80 =

400 x 200 + 338 x 30 =

Swell factor = 10.50 %

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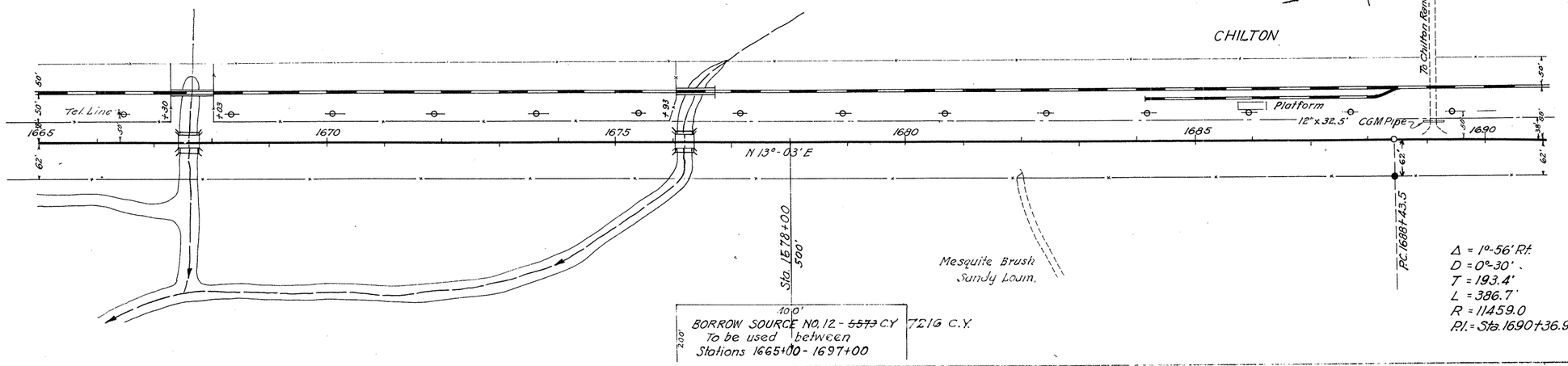


Type of Soil — Sandy Loam

Clearing & Grubbing R.O.W. — 2600 x 80 =

" " (Borrow Sources) — 400 x 200 + 338 x 30 =

SHEET TOTALS

	EA.	FINE	UNIT
	4.78	4.79	Acres
	2.07	2.07	Acres

Common Road Exc. — Swell Factor = 1.57%

Common Borrow

Embankment — ~~308~~ 349 ~~338~~ 41 ~~142~~ 200 ~~228~~ 255 ~~212~~ 237 ~~162~~ 244 ~~161~~ 242 ~~97~~ 268 ~~198~~ 279 ~~191~~ 452 ~~146~~ 210 ~~173~~ 196 ~~479~~ 529 ~~464~~ 539 ~~421~~ 485 ~~256~~ 338 ~~158~~ 217 ~~131~~ 171 ~~129~~ 167 ~~134~~ 190 ~~145~~ 164 ~~154~~ 124 ~~127~~ 150 ~~72~~ 124 ~~86~~ 131 ~~131~~ 164 ~~5249~~ 6096 Cu. Yds.

Common Road Exc. — 0 0 0 0 518 379

Common Borrow — ~~2829~~ 3132 ~~1893~~ 2580

Embankment — ~~2829~~ 3732 ~~2411~~ 2964

Quarter Mass — ~~2829~~ x ~~1794~~ ÷ 1320 = ~~2538~~ 3732 x 1155 ÷ 1320 = 3266

Common Borrow from Source No. 12.
500' Rt. of Sta. 1678+00

(~~137~~ x ~~625~~ ÷ 1320) + (~~718~~ x ~~1293~~ ÷ 1320) + (38 x ~~1746~~ ÷ 1320) = ~~1259~~ (358 x 29 ÷ 32) + (1128 x 1224 ÷ 1320) = 1786 ~~3799~~ 5052 ½ Qtrs.

Common Borrow from Source No. 12
500' Rt. of Sta. 1678+00

Base Line

Scale 1" = 1000 C.Y.

1184'

A.H. 1155'

A.H. 628'

Sub-Base

1233'

1746'

Sub-Base

Base Line

Scale 1" = 1000 C.Y.

A.H. 1224'

Base Line

550
540
530

STA. 1667+42.0 TO 1667+78.0
EXISTING 2-16' CLEAR SPANS
A9-15' ABUT. B-4 BENTS
20' ROADWAY TO BE WIDENED
9'-10" RT. 4'-2" LT.

STA. 1676+03.8 TO 1676+35.8
EXISTING 2'-16' CLEAR SPANS
A9-12' ABUTMENTS B4 BENTS
20' ROADWAY TO BE WIDENED
9'-9" RT. 4'-3" LT.

344.8 45.5 45.7 45.9 45.6 45.1 44.9 45.2 45.6 46.1 46.6 46.7 46.4 46.0 45.8 45.3 44.7 45.0 45.3 45.6 45.7 46.1 46.6 47.3 48.1 49.7 551.4

1665 66 67 68 69 1670 71 72 73 74 75 76 77 78 79 1680 81 82 83 84 85 86 87 88 89 1690 91

CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH — (FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE IN R.O.W.	TYPICAL CROSS SECTION NO.
1665				5	3	5.52							2
+50				2	3	7	2						2
66				2	"		2						2
67				2	"		2						2
+27					3	4	1½						2
+91					3	4	1½						2
68				2	3	7	2						2
+25				2	"		2						2
69				2	"		2						2
70				2	"		2						2
71				2	"		2						2
72				2	"		2						2
+50				2	"		2						2
+75				2	"		2						2
73				2	"		2						2
74				2	"		2						2
75				2	"		2						2
+50				2	"		2						2
+80				2	"		2						2
+94					3	4	1½						2
76													
+46					"		1½						2
77				5	"		5						2
78				5	"		5						2
79				1½	"		1½						2
80				7½	"								2
81				10	"		7½						1
82				10	"		7½						1
83				10	"		7½						1
84				10	"		7½						1
85				10	"		7½						2
86				15	"		15						2
87				15	"		15			D			2
88				15	"		15	14	1	4	D	.7L	1
89					"		15	14	1	4	D	1.4L	1
90				15	"		15	12	1	4	D	1.3L	1
91				15	"		15	14	1	4	D	.6R	1

SHEET NOTES

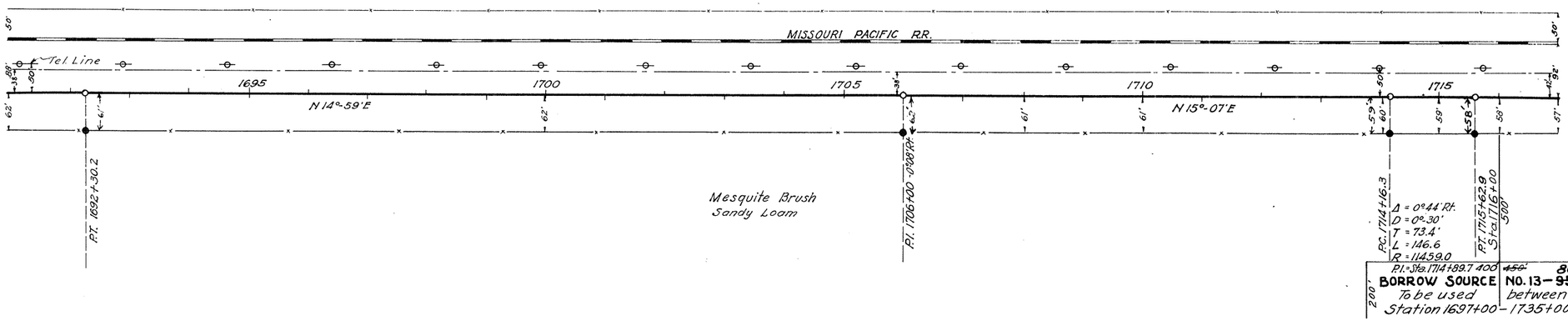
B.M. No. 45 - 60' Lt. Sta. 1674 + 70
R.R. Spike in tel. pole - Elev. 544.58

B.M. No. 46 - 60' Lt. Sta. 1690 + 50
R.R. Spike in tel. pole - Elev. 551.19

Sta. 1689+19 - 12" CGM. Pipe under Chilton Ranch Road to be used in place.

CONTROL NO. 18	SECTION 3	JOB NO. 3
DIV. 6	STATE TEXAS	FEDERAL AID PROJECT NO. BRS-ABCD-R20-P
DIV. NO. 2.1	COUNTY WEBB	STATE PROJECT NO.

SHEET NO. 33
SHEETS NO. 2



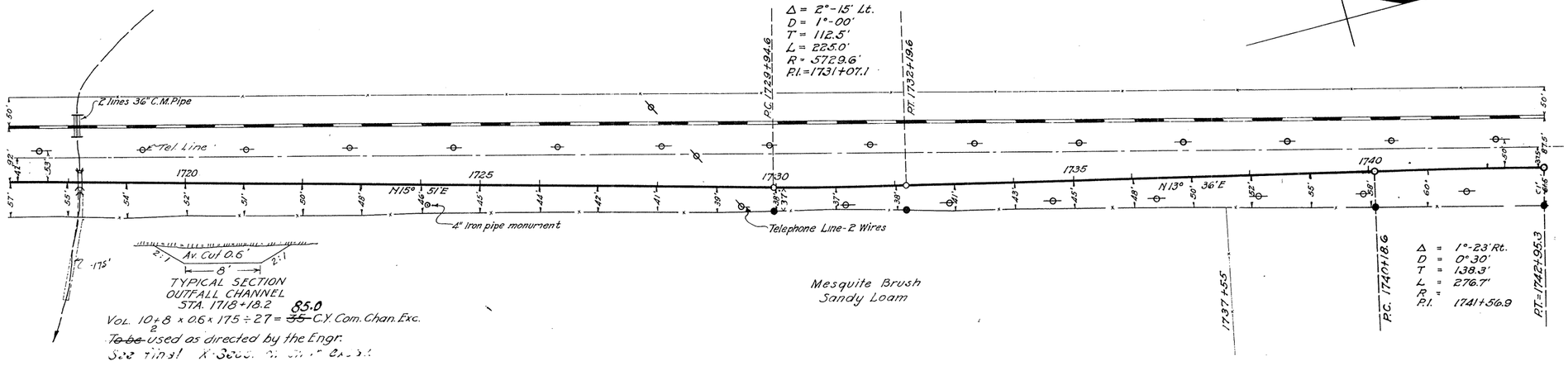
CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS SECTION NO.
1691	15	3	4	15	1	4	D	.6	R				1
92	15	"	1	15	1	6	D	1.3	R				1
93	15	"	1	15			D	1.4	R				2
94	15	"	1	15				2.2	R				2
95	15	"	1	15				2.3	R				2
96	15	"	1	7½				3.2	R				2
97	15	"	1	7½				4.1	R				2
98	15	"	1	7½				4.3	R				2
99	15	"	1	7½				4.8	R				2
1700	15	"	1	7½				4.2	R				2
01	15	"	1	7½				5.0	R				2
02	15	"	1	7½				5.9	R				2
03	15	"	1	7½				5.7	R				2
04	15	"	1	7½				5.9	R				2
05	15	"	1	7½				5.2	R				2
06	15	"	1	7½				4.9	R				2
07	15	"	1	7½				4.2	R				2
08	15	"	1	7½				3.2	R				2
09	15	"	1	7½									2
10	15	"	1	7½									2
11	15	"	1	7½									2
12	7½	"	1	7½									2
13	7½	"	1	7½									2
14	7½	"	1	7½									2
15	7½	"	1	7½									2
16	7½	"	1	7½									2
17	7½	"	1	7½									2

		SHEET TOT'LS	
		EST. FINAL	UNIT
Type of soil	Sandy Loam		
Clearing & Grubbing R.O.W.	2600 x 80 =	~~4.78~~	~~Acres~~
" " Borrow Sources	450 x 200 + 342 x 30 = 400 x 200 ÷ 340 x 30 = 2.07	~~2.30~~ 2.07	Acres

Swellage = 157% Swellage = 60%

| | | | | | | | | |



Vol. $\frac{10+8}{2} \times 0.6 \times 175 \div 27 =$ ~~35~~ 85.0 C.Y. Com. Chan. Exc.

~~To be~~ used as directed by the Engr.

See Final X-Sect. Sheet

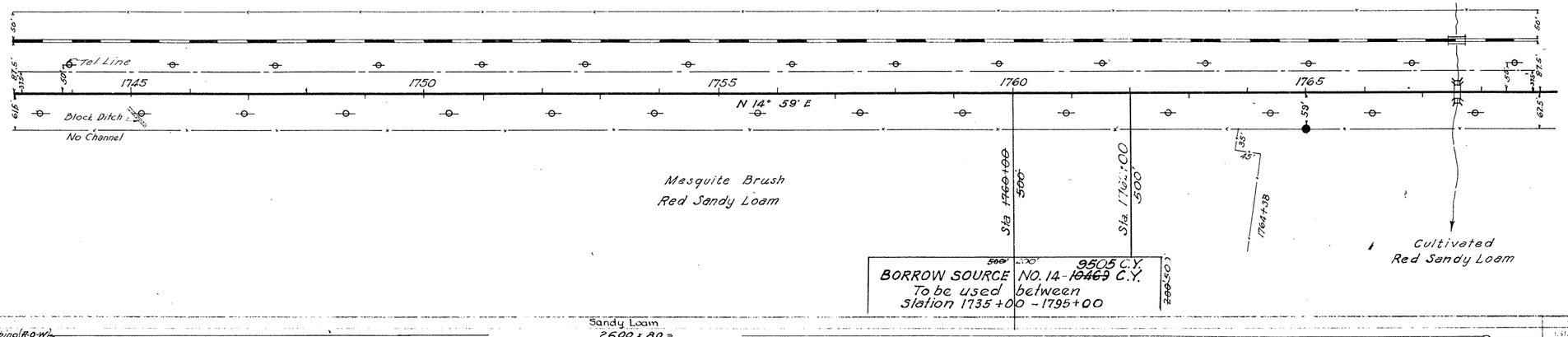
CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100	TYPICAL CROSS SECTION NO.
1717					7½	34	7½						2
18					7½	"	7½						2
19					7½	"	7½						2
20					7½	"	7½						2
21					7½	"	7½						2
22					7½	"	7½						2
23					7½	"	7½						2
24					7½	"	7½						2
25					7½	"	7½						2
26					7½	"	7½						2
27					10	"	10					1.2R	2
28					15	"	10					1.6R	2
29					15	"	10					1.5R	2
30					15	"	10					1.3R	2
31					15	"	10					1.5R	2
32					15	"	10					3DR	2
33					15	"	10						2
34					15	"	15						2
35					15	"	15						2
36					15	"	15	12	1	4	2	23R	1
37					15	"	15						2
38					15	"	15	12	1	4	6	28R	1
39					10	"	15					22R	2
40					10	"	15					24R	2
41					10	"	10					19R	2
42					10	"	10						2
43					10	"	7½	20	2	4½	5	3L	1

Type of Soil	Sandy Loam	SHEET TOTALS	UNIT
Clearing & Grubbing (R.O.W.)	2600 x 80 = 4.78 Acres	4.78	4.78 Acres
" " (Channel)	15' x 15' = 0.05 Acres		0.05 Acres

Swellage = 60% — Swellage = 30% —

| | | | | | |



Type of soil: Sandy Loam

Clearing & Grubbing (R.O.W.): 2600 x 80 = 200x500+337x30 = 200500/190x30 = 2.43 Ac.

" " " (Borrow Sources)

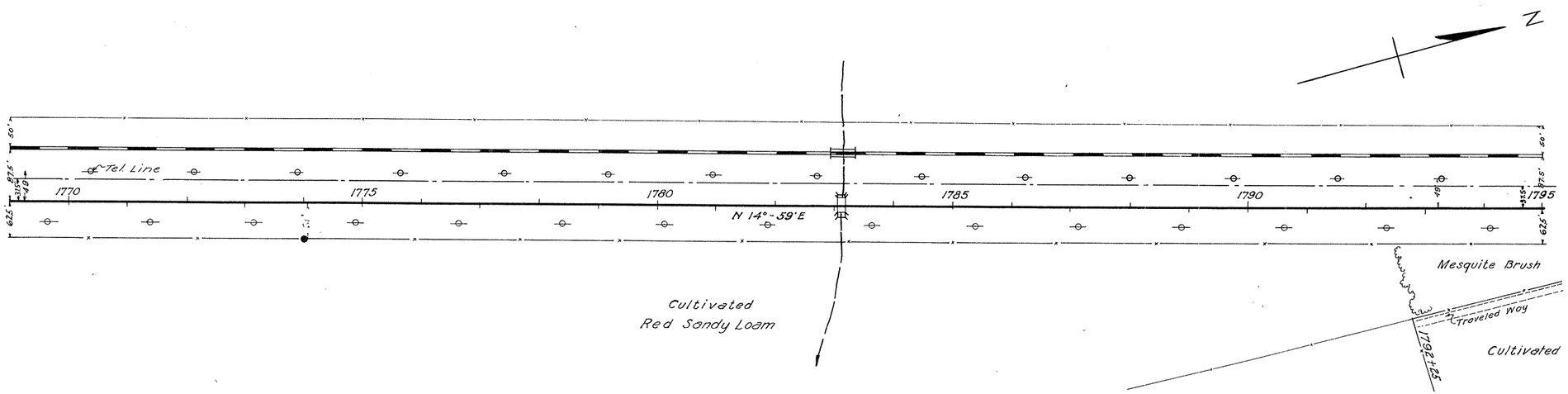
SHEET TOTALS — EST. / FINAL / UNIT

A.18 4.79 Acres

~~2.53~~ 2.43 Acres

Swell = 30%

| | | |



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS-SECTION NO.
1769			10	3.4	7½	20	2	7½	3	.5R	1
70			10	"	7½	20	2	7	4		1
71			10	"	7½	20	2	6	4		1
72			10	"	7½	20	2	10	3		1
73			10	"	7½	20	2	10	3		1
74			10	"	7½	20	2	8	4		1
75			10	"	7½	20	2	7½	4		1
76			10	"	7½	20	2	8	3		1
77			10	"	7½	25	2				1
78			10	"	7½					.7R	2
79			10	"	7½					.5R	2
80			10	"	7½						2
81			10	"	7½						2
82			10	"	7½						2
83			7½	"	7½						2
84			7½	"	7½						2
85			7½	"	7½						2
86			7½	"	7½						2
87			7½	"	7½						2
88			7½	"	7½						2
89			7½	"	7½						2
90			7½	"	7½						2
91			7½	"	7½						2
92			7½	"	7½						2
93			7½	"	7½						2
94			7½	"	7½						2
95			7½	"	7½						2

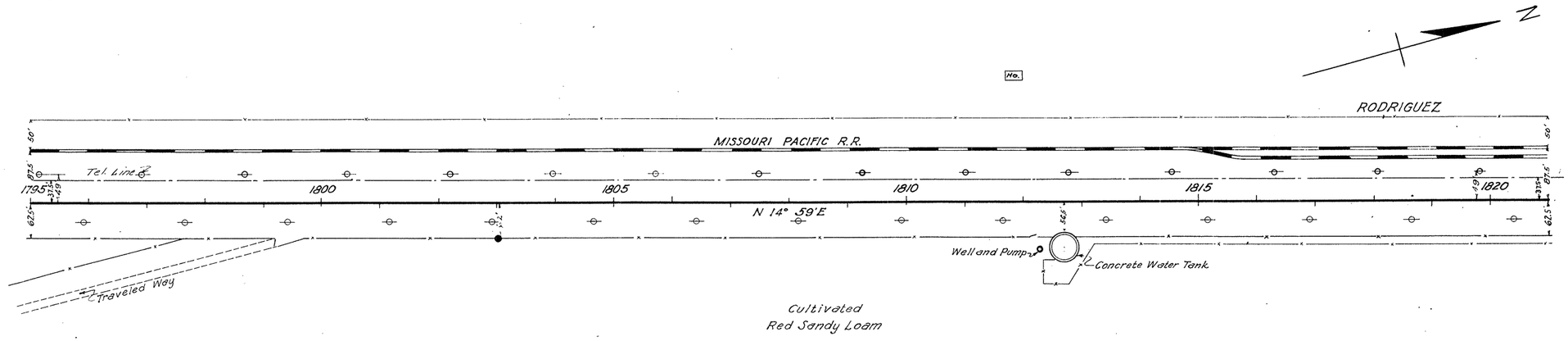
Type of soil: Sandy Loam

Clearing & Grubbing (R-O-W) 2600 x 80 = 4.78 Acres

SHEET TOTALS — EST. FINAL U.M.F.: 4.78 4.78 Acres

Swellage = 30.4 %

| | | | | | |



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS-SECTION NO.
1795					7½	34	7½						2
96					7½	"	7½						2
97					10	"	7½						2
98					10	"	7½	2	0	5			1
99					15	"	7½	2	0	6	5		1
1800					15	"	7½	2	0	4	5		1
01					15	"	7½	2	0	4	5		1
02					15	"	7½	2	2'	5	3		1
03					15	"	7½	2	2	10	3		1
04					15	"	7½	2	2	6	3		1
05					15	"	7½	2	2	15	3	.7R	1
06					15	"	7½	2	2	10	3	.4R	1
07					15	"	7½	2	2	15	3	.3R	1
08					15	"	7½	2	2	15	3	.7R	1
09					15	"	7½	2	2	10	3		1
10					15	"	7½	2	2	7½	3	.4R	1
11					15	"	7½	2	2	10	3		1
12					15	"	7½	2	2	6	3		1
13					15	"	7½						1
14					15	"	7½	2	2	5	4		1
15					15	"	7½	2	2	4	3		1
16					15	"	7½	2	2	6	3		1
17					15	"	7½	2	2	6	3		1
18					15	"	7½	2	2	7½	3		1
19					15	"	7½	2	2	6	3		1
20					10	"	7½	2	2	10	3		1
21					10	"	7½	2	2	10	3		1

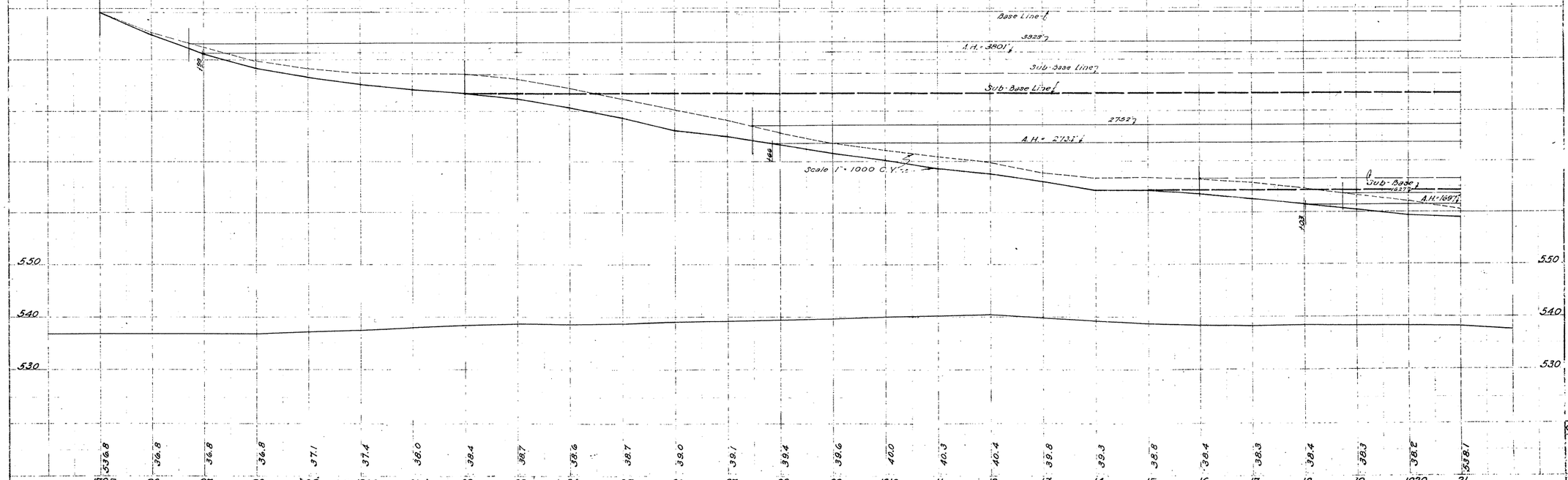
Type of soil: Sandy Loam

Clearing & Grubbing (R-O-W): 2600 x 80 = 4.78 Acres

		SHEET TOTALS FST.	SHEET TOTALS UNIT
Clearing & Grubbing (R-O-W)		4.78	4.78 Acres
	Shrinkage = 14.28%		
Common Road Exc.	~~0 0 0 24 33 59 10 99 85 122 120 109 96 63 96 65 85 56 83 54 81 52 78 32 14 13 78 63 82 70 78 85 89 44 48 100 59 182 141 130 122 96 82 85 89 80 93 42 89 62 83~~	~~1856~~ 1856	1980 CU Yds.
Common Borrow		~~3870~~ 3870	4005
Embankment	~~373 417 326 378 271 311 213 248 173 233 136 223 131 174 175 208 234 250 277 273 271 261 256 257 265 251 249 243 218 233 204 [illegible] 184 174 228 221 220 231 151 157 149 154 164 179 216 209 210 208 198 203 206 108~~	~~5726~~ 5726	5985 CU Yds.

Common Road Exc.	~~1856~~ 1980
Common Borrow	~~3870~~ 4005
Embankment	~~5726~~ 5985
Quarter Haul	~~(121 x 3820 ÷ 1320) + (2030 x 2752 ÷ 1320) + (829 x 1627 ÷ 1320) =~~ ~~3519~~ (1575 x 3801 ÷ 1320) + (1927 x 2734 ÷ 1320) + (503 x 1697 ÷ 1320) = 9173

Common Borrow from Source No. 15, 500' Rt. of Sta. 1830+00

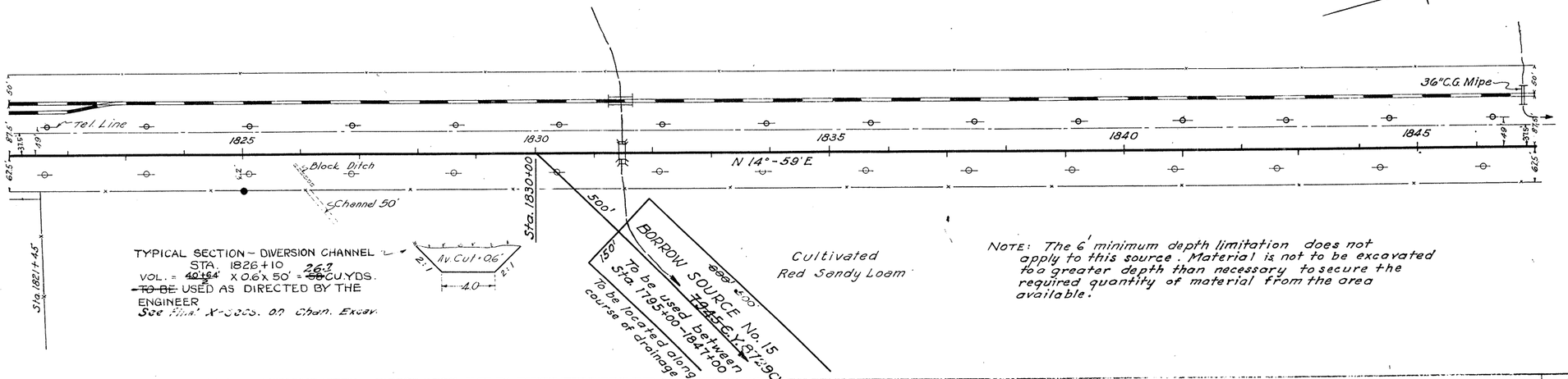


SHEET NOTES

B.M. No. 54 - 60' Lt. Sta. 1806+30
R.R. Spike in tel. pole - Elev. 538.99

B.M. No. 55 - 60' Lt. Sta. 1818+55
R.R. Spike in tel. pole - Elev. 538.64

CONTROL NO. 18	SECTION 3	JOB NO. 3
STATE OF TEXAS	FEDERAL AID PROJECT NO. 165 ABCD REOR	SHEET NO. 38
COUNTY	STATE PROJECT NO.	HIGHWAY NO.



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS-SECTION NO.
1821	10	3.4	7½	2.2	2	10	3						1
22	10	"	7½	2.2	2	5	3	.4	L				1
23	10	"	7½	2.2	2	4½	3	.6	L				1
24	10	"	7½	2.2	2	4½	3	.5	L				1
25	10	"	7½	2.2	2	4	3	.5	L				1
26	10	"	7½	2.2	2	4	3	.3	L				1
27	10	"	7½	2.2	2	5	3	.7	L				1
28	10	"	7½	2.2	2	4	3	1.1	L				1
29	10	"	7½	2.2	2	4	3	1.2	L				1
30	10	"	7½	2.0	2	4	3	1.8	L				1
31	7½	"	7½	2.2	2	7½	3	2.4	L				1
32	7½	"	7½										2
33	7½	"	7½	1.7	3.5								1
34	7½	"	7½	1.7	3.5								1
35	10	"	7½										2
36	15	"	7½	1.0	2						1.3	R	1
37	15	"	7½	2.2	2	5	2				1.5	R	1
38	15	"	7½	2.1	2	4	2				1.3	R	1
39	15	"	7½	2.0	2	4	3				1.4	R	1
40	15	"	7½	2.2	2	15	3				1.7	R	1
41	15	"	7½	2.0	2						1.3	R	1
42	15	"	7½	8	2						1.5	R	1
43	15	"	7½	5	2						2.3	R	1
44	7½	"	7½										2
45	7½	"	7½										2
46	5	"	7½										2
47	5	"	7½										2

Type of soil		SHEET TOTALS EST.	FINAL	UNIT
Clearing & Grubbing (R-O-W)	Sandy Loam 2600 x 80 = 4.78 Acres	4.78	4.78	Acres
Common Road Exc.	~~78~~ 93 ~~113~~ 107 ~~117~~ 102 ~~133~~ 111 ~~146~~ 122 ~~126~~ 107 ~~141~~ 119 ~~133~~ 141 ~~133~~ 122 ~~119~~ 93 ~~12~~ 13 30 24 ~~70~~ 59 ~~41~~ 50 ~~7~~ 24 ~~80~~ 83 ~~196~~ 209 ~~239~~ 245 ~~163~~ 163 ~~74~~ 80 ~~32~~ 43 ~~7~~ 13 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0	~~7181~~	2137	Cu. Yds.
Common Borrow			~~4975~~	4724	Cu. Yds.
Embankment	~~210~~ 231 ~~201~~ 210 ~~136~~ 211 ~~163~~ 189 ~~145~~ 151 ~~175~~ 161 ~~212~~ 169 ~~179~~ 176 ~~169~~ 206 ~~204~~ 248 ~~267~~ 322 ~~473~~ 519 ~~509~~ 521 ~~537~~ 343 ~~182~~ 206 ~~114~~ 127 ~~76~~ 64 ~~65~~ 57 ~~76~~ 67 ~~110~~ 95 ~~145~~ 137 ~~237~~ 252 ~~373~~ 423 ~~459~~ 508 ~~516~~ 601 ~~483~~ 601	~~6766~~	6861	Cu. Yds.
Com. Channel Exc.		~~50~~	26.2	Cu. Yds.

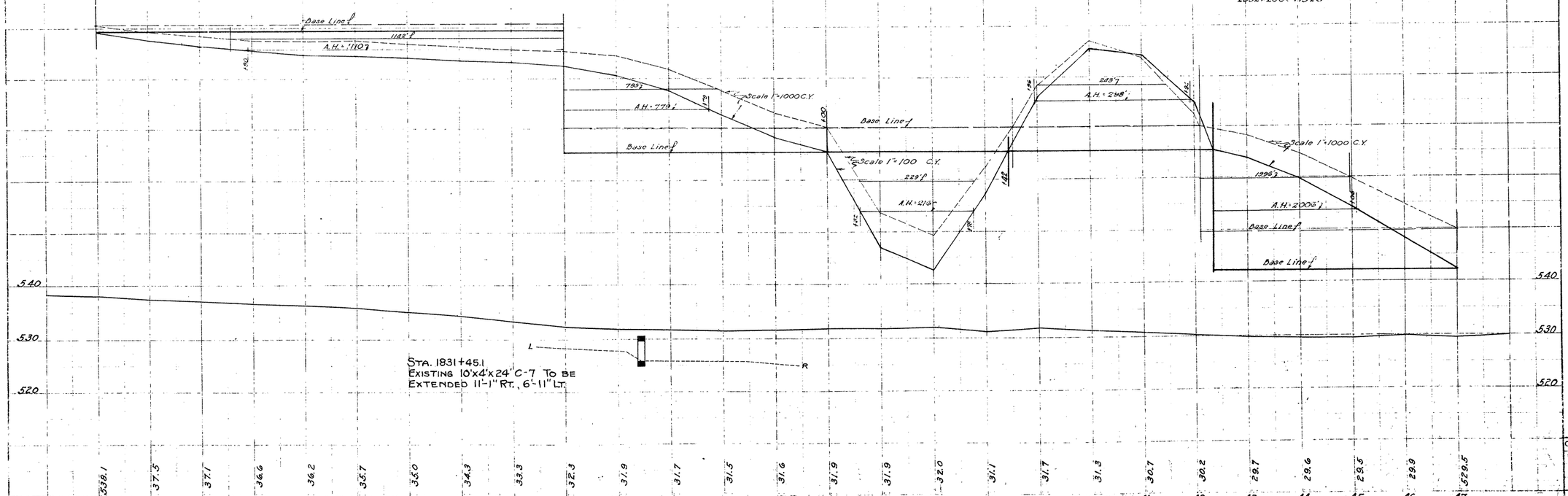
- Shrinkage = 14.28%

Common Road Exc.	~~124~~ 104	~~273~~ 250	~~405~~ 421	~~387~~ 434	~~2038~~ 2332
Common Borrow	~~529~~ 689	~~1517~~ 1103			~~2044~~ 2340
Embankment	~~1619~~ 1711	~~1700~~ 1953	~~405~~ 121	~~387~~ 134	~~4914~~ 5212 Yd. Dirs
Quarter Haul	~~520~~ x ~~1142~~ : ~~1320~~ = ~~450~~ 689 x 1110 ÷ 1320 = 579	~~1517~~ x ~~795~~ : ~~1320~~ = ~~814~~ 1703 x 779 ÷ 1320 = 1005	~~209~~ x ~~229~~ : ~~1320~~ = ~~36~~ 37	~~172~~ x ~~243~~ : ~~1320~~ = ~~32~~ 47	~~2038~~ x ~~1296~~ : ~~1320~~ = ~~3081~~ 3544

Common Borrow from Source No. 15, 500' right station 1830+00

Common Borrow from Source No. 15, 500' right station 1830+00; 2276 x 210 ÷ 1320 =

Common Borrow from Source No. 15, 500' right station 1830+00; 2332 x 200 ÷ 1320 =



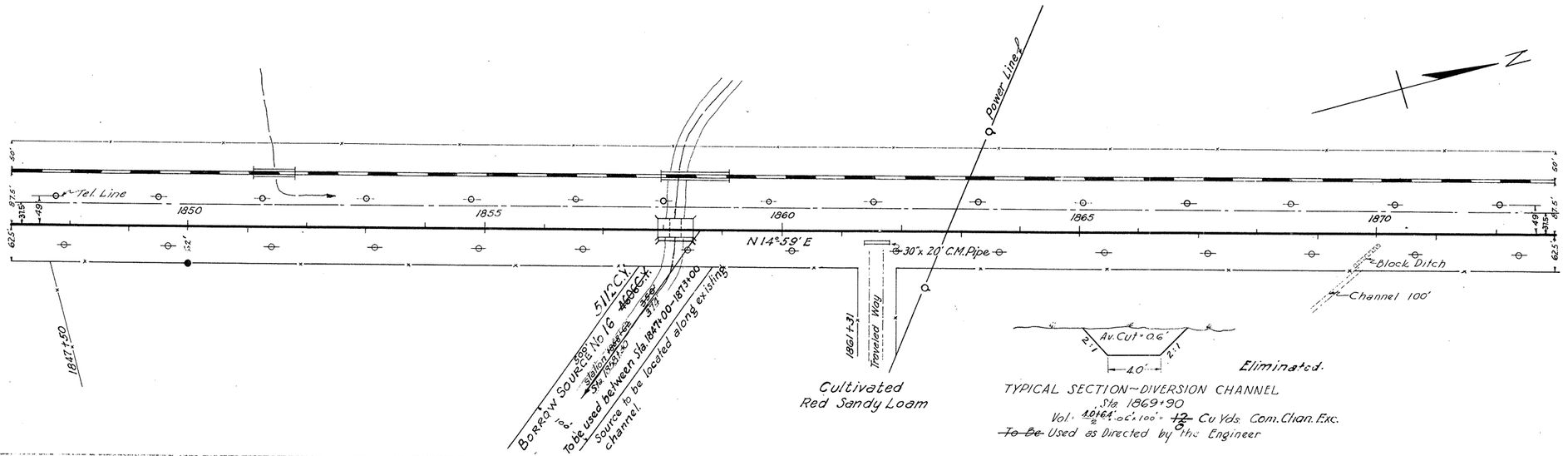
336.1	37.5	37.1	36.6	36.2	35.7	35.0	34.3	33.3	32.3	31.9	31.7	31.5	31.6	31.9	31.9	32.0	31.1	31.7	31.3	30.7	30.2	29.7	29.6	29.5	29.9	29.5
1821	22	23	24	25	26	27	28	29	1830	31	32	33	34	35	36	37	38	39	1840	41	42	43	44	45	46	47

SHEET NOTES

B.M. No. 56 - 50' Lt. Sta. 1828+70
U.S.C.& G.S. - T-38 Elev. 532.83

B.M. No. 57 - 60' Lt. Sta. 1843+25
Spike in tel pole - Elev. 529.15

CONTROL NO. 18	SECTION 3	JOB NO. 3	
FEDERAL PROJECT NO. 6	STATE TEXAS	FEDERAL AID PROJECT NO. 45 ABCD FROM	SHEET NO. 39
STATE DIST. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR BERM) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100	TYPICAL CROSS-SECTION NO.
1847	5	3:1	7½										2
48	5	"	7½										2
49	5	"	7½										2
50	5	"	7½										2
51	5	"	7½										2
52	5	"	7½	13									1
53	5	"	7½	11	2								1
54	5	"	7½	19	2								1
55	5	"	7½	26	2							3R	1
56	2	3:1	5	5									2
57	2	"	5									10R	2
+83	1½	3:1	4	1½									2
58													2
+62	1½	"	1½										2
59	2	3:1	5						D				2
60	2	"	7½						D				2
61	5	3:1	7½	13	2	4	D	4.0L					1
+45	5	"	7½	13	2	4	D	2.5L					1
+55	5	"											1
+75	7½	"											1
+85	7½	"	7½	7	2	4	D	3.4L					1
62	7½	"	7½	2	2	4	D	4.2L					1
63	10	"	7½	3	2	4	D	3.3L					1
64	10	"	7½	4.5	2	4	D	2.4L					1
65	10	"	7½	8	2	4	D	1.6L					1
66	10	"	7½	11	2	4	D	1.5L					1
67	10	"	7½	13	2	4	D	1.2L					1
68	10	"	7½	13	2	4.5	D	.5L					1
+40	10	"	7½	13	2	4	D	.8L					1
+50	10	"	7½	13	2	4	D	.3L					1
+70	10	"	7½	13	2	5	D	.5L					1
+80	7½	"	7½	13	2	4	D	.3L					1
69	7½	"	7½	13	2	5	D	.4L					1
70	7½	"	7½	13	2	4	D	.5R					1
71	7½	"	7½	11	2	4	D	.2L					1
72	7½	"	7½	11	2	4	D	10L					1
73	10	"	7½	13	2	4	D	.7L					1

Type of soil: Sandy Loam
Clearing & Grubbing (R-O-W) 2600×80 = 4.78 Acres, 500'×100'

SHEET TOTALS

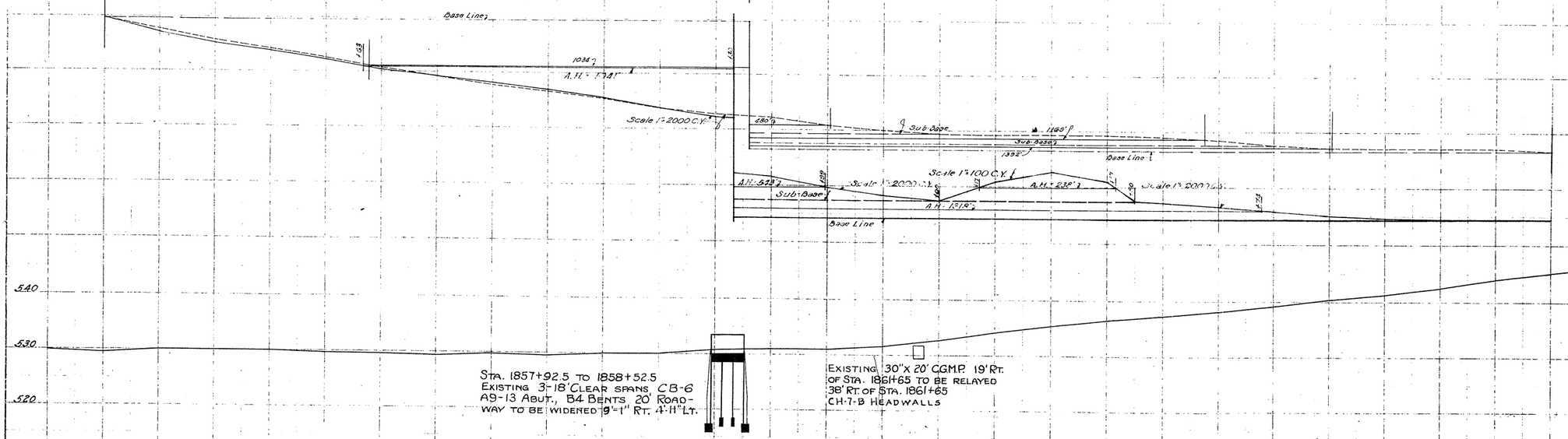
	EST.	CUM.	UNIT
	4.78	4.78	Acres
		1.15	

Shrinkage = 3 or 4%

		EST.	CUM.	UNIT
Common Road Exc.	0 5 0 0 0 0 0 13 ~~15~~ 33 ~~32~~ 46 ~~44~~ 89 ~~65~~ 107 ~~37~~ 11 0 3 0 14 0 2 0 11 ~~41~~ 35 ~~69~~ 59 ~~169~~ 217 ~~159~~ 198 ~~148~~ 150 ~~124~~ 115 ~~89~~ 65 ~~74~~ 50 ~~77~~ 70 ~~98~~ 33 ~~137~~ 137 ~~128~~ 133 ~~104~~ 115	~~1610~~	1805	Cu Yds.
Common Borrow Embankment	~~424~~ 524 ~~389~~ 421 ~~334~~ 338 ~~334~~ 331 ~~363~~ 376 ~~334~~ 342 ~~314~~ 292 ~~326~~ 311 ~~292~~ 342 ~~281~~ 380 ~~195~~ 292 ~~110~~ 131 ~~283~~ 382 ~~228~~ 311 ~~180~~ 241 ~~187~~ 184 ~~173~~ 178 ~~150~~ 165 ~~143~~ 184 ~~189~~ 203 ~~218~~ 200 ~~168~~ 173 ~~143~~ 167 ~~124~~ 138 ~~131~~ 148 ~~165~~ 163	~~4606~~	5112	Cu Yds.
Com. Channel Exc.		~~6216~~	6917	Cu Yds.
		~~12~~	0	Cu Yds.
Common Road Exc.				
Common Borrow Embankment Quarter Haul	~~143~~ 356 ~~346~~ 363 ~~3654~~ 3988 ~~346~~ × ~~1034~~ ÷ 1320 = ~~271~~ 3632 × 1001 ÷ 1320 = 2754	~~7417~~	1149	
		~~1145~~	1480	
		~~2562~~	2929	
	(~~623~~ × ~~480~~ ÷ 1320) + (335 × 1165 ÷ 1320) + (~~787~~ × ~~1392~~ ÷ 1320) = ~~715~~	(920 × 3.13 ÷ 1320) + (3.3 × 238 ÷ 1320)) + (300 × 1318 ÷ 1320) = 948	~~3430~~	3812	Yd. Qtr.

Common Borrow from Source No. 16
374 ~~350~~' right Sta. ~~1858+62~~ 1858+130

Common Borrow from Source No. 16
374 ~~350~~' right Station ~~1858+62~~ 1858+130

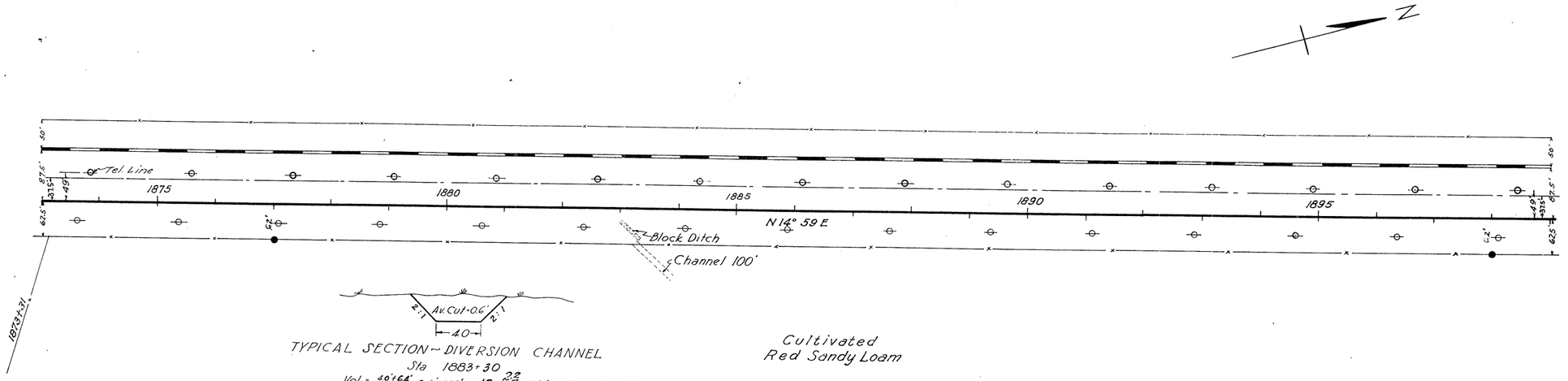


SHEET NOTES

B.M. No. 58 - 60' Lt. Sta. 1857+25
Spike in tel. pole - Elev. 529.11.

Sta. 1861+65 - 30" C.G.M. Pipe under traveled way to be relocated 35' from ℄ of highway by the Contractor

CONTROL NO. 18	SECTION 3	JOB NO. 3
STATE: TEXAS	FED. AID PROJECT NO. V65 RDCO PROJ.	SHEET NO. 40
COUNTY		



CROSS SECTION DATA

STATION NUMBER	BERM (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH — (FEET)	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	BERM (OR CONCRETE) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS SECTION NO.
18 73						10 34	7½	1 3	2 4	D	.7	L	1
74						10 "	7½	1 2	4	D	.9	L	1
75						10 "	10	1 5	4	D	1.0	L	1
76						10 "	10			D	.5	L	2
77						10 "	10			D	.2	L	2
78						10 "	10			D	.2	L	2
79						7½ "	7½			D	1.2	R	2
80						7½ "	7½	1 8	2 4	D	6	R	1
81						7½ "	7½	1 8	2 4	D	.9	R	1
82						7½ "	7½	1 7	2 4	D	1.0	R	1
83						7½ "	7½	1 8	2 4	D	.9	R	1
84						7½ "	7½	1 8	2 4	D	.4	R	1
85						7½ "	7½	1 8	2 5	D	.5	L	1
86						7½ "	7½	1 8	2 4	D			1
87						7½ "	7½	1 8	2 4	D			1
88						7½ "	7½	1 8	2	D			1
89						7½ "	7½	1 7	2 4	D	.3	L	1
90						7½ "	7½	1 5	2 4	D	.3	L	1
91						7½ "	7½	1 4	2 4	D	.6	L	1
92						7½ "	7½	1 6	2 4	D	.3	L	1
93						7½ "	7½	1 6	2 4	D	.3	L	1
94						7½ "	7½	1 5	2 4	D	.4	L	1
95						7½ "	7½	1 5	2 4	D	.7	L	1
96						7½ "	7½	1 5	2 4	D	.5	L	1
97						7½ "	7½	1 2	2 4	D	.6	L	1
98						7½ "	7½	1 1	2 4	D			1
99						7½ "	7½	1 0	2 4	D	1.0	L	1

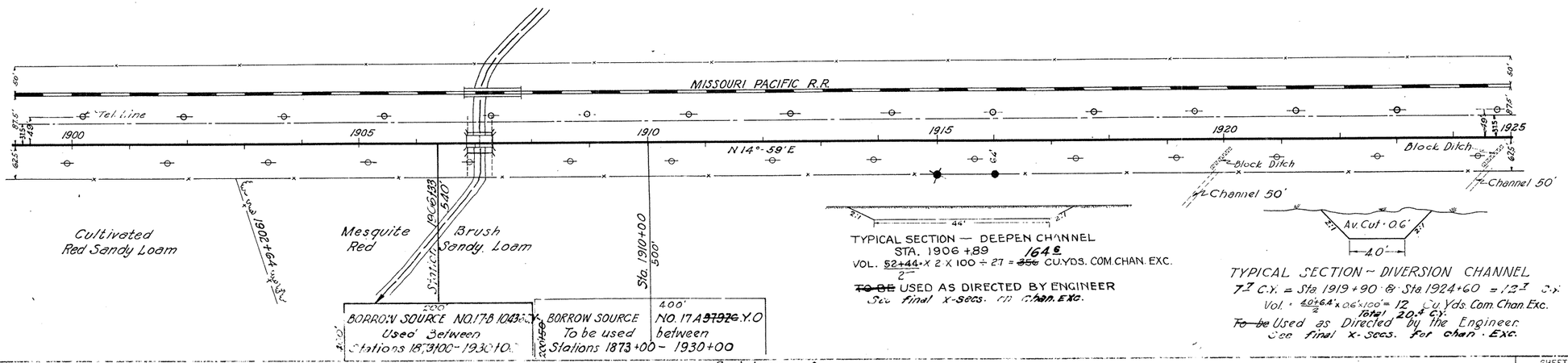
Type of Soil — Sandy Loam

Clearing & Grubbing (R.O.W.) — 2600x80 = 4.78 Acres

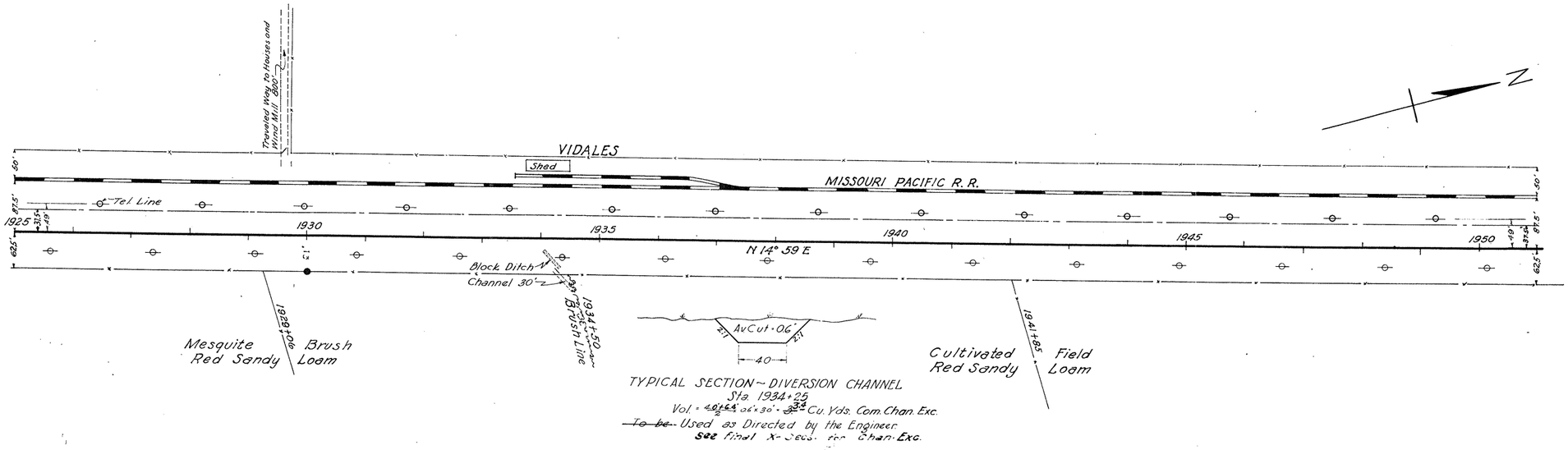
SHEET TOTALS — EST. 4.78 — FINAL — UNIT 4.78 Acres

Swellage = 3.08%

| | | | | | |


MISSOURI PACIFIC R.R.
Tel. Line
1900
1905
1910
1915
1920
1925
N 14°-59'E
Cultivated
Red Sandy Loam
Mesquite
Red
Brush
Sandy Loam
Sta. 1902+64
Sta. 1910+00
Block Ditch
Block Ditch
Channel 50'
Channel 50'
BORROW SOURCE NO. 17B
Used between
Stations 1873+00 - 1930+00
BORROW SOURCE NO. 17A
To be used between
Stations 1873+00 - 1930+00
TYPICAL SECTION — DEEPEN CHANNEL
STA. 1906+89
VOL. 52+44 X 2 X 100 ÷ 27 = CU.YDS. COM. CHAN. EXC.
TO BE USED AS DIRECTED BY ENGINEER
See final X-Secs. for Chan. Exc.
TYPICAL SECTION — DIVERSION CHANNEL
Av. Cut 0.6'
40'
Sta 1919+90 & Sta 1924+60 = 12 C.Y.
Vol. = 40+64 x 0.6 x 100 = 12 Cu.Yds. Com. Chan. Exc.
Total 20.4 C.Y.
To be Used as Directed by the Engineer.
See final X-Secs. for Chan. Exc.

| | | |



CROSS SECTION DATA

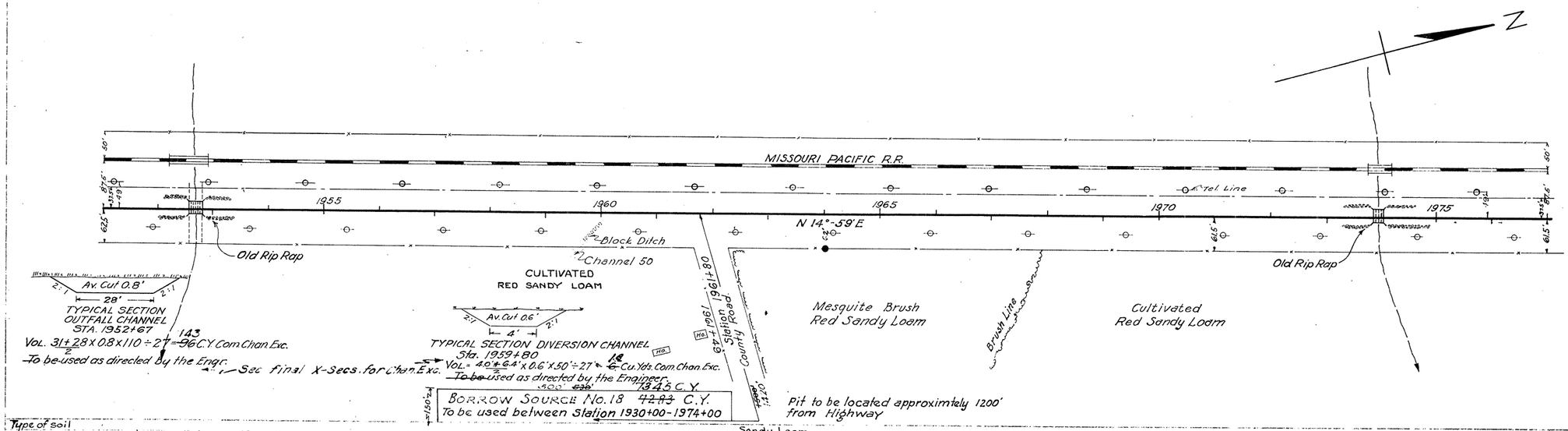
STATION NUMBER	BERM (OR BORROW) WIDTH, FT.	SLOPE (RATIO TO 1)	DITCH (OR BORROW) DEPTH FT.	DITCH (OR BORROW) WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH (OR CEPH) WIDTH FT.	DITCH (OR BORROW) DEPTH FT.	SLOPE (RATIO TO 1)	BERM (OR BORROW) WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS-SECTION NO.
1925	7½	3	4	15	2	4	D						1
26	7½	"	"	14	2	4	D	0.3	L.				1
27	7½	"	"	15	2	4	D						1
28	10	"	"	13	1.5	4	D						1
29	10	"	"	13	1.5	4	D	0.8	L.				1
30	10	"	"	13	1.5	4	D	1.3	L.				1
31	10	"	"	10	1.5		D						1
32	10	"	"	10	"		D	0.5	L.				1
33	7½	"	"	15	2		D						1
34	7½	"	"	17	2								1
35	7½	"	"	18	2								1
36	7½	"	"	10	2			1.3	R				1
37	7½	"	"	20	2			1.3	R.				1
38	7½	"	"	23	2	7½	1	1.2	R				1
39	7½	"	"	23	2	5	1	1.5	R				1
40	7½	"	"	23	2	5	1	1.5	R				1
41	7½	"	"	23	2	10	1	1.7	R				1
42	7½	"	"	23	2	10	1	1.0	R				1
43	7½	"	"	23	2	4½	1						1
44	7½	"	"	7½									2
45	7½	"	"	7½									2
46	7½	"	"	7½									2
47	7½	"	"	7½									2
48	7½	"	"	23	2	4	3						1
49	7½	"	"	23	2	7½	3						1
50	7½	"	"	7½									2
51	5	"	"	5									2

Type of soil — Sandy Loam

Clearing & Grubbing (R.O.W.) — 2600 ÷ 80 = 4.78 Acres

SHEET TOTALS

| | | | | | | | | |



VOL. 31+28 X 0.8 X 110 ÷ 27 = 143 96 C.Y. Com Chan Exc.

~~To be~~ used as directed by the Engr.

See final X-Secs. for Chan. Exc.

VOL. = 40+64 X 0.6' X 50' ÷ 27 = ~~C~~ Cu. Yds. Com. Chan. Exc.

~~To be~~ used as directed by the Engineer.

~~400~~ ~~638~~ 1345 C.Y.

BORROW SOURCE No. 18 ~~4283~~ C.Y.
To be used between Station 1930+00 - 1974+00

Type of soil
Clearing & Grubbing (R.O.W.) Sandy Loam 2600 x 80 = 478 Acres

478 4.76 Acres

Shrinkage = 5.37 %

Common Road Exc. ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~24~~ 46 ~~70~~ 76 ~~37~~ 41 ~~41~~ 42 ~~37~~ 36 ~~41~~ 26 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~37~~ 41 ~~85~~ 83 ~~48~~ 43 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~390~~ 459 Cu. Yds.
Common Borrow
Embankment ~~237~~ 274 ~~88~~ 105 ~~109~~ 203 ~~228~~ 244 ~~201~~ 206 ~~173~~ 183 ~~191~~ 196 ~~206~~ 157 ~~194~~ 178 ~~206~~ 190 ~~225~~ 206 ~~194~~ 173 ~~163~~ 171 ~~149~~ 159 ~~186~~ 185 ~~213~~ 229 ~~213~~ 262 ~~244~~ 257 ~~265~~ 234 ~~189~~ 166 ~~145~~ 154 ~~230~~ 248 ~~165~~ 181 ~~160~~ 194 ~~261~~ 261 ~~292~~ 287 ~~5197~~ 5306 Cu. Yds.
Com. Channel Exc. ~~4759~~ 4817 Cu. Yds.
~~402~~ 1413 Cu. Yds.

Common Road Exc. ~~220~~ 209
Common Borrow ~~1853~~ 1823
Embankment ~~2073~~ 2115
Quarter Haul ~~1853~~ X ~~2060~~ : ~~1320~~ = ~~2892~~ 1823 X 2041.5 : 1320 = 2826

Common Borrow from source No. 18
1420' ~~1500~~ right of station 1961+80

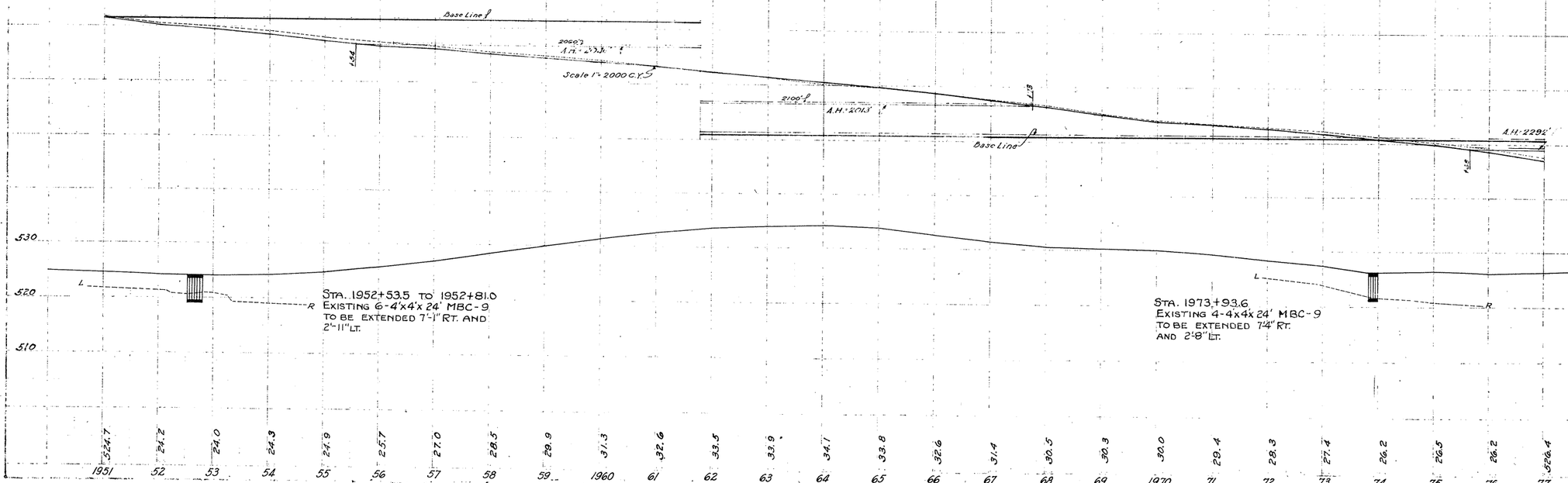
~~0~~ 0
~~1780~~ 1754

~~170~~ 167
~~2231~~ 2282
~~2401~~ 2449
~~2231~~ X ~~2100~~ ÷ ~~1320~~ = ~~3549~~ 2290 X 2013 : 1320 = 3491

Common Borrow from Source No. 18
1420' ~~1500~~ Rt. of Sta. 1961 + 80

~~0~~ 0
~~713~~ 742
1414 X ~~2250~~ : 1320 = ~~1397~~ 1288 ~~7818~~ 1594 Yd. Qtrs.

Common Borrow from Source No. 19 ~~500~~ Rt. of Sta. ~~1996+25~~ 1996+00



STA. 1952+53.5 TO 1952+81.0
EXISTING 6-4'x4'x 24' MBC-9
TO BE EXTENDED 7'-1" RT. AND
2'-11" LT.

STA. 1973+93.6
EXISTING 4-4x4x 24' MBC-9
TO BE EXTENDED 7'4" RT.
AND 2'-8" LT.

524.7 24.2 24.0 24.3 24.9 25.7 27.0 28.5 29.9 31.3 32.6 33.5 33.9 34.1 33.8 32.6 31.4 30.5 30.3 30.0 29.4 28.3 27.4 26.2 26.5 26.2 526.4

1951 52 53 54 55 56 57 58 59 1960 61 62 63 64 65 66 67 68 69 1970 71 72 73 74 75 76 77

CROSS SECTION DATA

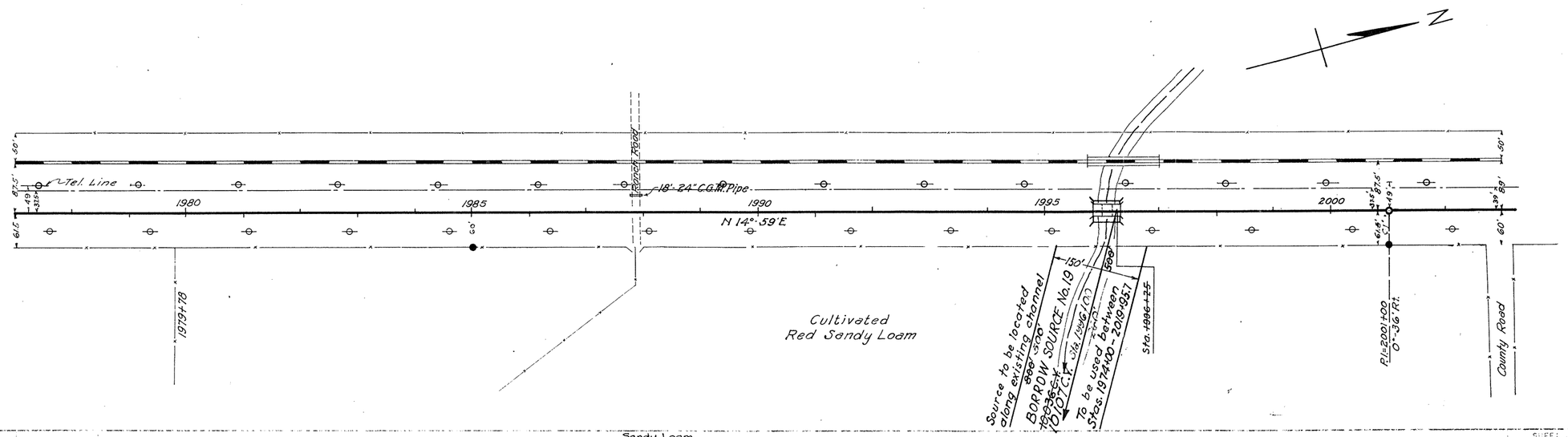
STATION A.M.	BEAM OR BARROW WIDTH FT.	SLOPE (RATIO TO 1)	DITCH OR BORROW DEPTH FT.	DITCH OR BORROW WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH—(FEET)	SLOPE (RATIO TO 1)	DITCH OR BERM WIDTH FT.	DITCH OR BORROW DEPTH FT.	SLOPE (RATIO TO 1)	BERM OR BARROW WIDTH FT.	AVERAGE GROUND SLOPE PER 100'	TYPICAL CROSS SECTION NO.
1951			5	34	5								2
52			5	"	5								2
+ 48			1½	"	1½								2
+ 86			1½	"	1½								2
53			5	"	5								2
54			5	"	5								2
55			7½	"	7½								2
56			7½	"	7½	23	2	4	3	0	J	R	1
57			10	"	10.5	1.5	12			0.7	L		1
58			10	"	10.5	1.5	10			0.3	L		1
59			10	"	10.5	1.5	10			0.3	R		1
60			10	"	10	1.1	1.5			1.7	R		1
61			10	"	10					1.6	R		2
+ 50			10	"	10					1.8	R		2
+ 60			10	"	10					2.0	R		2
62			10	"	10					2.1	R		2
+ 15			10	"	10					2.0	R		2
63			10	"	10					1.5	R		2
64			10	"	10					2.0	R		2
65			10	"	10					2.0	R		2
66			10	"	10					1.7	R		2
67			10	"	7½					2.3	R		2
68			7½	"	7½					1.5	R		2
69			7½	"	7½								2
70			7½	"	7½					0.7	R		2
71			7½	"	7½	23	2	7½	3	1.7	R		1
72			7½	"	7½	23	2	4½	3	1.1	R		1
73			7½	"	7½					0.3	R		2
+ 79			1½	"	1½								2
74	Bridge												
+ 08			1½	34	1½								2
75			5	"	5								2
76			7½	"	5								2
77			7½	"	6								2

SHEET NOTES

B.M. No 65 - 60' Lt. Sta 1968+10
Spike in tel pole - Elev 530.76

Sta. 1952+70 and Sta. 1973+94 Old Rip Rap may be removed by State Highway Maintenance forces, otherwise it is to be left in embankment.

CONTROL NO 18 | SECTION 3 | JOB NO 2
DISTRICT NO. 4 | SHEET NO. 44
STATE | STATE NO. | HIGHWAY NO.
VESTABCO ROAD



Type of soil — Sandy Loam

Clearing & Grubbing R.O.W. — 2,600 x 80 = 4.78 Acres

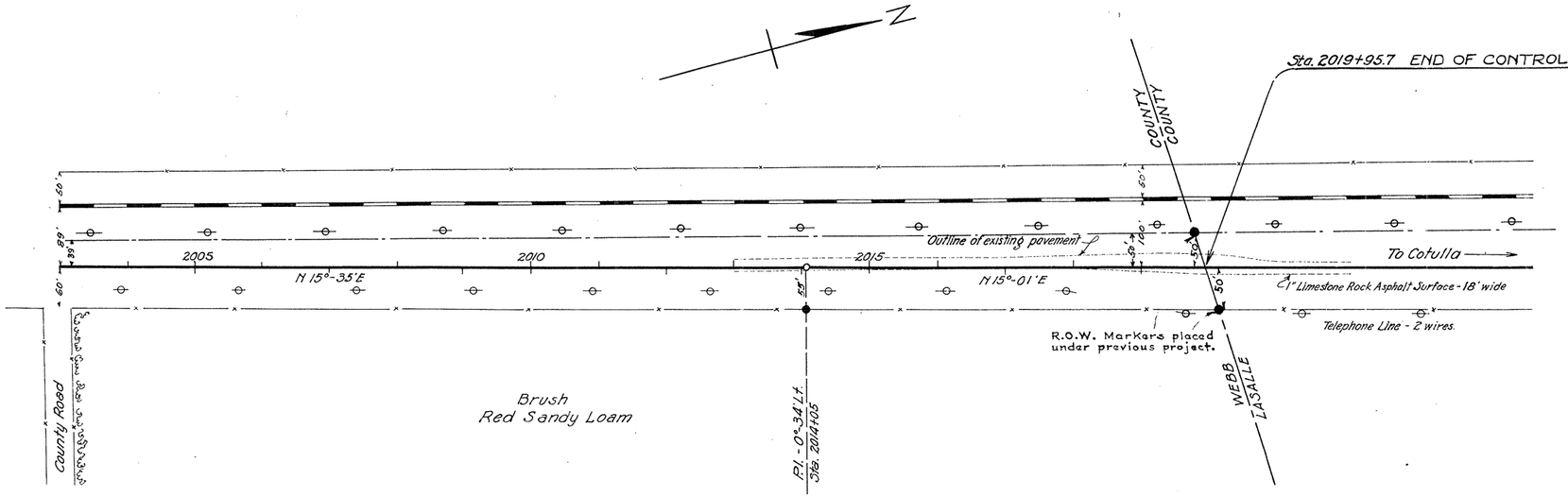
" " (Borrow Source) — 500 x 100 = 1.15 Ac.

SHEET TOTAL

	STA.	FINAL	UNIT
	4.78	4.78	Acres
		1.15	Acres

Shrinkage = 5.39 %

| | | |



CROSS SECTION DATA

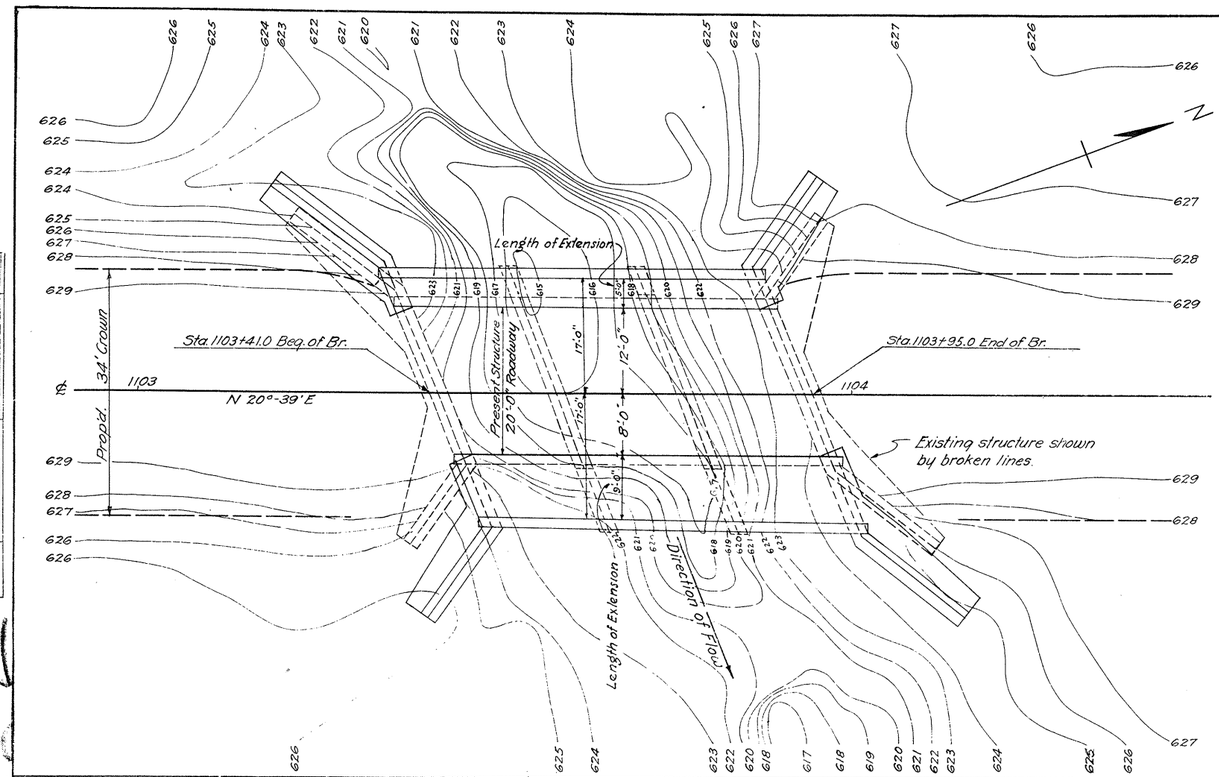
				WIDTH FT.			
				DEPTH (OR SUPERELEV.) FT.			
				SLOPE (RATIO TO 1)			
				WIDTH (OR BOTTOM) FT.			
				DEPTH (OR BOTTOM) FT.			
				SLOPE (RATIO TO 1)			
				WIDTH (OR BOTTOM) FT.			
				CLOSE GRID SECTION NO.			
				TYPICAL CROSS SECTION NO.			
12003		10	34	10		02 R	2
	04	10	"	10		0.5 R	2
	05	10	"	10		1.0 R	1
	06	10	"	10		0.2 R	2
	07	10	"	10.5	1.5 4	1.0 R	1
	08	10	"	10.5	1.5	2.5 R	1
	09	15	"	10.5	1.5		1
	10	15	"	10			2
	11	15	"	10			2
	12	15	"	10			2
	13	15	"	10			2
	14	15	"	10			2
	15	15	"	10			2
	16	15	"	10			1
	17	15	"	7½			2
	18	15	"	7½	4 2		1
	19	10	"	7½			2
+ 95.7		10	"	7½			2

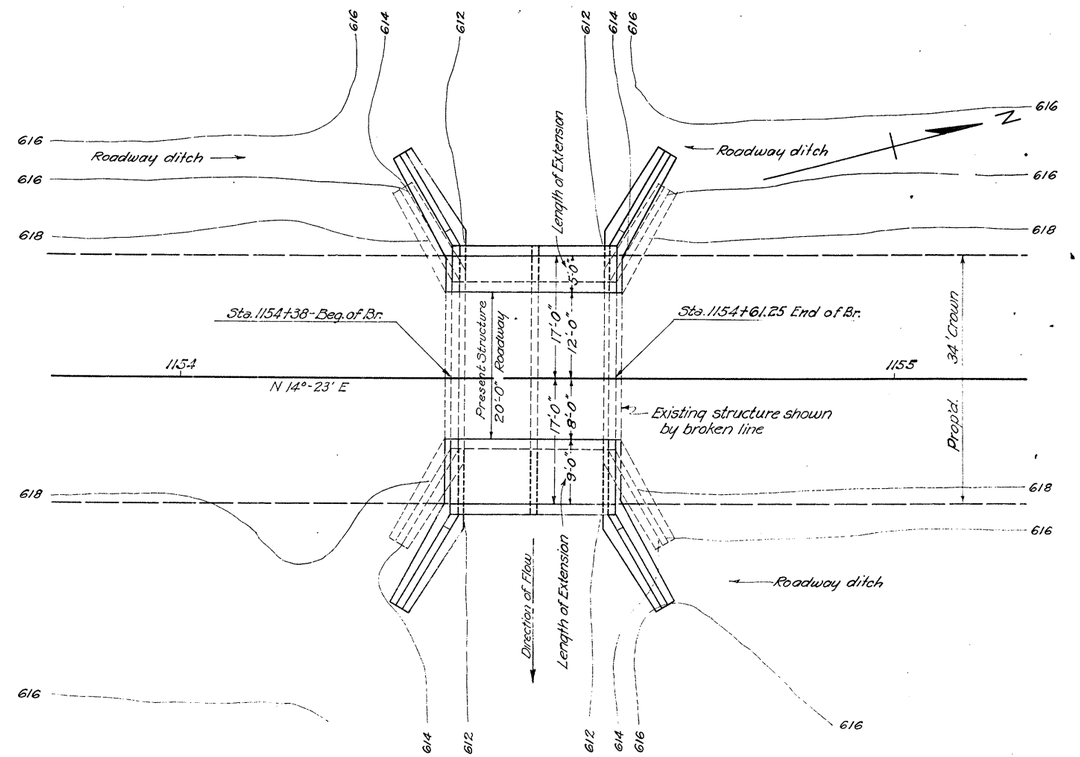
Type of soil: Sandy Loam

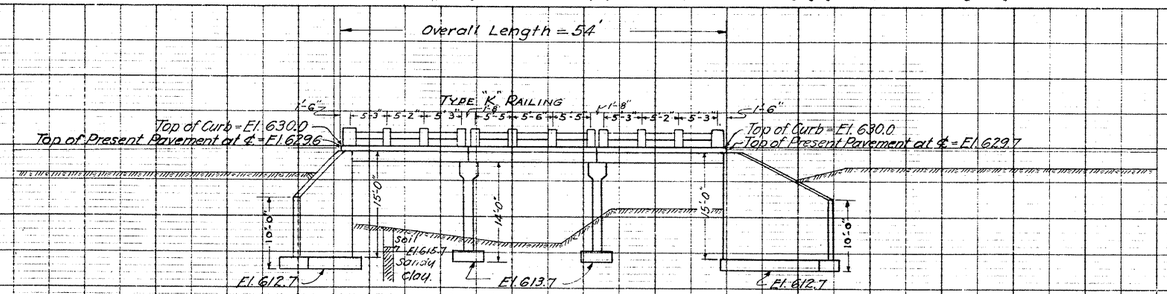
Clearing & Grubbing (R.O.W.) — 169.5 x 80 = 3.12 Ac. — 3.12 Acres

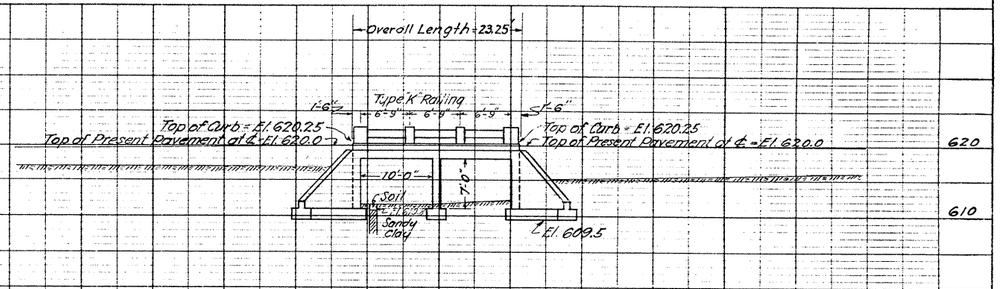
— Shrinkage = 5.39 % —

| | | | | | | |









LAYOUT
BRIDGE
STA. 1103+41.0-1103+95.0

ESTIMATED QUANTITIES

	STRUCTURAL EXCAV. Cu. Yds.	CLASS "A" CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE "K" Lin. Ft.
3-16' Clear Spans CB.C. Skew. Widen 5'-0" Lt. and 9'-0" Rt.		48.78	5343	108
2-A9-15' Abutments, Skew. Widen 5'-0" Lt. and 9'-0" Rt.		72.32	7333	
2-B-4 Skew Bents, 14'. Widen 5'-0" Lt. and 9'-0" Rt.		25.44	2430	
TOTALS	335	146.54	15106	108

LAYOUT OF
BRIDGE
STA. 1154+38.0-1154+61.25

ESTIMATED QUANTITIES

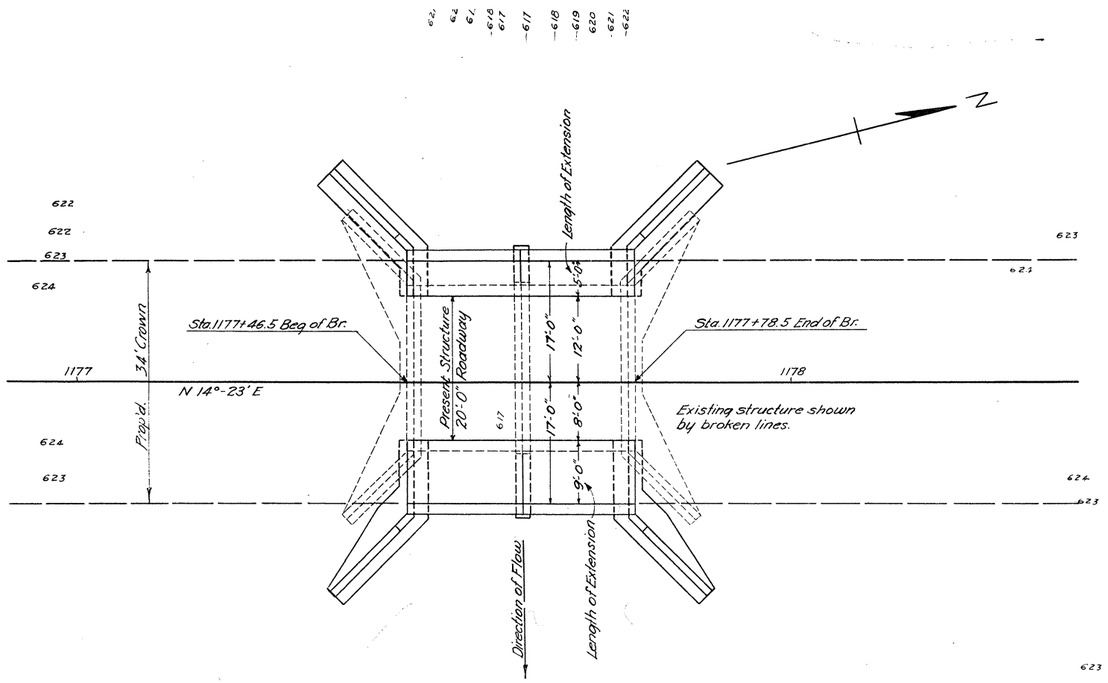
	STRUCTURAL EXCAV. Cu. Yds.	CLASS "A" CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE "K" Lin. Ft.
2-10'X7' Multiple C-6. Widen 5'-0" Lt. and 9'-0" Rt.	47	55.85	2346	46

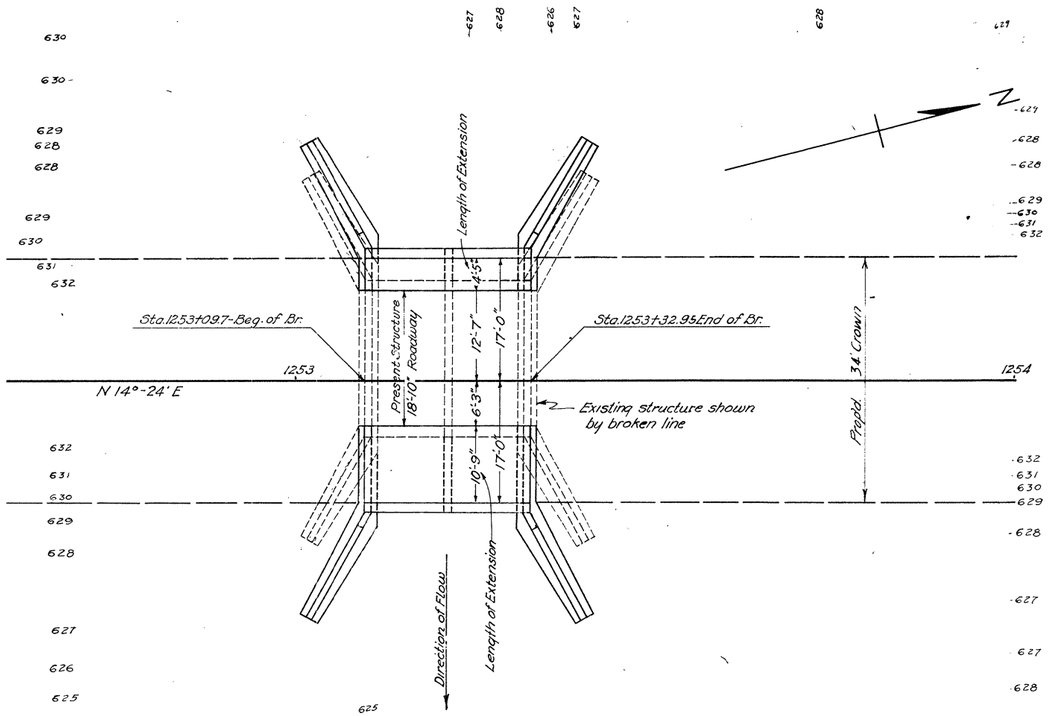
CONTROL 18	SECTIONS 4	JOB 3
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL AID PROJECT NO. 16 SABCD Proj.	SHEET NO. 43
STATE DIV. NO. 21	COUNTY WEBB	STATE PROJECT NO.	HIGHWAY NO. 2

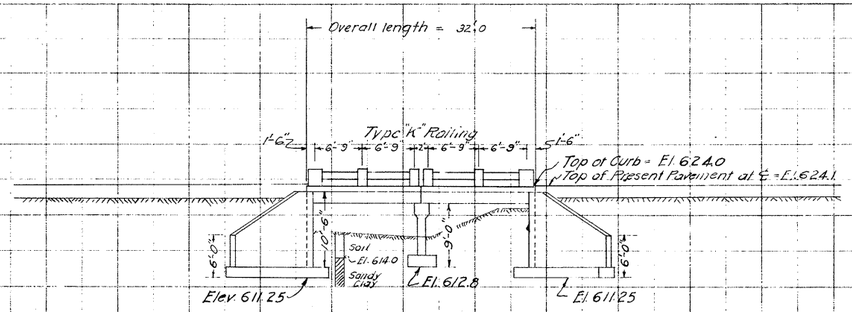
PLAN — SURVEYED: PLOTTED: ALIGNMENT CHECKED: BY: NOTE BOOK: NO.: — DATE: BY: CHECKED: STRUCTURE NOTATIONS CHKD.

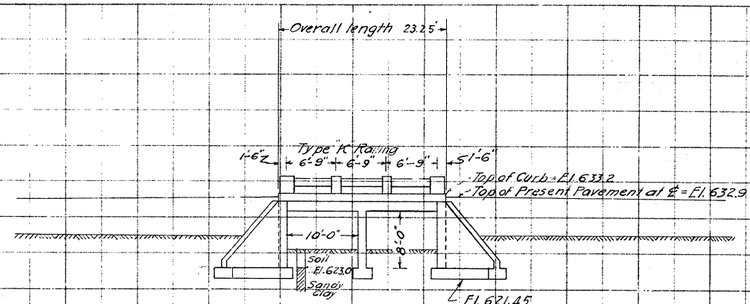
PROFILE — SURVEYED: PLOTTED: PROFILE CHECKED: BY: M.S. NOTED: NOTE BOOK: NO.: — DATE: BY: CHECKED: STRUCTURE NOTATIONS CHKD.

PLATE 1—PLAN-PROFILE O. P. R & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.









LAYOUT OF BRIDGE
STA. 1177+46.5 - 1177+78.5

ESTIMATED QUANTITIES

	STRUCTURAL EXCAV. Cu. Yds.	CLASS A CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE 'K' Lin. Ft.
2-14' Clear Spans CB-6 Widen 5'-0"Lt. and 9'-0"Rt.		26.84	3026	64
2-Abutments, A9-10'-6" Widen 5'-0"Lt. and 9'-0"Rt.		50.98	3276	
1-Bent, B-4, 9'-0" Widen 5'-0"Lt. and 9'-0"Rt.		7.90	921	
TOTALS	224	85.72	7223	64

LAYOUT OF BRIDGE
STA. 1253+09.7 - 1253+32.95

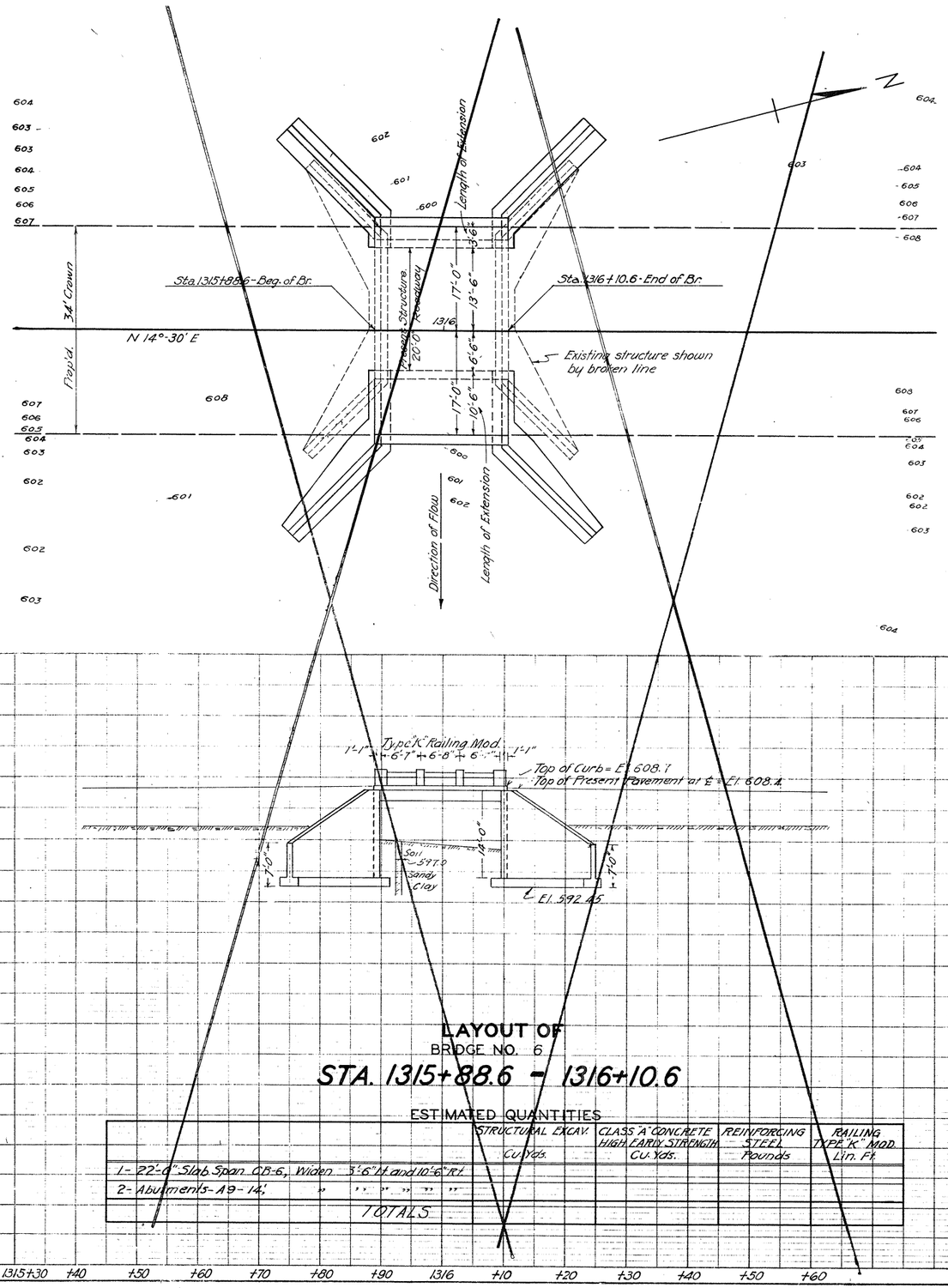
ESTIMATED QUANTITIES

	STRUCTURAL EXCAV. Cu. Yds.	CLASS 'A' CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE 'K' Lin. Ft.
2-10'x8' Multiple C-6, Widen 4'-5"Lt. and 10'-9"Rt.	78	63.92	2609	46

CONTROL 18	SECTIONS 4	JOB No. 3
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL AID PROJECT NO. 65 BRD REOR
SHEET NO. 8B		
STATE DIV. NO. 21	COUNTY WEBB	STATE PROJECT NO.
HIGHWAY NO. 2		

1177 +10 +20 +30 +40 +50 +60 +70 +80 +90 1178 +10 +20 +30 1252+50 +60 +70 +80 +90 1253 +10 +20 +30 +40 +50 +60 +70 +80 +90 1254

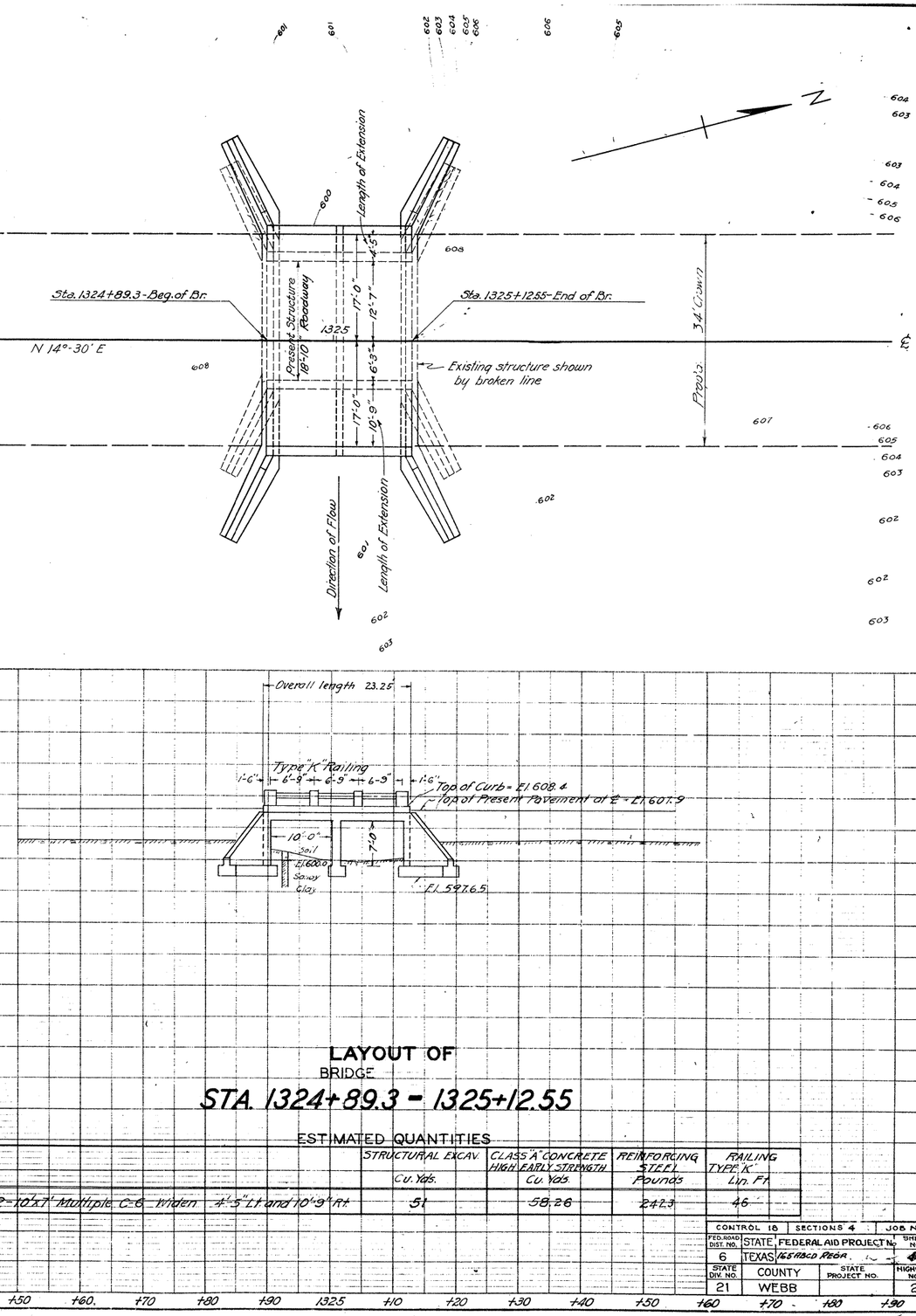
PLATE 1 - PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.



LAYOUT OF
BRIDGE NO. 6
STA. 1315+88.6 - 1316+10.6

ESTIMATED QUANTITIES

	STRUCTURAL EXCAV. Cu.Yds.	CLASS "A" CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE "K" MOD. Lin. Ft.
1 - 22'-0" Slab Span CB-6, Widen 3'-6" Lt and 10'-6" Rt.				
2 - Abutments - A9 - 14', " " " " " "				
TOTALS				



LAYOUT OF
BRIDGE
STA. 1324+89.3 - 1325+12.55

ESTIMATED QUANTITIES

	STRUCTURAL EXCAV. Cu. Yds.	CLASS "A" CONCRETE HIGH EARLY STRENGTH. Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE "K" Lin. Ft.
2 - 10'x1' Multiple C-6 Widen 4'-5" Lt and 10'-9" Rt.	51	58.26	2423	46

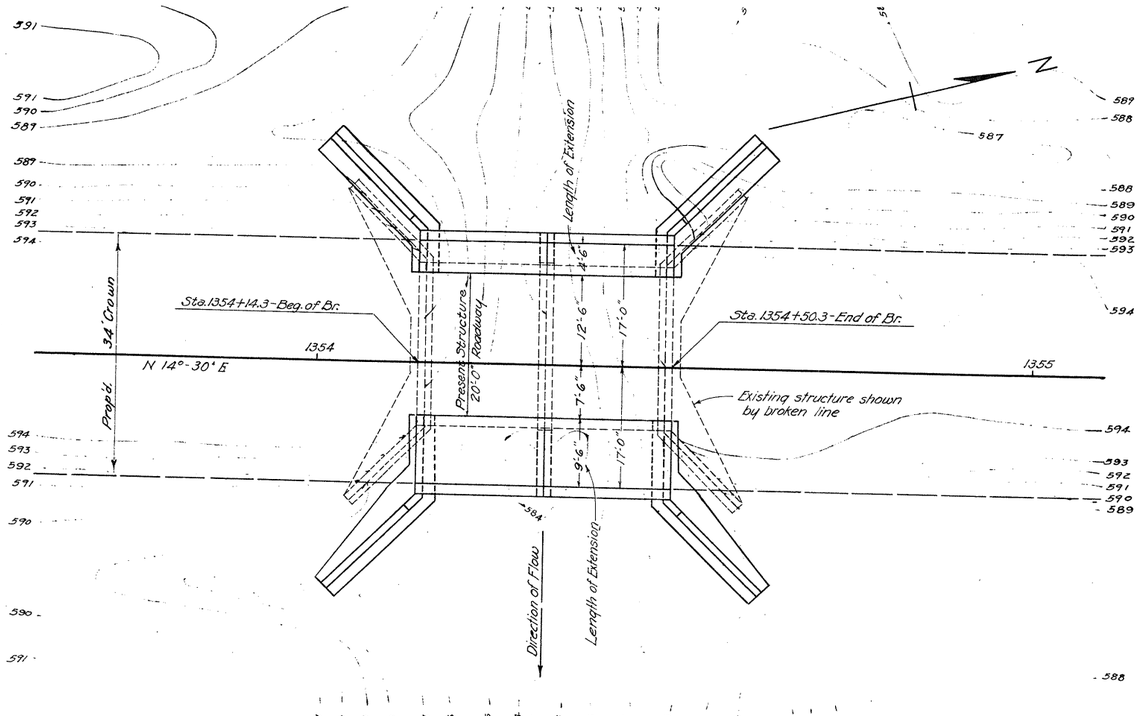
CONTROL 18	SECTIONS 4	JOB NO. 3
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL AID PROJECT NO. 165 F(8)CD, REGA
SHEET NO. 49		

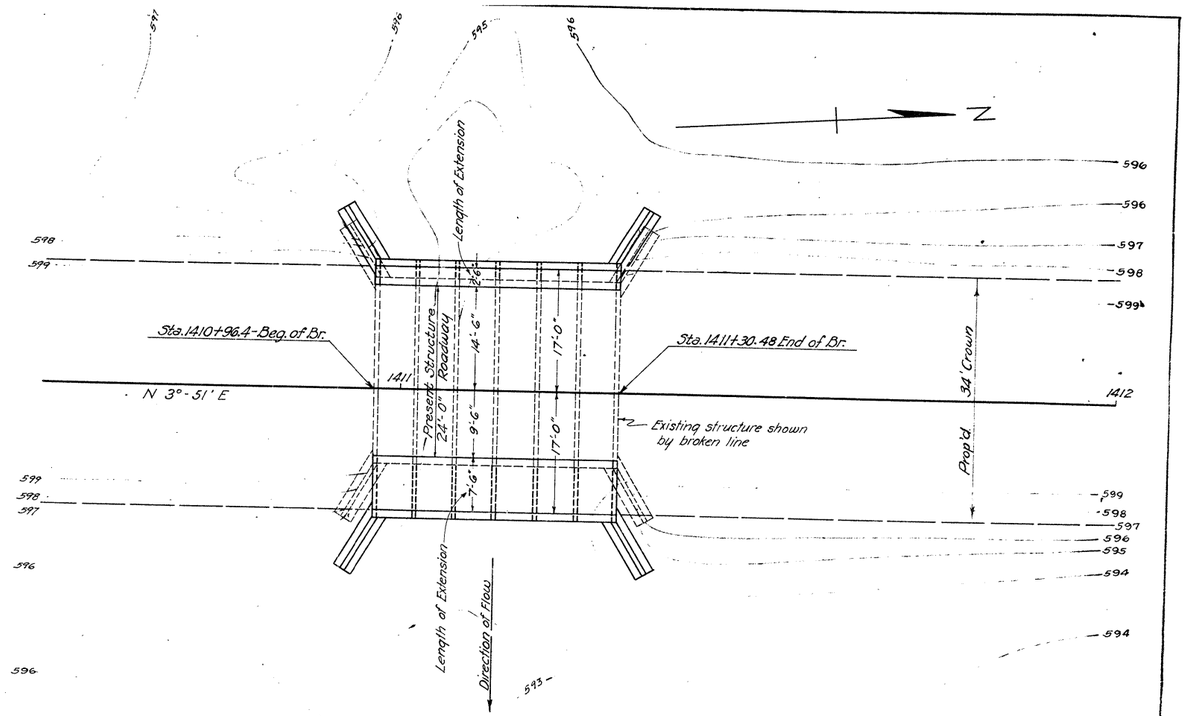
STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
21	WEBB		2

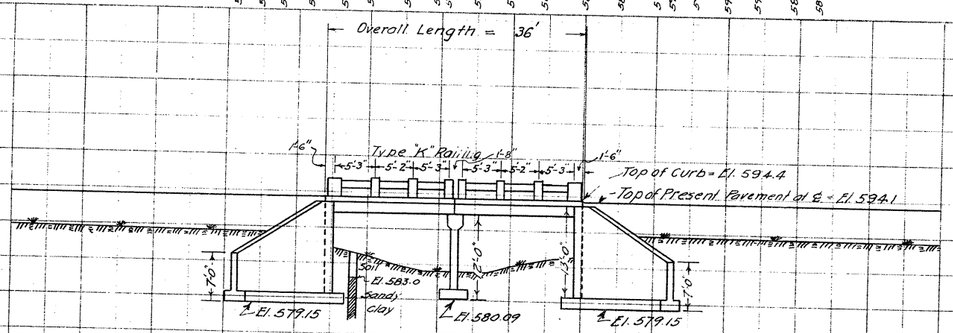
1315+30 +40 +50 +60 +70 +80 +90 1316 +10 +20 +30 +40 +50 +60

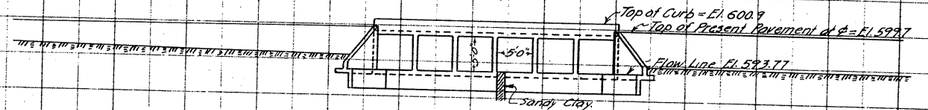
1324+30 +40 +50 +60 +70 +80 +90 1325 +10 +20 +30 +40 +50 +60 +70 +80 +90

PLATE 1 - PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.









LAYOUT OF BRIDGE
STA. 1354+14.3 - 1354+50.3

ESTIMATED QUANTITIES

				STRUCTURAL EXCAV.	CLASS 'A' CONCRETE (HIGH EARLY STRENGTH) CU. YDS.	REINFORCING STEEL Pounds	RAILING TYPE 'K' LIN. FT.
2-16' Clear Spans	CB-6, Widen	A-6" ll and 9"-6" Rt.			32.50	3472	72
2-Abutments, A9-13'	"	"	"		66.24	5914	
1-Bent, B-A-12	"	"	"		9.46	1161	
			TOTALS	280	108.20	10547	72

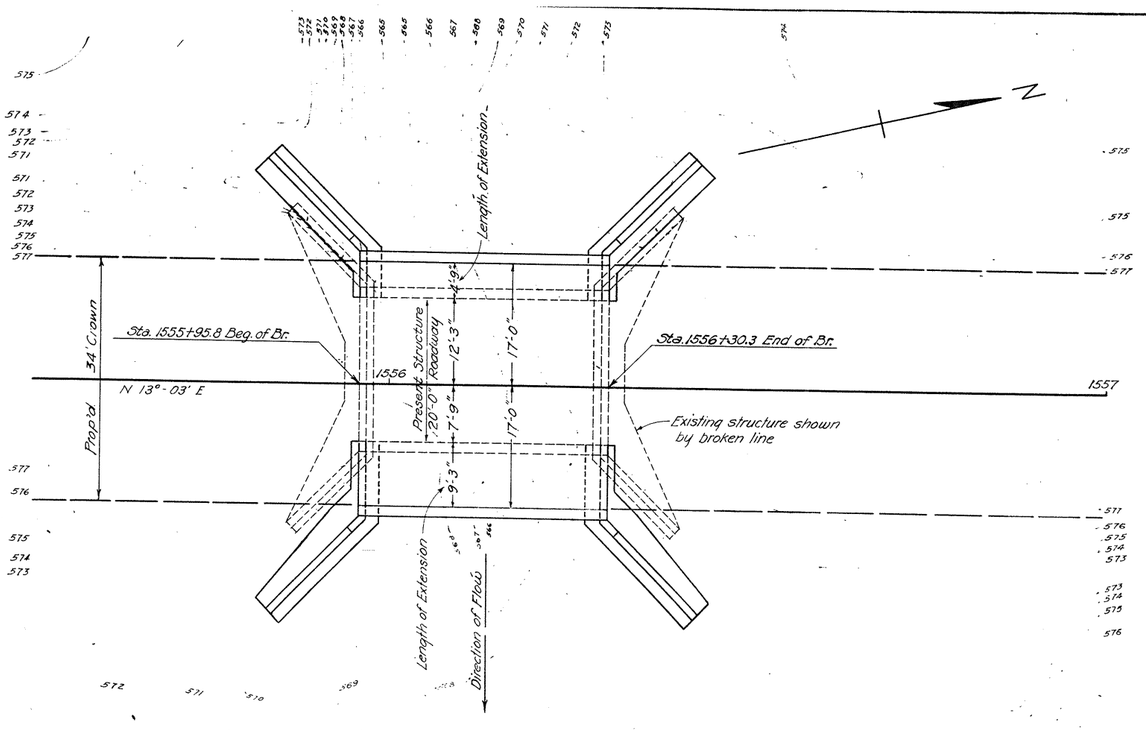
LAYOUT OF BRIDGE
STA. 1410+96.4 - 1411+30.48

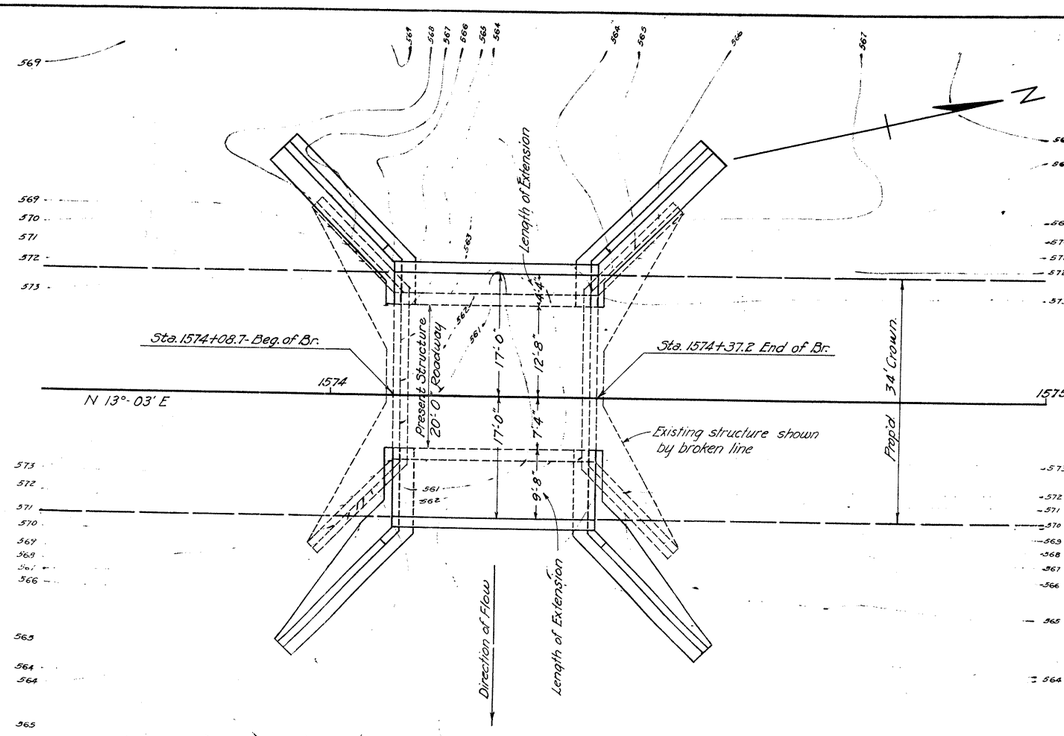
ESTIMATED QUANTITIES

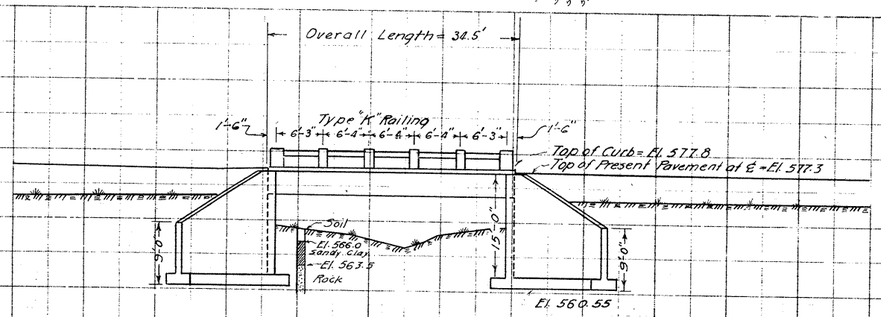
			STRUCTURAL EXCAV.	CLASS 'A' CONCRETE EXTENDING STRUCTURE	REINFORCING STEEL
			CU. YDS.	CU. YDS.	Pounds
6-5'x5' MBC-5	Widen	2'-6" Lt. and 7'-6" Rt.	34	37.04	4361

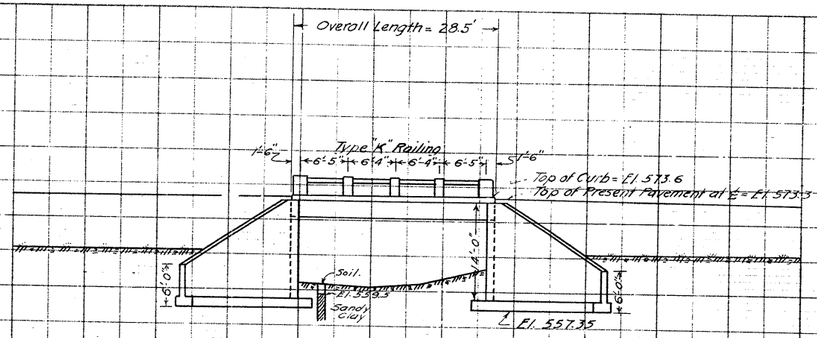
CONTROL 18	SECTIONS 4		JOB No. 3
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	65 ABCD FROM	50
STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
21	WEBB		2

PLATE 1 — PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.









LAYOUT OF BRIDGE
STA. 1555+95.8 - 1556+30.3

ESTIMATED QUANTITIES

	STRUCTURAL EXCAV. UNCL. Cu.Yds.	STRUCTURAL EXCAV. SOLID ROCK Cu. Yds.	CLASS "A" CONCRETE HIGH EARLY STRENGTH Cu.Yds.	REINFORCING STEEL Pounds	RAILING TYPE "K" Lin. Ft.
1-32'-0" Clear Span, G-266. Widen 4'-9" Lt and 9'-3" Rt			36.86	7871	69
2-Abutments, A9 " " " " "			73.98	6964	
TOTALS	172	82	110.84	14835	69

LAYOUT OF BRIDGE
STA. 1574+08.7 - 1574+37.2

ESTIMATED QUANTITIES

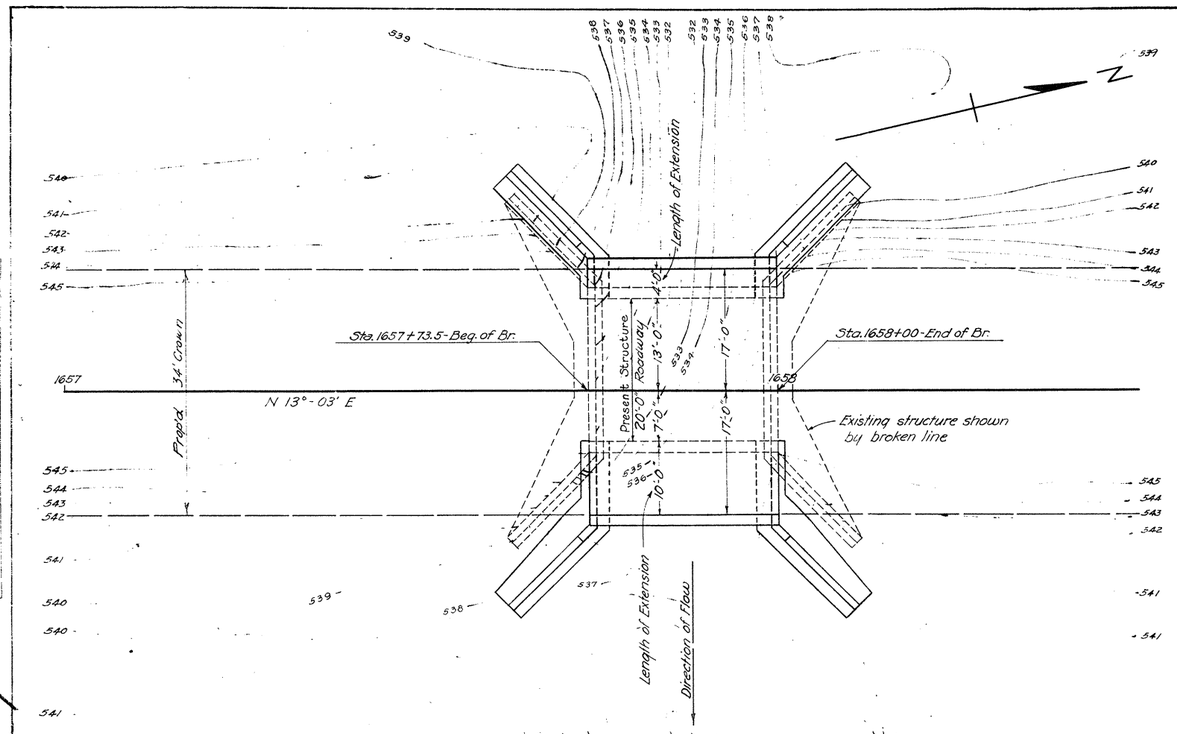
	STRUCTURAL EXCAV. Cu. Yds.	CLASS "A" CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE "K" Lin. Ft.
1-26'-0" Clear Span, G-265. Widen 4'-4" Lt and 9'-8" Rt.		24.41	6332	57
2-Abutments, A9-14' " " " " "		77.42	6945	
TOTALS	203	101.83	13277	57

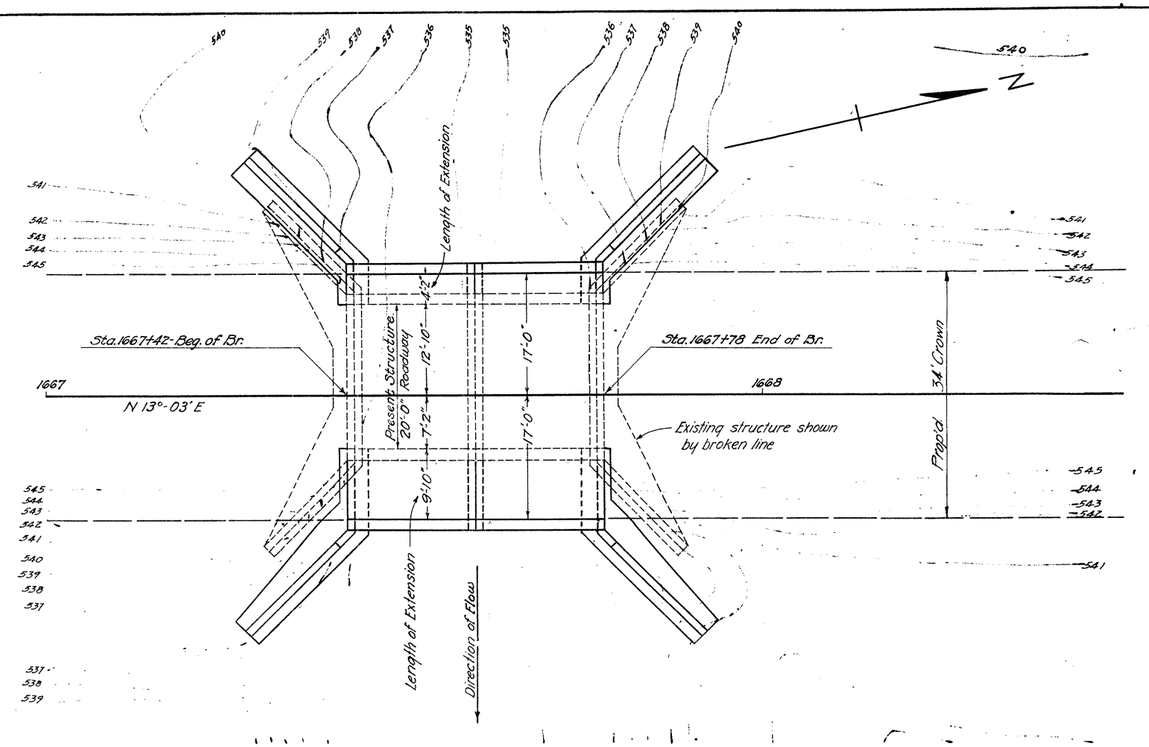
CONTROL 18	SECTIONS 3	JOB No. 3
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL AID PROJECT NO. 165 FED. ROAD	SHEET NO. 57
STATE DIV. NO. 21	COUNTY WEBB	STATE PROJECT NO.	HIGHWAY NO. 2

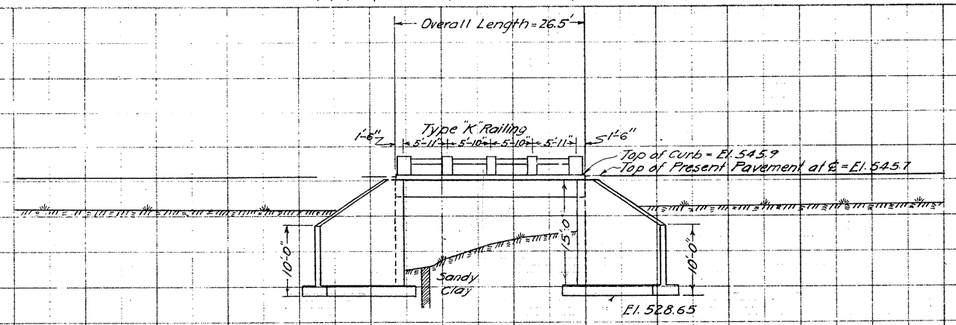
PLAN: SURVEYED, PLOTTED, NOTE BOOK, CIRCLES CHECKED, STRUCTURE HOSTED AS CHECKED, NO.

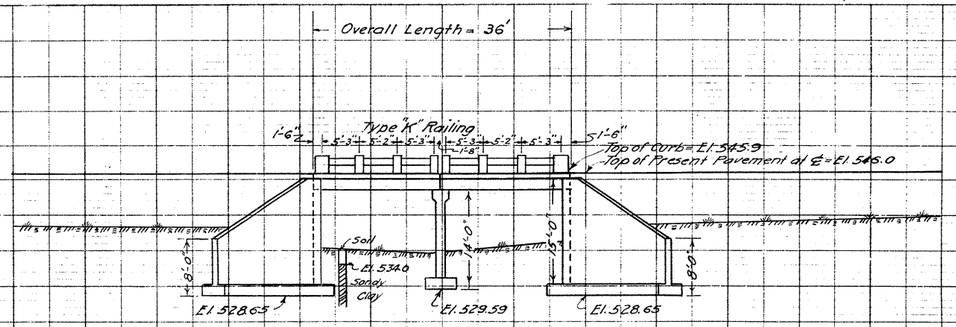
PROFILE: SURVEYED, PLOTTED, NOTE BOOK, CIRCLES CHECKED, STRUCTURE HOSTED AS CHECKED, NO.

PLATE 1—PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.









LAYOUT OF BRIDGE STA. 1657+73.5 - 1658+00.0

ESTIMATED QUANTITIES

		STRUCTURAL EXCAV. Cu. Yds.	CLASS A CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE K Lin. Ft.
1-24'-0" Clear Span G-26.5	Widen 4'-0" Ft and 10'-0" Rt.		22.36	5908	53
2-Abutments, A9-15'	" " " " "		69.96	6779	
	TOTALS	200	92.32	12,687	53

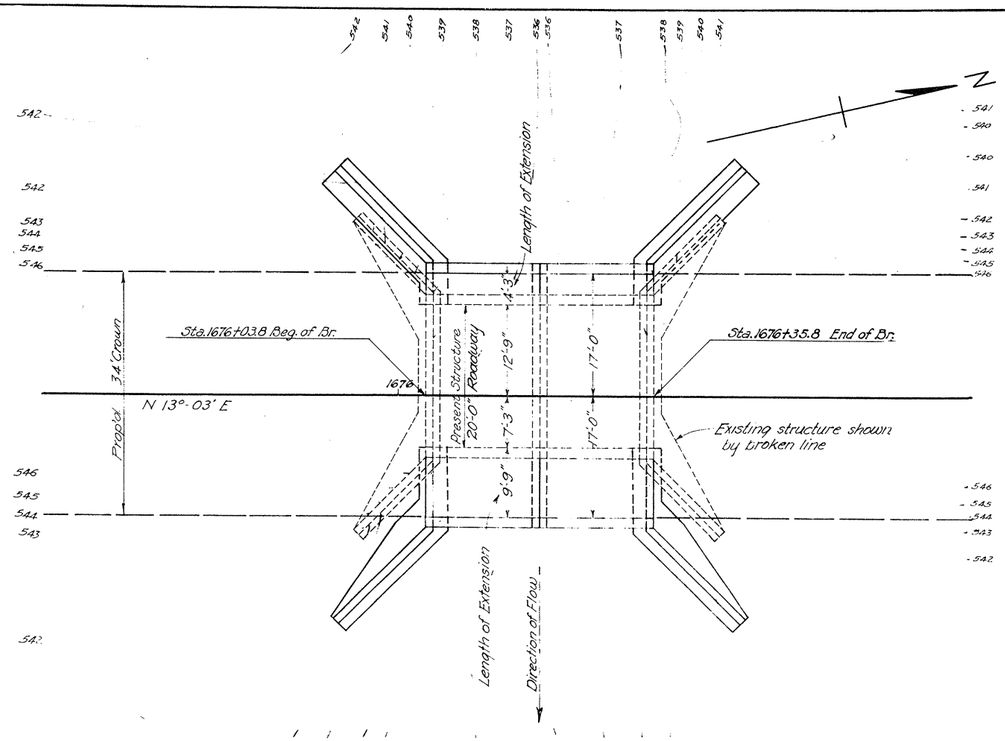
LAYOUT OF BRIDGE STA. 1667+42.0 - 1667+78.0

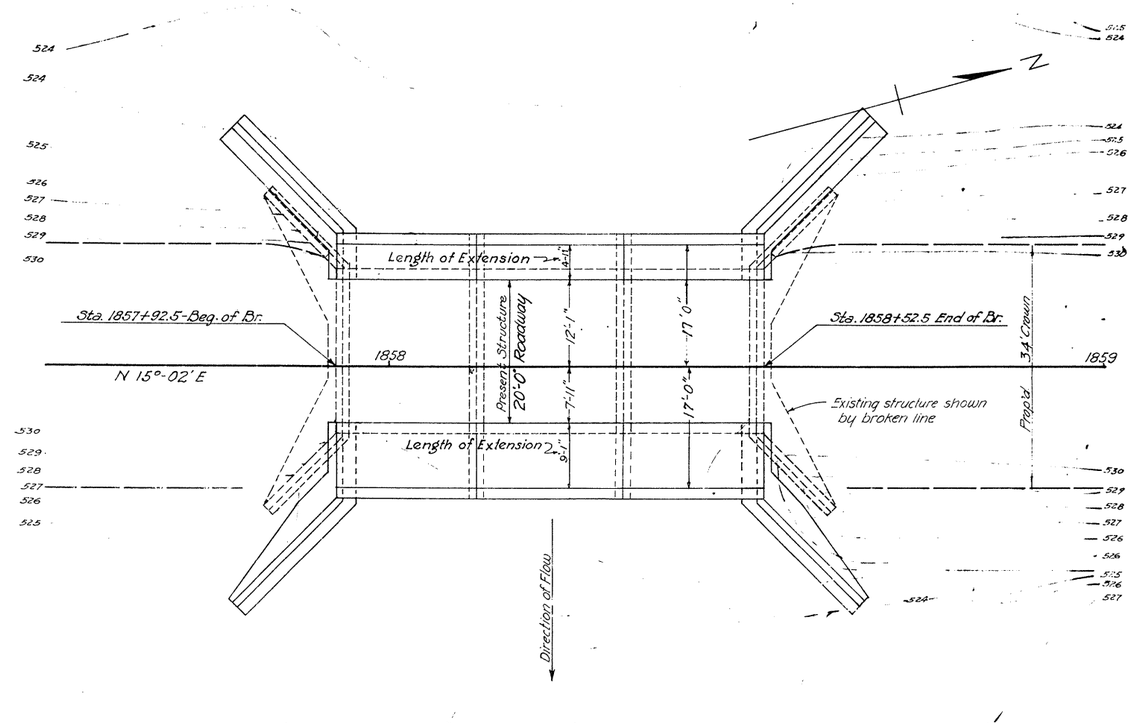
ESTIMATED QUANTITIES

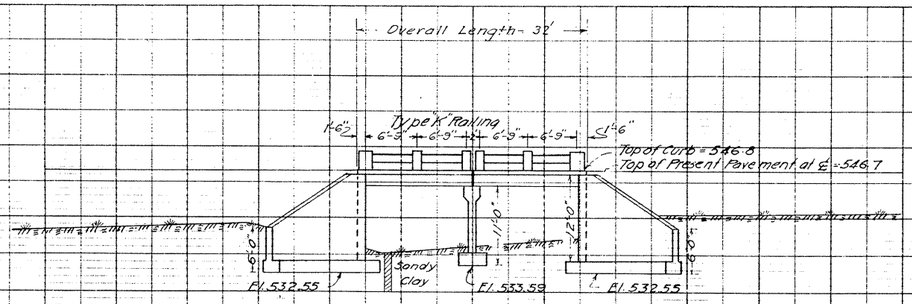
		STRUCTURAL EXCAV. Cu. Yds.	CLASS A CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE K Lin. Ft.
2-16' Clear Spans CB-6 Widen 4'-2" Ft and 9'-10" Rt.			32.52	3474	72
2-Abutments, A9-15'	" " " " "		78.88	7107	
1-Bent, B-4, 14'	" " " " "		11.70	1206	
	TOTALS	260	123.10	11787	72

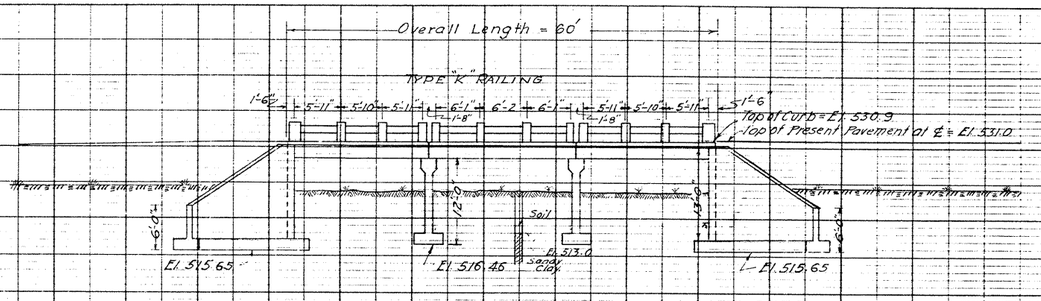
CONTROL 18	SECTIONS 3	JOB No. 3
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL-AID PROJECT NO. I65-A-B-C-D Rec'R	SHEET NO. 58
STATE DIV. NO. 21	COUNTY WEBB	STATE PROJECT NO.	HIGHWAY NO. 2

PLATE 1 — PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.









LAYOUT OF BRIDGE
STA. 1676+03.8 - 1676+35.8

ESTIMATED QUANTITIES

	STRUCTURAL EXCAV. Cu. Yds.	CLASS "A" CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE "K" Lin. Ft.
2- 14' Clear Spans CB-6 Widen 4'-3" Lt and 9'-9" Rt		26.84	3028	64
2- Abutments, A 9-12' " " " " " "		61.96	4392	
1- Bent, B-4, 11' " " " " " "		8.95	1030	
TOTALS	162	97.55	8450	64

LAYOUT OF BRIDGE
STA. 1857+92.5 - 1858+52.5

ESTIMATED QUANTITIES

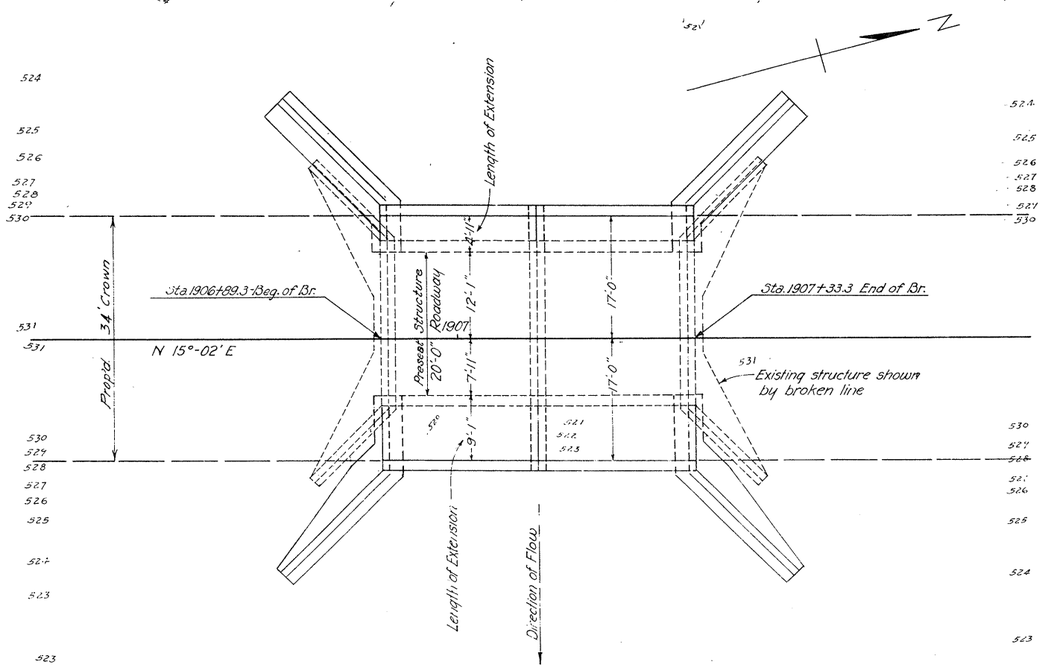
	STRUCTURAL EXCAV. Cu. Yds.	CLASS "A" CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE "K" Lin. Ft.
3- 18' Clear Spans CB-6 Widen 7'-11" Lt and 9'-1" Rt		58.77	5772	120
2- Abutments, A 9-13' " " " " " "		69.02	5842	
2- Bents, B-4-12' " " " " " "		18.94	2194	
TOTALS	300	146.73	13808	120

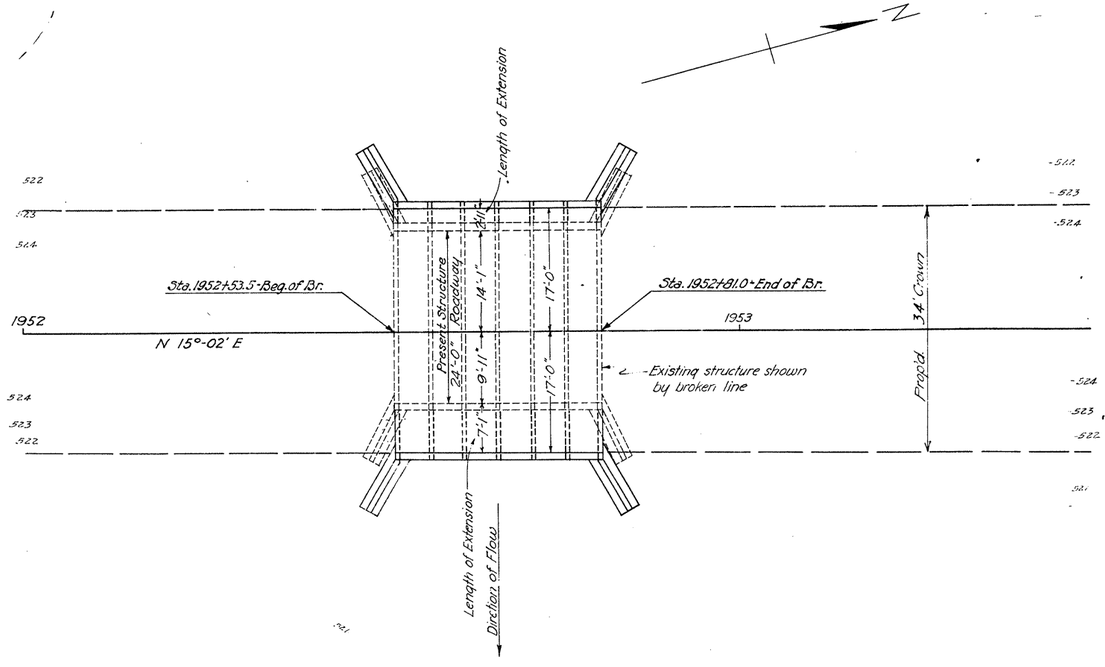
PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, RT. OF WAY CHECKED, DATE, BY

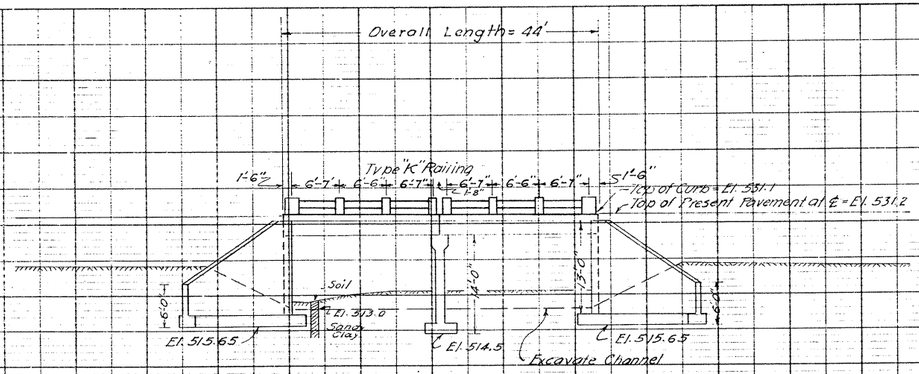
PROFILE — SURVEYED, PLOTTED, NOTE BOOK, GRADES CHECKED, NO., STRUCTURE NOTATIONS CHKD., DATE, BY

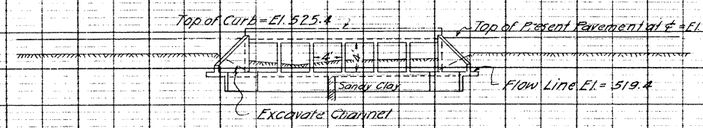
CONTROL 18	SECTIONS 3	JOB No. 3
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL AID PROJECT NO. 165 ABCD Revr.	SHEET NO. 59
STATE DIV. NO. 21	COUNTY WEBB	STATE PROJECT NO.	HIGHWAY NO. 2

PLATE 1 — PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.









LAYOUT OF BRIDGE
STA. 1906+89.3 - 1907+33.3

ESTIMATED QUANTITIES

	Structural Excav. Cu. Yds.	Class "A" Concrete High Early Strength Cu. Yds.	Reinforcing Steel Pounds	Railing Type K Lin. Ft.
2-20' Clear Spans CB-6 Widen 4'-11" Lt and 9'-1" Rt		47.58	5940	88
2-Abutments, A9-13' " " " " " "		69.02	5842	
1-Bent, B-4, 14' " " " " " "		11.29	1304	
TOTALS	216	127.89	12886	88

LAYOUT OF BRIDGE
STA. 1952+53.5 - 1952+81.0

ESTIMATED QUANTITIES

	Structural Excav. Cu. Yds.	Class "A" Concrete Extending Structure Cu. Yds.	Reinforcing Steel Pounds
6-4'x4'-MBC-9 Widen 2'-11"Lt and 7'-1"Rt	35	24.04	2606

CONTROL 18	SECTIONS 3		JOB No. 3
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL AID PROJECT NO. ~~BS~~ 65 A&C0 R&OR	SHEET NO. ~~7~~
STATE DIV. NO. 21	COUNTY WEBB	STATE PROJECT NO.	HIGHWAY NO. 2

PLATE 1 — PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO. NEW YORK.

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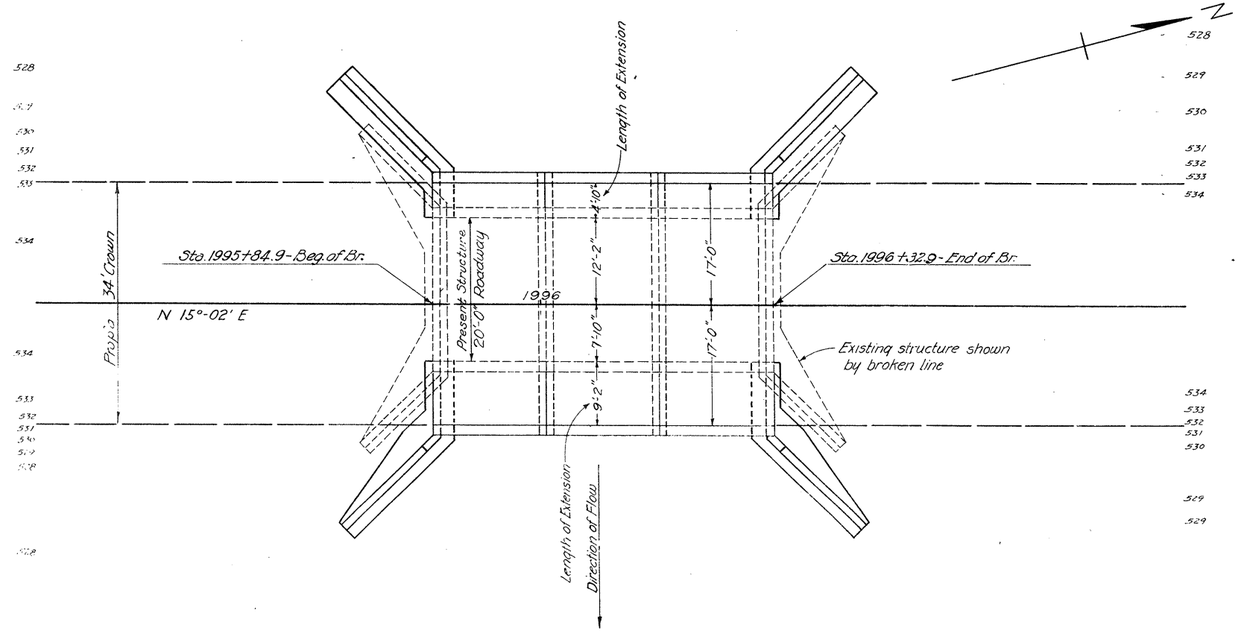

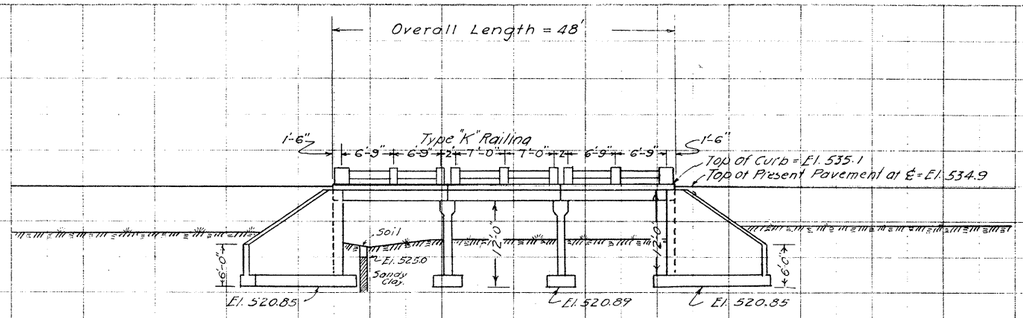

LAYOUT OF
BRIDGE
STA. 1995+84.9 - 1996+32.9

ESTIMATED QUANTITIES

	Structural Excav. Cu. Yds.	Class "A" Concrete High Early Strength Cu. Yds.	Reinforcing Steel Pounds	Railing Type "K" Lin. Ft.
3 - 14' Clear Spans, CB-6, Widen 4'-10" ± and 9'-2" Rt.		40.29	4539	96
2 - Abutments, A9 - 12', " " " " " " "		61.73	4392	
2 - Bents, B-4, 12' " " " " " "		18.94	2182	
TOTALS	185	120.96	11113	96

CONTROL 18	SECTIONS 3		JOB No. 3
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT No.	SHEET NO.
6	TEXAS	(6S ABCD Proj.)	65
STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
21	WEBB		2

PLAN — SURVEYED, PLOTTED, NOTE BOOK, GRADES CHECKED, AREAS AND QUANTITIES, NO. — DATE, BY

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, GRADES CHECKED, AREAS AND QUANTITIES, NO. — DATE, BY, STRUCTURE NOTES, CHKD.

+30 +40 +50 +60 +70 +80 +90 1996 +10 +20 +30 +40 +50 +60 +70 +80 +90

PLATE 1 — PLAN-PROFILE OF P.R. & R.E. STANDARD

KEUFFEL & ESSER CO. NEW YORK

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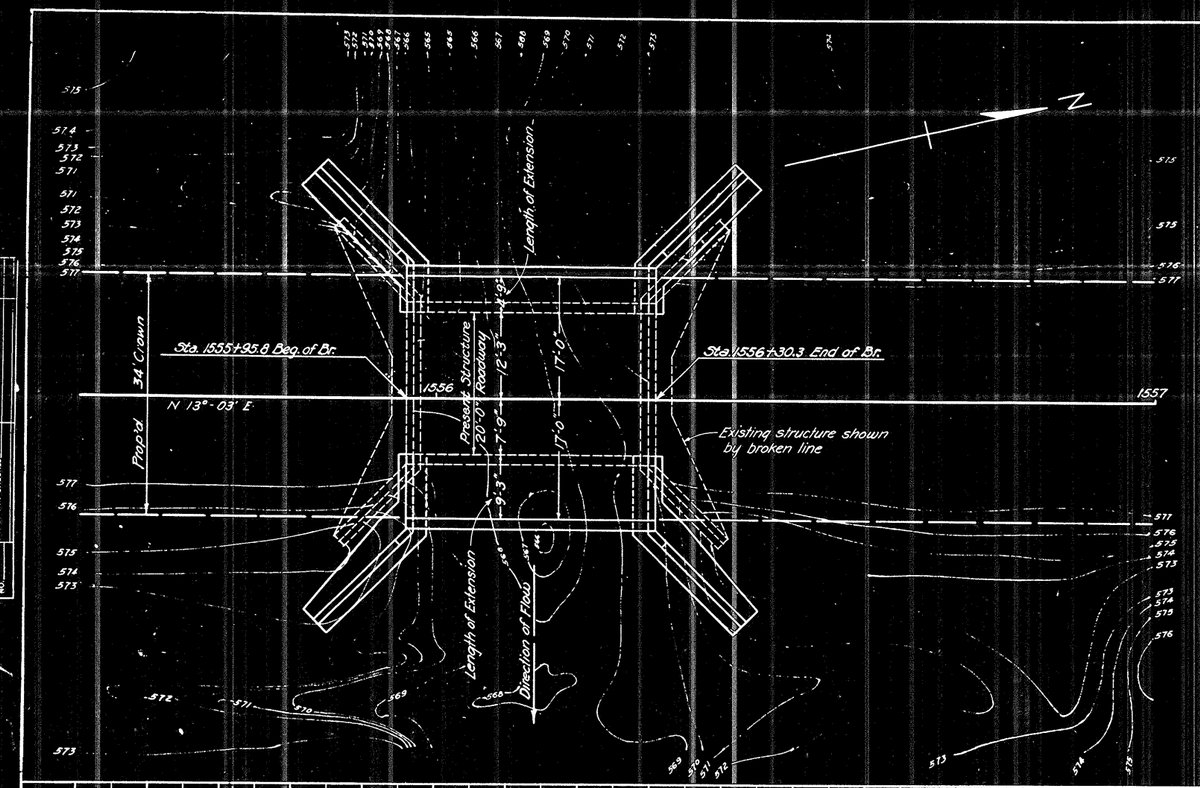
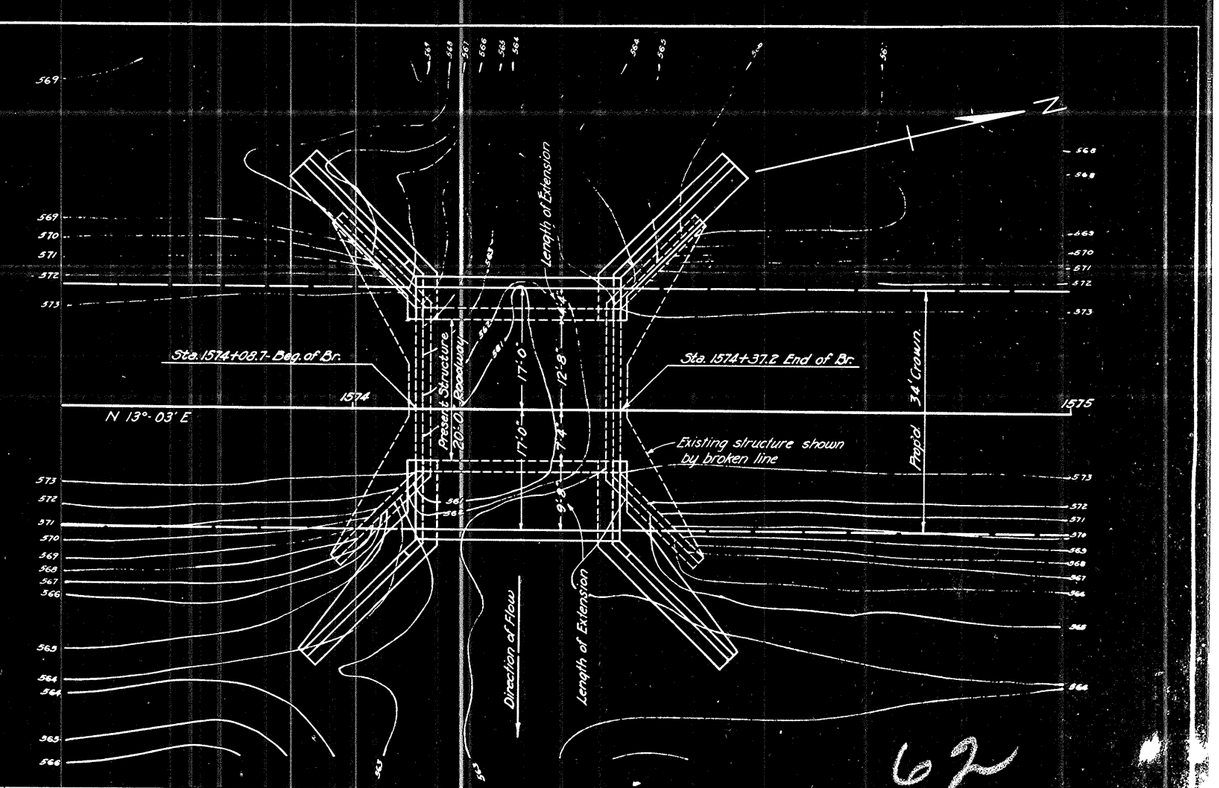
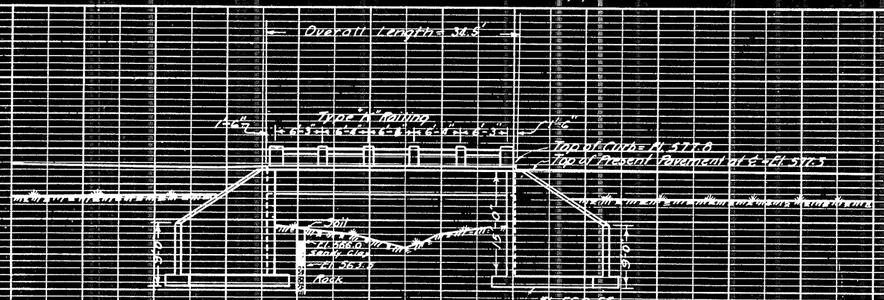
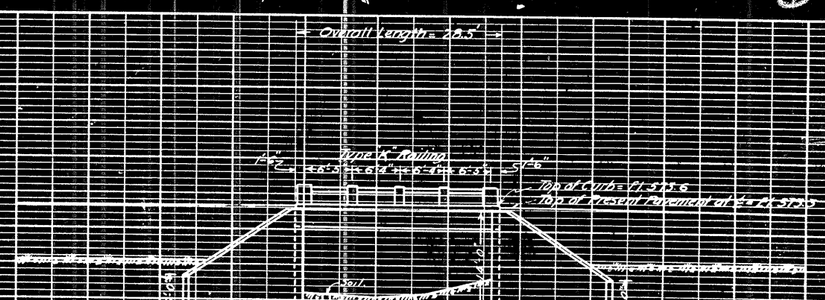








LAYOUT OF BRIDGE
STA. 1555+95.8 - 1556+30.3

ESTIMATED QUANTITIES

	STRUCTURAL EXCAV. UNCL. Cu.Yds.	CLASS "A" CONCRETE SOLID ROCK Cu. Yds.	CLASS "A" CONCRETE HIGH EARLY STRENGTH Cu.Yds.	REINFORCING STEEL Pounds	RAILING TYPE "A" Lin. Ft.
1-32'-0" Clear Span, G=266. Width 2'-9" Rdwy and 9'-3" Rdwy			36.86	1811	69
2-Abutments, A9 " " " " "			13.98	6966	
TOTALS	172	82	110.84	14833	69

LAYOUT OF BRIDGE
STA. 1574+08.7 - 1574+37.2

ESTIMATED QUANTITIES

	STRUCTURAL EXCAV. Cu. Yds.	CLASS "A" CONCRETE HIGH EARLY STRENGTH Cu. Yds.	REINFORCING STEEL Pounds	RAILING TYPE "A" Lin. Ft.
1-26'-0" Clear Span, G=265. Width 2'-6" Rdwy and 9'-3" Rdwy		24.41	6332	57
2-Abutments, A9 = 14' " " " "		77.42	6943	
TOTALS	203	101.83	13275	57

PLATE 1 - PLAN-PROFILE

CONTROL 18	SECTION 3	JOB No. 3
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL AID PROJECT NO. RESHOD Proj.
STATE DIV. NO. 21	COUNTY WEBB	STATE PROJECT NO.	HIGHWAY NO. 2

SHEET NO. 61

62

Sta. 1657+73.5 Beg. of Br.

Sta. 1658+00 End of Br.

Existing structure shown by broken line

Present Structure 20'-0" Roadway

34' Crown

Proj'd.

Length of Extension

Direction of Flow

N 13°-03' E

17'-0"

10'-0"

Overall Length = 26.5'

Type K Railing

Top of Curb - El. 543.2

Top of Present Pavement at ℄ - El. 543.1

Sandy clay

El. 528.65

LAYOUT OF BRIDGE STA. 1657+73.5 - 1658+00.0

ESTIMATED QUANTITIES

	Structural Excav. Cu. Yds.	Class A Concrete High Early Strength Cu. Yds.	Reinforcing Steel Pounds	Railing Type K Lin. Ft.
1- 24'-0" Clear Span G=26.5', Widen 4'-0" and 10'-0" R.F.		27.36	3908	53
2- Abutments, A3 = 15', " " " " "		69.96	6779	
TOTALS	200	92.32	12,687	53

Sta. 1667+42 Beg. of Br.

Sta. 1667+78 End of Br.

Existing structure shown by broken line

Present Structure 20'-0" Roadway

34' Crown

Proj'd.

Length of Extension

Direction of Flow

N 13°-03' E

17'-0"

12'-10"

Overall Length = 36'

Type K Railing

Top of Curb - El. 545.9

Top of Present Pavement at ℄ - El. 545.0

Sandy clay

El. 529.59

El. 528.65

LAYOUT OF BRIDGE STA. 1667+42.0 - 1667+78.0

ESTIMATED QUANTITIES

	Structural Excav. Cu. Yds.	Class A Concrete High Early Strength Cu. Yds.	Reinforcing Steel Pounds	Railing Type K Lin. Ft.
2- Clear Spans C.B=6 Widen 4'-2" and 10'-0" R.F.		32.52	3474	72
2- Abutments, A3 = 15', " " " " "		78.88	7107	
1- Bent, B-2, 12' " " " " "		11.70	1206	
TOTALS	260	123.10	11,787	72

PLAN — SURVEYED, PLOTTED, NOTE BOOK, GRADES CHECKED, RT. OF WAY CHECKED, NO.

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, GRADES CHECKED, STRUCTURE NOTATIONS CHKD., DATE

CONTROL 16	SECTION 6	JOB No. 3
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL-AID PROJECT NO. 65 F.A.P.R. P.R.O.R.
STATE DIV. NO. 21	COUNTY WEBB	STATE PROJECT NO.
		HIGHWAY NO. 2

63

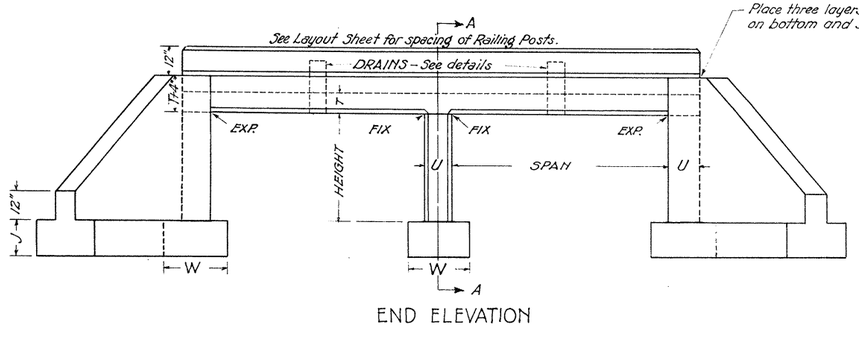
PLATE 1 - PLAN-PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK.

BILL OF STEEL AND TOTAL QUANTITIES

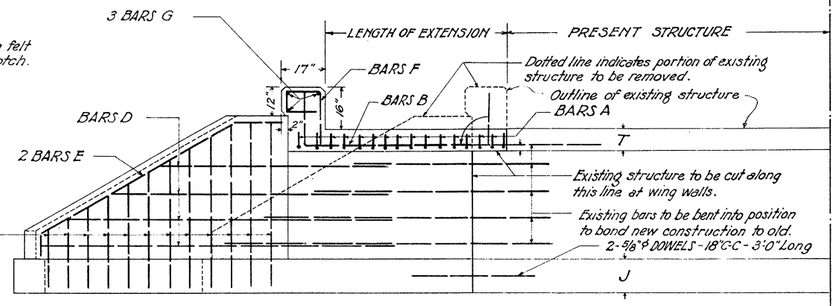
STATION AT BEGINNING OF BRIDGE	EXTEND	DESCRIPTION	DIMENSIONS										TWO WINGS																				TOTAL CONCRETE IN 2 WINGS AND 1 CURB CU. YDS.	CURB						BARREL																TOTAL QUANTITIES	
			T	U	L	M	N	E	F	J	W	V	BARS "C" - 1/2" ø - 9" C-C										TOTAL WT. LBS.	BARS "D" 1/2" ø -12" C-C								TOTAL WT. LBS.	BARS "E" 1/2" ø @		TOTAL WT. LBS.		BARS "F" 1/2" ø, 12" C-C		TOTAL WT. LBS.	BARS "G" 1/2" ø		TOTAL WT. LBS.	BARS "A"			TOTAL WT. LBS.	BARS "B" 1/2" ø -18" C-C		TOTAL WT. LBS.	BARS "H" 1/2" ø -12" C-C		TOTAL WT. LBS.	BARS "J" 1/2" ø		TOTAL WT. LBS.	DOWEL BARS 5/8" ø		TOTAL WT. LBS.	STEEL LBS.	CONCRETE CU. YDS.
													NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH			NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH					NO.	LENGTH				NO.	LENGTH				NO.	LENGTH	SIZE	C-C			NO.	LENGTH				NO.	LENGTH					
1154+38.0	RT. 9'-0"	2-10'X7'X34'	11"	13"	13'-4"	15'-3"	7'-8"	12"	1'-6"	1'-6"	2'-6"	11"	8	9'-7"	4	8'-10"	4	9'-0"	4	6'-3"	4	4'-6"	4	2'-9"	227.0	4	17'-7"	4	14'-5"	4	10'-10"	156.7	4	18'-5"	62.6	12.60	24	5'-0"	102.0	3	23'-0"	58.7	17	14'-1"	7/8"ø	7½"	489.4	15	11'-7"	147.7	9	2'-0"	15.3	2	8'-10"	15.0	10	3'-0"	31.3	1306	32.02
	LT. 5'-0"												8	9'-7"	4	8'-10"	4	8'-0"	4	6'-3"	4	4'-6"	4	2'-9"	227.0	4	17'-7"	4	14'-5"	4	10'-10"	156.7	4	18'-5"	62.6	12.60	24	5'-0"	102.0	3	23'-0"	58.7	10	14'-1"	7/8"ø	7½"	287.9	15	7'-7"	96.7	5	2'-0"	8.5	2	4'-10"	8.2	10	3'-0"	31.3	1040	23.83
1253+09.7	RT. 10'-9"	2-10'X8'X34'	11"	13"	14'-10"	17'-1"	8'-7"	12"	1'-6"	1'-6"	2'-6"	11"	8	10'-7"	4	9'-10"	4	9'-1"	4	6'-5"	4	4'-8"	4	3'-0"	271.3	4	19'-4"	4	16'-2"	4	12'-9"	195.5	4	20'-5"	69.4	14.52	24	5'-0"	102.0	3	23'-0"	58.7	24	14'-1"	7/8"ø	7½"	515.7	15	13'-4"	170.0	11	2'-0"	18.7	2	10'-7"	18.0	11	3'-0"	34.4	1514	38.82
	LT. 4'-5"														4	9'-10"	4	9'-0"	4	7'-3"	4	5'-6"	4	3'-9"						4	9'-3"																													
			8	10'-7"	4	9'-10"	4	8'-1"	4	6'-5"	4	4'-8"	4	3'-0"	271.3	4	19'-4"	4	16'-2"	4	12'-9"	195.5	4	20'-5"	69.4	14.52	24	5'-0"	102.0	3	23'-0"	58.7	9	14'-1"	7/8"ø	7½"	259.0	15	7'-0"	89.3	5	2'-0"	8.5	2	4'-3"	7.2	11	3'-0"	34.4	1095	25.10
															4	9'-10"	4	9'-0"	4	7'-3"	4	5'-6"	4	3'-9"						4	9'-3"																													
1324+89.3	RT. 10'-9"	2-10'X7'X34'	11"	13"	13'-4"	15'-3"	7'-8"	12"	1'-6"	1'-6"	2'-6"	11"	8	9'-7"	4	8'-10"	4	8'-0"	4	6'-3"	4	4'-6"	4	2'-9"	227.0	4	17'-7"	4	14'-5"	4	10'-10"	156.7	4	18'-5"	62.6	12.60	24	5'-0"	102.0	3	23'-0"	58.7	20	14'-1"	7/8"ø	7½"	515.1	15	13'-4"	170.0	11	2'-0"	18.7	2	10'-7"	18.0	10	3'-0"	31.3	1421	35.61
	LT. 4'-5"																														4	6'-6"																													
			8	9'-7"	4	8'-10"	4	8'-0"	4	6'-3"	4	4'-6"	4	2'-9"	227.0	4	17'-7"	4	14'-5"	4	10'-10"	156.7	4	18'-5"	62.6	12.60	24	5'-0"	102.0	3	23'-0"	58.7	9	14'-1"	7/8"ø	7½"	259.0	15	7'-0"	89.3	5	2'-0"	8.5	2	4'-3"	7.2	10	3'-0"	31.3	1002	22.65
																															4	6'-6"																													
1607+33.0	RT. 10'-2"	2-8'X3'X34'	9½"	13"	7'-2"	8'-3"	4'-2"	10"	1'-4"	1'-3"	2'-4"	11"	8	5'-2"	4	4'-6"	4	3'-7"	4	2'-9"	2	2'-0"			75.4	4	10'-4"	2	7'-5"			47.7	4	10'-1"	34.3	4.65	~	~	~	2	19'-0"	32.3	21	12'-0"	3/4"ø	6"	378.5	13	12'-4"	136.3	10	2'-0"	17.0	2	10'-0"	17.0	8	3'-0"	25.0	763	17.74
	LT. 5'-0"												8	5'-2"	4	4'-6"	4	3'-7"	4	2'-9"	2	2'-0"			75.4	4	10'-4"	2	7'-5"			47.7	4	10'-1"	34.3	4.65	~	~	~	2	19'-0"	32.3	11	12'-0"	3/4"ø	6"	198.3	13	7'-2"	79.2	5	2'-0"	8.5	2	4'-10"	8.2	8	3'-0"	25.0	509	11.28

UNIT WEIGHTS OF STEEL

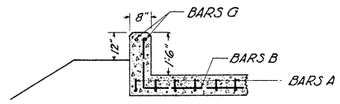
SIZE	WEIGHT PER LIN. FT.
½"ø	0.850
5/8"ø	1.043
¾"ø	1.502
7/8"ø	2.044



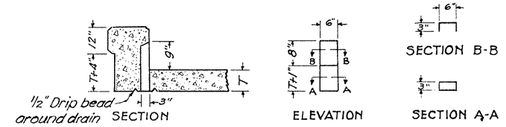
END ELEVATION



HALF ELEVATION
Showing Reinforcing Steel.

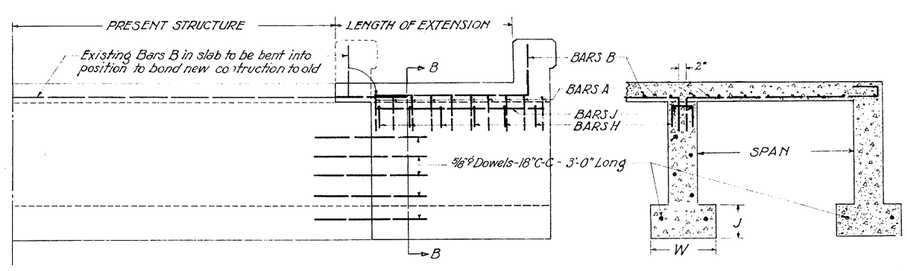


DETAILS OF CURB
To be used at Station 1607+33.0



DETAILS OF DRAINS

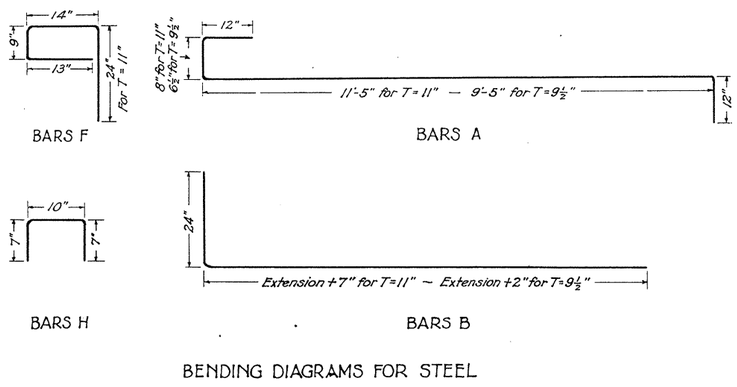
NOTE:- Forms for drains to consist of 24 gauge galvanized iron sheets slotted as shown.



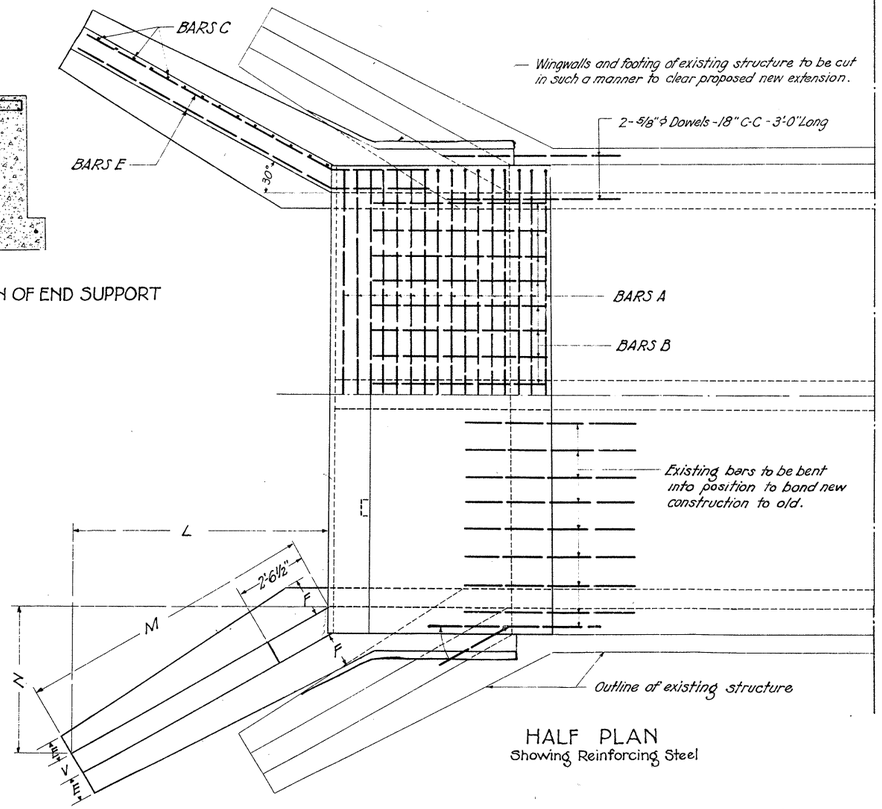
SECTION A-A - INTERMEDIATE SUPPORT
Showing Reinforcing Steel

SECTION B-B

SECTION OF END SUPPORT



BENDING DIAGRAMS FOR STEEL



HALF PLAN
Showing Reinforcing Steel

GENERAL NOTES:-

All concrete shall be Class "A" High Early Str. Maximum size of coarse aggregate shall be 1½". All concrete above the footing shall be cast monolithically. All exposed corners shall be chamfered ¾".

All reinforcing steel shall be deformed bars. All dimensions relating to reinforcing steel are to centers of bars. Reinforcing steel shall be placed with the center of the outside layer of bars 1¼" from the surface of the concrete for barrel steel, and 1½" from the surface of the concrete for all other steel. Where reinforcing bars are spliced a 40 diameter lap shall be used.

Holes shall be drilled for dowels as shown on this plan and as directed by the engineer, and shall be cleaned and filled with neat cement mortar before dowels are inserted.

The concrete bid item shall be class "A" Concrete (High Early Strength). Payment for removing the portions of the existing structure - for cleaning and bending exposed reinforcing steel into position to bond new construction to old - and for drilling, cleaning and grouting dowel holes - as indicated hereon - shall be included in the unit price bid for Class "A" Concrete (High Early Strength).

Specifications of Texas State Highway Department shall govern throughout for materials and construction.

TEXAS STATE HIGHWAY DEPARTMENT

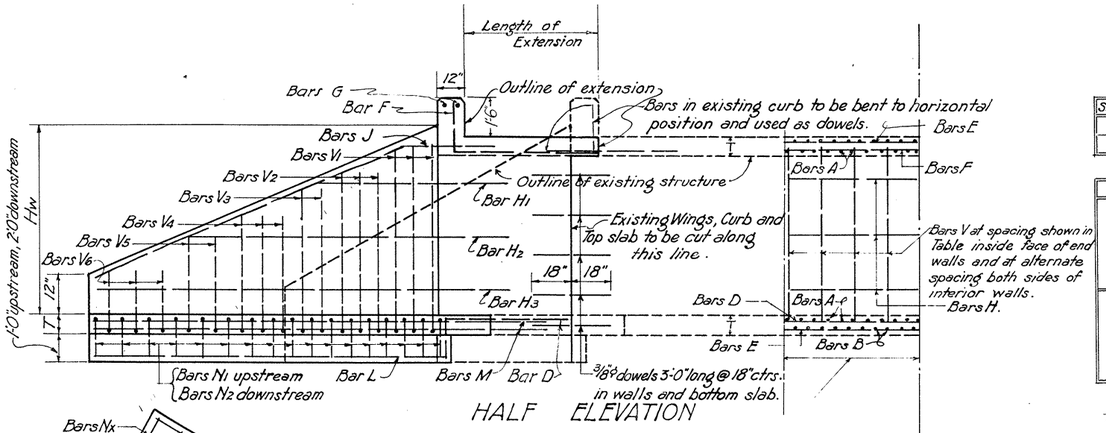
LENGTHENING DETAILS

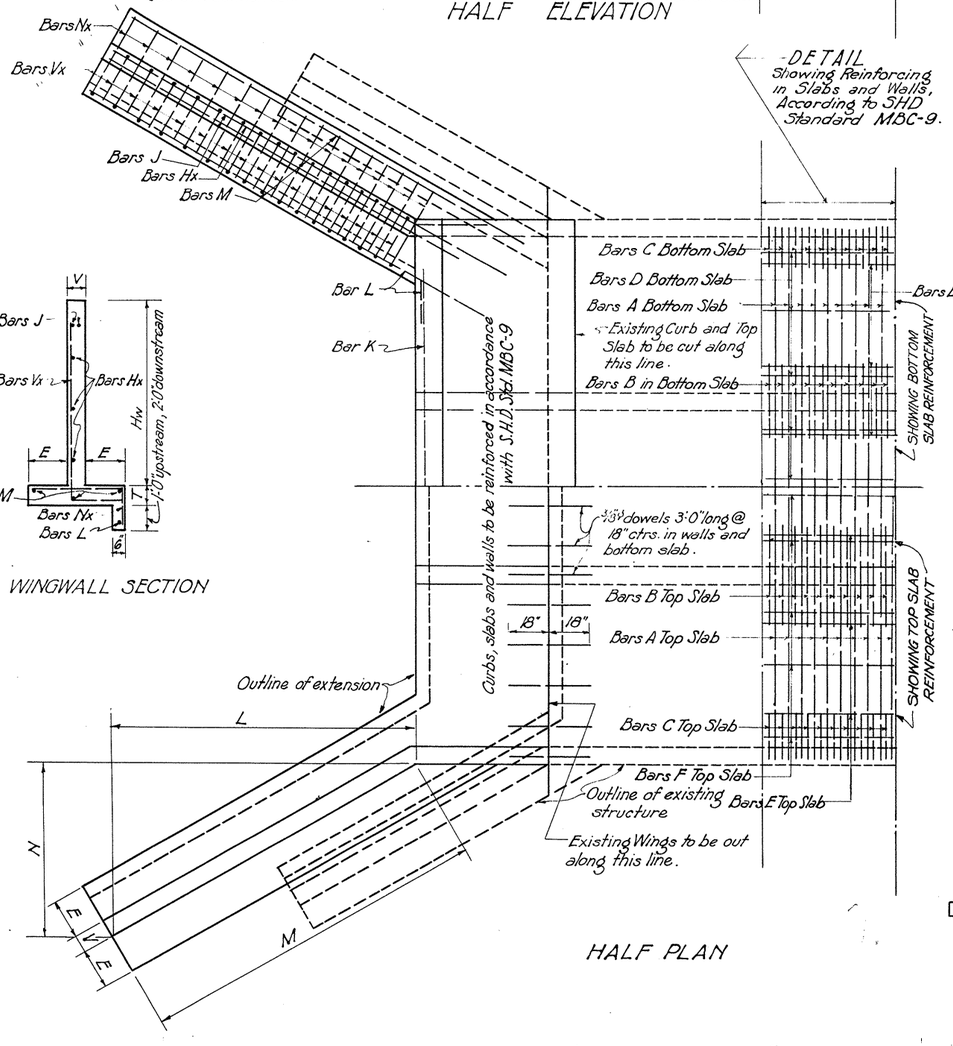
FOR

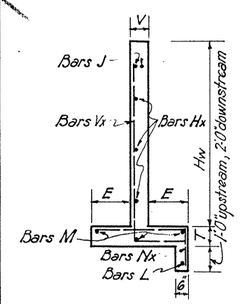
MULTIPLE C-6 CULVERTS 64

CONTROL NO. 18	SECTION NO. 4		JOB NO. 3
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT No.	SHEET NO.
6	TEXAS	65 ABCD RPOR	
STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
21	WEBB		2

PLAN / PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, STRUCTURE NOTATIONS CHKD., NOTE BOOK, NO., DATE, BY







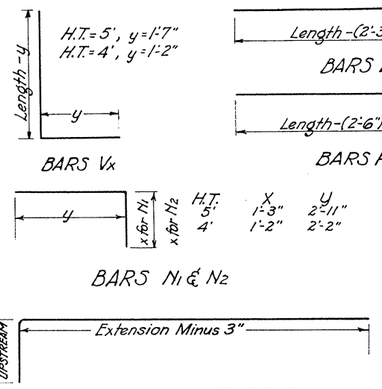
DETAIL Showing Reinforcing in Slabs and Walls, According to SHD Standard MBC-9.

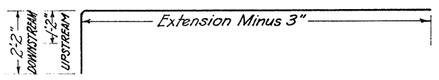
DIMENSIONS AND QUANTITIES FOR FOUR WINGS

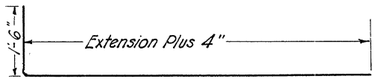
SPAN	HT.	T	U	E	V	L	M	N	Hw	STEEL	CONCRETE
4'	4'	6"	6"	12"	6"	7'-0"	8'-1"	4'-01/2"	5'-0"	259 lbs.	8.58 C.Y.
5'	5'	7½"	7"	16"	7"	9'-3"	10'-8"	5'-4"	6'-1½"	649 lbs.	8.34 C.Y.

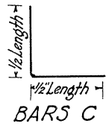
BILL OF REINFORCING STEEL IN FOUR WINGS

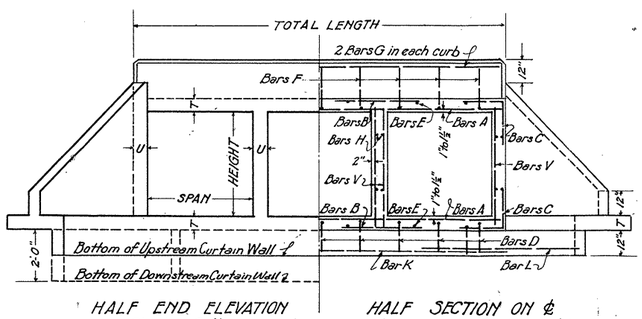
	BAR	H3	H2	H1	J	L	M	N1	N2	V1	V2	V3	V4	V5
5 x 5	NUMBER	4	4	4	8	4	12	26	26	8	8	12	8	12
	SIZE	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
	SPACING	18"	18"	18"	~	~	~	8-9/12	8-9/12	8"	9"	9"	12"	12"
	LENGTH	13'-0"	10'-6"	7'-0"	13'-6"	13'-6"	14'-6"	4'-2"	5'-2"	7'-6"	6'-10"	5'-10"	5'-0"	3'-9"
	WEIGHT	35	28	19	72	36	116	72	90	40	37	47	27	30
4 x 4	NUMBER	4	4	~	8	4	12	22	22	12	12	16		
	SIZE	3/8"ø	3/8"ø	~	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø		
	SPACING	24"	24"	~	~	~	~	8-9/12	8-9/12	8"	9"	12"		
	LENGTH	10'-6"	6'-6"	~	11'-0"	11'-0"	12'-0"	3'-4"	4'-4"	5'-8"	4'-8"	3'-0"		
	WEIGHT	16	10	~	33	17	54	28	36	26	21	18		











UNIT WEIGHTS OF STEEL

SIZE	AREA SQ. IN.	WEIGHT LBS. PER FT.
3/8" ø	0.1104	0.376
1/2" ø	0.1963	0.668
1/2" □	0.2500	0.850

BILL OF REINFORCING STEEL IN BARREL EXTENSIONS

3-4'x4'	LEFT EXTENSION - LENGTH = 2'-6"										RIGHT EXTENSION - LENGTH = 7'-6"									
BARS	DOWEL	A	B	C	D	E*	F	G	H	K	V	A	B	C	D	E*	F	G	H	K	V
NUMBER	30	15	20	20	9	6/6	9	2	16	1	8	39	68	68	9	6/6	9	2	16	1	24
SIZE	3/8"ø	1/2"ø	1/2"ø	1/2"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	1/2"ø
SPACING	18"	5"	5"	5"	18"	—	18"	6"	24"	—	15"	5"	5"	5"	18"	—	18"	6"	24"	—	15"
LENGTH	3'-0"	13'-6"	3'-2"	3'-8"	3'-5"	3'-3"/2'-3"	4'-4"	13'-6"	2'-3"	14'-0"	4'-6"	13'-6"	3'-2"	3'-8"	9'-5"	8'-3"/7'-3"	9'-4"	13'-6"	7'-3"	14'-0"	4'-6"
WEIGHT	34	135	42	49	12	12	15	10	14	5	24	352	144	167	32	35	32	10	44	5	72
4-4'x4'	LEFT EXTENSION - LENGTH = 2'-8"										RIGHT EXTENSION - LENGTH = 7'-4"									
NUMBER	42	15	52	26	12	8/8	12	2	20	1	10	38	102	68	12	8/8	12	2	20	1	30
SIZE	3/8"ø	1/2"ø	1/2"ø	1/2"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	1/2"ø
SPACING	18"	5"	5"	5"	18"	—	18"	6"	24"	—	15"	5"	5"	5"	18"	—	18"	6"	24"	—	15"
LENGTH	3'-0"	18'-0"	3'-2"	3'-8"	3'-7"	3'-3"/2'-3"	4'-6"	18'-0"	2'-3"	18'-6"	4'-6"	18'-0"	3'-2"	3'-8"	9'-3"	8'-1"/7'-1"	9'-2"	18'-0"	7'-1"	18'-6"	4'-6"
WEIGHT	48	180	110	64	16	18	20	14	18	7	30	457	215	167	42	46	41	14	53	7	90
6-4'x4'	LEFT EXTENSION - LENGTH = 2'-11"											RIGHT EXTENSION - LENGTH = 7'-1"									
NUMBER	66	17	60	28	18	12/12	18	2	28	1	21	37	160	60	18	12/12	18	2	28	1	42
SIZE	3/8"ø	1/2"ø	1/2"ø	1/2"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	3/8"ø	1/2"ø
SPACING	18"	5"	5"	5"	18"	—	18"	6"	24"	—	15"	5"	5"	5"	18"	—	18"	6"	24"	—	15"
LENGTH	3'-0"	27'-0"	3'-2"	3'-8"	3'-10"	3'-8"/2'-8"	4'-9"	27'-0"	2'-8"	27'-6"	4'-6"	27'-0"	3'-2"	3'-8"	9'-0"	7'-10"/6'-10"	8'-11"	27'-0"	6'-10"	27'-6"	4'-6"
WEIGHT	74	307	127	64	26	29	32	20	28	10	63	667	338	147	61	66	60	20	72	10	126
6-5'x5'	LEFT EXTENSION - LENGTH = 2'-6"											RIGHT EXTENSION - LENGTH = 7'-6"									
NUMBER	76	14	60	24	18	12/12	18	2	40	1	21	37	170	68	18	12/12	18	2	40	1	70
SIZE	3/8"ø	1/2"□	1/2"□	1/2"□	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"□	1/2"□	1/2"□	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	18"	5¼"	5¼"	5¼"	24"	—	24"	6"	18"	—	9"	5¼"	5¼"	5¼"	24"	—	24"	6"	18"	—	9"
LENGTH	3'-0"	33'-7"	4'-0"	4'-6"	3'-5"	3'-3"/2'-3"	4'-4"	33'-7"	2'-3"	34'-0"	5'-9"	33'-7"	4'-0"	4'-6"	9'-5"	8'-3"/7'-3"	9'-4"	33'-7"	7'-3"	34'-0"	5'-9"
WEIGHT	86	400	204	92	41	44	52	45	60	23	81	1056	578	260	113	124	112	45	194	23	269

* Bars E are 1" shorter in Bottom Slab than in Top Slab.
* Number of Dowels include both Left and Right Extensions

TABLE OF TOTAL QUANTITIES

BRIDGE AT STATION	SIZE OF STRUCTURE	LEFT EXTENSION		RIGHT EXTENSION		FOUR WINGS		TOTAL	
		CONCRETE Cu. Yds.	STEEL Pounds	CONCRETE Cu. Yds.	STEEL Pounds	CONCRETE Cu. Yds.	STEEL Pounds	CONCRETE Cu. Yds.	STEEL Pounds
1530+86.6	3-4'x4'	3.08	335.	7.15	910.	4.58	259.	14.81	1504.
1973+93.6	4-4'x4'	4.19	501.	9.11	1156.	4.58	259.	17.88	1916.
1952+53.5	6-4'x4'	6.54	743.	12.92	1604.	4.58	259.	24.04	2606
1410+96.4	6-5'x5'	8.51	1085	20.19	2817.	8.34	649.	37.04	4551.

GENERAL NOTES:- All concrete shall be class "A" (for Ext. Structures) Maximum size of course aggregate shall be 1½". All exposed corners shall be chamfered ¾".

All reinforcing steel shall be deformed bars. All dimensions relating to reinforcement are to centers of bars. Reinforcing steel for all sizes shall be placed with the center of the outside layers of bars 2" from the surface of the concrete except top and bottom slabs, as noted. Square twisted bars not considered deformed.

Holes for dowels shall be drilled as shown on this plan and as directed by the Engineer and shall be cleaned and filled with neat cement mortar before dowels are inserted.

Payment for removing the portions of the existing structure, for drilling and grouting dowel holes, and placing dowels, as indicated hereon and as directed by the Engineer, shall be included in the price bid per cubic yard for Class "A" concrete (Extending Structures).

Specifications of Texas State Highway Department shall govern throughout for materials and construction.

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TEXAS STATE HIGHWAY DEPARTMENT

LENGTHENING DETAILS

FOR

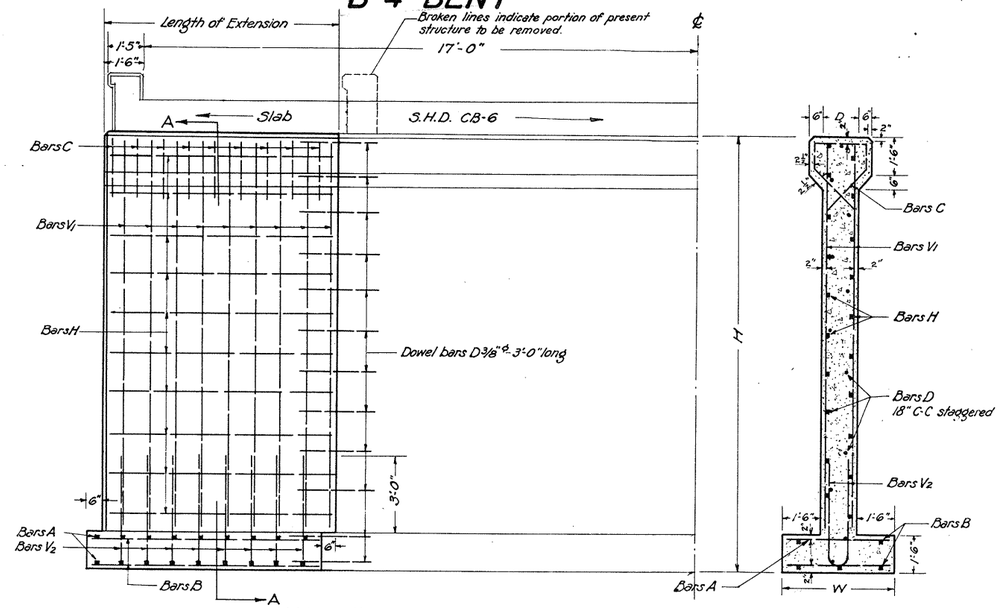
MBC-5 AND MBC-9 CULVERTS

CONTROL NO. 18	SECTION NO. 3	JOB NO. 3	FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO	SHEET NO.
CONTROL NO 18	SECTION NO 4	JOB NO 3	6	TEXAS	BSACBO Reor.	
			STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
			21	WEBB		2

PLAN — SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, NOTE BOOK, NO., STRUCTURE NOTATIONS CHK'D, DATE, BY

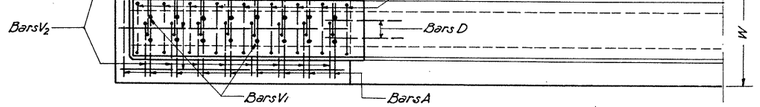
PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, NOTE BOOK, NO., STRUCTURE NOTATIONS CHK'D, DATE, BY

B-4 BENT



HALF ELEVATION

SECTION A-A



HALF PLAN

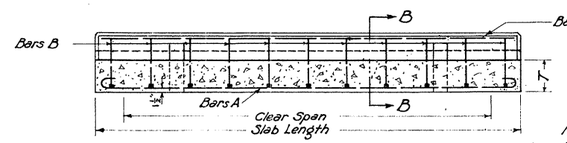
BILL OF STEEL AND TOTAL QUANTITIES FOR ONE B-4 BENT EXTENSION

DIMENSIONS W	D	H	LENGTH OF EXTENSION	Bars A-½"□-12"C-C NO.	LENGTH	TOTAL LENGTH	WEIGHT	Bars B ½"□ 24"C-C NO.	LENGTH	TOTAL LENGTH	WEIGHT	Bars C-3/4"ø 12"C-C NO.	LENGTH	TOTAL LENGTH	WEIGHT	Bars D-3/8"ø 18"C-C NO.	LENGTH	TOTAL LENGTH	WEIGHT	Bars H-½"□ 18"C-C NO.	LENGTH	TOTAL LENGTH	WEIGHT	Bars V1-3/4"ø 12"C-C NO.	LENGTH	TOTAL LENGTH	WEIGHT	Bars V2-3/4"ø 12"C-C NO.	LENGTH	TOTAL LENGTH	WEIGHT	TOTAL STEEL LBS.	TOTAL CONCRETE CU.YDS.
4'-0	12"	9"	5'-0"	10	3'-8"	36'-8"	31.2	5	4'-9"	23'-9"	20.2	5	9'-3"	92'-6"	69.5	7	3'-0"	21'-0"	7.9	10	4'-9"	47'-6	40.4	8	7'-2"	57'-4"	86.1	6	6'-5"	38'-6"	57.8	313.5	2.82
4'-0	12"	11"	7'-0"	14	3'-8"	51'-4"	43.7	5	8'-9"	43'-9"	37.2	9	9'-3"	166'-6"	125.0	7	3'-0"	21'-0"	7.9	10	8'-9"	87'-6	74.4	16	7'-2"	114'-8"	172.2	14	6'-5"	89'-10"	134.9	607.7	5.08
4'-0	12"	11"	4'-3"	8	3'-8"	29'-4"	24.9	5	4'-0"	20'-0"	17.0	4	9'-3"	74'-0"	55.6	8	3'-0"	24'-0"	9.0	13	4'-0"	52'-0"	44.2	6	9'-2"	55'-0"	82.6	4	6'-5"	25'-8"	38.6	271.9	2.72
			9'-9"	20	3'-8"	73'-4"	62.3	5	9'-6"	47'-6"	40.4	10	9'-3"	185'0	138.9	8	3'-0"	24'-0"	9.0	13	9'-6"	123.6	105.0	18	9'-2"	165'0"	247.8	16	6'-5"	102'-8"	154.2	757.6	6.23
4'-0	12"	12"	4'-11	10	3'-8"	36'-8"	31.2	5	4'-8"	23'-4"	19.8	5	9'-3"	92'-6	69.5	9	3'-0"	27.0	10.2	15	4'-8"	70'-0	59.5	8	10'-2"	81'-4"	122.2	6	6'-5"	38'-6"	57.8	370.2	3.33
			9 - 1	18	3'-8"	66'-0"	62.3	5	8'-10	44'-2"	37.5	9	9'-3"	166'-6	125.0	9	3'-0"	27-0	10.2	15	8'-10	132'-6	112.6	16	10'-2	162'-8	244.3	14	6'-5	89'-10	134.9	726.8	6.14
4'-0	12"	12"	4'-6"	10	3'-8"	36'-8"	31.2	5	4'-3"	21'-3	18.1	5	9'3"	92'6"	69.5	9	3'0"	27'0"	10.2	15	4'-3"	63'9"	54.2	8	10'2"	81'-4"	122.2	6	6'-5	38'6"	57.8	363.2	3.04
			9'-6"	20	3'-8"	73'-4"	62.3	5	9'-3"	46'-3"	39.3	10	9'3"	185'0"	138.9	9	3'0"	27'0"	10.2	15	9'3"	138'9"	117.9	18	10'2"	183'0"	274.9	16	6'-5	102'-8"	154.2	797.7	6.42
4'-0	12"	12"	4'-10"	10	3'-8"	36'-8"	31.2	5	4'-7"	22'-11	19.5	5	9'-3"	92'6	69.5	9	3'0"	27'0"	10.2	15	4'-7"	68 9	58.4	8	10'2"	81'-4	122.2	6	6'-5	38'6"	57.8	368.8	3.27
			9'-2"	18	3'-8"	66'0	56.1	5	8'-11"	44'-7"	37.9	9	9'3"	166'6"	125.0	9	3'0"	27'0"	10.2	15	8'-11	133'9"	113.7	16	10'2	162'8"	244.3	14	6'-5	89'-10	134.9	722.1	6.20
4'-2	14"	14	4'-11"	10	3'10"	38'4"	32.6	5	4'8"	23'-4"	19.8	5	9'7"	95'10	171.9	10	3'0"	30'0"	11.3	17	4'-8"	79'-4"	67.4	8	12'2"	97'-4"	146.2	6	6'7"	39'6"	59.3	508.5	3.69
			9'-1"	18	3'-10"	69'0"	58.7	5	8'10	44'-2"	37.5	9	9'7"	172'-6"	129.5	10	3'-0"	30'0"	11.3	17	8'10	150'2"	127.6	16	12'2"	194'8"	292.4	14	6'7"	92'2"	138.4	795.4	7.60
4'-2	14"	14'	4'-2"	8	3'10"	30'8"	26.2	5	3'11"	19'7"	16.6	4	9'7"	76'8"	57.6	10	3'0"	30'0"	11.3	17	3'-11"	66'7	56.6	6	12'2"	73'0"	109.6	4	6'7"	26'-4"	39.5	319.4	3.48
			9'-10"	20	3'-10"	76'8"	65.2	5	9'-7"	47'-11"	40.7	10	9'7"	191'8"	143.9	10	3'0"	30'0"	11.3	17	9'7"	162'11"	138.5	18	12'2"	219'0	328.9	16	6'7"	105'4"	158.2	886.7	8.22

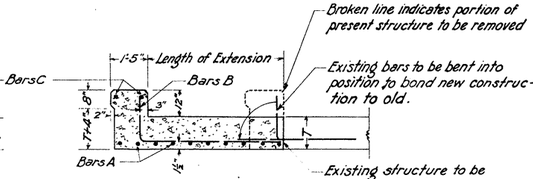
UNIT WEIGHTS OF STEEL

SIZE	WEIGHT PER LINEAL FOOT
3/8"ø	0.376
½"□	0.850
3/4"ø	1.502
1" ø	2.670

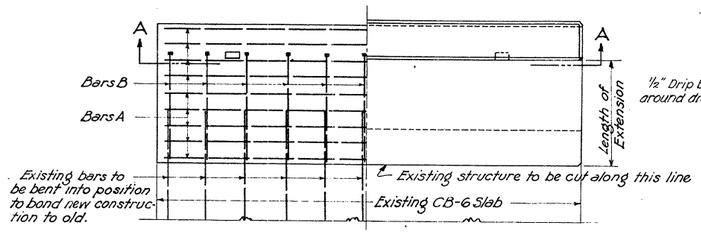
CB-6 SLAB



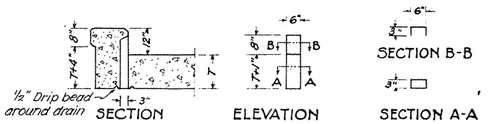
SECTION A-A



SECTION B-B



PLAN

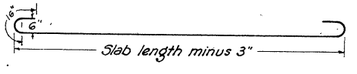


DETAILS OF DRAINS

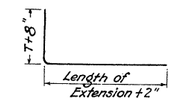
Note:- Forms for drains to consist of 24 gauge galvanized iron sheets slotted as shown.

BILL OF STEEL AND TOTAL QUANTITIES FOR ONE CB-6 SLAB EXTENSION

CLEAR SPAN	SLAB LENGTH	T	LENGTH OF EXTENSION	Bars A-1" ø NO.	C-C	LENGTH	TOTAL WEIGHT	Bars B-½"□ NO.	C-C	LENGTH	TOTAL WEIGHT	Bars C-½"□ NO.	C-C	LENGTH	TOTAL WEIGHT	TOTAL STEEL LBS.	TOTAL CONCRETE CU.YDS.
14'	16'	14½"	4' 10"	10	7½	17'-11"	478	11	18"	6'-10"	64	2	12"	15'-9"	27	569	5.16
			4'-3"	9	7½	17'-11"	431	11	18"	6'-3"	58	2	12"	15'-9"	27	516	4.74
			9'-9"	18	7½	17'-11"	861	11	18"	11'-9"	110	2	12"	15'-9"	27	998	8.68
			9'-2"	17	7½	17'-11"	813	11	18"	11'-2"	104	2	12"	15'-9"	27	944	8.27
			5'-0"	10	7½	17'-11"	478	11	18"	7'-0"	65	2	12"	15'-9"	27	570	5.28
			9'-0"	17	7½	17'-11"	813	11	18"	11'-0"	103	2	12"	15'-9"	27	943	8.14
16'	18'	15⅝"	9'-6"	18	7"	19'-11"	957	12	18"	11'-8"	119	2	12"	17'-9"	30	1106	10.31
			9'-10"	19	7"	19'-11"	1011	12	18"	12'-0"	122	2	12"	17'-9"	30	1163	10.61
			4'-2"	9	7"	19'-11"	479	12	18"	6'-4"	65	2	12"	17'-9"	30	574	5.65
			4'-6"	10	7"	19'-11"	532	12	18"	6'-8"	68	2	12"	17'-9"	30	630	5.94
18'	20'	17⅛"	4'-11"	10	6"	21'-11"	585	14	18"	7'-2"	85	2	12"	19'-9"	33	703	7.57
			9'-1"	18	6"	21'-11"	1053	14	18	11'-4	135	2	12"	19'-9"	33	1221	12.02
20'	22'	19¼"	4'-11"	15	5"	23'-11"	958	15	18"	7'-4	94	2	12"	21'-9"	37	1089	9.17
			3'-6"	11	5"	23'11"	703	15	18"	5'-11"	75	2	12"	21'-9"	37	815	7.32
			10'-6"	28	5"	23'-11"	1788	15	18"	12'-11"	165	2	12"	21'-9"	37	1990	16.47
			9'-1"	25	5"	23'11"	1597	15	18"	11'-6"	147	2	12"	21'-9"	37	1781	14.62



BARS A



BARS B

General Notes on CB-6 Slab and B-4 Bent

All concrete shall be Class "A" High Early Strength. Maximum size of course aggregate shall be 1½". All exposed corners shall be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be deformed bars. All dimensions relating to reinforcing steel are to center of bars. Where reinforcing bars are spliced, a 40 diameter lap shall be used.

Holes for dowels shall be drilled as shown on this plan and as directed by the Engineer and shall be cleaned and filled with neat cement mortar before dowels are inserted.

Payment for removing the portions of the existing structure, as indicated hereon and as directed by the Engineer, for drilling and grouting dowel holes and placing dowels, shall be included in the price bid per cubic yard for Class "A" Concrete (High Early Strength).

Railings for span shall be Type K Mod. and provision for placing same shall be made when the curbs are poured.

TEXAS STATE HIGHWAY DEPARTMENT

WIDENING DETAILS

FOR

CB-6 SLAB & B-4 BENT

CONTROL NO. 18	SECTION NO 3	JOB NO 3
CONTROL NO. 18	SECTION NO 3	JOB NO. 3

FED'L ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	(As Filed Rear)	

STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
21	WEBB		

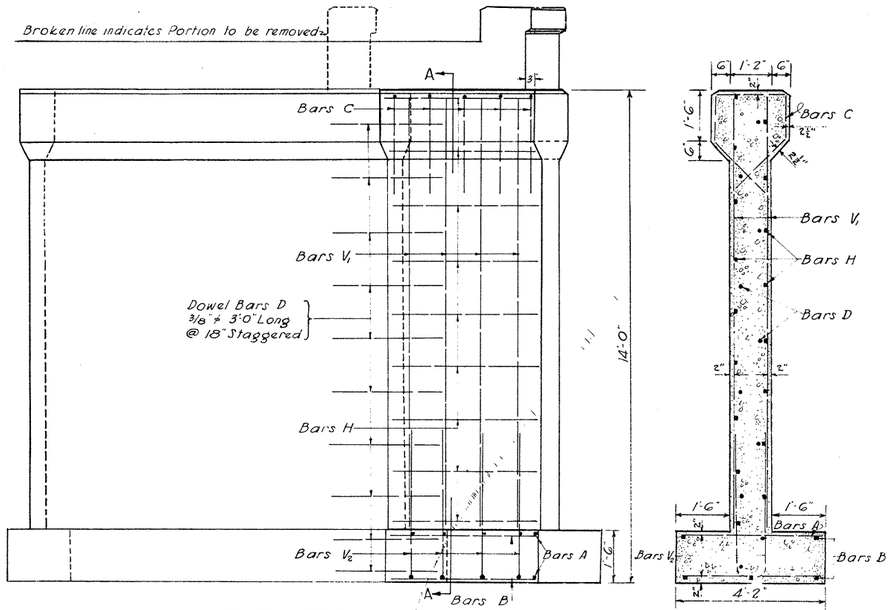
PLAN — SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, QUANTITIES CHECKED, NOTE BOOK, NO., STRUCTURE NO. AT/OF MAP CHECKED, DATE, BY

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, NOTE BOOK, NO., STRUCTURE NO. AT/OF MAP CHECKED, DATE, BY

66

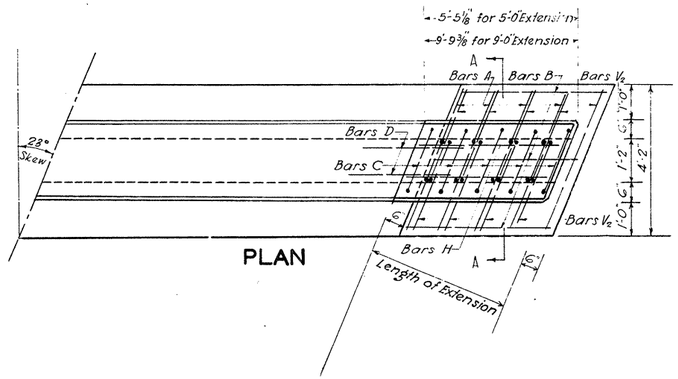
FED ROAD DIST. NO.	STATE	FISCAL YEAR	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
6	TEXAS				
STATE DIV. NO.	COUNTY		STATE PROJECT NO.		HIGHWAY NO.

B-4 BENT

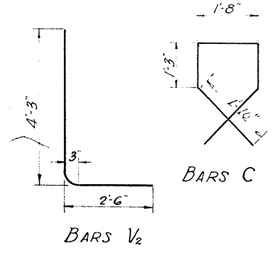


ELEVATION

SECTION A-A



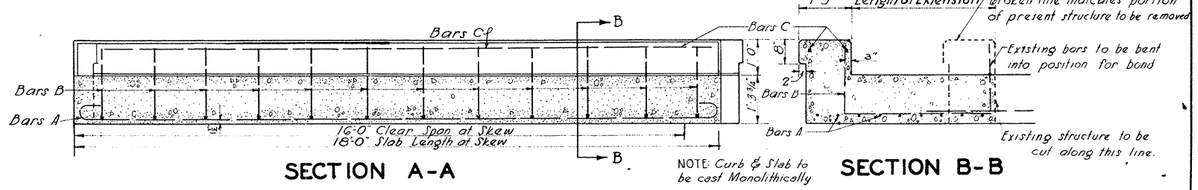
PLAN



BARS V2

BARS C

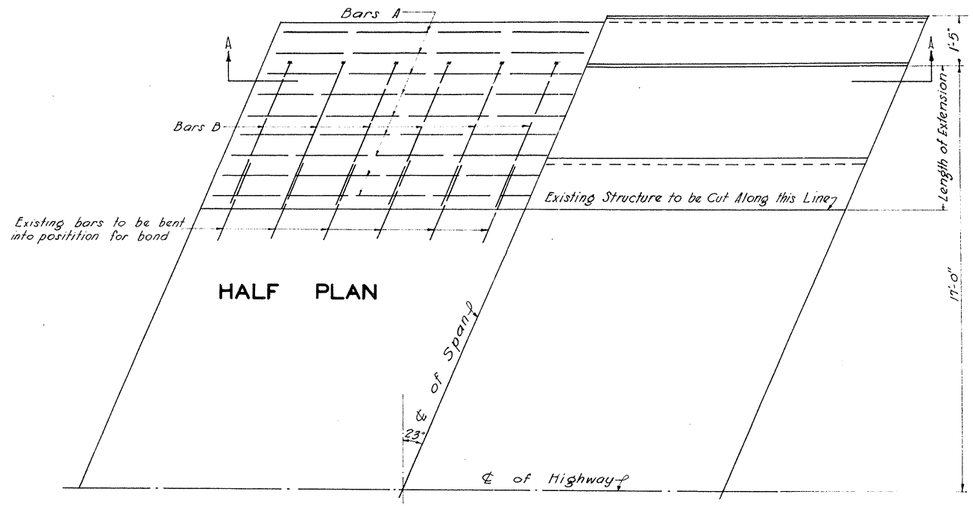
CB-6 SLAB



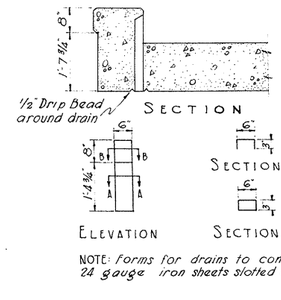
SECTION A-A

NOTE: Curb & Slab to be cast Monolithically

SECTION B-B



HALF PLAN



SECTION

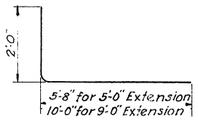
SECTION B-B

ELEVATION

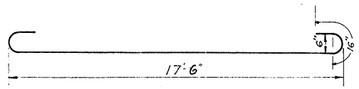
SECTION A-A

NOTE: Forms for drains to consist of 24 gauge iron sheets slotted as shown.

DETAIL OF DRAINS



BARS B



BARS A

General Notes on CB-6 Slab & B-4 Bent

All concrete shall be Class "A" High Early Strength. Maximum size of coarse aggregate shall be 1½". All exposed corners shall be chamferred ¾" unless otherwise noted.

All reinforcing steel shall be deformed bars. All dimensions relating to reinforcing steel are to center of bars. Where reinforcing bars are spliced, a 40 diameter lap shall be used.

Holes for dowels shall be drilled as shown on this plan and as directed by the Engineer and shall be cleaned and filled with neat cement mortar before dowels are inserted.

Payment for removing the portions of the existing structure, as indicated hereon and as directed by the Engineer, for drilling and grouting dowel holes and placing dowels, shall be included in the price bid per cubic yard of Class "A" Concrete High Early Strength.

Railings for span shall be Type K Mod. and provision for placing same shall be made when the curbs are poured.

Bill of Steel and Total Quantities for One Bent

Mark	Size	Spacing	Number		Length		Weight	
			5Ft.Ext.	9Ft.Ext.	5Ft.Ext.	9Ft.Ext.	5Ft.Ext.	9Ft.Ext.
A	½" □	12"	12	20	4'-2"	4'-2"	43	71
B	½" □		5	5	5'-1"	9'-5"	22	40
C	¾" ø	12"	6	10	7'-10"	7'-10"	71	118
D	⅜" ø	18"	10	10	3'-0"	3'-0"	11	11
H	½" □	18"	17	17	5'-1"	9'-5"	73	136
V_1	¾" ø	12"	6	10	12'-3"	12'-3"	110	184
V_2	¾" ø	12"	12	20	6'-9"	6'-9"	122	203
Total Steel Pounds.							452	763
Total Concrete Cu. Yds.							4.51	8.21

★

UNIT WEIGHTS OF STEEL

SIZE	AREA SQ. IN.	WEIGHT LBS PER FT.
⅜" ø	0.1104	0.376
½" □	0.250	0.850
¾" ø	0.4418	1.502
1" ø	0.7854	2.670

Bill of Steel and Total Quantities for One Slab.

Mark	Number		Size		Spacing		Length		Weight	
Bars	5Ft.Ext.	9Ft.Ext.	5Ft.Ext.	9Ft.Ext.	5Ft.Ext.	9Ft.Ext.	5Ft.Ext.	9Ft.Ext.	5Ft.Ext.	9Ft.Ext.
A	11	18	1" ø	1" ø	7"	7"	19'-11"	19'-11"	577	944
B	12	12	½" □	½" □	18"	18"	7'-8"	12'-0"	78	122
C	2	2	½" □	½" □	12"	12"	17'-6"	17'-6"	30	30
Total Steel									685	1096
Total Concrete Cu. Yds.									6.38	9.88

TEXAS STATE HIGHWAY DEPARTMENT

WIDENING DETAILS

FOR

CB-6 SLAB & B-4 BENT-23° SKEW

TO BE USED AT BRIDGE STATION 1103+41.0 TO 1103+95.0

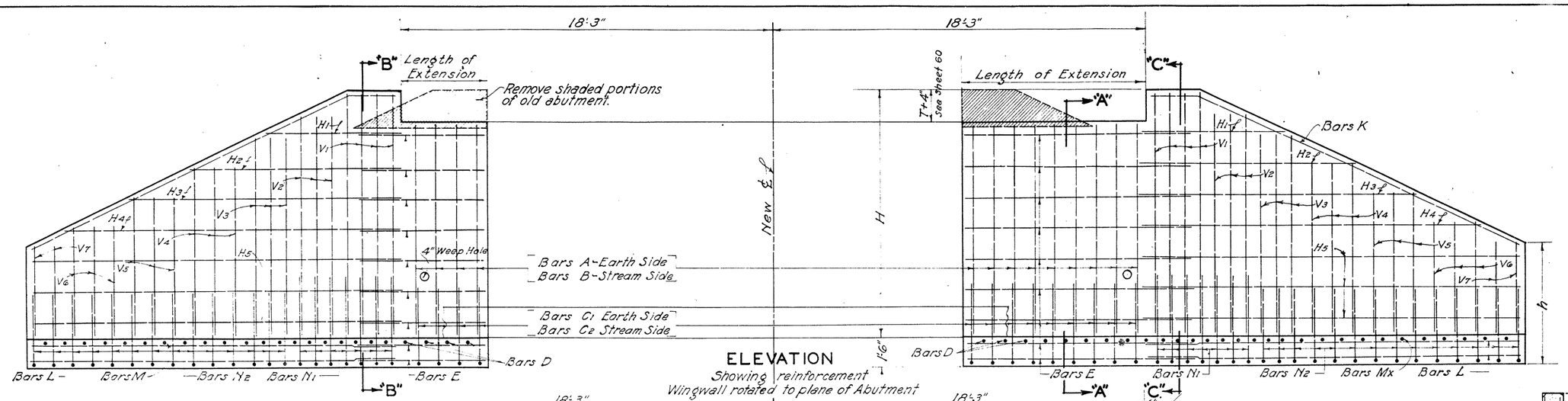
CONTROL NO. 18	SECTION NO. 4	JOB NO. 3	
FED ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	65 ARCD REDP.	67
STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
21	WEBB		2

PLAN: CHECKED / NOTE BOOK / NO.

PROFILE: CHECKED / NOTE BOOK / NO.

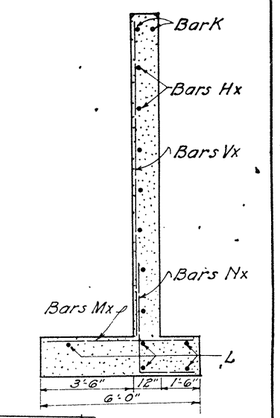
DATE / BY / STRUCTURE NOTATIONS CHKD.

PRINTED ON K & E TRACING CLOTH NO. 46 K

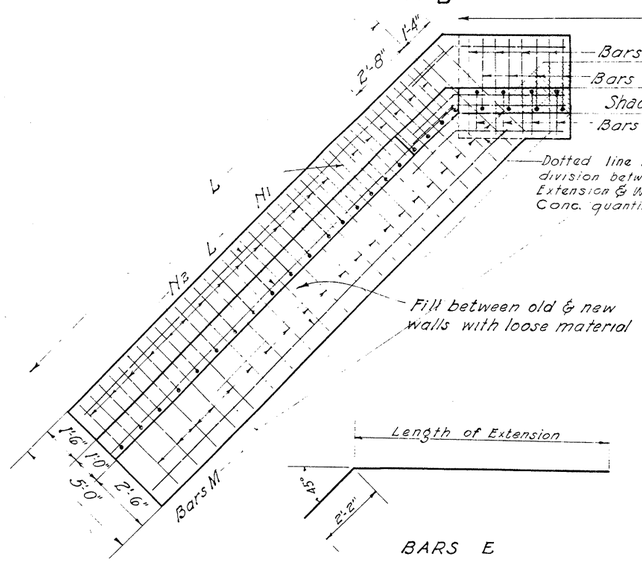


ELEVATION

Showing reinforcement
Wingwall rotated to plane of Abutment

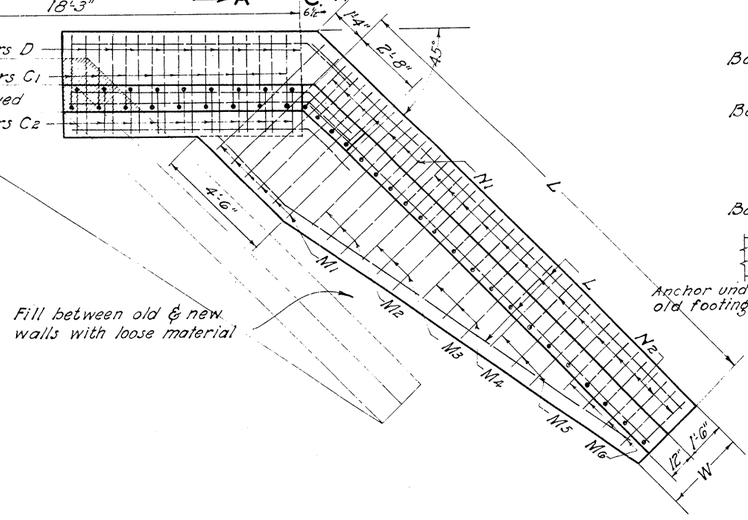


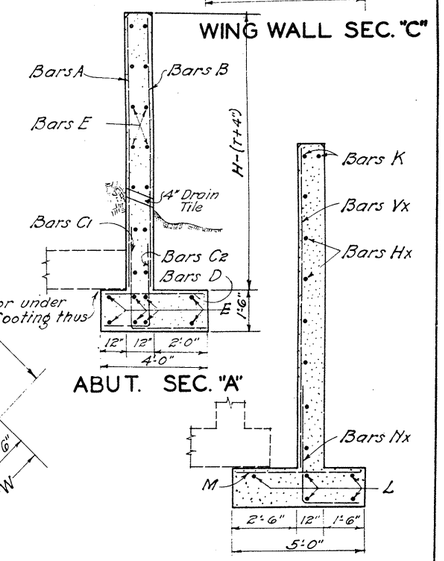
WING WALL SEC. "C"



FOOTING PLAN

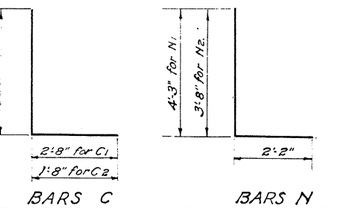
Showing reinforcement





ABUT. SEC. "A"

WING WALL SEC. "B"



BAR BENDING DIAGRAMS

REINFORCING STEEL & CONCRETE QUANTITIES FOR BOTH WINGS OF ONE ABUTMENT

	H = 10'-6" L = 15'-5"			h = 6'-0" W = 3'-0"		H = 12'-0" L = 18'-7"			h = 6'-0" W = 3'-0"	
Mark	No	Size	Spc.	Length	Weight	No.	Size	Spac.	Length	Weight
H1	2	½" ϕ	18"	6'-8"	8.9	2	½" ϕ	18"	6'-8"	8.9
H2	2	½" ϕ	18"	9'-9"	13.0	2	½" ϕ	18"	9'-9"	13.0
H3	2	½" ϕ	18"	13'-0"	17.4	2	½" ϕ	18"	13'-0"	17.4
H4	6	½" ϕ	18"	15'-1"	60.4	2	½" ϕ	18"	16'-2"	21.6
H5	—	—	—	—	—	6	½" ϕ	18"	18'-3"	73.1
V1	8	¾" ϕ	9"	10'-2"	122.2	8	¾" ϕ	9"	11'-8"	140.2
V2	6	¾" ϕ	9"	9'-2"	82.6	6	¾" ϕ	9"	10'-8"	96.2
V3	6	⅝" ϕ	9"	8'-0"	50.1	6	⅝" ϕ	9"	9'-6"	59.5
V4	6	⅝" ϕ	12"	6'-7"	41.2	6	⅝" ϕ	12"	8'-1"	50.6
V5	6	⅝" ϕ	12"	5'-2"	32.4	6	⅝" ϕ	12"	6'-8"	41.7
V6	4	⅝" ϕ	12"	4'-2"	17.4	6	⅝" ϕ	12"	5'-3"	32.9
V7	—	—	—	—	—	4	⅝" ϕ	12"	4'-2"	17.4
K	4	⅝" ϕ	—	16'-2"	67.5	4	⅝" ϕ	—	19'-3"	80.3
L	10	½" ϕ	—	16'-8"	111.4	10	½" ϕ	—	20'-0"	133.6
M	19	½" ϕ	9"&12	4'-8"	59.3	22	½" ϕ	9"&12	4'-8"	107.2
M1	6	½" ϕ	9"	5'-8"	22.1	6	½" ϕ	9"	5'-8"	35.5
M2	3	½" ϕ	9"	5'-1"	10.2	3	½" ϕ	9"	5'-2"	16.2
M3	3	½" ϕ	9"&12	4'-6	9.0	3	½" ϕ	9"&12	4'-8"	14.6
M4	3	½" ϕ	12"	3'-9"	7.5	3	½" ϕ	12"	4'-1"	12.8
M5	4	½" ϕ	12"	3'-0"	8.0	3	½" ϕ	12"	3'-6"	11.0
M6	—	—	—	—	—	4	½" ϕ	12"	2'-10"	11.8
N1	14	¾" ϕ	9"	6'-5"	135.0	14	¾" ϕ	9"	6'-5"	135.0
N2	22	⅝" ϕ	9"&12"	5'-10"	133.8	28	⅝" ϕ	9"&12	5'-10"	170.3
Total Reinf. Steel = 1009.4 Lbs										1300.8 Lbs.
Total Concrete = 17.71 C.Y.										22.317 C.Y.

REINFORCING STEEL & CONCRETE QUANTITES FOR ABUTMENT WALL EXTENSIONS

H	Length of Extension	Bars A					Bars B					Bars C1					Bars C2					Bars D					Bars E					Total Quantities	
		NO.	SZ.	SPC	L'GTH.	WT.	NO.	SZ.	SPC.	L'GTH.	WT.	NO.	SZ.	SPC	L'GTH.	WT.	NO.	SZ.	SPC	L'GTH.	WT.	NO.	SZ.	SPC	L'GTH.	WT.	NO.	SZ.	SPC	L'GTH.	WT.	Steel	Concrete
10'6"	5'-0"	5	⅝" ϕ	12"	8'-8"	45.2	5	½" ϕ	12"	8'-8"	29.0	5	⅝" ϕ	12"	6'-6"	53.9	5	½" ϕ	12"	5'-0"	16.7	5	½" ϕ	12"	3'-8"	12.3	20	½" ϕ	18"	7'-2"	95.8	232.9	2.78 C.Y.
	9'-0"	9	⅝" ϕ	12"	8'-8"	81.4	9	½" ϕ	12"	8'-8"	52.1	9	⅝" ϕ	12"	6'-6"	61.0	9	½" ϕ	12"	5'-0"	30.1	9	½" ϕ	12"	3'-8"	22.1	20	½" ϕ	18"	11'-2	149.2	395.9	5.00
12'-0"	4'-3"	4	¾" ϕ	12"	10'-2"	61.1	4	⅝" ϕ	12"	10'-2"	42.4	4	¾" ϕ	12"	6'-6"	39.0	4	⅝" ϕ	12"	5'-0"	20.9	4	⅝" ϕ	12"	3'-8"	15.3	22	½" ϕ	18"	6'-5"	94.3	273.Q	2.60
	4'-10"	5	¾" ϕ	12"	10'-2"	76.4	5	⅝" ϕ	12"	10'-2"	53.0	5	¾" ϕ	12"	6'-6"	48.8	5	⅝" ϕ	12"	5'-0"	26.1	5	⅝" ϕ	12"	3'-8"	19.1	22	½" ϕ	18"	7'-0"	102.9	326.3	2.95
	9'-2"	9	¾" ϕ	12"	10'-2"	137.5	9	⅝" ϕ	12"	10'-2"	95.4	9	¾" ϕ	12"	6'-6"	87.9	9	⅝" ϕ	12"	5'-0"	46.9	9	⅝" ϕ	12"	3'-8"	34.5	22	½" ϕ	18"	11'-4"	166.5	568.7	5.60
	9'-9"	10	¾" ϕ	12"	10'-2"	152.8	10	⅝" ϕ	12"	10'-2"	106.1	10	¾" ϕ	12"	6'-6"	97.6	10	⅝" ϕ	12"	5'-0	52.2	10	⅝" ϕ	12"	3'-8"	38.3	22	½" ϕ	18"	11'-11"	176.2	622.2	5.96

TOTAL QUANTITIES OF STEEL & CONCRETE FOR ONE EXTENSION AND ONE WING

h = 6'-0"

H	Length of Extension	Steel Lbs.	Concrete
10'-6"	5'-0"	738.9	11.70
	9'-0"	899.3	13.79
12'-0"	4'-3"	926.1	13.87
	4'-10"	974.0	14.33
	9'-2"	1221.8	16.65
	9'-9"	1269.9	17.01

GENERAL NOTES:-

All concrete shall be Class "A" High Early Strength. Maximum size of coarse aggregate shall be 1½". All exposed corners shall be chamfered ¾".

All reinforcing steel shall be deformed bars. All dimensions relating to reinforcing steel are to centers of bars. Where reinforcing bars are spliced a 40 diameter lap shall be used.

Payment for removing the portions of the existing structure as indicated hereon and as directed by the engineer shall be included in the price bid per Cu. Yd for Class "A" Concrete (High Early Strength)

Payment for Materials used and for the installation of drains shall be included in the unit price bid for Class "A" Concrete (High Early Strength)

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TEXAS STATE HIGHWAY DEPARTMENT

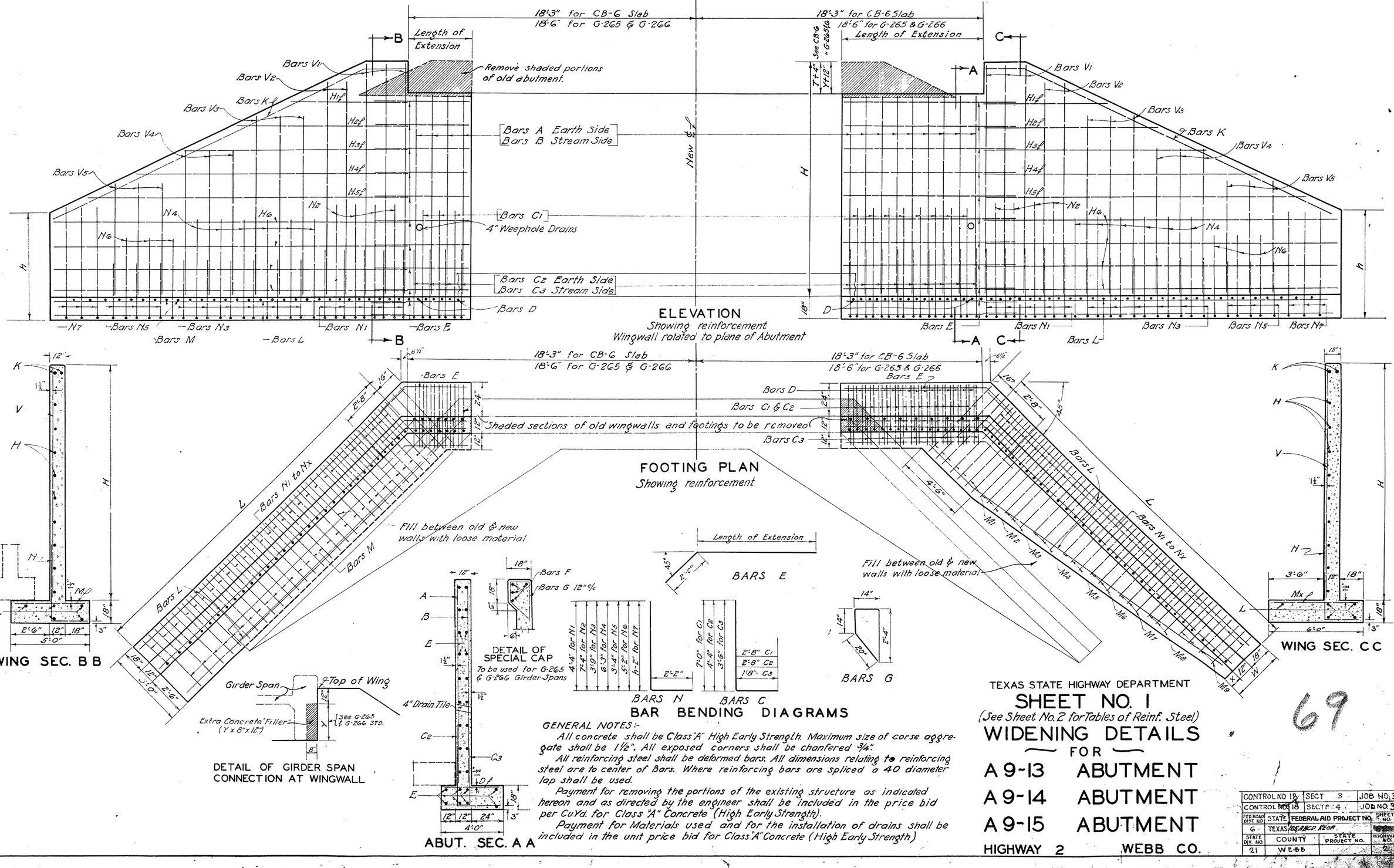
WIDENING DETAILS

FOR A-9-10'6"& A-9-12'ABUTMENT

HIGHWAY 2 WEBB CO.

CONTROL 18	SECTION 3	JOB NO 3	
CONTROL NO. 18	SECTION NO. 4	JOB NO. 3	
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO	SHEET NO.
6	TEXAS	165 ABCD REOR.	
STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
21	WEBB		2

PLAN — PROFILE — SURVEY DATE — PLOTTED BY — CHECKED BY — NOTE BOOK — STRUCTURAL NOTAT NO. — CHKD



GENERAL NOTES:-

All concrete shall be Class "A" High Early Strength. Maximum size of corse aggregate shall be 1½". All exposed corners shall be chanfered ¾".

All reinforcing steel shall be deformed bars. All dimensions relating to reinforcing steel are to center of Bars. Where reinforcing bars are spliced a 40 diameter lap shall be used.

Payment for removing the portions of the existing structure as indicated hereon and as directed by the engineer shall be included in the price bid per Cu.Yd. for Class "A" Concrete (High Early Strength).

Payment for Materials used and for the installation of drains shall be included in the unit price bid for Class "A" Concrete (High Early Strength)

TEXAS STATE HIGHWAY DEPARTMENT

SHEET NO. 1

(See Sheet No. 2 for Tables of Reinf. Steel)

WIDENING DETAILS

FOR

A 9-13 ABUTMENT

A 9-14 ABUTMENT

A 9-15 ABUTMENT

HIGHWAY 2 WEBB CO.

CONTROL NO. 18	SECT. 3	JOB NO. 3	
CONTROL NO. 18	SECT. 4	JOB NO. 3	
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS		
STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
21	WEBB		2

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PLAN — SURVEYED, DRAWN, GRADES CHECKED, QUANTITIES CHECKED, NOTE BOOK, NO.

PROFILE — SURVEYED, DRAWN, GRADES CHECKED, QUANTITIES CHECKED, NOTE BOOK, NO.

REINFORCING STEEL & CONCRETE QUANTITIES FOR ABUTMENT WALL EXTENSIONS

H	Extention	T+4" or Y+12"	BARS A					BARS B					BARS C1					BARS C2					BARS C3					BARS D					BARS E					QUANTITES	
			No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	Steel Lbs.	Concrete C.Y.
13'-0"	4'-1"	21¼"	4	¾"ϕ	12"	11'-0"	66.1	4	5/8"ϕ	12"	11'-0"	45.9	4	¾"ϕ	12"	9'-8"	50.1	4	¾"ϕ	12"	7'-0"	42.1	4	⅝"ϕ	12"	5'-2"	21.6	7	⅝"ϕ	6"	3'-8"	26.8	22	½"ϕ	18"	6'-1"	89.4	350.0	2.61
	4'-6"	19¾"	5	¾"ϕ	12"	10'-9"	80.7	5	5/8"ϕ	12"	10'-9"	56.1	5	¾"ϕ	12"	9'-8"	72.6	5	¾"ϕ	12"	7'-0"	52.6	5	⅝"ϕ	12"	5'-2"	27.0	9	⅝"ϕ	6"	3'-8"	34.5	22	½"ϕ	18"	6'-11"	101.7	425.0	3.10
	4'-11"	23½"	5	¾"ϕ	12"	10'-9"	80.7	5	5/8"ϕ	12"	10'-9"	56.1	5	¾"ϕ	12"	9'-8"	72.6	5	¾"ϕ	12"	7'-0"	52.6	5	⅝"ϕ	12"	5'-2"	27.0	9	⅝"ϕ	6"	3'-8"	34.5	22	½"ϕ	18"	6'-11"	101.7	425.0	3.10
	9'-1"	23½"	9	¾"ϕ	12"	10'-9"	145.3	9	5/8"ϕ	12"	10'-9"	100.9	9	¾"ϕ	12"	9'-8"	130.7	9	¾"ϕ	12"	7'-0"	94.6	9	⅝"ϕ	12"	5'-2"	48.5	18	⅝"ϕ	6"	3'-8"	68.9	22	½"ϕ	18"	11'-1"	162.8	752.0	5.73
	9'-6"	19¾"	10	¾"ϕ	12"	11'-1"	166.4	10	5/8"ϕ	12"	11'-1"	115.6	10	¾"ϕ	12"	9'-8"	145.2	10	¾"ϕ	12"	7'-0"	105.1	10	⅝"ϕ	12"	5'-2"	53.9	19	⅝"ϕ	6"	3'-8"	72.7	24	½"ϕ	18"	11'-6"	184.4	843.0	6.11
14'-0"	3'-6"	23¼"	4	⅞"ϕ	12"	11'-9"	96.1	4	⅝"ϕ	12"	11'-9"	49.0	4	⅞"ϕ	12"	9'-8"	79.1	4	⅞"ϕ	12"	7'-0"	57.2	4	⅝"ϕ	12"	5'-2"	21.6	7	⅝"ϕ	6"	3'-8"	26.8	24	½"ϕ	18"	5'-6"	88.2	418.0	2.34
	*4'-4"	2'-8"	4	⅞"ϕ	12"	11'-1"	90.6	4	⅝"ϕ	12"	11'-1"	46.2	4	⅞"ϕ	12"	9'-8"	79.1	4	⅞"ϕ	12"	7'-0"	57.2	4	⅝"ϕ	12"	5'-2"	21.6	7	⅝"ϕ	6"	3'-8"	26.8	24	½"ϕ	18"	6'-4"	101.5	423.0	2.78	41.0	0.14	0.04
	*9'-8"	2'-8"	10	⅞"ϕ	12"	11'-1"	226.5	10	⅝"ϕ	12"	11'-1"	115.6	10	⅞"ϕ	12"	9'-8"	197.7	10	⅞"ϕ	12"	7'-0"	143.1	10	⅝"ϕ	12"	5'-2"	53.9	19	⅝"ϕ	6"	3'-8"	72.7	24	½"ϕ	18"	11'-8"	187.1	997.0	6.21	99.0	0.31	0.04
	10'-6"	23¼"	11	⅞"ϕ	12"	11'-9"	264.2	11	⅝"ϕ	12"	11'-9"	134.8	11	⅞"ϕ	12"	9'-8"	217.4	11	⅞"ϕ	12"	7'-0"	157.4	11	⅝"ϕ	12"	5'-2"	59.3	20	⅝"ϕ	6"	3'-8"	76.6	24	½"ϕ	18"	12'-6"	200.4	1110.0	7.02
15'-0"	*4'-0"	2'-7"	4	⅞"ϕ	12"	12'-2"	99.5	4	¾"ϕ	12"	12'-2"	73.1	4	⅞"ϕ	12"	9'-8"	79.1	4	⅞"ϕ	12"	7'-0"	57.2	4	¾"ϕ	12"	5'-2"	31.1	7	⅝"ϕ	6"	3'-8"	26.8	24	½"ϕ	18"	6'-0"	96.2	463.0	2.72	39.0	0.13	0.04
	4'-2"	19¾"	4	⅞"ϕ	12"	13'-1"	106.9	4	¾"ϕ	12	13'-1"	78.6	4	⅞"ϕ	12"	9'-8"	79.1	4	⅞"ϕ	12"	7'-0"	57.2	4	¾"ϕ	12"	5'-2"	31.1	7	⅝"ϕ	6"	3'-8"	26.8	26	½"ϕ	18"	6'-2"	107.2	487.0	2.99			
	*4'-9"	3'-4"	5	⅞"ϕ	12"	11'-5"	116.7	5	¾"ϕ	12"	11'-5"	85.8	5	⅞"ϕ	12"	9'-8"	98.8	5	⅞"ϕ	12"	7'-0"	71.5	5	¾"ϕ	12"	5'-2"	38.8	8	⅝"ϕ	6"	3'-8"	30.6	24	½"ϕ	18"	6'-9"	108.2	550.0	3.11	48.0	0.15	0.06
	*9'-3"	3'-4"	9	⅞"ϕ	12"	11'-5"	210.1	9	¾"ϕ	12"	11'-5"	154.4	9	⅞"ϕ	12"	9'-8"	177.9	9	⅞"ϕ	12"	7'-0"	128.8	9	¾"ϕ	12"	5'-2"	69.9	18	⅝"ϕ	6"	3'-8"	68.9	24	½"ϕ	18"	11'-3"	180.4	990.0	6.05	92.0	0.30	0.06
	9'-10"	19¾"	10	⅞"ϕ	12"	13'-1"	267.4	10	¾"ϕ	12"	13'-1"	196.5	10	⅞"ϕ	12"	9'-8"	197.7	10	⅞"ϕ	12"	7'-0"	143.1	10	¾"ϕ	12"	5'-2"	77.7	19	⅝"ϕ	6"	3'-8"	72.7	26	½"ϕ	18"	11'-10"	205.5	1161.0	7.05			
	*10'-0"	2'-7"	10	⅞"ϕ	12"	12'-2"	248.8	10	¾"ϕ	12"	12'-2"	182.8	10	⅞"ϕ	12"	9'-8"	197.7	10	⅞"ϕ	12"	7'-0"	143.1	10	¾"ϕ	12"	5'-2"	77.7	19	⅝"ϕ	6"	3'-8"	72.7	24	½"ϕ	18"	12'-0"	192.4	1115.0	6.82	101.0	0.32	0.04

*NOTE :
These Extensions take G-265 & G-266 Girder Spans. Therefor see also Table of Extra Bars & Table of Additional Quantites.

TABLE OF ADDITIONAL QUANTITIES
Required for Extensions Taking G-265 or G-266 Slabs. (See detail of Special Cap)

Steel Lbs	Concrete C.Y. Cap	Concrete C.Y. Filler.
41.0	0.14	0.04
99.0	0.31	0.04
39.0	0.13	0.04
48.0	0.15	0.06
92.0	0.30	0.06
101.0	0.32	0.04

REINFORCING STEEL & CONCRETE QUANTITIES FOR BOTH WINGS OF ONE ABUTMENT

MARK	H = 13'-0" h = 6'-0" L = 20'-8" W = 3'-3" No.	Size	Spa.	Length	Weight	H = 13'-0" h = 7'-0" L = 18'-7" W = 4'-0" No.	Size	Spa.	Length	Weight	H = 14'-0" h = 6'-0" L = 22'-10" W = 3'-3" No.	Size	Spa.	Length	Weight	H = 14'-0" h = 7'-0" L = 20'-8" W = 4'-0" No.	Size	Spa.	Length	Weight	H = 15'-0" h = 8'-0" L = 20'-8" W = 4'-7" No.	Size	Spa.	Length	Weight	H = 15'-0" h = 9'-0 L = 18'-7" W = 4'-10" No.	Size	Spa.	Length	Weight	H = 15'-0" h = 10'-0" L = 16'-6" W = 5'-1" No.	Size	Spa.	Length	Weight	MARK
H1	2	½"ϕ	18"	7'-7"	10.1	2	½"ϕ	18"	7'-0"	9.4	2	½"ϕ	18"	9'-2"	12.3	2	½"ϕ	18"	7'-7"	10.1	2	½"ϕ	18"	7'-0"	9.4	2	½"ϕ	18"	10'-6"	14.0	2	½"ϕ	18"	8'-11"	11.9	H1
H2	2	½"ϕ	18"	10'-10"	14.5	2	½"ϕ	18"	10'-2"	13.6	2	½"ϕ	18"	12'-4"	16.5	2	½"ϕ	18"	10'-10"	14.5	2	½"ϕ	18"	10'-2"	13.6	2	½"ϕ	18"	13'-9"	18.4	2	½"ϕ	18"	12'-1"	16.1	H2
H3	2	½"ϕ	18"	13'-11"	18.6	2	½"ϕ	18"	13'-4"	17.8	2	½"ϕ	18"	15'-6"	20.7	2	½"ϕ	18"	13'-11"	18.6	2	½"ϕ	18"	13'-4"	17.8	2	½"ϕ	18"	16'-11"	22.6	2	½"ϕ	18"	15'-3"	20.4	H3
H4	2	½"ϕ	18	17'-1"	22.8	2	½"ϕ	18"	16'-7"	22.2	2	½"ϕ	18"	18'-10"	25.2	2	½"ϕ	18"	17'-1"	22.8	2	½"ϕ	18"	16'-7"	22.2	10	½"ϕ	18"	18'-4"	122.4	10	½"ϕ	18"	16'-2"	108.0	H4
H5	6	½"ϕ	18	20'-4"	81.5	8	½"ϕ	18"	18'-3"	97.5	2	½"ϕ	18"	22'-0"	29.4	8	½"ϕ	18"	20'-5"	109.1	2	½"ϕ	18"	19'-9"	26.4	—	—	—	—	—	—	—	—	—	—	—	H5
H6	—	—	—	—	—	—	—	—	—	—	6	½"ϕ	18"	22'-6"	90.2	—	—	—	—	—	8	½"ϕ	18"	20'-4"	108.6	—	—	—	—	—	—	—	—	—	—	—	H6
V1	6	⅞"ϕ	15"	12'-9"	156.4	6	⅞"ϕ	15"	12'-9"	156.4	6	⅞"ϕ	15"	13'-9"	168.6	6	⅞"ϕ	15"	13'-9"	168.6	6	⅞"ϕ	15"	14'-9"	180.9	6	⅞"ϕ	15"	14'-9"	180.9	6	⅞"ϕ	15"	14'-9"	180.9	V1
V2	4	⅞"ϕ	15"	11'-7"	94.7	4	⅞"ϕ	15"	11'-7"	94.7	4	⅞"ϕ	15"	12'-7"	102.9	4	⅞"ϕ	15"	12'-7"	102.9	4	⅞"ϕ	15"	13'-7"	111.0	4	⅞"ϕ	15"	13'-7"	111.0	4	⅞"ϕ	15"	13'-7"	111.0	V2
V3	6	¾"ϕ	18"	9'-5"	84.9	6	¾"ϕ	18"	9'-5"	84.9	6	¾"ϕ	18"	10'-5"	93.9	6	¾"ϕ	18"	10'-5"	93.9	6	¾"ϕ	18"	11'-5"	102.9	6	¾"ϕ	18"	11'-5"	102.9	6	¾"ϕ	18"	11'-5"	102.9	V3
V4	6	¾"ϕ	18"	7'-3"	65.3	6	¾"ϕ	18"	7'-3"	65.3	6	¾"ϕ	18"	8'-4"	75.1	6	¾"ϕ	18"	8'-4"	75.1	6	¾"ϕ	18"	9'-4"	84.1	6	¾"ϕ	18"	9'-4"	84.1	6	¾"ϕ	18"	9'-4"	84.1	V4
V5	6	⅝"ϕ	18"	5'-1"	31.8	4	⅝"ϕ	18"	5'-1"	21.2	6	⅝"ϕ	18"	6'-2"	38.6	6	⅝"ϕ	18"	6'-2"	38.6	6	⅝"ϕ	18"	7'-2"	44.9	4	⅝"ϕ	18"	8'-0"	33.4	2	⅞"ϕ	18"	8'-6"	17.7	V5
K	4	⅝"ϕ	—	22'-0"	91.8	4	⅝"ϕ	—	20'-0"	83.4	4	⅝"ϕ	—	24'-6"	102.2	4	⅝"ϕ	—	22'-0"	91.8	4	⅝"ϕ	—	22'-0"	91.8	4	⅝"ϕ	—	20'-0"	83.4	4	⅝"ϕ	—	17'-10"	74.4	K
L	10	½"ϕ	—	22'-0"	147.0	10	½"ϕ	—	20'-0"	133.6	10	½"ϕ	—	24'-0"	160.3	10	½"ϕ	—	22'-0"	147.0	10	½"ϕ	—	22'-0"	147.0	10	½"ϕ	—	20'-0"	133.6	10	½"ϕ	—	18'-0"	120.2	L
M	29	⅝"ϕ	7⅛-9"	4'-8"	141.3	27	⅝"ϕ	7⅛-9"	4'-8"	131.5	31	⅝"ϕ	7⅛-9"	4'-8"	151.0	29	⅝"ϕ	7⅛-9"	4'-8"	141.3	29	⅝"ϕ	7⅛-9"	4'-8"	141.3	27	⅝"ϕ	7⅛-9"	4'-8"	131.5	24	⅝"ϕ	7⅛-9"	4'-8"	116.9	M
M1	7	⅝"ϕ	7⅛	5'-8"	41.4	7	⅝"ϕ	7⅛	5'-8"	41.4	7	⅝"ϕ	7⅛	5'-8"	41.4	7	⅝"ϕ	7⅛	5'-8"	41.4	7	⅝"ϕ	7⅛	5'-8"	41.4	7	⅝"ϕ	7⅛	5'-8"	41.4	7	⅝"ϕ	7⅛	5'-8"	41.4	M1
M2	3	⅝"ϕ	7⅛	5'-4"	16.7	3	⅝"ϕ	7⅛	5'-5"	17.0	3	⅝"ϕ	7⅛	5'-5"	17.0	3	⅝"ϕ	7⅛	5'-5"	17.0	3	⅝"ϕ	7⅛	5'-7"	17.5	3	⅝"ϕ	7⅛	5'-7"	17.5	3	⅝"ϕ	7⅛	5'-7"	17.5	M2
M3	3	⅝"ϕ	9"	5'-0"	15.6	3	⅝"ϕ	9	5'-2"	16.2	3	⅝"ϕ	9"	5'-1"	15.9	3	⅝"ϕ	9"	5'-2"	16.2	3	⅝"ϕ	9"	5'-5"	17.0	3	⅝"ϕ	9"	5'-5"	17.0	3	⅝"ϕ	9"	5'-5"	17.0	M3
M4	3	⅝"ϕ	9"	4'-8"	14.6	3	⅝"ϕ	9"	4'-9"	14.9	3	⅝"ϕ	9"	4'-9"	14.9	3	⅝"ϕ	9"	4'-10"	15.1	3	⅝"ϕ	9"	5'-3"	16.4	3	⅝"ϕ	9"	5'-3"	16.4	3	⅝"ϕ	9"	5'-3"	16.4	M4
M5	3	⅝"ϕ	9"	4'-4"	13.6	3	⅝"ϕ	9"	4'-6"	14.1	3	⅝"ϕ	9"	4'-6"	14.1	3	⅝"ϕ	9"	4'-7"	14.3	3	⅝"ϕ	9"	5'-0"	15.6	3	⅝"ϕ	9"	5'-1"	15.9	3	⅝"ϕ	9"	5'-1"	15.9	M5
M6	3	⅝"ϕ	9"	4'-0"	12.5	3	⅝"ϕ	9"	4'-2"	13.0	3	⅝"ϕ	9"	4'-2"	13.0	3	⅝"ϕ	9"	4'-4"	13.6	3	⅝"ϕ	9"	4'-10"	15.1	3	⅝"ϕ	9"	4'-11"	15.4	3	⅝"ϕ	9"	4'-11"	15.4	M6
M7	3	⅝"ϕ	9"	3'-8"	11.5	3	⅝"ϕ	9"	4'-1"	12.8	3	⅝"ϕ	9"	3'-10"	12.0	3	⅝"ϕ	9"	4'-0"	12.5	3	⅝"ϕ	9"	4'-9"	14.6	3	⅝"ϕ	9"	4'-9"	14.9	2	⅝"ϕ	9"	4'-10"	10.1	M7
M8	3	⅝"ϕ	9"	3'-4"	10.4	2	⅝"ϕ	9"	3'-9"	7.8	3	⅝"ϕ	9"	3'-5"	10.7	4	⅝"ϕ	9"	3'-9"	15.6	4	⅝"ϕ	9"	4'-4"	18.1	2	⅝"ϕ	9"	4'-7"	9.6	—	—	—	—	—	M8
M9	1	⅝"ϕ	9"	3'-0"	3.1	—	—	—	—	—	3	⅝"ϕ	12"	3'-1"	9.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	M9
N1	10	⅞"ϕ	15"	6'-6"	132.9	10	⅞"ϕ	15"	6'-6"	132.9	10	⅞"ϕ	15"	6'-6"	132.9	10	⅞"ϕ	15"	6'-6"	132.9	10	⅞"ϕ	15"	6'-6"	132.9	10	⅞"ϕ	15"	6'-6"	132.9	10	⅞"ϕ	15"	6'-6"	132.9	N1
N2	8	⅞"ϕ	15"	9'-6"	155.3	8	⅞"ϕ	15"	9'-6"	155.3	8	⅞"ϕ	15"	9'-6"	155.3	8	⅞"ϕ	15"	9'-6"	155.3	8	⅞"ϕ	15"	9'-6"	155.3	8	⅞"ϕ	15"	9'-6"	155.3	8	⅞"ϕ	15"	9'-6"	155.3	N2
N3	12	¾"ϕ	18"	5'-11"	106.7	12	¾"ϕ	18"	5'-11"	106.7	12	¾"ϕ	18"	5'-11"	106.7	12	¾"ϕ	18"	5'-11"	106.7	12	¾"ϕ	18"	5'-11"	106.7	12	¾"ϕ	18"	5'-11"	106.7	12	¾"ϕ	18"	5'-11"	106.7	N3
N4	12	¾"ϕ	18"	8'-5"	151.8	12	¾"ϕ	18"	8'-5"	151.8	12	¾"ϕ	18"	8'-5"	151.8	12	¾"ϕ	18"	8'-5"	151.8	12	¾"ϕ	18"	8'-5"	151.8	12	¾"ϕ	18"	8'-5"	151.8	12	¾"ϕ	18"	8'-5"	151.8	N4
N5	6	⅝"ϕ	18"	5'-6"	34.4	4	⅝"ϕ	18"	5'-6"	22.9	6	⅝"ϕ	18"	5'-6"	34.4	6	⅝"ϕ	18"	5'-6"	34.4	6	⅝"ϕ	18"	5'-6"	34.4	4	⅝"ϕ	18"	5'-6"	22.9	2	⅝"ϕ	18"	5'-6"	11.5	N5
N6	6	⅝"ϕ	18"	7'-4"	45.9	6	⅝"ϕ	18"	7'-4"	45.9	6	⅝"ϕ	18"	7'-4"	45.9	6	⅝"ϕ	18"	7'-4"	45.9	6	⅝"ϕ	18"	7'-4"	45.9	6	⅝"ϕ	18"	7'-4"	45.9	2	⅝"ϕ	18"	7'-4"	15.3	N6
N7	2	⅝"ϕ	12"	8'-0"	16.7	—	—	—	—	—	6	⅝"ϕ	12"	8'-0"	50.1	2	⅝"ϕ	12"	9'-0"	18.8	2	⅝"ϕ	12"	10'-0"	20.9	—	—	—	—	—	—	—	—	—	—	—	N7
Total Steel Lbs.					1743.8					1685.8					1912.6					1825.8					1905.5					1801.8					1671.7	
Total Concrete C.Y.					25.68					24.12					29.19					27.59					29.40					27.26					24.91	

TABLE OF EXTRA BARS
For Special Cap

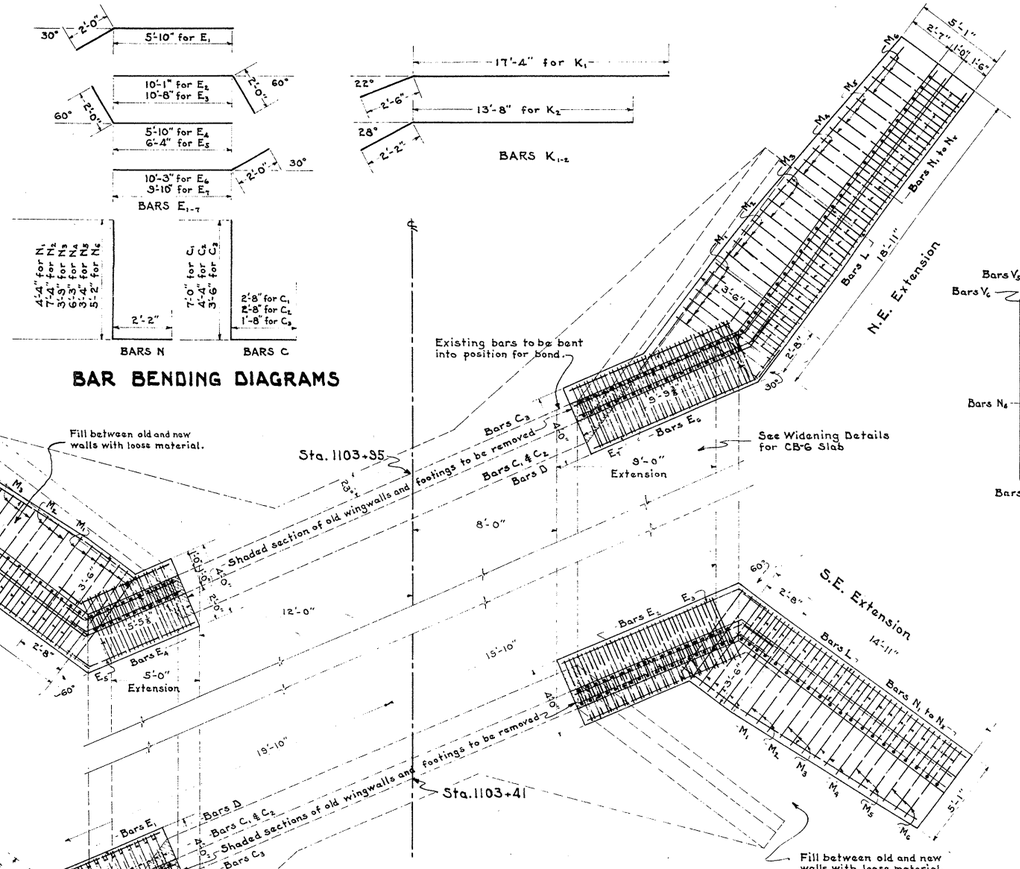
H	Extention	Bars F ¾"ϕ No	Light.	Wt.	Bars G ½"ϕ No	Light.	Wt.
14	4'-4"	4	4'-1"	2.5	4	6'-4"	17
	9'-8"	4	9'-5"	57	10	6'-4"	42
15	4'-0"	4	3'-9"	22	4	6'-4"	17
	4'-9"	4	4'-6"	27	5	6'-4"	21
	9'-3"	4	9'-0"	54	9	6'-4"	38
	10'-0"	4	9'-7"	59	10	6'-4"	42

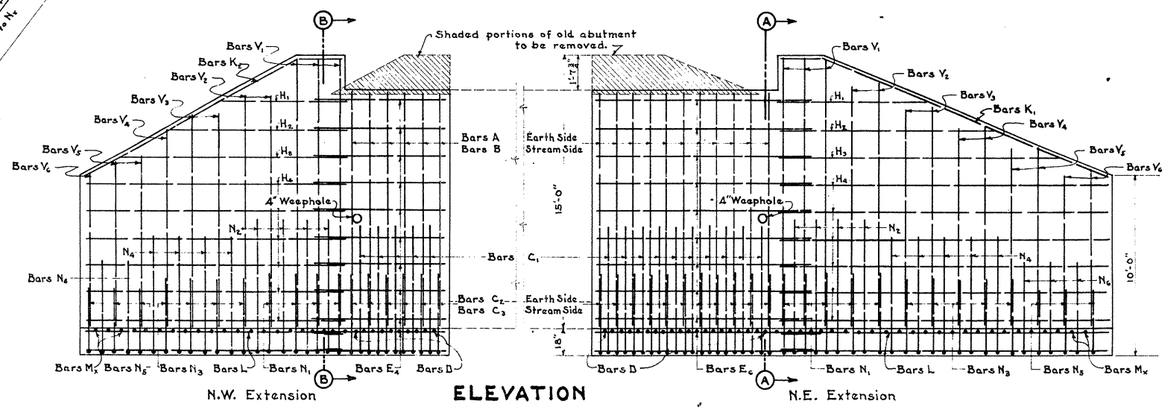
70

TEXAS STATE HIGHWAY DEPARTMENT
SHEET NO. 2
(See Sheet No.1 for Drawings)
WIDENING DETAILS
FOR
A 9-13 ABUTMENT
A 9-14 ABUTMENT
A 9-15 ABUTMENT
HIGHWAY 2 WEBB CO.

CONTROL 18	SECT 3	JOB NO	CONTROL NO 18	SECTION NO 4.2	JOB NO. 2
			FED ROAD DIST. NO 6	STATE TEXAS	FEDERAL AID PROJECT NO. (S.A.R.D.) 2 FOR	SHEET NO.
			STATE DIV. NO 21	COUNTY WEBB	STATE PROJECT NO.	HIGHWAY NO.

PLAN: SURVEYED, PLOTTED, QUANTITIES CHECKED, ALIGNMENT CHECKED, R. M.'S NOTED, STRUCTURE NOTATN'S CHK'D; NOTE BOOK, NO.; DATE, BY
PROFILE: SURVEYED, PLOTTED, QUANTITIES CHECKED, ALIGNMENT CHECKED, R. M.'S NOTED, STRUCTURE NOTATN'S CHK'D; NOTE BOOK, NO.; DATE, BY





REINFORCING STEEL AND CONCRETE QUANTITIES

S.W. Extension						S.E. Extension						N.W. Extension						N.E. Extension					
Bar	No.	Size	Spac.	Ligth.	Wt.	Bar	No.	Size	Spac.	Ligth.	Wt.	Bar	No.	Size	Spac.	Ligth.	Wt.	Bar	No.	Size	Spac.	Ligth.	Wt.
A	6	#9	12"	13'-2"	161	A	11	#9	12"	13'-2"	296	A	6	#9	12"	13'-2"	161	A	11	#9	12"	13'-2"	296
B	6	#9	12"	13'-2"	119	B	11	#9	12"	13'-2"	218	B	6	#9	12"	13'-2"	119	B	11	#9	12"	13'-2"	218
C_1	6	#9	12"	5'-8"	119	C_1	11	#9	12"	9'-8"	217	C_1	6	#9	12"	5'-8"	119	C_1	11	#9	12"	5'-8"	217
C_2	6	#9	12"	7'-0"	86	C_2	11	#9	12"	7'-0"	157	C_2	6	#9	12"	7'-0"	86	C_2	11	#9	12"	7'-0"	157
C_3	6	#9	12"	5'-2"	47	C_3	11	#9	12"	5'-2"	85	C_3	6	#9	12"	5'-2"	47	C_3	11	#9	12"	5'-2"	85
D	10	#8	6"	3'-8"	38	D	20	#8	6"	3'-8"	76	D	10	#8	6"	3'-8"	38	D	20	#8	6"	3'-8"	76
E_1	26	#9	18"	7'-10"	136	E_2	24	#9	18"	12'-1"	194	E_4	24	#9	18"	7'-10"	126	E_6	24	#9	18"	12'-3"	196
H_1	1	#9	18"	8'-0"	5	E_3	2	#9	—	12'-8"	17	E_5	2	#9	—	8'-4"	11	E_7	2	#9	—	11'-10"	16
H_3	1	#9	18"	11'-9"	8	H_1	1	#6	18"	7'6"	5	H_1	1	#9	18"	7'6"	5	H_1	1	#9	18"	8'-0"	5
H_3	1	#9	18"	15'-6"	10	H_2	1	#6	18"	10'-0"	7	H_3	1	#9	18"	10'-0"	7	H_2	1	#9	18"	11'-9"	8
H_4	6	#9	18"	18'-3"	73	H_3	1	#8	18"	12'-6"	8	H_3	1	#9	18"	12'-6"	8	H_3	1	#9	18"	15'-6"	10
V_1	3	#9	15"	14'-9"	90	H_4	6	#6	18"	14'-3"	57	H_4	6	#9	18"	14'-3"	57	H_4	6	#9	18"	18'-3"	73
V_2	2	#9	15"	13'-9"	56	V_1	3	#8	15"	14'-9"	90	V_1	3	#8	15"	14'-9"	90	V_1	3	#8	15"	14'-9"	90
V_3	2	#9	18"	12'-6"	38	V_2	2	#9	15"	13'-9"	56	V_2	2	#9	15"	13'-9"	56	V_2	2	#9	15"	13'-9"	56
V_4	3	#9	18"	11'-0"	50	V_3	2	#9	18"	12'-6"	38	V_3	2	#9	18"	12'-6"	38	V_3	2	#9	18"	12'-6"	38
V_5	2	#9	18"	9'-6"	20	V_4	2	#9	18"	11'-0"	33	V_4	2	#9	18"	11'-0"	33	V_4	3	#9	18"	11'-0"	50
V_6	2	#9	18"	8'-3"	17	V_5	2	#9	18"	9'-6"	20	V_5	2	#9	18"	9'-6"	20	V_5	2	#9	18"	9'-6"	20
K_1	2	#9	—	19'-10"	41	V_6	1	#9	18"	8'-3"	9	V_6	1	#9	18"	8'-3"	9	V_6	2	#9	18"	8'-3"	17
L	5	#9	—	19'-6"	65	K_2	2	#9	—	15'-10"	33	K_2	2	#9	—	15'-10"	33	K_1	2	#9	—	19'-10"	41
M	27	#9	7½°	35'8"	102	L	5	#9	—	15'-5"	53	L	5	#9	—	15'-5"	53	L	5	#9	—	19'-6"	65
N_1	5	#9	15"	6'-6"	66	M_1	7	#9	7½°	5'-8"	41	M_1	7	#9	7½°	5'-8"	41	M_1	7	#9	7½°	5'-8"	41
N_2	4	#9	15"	9'-6"	78	M_2	3	#9	9"	5'-7"	17	M_2	3	#9	9"	5'-7"	17	M_2	4	#9	9"	5'-7"	23
N_3	6	#9	18"	5'-11"	53	M_3	3	#9	9"	5'-5"	17	M_3	3	#9	9"	5'-5"	17	M_3	4	#9	9"	5'-5"	22
N_4	6	#9	18"	8'-5"	76	M_4	3	#9	9"	5'-3"	16	M_4	3	#9	9"	5'-3"	16	M_4	4	#9	9"	5'-3"	22
N_5	3	#8	18"	5'-6"	17	M_5	3	#9	9"	5'-1"	16	M_5	3	#9	9"	5'-1"	16	M_5	4	#9	9"	5'-1"	21
N_6	3	#8	18"	7'-4"	23	M_6	3	#9	9"	4'-11"	15	M_6	3	#9	9"	4'-11"	15	M_6	4	#9	9"	4'-11"	20
						N_1	5	#9	15"	6'-6"	66	N_1	5	#9	15"	6'-6"	66	N_1	5	#9	15"	6'-6"	66
						N_2	4	#9	15"	9'-6"	78	N_2	4	#9	15"	9'-6"	78	N_2	4	#9	15"	9'-6"	78
						N_3	4	#9	18"	5'-11"	36	N_3	4	#9	18"	5'-11"	36	N_3	6	#9	18"	5'-11"	53
						N_4	4	#9	18"	8'-5"	51	N_4	4	#9	18"	8'-5"	51	N_4	6	#9	18"	8'-5"	76
						N_5	2	#9	18"	5'-6"	11	N_5	2	#9	18"	5'-6"	11	N_5	3	#8	18"	5'-6"	17
						N_6	2	#9	18"	7'-4"	15	N_6	2	#9	18"	7'-4"	15	N_6	3	#8	18"	7'-4"	23
Total Steel			Lbs.		1594	Total Steel			Lbs.		2048	Total Steel			Lbs.		1495	Total Steel			Lbs.		2196
Total Concrete			C.Y.		16.75	Total Concrete			C.Y.		18.34	Total Concrete			C.Y.		15.22	Total Concrete			C.Y.		22.01

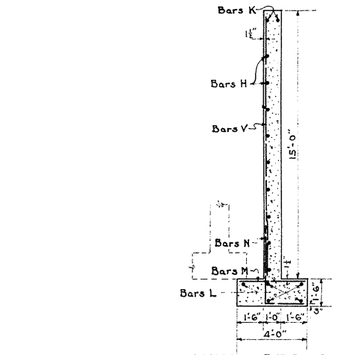
GENERAL NOTES :—

All concrete shall be Class "A" High Early Strength. Maximum size of course aggregate shall be 1½". All exposed corners shall be chamfered ¾".

All reinforcing steel shall be deformed bars. All dimensions relating to reinforcing steel are to center of bars. Where reinforcing bars are spliced a 40 diameter lap shall be used.

Payment for removing the portions of the existing structure as indicated hereon and as directed by the engineer shall be included in the price bid per Cu. Yd. for Class "A" Concrete (High Early Strength).

Payment for Materials used and for the installation of drains shall be included in the unit price bid for Class "A" Concrete (High Early Strength).



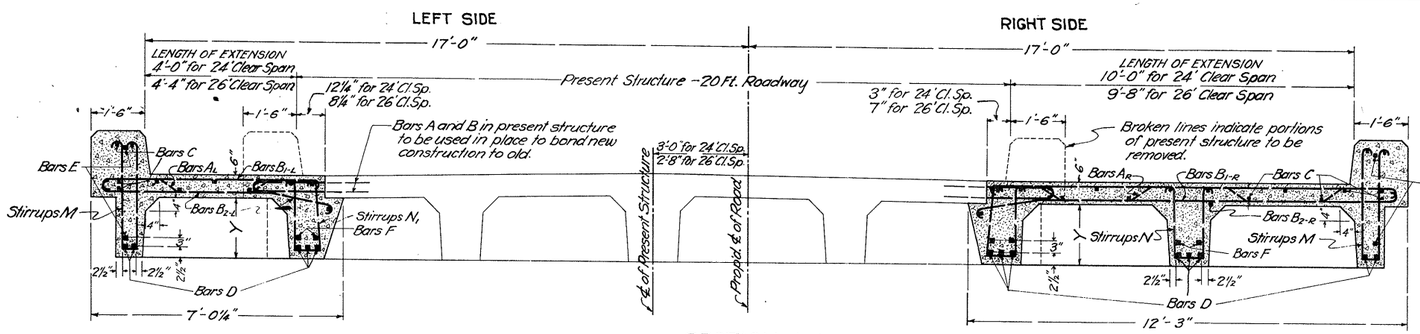
WIDENING DETAILS FOR A9-15 SKEW ABUTMENTS Sta. 1103+41 – 1103+95

Control 18	Section 4	Job No. 3	
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	165 ABCD Reop.	C-1
STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
21	WEBB		2

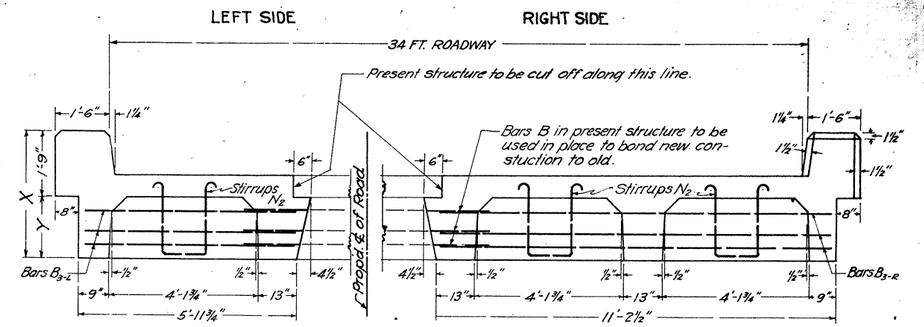
PLAN: SURVEYED, DRAWN, GRADES CHECKED, NOTE BOOK, NO., ALIGNMENT CHECKED, RT. OF WAY CHECKED.

PROFILE: SURVEYED, DRAWN, GRADES CHECKED, NOTE BOOK, NO., S. M. & NOTED, STRUCTURE NOTATIONS CH'KD.

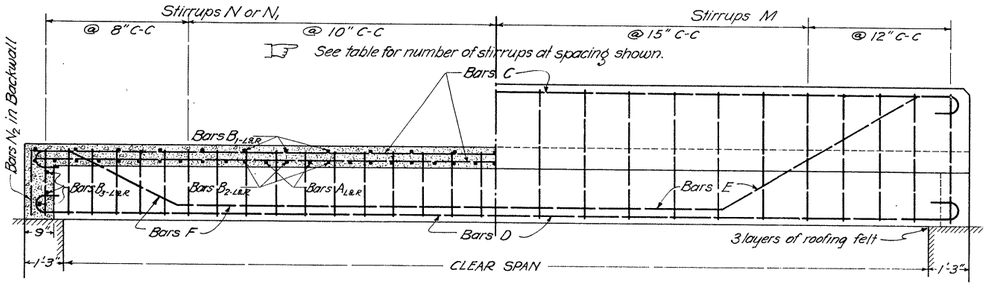
DIETZGEN IMPERIAL NO. 135



SECTION A-A

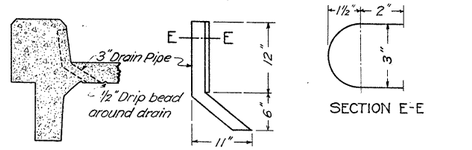


END ELEVATION
Showing Backwall Reinforcement

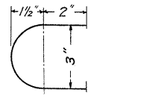


HALF SECTION B-B

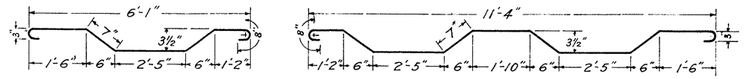
HALF SIDE ELEVATION



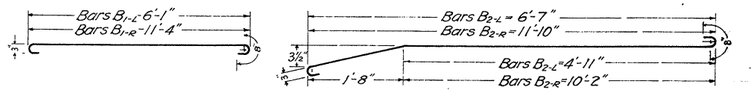
DETAIL OF DRAIN



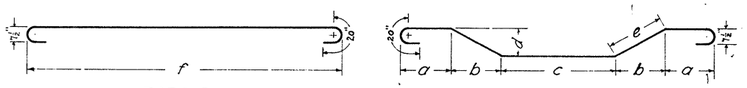
SECTION E-E



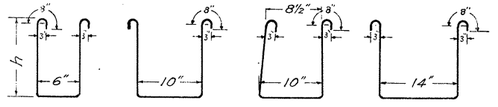
BARS A_L BARS A_R



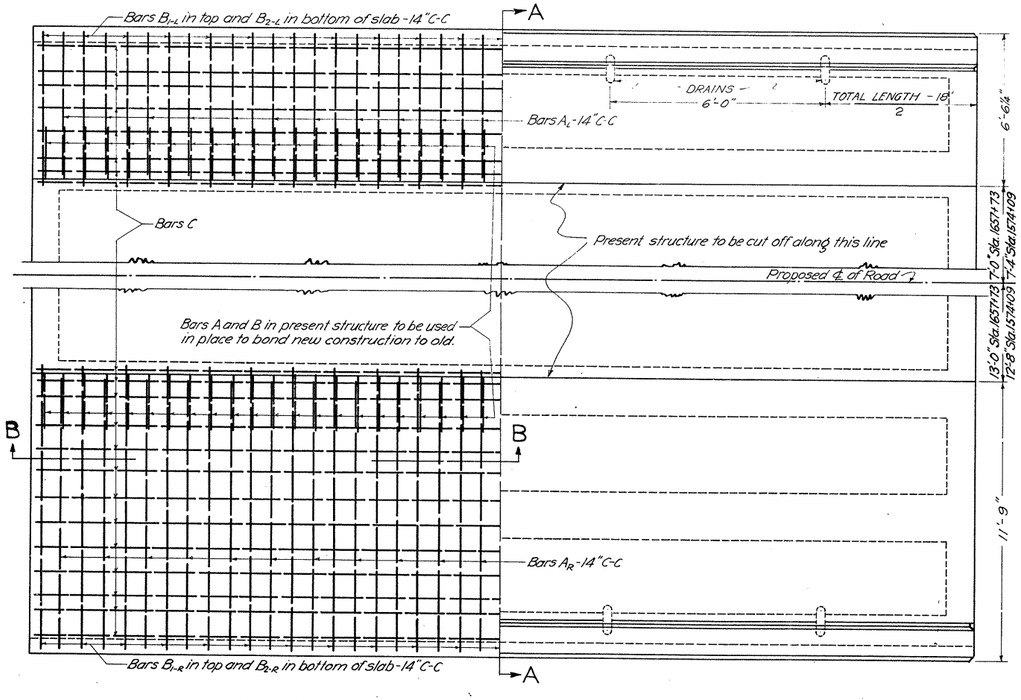
BARS B_{1-L} & B_{1-R} BARS B_{2-L} & B_{2-R}



BARS D BARS E & F



BARS M BARS N BARS N_1 BARS N_2



HALF PLAN
Showing Slab Rienforcement

HALF PLAN
Showing Location of Drains

BILL OF REINFORCING STEEL

BARS	24'-0" CLEAR SPAN DIMENSIONS a	b	c	d	e	f	h	NO.	SIZE	LENGTH	TOTAL LENGTH FEET	TOTAL WEIGHT POUNDS	26'-0" CLEAR SPAN DIMENSIONS a	b	c	d	e	f	h	NO.	SIZE	LENGTH	TOTAL LENGTH FEET	TOTAL WEIGHT POUNDS
A_L								22	½"ø	7'-4"	161.26	137.07								24	½"ø	7'-4"	172.92	149.53
A_R								22	½"ø	12'-9"	280.50	238.42								24	½"ø	12'-9"	306.00	260.10
B_{1-L}								23	½"ø	7'-2"	164.83	140.06								24	½"ø	7'-2"	172.00	146.20
B_{1-R}								23	½"ø	12'-5"	285.59	242.75								24	½"ø	12'-5"	298.00	253.30
B_{2-L}								23	½"ø	7'-8"	176.34	149.89								24	½"ø	7'-8"	184.00	156.40
B_{2-R}								23	½"ø	12'-11"	297.16	252.59								24	½"ø	12'-11"	310.00	263.50
B_{3-L}								6	½"ø	6'-1"	36.50	31.03								6	½"ø	6'-1"	36.50	31.03
B_{3-R}								6	½"ø	11'-4"	68.00	57.80								6	½"ø	11'-4"	68.00	57.80
C								27	½"ø	26'-0"	702.00	596.70								27	½"ø	28'-0"	756.00	642.60
D							26'-0"	13	1¼"ø	28'-9"	373.75	1985.73						28'-0"		13	1¼"ø	30'-9"	400.00	2125.20
E	1'-0"	3'-6"	13'-0"	2'-7"	6'-0⅞"			2	1¼"ø	29'-11"	59.84	317.93	1'-0"	6'-0"	14'-0"	2'-8"	6'-6¾"			2	1¼"ø	31'-10"	63.67	338.23
F	1'-0"	2'-9"	18'-6"	1'-6"	3'-1⅝"			6	1¼"ø	28'-10"	173.00	919.15	1'-0"	3'-0"	20'-0"	1'-7"	3'-4¾"			6	1¼"ø	31'-6"	189.00	1004.16
M							3'-0"	46	½"ø	7'-7"	348.83	296.51							3'-1"	50	½"ø	7'-9"	387.50	329.38
N							1'-11"	34	½"ø	5'-9"	207.00	175.95							2'-0"	36	½"ø	5'-11"	213.12	181.15
N_1							1'-11"	68	½"ø	5'-9"	391.00	332.35							2'-0"	72	½"ø	5'-11"	427.24	362.30
N_2							1'-11"	6	½"ø	6'-8"	36.6	31.11							2'-0"	6	½"ø	6'-3"	37.50	31.88

GENERAL NOTES:- All concrete shall be Class 'A' High Early Strength Maximum size of course aggregate shall be 1½". All exposed corners shall be chamfered ¾" unless otherwise indicated.

Payment for materials used in, and the installation of drains and expansion joints, shall be included in the unit price bid per cubic yard for Class 'A' Concrete (High Early Strength).

All reinforcing steel shall be deformed bars. All dimensions relating to reinforcement are to center of bars. Where splicing of reinforcing bars is permitted, bars are to be lapped 40 diameters. Splicing of longitudnal girder bars will not be permitted.

Concrete in slabs, girders, and curbs shall be poured monolithically.

Railing for span shall be "Type K Mod." and provision for placing same shall be made when the curbs are poured.

Top of floor slab is to be finished to a smooth, even surface in accordance with the specifications. Surfaces of curbs and outside surface of outside girders shall be given a surface finish

Finish of all other surfaces will not be required unless the surfaces are not true or have porous spots or "honeycombed areas" or are not uniform in color;

Payment for removing the portions of the existing structure as indicated hereon and as directed by the Engineer, shall be included in the price bid per cubic yard for Class 'A' Concrete (High Early Strength).

CLEAR SPAN	DIMENSIONS X	Y	STIRRUP SPACING M	N	N_1	TOTAL QUANTITIES CONCRETE CU. YDS.	STEEL POUNDS
24'	3'-4"	1'-7"	4 Spcs. @ 12"	6 Spcs. @ 8"	6 Spcs. @ 8"	22.36	5,908
			14 " " 15"	21 " " 10"	21 " " 10"		
			4 " " 12"	6 " " 8"	6 " " 8"		
26'	3'-5"	1'-8"	4 " " 12"	6 " " 8"	6 " " 8"	24.41	6,332
			16 " " 15"	23 " " 10"	23 " " 10"		
			4 " " 12"	6 " " 8"	6 " " 8"		

TEXAS STATE HIGHWAY DEPARTMENT

WIDENING DETAILS

FOR

G-265 CONCRETE GIRDER SPANS

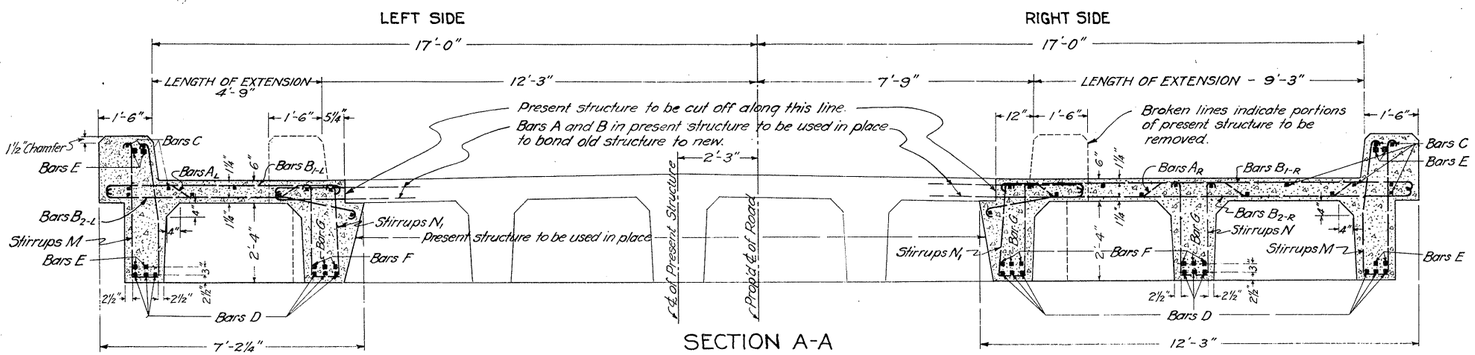
24'-0" CLEAR SPAN TO BE USED AT STA. 1657+73.5

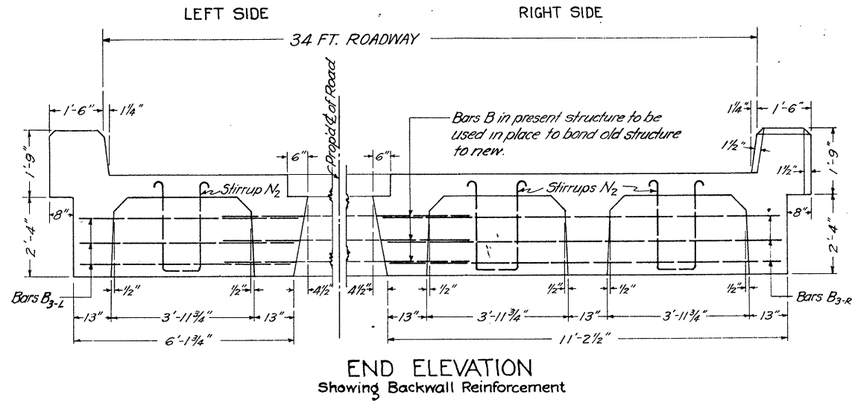
26'-0" CLEAR SPAN TO BE USED AT STA. 1574+08.7

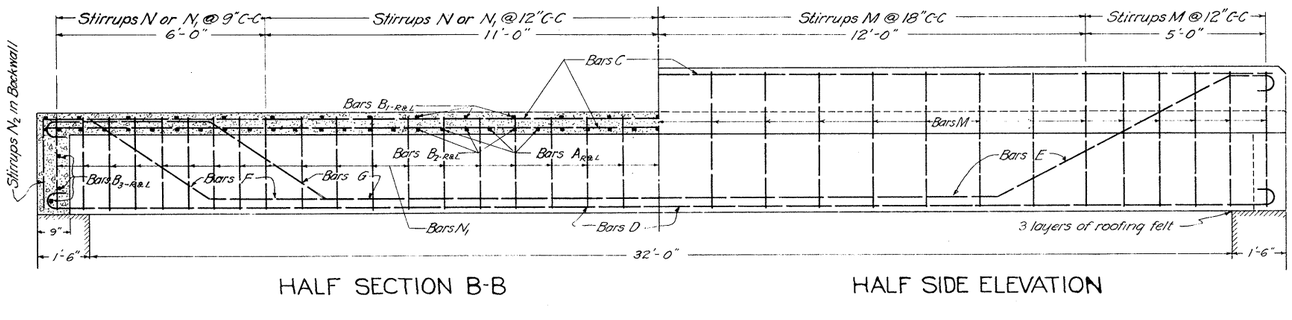
CONTROL NO. 18	SECTION NO. 30	JOB NO. 3
FED. ROAD DIST. NO. 6	STATE TEXAS	FEDERAL AID PROJECT NO. 65 A (3) BRDG (RRP)
SHEET NO. 6		
STATE DIV. NO. 21	COUNTY WEBB	STATE PROJECT NO.
SHEET NO. 12		

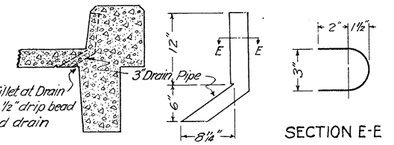
PLAN — SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., DATE, BY

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, STRUCTURE NOTATIONS CHKD., NOTE BOOK, NO., DATE, BY









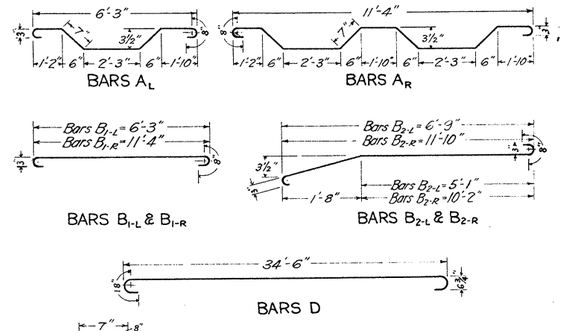
BILL OF REINFORCING STEEL

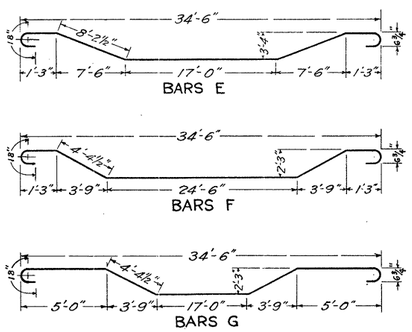
Bars	Number	Size	Length	Total Length Feet	Total Weight Pounds
A_L	26	½" □	7'-6"	195.00	165.75
A_R	26	½" □	12'-9"	331.50	181.77
B_{1-L}	27	½" □	7'-4"	197.91	168.22
B_{1-R}	27	½" □	12'-5"	335.26	284.97
B_{2-L}	27	½" □	7'-10"	211.50	179.77
B_{2-R}	27	½" □	12'-11"	348.84	296.51
B_{3-L}	6	½" □	6'-3"	37.50	31.87
B_{3-R}	6	½" □	11'-4"	67.98	57.78
C	27	½" □	34'-6"	931.50	791.76
D	15	1⅛" □	36'-11"	553.80	2383.00
E	4	1⅛" □	38'-4"	153.32	660.60
F	6	1⅛" □	38'-2"	229.00	985.39
G	3	1⅛" □	38'-2"	114.50	492.69
M	54	½" □	9'-5"	508.52	432.24
N	39	½" □	7'-3"	282.75	240.34
N_1	78	½" □	7'-3"	565.50	480.67
N_2	6	½" □	7'-9"	46.50	37.43

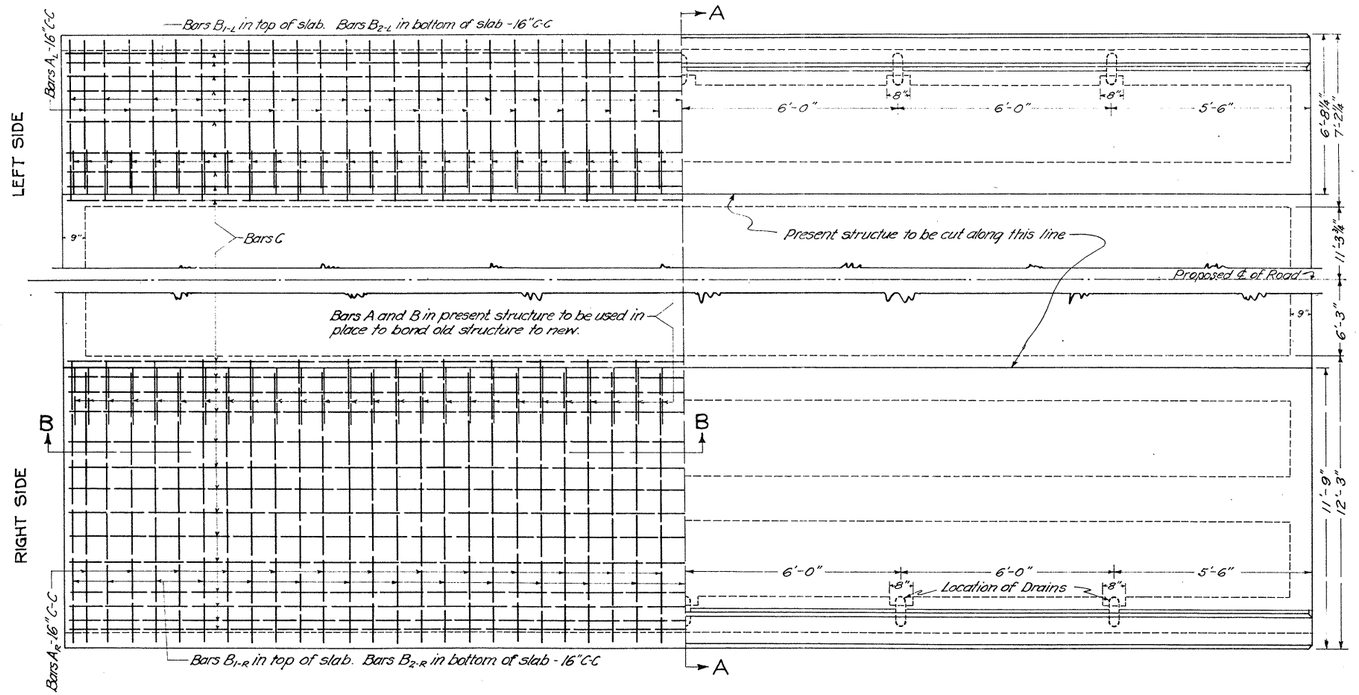
TOTAL QUANTITIES

Concrete = 36.86 Cu.Yds.

Reinforcing Steel = 7871 Pounds.







GENERAL NOTES:- All concrete shall be Class A High Early Strength Maximum size of course aggregate shall be 1½". All exposed corners shall be chamfered ¾" unless otherwise indicated.

Payment for materials used in, and the installation of drains and expansion joints, shall be included in the unit price bid per cubic yard for Class A Concrete (High Early Strength).

All reinforcing shall be deformed bars. All dimensions relating to reinforcement are to center of bars. Where splicing of reinforcing bars is permitted, bars are to be lapped 40 diameters. Splicing of longitudinal girder bars will not be permitted.

Concrete in slabs, girders and curbs shall be poured monolithically.

Railing for span shall be Type K Mod. and provision for placing same shall be made when the curbs are poured.

Top of floor slab is to be finished to a smooth, even surface in accordance with the specifications. Surfaces of curbs and outside surface of outside girders shall be given a surface finish. Finish of all other surfaces will not be required unless the surfaces are not true or have porous spots or "honeycombed" areas" or are not uniform in color.

Payment for removing the portions of the existing structure as indicated hereon and as directed by the Engineer, shall be included in the price bid per cubic yard for Class A Concrete (High Early Strength).

TEXAS STATE HIGHWAY DEPARTMENT

WIDENING DETAILS

FOR

G-266 CONCRETE GIRDER SPANS

32'-0" CLEAR SPAN TO BE USED AT STA. 1555+95.8

CONTROL NO. 18	SECTION NO. 3	JOB NO. 3	
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	(6-11)RD AIDA ...	6
STATE DIV. NO.	COUNTY	STATE PROJECT NO.	HIGHWAY NO.
21	WEBB		2

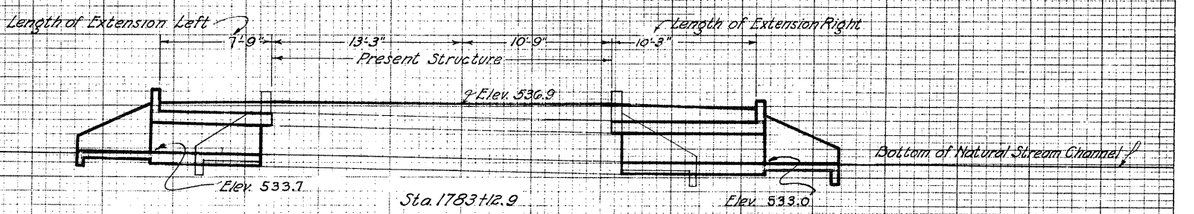
PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, ART. OF HWY CHECKED, DATE, BY

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, GRADES CHECKED, NO., B. M.'S NOTED, STRUCTURE NOTATIONS CHKD., DATE, BY

PRINTED ON KEUFFEL & ESSER CO., N. Y.

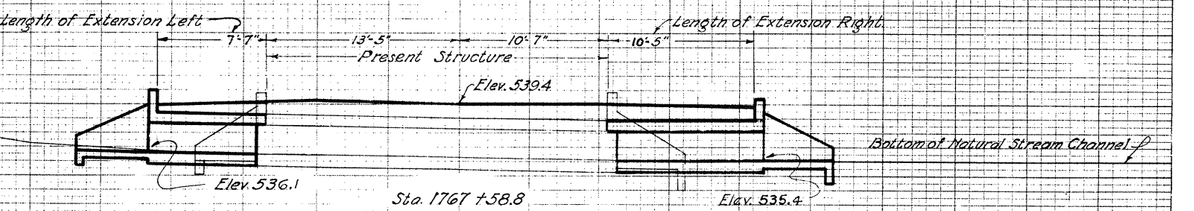
ORIGINAL SURVEY		BY	DATE
	SURVEYED		
	PLOTTED		
NOTE BOOK	TEMPLATE		
NO.	AREAS		
	AREAS CHECKED		

FINAL SURVEY		BY	DATE
	SURVEYED		
	PLOTTED		
NOTE BOOK	TEMPLATE		
NO.	AREAS		
	AREA CHECKED		



Sta. 1783+12.9

Prop'd Widening 10'x2'x24' C-7 to 42'



Sta. 1767+58.8

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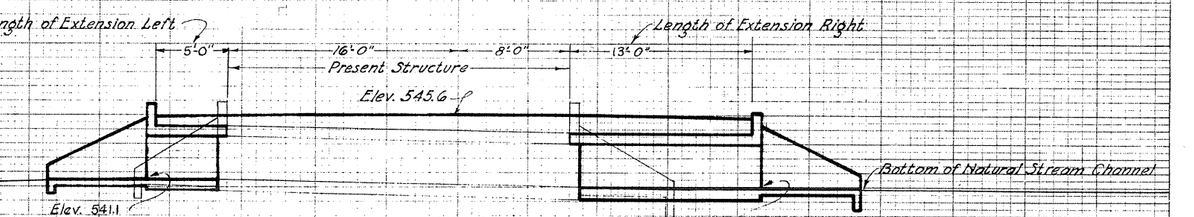
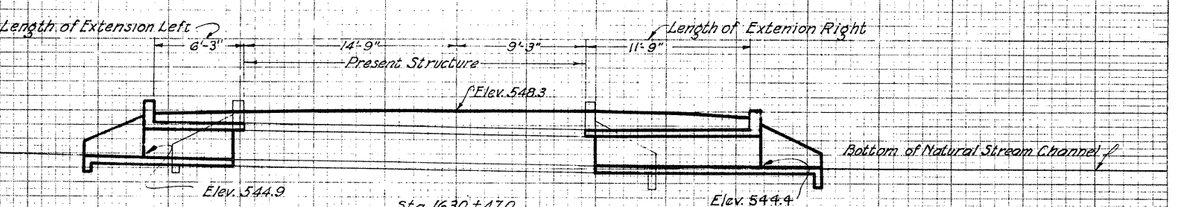


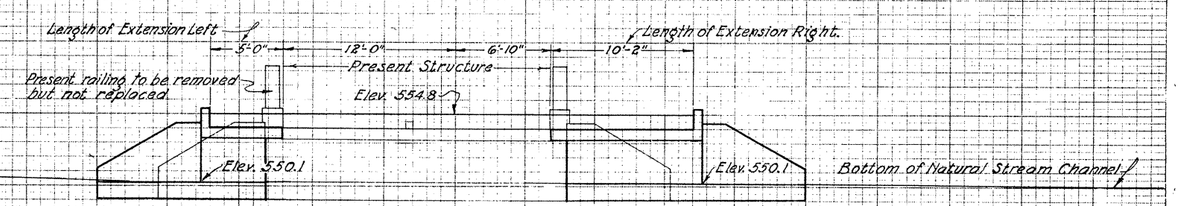
Sta. 1718+18.2

Prop'd. Widening 8'x3'x24' C-7 to 42'



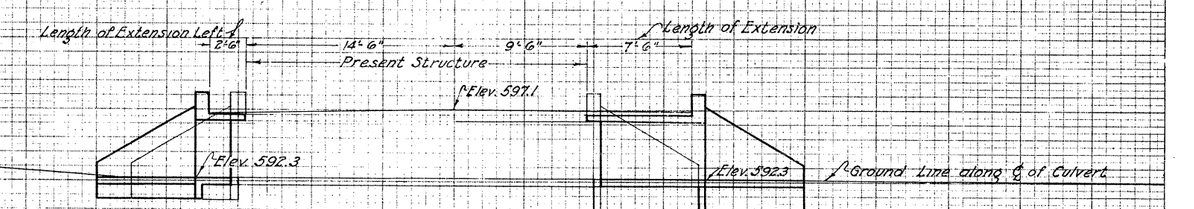
Sta. 1630+47.0

Prop'd. Widening 4'x2'x24' C-7 to 42'



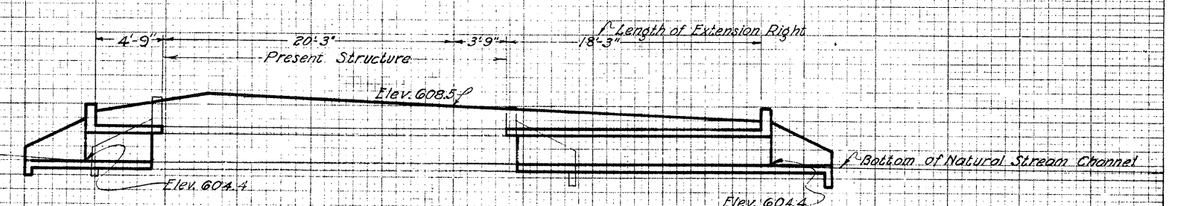
Sta. 1607+42.6

Prop'd Widening 2-8'x3'x18'-10" C-6 to 34'



Sta. 1530+86.6

Prop'd Widening 3-4'x4'x24' MBC-5 to 34'



Sta. 1437+16.5

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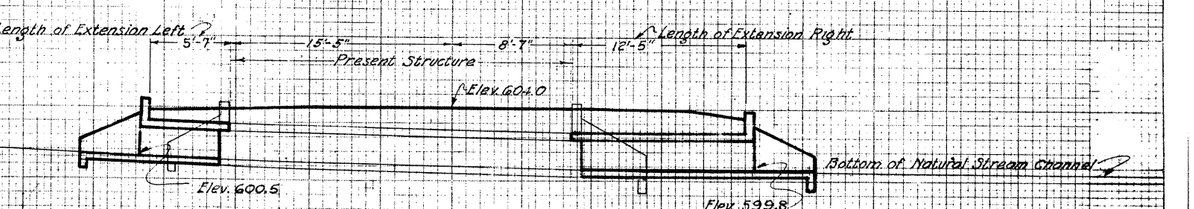


Sta. 1391+61.0

Prop'd Widening 4'x2'x24' C-7 to 42'

PLATE 3 - CROSS SECTION C.P.R.D.N.E. STANDARD
KUFFEL & ESSER CO. NEW YORK

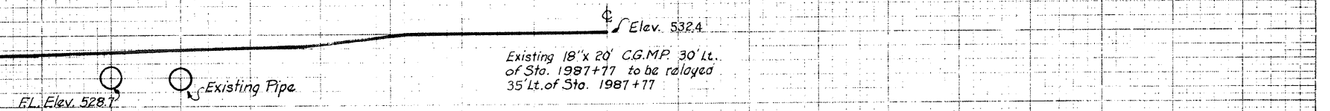
SHEET NO. 1 OF 2

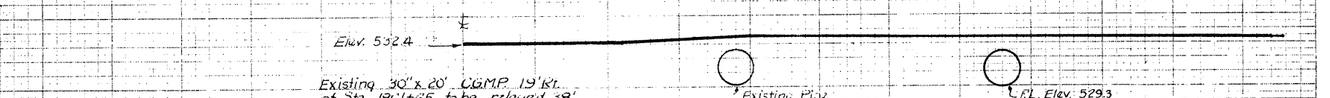
CROSS SECTIONS AT CULVERT SITES

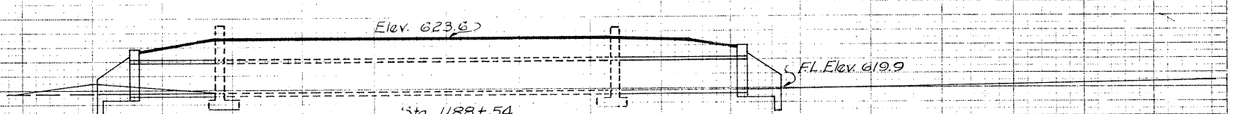
DIV. NO. 21	STATE TEXAS	CONTROL 18	
STATE DIST. NO.	TEXAS STATE ROUTE NO.	SECTIONS 3 & 4	
COUNTY WEBB	FEDERAL AID PROJECT NUMBER	JOB No. 2	
PROJECT NO.	SHEET NO.		

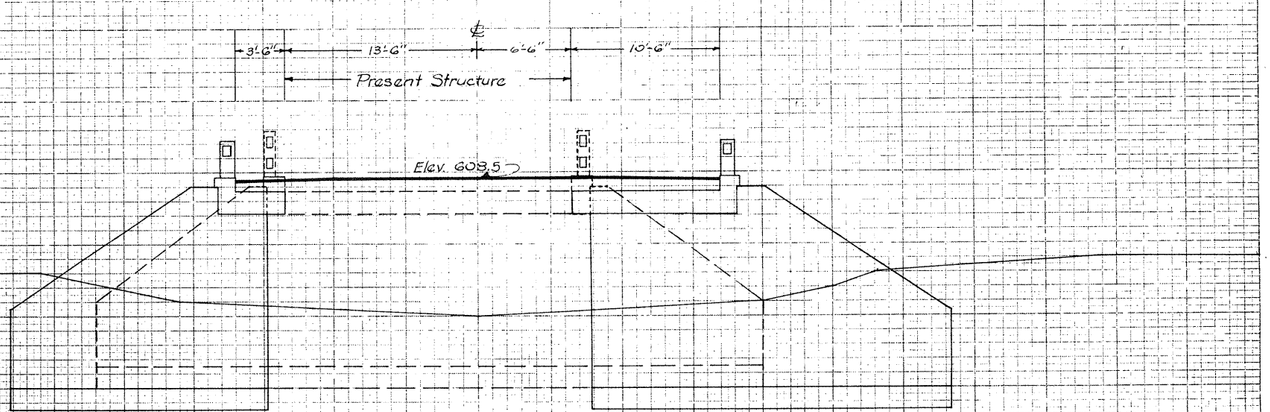
ORIGINAL SURVEY

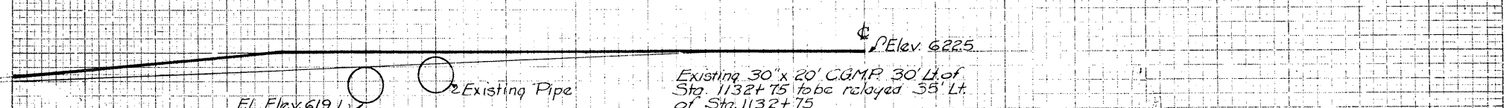
9744

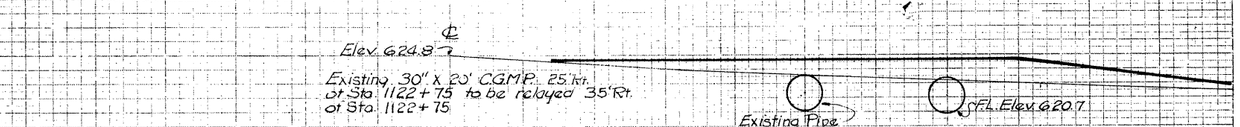


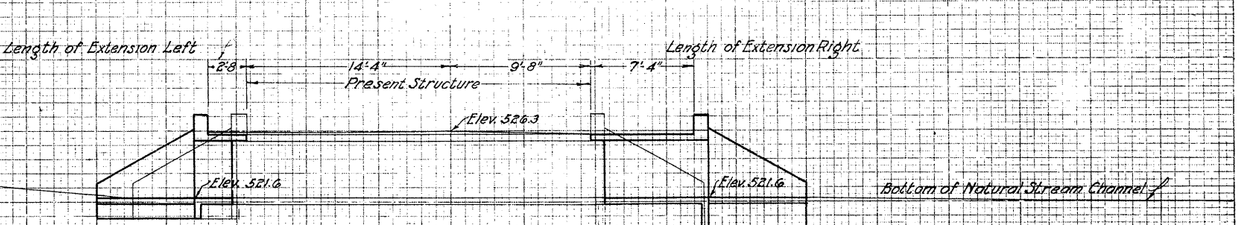


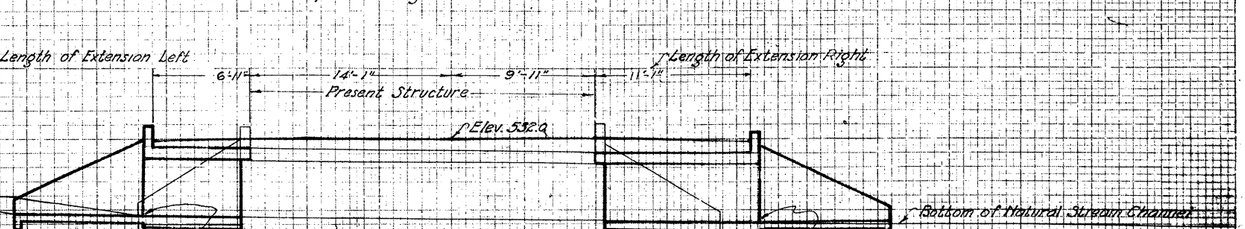












SHEET NO. 2 OF 2

CROSS SECTIONS AT CULVERT SITES

CONTROL	SECTION	JOB NO.
18	5042	3

FED. ROAD DIV. NO. 6 | STATE | FEDERAL AID PROJECT NUMBER

STATE: TEXAS | COUNTY: WEBB | HIGHWAY: US 83

DIST. NO. 21 | PROJECT NO. | SHEET NO.

CROSS SECTION O.P.R. & R.E. STANDARD
GRIFFITH & EDDY CO., NEW YORK

3/2

TEXAS HIGHWAY DEPARTMENT

PROJECT NOS. M-18-3-6, M-18-4-8, M-18-5-10, M-18-6-17.

WEBB COUNTY · US HIGHWAY 81

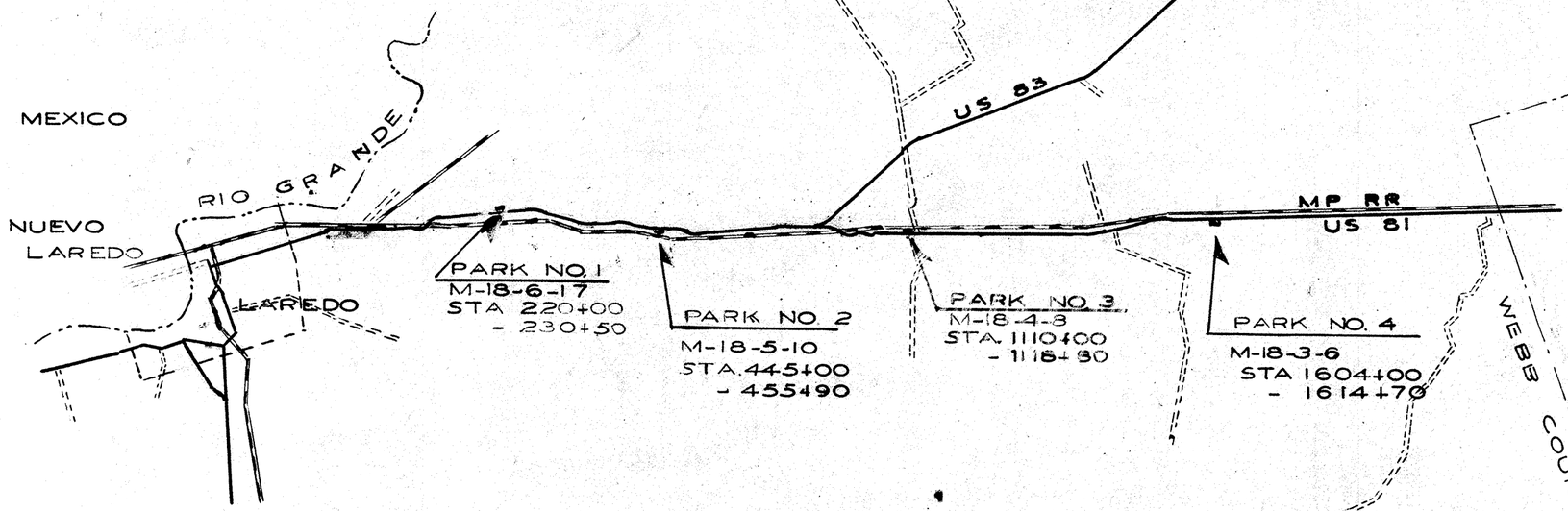
ROADSIDE DEVELOPEMENT

FOUR ROADSIDE PARKS BETWEEN LAREDO AND LA SALLE COUNTY LINE

	DATE
PLANS PREPARED	6 10 52
WORK ORDER	12-4-50
WORK STARTED	5-17-51
WORK COMPLETED	4-24-52

SHEET INDEX

TITLE SHEET	1
ESTIMATE AND QUANTITY	2
ROADSIDE PARK LAYOUTS	3-6
ARBOR DETAILS	7
FIREPLACE DETAILS	8
GARBAGE DISPOSAL UNIT TYPE G-2	9



LAYOUT SCALE 1 IN = 4 MILES

RECOMMENDED FOR APPROVAL

10-2-52
DATE

J. F. Snyder
DISTRICT ENGINEER

RECOMMENDED FOR APPROVAL

W- 419
ENGINEER OF TRAFFIC SERVICES

APPROVED

21 615
STATE HWY ENGINEER

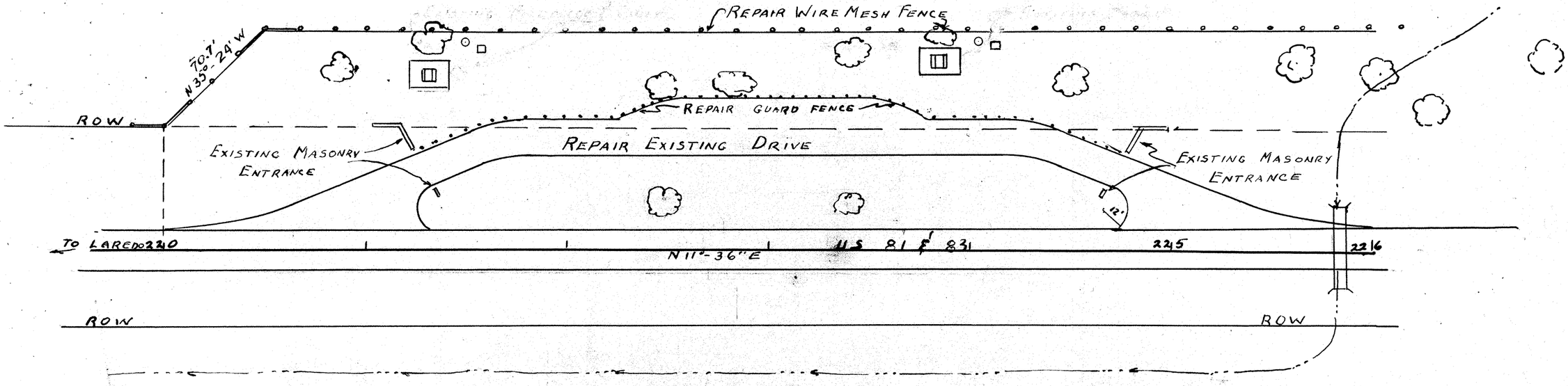
PROJECT NO. M-18-3-6, M-18-4-8 M-18-5-10 M-18-6-17		SHEET 4
WEBB COUNTY	U S HWY 81	CONTROL 18-3, 4, 5, 6.

2

ESTIMATE & QUANTITIES

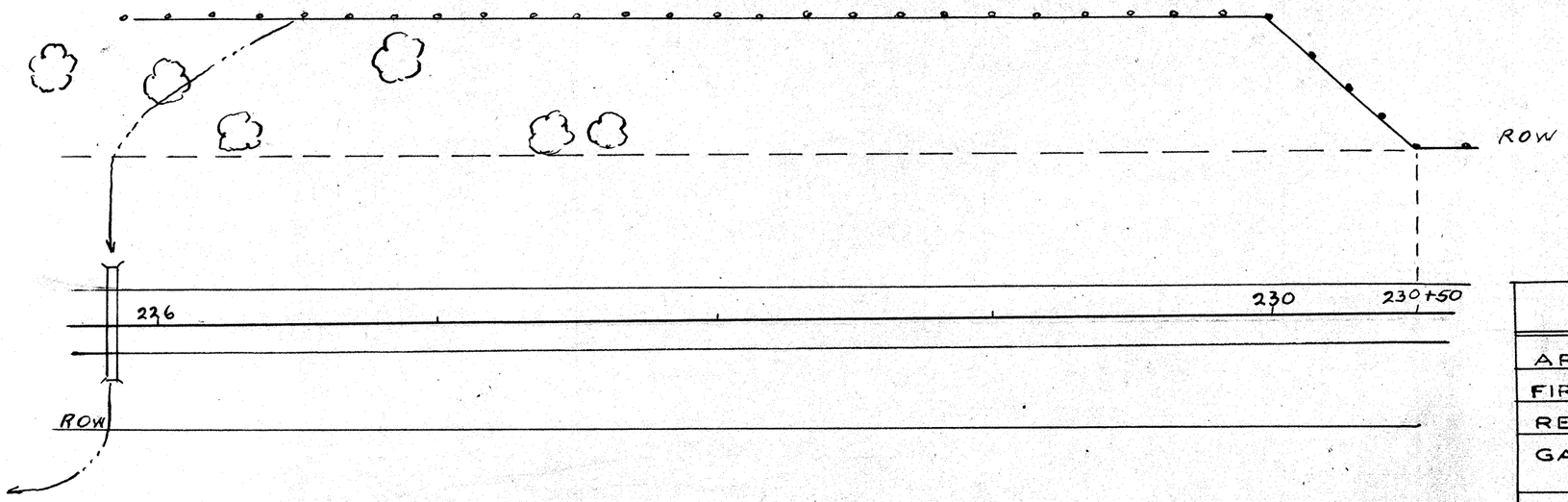
DESCRIPTION	QUANTITIES						UNIT OF MEAS.
	EST	FINAL					
		PARK Nº 1	PARK Nº 2	PARK Nº 3	PARK Nº 4	TOTAL	
ROADSIDE ARBORS TYPE A-1	6	2	2	—	0	4	EA.
FIREPLACES	7	2	2	—	2	6	EA.
REPAIR GUARD FENCES	2340	330	550	—	740	1620	LIN.FT.
REPAIR DRIVEWAYS	1	1/3	1/3	—	1/3	1	LUM.SUM.
TABLE & BENCH UNIT T-1	0	2	2	—	2	6	EA.
GARBAGE DISPOSAL G-2	0	2	2	—	2	6	EA.

PROJECT NO. M-18-6-17		SHEET 3
WEBB COUNTY	U.S. HWY 81	CONTROL 18-6



LEGEND

GARBAGE DISPOSAL
FIREPLACE
TABLE & BENCHES
ARBOR



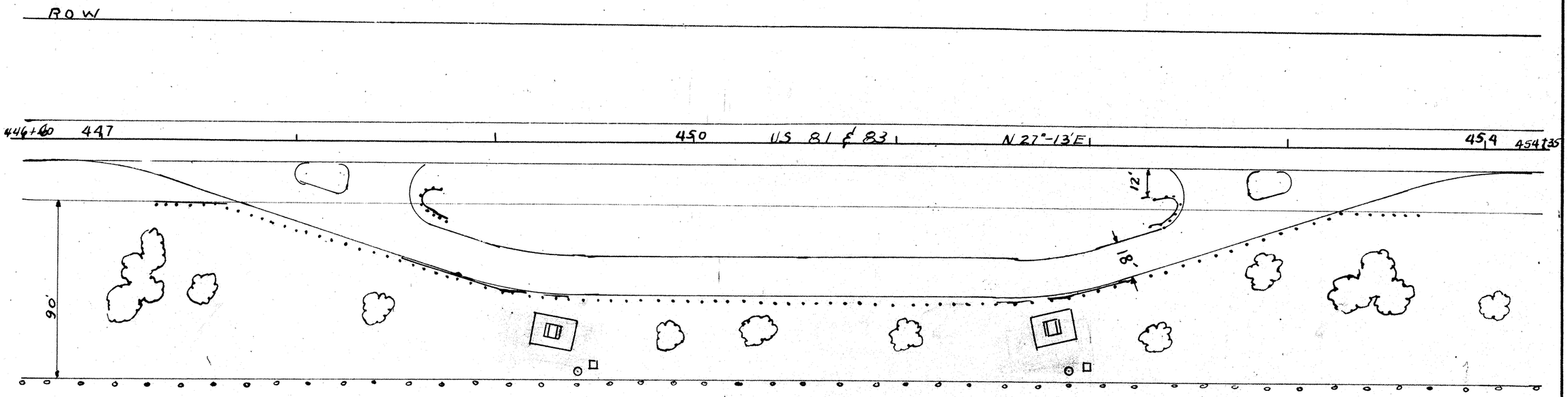
SHEET TOTALS

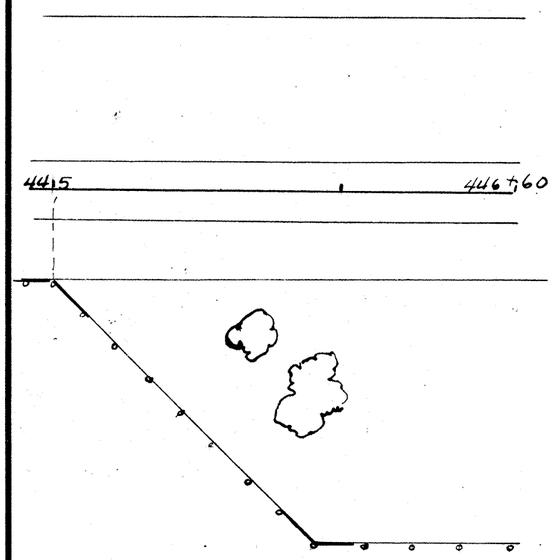
DESCRIPTION	QUANTITIES EST	FIN	UNIT
ARBORS	2	2	EA
FIREPLACES	2	2	EA.
REPAIR DRIVES	1	1	LUMP SUM
GARBAGE DISPOSAL UNIT- TYPE G-2	0	2	EA.
REPAIR FENCES	330	330	LIN. FT.
TABLES & BENCHES [REBUILD]	0	2	EA.

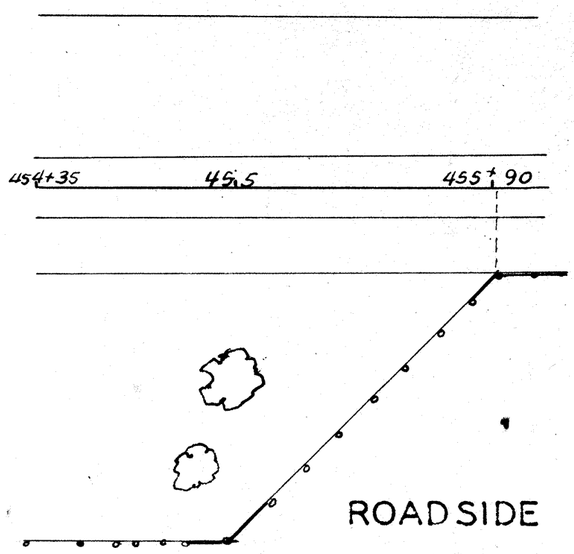
ROADSIDE PARK Nº 1

SCALE 1 IN = 50 FT.

PROJECT No. M-18-5-10		SHEET 4
WEBB COUNTY	U.S. HWY 81	CONTROL 18-5







LEGEND

GARBAGE DISPOSAL ○ ARBOR □

FIREPLACE □ TABLE & BENCHES ▭

SHEET TOTALS

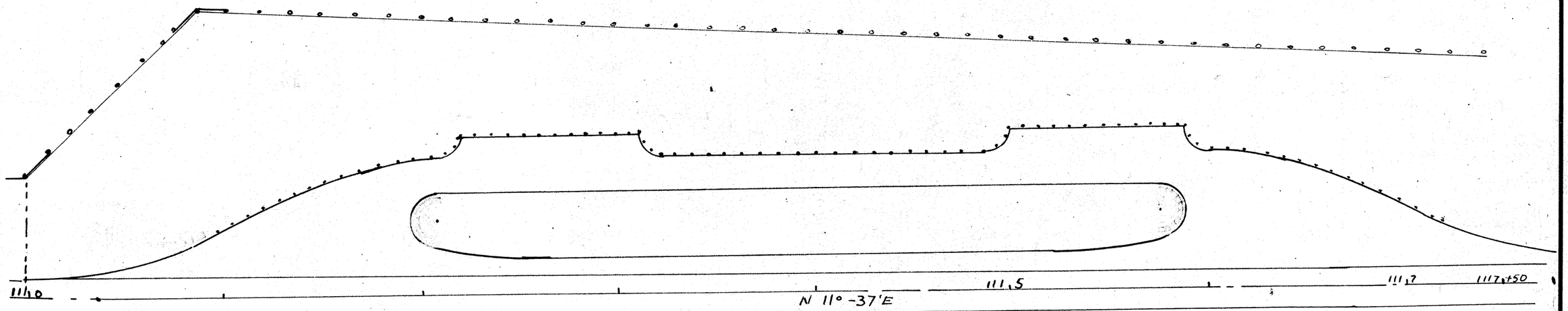
DESCRIPTION	QUANTITIES EST	FIN	UNIT
ARBORS (REBUILD)	2	2	EA.
FIREPLACES	2	2	EA.
REPAIR DRIVES	1	1	LUMP SUM
REPAIR FENCES	720	720	LIN. FT.
GARBAGE DISPOSAL UNIT-TYPE G-2	0	2	EA.
TABLES & BENCHES [REBUILD]	0	2	EA.

ROADSIDE PARK Nº 2

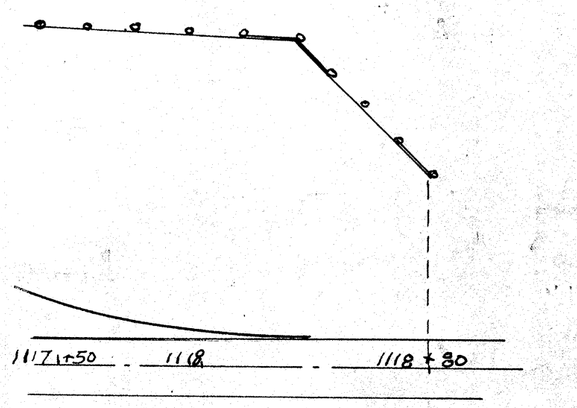
SCALE 1 IN. = 50 FT.

PLAN
NOTE BOOK
NO.
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
BY
DATE

PROJECT NO - M-18-4-8		SHEET 5
WEBB COUNTY	US HWY 81	CONTROL 18-4



ROW



ROW

ROADSIDE PARK Nº 3

SCALE 1 IN = 50 FT.

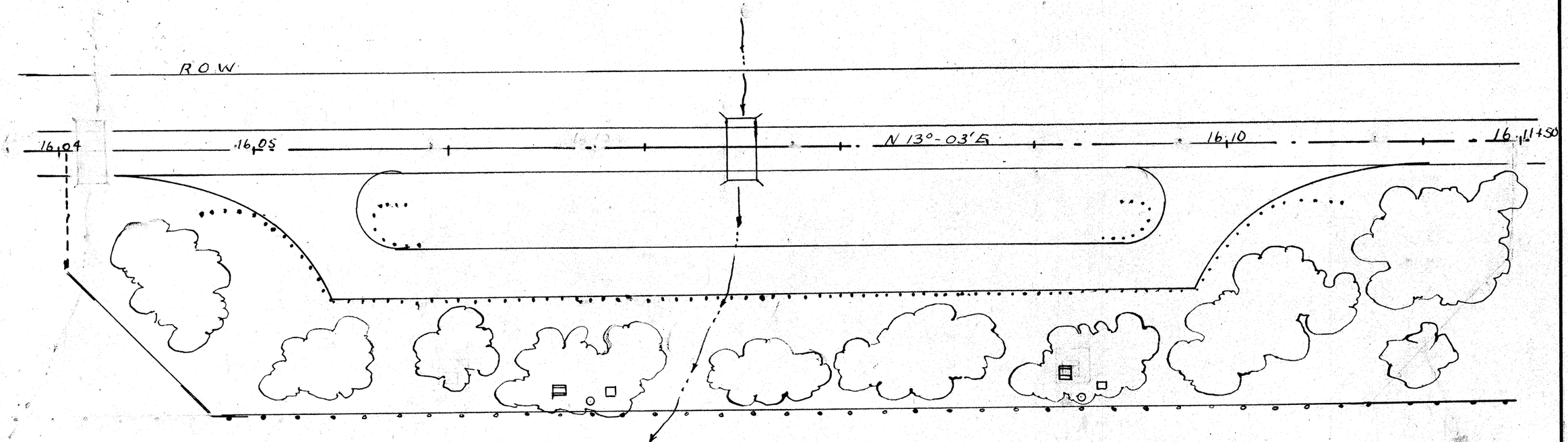
NOTE:

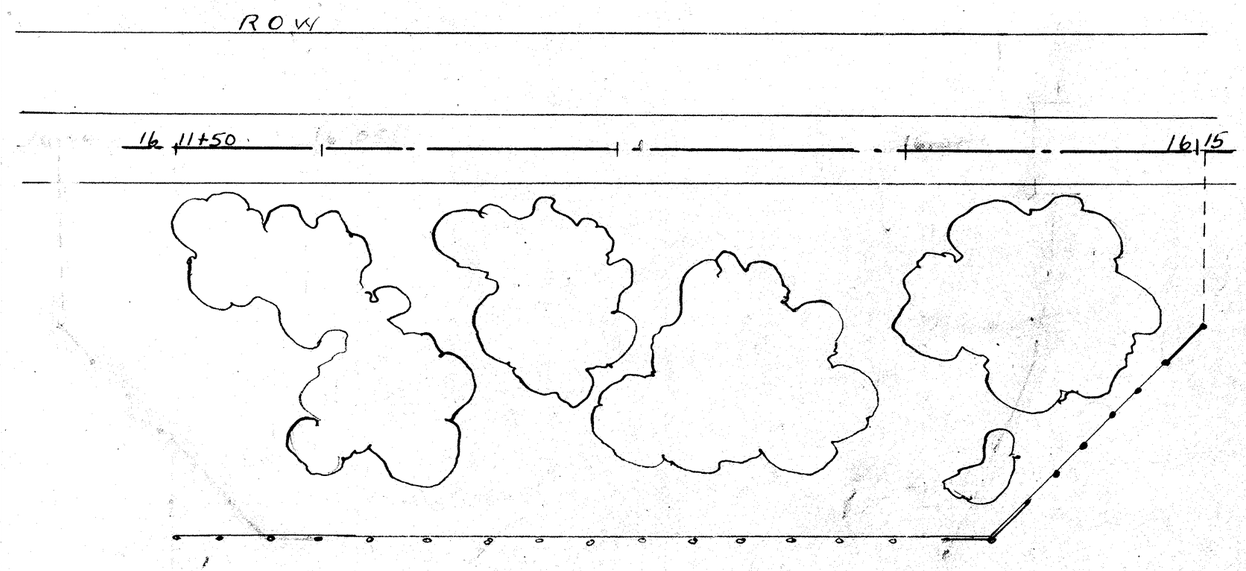
TO BE ABANDONED AS A PARK,
TO BE RETAINED AS A TRUCK STOP.
DRIVES TO BE REPAIRED UNDER
REGULAR MAINTENANCE.

PROJECT Nº M-18-3-6		SHEET 6
WEBB COUNTY	US. HWY 81	CONTROL 18-3

LEGEND

▥ TABLE & BENCHES ◻ FIREPLACE o GARBAGE DISPOSAL





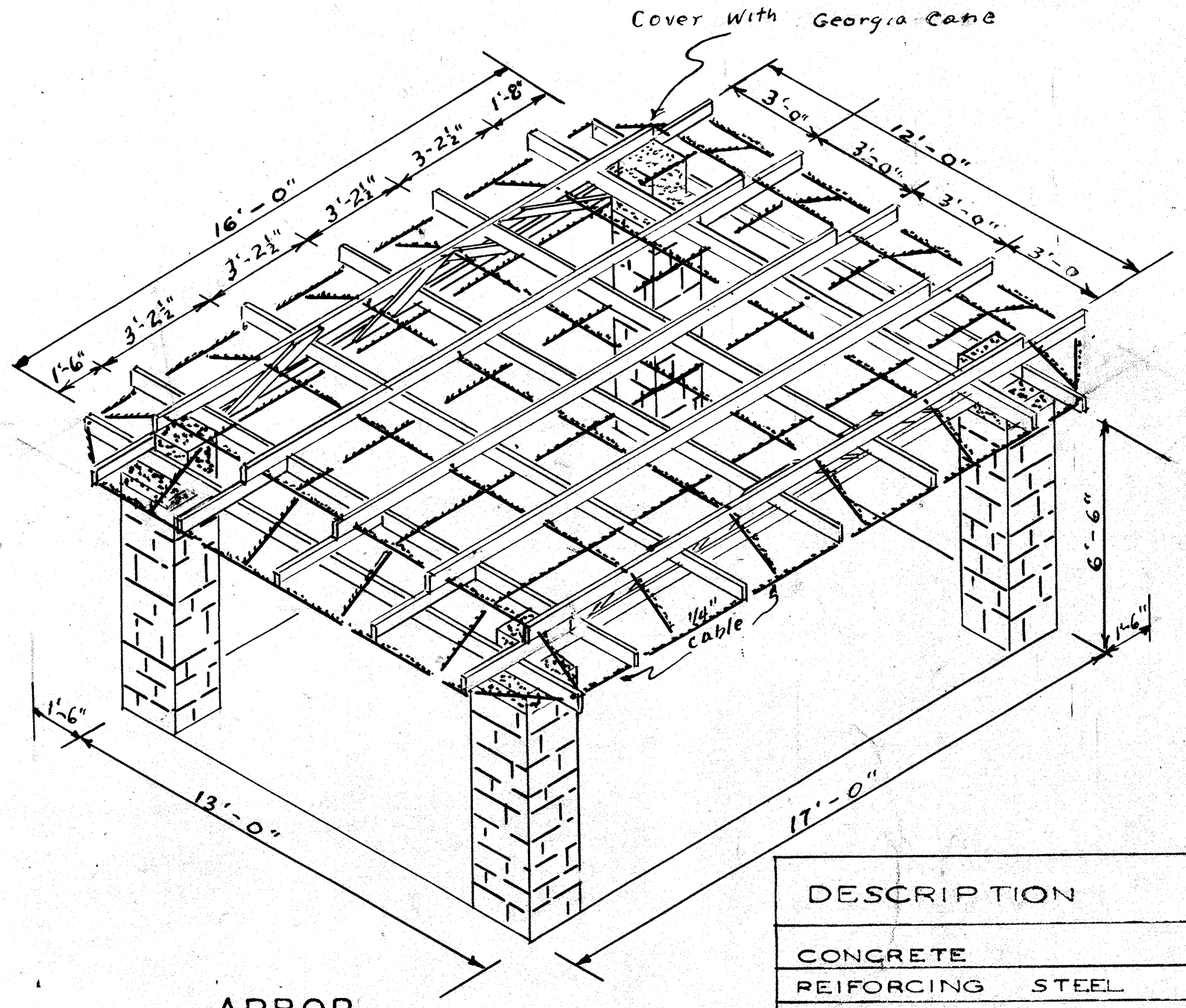
ROADSIDE PARK Nº 4.

SCALE 1 IN = 50 FT.

DESCRIPTION	QUANTITIES EST	FIN	UNIT
FIREPLACES	2	2	EA.
REPAIR FENCES	740	740	LIN. FT.
REPAIR DRIVES	1	1	LUMPSUM.
FIREPLACES	2	2	EA
TABLES & BENCHES [REBUILD]	2	2	EA.
GARBAGE DISPOSAL UNITS [TYPE G-2]	0	2	EA.

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B. M.s NOTED
STRUCTURE NOTAT'NS CH'KD
NOTE BOOK
NO.
DATE
BY

PROJECT M 18-3-6 & 5-10 & 6-17		SHEET 7
WEBB COUNTY	HWY US 81	CONTROL 18-3 & 5 & 6

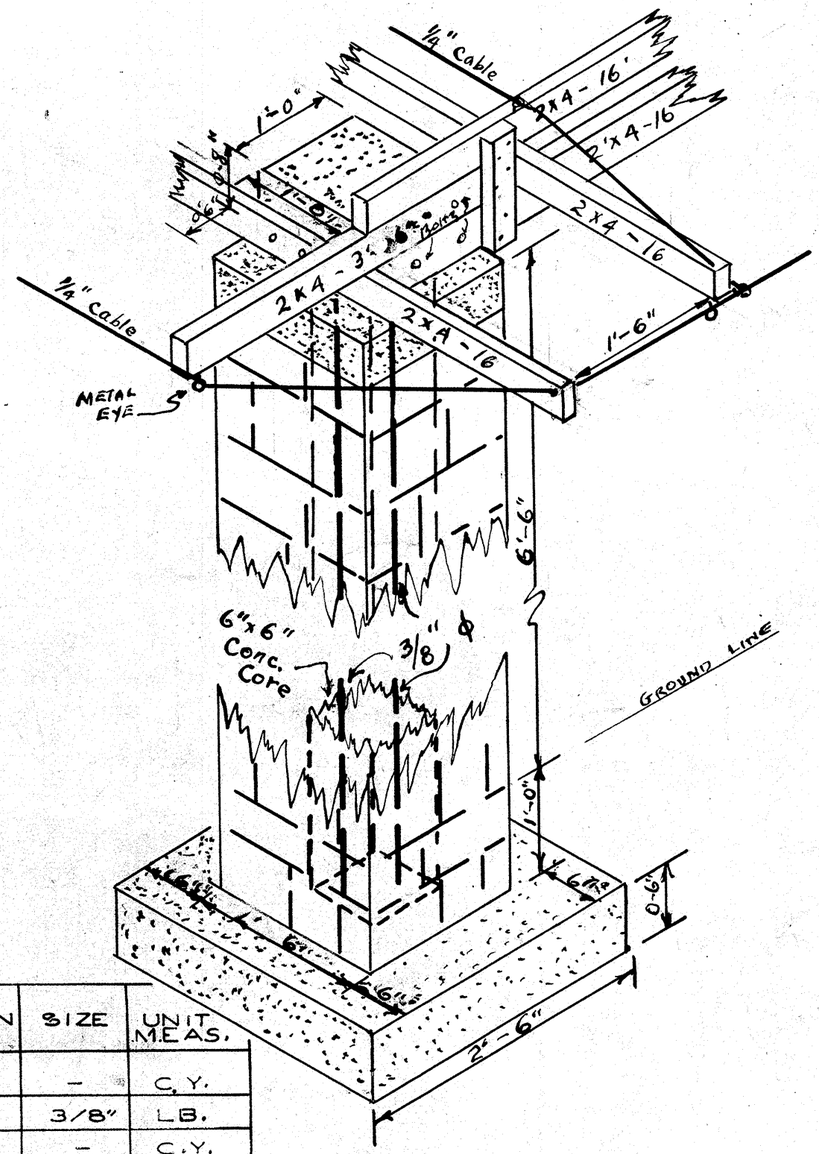


ARBOR

ISOMETRIC VIEW

SCALE 1/4 IN. = 1 FT.

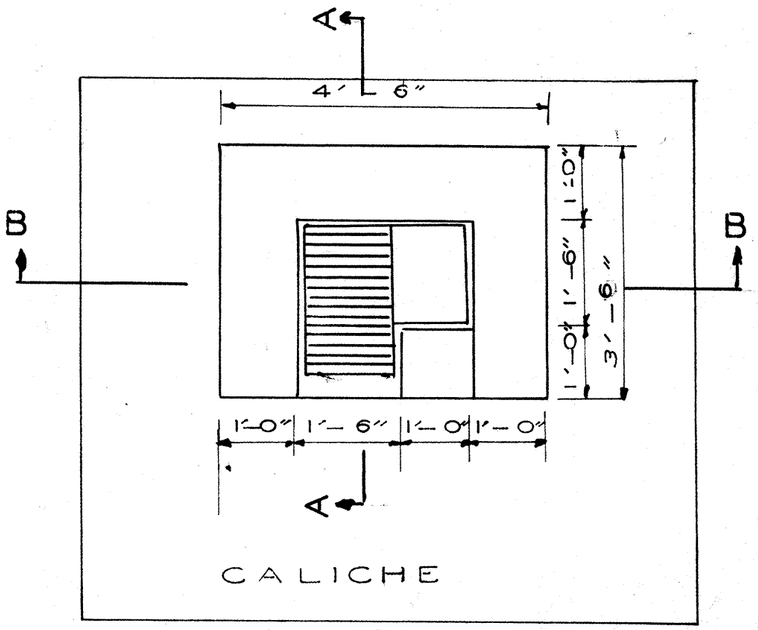
DESCRIPTION	QUAN	SIZE	UNIT MEAS.
CONCRETE	1	-	C.Y.
REIFORCING STEEL	26	3/8"	LB.
STONE	2.1	-	C.Y.
LUMBER [SALVAGE]	267	2X4	BF.
STEEL CABLE	260	1/4"	LIN.FT.
METAL SCREW EYES	40	3/4"	EA.
MACHINE BOLTS	24	3/8"X8"	EA.
CABLE CLAMPS	11	1/4"	EA.



PILLAR DETAILS

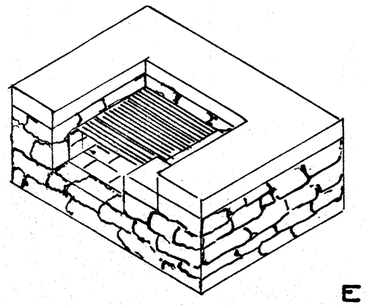
SCALE 3/4 IN. = 1 FT.

PROJECT M-18-3-6 & 5-10 & 6-17		SHEET 8
WEBB COUNTY	HWY US 81	CONTROL 18-3 & 5 & 6



PLAN

SCALE 1/2 IN = 1 FT.



ESTIMATED QUANTITIES

CONCRETE 0.3 C.Y.

STONE MASONRY 0.6 C.Y.

FIRE BRICK 45 EA

STEEL GRATE

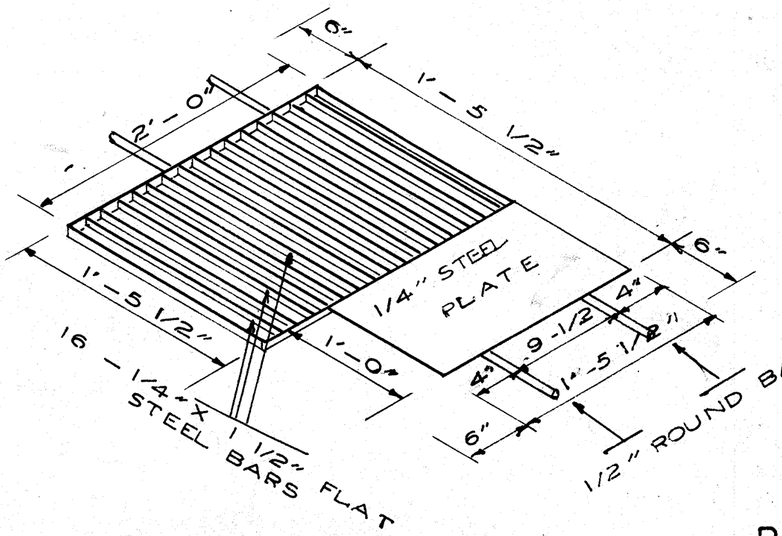
1/4"X1-1/2" FLAT STEEL BAR 26'-0" TOTAL

1/2" ϕ BAR 7'-0" TOTAL

1/4" STEEL PLATE 1'-0" X 1'-5 1/2"

REINFORCING STEEL

BAR	NO.	SIZE	LGTH	SPAC	WT.
A	1	3/8"	10'-0"	—	3.8 LB.
B	1	3/8"	9'-0"	—	3.5 LB.
C	10	3/8"	0'-9"	—	2.8 LB.

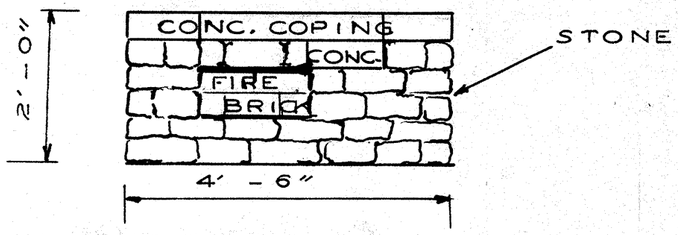


GRATE DETAILS

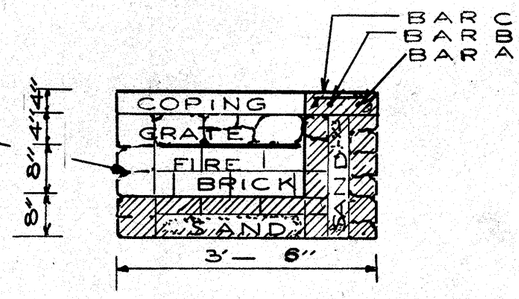
SCALE 1 IN = 1 FT.

ROADSIDE PARK FIXTURES

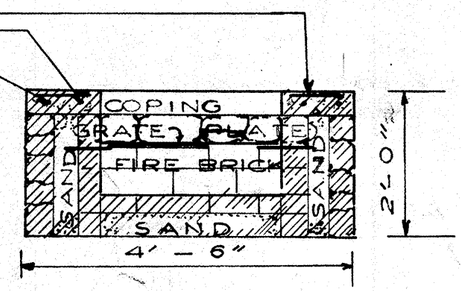
FIREPLACE



ELEVATION



SECTION -A-A



SECTION B-B

SCALE 1/2" = 1'-0"

PLAN

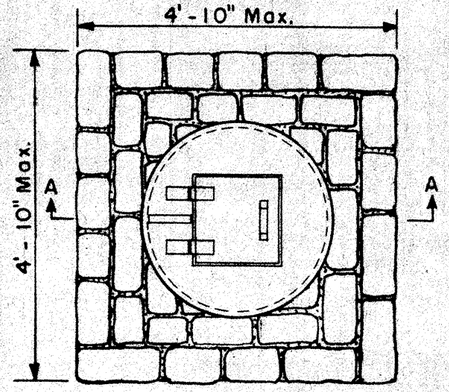
NOTE BOOK	NO.	DATE	BY

SURVEYED

PLOTTED

ALIGNMENT CHECKED

RT. OF WAY CHECKED

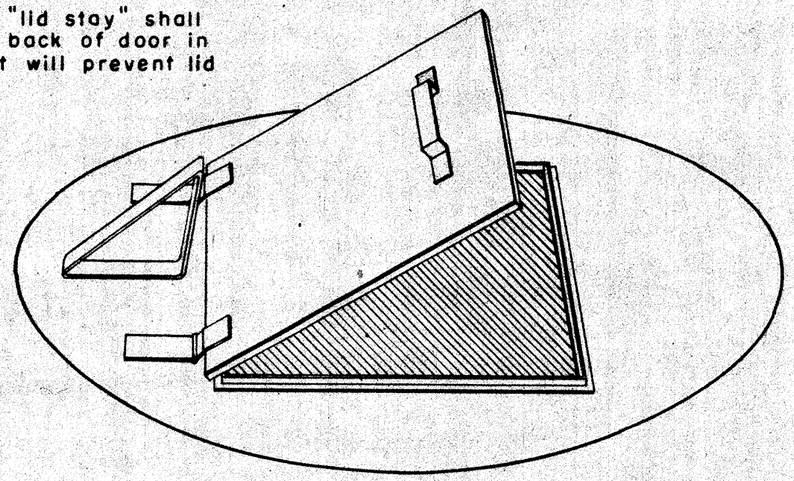


TOP VIEW

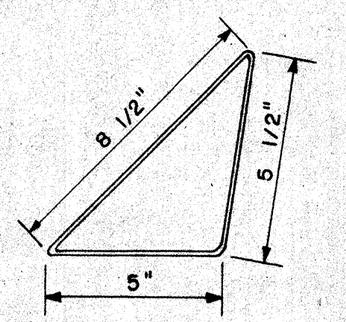
NOTE:

A diameter of 30" is desirable for pit.

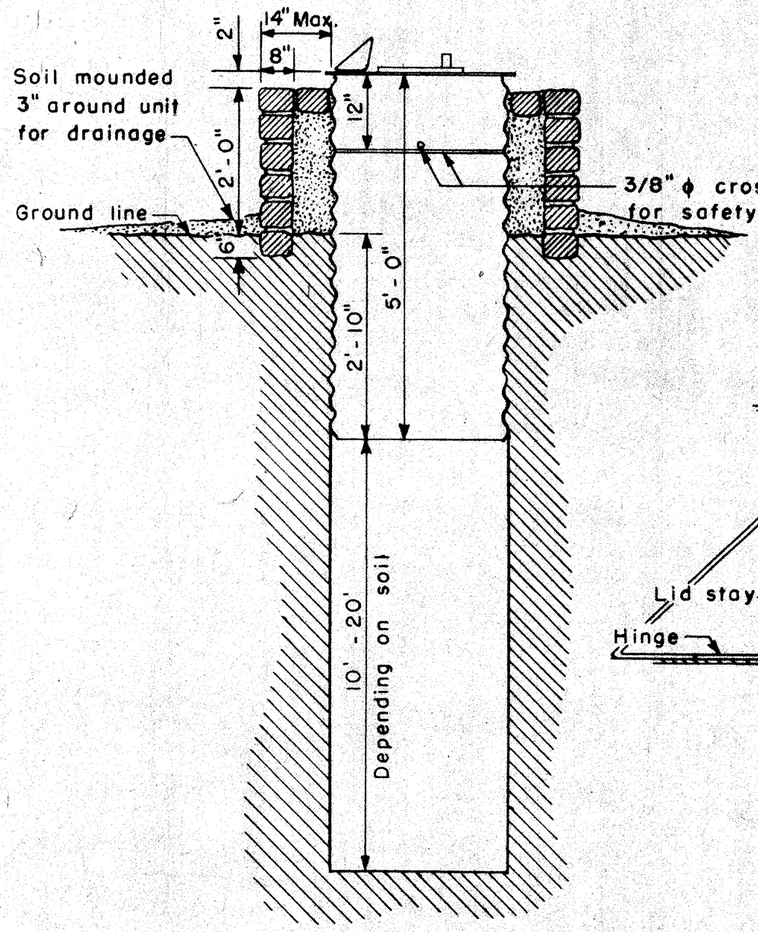
A triangular strap-iron "lid stay" shall be placed and welded back of door in such a location that it will prevent lid from remaining open.



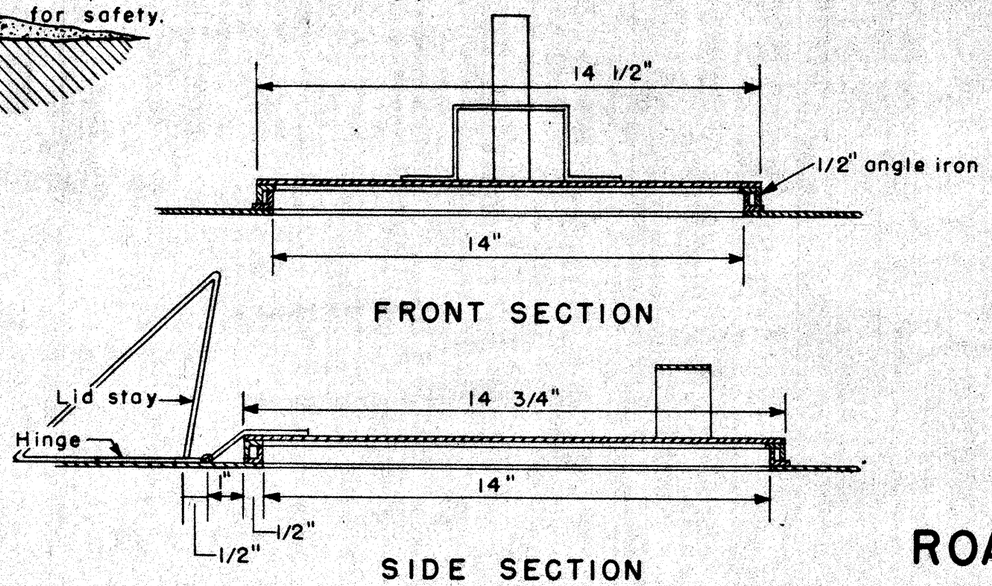
VIEW OF DOOR



LID STAY DETAILS



SECTION A-A



FRONT SECTION

SIDE SECTION

LID DETAILS

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY
METAL		
	Corrugated pipe 5' long	1
	Strap iron(1"x1/4"x19")	1
	Hinges 6" long	2
	Metal top piece with door mounted.	1
	3/8" ϕ cross bars (length equals diameter of pipe)	2
	1/2" angle iron	9'-8"
MASONRY		
	Rubble Masonry	30.2 Cu. Ft.

ROADSIDE PARK FIXTURES

GARBAGE DISPOSAL UNIT

G-2

WEBB	COUNTY	PROJ. M-18- 3-6 5-10 6-17	SHEET NO. 9

21

18-2-7

TEXAS STATE HIGHWAY DEPARTMENT
PLANS OF PROPOSED IMPROVEMENT

STATE PROJECT C-18-3,4&6,-7,7&16

WEBB COUNTY—HIGHWAY NO. **U.S. 81**

80.0468 FT. NET LENGTH ~~79,355.6~~ FT. ~~15.1141~~ MILES 15.158 MI.

ASPHALT LEVELING-UP COURSE
FROM 3 MI. NORTH OF LAREDO TO LASALLE CO. LINE (SECTIONS)

	DATE
PLANS PREPARED	March 1946
LETTING	April 26, 1946
WORK STARTED	June 3, 1946
WORK COMPLETED	July 12, 1946

INDEX OF SHEETS

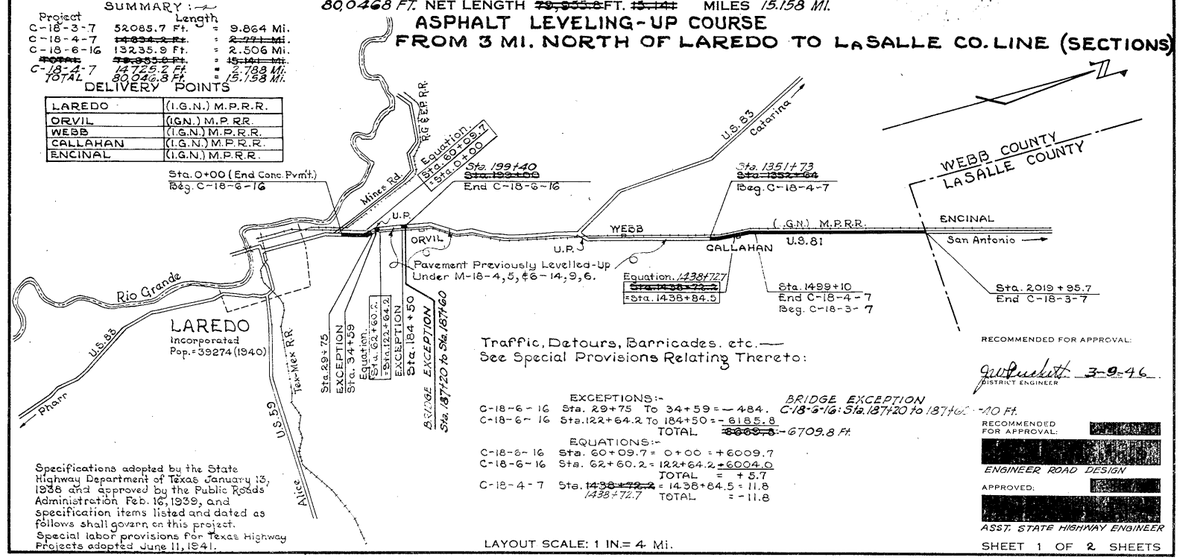
1 - TITLE; CROSS SECTION (TYPICAL); ESTIMATE SUMMARY
2 - SW-41

SUMMARY:—

Project	Length		
C-18-3-7	52085.7 Ft.	=	9.864 Mi.
C-18-4-7	~~14834.2 Ft.~~	=	~~2.791 Mi.~~
C-18-6-16	132.35.9 Ft.	=	2.506 Mi.
~~TOTAL~~	~~79,355.6 Ft.~~	=	~~15.141 Mi.~~
C-18-4-7	14765.4 Ft.	=	2.793 Mi.
TOTAL	80046.8 Ft.	=	15.158 Mi.

DELIVERY POINTS

LAREDO	(I.G.N.) M.P.R.R.
ORVIL	(I.G.N.) M.P. RR.
WEBB	(I.G.N.) M.P.R.R.
CALLAHAN	(I.G.N.) M.P.R.R.
ENCINAL	(I.G.N.) M.P.R.R.



Traffic, Detours, Barricades, etc.—
See Special Provisions Relating Thereto:

EXCEPTIONS:—
C-18-6-16 Sta. 29+75 To 34+59 = — 484.
C-18-6-16 Sta. 122+64.2 To 184+50 = - 6185.8
TOTAL ~~6669.8~~ - 6709.8 Ft.

BRIDGE EXCEPTION
C-18-6-16: Sta. 187+20 to 187+60 - 40 Ft.

EQUATIONS:—
C-18-6-16 Sta. 60+09.7 = 0+00 = +6009.7
C-18-6-16 Sta. 62+60.2 = 122+64.2 = 6004.0
TOTAL = + 5.7
C-18-4-7 Sta. ~~1438+72.2~~ 1438+72.7 = 1436+84.5 = 11.8
TOTAL = - 11.8

RECOMMENDED FOR APPROVAL:
[redacted]
DISTRICT ENGINEER
7-9-46

RECOMMENDED FOR APPROVAL:
[redacted]
ENGINEER ROAD DESIGN

APPROVED:
[redacted]
ASST. STATE HIGHWAY ENGINEER

LAYOUT SCALE: 1 IN.= 4 Mi.

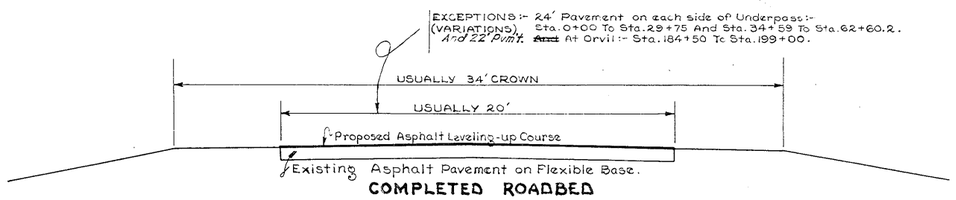
SHEET 1 OF 2 SHEETS

COUNTY	DIST. NO.	HWY. NO.	TOTAL SHEETS	SHEET NO.
CONTROL	SECTION		JOB	

5635

MINOR PROJECT PLANS SHEET - TYPE 1

5635



COMPLETED ROADBED

TYPICAL CROSS SECTION

COUNTY	DIST. NO.	HWY. NO.	TOTAL SHEETS	SHEET NO.
WEBB	21	US 81	2	1
CONTROL 18	SECTION 3,4,&6	JOB 7,7 & 16		

W-921/ 21 628

ESTIMATE SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITIES									
			C-18-3-7		C-18-4-7				C-18-6-16		TOTAL	
			EST.	FINAL	EST.	FINAL			EST.	FINAL	EST.	FINAL
314 & Sp.	Tack Coat (RC-2 or EA-11M)	Gal.	9360.	7745.	2600.	1955.			2580.	2055.	14540.	11755.
314 & Sp.	Cold Mix L.R.A. Pavement (Type B)	Ton	5209.	5192.213	1463.	1468.065			1454.	1452.895	8126.	8112.773

Basis of Estimate:—
Cold Mix L.R.A. Pavement :- 90 lbs. per sq. yd. = 10. Tons per Sta. (20' wide)
Tack Coat:- .08 gal. per sq. yd. = 18. gals. per Sta. (20' wide).

ESTIMATE AND QUANTITY SHEET

COUNTY	DIST. NO.	HWY. NO.	TOTAL SHEETS	SHEET NO.
WEBB	21	US 81	2	2
CONTROL 18	SECTION 3,4,&6	JOB 7,7 & 16		

IMPERIAL TRACING CLOTH
H & M CO., N.Y.

(1941)

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.		SHEET NO.
6	TEXAS			1.
STATE DIV. NO.	COUNTY	STATE PROJECT NO.		HIGHWAY NO.
21	WEBB			US81

LWR CONTROL 18-G-13
LWR CONTROL 18-5-8
LWR CONTROL 18-4-5
LWR CONTROL 18-3-5

21

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL CROSS SECTIONS
2	ESTIMATE AND QUANTITY SHEET
3 - 5	STRUCTURAL DETAILS — 3 - BW-41; 4 - NC-7 Lengthening Det.; 5 - CH-7
6 - 7	PLAN-PROFILE SHEETS STA. 62+00 - 121+18

STATE OF TEXAS
STATE HIGHWAY DEPARTMENT

List of Approved Field Changes: None

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

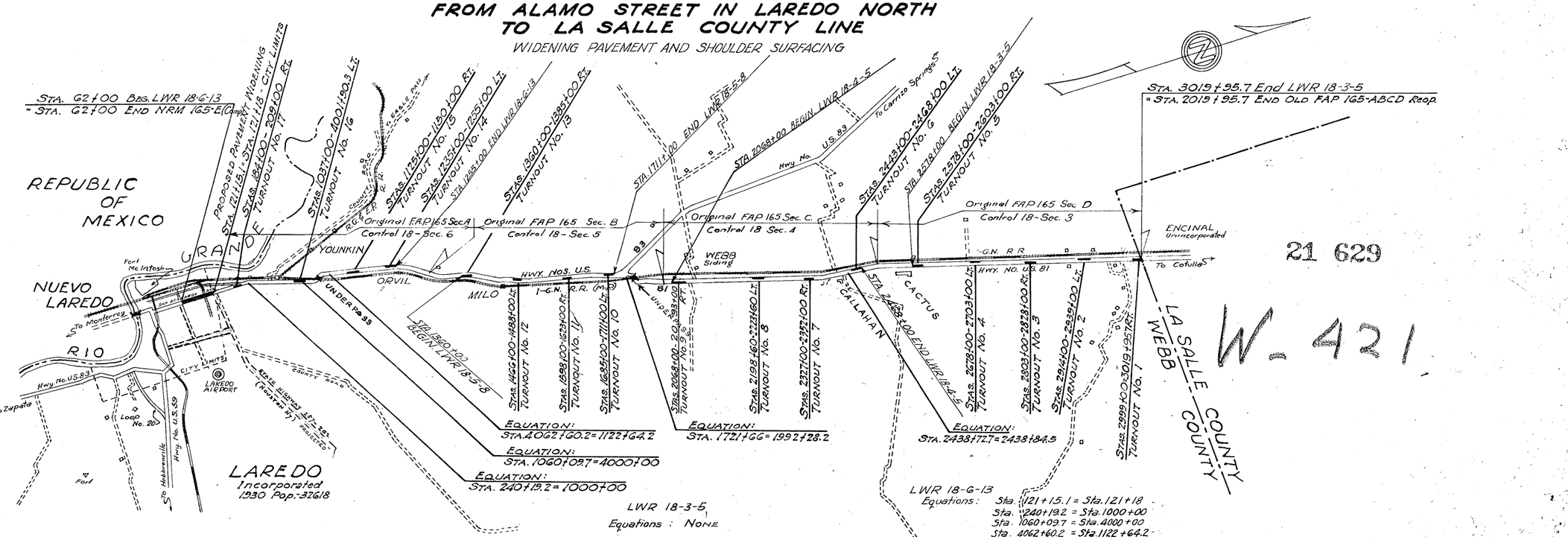
STATE SPONSORED WPA PROJECT LWR 18-3-5; 18-4-5; 18-5-8; 18-6-13

SCALES: PLAN: 1 IN. = 200 FT.
PROFILE: 1 IN. HOR. = 200 FT., 1 IN. VERT. = 20 FT.
CROSS-SECTIONS: 1 IN. HOR. AND VERT. = 5 FT.
OTHERS AS NOTED.

NET LENGTH OF PROJECT = 47,310.8 FT. = 8.958 MI.

LWR	18-G-13 =	15,415.1 FT. =	2.919 MI.
LWR	18-5-8 =	9,800.0 " =	1.856 "
LWR	18-4-5 =	10,000.0 " =	1.893 "
LWR	18-3-5 =	12,095.7 " =	2.290 "

WEBB COUNTY
U. S. HIGHWAY 81
FROM ALAMO STREET IN LAREDO NORTH TO LA SALLE COUNTY LINE
WIDENING PAVEMENT AND SHOULDER SURFACING



21 629

W-421

LWR 18-3-5
Equations : None
Exceptions : Sta. 2603+00 - Sta. 2678+00
Sta. 2703+00 - Sta. 2803+00
Sta. 2828+00 - Sta. 2914+00
Sta. 2939+00 - Sta. 2999+00

LWR 18-4-5
Equations : Sta. 2438+72.7 = Sta. 2438+84.5
Exceptions : Sta. 2093+00 - Sta. 2198+60
Sta. 2223+60 - Sta. 2327+00
Sta. 2352+00 - Sta. 2443+00

LWR 18-5-8
Equations : None (One outside Equation)
Exceptions : Sta. 1385+00 - Sta. 1466+00
Sta. 1488+00 - Sta. 1598+00
Sta. 1623+00 - Sta. 1685+00

LWR 18-G-13
Equations : Sta. 121+15.1 = Sta. 121+18
Sta. 240+19.2 = Sta. 1000+00
Sta. 1060+09.7 = Sta. 4000+00
Sta. 4062+60.2 = Sta. 1122+64.2
Exceptions : Sta. 121+18 = Sta. 184+00
Sta. 209+00 = Sta. 1037+00
Sta. 1401+90.3 = Sta. 1125+00
Sta. 1150+00 = Sta. 1235+00

SPECIFICATIONS ADOPTED BY THE STATE HIGHWAY DEPARTMENT OF TEXAS JANUARY 13, 1938 AND APPROVED BY THE PUBLIC ROADS ADMINISTRATION FEBRUARY 16, 1938, AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT.

LAYOUT SCALE: 1 IN. = 10,000 FT

CONVENTIONAL SIGNS
- STATE OR NATIONAL LINE
- CITY OR VILLAGE LINE
- COUNTY LINE
- BASE OR SURVEY LINE
- RIGHT OF WAY LINE
- RIGHT OF WAY MARKERS
- FENCE LINE
- RAILROAD
- TRAVELLED WAY
- CULVERT OR BRIDGE
- POWER LINE
- TELEGRAPH OR TELEPHONE

COUNTY WEBB PROJ. NO. LWR 18-3-4, 5&6-5, 5, 8 & 3
HWY. NO. 2/5 A DATE WORK BEGAN 11-3-41
DATE OF COMPLETION 3-21-42

STATE HIGHWAY DEPARTMENT — U. S. BUREAU OF PUBLIC ROADS

CORRECT: 9-3 1941
J R Busby
Dist. Office ENGINEER

RECOMMENDED FOR APPROVAL: 9-4 1941
J W Rushing
DISTRICT ENGINEER

RECOMMENDED FOR APPROVAL: [redacted]
BRIDGE ENGINEER

RECOMMENDED FOR APPROVAL: [redacted]
ENGINEER ROAD DESIGN

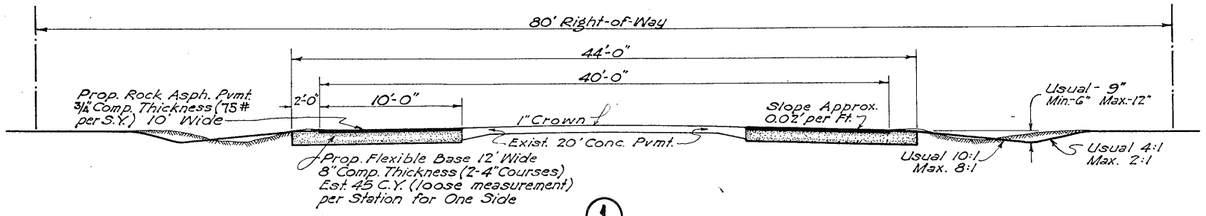
APPROVED: [redacted]
ASST. STATE HIGHWAY ENGINEER

RECOMMENDED FOR APPROVAL: [redacted]
DISTRICT ENGINEER

RECOMMENDED FOR APPROVAL: [redacted]
CHIEF ENGINEER

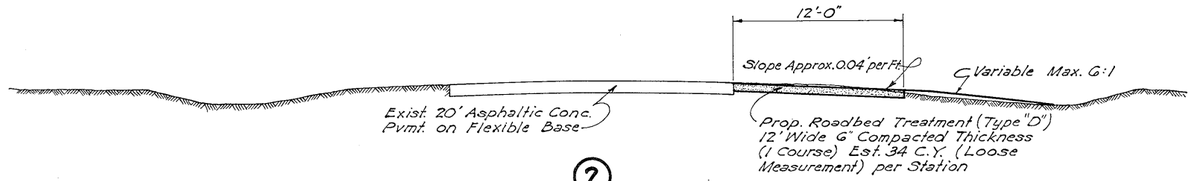
APPROVED: [redacted]
CHIEF OF BUREAU

DIETZGEN INDUSTRIAL NO. 119



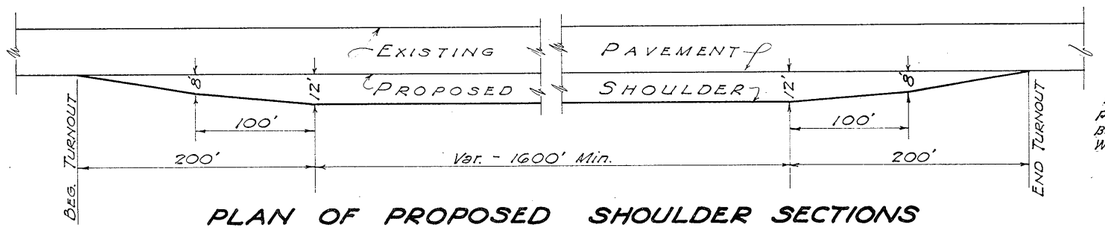
① WIDENING EXISTING PAVEMENT

From Alamo St. to North City Limits of Laredo (Stas. 62+00 - 121+15.1)



② PROPOSED STABLE SHOULDER

To Be Used Between the Stations Shown on Title Sheet and Plan-Profile Sheets



PLAN OF PROPOSED SHOULDER SECTIONS

BASIS OF ESTIMATE

SECTION NO. 1

Rolling:
Base: 1 hour per 50 C.Y.

Sprinkling:
Subgrade: 1500 Gals. per Sta. for both sides
Base: 50 Gals. per C.Y.

Asphalt (RC-2MC)
Prime Coat: .20 Gal./S.Y. 10'-6" wide on each side.
Tack Coat: .10 Gal./S.Y. 10'-6" wide on each side.
Total for both sides: 70 Gals. per Station

Cold Mix Blended Rock Asphalt:
75 #/S.Y. 10'-0" wide on each side.
Total for both sides: 8.33 Tons per Station.

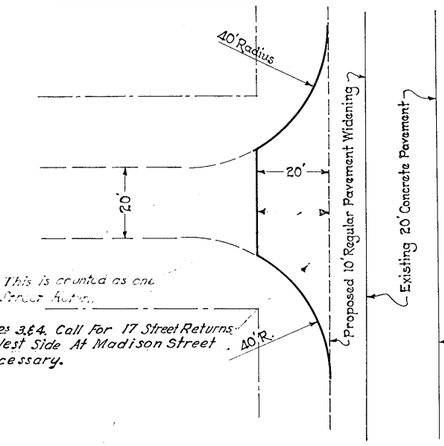
SECTION NO. 2

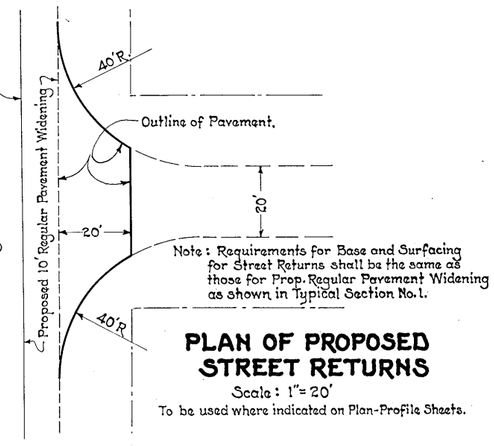
Rolling:
Roadbed Treatment: 1 hour per 100 C.Y.

Sprinkling:
Subgrade: 750 Gals. per Station.
Roadbed Treatment: 30 Gals. per C.Y.

SUMMARY OF STRUCTURES TO BE EXTENDED

STATION	DESCRIPTION		CLASS A CONC. FOR EXTENDING STRS. Cu. Yds.		REINFORCING STEEL Lbs.		24" STD. REINF. CONCRETE PIPE Lin. Ft.	
	EXIST. STRUCTURE	PROP. EXTENSION	Est.	Final	Est.	Final	Est.	Final
118+90.3	24"x40' C.G.M. Pipe Culv. with CH-7-B Hdwls.	5' Lt. & 5' Rt. with 24" Concrete Pipe CH-7-B Hdwls.	1.52	1.52	76.	57.	18.	18
1377+90	4'x2'x37' C-7 Culv.	7.0' Right with 4'x2' NC-7	3.11	3.11	293.	237.		
1605+42	24"x43.5' V.C. Pipe Culv. with CH-7-B Hdwls.	6.0' Rt. with 24" Conc. Pipe ~1 CH-7-B Hdwl.	.76	.76	38.	38.	6.	6.





PLAN OF PROPOSED STREET RETURNS

Scale: 1"= 20'

To be used where indicated on Plan-Profile Sheets.

TOTAL 16 RETURNS BUILT
See Note.

ESTIMATE SUMMARY

ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITIES						FINAL QUANTITIES					
			LWR 18-6-13		LWR 18-5-8	LWR 18-4-5	LWR 18-3-5	TOTAL	LWR 18-6-13		LWR 18-5-8	LWR 18-4-5	LWR 18-3-5	TOTAL
			City Section	Rural					City Section	Rural				
101 & Sp.	Common Road Excavation	Cu.Yd.	4696.	3445.	2772.	2065.	1908.	14886.	4696.	1908.	2065.	2772.	3445.	14886.
202	Sprinkling	M.Gal.	388.	134.	144.	165.	207.	1038.	205.10	11.88	20.24	20.13	48.29	305.64
203 B & Sp.	Rolling	Hour	120.	30.	31.	32.	40.	253.	232.	30.	31.	32.	40.	365.
210 & Sp.	Roadbed Treatment (Type "D")	Cu.Yd.		2998.	3100.	3168.	3960.	13226.		3001.	3092.	3158.	3799.	13050.
Special	Flexible Base	Cu.Yd.	5990.					5990.	6144.					6144.
300 & Sp. 313 & Sp.	Asphalt (RC-2MC)	Gal.	4740.					4740.	4928.					4928.
313 & Sp.	Cold Mix Blended Rk. Asph. Pvt. (Type "A")	Ton	578.					578.	565.6					565.6
Special	Class A Concrete for Ext. Structs.	Cu.Yd.	1.52		3.85			5.37	1.52		3.87			5.39
405	Reinforcing Steel	Lb.	76.		293.			369.	57.		275.			332.
Special	24" Std. Reinf. Conc. Pipe	Lin.Ft.	18.		6.			24.	18.		6.			24.
Special	Truck Hire	Hour		203.	198.	176.	203.	780.		267.	72.	123.	163.	625.

Structural Excavation will not be paid for directly but shall be considered as subsidiary work pertaining to the items "Class A Conc. for Ext. Structs." and "24" Std. Reinf. Conc. Pipe." For Class A Conc. for Ext. Structs. the use of Absolute Volume Mix Design and weighing of ingredients will not be required.

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.		SHEET NO.
6	TEXAS			
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.
21	WEBB	18	3,455	453
			556	3/4

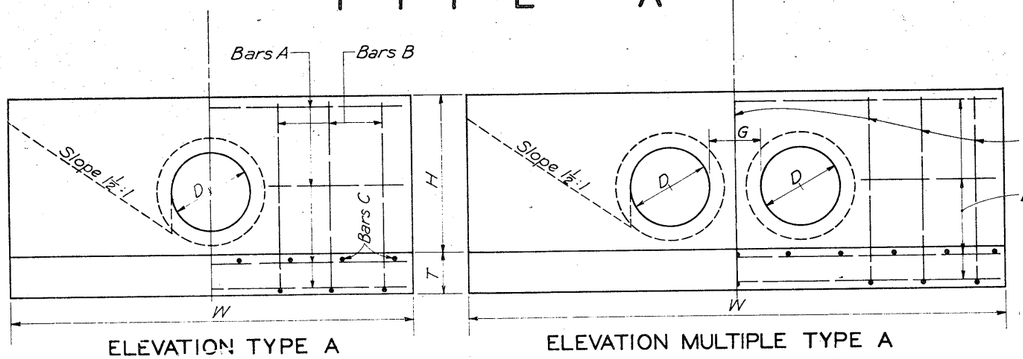
PLAN / PROFILE
SURVEYED
PLOTTED
NOTE BOOK
NO.
CROSS CHECKED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
B. M.'s NOTED
STRUCTURE NOTATIONS CHECKED
BY
DATE

637
5

FED. ROAD DIST. NO.	STATE	FISCAL YEAR	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
6	TEXAS		C.W.R. 4		
STATE DIV. NO.	COUNTY		RTE. OR PROJECT NO.		HIGHWAY
21	WEBB		18-5-8		U.S. 81

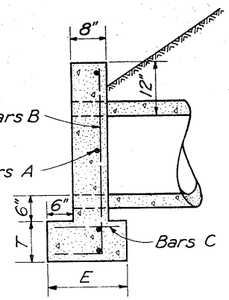
| DESIGN | SPAN | HEIGHT | TABLE OF DIMENSIONS L | W | V | T | U | F | BILL OF REINFORCING STEEL FOR 5'-0" EXTENSIONS OF BOTH UPSTREAM AND DOWNSTREAM ENDS OF CULVERTS — BARS A: No. | Size | C-C | Length | BARS B: No. | C-C | Length | BARS C: No. | C-C | Length | BARS D: No. | Size | C-C | Length | BARS E @ 12" (Upstream): No. | Length | BARS F @ 12" (Downstream): No. | Length | BARS G: No. | Length | BARS H: No. | Length | BARS I: No. | Length | BARS J: No. | Length | BARS K: No. | Length | BARS V1 - V11 - 2 of each length: No. | Length | No. | Length | No. | Length | QUANTITIES P.L.F. BARREL: Concrete | Steel | TABLE OF TOTAL QUANTITIES 5' Upstrm. Exten.: Concrete | Steel | 5' Downstrm. Exten.: Concrete | Steel | 6' Upstrm. Exten.: Concrete | Steel | 6' Downstrm. Exten.: Concrete | Steel | 7' Upstrm. Exten.: Concrete | Steel | 7' Downstrm. Exten.: Concrete | Steel | SPAN | HEIGHT |
|---|---|---|---|---|---

TYPE A

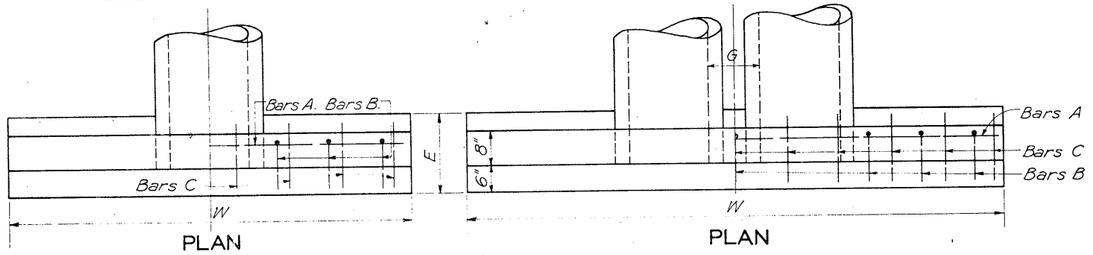


ELEVATION TYPE A

ELEVATION MULTIPLE TYPE A



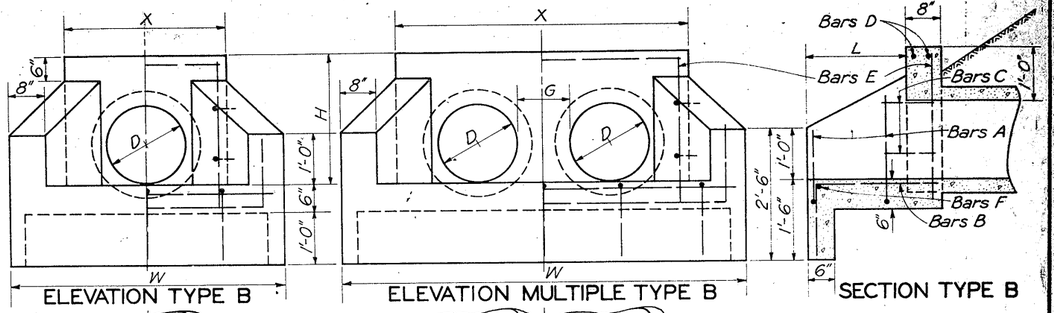
SECTION TYPE A



PLAN

PLAN

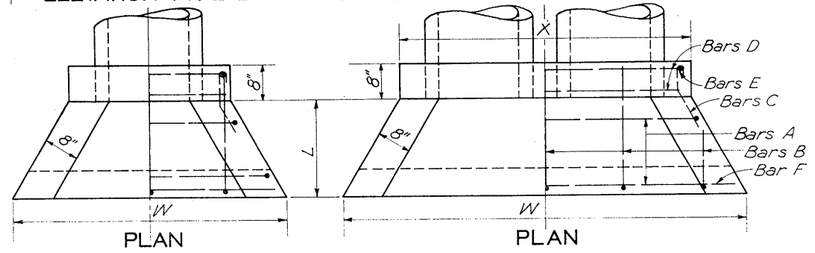
TYPE B



ELEVATION TYPE B

ELEVATION MULTIPLE TYPE B

SECTION TYPE B



PLAN

PLAN

TABLE OF DIMENSIONS AND QUANTITIES FOR TYPE A HEADWALLS

DESIGN	NO. OF PIPE	DIAM. OF PIPE	TABLE OF DIMENSIONS W	H	E	T	G	BILL OF REINFORCING STEEL AND QUANTITIES FOR ONE HEADWALL ⅜"ø BARS A @ 18"c-c NO.	LENGTH	½"ø BARS B @ 12"c-c NO.	LENGTH	½"ø BARS C @ 12"c-c NO.	LENGTH	⅜"ø BARS D @ 12"c-c NO.	LENGTH	QUANTITIES STEEL	CONC.
1	1	18"	7'-8"	3'-0"	1'-6"	9"	—	3	7'-4"	2	2'-6"	6	4'-5"	8	1'-3"	42	.83
2	2	"	10'-4"	"	"	"	1'-2"	"	10'-0"	"	"	7	"	11	"	51	1.07
3	3	"	13'-1"	"	"	"	1'-2"	"	12'-8"	"	"	8	"	13	"	60	1.33
4	4	"	15'-8"	"	"	"	1'-2"	"	15'-4"	"	"	9	"	16	"	70	1.58
5	1	24"	9'-6"	3'-6"	1'-10"	9"	—	3	9'-4"	2	3'-3"	8	4'-11"	10	1'-7"	59	1.23
6	2	"	12'-9"	"	"	"	1'-5"	"	12'-9"	"	"	9	"	13	"	71	1.59
7	3	"	16'-6"	"	"	"	1'-5"	"	16'-2"	"	"	10	"	17	"	85	1.96
8	4	"	19'-1"	"	"	"	1'-5"	"	19'-7"	"	"	11	"	20	"	97	2.31
9	1	30"	11'-3"	4'-0"	2'-0"	9"	—	3	11'-4"	4	3'-11"	8	5'-5"	12	1'-9"	74	1.65
10	2	"	15'-10"	"	"	"	1'-8"	"	15'-6"	"	"	9	"	16	"	88	2.12
11	3	"	20'-0"	"	"	"	1'-8"	"	19'-8"	"	"	10	"	20	"	104	2.60
12	4	"	24'-2"	"	"	"	1'-8"	"	23'-10"	"	"	11	"	24	"	120	3.09
13	1	36"	13'-8"	4'-6"	2'-4"	12"	—	3	13'-4"	4	4'-7"	10	6'-2"	14	2'-1"	99	2.46
14	2	"	18'-7"	"	"	"	1'-11"	"	18'-3"	"	"	11	"	19	"	120	3.19
15	3	"	23'-6"	"	"	"	1'-11"	"	23'-2"	"	"	12	"	24	"	138	3.92
16	4	"	28'-5"	"	"	"	1'-11"	"	28'-1"	"	"	13	"	29	"	158	4.65
17	1	42"	15'-8"	5'-0"	2'-6"	12"	—	3	15'-4"	4	5'-2"	12	6'-8"	16	2'-3"	124	3.07
18	2	"	21'-4"	"	"	"	2'-2"	"	21'-0"	"	"	13	"	22	"	148	3.96
19	3	"	27'-0"	"	"	"	2'-2"	"	26'-8"	"	"	14	"	27	"	169	4.87
20	4	"	32'-8"	"	"	"	2'-2"	"	32'-4"	"	"	15	"	33	"	192	5.76
21	1	48"	17'-8"	5'-6"	2'-10"	12"	—	3	17'-4"	6	5'-10"	12	7'-2"	18	2'-7"	146	3.83
22	2	"	24'-1"	"	"	"	2'-5"	"	23'-9"	"	"	13	"	24	"	172	4.95
23	3	"	30'-6"	"	"	"	2'-5"	"	30'-2"	"	"	14	"	31	"	200	6.08
24	4	"	36'-11"	"	"	"	2'-5"	"	36'-7"	"	"	15	"	37	"	226	7.20

TABLE OF DIMENSIONS AND QUANTITIES FOR TYPE B HEADWALLS

DESIGN	NO. OF PIPE	DIAM. OF PIPE	TABLE OF DIMENSIONS W	X	H	L	G	BILL OF REINFORCING STEEL AND QUANTITIES FOR ONE HEADWALL ½"ø BARS A @ 12"c-c NO.	LENGTH	LENGTH	⅜"ø BARS B @ 18"c-c NO.	LENGTH	LENGTH	⅜"ø BARS C @ 12"c-c NO.	LENGTH	⅜"ø BARS D @ 12"c-c NO.	LENGTH	½"ø BARS E NO.	LENGTH	⅞"ø BAR F LENGTH	QUANTITIES STEEL	CONC.
1	1	18"	4'-10½"	3'-0½"	2'-6"	1'-7"	—	1 Each	6'-8"	6'-10"		3	3'-3"				2	2'-8"	2	2'-8"	4'-6"	26	.49
2	2	"	7'-6½"	5'-8½"	"	"	1'-2"	"	9'-4"	9'-6"		5	"				"	"	"	"	5'-4"	"	"	7'-2"	35	.76
3	3	"	10'-2½"	8'-4½"	"	"	"	"	12'-0"	12'-2"		7	"				"	"	"	"	8'-0"	"	"	9'-10"	45	1.03
4	4	"	12'-10½"	11'-0½"	"	"	"	"	14'-8"	14'-10"		9	"				"	"	"	"	10'-8"	"	"	12'-6"	55	1.28
5	1	24"	6'-3"	3'-6½"	3'-0"	2'-4"	—	"	8'-1"	8'-3"	8'-5"	4	4'-0"				"	3'-0"	"	3'-2"	"	3'-2"	"	5'-11"	38	.76
6	2	"	9'-8"	6'-11½"	"	"	1'-5"	"	11'-6"	11'-8"	11'-10"	7	"				"	"	"	6'-7"	"	"	"	9'-4"	57	1.15
7	3	"	13'-1"	10'-4½"	"	"	"	"	14'-11"	15'-1"	15'-3"	9	"				"	"	"	10'-0"	"	"	"	12'-9"	73	1.56
8	4	"	16'-6"	13'-9½"	"	"	"	"	18'-4"	18'-6"	18'-8"	11	"				"	"	"	13'-5"	"	"	"	16'-2"	88	1.93
9	1	30"	7'-7"	4'-0½"	3'-6"	3'-1"	—	"	9'-5"	9'-7"	9'-9"	5	4'-9"				4	"	"	3'-8"	"	3'-8"	"	7'-3"	50	1.05
10	2	"	11'-9"	8'-2½"	"	"	1'-8"	"	13'-7"	13'-9"	13'-11"	7	"				"	"	"	7'-10"	"	"	"	11'-5"	70	1.62
11	3	"	15'-11"	12'-4½"	"	"	"	"	17'-9"	17'-11"	18'-1"	8	"	2	2'-9"	"	"	"	"	12'-0"	"	"	"	15'-7"	87	2.19
12	4	"	20'-1"	16'-6½"	"	"	"	"	21'-11"	22'-1"	22'-3"	10	"	2	2'-7"	"	"	"	"	16'-2"	"	"	"	19'-9"	107	2.74
13	1	36"	8'-1½"	4'-6½"	4'-0"	3'-10"	—	"	10'-8"	11'-2"	11'-4"	4	5'-6"	2	2'-1"	"	"	"	"	4'-2"	"	4'-2"	"	8'-7"	65	1.39
14	2	"	13'-10½"	9'-5½"	"	"	1'-11"	"	15'-9" 15'-11"	16'-1"	16'-3"	7	"	2	2'-5"	"	"	"	"	9'-1"	"	"	"	10'-6"	94	2.13
15	3	"	18'-9½"	14'-4½"	"	"	"	"	20'-8" 20'-10"	21'-0"	21'-2"	10	"	2	2'-9"	"	"	"	"	14'-0"	"	"	"	18'-5"	125	2.88
16	4	"	23'-8½"	19'-3½"	"	"	"	"	25'-7" 25'-9"	25'-11"	26'-1"	13	"	2	3'-3"	"	"	"	"	18'-11"	"	"	"	23'-4"	152	3.63
17	1	42"	10'-4"	5'-0½"	4'-6"	4'-7"	—	"	13'-5" 13'-7"	12'-6"	12'-8"	4	6'-3"	2	3'-4"	6	"	"	"	4'-8"	"	4'-8"	"	10'-0"	77	1.77
18	2	"	16'-0"	10'-8½"	"	"	2'-2"	"	18'-10" 19'-0"	18'-2"	18'-4"	8	"	2	3'-3"	"	"	"	"	10'-4"	"	"	"	15'-8"	111	2.75
19	3	"	21'-8"	16'-4½"	"	"	"	"	23'-6" 23'-8"	23'-10"	24'-0"	12	"	2	2'-8"	"	"	"	"	16'-0"	"	"	"	21'-4"	145	3.71
20	4	"	27'-4"	22'-0½"	"	"	"	"	29'-5" 29'-4"	29'-6"	29'-8"	16	"	2	2'-5"	"	"	"	"	21'-8"	"	"	"	27'-0"	181	4.67
21	1	48"	11'-8½"	5'-6½"	5'-0"	5'-4"	—	"	13'-6" 13'-8"	13'-10" 14'-0"	14'-2"	5	7'-0"	2	3'-3"	"	"	"	"	5'-2"	"	5'-2"	"	11'-4"	98	2.25
22	2	"	18'-1½"	11'-11½"	"	"	2'-5"	"	20'-1" 20'-1"	20'-3" 20'-5"	20'-7"	9	"	2	3'-5"	"	"	"	"	11'-7"	"	"	"	17'-9"	144	3.44
23	3	"	24'-6½"	18'-4½"	"	"	"	"	26'-4" 26'-6"	26'-8" 26'-10"	27'-0"	12	"	2	5'-4"	"	"	"	"	18'-0"	"	"	"	24'-2"	188	4.65
24	4	"	30'-11½"	24'-9½"	"	"	"	"	32'-5" 32'-11"	33'-1" 33'-3"	33'-5"	17	"	2	4'-4"	"	"	"	"	24'-5"	"	"	"	30'-7"	233	5.85

GENERAL NOTES

All concrete shall be Class A. All exposed corners shall be chamfered ¾ inch.

Reinforcing steel shall be placed with the center of the outside layer of bars 1½ inches from the surface of the concrete. Where reinforcing bars are spliced a 40 diameter lap shall be used.

Dimension "G" shown is for concrete pipe and may be shortened if desired when metal pipe is used.

TEXAS STATE HIGHWAY DEPARTMENT

CONCRETE HEADWALLS FOR PIPE CULVERTS

18 TO 48 INCHES IN DIAMETERS

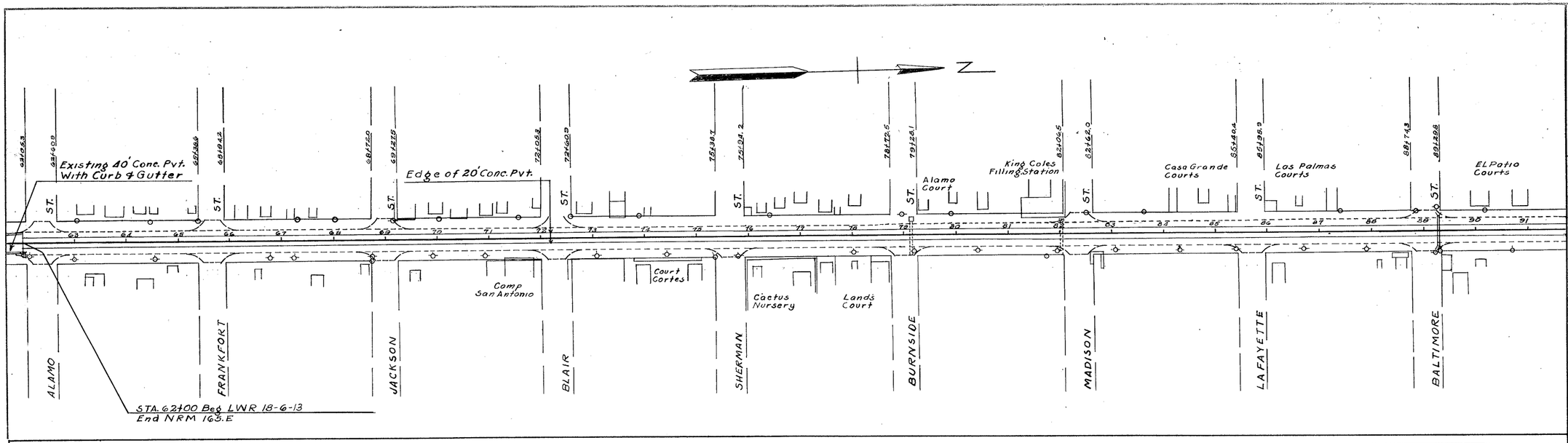
CH-7

DN. C.F.S.	Revisions:	FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.		SHEET NO.
DW. C.F.S.		6	TEXAS	L.W.R.		5
CK. H.P.S.		STATE DIST. NO.	COUNTY	CONTROL	SECTION NO.	JOB NO.	HIGHWAY NO.
TR. W.P.B.		21	WEBB	18	6,5	15.8	U.S.81
CK. L.B.							
JUNE 1939							

PROFILE SURVEYED ___ PLOTTED ___ CHECKED ___ NOTE BOOK ___ CHECKED ___ NO. ___ STRUCTURE NOT AT C.L.H.D.

PLAN SURVEYED ___ PLOTTED ___ CHECKED ___ NOTE BOOK ___ CHECKED ___ NO. ___ STRUCTURE NOT AT C.L.H.D.

5-53



CROSS SECTION DATA

STATION NUMBER	
BERM (OR BORROW) WIDTH FT.	
SLOPE (RATIO TO 1)	
DITCH (OR BORROW) DEPTH FT.	
DITCH (OR BORROW) WIDTH FT.	
SLOPE (RATIO TO 1)	
CROWN WIDTH—(FEET)	
SLOPE (RATIO TO 1)	
DITCH (OR BERM) WIDTH FT.	
DITCH (OR BORROW) DEPTH FT.	
SLOPE (RATIO TO 1)	
BERM (OR BORROW) WIDTH FT.	
AVERAGE GROUND SLOPE PER 100'	
TYPICAL CROSS-SECTION NO.	

54	2603	Excavation
21	253	Emb.+Shr.
	2350	Waste.

Sta 65+42
Storm Sewer Inlets 28'Lt+2'Rt
To be Adjusted to Revised Grade
By City

Sta 79+19
12X66 Conc. Pipe Culvert
With Horizontal Grate Inlet on
The left only NO Headwalls

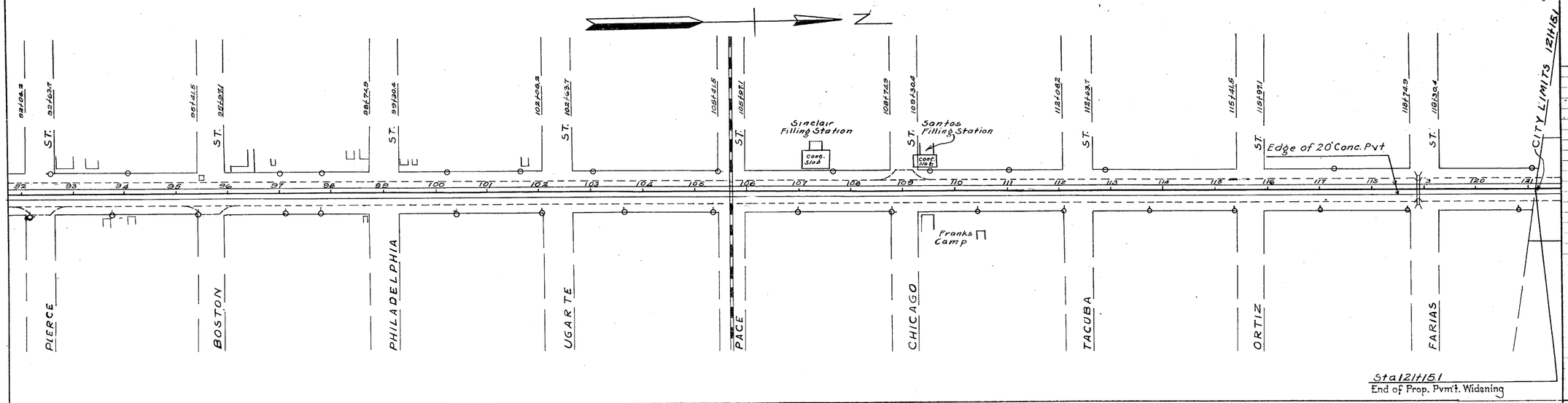
Sta 82+06
12X66 Conc Pipe Culvert
With Horizontal Grate Inlet on
The Left only NO Headwalls

Sta 89+21
Existing 12X56
Conc. Pipe Culv
No Extension Required

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO	SHEET NO.
6	TEXAS		6

STATE DIV. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.

5640



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
92+04.2											
92+63.7											
96+41.6											
98+79.9											
99+30.4											
102+04.2											
102+63.7											
103+41.5											
103+87.1											
107+79.9											
109+30.4											
112+04.2											
112+63.7											
115+41.5											
115+91.1											
118+79.9											
119+30.4											
CITY LIMITS 121+16.1											

9	2093		Excavation
4	1125		Emb. + Shr.
	968		Waste

Note:
Total Includes 306 C.Y. Exc. for Cross Street Returns

| | | | | | | | | | | |

DESIGN SPEED: 70 M.P.H.
CLASS "AA" HIGHWAY

STATE	COUNTY	PROJECT NO.	SHEET NO.
	I-165(16)		1
21	WEBB	18-4-9 18-3-9	U.S.81

Constructed As

V-435

New No. I-35-1(1)20

STATE OF TEXAS
STATE HIGHWAY DEPARTMENT

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT.

Constructed As → I-165 (16) New No. I-35-1(1)20

SCALES: PLAN: 1 IN. = 100 FT.
PROFILE: 1 IN. HOR. = 100 FT. 1 IN. VERT. = 10 FT.
CROSS-SECTIONS: 1 IN. HOR. AND VERT. = 5 FT.
OTHERS AS NOTED.

NET LENGTH OF PROJECT= 93,149.9 FT.=17.642 MI.

LENGTH OF EAST LANE

CONTROL 18-4-9 = 42,800 FT. = 8.106 MI. — ROADWAY = 42,366.33 FT. = 8.024 MI. / BRIDGES = 433.67 FT. = 0.082 MI.

CONTROL 18-3-9 = 50,349.9 FT. = 9.536 MI. — ROADWAY = 49,716.94 FT. = 9.416 MI. / BRIDGES = 632.96 FT. = 0.120 MI.

WEBB COUNTY

FROM: 15.5 MI. NORTH OF LAREDO CITY LIMITS
TO: WEBB-LASALLE COUNTY LINE.

GRADING, STRUCTURES, FLEXIBLE BASE & TWO COURSE SURFACE TREATMENT

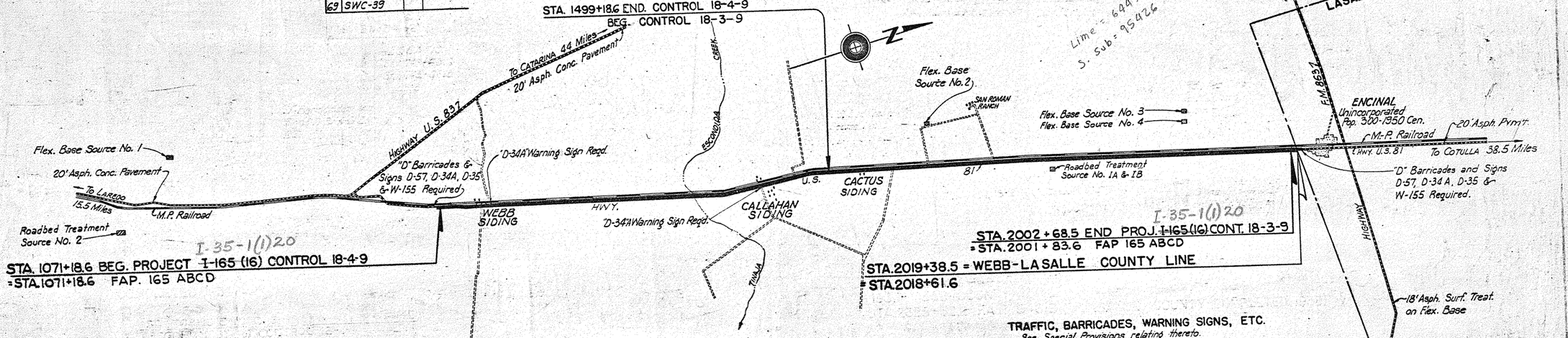
INDEX OF SHEETS

Rebuild Exist. Road	New Construction	DESCRIPTION
	1	TITLE SHEET
1-A	2-3	TYPICAL CROSS SECTIONS
2A-3A	4-6	ESTIMATE AND QUANTITY
5A-41A	7-37	PLAN PROFILE
	38-39	HAUL DIAGRAM
42A	40	DRAINAGE AREA MAP
	41	STD. DETAILS FOR CROSSOVERS & ENTRANCES
43A-49A	42-45	BRIDGE LAYOUTS
50A-59A	46-69	STRUCTURAL DETAILS AND STANDARDS
60A-67A		CROSS SECTIONS AT CULV. SITES

New Construction		Rebuild Existing Road	
46	CH-11	50A	SCL
47	SC-NA	51A	MC5-2
48	FW-N	52A	MC4-1 Spl.
49	MCW-F1	53A	MC-8 Mod & MC10-1 Mod.
50	MCW-F2		
51	MCW-F-30°	54A	Abt. Wingwalls, Spl.
52	MC6-1		
52B	MC7-1		
53	MC8-1		
54	MC8-3	55A	Widening Details Abt. Walls & Bents, Spl.
55	MC9-1		
56	MC10-1		
57	MC-10-1-30°Spl.	56A	Widening Details Slabs, Spl.
58	Grate Inlets & Down Drains	57A	Widening Details Girders, Spl.
59	S-0-38-25(30°)		
60	BS-0-38-25 (30°), Spl.	58A	Widening Details A-9-15° Abt. 23° Skew, Spl.
61	CS-0-80		
62	CS-0-110	59A	Widening Details CB-6 Slabs & B-4 Bents-23° Skew-Spl.
63	BS-0-38		
64	Railing Type 2		
65	RR-8		
66	BW-54(1)		
67	BW-54(2)		
68	M-47		
69	SWC-39		

SUMMARY OF FIELD CHANGES

F.C. NO.	DESCRIPTION	LIMITS
1	Raise grade of both expressway lanes and add 2-5"x2"x126', MC5-1 & MCW-F1	Sta. 1104+50 to 1169+34
2	Change Slope from 0.01'/ft. to 0.02'/ft. on the 24 ft. Traffic Lanes. All other slopes to remain the same as called for on the Typical Cross Sections, sheets.	Sta. 1071+18.6 to 2002+68.5
3	Level up roadway section across 17 direct traffic drainage structures with Cl. "B" Conc. and Asphaltic Concrete at the following stations: 1. 1103+42.9 to 1103+96.9; 2. 1154+41.4 to 1154+64.73; 3. 1177+50.6 to 1177+82.68; 4. 1253+18.8 to 1253+41.88; 5. ℄ 1316+10.2; 6. 1325+00 to 1325+23.17; 7. 1354+26.2 to 1354+62.2; 8. ℄ 1530+93.0; 9. 1556+02.2 to 1556+37.12; 10. 1574+15.1 to 1574+43.85; 11. 1657+80.4 to 1658+06.73; 12. 1667+43.2 to 1667+85.2; 13. 1676+11.1 to 1676+43.1; 14. 1858+32.0 to 1858+91.67; 15. 1907+30.4 to 1907+74.4; 16. 1952+36.8 to 1953+24.2; 17. 1996+30.6 to 1996+78.45	See Description.
4	Add 18"x48" Reinf. Conc. Pipe with CH-11-8 Hdwlls. 76' Lt. ℄ of Median.	Sta. 1422+50
5-(Rev.)	Add Exit and Entrance to east expressway lane at Sta. 1602 and Sta. 1615+00 and construct a frontage road between this stations.	Sta. 1602+00 to 1615+00
6	Change Gradation of Type A, Gr. 10, Second Course Aggregate for the prop. Two Course Surf. Treat." on the exist. hwy. to be reconst. & expressway lanes only	Sta. 1071+18.6 to 2002+68.5
7	Cut 30' wide rdwy. ditch between future Rt. Frontage Rd. and prop. expressway lane between Sta. 1068+00 and Sta. 1096+00. Raise rdwy. of prop. right expressway lane from Sta. 1081+50 to Sta. 1102+00	See Description.
8	Stabilized to a depth of 6" with 3% by wt. hydrated lime, subgrade of reconstructed left lane.	Sta. 1071+18.6 to 1320+00



TRAFFIC, BARRICADES, WARNING SIGNS, ETC.
See Special Provisions relating thereto.

DELIVERY POINTS

DELIVERY POINT	RAILROAD
WEBB SIDING	MISSOURI-PACIFIC
CALLAHAN SIDING	"
ENCINAL	"

NO EXCEPTIONS
NO EQUATIONS

RETURN TO
RECORDS MANAGEMENT
DEPARTMENT OF
TRANSPORTATION

CONVENTIONAL SIGNS
STATE OR NATIONAL LINE
CITY OR VILLAGE LINE
COUNTY LINE
BASE OR SURVEY LINE
RIGHT OF WAY LINE
RIGHT OF WAY MARKERS
FENCE LINE
RAILROAD
TRAVELED WAY
CULVERT OR BRIDGE
POWER LINE
TELEGRAPH OR TELEPHONE
BITUMINOUS SURF. ROAD

COUNTY WEBB PROJ. NO. I-165 (16)
HWY. NO. U.S. 81 LETTING DATE MAY 25, 1957
DATE ACCEPTED July 18, 1958

SPECIFICATIONS ADOPTED BY THE STATE HIGHWAY DEPARTMENT OF TEXAS, JANUARY 2, 1951 AND APPROVED BY THE U. S. BUREAU OF PUBLIC ROADS JULY 25, 1951 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT:
REQUIRED CONTRACT PROVISIONS FOR FEDERAL AID PROJECTS, APPROVED JAN. 13, 1955.

LAYOUT SCALE: 1 IN. = 5208.3 FT.

STATE HIGHWAY DEPARTMENT

CORRECT: 3-12-, 57
A. C. Vogt
RESIDENT ENGINEER

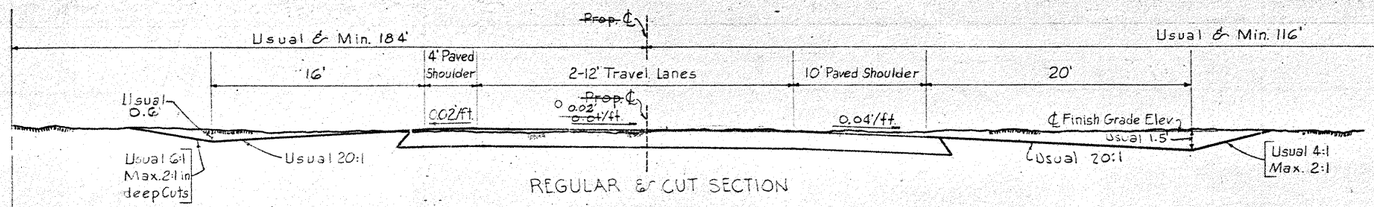
RECOMMENDED FOR APPROVAL: 3-18-, 57
DISTRICT ENGINEER

RECOMMENDED FOR APPROVAL:
ENGINEER ROAD DESIGN

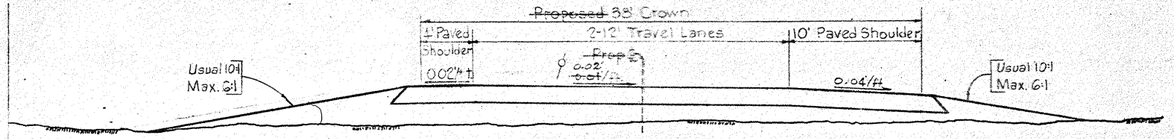
APPROVED:

Revised May 15, 1957
DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

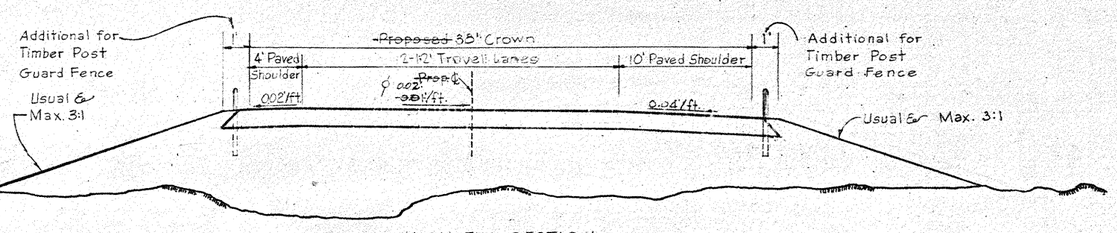
APPROVED:
DISTRICT ENGINEER — DATE



REGULAR & CUT SECTION



LOW FILL SECTION



HIGH FILL SECTION

50' Additional R.O.W. Where Req'd.

Exist R.O.W. Line

Prop. R.O.W. Line

Extra R.O.W. Line

GENERAL NOTES:-

Where required by fixed features or unusual conditions the slopes indicated hereon may be varied when specifically directed by the Engineer.

Curves are to be super-elevated in accordance with SWC-38 (Table I), except when noted otherwise on the Plan & Profile Sheets.

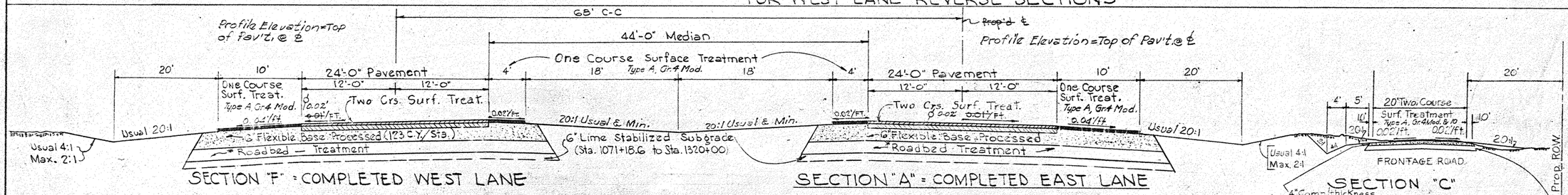
* See Roadbed Treatment Haul Diagram Sheet for Roadbed Treatment compacted thickness and for rates per station. Min. 6" - Max. 14" 13" & 14" depth to be placed in 2 equal courses.

See Special Provisions for Pavements & Surface Treatments which requires a contrasting color of aggregate used for Shoulders & Traveled lanes on this project.

Crossovers & Entrances are indicated on the Plan & Profile Sheets as individual symbols. See Sheet No. 41 for Details of Crossovers & Entrances.

℄ Note: Slope of Roadway changed due to Field Change No. 2.

THESE SECTIONS ARE FOR EAST LANE.
FOR WEST LANE REVERSE SECTIONS



SECTION "F" = COMPLETED WEST LANE

SECTION "A" = COMPLETED EAST LANE

SECTION "C"

4" Comp. Thickness Flex. Base Processed Est. 42 C.Y./Sta. (loose)

* Roadbed Treament (where needed)

Revised May 15, 1957

SECTIONS "A", "F" & "C"

TYPICAL CROSS SECTIONS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-165(16)	2

STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	384	105	

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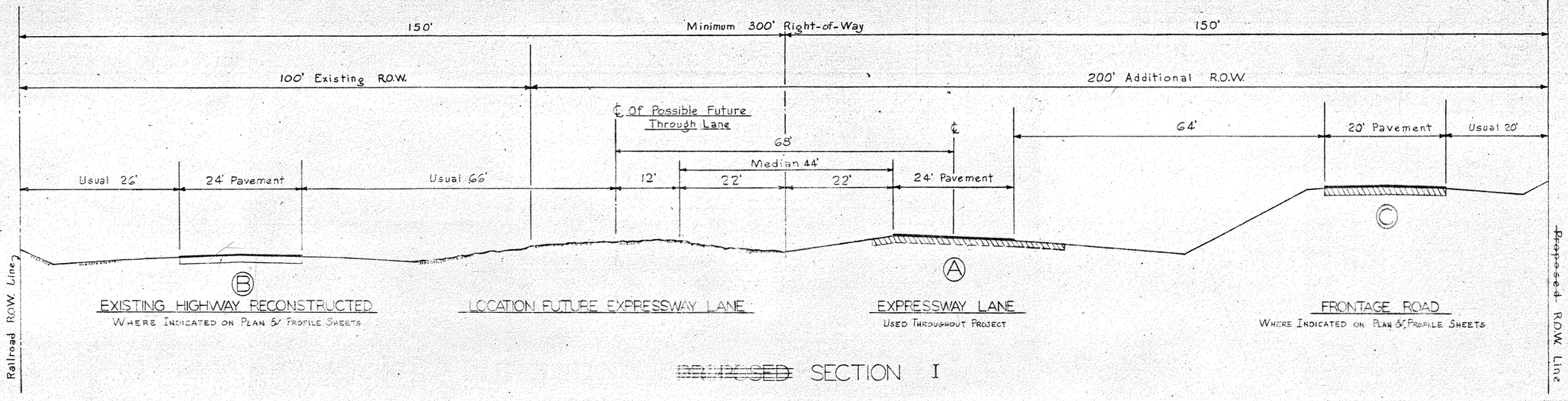
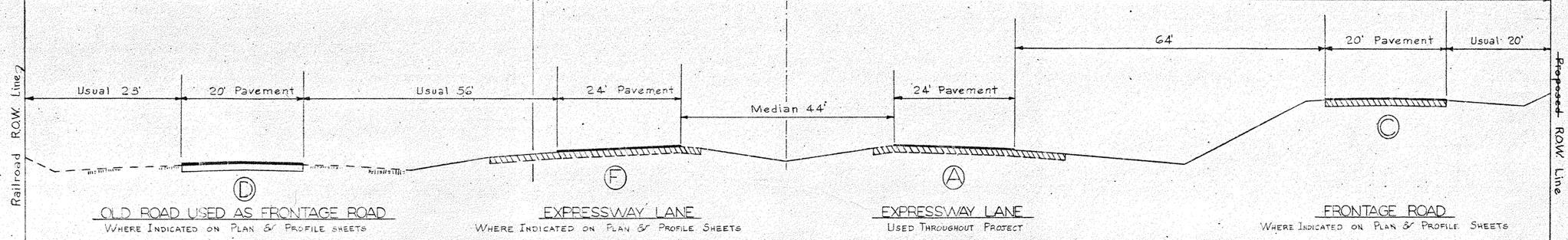


~~PROPOSED~~ SECTION I



~~PROPOSED~~ SECTION II

TYPICAL SECTIONS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.		SHEET NO.
6	TEXAS	I-165(16)		3
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	394		U.S.

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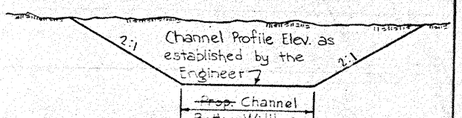
SUMMARY OF SMALL STRUCTURES

STRUCT. NO.	PLAN & PROFILE SHEET NO.	STATION	DESCRIPTION	UNCL. STRUCT. EXCAVATION C.Y. EST.	UNCL. STRUCT. EXCAVATION C.Y. FINAL	CLASS "A" CONCRETE C.Y. EST.	CLASS "A" CONCRETE C.Y. FINAL	REINFORCING STEEL LBS. EST.	REINFORCING STEEL LBS. FINAL	STANDARD REINF. CONC. PIPES 24" L.F. EST.	STANDARD REINF. CONC. PIPES 24" L.F. FINAL	CLASS "B" CONCRETE RIPRAP C.Y. EST.	CLASS "B" CONCRETE RIPRAP C.Y. FINAL	GRATE INLETS EACH EST.	GRATE INLETS EACH FINAL
CONTROL 18-4-9															
4	11	1133+60	2-24"x46' Reinf. Conc. Pipe with CH-11-B Headwalls	23.9	29	2.46	2.46	239	239	96	98.28				
9	17	1374+00	1-24"x56' Reinf. Conc. Pipe with CH-11-B Headwalls	20.9	3	1.62	1.62	176	176	56	57.06				
10-A	18	1406+50	4'x2'x61' Conc. Box Culvert-SC-NA, Grate Inlet Lt. & F-N-N Rt.	37.8	43	17.39	17.28	2441	2450					1	1
11-A	18	1418+00	4'x2'x61' Conc. Box Culvert-SC-NA, Grate Inlet Lt. & F-N-N Rt.	37.8	34	17.39	17.28	2441	2450					1	1
12	19	1437+45	4'x2'x118' Conc. Box Culvert-SC-NA, Grate Inlet S. F-W-N Lt. S Rt.	49.3	60	33.10	33.10	4,731	4728						
		1131+00	2-5'x3'x126' Mult. Box Culvt. with grate inlet MCS-1 & MCW-F1		83		71.63		10,310			5.4	0	1	1
															1
			CONTROL 18-4-9 TOTALS	169.70	252	71.96	163.37	10,028	29,357			152	155.34	5.4	0	3	4
CONTROL 18-3-9															
13	22	1530+36.8	3-6'x4'x46' Mult. Box Culvert MC6-1 & MCW-F1	33.5	50	55.41	55.41	7997	7997						
17	25	1630+60.6	2-6'x4'x46' Mult. Box Culvert MC6-1 & MCW-F1	52.3	70	39.83	39.82	5555	5556						
21	27	1718+33.0	2-7'x5'x46' Mult. Box Culvert MC7-1 & MCW-F2	132.4	102	53.09	53.09	6925	6926						
24	30	1792+00.0	1-24"x43' Reinf. Conc. Pipe with CH-11-B Headwalls	4.9	4	1.62	1.62	176	176	43	43.19				
25	31	1831+83.0	3-6'x6'x38' Mult. Box Culvert Direct Traffic MC6-1 & MCW-F1	95.6	162	59.93	59.93	8133	8161			11.1	5.82		
29	35	1974+36.3	2-8'x4'x46' Mult. Box Culvert MC8-1 & MCW-F1	83.1	78	49.30	49.30	6870	6870						
			CONTROL 18-3-9 TOTALS	345.8	446	259.63	259.47	35,746	35,696			43	43.19	19.9	15.04		



TYPICAL SECTION OF CHANNEL

SUMMARY OF LARGE STRUCTURES

STRUCT. No.	P2MNT. BRIDGE NO.	SHEET NUMBER PLAN & PROFILE	SHEET NUMBER LAYOUT	STATION BEGIN	STATION END	LENGTH FEET	DESCRIPTION	UNCL. STRUCT. EXCAVATION C.Y. EST.	UNCL. STRUCT. EXCAVATION C.Y. FINAL	CLASS "A" CONCRETE - C.Y. SLABS EST.	SLABS FINAL	ABUTMENTS & BENTS EST.	ABUTMENTS & BENTS FINAL	CULVERTS EST.	CULVERTS FINAL	BELL FOOTING C.Y. EST.	BELL FOOTING C.Y. FINAL	REINF. STEEL LBS. EST.	REINF. STEEL LBS. FINAL	CL "B" CONC. RIPRAP C.Y. EST.	CL "B" CONC. RIPRAP C.Y. FINAL	STD. RAILING TYPE 2 L.F. EST.	STD. RAILING TYPE 2 L.F. FINAL	24" DIAMETER DRILLED SHAFTS L.F. EST.	24" DIAMETER DRILLED SHAFTS L.F. FINAL
CONTROL 18-4-9																									
1	66	8	42	1103+61.25	1104+88.75	127.50	5-25'-6" Slab Spans 30°Rt. Fwd. Skew S-0-38-25(30°) & 6-4 Col. Bents	28.3	13	228.00	228.18	66.38	83.31			10.8	10.8	54,128	54172	101.9	112.77	274.17	274.17	420.0	420.70
2	65	10		1154+38.17	1154+67.84	29.67	3-9'x8'x38' Mult. Box culvert Direct Traffic MC9-1 & MCW-F2	40.1	37					99.13	99.13			13,587	13496	9.1	14.09				
3	64	10		1177+45.14	1177+88.06	42.92	4-10'x7'x38' Mult Box Culvert Direct Traffic MC10-1 & MCW-F2	54.7	54					124.22	124.22			16,545	16420						
5	63	13		1253+18.60	1255+40.60	22.00	2-10'x8'x38' Mult Box Culvert Direct Traffic MC10-1 & MCW-F2	34.7	35					80.18	80.18			9,774	9,707	9.3	14.09				
6	62	15		1315+94.83	1314+21.16	26.33	3-8'x6'x46' Mult Box Culvert MC8-1 & MCW-F1	33.5	36					85.08	85.08			11,711	11,711	8.9	11.87				
7	61	15		1324+89.94	1325+28.84	38.92	4-9'x5'x38' Mult Box Culvert Direct Traffic MC9-1 & MCW-F1	44.0	44					97.67	97.67			13,451	13,341						
8	60	16		1354+19.93	1354+63.26	43.33	4-10'x8'x38' Mult Box Culvert Direct Traffic MC10-1 & MCW-F2	564	56					136.83	136.83			17,307	17,132	14.2	14.73				
• 10	59	17		1381+85.50	1382+11.50	23.00	3-7'x4'x120' Mult. Box Culvert with Grate Inlet MC7-1 & MCW-F1	26.1	47					154.64	154.55			20552	20578						
11	58	18	45	1411+20.0	1412+00.0	80.00	1-80'-0" Cont. Slab Unit-CS-0-30, 38° Rdwy. 5-3 Col. Bents B5-0-38	20.5	10	138.10	138.10	45.64	44.07			13.2	13.2	36,830	36,830	96.0	100.43	178.00	178.00	222.0	226.70
11B	57	18	43	App. 1411+20.0	App. 1412+00.0	80.00	1-80'-0" Cont. Slab Unit-CS-0-30, 38° Rdwy. 5-3 Col. Bents B5-0-38	20.5	10	138.10	138.10	45.64	44.07			13.2	13.2	36,830	36,830	96.0	100.43	178.00	178.00	222.0	226.72
							CONTROL 18-4-9 TOTALS	353.8	362	504.20	504.38	153.66	171.45	777.65	777.66	37.2	37.2	223,925	223,962	388.4	370.51	630.17	630.17	864.0	873.12
CONTROL 18-3-9																									
14	56	22		1554+10.83	1556+37.16	26.33	3-8'x5'x61' Mult. Box Culvert MC8-3 & MCW-F1	47.5	49					111.87	111.87			16,472	16472	11.2	6.37				
15	55	23		1574+14.33	1574+53.66	39.33	4-9'x9'x38' Mult Box Culvert Direct Traffic MC9-1 & MCW-F2	50.2	51					132.74	132.74			17,314	17,187	10.3	0				
16	54	24		1607+34.50	1607+77.50	43.00	5-8'x4'x38' Mult Box Culvert Direct Traffic MC8-1 & MCW-F1	43.7	44					94.10	94.10			13,650	13513						
18	53	25		1651+80.33	1658+19.66	39.33	4-9'x9'x38' Mult. Box Culvert Direct Traffic MC9-1 & MCW-F2	50.2	51					132.74	132.74			17,314	17,187		16.32				
19	52	26		1667+55.33	1667+88.50	32.67	3-10'x9'x38' Mult. Box Culvert-Direct Traffic MC10-1 & MCW-F2	44.5	47					115.92	115.92			14913	14816	91.8	42.07				
20	51	26		1674+10.33	1674+58.66	48.33	4-10'x8'x38' Mult. Box Culvert Direct Traffic MC10-1 & MCW-F2	56.4	56					136.83	136.83			17,307	17,252	10.7	6.12				
22	50	29		1747+74.50	1747+97.50	23.00	3-7'x4'x38' Mult Box Culvert Direct Traffic MC7-1 & MCW-F1	26.1	26					54.60	54.60			13,173	7108						
23	49	29		1783+33.50	1783+56.50	23.00	3-7'x4'x38' Mult Box Culvert Direct Traffic MC7-1 & MCW-F1	26.1	26					54.60	54.60			13,173	7108						
26	48	32	44	1856+47.70	1858+34.75	187.05	15-10'x10'x38' M.B.C. Direct Traffic 30° Lt. Fwd. Skew MC10-1-30° & MCW-F-30°	219.6	210					587.91	587.86			78,294	78294			371.00	371.00		
27	47	33		1907+28.54	1907+71.46	42.92	4-10'x6'x38' Mult Box Culv. Direct Traffic MC10-1 & MCW-F1	52.1	51					115.91	115.91			15461	15344						
28	46	36		1953+00.0	1953+23.00	23.00	3-7'x4'x38' Mult Box Culv. Direct Traffic MC7-1 & MCW-F1	26.1	25					54.60	54.60			13,173	7108						
30	45	36	45	1996+07.0	1997+17.0	110.00	110-0" Cont. Slab Unit-CS-0-110, 38° Rdwy. 5-3 Col. Bents B5-0-38	20.4	10	180.0	180.00	57.16	57.87			16.5	16.5	53,317	53,317	108.8	102.60	237.50	237.50	264.0	269.00
							CONTROL 18-3-9 TOTALS	662.9	666	180.0	180.00	57.16	57.87	1591.82	1591.77	16.5	16.5	238,741	366,300	237.8	192.38	608.50	608.50	264.0	269.00

SUMMARY OF STRUCTURES THAT REQ'D. FLOOR DRAINS

STRUCTURE NO.	NUMBER OF DRAINS
2	3
3	4
5	2
7	4
8	4
15	4
16	5
18	4
19	3
20	4
22	3
23	3
25	3
27	4
28	3

*NOTE: SEE DETAILS OF GRATE INLET, CLASS "B" CONC. DOWN DRAINS & CHANNEL LINING for Details of Floor Drain.

✣ NOTE: See MC10-1-30° Special Skew Detail for Crown Diagram on direct Traffic Structures.
Structure No. 11B Crown slopes to Lt. side all others to the Rt. side.

• This structure shall have one Grate Inlet.

ESTIMATE & QUANTITY SHEET

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-165(14)	47
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.

125# C.F 3375 C.Y.

BASIS OF ESTIMATE

DESCRIPTION	EMBANKMENT	SUBGRADE	ROADBED TREATMENT		FLEXIBLE BASE PROCESSED	SALVAGE & REPLACE FLEXIBLE BASE	SUBGRADE STABILIZATION
Sprinkling	40 Gals./C.Y.	5 Gals./S.Y.	75 Gals./C.Y.		100 Gals./C.Y.	75 Gals./C.Y.	25 Gals./S.Y.
Rolling (203&SP)					1 Hr./200 C.Y.		
Rolling (203A &SP)	1 Hr./600 C.Y.		1 Hr./300 C.Y.			1 Hr./200 C.Y.	0.10 Min./S.Y.
Rolling (203B &SP)					1 Hr./150 C.Y.		
Heavy Pneumatic Rolling	1 Hr./400 C.Y.	.15 Hr./Sta.*	1 Hr./300 C.Y.		1 Hr./300 C.Y.	1 Hr./300 C.Y.	0.10 Min./S.Y.
Hydrated Lime					**Ave. 1.0% by Wt.	1.0% by Wt.	4% by Wt.***
Emulsified Asph. (EA-HVMS)					0.05 Gal/S.Y.		

*Heavy Pneumatic Rolling 0.10 Hr./Sta. for Frontage Roads

**Actual percentage to be determined by the Engineer.
***On New Construction from Sta. 1071+18.6 to Sta. 1320+00 only.

GENERAL NOTES:

The mixing required to mix lime with the Flexible Base and Salvaged Flexible Base will be considered as subsidiary to these items and the cost included in the prices bid.

The rates of application and the estimated quantities of aggregate are based on the usual or average gradation of known materials. Before shipping aggregate to the project, the contractor shall furnish the Engineer with samples of the aggregate which he proposes to furnish so that the gradation may be determined and the rates of application changed if necessary.

See special provisions for Pavements and Surface Treatments which require a contrasting color of aggregate used for shoulders and traveled lanes on this project.

The sub-grade on all new construction (except frontage roads) between Sta. 1071+18.6 and Sta. 1320+00 shall be stabilized by mixing lime with the subgrade material to a minimum depth of 6" compacted. Unless otherwise directed by the Engineer, the contractor shall use the "Slurry Placing" method of placing and mixing the lime with the subgrade, flexible base and salvaged flexible base.

TIMBER POST GUARD FENCE

STATION — STATION	Rt.	Lt.
CONTROL 18-4-		
1062+36.1 — 1074+18.6	16	
1090+16.5 — 1100+65.6		24
1101+63.8 — 1118+04.5	29	8
1142+37.0 — 1151+53.7	10	
1147+97.9 — 1156+97.9		10
1371+14.1 — 1382+07.4	6	24
1377+21.7 — 1396+25.7	42	
1407+00 — 1416+00	24	24
1446+30.3 — 1457+63.6	13	
1453+83.5 — 1465+16.8		13
1474+72.2 — 1486+68.9		26
1486+83.3 — 1499+36.7		28
CONTROL 18-3-		
1527+00 — 1554+00	16	16
1630+00 — 1655+00	12	12
1830+00 — 1836+00	12	12
1843+00 — 1860+00	34	34
1993+00 — 2000+00	8	8
1999+68.5 — 2010+18.5	14	
2006+74.8 — 2015+66.5		18
2012+00 — 2024+00	13	
TOTAL	501	

ESTIMATE SUMMARY

ITEM	DESCRIPTION	UNIT	CONTROL 18-4-3 ROADWAY EST.	ROADWAY FINAL	BRIDGES EST.	BRIDGES FINAL	CONTROL 18-3-3 ROADWAY EST.	ROADWAY FINAL	BRIDGES EST.	BRIDGES FINAL	TOTALS EST.	TOTALS FINAL
100	Clearing & Grubbing	Ac.	210.74	214.25			199.26	195.90			410.17	418.13
101	Uncl. Road Excavation	C.Y.	165876	183253			176770	224317			322,646	407,570
102	Uncl. Borrow	C.Y.	47972	78250			68299	66718			116,261	144968
103	Uncl. Channel Excavation	C.Y.	29826	31935			54800	59315			84,626	91,250
104	Uncl. Struct. Excavation (Culverts)	C.Y.	226.7	341			404.8	537			631.5	878
104	Uncl. Struct Excavation (Bridges)	C.Y.			521.8	591			1010.9	1395	1532.7	1986
110	Overhaul	Y.Q.	78,758	86658			159,277	237,397			238,022	324,055
202	Sprinkling	M.Gal.	40163	11,620.537			42,166	14,607.694			82,335	27,748.231
203&Sp	Rolling	Hr.	727	908.00			854	700.50			1581	1,608.50
203&SP A	Rolling	Hr.	1328	1675.25			1286	1961.75			2614	3,637.00
203 B	Rolling	Hr.	893	1607.25			1085	1537.25			1978.2	3,144.50
Sp.	Heavy Pneumatic Rolling	Hr.	1927	853.50			1987	1550.50			3914.	2,204.00
207	Scar. & Replac. Flex. Base	Sta.	336.97	336.97			526.34	526.34			863.31	863.31
208&Sp	Roadbed Treatment (Type B)	C.Y.	169612	162,244			153186	152,441			322,798	314,685
Sp.	Flex. Base (Processed)	C.Y.	95932	94000			111,843	111,374			210 180	205,374
Sp.&210Sp	Additional Quarter Mile Haul	C.Y.	321,6574	7077591			279,3351	2,781,9436			11,309,905	9859087
Sp	Emulsified Asphalt (EA-HVMS)	Gal.	20,914	25,980			28,355	32,025			49,269	58005
304&Sp 305&Sp 306&Sp	Asphalt (OA-135)	Gal.	157,265	184,258			233,040	257,845			390,305	442,103
304&Sp 305&Sp 306&Sp	Aggregate (Type A, Gr. 4 Mod.)	C.Y.	481.6	526.50			7,204	6623.5			11,920	11,908.5
305&Sp	Aggregate (Type A, Grade 10)	C.Y.	1533.	1831.5			2129	2518.0			3,728	4444.5
1065Sp	Class "A" Concrete (Culverts)	C.Y.	72.96	147.27	777.66	777.44	260.63	220.47	1591.82	1591.77	2705.11	2777.47
1065Sp	Class "A" Concrete (Slabs)	C.Y.			504.20	504.38			190.00	190.00	694.20	694.38
1065Sp	Class "A" Concrete (Bents)	C.Y.			153.66	171.45			57.16	57.87	210.82	229.32
1065Sp	Reinforcing Steel	Lbs.	15,316	25716	219,054	243585	44,172	44,183	308,102	309,982	636,644	623,466
1260Sp	18" Std. Reinf. Conc. Pipe	L.F.	135	134.48			45	44.84			180	223.43
1260Sp	24" Std. Reinf. Conc. Pipe	L.F.	162	147.80			48	49.19			212	214.99
415	Cl. A" Conc. for Ext. Strs. (Culverts)	C.Y.	0.81	0.81	42.60	42.71	57.72	54.01	11.47	11.63	112.61	111.16
415	Cl. A" Conc. for Ext. Strs. (Girders & Slabs)	C.Y.	6.96	6.85	34.84	35.21			85.72	85.24	127.52	127.32
415	Cl. A" Conc. for Ext. Strs. (Bents)	C.Y.	29.75	29.75	72.17	70.75			235.23	229.57	342.15	329.97
1165Sp	Bell Footings	C.Y.			37.2	37.2			16.5	14.5	53.7	53.7
1165Sp	24" Dia. Drilled Shafts	L.F.			864	876.12			264	249.00	1128	1145.12
422Sp	Railing (Type 2)	L.F.	31.25	31.25	780.17	780.17			100.45	100.45	1812.84	1812.84
422Sp	Railing (Special)	L.F.	31.00	31.25	148.21	150.00			531.18	552.92	560.39	574.17
Special	Hydrated Lime	Ton	3151	3373.510			1965	2099.358			5116	5473.874
423	Class "E" Concrete Riprap	C.Y.	5.2	0	230.2	421.01	22.3	32.23	338.4	343.79	516.5	797.03
500	Removing Old Structures	Ea.	3	3			1	1			4	4
511	Concrete Curb (1'-6")	Lin.Ft.					681	354.74			681	354.74
511	Concrete Curb (4'-0")	Lin. Ft.					221	292.98			221	292.98
514	Installing Right-of-Way Markers	Ea.	19	19			28	28			47	47
514	Right-of-Way Markers (Type 1)	Ea.	8	9			4	4			12	13
516 A	Timber Post Guard Fence	Ea.	297	251			204	223			501	474
Sp.	Grate	Ea.	3	4		1	1	0			4	5
Special	Stabilized Subgrade	S.Y.	135942	342270							135942	342270
403&Sp	Cl. "B" Conc. (Added by Sup. Agt. No. 1)	C.Y.		9.18		83.82		4.32		93.79		191.11

BASIS OF ESTIMATE

ITEM	DESCRIPTION

	1ST COURSE	2ND COURSE
TRAFFIC LANES ON NEW CONSTRUCTION		
Asphalt (OA-135)	0.20 Gal/S.Y.	0.30 Gal/S.Y.
Aggregate (Type A)	Gr. 4 Mod.	Grade 10
Aggregate (Rate)	1C.Y./75S.Y.	1C.Y./150S.Y.
Rolling (203 & Sp.)	3 Hr./Mi.	4 Hr./Mi.
Rolling (203-B)		7 Hr./Mi.
RECONSTRUCT EXISTING ROAD		
Asphalt (OA-135)	0.20 gal/S.Y.	0.30 gal/S.Y.
Aggregate (Type A)	Grade 4 Mod.	Grade 10
Aggregate (Rate)	1C.Y./75 S.Y.	1C.Y./150 S.Y.
Rolling (203 & Sp.)	3 Hr./Mi.	4 Hr./Mi.
Rolling (203-B)		7 Hr./Mi.
SHOULDERS		
Asphalt (OA-135)	0.35 gal/S.Y.	
Aggregate (Type A)	Grade 4 Mod.	
Aggregate (Rate)	1C.Y./75 S.Y.	
Rolling (203 & Sp.)	7 Hr./Mi.	
Rolling (203 B)	7 Hr./Mi.	
FRONTAGE ROADS		
Asphalt (OA-135)	0.25 gal/S.Y.	0.30 gal/S.Y.
Aggregate (Type A)	Grade 4 Mod.	Grade 10
Aggregate (Rate)	1C.Y./75 S.Y.	1C.Y./150 S.Y.
Rolling (203 & Sp.)	3 Hr./Mi.	4 Hr./Mi.
Rolling (203-B)		7 Hr./Mi.
	1ST COURSE	2ND COURSE

SUMMARY OF SIDE DRAINS

PLAN PROFILE SHEET NO.	STATION	DESCRIPTION	UNCLASSIFIED STRUCT. EXCAV. C.Y. EST.	FINAL	CLASS 'A' CONCRETE C.Y. EST.	FINAL	REINFORCING STEEL LBS. EST.	FINAL	18" STD. REINF. CONC. PIPE L.F. EST.	FINAL
CONTROL 18-4-9										
11	68' Lt. of E.L. 1191+50	18"x45° REINF. CONC. PIPE CULVERT WITH CH-11-B HDWLS	8	6	1.00	1.00	12.9	12.9	45	44.91
16	68' Lt. of E.L. 1357+11	18"x45° REINF. CONC. PIPE CULVERT WITH CH-11-B HDWLS	8	6	1.00	1.00	12.9	12.9	45	44.83
20	110' Lt. of E.L. 1427+30	18"x18° REINF. CONC. PIPE CULVERT WITH CH-11-B HDWLS		7		1.00		12.9		50.00
20	150' Lt. of E.L. 1463+19	18"x45° REINF. CONC. PIPE CULVERT WITH CH-11-B HDWLS	8	6	1.00	1.00	12.9	12.9	45	44.31
	TOTAL CONTROL 18-4-9		24	25	3.00	4.00	38.7	51.6	135	184.65
CONTROL 18-3-9										
30	68' Lt. of E.L. 1793+25	18"x45° REINF. CONC. PIPE CULVERT WITH CH-11-B HDWLS	8	6	1.00	1.00	12.9	12.9	45	44.84
	TOTAL CONTROL 18-3-9		8	6	1.00	1.00	12.9	12.9	45	44.84

FINAL SUMMARY TIMBER POST GUARD FENCE

LOCATION	WEST LANE LT	WEST LANE RT	EAST LANE LT	EAST LANE RT	FRONT ROAD	TOT
CONTROL 18-4						
1062 TO 1074				12		
1090 TO 1107	11		15			
1101 TO 1118			17	12		
1142 TO 1151			10			
1148 TO 1157	10					
1371 TO 1397	12		20		27	
OPPOS. TO 1238					5	
1207 TO 1218	11			11		
1406 TO 1457			12			
1453 TO 1465	13					
1476 TO 1499	26		27			
SUB-TOTAL CONTROL 18-4 =						351

FINAL SUMMARY TIMBER POST GUARD FENCE

LOCATION	WEST LANE LT	WEST LANE RT	EAST LANE LT	EAST LANE RT	FRONT ROAD	TOT
CONTROL 18-3						
1527 TO 1554	4	4	7	7		
1572 TO 1578		5				
1607 TO 1609	3	3				
1630 TO 1635		2	6	6		
1656 TO 1690	15	22				
1830 TO 1836	4	4	7	7		
1843 TO 1861	5	6	15	15		
OPPOSITE 1862					16	
1903 TO 1912	10	10				
1993 TO 2000	8	5	5	6		
2001 TO 2008				10		
SUB-TOTAL CONTROL 18-3						223

GENERAL NOTES:

All exposed surfaces of concrete structures shall be finished in accordance with Item 402.24 Finishing Exposed Surfaces Type I of the Standard Specifications.

Riprap may be cured by the impervious membrane method as covered by Item 531.

Timber Post Guard Fence on all horizontal curves shall be spaced as indicated on Table D-4 of the Texas Highway Department Manual On Uniform Traffic Control Devices, and at 100 Ft. intervals on all Fills Over 5'.

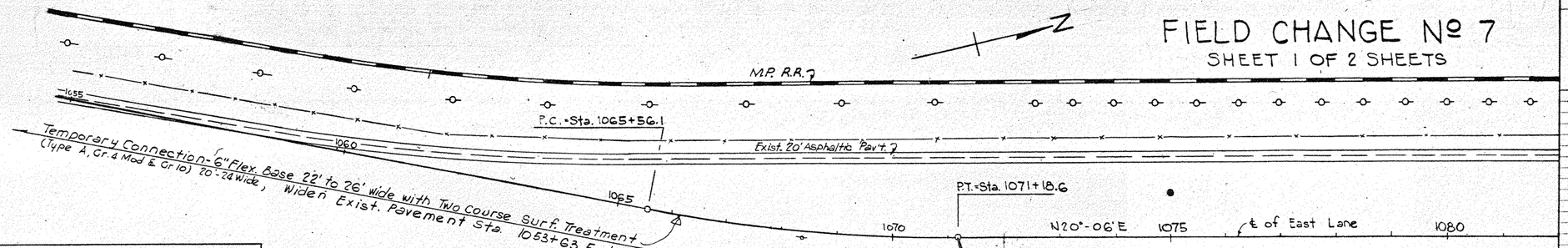
ESTIMATE & QUANTITY SHEET

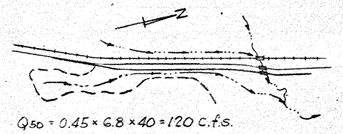
Revised May 15, 1957

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-165 (16)	6
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 851 43+9	U.S.81

FIELD CHANGE Nº 7

SHEET 1 OF 2 SHEETS





DRAINAGE AREA FOR ~~PROP'D~~ DITCH
Scale: 1:20,000

1081.4 × 42 ÷ 9 = 5047 S.Y. Stabilize Subgrade

CROSS SECTION DATA													
STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1065											
66											
67											
68											
69											
1070											
71											
72											
73											
74											
1075											
76											
77											
78											
79											
1080											
81											
1082											

| | | | | | | | | | | | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			8
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED / PLOTTED / NOTE BOOK / NO. — GRADES CHECKED / R/W CHECKED / R/W CHECKED

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / NO. — GRADES CHECKED / R/W NOTED / STRUCTURE NOTATIONS CHECKED

DATE

79

Sta 1084+65 Gap

Sta 1084+73 Gate

R.O.W. Line

1082 1085 1090 1095 1100 1105 1110

149.8' 149' 149' 147'

N 20°-06' E

P.C. = 1093+15.5

P.T. = 1097+06.6

CURVE DATA
P.I. = Sta. 1095+11.2
Δ = 5°-52' Rt.
D = 1°-30'
T = 195.7'
L = 391.1'

~~Prop.~~ 1 Crs. Surf. Treat. (Type 'A' Gr. 4 Mod.
~~Prop.~~ 2 Crs. Surf. Tr. (Type 'A' Gr. 4 Mod. & 10

10' 24' 4'

Paved Should. Paved Sho.

~~PROP.~~ SURFACING ON CONNECTIONS FROM NEW WEST LANE TO RECONSTRUCTED EXISTING HIGHWAY

Tangent to Exist. Road

P.C. = 1108+84.5 (WEST LANE)

WEST LANE
P.I. = STA 1111+95.2
Δ = 9°-18' LT
D = 1°-30'
T = 310.7'
L = 620.0'

℄ WEST LANE

P.C. = 1104+63.8 EAST LANE

℄ EAST LANE

110'

EAST LANE
CURVE DATA
P.I. = Sta. 1107+11.4
Δ = 8°-39' Lt
D = 1°-45
T = 247.6
L = 494.3

P.T. = 1109+58.1 (East Lane).

200 N. Wadsworth Blvd. Denver, Colorado 120'

110'X170'+100'X400' = 1.35 Ac.

VOID

SEE SHEET NO. FC-3A

VOID

SEE SHEET NO. FC-3

Station 1084+65

Elev. 630.0

Sta. 1103+16.25 - 1104+88.75
Prop. 5-25'-6" Slab Spans
30° Rt. Fwd. Skew. S 0-38-25 (80) & 6-4 Col. Bents
Finish Grade 632.76 at Sta. 1103+61.25
@ 632.76 at Sta. 1104+88.75
Channel Excavation 4th - 4E

B.M. = E. corner of East Curb Lt. of Sta. 1103+89 El. 629.97

WEST LANE

+1.7280%

-0.1392%

EXCEV. Chan Borrow Emb.

630 620 610

1082 83 84 1085 86 87 88 89 1090 91 92 93 94 1095 96 97 98 99 1100 01 02 03 04 1105 06 07 08 09 1110 11 12 13

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			FC-8
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	384		US-81

FIELD CHANGE Nº 1

SHEET 1 OF 3 SHEETS

PLAN — SURVEYED ... PLOTTED ... DESIGNS CHECKED ... QUANTITIES CHECKED ... NOTE BOOK ... PLANS CHECKED BY ... NO. ... REVISIONS NOTED AS CHKD. ... BY ... DATE

PROFILE — SURVEYED ... PLOTTED ... DESIGNS CHECKED ... QUANTITIES CHECKED ... NOTE BOOK ... PLANS CHECKED BY ... NO. ... REVISIONS NOTED AS CHKD. ... BY ... DATE

SEE SHEET NO. FC-8A (Next Sheet)

WEST LANE CURVE DATA
P.I. = Sta. 1111+63.4
Δ = 9°18' Lt.
D = 1°30'
T = 310.7
L = 620.0

EQUATION 1109+37.4 (Bk) = 1108+52.7 Ahd.

EAST LANE CURVE DATA
P.I. = Sta 1107+11.4
Δ = 8°39' Lt.
D = 1°45'
T = 247.6'
L = 494.3

P.C. = 1104+63.8

P.T. = 1109+58.1

ROW Line ?

Borrow Source 400' × 100'

911.25 × 42 ÷ 9 = 4253 SY. Stabilized subgr.
110 × 170 + 100 × 400 = 135 Ac. Clear & Grub.

BALANCE TOTALS

Approx. Sta. 1101+30.11 to Sta. 1115+50.78	
Unch. R.O. Excav.	49.75 C.Y.
Unch. Chan. Excav.	4167 C.Y.
Unch. Borrow	7924 C.Y.
Overhaul	512 Y.D.
Emb. + 2.53% Shr.	17,066 C.Y.
R.O.W. Markers	2 EA.
Install R.O.W. Markers	0 EA.

	04	1105	06	07	08	09	1110	11	12	13	1114
Excav	25	~~165~~	243	~~145~~	34	~~102~~	44	~~122~~	199	~~50~~	194
Chan	4167										
Borrow	7924										
Emb.	~~1002~~	145	~~842~~	3519	~~3122~~	3012	~~1763~~	1405	~~1259~~	1240	~~603~~

85	108	~~69~~	191	~~362~~	532	~~975~~	1032	Excav			
								Chan			
								Borrow			
842	~~507~~	658	~~250~~	371	~~56~~	118	~~0~~	62	Emb.		

6,542

OH = 61 × 6542 ÷ 1520 = 302 Y.D.

Scale: 1" = 3000 C.Y.

See Next Sheet

Av. = 145 + 515 OH = 600 F.H. = 61'

Base Line

No O.H.

3610

1.5C

EQUATION 1108+37.4 = 1108+52.7

Sta. 1107+64.47 P.I. = 629.38 400' VC E = 0.48

0.0%

-0.9500%

Sta. 1104+25 P.I. = 636.55 400' VC E = 3.72 629.38

629.35 629.22 628.82 628.41 627.18 626.53 626.06

Sta. 1116+20 P.I. = 622.47 400' VC E = 0.49 624.65

WEST LANE PROFILE

+1.7520%

-1.7482%

Sta. 1111+20 P.I. = 624.20 400' VC E = 1.89

EAST LANE PROFILE

Lt. Rt

Sta. 1103+61.25 - 1104+88.75
~~Prop'd~~ 5-25.6' Slab Spans
30° Rt. Fwd. Skew 5-0.38-25(30°) & 6-4 Col. Bents
Finished Grade 632.75 at Sta. 1103+61.25 & 632.76 at Sta. 1104+88.75
Channel Bottom Width - 45'

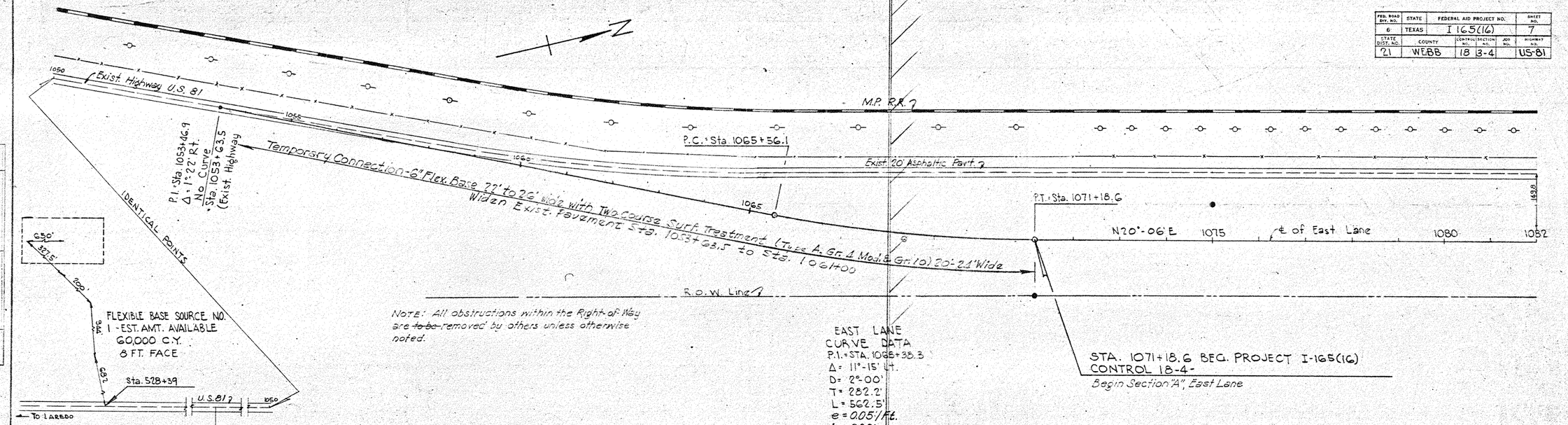
632.72 632.20 631.28 629.94 628.25 626.68 625.47 624.75 624.47 624.80

630 620 630 620

PLATE 1 - PLAN-PROFILE - U.S.B.P.R. & I.E. STANDARD

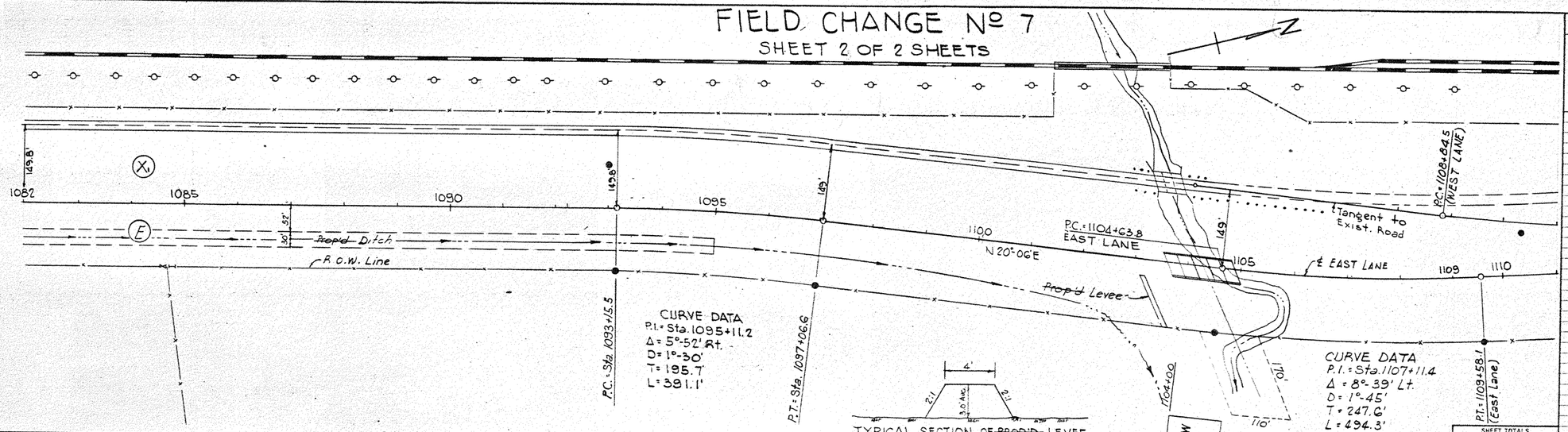
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I 165(16)	7
STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18 3-4		US-81

PLAN
NOTE BOOK
PLOTTED
BY
CHECKED
DESIGNED
ALIGNMENT CHECKED
ALL OF THIS CHECKED



FIELD CHANGE Nº 7

SHEET 2 OF 2 SHEETS



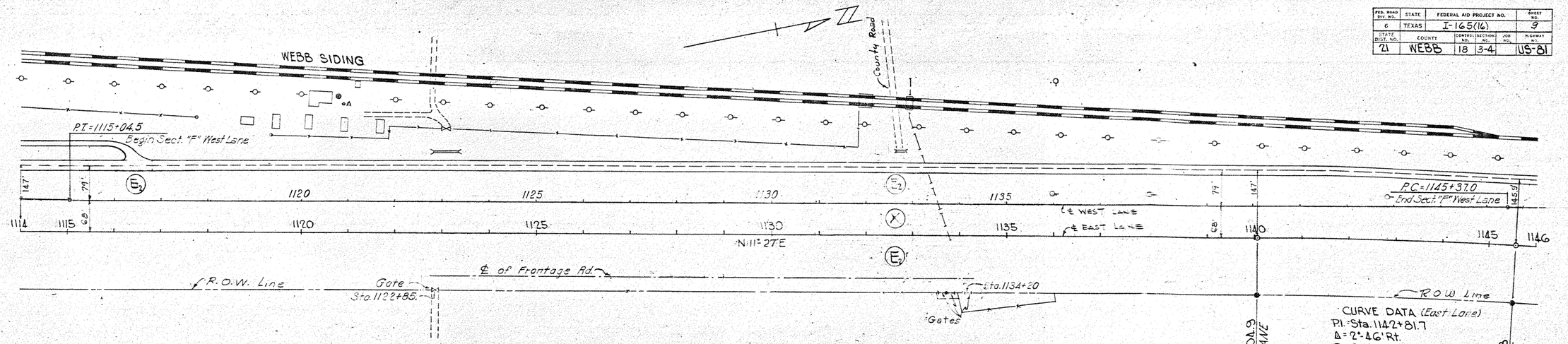
CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1082											
83											
84											
1085											
86											
87											
88											
89											
1090											
91											
92											
93											
94											
1095											
96											
97											
98											
99											
1100											

SHEET TOTALS	EST	FINAL	UNIT
2161.25 × 42 ÷ 9 =	10084		SY Stabilized Subgrade
	96	0	C.Y.- Excavation
	1533	3051	C.Y.- Embankment
	144		Y.Q. Overhaul

| | | | | | | | | | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			9
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81



| | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165(16)	FC-9
STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
21	WEBB	18 3&4	US-81

FIELD CHANGE Nº 1

SHEET 2 OF 3 SHEETS

N

WEBB SIDING

Existing Roadway to be used as Frontage Road

Proposed Expressway Lanes

N 11° 27' E

℄ of Frontage Road

ROW. Line

Gate 1122+85

Gates 1134+20

Ditch

Block

PI = 1145+43

PT = 1145+58.3

PC = 1140+04.9

EAST LANE CURVE DATA
PI = Sta. 1142+81.7
Δ = 2°40' Rt.
D = 0°30'
T = 276.8
L = 553.4

BORROW PIT NO. FC-1
400' × 400' × 400'
1126+00
1132+00

STRUCTURE 1-A
Sta. 1131+00
HYDRAULIC DATA
Freq. = 50 yrs. C = 0.45
I = 3.30"/hr. Area = 130 Ac.
Q = 193 c.f.s.

DRAINAGE AREA MAP
County Rd. 130 Ac.
1 1-A 2 3 4

~~21~~	~~40~~	~~40~~	~~40~~	~~40~~	~~40~~	~~40~~	~~40~~	~~40~~	~~40~~	~~40~~	~~40~~	~~19~~	Excav.
21	40	40	40	40	40	40	40	45	40	40	40	19	Emb+Sh.

FRONTAGE ROAD

3200 × 42 ÷ 9 = 14,933 S.Y. Stab. Subgr.
400 × 400 = 3.67 Ac. Cl & Gr.

| | | | | | | | | | | | | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			10
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED — PLOTTED — NOTE BOOK — NO. — AS TO UNIT CHECKED — AS TO PLAN CHECKED — AS TO STRUCTURE NOTES CHECKED

PROFILE — SURVEYED — PLOTTED — NOTE BOOK — NO. — AS TO UNIT CHECKED — AS TO PLAN CHECKED — AS TO STRUCTURE NOTES CHECKED

84

WEST LANE
P.I. STA 1146+95.4
Δ = 3°-10' LT.
D = 1°-00'
T = 158.4'
L = 316.7'

1148+53.7

WEST LANE
P.I. Sta. 1152+48.1
Δ. 6°00' RT.
D = 2°-00'
T = 150.2
L = 300.0'

P.T.

14.5%

℄ WEST LANE

See Sheet No. 8 for surface connection

℄ EAST LANE

1146 1150 1155 1160 1165 1170 1175

N 14°-13' E

97.9

P.C. 1150+

97.9

P.T. 1153+ = 1153+92.0 (Exist. P.I. 80)

Prop'd Down Drain

R.O.W. Line

R.O.W. Line

Sta. 1176+90

14.5%

80' 30'

63'

63'

9C'

14.0'

640.5 X 140' = 2.0 Ac.

C & G

100' X 70' = 0.16 Acres

| | | |

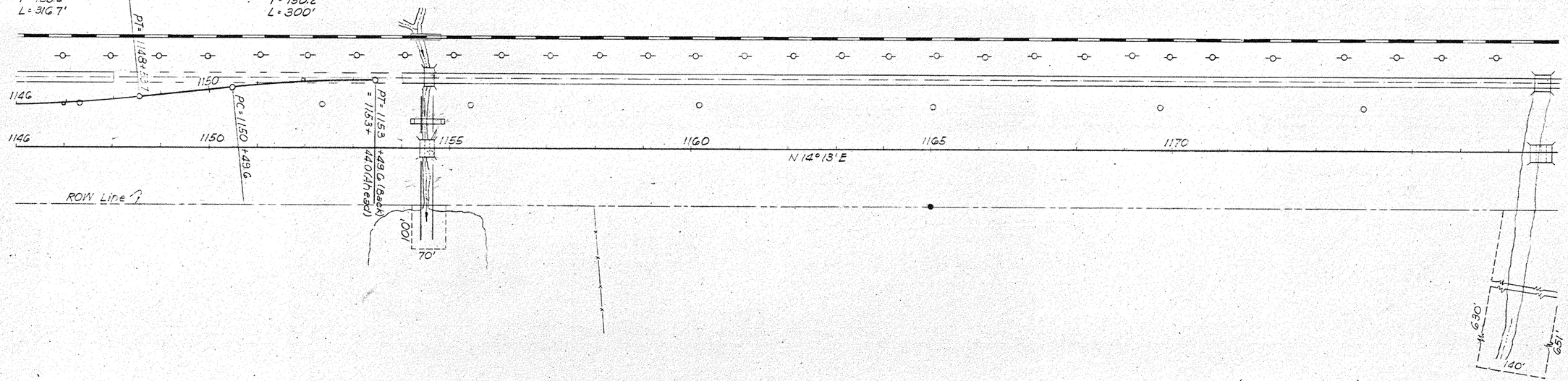
FIELD CHANGE Nº 1

SHEET 3 OF 3 SHEETS

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	F-1165(16)			FC-10
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	384		US-81

WEST LANE CURVE DATA
P.I. = Sta. 1146+95.4
Δ = 3°10' Lt.
D = 1°00
T = 158.4'
L = 316.7'

WEST LANE CURVE DATA
P.I. = Sta. 1151+39.8
Δ = 6°00' Rt.
D = 2°00'
T = 150.2'
L = 300'

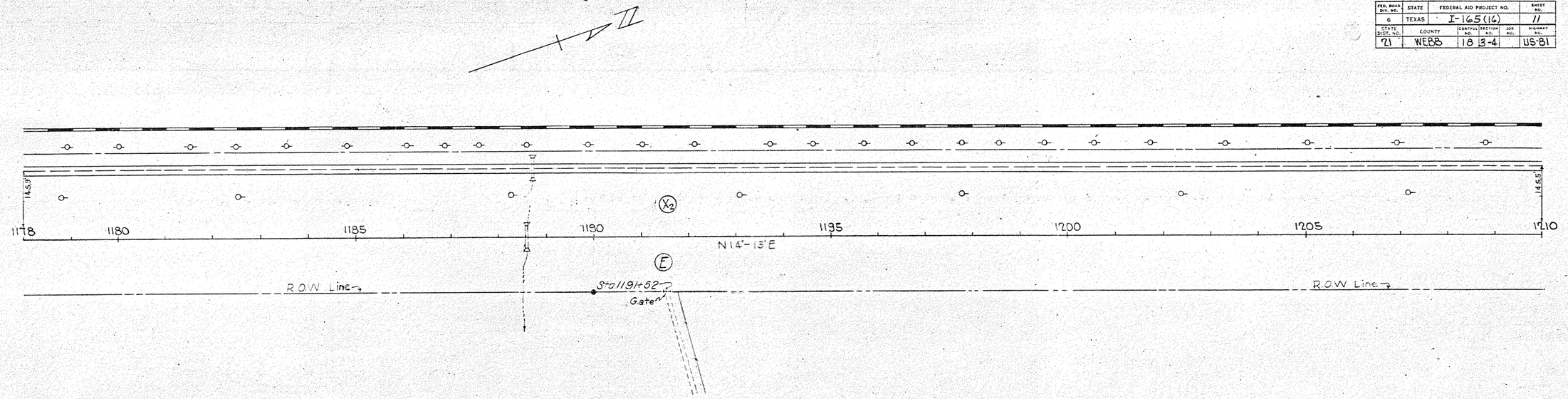


(3200-72.58')×42÷9 = 14,595 S.Y. Stab. subgr.
100×70+640.5×140' = 2.22 Ac. Cl. & Gr.

| | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165(16)	11
STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO.	JOB NO. / HIGHWAY NO.
21	WEBB	18 / 3-4	US-81

PLAN — SURVEYED; PLOTTED; NOTE BOOK; NO.; CHECKED; R.M.J. MYERS; R/W CHECKED; INSTRUCTION NOTATIONS CHECKED



3200 × 42 ÷ 9 = 14,933 S.Y. Stab. subgr.

DH = 530 × 7211 ÷ 1200 = 3016 Y.D.

DH = 595 × 2,60 ÷ 1200 = 1288 Y.D.

BALANCE TOTALS
Approx. Sta. 1178+44.25 to Sta. 1188+11.25
Unc. Rd. Excav. 320 C.Y.
Unc. Chan. Excav. 4,063 C.Y.
Unsh. Borrow 0 C.Y.
Overhaul 3,016 Y.D.
Emb. + 5263 % Shr 9,382 C.Y.
R.O.W. Markers 1 EA.
Install R.O.W. Markers 0 EA.

BALANCE TOTALS
Approx. Sta. 1188+44.25 to Sta. 1215+83.33
Unc. Rd. Excav. 3,117 C.Y.
Unc. Chan. Excav. 0 C.Y.
Unc. Borrow 0 C.Y.
Overhaul 1,174 Y.D.
Emb. + 3224 % Shr 5,117 C.Y.
R.O.W. Markers 0 EA.
Install R.O.W. markers 1 EA.

Excav. Channel	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	58	50	12	0	0	0	0	0	0	43	77	99	111	103	134	133	111	91	17	29
Emb.	295	504	647	545	437	501	594	678	611	594	630	602	408	159	125	147	277	395	472	472	554	225	216	142	127	74	44	34	26	17	17	29

Station	Ground Elevation	Grade Elevation
1178	618.8	622.00
79	619.7	622.00
1180	619.6	622.00
81	619.4	622.00
82	619.3	622.00
83	619.4	622.00
84	619.5	622.00
1185	619.7	622.00
86	620.0	622.00
87	619.5	622.00
88	619.0	622.00
89	618.8	622.00
1190	619.1	622.00
91	619.3	622.00
92	619.6	622.00
93	620.0	622.00
94	619.9	622.00
1195	619.7	622.00
96	619.6	622.00
97	619.4	622.00
98	619.5	622.00
99	619.8	622.00
1200	620.4	622.00
01	621.0	622.00
02	621.5	622.00
03	621.9	622.00
04	622.3	622.00
1205	622.6	622.00
06	622.7	622.00
07	623.0	622.00
08	623.4	622.00
09	623.6	622.00
1210	623.7	622.00

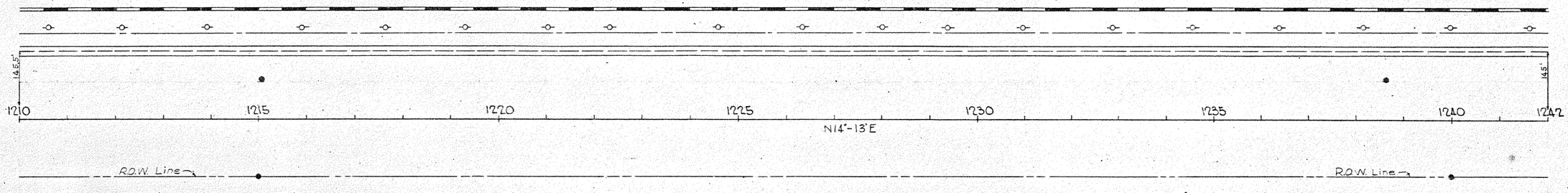
FORM 1-54 PLAN-PROFILE C. P. & R. E. STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-165(16)				12
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	3-4			US-81

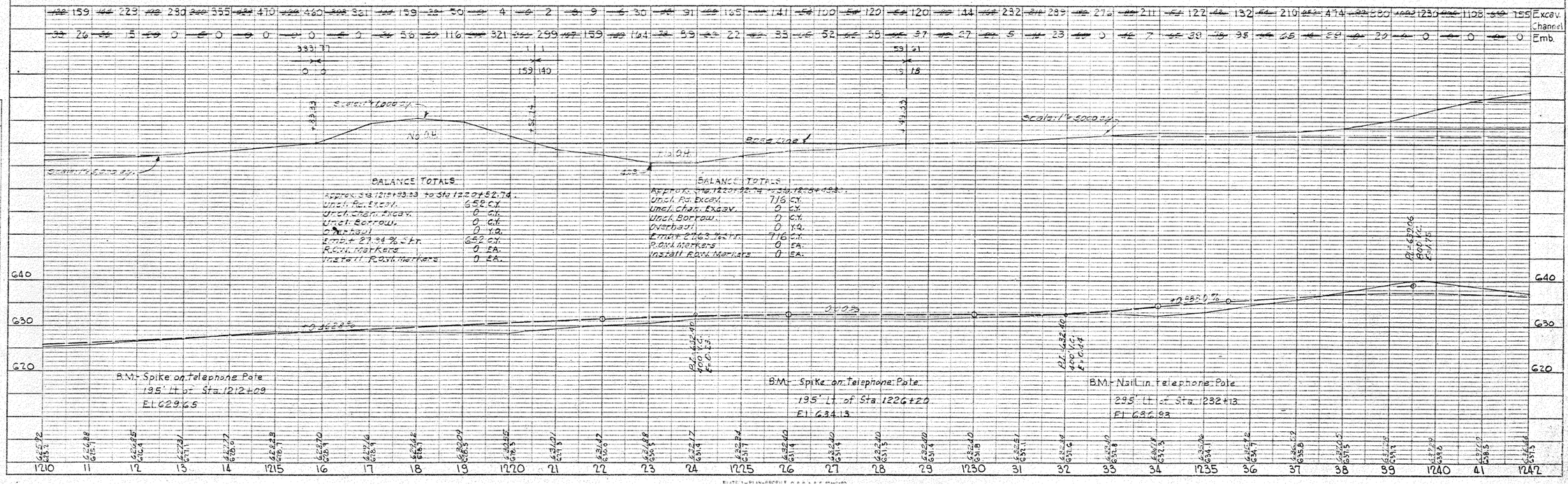
PLAN — SURVEYED BY: PLOTTED: NOTE BOOK CHECKED: ALIGNMENT CHECKED: NO. PT. OF WAY CHECKED:

PROFILE — SURVEYED BY: PLOTTED: NOTE BOOK CHECKED: B.M.'S PLOTTED: CENTERLINE NOTES CHKD.: DATE:

87



3200×42÷9 = 14 933 S.Y. Slab subgr.



FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			13
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US 81

PLAN — DRAWN / TRACED / CHECKED / PLOTTED / NOTE BOOK ALIGNMENT CHECKED BY / NO. / ACC. OF VAR. CHECKED

PROFILE — DRAWN / TRACED / CHECKED / PLOTTED / NOTE BOOK CHECKED BY / NO. / STRUCTURE NOTES TO CHECK

8

N

E

X1

E1

1242 1245 1250 1255 1260 1265 1270 1274

145' 146.8'

E Frontage Rd.

Sta. 1236+36

Gate

R.O.W. Line

Prop'd Down Drain

N 14° - 13° E

Sta. 1252+92

Sta. 1271+53

Gate

Note: Material removed from channel outside of R.O.W. will be used to fill old channel and control erosion.

20'

40'

328'

2753.0'

346'

80'

30'X80'+338'X80'=0.68 Acre

(3200-22)×42÷9 = 14.8 S.Y. Stab. subgr.

33	18	Excav.	Frontage Rd.
33	18	Emb.	

25			Excav.
25			Emb.
			0.68 Acre C.&G.

546	587	472	252	205	137	48	4	0	0	0	0	0	0	0	0	25	86	274	360	234	116	64	96	129	67	106	88	58	23	9	51	305	518	Excav.
											216																					Channel
0	1	40	117	83	36	114	579	929	1621	2159	1219	1239	1981	602	347	67	51	22	52	719	269	150	139	150	145	177	331	424	335	96	9	Emb.

O.H. = 1645 × 1490 ÷ 1320 = 1857 Y.Q.

Sta. on 1245+38

B.M.- Spike on tel. Pole 195' Lt of Sta 1243+80 El. 642.29

B.M.- N.E. Corner of W. Curb Lt of Sta 1253+41 El. 633.37

Sta. 1253+1560 - 1253+2060

Front 2-2"x8"x8'-8" MBC Direct Traffic MC 10-1.0 MCW-P2 16' Lt. @ 22' Rt. FL Elev. 624.17 Lt. @ 623.77 Rt. Channel Bottom Width 20'

B.M.- Spike on tel. Pole 195' Lt Sta 1256+15 El. 629.55

B.M.- Nail in tele. Pole 296' Lt Sta 1259+55 El. 635.38

Station 1271+20

B.M.- Nail in Power Pole 297' Lt Sta 1272+00 El. 636.60

1242	43	44	1245	46	47	48	49	1250	51	52	53	54	1255	56	57	58	59	1260	61	62	63	64	1265	66	67	68	69	1270	71	72	73	1274

BALANCE TOTALS

Approx. Sta. 1243+33 to 1277+00.58	
Uncl. Ex. Excav.	1826.8 C.Y.
Uncl. Chan. Excav.	2,158 C.Y.
Uncl. Borrow	9 C.Y.
Overhaul	6378 Y.Q.
Emb. @ 22.7 % Shr.	12,538 C.Y.
P.O.W. Markers	2 EA.
Install R.O.W. Markers	1 EA.

Grade: 1% 5.000 ay.

Av. H = 1129-600 F.H. = 529

Av. H. = 2115-600 F.H. = 1515

Superelev. = 1045

Av. H. = 2090-600 F.H. = 1490

Superelev. = 1045

No O.H.

-0.00%

+0.94%

-0.00%

PLATE T-PLAN-PROFILE C.P.R.R.E. STANDARD

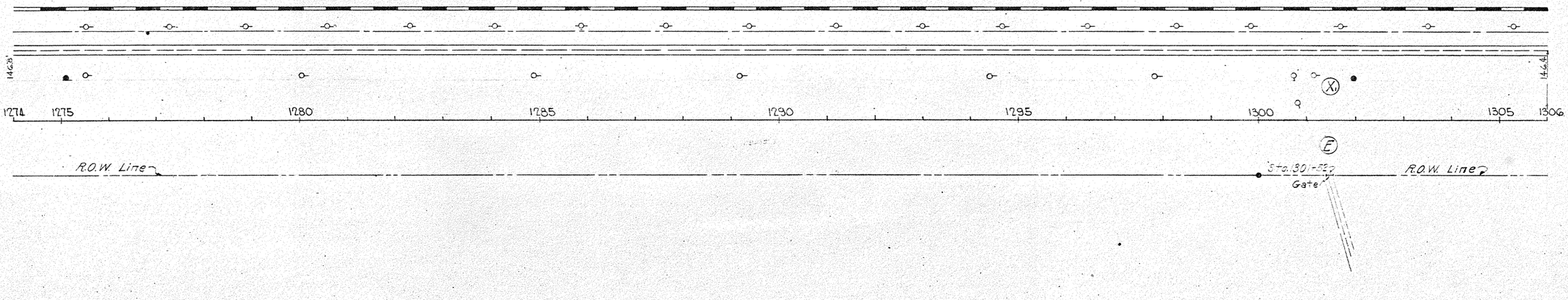
KEUFFEL & ESSER CO., NEW YORK

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			14
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

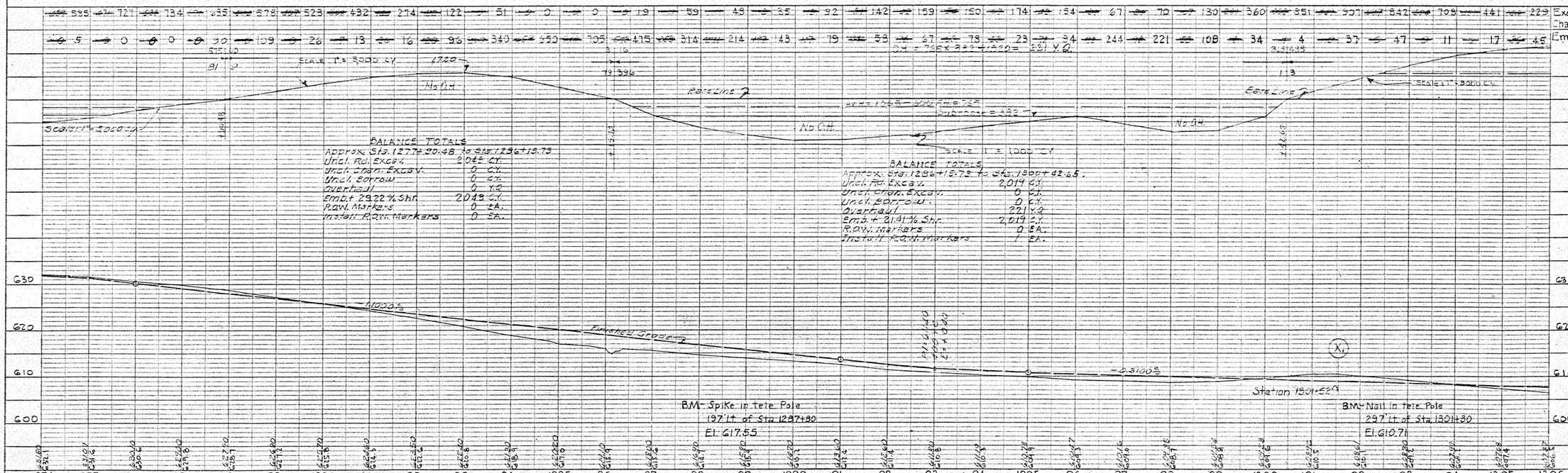
PLAN: SURVEYED; PLOTTED; NOTE BOOK; ALIGNMENT CHECKED; NO.; BY; DATE

PROFILE: SURVEYED; PLOTTED; NOTE BOOK; PROFILE CHECKED; NO.; BY; DATE; STRUCTURE NOTES CHECKED

89



3200×42÷9 = 14,933 S.Y. Stab. Subgr.



BALANCE TOTALS
Approx. Sta. 1274+20.48 to Sta. 1286+15.73
Unch. Rd. Excav. 2045 C.Y.
Unch. Chan. Excav. 0 C.Y.
Unch. Borrow 0 C.Y.
Overhaul 0 Y.Q.
Emb. t 29.22 % Shr. 2043 C.Y.
R.O.W. Markers 0 EA.
Install R.O.W. Markers 0 EA.

BALANCE TOTALS
Approx. Sta. 1286+15.73 to Sta. 1300+82.65
Unch. Rd. Excav. 2,019 C.Y.
Unch. Chan. Excav. 0 C.Y.
Unch. Borrow 0 C.Y.
Overhaul 221 Y.Q.
Emb. t 21.41 % Shr. 2,015 C.Y.
R.O.W. Markers 0 EA.
Install R.O.W. Markers 1 EA.

BM- Spike in Tele. Pole
197' Lt. of Sta 1287+80
El. 617.55

BM- Nail in Tele. Pole
297' Lt. of Sta 1301+30
El. 610.71

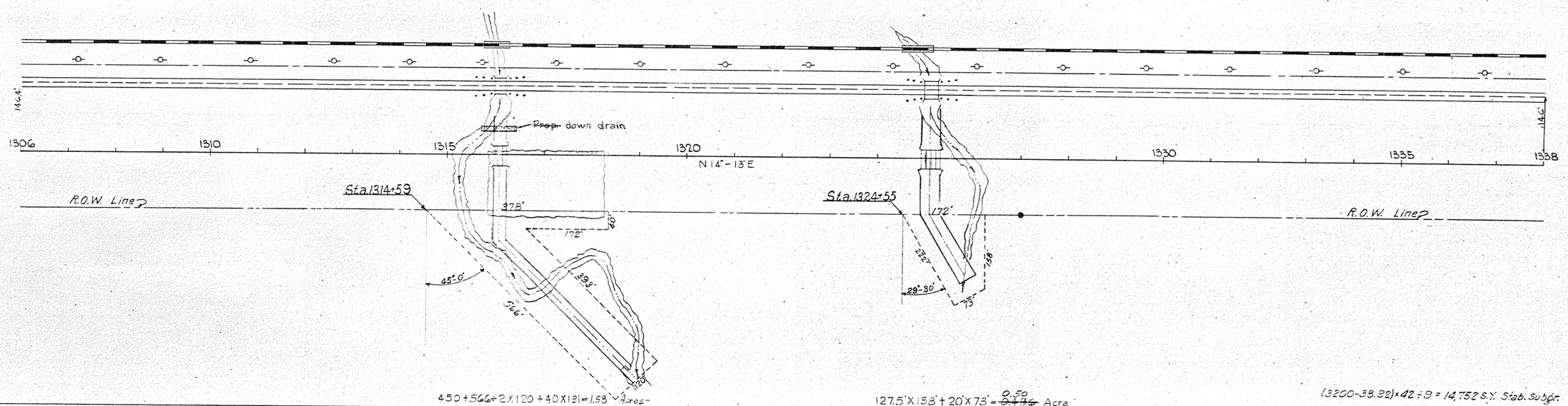
PLATE 1 — PLAN-PROFILE O. P. R. R. R. E. STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165(16)	15
STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
21	WEBB	18 3-4	US-81

PLAN — SUBMITTED / CORRECTIONS / NOTE BOOK JUDGMENT CHECKED / NO. / BY / DATE / RT. OF WAY CHECKED

PROFILE — SUBMITTED / CORRECTIONS / NOTE BOOK CHECKED / NO. / BY / DATE / STRUCTURE NUMBERS NOTED OR CHKD.

90



450+566+2X120+40X181=1.58 Acres

127.5'X158'+20'X73'= ~~0.436~~ 0.50 Acre

(3200-38.32)×42÷9 = 14,752 S.Y. Stab. Subgr.

C.&G.

	1306	07	08	09	1310	11	12	13	14	1315	16	17	18	19	1320	21	22	23	24	1325	26	27	28	29	1330	31	32	33	34	1335	36	37	1338
Excav.	~~105~~	~~95~~	~~150~~	~~280~~	~~400~~	~~406~~	290	11	69	~~85~~	57	26	52	290	211	72	6	24	92	164	~~162~~	271	173	82	~~30~~	0	0	0	26	45	~~31~~	
Channel	~~130~~	~~155~~	~~99~~	~~83~~	20	4	~~101~~	290	308	~~202~~	~~324~~	~~326~~	~~331~~	377	25	~~166~~	~~514~~	~~449~~	~~146~~	~~367~~	~~1197~~	19	33	85	~~156~~	231	~~248~~	~~235~~	~~260~~	194	~~131~~	199	
Emb.																																

5192

9078

O.H = 858 × 3300 ÷ 1530 = 1870 Y.D.

* 878 C.Y. used to fill up old channel.

BALANCE TOTALS

Approx. Sta. 1300+52.48 to Sta. 1325+00

Unc. Rock Excav.	0	C.Y.
Unc. Chan. Excav.	6016	C.Y.
Unc. Struct. Excav.	5192	C.Y.
Unc. Borrow	0	C.Y.
Overhaul	2170	Y.D.
Emb. + 3.1% Shr.	8098	C.Y.
Sprink. Water	0	Ea.
Install R.O.W. Markers	0	Ea.

	1,154	
	341	
	3,078	

O.H = 430 × 1340 ÷ 1530 = 451 Y.D.

BALANCE TOTALS

Approx. Sta. 1325+20 to Sta. 1338+82.61

Unc. Rock Excav.	1,044	C.Y.
Unc. Chan. Excav.	3,078	C.Y.
Unc. Borrow	0	C.Y.
Overhaul	451	Y.D.
Emb. + 6.23% Shr.	4,144	C.Y.
R.O.W. Markers	0	Ea.
Install R.O.W. Markers	1	Ea.

SCALE 1" = 3000 C.Y.

Avg. H = 1450 - (60 + 40 + 50) = 850

4,729

No. 04

No. 01

Scale: 1" = 2,000 C.Y.

No. 04

No. 01

Base Line

Elev. 602.12

Elev. 599.39

-0.3100 Rate

-0.7734 Rate

Finished Grade

610

600

590

Sta. 1315+94.83 - 1316+21.16

Prop'd 3-8'×6'×46' M.B.C.

MC 3.5 MCN-P1

Lt. 20'×26' Rt. FL Elev. 597.17 Lt. & 596.33 Rt.

Channel Bottom Width 25'

Sta. 1324+89.96 - 1325+28.86

~~Prop'd~~ 4-9'×6'×38' M.B.C. Direct Traffic

MC 9-14 MCVI-P1

14'6" & 22' Rt. Fl Elev. 599.79 Lt. & 599.39 Rt.

Channel Bottom Width 45'

B.M. - Spike in tele. Pole

196' Lt. of Sta. 1333+15

El. 602.12

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(14)			16
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED ____ PLOTTED ____ HORIZ. SCALE CHECKED ____ VERT. SCALE CHECKED ____ NOTE BOOK ____ PT. OF VAN CHECKED ____ NO. ____

PROFILE — SURVEYED ____ PLOTTED ____ HORIZ. SCALE CHECKED ____ VERT. SCALE CHECKED ____ NOTE BOOK ____ STRUCTURE NOTATIONS CHECKED ____ NO. ____

14.4'

Prop'd Down Drain

(X2)

1338 1340 1345 1350 1355 1360 1365 1370

N.14°-13 E

(F)

Sta. 1353+90

R.O.W. Line

52'

Sta. 1357+11

R.O.W. Line

95'

8'

Gate

220'

60°-45'

435'

138

3543.03

End stabilized subgrade East Lane

88 x 252 ÷ 3275 x 138 = 1.55 Ac

1019.93 x 42 ÷ 9 = 7560 S.Y. Stab. subgr.

C.&G.

	1338	39	1340	41	42	43	44	1345	46	47	48	49	1350	51	52	53	54	1355	56	57	58	59	1360	61	62	63	64	1365	66	67	68	69	1370
Excav. Channel Borrow	~~61~~	~~35~~	~~112~~	~~101~~	~~76~~	~~110~~	~~67~~	~~18~~	~~54~~	~~226~~	~~334~~	~~296~~	~~33~~	~~111~~	~~98~~	~~168~~	109	3	0	0	0	0	~~69~~	~~266~~	~~562~~	~~340~~	~~384~~	~~360~~	~~775~~	~~739~~	~~689~~		
Emb.	~~201~~	~~156~~	~~168~~	~~187~~	~~171~~	~~158~~	~~250~~	~~291~~	~~210~~	~~79~~	~~12~~	~~37~~	~~115~~	~~248~~	~~260~~	~~372~~	~~659~~	~~439~~	~~184~~	~~180~~	~~192~~	~~104~~	~~327~~	~~303~~	~~190~~	~~380~~	~~165~~	~~33~~	~~30~~	~~9~~	~~21~~	~~41~~	~~49~~	~~56~~

Excav. 410 / Emb. 430

DH = 19½ x 1325 ÷ 1320 = 197 Y.D.

BALANCE TOTALS

Approx. Sta. 1338+82.61 to Sta. 1354+62.22		
Uncl. Rd. Excav.	2,160	C.Y.
Uncl. Chan. Excav.	6,712	C.Y.
Uncl. Borrow	0	C.Y.
Overhaul	197	C.Y.
Emb. + 21.74 % Shr.	8,572	C.Y.
R.O.W. Markers	0	Ea.
Install R.O.W. Markers	1	Ea.

BALANCE TOTALS

Approx. Sta. 1358+44.22 to Sta. 1364+49.63		
Uncl. Rd. Excav.	1307	C.Y.
Uncl. Chan. Excav.	0	C.Y.
Uncl. Borrow	0	C.Y.
Overhaul	0	C.Y.
Emb. - 17.49 % Swell	1,307	C.Y.
R.O.W. Markers	0	Ea.
Install R.O.W. Markers	0	Ea.

Slope Line

Av. H = 1650 ÷ 225 D.H. = 60 D.H. = 1325

No. 2 H

SCALE 1" = 2000 C.Y.

No. 2 H

No. 4 H

No. 4 H

SCALE 1" = 1000 C.Y.

SCALE 1" = 2000 C.Y.

SCALE 1" = 1000 C.Y.

B.M. = Spike in Tele. Pole 192' Lt. Sta. 1350+50 El. 592.69

B.M. = N.E. Corner of W. Curb. Sta. 1354+62 El. 594.38

Sta. 1354+19.49 - 1354+69.26

Front 4-12"x8"x38 M.S.C. Direct Traffic

MC 10-1 & MCW-F2 16 Lt. ÷ 22 Rt. - F.L. Elev. 584.91 Lt. 584.51 Rt.

Channel Bottom Width 40'

Section 1357+11

PLATE 1 — PLAN-PROFILE O.P.R. & R.E. STANDARD

KRUEGER & KRAUS CO., NEW YORK

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			17
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED / PLOTTED / NOTE BOOK / NO. — AUTOMATIC CHECKED / MANUALLY CHECKED / PT. OF WAY CHECKED

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / NO. — AUTOMATIC CHECKED / MANUALLY CHECKED / STRUCTURE NOTES GIVEN

12

EAST LANE
CURVE DATA
PI.=Sta.1385+51.8
Δ = 15°-48' Lt.
D = 1°-30'
T = 530.1'
L = 1,053.3'

WEST LANE
PI=1388+01.4
Δ = 15°-50' Lt.
D = 1°-30'
T = 531.2
L = 1055.5

P.C.=1378+74.6 Exist. =1378+64.2 West Lane
P.C.=1380+21.7 (East Lane)
P.C.=1382+02 (West Lane)
P.T.=1390+75.0 (East Lane)
P.T.=1393+25.7 (West Lane) Beg. Sect "B"

See Sheet No. 3 for Surface Connection

CURVE DATA
PI.=Sta.1376+60.9
Δ = 4°-56' Rt.
D = 1°-00'
T = 246.8'
L = 493.3'

P.C.=1374+14.1
P.T.=1379+07.4

R.O.W. Line

BALANCE TOTALS
Approx. Sta. 1380+86.01 to Sta. 1392+04.87

Uncl. Rd. Excav.	16,334 C.Y.
Uncl. chan. Excav.	133 C.Y.
Uncl. Borrow	0 C.Y.
Overhaul	754 Y.Q.
Emb. + 21.67 % Shr.	16,667 C.Y.
R.O.W. Markers	0 EA.
Install R.O.W. Markers	1 EA.

PI = Sta. 1401+36.5
Δ = 0°-06' Rt.
No Curve

BALANCE TOTALS
Approx. Sta. 1392+04.87 to Sta. 1403+26.60

Uncl. Rd. Excav.	13,247 C.Y.
Uncl. chan. Excav.	0 C.Y.
Uncl. Borrow	0 C.Y.
Overhaul	1683 Y.Q.
Emb. + 34.12 % Shr.	13,247 C.Y.
R.O.W. Markers	1 EA.
Install R.O.W. Markers.	0 EA.

400' Borrow Source
Sta. 1400+00
600'
400 x 600 = 5.51 Ac.

BALANCE TOTALS
Approx. Sta. 1324+38.03 to Sta. 1375+16.27

Uncl. Rd. Excav.	4,844 C.Y.
Uncl. Chan. Excav.	0 C.Y.
Uncl. Borrow	0 C.Y.
Overhaul	364 Y.Q.
Emb. + 6.21 % Shr.	4,549 C.Y.
R.O.W. Markers	0 EA.
Install R.O.W. Markers	1 EA.

BALANCE TOTALS
Approx. Sta. 1375+16.27 to Sta. 1396+56.01

Uncl. Rd. Excav.	3,783 C.Y.
Uncl. Chan. Excav.	0 C.Y.
Uncl. Borrow	0 C.Y.
Overhaul	0 Y.Q.
Emb. + 11.89 % Shr.	3,783 C.Y.
R.O.W. Markers	2 EA.
Install R.O.W. Markers	2 EA.

Sta. 1374+00 Center of Pipe.
~~1-24"x56'~~ 1-24"x56' Reit. Conc. Pipe
With 2-H-11-B Headwalls
L=25'-6.31" Rt.
Fl. Elev. Lt. 606.90 & 606.80 at Rt.
Channel Bottom Width 20'

B.M.-Nail in tele. Pole 217
Lt. Sta. 1382+45
El. 617.17

Sta. 1391+89.50-1392+11.50
~~Prop. 3-7'x4'~~ 3-7'x4'-20° M.B.C.
W.C.T.-I & M.C.W.-F.I.
L=75' & 25' & Fl. Elev. 599.27 Rt. & Lt.
Channel Bottom Width 20'

B.M.-N.E. Corner of W. Hdwl.
Sta. 1391+74
El. 604.39

Excav. / Channel / Emb.

PLATE 1-PLAN-PROFILE O.P.R.A.R.E. STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			18
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED BY; DRAWN BY; TRACED BY; CHECKED BY; NOTE BOOK; QUANTITIES CHECKED; NO.; ALIGNMENT CHECKED; PT. OF VIEW CHECKED

PROFILE — SURVEYED BY; DRAWN BY; TRACED BY; CHECKED BY; NOTE BOOK; QUANTITIES CHECKED; NO.; ELEVATIONS CHECKED; CURVES CHECKED

13

CALLAGHAN SIDING

1402 1405 1410 1415 1420 1425 1430 1434

1402 1405 1410 1415 1420 1425 1430 1434

N 3°-27 E

℄ Frontage Rd.

R.O.W. Line

R.O.W. Line

400'

600'

Borrow Source

Frontage Road

BALANCE TOTALS
Approx. Sta. 1403+26.4 to Sta. 1408+12.84

Uncl. Rd. Excav.	4899	C.Y.
Uncl. chan. Excav.	0	C.Y.
Uncl. Borrow	0	C.Y.
Overhaul	0	Y.Q.
Emb. + 34.11 % Shr.	4899	C.Y.
R.O.W. Markers	0	EA.
Install R.O.W. Markers	0	EA.

BALANCE TOTALS
Approx. Sta. 1403+12.54 to sta. 1414+17.92

Uncl. Rd. Excav.	1,213	C.Y.
Uncl. chan. Excav.	0	C.Y.
Uncl. Borrow	42,887	C.Y.
Overhaul	34,642	Y.Q.
Emb. + 34.12 % Shr.	44,100	C.Y.
R.O.W. Markers	0	EA.
Install R.O.W. Markers.	0	EA.

BALANCE TOTALS
Approx. Sta. 1414+17.92 to Sta. 1433+28.97

Uncl. Rd. Excav.	17,366	C.Y.
Uncl. chan. Excav.	0	C.Y.
Uncl. Borrow	0	C.Y.
Overhaul	7,403	Y.Q.
Emb. + 26.59 % Shr.	17,366	C.Y.
R.O.W. Markers	0	EA.
Install R.O.W. Markers.	2	EA.

Excav.
Emb.

Excav.
Channel
Emb.

615
605
595
590
610
600

Structure No. (I) See Layout

Structure No. (II) See Layout

Station 1422+50

Sta. 1406+50 Center of Box.
Prop'd 1-4'x2'-55° Conc. Box Culv.
S.C. NA & IFW N. Lt. 36° & 25° Rt.
F.L. Elev. 601.27 Lt. & Rt.
Channel Bottom Width 6.
B.M. - U.S.C.&G.S. Monument
185' Lt. Sta. 1406+73
El. 607.40

Sta. 1418+00 Center of Box.
Prop'd 1-4'x2'x 61' Conc. Box Culvert
S.C. NA & IFW N. Lt. 36° & 25° Rt.
F.L. Elev. 600.22 Rt. & Lt.
Channel Bottom Width 6.

B.M. - Nail in tele. Pole
245' Lt. Sta. 1431+75
El. 617.42

1402 03 04 1405 06 07 08 09 1410 11 12 13 14 1415 16 17 18 19 1420 21 22 23 24 1425 26 27 28 29 1430 31 32 33 1434

PLATE I-H—PLAN-PROFILE O. P. R. & R. E. STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			19
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SUPPLIED / PLOTTED / NOTE BOOK / NOTE: — SCALES CHECKED / ALIGNMENT CHECKED / PT. OF VERT. CHECKED

PROFILE — SUPPLIED / PLOTTED / NOTE BOOK / NOTE: — SCALES CHECKED / ELEVATIONS (POINTS) CHECKED

CURVE DATA
PI = 1451+97.2
Δ = 5°-20' Lt.
D = 1°-00'
T = 266.9
L = 533.3

P.C. 1449+30.3 Sect. Ψ
P.T. 1454+63.6

See Sheet No. 8 for Surface Connection

WEST. LANE

N 3°-27'E

℄ Frontage Rd. 7

Sta. 1436+97

Sta. 1437+26

Gate

100'

R.O.W. Line

R.O.W. Line

P.C. = 1456+83.5

CURVE DATA
P.I. = 1459+50.4
Δ = 5°-20' Rt.
D = 1°-00'
T = 266.9
L = 533.3

P.T. = 1462+16.8 Ahd.
= 1461+95 Back

Sta. 1465+54

Gate

BALANCE TOTALS
Approx. Sta. 1433+28.97 to Sta. 1437+39.73

Uncl. Rd. Excav.	2,377	C.Y.
Uncl. Chan Excav.	0	C.Y.
Uncl. Borrow.	0	C.Y.
Overhaul	0	Y.Q.
Emb. + 13.03 % Shr.	2,377	C.Y.
R.O.W. Markers	0	EA.
Install R.O.W. Markers.	0	EA.

BALANCE TOTALS
Approx. Sta. 1437+39.73 to Sta. 1471+16.90

Uncl. Rd. Excav.	11,237	C.Y.
Uncl. chan. Excav.	100	C.Y.
Uncl. Borrow	0	C.Y.
Overhaul	389	Y.Q.
Emb. + 52.98 % Shr.	11,337	C.Y.
R.O.W. Markers	0	EA.
Install R.O.W. Markers	1	EA.

Frontage Road

Excav. / Emb. C.&G.

Excav. / Channel / Emb.

60'X100'= 0.14 Ac.

Scale 1" = 2000 C.Y.

No. CH

Scale 1" = 1000 C.Y.

Base Line

A.W.H. = 1040 - 505 + 150 X 995 ÷ 1320 = 537 Y.Q.

A.W.H. = 780 - 600 E.H. = 150

+3.13

+1.00%

+0.68%

+0.97%

+1.40%

+0.20%

+0.60%

+1.77%

+1.78%

Pl. 602.74 400 V.C. E 1440

Pl. 602.74 400 V.C. E 1440

Pl. 604.18 400 V.C. E 1440

Pl. 604.30 No V.C.

Pl. 623.82 400 V.C. E 1440

Pl. 623.82 400 V.C. E 1440

Pl. 623.82 No V.C.

Pl. 629.68 No V.C.

Pl. 628.42 No V.C.

Sta. 1427+45
Top of Fitting 9314 E 25° DH
Top Elev. of Key Corner of Key Cross Form Width 6

B.M. NE Corner of W. Wall
Sta. 1427+20
Elev. 609.81

B.M. = Spike in Mesq tree
184' Lt Sta 1448+35
El. 617.47

B.M. = Nail in Mesq tree
184' Lt Sta 1463+35
El. 631.57

1434 1435 36 37 38 39 1440 41 42 43 44 1445 46 47 48 49 1450 51 52 53 54 1455 56 57 58 59 1460 61 62 63 64 1465 1466

PLATE 1 — PLAN-PROFILE C.P.R.R. & P.C. STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.		SHEET NO.
6	TEXAS	I-165(16)		20
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — DRAWN / TRACED / PLOTTED / NOTE BOOK / NO. / BY / CHECKED / PLOTTING CHECKED / FIELD CHECKED / OFFICE CHECKED

PROFILE — DRAWN / TRACED / PLOTTED / NOTE BOOK / NO. / CHECKED / PLOTTING CHECKED / FIELD CHECKED / STRUCTURE NOTATIONS CHECKED

N

N 9°-13' E

E

X

F

℄ Frontage Rd.

Sta. 1467+92

Gate

Sta. 1469+76

Gate

R.O.W. Line ?

R.O.W. Line ?

CURVE DATA
P.I.=Sta. 1480+65.8
Δ=5°-52' Rt.
D=1°-00'
T=293.6'
L=586.7'

P.C.=1477+72.2

P.T.=1483+58.9

CURVE DATA
P.I.=Sta. 1493+10.1
Δ=3°-16' Rt.
D=0°-30'
T=326.8'
L=653.4'

P.C.=1489+83.3

P.T.=1496+36.7

30	30	30	29	Frontage Rd.
30	30	30	29	

| | | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			21
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

STA. 1499+18.6
END CONT. 18-4

STA. 1499+18.6
BEG. CONT. 18-3

N

1498 1500 1505 1510 1515 1520 1525 1530

N 12°-35' E

R.O.W. Line

Sta 1523+90
Gate

℄ Frontage Rd 2
R.O.W. Line

250'

200'

300'

Sta 1521+00

Borrow Source
NOT USED
Not Cleared & Grubbed

Frontage Rd.

30	30	30	30	30	30	
30	30	30	30	30	30	

Cu Yds
Excav.
Emb.
Borrow

Scale: 1" = 5000 cu yds

Sta 1501+00 = 1332
Adj = 1820-600 = 1220
Sta 1515+37 = 1587
Adj = 3940-600 FH = 3340
Adj = 1605-600 = 1005
3434

0.4 = 393 x 3790 + 1501 x 2243 + 1005 x 5934 + 1320 = 9762 Yds

BALANCE TOTALS

Approx. Sta. 1481+36.46 to Sta. 1531+05.85		
Unclass. Rd. Excav.	13,478	C.Y.
Unclass. Chan. Excav.	111	C.Y.
Unclass. Borrow	0	C.Y.
Overhaul	9762	S.Y.
Emb. + 24.21% Shr.	13,759	C.Y.
ROW Markers	0	Ea.
Install ROW Markers	4	Ea.

D30007

-14800' %

-12585 %

-9.67256 %

Pl 633.30
400' VC
F 0.84

Pl 622.90
160' VC

Pl 600.80
160' VC

Pl 603.20
400' VC
F 0.84

Base Line

B.M.- Spike in tele. Pole
209' Sta. 1500+30
El. 629.15

B.M.- Nail in tele. Pole
298' Lt. Sta. 1502+50
El. 624.33

B.M.- Spike in tele. Pole
297' Lt. Sta. 1516+65
El. 609.99

620
610
600
590

1498 99 1500 01 02 03 04 1505 06 07 08 09 1510 11 12 13 14 1515 16 17 18 19 1520 21 22 23 24 1525 26 27 28 29 1530

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
ALIGNMENT CHECKED
BY
R.O.W. MAPS CHECKED
BY
DATE

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
NO.
CURVES CHECKED
BY
R.O.W. NOTED
BY
STRUCTURE NOTES CHECKED
BY
DATE

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			22
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED — PLOTTED — NOTE BOOK — NO. — ROADWAY CHECKED — RT. OF WAY CHECKED

PROFILE — SURVEYED — PLOTTED — NOTE BOOK — NO. — STRUCTURE DETAILS CHECKED

N

1930 1535 1540 1545 1550 1555 1560 1562

℄ Frontage Road

R.O.W. Line

N 12°-35'E

Sta. 1547+88 Gate

Sta. 1552+13 Gate

Sta. 1555+70

Prop'd Down Drain

468'

R.O.W. Line

103'

193'

475'

148' X 468' = 1.59 Acres

Frontage Rd.

C&G

Excav.

Channel

Emb.

Chan. C.Y. 1117 — Chan. C.Y. 7730

DH = 1115 × 7545 ÷ 1320 = 6376 Y.D.

Scale: 1" = 4000 C.Y.

Scale: 1" = 5000 C.Y.

Base Line

Sta. 1530+98 Center of Box
Prop'd 3-6'x4'x8' M.B.C.
MC 6-1/2 : MCW-F Lt 7.0% 26' Rt.
FL Elev. 591.81 Lt. 591.06 Rt.
Channel Bottom Width 18'

-0.67%

Station 1537+69

-0.67381%

-1.98%

B.M.- NE Corner of W. Curb
Sta. 1531+00
El. 598.36

B.M.- Nail in tele. Pole
296' Lt. Sta. 1540+15
El. 595.29

B.M.- NE Corner of W. Curb
Sta. 1556+37
El. 576.77

B.M.- Spike in tel. Pole
207' Lt. Sta. 1556+62
El. 574.66

Sta. 1558+38.5 to Sta. 1559+37.16
9'-2"x 3'-5"x 8'-1" MBC, MC 9.2 : MCW-F
Lt 27.38% FL Elev. Lt. 560.56 Rt. 560.90 Ct.
Channel Bottom Width 28.

BALANCE TOTALS

Approx. Sta. 1531+65.28 to Sta. 1558+85.28	
Unch. Rd. Excav.	8828 C.Y.
Unch. Chan. Excav.	0 C.Y.
Unch. Borrow	0 C.Y.
Overhaul	6376 Y.D.
Emb. + 26.39 %	8328 C.Y.
R.O.W. markers	0 EA.
Install R.O.W. markers	1 EA.

BALANCE TOTALS

Approx. Sta. 1554+85.28 to Sta. 1567+15.49	
Unch. Rd. Excav.	1,565 C.Y.
Unch. Chan. Excav.	7,730 C.Y.
Unch. Borrow	0 C.Y.
Overhaul	0 Y.D.
Emb. +	9155 C.Y.
R.O.W. markers	0 EA.
Install R.O.W. markers	1 EA.

1530 31 32 33 34 1535 36 37 38 39 1540 41 42 43 44 1545 46 47 48 49 1550 51 52 53 54 1555 56 57 58 59 1560 61 1562

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165(16)	23

STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED / PLOTTED / NOTE BOOK / NO. / BY / DATE / CHECKED / R.O.W. CHECKED

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / NO. / BY / DATE / CHECKED / STRUCTURE NOTES CHKD.

N

200 C.G.

FLEXIBLE BASE SOURCE NO. 2
EST. AMT. AVAILABLE 55,000 CU. YDS.
8 FT. FACE - SOUTH SIDE
6 FT. FACE - NORTH SIDE

2644'
3351'

144.7'
143.4'
143.5'

1562 1565 1570 1575 1580 1585 1590 1594

N12°-35°E

Sta. 1571+90
R.O.W. Line
298'
252'
235'
335'
62°45'

Sta. 1580+95
R.O.W. Line
No Gate
Gate Left Out

P.I. 1583+14.9
Δ 0°-02' Rt.
No Curve

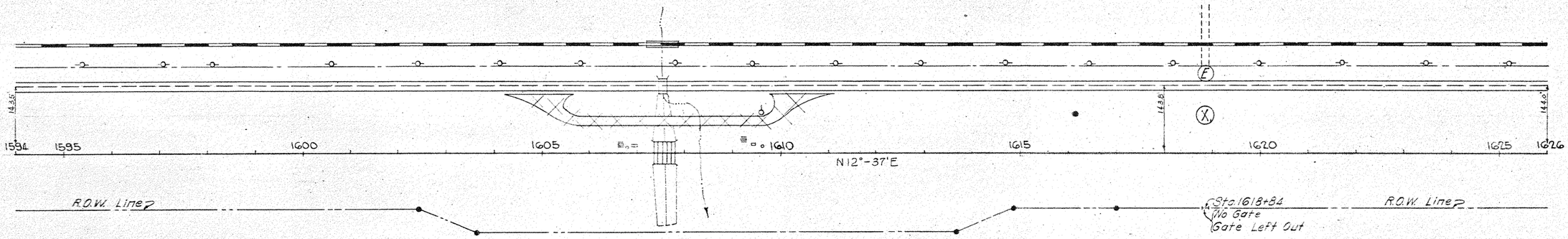
158.5' X 298' = 1.08 Acres

C.S.G.
Excav.
Channel
Emb.

67 139 91 115 46 91 67 107 54 96 6 39 0 8 0 0 0

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			24
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED / PLOTTED / NOTE BOOK / NO. / ALIGNMENT CHECKED / R/W OR WAY CHECKED / BY / DATE



BALANCE TOTALS
Approx. Sta. 1601+85.64 to Sta. 1609+00.

Uncl. Rd. Excav.	1,883 C.Y.
Uncl. Chan. Excav.	332 C.Y.
Uncl. Borrow	0 C.Y.
Overhaul	0 Y.Q.
Emb. + 29.91 %	2,215 C.Y.
R.O.W. Markers	2 EA.
Install R.O.W. Markers	0 EA.

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / NO. / GRADES CHECKED / QUANTITIES CHECKED / STRUCTURE NOTATIONS CHECKED / BY / DATE

97

	1594	1595	96	97	98	99	1600	01	02	03	04	1605	06	07	08	09	1610	11	12	13	14	1615	16	17	18	19	1620	21	22	23	24	1625	1626
Excav.	168	318	~~144~~	293	~~162~~	290	~~144~~	343	~~296~~	336	~~395~~	619	~~669~~	953	~~886~~	745	~~598~~	660	~~334~~	563	~~156~~	406	~~91~~	200	~~0~~	20	~~0~~	0	~~0~~	0	~~0~~	0	~~0~~	0
Channel																332	Unsat.	~~664~~																
Emb.	~~29~~	215	~~36~~	300	~~33~~	317	~~36~~	297	~~9~~	329	~~6~~	241	~~0~~	137	~~4~~	155	~~0~~	0	~~7~~	0	~~45~~	0	~~98~~	60	~~424~~	304	~~714~~	530	~~459~~	1245	~~749~~	1380	~~195~~	1280

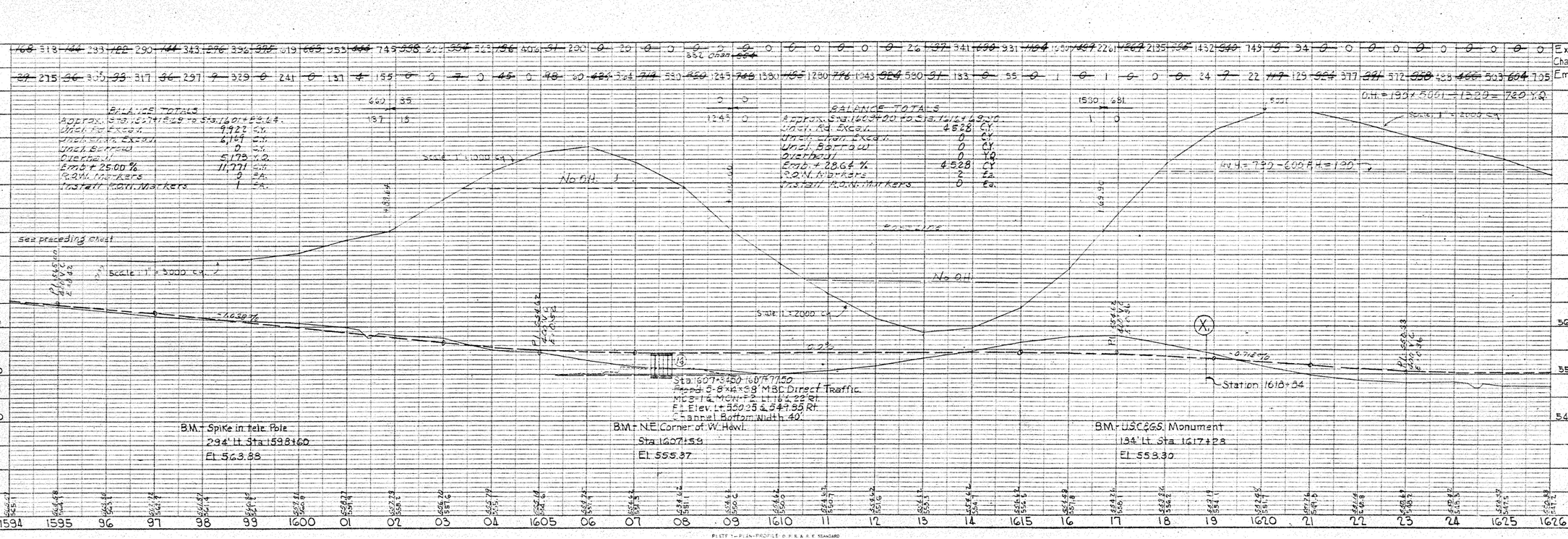
BALANCE TOTALS
Approx. Sta. 1607+00 to Sta. 1621+49.00

Uncl. Rd. Excav.	4528 CY
Uncl. Chan. Excav.	0 CY
Uncl. Borrow	0 CY
Overhaul	0 YQ
Emb. + 28.64 %	4528 CY
R.O.W. Markers	2 Ea.
Install R.O.W. Markers	0 Ea.

	1594	1595	96	97	98	99	1600	01	02	03	04	1605	06	07	08	09	1610	11	12	13	14	1615	16	17	18	19	1620	21	22	23	24	1625	1626
Excav.	~~746~~	1043	~~964~~	580	~~91~~	133	~~0~~	55	~~0~~	1	~~0~~	1	~~0~~	0	~~0~~	24	~~7~~	22	~~117~~	129	~~964~~	377	~~391~~	572	~~958~~	488	~~466~~	503	~~604~~	705				
Channel																																	
Emb.																																	

BALANCE TOTALS
Approx. Sta. 1607+00 to Sta. 1621+49.00

Uncl. Rd. Excav.	4528 CY
Uncl. Chan. Excav.	0 CY
Uncl. Borrow	0 CY
Overhaul	0 YQ
Emb. + 28.64 %	4528 CY
R.O.W. Markers	2 Ea.
Install R.O.W. Markers	0 Ea.



FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			25
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED; PLOTTED; NOTE BOOK COMPUTED; CHECKED; NO. OF WAY CHECKED

PROFILE — SURVEYED; PLOTTED; NOTE BOOK COMPUTED; CHECKED; NO.

N

144.0'

1626 1630 1635 1640 1645 1650 1655

144.61

N 12°-37'E

X

Prop'd Down Drain

144.91

R.O.W. Line

E

Sta. 1648+14.7

Gate

R.O.W. Line

250'

200'

Borrow Source

300'

PERIMD

200×300 = 1.38 Ac.

BALANCE TOTALS
Approx. Sta. 1614+69.30 to Sta. 1640+33.51

Uncl. Rd. Excav.	5145	C.Y.
Uncl. chan. Excav.	599	C.Y.
Uncl. Borrow	9909	C.Y.
Overhaul	7098	Y.Q.
Emb. + 8.48 % Shr.	15653	C.Y.
R.O.W. Markers	0	EA.
Install R.O.W. Markers	2	EA.

BALANCE TOTALS
Approx. Sta. 1640+33.51 to Sta. 1642+00

Uncl. Rd. Excav.	153	C.Y.
Uncl. chan. Excav.	0	C.Y.
Uncl. Borrow	0	C.Y.
Overhaul	0	Y.Q.
Emb. + 30.77 % Shr.	153	C.Y.
R.O.W. Markers	0	EA.
Install R.O.W. Markers	0	EA.

BALANCE TOTALS
Approx. Sta. 1642+00 to Sta. 1658+38.75

Uncl. Rd. Excav.	1372	C.Y.
Uncl. chan. Excav.	0	C.Y.
Uncl. Borrow	0	C.Y.
Overhaul	87	Y.Q.
Emb. + 33.98	1372	C.Y.
R.O.W. Markers	0	EA.
Install R.O.W. Markers	0	EA.

C & G Excav. Channel Borrow Emb.

0 0 0

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-165(16)				26
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	3-4			US-81

PLAN — SUBMITTED / TRACED / BLUEPRINT CHECKED / BY / NOTE BOOK / DATE / BY / NO. / CHECKED BY

PROFILE — SUBMITTED / PLOTTED / CHECKED / BY / NOTE BOOK / DATE / BY / NO. / CORRECTIONS NOTED / CHECKED

N

Sta. 1651+25

162'

R.O.W. Line

265'

320'

18'-0"

153'

1660 1665 1670 1675 1680 1685 1690

N12°-37'E

Prop'd down drain

Prop'd Channel Lining

℄ Prop'd Channel

131'

1198'

℄ of Frontage Rd.

R.O.W. Line

Sta. 1682+87

Gate

70 SAN ROMAN

145.9

Ⓧ

Ⓔ

P.C. = 1688+83.4

Frontage Road

℄	30	30	30	30	30	30		3	Excav.
℄	30	30	30	30	30	30		3	Emb.

C&G.

292.5' X 153' = 1.03 Acres

11913' X 131' = 3.60 Acres

| | | | | | | | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			27
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED, PLOTTED, NOTE BOOK, ALIGNMENT CHECKED, NO., P.I. OF VERT. CHECKED, BY, DATE

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, PROFILE CHECKED, NO., STRUCTURE NUMBERS OR NO.

102

424

N

1690 + 48.7'

1460

1690 1695 1700 1705 N 14°-32'E 1710 1715 1720 1722

136.2'

Prop. down drain

R.O.W. Line

Sta 1717+93

R.O.W. Line

80'

100'

CURVE DATA
P.I. Sta. 1690+75.1
Δ = 1°-55' Rt.
D = 0°-30'
T = 191.7'
L = 383.3'

P.T. = 1692+66.7

80'X100' = 0.18 Acre

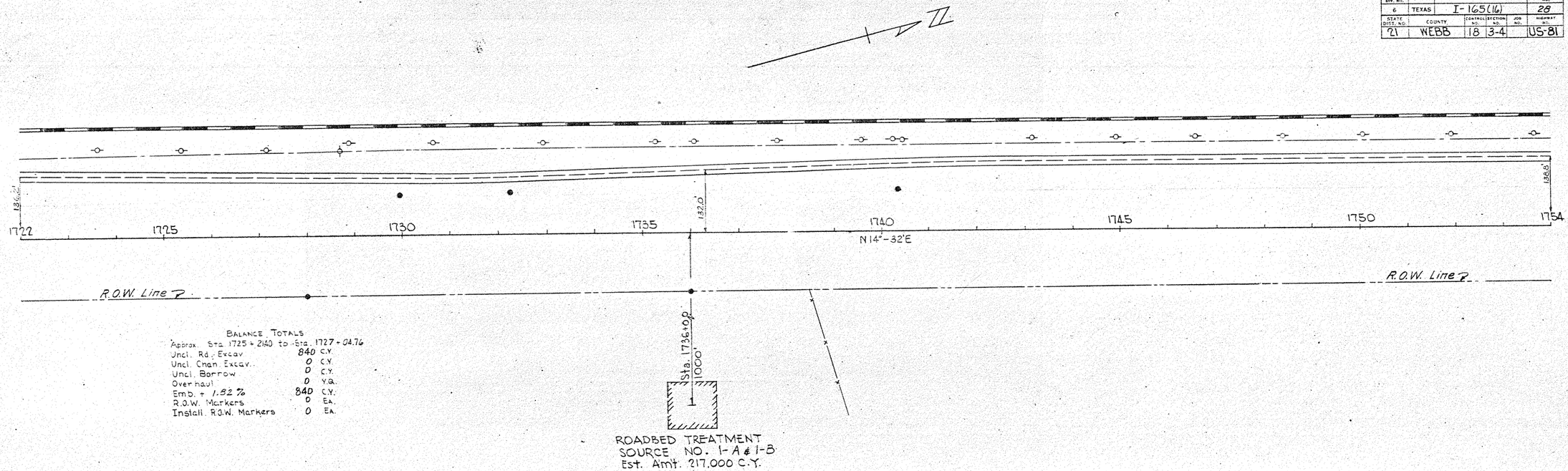
C.&G.

| | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			28
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN
SURVEYED BY
DRAWN BY
NOTE BOOK
NO.
ALIGNMENT CHECKED
PLOT OF WAY CHECKED
DATE

PROFILE
SURVEYED BY
DRAWN BY
NOTE BOOK
NO.
GRADES CHECKED
R.W.S. NOTES
STRUCTURE NOTES
OTHER
DATE



BALANCE TOTALS
Approx. Sta. 1725 + 21.40 to Sta. 1727 + 04.76

Uncl. Rd. Excav.	840 C.Y.
Uncl. Chan. Excav.	0 C.Y.
Uncl. Borrow	0 C.Y.
Overhaul	0 Y.Q.
Emb. + 1.32 %	840 C.Y.
R.O.W. Markers	0 Ea.
Install. R.O.W. Markers	0 Ea.

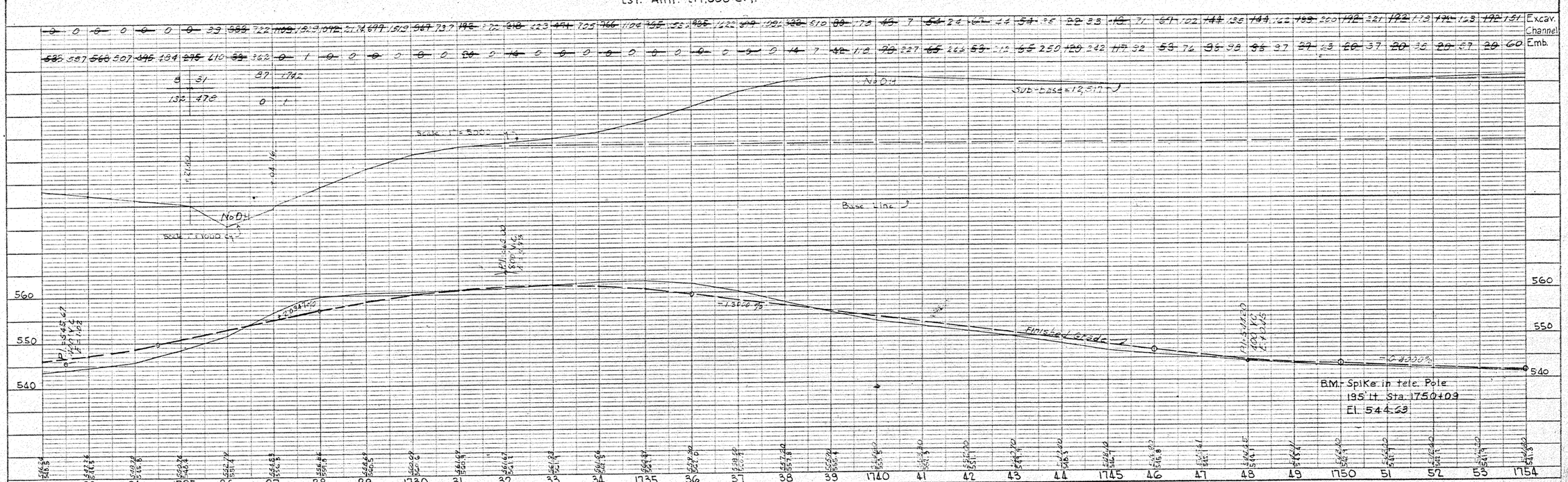


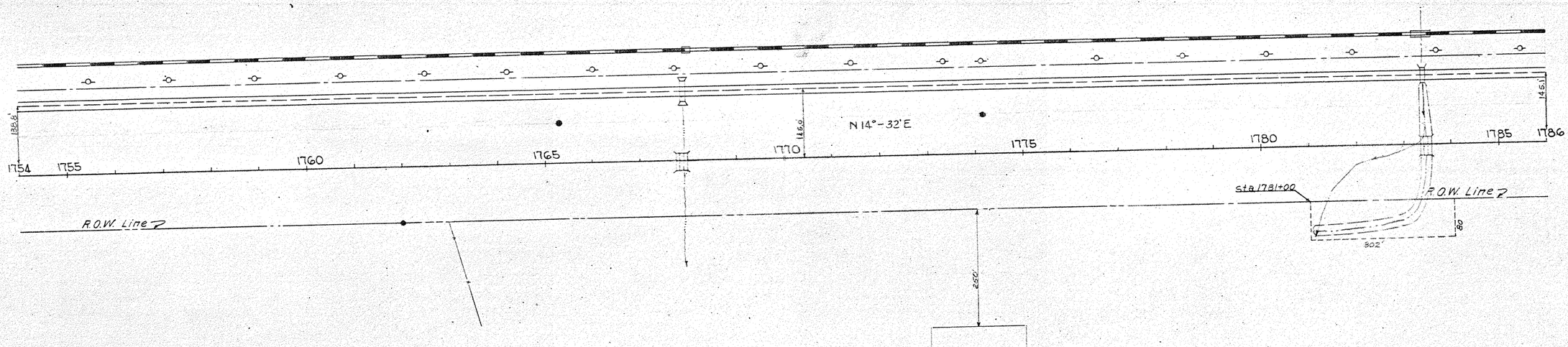
PLATE 1—PLAN-PROFILE O.P.R. & R.E. STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			29
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED; PLOTTED; NOTE BOOK EQUATIONS CHECKED; NO.; ALIGNMENT CHECKED; RT. OF WAY CHECKED.

PROFILE — SURVEYED; PLOTTED; NOTE BOOK EQUATIONS CHECKED; NO.; STRUCTURE NOTATIONS CHECKED.

1023



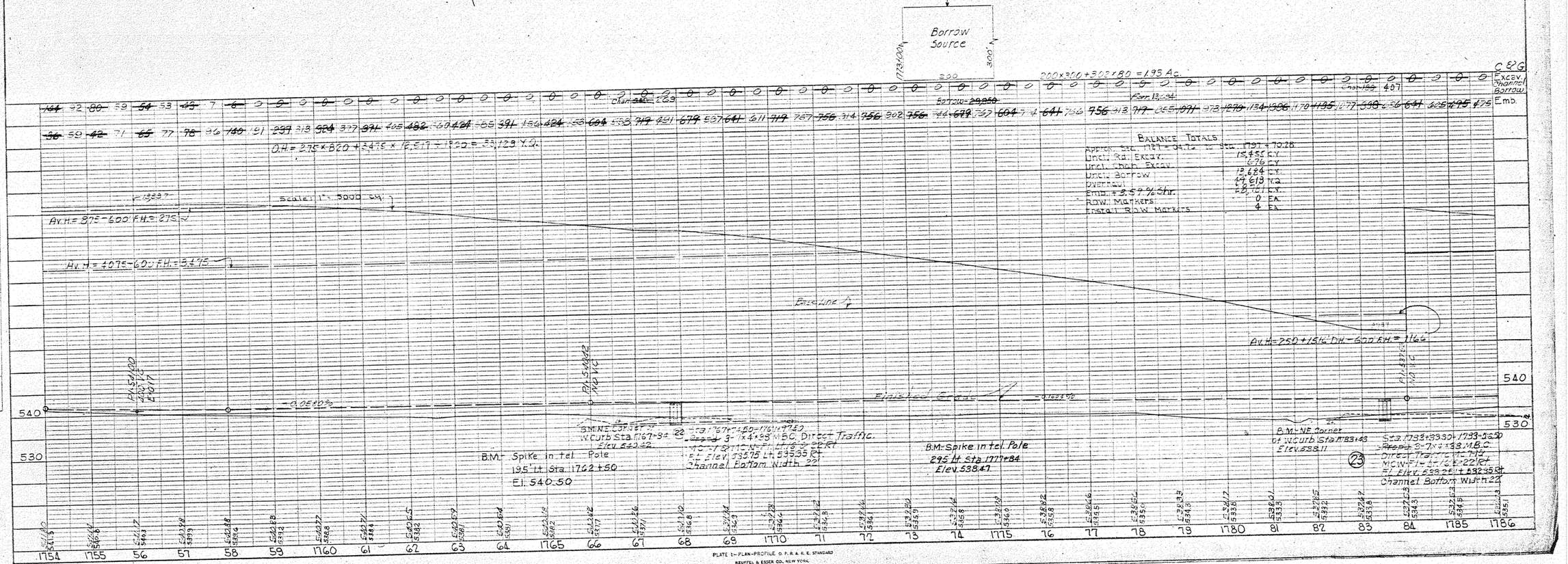


PLATE 1—PLAN-PROFILE O. P. R. A. R. E. STANDARD
KEUFFEL & ESSER CO. NEW YORK

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-165(16)				30
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	3-4			US-81

PLAN — SURVEYED / PLOTTED / NOTE BOOK / CROSS SECTIONED / R.O.W. MAP CHECKED / NO. / STRUCTURE DETAILS CHECKED

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / CROSS SECTIONED / R.O.W. MAP CHECKED / NO. / STRUCTURE DETAILS CHECKED

105

N

145.1 — 145.8 — 146.2

1786 — 1790 — 1795 — 1800 — 1805 — 1810 — 1815 — 1818

N14°-32'E

R.O.W. Line — Sta. 1793+25 — Gate — Sta. 1812+88 — Gate — ℄ of Frontage Rd — R.O.W. Line

Frontage Road →

	86	87	88	89	1790	91	92	93	94	1795	96	97	98	99	1800	01	02	03	04	1805	06	07	08	09	1810	11	12	13	14	1815	16	17	1818
Excav.	~~6~~	0	~~0~~	0	~~0~~	0	~~0~~	0	~~0~~	0	~~0~~	0	~~0~~	0	~~0~~	0	~~0~~	0	~~15~~	12	~~122~~	130	~~248~~	230	~~273~~	245	~~246~~	126	~~170~~	124	~~122~~	82	~~43~~	74	~~22~~	77	~~31~~	0	~~22~~	0	~~51~~	0	~~45~~	0	~~67~~	46	~~43~~	48	~~19~~	22	~~6~~	20	~~15~~	20	~~22~~	22
Channel																																	
Emb.	~~391~~	407	~~258~~	419	~~358~~	456	~~459~~	506	~~677~~	797	~~882~~	930	~~900~~	1129	~~998~~	1138	~~898~~	1045	~~677~~	823	~~481~~	673	~~399~~	662	~~287~~	559	~~117~~	290	~~53~~	185	~~7~~	66	~~8~~	63	~~9~~	66	~~20~~	101	~~55~~	141	~~78~~	136	~~120~~	140	~~98~~	140	~~120~~	128	~~98~~	80	~~78~~	101	~~53~~	91	~~78~~	57	~~117~~	170	~~140~~	213	~~117~~	207	~~120~~	168

O.H. = 1166 × 3739 + 1751 × 3945 ÷ 1320 = 16,495 Y.Q.

O.H. = 575 × 2280 + 250 × 1695 ÷ 1320 = 1319 Y.Q.

BALANCE TOTALS

Approx. Sta. 1791 + 70.28 To Sta. 1831 + 00

Uncl. Rd. Excav.	4460 CY
Uncl. Chan. Excav.	0 CY
Uncl. Borrow	0 CY
Overhaul	1319 YQ
Emb. ÷ 90.17% Shr.	4460 CY
R.O.W. Markers	0 EA
Install R.O.W. Markers	1 EA

Scale: 1" = 5000 C.Y.

Av. H. = 835 + 1516 Dh. − 600 F.H. = 1751

Base Line

No. O.H.

Scale: 1" = 1000 C.Y.

Av. H. = 2830 − 600 F.H. = 2280

Sub-base = 575

Station 1793+25

0.0%

Finished Grade

P.I. 537.53 — 10.0 VC

P.I. 538.38 — 10.0 VC

Av. 539.80 — 10.0 VC — 6.0%

-2.50%

Sta. 1792+00 Center of Pipe
Prop'd 1-24'-49° Reinf. Conc. Pipe
with C.W.I.-S Head Wall's
Lt. Flow Line Elev. 539.01 Rt.
Chan. Bottom Width = 6
21' Lt. & 21' Rt.

B.M.- Spike in tel. Pole
195' Lt. Sta. 1790+54
El. 536.35

B.M.- Spike in tele. Pole
296' Lt. Sta. 1793+75
El. 536.65

B.M.- Spike in tele. Pole
195' Lt. Sta. 1806+70
El. 538.99

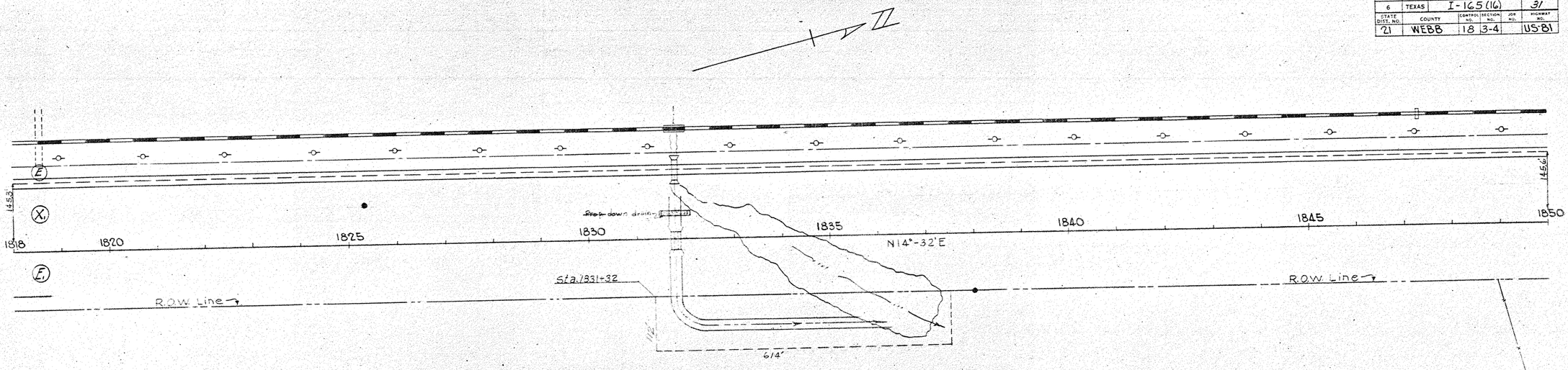
B.M.- Spike in tele. Pole
295' Lt. Sta. 1814+35
El. 539.18

PLATE 1-PLAN-PROFILE O.P.R.R.B.E. STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			31
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SUBMITTED / RECEIVED / NOTE BOOK RECOMMEND CHECKED / NO. DEPT. OF WAYS CHECKED / BY

PROFILE — SUBMITTED / RECEIVED / NOTE BOOK CHECKED / NO. STRUCTURE NOTES CHECKED / BY



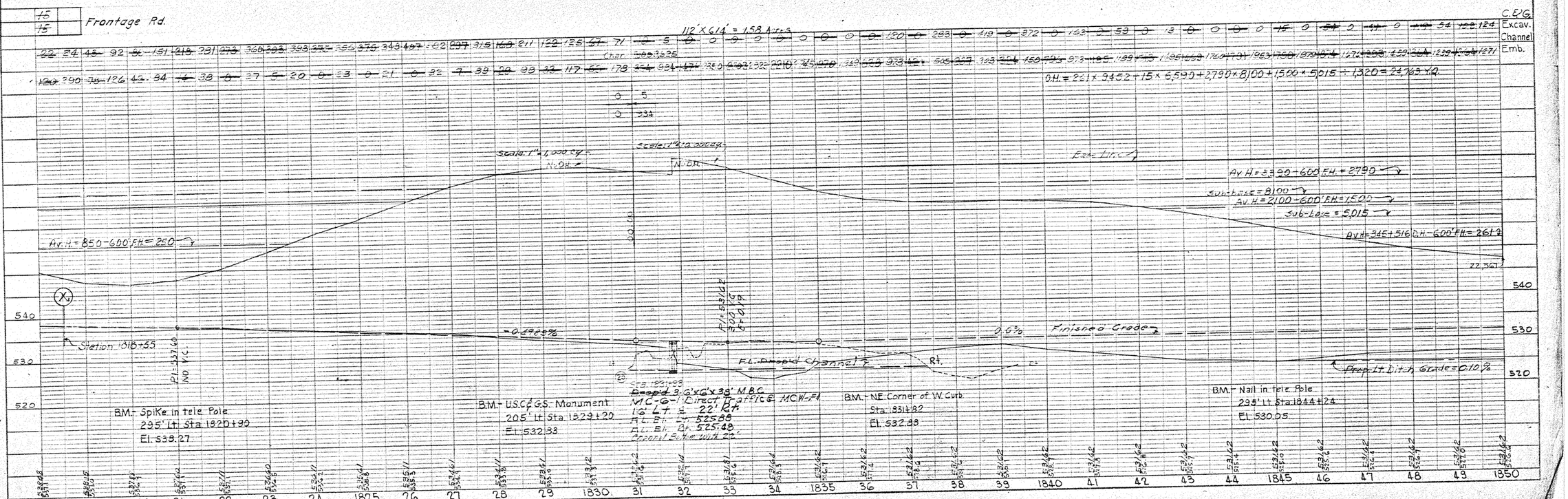


PLATE 1—PLAN-PROFILE C. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO., NEW YORK

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			32
STATE DIST. NO.	COUNTY	CONT. NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SURVEYED BY; PLOTTED BY; NOTE BOOK; DATE; ALIGNMENT CHECKED; BY; RT. OF WAY CHECKED; BY; NO.

PROFILE — SURVEYED BY; PLOTTED BY; NOTE BOOK; DATE; GRADES CHECKED; BY; STRUCTURES CHECKED; BY; NO.

DATE

N

1850 1855 1860 1865 1870 1875 1880 1882

1460 1466

N14°-32'E

℄ of Frontage Rd.

R.O.W. Line

R.O.W. Line

1855+55

231'

352'

210'

300'

300'

Highly Cultivated Field

Borrow Source

To be removed by Contractor

291.5 × 210 + 300 × 400 = 4.16 Ac.

Frontage Rd.

| | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165(16)	33
STATE DIST. NO.	COUNTY	CONTROL SECTION NO. / JOB NO.	HIGHWAY NO.
21	WEBB	18 13-4	US-81

FLEXIBLE BASE SOURCE NO. 3
EST. AMT. AVAILABLE 49,000 CU. YDS.
8 FT. FACE

FLEXIBLE BASE SOURCE NO. 4
EST. AMT. AVAILABLE 45,000 CU. YDS.
7 FT. FACE

N 14°-32 E

Sta. 1884+63 Gate

R.O.W. Line

Sta. 1906+90 Gap

Tel. Cable

R.O.W. Line

Sta. 1906+78

120'

Frontage Rd.

Frontage Road

BALANCE TOTALS
Approx. Sta. 1877 + 28.54 To Sta. 1895 + 39.29
Uncl. Rdwy. Excav. 7,044 C.Y.
Uncl. Chan. Excav. 0 C.Y.
Uncl. Borrow 0 C.Y.
Overhaul 1,971 Yd.
Emb. = 74.09 % Shr. 9,049 C.Y.
R.O.W. Markers 0 Ea.
Install R.O.W. Markers 1 Ea.

BALANCE TOTALS
Approx. Sta. 1905 + 29.29 To Sta. 1923 + 85.00
Uncl. Rdwy. Excav. 13,202 C.Y.
Uncl. Chan. Excav. 888 C.Y.
Uncl. Borrow 0 C.Y.
Overhaul 12,841 Yd.
Emb. = 22.31 % Shr. 14,099 C.Y.
R.O.W. Markers 0 Ea.
Install R.O.W. Markers 2 Ea.

Scale: 1" = 4000 cy.

Scale: 1" = 6,000 cy.

Baseline

Finished Grade

B.M. - Spike in Telephone Pole
195 Lt. of Sta. 1891+20
El. 556.31

B.M. - N.E. Corner of west Curb of exist. Br. Lt. of Sta. 1901.75
El. 551.11

(27) Sta. 1907+28.54 - 1907+71.46
Prop. 4-10'x6'x38' M.B.C. Direct Traffic.
Mitered 0 MW-FT
16 FT. RDWY. Rt. El. 523.17 Lt. 522.77 Rt.
Channel Bottom Width 46'

PLAN
SURVEYED
PLOTTED
NOTE BOOK REVISION CHECKED
PROJECT ENGINEER

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165(16)	32
STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN
SURVEYED
PLOTTED
DETAILS CHECKED
STRUCTURE NOTES CHECKED
NOTE BOOK
NO.

PROFILE
SURVEYED
PLOTTED
DETAILS CHECKED
STRUCTURE NOTES CHECKED
NOTE BOOK
NO.

N

E

Y(3)

144.9'

144.4'

144.5'

1914 1915 1920 1925 1930 1935 1940 1945 1946

N 14°-33' E

E2

Gap Sta. 1915+28

Sta. 1922+35 Gap

Sta. 1925+01 Gate & CG

Sta. 1925+35

Gate 1930+00

Tel. Cable

Gate Sta. 1932+60

ROW Line

Sta. 1942+83 Gap

Gate Sta. 1945+40

P.I. = Sta. 1930+47.8
Δ = 0°-01' Rt.
No Curve

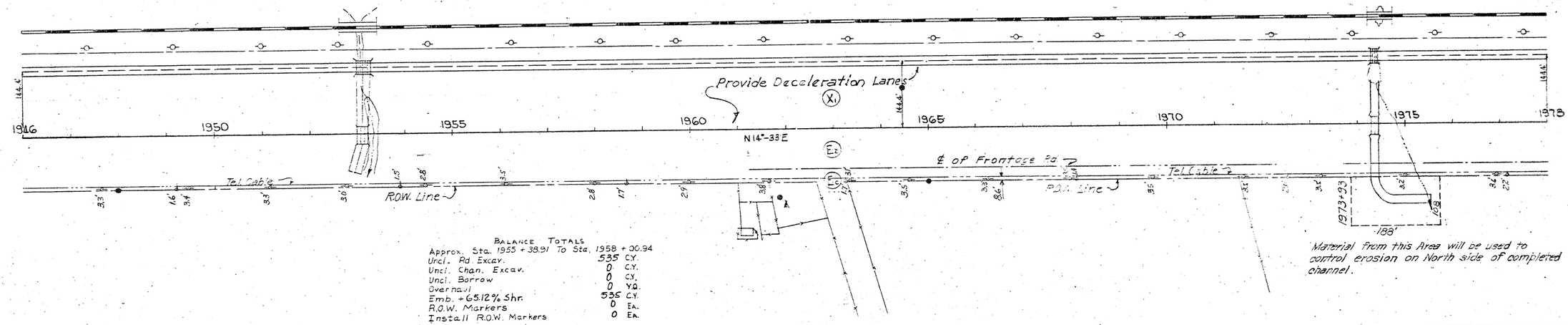
Frontage Road

| | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			35
STATE DIST. NO.	COUNTY	CONTROL	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4		US-81

PLAN — SUPPLIED / PLOTTED / NOTE BOOK / NO. — ALIGNMENT CHECKED / PROFILE CHECKED / R.O.W. CHECKED / STRUCTURE NUMBERS CHECKED

PROFILE — SUPPLIED / PLOTTED / NOTE BOOK / NO. — GRADE CHECKED / STRUCTURE NUMBERS CHECKED



BALANCE TOTALS
Approx. Sta. 1955 + 38.91 To Sta. 1958 + 00.94

Uncl. Rd. Excav.	535 C.Y.
Uncl. Chan. Excav.	0 C.Y.
Uncl. Borrow	0 C.Y.
Overhaul	0 Y.Q.
Emb. +65.12% Shr.	535 C.Y.
R.O.W. Markers	0 Ea.
Install R.O.W. Markers	0 Ea.

Frontage Rd.

~~5~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~30~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	Excav.
~~5~~	~~60~~	~~20~~	~~20~~	~~20~~	~~20~~	~~60~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	~~20~~	Emb.
																		C&G

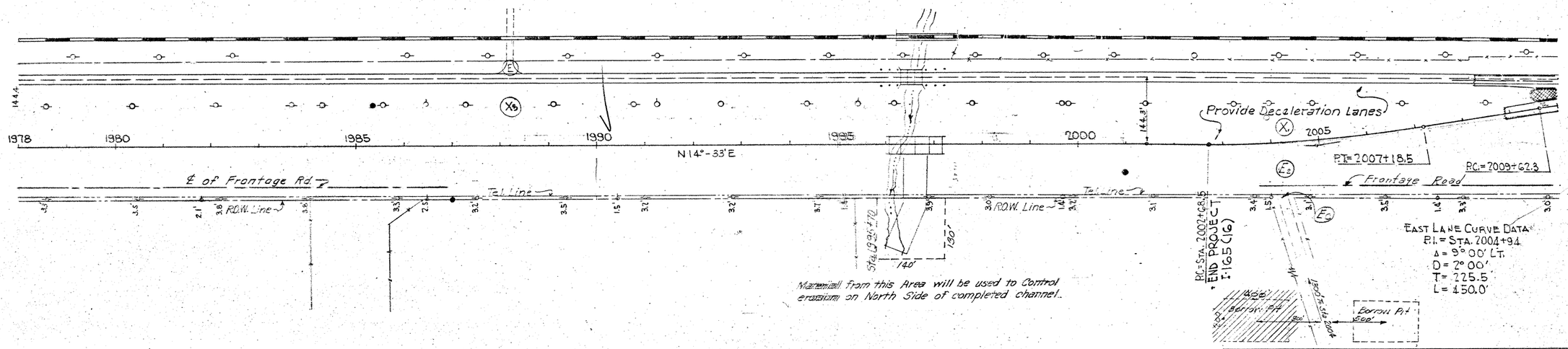
106 x 198 = 0.47 Ac.

| | | | | | | | | | | | | | | | | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165(16)	36

STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	13-4		US-81

PLAN — SURVEYED — PLOTTED — NOTE BOOK — SHEET CHECKED — NO. — ALIGNMENT CHECKED — ELEVATIONS CHECKED — BY — DATE



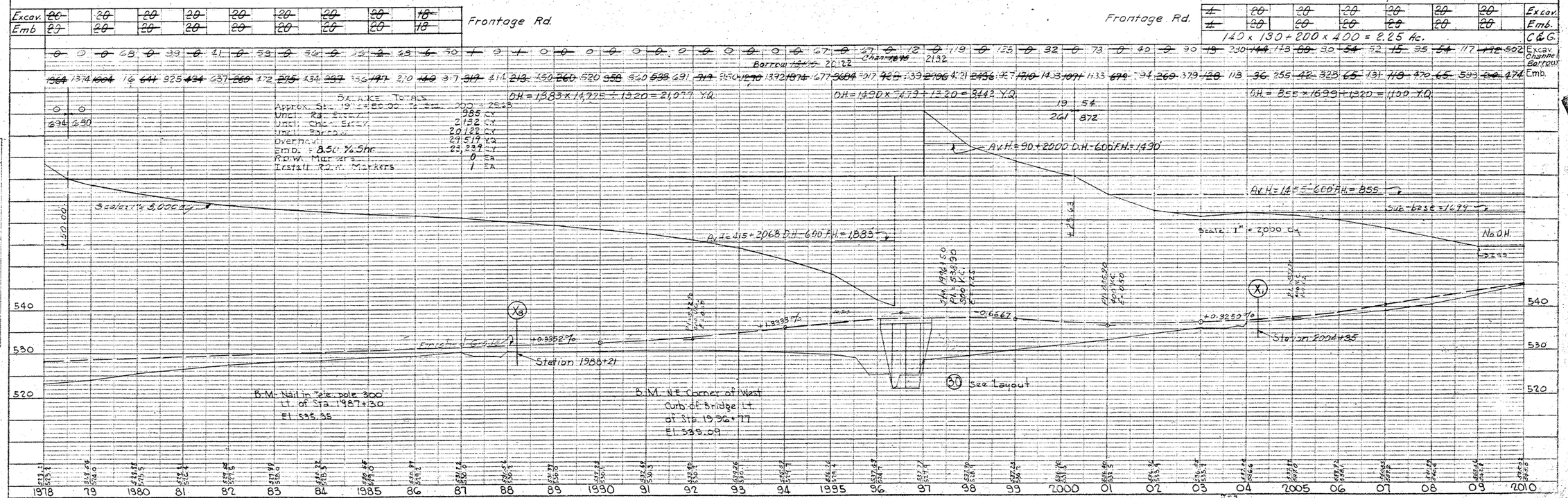
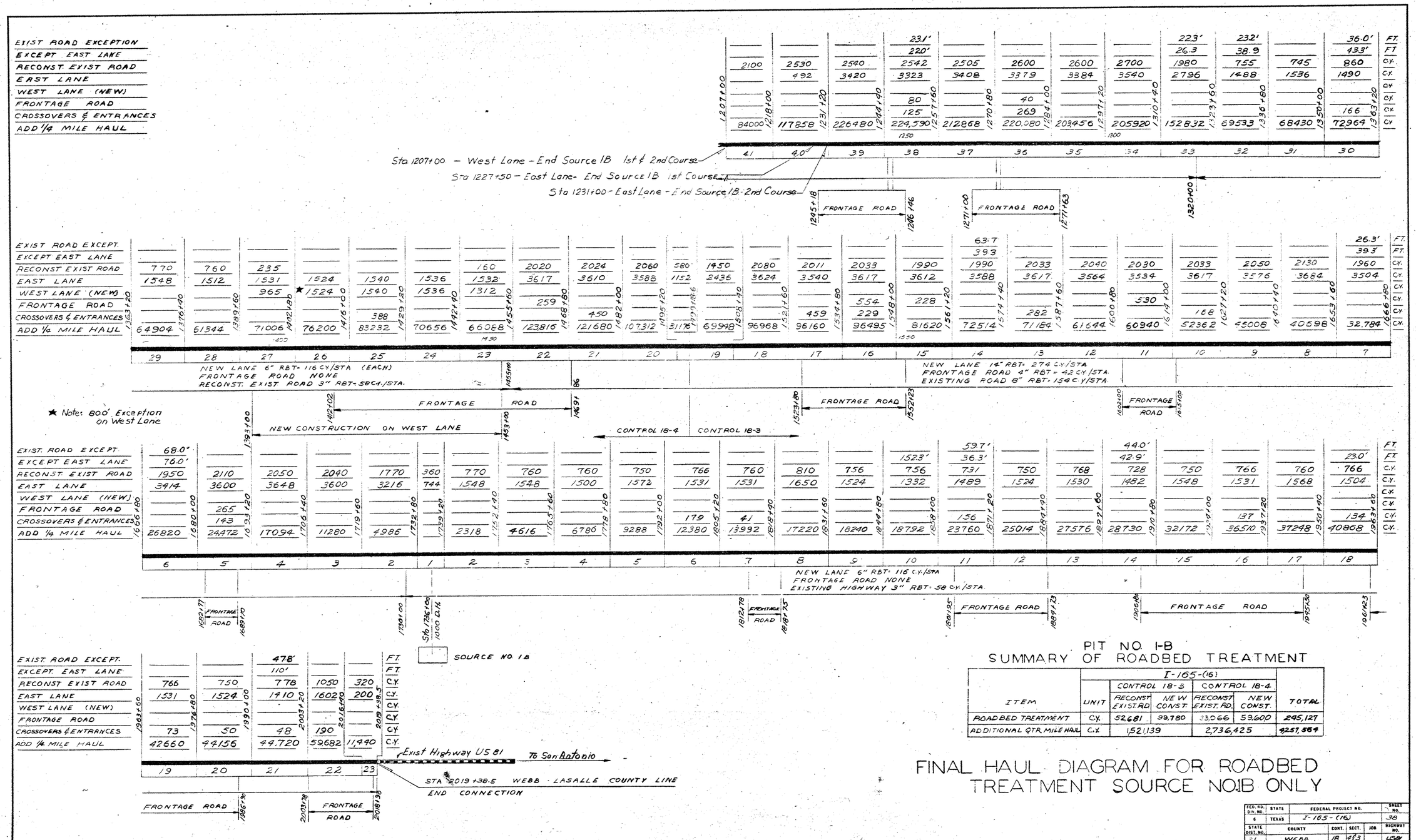


PLATE 1 — PLAN-PROFILE U. S. P. R. & R. C. STANDARD
KELLY-A. PFISTER CO., NEW YORK

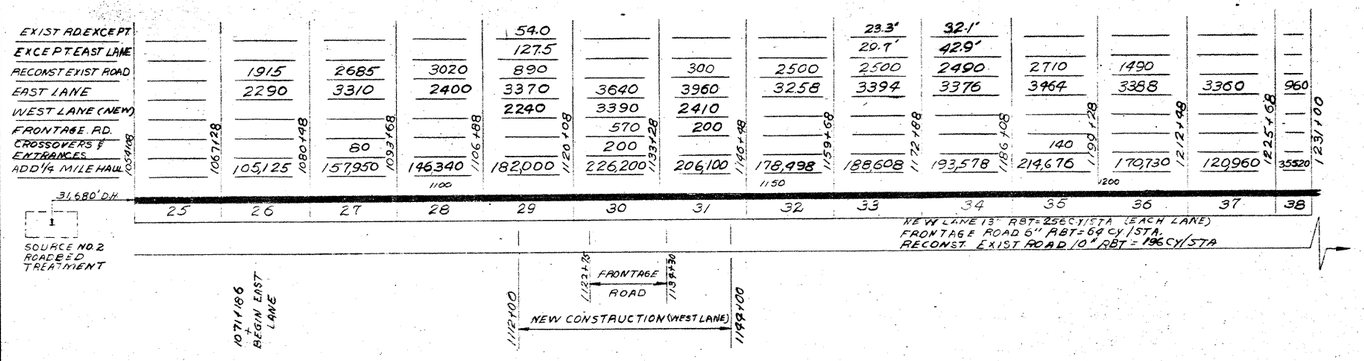


PIT NO. 1-B
SUMMARY OF ROADBED TREATMENT

ITEM	UNIT	I-165-(16) CONTROL 18-3 RECONST EXIST. RD.	CONTROL 18-3 NEW CONST.	CONTROL 18-4 RECONST EXIST. RD.	CONTROL 18-4 NEW CONST.	TOTAL
ROADBED TREATMENT	C.Y.	52,681	99,780	33,066	59,600	245,127
ADDITIONAL QTR. MILE HAUL	C.Y.	1,521,139		2,736,425		4,257,564

FINAL HAUL DIAGRAM FOR ROADBED TREATMENT SOURCE NO.1B ONLY

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-165-(16)	38
STATE DIST. NO.	COUNTY	CONT. / SECT. / JOB	HIGHWAY NO.
21	WEBB	18 / 483	459



PIT NO. 2

SUMMARY OF ROADBED TREATMENT

ITEM	UNIT	I-165-(16) CONTROL 18-3 RECONST EXIST RD	I-165-(16) CONTROL 18-3 NEW CONST	I-165-(16) CONTROL 18-4 RECONST EXIST RD	I-165-(16) CONTROL 18-4 NEW CONST	TOTAL
ROADBED TREATMENT	CY			20,500	49,400	69900
ADDITIONAL QTR. MILE HAUL	QY			2,126,285		2,126,285

FINAL HAUL DIAGRAM FOR ROADBED TREATMENT SOURCE NO. 2 ONLY

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I-165-(16)			38A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	4		US 81

1139

AMOUNT HAULED FROM SOURCE NO.1 36,745 CY

STA 58+28.39 = 3751 MI

EQUATION
Sta 78+00
= Sta 392+28.2
= 27062.2'

LIMITS OF HAUL FROM SOURCE NO. 1

EXIST ROAD EXCEPTION					54.0'				23.3'			32.1'					23.1'							FT
RECONST EXIST ROAD	1028.39	220	1045	990	1080	160		715	965	980	955	100	1050	965	980	975	965	990	985	990	635	355		CY
FRONTAGE ROAD	1031.47	1047.39	1092.70	1097.90	1111.10	1124.30	1137.50	1150.70	1163.90	1177.10	1190.30	1191.92	1205.12	1218.32	1231.52	1244.72	1257.92	1271.12	1284.32	1297.52	1305.47	1308.63		CY
CROSSOVERS & ENTRANCES											85						240				40			CY

	24	25	26	27	28	29	30	31	32	33	34	35	34	33	32	31	30	29	28	27	26	
EXCEPTION EAST LANE					127.5				29.7'		42.9						22.0'					FT
WEST LANE (NEW CONST.)						1400	1710	670														CY
EAST LANE	190	850	1700	1600	1495	1645	1595	1630	1590	1630	1570	200	1644	1608	1608	1608	1584	1620	1620	1608	1680	CY
FRONTAGE ROAD						65	420															CY
CROSSOVERS & ENTRANCES				85		45	280															CY
ADD 1/4 MILE HAUL	4370	25680	68,625	69550	69525	92820	116145	90450	79205	83520	83325	13090	88302	82336	80228	77490	82331	73220	76005	67548	67750	CY

LIMITS OF HAUL FROM SOURCE NO. 1 — NEW CONSTRUCTION (WEST LANE) — FRONTAGE ROAD

LIMITS OF HAUL FROM SOURCE NO. 2

EXIST ROAD EXCEPTION	22.3'	23.2'		36.0'												14.0'		34.9	28.8'					FT
RECONST. EXIST ROAD	970	975	985	955	985	945	380			325	1000	980	990	260	715	975	990	960	955	955	580	345	985	CY
FRONTAGE ROAD	1323.92	1337.12	1350.32	1363.52	1376.72	1389.92	1403.12	1416.32	1429.52	1442.72	1455.92	1469.12	1482.32	1495.52	1508.72	1521.92	1535.12	1548.32	1561.52	1574.72	1587.92	1601.12	1614.32	CY
CROSSOVERS & ENTRANCES																		60*	480*					CY

* Roadside Park

	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	28	27	
EXCEPTION EAST LANE		38.9		43.3				80.0'					39.3'											FT
WEST LANE (NEW CONST.)							1004	1494	1624	1602	1112													CY
EAST LANE	1608	1548	1608	1608	1578	1626	1624	1494	1624	1602	1624	1596	1608	1620	420	1188	1596	1620	1638	1596	1572	1524	552	1608	CY
FRONTAGE ROAD								190	565	560	550	555	40					465	550	210				CY
CROSSOVERS & ENTRANCES				75					256			155							395			185		CY
ADD 1/4 MILE HAUL	61872	58029	57046	55398	51260	48849	54144	54026	65104	56460	50554	42978	31536	28710	6800	19030	23139	24600	24801	16926	15035	10756	2219	6718	CY

LIMITS OF HAUL FROM SOURCE NO. 2 — FRONTAGE ROAD — NEW CONSTRUCTION (West Lane) — CONTROL 18-4 — CONTROL 18-3 — FRONTAGE ROAD

AMOUNT HAULED FROM SOURCE NO.2 78,430 CY.

LIMITS OF HAUL FROM SOURCE NO. 3

EXIST ROAD EXCEPTION						623'	32.0'													59.7'				FT
RECONST. EXIST ROAD	985	980	1000	980	925	966	975	980	975	965	970	970	960	960	990	990	990	680	965	985	990	990		CY
FRONTAGE ROAD	1618.20	1631.40	1644.60	1657.80	1671.00	1684.20	1697.40	1710.60	1723.80	1737.00	1750.20	1763.40	1776.60	1789.80	1803.00	1816.20	1829.40	1838.50	1851.70	1864.90	1878.10	1891.30		CY
CROSSOVERS & ENTRANCES															120	115					495	280		CY
																					230			CY

	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	8	7	6	5	4	
EXCEPTION EAST LANE	430'				62.0'	43.3'							23.0'	23.0				20.3'		188.6'			FT
WEST LANE (NEW CONST.)																							CY
EAST LANE	1560	1608	1608	1608	1536	1548	1608	1596	1596	1620	1650	1650	1374 222*	258 1394*	1624	1608	1608	1056	1608	1416	1260	324	1632	CY
FRONTAGE ROAD						89	200																	CY
CROSSOVERS & ENTRANCES		100					207								166					135				CY
ADD 1/4 MILE HAUL	63,625	64,512	59984	56936	51681	52060	56810	46368	43707	41,360	39300	36680	33228	30744	30580	27180	24217	12152	15438	12680	13196	8706		CY

* From Source No.3.

† This material was salvaged and used for median island before completion of project

LIMITS OF HAUL FROM SOURCE NO. 3 — FRONTAGE ROAD — FRONTAGE ROAD — FRONTAGE ROAD

LIMITS OF HAUL FROM SOURCE NO. 3

EXIST ROAD EXCEPTION		44.0'																						FT
RECONST. EXIST ROAD	600	1210	980	995	970	990	1010	990	960	300	205													CY
FRONTAGE ROAD	1899.40	1912.60	1925.80	1939.00	1952.20	1965.40	1978.60	1991.80	2005.00	2018.20	2031.40													CY
CROSSOVERS & ENTRANCES		234	535	555	275	285	595	355	90	565	30													CY
				155		70		144	70	60														CY

To SAN ANTONIO — Exist Hwy U.S. 81

STA 2019+38.5
WEBB LASALLE COUNTY LINE

	3	4	5	6	7	8	9	10	11	12	13	
EXCEPTION EAST LANE		42.9'				23.0'	110.0					FT
WEST LANE (NEW CONST.)												CY
EAST LANE	972	1308	1632	1620	1608	1596	1608	255 1928*	1704	1960* 1176	150*	CY
FRONTAGE ROAD												CY
CROSSOVERS & ENTRANCES						48						CY
ADD 1/4 MILE HAUL	3144	8256	12,588	16,625	17,118	20923	25,704	28638	28240	46,233	4620	CY

AMOUNT HAULED FROM SOURCE NO.3 72,607 CY
FROM SOURCE NO.4 17,592 CY

LIMITS OF HAUL FROM SOURCE NO. 4 — FRONTAGE ROAD — FRONTAGE ROAD — FRONTAGE ROAD

SUMMARY OF FLEXIBLE BASE

ITEM	UNIT	I-165-(16) CONTROL 18-4 RECONST. EXIST. RD	CONTROL 18-4 NEW CONST	CONTROL 15-3 RECONST EXIST. RD	CONTROL 15-3 NEW CONST	TOTAL
FLEX BASE PROCESSED	CY	25,850	68,150	38,241	73,133	205,374
ADD QTR MI. HAUL	CY	2,214,881		1259357		3474238

SUMMARY BY PITS	
SOURCE NO. 1	36,745 CY
SOURCE NO. 2	78,430 CY
SOURCE NO. 3	72,607 CY
SOURCE NO. 4	17,592 CY

Note: Haul limits from the different pits were changed by the contractor to suit his sequence of work. The shortest haul distance was always used in computing the additional quarter mile haul.

FINAL HAUL DIAGRAM FLEXIBLE BASE

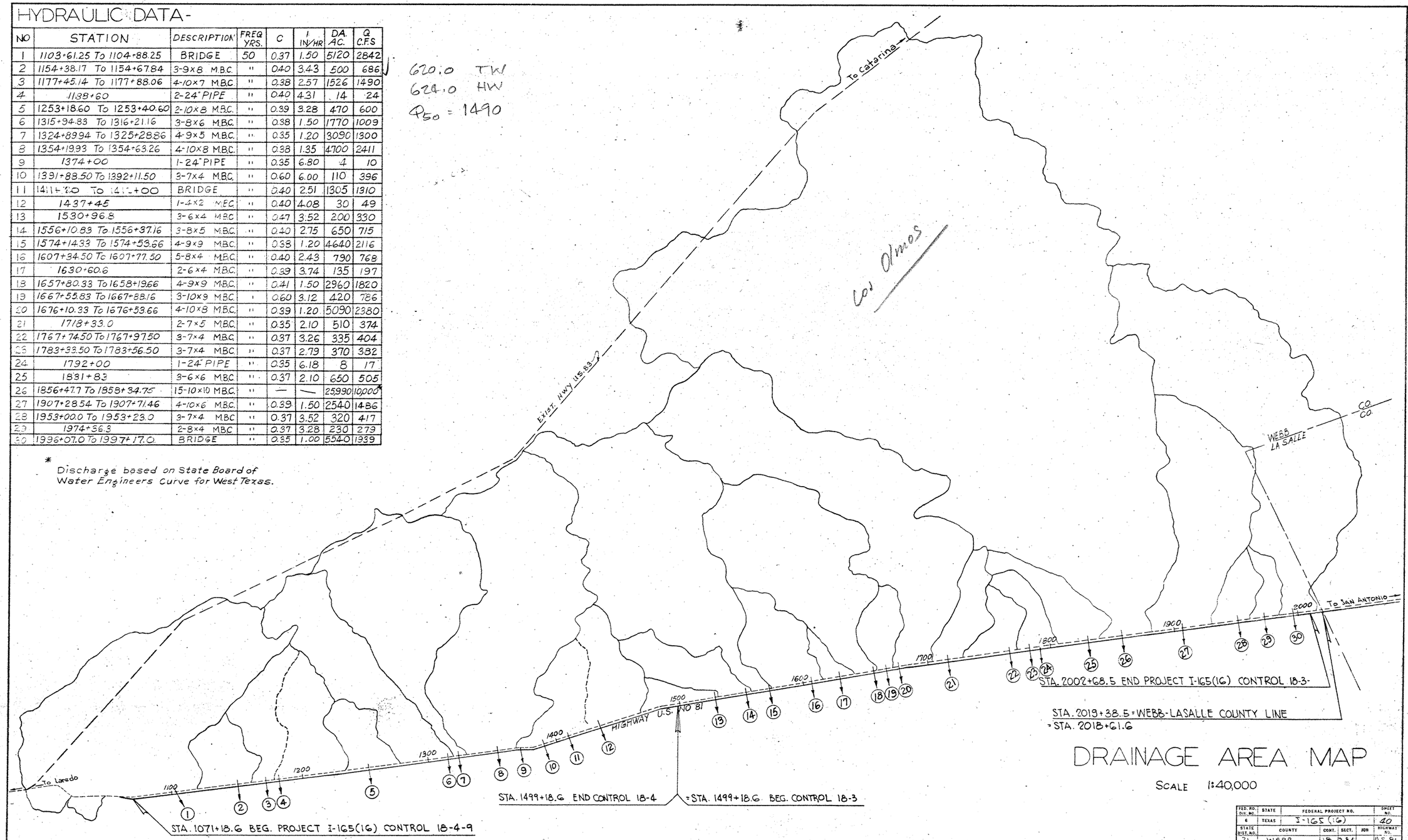
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-165-(16)	39
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 1+3	U.S. 81

HYDRAULIC DATA-

NO	STATION	DESCRIPTION	FREQ YRS.	C	I IN/HR	DA. AC.	Q C.F.S
1	1103+61.25 To 1104+88.25	BRIDGE	50	0.37	1.50	5120	2842
2	1154+38.17 To 1154+67.84	3-9x8 M.B.C.	"	0.40	3.43	500	686
3	1177+45.14 To 1177+88.06	4-10x7 M.B.C.	"	0.38	2.57	1526	1490
4	1138+60	2-24" PIPE	"	0.40	4.31	.14	.24
5	1253+18.60 To 1253+40.60	2-10x8 M.B.C.	"	0.39	3.28	470	600
6	1315+94.83 To 1316+21.16	3-8x6 M.B.C.	"	0.38	1.50	1770	1009
7	1324+89.94 To 1325+28.86	4-9x5 M.B.C.	"	0.35	1.20	3090	1300
8	1354+19.93 To 1354+63.26	4-10x8 M.B.C.	"	0.38	1.35	4700	2411
9	1374+00	1-24" PIPE	"	0.35	6.80	.4	10
10	1391+88.50 To 1392+11.50	3-7x4 M.B.C.	"	0.60	6.00	110	396
11	1411+[illegible] To 1411+00	BRIDGE	"	0.40	2.51	1305	1310
12	1437+45	1-4x2 M.B.C.	"	0.40	4.08	30	49
13	1530+96.8	3-6x4 M.B.C.	"	0.47	3.52	200	330
14	1556+10.83 To 1556+37.16	3-8x5 M.B.C.	"	0.40	2.75	650	715
15	1574+14.33 To 1574+53.66	4-9x9 M.B.C.	"	0.38	1.20	4640	2116
16	1607+34.50 To 1607+77.50	5-8x4 M.B.C.	"	0.40	2.43	790	768
17	1630+60.6	2-6x4 M.B.C.	"	0.39	3.74	135	197
18	1657+80.33 To 1658+19.66	4-9x9 M.B.C.	"	0.41	1.50	2960	1820
19	1667+55.83 To 1667+88.16	3-10x9 M.B.C.	"	0.60	3.12	420	786
20	1676+10.33 To 1676+53.66	4-10x8 M.B.C.	"	0.39	1.20	5090	2380
21	1718+33.0	2-7x5 M.B.C.	"	0.35	2.10	510	374
22	1767+74.50 To 1767+97.50	3-7x4 M.B.C.	"	0.37	3.26	335	404
23	1783+33.50 To 1783+56.50	3-7x4 M.B.C.	"	0.37	2.79	370	382
24	1792+00	1-24" PIPE	"	0.35	6.18	8	17
25	1831+83	3-6x6 M.B.C.	"	0.37	2.10	650	505
26	1856+47.7 To 1858+34.75	15-10x10 M.B.C.	"	—	—	25990	10000*
27	1907+28.54 To 1907+71.46	4-10x6 M.B.C.	"	0.39	1.50	2540	1486
28	1953+00.0 To 1953+23.0	3-7x4 M.B.C.	"	0.37	3.52	320	417
29	1974+56.3	2-8x4 M.B.C.	"	0.37	3.28	230	279
30	1996+07.0 To 1997+17.0	BRIDGE	"	0.35	1.00	5540	1939

620.0 TW
624.0 HW
Q_{50} = 1490

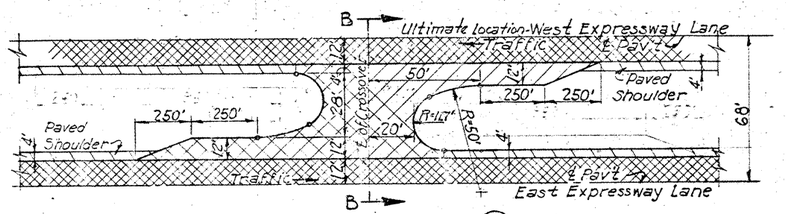
* Discharge based on State Board of Water Engineers Curve for West Texas.



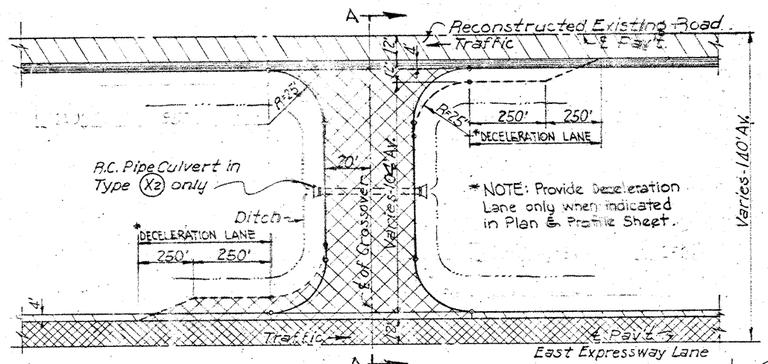
DRAINAGE AREA MAP

SCALE 1:40,000

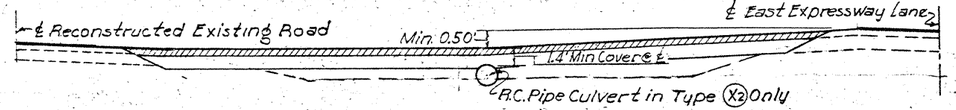
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I-165 (16)			40
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	3&4		U.S. 81



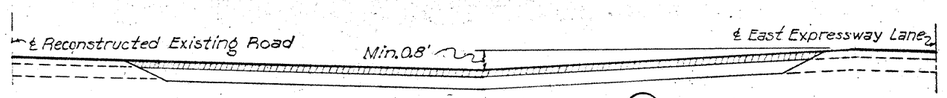
CROSSOVER-TYPE (X)
NOT TO SCALE



CROSSOVER-TYPES (X1) (X2) & (X3)
NOT TO SCALE

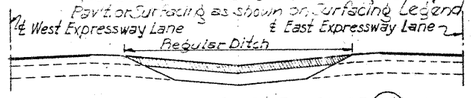


SECTION A-A: TYPES (X2) & (X3)

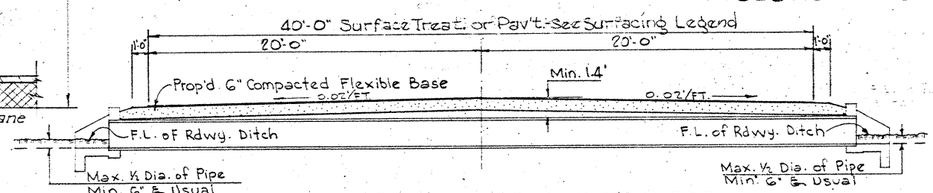


SECTION A-A: TYPE (X1)

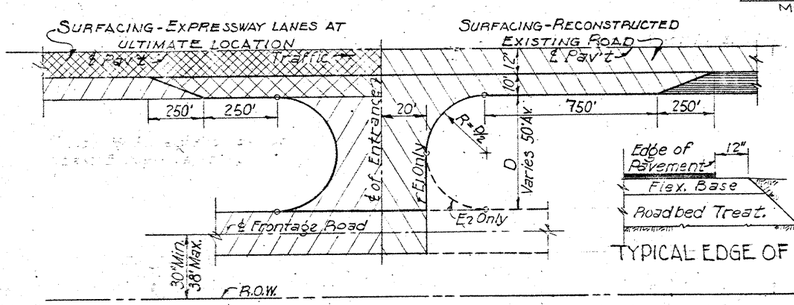
Note: Flexible Base & Roadbed Treatment for All Crossovers to match Flexible Base & Roadbed Treatment on East Expressway Lane
Pav't or Surfacing as shown on Surfacing Legend



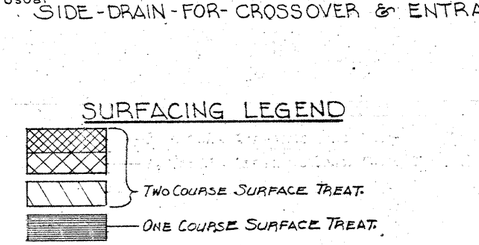
SECTION B-B: TYPE (X)



SIDE-DRAIN-FOR-CROSSOVER & ENTRANCES

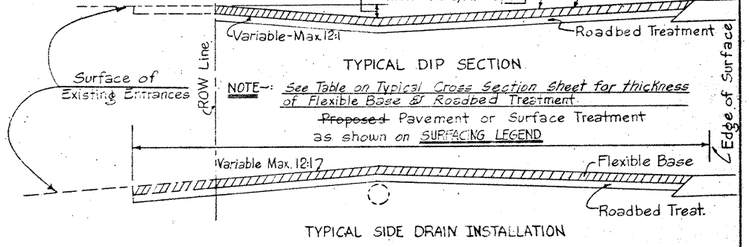


ENTRANCES-TYPE (E1) & (E2)
NOT TO SCALE



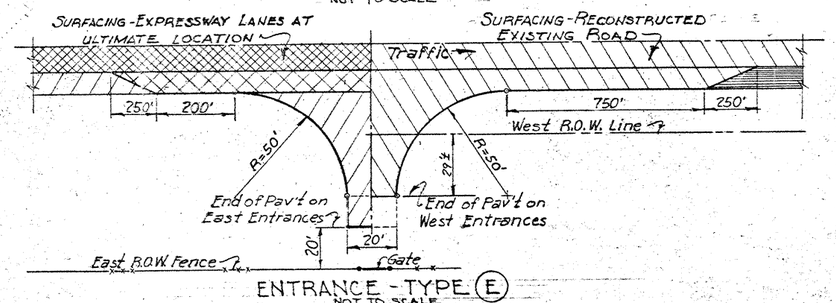
TYPICAL EDGE OF PAV'T.

SURFACING LEGEND

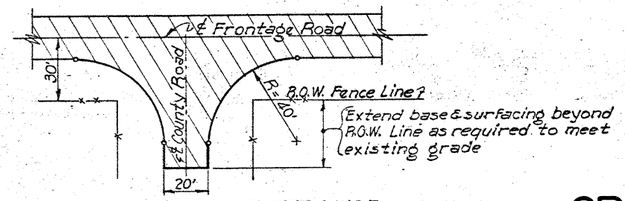


TYPICAL SIDE DRAIN INSTALLATION

TYPICAL SECTIONS FOR PAVED ENTRANCES



ENTRANCE-TYPE (E)
NOT TO SCALE

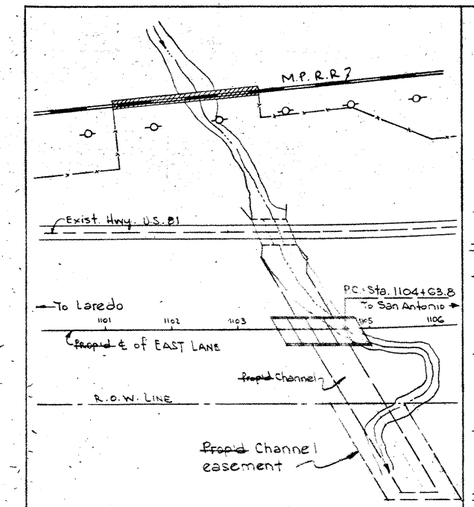


COUNTY ROAD ENTRANCE TYPE-(Ec)

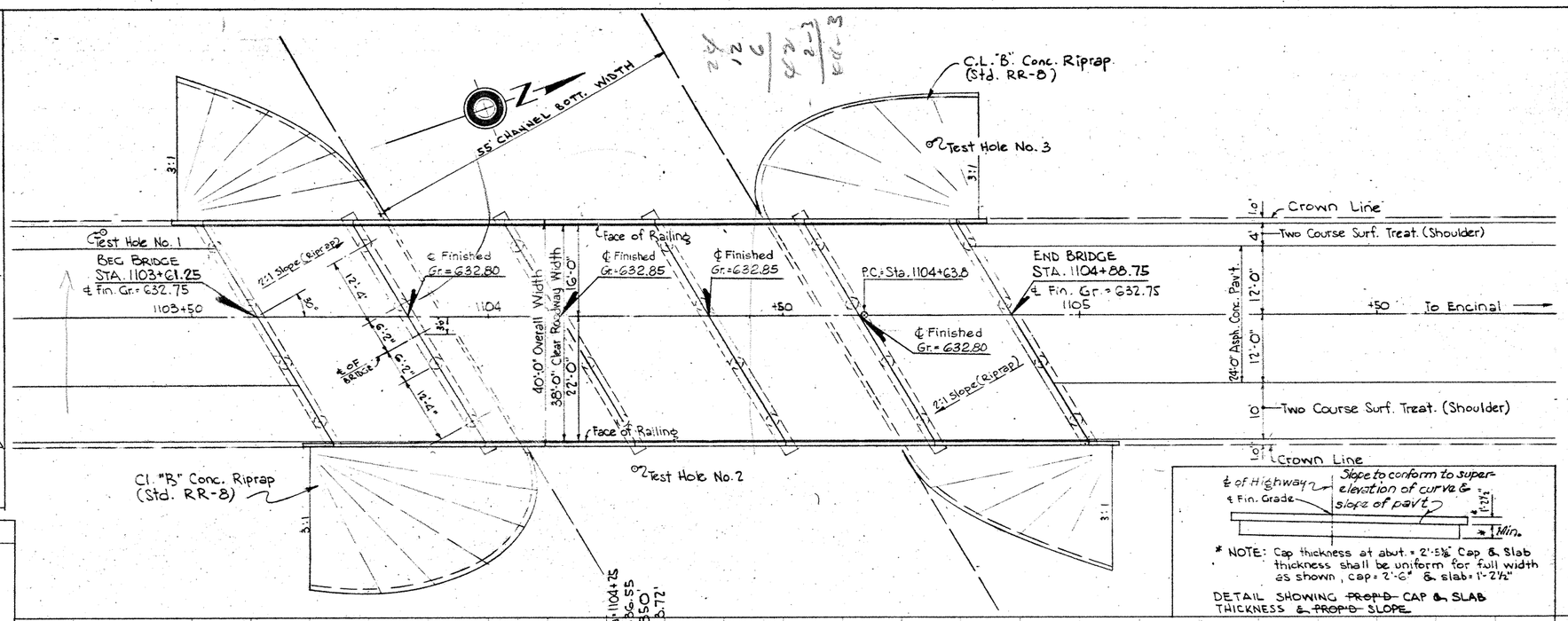
STANDARD DETAILS FOR CROSSOVERS & ENTRANCES

Rev. May 15, 1957

FED. NO. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-165(16)				41
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY No.
21	WEBB		18	3&4	9	U.S. 81



CHANNEL LAYOUT
1" = 100'



* NOTE: Cap thickness at abut. = 2'-5⅜" Cap & Slab thickness shall be uniform for full width as shown, cap = 2'-6" & slab = 1'-2½"

DETAIL SHOWING ~~PROPD~~ CAP & SLAB THICKNESS & ~~PROPD~~ SLOPE

NOTE: See Detail of Structural Excavation on Bridge Layout Sheet at Sta. 1411+20 to Sta. 1412+00

HYDRAULIC DATA

DESIGN FREQUENCY: 50 YRS.

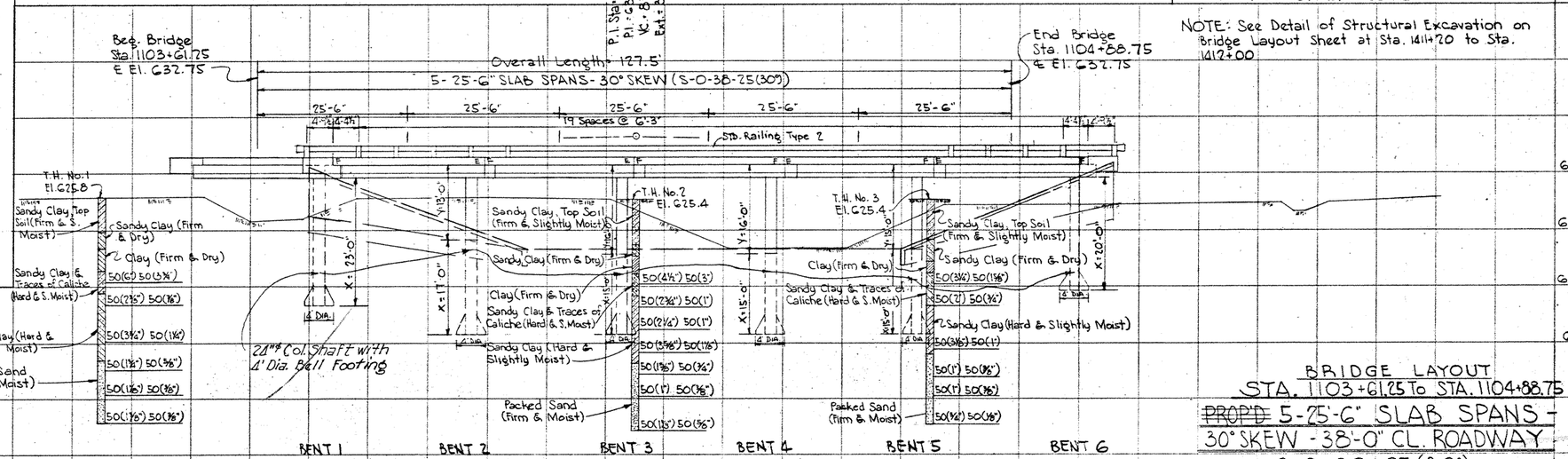
L_1 = 13,000' S_1 = 0.78% V_1 = 1.10 t_1 = 94
L_2 = 8,500 S_2 = 0.47% (Channelized) V_2 = 1.50 t_2 = 197
TOTAL 291 Min.

C = 0.37 ; I = 1.50"/hr. ; A = 5120 ; Q = 2,842 c.f.s.

Slope: 0.0015'/FT.		n = 0.030		W = 55 FT	
Elev.	Area	P	r	V	Q
627.80	402	81.8	4.91	5.54	2227
628.30	442	84.0	5.26	5.80	2564
628.80	483	86.2	5.60	6.05	2922
629.30	525	88.6	5.92	6.27	3292
629.80	568	90.8	6.26	6.51	3698

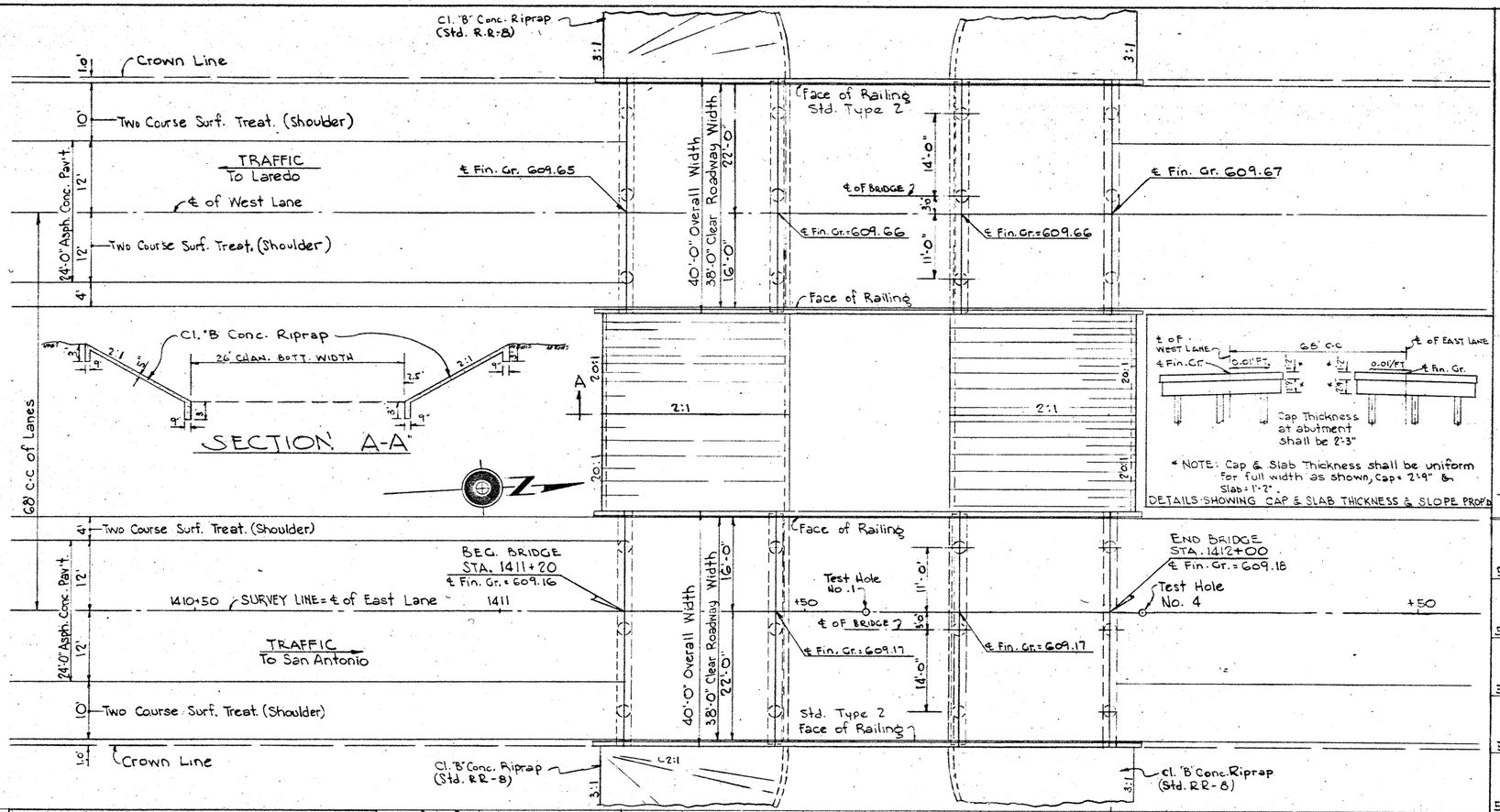
For Q of 2842 ; Depth = 6.88 ; Vel. = 5.98'/sec.
F.L. @ ℄ of EAST LANE = 616.80
F.L. 18' Lt. of ℄ EAST LANE = 617.07
Depth for Q of 2842 = 6.88
hv = 0.56

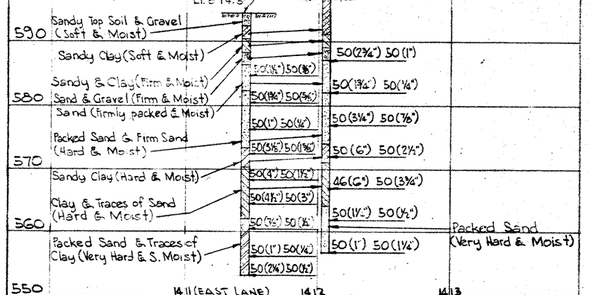
Backwater El. = 624.51



BRIDGE LAYOUT
STA. 1103+61.25 To STA. 1104+88.75
~~PROPD~~ 5-25'-6" SLAB SPANS - 30° SKEW - 38'-0" CL. ROADWAY
S-0-38-25(30°)
& 6-4-COLUMN BENTS BS-0-38.30° SPECIAL

DRAWN A.J.M.	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
CHECKED P.M.M.	6	TEXAS	I 165 (16)			U.S. 81
TRACED P.M.M.	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED A.J.M.	21	WEBB	18	4		42





HYDRAULIC DATA

DESIGN FREQUENCY : 50 YRS.

L_1 = 10,700	S_1 = 1.30%*	V_1 = 1.70	t_1 = 105
L_2 = 850	S_2 = 0.28%	V_2 = 1.00	t_2 = 14
L_3 = 1,050	S_3 = 1.70%	V_3 = 1.40	t_3 = 13
		TOTAL	= 133 Min.

* Channelized

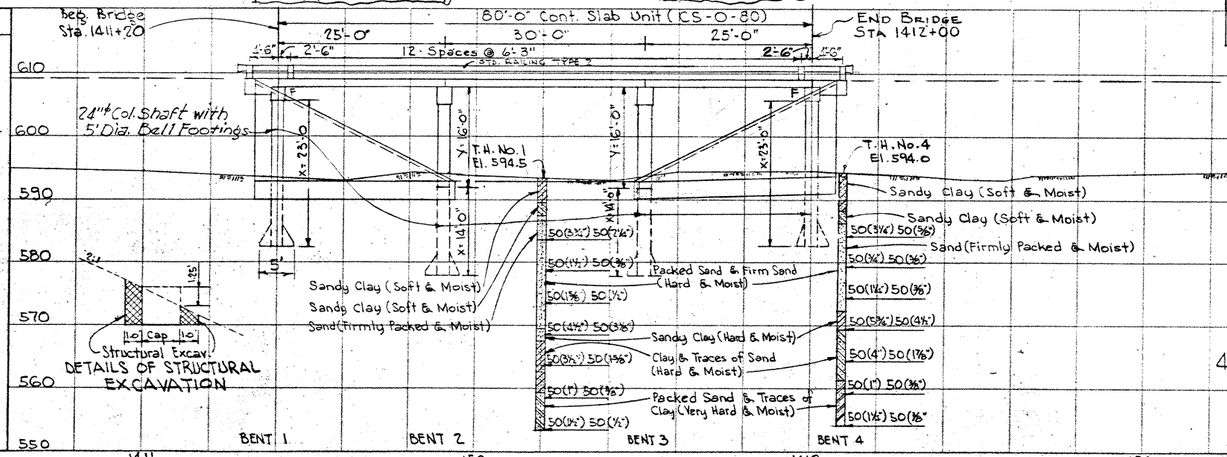
C = 0.40; I = 2.51"/hr; A = 1305 ; Q = 1,310 c.f.s.

Slope: 0.0025'/FT.		n = 0.030		W = 26 FT.	
Elev	Area	P	r	V	Q
598.4	196.72	47.6	3.96	6.20	1232
598.6	208.32	48.4	4.08	6.32	1317
598.8	218.08	49.2	4.20	6.45	1407
599.0	228.00	50.0	4.32	6.57	1498

For Q of 1310; Depth = 5.58 ft Vel. = 6.31 ft/sec.

F.L. @ ℄ of East Lane = 593.00
Depth for Q of 1310 = 6.31
hv = .62

Backwater El. = 599.93

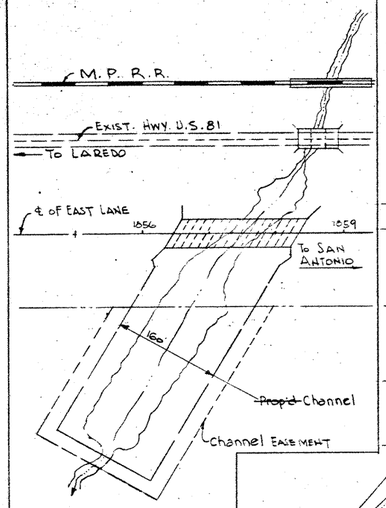


BRIDGES LAYOUT
STA. 1411+20 TO STA. 1412+00
~~PROP'D~~ 2-80'-0" CONT. SLAB UNITS
CS-0-80
EAST & WEST LANES
4 - 3 COLUMN BENTS - BS-0-38 MOD.

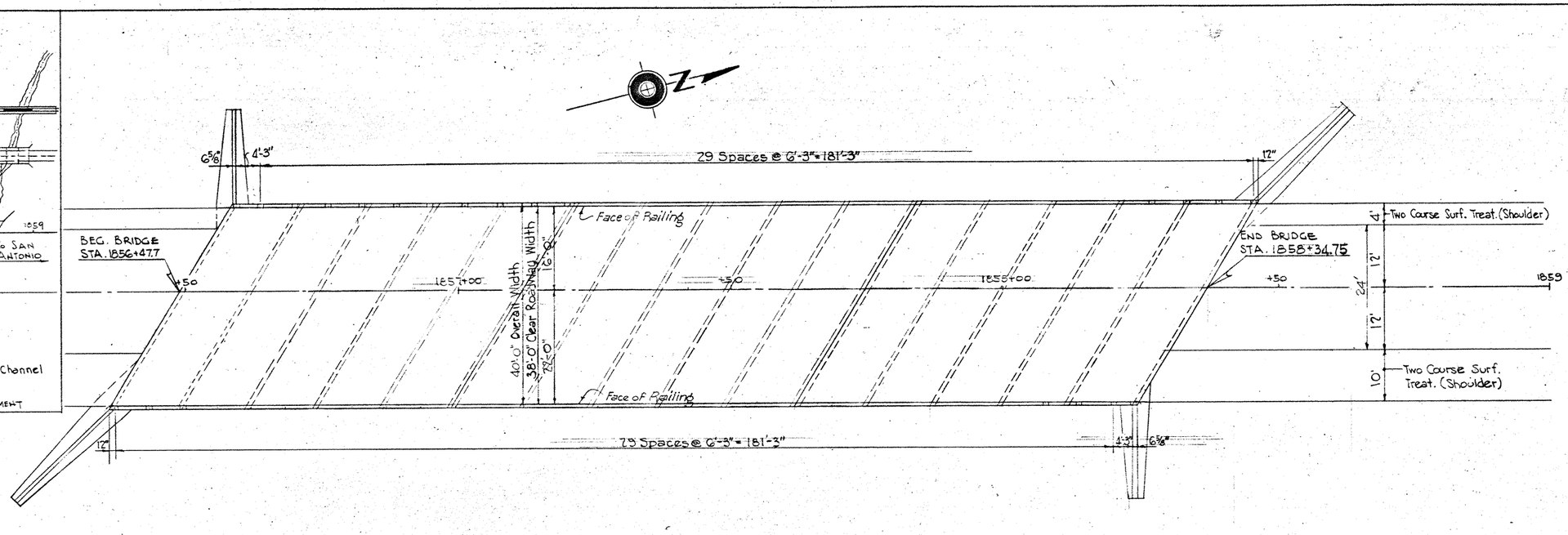
SHEET 1 OF 1 SHEETS

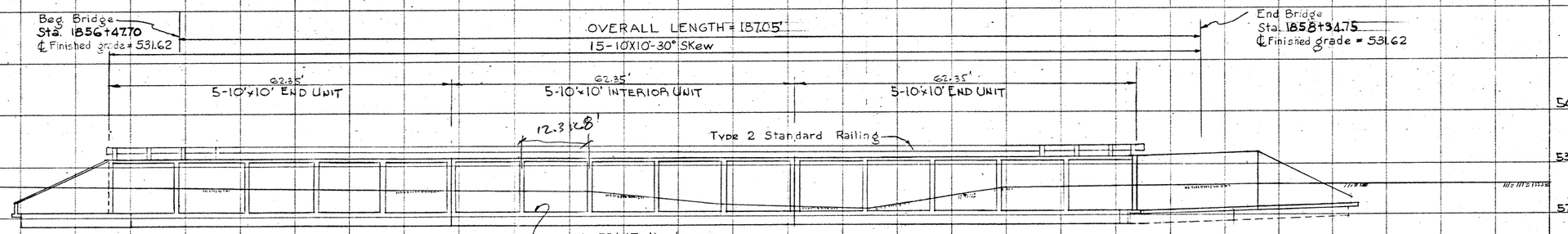
DRAWN	FED. AID PROJ. NO.	STATE	FEDERAL AID PROJECT NO.		HIGHWAY NO.
CHECKED	6	TEXAS	I 165 (16)		U.S. 81
TRACED	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED	21	WEBB	18	4		43

119



CHANNEL LAYOUT
Scale: 1" = 100'



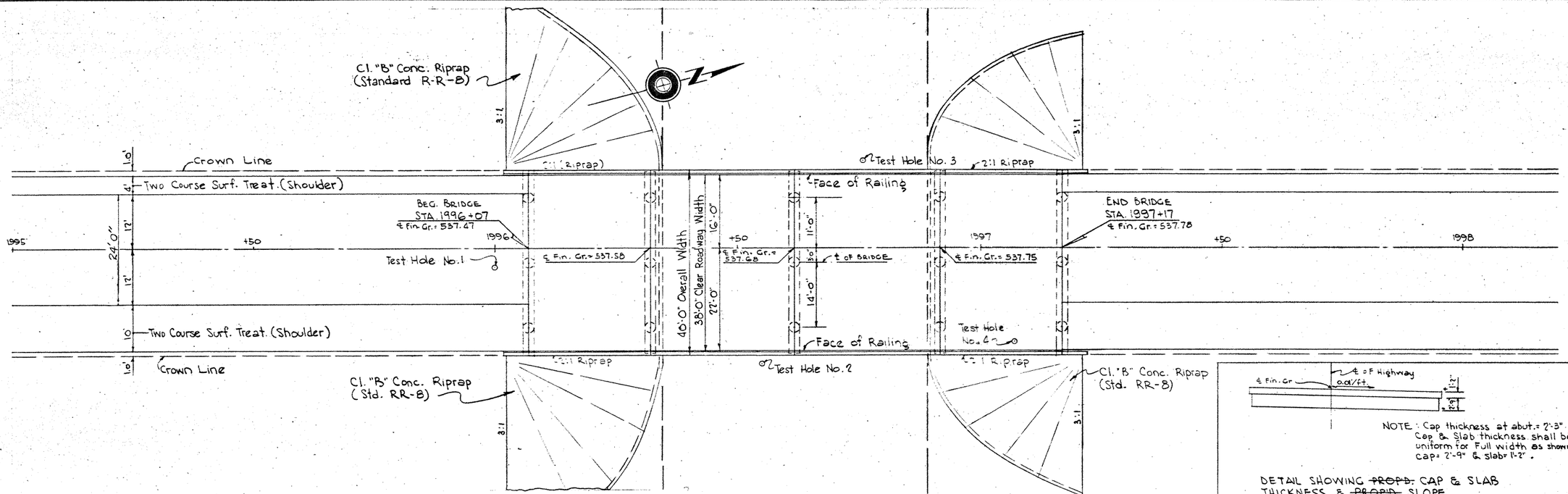


BRIDGE LAYOUT
STA. 1856+47.70 TO STA. 1858+34.75
PROP'D. 15-10'X10'X38'- MULT. BOX CULV.
30° LT. FWD. SKEW
MC10-1-30° SPL. & MCW-F-30°

SHEET 1 OF 1 SHEETS

DRAWN	FED. RD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHECKED	6	TEXAS	I 165(1G)			US-81
TRACED	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED		WEBB	18	3		44

120



HYDRAULIC DATA

DESIGN FREQUENCY: 50 YRS.

L_1 = 9,000' S_1 = 0.33% V_1 = 1.10 t_1 = 150
L_2 = 27,000 S_2 = 0.62 V_2 = 1.60 t_2 = 281

TOTAL = 431 Min.

C = 0.35; I = 1.00"/hr.; A = 5540; Q = 1,939 c.f.s.

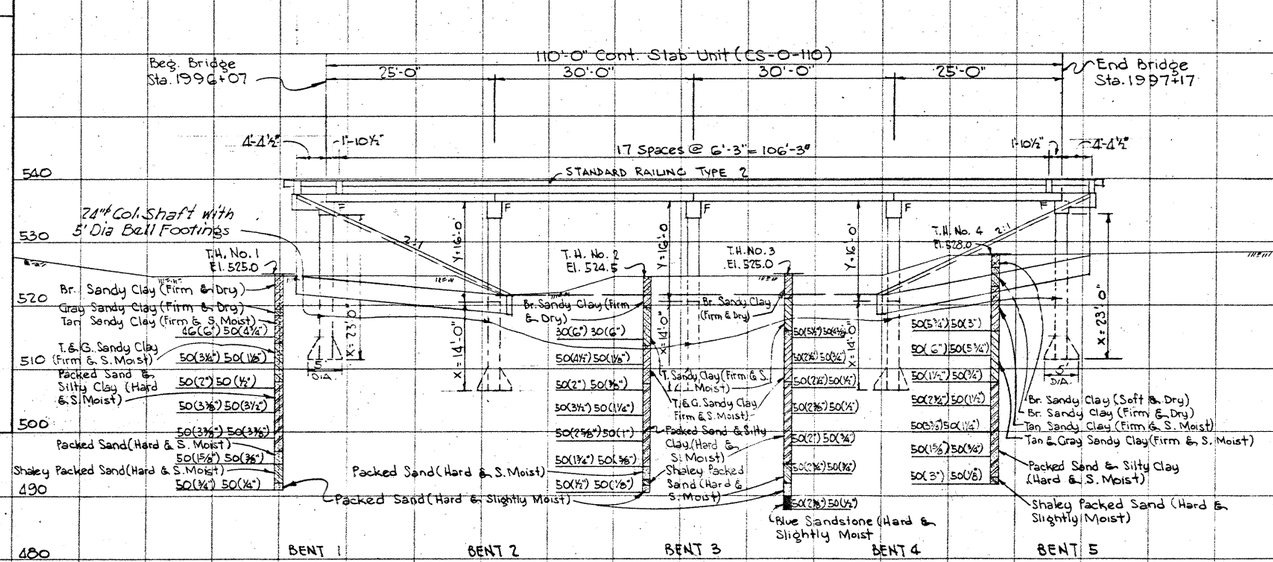
Slope 0.0020 F/F. n = 0.030 W = 55 FT.

Elev.	Area	P	r	V	Q
524.50	252	73	3.45	5.06	1275
525.00	288	75	3.84	5.43	1565
525.50	325	77	4.22	5.79	1880
526.00	363	80	4.53	6.07	2210

For Q of 1939; Depth= 5.10; Vel.= 5.84 F/sec

F.L. @ ℄ of East Lane = 521.50
Depth for Q of 1939 = 5.10
hv = 0.53

Backwater El.= 527.13



NOTE: See Details of Structural Excavation on Layout Sheet @ Sta. 1411+20 To 1412+00

BRIDGE LAYOUT
STA. 1996+07 TO STA. 1997+17
PROP'D. 1-110'-0" CONT. SLAB UNIT
CS-0-110
5-3 COLUMN BENTS = BS-0-38 MOD.

DRAWN	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHECKED	6	TEXAS	F 165(16)			U.S. 81
TRACED	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED	21	WEBB	18	3		45

SHEET | OF | SHEETS

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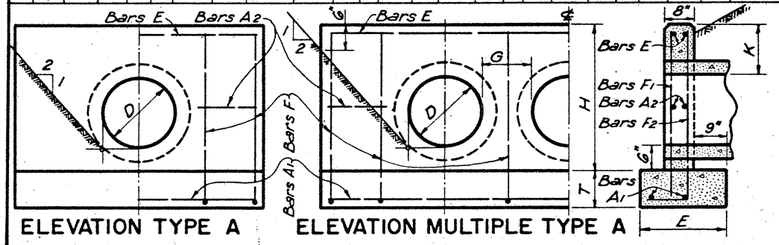
TABLE OF DIMENSIONS AND QUANTITIES FOR TWO TYPE A HEADWALLS

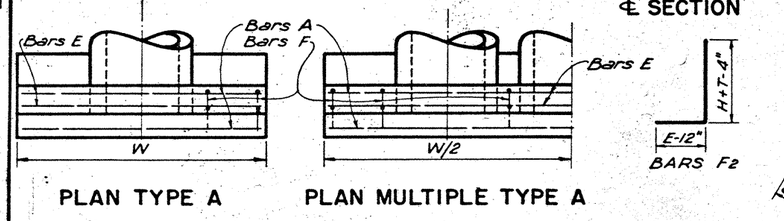
NO. OF PIPES	DIAM. OF PIPES	TABLE OF DIMENSIONS G	K	T	E	H	W	REINF. STEEL FOR TWO HEADWALLS BARS A1 4-3/8"ø			BARS A2 3/8"ø @ 18"±			BARS E 4-3/8"ø			BARS F1 @ 12"±			BARS F2 @ 12"±			TOTAL QUANTITIES STEEL LBS.	CONC. C.Y.
								Lgth.	No.	Wt.	Lgth.	No.	Wt.	Lgth.	No.	Wt.	Size	Lgth.	Wt.	Size	Lgth.	Wt.		
1	12"	~	12"	9"	1'-9"	2'-6"	7'-0"	6'-8"	10	8	2'-6"	8	6'-8"	28	12	98	1/2"ø	2'-11"	23	1/2"ø	3'-8"	29	98	1.48
2	"	10"	"	"	"	"	8'-10"	8'-6"	13	"	"	"	8'-6"	35	14	"	"	27	14	"	"	34	117	1.81
3	"	"	"	"	"	"	10'-8"	10'-4"	16	"	"	"	10'-4"	43	16	"	"	31	16	"	"	39	137	2.15
4	"	"	"	"	"	"	12'-6"	12'-2"	18	"	"	"	12'-2"	51	18	"	"	35	18	"	"	44	156	2.48
1	15"	~	12"	9"	1'-9"	2'-9"	8'-3"	7'-11"	12	8	3'-0"	9	7'-11"	33	12	110	1/2"ø	3'-2"	25	1/2"ø	3'-11"	31	110	1.82
2	"	1'-0"	"	"	"	"	10'-6"	10'-2"	15	"	"	"	10'-2"	42	14	"	"	30	14	"	"	37	133	2.24
3	"	"	"	"	"	"	12'-5"	12'-1"	19	"	"	"	12'-1"	52	16	"	"	34	16	"	"	42	156	2.66
4	"	"	"	"	"	"	15'-0"	14'-8"	22	"	"	"	14'-8"	61	18	"	"	38	18	"	"	47	177	3.09
1	18"	~	12"	9"	1'-9"	3'-0"	9'-6"	9'-2"	14	8	3'-6"	11	9'-2"	38	20	1/2"ø	3'-5"	46	20	1/2"ø	4'-2"	56	165	2.19
2	"	1'-2"	"	"	"	"	12'-2"	11'-10"	18	"	"	"	11'-10"	49	22	"	"	50	22	"	"	61	189	2.70
3	"	"	"	"	"	"	14'-10"	14'-6"	22	"	"	"	14'-6"	60	24	"	"	55	24	"	"	67	215	3.21
4	"	"	"	"	"	"	17'-6"	17'-2"	26	"	"	"	17'-2"	72	26	"	"	59	26	"	"	72	240	3.73
1	24"	~	12"	9"	2'-0"	3'-6"	12'-0"	11'-8"	18	8	4'-6"	14	11'-8"	49	24	1/2"ø	3'-11"	63	24	1/2"ø	4'-11"	79	223	3.17
2	"	1'-5"	"	"	"	"	15'-5"	15'-1"	23	"	"	"	15'-1"	63	26	"	"	68	26	"	"	85	253	3.89
3	"	"	"	"	"	"	18'-10"	18'-6"	28	"	"	"	18'-6"	77	28	"	"	92	28	"	"	92	284	4.62
4	"	"	"	"	"	"	22'-3"	21'-11"	33	"	"	"	21'-11"	91	30	"	"	79	30	"	"	99	316	5.35
1	30"	~	12"	9"	2'-3"	4'-0"	14'-6"	14'-2"	21	16	5'-6"	33	14'-2"	59	28	1/2"ø	4'-5"	83	28	1/2"ø	5'-8"	106	302	4.31
2	"	1'-8"	"	"	"	"	18'-8"	18'-4"	28	"	"	"	18'-4"	76	32	"	"	94	32	"	"	121	352	5.28
3	"	"	"	"	"	"	22'-10"	22'-6"	34	"	"	"	22'-6"	94	36	"	"	106	36	"	"	136	403	6.26
4	"	"	"	"	"	"	27'-0"	26'-8"	40	"	"	"	26'-8"	111	40	"	"	118	40	"	"	152	454	7.24
1	36"	~	12"	12"	2'-6"	4'-6"	17'-0"	16'-8"	25	16	6'-6"	39	16'-8"	70	32	1/2"ø	5'-2"	111	32	1/2"ø	6'-8"	143	388	6.40
2	"	1'-11"	"	"	"	"	21'-11"	21'-7"	32	"	"	"	21'-7"	90	36	"	"	124	36	"	"	160	445	7.89
3	"	"	"	"	"	"	26'-10"	26'-6"	40	"	"	"	26'-6"	111	40	"	"	138	40	"	"	178	506	9.37
4	"	"	"	"	"	"	31'-9"	31'-5"	47	"	"	"	31'-5"	131	44	"	"	152	44	"	"	196	565	10.85
1	42"	~	12"	12"	2'-9"	5'-0"	19'-6"	19'-2"	29	16	7'-6"	45	19'-2"	80	36	1/2"ø	5'-8"	136	36	1/2"ø	7'-5"	178	468	8.10
2	"	2'-2"	"	"	"	"	25'-2"	24'-10"	37	"	"	"	24'-10"	104	40	"	"	152	40	"	"	198	536	9.96
3	"	"	"	"	"	"	30'-10"	30'-6"	46	"	"	"	30'-6"	127	44	"	"	167	44	"	"	218	603	11.80
4	"	"	"	"	"	"	36'-6"	36'-2"	54	"	"	"	36'-2"	151	48	"	"	182	48	"	"	238	670	13.68
1	48"	~	15"	12"	3'-0"	5'-9"	23'-0"	22'-8"	34	24	8'-9"	79	22'-8"	95	40	3/8"ø	6'-5"	268	40	3/8"ø	8'-5"	351	827	10.74
2	"	2'-5"	"	"	"	"	29'-5"	29'-1"	44	"	"	"	29'-1"	121	44	"	"	295	44	"	"	386	925	13.08
3	"	"	"	"	"	"	35'-10"	35'-6"	53	"	"	"	35'-6"	148	48	"	"	321	48	"	"	422	1023	15.43
4	"	"	"	"	"	"	42'-3"	42'-6"	64	"	"	"	42'-1"	179	52	"	"	348	52	"	"	457	1127	17.77
1	54"	~	15"	12"	3'-3"	6'-3"	25'-6"	25'-2"	38	24	9'-9"	88	25'-2"	105	44	3/8"ø	6'-11"	318	44	3/8"ø	9'-2"	421	970	12.87
2	"	2'-10"	"	"	"	"	32'-10"	32'-6"	49	"	"	"	32'-6"	136	50	"	"	361	50	"	"	478	1112	15.77
3	"	"	"	"	"	"	40'-2"	39'-10"	60	"	"	"	39'-10"	166	56	"	"	404	56	"	"	536	1254	18.66
4	"	"	"	"	"	"	47'-6"	47'-9"	72	"	"	"	48'-2"	201	62	"	"	447	62	"	"	593	1401	21.55
1	60"	~	15"	12"	3'-6"	6'-9"	28'-0"	27'-8"	42	24	10'-9"	97	27'-8"	115	48	3/8"ø	7'-5"	371	48	3/8"ø	9'-11"	497	1122	15.20
2	"	3'-0"	"	"	"	"	36'-0"	35'-8"	54	"	"	"	35'-8"	149	54	"	"	418	54	"	"	559	1277	18.55
3	"	"	"	"	"	"	44'-0"	44'-3"	67	"	"	"	44'-8"	186	60	"	"	464	60	"	"	621	1435	21.89
4	"	"	"	"	"	"	52'-0"	52'-3"	79	"	"	"	52'-8"	220	66	"	"	511	66	"	"	683	1590	25.24
1	66"	~	15"	12"	3'-9"	7'-3"	30'-6"	30'-2"	45	32	11'-9"	141	30'-2"	126	52	3/8"ø	7'-11"	430	52	3/8"ø	10'-8"	579	1321	17.72
2	"	3'-1"	"	"	"	"	39'-1"	38'-9"	58	"	"	"	38'-9"	162	58	"	"	479	58	"	"	645	1485	21.49
3	"	"	"	"	"	"	47'-8"	47'-11"	72	"	"	"	48'-4"	202	64	"	"	529	64	"	"	712	1656	25.27
4	"	"	"	"	"	"	56'-3"	56'-6"	85	"	"	"	56'-11"	237	70	"	"	578	70	"	"	779	1820	29.05
1	72"	~	15"	12"	4'-0"	7'-9"	33'-0"	32'-8"	49	32	12'-9"	153	32'-8"	136	56	3/8"ø	8'-5"	492	56	3/8"ø	11'-5"	667	1497	20.42
2	"	3'-2"	"	"	"	"	42'-2"	42'-5"	64	"	"	"	42'-10"	179	62	"	"	544	62	"	"	738	1678	24.66
3	"	"	"	"	"	"	51'-4"	51'-7"	78	"	"	"	52'-0"	217	68	"	"	597	68	"	"	810	1855	28.89
4	"	"	"	"	"	"	60'-6"	60'-9"	91	"	"	"	61'-2"	255	74	"	"	650	74	"	"	881	2030	33.12

TABLE OF DIMENSIONS AND QUANTITIES FOR TWO TYPE B HEADWALLS

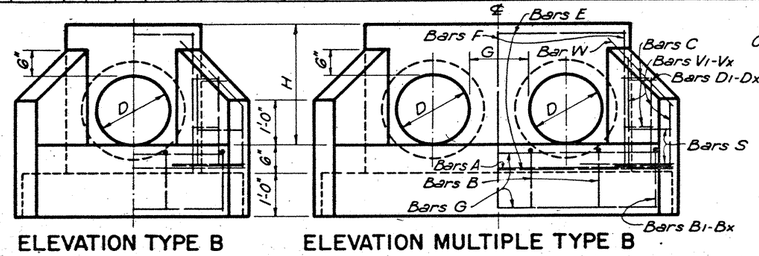
NO. OF PIPES	DIAM. OF PIPES	TABLE OF DIMENSIONS G	K	X	H	Y	W	REINFORCING STEEL AND QUANTITIES FOR TWO HEADWALLS BARS A1-Ax 1/2"ø @ 12"±			BARS B 3/8"ø @ 18"±			BARS B1-Bx 3/8"ø @ 18"±			BARS C1-Dx 1/2"ø@12"±			BARS E 8-3/8"ø			BARS F			BARS G 4-3/8"ø			BARS S 12-1/2"ø			BARS V1-Vx 1/2"ø @ 12"±			BARS W 4-7/8"ø			TOTAL QUANTITIES STEEL LBS.	CONC. C.Y.
								No.	Av. Lgth.	Wt.	No.	Lgth.	Wt.	No.	Av. Lgth.	Wt.	No.	Lgth.	Wt.	No.	Av. Lgth.	Wt.	No.	Size	Lgth.	Wt.													
1	12"	~	12"	2'-4"	2'-0"	1'-0"	2'-4"	2	2'-8"	4	6	2'-6"	6	~	~	~	4	5	~	~	~	~	2'-0"	17	8	1/2"ø	2'-2"	12	2'-8"	4	8"	5	4	2'-11"	8	1'-8"	7	68	.52
2	"	10"	"	4'-2"	"	"	4'-2"	"	4'-6"	6	8	"	8	~	~	~	"	"	~	~	~	~	3'-10"	32	12	"	"	17	4'-6"	7	"	"	"	"	"	"	"	"	"	95	.82
3	"	"	"	6'-0"	"	"	6'-0"	"	6'-4"	8	10	"	9	~	~	~	"	"	~	~	~	~	5'-8"	47	16	"	"	23	6'-4"	10	"	"	"	"	"	"	"	"	"	122	1.11
4	"	"	"	7'-10"	"	"	7'-10"	"	8'-2"	11	12	"	11	~	~	~	"	"	~	~	~	~	7'-6"	63	20	"	"	29	8'-2"	12	"	"	"	"	"	"	"	"	"	151	1.40
1	15"	~	12"	2'-7½"	2'-3"	1'-6"	3'-2½"	4	3'-0"	8	6	3'-0"	7	4	1'-10"	3	8	11	~	~	~	2'-3"	19	8	½"ø	2'-5"	13	3'-7"	5	1'-3"	10	8	3'-0"	16	2'-3"	9	101	.75
2	"	1'-0"	"	4'-10½"	"	"	5'-5½"	"	5'-3"	14	8	"	9	"	"	"	"	"	~	~	~	~	4'-6"	38	12	"	"	19	5'-10"	9	"	"	"	"	"	"	"	"	"	138	1.16
3	"	"	"	7'-1½"	"	"	7'-8½"	"	7'-6"	20	10	"	11	"	"	"	"	"	~	~	~	~	6'-9"	56	16	"	"	26	6'-1"	12	"	"	"	"	"	"	"	"	"	174	1.57
4	"	"	"	9'-4½"	"	"	9'-11½"	"	9'-9"	26	14	"	16	"	"	"	"	"	~	~	~	~	9'-0"	75	20	"	"	32	10'-4"	16	"	"	"	"	"	"	"	"	"	214	1.98
1	18"	~	12"	2'-11"	2'-6"	2'-0"	4'-0½"	4	3'-10"	10	6	3'-6"	8	4	1'-10"	3	8	11	4	1'-0"	2	2'-7"	22	8	½"ø	2'-8"	14	4'-5"	7	1'-10"	15	12	3'-2"	25	2'-11"	12	129	1.00
2	"	1'-2"	"	5'-7"	"	"	6'-8½"	"	6'-6"	17	8	"	11	"	"	"	"	"	"	"	"	5'-3"	44	12	"	"	21	7'-1"	11	"	"	"	"	"	"	"	"	"	172	1.55
3	"	"	"	8'-3"	"	"	9'-4½"	"	9'-2"	25	12	"	16	"	"	"	"	"	"	"	"	7'-11"	66	16	"	"	29	9'-9"	15	"	"	"	"	"	"	"	"	"	219	2.11
4	"	"	"	10'-11"	"	"	12'-0½"	"	11'-10"	32	16	"	21	"	"	"	"	"	"	"	"	10'-7"	88	20	"	"	36	12'-5"	19	"	"	"	"	"	"	"	"	"	264	2.65
1	24"	~	12"	3'-6"	3'-0"	3'-0"	5'-9¾"	6	5'-0"	20	6	4'-6"	10	4	1'-10"	3	8	11	4	1'-0"	2	3'-2"	26	8	½"ø	3'-2"	17	6'-2"	9	3'-0"	24	16	3'-5"	37	4'-2"	17	176	1.62
2	"	1'-5"	"	6'-11"	"	"	9'-2¾"	"	8'-5"	34	10	"	17	"	"	"	"	"	"	"	"	6'-7"	55	12	"	"	25	9'-7"	14	"	"	"	"	"	"	"	"	"	239	2.46
3	"	"	"	10'-4"	"	"	12'-7¾"	"	10'-11"	47	16	"	27	"	"	"	"	"	"	"	"	9'-10"	82	16	"	"	34	13'-0"	20	"	"	"	"	"	"	"	"	"	304	3.32
4	"	"	"	13'-9"	"	"	16'-0¾"	"	15'-3"	61	20	"	34	"	"	"	"	"	"	"	"	13'-5"	112	20	"	"	42	16'-5"	25	"	"	"	"	"	"	"	"	"	368	4.18
1	30"	~	12"	4'-1"	3'-6"	4'-0"	7'-6⅝"	8	6'-2"	33	6	5'-6"	12	8	3'-1"	9	12	16	8	2'-2"	7	3'-9"	31	8	½"ø	3'-8"	20	7'-11"	12	4'-2"	33	20	3'-8"	49	5'-5"	23	245	2.34
2	"	"	"	8'-3"	"	"	11'-8⅝"	"	10'-4"	55	12	"	25	"	"	"	"	"	"	"	"	7'-11"	66	16	"	"	39	12'-1"	18	"	"	"	"	"	"	"	"	"	340	3.58
3	"	"	"	12'-5"	"	"	15'-10⅝"	"	14'-6"	77	18	"	37	"	"	"	"	"	"	"	"	12'-1"	101	24	"	"	59	16'-3"	24	"	"	"	"	"	"	"	"	"	435	4.80
4	"	"	"	16'-7"	"	"	20'-0⅝"	"	18'-8"	100	24	"	50	"	"	"	"	"	"	"	"	16'-3"	136	32	"	"	78	20'-5"	31	"	"	"	"	"	"	"	"	"	532	6.04
1	36"	~	12"	4'-8"	4'-0"	5'-0"	9'-3½"	10	7'-4"	49	8	6'-6"	20	8	3'-1"	9	12	16	8	2'-2"	7	4'-4"	36	8	½"ø	4'-2"	22	9'-8"	15	5'-4"	43	24	3'-11"	63	6'-8"	28	308	3.23
2	"	1'-11"	"	9'-7"	"	"	14'-2½"	"	12'-3"	82	14	"	34	"	"	"	"	"	"	"	"	9'-3"	77	16	"	"	45	14'-7"	22	"	"	"	"	"	"	"	"	"	426	4.89
3	"	"	"	14'-6"	"	"	19'-1½"	"	17'-2"	115	20	"	49	"	"	"	"	"	"	"	"	14'-2"	118	24	"	"	67	19'-6"	29	"	"	"	"	"	"	"	"	"	544	6.55
4	"	"	"	19'-5"	"	"	24'-0⅝"	"	22'-1"	147	28	"	68	"	"	"	"	"	"	"	"	19'-1"	159	32	"	"	89	24'-5"	37	"	"	"	"	"	"	"	"	"	666	8.22
1	42"	~	12"	5'-3"	4'-6"	6'-0"	11'-0¾"	12	8'-6"	68	8	7'-6"	23	12	4'-5"	20	16	21	12	3'-3"	15	4'-11"	41	8	½"ø	4'-8"	25	11'-5"	17	6'-5"	51	28	4'-2"	78	7'-11"	33	392	4.23
2	"	2'-2"	"	10'-11"	"	"	16'-8¾"	"	14'-2"	114	16	"	45	"	"	"	"	"	"	"	"	10'-7"	88	16	"	"	50	17'-1"	26	"	"	"	"	"	"	"	"	"	541	6.40
3	"	"	"	16'-7"	"	"	22'-4¾"	"	19'-10"	159	24	"	68	"	"	"	"	"	"	"	"	16'-3"	136	24	"	"	75	22'-9"	34	"	"	"	"	"	"	"	"	"	690	8.56
4	"	"	"	22'-3"	"	"	28'-0⅝"	"	25'-6"	204	32	"	90	"	"	"	"	"	"	"	"	21'-11"	183	32	"	"	100	28'-5"	43	"	"	"	"	"	"	"	"	"	870	10.74
2	"	2'-5"	"	12'-3"	"	"	17'-0"	"	16'-1"	150	18	"	58	"	"	"	"	"	"	"	"	11'-11"	99	16	"	"	90	19'-7"	29	"	"	"	"	"	"	"	"	"	676	8.25
3	"	"	"	18'-0"	"	"	23'-7⅜"	"	22'-6"	210	26	"	83	"	"	"	"	"	"	"	"	18'-4"	153	24	"	"	136	26'-0"	39	"	"	"	"	"	"	"	"	"	871	11.07
4	"	"	"	25'-1"	"	"	32'-0⅝"	"	28'-11"	270	36	"	115	"	"	"	"	"	"	"	"	24'-9"	207	32	"	"	181	32'-5"	49	"	"	"	"	"	"	"	"	"	1072	13.89
1	54"	~	15"	6'-5"	5'-9"	8'-0"	14'-0"	16	10'-10"	116	10	9'-6"	36	12	4'-5"	20	20	27	16	4'-5"	27	6'-1"	51	8	⅝"ø	5'-11"	49	14'-10"	22	8'-9"	70	40	4'-8"	125	10'-5"	43	586	6.71
2	"	2'-0"	"	13'-9"	"	"	21'-10"	"	18'-2"	194	20	"	71	"	"	"	"	"	"	"	"	13'-5"	112	20	"	"	123	22'-2"	33	"	"	"	"	"	"	"	"	"	845	10.28
3	"	"	"	21'-1"	"	"	29'-2"	"	25'-6"	273	30	"	107	"	"	"	"	"	"	"	"	20'-9"	173	32	"	"	198	29'-6"	44	"	"	"	"	"	"	"	"	"	1107	13.84
4	"	"	"	28'-5"	"	"	36'-6"	"	32'-10"	351	40	"	143	"	"	"	"	"	"	"	"	28'-1"	234	44	"	"	272	36'-10"	55	"	"	"	"	"	"	"	"	"	1367	17.42
1	60"	~	15"	7'-0"	6'-3"	9'-0"	16'-2¾"	18	12'-0"	144	10	10'-6"	39	16	5'-9"	35	20	27	16	4'-5"	27	6'-8"	56	8	⅝"ø	6'-5"	54	16'-7"	25	9'-11"	80	44	4'-11"	145	11'-8"	49	681	8.11
2	"	3'-0"	"	15'-0"	"	"	24'-2⅛"	"	20'-0"	240	22	"	87	"	"	"	"	"	"	"	"	14'-8"	122	20	"	"	134	25'-7"	38	"	"	"	"	"	"	"	"	"	984	12.34
3	"	"	"	23'-0"	"	"	32'-2⅛"	"	28'-0"	337	32	"	126	"	"	"	"	"	"	"	"	22'-8"	189	32	"	"	214	32'-7"	49	"	"	"	"	"	"	"	"	"	1278	16.57
4	"	"	"	31'-0"	"	"	40'-2⅛"	"	36'-5"	438	44	"	174	"	"	"	"	"	"	"	"	30'-8"	256	44	"	"	295	41'-6"	62	"	"	"	"	"	"	"	"	"	1588	20.82
1	66"	~	15"	7'-3"	6'-9"	10'-0"	17'-1¾"	20	13'-2"	176	12	11'-6"	52	16	5'-9"	35	24	32	20	5'-7"	42	7'-3"	60	8	⅝"ø	6'-11"	58	18'-4"	28	11'-1"	89	48	5'-2"	166	13'-0"	54	792	9.65
2	"	3'-1"	"	19'-1"	"	"	26'-6⅝"	"	21'-9"	291	24	"	104	"	"	"	"	"	"	"	"	15'-10"	132	20	"	"	144	26'-11"	40	"	"	"	"	"	"	"	"	"	1129	14.54
3	"	"	"	24'-9"	"	"	35'-1¾"	"	30'-4"	405	34	"	147	"	"	"	"	"	"	"	"	24'-5"	204	32	"	"	231	35'-6"	53	"	"	"	"	"	"	"	"	"	1458	19.42
4	"	"	"	30'-4"	"	"	43'-8⅝"	"	39'-8"	530	46	"	199	"	"	"	"	"	"	"	"	33'-0"	275	44	"	"	318	45'-0"	68	"	"	"	"	"	"	"	"	"	1808	24.31
1	72"	~	15"	8'-2"	7'-3"	11'-0"	19'-8⅜"	22	14'-4"	211	12	12'-6"	56	16	5'-9"	35	24	32	20	5'-7"	42	7'-10"	65	8	⅝"ø	7'-5"	62	20'-1"	30	12'-3"	98	52	5'-5"	188	14'-3"	59	878	11.32
2	"	"	"	17'-4"	"	"	28'-10⅜"	"	23'-6"	345	24	"	113	"	"	"	"	"	"	"	"	17'-0"	142	20	"	"	155	29'-3"	44	"	"	"	"	"	"	"	"	"	1253	16.91
3	"	"	"	26'-2"	"	"	38'-0⅜"	"	32'-10"	482	38	"	179	"	"	"	"	"	"	"	"	26'-2"	218	32	"	"	248	38'-5"	58	"	"	"	"	"	"	"	"	"	1639	22.52
4	"	"	"	35'-4"	"	"	47-2⅜"	"	43'-0"	632	50	"	235	"	"	"	"	"	"	"	"	35'-4"	295	44	"	"	341	48'-6"	73	"	"	"	"	"	"	"	"	"	2030	28.11



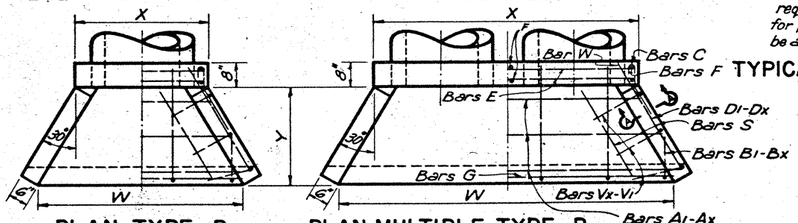
ELEVATION TYPE A — ELEVATION MULTIPLE TYPE A — ℄ SECTION



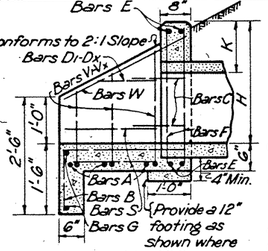
PLAN TYPE A — PLAN MULTIPLE TYPE A — BARS F2

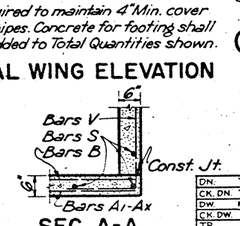


ELEVATION TYPE B — ELEVATION MULTIPLE TYPE B

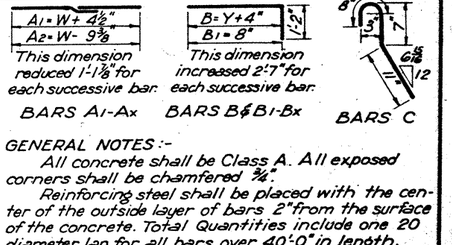


PLAN TYPE B — PLAN MULTIPLE TYPE B — TYPICAL WING ELEVATION





SEC. A-A



GENERAL NOTES :-

All concrete shall be Class A. All exposed corners shall be chamfered ¾".

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete. Total Quantities include one 20 diameter lap for all bars over 40'-0" in length.

TEXAS HIGHWAY DEPARTMENT

CONCRETE HEADWALLS FOR PIPE CULVERTS

12 TO 72 INCHES IN DIAMETER

CH-11

DN. T.H.D.	DRAWING	DATE
CK. DN. T.H.D.	Original	Feb. 1950
DW M.D.A.		
CK. DW K.M.		
TR O.C.K.		
CK. TR M.D.A.		

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	F-165 (16)	46
STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO. / SUBSHEET NO.	
21	WEBB	18 / 4 / 9	U.S.81

PLAN — PROFILE — SURVEYED — PLOTTED — NOTE BOOK — CHECKED — NO. — STRUCTURE NOTATING 'H' & 'D' — DATE — BY

12

BILLS OF REINFORCING STEEL FOR 44'-0" CLEAR WIDTH

SC-NA

CULVERT SIZE S	H	TYPE SECTION	DIMENSIONS T	U	MAX. FILL	TOTAL QUANTITIES 44' CLEAR WIDTH Conc.	Reinf.	QUANTITIES PLF. OF BARREL Conc.	Reinf.
3	2	1	6"	6"	14'	10.27	1,271	0.222	26.92
	3	1	6"	6"	14'	11.95	1,353	0.259	28.70
4	2	1	6"	6"	12'	12.00	1,740	0.259	37.06
	3	1	6"	6"	12'	13.68	1,844	0.296	39.35
	4	1	6"	6"	12'	15.36	2,011	0.333	42.98
5	2	2	6"	6"	8'	13.73	2,103	0.296	44.87
	3	2	6"	6"	8'	15.41	2,194	0.333	46.87
	4	2	6"	6"	8'	17.09	2,346	0.370	50.21
	5	3	6"	7"	8'	20.45	2,968	0.444	63.66
6	2	2	6"	6"	6'	17.14	2,523	0.370	53.75
	3	2	6"	6"	6'	18.81	2,682	0.407	57.22
	4	2	6"	6"	6'	22.13	3,312	0.481	70.85
	5	3	6"	7"	6'	24.14	3,450	0.525	73.88
7	3	2	6½"	6"	4'	19.98	2,934	0.432	62.69
	4	2	6½"	6"	4'	21.66	3,100	0.469	66.32
	5	3	6½"	7"	4'	25.05	3,581	0.544	76.76
	6	3	6½"	7"	4'	27.01	3,713	0.587	79.65
	7	3	6½"	7"	4'	28.97	3,970	0.630	85.22
8	2	2	6½"	6"	4'	23.53	3,588	0.509	76.92
	3	2	6½"	6"	4'	26.92	4,248	0.584	90.94
	4	3	6½"	7"	4'	28.88	4,411	0.627	94.50
	5	3	6½"	7"	4'	30.84	4,698	0.670	100.74
	6	3	6½"	7"	4'	32.79	4,985	0.718	107.29
	7	3	6½"	7"	4'	35.35	5,046	0.770	108.74
	8	3	6½"	8"	4'	38.29	5,308	0.822	114.19
9	3	3	7"	7"	4'	30.21	5,060	0.655	108.99
	4	3	7"	7"	4'	32.17	5,235	0.699	112.83
	5	3	7"	7"	4'	34.13	5,534	0.742	119.33
	6	3	7"	7"	4'	38.66	5,985	0.842	128.47
	7	3	7"	8"	4'	40.90	6,277	0.891	134.81
	8	3	7"	8"	4'	43.14	6,569	0.941	141.15
	9	3	7"	8"	4'	45.38	6,861	0.990	147.49
	10	3	7"	8"	4'	47.62	7,153	1.040	153.83
10	3	3	7"	8"	4'	45.15	7,743	0.984	166.95

BARS A IN TOP SLAB No.	Size	Spac	Length	Weight	BARS B IN BOTTOM SLAB No.	Size	Spac	Length	Weight	BARS C WALLS AND TOP CORNER No.	Size	Spac	Length	Weight	Dim X	BARS D IN BOTTOM CORNERS No.	Size	Spac	Length	Weight	Dim X	62½°BARS E @ 18"C to C Length	Weight
78	½"	7"	3'-8"	191																			
78	½"	7"	3'-8"	191																			
91	½"	6"	4'-8"	284																			
91	½"	6"	4'-8"	284																			
91	½"	6"	4'-8"	284																			
68	⅝"	8"	5'-8"	402	58	½"	9½"	5'-8"	220	136	⅝"	8"	4'-10"	439	2'-4"	136	½"	8"	4'-1"	371	1'-7"		
68	⅝"	8"	5'-8"	402	58	½"	9½"	5'-8"	220	136	⅝"	8"	5'-10"	530	3'-4"	136	½"	8"	4'-1"	371	1'-7"		
68	⅝"	8"	5'-8"	402	58	½"	9½"	5'-8"	220	136	⅝"	8"	6'-10"	620	4'-4"	136	½"	8"	4'-1"	371	1'-7"		
68	⅝"	8"	5'-10"	413	58	½"	9½"	5'-10"	226	136	⅝"	8"	7'-10"	711	5'-4"	136	½"	8"	4'-1"	371	1'-7"	4'-11"	204
78	⅝"	7"	6'-8"	543	61	½"	9"	6'-8"	272	146	⅝"	7½"	5'-10"	569	3'-4"	146	½"	7½"	4'-1"	398	1'-7"		
78	⅝"	7"	6'-8"	543	61	½"	9"	6'-8"	272	146	⅝"	7½"	6'-10"	666	4'-4"	146	½"	7½"	4'-1"	398	1'-7"		
78	⅝"	7"	6'-10"	556	61	½"	9"	6'-10"	278	146	⅝"	7½"	7'-10"	764	5'-4"	146	½"	7½"	4'-1"	398	1'-7"	4'-11"	204
78	⅝"	7"	6'-10"	556	61	½"	9"	6'-10"	278	146	⅝"	7½"	8'-10"	861	6'-4"	146	½"	7½"	4'-1"	398	1'-7"	5'-11"	245
78	⅝"	7"	7'-8"	624	91	½"	6"	7'-8"	466	156	½"	7"	5'-10"	608	3'-4"	156	½"	7"	4'-1"	425	1'-7"		
78	⅝"	7"	7'-8"	624	91	½"	6"	7'-8"	466	156	½"	7"	6'-10"	712	4'-4"	156	½"	7"	4'-1"	425	1'-7"		
78	⅝"	7"	7'-10"	637	91	½"	6"	7'-10"	476	136	⅝"	8"	7'-10"	711	5'-4"	136	⅝"	8"	4'-1"	371	1'-7"	4'-11"	204
78	⅝"	7"	7'-10"	637	91	½"	6"	7'-10"	476	136	⅝"	8"	8'-10"	802	6'-4"	136	⅝"	8"	4'-1"	371	1'-7"	5'-11"	245
78	⅝"	7"	7'-10"	637	91	½"	6"	7'-10"	476	136	⅝"	8"	9'-10"	893	7'-4"	136	⅝"	8"	4'-1"	371	1'-7"	6'-11"	287
68	⅝"	8"	8'-8"	615	68	⅝"	8"	8'-8"	615	182	⅝"	6"	6'-10"	830	4'-4"	182	½"	6"	4'-1"	496	1'-7"		
68	⅝"	8"	8'-10"	626	68	⅝"	8"	8'-10"	626	182	⅝"	6"	7'-10"	952	5'-4"	182	½"	6"	4'-1"	496	1'-7"	4'-11"	204
68	⅝"	8"	8'-10"	626	68	⅝"	8"	8'-10"	626	182	⅝"	6"	8'-10"	1,074	6'-4"	182	½"	6"	4'-1"	496	1'-7"	5'-11"	245
68	⅝"	8"	8'-10"	626	68	⅝"	8"	8'-10"	626	182	⅝"	6"	9'-10"	1,195	7'-4"	182	½"	6"	4'-1"	496	1'-7"	6'-11"	287
68	⅝"	8"	9'-0"	732	68	⅝"	8"	9'-0"	638	198	⅝"	5½"	10'-10"	1,432	8'-4"	198	⅝"	5½"	4'-1"	540	1'-7"	7'-11"	328
64	¾"	8½"	9'-10"	945	84	⅝"	6½"	9'-10"	861	128	⅝"	8½"	8'-3"	1,101	5'-5"	128	⅝"	8½"	4'-1"	657	2'-1"	4'-11"	204
64	¾"	8½"	9'-10"	945	84	⅝"	6½"	9'-10"	861	128	⅝"	8½"	9'-3"	1,235	6'-5"	128	⅝"	8½"	4'-1"	657	2'-1"	5'-11"	245
64	¾"	8½"	9'-10"	945	84	⅝"	6½"	9'-10"	861	128	⅝"	8½"	10'-3"	1,368	7'-5"	128	⅝"	8½"	4'-1"	657	2'-1"	6'-11"	287
61	¾"	9"	10'-0"	916	61	⅝"	9"	10'-0"	916	122	⅝"	9"	11'-3"	1,432	8'-5"	122	⅝"	9"	5'-4"	977	2'-4"	7'-11"	328
61	¾"	9"	10'-0"	916	61	⅝"	9"	10'-0"	916	122	⅝"	9"	12'-3"	1,559	9'-5"	122	⅝"	9"	5'-4"	977	2'-4"	8'-11"	369
68	⅝"	8"	10'-10"	1,106	68	⅝"	8"	10'-10"	1,106	156	⅝"	7"	8'-3"	1,342	5'-5"	156	⅝"	7"	4'-11"	801	2'-1"	4'-11"	204
68	⅝"	8"	10'-10"	1,106	68	⅝"	8"	10'-10"	1,106	156	⅝"	7"	9'-3"	1,505	6'-5"	156	⅝"	7"	4'-11"	801	2'-1"	5'-11"	245
68	⅝"	8"	10'-10"	1,106	68	⅝"	8"	10'-10"	1,106	156	⅝"	7"	10'-3"	1,668	7'-5"	156	⅝"	7"	4'-11"	801	2'-1"	6'-11"	287
73	⅞"	7½"	11'-0"	1,206	73	⅞"	7½"	11'-0"	1,206	146	⅝"	7½"	11'-3"	1,713	8'-5"	146	⅝"	7½"	5'-4"	1,169	2'-4"	7'-11"	328
73	⅞"	7½"	11'-0"	1,206	73	⅞"	7½"	11'-0"	1,206	146	⅝"	7½"	12'-3"	1,865	9'-5"	146	⅝"	7½"	5'-4"	1,169	2'-4"	8'-11"	369
73	⅞"	7½"	11'-0"	1,206	73	⅞"	7½"	11'-0"	1,206	146	⅝"	7½"	13'-3"	2,018	10'-5"	146	⅝"	7½"	5'-4"	1,169	2'-4"	9'-11"	411

½" ϕ BARS F Length = 46'-4" F1	Spac	F2	Spac	F3	Spac	Total	Weight	BARS H 4-½" ϕ @12'-3-11 Lg. Length	Weight	½"BARS K No.	Weight
7	12½"	3	20½"	4	10"	14	433	3'-9"	10	10	26
7	12½"	3	20½"	4	14"	14	433	3'-9"	10	10	26
9	12½"	4	18½"	4	10"	17	526	4'-9"	13	12	31
9	12½"	4	18½"	4	14"	17	526	4'-9"	13	12	31
9	12½"	4	18½"	6	15"	19	588	4'-9"	13	12	31
9	12½"	7	18½"	4	10"	20	619	5'-9"	15	14	37
9	12½"	7	18½"	4	14"	20	619	5'-9"	15	14	37
9	12½"	7	18½"	6	15"	22	681	5'-9"	15	14	37
9	12½"	7	18½"	16	13"	32	990	5'-11"	16	14	37
10	12½"	8	18½"	4	14"	22	681	6'-9"	18	16	42
10	12½"	8	18½"	6	15"	24	743	6'-9"	18	16	42
10	12½"	8	18½"	16	13"	34	1,052	6'-11"	18	16	42
10	12½"	8	18½"	16	16"	34	1,052	6'-11"	18	16	42
11	12½"	9	18½"	4	14"	28	867	6'-9"	23	20	52
12	12½"	10	18½"	6	14"	38	1176	8'-11"	24	20	52
12	12½"	10	18½"	16	14"	38	1176	8'-11"	24	20	52
12	12½"	10	18½"	16	16"	38	1176	8'-11"	24	20	52
12	12½"	10	18½"	20	15"	42	1300	8'-11"	24	20	52
12	12½"	10	18½"	20	17"	42	1300	9'-1"	24	20	52
13	12½"	10	18½"	16	14"	39	1207	9'-11"	27	22	58
13	12½"	10	18½"	16	16"	39	1207	9'-11"	27	22	58
13	12½"	10	18½"	20	15"	43	1331	9'-11"	27	22	58
13	12½"	10	18½"	20	17"	43	1331	10'-1"	27	22	58
13	12½"	10	18½"	24	16½"	47	1455	10'-1"	27	22	58
14	12½"	11	18½"	16	14"	41	1269	10'-11"	29	24	63
14	12½"	11	18½"	16	16"	41	1269	10'-11"	29	24	63
14	12½"	11	18½"	20	15"	45	1393	10'-11"	29	24	63
14	12½"	11	18½"	20	17"	45	1393	11'-1"	30	24	63
14	12½"	11	18½"	28	16"	53	1640	11'-1"	30	24	63
8	18½"	8	18½"	4	14"	20	619	6'-9"	18	16	42
8	18½"	8	18½"	6	15"	22	681	6'-9"	18	16	42
8	18½"	8	18½"	16	14"	32	990	6'-11"	18	16	42
8	18½"	8	18½"	16	16"	32	990	6'-11"	18	16	42
9	18½"	9	18½"	4	14"	22	681	7'-9"	21	18	47
9	18½"	9	18½"	6	14"	24	743	7'-9"	21	18	47
9	18½"	9	18½"	16	14"	34	1052	7'-11"	21	18	47
9	18½"	9	18½"	16	16"	34	1052	7'-11"	21	18	47
9	18½"	9	18½"	20	15"	38	1176	7'-11"	21	18	47
10	18½"	10	18½"	6	14½"	26	805	8'-9"	23	20	52
10	18½"	10	18½"	6	14"	36	1114	8'-11"	24	20	52
10	18½"	10	18½"	16	16½"	36	1114	8'-11"	24	20	52
10	18½"	10	18½"	20	15"	42	1300	8'-11"	24	20	52
10	18½"	10	18½"	20	16"	40	1238	8'-11"	24	20	52
10	18½"	10	18½"	20	18"	40	1238	9'-1"	24	20	52
11	18½"	11	18½"	16	14"	38	1176	10'-11"	29	24	63
11	18½"	11	18½"	16	16½"	38	1176	10'-11"	29	24	63
11	18½"	11	18½"	20	16"	42	1300	10'-11"	29	24	63
11	18½"	11	18½"	20	18"	42	1300	11'-1"	30	24	63
11	18½"	11	18½"	28	16"	50	1547	11'-1"	30	24	63

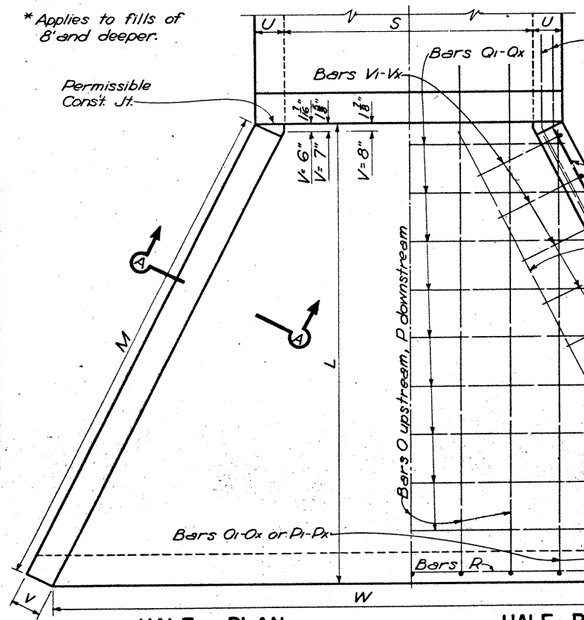
SC-NB

BARS A IN TOP SLAB No.	Size	Spac	Length	Weight	BARS B IN BOTTOM SLAB No.	Size	Spac	Length	Weight	BARS C WALLS AND TOP CORNER No.	Size	Spac	Length	Weight	Dim X	BARS D IN BOTTOM CORNERS No.	Size	Spac	Length	Weight	Dim X	62½°BARS E @ 18"C to C Length	Weight
68	⅝"	8"	6'-8"	473	68	⅝"	8"	6'-8"	473	182	⅝"	6"	5'-10"	709	3'-4"	182	½"	6"	4'-1"	496	1'-7"		
68	⅝"	8"	6'-8"	473	68	⅝"	8"	6'-8"	473	182	⅝"	6"	6'-10"	830	4'-4"	182	½"	6"	4'-1"	496	1'-7"		
68	⅝"	8"	6'-10"	484	68	⅝"	8"	6'-10"	484	182	⅝"	6"	7'-10"	952	5'-4"	182	½"	6"	4'-1"	496	1'-7"	4'-11"	204
68	⅝"	8"	6'-10"	484	68	⅝"	8"	6'-10"	484	198	⅝"	5½"	8'-10"	1,168	6'-4"	198	⅝"	5½"	4'-1"	540	1'-7"	5'-11"	245
68	⅝"	8"	7'-8"	544	68	⅝"	8"	7'-8"	544	198	⅝"	5½"	5'-10"	771	3'-4"	198	⅝"	5½"	4'-1"	540	1'-7"		
68	⅝"	8"	7'-8"	544	68	⅝"	8"	7'-8"	544	168	⅝"	6½"	6'-10"	766	4'-4"	168	⅝"	6½"	4'-1"	458	1'-7"		
68	⅝"	8"	7'-10"	555	68	⅝"	8"	7'-10"	555	168	⅝"	6½"	7'-10"	879	5'-4"	168	⅝"	6½"	4'-1"	458	1'-7"	4'-11"	204
73	⅞"	7½"	11'-0"	596	73	⅞"	7½"	11'-0"	596	182	⅝"	6"	8'-10"	1,074	6'-4"	182	½"	6"	4'-1"	496	1'-7"	5'-11"	245
73	⅞"	7½"	11'-0"	596	73	⅞"	7½"	11'-0"	596	198	⅝"	5½"	9'-10"	1,300	7'-4"	198	⅝"	5½"	4'-1"	540	1'-7"	6'-11"	282
84	⅞"	6½"	8'-8"	760	84	⅞"	6½"	8'-8"	760	198	⅝"	5½"	6'-11"	915	4'-5"	198	⅝"	5½"	4'-2"	552	1'-8"		
84	⅞"	6½"	8'-10"	774	84	⅞"	6½"	8'-10"	774	182	⅝"	6"	7'-11"	963	5'-5"	182	⅝"	6"	4'-2"	507	1'-8"	4'-11"	204
84	⅞"	6½"	8'-10"	774	84	⅞"	6½"	8'-10"	774	182	⅝"	6"	8'-11"	1,084	6'-5"	182	⅝"	6"	4'-2"	507	1'-8"	5'-11"	245
84	⅞"	6½"	8'-10"	774	84	⅞"	6½"	8'-10"	774	198	⅝"	5½"	9'-11"	1,312	7'-5"	198	⅝"	5½"	4'-2"	552	1'-8"	6'-11"	287
84	⅞"	6½"	9'-0"	789	84	⅞"	6½"	9'-0"	789	218	⅝"	5"	10'-11"	1,590	8'-5"	218	⅝"	5"	4'-2"	607	1'-8"	7'-11"	328
68	⅝"	8"	9'-10"	1,004	68	⅝"	8"	9'-10"	1,004	156	⅝"	7"	8'-3"	1,342	5'-5"	156	⅝"	7"	4'-11"	801	2'-1"	4'-11"	204
68	⅝"	8"	9'-10"	1,004	68	⅝"	8"	9'-10"	1,004	156	⅝"	7"	9'-3"	1,505	6'-5"	156	⅝"	7"	4'-11"	801	2'-1"	5'-11"	245
68	⅝"	8"	9'-10"	1,004	68	⅝"	8"	9'-10"	1,004	156	⅝"	7"	10'-3"	1,668	7'-5"	156	⅝"	7"	4'-11"	801	2'-1"	6'-11"	287
68	⅝"	8"	10'-0"	1,021	68	⅝"	8"	10'-0"	1,021	168	⅝"	6½"	11'-3"	1,971	8'-5"	168	⅝"	6½"	4'-11"	862	2'-1"	7'-11"	328
68	⅝"	8"	10'-0"	1,021	68	⅝"	8"	10'-0"	1,021	168	⅝"	6½"	12'-3"	2,146	9'-5"	168	⅝"	6½"	4'-11"	862	2'-1"	8'-11"	369
73	¾"	7½"	10'-10"	1,187	73	¾"	7½"	10'-10"	1,187	168	⅝"	6½"	8'-4"	1,460	5'-6"	168	⅝"	6½"	5'-0"	876	2'-2"	4'-11"	204
73	¾"	7"	10'-10"	1,269	73	¾"	7"	10'-10"	1,269	168	⅝"	6½"	9'-4"	1,635	6'-6"	168	⅝"	6½"	5'-0"	876	2'-2"	5'-11"	245
73	¾"	7"	10'-10"	1,269	73	¾"	7"	10'-10"	1,269	168	⅝"	6½"	10'-4"	1,810	7'-6"	168	⅝"	6½"	5'-0"	876	2'-2"	6'-11"	287
78	⅞"	7"	11'-0"	1,289	78	⅞"	7"	11'-0"	1,289	182	⅝"	6"	11'-4"	2,151	8'-6"	182	⅝"	6"	5'-0"	949	2'-2"	7'-11"	328
78	⅞"	7"	11'-0"	1,289	78	⅞"	7"	11'-0"	1,289	182	⅝"	6"	12'-4"	2,341	9'-6"	182	⅝"	6"	5'-0"	949	2'-2"	8'-11"	369
84	⅞"	6½"	11'-0"	1,388	84	⅞"	6½"	11'-0"	1,388	198	⅝"	5½"	13'-4"	2,753	10'-6"	198	⅝"	5½"	5'-0"	1,033	2'-2"	9'-11"	411
78	⅞"	7"	7'-8"	624	78	⅞"	7"	7'-8"	624	146	⅝"	7½"	6'-2"	940	3'-4"	146	⅝"	7½"	4'-10"	736	2'-0"		
78	⅞"	6½"	7'-8"	672	84	⅞"	6½"	7'-8"	672	136	⅝"	8"	7'-2"	1,017	4'-4"	136	⅝"	8"	4'-10"	685	2'-0"		
84	⅞"	6½"	7'-10"	686	84	⅞"	6½"	7'-10"	686	136	⅝"	8"	8'-2"	1,159	5'-4"	136	⅝"	8"	4'-10"	685	2'-0"	4'-11"	204
84	⅞"	6½"	7'-10"	686	84	⅞"	6½"	7'-10"	686	136	⅝"	8"	9'-2"	1,301	6'-4"	136	⅝"	8"	4'-10"	685	2'-0"	5'-11"	245
84	⅞"	6½"	7'-10"	686	84	⅞"	6½"	7'-10"	686	146	⅝"	7½"	10'-2"	1,549	7'-4"	146	⅝"	7½"	4'-10"	736	2'-0"	6'-11"	287
88	⅞"	8"	8'-8"	886	68	⅞"	8"	8'-8"	886	146	⅝"	7"	7'-3"	1,104	4'-5"	146	⅝"	7"	4'-11"	749	2'-1"		
68	⅞"	8"	8'-10"	902	68	⅞"	8"	8'-10"	902	136	⅝"	8"	8'-3"	1,170	5'-5"	136	⅝"	8"	4'-11"	698	2'-1"	4'-11"	204
68	⅞"	8"	8'-10"	902	68	⅞"	8"	8'-10"	902	136	⅝"	8"	9'-3"	1,312	6'-5"	136	⅝"	8"	4'-11"	698	2'-1"	5'-11"	245
68	⅞"	8"	8'-10"	902	68	⅞"	8"	8'-10"	902	146	⅝"	7½"	10'-3"	1,561	7'-5"	146	⅝"	7½"	4'-11"	749	2'-1"	6'-11"	287
68	⅞"	8"	9'-0"	919	68	⅞"	8"	9'-0"	919	156	⅝"	7"	11'-3"	1,830	8'-5"	156	⅝"	7"	4'-11"	801	2'-1"	7'-11"	328
78	⅞"	7"	9'-10"	1,152	78	⅞"	7"	9'-10"	1,152	168	⅝"	6½"	8'-4"	1,460	5'-6"	168	⅝"	6½"	5'-0"	876	2'-2"	4'-11"	204
78	⅞"	7"	9'-10"	1,152	78	⅞"	7"	9'-10"	1,152	168	⅝"	6½"	9'-4"	1,635	6'-6"	168	⅝"	6½"	5'-0"	876	2'-2"	5'-11"	245
84	⅞"	6½"	9'-10"	1,240	84	⅞"	6½"	9'-10"	1,240	168	⅝"	6½"	10'-4"	1,810	7'-6"	168	⅝"	6½"	5'-0"	876	2'-2"	6'-11"	287
84	⅞"	6½"	10'-0"	1,262	84	⅞"	6½"	10'-0"	1,262	168	⅝"	6½"	11'-4"	1,985	8'-6"	168	⅝"	6½"	5'-0"	876	2'-2"	7'-11"	328
84	⅞"	6½"	10'-0"	1,262	84	⅞"	6½"	10'-0"	1,262	182	⅝"	6"	12'-4"	2,341	9'-6"	182	⅝"	6"	5'-0"	949	2'-2"	8'-11"	369
64	¾"	8½"	10'-10"	1,417	64	¾"	8½"	10'-10"	1,417	136	⅝"	8"	8'-6"	1,736	5'-6"	136	⅝"	8"	5'-5"	1,107	2'-5"	4'-11"	204
68	⅞"	8"	10'-10"	1,505	68	⅞"	8"	10'-10"	1,505	136	⅝"	8"	9'-6"	1,941	6'-6"	136	⅝"	8"	5'-5"	1,107	2'-5"	5'-11"	245
68	⅞"	8"	10'-10"	1,505	68	⅞"	8"	10'-10"	1,505	136	⅝"	8"	10'-6"	2,145	7'-6"	136	⅝"	8"	5'-5"	1,107	2'-5"	6'-11"	287
68	⅞"	8"	11'-0"	1,529	68	⅞"	8"	11'-0"	1,529	136	⅝"	8"	11'-6"	2,349	8'-6"	136	⅝"	8"	5'-5"	1,107	2'-5"	7'-11"	328
68	⅞"	8"	11'-0"	1,529	68	⅞"	8"	11'-0"	1,529	146	⅝"	7½"	12'-6"	2,741	9'-6"	146	⅝"	7½"	5'-5"	1,189	2'-5"	8'-11"	369
73	⅞"	7½"	11'-0"	1,641	73	⅞"	7½"	11'-0"	1,641	156	⅝"	7"	13'-6"	3,163	10'-6"	156	⅝"	7"	5'-5"	1,210	2'-5"	9'-11"	411

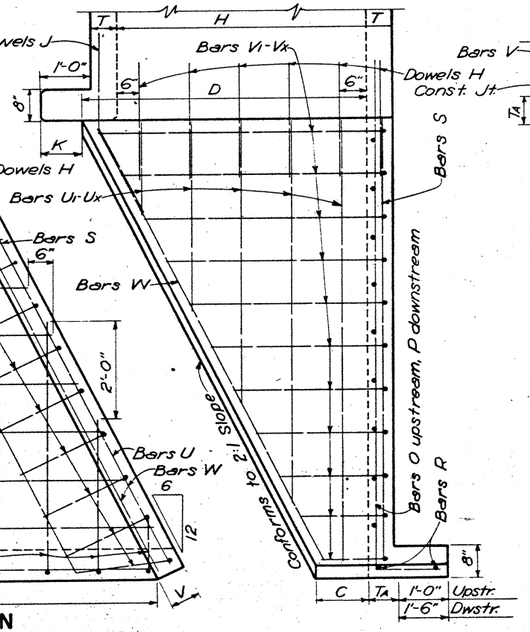
½" ϕ BARS F Length = 46'-4" F1	Spac	F2	Spac	F3	Spac	Total	Weight	BARS H 4-½" ϕ @12'-3-11 Lg. Length	Weight	½"BARS K No.	Weight
7	12½"	3	20½"	4	10"	14	433	3'-9"	10	10	26
7	12½"	3	20½"	4	14"	14	433	3'-9"	10	10	26
9	12½"	4	18½"	4	10"	17	526	4'-9"	13	12	31
9	12½"	4	18½"	4	14"	17	526	4'-9"	13	12	31
9	12½"	4	18½"	6	15"	19	588	4'-9"	13	12	31
9	12½"	7	18½"	4	10"	20	619	5'-9"	15	14	37
9	12½"	7	18½"	4	14"	20	619	5'-9"	15	14	37
9	12½"	7	18½"	6	15"	22	681	5'-9"	15	14	37
9	12½"	7	18½"	16	13"	32	990	5'-11"	16	14	37
10	12½"	8	18½"	4	14"	22	681	6'-9"	18	16	42
10	12½"	8	18½"	6	15"	24	743	6'-9"	18	16	42
10	12½"	8	18½"	16	13"	34	1,052	6'-11"	18	16	42
10	12½"	8	18½"	16	16"	34	1,052	6'-11"	18	16	42
11	12½"	9	18½"	4	14"	28	867	6'-9"	23	20	52
12	12½"	10	18½"	6	14"	38	1176	8'-11"	24	20	52
12	12½"	10	18½"	16	14"	38	1176	8'-11"	24	20	52
12	12½"	10	18

CULVERT SIZE	TABLE OF DIMENSIONS							MAX. FILL			TOTAL QUANTITIES		TABLE OF REINFORCING STEEL FOR 2 WINGS																								CULVERT SIZE
								4'	6'	8'*			Bars H-$\frac{1}{2}$ϕ 2'-6"Long@12"		Bars J-$\frac{3}{8}$ϕ 4'-0"Long		Bars O $\frac{1}{2}$ϕ @ 12"			Bars O1-Ox $\frac{1}{2}$ϕ @ 12"			Bars P $\frac{1}{2}$ϕ @ 12"			Bars P1-Px $\frac{1}{2}$ϕ @ 12"			Bars Q1-Qx $\frac{1}{2}$ϕ @ 12"			Bars R 4-$\frac{1}{2}$ϕ		Bars S 8-$\frac{1}{2}$ϕ		Bars U $\frac{1}{2}$ϕ			Bars V1-Vx				8 Bars W			
S	H	L	M	V	W	C	D	T_A	K	K	K	Conc Cu Yds	Steel Lbs	No.	Wt	No.	Wt	No.	Lgth.	Wt.	No.	Av.Lgth.	Wt.	No.	Lgth.	Wt.	No.	Av.Lgth.	Wt.	No.	Av. Lgth.	Wt.	Lgth.	Wt.	Lgth.	Wt.	No.	Av. Lgth.	Wt.	No.	Size	Spac.	Av.Lgth	Wt.	Size	Lgth.	Wt.	S	H
3	2	3'-6⅜"	3'-8⅜"	6"	6'-5¼"	1'-0"	2'-8"	6"	-	-	10"	1.73	241	12	20	8	48	3	5'-11"	12	4	3'-6"	9	3	6'-5"	13	4	4'-0"	11	6	5'-0"	20	6'-6"	17	3'-5"	18	8	3'-1"	16	16	½"ϕ	12"	3'-6"	37	½"ϕ	5'-9"	20	3	2
3	3	5'-6⅜"	5'-1½"	6"	8'-5¼"	1'-0"	3'-8"	6"	-	-	10"	3.03	371	16	27	8	48	4	5'-11"	16	4	3'-6"	9	4	6'-5"	17	4	4'-0"	11	6	6'-0"	24	7'-6"	20	3'-5"	18	8	3'-1"	16	16	½"ϕ	12"	3'-6"	37	½"ϕ	5'-9"	20	4	2
4	2	3'-6⅜"	3'-8⅜"	6"	7'-5¼"	1'-0"	2'-8"	6"	-	-	10"	1.93	256	12	20	8	48	4	5'-11"	16	4	3'-6"	9	4	6'-5"	17	4	4'-0"	11	6	6'-0"	24	7'-6"	20	3'-5"	18	8	3'-1"	16	16	½"ϕ	12"	3'-6"	37	½"ϕ	5'-9"	20	4	3
4	3	5'-6⅜"	5'-1½"	6"	9'-5¼"	1'-0"	3'-8"	6"	-	-	10"	3.29	390	16	27	8	48	4	7'-11"	21	6	4'-6"	18	4	8'-5"	22	6	5'-0"	20	10	7'-0"	47	9'-6"	25	5'-8"	30	12	4'-4"	35	24	½"ϕ	12"	4'-0"	64	½"ϕ	6'-3"	33	4	3
4	4	7'-6⅜"	8'-2⅜"	6"	11'-5¼"	1'-0"	4'-8"	6"	-	-	10"	4.98	558	20	33	8	48	4	9'-11"	26	8	5'-6"	29	4	10'-5"	28	8	6'-0"	32	14	8'-0"	75	11'-6"	31	7'-10"	42	16	5'-7"	60	36	½"ϕ	12"	4'-6"	108	½"ϕ	8'-7"	46	4	4
5	2	3'-6⅜"	3'-8⅜"	6"	8'-5¼"	1'-0"	2'-8"	6"	-	-	10"	2.12	271	12	20	8	48	5	5'-11"	20	4	3'-6"	9	5	6'-5"	21	4	4'-0"	11	6	7'-0"	28	8'-6"	23	3'-5"	18	8	3'-1"	16	16	½"ϕ	12"	3'-6"	37	½"ϕ	5'-9"	20	5	2
5	3	5'-6⅜"	5'-1½"	6"	10'-5¼"	1'-0"	3'-8"	6"	-	-	10"	3.56	410	16	27	8	48	5	7'-11"	26	6	4'-6"	18	5	8'-5"	28	6	5'-0"	20	10	8'-0"	53	10'-6"	28	5'-8"	30	12	4'-4"	35	24	½"ϕ	12"	4'-0"	64	½"ϕ	6'-3"	33	5	3
5	4	7'-6⅜"	8'-2⅜"	6"	12'-5¼"	1'-0"	4'-8"	6"	-	-	10"	5.32	583	20	33	8	48	5	9'-11"	33	8	5'-6"	29	5	10'-5"	35	8	6'-0"	32	14	9'-0"	84	12'-6"	33	7'-10"	42	16	5'-7"	60	36	½"ϕ	12"	4'-6"	108	½"ϕ	8'-7"	46	5	4
5	5	8'-7⅛"	9'-3⅜"	7"	13'-5½"	1'-6"	5'-8"	6"	-	-	10"	7.17	728	24	40	8	48	5	10'-11"	36	8	6'-6"	35	5	11'-5"	38	8	7'-0"	37	16	9'-6"	102	13'-6"	36	9'-0"	48	20	6'-6"	87	40	½"ϕ	12"	5'-3"	140	⅝"ϕ	9'-8"	81	5	5
6	3	5'-6⅜"	5'-1½"	6"	11'-5¼"	1'-0"	3'-8"	6"	-	-	10"	3.83	432	16	27	8	48	6	7'-11"	32	6	4'-6"	18	6	8'-5"	34	6	5'-0"	20	10	9'-0"	60	11'-6"	31	5'-8"	30	12	4'-4"	35	24	½"ϕ	12"	4'-0"	64	½"ϕ	6'-3"	33	6	3
6	4	7'-6⅜"	8'-2⅜"	6"	13'-5¼"	1'-0"	4'-8"	6"	-	-	10"	5.66	610	20	33	8	48	6	9'-11"	40	8	5'-6"	29	6	10'-5"	42	8	6'-0"	32	14	10'-0"	94	13'-6"	36	7'-10"	42	16	5'-7"	60	36	½"ϕ	12"	4'-6"	108	½"ϕ	8'-7"	46	6	4
6	5	8'-7⅛"	9'-3⅜"	7	14'-5½"	1'-6"	5'-8"	6"	-	-	10"	7.55	757	24	40	8	48	6	10'-11"	44	8	6'-6"	35	6	11'-5"	46	8	7'-0"	37	16	10'-6"	112	14'-6"	39	9'-0"	48	20	6'-6"	87	40	½"ϕ	12"	5'-3"	140	⅝"ϕ	9'-8"	81	6	5
6	6	10'-7⅛"	11'-6⅜"	7"	16'-5½"	1'-6"	6'-8"	6"	-	-	10"	10.13	972	28	47	8	48	6	12'-11"	52	10	7'-6"	50	6	13'-5"	54	10	8'-0"	53	20	11'-6"	154	16'-6"	44	11'-3"	60	24	7'-8"	123	48	½"ϕ	12"	5'-9"	184	⅝"ϕ	12'-4"	103	6	6
7	3	5'-7⅜"	6'-0⅜"	6"	12'-6¼"	1'-0"	3'-8½"	6½"	10"	10"	10"	4.36	465	16	27	8	48	7	8'-0"	37	6	4'-7"	18	7	8'-6"	40	6	5'-1"	20	10	10'-0"	67	12'-7"	34	5'-8"	30	12	4'-4"	35	28	½"ϕ	12"	4'-1"	76	½"ϕ	6'-3"	33	7	3
7	4	7'-7⅜"	8'-3⅜"	6"	14'-6¼"	1'-0"	4'-8½"	6½"	10"	10"	10"	6.37	642	20	33	8	48	7	10'-0"	47	8	5'-7"	30	7	10'-6"	49	8	6'-1"	33	14	11'-0"	103	14'-7"	39	8'-0"	43	16	5'-7"	60	36	½"ϕ	12"	4'-7"	110	½"ϕ	8'-9"	47	7	4
7	5	8'-8⅛"	9'-4⅜"	7"	15'-6¼"	1'-6"	5'-8½"	6½"	10"	10"	10"	8.37	792	24	40	8	48	7	11'-0"	51	8	6'-7"	35	7	11'-6"	54	8	7'-1"	38	16	11'-6"	123	15'-7"	42	9'-1"	49	20	6'-6"	87	40	½"ϕ	12"	5'-4"	142	⅝"ϕ	9'-11"	88	7	5
7	6	10'-8⅛"	11'-7⅜"	7"	17'-6¼"	1'-6"	6'-8½"	6½"	10"	10"	10"	11.15	1014	28	47	8	48	7	13'-0"	61	10	7'-7"	51	7	13'-6"	63	10	8'-1"	54	20	12'-6"	167	17'-7"	47	11'-4"	61	24	7'-9"	124	48	½"ϕ	12"	5'-10"	187	⅝"ϕ	12'-5"	104	7	6
7	7	12'-8⅛"	13'-10⅜"	7"	19'-6¼"	1'-6"	7'-8½"	6½"	10"	10"	10"	14.28	1372	32	53	8	48	7	15'-0"	70	8	8'-7"	69	7	15'-6"	72	12	9'-1"	73	24	13'-6"	216	19'-7"	52	13'-7"	73	28	8'-11"	167	84	½"ϕ	8"	6'-4"	355	⅝"ϕ	14'-11"	124	7	7
8	4	7'-8⅜"	8'-4⅜"	6"	15'-7¼"	1'-0"	4'-9"	7"	9½"	10"	10½"	7.14	671	20	33	8	48	8	10'-1"	54	8	6'-8"	30	8	10'-7"	57	8	6'-2"	33	14	12'-0"	112	15'-8"	42	8'-1"	43	16	5'-7"	60	36	½"ϕ	12"	4'-8"	112	½"ϕ	8'-10"	47	8	4
8	5	8'-9⅛"	9'-6"	7"	16'-7¼"	1'-6"	5'-9"	7"	9½"	10"	10½"	9.26	828	24	40	8	48	8	11'-1"	59	8	6'-8"	36	8	11'-7"	62	8	7'-2"	38	16	12'-6"	134	16'-8"	45	9'-2"	49	20	6'-7"	88	40	½"ϕ	12"	5'-5"	145	⅝"ϕ	10'-1"	84	8	5
8	6	10'-9⅛"	11'-8⅜"	7"	18'-7¼"	1'-6"	6'-9"	7"	9½"	10"	10½"	12.25	1053	28	47	8	48	8	13'-1"	70	10	7'-8"	51	8	13'-7"	73	10	8'-2"	55	20	13'-6"	180	18'-8"	50	11'-5"	61	24	7'-9"	124	48	½"ϕ	12"	5'-11"	190	⅝"ϕ	12'-6"	104	8	6
8	7	12'-9⅛"	13'-11⅜"	7"	20'-7½"	1'-6"	7'-9"	7"	9½"	10"	10½"	15.60	1385	32	53	8	48	8	15'-1"	81	12	8'-8"	69	8	15'-7"	83	12	9'-2"	79	24	14'-6"	232	20'-8"	55	13'-8"	73	28	8'-11"	167	76	½"ϕ	9"	6'-5"	325	⅝"ϕ	15'-0"	125	8	7
8	8	13'-9⅛"	15'-1⅜"	8"	21'-7½"	2'-0"	8'-9"	7"	9½"	10"	10½"	19.25	1818	36	60	8	48	8	16'-2"	86	12	9'-9"	78	8	16'-8"	89	12	10'-3"	82	26	15'-0"	261	21'-8"	58	14'-9"	79	32	9'-9"	208	120	½"ϕ	6"	7'-2"	575	⅝"ϕ	16'-2"	194	8	8
9	5	8'-10⅛"	9'-7⅜"	7"	17'-8½"	1'-6"	5'-9½"	7"	9½"	9½"	10"	9.82	858	24	40	8	48	9	11'-2"	67	8	6'-9"	36	9	11'-8"	70	8	7'-3"	39	16	13'-6"	144	17'-9"	47	9'-3"	49	20	6'-7"	88	40	½"ϕ	12"	5'-5"	145	⅝"ϕ	10'-2"	85	9	5
9	6	10'-10⅛"	11'-10"	7"	19'-8½"	1'-6"	6'-9½"	7"	9½"	9½"	10"	12.91	1106	28	47	8	48	9	13'-2"	79	10	7'-9"	52	9	13'-8"	82	10	8'-3"	55	20	14'-6"	194	19'-9"	53	11'-6"	61	24	7'-9"	124	52	½"ϕ	12"	5'-11"	206	⅝"ϕ	12'-7"	105	9	6
9	7	12'-10⅛"	14'-0⅜"	7"	21'-8½"	1'-6"	7'-9½"	7"	9½"	9½"	10"	16.36	1428	32	53	8	48	9	15'-2"	91	12	8'-9"	70	9	15'-8"	94	12	9'-3"	74	24	15'-6"	248	21'-9"	58	13'-9"	73	28	8'-11"	167	76	½"ϕ	9"	6'-5"	326	⅝"ϕ	15'-1"	126	9	7
9	8	13'-10⅛"	15'-2⅝"	8"	22'-8⅜"	2'-0"	8'-9½"	7"	9½"	9½"	10"	20.09	1894	36	60	8	48	9	16'-3"	98	14	9'-10"	83	9	16'-9"	101	14	9'-4"	87	26	16'-0"	278	22'-9"	61	14'-10"	79	32	9'-10"	210	124	½"ϕ	6"	7'-2"	594	⅝"ϕ	16'-3"	195	9	8
9	9	15'-10⅛"	17'-5⅛"	8"	24'-8⅜"	2'-0"	9'-9½"	7"	9½"	9½"	10"	24.47	2563	40	67	8	48	9	18'-3"	110	16	9'-10"	105	9	18'-9"	113	16	10'-4"	110	30	17'-0"	341	24'-9"	66	17'-1"	91	36	11'-0"	265	120	½"ϕ	7"	8'-2"	1022	¾"ϕ	18'-9"	225	9	9
10	5	8'-11⅛"	9'-8⅝"	7"	18'-9½"	1'-6"	5'-10"	7⅛"	9"	10"	10⅛"	10.82	894	24	40	8	48	10	11'-3"	75	8	6'-10"	37	10	11'-9"	78	8	7'-4"	39	16	14'-6"	155	18'-10"	50	9'-4"	50	20	6'-8"	89	40	½"ϕ	12"	5'-6"	147	⅝"ϕ	10'-3"	86	10	5
10	6	10'-11⅛"	11'-11⅝"	7"	20'-9½"	1'-6"	6'-10"	7⅛"	9"	10"	10⅛"	14.14	1149	28	47	8	48	10	13'-3"	89	10	7'-10"	52	10	13'-9"	92	10	8'-4"	56	20	15'-6"	207	20'-10"	56	11'-7"	62	24	7'-10"	126	52	½"ϕ	12"	6'-0"	208	⅝"ϕ	12'-8"	106	10	6
10	7	12'-11⅛"	14'-1⅛"	7"	22'-9¼"	1'-6"	7'-10"	7⅛"	9"	10"	10⅛"	17.84	1479	32	53	8	48	10	15'-3"	102	12	8'-10"	71	10	15'-9"	105	12	9'-4"	75	24	16'-6"	265	22'-10"	61	13'-10"	74	28	9'-0"	168	76	½"ϕ	9"	6'-6"	330	⅝"ϕ	15'-2"	127	10	7
10	8	13'-11⅛"	15'-3⅝"	8"	23'-9⅜"	2'-0"	8'-10"	7⅛"	9"	10"	10⅛"	21.72	1849	36	60	8	48	10	16'-4"	109	14	8'-11"	83	10	16'-10"	112	14	9'-5"	88	26	17'-0"	295	23'-10"	64	14'-11"	80	32	9'-10"	210	104	½"ϕ	7"	7'-3"	504	¾"ϕ	16'-4"	196	10	8
10	9	15'-11⅛"	17'-6⅛"	8"	25'-9⅞"	2'-0"	9'-10"	7⅛"	9"	10"	10⅛"	26.36	2626	40	67	8	48	10	16'-4"	122	16	9'-11"	106	10	16'-10"	126	16	10'-5"	111	30	18'-0"	361	25'-10"	69	17'-2"	92	36	11'-0"	265	120	⅝"ϕ	7"	8'-3"	1033	¾"ϕ	18'-10"	226	10	9
10	10	17'-11⅛"	19'-9"	8"	27'-9⅝"	2'-0"	10'-10"	7⅛"	9"	10"	10⅛"	31.41	3744	44	73	8	48	10	20'-4"	136	18	10'-11"	131	10	20'-10"	139	18	11'-5"	137	34	19'-0"	432	27'-10"	74	19'-5"	104	40	12'-2"	325	136	⅝"ϕ	7"	9'-3"	1890	¾"ϕ	21'-3"	255	10	10

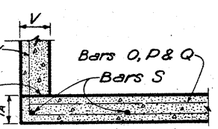
* Applies to fills of 8' and deeper.



HALF PLAN
SHOWING DIMENSIONS

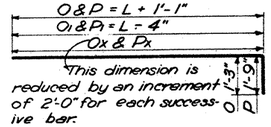


HALF PLAN
SHOWING REINFORCING BARS

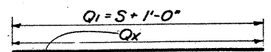


SECTION A-A

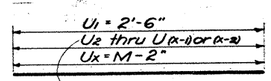
ELEVATION
PARALLEL TO BARREL

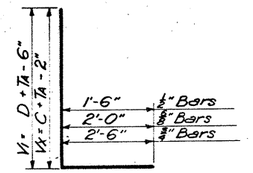


BARS O & P

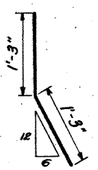


BARS Q

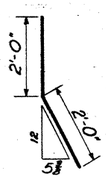




BARS V



DOWELS H



DOWELS J

GENERAL NOTES:-
All concrete shall be Class A.
Dimensions relating to reinforcing steel are to centers of bars.
Steel cover to be 2" from center of outside layer of steel to face of concrete.
Chamfer exposed corners ¾" except as otherwise noted.

TEXAS HIGHWAY DEPARTMENT

FLARED WINGS - NORMAL FOR SINGLE BOX CULVERTS

SIZES 3×2 to 10×10

FW-N

Dn. - RMM	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
Ck. Dn. - W.M	Original	April, 1948	6	TEXAS	I-165 (16)			48
Dr. - RMM			STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
Ck. Dr. - A.B.L.			21	WEBB	18	3	9	U.S.81
Tr. - A.B.P.								
Ck. Tr. - RMM								

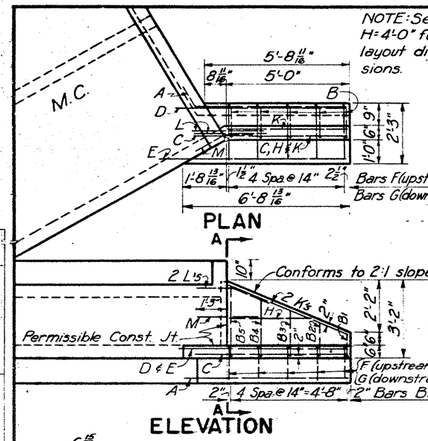
18 4 9

PLAN — SUPPLYED / PLOTTED / NOTE BOOK / NO. — ALIGNMENT CHECKED / GRADES CHECKED / AS BUILT NOTED / STRUCTURE NO(S) AT'NS CH'KD

PROFILE — SUPPLYED / PLOTTED / NOTE BOOK / NO. — GRADES CHECKED / AS BUILT NOTED / STRUCTURE NO(S) AT'NS CH'KD

BY | DATE

NOTE: See H=4'-0" for layout dimensions.

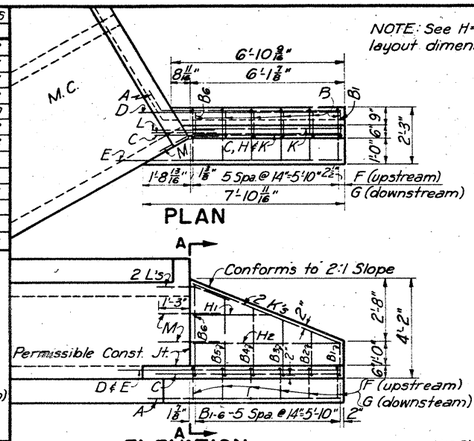


BILL OF REINF. STEEL - 4 WINGS					
BAR	NO.	SIZE	SPA.	LGTH.	WT.
A	4	1/2"ϕ	–	6'-9"	18
B1-5	20	1/2"ϕ	14"	Av. 2'-9"	37
C	4	1/2"ϕ	–	6'-5"	17
D	4	1/2"ϕ	–	6'-9"	18
E	4	1/2"ϕ	–	7'-5"	20
F	10	1/2"ϕ	14"	3'-3"	22
G	10	1/2"ϕ	14"	4'-3"	28
H	4	1/2"ϕ	–	3'-1"	8
K	8	1/2"ϕ	–	5'-2"	28
L	8	5/8"ϕ	–	4'-0"	33
M	4	1/2"ϕ	–	2'-6"	7
TOTAL FOR 4 WINGS					236

ESTIMATED QUANT. - 4 WINGS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	2.16
REINF. STEEL	LB.	236

WINGWALLS FOR M.C.'s. H = 2'-0"

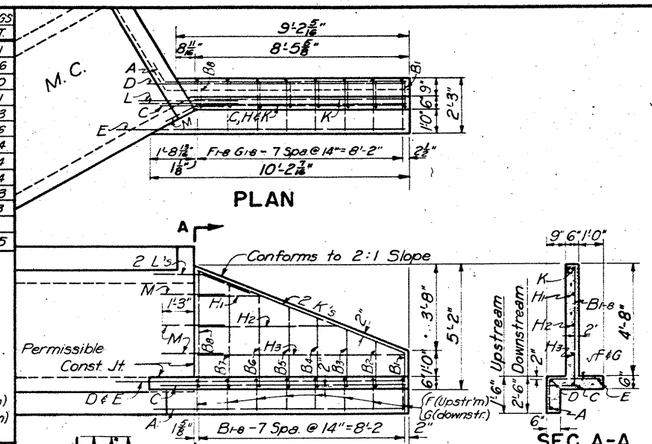
NOTE: See H=4'-0" for layout dimensions.



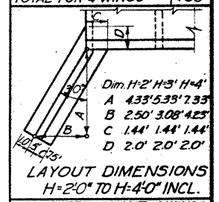
BILL OF REINF. STEEL - 4 WINGS					
BAR	NO.	SIZE	SPA.	LGTH.	WT.
A	4	1/2"ϕ	–	8'-0"	21
B1-6	24	1/2"ϕ	14"	Av. 3'-6"	56
C	4	1/2"ϕ	–	7'-5"	20
D	4	1/2"ϕ	←	7'-11"	21
E	4	1/2"ϕ	←	8'-7"	23
F	12	1/2"ϕ	14"	3'-3"	26
G	12	1/2"ϕ	14"	4'-3"	34
H1-2	8	1/2"ϕ	15"	Av. 4'-5"	24
K	8	1/2"ϕ	←	6'-5"	34
L	8	5/8"ϕ	←	4'-0"	33
M	8	1/2"ϕ	15"	2'-6"	13
TOTAL FOR 4 WINGS					305

ESTIMATED QUANT. - 4 WINGS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	2.97
REINF. STEEL	LB.	305

WINGWALLS FOR M.C.'s. H = 3'-0"



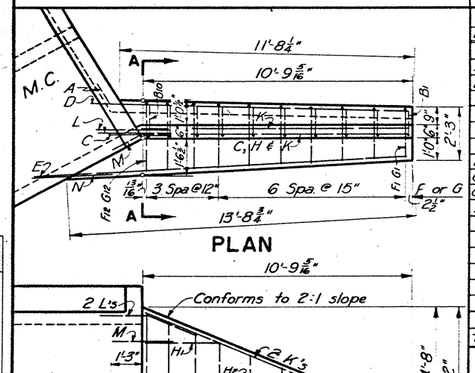
BILL OF REINF. STEEL - 4 WINGS					
BAR	NO.	SIZE	SPA.	LGTH.	WT.
A	4	1/2"ϕ	–	10'-3"	27
B1-8	32	1/2"ϕ	14"	Av. 4'-0"	86
C	4	1/2"ϕ	←	9'-8"	26
D	4	1/2"ϕ	←	10'-2"	27
E	4	5/8"ϕ	←	11'-5"	48
F	16	1/2"ϕ	14"	3'-3"	35
G	16	1/2"ϕ	14"	4'-3"	45
H1-3	12	1/2"ϕ	15"	Av. 5'-4"	43
K	8	5/8"ϕ	←	9'-0"	75
L	8	5/8"ϕ	←	4'-0"	33
M	12	1/2"ϕ	15"	2'-6"	20
TOTAL FOR 4 WINGS					465



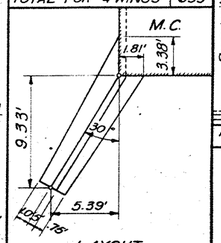
LAYOUT DIMENSIONS H=2'-0" TO H=4'-0" INCL.

ESTIMATED QUANT. - 4 WINGS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	4.34
REINF. STEEL	LB.	465

WINGWALLS FOR M.C.'s. H = 4'-0"

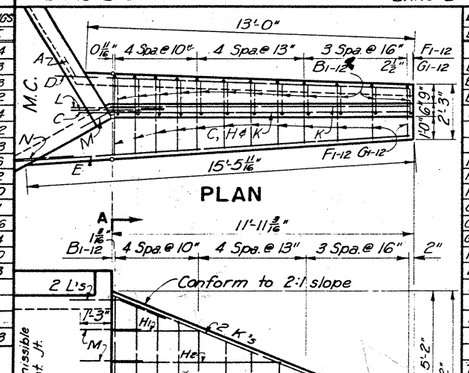


BILL OF REINF. STEEL - 4 WINGS					
BAR	NO.	SIZE	SPA.	LGTH.	WT.
A	4	1/2"ϕ	–	12'-9"	34
B1-7	28	1/2"ϕ	15"	Av. 3'-11"	73
B8-10	12	1/2"ϕ	12"	Av. 6'-7"	53
C	4	1/2"ϕ	←	12'-0"	32
D	4	1/2"ϕ	←	12'-8"	34
E	4	5/8"ϕ	←	14'-10"	62
F1-7	14	1/2"ϕ	15"	Av. 3'-6"	33
F8-10	6	1/2"ϕ	12"	Av. 4'-0"	16
G1-7	14	1/2"ϕ	15"	Av. 4'-6"	42
G8-10	6	1/2"ϕ	12"	Av. 5'-0"	20
H1-3	12	1/2"ϕ	18"	Av. 6'-5"	51
K	8	5/8"ϕ	←	11'-6"	96
L	8	3/4"ϕ	←	4'-6"	54
M	12	1/2"ϕ	18"	2'-6"	20
N	4	5/8"ϕ	←	3'-2"	13
TOTAL FOR 4 WINGS					633

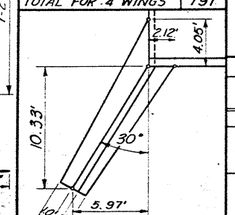


ESTIMATED QUANT. - 4 WINGS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	6.34
REINF. STEEL	LB.	633

WINGWALLS FOR M.C's H = 5'-0"

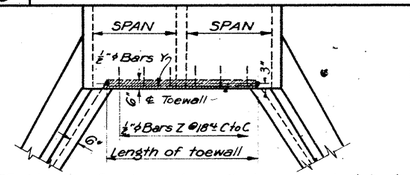


BILL OF REINF. STEEL - 4 WINGS					
BAR	NO.	SIZE	SPA.	LGTH.	WT.
A	4	1/2"ϕ	–	14'-1"	38
B1-6	16	1/2"ϕ	16"	Av. 3'8"	39
B8-8	16	1/2"ϕ	13"	Av. 6'-0"	64
B9-12	16	1/2"ϕ	10"	Av. 7'-9"	83
C	4	1/2"ϕ	←	13'-2"	35
D	4	1/2"ϕ	←	14'-0"	37
E	4	5/8"ϕ	←	16'-9"	70
F1-4	8	1/2"ϕ	16"	Av. 3'-5"	18
F5-8	8	1/2"ϕ	13"	Av. 4'-0"	21
F9-12	8	1/2"ϕ	10"	Av. 4'-5"	24
G1-4	8	1/2"ϕ	16"	Av. 4'-5"	24
G5-8	8	1/2"ϕ	13"	Av. 5'-0"	27
G9-12	8	1/2"ϕ	10"	Av. 5'-5"	29
H1-3	12	1/2"ϕ	16"	Av. 6'-4"	51
H4	4	1/2"ϕ	←	11'-9"	31
K	8	5/8"ϕ	←	12'-8"	106
L	8	3/4"ϕ	←	4'-6"	54
M	16	1/2"ϕ	16"	2'-6"	27
N	4	5/8"ϕ	←	3'-2"	13
TOTAL FOR 4 WINGS					791



ESTIMATED QUANT. - 4 WINGS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	7.95
REINF. STEEL	LB.	791

WINGWALLS FOR M.C's. H = 6'-0"



NOTE: Limits of culvert toewall shown by hatched area on above sketch. Length measured along ℄ of wall.

PLAN SHOWING TYPICAL REINFORCING FOR CULVERT TOEWALLS

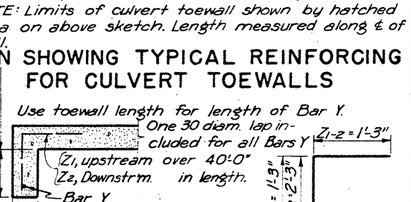


TABLE OF TOEWALL LENGTHS FOR M.C.'s

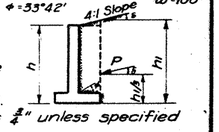
WING WALL	SPAN	LENGTH				
		2 SPANS	3 SPANS	4 SPANS	5 SPANS	6 SPANS
H=2'-0"	5'-0"	9'-5 3/4"	14'-11 3/4"	20'-5 3/4"	25'-11 3/4"	31'-5 3/4"
H=3'-0"	5'-0"	9'-5 3/4"	14'-11 3/4"	20'-5 3/4"	25'-11 3/4"	31'-5 3/4"
	6'-0"	11'-5 3/4"	17'-11 3/4"	24'-5 3/4"	30'-11 3/4"	37'-5 3/4"
	7'-0"	13'-5 3/4"	20'-11 3/4"	28'-5 3/4"	35'-11 3/4"	43'-5 3/4"
H=4'-0"	5'-0"	9'-5 3/4"	14'-11 3/4"	20'-5 3/4"	25'-11 3/4"	31'-5 3/4"
	6'-0"	11'-5 3/4"	17'-11 3/4"	24'-5 3/4"	30'-11 3/4"	37'-5 3/4"
	7'-0"	13'-5 3/4"	20'-11 3/4"	28'-5 3/4"	35'-11 3/4"	43'-5 3/4"
	8'-0"	15'-5 3/4"	23'-11 3/4"	32'-5 3/4"	40'-11 3/4"	49'-5 3/4"
H=5'-0"	5'-0"	8'-11 7/8"	14'-6 7/8"	20'-1 7/8"	25'-8 7/8"	31'-3 3/4"
	6'-0"	10'-11 7/8"	17'-6 7/8"	24'-1 7/8"	30'-8 7/8"	37'-3 3/4"
	7'-0"	12'-11 7/8"	20'-6 7/8"	28'-1 7/8"	35'-8 7/8"	43'-3 3/4"
	8'-0"	14'-11 7/8"	23'-6 7/8"	32'-1 7/8"	40'-8 7/8"	49'-3 3/4"
	9'-0"	16'-11 7/8"	26'-6 7/8"	36'-1 7/8"	45'-8 7/8"	55'-3 3/4"
H=6'-0"	6'-0"	10'-4 7/16"	16'-11 3/8"	23'-6 3/8"	30'-1 7/8"	36'-8 1/4"
	7'-0"	12'-4 7/16"	19'-11 3/8"	27'-6 3/8"	35'-1 5/8"	42'-8 1/4"
	8'-0"	14'-4 7/16"	22'-11 3/8"	31'-6 3/8"	40'-1 5/8"	48'-8 1/4"
	9'-0"	16'-4 7/16"	25'-11 3/8"	35'-6 3/8"	45'-1 5/8"	54'-8 1/4"
	10'-0"	18'-4 7/16"	28'-11 3/8"	39'-6 3/8"	50'-1 5/8"	60'-8 1/4"

ESTIMATED QUANTITIES FOR TWO CULVERT TOEWALLS

WING WALL	SPAN LENGTH	2 SPANS		3 SPANS		4 SPANS		5 SPANS		6 SPANS	
		CONC. C.Y.	REINF. LB.	CONC. C.Y.	REINF. LB.	CONC. C.Y.	REINF. LB.	CONC. C.Y.	REINF. LB.	CONC. C.Y.	REINF. LB.
H=2'-0" TO H=4'-0" INCL.	5'-0"	0.53	41	0.83	64	1.14	83	1.44	105	1.75	130
	6'-0"	0.64	51	1.00	76	1.36	101	1.72	129	2.08	154
	7'-0"	0.75	58	1.17	88	1.58	118	2.00	148	2.42	180
	8'-0"	0.86	65	1.33	100	1.80	135	2.28	168	2.75	204
H=5'-0"	5'-0"	0.50	40	0.81	63	1.12	83	1.43	106	1.74	130
	6'-0"	0.61	47	0.98	75	1.34	100	1.71	125	2.07	154
	7'-0"	0.72	57	1.14	88	1.56	118	1.99	148	2.41	180
	8'-0"	0.83	64	1.31	100	1.79	131	2.26	166	2.74	204
	9'-0"	0.94	71	1.48	112	2.01	148	2.54	187	3.07	228
H=6'-0"	6'-0"	0.58	46	0.94	71	1.31	99	1.67	124	2.04	149
	7'-0"	0.69	52	1.11	83	1.53	113	1.95	143	2.37	175
	8'-0"	0.80	63	1.28	95	1.75	130	2.23	165	2.71	199
	9'-0"	0.91	70	1.44	107	1.97	147	2.51	186	3.04	224
	10'-0"	1.02	76	1.61	119	2.20	161	2.78	205	3.37	247

GENERAL NOTES:-

DESIGN:- Wing Walls designed in accordance with Rankine's theory of retaining wall design. Elements of design are shown on sketch at right.



All concrete shall be Class A.

Chamfer all exposed corners 3/4" unless specified otherwise.

All dimensions relating to reinforcing steel are to centers of bars.

Toe walls for culvert and wing walls shall be omitted when structure is founded on solid rock.

TEXAS HIGHWAY DEPARTMENT

FLARED WINGWALLS FOR MULTIPLE CULVERTS H = 2'-0" TO 6'-0" INCL.

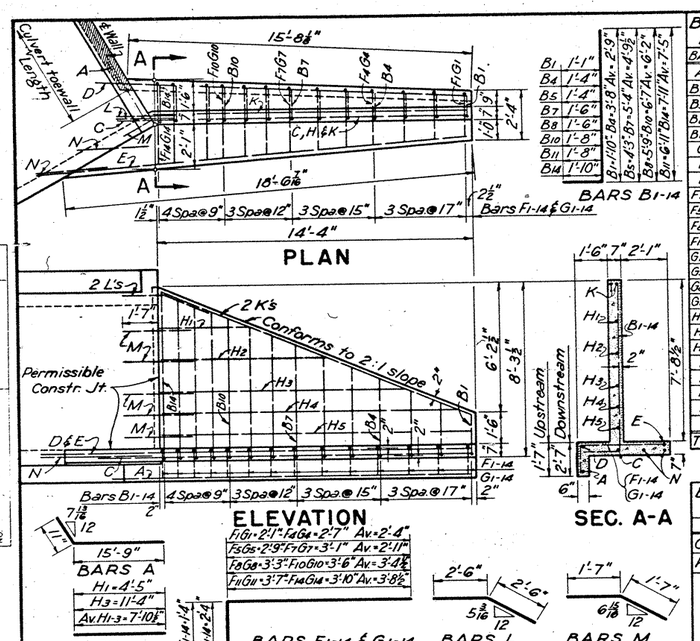
MCW-F1

DN.: A.B.L.	CK.DN.: T.J.W.	CK.TR.: C.W.W.	CK.TR.: M.D.A.	DRAWING: Original	DATE: Aug. '62	Rev. 12-'62 - Dimens. for H=5'-0"

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165 (16)	49

STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3	9	U.S.81

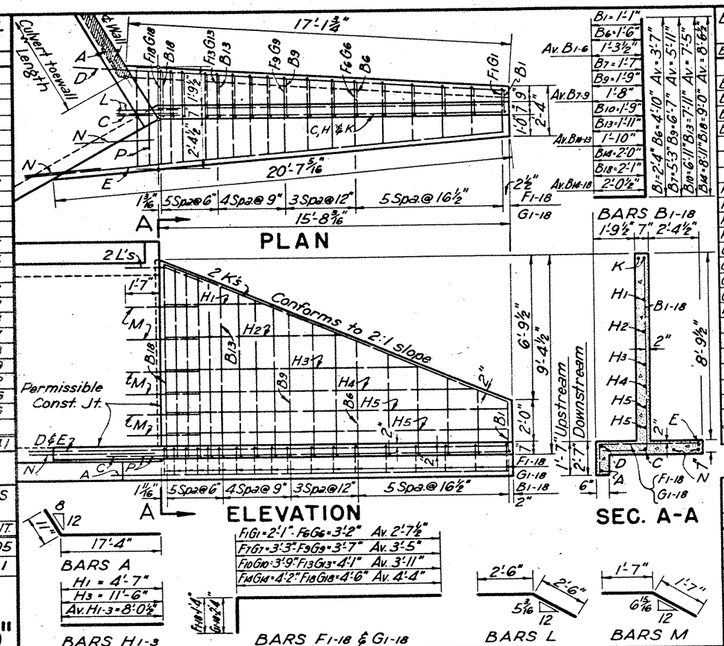
18 4 9



BILL OF REINF. STEEL FOR 4 WINGWALLS					
BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	4	½"@	~	16'-8"	45
B1-4	16	½"@	17"	Av 3'-11"	42
B5-7	12	½"@	15"	Av 6'-2"	49
B8-10	12	½"@	12"	Av 7'-9"	62
B11-14	16	½"@	9"	Av 9'-2"	98
C	4	⅝"@	~	16'-0"	67
D	4	⅝"@	~	17'-0"	71
E	4	⅝"@	~	19'-7"	82
F1-4	8	½"@	17"	Av 3'-8"	20
F5-7	6	½"@	15"	Av 4'-3"	17
F8-10	6	½"@	12"	Av 4'-8"	19
F11-14	8	½"@	9"	Av 5'-0"	27
G1-4	8	½"@	17"	Av 4'-8"	25
G5-7	6	½"@	15"	Av 5'-3"	21
G8-10	6	½"@	12"	Av 5'-8"	23
G11-14	8	½"@	9"	Av 6'-0"	32
H1-3	12	½"@	18"	Av 7'-10"	63
H4	4	½"@	12"	13'-8"	37
H5	4	½"@	12"	14'-1"	38
K	8	⅝"@	~	15'-5"	129
L	8	⅞"@	~	5'-0"	82
M	20	⅝"@	12&18	3'-2"	66
N	8	⅝"@	~	3'-2"	26
TOTAL FOR 4 WINGS					1,141

ESTIMATED QUANTITIES FOR 4 WINGWALLS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	12.05
REINF. STEEL	LB.	1,141

WINGWALLS FOR M.C's. H = 7'-0"



BILL OF REINF. STEEL FOR 4 WINGWALLS					
BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	4	½"@	~	18'-2"	49
B1-6	24	½"@	16½"	Av 4'-10"	77
B7-9	12	½"@	12"	Av 7'-7"	61
B10-13	16	½"@	9"	Av 9'-3"	99
B14-18	20	½"@	6"	Av 10'-7"	141
C	4	⅝"@	~	17'-3"	72
D	4	⅝"@	~	18'-6"	77
E	4	⅝"@	~	21'-8"	90
F1-6	12	½"@	16½"	Av 3'-11"	31
F7-9	6	½"@	12"	Av 4'-9"	19
F10-13	8	½"@	9"	Av 5'-3"	28
F14-18	10	½"@	6"	Av 5'-8"	38
G1-6	12	½"@	16½"	Av 4'-11"	39
G7-9	6	½"@	12"	Av 5'-9"	23
G10-13	8	½"@	9"	Av 6'-3"	33
G14-18	10	½"@	6"	Av 6'-8"	45
H1-3	12	½"@	18"	Av 8'-0"	64
H4	4	½"@	12"	13'-10"	37
H5	8	½"@	12"	15'-5"	82
K	8	⅝"@	~	16'-9"	140
L	8	⅞"@	~	5'-0"	82
M	24	⅝"@	12&18	3'-2"	79
N	8	⅝"@	~	3'-2"	26
P	8	⅝"@	6"	4'-7"	38
TOTAL FOR 4 WINGS					1470

ESTIMATED QUANTITIES FOR 4 WINGWALLS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	14.78
REINF. STEEL	LB.	1,470

WINGWALLS FOR M.C's. H = 8'-0"

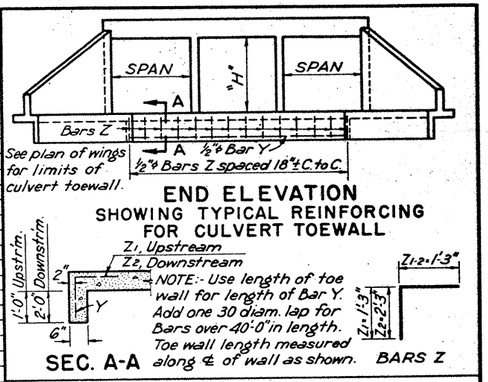
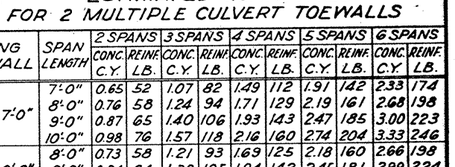


TABLE OF TOEWALL LENGTHS FOR MULTIPLE CULVERTS

WINGWALL	SPAN	TOEWALL LENGTH 2 SPANS	3 SPANS	4 SPANS	5 SPANS	6 SPANS
H=7'-0"	7'-0"	11'-7 13/16"	19'-2 3/4"	26'-9 5/16"	34'-4 15/16"	41'-11 3/8"
	8'-0"	13'-7 13/16"	22'-2 3/4"	30'-9 5/16"	39'-4 15/16"	47'-11 3/8"
	9'-0"	15'-7 13/16"	25'-2 3/4"	34'-9 5/16"	44'-4 15/16"	53'-11 3/8"
	10'-0"	17'-7 13/16"	28'-2 3/4"	38'-9 5/16"	49'-4 15/16"	59'-11 3/8"
H=8'-0"	8'-0"	13'-2"	21'-10"	30'-6"	39'-2"	47'-10"
	9'-0"	15'-2"	24'-10"	34'-6"	44'-2"	53'-10"
	10'-0"	17'-2"	27'-10"	38'-6"	49'-2"	59'-10"
H=9'-0"	9'-0"	14'-6 1/2"	24'-2 1/2"	33'-10 1/2"	43'-6 7/8"	53'-2 7/8"
	10'-0"	16'-6 1/2"	27'-2 1/2"	37'-10 1/2"	48'-0 7/8"	59'-2 7/8"
H=10'-0"	10'-0"	15'-10"	26'-6"	37'-2"	47'-10"	58'-6"

ESTIMATED QUANTITIES FOR 2 MULTIPLE CULVERT TOEWALLS

WING WALL	SPAN LENGTH	2 SPANS CONC. C.Y.	2 SPANS REINF. LB.	3 SPANS CONC. C.Y.	3 SPANS REINF. LB.	4 SPANS CONC. C.Y.	4 SPANS REINF. LB.	5 SPANS CONC. C.Y.	5 SPANS REINF. LB.	6 SPANS CONC. C.Y.	6 SPANS REINF. LB.
H=7'-0"	7'-0"	0.65	52	1.07	82	1.49	112	1.91	142	2.33	174
	8'-0"	0.76	58	1.24	94	1.71	129	2.19	161	2.68	198
	9'-0"	0.87	65	1.40	106	1.93	143	2.47	185	3.00	223
	10'-0"	0.98	76	1.57	118	2.16	160	2.74	204	3.33	246
H=8'-0"	8'-0"	0.73	58	1.21	93	1.69	125	2.18	160	2.66	198
	9'-0"	0.84	64	1.38	105	1.94	142	2.45	181	2.99	224
	10'-0"	0.95	71	1.55	117	2.14	159	2.73	203	3.32	246
H=9'-0"	9'-0"	0.81	63	1.35	100	1.88	141	2.42	180	2.96	217
	10'-0"	0.92	70	1.51	112	2.10	155	2.70	198	3.29	242
H=10'-0"	10'-0"	0.88	69	1.47	111	2.06	154	2.66	198	3.25	241



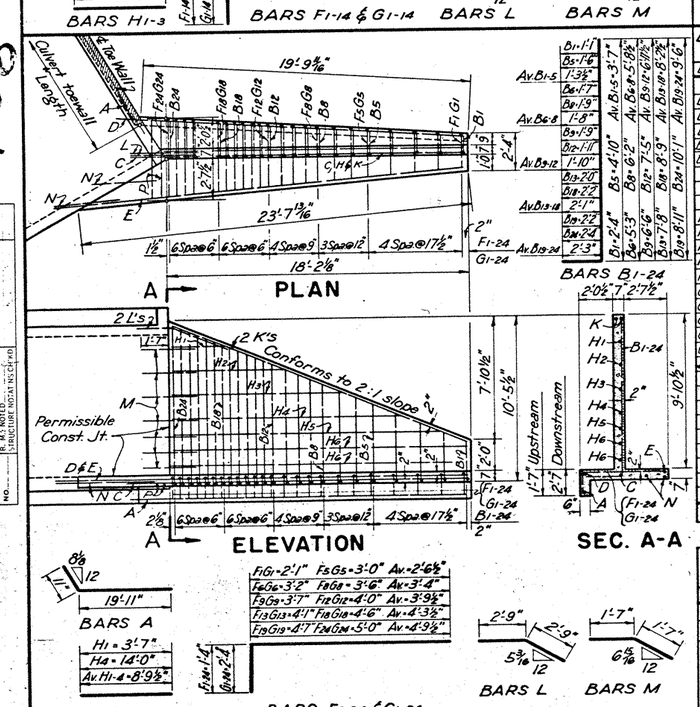
GENERAL NOTES:-

DESIGN: Wing Walls designed in accordance with Rankine's theory of retaining wall design. Elements of design shown on sketch above.
All concrete shall be Class A. Chamfer all exposed corners ¾" unless specified otherwise.
All dimensions relating to reinforcing steel are to centers of bars.
Toewalls for culverts and wingwalls shall be omitted when structure is founded on solid rock.

TEXAS HIGHWAY DEPARTMENT

FLARED WINGWALLS FOR MULTIPLE CULVERTS H = 7'-0" TO 10'-0" INCL.

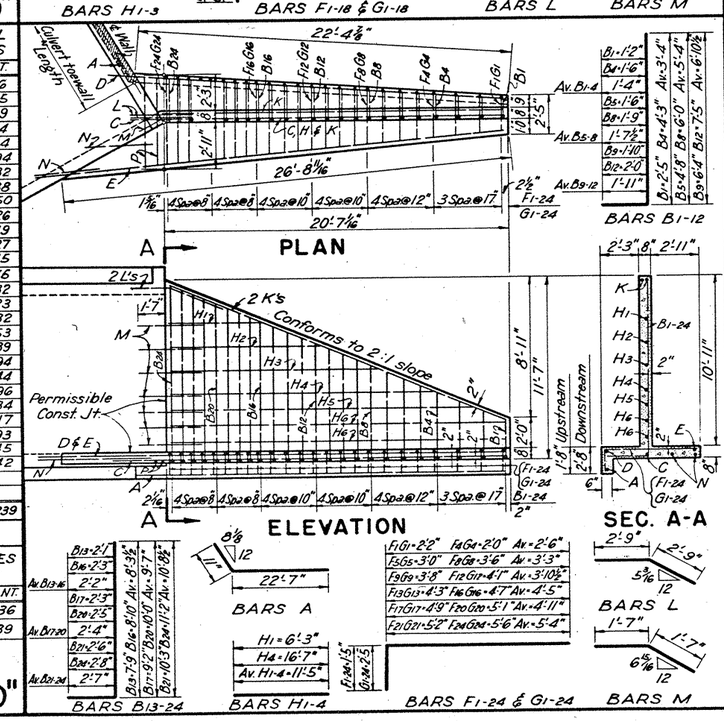
MCW-F2



BILL OF REINF. STEEL FOR 4 WINGWALLS					
BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	4	½"@	~	20'-10"	56
B1-5	20	½"@	17½"	Av 4'-10"	65
B6-8	12	½"@	12"	Av 7'-4"	59
B9-11	16	½"@	9"	Av 8'-9"	94
B12-13	24	½"@	6"	Av 10'-3"	164
B14-24	24	⅝"@	6"	Av 11'-9"	294
C	4	⅝"@	~	19'-9"	82
D	4	⅝"@	~	21'-2"	88
E	4	¾"@	~	25'-0"	150
F1-5	10	½"@	17½"	Av 3'-10"	26
F6-8	6	½"@	12"	Av 4'-8"	19
F9-12	8	½"@	9"	Av 5'-1"	27
F13-18	12	½"@	6"	Av 5'-7"	45
F19-24	12	⅝"@	6"	Av 6'-1"	76
G1-5	10	½"@	17½"	Av 4'-10"	32
G6-8	6	½"@	12"	Av 5'-8"	23
G9-12	8	½"@	9"	Av 6'-1"	32
G13-18	12	½"@	6"	Av 6'-7"	53
G19-24	12	⅝"@	6"	Av 7'-1"	89
H1-4	16	½"@	18"	Av 8'-9"	94
H5-8	4	½"@	12"	16'-4"	44
H6-8	8	½"@	12"	17'-11"	96
K	8	⅜"@	~	19'-6"	234
L	8	1"@	~	5'-6"	117
M	28	⅝"@	12&18	3'-2"	93
N	8	⅜"@	~	3'-9"	45
P	8	⅝"@	6"	5'-1"	42
TOTAL FOR 4 WINGS					2239

ESTIMATED QUANTITIES FOR 4 WINGWALLS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	18.36
REINF. STEEL	LB.	2,239

WINGWALLS FOR M.C's. H = 9'-0"



BILL OF REINF. STEEL FOR 4 WINGWALLS					
BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	4	½"@	~	23'-6"	63
B1-4	16	½"@	17"	Av 4'-8"	50
B5-8	16	½"@	12"	Av 6'-11"	74
B9-12	16	½"@	10"	Av 8'-9"	94
B13-16	16	⅝"@	10"	Av 10'-5"	174
B17-20	16	⅝"@	8"	Av 11'-11"	199
B21-24	16	⅝"@	8"	Av 13'-3"	318
C	4	⅝"@	~	22'-2"	92
D	4	⅝"@	~	23'-9"	99
E	4	¾"@	~	27'-2"	163
F1-4	8	½"@	17"	Av 3'-11"	21
F5-8	8	½"@	12"	Av 4'-8"	25
F9-12	8	½"@	10"	Av 5'-3"	28
F13-16	8	⅝"@	10"	Av 5'-10"	49
F17-20	8	⅝"@	8"	Av 6'-4"	53
F21-24	8	⅝"@	8"	Av 6'-9"	81
G1-4	8	½"@	17"	Av 4'-11"	26
G5-8	8	½"@	12"	Av 5'-8"	30
G9-12	8	½"@	10"	Av 6'-3"	33
G13-16	8	⅝"@	10"	Av 6'-10"	57
G17-20	8	⅝"@	8"	Av 7'-4"	61
G21-24	8	⅝"@	8"	Av 7'-9"	93
H1-4	16	½"@	18"	11'-5"	122
H5-6	4	½"@	12"	18'-11"	51
H7-8	8	½"@	12"	20'-4"	109
K	8	⅜"@	~	22'-2"	266
L	8	1"@	~	5'-6"	117
M	28	⅝"@	12&18	3'-2"	93
N	8	⅜"@	~	3'-9"	45
P	8	⅝"@	8"	5'-7"	67
TOTAL FOR 4 WINGS					2753

ESTIMATED QUANTITIES FOR 4 WINGWALLS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	25.21
REINF. STEEL	LB.	2,753

WINGWALLS FOR M.C's. H = 10'-0"

DN. A.B.L.	DRAWING	DATE	PER ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK. DN. T.J.W.	ORIGINAL	SEPT 1949	6	TEXAS	I-165 (16)	60
DN. A.B.L.	Rev. 6-50 - Dimen. "D"		STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
CK. DW. M.D.A.			21	WEBB	18 / 4 / 9	US 81
TR. O.C.K.						
CK. TR. M.D.A.						

PROFILE — SURVEYED — PLOTTED — CHECKED — NOTE BOOK — QUANTITIES CHECKED — NO. — R. M.C. NOTED — STRUCTURE NODAL NO. (CK. BY)

PLAN — NOTE BOOK — NO. — DRAWN — TRACED — CHECKED — QUANTITIES CHECKED

1-29

TABLE OF REINFORCING STEEL FOR FOUR WINGS

| CULVERT HEIGHT | TOTAL QUANTITIES FOR FOUR WINGS | | Bars As 2-Size #4 | | Bars A1 2-Size #4 | | Bars B1-1 thru Bs-x | | | | Bars BL-1 thru BL-x | | | | Bars Ca 2-Size #5 | | Bars C1 2-Size #5 | | Bars Ds 2-Size #5 | | Bars D1 2-Size #5 | | Bars E2 2 each | | | Bars E1 2 each | | | Bars F-1 thru F-x (Up Stream) | | | | Bars G-1 thru G-x (Down Stream) | | | | Bars Hs-1 thru Hs-x Size #4 | | | | Bars HL-1 thru HL-x Size #4 | | | | Bars Ka 4 each | | | Bars KL 4 each | | | Bars L B@5'-6" | | Bars M 3'-2" | | Bars N 3'-9" | | | Bars P 8 each | | | CULVERT HEIGHT |
|---|---|---

BILLS OF REINFORCING STEEL - FOR 44' CLEAR WIDTH - BARRELS ONLY

2 SPANS 6'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	54	109	42	16	30	4	28	46
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	18"	⌐	⌐	12"	12"
LENGTH	13'-4"	13'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	13'-2"	3'-11"	7'-6"
WEIGHT	490	959	530	371	168	340	650	248	464	35	73	230

3 SPANS 6'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	108	218	64	24	44	4	42	92
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	18"	⌐	⌐	12"	12"
LENGTH	20'-0"	19'-8"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	19'-8"	3'-11"	7'-6"
WEIGHT	735	1432	530	371	337	680	991	371	681	53	110	461

4 SPANS 6'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	162	327	86	32	58	4	54	138
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	⌐	⌐	12"	12"
SPACING	10"	10"	8"	8"	10"	5"	⌐	18"	⌐	⌐	12"	12"
LENGTH	26'-8"	26'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	26'-2"	3'-11"	7'-6"
WEIGHT	980	1905	530	371	505	1020	1331	495	898	70	141	691

5 SPANS 6'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	216	436	108	40	72	4	68	184	
SIZE	½"	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	
SPACING	10"	10"	8"	8"	10"	5"	⌐	18"	⌐	⌐	12"	
LENGTH	33'-4"	32'-8"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	32'-8"	3'-11"	7'-6"
WEIGHT	1225	2379	530	371	674	1360	1672	619	1114	87	178	922

6 SPANS 6'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	270	545	130	48	86	4	80	230
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	18"	⌐	⌐	12"	12"
LENGTH	40'-0"	39'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	39'-2"	3'-11"	7'-6"
WEIGHT	1470	2852	530	371	842	1700	2012	743	1331	105	210	1152

2 SPANS 6'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	54	109	42	24	30	4	28	46
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	16"	⌐	⌐	12"	12"
LENGTH	13'-4"	13'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	13'-2"	3'-11"	9'-6"
WEIGHT	490	959	620	371	168	340	650	371	464	35	73	292

3 SPANS 6'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	108	218	64	36	44	4	42	92
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	16"	⌐	⌐	12"	12"
LENGTH	20'-0"	19'-8"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	19'-8"	3'-11"	9'-6"
WEIGHT	735	1432	620	371	337	680	991	557	681	53	110	584

4 SPANS 6'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	162	327	86	48	58	4	54	138
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	16"	⌐	⌐	12"	12"
LENGTH	26'-8"	26'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	26'-2"	3'-11"	9'-6"
WEIGHT	980	1905	620	371	505	1020	1331	743	898	70	141	876

5 SPANS 6'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	216	436	108	60	72	4	68	184
SIZE	½"	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	16"	⌐	⌐	12"	12"
LENGTH	33'-4"	32'-8"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	32'-8"	3'-11"	9'-6"
WEIGHT	1225	2379	620	371	674	1360	1672	929	1114	87	178	1168

6 SPANS 6'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	270	545	130	72	86	4	80	230
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	16"	⌐	⌐	12"	12"
LENGTH	40'-0"	39'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	39'-2"	3'-11"	9'-6"
WEIGHT	1470	2852	620	371	842	1700	2012	1114	1331	105	210	1460

2 SPANS 6'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	54	109	42	48	30	4	28	62	46	46
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	15"	⌐	⌐	12"	18"	12"	12"
LENGTH	13'-7"	13'-5"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	13'-5"	3'-11"	4'-11"	3'-4"	10'-10"
WEIGHT	499	977	711	371	168	340	650	743	464	36	73	204	102	333

3 SPANS 6'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	108	218	64	64	44	4	42	62	92	92
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	15"	⌐	⌐	12"	18"	12"	12"
LENGTH	20'-4"	20'-0"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	20'-0"	3'-11"	4'-11"	3'-4"	10'-10"
WEIGHT	747	1456	711	371	337	680	991	991	681	53	110	204	205	666

4 SPANS 6'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	162	327	86	80	58	4	54	62	138	138
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	15"	⌐	⌐	12"	18"	12"	12"
LENGTH	27'-1"	26'-7"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	26'-7"	3'-11"	4'-11"	3'-4"	10'-10"
WEIGHT	995	1935	711	371	505	1020	1331	1238	898	71	141	204	307	998

5 SPANS 6'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	216	436	108	96	72	4	68	62	184	184
SIZE	½"	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	15"	⌐	⌐	12"	18"	12"	12"
LENGTH	33'-10"	33'-2"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	33'-2"	3'-11"	4'-11"	3'-4"	10'-10"
WEIGHT	1243	2415	711	371	674	1360	1672	1486	1114	89	178	204	409	1331

6 SPANS 6'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	270	545	130	112	86	4	82	62	230	230
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	15"	⌐	⌐	12"	18"	12"	12"
LENGTH	41'-10"	39'-9"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	39'-9"	3'-11"	4'-11"	3'-4"	10'-10"
WEIGHT	1537	2894	711	371	842	1700	2012	1734	1331	106	215	204	512	1664

2 SPANS 6'xG'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	54	109	42	48	30	4	28	62	46	46
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	13'-7"	13'-5"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	13'-5"	3'-11"	4'-11"	3'-4"	10'-10"
WEIGHT	499	977	802	371	168	340	650	743	464	36	73	245	102	394

3 SPANS 6'xG'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	108	218	64	64	44	4	42	62	92	92
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	20'-4"	20'-0"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	20'-0"	3'-11"	5'-11"	3'-4"	12'-10"
WEIGHT	747	1456	802	371	337	680	991	991	681	53	110	245	205	788

4 SPANS 6'x6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	162	327	86	80	58	4	54	62	138	138
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	27'-1"	26'-7"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	26'-7"	3'-11"	5'-11"	3'-4"	12'-10"
WEIGHT	995	1935	802	371	505	1020	1331	1238	898	71	141	245	307	1183

5 SPANS 6'x6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	216	436	108	96	72	4	68	62	184	184
SIZE	½"	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	33'-10"	33'-2"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	33'-2"	3'-11"	5'-11"	3'-4"	12'-10"
WEIGHT	1243	2415	802	371	674	1360	1672	1486	1114	89	178	245	409	1157

6 SPANS 6'x6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	270	545	130	112	86	4	82	62	230	230
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	10"	10"	8"	8"	10"	5"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	41'-10"	39'-9"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	39'-9"	3'-11"	5'-11"	3'-4"	12'-10"
WEIGHT	1537	2894	802	371	842	1700	2012	1734	1331	106	215	245	512	1971

PLAN — NOTE BOOK — NO

PROFILE — SHEET C — NOTE BOOK — CKD. BY — NOTED — CHECKED — NO. BY — NOTED — CONSTRUCTION REVISIONS (ITEM)

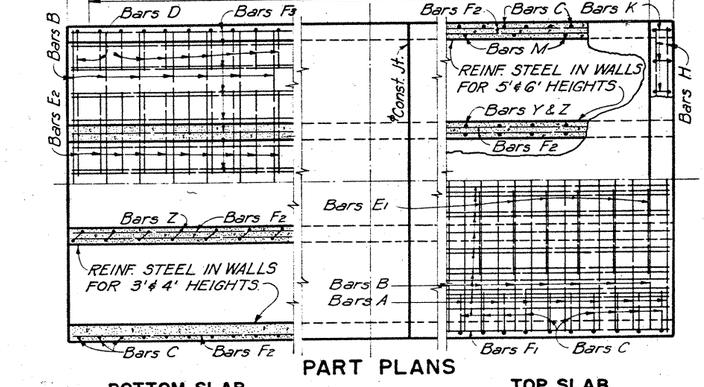
Slope ⅛" per foot

4'-0" ℄

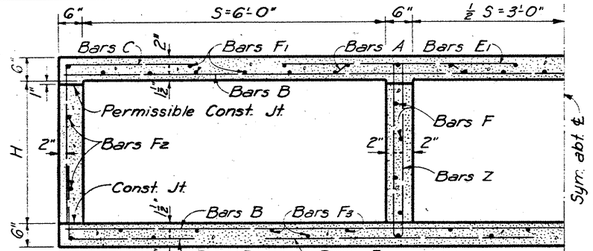
CROWN DIAGRAM
For Direct Traffic only.
Maintain Constant thickness of top slab.

Clear Width | Clear Width + 1'-4"

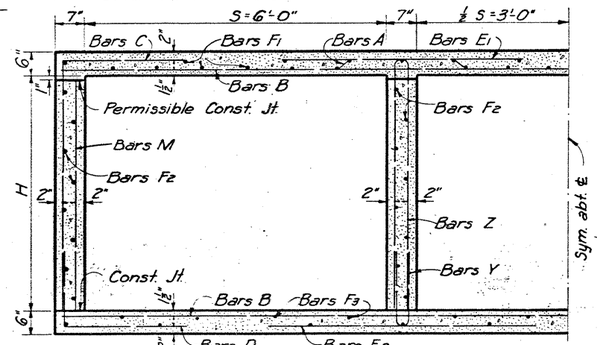
ϕ Where length of barrel exceeds 100' provide construction joints at max. spa. of 40'. No break in steel at joints.



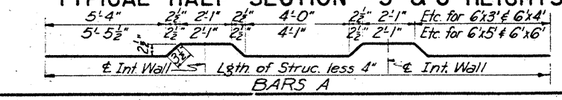
PART PLANS



TYPICAL HALF SECTION - 3' & 4' HEIGHTS



TYPICAL HALF SECTION - 5' & 6' HEIGHTS

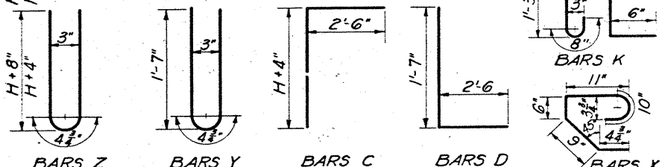


BARS A

BOTTOM SLAB

NOTE: TOP & BOTTOM SLAB REINFORCING STEEL SIMILAR FOR CULVERT SIZES SHOWN ON THIS SHEET.

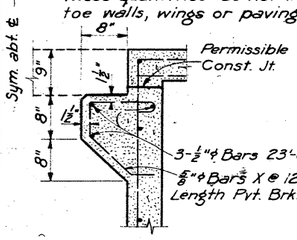
TOP SLAB



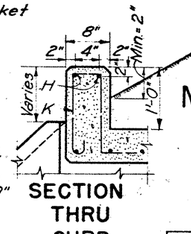
BARREL QUANTITIES FOR 44' CLEAR WIDTH

CULVERT SIZE S H	NO. OF SPANS	LENGTH OF STRUCT.	BARREL QUANT. CONC. Cu. Yd.	BARREL QUANT. STEEL Lb.	QUANT. P.L.F. BBL CONC. Cu. Yd.	QUANT. P.L.F. BBL STEEL Lb.
6'x3'	2	13'-6"	30.90	4558	0.667	97.30
	3	20'-0"	44.64	6752	0.963	143.99
	4	26'-6"	58.38	8937	1.259	190.69
	5	33'-0"	72.17	11,131	1.556	237.38
	6	39'-6"	85.91	13,318	1.852	284.07
6'x4'	2	13'-6"	33.40	4833	0.722	103.31
	3	20'-0"	48.00	7151	1.037	152.68
	4	26'-6"	62.60	9460	1.352	202.04
	5	33'-0"	77.20	11,777	1.667	251.40
	6	39'-6"	91.76	14,087	1.981	300.78
6'x5'	2	13'-9"	38.44	5671	0.833	121.43
	3	20'-4"	54.72	8203	1.185	175.44
	4	26'-11"	71.01	10725	1.537	229.47
	5	33'-6"	87.29	13257	1.889	283.49
	6	40'-1"	103.57	15833	2.241	338.49
6'x6'	2	13'-9"	41.39	5864	0.898	125.66
	3	20'-4"	58.67	8457	1.272	181.01
	4	26'-11"	75.90	11042	1.645	236.37
	5	33'-6"	93.18	13635	2.019	291.73
	6	40'-1"	110.42	16272	2.392	348.07

‡ These quantities do not include toe walls, wings or paving bracket



PAVEMENT BRACKET
To be used only when called for on plans.



SECTION THRU CURB

GENERAL NOTES:-

Design Loading: H20-44 or H20 S16-44 in accordance with A.A.S.H.O. 1949 Standard Specifications and T.H.D. Supplement No. 1.

All concrete shall be Class "A". Chamfer exposed corners ¾".

Dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls and include one 30 diameter lap for all bars exceeding 40 feet in length. Barrels having a length of over 80 feet shall have quantities recalculated to include an additional 30 diameter lap for all longitudinal bars.

Construction joint shown at flow line may be raised a maximum of 6 inches at the option of the Contractor. Adjust length of vertical steel as required.

PVT. BRKT. QUANT.

2 PVT. BRKTS. 24'-0" Long	
CONC.	STEEL
CU. YDS.	LBS.
1.19	264

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES 6'x3', 6'x4', 6'x5' & 6'x6'

DIRECT TRAFFIC TO 4'-0" FILL

MC6-1

DN. W.H.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK. DN.: R.N.M.	Original	July 1949	6	TEXAS	F-165 (16)	52
DW. K.M.			STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
CK. DW.: M.O.A.			21	WEBB	18 / 3&4 / 9	U.S.81
TR.: C.W.W.						
CK. TR.: K.M.						

BILLS OF REINFORCING STEEL - FOR 44' CLEAR WIDTH - BARRELS ONLY

2 SPANS ~ 7'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	54	91	46	16	34	4	32	46
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	12"
LENGTH	15'-4"	15'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	15'-2"	3'-11"	7'-8"
WEIGHT	563	1105	530	371	168	284	712	248	526	41	84	236

3 SPANS ~ 7'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	108	182	70	24	50	4	48	92
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	12"
LENGTH	23'-1"	22'-8"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	22'-8"	3'-11"	7'-8"
WEIGHT	848	1651	530	371	337	568	1083	371	774	61	126	471

4 SPANS ~ 7'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	162	273	94	32	66	4	62	138
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	12"
LENGTH	30'-8"	30'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	30'-2"	3'-11"	7'-8"
WEIGHT	1130	2197	530	371	505	852	1455	495	1022	81	162	707

5 SPANS ~ 7'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	216	364	118	40	82	4	78	184
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	12"
LENGTH	38'-6"	37'-8"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	37'-8"	3'-11"	7'-8"
WEIGHT	1414	2743	530	371	674	1136	1826	619	1269	101	204	943

6 SPANS ~ 7'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	270	455	142	48	98	4	92	230
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	12"
LENGTH	47'-5"	46'-5"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	46'-5"	3'-11"	7'-8"
WEIGHT	1742	3380	530	371	842	1420	2198	743	1517	124	241	1178

2 SPANS ~ 7'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	54	91	46	24	34	4	32	46
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	16"	~	~	12"	12"
LENGTH	15'-4"	15'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	15'-2"	3'-11"	9'-8"
WEIGHT	563	1105	620	371	168	284	712	371	526	41	84	297

3 SPANS ~ 7'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	108	182	70	36	50	4	48	92
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	16"	~	~	12"	12"
LENGTH	23'-1"	22'-8"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	22'-8"	3'-11"	9'-8"
WEIGHT	848	1651	620	371	337	568	1083	557	774	61	126	594

4 SPANS ~ 7'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	162	273	94	48	66	4	62	138
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	16"	~	~	12"	12"
LENGTH	30'-8"	30'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	30'-2"	3'-11"	9'-8"
WEIGHT	1130	2197	620	371	505	852	1455	743	1022	81	162	891

5 SPANS ~ 7'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	216	364	118	60	82	4	78	184
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	16"	~	~	12"	12"
LENGTH	38'-6"	37'-8"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	37'-8"	3'-11"	9'-8"
WEIGHT	1414	2743	620	371	674	1136	1826	929	1269	101	204	1189

6 SPANS ~ 7'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	270	455	142	72	98	4	92	230
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	16"	~	~	12"	12"
LENGTH	47'-5"	46'-5"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	46'-5"	3'-11"	9'-8"
WEIGHT	1742	3380	620	371	842	1420	2198	1114	1517	124	241	1486

2 SPANS ~ 7'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	54	91	46	48	34	4	32	62	46	46
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	15"	~	~	12"	18"	12"	12"
LENGTH	15'-5"	15'-5"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	15'-5"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	572	1123	711	371	168	284	712	743	526	41	84	204	105	336

3 SPANS ~ 7'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	108	182	70	64	50	4	48	62	92	92
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	15"	~	~	12"	18"	12"	12"
LENGTH	23'-5"	23'-0"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	23'-0"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	860	1675	711	371	337	568	1083	991	774	61	126	204	210	671

4 SPANS ~ 7'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	162	273	94	80	66	4	62	62	138	138
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	15"	~	~	12"	18"	12"	12"
LENGTH	31'-2"	30'-7"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	30'-7"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	1145	2227	711	371	505	852	1455	1238	1022	82	162	204	315	1007

5 SPANS ~ 7'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	216	364	118	96	82	4	78	62	184	184
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	15"	~	~	12"	18"	12"	12"
LENGTH	39'-0"	38'-2"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	38'-2"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	1433	2779	711	371	674	1136	1826	1486	1269	102	204	204	420	1342

6 SPANS ~ 7'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	270	455	142	112	98	4	92	62	230	230
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	15"	~	~	12"	18"	12"	12"
LENGTH	48'-0"	47'-0"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	47'-0"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	1764	3422	711	371	842	1420	2198	1734	1517	126	241	204	526	1678

2 SPANS ~ 7'x6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	54	91	46	48	34	4	32	62	46	46
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	18"	12"	12"
LENGTH	15'-7"	15'-5"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	15'-5"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	572	1123	802	371	168	284	712	743	526	41	84	204	105	336

3 SPANS ~ 7'x6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	108	182	70	64	50	4	48	62	92	92
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	18"	12"	12"
LENGTH	23'-5"	23'-0"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-0"	3'-11"	5'-11"	3'-5"	10'-11"	
WEIGHT	860	1675	802	371	337	568	1083	991	774	61	126	245	210	794

4 SPANS ~ 7'x6'

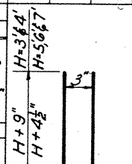
MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	162	273	94	80	66	4	62	62	138	138
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	18"	12"	12"
LENGTH	31'-2"	30'-7"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	30'-7"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	1145	2227	802	371	505	852	1455	1238	1022	82	162	245	315	1191

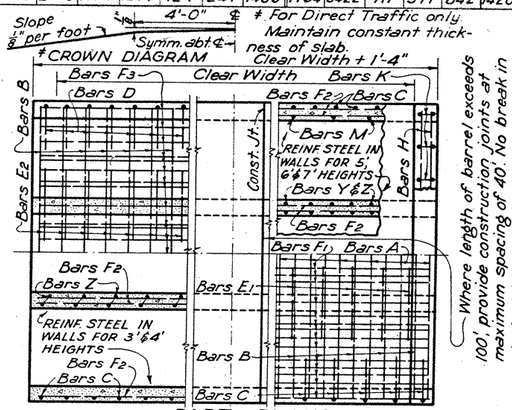
5 SPANS ~ 7'x6'

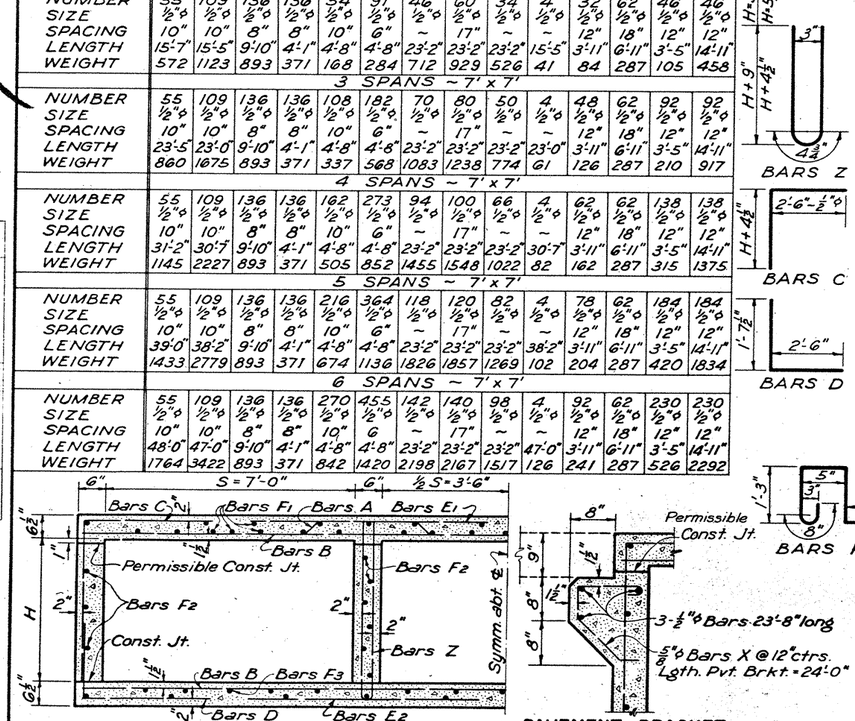
MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	216	364	118	96	82	4	78	62	184	184
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	18"	12"	12"
LENGTH	39'-0"	38'-2"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	38'-2"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	1433	2779	802	371	674	1136	1826	1486	1269	102	204	245	420	1588

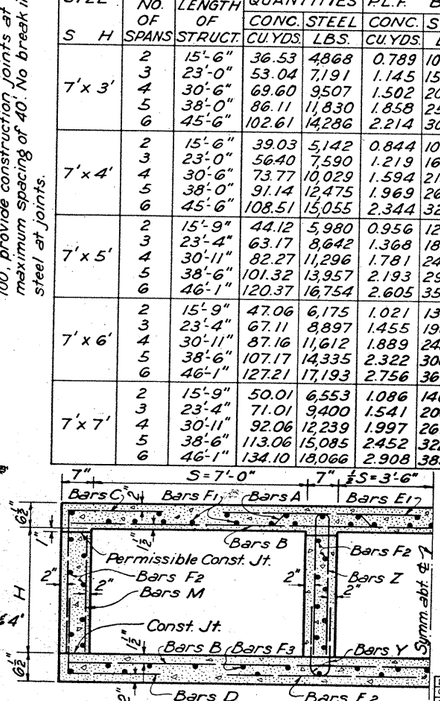
6 SPANS ~ 7'x6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	270	455	142	112	98	4	92	62	230	230
SIZE	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø	½"ø
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	18"	12"	12"
LENGTH	48'-0"	47'-0"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	47'-0"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	1764	3422	802	371	842	1420	2198	1734	1517	126	241	245	526	1985









BARREL QUANTITIES FOR 44' CLEAR WIDTH

CULVERT SIZE S	H	NO. OF SPANS	LENGTH OF STRUCT.	* BARREL QUANTITIES CONC. CU.YDS.	* BARREL QUANTITIES STEEL LBS.	QUANTITIES P.L.F. BBL. CONC. CU.YDS.	QUANTITIES P.L.F. BBL. STEEL LBS.
7'x3'		2	15'-6"	36.53	4,868	0.789	103.63
		3	23'-0"	53.04	7,191	1.145	153.01
		4	30'-6"	69.60	9,507	1.502	202.32
		5	38'-0"	86.11	11,830	1.858	251.67
		6	45'-6"	102.61	14,286	2.214	304.00
7'x4'		2	15'-6"	39.03	5,142	0.844	109.66
		3	23'-0"	56.40	7,590	1.219	161.69
		4	30'-6"	73.77	10,029	1.594	213.68
		5	38'-0"	91.14	12,475	1.969	265.71
		6	45'-6"	108.51	15,055	2.344	320.71
7'x5'		2	15'-9"	44.12	5,980	0.956	127.76
		3	23'-4"	63.17	8,642	1.368	184.48
		4	30'-11"	82.27	11,296	1.781	241.11
		5	38'-6"	101.32	13,957	2.193	297.81
		6	46'-1"	120.37	16,754	2.605	357.46
7'x6'		2	15'-9"	47.06	6,175	1.021	132.00
		3	23'-4"	67.11	8,897	1.455	190.05
		4	30'-11"	87.16	11,612	1.889	248.02
		5	38'-6"	107.17	14,335	2.322	306.05
		6	46'-1"	127.21	17,193	2.756	367.04
7'x7'		2	15'-9"	50.01	6,553	1.086	140.24
		3	23'-4"	71.01	9,400	1.541	200.95
		4	30'-11"	92.06	12,239	1.997	261.60
		5	38'-6"	113.06	15,085	2.452	322.31
		6	46'-1"	134.10	18,066	2.908	385.96

*These quantities do not include toe walls, wings or paving bracket.

PVT. BRKT. QUANT.

2 PVT. BRKTS. 24'-0" long	
CONC. CU.YDS.	STEEL LBS.
1.19	264

GENERAL NOTES :-

Design Loading : H-20-44 or H20S16-44 in accordance with A.A.S.H.O. 1949 Standard Specifications and T.H.D. Supplement No. 1.

All concrete shall be Class A. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls and include one 30 diameter lap for all bars exceeding 40 feet in length. Barrels having a length of over 80 feet shall have quantities recalculated to include an additional 30 diameter lap for all longitudinal bars.

Construction Jt. shown at flow line may be raised a maximum of 6" at the option of the contractor. Adjust length of vertical steel as required.

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES - 7'x3', 7'x4', 7'x5', 7'x6' & 7'x7'

DIRECT TRAFFIC TO 2'-0" FILL

MC7-1

DN. W.H.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK.DN. R.M.M.	ORIGINAL	JULY 1949	6	TEXAS	I-165 (14)	52B
DW. M.D.A.						
CK.DW. K.M.						
TR. O.C.K.						
CK.TR. M.D.A.						

STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	34	3	US81

129

PLAN — NOTE BOOK — NO.

PROFILE — SURVEYED — PLOTTED — NOTE BOOK — NO.

BILLS OF REINFORCING STEEL — FOR 44' CLEAR WIDTH — BARRELS ONLY

2 SPANS 8'×4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	65	129	156	156	64	109	50	24	38	4	36	46
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	5"	–	16"	–	–	12"	12"
LENGTH	17'-4"	17'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	17'-8"	4'-0"	9'-8"
WEIGHT	752	1480	712	425	200	340	774	371	588	46	96	297

3 SPANS 8'×4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	L	Z
NUMBER	65	129	156	156	128	218	76	36	56	4	54	92	92
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	5"	–	16"	–	–	12"	12"	12"
LENGTH	26'-1"	25'-8"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	25'-8"	4'-0"	9'-8"	9'-8"
WEIGHT	1132	2212	712	425	399	680	1176	557	867	69	144	594	594

4 SPANS 8'×4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	L	Z
NUMBER	65	129	156	156	192	327	102	48	74	4	70	138	138
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	5"	–	16"	–	–	12"	12"	12"
LENGTH	34'-9"	34'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	34'-2"	4'-0"	9'-8"	9'-8"
WEIGHT	1509	2944	712	425	599	1020	1579	743	1145	91	187	891	891

5 SPANS 8'×4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	L	Z
NUMBER	65	129	156	156	256	436	128	60	92	4	88	184	184
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	5"	–	16"	–	–	12"	12"	12"
LENGTH	44'-9"	43'-1"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	43'-1"	4'-0"	9'-8"	9'-8"
WEIGHT	1943	3785	712	425	799	1360	1981	929	1424	117	235	1189	1189

6 SPANS 8'×4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	L	Z
NUMBER	65	129	156	156	320	545	154	72	110	4	104	230	230
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	5"	–	16"	–	–	12"	12"	12"
LENGTH	53'-5"	52'-5"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	52'-5"	4'-0"	9'-8"	9'-8"
WEIGHT	2319	4517	712	425	998	1700	2384	1114	1703	140	278	1486	1486

2 SPANS 8'×5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	64	109	50	48	38	4	36	62	46	46
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	5"	–	15"	–	–	12"	18"	12"	12"
LENGTH	17'-7"	17'-5"	7'-4"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	17'-5"	4'-0"	4'-1"	10'-1"	10'-1"
WEIGHT	763	1501	816	425	200	340	774	743	588	47	96	204	105	336

3 SPANS 8'×5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	128	218	76	64	56	4	54	62	92	92
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	5"	–	15"	–	–	12"	18"	12"	12"
LENGTH	26'-5"	26'-0"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	26'-0"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	1147	2240	816	425	399	680	1176	991	867	69	144	204	210	671

4 SPANS 8'×5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	192	327	102	80	74	4	70	62	138	138
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	5"	–	15"	–	–	12"	18"	12"	12"
LENGTH	35'-2"	34'-7"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	34'-7"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	1527	2980	816	425	599	1020	1579	1238	1145	92	187	204	315	1007

5 SPANS 8'×5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	256	436	128	96	92	4	88	62	184	184
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	5"	–	15"	–	–	12"	18"	12"	12"
LENGTH	45'-3"	44'-5"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	44'-5"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	1965	3828	816	425	799	1360	1981	1486	1424	119	235	204	420	1342

6 SPANS 8'×5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	320	545	154	112	110	4	106	62	230	230
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	5"	–	15"	–	–	12"	18"	12"	12"
LENGTH	54'-0"	53'-0"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	53'-0"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	2345	4567	816	425	998	1700	2384	1734	1703	142	283	204	525	1678

2 SPANS 8'×6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	64	121	50	48	38	4	36	62	46	46
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	18"	–	–	12"	18"	12"	12"
LENGTH	17'-7"	17'-5"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	17'-5"	4'-0"	5'-1"	3'-5"	12'-1"
WEIGHT	763	1501	920	425	200	377	774	743	588	47	96	245	105	397

3 SPANS 8'×6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	128	242	76	64	56	4	54	62	92	92
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	18"	–	–	12"	18"	12"	12"
LENGTH	26'-5"	26'-0"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	26'-0"	4'-0"	5'-1"	3'-5"	12'-1"
WEIGHT	1147	2240	920	425	399	755	1176	991	867	69	144	245	210	794

4 SPANS 8'×6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	192	363	102	90	74	4	70	62	138	138
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	18"	–	–	12"	18"	12"	12"
LENGTH	35'-2"	34'-7"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	34'-7"	4'-0"	5'-1"	3'-5"	12'-1"
WEIGHT	1527	2980	920	425	599	1132	1579	1238	1145	92	187	245	315	1191

5 SPANS 8'×6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	256	484	128	96	92	4	88	62	184	184
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	18"	–	–	12"	18"	12"	12"
LENGTH	45'-3"	44'-5"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	44'-5"	4'-0"	5'-1"	3'-5"	12'-1"
WEIGHT	1965	3828	920	425	799	1510	1981	1486	1424	119	235	245	420	1588

6 SPANS 8'×6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	320	605	154	112	110	4	106	62	230	230
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	18"	–	–	12"	18"	12"	12"
LENGTH	54'-0"	53'-0"	8'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	53'-0"	4'-0"	5'-1"	3'-5"	12'-1"
WEIGHT	2345	4567	920	425	998	1887	2384	1734	1703	142	283	245	525	1985

2 SPANS 8'×7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	64	121	50	60	38	4	36	62	46	46
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	19"	–	–	12"	18"	12"	12"
LENGTH	17'-7"	17'-5"	9'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	17'-5"	4'-0"	5'-1"	3'-5"	12'-1"
WEIGHT	763	1501	1024	425	200	377	774	929	588	47	96	245	105	458

3 SPANS 8'×7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	128	242	76	80	56	4	54	62	92	92
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	17"	–	–	12"	18"	12"	12"
LENGTH	26'-5"	26'-0"	9'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	26'-0"	4'-0"	6'-11"	3'-5"	14'-11"
WEIGHT	1147	2240	1024	425	399	755	1176	1238	867	69	144	285	210	917

4 SPANS 8'×7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	192	363	102	100	74	4	70	62	138	138
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	17"	–	–	12"	18"	12"	12"
LENGTH	35'-2"	34'-7"	9'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	34'-7"	4'-0"	6'-11"	3'-5"	14'-11"
WEIGHT	1527	2980	1024	425	599	1132	1579	1548	1145	92	187	287	315	1375

5 SPANS 8'×7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	256	484	128	120	92	4	88	62	184	184
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	17"	–	–	12"	18"	12"	12"
LENGTH	45'-9"	44'-11"	9'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	44'-11"	4'-0"	6'-11"	3'-5"	14'-11"
WEIGHT	1965	3828	1024	425	799	1510	1981	1857	1424	119	235	287	420	1834

6 SPANS 8'×7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	320	605	154	140	110	4	106	62	230	230
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	7"	7"	8½"	4½"	–	17"	–	–	12"	18"	12"	12"
LENGTH	54'-0"	53'-0"	9'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	53'-0"	4'-0"	6'-11"	3'-5"	14'-11"
WEIGHT	2345	4567	1024	425	998	1887	2384	2167	1703	142	283	287	525	2292

2 SPANS 8'×8'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	64	121	50	60	38	4	36	62	46	46
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	6"	6"	8½"	4½"	–	19"	–	–	12"	18"	12"	12"
LENGTH	17'-10"	17'-8"	10'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	17'-8"	4'-0"	7'-11"	3'-5"	16'-11"
WEIGHT	774	1523	1317	496	200	377	774	929	588	47	96	328	105	520

3 SPANS 8'×8'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	128	242	76	56	4	54	62	92	92	
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	
SPACING	8½"	8½"	6"	6"	8½"	4½"	–	19"	–	–	12"	18"	12"	
LENGTH	26'-9"	26'-4"	10'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	26'-4"	4'-0"	7'-11"	3'-5"	16'-11"
WEIGHT	1161	2269	1317	496	399	755	1176	1238	867	70	144	328	210	1040

4 SPANS 8'×8'

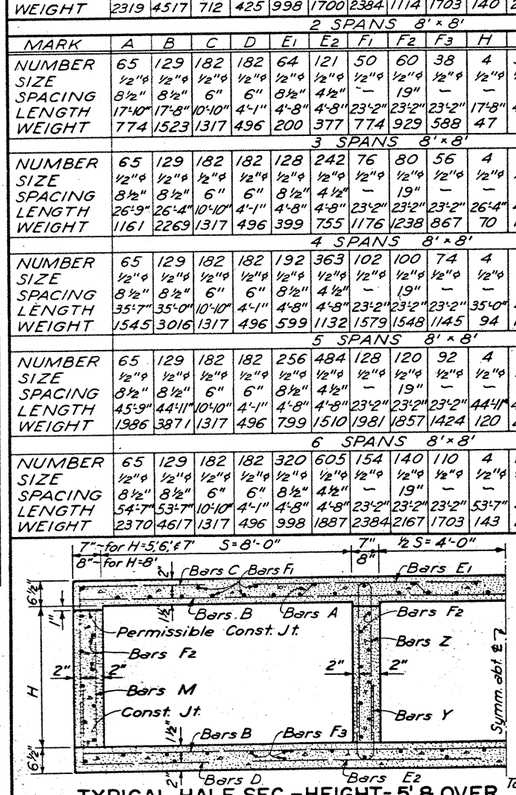
MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	192	363	102	100	74	4	72	62	138	138
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	6"	6"	8½"	4½"	–	19"	–	–	12"	18"	12"	12"
LENGTH	35'-7"	35'-0"	10'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	35'-0"	4'-0"	7'-11"	3'-5"	16'-11"
WEIGHT	1545	3016	1317	496	599	1132	1579	1548	1145	94	192	328	315	1560

5 SPANS 8'×8'

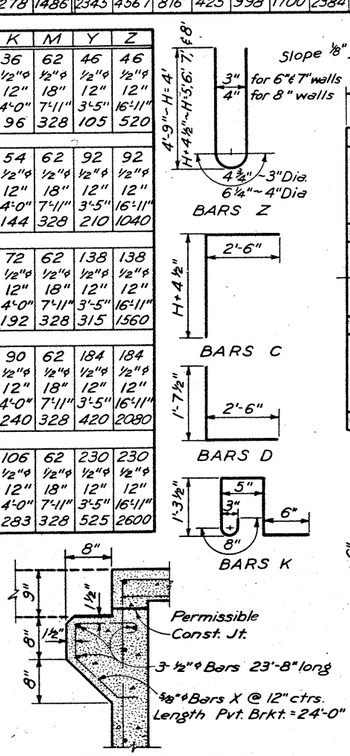
MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	256	484	128	120	92	4	90	62	184	184
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	6"	6"	8½"	4½"	–	19"	–	–	12"	18"	12"	12"
LENGTH	45'-9"	44'-11"	10'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	44'-11"	4'-0"	7'-11"	3'-5"	16'-11"
WEIGHT	1986	3871	1317	496	799	1510	1981	1857	1424	120	240	328	420	2080

6 SPANS 8'×8'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	320	605	154	140	110	4	106	62	230	230
SIZE	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	8½"	8½"	6"	6"	8½"	4½"	–	19"	–	–	12"	18"	12"	12"
LENGTH	54'-7"	53'-7"	10'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	53'-7"	4'-0"	7'-11"	3'-5"	16'-11"
WEIGHT	2370	4617	1317	496	998	1887	2384	2167	1703	143	283	328	525	2600

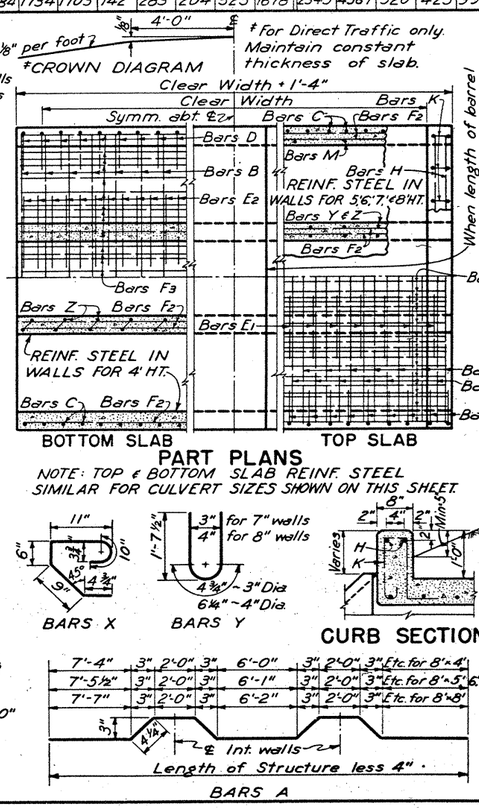


TYPICAL HALF SEC.–HEIGHT=5' & OVER



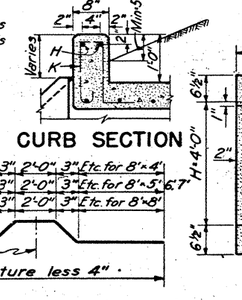
PAVEMENT BRACKET

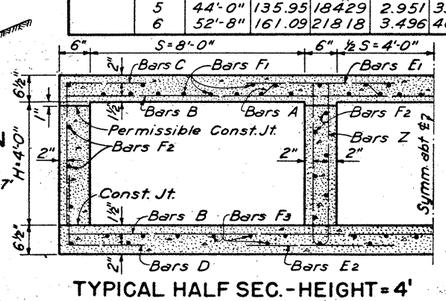
To be used only when called for on plans.



PART PLANS

NOTE: TOP & BOTTOM SLAB REINF. STEEL SIMILAR FOR CULVERT SIZES SHOWN ON THIS SHEET.





TYPICAL HALF SEC.–HEIGHT=4'

BARREL QUANTITIES FOR 44' CLEAR WIDTH

CULV. SIZE S	H	NO. OF SPANS	LENGTH OF STRUCT.	*BARREL QUANTITIES CONC. Cu. Yds.	*BARREL QUANTITIES STEEL Lbs.	QUANTITIES P.L.F. BBL. CONC. Cu. Yds.	QUANTITIES P.L.F. BBL. STEEL Lbs.
8' x 4'		2	17'-6"	42.75	6081	0.924	129.47
		3	26'-0"	61.99	8967	1.339	190.80
		4	34'-6"	81.26	11845	1.755	252.05
		5	43'-0"	100.50	14899	2.170	316.92
		6	51'-6"	119.73	17776	2.585	378.17
8' x 5'		2	17'-9"	47.84	6938	1.036	147.99
		3	26'-4"	68.80	10039	1.489	214.00
		4	34'-11"	89.72	13134	1.941	279.94
		5	43'-6"	110.63	16404	2.393	349.50
		6	52'-1"	131.59	19504	2.846	415.44
8' x 6'		2	17'-9"	50.79	7181	1.101	153.33
		3	26'-4"	72.70	10382	1.575	221.52
		4	34'-11"	94.61	13575	2.049	289.62
		5	43'-6"	116.52	16945	2.523	361.35
		6	52'-1"	138.44	20143	2.997	429.45
8' x 7'		2	17'-9"	53.74	7574	1.166	161.86
		3	26'-4"	76.60	10898	1.661	232.72
		4	34'-11"	99.51	14215	2.157	303.49
		5	43'-6"	122.42	17708	2.653	377.89
		6	52'-1"	145.28	21029	3.148	448.67
8' x 8'		2	18'-0"	60.50	8074	1.315	172.78
		3	26'-8"	85.64	11470	1.860	245.21
		4	35'-4"	110.77	14866	2.405	317.56
		5	44'-0"	135.95	18429	2.951	393.52
		6	52'-8"	161.09	21818	3.496	465.87

PVT. BRKT. QUANT.	
2-PVT. BRACKETS 24'-0" LONG	
CONC.	STEEL
Cu. Yd.	Lb.
1.19	264

* These quantities do not include toe walls, paving bracket or wings.

GENERAL NOTES:

Design Loading: H 20-44 or H20 S16-44 in accordance with A.A.S.H.O. 1949 Standard Specifications and T.H.D. Supplement No. 1.

All concrete shall be Class A. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls and include one 30 diameter lap for all bars exceeding 40 feet in length. Barrels having a length of over 80 feet shall have quantities recalculated to include an additional 30 diameter bar lap for all longitudinal bars.

Construction Joint shown at flow line may be raised a maximum of 6" at the option of the contractor. Adjust length of vertical steel as required.

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES 8'x

BILLS OF REINFORCING STEEL ~ FOR 44' CLEAR WIDTH ~ BARRELS ONLY

2 SPANS 8' × 4'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	182	182	182	78	91	42	24	38	4	36	46
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	16"	–	–	12"	12"
LENGTH	17'-2"	6'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	17'-2"	4'-2"	10'-0"
WEIGHT	2087	841	507	664	775	650	371	588	46	100	307

3 SPANS 8' × 4'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	182	182	182	156	182	64	36	56	4	54	92
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	16"	–	–	12"	12"
LENGTH	25'-8"	6'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	25'-8"	4'-2"	10'-0"
WEIGHT	3121	841	507	1328	1550	991	557	867	69	150	615

4 SPANS 8' × 4'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	182	182	182	234	273	86	48	74	4	70	138
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	16"	–	–	12"	12"
LENGTH	34'-2"	6'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	34'-2"	4'-2"	10'-0"
WEIGHT	4154	841	507	1993	2325	1331	743	1145	91	195	922

5 SPANS 8' × 4'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	182	182	182	312	364	108	60	92	4	88	184
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	16"	–	–	12"	12"
LENGTH	43'-1"	6'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	43'-1"	4'-2"	10'-0"
WEIGHT	5340	841	507	2657	3100	1672	929	1424	117	245	1229

6 SPANS 8' × 4'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	182	182	182	390	455	130	72	110	4	104	230
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	16"	–	–	12"	12"
LENGTH	52'-5"	6'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	52'-5"	4'-2"	10'-0"
WEIGHT	6373	841	507	3321	3875	2012	1114	1703	140	290	1536

2 SPANS 8' × 5'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	182	182	78	91	42	48	38	4	36	62	46	46
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	15"	–	–	12"	18"	12"	12"
LENGTH	17'-5"	7'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	17'-5"	4'-2"	4'-1"	3'-7"	11'-1"
WEIGHT	2118	963	507	664	775	650	743	588	47	100	204	110	340

3 SPANS 8' × 5'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	182	182	156	182	64	64	56	4	54	62	92	92
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	15"	–	–	12"	18"	12"	12"
LENGTH	26'-0"	7'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	26'-0"	4'-2"	4'-1"	3'-7"	11'-1"
WEIGHT	3161	963	507	1328	1550	991	991	867	69	150	204	220	681

4 SPANS 8' × 5'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	182	182	234	273	86	80	74	4	70	62	138	138
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	15"	–	–	12"	18"	12"	12"
LENGTH	34'-7"	7'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	34'-7"	4'-2"	4'-1"	3'-7"	11'-1"
WEIGHT	4204	963	507	1993	2325	1331	1238	1145	92	195	204	330	1021

5 SPANS 8' × 5'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	182	182	312	364	108	96	92	4	88	62	184	184
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	15"	–	–	12"	18"	12"	12"
LENGTH	44'-5"	7'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	44'-5"	4'-2"	4'-1"	3'-7"	11'-1"
WEIGHT	5400	963	507	2657	3100	1672	1486	1424	119	245	204	440	1362

6 SPANS 8' × 5'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	182	182	390	455	130	112	110	4	106	62	230	230
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	15"	–	–	12"	18"	12"	12"
LENGTH	53'-0"	7'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	53'-0"	4'-2"	4'-1"	3'-7"	11'-1"
WEIGHT	6444	963	507	3321	3875	2012	1734	1703	142	295	204	550	1702

2 SPANS 8' × 6'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	182	182	78	91	42	48	38	4	36	62	46	46
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	18"	–	–	12"	18"	12"	12"
LENGTH	17'-5"	8'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	17'-5"	4'-2"	5'-1"	3'-7"	13'-1"
WEIGHT	2118	1084	507	664	775	650	743	588	47	100	245	110	402

3 SPANS 8' × 6'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	182	182	156	182	64	64	56	4	54	62	92	92
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	18"	–	–	12"	18"	12"	12"
LENGTH	26'-0"	8'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	26'-0"	4'-2"	5'-1"	3'-7"	13'-1"
WEIGHT	3161	1084	507	1328	1550	991	867	69	150	245	220	804	

4 SPANS 8' × 6'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	182	182	234	273	86	80	74	4	70	62	138	138
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	18"	–	–	12"	18"	12"	12"
LENGTH	34'-7"	8'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	34'-7"	4'-2"	5'-1"	3'-7"	13'-1"
WEIGHT	4204	1084	507	1993	2325	1331	1238	1145	92	195	245	330	1206

5 SPANS 8' × 6'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	182	182	312	364	108	96	92	4	88	62	184	184
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	18"	–	–	12"	18"	12"	12"
LENGTH	44'-5"	8'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	44'-5"	4'-2"	5'-1"	3'-7"	13'-1"
WEIGHT	5400	1084	507	2657	3100	1672	1486	1424	119	245	245	440	1608

6 SPANS 8' × 6'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	182	182	390	455	130	112	110	4	106	62	230	230
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	6"	6"	7"	6"	–	18"	–	–	12"	18"	12"	12"
LENGTH	53'-0"	8'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	53'-0"	4'-2"	5'-1"	3'-7"	13'-1"
WEIGHT	6444	1084	507	3321	3875	2012	1734	1703	142	295	245	550	2010

2 SPANS 8' × 7'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	198	198	78	91	42	60	38	4	36	62	46	46
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	5½"	5½"	7"	6"	–	17"	–	–	12"	18"	12"	12"
LENGTH	17'-5"	9'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	17'-5"	4'-2"	5'-1"	3'-7"	13'-1"
WEIGHT	2118	1312	552	664	775	650	929	588	47	100	245	110	463

3 SPANS 8' × 7'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	198	198	156	182	64	80	56	4	54	62	92	92
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	5½"	5½"	7"	6"	–	17"	–	–	12"	18"	12"	12"
LENGTH	26'-0"	9'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	26'-0"	4'-2"	5'-1"	3'-7"	13'-1"
WEIGHT	3161	1312	552	1328	1550	991	1238	867	69	150	245	220	927

4 SPANS 8' × 7'

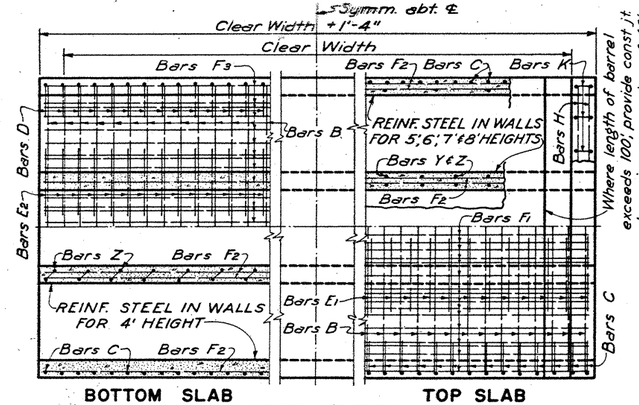
MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	198	198	234	273	86	100	74	4	70	62	138	138
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	5½"	5½"	7"	6"	–	17"	–	–	12"	18"	12"	12"
LENGTH	34'-7"	9'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	34'-7"	4'-2"	5'-1"	3'-7"	13'-1"
WEIGHT	4204	1312	552	1993	2325	1331	1548	1145	92	195	287	330	1390

5 SPANS 8' × 7'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	198	198	312	364	108	120	92	4	88	62	184	184
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	5½"	5½"	7"	6"	–	17"	–	–	12"	18"	12"	12"
LENGTH	44'-5"	9'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	44'-5"	4'-2"	5'-1"	3'-7"	13'-1"
WEIGHT	5400	1312	552	2657	3100	1672	1857	1424	119	245	287	440	1854

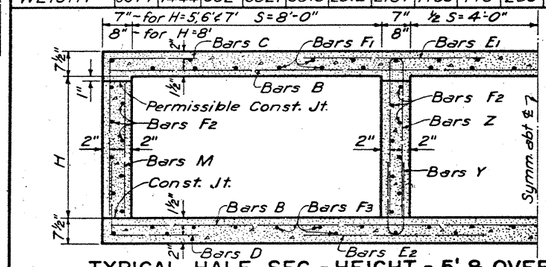
6 SPANS 8' × 7'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	182	198	198	390	455	130	140	110	4	106	62	230	230
SIZE	½"ϕ	½"ϕ	½"ϕ	¾"ϕ	¾"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ	½"ϕ
SPACING	6"	5½"	5½"	7"	6"	–	17"	–	–	12"	18"	12"	12"
LENGTH	53'-0"	9'-1"	4'-2"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	53'-0"	4'-2"	5'-1"	3'-7"	13'-1"
WEIGHT	6444	1312	552	3321	3875	2012	2167	1703	142	295	287	550	2317

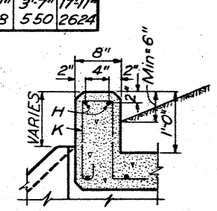


PART PLANS

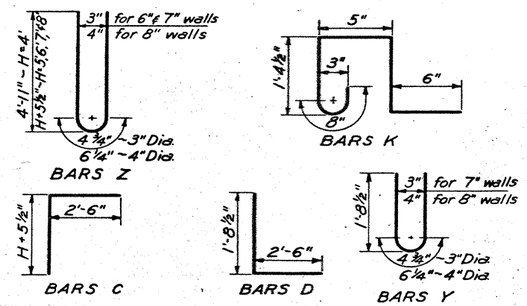
NOTE: TOP & BOTTOM SLAB REINF. STEEL SIMILAR FOR CULVERT SIZES SHOWN ON THIS SHEET

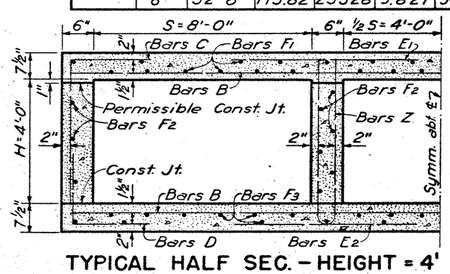


TYPICAL HALF SEC. - HEIGHT = 5' & OVER



SECTION THRU CURB





TYPICAL HALF SEC. – HEIGHT = 4'

BARREL QUANTITIES FOR 44' CLEAR WIDTH

CULV. SIZE S	CULV. SIZE H	NO. OF SPANS	LENGTH OF STRUCT.	* BARREL QUANTITIES CONC. Cu. Yds.	* BARREL QUANTITIES STEEL Lbs.	QUANTITIES P.L.F. BBL. CONC. Cu. Yds.	QUANTITIES P.L.F. BBL. STEEL Lbs.
8'	4	2	17'-6"	47.65	6936	1.032	148.52
		3	26'-0"	69.28	10596	1.500	226.89
		4	34'-6"	90.92	14247	1.968	305.27
		5	43'-0"	112.51	18061	2.435	386.99
		6	51'-6"	134.15	21712	2.903	465.36
8'	5	2	17'-9"	52.83	7809	1.146	167.37
		3	26'-4"	76.15	11682	1.651	250.42
		4	34'-11"	99.51	15548	2.157	333.47
		5	43'-6"	122.83	19579	2.662	419.86
		6	52'-1"	146.14	23452	3.167	502.91
8'	6	2	17'-9"	55.78	8033	1.211	172.27
		3	26'-4"	80.09	11967	1.738	256.65
		4	34'-11"	104.40	15895	2.265	341.04
		5	43'-6"	128.72	19987	2.792	428.77
		6	52'-1"	153.03	23922	3.319	513.15
8'	7	2	17'-9"	58.68	8595	1.275	184.60
		3	26'-4"	83.99	12652	1.824	271.65
		4	34'-11"	109.30	16704	2.373	358.71
		5	43'-6"	134.57	20919	2.921	449.11
		6	52'-1"	159.88	24977	3.470	536.17
8'	8	2	18'-0"	65.53	8860	1.426	190.41
		3	26'-8"	93.12	12989	2.025	279.02
		4	35'-4"	120.65	17120	2.623	367.64
		5	44'-0"	148.24	21405	3.222	459.60
		6	52'-8"	175.82	25528	3.821	548.21

* These quantities do not include toe walls or wings.

GENERAL NOTES:

Design Loading: H20-44 or H20 S16-44 in accordance with A.A.S.H.O. 1949 Standard Specifications and T.H.D. Supplement No. 1.

All concrete shall be Class A. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls and include one 30 diameter lap for all bars exceeding 40 feet in length. Barrels having a length of over 80 feet shall have quantities recalculated to include an additional 30 diameter bar lap for all longitudinal bars.

Construction Joint shown at flow line may be raised a maximum of 6" at the option of the contractor. Adjust length of vertical steel as required.

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES 8'x4', 8'x5', 8'x6', 8'x7', 8'x8' 4'-1" TO 6'-0" FILL

MC8-3

DN: M.D.A.	DRAWING	DATE	PER ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
Ck. Dw: W.H.	Original	August 1949	6	TEXAS	I-465 (16)	54
DW: K.M.			STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
Ck. Dw: M.D.A.			21	WEBB	18 / 364 / 9	US81
TR: A.O.B.						
Ck. TR: M.D.A.						

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BILLS OF REINFORCING STEEL – 44' CLEAR WIDTH – BARRELS ONLY

2 SPANS 9'x5'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	60	78	54	48	38	4	40	62	46	46
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	7"	⌐	15"	⌐	⌐	12"	18"	12"	12"
LENGTH	19'-8"	19'-5"	19'-5"	7'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	19'-5"	4'-1"	4'-11"	3'-6"	11'-0"
WEIGHT	802	778	947	825	435	334	434	836	743	588	52	109	204	108	338

3 SPANS 9'x5'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	120	156	82	64	56	4	60	62	92	92
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	⌐	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	7"	⌐	15"	⌐	⌐	12"	18"	12"	12"
LENGTH	29'-6"	29'-0"	29'-0"	7'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	29'-0"	4'-1"	4'-11"	3'-6"	11'-0"
WEIGHT	1202	1162	1414	825	435	667	867	1269	991	867	77	164	204	215	676

4 SPANS 9'x5'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	180	234	110	80	74	4	78	62	138	138
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	7"	⌐	15"	⌐	⌐	12"	18"	12"	12"
LENGTH	39'-4"	38'-7"	38'-7"	7'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	38'-7"	4'-1"	4'-11"	3'-6"	11'-0"
WEIGHT	1603	1546	1881	825	435	1001	1301	1703	1238	1145	103	213	204	323	1014

5 SPANS 9'x5'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	240	312	138	96	92	4	98	62	184	184
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	7"	⌐	15"	⌐	⌐	12"	18"	12"	12"
LENGTH	50'-5"	49'-5"	49'-5"	7'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	49'-5"	4'-1"	4'-11"	3'-6"	11'-0"
WEIGHT	2055	1981	2410	825	435	1334	1734	2136	1486	1424	132	267	204	430	1352

6 SPANS 9'x5'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	300	390	166	112	110	4	118	62	230	230
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	7"	⌐	15"	⌐	⌐	12"	18"	12"	12"
LENGTH	60'-3"	59'-0"	59'-0"	7'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	59'-0"	4'-1"	4'-11"	3'-6"	11'-0"
WEIGHT	2455	2365	2871	825	435	1668	2168	2569	1734	1703	158	322	204	538	1690

2 SPANS 9'x9'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	78	182	182	60	91	54	72	38	4	42	62	46	46
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7"	6"	6"	9"	6"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	19'-11"	19'-8"	19'-8"	11'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	19'-8"	4'-1"	8'-11"	3'-6"	19'-0"
WEIGHT	812	788	1025	1449	507	334	506	836	1114	588	53	114	369	108	584

3 SPANS 9'x9'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	78	182	182	120	182	82	96	56	4	60	62	92	92
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	⌐	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7"	6"	6"	9"	6"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	29'-10"	29'-4"	29'-4"	11'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	29'-4"	4'-1"	8'-11"	3'-6"	19'-0"
WEIGHT	1216	1176	1528	1449	507	667	1012	1269	1486	867	78	164	369	215	1168

4 SPANS 9'x9'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	78	182	182	180	273	110	120	74	4	80	62	138	138
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7"	6"	6"	9"	6"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	39'-9"	39'-0"	39'-0"	11'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	39'-0"	4'-1"	8'-11"	3'-6"	19'-0"
WEIGHT	1620	1563	2032	1449	507	1001	1518	1703	1857	1145	104	218	369	323	1751

5 SPANS 9'x9'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	78	182	182	240	364	138	144	92	4	100	62	184	184
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7"	6"	6"	9"	6"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	50'-11"	49'-11"	49'-11"	11'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	49'-11"	4'-1"	8'-11"	3'-6"	19'-0"
WEIGHT	2075	2001	2601	1449	507	1334	2024	2136	2229	1424	133	273	369	430	2335

6 SPANS 9'x9'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	78	182	182	300	455	166	168	110	4	118	62	230	230
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7"	6"	6"	9"	6"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	60'-10"	59'-7"	59'-7"	11'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	59'-7"	4'-1"	8'-11"	3'-6"	19'-0"
WEIGHT	2479	2388	3104	1449	507	1668	2529	2569	2600	1703	159	322	369	538	2919

2 SPANS 9'x6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	60	84	54	48	38	4	40	62	46	46
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	6 1/2"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	19'-8"	19'-5"	19'-5"	8'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	19'-5"	4'-1"	5'-11"	3'-6"	13'-0"
WEIGHT	802	778	947	930	435	334	467	836	743	588	52	109	245	108	399

3 SPANS 9'x6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	120	168	82	64	56	4	60	62	92	92
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	⌐	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	6 1/2"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	29'-6"	29'-0"	29'-0"	8'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	29'-0"	4'-1"	5'-11"	3'-6"	13'-0"
WEIGHT	1202	1162	1414	930	435	667	934	1269	991	867	77	164	245	215	799

4 SPANS 9'x6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	180	252	110	80	74	4	78	62	138	138
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	6 1/2"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	39'-4"	38'-7"	38'-7"	8'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	38'-7"	4'-1"	5'-11"	3'-6"	13'-0"
WEIGHT	1603	1546	1881	930	435	1001	1401	1703	1238	1145	103	213	245	323	1198

5 SPANS 9'x6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	240	336	138	96	92	4	98	62	184	184
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	6 1/2"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	50'-5"	49'-5"	49'-5"	8'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	49'-5"	4'-1"	5'-11"	3'-6"	13'-0"
WEIGHT	2055	1981	2410	930	435	1334	1868	2136	1486	1424	132	267	245	430	1598

6 SPANS 9'x6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	300	420	166	112	110	4	118	62	230	230
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7	7"	9"	6 1/2"	⌐	18"	⌐	⌐	12"	18"	12"	12"
LENGTH	60'-3"	59'-0"	59'-0"	8'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	59'-0"	4'-1"	5'-11"	3'-6"	13'-0"
WEIGHT	2455	2365	2877	930	435	1668	2335	2569	1734	1703	158	322	245	538	1997

2 SPANS 9'x7'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	60	84	54	60	38	4	40	62	46	46
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	6 1/2"	⌐	17"	⌐	⌐	12"	18"	12"	12"
LENGTH	19'-8"	19'-5"	19'-5"	9'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	19'-5"	4'-1"	6'-11"	3'-6"	15'-0"
WEIGHT	802	778	947	1034	435	334	467	836	929	588	52	109	287	108	461

3 SPANS 9'x7'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	120	168	82	80	56	4	60	62	92	92
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	6 1/2"	⌐	17"	⌐	⌐	12"	18"	12"	12"
LENGTH	29'-6"	29'-0"	29'-0"	9'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	29'-0"	4'-1"	6'-11"	3'-6"	15'-0"
WEIGHT	1202	1162	1414	1034	435	667	934	1269	1238	867	77	164	287	215	922

4 SPANS 9'x7'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	180	252	110	100	74	4	78	62	138	138
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	6 1/2"	⌐	17"	⌐	⌐	12"	18"	12"	12"
LENGTH	39'-4"	38'-7"	38'-7"	9'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	38'-7"	4'-1"	6'-11"	3'-6"	15'-0"
WEIGHT	1603	1546	1881	1034	435	1001	1401	1703	1548	1145	103	213	287	323	1383

5 SPANS 9'x7'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	240	336	138	120	92	4	98	62	184	184
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	6 1/2"	⌐	17"	⌐	⌐	12"	18"	12"	12"
LENGTH	50'-5"	49'-5"	49'-5"	9'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	49'-5"	4'-1"	6'-11"	3'-6"	15'-0"
WEIGHT	2055	1981	2410	1034	435	1334	1868	2136	1857	1424	132	267	287	430	1847

6 SPANS 9'x7'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	300	420	166	140	110	4	118	62	230	230
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7 1/2"	7"	7"	9"	6 1/2"	⌐	17"	⌐	⌐	12"	18"	12"	12"
LENGTH	60'-3"	59'-0"	59'-0"	9'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	59'-0"	4'-1"	6'-11"	3'-6"	15'-0"
WEIGHT	2455	2365	2877	1034	435	1668	2335	2569	2167	1703	158	322	287	538	2305

2 SPANS 9'x8'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	60	91	54	60	38	4	42	62	46	46
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7"	6"	6"	9"	6"	⌐	17"	⌐	⌐	12"	18"	12"	12"
LENGTH	19'-11"	19'-8"	19'-8"	10'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	19'-5"	4'-1"	6'-11"	3'-6"	15'-0"
WEIGHT	812	788	1025	1328	507	334	506	836	929	588	52	109	287	108	461

3 SPANS 9'x8'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	78	182	182	120	182	82	80	56	4	60	62	92	92
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7"	6"	6"	9"	6"	⌐	17"	⌐	⌐	12"	18"	12"	12"
LENGTH	29'-10"	29'-4"	29'-4"	10'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	29'-4"	4'-1"	6'-11"	3'-6"	15'-0"
WEIGHT	1216	1176	1528	1328	507	667	1012	1269	1238	867	78	164	328	215	922

4 SPANS 9'x8'

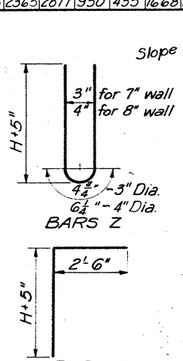
MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	73	156	156	180	273	110	100	74	4	80	62	138	138
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7"	6"	6"	9"	6"	⌐	19"	⌐	⌐	12"	18"	12"	12"
LENGTH	39'-9"	39'-0"	39'-0"	10'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	39'-0"	4'-1"	7'-11"	3'-6"	17'-0"
WEIGHT	1620	1563	2032	1328	507	1001	1518	1703	1548	1145	104	218	328	323	1567

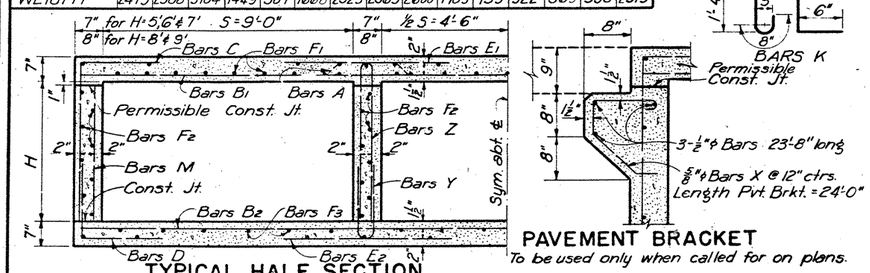
5 SPANS 9'x8'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	78	182	182	240	364	138	120	92	4	100	62	184	184
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7"	6"	6"	9"	6"	⌐	19"	⌐	⌐	12"	18"	12"	12"
LENGTH	50'-11"	49'-11"	49'-11"	10'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	49'-11"	4'-1"	7'-11"	3'-6"	17'-0"
WEIGHT	2075	2001	2601	1328	507	1334	2024	2136	1857	1424	133	273	328	430	2095

6 SPANS 9'x8'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	61	60	78	182	182	300	455	166	140	110	4	118	62	230	230
SIZE	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	5/8"ϕ	5/8"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ	1/2"ϕ
SPACING	9"	9"	7"	6"	6"	9"	6"	⌐	19"	⌐	⌐	12"	18"	12"	12"
LENGTH	60'-10"	59'-7"	59'-7"	10'-11"	4'-2"	5'-4"	5'-4"	23'-2"	23'-2"	23'-2"	59'-7"	4'-1"	7'-11"	3'-6"	17'-0"
WEIGHT	2479	2388	3104	1328	507	1668	2529	2569	2167	1703	159	322	328	538	2612





TYPICAL HALF SECTION

PAVEMENT BRACKET
To be used only when called for on plans.

BARREL QUANTITIES FOR 44' CLEAR WIDTH

| CULV. SIZE S | CULV. SIZE H | NO. OF SPANS | LENGTH OF STRUCT. | *BARREL QUANTITIES CONC. Cu. Yds | *BARREL QUANTITIES STEEL Lbs. | QUAN

BILLS OF REINFORCING STEEL ~ FOR 44'-0" CLEAR WIDTH ~ BARRELS ONLY

2 SPANS ~ 10'x 6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	104	104	61	58	48	42	4	4	44	62	46	46
SIZE	5/8"ø	5/8"ø	5/8"ø	5/8"ø	5/8"ø	3/4"ø	3/4"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	14"	14"	10½"	10½"	10½"	14"	9"	~	18"	~	~	12"	18"	12"	12"
LENGTH	21'-8"	21'-5"	21'-5"	9'-3"	4'-11"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	21'-5"	4'-2"	5'-11"	3'-7"	13'-1"
WEIGHT	904	871	1162	1003	534	332	519	898	743	650	57	123	245	110	402

3 SPANS ~ 10'x 6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	104	104	78	122	88	64	62	4	66	62	92	92
SIZE	5/8"ø	5/8"ø	5/8"ø	5/8"ø	5/8"ø	3/4"ø	3/4"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	14"	14"	10½"	10½"	10½"	14"	9"	~	18"	~	~	12"	18"	12"	12"
LENGTH	32'-6	32'-0	32'-0	9'-3"	4'-11"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	32'-0	4'-2"	5'-11"	3'-7"	13'-1"
WEIGHT	1356	1302	1736	1003	534	664	1039	1362	991	960	86	184	245	220	804

4 SPANS ~ 10'x 6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	104	104	117	183	118	80	82	4	88	62	138	138
SIZE	5/8"ø	5/8"ø	5/8"ø	5/8"ø	5/8"ø	3/4"ø	3/4"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	14"	14"	10½"	10½"	10½"	14"	9"	~	18"	~	~	12"	18"	12"	12"
LENGTH	44'-1	44'-2	44'-3"	9'-3"	4'-11"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	43'-10	4'-2"	5'-11"	3'-7"	13'-1"
WEIGHT	1874	1797	2396	1003	534	996	1558	1826	1238	1269	117	245	245	330	1206

5 SPANS ~ 10'x 6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	104	104	156	244	148	96	102	4	108	62	184	184
SIZE	5/8"ø	5/8"ø	5/8"ø	5/8"ø	5/8"ø	3/4"ø	3/4"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	14"	14"	10½"	10½"	10½"	14"	9"	~	18"	~	~	12"	18"	12"	12"
LENGTH	55'-10	54'-9	54'-9"	9'-3"	4'-11"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	54'-5	4'-2"	5'-11"	3'-7"	13'-1"
WEIGHT	2329	2227	2969	1003	534	1329	2078	2291	1486	1579	145	301	245	440	1608

6 SPANS ~ 10'x 6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	104	104	195	305	178	112	122	4	130	62	230	230
SIZE	5/8"ø	5/8"ø	5/8"ø	5/8"ø	5/8"ø	3/4"ø	3/4"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	14"	14"	10½"	10½"	10½"	14"	9"	~	18"	~	~	12"	18"	12"	12"
LENGTH	66'-8	65'-4	65'-4	9'-3"	4'-11"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	65'-0	4'-2"	5'-11"	3'-7"	13'-1"
WEIGHT	2781	2657	3543	1003	534	1661	2597	2755	1733	1888	174	362	245	550	2010

2 SPANS ~ 10'x 10'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	58	138	138	39	73	58	84	42	4	46	62	46	46
SIZE	5/8"ø	5/8"ø	5/8"ø	5/8"ø	5/8"ø	3/4"ø	3/4"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	14"	14"	9½"	8"	8"	14"	7½"	~	17"	~	~	12"	18"	12"	12"
LENGTH	21'-11	21'-8"	21'-8"	13'-3"	4'-11"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	21'-8"	4'-2"	9'-11"	3'-7"	21'-1"
WEIGHT	915	881	1311	1907	708	332	622	898	1300	650	58	128	411	110	648

3 SPANS ~ 10'x 10'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	58	138	138	78	146	88	112	62	4	66	62	92	92
SIZE	5/8"ø	5/8"ø	5/8"ø	5/8"ø	5/8"ø	3/4"ø	3/4"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	14"	14"	9½"	8"	8"	14"	7½"	~	17"	~	~	12"	18"	12"	12"
LENGTH	32'-10	32'-4	32'-4	13'-3"	4'-11"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	32'-4	4'-2"	9'-11"	3'-7"	21'-1"
WEIGHT	1370	1315	1956	1907	708	664	1243	1362	1733	960	86	184	411	220	1295

4 SPANS ~ 10' x 10'

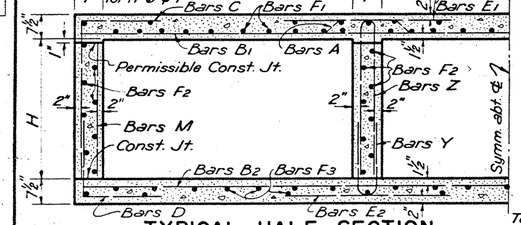
MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	58	138	138	117	219	118	140	82	4	88	62	138	138
SIZE	5/8"ø	5/8"ø	5/8"ø	5/8"ø	5/8"ø	3/4"ø	3/4"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	14"	14"	9½"	8"	8"	14"	7½"	~	17"	~	~	12"	18"	12"	12"
LENGTH	45'-4	44'-7	44'-7	13'-3"	4'-11"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	44'-3	4'-2"	9'-11"	3'-7"	21'-1"
WEIGHT	1891	1813	2697	1907	708	996	1865	1826	2167	1269	118	245	411	330	1943

5 SPANS ~ 10' x 10'

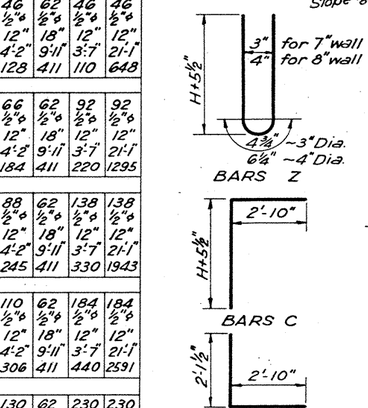
MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	58	138	138	156	292	148	168	102	4	110	62	184	184
SIZE	5/8"ø	5/8"ø	5/8"ø	5/8"ø	5/8"ø	3/4"ø	3/4"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	14"	14"	9½"	8"	8"	14"	7½"	~	17"	~	~	12"	18"	12"	12"
LENGTH	56'-4	55'-3	55'-3"	13'-3"	4'-11"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	54'-11	4'-2"	9'-11"	3'-7"	21'-1"
WEIGHT	2350	2247	3342	1907	708	1329	2487	2291	2600	1579	147	306	411	440	2591

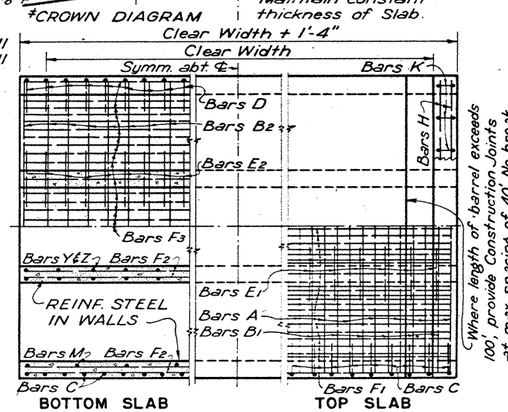
6 SPANS ~ 10' x 10'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	58	138	138	195	365	178	196	122	4	130	62	230	230
SIZE	5/8"ø	5/8"ø	5/8"ø	5/8"ø	5/8"ø	3/4"ø	3/4"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø	1/2"ø
SPACING	14"	14"	9½"	8"	8"	14"	7½"	~	17"	~	~	12"	18"	12"	12"
LENGTH	67'-3	65'-11	65'-11	13'-3"	4'-11"	5'-8"	5'-8"	23'-2"	23'-2"	23'-2"	65'-7	4'-2"	9'-11"	3'-7"	21'-1"
WEIGHT	2806	2681	3988	1907	708	1661	3108	2755	3034	1888	175	362	411	550	3239

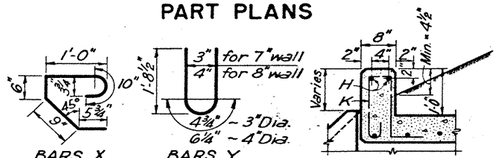


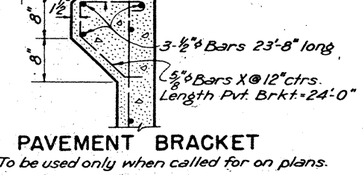
TYPICAL HALF SECTION

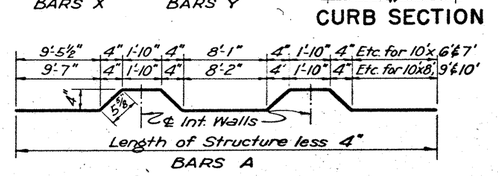




PART PLANS







BARREL QUANTITIES FOR 44' CLEAR WIDTH

CULVERT SIZE S	H	NO. OF SPANS	LENGTH OF STRUCT.	*BARREL QUANTITIES CONC. Cu.Yds.	*BARREL QUANTITIES STEEL Lbs.	QUANTITIES PLF. BBL. CONC. Cu.Yds.	QUANTITIES PLF. BBL. STEEL Lbs.
10'x 6'		2	21'-9"	64.36	8553	1.396	182.30
		3	32'-4"	92.94	12486	2.015	265.88
		4	42'-11"	121.57	16634	2.635	354.18
		5	53'-6"	150.20	20564	3.255	437.84
		6	64'-1"	178.79	24493	3.874	521.42
10'x 7'		2	21'-9"	67.31	9080	1.461	193.40
		3	32'-4"	96.89	13169	2.102	280.32
		4	42'-11"	126.47	17476	2.743	371.96
		5	53'-6"	156.05	21562	3.384	458.96
		6	64'-1"	185.63	25650	4.025	545.88
10'x 8'		2	22'-0"	74.12	9439	1.611	201.00
		3	32'-8"	105.97	13593	2.302	289.51
		4	43'-4"	137.87	17974	2.994	382.73
		5	54'-0"	169.72	22140	3.685	471.32
		6	64'-8"	201.62	26296	4.377	560.60
10'x 9'		2	22'-0"	77.47	10057	1.685	214.42
		3	32'-8"	110.46	14404	2.401	306.99
		4	43'-4"	143.44	18978	3.117	404.37
		5	54'-0"	176.43	23337	3.833	497.01
		6	64'-8"	209.41	27683	4.544	589.58
10'x 10'		2	22'-0"	80.83	10879	1.759	232.04
		3	32'-8"	114.95	15414	2.500	328.83
		4	43'-4"	149.07	20186	3.241	430.54
		5	54'-0"	183.14	24735	3.981	527.41
		6	64'-8"	217.26	29273	4.722	624.20

* These quantities do not include paving brackets, toe walls or wings.

PVT. BRKT. QUANT.

2-PVT. BRACKETS 24'-0" Long	
CONC.	STEEL
Cu. Yd.	Lb.
1.19	272

GENERAL NOTES :-

Design Loading : H20-44 or H20S16-44 in accordance with A.A.S.H.O. 1949 Standard Specifications and T. H. D. Supplement No. 1.

All concrete shall be Class A. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls and include one 30 diameter lap for all bars exceeding 40 feet in length. Barrels having a length of over 80 feet shall have quantities recalculated to include an additional 30 diameter lap for all longitudinal bars.

Construction Joint shown at flow line may be raised a maximum of 6" at the option of the Contractor. Adjust length of vertical steel as required.

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES - 10'X 6', 10'X 7', 10'X 8', 10'X 9' & 10'X10'

DIRECT TRAFFIC TO 2'-0" FILL

MC10-1

DN MDA	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK. DH WH	ORIGINAL	OCT. 1949	6	TEXAS	I-165 (16)	56
DN MDA			STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
CK DW KM			21	WEBB	18 / 4 / 9	US. 81
TR OCK						
CK TR KM						

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PLAN — NOTE BOOK — NO.

PROFILE — NOTE BOOK — NO.

3-SPANS - 10'×10'

MARK	A	A1-15	BT	BT1-16	BD	BD1-23	C	D	ET	ET1-2	ED	ED1-4	F1	F2	F3	H	M	Y	Z
NUMBER	24	30	23	32	35	46	140	140	74	8	138	16	88	112	62	12	64	94	94
SIZE	#5	#5	#5	#5	#5	#5	#5	#5	#6	#6	#6	#6	#4	#4	#4	#6	#4	#4	#4
SPACING	14"	14"	14"	14"	9½"	9½"	8"	8"	14"	14"	7½"	7½"	~	17"	~	~	18"	12"	12"
LENGTH	32'-10"	Av.32'-8½"	32'-4"	Av.16'-5"	32'-4"	Av.16'-1"	131'-2"	5'-1"	5'-8"	Av.2'-9"	5'-8"	Av.3'-0½"	23'-4"	23'-4"	23'-4"	57'-4"	9'-9"	3'-10"	20'-10"
WEIGHT	322	523	776	549	1180	772	1923	742	630	33	1175	73	372	1746	966	673	417	241	1308

5-SPANS - 10'×10'

MARK	A	A1-26	BT	BT1-26	BD	BD1-38	C	D	ET	ET1-2	ED	ED1-4	F1	F2	F3	H	M	Y	Z
NUMBER	12	52	13	52	19	76	140	140	148	16	276	32	144	168	98	24	24	188	188
SIZE	#5	#5	#5	#5	#5	#5	#5	#5	#6	#6	#6	#6	#4	#4	#4	#6	#4	#4	#4
SPACING	14"	14"	14"	14"	9½"	9½"	8"	8"	14"	14"	7½"	7½"	~	17"	~	~	18"	12"	12"
LENGTH	55'-10"	Av.27'-0"	54'-9"	Av.27'-4"	54'-9"	Av.27'-8"	131'-2"	5'-1"	5'-8"	Av.2'-9"	5'-8"	Av.3'-0½"	23'-4"	23'-4"	23'-4"	31'-8"	9'-9"	3'-10"	20'-10"
WEIGHT	359	1484	742	1539	1085	2193	1923	742	1260	66	2349	146	2244	2619	1527	793	417	481	2616

TOEWALL-REINF. (INT. UNIT)

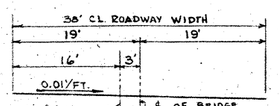
L1	L2	X
26	26	2
#4	#4	#4
18"±	8"±	~
2'-6"	3'-6"	37'-4"
43	61	50

TOEWALL-REINF (END UNIT)

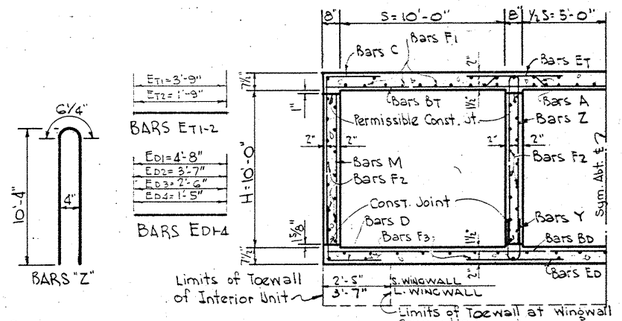
L1	L2	X1	X2
24	24	1	1
#4	#4	#4	#4
18"±	18"±	~	~
2'-6"	3'-6"	35'-1"	34'-0"
40	56	23	23

L1	L2	X
42	42	4
#4	#4	#4
18"±	18"±	~
2'-6"	3'-6"	31'-10"
70	98	85

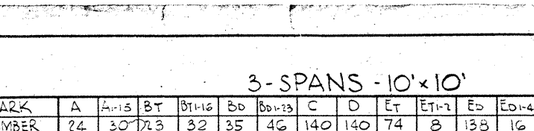
L1	L2	X1	X2
40	40	2	2
#4	#4	#4	#4
18"±	18"±	~	~
2'-6"	3'-6"	30'-7½"	30'-1"
67	94	41	40



CROWN DIAGRAM

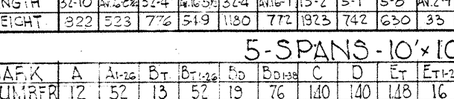


TYPICAL SECTION OF BARREL



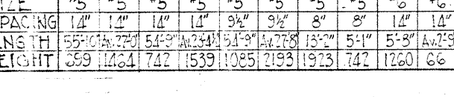
Reduce Bars A1-x. by Increments of 2'-0¼"

BARS "A"



Reduce Bars BT1-x by increments of 2'-0¼"

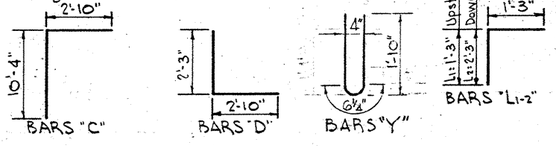
BARS BT

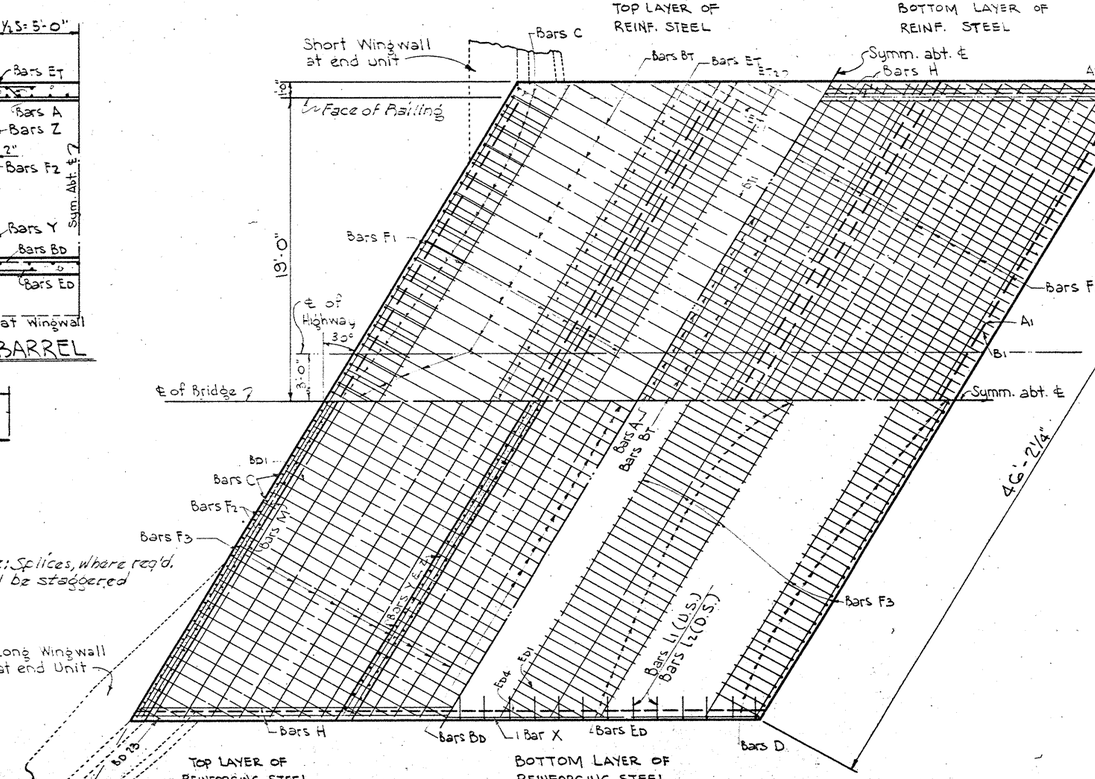


Reduce Bars BD1-x by increments of 1'-4½"

BARS BD

*Length measured normal to axis of barrel





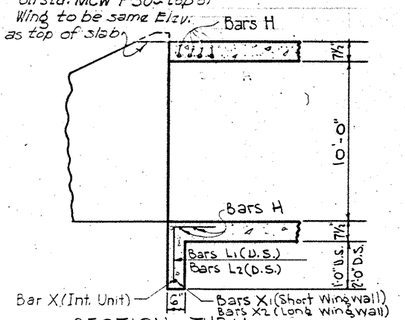
Note: Splices, where req'd. shall be staggered

PLAN TOP SLAB

PLAN-BOTTOM SLAB

ESTIMATED QUANTITIES

DESCRIPTION	CLASS "A" CONC. C.Y.	REINF. STEEL LBS.
3-10'×10' (END UNIT)	117.43	16,023
3-10'×10' (INTERIOR UNIT)	117.60	16,075
5-10'×10' (END UNIT)	187.20	25,147
5-10'×10' (INTERIOR UNIT)	187.37	25,158



SECTION THRU TOEWALL

GENERAL NOTES

Design Loading H20-44 or H20 S16-44 in accordance with A.A.S.H.O. 1949 Standard Specifications and T.H.D. Supplement No.1.

All concrete shall be Class "A". Chamfer exposed Corners ¾".

All dimensions relating to reinforcing steel are to centers of bars. The center of the outside layer of bars shall be place 2" from the concrete surface except as shown. One 20 diameter lap for all bars exceeding 40 feet in length are included in the shown quantities.

Toewalls for interior & end units shall be constructed as shown on the typical section of barrel.

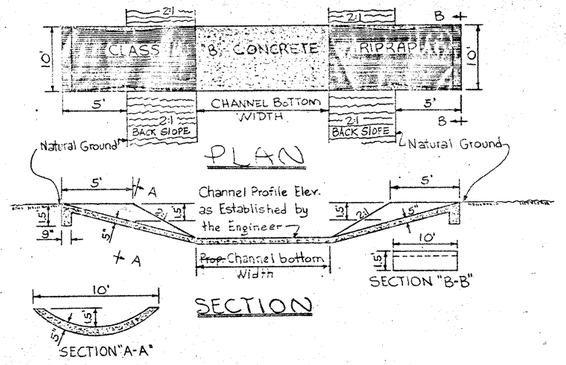
TEXAS STATE HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERT
10'×10' - 30° SKEW
38 FT. ROADWAY
DIRECT TRAFFIC TO 2'-0" FILL

MC10-1-30° SPECIAL

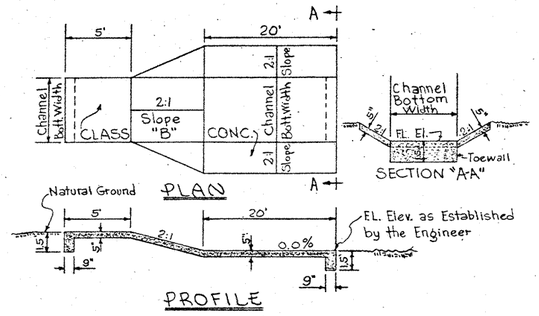
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			57
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	483		ILS.81

134

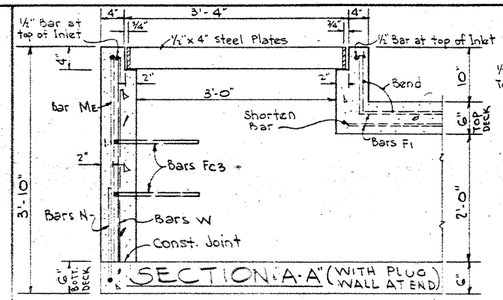


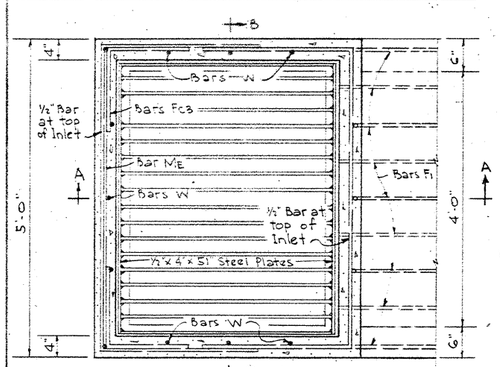
DETAILS · OF · CL. "B" · CONC · DOWN · DRAINS

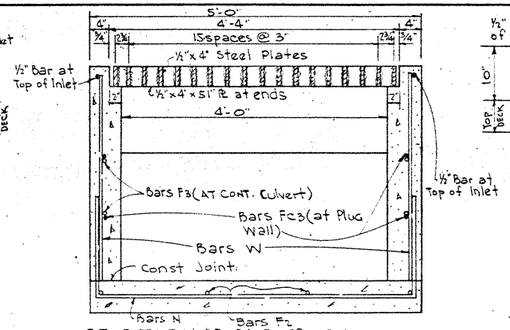
NOTE:-
Down Drains & Channel Linings are to be Constructed at locations as indicated on Plan & Profile Sheets and/or as directed by the Engineer.

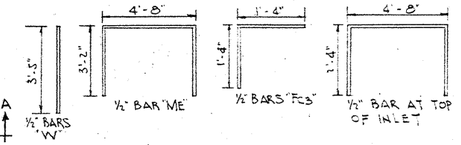


DETAILS · OF · CL. "B" · CONC · CHANNEL · LINING

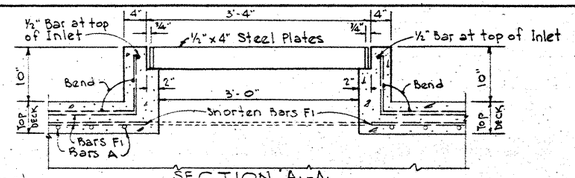


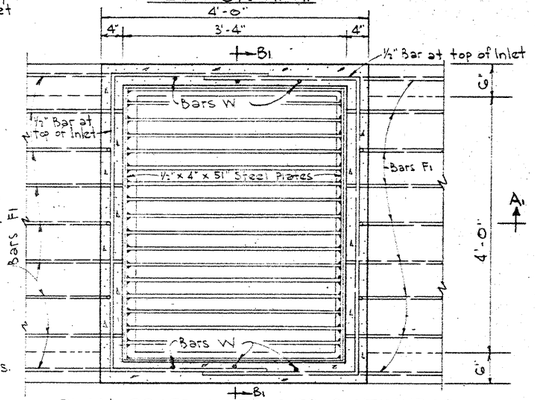




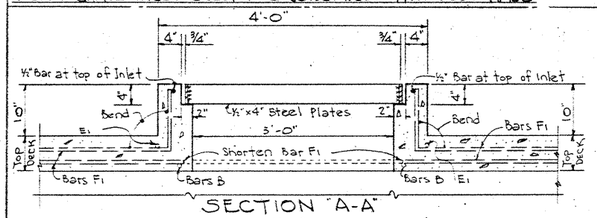


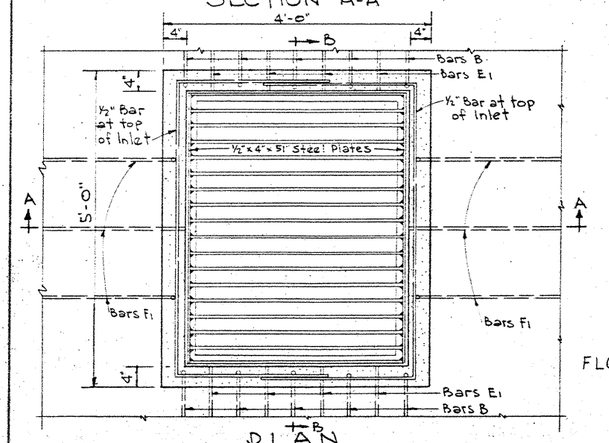
GENERAL NOTES:
Reinforcing in top deck of 4×2' conc. boxes shall be modified to fit into opening for Grate Inlet as shown on details.
The bars required, other than called for in standard for 4'×2' with plug wall are 4-"F3", 1-"ME", 2-½ bars at top of inlet" and 9-"W".
The bars required, other than called for in standard for 4'×2' continued are 2-½ bars at top of inlet and 6-"W".

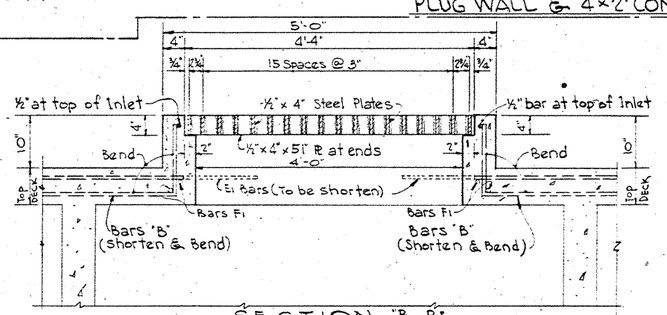




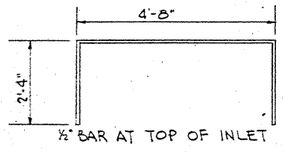
DETAILS OF GRATE INLETS FOR 4'×2' CONC. WITH PLUG WALL & 4'×2' CONC. BOX CONTINUED

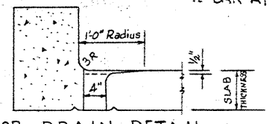






GENERAL NOTES:
Reinforcing in top deck of 3-7'×4', MC7-1 shall be modified to fit into opening for Grate Inlet as shown on details.
Two ½" bars, 9'-4" long shall be put at top of inlet as shown.





FLOOR · DRAIN · DETAIL
NOTE: 4"x6" Formed Drain Trowel entrance to give a ½" Entrance Depression. Provide a ½" dip bead around Drain. Bend reinforcing steel to clear drain 1". Install one drain on low side of bridge per span.

DETAILS OF GRATE INLET FOR 3-7'×4' MULTIPLE BOX CULVERT

DETAILS OF GRATE INLET, CLASS "B" CONC. DOWN DRAINS & CHANNEL LINING

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I-165(14)			58
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	304		U.S.81

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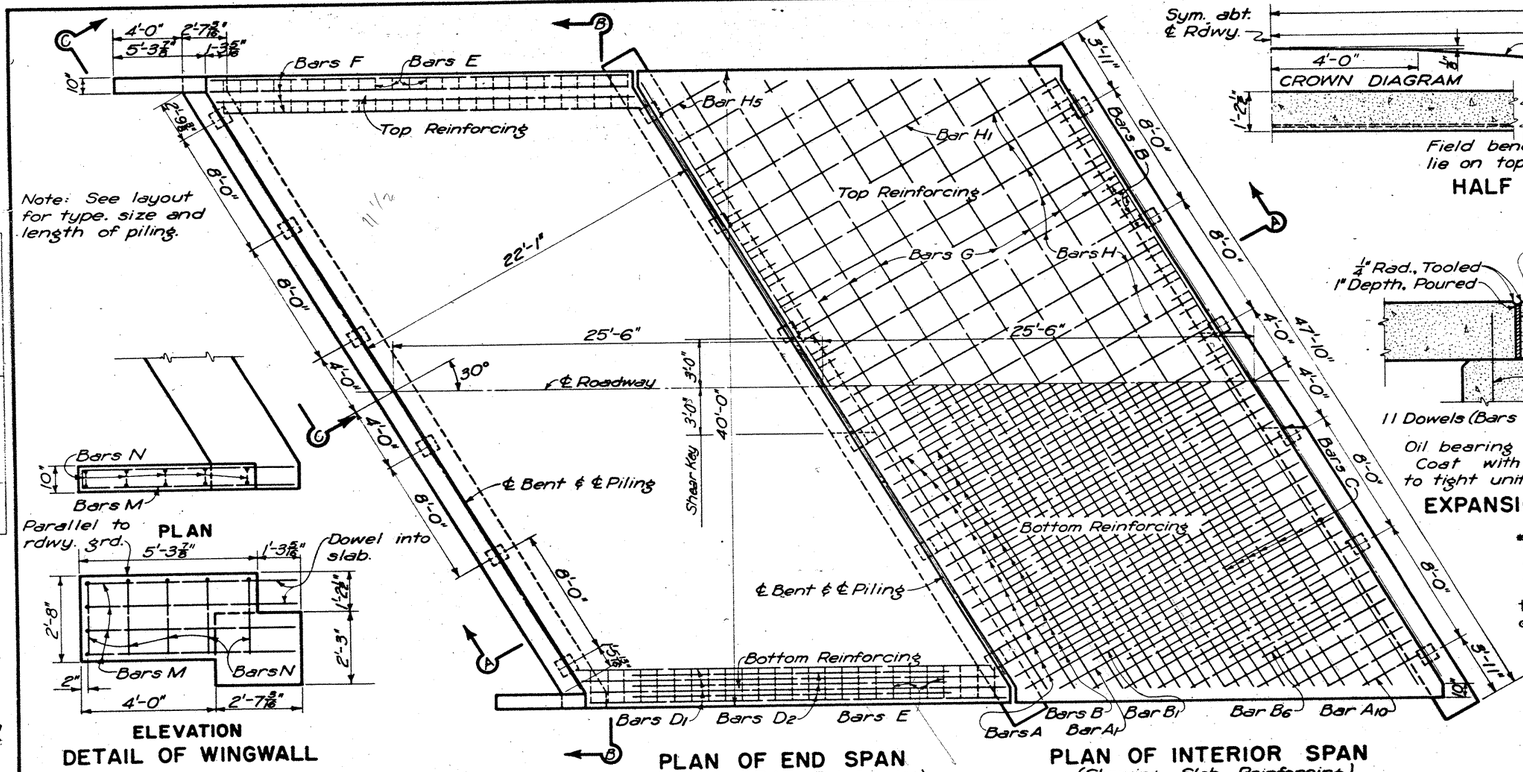
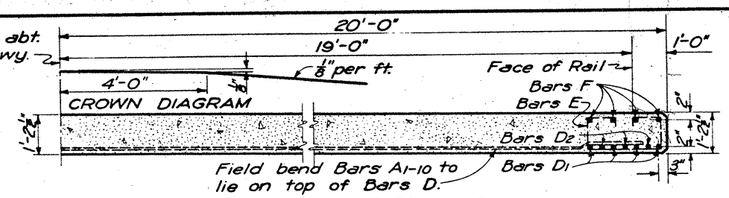
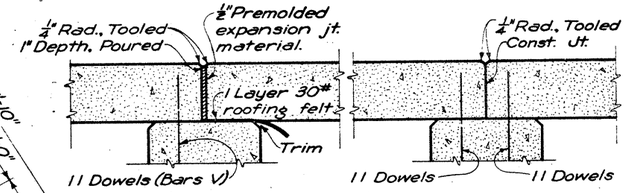






Oil bearing seat under expansion end with 60 gr. oil. Coat with powdered graphite. Press felt down to tight uniform contact. Trim as shown.

EXPANSION JT. **FIXED JT.**

*Double number of Bars V for spans with both ends fixed. See layout for location of fixed and expansion joint.

†Length includes 30 Diameter lap.
°Length includes 20 Diameter lap.

BILLS OF REINFORCING STEEL

ONE SLAB SPAN

	Bar	No.	Size	Spa.	Length	Weight
	A	33	# 8	12"	23'-10"	2100
	A1-10	20	# 8	12"	Av 13'-2"	703
	B	32	# 8	12"	22'-4"	1908
	B1-6	12	# 8	12"	Av 13'-5"	430
°	C	22	# 5	9'-6 15"	45'-6"	1044
	D1	8	# 9	8"	27'-4"	743
	D2	6	# 9	8"	19'-0"	388
	E	50	# 4	12"	6'-4"	212
	F	8	# 9	8"	25'-1"	682
°	G	11	# 4	26"	45'-3"	332
	H	17	# 4	24"	21'-7"	245
	H1-5	10	# 4	24"	Av 11'-2"	75
*	V	11	# 6	4'-0"	3'-0"	50
					TOTAL	8912

ONE ABUTMENT BENT

Bar	No.	Size	Spa.	Length	Weight
J1	39	# 4	12"	2'-9"	72
J2	39	# 4	12"	6'-8"	174
† K	4	# 9	~	47'-6"	646
M	8	#5	9"	13'-3"	111
N	10	# 4	14"	5'-4"	56
				TOTAL	1039

ONE INTERIOR BENT

Bar	No.	Size	Spa.	Length	Weight
J1	41	# 4	12"	2'-9"	75
J2	41	# 4	12"	6'-8"	183
† O	4	#9	~	49'-10"	678
				TOTAL	936

ESTIMATED QUANTITIES

Unit	Class A Concrete Cu. Yd.	Reinf. Steel Lb.	Railing Lin. Ft.
One Slab Span	45.6	8912	51.0
One Abutment Bent	9.8	1039	
One Interior Bent	9.4	936	

GENERAL NOTES:

Design: H-20-44 loading in accordance with A.A.S.H.O. 1949 Specifications and T.H.D. Supplement No. 1.

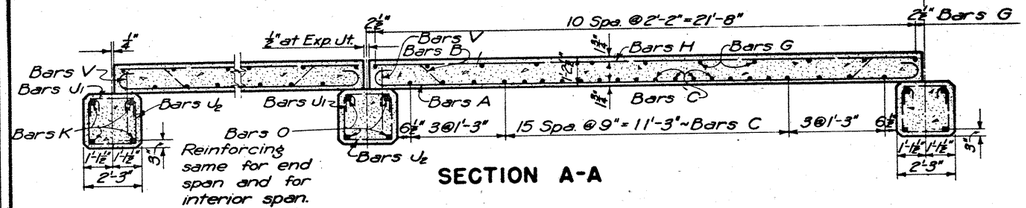
All concrete shall be Class A. Chamfer exposed corners ¾" unless otherwise noted.

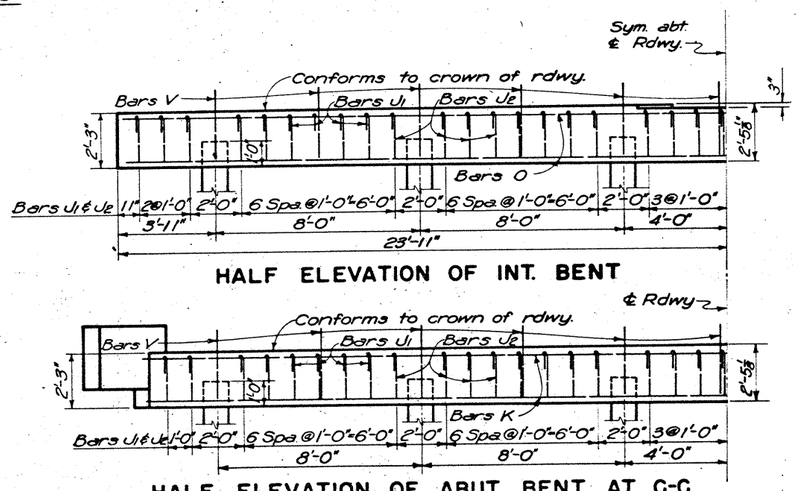
Dimensions relating to reinforcing steel are to centers of bars.

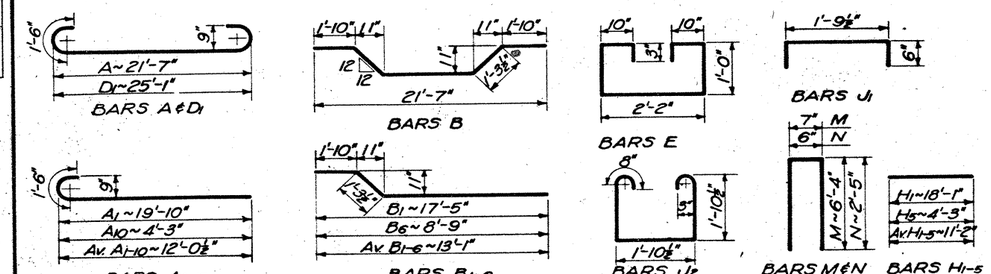
Average calculated pile loads:
Abut. Bent = 19.2 T/pile.
Int. Bent = 26.8 T/pile.

All piling shall be driven to a minimum resistance equal to the average calculated load shown above.

These details are for right forward skew; for left forward skew reverse details.







TEXAS HIGHWAY DEPARTMENT

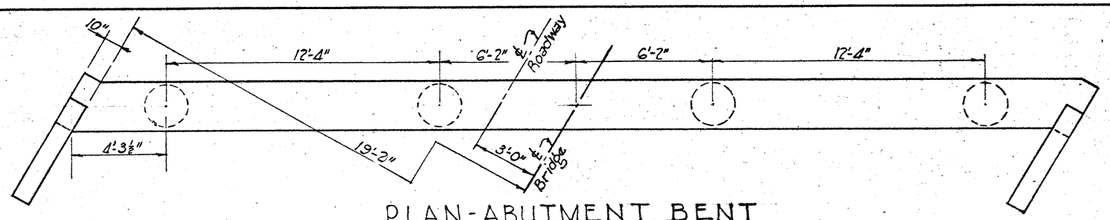
25'-6" SLAB SPAN - 30° SKEW

38'-0" ROADWAY NO CURBS

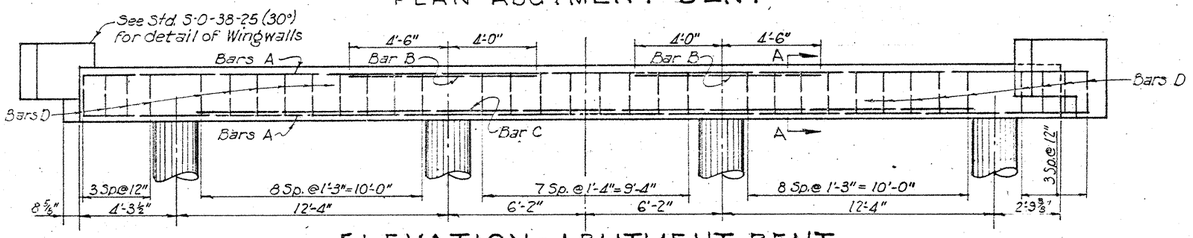
S-0-38-25(30°)

Dn. RLR	Drawing	Date	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
Ck. Dn. FCB	Original	Dec., 1949	6	TEXAS	I-165 (16)	59
Dw. RLR	Rev. 10-55 Sheet Key Added					
Ck. Dw. FCB			STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
Tr. RMA			21	WEBB	18 3/4	9	U.S. 81
Ck. Tr. FCB							

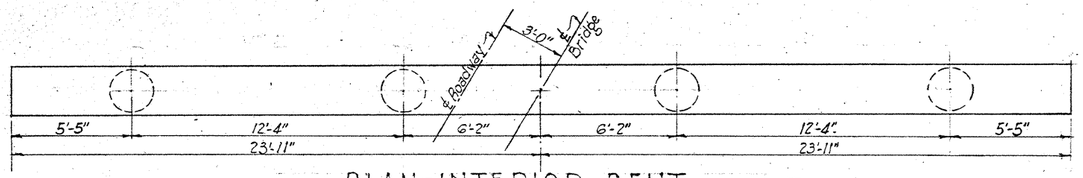
PROFILE — SURVEYED ____ BY ____ NOTE BOOK ____ GRADES CHECKED ____ NO. ____ B. M.'S NOTED ____ STRUCTURE NOTES CHECKED ____ DATE ____ BY ____



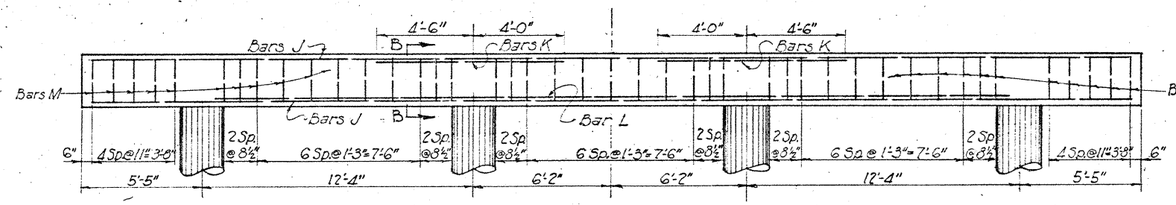
PLAN-ABUTMENT BENT



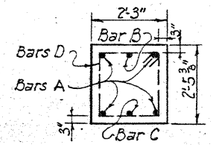
ELEVATION-ABUTMENT BENT



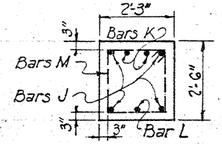
PLAN-INTERIOR BENT



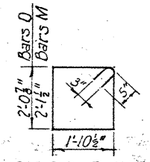
ELEVATION- INTERIOR BENT



SECTION A-A

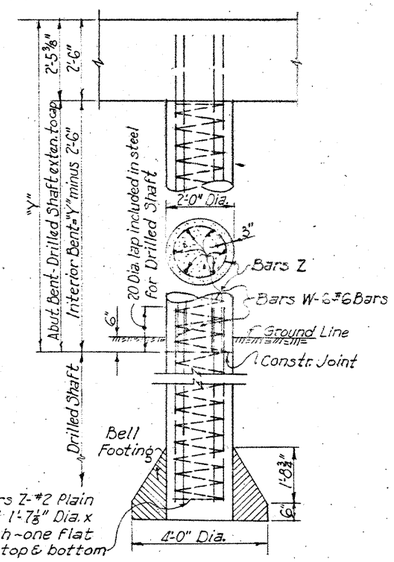


SECTION B-B



BARS D&M

BARS "Z"



DETAIL OF COLUMNS & DRILLED SHAFTS

NOTE: Portions of circular columns above ground shall be formed with metal forms or with laminated fiber tubes with inside surfaces lined with plastic and coated with wax. These tubes to be Sonotubes as manufactured by Sonoco Products Company or approved equal.

VARIABLE REINF. STEEL- 4 COL. INTERIOR BENT

Y	24 Bars W-#6		4 Bars Z - #2		Total
	Length	Wt.-Lbs.	Length	Wt.-Lbs.	Wt.-Lbs.
12'	11'-7"	418	84'	63	481
13'	12'-7"	454	103'	69	523
14'	13'-7"	490	112'	75	565
15'	14'-7"	526	121'	81	607
16'	15'-7"	562	130'	87	649
17'	16'-7"	598	139	93	691
18'	17'-7"	634	148	99	733

BILL OF CONSTANT REINF. STEEL FOR ONE INTERIOR BENT CAP

Bar	No.	Size	Spacing	Length	Wt.-Lbs.
J	8	#9	~	24'-6"	665
K	4	#8	~	8'-6"	91
L	1	#8	~	35'-6"	95
M	43	#4	As shown	9'-2"	263
				Total Lbs.	1115

BILL OF REINF. STEEL - ONE ABUT. BENT*

Bar	No.	Size	Spacing	Length	Wt.-Lbs.
A	8	#9	~	23'-10"	648
B	2	#9	~	8'-6"	58
C	1	#8	~	30'-0"	96
D	34	#4	As shown	8'-11"	203
				Total Lbs.	1005

ESTIMATED QUANTITIES-ONE ABUT. BENT

Class "A" Concrete*	C.Y.	10.24
Reinforcing Steel†	Lbs.	1,005
Bell Footings	C.Y.	1.8

*Includes Wingwall concrete
†Does not include Wingwall Reinf. Steel

TOTAL ESTIMATED QUANTITIES FOR ONE INTERIOR BENT†

Y	Class "A" Conc. C.Y.	Reinf. Steel Lbs.
12'	11.1	1596
13'	11.2	1638
14'	11.4	1680
15'	11.5	1722
16'	11.6	1764
17'	11.7	1806
18'	11.8	1848

†Bell Footings for one Int. Bent = 1.8 C.Y.

GENERAL NOTES:

Design H 20-S16-44 Loading in accordance with A.A.S.H.O. 1953 Standard Specifications as amended by T.H.D. Supplement No. 1.

All Concrete shall be Class A. Chamfer all exposed corners ¾".

Dimensions relating to reinforcing steel are to centers of bars.

Footing pressures are as follows:
Abut. Bent, 4'-0" Dia. Bells, = 2.29 T/sf
Interior Bent, 4'-0" Dia. Bells, = 3.20 T/sf

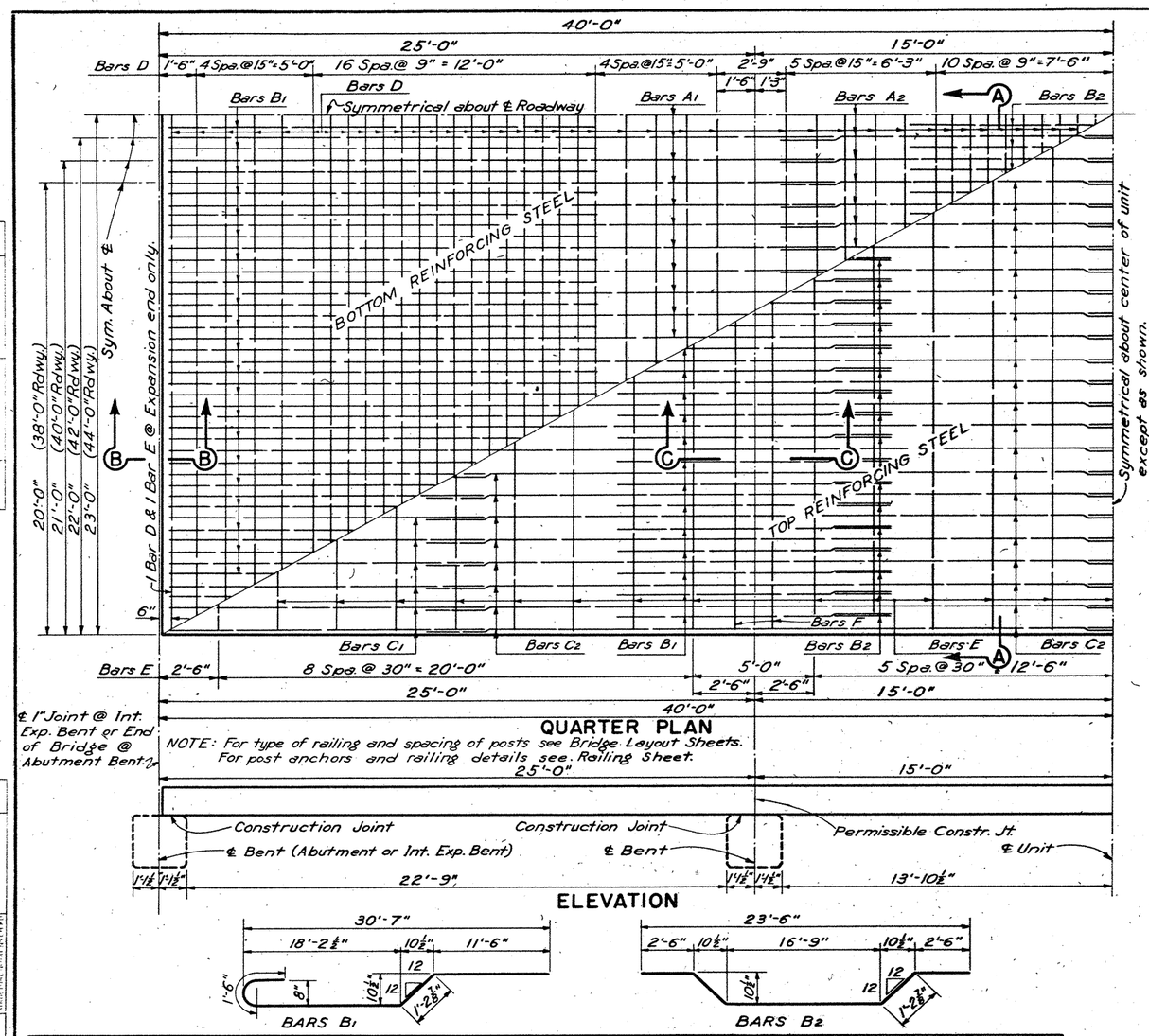
TEXAS HIGHWAY DEPARTMENT

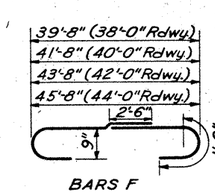
BS-038-25 (30°) SPL.

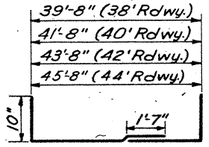
FOR USE WITH 25'-6" SLAB
SPAN-30° SKEW

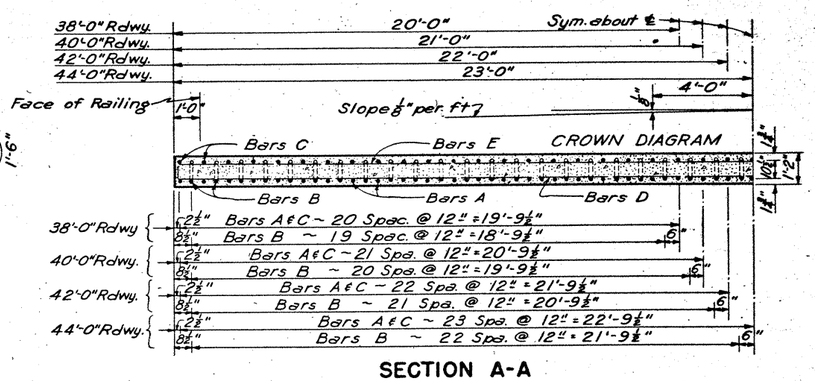
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-165 (16)				60
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		16	364	9	U.S. 81

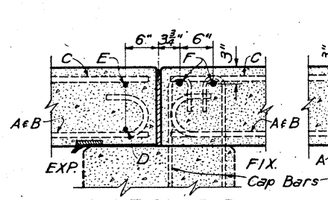
137

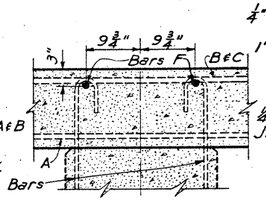


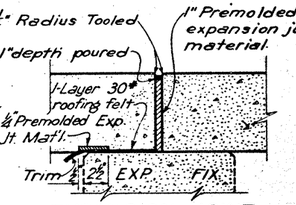




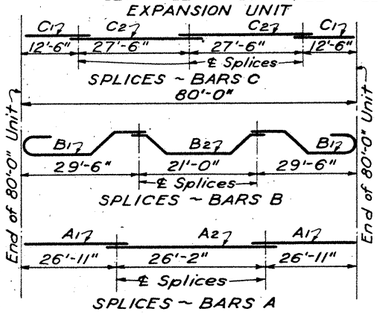


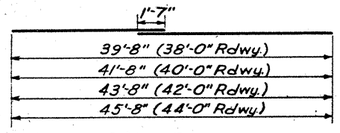






NOTE: Oil bearing seat with 60 gr. motor oil. Coat heavily and evenly with powdered graphite. Press felt down to tight uniform contact and trim as shown.





ESTIMATED QUANTITIES				
STRUCTURE	EXP. UNIT		FIXED UNIT	
	Class A Concrete Cu. Yds.	Reinf. Steel Lbs.	Class A Concrete Cu. Yds.	Reinf. Steel Lbs.
38'-0" ROADWAY	138.1	31,891	138.1	32,106
40'-0" ROADWAY	145.0	33,448	145.0	33,672
42'-0" ROADWAY	151.9	35,003	151.9	35,236
44'-0" ROADWAY	158.9	36,558	158.9	36,800

GENERAL NOTES:

Design: H20 or H20-S16 Loading in accordance with A.A.S.H.O. 1944 Standard Specifications and T.H.D. Supplement No. 1 thereto.

All concrete shall be Class A. Chamfer all exposed corners ¾" unless specified otherwise.

All dimensions relating to reinforcing steel are to centers of bars.

NOTE: In general, form supports shall remain in place in each unit until all slabs of the unit have been placed and cured, but in no case shall the supports be removed from a slab until that slab and adjacent slabs of the same unit have been poured and cured in accordance with the specifications.

BILLS OF REINFORCING STEEL

BARS			38'-0" ROADWAY						40'-0" ROADWAY						42'-0" ROADWAY						44'-0" ROADWAY					
			EXP. UNIT			FIXED UNIT			EXP. UNIT			FIXED UNIT			EXP. UNIT			FIXED UNIT			EXP. UNIT			FIXED UNIT		
BAR	SIZE	SPA	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
A1	# 7	12"	82	27'-10"	4665	82	27'-10"	4665	86	27'-10"	4893	86	27'-10"	4893	90	27'-10"	5120	90	27'-10"	5120	94	27'-10"	5348	94	27'-10"	5348
A2	# 7	12"	41	28'-4"	2374	41	28'-4"	2374	43	28'-4"	2490	43	28'-4"	2490	45	28'-4"	2606	45	28'-4"	2606	47	28'-4"	2722	47	28'-4"	2722
B1	# 8	12"	80	32'-1"	6853	80	32'-1"	6853	84	32'-1"	7196	84	32'-1"	7196	88	32'-1"	7538	88	32'-1"	7538	92	32'-1"	7881	92	32'-1"	7881
B2	# 8	12"	40	24'-3"	2590	40	24'-3"	2590	42	24'-3"	2719	42	24'-3"	2719	44	24'-3"	2849	44	24'-3"	2849	46	24'-3"	2978	46	24'-3"	2978
C1	# 8	12"	82	13'-7"	2974	82	13'-7"	2974	86	13'-7"	3119	86	13'-7"	3119	90	13'-7"	3264	90	13'-7"	3264	94	13'-7"	3409	94	13'-7"	3409
C2	# 8	12"	82	30'-0"	6568	82	30'-0"	6568	86	30'-0"	6889	86	30'-0"	6889	90	30'-0"	7209	90	30'-0"	7209	94	30'-0"	7529	94	30'-0"	7529
D	# 5	9½"	82	42'-11"	3670	81	42'-11"	3626	82	44'-11"	3842	81	44'-11"	3795	82	46'-11"	4013	81	46'-11"	3964	82	48'-11"	4184	81	48'-11"	4133
E	# 5	30"	30	41'-3"	1291	29	41'-3"	1248	30	43'-3"	1353	29	43'-3"	1308	30	45'-3"	1416	29	45'-3"	1369	30	47'-3"	1478	29	47'-3"	1429
F	# 9	~	6	44'-5"	906	8	44'-5"	1208	6	46'-5"	947	8	46'-5"	1263	6	48'-5"	988	8	48'-5"	1317	6	50'-5"	1029	8	50'-5"	1371
TOTALS					31,891			32,106			33,448			33672			35003			35236			36,558			36800

TEXAS HIGHWAY DEPARTMENT

80'-0" CONT. SLAB UNIT

(25'-30'-25')

38'-40'-42' & 44' ROADWAYS

CS-0-80

DN.: R.L.R.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
CK. DN.: E.A.J.	Original	Jan. 1949	6	TEXAS	I-165 (16)			61
DW.: M.D.A.	Rev. 5-22-50 - Note added		STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
CK. DW.: E.G.O.	Rev. Bar No. 9-12-50							
TR.: A.O.B.	Rev. 10-51 Bearing Seat		21	WEBB	18	364	9	1361
CK. TR.: E.A.J.								

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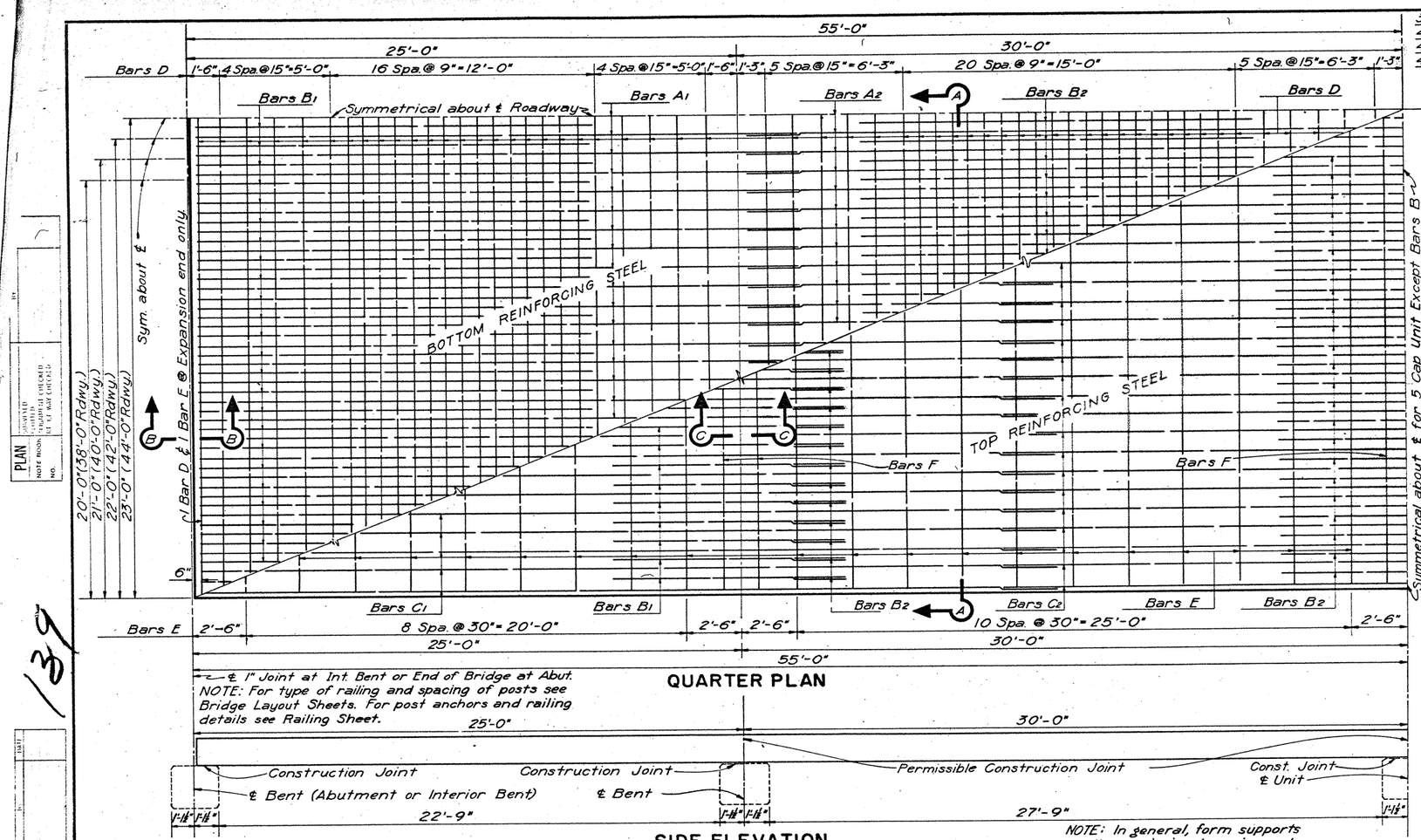
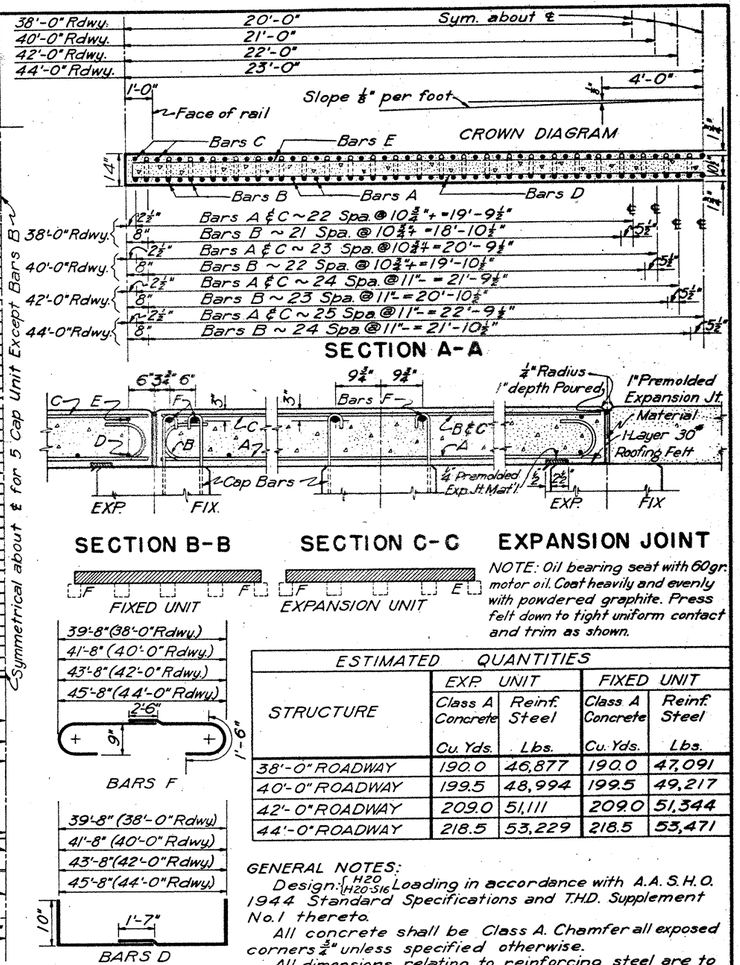
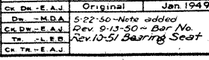




SECTION B-B

FIXED UNIT

SECTION C-C



EXPANSION UNIT

EXPANSION JOINT

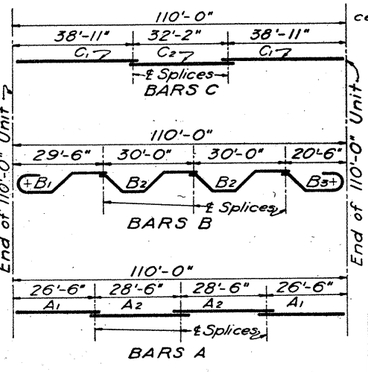
NOTE: Oil bearing seat with 60gr. motor oil. Coat heavily and evenly with powdered graphite. Press felt down to tight uniform contact and trim as shown.

39'-8" (38'-0" Rdwy.)
41'-8" (40'-0" Rdwy.)
43'-8" (42'-0" Rdwy.)
45'-8" (44'-0" Rdwy.)

BARS F

39'-8" (38'-0" Rdwy.)
41'-8" (40'-0" Rdwy.)
43'-8" (42'-0" Rdwy.)
45'-8" (44'-0" Rdwy.)

BARS D



ESTIMATED QUANTITIES

STRUCTURE	EXP. UNIT Class A Concrete Cu. Yds.	EXP. UNIT Reinf. Steel Lbs.	FIXED UNIT Class A Concrete Cu. Yds.	FIXED UNIT Reinf. Steel Lbs.
38'-0" ROADWAY	190.0	46,877	190.0	47,091
40'-0" ROADWAY	199.5	48,994	199.5	49,217
42'-0" ROADWAY	209.0	51,111	209.0	51,344
44'-0" ROADWAY	218.5	53,229	218.5	53,471

GENERAL NOTES:

Design: {H20 / H20-S16} Loading in accordance with A.A.S.H.O. 1944 Standard Specifications and T.H.D. Supplement No.1 thereto.

All concrete shall be Class A. Chamfer all exposed corners ¾" unless specified otherwise.

All dimensions relating to reinforcing steel are to centers of bars.

NOTE: In general, form supports shall remain in place in each unit until all slabs of the unit have been placed and cured, but in no case shall the supports be removed from a slab until that slab and adjacent slabs of the same unit have been poured and cured in accordance with the specifications.

BILLS OF REINFORCING STEEL

BARS			38'-0" ROADWAY EXP UNIT			38'-0" ROADWAY FIXED UNIT			40'-0" ROADWAY EXP UNIT			40'-0" ROADWAY FIXED UNIT			42'-0" ROADWAY EXP UNIT			42'-0" ROADWAY FIXED UNIT			44'-0" ROADWAY EXP UNIT			44'-0" ROADWAY FIXED UNIT		
BAR	SIZE	SPA	NO	LENGTH	WEIGHT	NO	LENGTH	WEIGHT	NO	LENGTH	WEIGHT	NO	LENGTH	WEIGHT	NO	LENGTH	WEIGHT	NO	LENGTH	WEIGHT	NO	LENGTH	WEIGHT	NO	LENGTH	WEIGHT
A1	#7	11"	90	27'-7"	5074	90	27'-7"	5074	94	27'-7"	5300	94	27'-7"	5300	98	27'-7"	5525	98	27'-7"	5525	102	27'-7"	5751	102	27'-7"	5751
A2	#7	11"	90	31'-0"	5703	90	31'-0"	5703	94	31'-0"	5956	94	31'-0"	5956	98	31'-0"	6210	98	31'-0"	6210	102	31'-0"	6463	102	31'-0"	6463
B1	#8	11"	44	32'-1"	3769	44	32'-1"	3769	46	32'-1"	3940	46	32'-1"	3940	48	32'-1"	4112	48	32'-1"	4112	50	32'-1"	4283	50	32'-1"	4283
B2	#8	11"	88	33'-3"	7812	88	33'-3"	7812	92	33'-3"	8168	92	33'-3"	8168	96	33'-3"	8523	96	33'-3"	8523	100	33'-3"	8878	100	33'-3"	8878
B3	#8	11"	44	23'-1"	2712	44	23'-1"	2712	46	23'-1"	2835	46	23'-1"	2835	48	23'-1"	2958	48	23'-1"	2958	50	23'-1"	3082	50	23'-1"	3082
C1	#8	11"	90	40'-0"	9612	90	40'-0"	9612	94	40'-0"	10,039	94	40'-0"	10,039	98	40'-0"	10466	98	40'-0"	10,466	102	40'-0"	10894	102	40'-0"	10894
C2	#8	11"	45	34'-8"	4165	45	34'-8"	4165	47	34'-8"	4350	47	34'-8"	4350	49	34'-8"	4535	49	34'-8"	4535	51	34'-8"	4721	51	34'-8"	4721
*D	#5	9⅝"	113	42'-1"	5058	112	42'-1"	5013	113	44'-1"	5294	112	44'-1"	5247	113	46'-1"	5530	112	46'-1"	5481	118	48'-1"	5765	112	48'-1"	5714
*E	#5	30"	41	41'-3"	1764	40	41'-3"	1721	41	43'-3"	1849	40	43'-3"	1804	41	45'-3"	1935	40	45'-3"	1888	41	47'-3"	2021	40	47'-3"	1971
*F	#9	~	8	44'-5"	1208	10	44'-5"	1510	8	46'-5"	1263	10	46'-5"	1578	8	48'-5"	1317	10	48'-5"	1646	8	50'-5"	1371	10	50'-5"	1714
TOTALS					46877			47091			48994			49217			51111			51344			53229			53471

*Length includes 30 Diam. Lap.

TEXAS HIGHWAY DEPARTMENT

110'-0" CONT. SLAB UNIT

(25'-30'-30'-25')

38', 40', 42', & 44' ROADWAYS

CS-0-110

Dn. -R.L.R.	Drawing	Date	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
Ck. Dn. -E.A.J.	Original	Jan. 1949	6	TEXAS	I-165 (1)	6.2
Dn. -M.D.A.	5-22-50-Note added					
Ck. Dn. -E.A.J.	Rev. 9-13-50-Bar No.		STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
Tr. -L.R.B.	Rev. 10-51-Bearing Seat		21	WEBB	18	364	9	U581
Ck. Tr. -E.A.J.						

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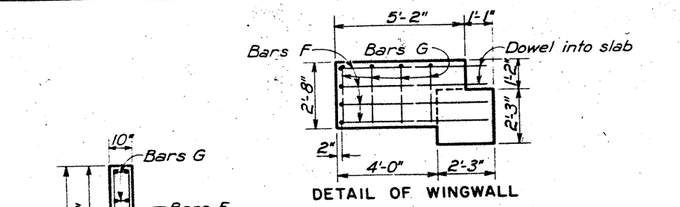
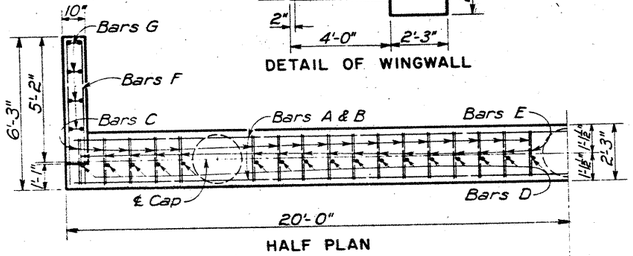
PLAN — APPROVED: [illegible] DISTRICT ENGINEER; RECOMMENDED: [illegible] ENGINEER OF DESIGN; NOTE FROM [illegible] NO.

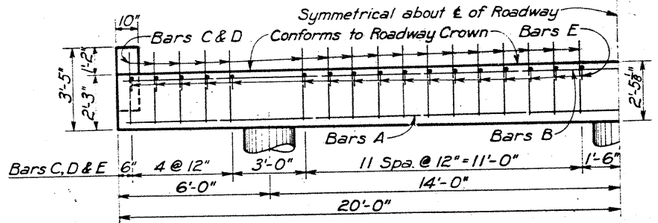
PROFILE — [illegible]



DETAIL OF WINGWALL



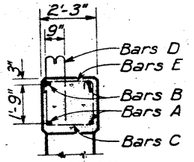
HALF PLAN



HALF ELEVATION

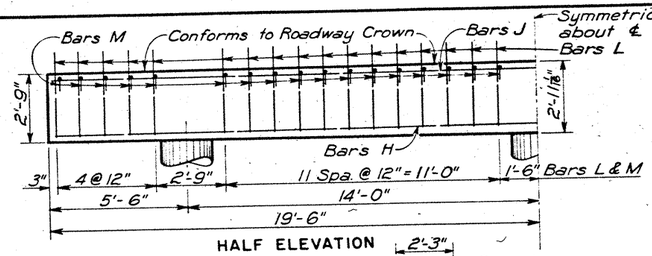
BILL OF REINFORCING STEEL

Bar	No.	Size	Spa.	Length	Weight
A	2	# 9	~	39'-6"	269
B	2	# 8	~	39'-6"	211
C	34	# 4	12"	7'-11"	180
D	34	# 4	12"	3'-6"	79
E	34	# 4	12"	2'-10"	64
F	8	# 5	9"	12'-5"	104
G	8	# 4	14"	5'-2"	28
Total, Lb.					935



℄ SECTION

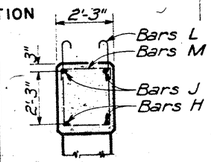
ABUTMENT BENT CAP & WINGWALLS



HALF ELEVATION

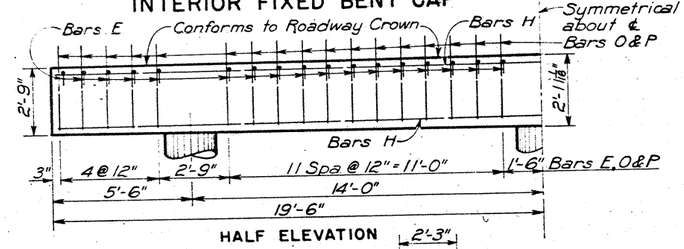
BILL OF REINFORCING STEEL

Bar	No.	Size	Spa.	Length	Weight
H	2	# 9	~	38'-6"	262
J	2	# 11	~	38'-6"	409
L	34	# 4	12"	10'-1"	229
M	34	# 4	12"	2'-11"	66
Total, Lb.					966



℄ SECTION

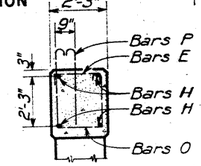
INTERIOR FIXED BENT CAP



HALF ELEVATION

BILL OF REINFORCING STEEL

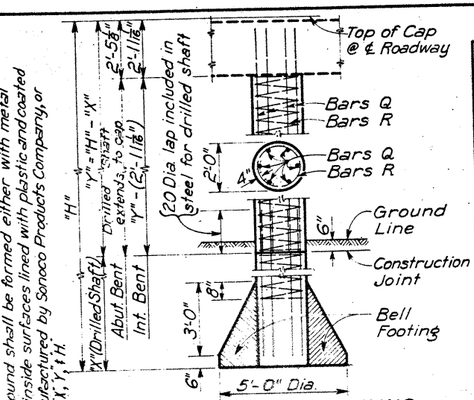
Bar	No.	Size	Spa.	Length	Weight
E	34	# 4	12"	2'-10"	64
H	4	# 9	~	38'-6"	525
O	34	# 4	12"	8'-11"	203
P	34	# 4	12"	4'-0"	91
Total, Lb.					883



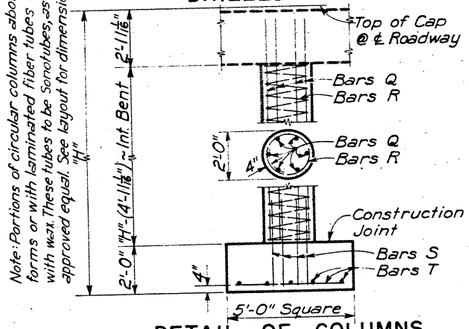
℄ SECTION

INTERIOR EXPANSION BENT CAP

Note: Portions of circular columns above ground shall be formed either with metal forms or with laminated fiber tubes with inside surfaces lined with plastic and coated with wax. These tubes to be Sonotubes, as manufactured by Sonoco Products Company, or approved equal. See layout for dimensions X, Y, & H.



DETAIL OF COLUMNS DRILLED SHAFT



DETAIL OF COLUMNS SPREAD FOOTINGS

BILL OF REINFORCING STEEL FOR THREE SPREAD FOOTINGS

Bar	No.	Size	Spa.	Length	Weight
S	18	# 6	~	3'-0"	81
T	30	# 6	13"	4'-6"	203
Total, Lb.					284

NOTE: Omit Bars T for Spread Footings sizes 3'x3' and 4'x4'.

REINFORCING STEEL~THREE COLUMNS WITH DRILLED SHAFTS

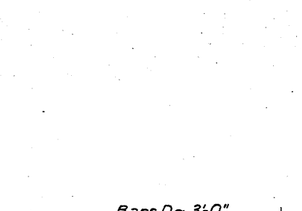
"Y"	18~#6 Bars Q		3~#2 Bars R		Total
	Length	Weight	Length	Weight	Weight
5'	4'-7"	124	32'	16	140
6'	5'-7"	151	41'	21	172
7'	6'-7"	178	50'	25	203
8'	7'-7"	205	59'	30	235
9'	8'-7"	232	67'	34	266
10'	9'-7"	259	76'	38	297
11'	10'-7"	286	85'	43	329
12'	11'-7"	313	94'	47	360
13'	12'-7"	340	103'	52	392
14'	13'-7"	367	112'	56	423
15'	14'-7"	394	121'	61	455
16'	15'-7"	421	130'	65	486
17'	16'-7"	448	139'	70	518
18'	17'-7"	475	148'	74	549
19'	18'-7"	502	157'	79	581
20'	19'-7"	529	166'	83	612

REINFORCING STEEL~THREE COLUMNS WITH SPREAD FOOTINGS

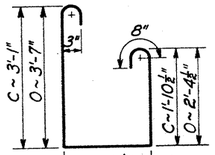
"H"	18~#6 Bars Q		3~#2 Bars R		Total
	Length	Weight	Length	Weight	Weight
10'	7'-7"	205	59'	30	235
11'	8'-7"	232	67'	34	266
12'	9'-7"	259	76'	38	297
13'	10'-7"	286	85'	43	329
14'	11'-7"	313	94'	47	360
15'	12'-7"	340	103'	52	392
16'	13'-7"	367	112'	56	423
17'	14'-7"	394	121'	61	455
18'	15'-7"	421	130'	65	486
19'	16'-7"	448	139'	70	518
20'	17'-7"	475	148'	74	549
21'	18'-7"	502	157'	79	581
22'	19'-7"	529	166'	83	612
23'	20'-7"	556	175'	88	644
24'	21'-7"	584	184'	92	676
25'	22'-7"	611	193'	97	708
26'	23'-7"	638	202'	101	739
27'	24'-7"	665	211'	106	771
28'	25'-7"	692	220'	110	802
29'	26'-7"	719	229'	115	834
30'	27'-7"	746	238'	119	865

FOOTING CORRECTIONS

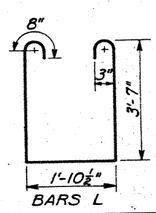
Footing Size	Concrete	Steel
3'x3'	-3.6 C.Y.	-203 Lbs.
4'x4'	-2.0 C.Y.	-203 Lbs.



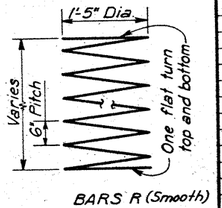
BARS F & G



BARS C & O



BARS L



BARS R (Smooth)

ESTIMATED TOTAL QUANTITIES (5'x 5' FOOTINGS)

	ABUTMENT BENT DRILLED SHAFTS			INTERIOR FIXED BENT SPREAD FOOTING			INTERIOR FIXED BENT DRILLED SHAFTS			INTERIOR EXPANSION BENT SPREAD FOOTING			INTERIOR EXPANSION BENT DRILLED SHAFTS		
	"H"	Cl. A Conc. Cu.Yd.	Reinf. Steel Lb.	Conc. Bell Fts Cu.Yd.	"H"	Cl. A Conc. Cu.Yd.	Reinf. Steel Lb.	"Y"	Cl. A Conc. Cu.Yd.	Reinf. Steel Lb.	Conc. Bell Fts Cu.Yd.	"H"	Cl. A Conc. Cu.Yd.	Reinf. Steel Lb.	"Y"	Cl. A Conc. Cu.Yd.	Reinf. Steel Lb.	Conc. Bell Fts Cu.Yd.
All Heights		8.6	935	3.3	10'	16.6	1485	5'	9.9	1106	3.3	10'	16.6	1402	5'	9.9	1023	3.3
					11'	17.0	1516	6'	10.3	1138	3.3	11'	17.0	1433	6'	10.3	1055	3.3
					12'	17.3	1547	7'	10.6	1169	3.3	12'	17.3	1464	7'	10.6	1086	3.3
					13'	17.7	1579	8'	11.0	1201	3.3	13'	17.7	1496	8'	11.0	1118	3.3
					14'	18.0	1610	9'	11.3	1232	3.3	14'	18.0	1527	9'	11.3	1149	3.3
					15'	18.4	1642	10'	11.7	1263	3.3	15'	18.4	1559	10'	11.7	1180	3.3
					16'	18.7	1673	11'	12.0	1295	3.3	16'	18.7	1590	11'	12.0	1212	3.3
					17'	19.1	1705	12'	12.4	1326	3.3	17'	19.1	1622	12'	12.4	1243	3.3
					18'	19.4	1736	13'	12.7	1358	3.3	18'	19.4	1653	13'	12.7	1275	3.3
					19'	19.8	1768	14'	13.1	1389	3.3	19'	19.8	1685	14'	13.1	1306	3.3
					20'	20.1	1799	15'	13.4	1421	3.3	20'	20.1	1716	15'	13.4	1338	3.3
					21'	20.5	1831	16'	13.8	1452	3.3	21'	20.5	1748	16'	13.8	1369	3.3
					22'	20.8	1862	17'	14.1	1484	3.3	22'	20.8	1779	17'	14.1	1401	3.3
					23'	21.2	1894	18'	14.5	1515	3.3	23'	21.2	1811	18'	14.5	1432	3.3
					24'	21.5	1926	19'	14.8	1547	3.3	24'	21.5	1843	19'	14.8	1464	3.3
					25'	21.9	1958	20'	15.2	1518	3.3	25'	21.9	1875	20'	15.2	1495	3.3
					26'	22.2	1989					26'	22.2	1906				
					27'	22.6	2021					27'	22.6	1938				
					28'	22.9	2052					28'	22.9	1969				
					29'	23.3	2084					29'	23.3	2001				
					30'	23.6	2115					30'	23.6	2032				

GENERAL NOTES:

Design: H-20-44 Loading in accordance with A.A.S.H.O. 1949 Specifications and T.H.D. Supplement No. 1.

All concrete shall be Class A. Chamfer exposed corners ¾".

Dimensions relating to reinforcing steel are to centers of bars.

Average calculated footing pressure:
- Bell Footings = 3.54 T/o'
- Spread Footings 3'x3' = 7.56 T/o'
- Spread Footings 4'x4' = 4.32 T/o'
- Spread Footings 5'x5' = 2.82 T/o'

Drilled Shafts shall be paid for by the linear foot of drilled shaft complete in place.

Bell Footings shall be used only when shown on Bridge Layout.

TEXAS HIGHWAY DEPARTMENT

3 COLUMN BENTS

FOR USE

50', 80', & 110' CONTINUOUS SLAB UNIT

38'-0" ROADWAY NO CURBS

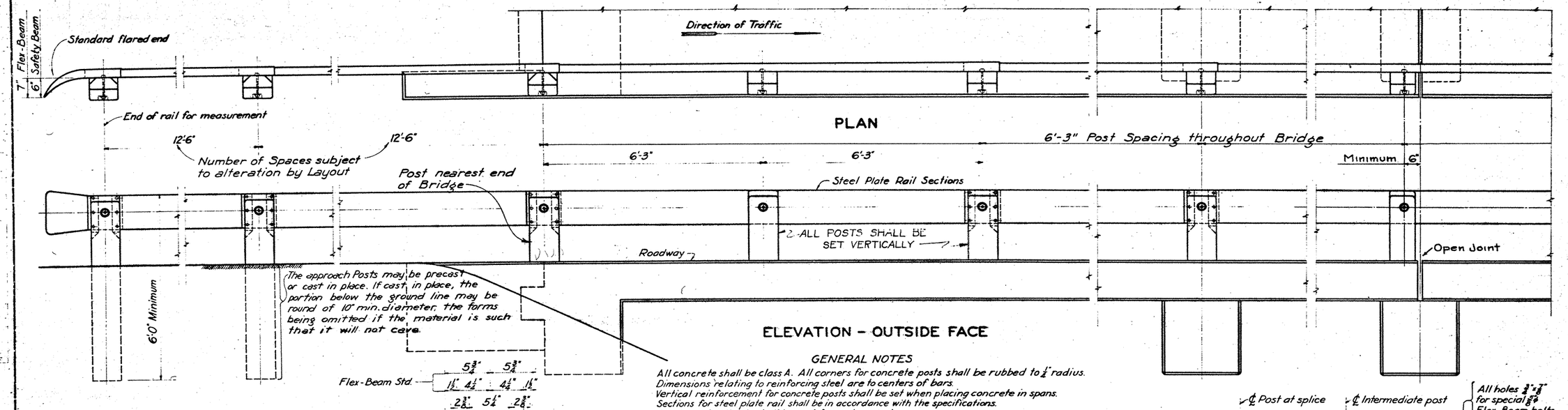
BS-0-38

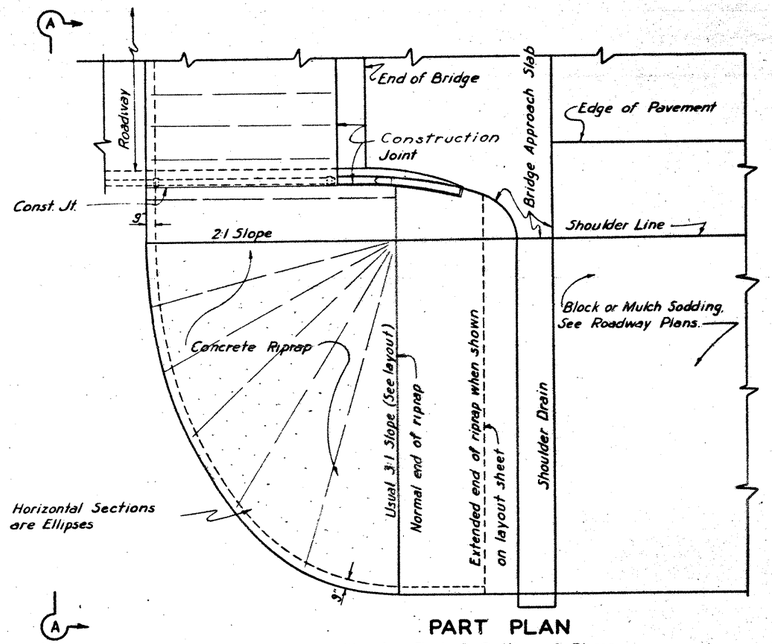
Dn.: RLR	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.		SHT. NO.
Ck. Dn.: FCB	Original	Oct. 1949	6	TEXAS	I-165 (14)		43
Dw.: RLR	Rev Bar No. 9-18-50 Ref 3-54 Note on Col Form		STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEETS
Ck. Dw.: FCB			21	WEBB	18	344	9	1581
Tr.: EJT							
Ck. Tr.: FCB							

1948

PLAN — NOTE BOOK — NO. — PLOTTED — DRAFTS CHECKED — STRUCTURE NOTES — CHKD

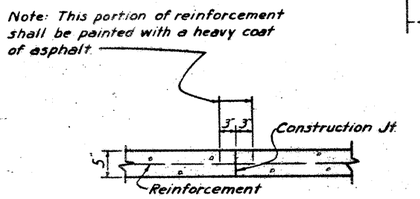
PROFILE — NOTE BOOK — NO. — PLOTTED — DRAFTS CHECKED — STRUCTURE NOTES — CHKD


7" Flex-Beam
6" Safety Beam
Standard flared end
Direction of Traffic
End of rail for measurement
12'-6"
12'-6"
Number of Spaces subject to alteration by Layout
Post nearest end of Bridge
PLAN
6'-3" Post Spacing throughout Bridge
6'-3"
6'-3"
Minimum 6"
Steel Plate Rail Sections
2. ALL POSTS SHALL BE SET VERTICALLY
Roadway
Open Joint
6'-0" Minimum
The approach Posts may be precast or cast in place. If cast in place, the portion below the ground line may be round of 10" min. diameter, the forms being omitted if the material is such that it will not cave.
ELEVATION - OUTSIDE FACE
Flex-Beam Std
5 3/4" 5 3/4"
1 1/2" 4 1/4" 4 1/4" 1 1/2"
2 3/8" 5 1/4" 2 3/8"
GENERAL NOTES
All concrete shall be class A. All corners for concrete posts shall be rubbed to 1/2" radius.
Dimensions relating to reinforcing steel are to centers of bars.
Vertical reinforcement for concrete posts shall be set when placing concrete in spans.
Sections for steel plate rail shall be in accordance with the specifications.
One type of rail only shall be used for each project.
Where "Safety-Beam" guardrail is used, the intermediate post details will apply for all concrete posts.
All bolts, nuts, washers and pipe sleeves shall be cadmium coated by the Udylite or Galvanized.
Railing shall be painted in accordance with specifications.
Splices in rail sections shall lap in direction of traffic. See plan.
Horizontal rail members may be spliced at points other than at posts.
Δ Posts shall be set vertically.
℄ Post at splice
℄ Intermediate post
#10 U.S. Std. Gage Steel (Minimum)
All holes 3/4" for special 5/8" Flex-Beam bolts.
1'-0 1/2"
4 3/4" 1 1/2" 1 1/2" 4 3/4"
R=1 1/2"
R=1 1/2"
3"
3 1/2"
1 1/2" 4" 1 1/2" 1 1/2"
6 3/8" 6 3/8"
1'-0 1/2"
Splice Clip
3"
3"
3 1/2"
3 1/2"
5/8" Holes for 5/8" Button Head Bolts
Intermediate Clip
1 3/8" Hole
2 1/2" 2 1/2"
4 1/2"
Washer - 1 1/2" x 1 1/2" x 0.41"
CLIP DETAILS
Safety-Beam only
1'-0"
1'-0"
6 1/2"
5 1/2"
1 1/2" 4 1/2" 4 1/2" 1 1/2"
5 3/8" 6'-3" 6'-3" 5 3/8"
Usual 13'-5 1/2"
FLEX-BEAM (Made by Sheffield Steel Company)
#10 U.S. Std. Gage (Minimum)
℄ Intermediate post
7/8" x 1 1/2" Slot
3 7/16"
1 1/2" 1 1/2" 15/16"
1'-0"
2 1/2" 2 1/2" 4 1/2"
1 1/2" 3 1/2" 1 1/2"
7/8" x 1 1/4" Slot
5'-11 1/2"
5'-11 1/2"
3 7/16"
Usual 12'-5 3/8"
℄ Post at splice
SAFETY-BEAM (Made by Bethlehem Steel Company)
℄ Post at Splice
Flex-Beam or Safety Beam pressed steel railing sections
5/8" x 8 1/2" Special Bolt & 5/8" Std. Pipe Sleeve (Flex-Beam)
5/8" x 9" Carriage Bolt & 1 1/4" Std. Pipe Sleeve (Safety-Beam)
#2 Ties (Smooth)
3 1/4" Recess (1 1/4" Deep)
1 1/2" 2 1/2" 2 1/2" 2 1/2" 1 1/2"
5 5/8"
#2 Ties (Smooth)
3 1/4" Recess (1 1/4" Deep)
1 1/2" 2 1/2" 2 1/2" 2 1/2" 1 1/2"
Cut washer
Top of concrete posts
Rad-2 1/2" for outside bars only
8"
4" 4" 3 1/2"
Face of Rail
3 1/4"
2 1/2"
6 1/2"
4 1/2"
5"
6"
6"
4"
2'-1 1/2"
1'-7"
1'-0"
5" 5"
10"
Verticals 6-#5
1 1/2"
1 1/2"
3 1/2"
1 1/2"
See span details
See span details
E1
E1
2 1/2"
2 1/2"
Typical reinforcement in slab
2 1/2" 5" E2
E1+E2 = Minimum embedment - 2'-0"
INTERMEDIATE POST
Cut washer
Rad-1 1/2" for outside bars only
Face of Rail
1'-0"
8"
4" 4" 3 1/2"
3 1/4"
2 1/2"
6 1/2"
4 1/2"
5"
6"
6"
4"
1'-7"
1'-0 1/2"
5" 5"
10"
Verticals 6-#5
12"
12"
10 1/2"
1 1/2"
3 1/2"
1 1/2"
E1
E2
2 1/2"
2 1/2"
Typical reinforcement in slab
2 1/2" 5" E2
POST AT RAILING SPLICE
10"
5" 5"
#2 Ties
Top of approach posts same detail as bridge posts for each condition. See layout and general notes.
Top of concrete posts
℄
2'-1 1/2"
4"
Roadway
6'-0" Minimum
4 Spc. @ 10" = 3'-4"
#2 Ties (Smooth)
Verticals 6-#5
3 1/2"
APPROACH POST
Rev. 7-52 Bolt Length in Post
Rev. 5-1-48 Note added for Posts.
Rev. 9-23-48
Rev. Bar No. 9-12-50
Rev. 8-24-48 Safety-Beam Clip
Rev. 4-17-46-C.H.B.
Change Post Spac. @ Joints
Rev. 5-31-48-C.H.B.
Splice rail any point
Rev. 8-17-46-C.H.B.
(See layout for posts)
Rev. 1-31-49-C.H.B.
TEXAS HIGHWAY DEPARTMENT
STANDARD RAILING TYPE 2 R-9
(1944)
Dn. C.H.B.
Dr. C.H.B.
Ck. S.L.H.
Tr. D.E.F.
Ck. S.A.H.
April 18, 1944
STATE HIGHWAY NO.
STATE
FEDERAL AID PROJECT NO.
SHEET NO.
6
TEXAS
I-165 (16)
G-2
DISTRICT NO. 21
COUNTY
WEBB
ROADWAY SHEET NO. 18
SHEET NO. 3
ROADWAY SHEET NO. 9
SHEET NO. 4
HIGHWAY NO. U.S. 81

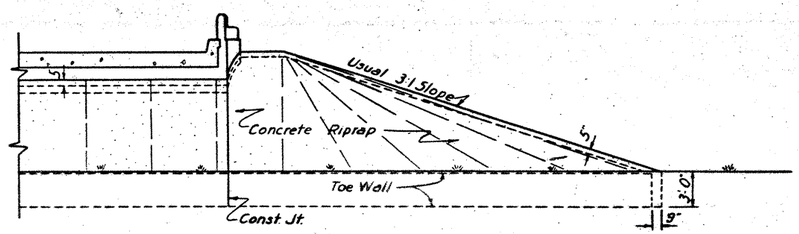


PART PLAN

Showing Typical Outline of Riprap

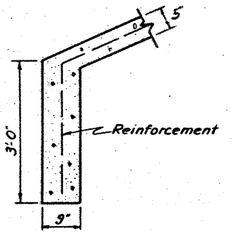


TYPICAL SECTION THROUGH CONSTRUCTION JOINT

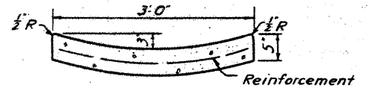


SECTION A-A

End View of Riprap

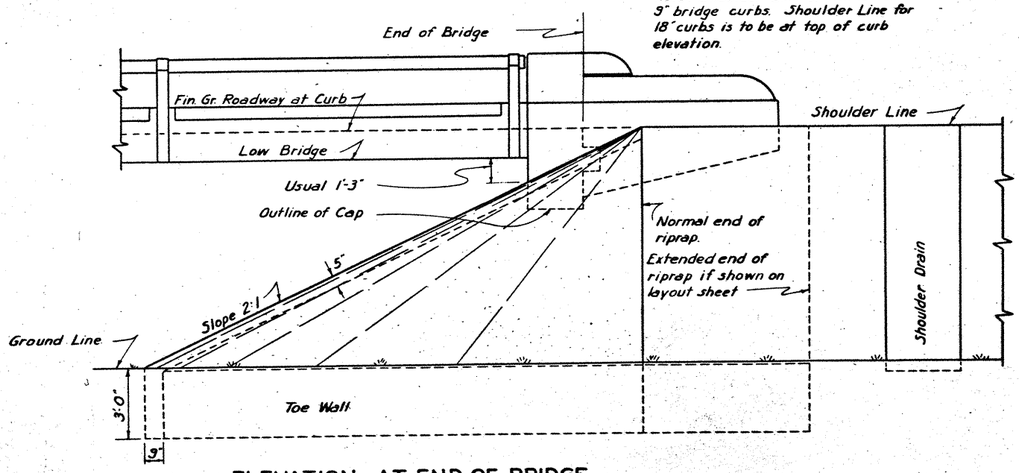


TYPICAL SECTION THROUGH TOE WALL



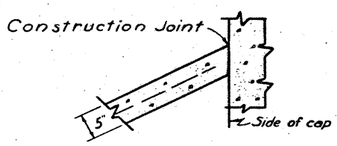
TYPICAL SECTION THROUGH SHOULDER DRAIN

Quantities for Shoulder Drains to be included in riprap quantities.



ELEVATION AT END OF BRIDGE

Showing Details of Riprap Slopes



TYPICAL SECTION THROUGH RIPRAP AT CAP

GENERAL NOTES

Concrete shall be Class B unless otherwise provided on the layout.

Reinforcements shall be in accordance with specifications.

Construction joints shall be as shown or ordered by the Engineer.

Riprap shall be constructed in accordance with lines and dimensions given on this sheet unless shown otherwise on Bridge Layout Sheet.

TEXAS HIGHWAY DEPARTMENT

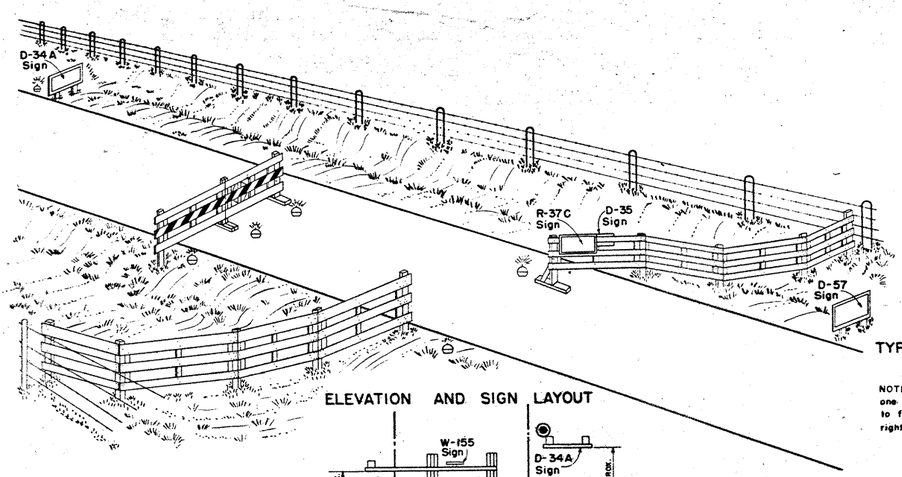
CONCRETE RIPRAP

FOR EMBANKMENT SLOPES AT BRIDGE ENDS

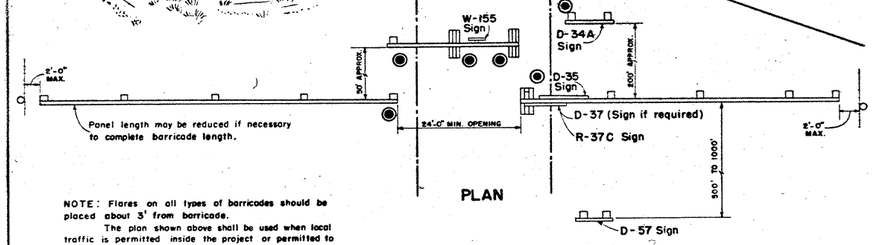
RR 8

(1944)

Dr. T.H.D.	Omit Exp. Joint Rev. 8-1-47.		STATE	FEDERAL AID PROJ. NO.		SHEET NO.
Dn. J.S.H.			TEXAS	F-165 (14)		65
Ck. M.R.M.						
Tr. R.M.F.						
Ck. J.S.H.			COUNTY			
April 1948			21 WEBB	18	3E.A	9 US81



ELEVATION AND SIGN LAYOUT



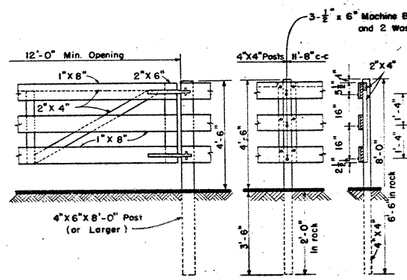
PLAN

NOTE: Flares on all types of barricades should be placed about 3' from barricade.

The plan shown above shall be used when local traffic is permitted inside the project or permitted to use the road beyond the intersection with the temporary route.

Diagonal black stripes and $\frac{3}{4}$" clear reflector buttons are required only on panels and gates across the travelway.

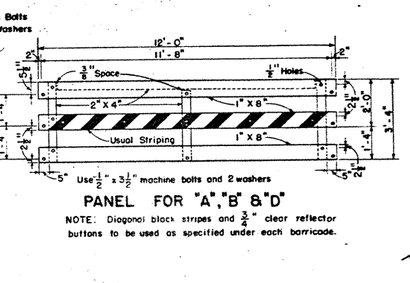
BARRICADE "A"



TYPICAL GATE CONSTRUCTION FOR BARRICADE "A"

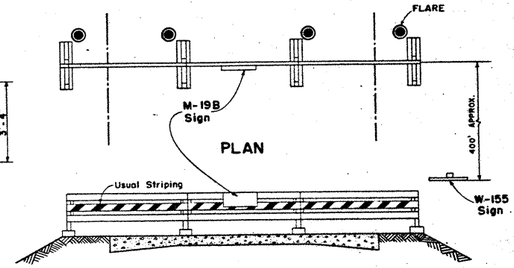
NOTE: When the road is closed to all traffic one panel and gate section shall be used to form a continuous barricade across the right-of-way.

POST FOR "A" & "D" PANELS



PANEL FOR "A", "B" & "D"

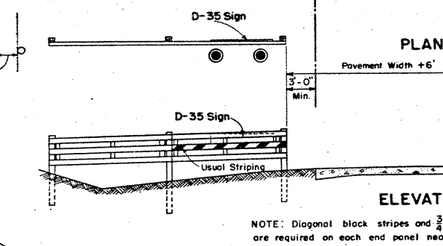
NOTE: Diagonal black stripes and $\frac{3}{4}$" clear reflector buttons to be used as specified under each barricade.



ELEVATION

NOTE: Diagonal black stripes and $\frac{3}{4}$" clear reflector buttons are required on each panel.

BARRICADE "B"

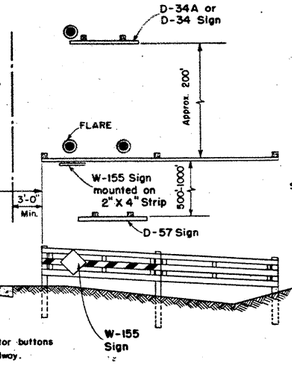


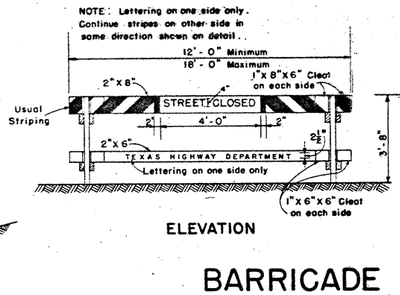
PLAN

ELEVATION

NOTE: Diagonal black stripes and $\frac{3}{4}$" clear reflector buttons are required on each end panel nearest the travelway.

BARRICADE "D"

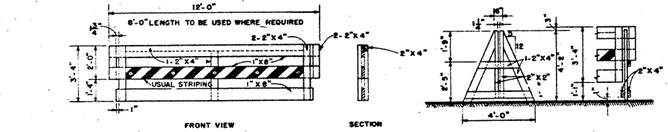




ELEVATION

STAND

BARRICADE "E"

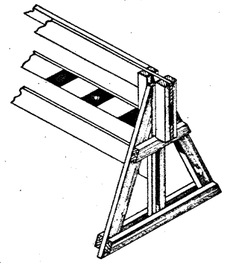


PANEL

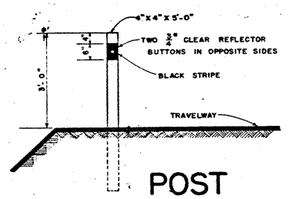
STAND

NOTE: Sign W-155 shall be used in advance of barricade and flagman shall be used to direct traffic while work is in progress. Flares shall be used to outline travelway and mark hazards at night.

BARRICADE "C"

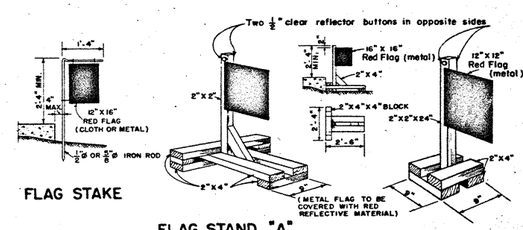


ASSEMBLY



POST BARRICADE

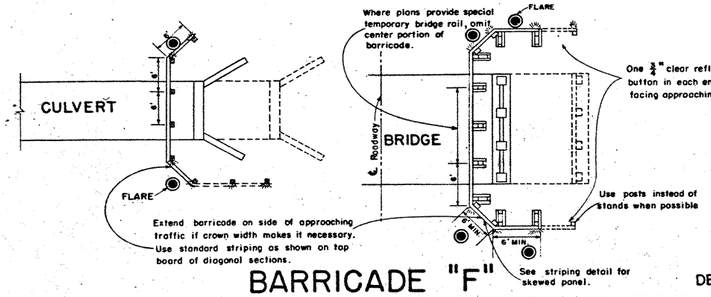
NOTE: Maximum post spacing 30' to 60' as directed. To be placed where shown on plans or as directed by the Engineer for protection of traffic on roadways adjacent to slopes or similar hazards.



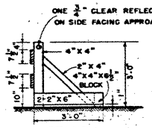
FLAG STAKE

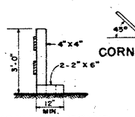
FLAG STAND "A"

FLAG STAND "B"



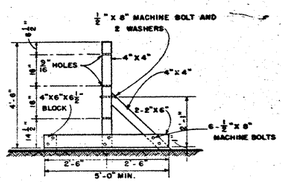
BARRICADE "F"



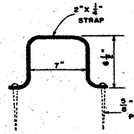


MODIFIED STAND FOR NARROW BRIDGE

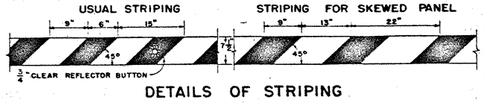
DETAILS FOR BARRICADE "F"



STAND FOR "B" (OPTIONAL FOR "A" & "D")



HOLD-DOWN STRAP FOR "A", "B" & "D"



DETAILS OF STRIPING

TEXAS HIGHWAY DEPARTMENT

BARRICADE & WARNING SIGNS

SHEET 1 OF 2

BW 54 (1)

D.N.	S.H.D.	DRAWING	DATE	FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
CK. DN.				6	TEXAS	I 165 (16)	GG
DW.	R.B.B.			STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
CK. DW.	E.W.D.			21	WEBB	18 3 9	US-81
TR.	R.B.B.					18 4 9	
CK. TR.	E.W.D.						

143

D-34

Letters - Black
Border - Black
Background - White Reflective

Alternate Using Reflector Buttons
Background - White

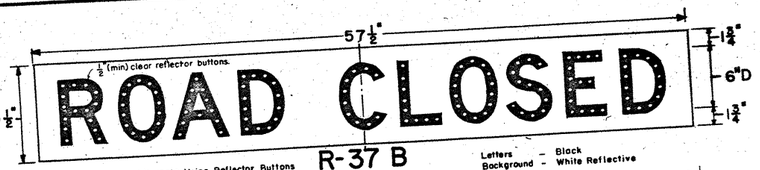
D-34 A

Letters - Black
Border - Black
Background - White Reflective

Alternate Using Reflector Buttons
Background - White

D-35

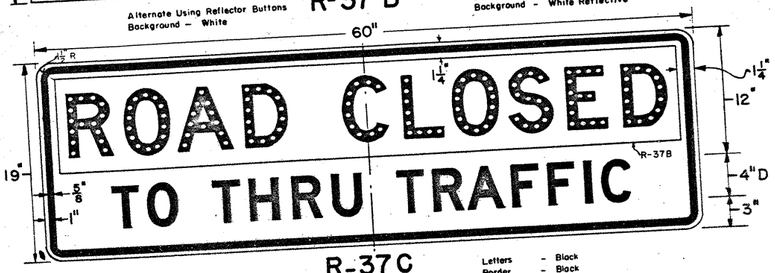
Letters - Black
Border - Black
Background - White Reflective



Alternate Using Reflector Buttons
Background - White

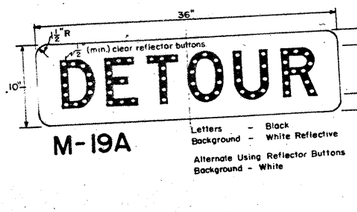
R-37 B

Letters - Black
Background - White Reflective



R-37C

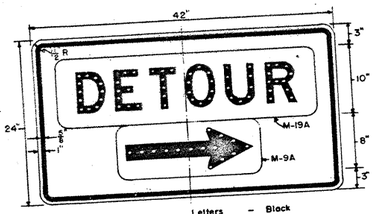
Letters - Black
Border - Black
Background - White



M-19A

Letters - Black
Background - White Reflective

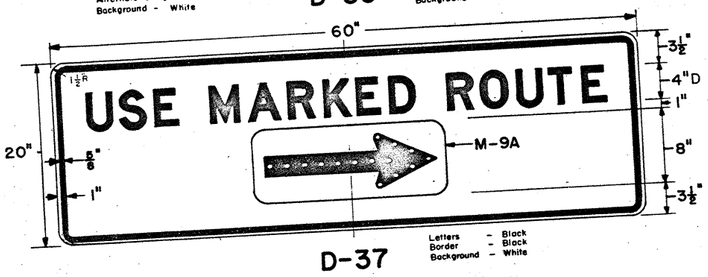
Alternate Using Reflector Buttons
Background - White



M-19 B

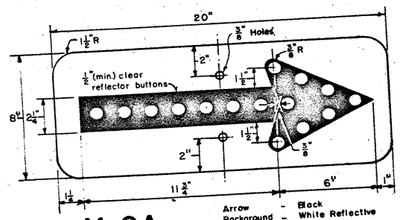
Letters - Black
Arrow - Black
Border - Black
Background - White Reflective

Alternate Using Reflector Buttons
Background - White



D-37

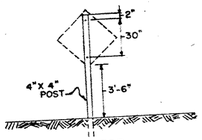
Letters - Black
Border - Black
Background - White



M-9A

Arrow - Black
Background - White Reflective

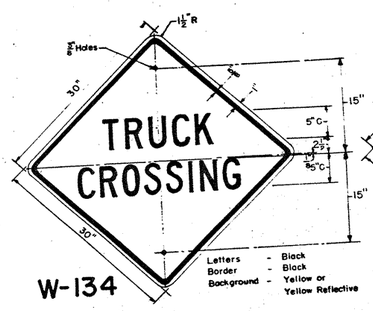
Alternate Using Reflector Buttons
Background - White



POST FOR SIGNS W-134 & W-155 AND SIGN D-57 USING 2 POSTS

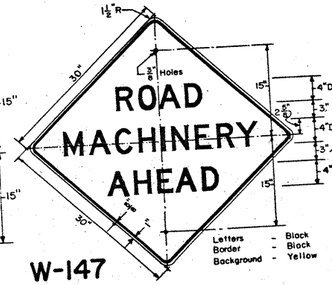
D-57

Letters - Black
Border - Black
Background - White Reflective



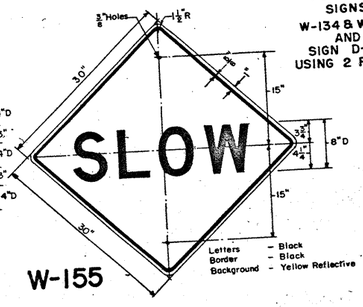
W-134

Letters - Black
Border - Black
Background - Yellow or Yellow Reflective



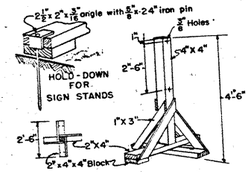
W-147

Letters - Black
Border - Black
Background - Yellow



W-155

Letters - Black
Border - Black
Background - Yellow Reflective



PORTABLE STAND FOR SIGNS W-134, W-147 & W-155

GENERAL NOTES

Barricade "A" and accompanying signs shall be used at each end of construction projects closed to all traffic, or closed to all but local traffic, and at points where through traffic is turned onto a temporary route. The plan on sheet 1 shall be used when local traffic is permitted inside the project or permitted to use the road beyond the intersection with the temporary route. When the road is closed to all traffic, one panel and gate section shall be used to form a continuous barricade across the right-of-way.

Barricade "B" and accompanying signs shall be used at the beginning of detours to divert traffic onto the specially prepared roadbed along or near the edge of the right-of-way or around a structure. Sign M-19B shall be used on the barricade and Sign W-155 shall be used in advance of the barricade as indicated on barricade layout.

Barricade "C" and Sign D-34 are for temporary use to control traffic within the limits of a project whenever it is necessary to confine traffic to a specific area on account of some particular construction operation. The areas through which traffic is routed may be the shoulders, ditches, around windrows of materials, excavated trenches, etc. Sign W-155 shall be used in advance of the barricade and flagmen shall be used to direct traffic while work is in progress. If it is necessary that barricades remain in place at night, a sufficient number of flares shall be used to outline the travelway and mark the hazards.

Barricade "D" and accompanying signs shall be used at each end of project only when some form of work is being performed which creates a traffic hazard throughout the entire length of the project. In case of several short sections, which are separated by intervals of considerable distance, each individual section shall be barricaded with this type barricade. This type barricade may also be used at important county road approaches. Sign D-34A shall be used in back of the barricade. When there are a number of short sections barricaded, sign D-34 may be substituted for sign D-34A. Barricades shall be removed upon completion of work and elimination of the hazard on any section. In all cases the barricade shall be so located as to most advantageously warn and direct traffic, and shall be within 1,000 feet of the terminus of such section.

Barricade "E" and accompanying sign shall be used on city streets which are closed to traffic and as advance warning on streets approaching closed areas. When this barricade is used to close a street, a sufficient number of units shall be used to block the entire street. This barricade may also be used to confine traffic to one side of the street or highway for the protection of workmen, maintenance repairs, open trenches, etc., in which case the R-37B sign shall be omitted.

Barricade "C", with appropriate standard signs, may be substituted for Barricade "E" if desirable.

Barricade "F" shall be used on culvert or bridge widening jobs when traffic is routed over the structure. It shall be erected so as to provide maximum roadway width for traffic and allow sufficient space for efficient construction operations behind the barricade.

Signs D-34A, D-35 and D-57 shall be used at each end of all projects open to any public travel, and to supplement Barricades "A" and "D". Other standard signs, Post Barricades, and Flags shall be used as required by plans or as directed by the Engineer to protect and direct traffic.

Barricades, Signs and Flags shall be supplemented by lights placed so as not to interfere with the visability of reflector buttons or reflectorized surfaces, and lights shall be maintained in continuous operation from sunset to sunrise. Lights may be oil flares or flashing electric type.

Barricades shall be constructed of clean, sound lumber cut to the nominal dimensions shown on these details and surfaced on two sides. Barricades shall be of first-class workmanship, and all surfaces above ground shall be painted with an approved brand of white paint to secure thorough coverage and a uniform white color. In no case shall less than two coats be used. The paint for barricade stripes (and Barricade "E") shall be an approved brand of gloss black paint applied to secure uniform coverage.

Signs for Barricades shall be made from wood or metal conforming with the requirements specified below.

Metal for sign plates shall be 12, 14 or 16 gauge steel which conforms with Texas Highway Department "Special Specification for Steel Plates for Highway Markers."

Wood for signs shall be 1 inch stock B and B grade kiln dried lumber or equal, or water-proof resinbonded Exterior grade Plywood, Douglas Fir Plywood Association or equal. All wooden signs made up of two or more boards shall have a 1"x 6" cleat fastened to back of the sign at each end and extending full depth of the sign. In addition to cleats, the boards shall be fastened together with ½ inch corrugated fasteners spaced at not more than 12 inch centers and driven from the back of the sign. In localities where untreated wood rots rapidly, it is recommended that wood used for signs be treated with either Chromated Zinc Chloride, Wolman Salts, or Pentachlorophenol.

The designation of Metal and Wood as primary materials for signs shall not be interpreted to exclude other suitable materials now or hereafter available.

Points and coloration shall be similar to Texas Highway Department standards as outlined in Texas Manual on Uniform Traffic Control Devices for Streets and Highways. Where Yellow is specified it shall conform with color cards for "Highway Yellow" available from U.S. Bureau of Public Roads.

Reflectorization may be by means of approved reflective coatings on the sign background. Either Glass Reflector Buttons or Crystal Plastic Reflector Buttons conforming with Texas Highway Department Reflector Button Specifications may be used as an alternate means of reflectorization. Size and spacing of reflector buttons shall be as shown on details. All reflecting elements shall reflect white light, except that if a reflecting coating is used as a background of a yellow sign, it shall reflect yellow light.

Diagonal black stripes and reflector buttons shall be as indicated on plans or on these details.

Barricades designed for moving or reuse, except "C" and "E", shall be erected with bolts. The Contractor shall maintain each barricade and sign in a condition equal to that required by these details.

In construction of legs for portable barricades, steel may be substituted for timber, provided that the width of base will not be less than that shown on the standard detail.

All sign lettering shall be clear, open rounded type capital letters as approved by the Joint Commitee on Uniform Traffic Control Devices, its sponsoring agencies and as published by the Bureau of Public Roads. Striping and lettering shall be of first class workmanship equivalent to that of Highway Department standard signs.

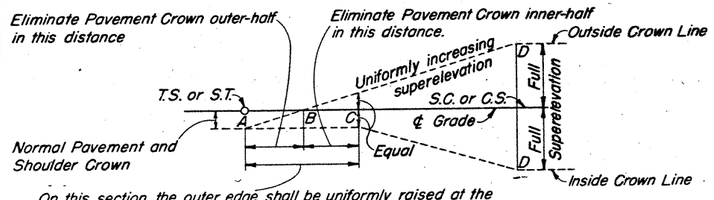
TEXAS HIGHWAY DEPARTMENT

BARRICADES & WARNING SIGNS

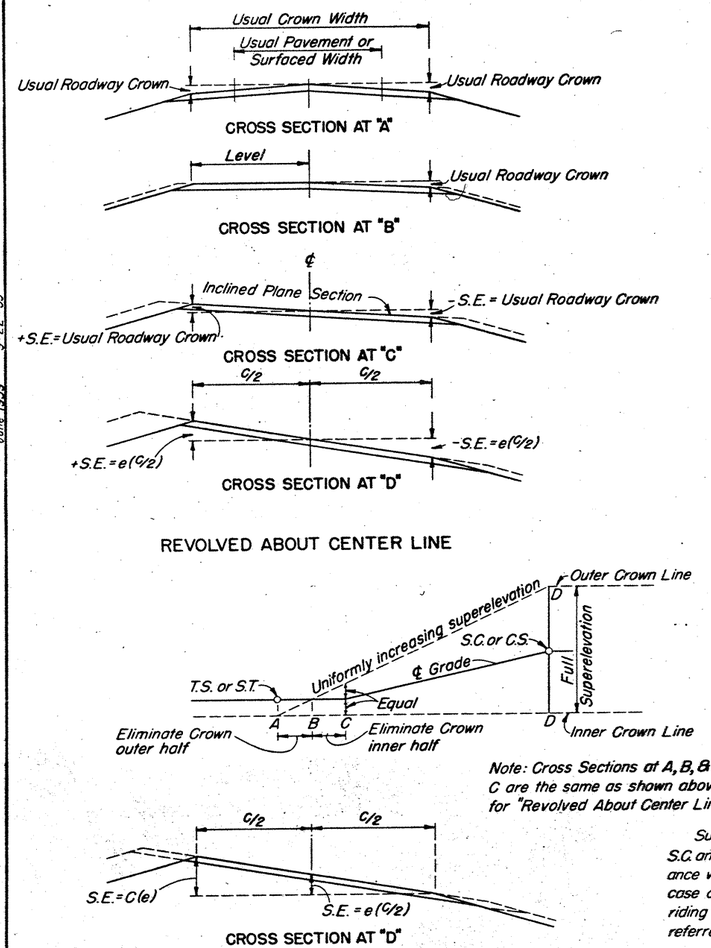
Sheet 2 of 2.

BW 54 (2)

Dn. - S.H.D.	Drawing	Date	Fed. Road Div. No.	State	Federal Aid Project No.		Sheet No.
Ck. Dn. -			6	Texas	1 165 (16)		67
Dw. - R.F.J.			State Dist. No.	County	Control No.	Section No.	Job No.	Highway No.
Ck. Dw. - E.W.D.			21	WEBB	18	3	9	US-81
Tr. - R.F.J.					18	4	9	
Ck. Tr. - E.W.D.								



On this section, the outer edge shall be uniformly raised at the same rate as the superelevation is introduced on the remainder of the transition, until an inclined plane section is attained at "C", with the outer edge above the center by the same amount as the normal crown. Minus superelevation of inner edge shall then begin.



REVOLVED ABOUT CENTER LINE

Note: Cross Sections at A, B, & C are the same as shown above for "Revolved About Center Line".

REVOLVED ABOUT INNER CROWN LINE

SUPERELEVATION WIDENING & SPIRAL TABLES

TABLE 1 PRIMARY HIGHWAYS

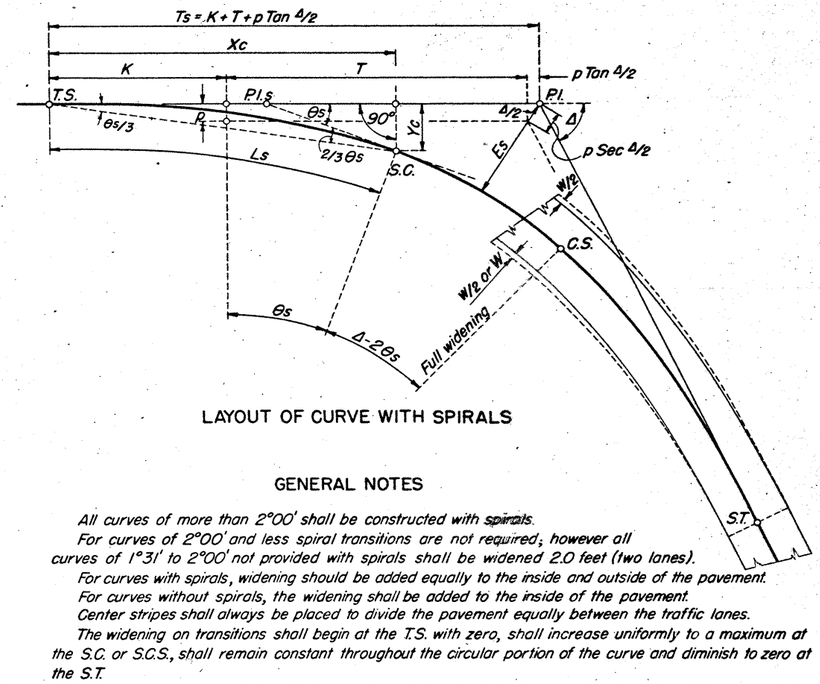
D	e	W 20'PVT.	W 22'PVT.	Ls	Θs	p	K	Xc	Yc
0 to 1°00'		0.0	0.0						
1°00'	.02	0.0	0.0						
1°30'	.03	0.0	0.0						
2°00'	.05	0.0	0.0	300	3.00	1.31	150.0	299.9	5.24
2°30'	.06	2.0	0.0	360	4.50	2.35	180.0	359.8	9.42
3°00'	.07	2.0	0.0	400	6.00	3.49	199.9	399.6	13.95
3°30'	.08	4.0	2.0	440	7.70	4.93	219.9	439.2	19.69
4°00'	.09	4.0	2.0	500	10.00	7.26	249.7	498.5	29.02
4°30'	.10	4.0	2.0	500	11.25	8.17	249.7	498.1	32.64
5°00'	.10	4.0	2.0	500	12.50	9.08	249.6	497.6	36.24

TABLE 2 FEEDER ROADS

D	e	W 20'PVT.	W 22'PVT.	Ls	Θs	p	K	Xc	Yc
0 to 1°00'		0.0	0.0						
1°00'	.02	0.0	0.0						
1°30'	.03	0.0	0.0						
2°00'	.04	0.0	0.0	240	2.40	0.84	1200	240.0	3.35
2°30'	.04	2.0	0.0	260	3.25	1.22	1300	259.9	4.91
3°00'	.04	2.0	0.0	300	4.50	1.96	1500	299.8	7.85
3°30'	.04	4.0	2.0	300	5.25	2.29	1500	299.8	9.16
4°00'	.05	4.0	2.0	300	6.00	2.62	149.9	299.7	10.46
4°30'	.05	4.0	2.0	300	6.75	2.94	149.9	299.6	11.77
5°00'	.05	4.0	2.0	300	7.50	3.27	149.9	299.5	13.07
6°00'	.06	4.0	2.0	360	10.80	5.64	179.8	358.7	22.56
7°00'	.07	4.0	2.0	400	14.00	8.12	199.6	397.6	32.43
8°00'	.08	4.0	2.0	440	17.60	11.21	219.3	435.9	44.74
9°00'	.08	4.0	2.0	440	19.80	12.61	219.1	434.7	50.25
10°00'	.08	4.0	2.0	440	22.00	13.99	218.9	433.6	55.72

SYMBOLS & FORMULAE

P.I. = Point of intersection of the main tangents.
Δ = Intersection angle between the main tangents of the entire curve.
D = Degree of the circular curve.
R = Radius of the circular curve.
E = External of the circular curve.
T.S. & S.T. = "Tangent to Spiral" and "Spiral to Tangent," common point of tangent and spiral.
S.C. & C.S. = "Spiral to Curve" and "Curve to Spiral," common point of circular curve and spiral.
S.C.S. = "Spiral to Curve to Spiral," common point of end and beginning transitions of curve transitional throughout.
e = Full superelevation per foot of crown width.
W = Total extra widening through the circular portion of the curve.
Θs = The spiral angle = LsD/200. Intersection angle between the tangent of the complete curve and the tangent at the S.C. or C.S.
Ls = Length of spiral (or length of transition for superelevation and widening of circular curves).
L.C. = Straight line chord distance, T.S. to S.C. or S.T. to C.S.
Xc = Distance from the T.S. to a point on the main tangent opposite the S.C. = Ls - .00003 Ls(Θs)².
Yc = Right angle distance from a point on the tangent opposite the S.C. to the S.C. = Xc Tan Θs/3
Ts = Tangent distance P.I. to T.S. or P.I. to S.T. = K + T + (p Tan ½Δ).
T = Tangent of circular curve.
K = Distance from the T.S. or S.T. to a point on the tangent opposite the P.C. or P.T. of the circular curve produced = Xc - R Sin Θs.
p = Offset distance of the circular curve from the tangent = .00000727 (Ls)² D or approximately ¼ Yc.
Es = External of the offset circular curve = E + p Sec Δ/2.



LAYOUT OF CURVE WITH SPIRALS

GENERAL NOTES

All curves of more than 2°00' shall be constructed with spirals.

For curves of 2°00' and less spiral transitions are not required; however all curves of 1°31' to 2°00' not provided with spirals shall be widened 2.0 feet (two lanes).

For curves with spirals, widening should be added equally to the inside and outside of the pavement.

For curves without spirals, the widening shall be added to the inside of the pavement.

Center stripes shall always be placed to divide the pavement equally between the traffic lanes.

The widening on transitions shall begin at the T.S. with zero, shall increase uniformly to a maximum at the S.C. or S.C.S., shall remain constant throughout the circular portion of the curve and diminish to zero at the S.T.

In constructing one half the widening on the outside of spiraled curves, the tangent outside edge of the pavement shall be extended and adjusted into the curve of the widened spiral to avoid a reversal of curvature near the T.S.

Curves for which spiral transitions are not provided shall have the superelevation and widening introduced in the same manner and over the same length as the preferred lengths of spirals given in the tables.

A straight line slope shall be used on all superelevated curves, except for rigid pavements on curves of 2°30' and less, where the normal pavement crown shall be retained, unless otherwise provided in the plans.

The width of traffic lanes on curves shall not be less than 10', 11', or 12' as given in the tables for the respective degrees of curve, regardless of the normal pavement width.

For pavements with normal lane widths of 12' or more, widening in excess of the normal lane width is not required, but may be used if conditions warrant.

The spiral lengths shown in Tables I and 2 are preferred lengths and are based on an acceleration rate of 2 feet per second toward the center of the curve, modified to restrict the rise of the outside crown line to a slope of 1/250 with respect to the centerline grade. (Revolving about the centerline.) The crown width is assumed as 36' for Table I and 30' for Table 2 and the crown slope as 3/16" per ft.

Where superelevation is revolved about the inner crown line the preferred transition lengths given in the Tables are approximately correct; however the transition length shall be such that the slope of the rise of the outside crown with respect to the inside crown shall not exceed 1:150.

Maximum safe speed in miles per hour = √15R(e + 0.15).

FOR SPIRAL LENGTH TO BE USED ON THIS PROJECT AND OTHER IDENTIFYING DATA, REFER TO PLAN-PROFILE SHEETS OR TO THE TYPICAL CROSS SECTION SHEET.

DETAILS FOR ATTAINING SUPERELEVATION

Superelevation values ("e") shown in the tables are superelevations per foot of pavement width to be obtained at the S.C. and C.S. and throughout the circular curve. Superelevation for any point on the spiral is to be obtained in accordance with the diagrams shown above except in cases where center lines of curves are not on uniform grade, in which case a profile of the outer and inner crown lines are to be plotted and the grades adjusted to secure a satisfactory riding surface and appearance. On rigid pavement types, where the crown is to be left in the pavement, the plane referred to in the diagram shall be construed to mean a plane through the pavement edges.

Short vertical curves may be inserted if desired, at points "A," "C," and "D." They may be inserted by eye adjustment of stakes or forms in the field. (See diagrams).

TEXAS STATE HIGHWAY DEPARTMENT

CURVE STANDARD FOR SUPERELEVATION, WIDENING & SPIRAL TRANSITIONS

SWC-39

STATE	FEDERAL AID PROJECT NO.	SHEET NO.
TEXAS	F-165(16)	69

STATE DIST. NO.	COUNTY	CONTROL NO.	SECT. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3	9	US-81
		18	4	9	

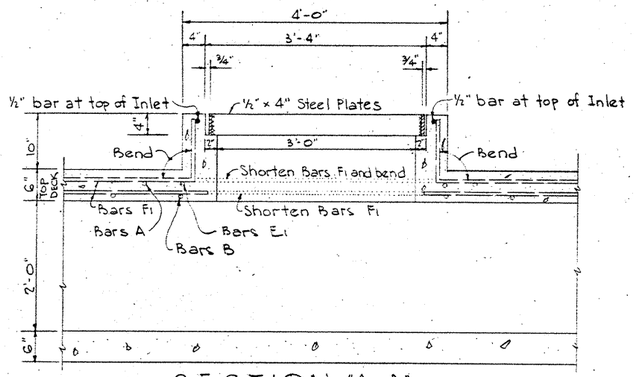
REVISED OCTOBER, 1945

PLAN NOTE BOOK

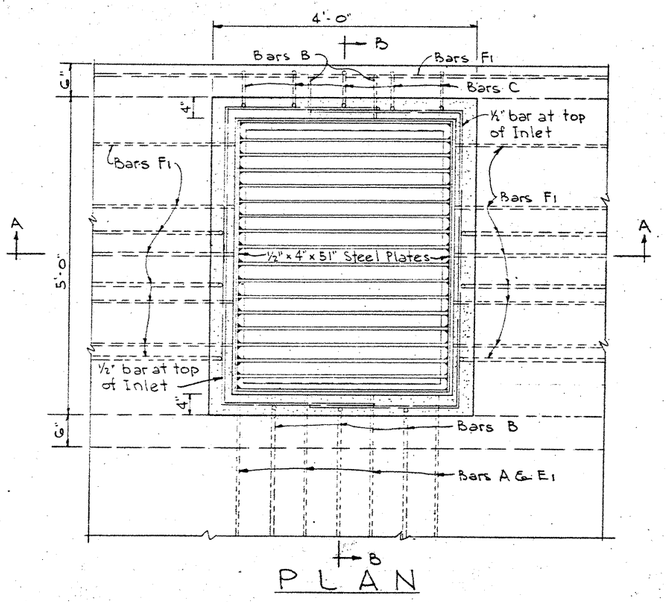
PROFILE NOTE BOOK NO.

9-22-39

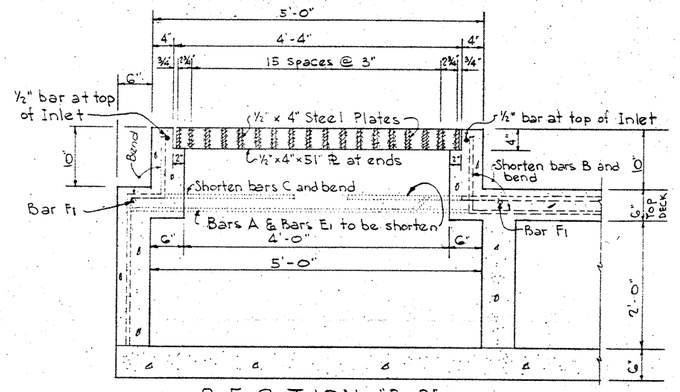
June 1939



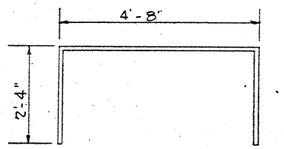
SECTION "A-A"



PLAN



SECTION "B-B"



½" BAR AT TOP OF INLET

ESTIMATED QUANTITIES

DESCRIPTION	CL "A" CONC. C.Y.	REINF. STEEL LBS	GRATE INLET EACH
2-5'x2'x126' MBC.	69.47	10,060	1
4-Wingwalls, H=2'	2.16	236	
TOTALS	71.63	10,296	1

GENERAL NOTES

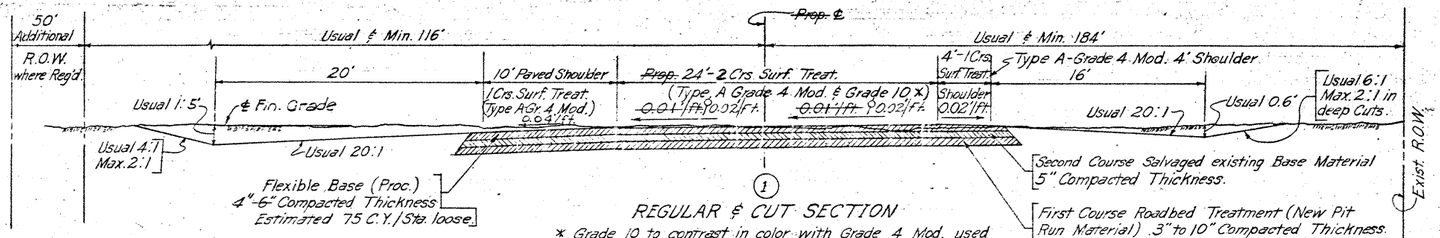
Reinforcing in top deck of 2-5'x2', MC5-1, shall be modified to fit into opening for Grate Inlet as shown on details.

Two bars, 9'-4" long shall be put at top of inlet, as shown on detail

FIELD CHANGE NO. 1
DETAILS OF GRATE INLET FOR 2-5'x2' MULTIPLE BOX CULVERT

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-IG5(IG)				70
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	4		U.S.81

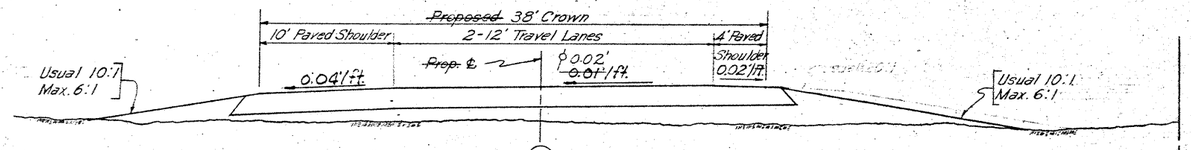
146



1

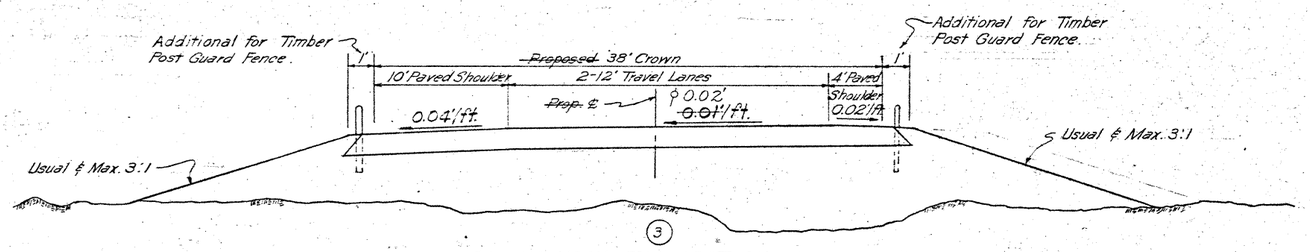
REGULAR ℄ CUT SECTION

* Grade 10 to contrast in color with Grade 4 Mod. used on shoulders. (Same color may be used for Grade 4 Mod. in center ℄ shoulders.)



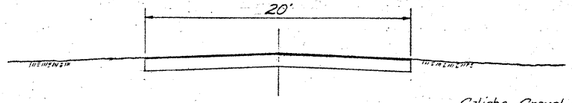
2

LOW FILL SECTION



3

HIGH FILL SECTION



EXIST. ASPHALT PAVEMENT

Caliche Gravel Base Ave. Thickness Approx. 12".

GENERAL NOTES:
See Special Provision for Pavements and Surface Treatment which requires a contrasting color of Aggregate used for Shoulder and Travel Lanes on This Project.

℄ Note:
Slope of Roadway changed due to Field Change No. 2.

TYPICAL CROSS SECTIONS

RECONSTRUCTING EXISTING ROADWAY & BASE
TYPICAL SECTION "B"

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			1A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	3-4	9	US-81

SUMMARY OF SMALL STRUCTURES

PLAN & PROFILE SHEET NO.	STATION	DESCRIPTION OF EXISTING STRUCTURE	DESCRIPTION OF PROPOSED STRUCTURE: DESIGN	LENGTH OF EXT.*	UNCLASSIFIED STRUCT. EXCAV. C.Y. EST.	UNCLASSIFIED STRUCT. EXCAV. C.Y. FINAL			CLASS 'A' CONC. FOR EXT. STRUCTURES C.Y. EST.	CLASS 'A' CONC. FOR EXT. STRUCTURES C.Y. FINAL	REINFORCING STEEL LBS. EST.	REINFORCING STEEL LBS. FINAL	STANDARD REINF. CONC. PIPE 24", L.F. EST.	STANDARD REINF. CONC. PIPE 24", L.F. FINAL	CLASS 'B' CONC. RIPRAP C.Y. EST.	CLASS 'B' CONC. RIPRAP C.Y. FINAL	GRATE & FRAME EA. EST.	GRATE & FRAME EA. FINAL	CL. 'B' CONC. SUP. AGRE. C.Y. EST.	CL. 'B' CONC. SUP. AGRE. C.Y. FINAL
CONTROL 18-4-9																				
11	698+00		24"×48' Concrete Pipe Culvert - No Headwalls		13								48							
12	Opp. 718+45		2-18"×56' Concrete Pipe Culvert - with CH-11-B Headwalls		44		1.55				172		132.00							
12	725+00		2-24"×56' Concrete Pipe Culvert with CH-11-B Headwalls		44		2.46				239				112					
13	735+00		3-24"×88' Concrete Pipe Culvert with CH-11-B Headwalls		150		3.32				304				264					
13	742+38		5'×2'×82' Conc. Box Culvert-30°Lt. Fwd.Skew, SC30°A Mod., FW-30°Wing Rt. & Spl. Wing Lt.		97		29.04				4,505									
13	746+35.4	5'×2'-6"×130'-10½" Box Culvert, NC-7 Mod.	Widen 23' on Left side with 5'×2'-6" Box Culvert, Special Design	23'-0"	24		4.85		7.11		1,408									
13	746+57.2		18"×77'-3" Conc. Pipe Culvert-18°Rt. Fwd. Skew, Spl. Wing on Left & Drop Inlet on Right		31		0.61				58		78				1			
13	747+07.5		18"×114'-8" Conc. Pipe Culvert-30°Rt. Fwd. Skew, Spl. Wing on Left & CH-11-B Hdwll. on Rt.		67		1.62				185		117							
13	Lt of 747+69.8		18"×151' Conc. Pipe Culvert - Special Side Drain with CH-11-B-15° Headwall		150		1.12				120		151.00				1			
14	754+60		2-5'×4'×52' Multiple Box Culvert-45°Lt. Fwd. Skew, MC5-1-45° Special		212		56.11				7356									
14	763+00		2-5'×4'×52' Multiple Box Culvert-45°Lt. Fwd. Skew, MC5-1-45° Special		183		56.11				7,356									
14	767+15		18"×63' Concrete Pipe Culvert-30°Lt. Fwd. Skew with CH-11-B-30° Headwalls		35		1.20				138		63.00							
16	775+00		3-24"×52' Concrete Pipe Culvert with CH-11-B Headwalls		58		3.32				304				156					
13	1188+60	24"×44'-1" Vitrified Clay Pipe Culvert with CH-7-B Headwalls **	Widen 12' on Right Side with 24" Concrete Pipe & CH-11-B Headwall	11'-4"	2	1			0.81	0.81	88	88			12	12.46				
21	1391+74.5	4'×2'×42' Box Culvert, C-7	Widen to 60' Clear Roadway with SCL & FW-N																	
23	1437+19.8	4'×2'×42' Box Culvert, C-7	Widen to 63' Clear Roadway with SCL & FW-N																	
			CONTROL 18-4-9 TOTALS		2	1			0.81	0.81	88	88			12	12.46				
CONTROL 18-3-9																				
23A	1530+93.0	3-4'×4'×34' Multiple Box Culvert, MBC-5	Widen to 38' Cl. Rdwy. with MC4-1 Special & MCW-F1	3'-8"	3	6			5.93	6.03	841	847							4.2	4.32
26A	1607+49.9	2-8'×3'×34'-7" Multiple Box Culvert, C-6	Widen to 43' Cl. Rdwy. with MC8-1 Mod. & MCW-F1	8'-6"	15	17			11.68	11.29	1425	1526			10.7	8.05				
27A	1630+54.1	4'×2'×42' Box Culvert, C-7	Widen to 45' Cl. Rdwy. with 4'×2' SCL & FW-N	3'-0"	1	2			1.77	1.97	2.91	294								
30A	1718+30.8	8'×3'×42' Box Culvert, C-7	Widen to 49' Cl. Rdwy. with 8'×4' SCL Mod. & 7'×3' FW-N Mod.	7'-6"	7	5			6.87	6.94	1089	1089								
32A	1767+84.6	8'×2'×42' Box Culvert, C-7	Widen to 45' Cl. Rdwy. with 8'×4' SCL Mod. & 5'×2' FW-N Mod.	3'-0"	3	4			3.39	3.47	567	571								
33A	1783+43.7	10'×2'×42'-1" Box Culvert, C-7	Widen to 47' Cl. Rdwy. with 10'×5' SCL Mod. & 5'×2' FW-N Mod.	5'-0"	4	5			5.80	5.75	1084	1063								
35A	1831+82.9	10'×4'×42'-1" Box Culvert, C-7	Widen to 47' Cl. Rdwy. with 10'×5' SCL Mod. & 8'×4' FW-N Mod.	5'-0"	6	10			8.61	8.47	1332	1324								
40A	1874+38.0	4-4'×4'×34' Multiple Box Culvert, MBC-9	Widen to 42' Cl. Rdwy. with MC4-1 Special & MCW-F1	8'-0"	12	16			13.68	11.83	1658	1664			13.7	9.14				
			TOTALS		51	65			57.73	56.01	8287	8378			24.4	17.19			4.2	4.32

** Payment for removing existing headwall & end pipe, grouting, cleaning, etc. involved in the extension of exist. vitrified clay pipe culvert shall be included in the unit bid price per cubic yard for Cl. 'A' Conc. for Ext. Structures.

SUMMARY OF LARGE STRUCTURES

PERMANENT BRIDGE NUMBER	SHEET NUMBER PLAN & PROFILE	SHEET NUMBER LAYOUT	STATION BEGIN	STATION END	LENGTH FEET	DESCRIPTION OF EXISTING STRUCTURE	DESCRIPTION OF PROPOSED STRUCTURE: DESIGN	LENGTH OF EXT.*	UNCLASSIFIED STRUCT. EXCAV. C.Y. EST.	UNCLASSIFIED STRUCT. EXCAV. C.Y. FINAL	CLASS 'A' CONCRETE FOR EXTENDING STRUCTURES, C.Y. SLABS EST.	SLABS FINAL	SLABS & GIRDERS EST.	SLABS & GIRDERS FINAL	ABUTMENTS & BENTS EST.	ABUTMENTS & BENTS FINAL	CULVERTS EST.	CULVERTS FINAL	REINFORCING STEEL LBS. EST.	REINFORCING STEEL LBS. FINAL	CL. 'B' CONC. RIPRAP C.Y. EST.	CL. 'B' CONC. RIPRAP C.Y. FINAL	RAILING, L.F. TYPE 2 EST.	RAILING, L.F. TYPE 2 FINAL	RAILING, L.F. SPECIAL † EST.	RAILING, L.F. SPECIAL † FINAL	CL. 'B' CONC. SUP. AGRE. C.Y. EST.	CL. 'B' CONC. SUP. AGRE. C.Y. FINAL
CONTROL 18-4-9																											
31	7A	43A	1103+42.90	1103+96.90	54.00	3-16' Cl. Spans, CB-6, 23°Rt. Fwd. Skew, 34' Cl. Rdwy.	Widen to 38' Cl. Roadway, Special Design	3'-10"	64	61	14.67	14.44			30.37	28.54			6620	6629			62.50	62.50	62.50	62.50	16.6	19.19
30	9A		1154+41.40	1154+64.73	23.33	2-10'×7'×34' Multiple Box Culvert, C-6	Widen to 38' Cl. Roadway with MC10-1 Mod. & MCW-F2	4'-4"	14	10							14.10	14.27	1603	1603	64-2	32.97					9.0	13.82
29	10A	44A	1177+50.60	1177+82.68	32.08	2-14' Cl. Spans, CB-6, 34' Cl. Rdwy.	Widen to 39' Cl. Roadway, Special Design	5'-3"	37	68	10.16	10.48			18.54	18.54			3298	3298			43.75	43.75	40.88	43.75	7.3	13.43
28	12A		1253+18.80	1253+41.88	23.08	2-10'×8'×34' Multiple Box Culvert, C-6	Widen to 38' Cl. Roadway with MC10-1 Mod. & MCW-F2	3'-9"	12	11							15.01	14.95	1634	1675	14.0	11.88					5.3	12.30
	15A	44A	✧℄ 1316+10.2			1-20' Cl. Span, CB-6, 34' Cl. Rdwy.	Widen to 38' Cl. Roadway, Special Design	4'-0"	31	83	6.96	6.85			29.75	29.75			4815	4815			31.25	31.25	31.04	31.25	4.8	9.18
26	15A		1325+00.00	1325+23.17	23.17	2-10'×7'×34' Multiple Box Culvert, C-6	Widen to 38' Cl. Roadway with MC10-1 Mod. & MCW-F2	3'-11"	10	10							13.49	13.49	1502	1496	13.8	12.15					7.0	9.19
25	16A	45A	1354+26.20	1354+62.20	36.00	2-16' Cl. Spans, CB-6, 34'-2" Cl. Rdwy.	Widen to 38' Cl. Roadway, Special Design	4'-0"	31	69	10.01	10.09			25.26	23.47			4472	4472			43.75	43.75	44.83	43.75	10.2	9.49
24	22		1411+10.60	1411+44.68	34.08	6-5'×5'×33'-11" Multiple Box Culvert, MBC-5	Widen to 60' Cl. Roadway with MC5-2 Mod. & MCW-F1																						
			✧✧ TOTALS		199	312	41.80	42.06					103.92	100.50	42.60	42.71	23,944	23,988	92.0	57.00	181.25	181.25	179.25	181.25	60.2	93.00
CONTROL 18-3-9																											
23	24A	45A	1556+02.20	1556+37.12	34.92	1-32' Cl. Span, G-266 Conc. Girder Span, 34' Cl. Rdwy.	Widen to 38' Cl. Roadway, Special Design	3'-9"	53	112			8.45	8.52	33.93	30.55			6280	6283			43.75	43.75	43.92	43.75	7.8	5.14
22	25A	46A	1574+15.10	1574+43.85	28.75	1-26' Cl. Span, G-265 Conc. Girder Span, 33'-11" Cl. Rdwy.	Widen to 38' Cl. Roadway, Special Design	3'-11"	39	81			6.19	6.25	29.39	27.65			5450	5502			37.50	37.50	31.75	37.50	5.1	12.88
21	28A	46A	1657+80.40	1658+06.73	26.33	1-24' Cl. Span, G-265 Conc. Girder Span, 34' Cl. Rdwy.	Widen to 38' Cl. Roadway with Simple Slab Span, Spl. Design	4'-0"	32	87	8.89	9.40			34.51	34.51			5705	5705			37.50	37.50	35.25	37.50	7.4	13.05
20	28A	47A	1667+49.20	1667+85.20	36.00	2-16' Cl. Spans, CB-6, 34' Cl. Rdwy.	Widen to 38' Cl. Roadway, Special Design	3'-9"	45	116	9.59	9.42			37.81	34.96			5976	5976			43.75	43.75	45.00	43.75	8.7	2.005
19	29A	47A	1676+11.10	1676+43.10	32.00	2-14' Cl. Spans, CB-6, 34' Cl. Rdwy.	Widen to 38' Cl. Roadway, Special Design	3'-6"	31	65	7.93	8.51			22.20	22.37			3704	3704	46.3	35.44	43.42	43.42	40.92	43.42	8.2	8.35
18	36A	48A	1858+32.00	1858+91.67	59.67	3-18' Cl. Spans, CB-6, 34' Cl. Rdwy.	Widen to 38' Cl. Roadway, Special Design	4'-0"	59	131	17.12	16.75			27.79	27.75			5746	5746			68.75	68.75	68.50	68.75	8.7	8.48
17	38A	49A	1907+30.40	1907+74.40	44.00	2-20' Cl. Spans, CB-6, 34' Cl. Rdwy.	Widen to 38' Cl. Roadway, Special Design	4'-0"	49	106	13.84	13.27			25.57	23.94			4939	4939			55.75	55.75	52.96	55.75	5.1	5.23
16	39A		1952+96.80	1953+24.20	27.40	6-4'×4'×33'-11" Multiple Box Culvert, MBC-9	Widen to 39' Cl. Roadway with MC4-1 Special & MCW-F1	5'-0"	6	7							11.47	11.43	1667	1673							6.8	6.72
15	41A	49A	1996+30.60	1996+78.43	47.83	3-14' Cl. Spans, CB-6, 34' Cl. Rdwy.	Widen to 38' Cl. Roadway, Special Design.	4'-6"	34	44	13.71	13.14			27.03	27.14			4954	4954	59.3	71.47	62.50	62.50	56.83	62.50	13.7	13.67
			TOTALS		348	749	71.08	70.49	14.64	14.77	238.23	228.87	11.47	11.43	44,361	44,482	105.6	106.91	392.92	392.92	381.13	392.92	71.5	93.79

* All extensions to be made on the right side only.

✧ Quantities for this structure is listed under Roadway Quantities in Estimate Summary.

✧✧ TOTALS includes Roadway and Bridge Quantities.

† For Special Railing Details see Bridge Layout - Sta. 1103+42.90 to Sta. 1103+96.90

ESTIMATE & QUANTITY SHEET

SHEET 1 OF 3 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-165(14)	2A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	3-4	9	U.S. 81

SUMMARY OF GRADING

PLAN & PROFILE SHEET NO.	STATION TO STATION	CLEARING & GRUBBING ACRE EST.	CLEARING & GRUBBING ACRE FINAL	UNCLASSIFIED ROADWAY EXCAV C.Y. EST.	UNCLASSIFIED ROADWAY EXCAV C.Y. FINAL	UNCLASSIFIED CHANNEL EXCAV. C.Y. EST.	UNCLASSIFIED CHANNEL EXCAV. C.Y. FINAL	SALVAGING & REPL. FLEX. BASE STA. EST.	SALVAGING & REPL. FLEX. BASE STA. FINAL	STABILIZED SUBGRADE	UNCLASSIFIED BORROW EXCAV. C.Y.		OVERHAUL
CONTROL 18-4-9													
10	~~2293+00 To 2311+58.6~~	5.13		179						5.000			
11	687+00 To 701+00	2.81		185		82							
12	701+00 To 727+00	20.86		35,270		~~30~~				34.200			
13	727+00 To 753+00	~~15.89~~		18,203		380				~~11.954~~	5,011		
14	~~753+00 To 779+00~~	9.72		3,560		3,281				24.300			
5 A	1065+216 To 1072+00	4.02	4.02	92	11			3.814	3.81		380		0
6 A	1072+00 To 1098+00	11.94	11.94	12.95	3278			26	26		12,201		610
7 A	1098+00 To 1124+00	11.94	11.94		1421			13	13		11,810		0
8 A	1124+00 To 1150+00	11.94	11.94		525			2	2		12,133		0
9 A	1150+00 To 1176+00	11.94	11.94	3,780	3992			26.	26		12,051		1292
10 A	1176+00 To 1202+00	11.94	11.94	4,889	4245			26	26		11,984		425
11 A	1202+00 To 1228+00	11.94	11.94	1,490	2954			26.	26		12,133		1164
12 A	1228+00 To 1254+00	12.12	11.94	6,143	4398			26.	26		12,026		0
13 A	1254+00 To 1280+00	11.94	11.94	5,473	3682			26.	26		12,133		237
14 A	1280+00 To 1306+00	11.94	11.94	1,550	4130			26.	26		12,133		0
15 A	1306+00 To 1332+00	11.94	11.94	2,885	2441			26.	26		6,430		830
16 A	1332+00 To 1358+00	11.94	11.94	4,559	3085			26	26				5539
17 A	1358+00 To 1384+00	11.94	11.94	3,592	5317			26	26				0
18 A	1384+00 To 1410+00	11.94	11.94		0			8	8				0
19 A	1410+00 To 1436+00	8.78	8.78		0								0
20 A	1436+00 To 1462+00	11.94	11.94		817			13	13				0
21 A	1462+00 To 1488+00	11.94	11.94	2,752	4245			26.	26				65
22 A	1488+00 To 1499+16	5.13	5.13	1,422	1412			11.16	11.16				0
CONTROL 18-3-9													
22 A	1499+16 To 1514+00	6.81	6.81	985	1665			14.84	14.84				0
23 A	1514+00 To 1540+00	5.87	5.87	1,955	2249			26.	26				12,069
24 A	1540+00 To 1566+00	7.35	7.35	3,930	10,102			26.	26				1205
25 A	1566+00 To 1592+00	11.94	11.94	3,157	3151			26.	26				0
26 A	1592+00 To 1618+00	11.63	11.63	7,091	6878			26	26				7545
27 A	1618+00 To 1644+00	11.94	11.94	4,326	4863			26	26				599
28 A	1644+00 To 1670+00	11.94	11.94	2,797	2214			26	26				0
29 A	1670+00 To 1696+00	11.94	11.94	4,457	5595			26.	26				6166
30 A	1696+00 To 1722+00	11.94	11.94	719	4156			26.	26				380
31 A	1722+00 To 1748+00	11.94	11.94	13,398	10,641			26.	26				3679
32 A	1748+00 To 1774+00	12.28	11.94	2,408	1580			26	26				0
33 A	1774+00 To 1800+00	11.94	11.94	2,115	1131			26	26				0
34 A	1800+00 To 1826+00	11.94	13.09	2,802	1509			26.	26			10,469	10,169
35 A	1826+00 To 1852+00	10.37	10.37	2,777	2531			26.	26				8722
36 A	1852+00 To 1878+00	0	0	8,001	6424			26	26				0
37 A	1878+00 To 1904+00	4.94	4.94	3,291	3333			26	26				4662
38 A	1904+00 To 1930+00	9.49	9.49	2,357	7295			26.	26				5895
39 A	1930+00 To 1956+00	3.67	3.67	3647	5263			26	26				3258
40 A	1956+00 To 1982+00	0	0	4084	3517			26.	26				705
41 A	1982+00 To 2008+00	9.63	10.55	2734	2417			43.5	43.50			3082	8063
TOTALS		376.77	376.32	123014	132,467			863.314	843.31		115,414	13,551	83,279

SUMMARY OF SIDE DRAINS

PLAN & PROFILE SHEET NO.	STATION	DESCRIPTION	UNCLASSIFIED STRUCT. EXCAV. C.Y. EST.	UNCLASSIFIED STRUCT. EXCAV. C.Y. FINAL	CLASS "A" CONCRETE C.Y. EST.	CLASS "A" CONCRETE C.Y. FINAL	REINFORCING STEEL LBS. EST.	REINFORCING STEEL LBS. FINAL	18" STD REINF. CONC. PIPE L.F. EST.	18" STD REINF. CONC. PIPE L.F. FINAL
CONTROL 18-4-9										
10	44' Lt of 1123+12	18"x 21' Conc. Pipe Culvert, with CH-11-B Hdwls	4		1.00		129		21	
24	44' Lt. of 1469+09	18"x 21' Conc. Pipe Culvert with CH-11-B Hdwls.	4		1.00		129		21	
CONTROL 18-3-9										
26	44 Rt. of 1525+42	18"x 36' Conc. Pipe Culvert with CH-11-B Hdwls.	6		1.00		129		36	
26	44' Rt. of 1526+80	18"x 21' Conc. Pipe Culvert with CH-11-B Hdwls.	4		1.00		129		21	
36	44 Rt. of 1862+00	18"x 21' Conc. Pipe Culvert with CH-11-B Hdwls.	4		1.00		129		21	

REMOVING OLD STRUCTURES

PLAN & PROFILE SHEET NO.	STATION	DESCRIPTION
CONTROL 18-4-9		
~~10~~	~~35' Lt of 1123+38~~	~~30"x 56' C.G.M. Pipe Culvert, No Headwalls~~
~~11~~	~~41' Lt of 1132+78~~	~~30"x 80' C.G.M. Pipe Culvert with CH-7-B Headwalls~~
21A	44' Lt. of 1469+10	36"x 20' C.G.M. Pipe Culvert, No Headwalls
18A	1391+74.5	4'x 2'x 42' Box Culvert C-7
19A	1411+10.60 to +44.68	6-5'x 5'x 33'-11" Multiple Box Culv. MBC-5
CONTROL 18-3-9		
36A	30' Rt. of 1862+00	30" x 20' C.G.M. Pipe Culvert with CH-7-B Headw.

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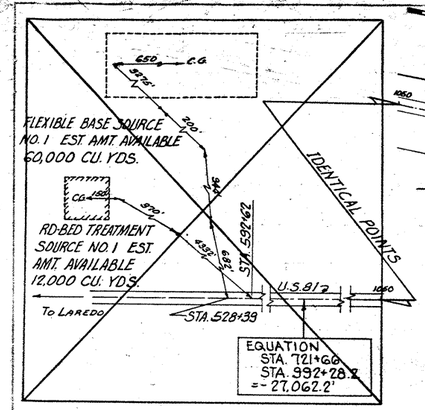
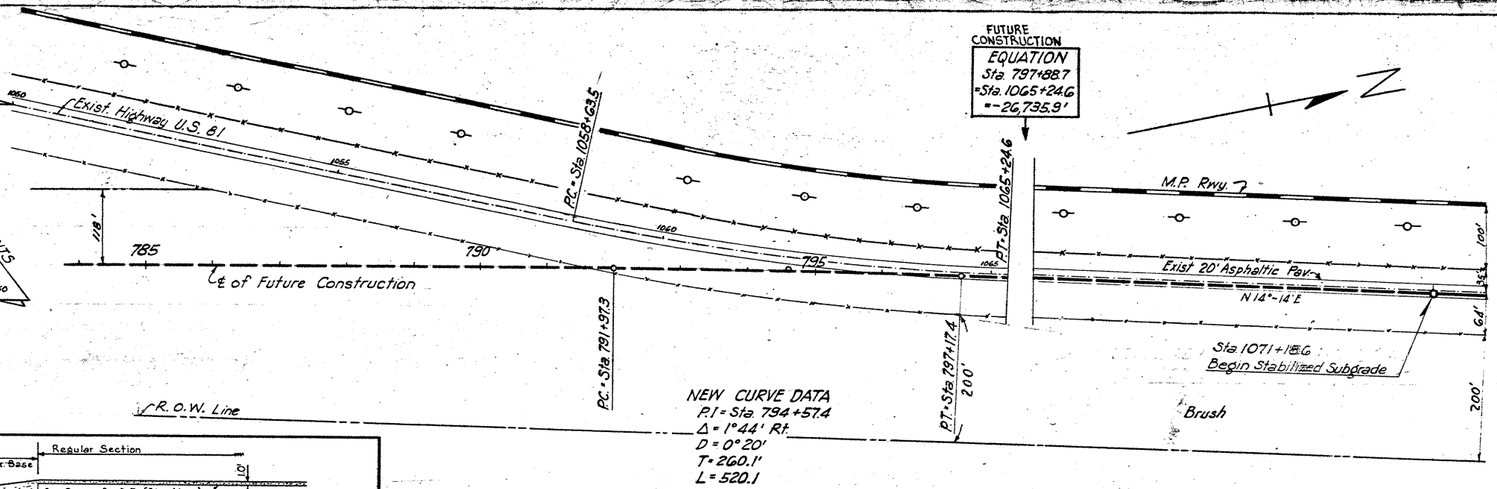
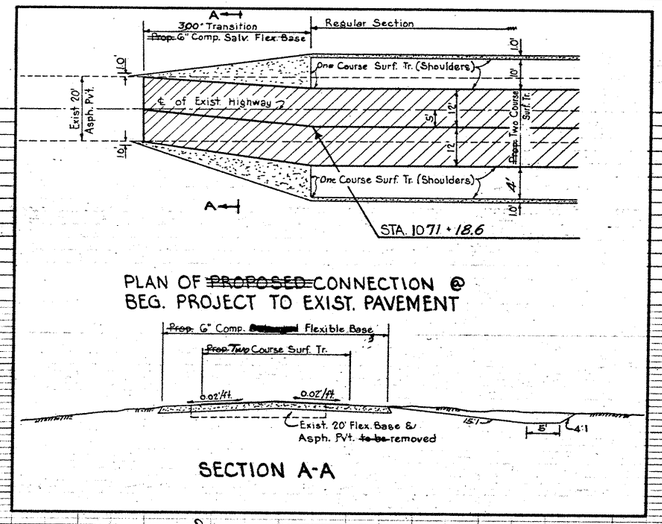
ESTIMATE & QUANTITY SHEET

SHEET 2 OF 3 SHEETS

DIST.	STATE	FEDERAL PROJECT NO.	SHEET NO.
18	TEXAS	F-165(14)	3-A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	3-4	9	US-81







CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
~~779~~	2	2	0	13	44	15	0	2	2		7
~~780~~	"	"	"	"	"	"	"	"	"		7
~~81~~	"	"	"	"	"	"	"	"	"		7
~~82~~	"	"	"	"	"	"	"	"	"		7
~~83~~	"	"	"	"	"	"	"	"	"		7
~~84~~	"	"	"	"	"	"	"	"	"		7
~~785~~	"	5	"	"	"	"	"	"	"		7
~~86~~	4	"	"	"	"	"	"	"	"		7
~~87~~	"	"	"	"	"	"	"	"	"		7
~~88~~	"	"	"	"	"	"	"	"	"		7
~~89~~	"	"	"	"	"	"	"	"	"		7
~~790~~	"	"	"	"	"	"	"	"	"		7
~~91~~	"	"	"	"	"	"	"	"	"		6
~~92~~	"	"	"	"	"	"	"	"	"		6
~~93~~	"	"	"	"	"	"	"	5	2	4	6
~~94~~	"	"	"	"	"	"	"	"	"		6
~~795~~	"	"	"	"	"	"	"	"	"		6
~~96~~	"	"	"	"	"	"	"	"	"		6
~~797~~	4	"	"	"	"	"	"	"	"		6
1066			15	44	15						1
67			"	"	"						1
68			"	"	"						1
69			"	"	"						1
1070			"	"	"						1
71	4	1	6	0	"	"	10	2	6	2	1
1072	"	"	"	"	"	"	"	"	"	"	1

SHEET TOTALS	EST	FINAL	UNIT	
		380	S.Y.	Stabilized Subgrade
	~~4.03~~	4.02	Acre	Clearing & Grubbing
	~~3814~~	381	Sta.	Salvaging & Replacing Flex. Base
				~~WEST SIDE~~
	~~53~~ 11	~~53~~	CY.	Uncla. Roadway Excav.
	~~0~~ 92	~~0~~	92 CY.	Embank. + Shr.
				~~EAST SIDE~~
	~~39~~	~~39~~	CY.	Uncla. Roadway Excav.
	~~225~~	~~225~~	CY.	Embank. + Shr.
			CY.	Uncla. Chan. Excav.
			CY.	Uncla. Roadway Excav.
			CY.	Embank.

81.4 x 42 ÷ 9
(815.4) (200') = 4.02 Ac.
3.81 Sta.

11
92

Base Line

Scale: 1" = 1,000 cy

118.6

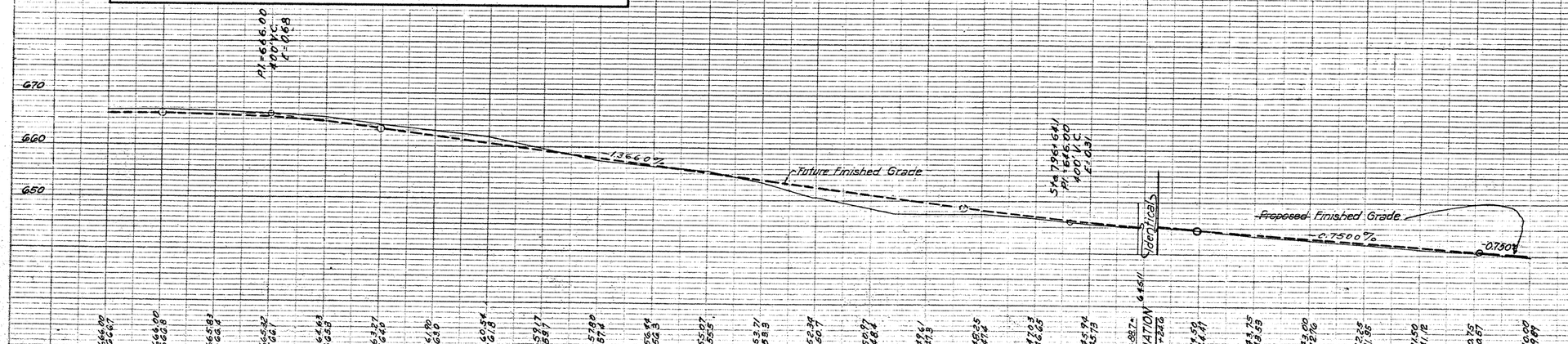
NOTES:-

Unless otherwise shown all the obstructions within the Right-of-Way shall be removed by others.

All elevations are based on U.S.C. & G.S. Datum.

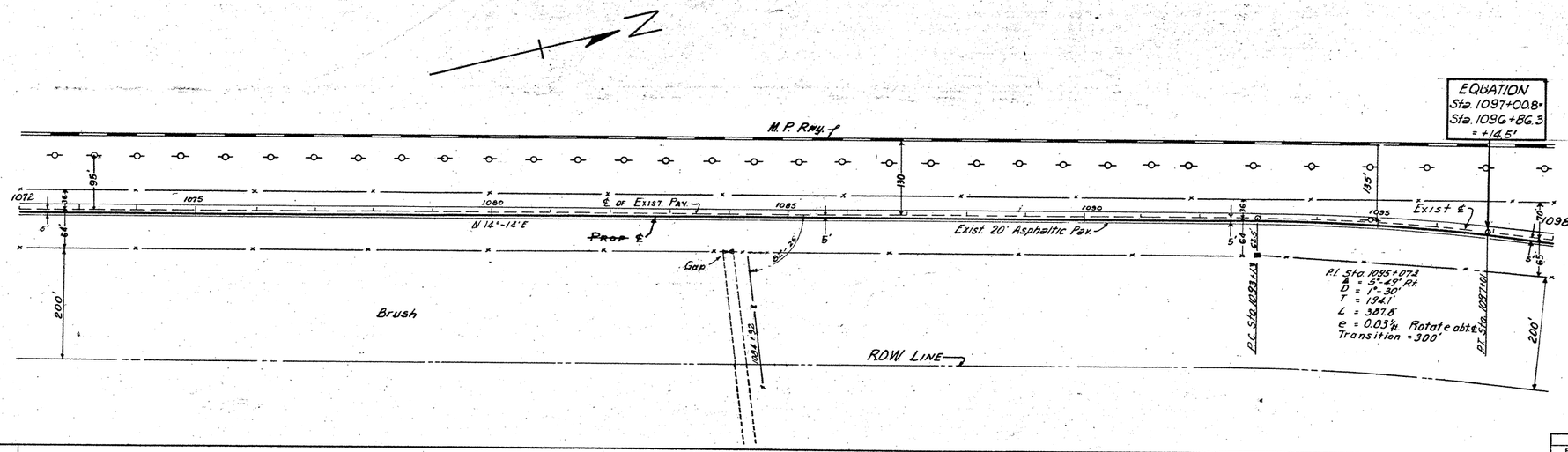
B.M. Nail in Telephone Pole 158' Lt of ℄ Sta. 791+15
Elev. - 638.29

B.M.- Nail in Telephone Pole 75' Lt of ℄ Sta. 796+50
Elev. - 644.06



STATE	ROUTE	SHEET
TEXAS	I-165(4)	5-A
COUNTY		
21 WEBB	18 3-A 9	US-83

25

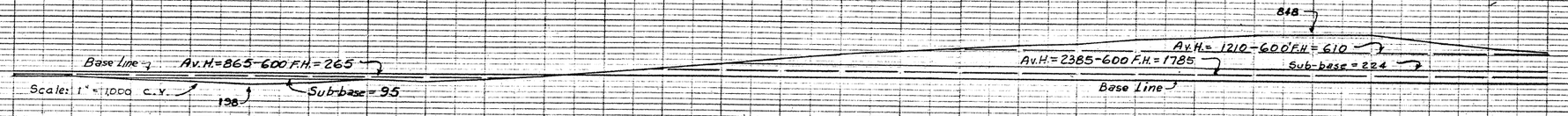


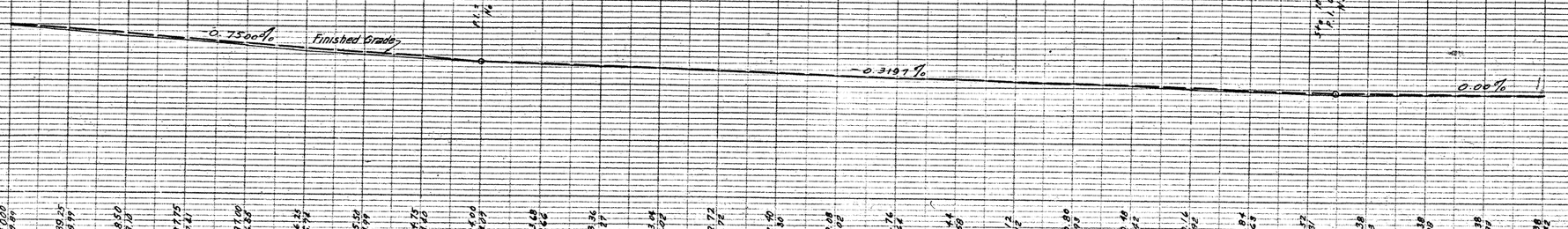
CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL SECTION
1072	4	1.6		1.5	44	1.5	1.0	2.6	2		1
73	"	"	0	"	"	"	"	"	"		1
74					"	"	"	"	"		1
1075	4	1.6	0	"	"	"	"	"	"		1
76	"	"	"	"	"	"	"	"	"		1
77				"	"	"	"	"	"		1
78	4	1.6	0	"	"	"	"	"	"		1
79				"	"	"	"	"	"		1
1080	4	1.6	0	"	"	"	"	"	"		3
81	"	"	"	"	"	"	"	"	"		3
82	"	"	"	"	"	"	"	"	"		3
83	"	"	"	"	"	"	"	"	"		3
84	"	"	"	"	"	"	"	"	"		3
1085	"	"	"	"	"	"	"	"	"		3
86	"	"	"	"	"	"	"	"	"		3
87				"	"	"	"	"	"		3
88	4	1.6	0	"	"	"	"	"	"		3
89	"	"	"	"	"	"	"	"	"		3
1090	"	"	"	"	"	"	"	"	"		3
91	"	"	"	"	"	"	"	"	"		3
92	"	"	"	"	"	"	"	"	"		3
93	"	"	"	"	"	"	"	"	"		3
94	"	"	"	"	"	"	"	"	"		3
1095	"	"	"	"	"	"	"	"	"		2
96				"	"	"	"	"	"		2
97	4	1.6	0	"	"	"	"	"	2		2
1098	"	1.3	5	"	"	"	"	"	"		3

	EST.	FINAL	UNIT	
SHEET TOTALS				
		12,201	S.Y.	Stabilized Subgrade
2600' x 200' = 11.94 Ac.	~~11.94~~	11.94	Acre	Clearing & Grubbing
2614.5 x 42 ÷ 9	~~26~~	26.	Sta.	Salvaging & Replacing Flexible Base
				WEST SIDE
~~53~~ 102 ~~42~~ 89 ~~46~~ 89 ~~111~~ 74 ~~94~~ 123 ~~57~~ 135 ~~37~~ 94 ~~90~~ 140 ~~103~~ 167 ~~92~~ 157 ~~116~~ 162 ~~141~~ 156 ~~135~~ 220 ~~150~~ 149 ~~136~~ 155 ~~109~~ 149 ~~101~~ 152 ~~98~~ 152 ~~98~~ 151 ~~77~~ 132 ~~68~~ 114 ~~77~~ 118 ~~103~~ 110 ~~88~~ 28 ~~85~~ 57 ~~137~~ 103 ~~129~~ 3278			CY	Unclassified Roadway Excavation
~~0~~ 112 ~~3~~ 118 ~~3~~ 118 ~~3~~ 123 ~~14~~ 82 ~~20~~ 73 ~~11~~ 114 ~~3~~ 111 ~~0~~ 93 ~~0~~ 87 ~~0~~ 79 ~~0~~ 85 ~~0~~ 95 ~~0~~ 67 ~~0~~ 78 ~~0~~ 93 ~~0~~ 89 ~~0~~ 93 ~~0~~ 75 ~~0~~ 73 ~~0~~ 96 ~~0~~ 112 ~~11~~ 135 ~~11~~ 165 ~~0~~ 157 ~~52~~ 2620			CY	Embankment + Shrinkage
				EAST SIDE
~~43~~ ~~41~~ ~~43~~ ~~65~~ ~~67~~ ~~63~~ 60 ~~119~~ ~~141~~ ~~119~~ ~~106~~ ~~106~~ ~~107~~ ~~115~~ ~~102~~ ~~121~~ ~~118~~ ~~115~~ ~~115~~ ~~88~~ ~~62~~ ~~56~~ ~~63~~ ~~45~~ ~~51~~ ~~95~~ ~~666~~			CY	Unclassified Roadway Excavation
~~161~~ ~~108~~ ~~75~~ ~~36~~ ~~20~~ ~~11~~ 3 ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~6~~ ~~0~~ ~~0~~ 20 48 ~~33~~ ~~48~~ ~~65~~ ~~30~~ ~~116~~			CY	Embankment + Shrinkage
			CY	Unclassified Chan. Excav.
4710			CY	Uncl. Roadway Excav.
19.54 % Swell				
4710			CY	Embankment
O.H. = 610 x 624 + 1785 x 224 ÷ 1320 = 591 Y.Q.		610	YQ	Overhaul

O.H. = 265 x 95 ÷ 1320 = 19 Y.Q.



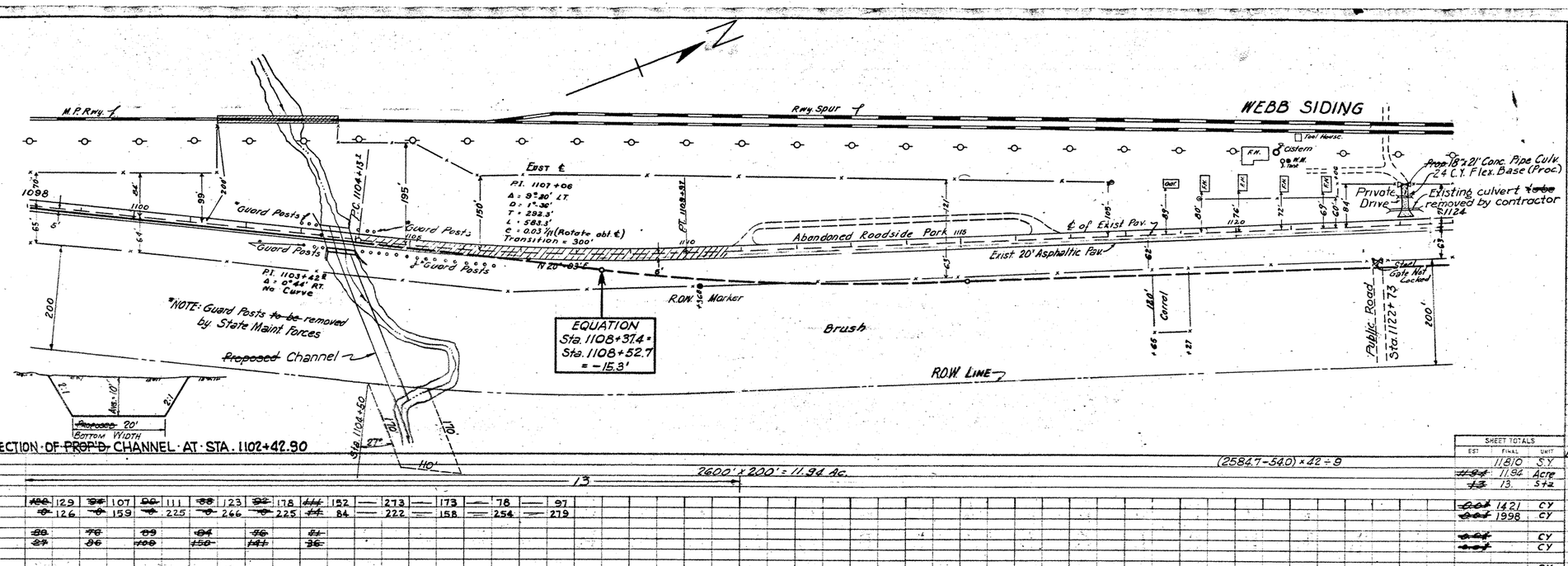


B.M.- Spike in telephone Pole 120' Lt. of Exist. & Sta. 1079+60 Elev. 633.61

B.M.- Spike in telephone Pole 100' Lt. of Exist. & Sta. 1093+60 Elev.

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
9	13 SAS	I-165 (16)	6-A
STATE PROJ. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.

151



~~100~~	129	~~96~~	107	~~90~~	111	~~88~~	123	~~90~~	178	~~111~~	152	—	273	—	173	—	78	—	97
~~0~~	126	~~0~~	159	~~0~~	225	~~0~~	266	~~0~~	225	~~11~~	84	—	222	—	158	—	254	—	279
~~80~~		~~76~~		~~89~~		~~94~~		~~56~~		~~81~~									
~~27~~		~~86~~		~~100~~		~~150~~		~~141~~		~~36~~									

CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO.
1098	4	1.3	3	15	44	15	1.0	2.6	2		2
99	"	"	"	"	"	"	"	"	"		2
1100	"	"	"	"	"	"					2
01	0	"	"	"	"	"					2
02			"	"	"	"					2
03			"	"	"	"					2
04			"	16	"	5					4
1105	4	1.5	0	16	"	1.0					2
06			"	"	"	"					2
07	4	1.6	0	"	"	"					2
08	"	"	"	"	"	"					2
09			"	"	"	1.5					2
1110			"	"	"	"					2
11	4	1.6	0	"	"	"					2
12				"	"	"					2
13				"	"	"					2
14				"	"	"	5	1.6	4		2
1115	4	1.6	0	"	"	"	"	"	"		2
16	"	"	"	"	"	"	"	"	"		2
17	"	"	"	"	"	"					2
18				"	"	"					4
19				"	"	"					4
1120				"	"	"					4
21				"	"	"					4
22				"	"	"					4
23				"	"	"					4
1124				"	"	"					4

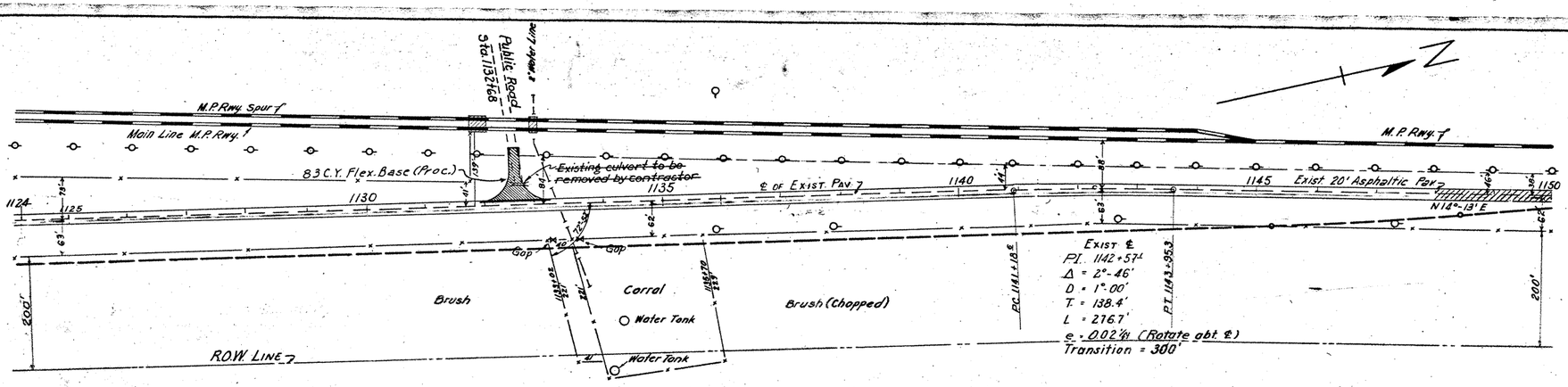
SHEET TOTALS EST	FINAL	UNIT	
	11810	S.Y.	Stabilized Subgrade
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~13~~	13.	Sta	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~600~~	1421	CY	Uncla. Roadway Excav.
~~1300~~	1998	CY	Embank. + Shr.
			~~EAST SIDE~~
~~0~~		CY	Uncla. Roadway Excav.
~~0~~		CY	Embank. + Shr.
		CY	Uncla. Channel Excav.
		CY	Uncla. Roadway Excav.
		CY	Embank.
		YQ	Overhaul

BM - NE. Corner of East Curb of Bridge Sta. 1103+89 Elev. 629.97

BM - Nail in telephone Pole 100' Lt of Exist. ℄ Sta. 1123+50 Elev. 627.91

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(4)			7-A
STATE DIST. NO.	COUNTY	CONTROL SECTION	JOB NO.		HIGHWAY NO.
21	WEBB	18	3-4	9	U.S. 81

152



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1124				1.5	44	1.5					4
1125				"	"	"					"
26				"	"	"					"
27	4	1.60		"	"	"					"
28				"	"	"					"
29				"	"	"					"
1130				"	"	"					"
31				"	"	"					"
32				"	"	"					"
33				"	"	"					"
34				"	"	"					"
1135				"	"	"					"
36				"	"	"					"
37				"	"	"					"
38				"	"	"					"
39				"	"	"					"
1140				"	"	"					"
41				"	"	"					"
42				"	"	"					"
43				"	"	"					"
44				"	"	"					"
1145				"	"	"					"
46				"	"	"					"
47				"	"	12					"
48				"	"	1.5					"
49				"	"	"					"
1150	4	1.65	10	"	"	"					"

2600' x 200' = 11.94 Ac.

2600 x 42 = 9

SHEET TOTALS EST	FINAL	UNIT	
	12783	SY	Stabilized Subgrade
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~2~~	2.	Sta.	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
137	211	177	525 CY Uncls. Roadway Excav.
445	347	287	1079 CY Embank. + Shr.
			~~EAST SIDE~~
			CY Uncls. Roadway Excav.
			CY Embank. + Shr.
			CY Uncls. Channel Excav.
137			CY Uncls. Roadway Excav.
			CY Embank.
445		0	YQ Overhaul

2 → 2

Base line

Scale 1" = 1000 cy

630
620
680
620

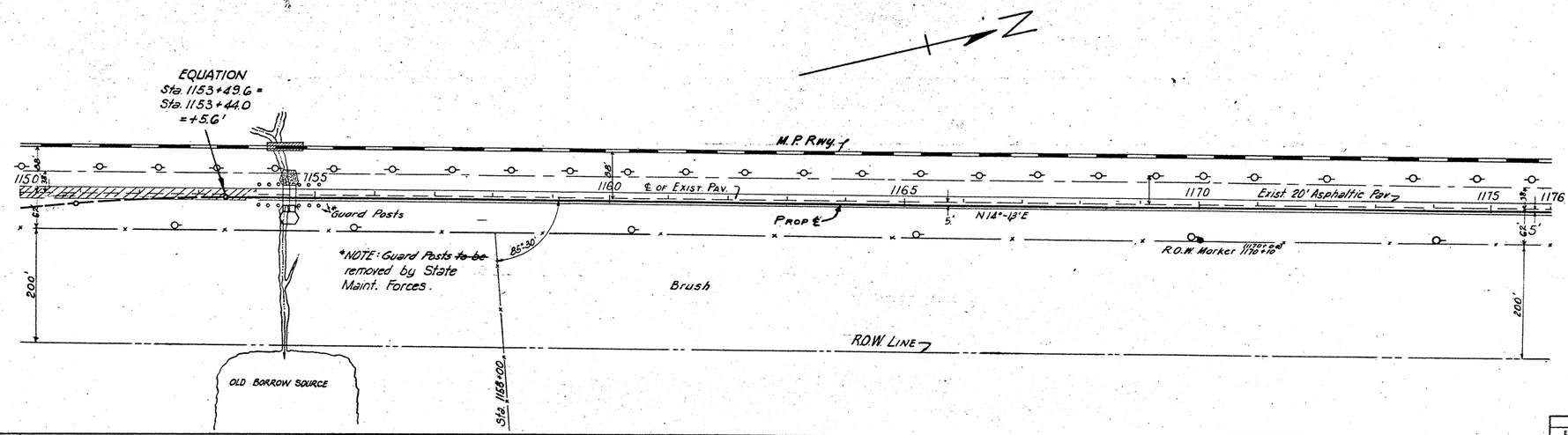
BM - NE. Corner of North Hdwl. of Drain Pipe Sta. 1132+80
Elev. 623.04

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	TEXAS	I-165(16)	B-A
		CONTROL SECTION JOB	HIGHWAY NO.

623.93 624.11 624.36 624.41 624.44 624.22 623.61 623.53 623.32 623.29 622.43 622.28 622.29 622.89 622.45 622.40 622.35 622.11 621.92 620.96 620.76 620.62 620.62 619.95 619.79 619.90 619.45 620.02 619.88 619.80

24 1125 26 27 28 29 1130 31 32 33 34 1135 36 37 38 39 1140 41 42 43 44 1145 46 47 48 49 1150

1-33



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO.
1150	4	1.6	5	10	44	1.6					2
51	"	"	"	"	"	"					N
52	"	"	0	1.6	"	"					N
53				"	"	"					2
54				"	4	"					N
1155				"	"	"					N
56				"	"	"					N
57		1.6	0	"	"	"					N
58	"	"	"	"	"	1					N
59	"	"	"	"	"	1.6					N
1160	"	"	"	"	"	"					N
61				"	"	"					4
62				"	"	"					4
63	4	1.3	0	"	"	"					4
64				"	"	1					N
1165				"	"	1					N
66	4	1.6	0	"	"	"					2
67	"	"	"	"	"	"					N
68				"	"	"					4
69				"	"	"					4
1170				"	"	"					4
71				"	"	"					N
72	4	1.6	0	"	"	"					N
73	"	"	"	"	"	1					N
74	"	"	"	"	"	"	5	1.6	4		3
1175	"	"	"	"	"	"	"	"	"		3
1176	"	"	"	"	"	"	"	"	"		3

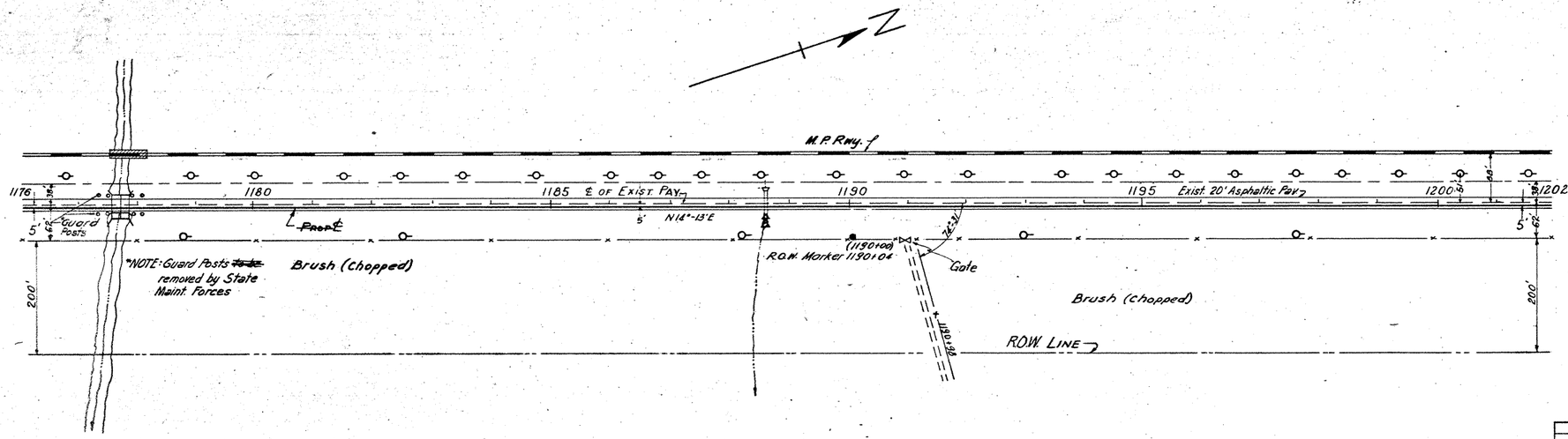
SHEET TOTALS EST.	FINAL	UNIT	
	1205	S.Y.	Stabilized Subgrade
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~26~~	26.	Sta	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~3182~~	3992	CY	Uncls. Roadway Excav.
~~4389~~	4389	CY	Embank.+ Shr.
			~~EAST SIDE~~
~~7598~~		CY	Uncls. Roadway Excav.
~~2007~~		CY	Embank. + Shr.
		CY	Uncls. Channel Excav.
		CY	Uncls. Roadway Excav.
		CY	Embank.
	1292	YQ	Overhaul

O.H. = 2385 X 48 ÷ 1280 X 359 ÷ 120 X 820 ÷ 1320 = 1292 Y.Q.

BM.- Spike in telephone Pole 60' Lt of Exist ℄ Sta. 1151+70 Elev. 617.91

BM.- Spike in telephone Pole 60' Lt of Exist ℄ Sta. 1167+75 Elev. 620.97

| | | | | |



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO
1176	2	1.6	0	1.5	44	1.6	5	1.6	4		3
77	"	"	"	"	"	"	"	"	"		3
78	"	"	"	"	"	"	"	"	"		3
79	"	"	"	"	"	"	"	"	"		3
1180	"	"	"	"	"	"	"	"	"		3
81	"	"	"	"	"	"	"	"	"		3
82	"	"	"	"	"	"	"	"	"		2
83	"	"	"	"	"	"	"	"	"		2
84	"	"	"	"	"	"	"	"	"		2
1185	"	"	"	"	"	"	"	"	"		2
86	"	"	"	"	"	"					2
87					"	"					4
88					"	"					4
89				1.0	"	"					4
1190				1.5	"	"					4
91				"	"	"					4
92	4	1.6	0	"	"	"					4
93	"	"	"	"	"	"					4
94	"	"	"	"	"	"					2
1195				"	"	"					4
96				"	"	"					4
97				"	"	"					4
1198				"	"	"					4
99	4	1.6	0	"	"	"					2
1200	"	"	"	"	"	"					2
01	"	"	"	"	"	"					2
1202	"	"	"	"	"	"					2

SHEET TOTALS EST.	FINAL	UNIT	
	11984	S.Y.	Stabilized Subgrade
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~26~~	26.	Sta	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~3023~~	4245	CY	Uncla. Roadway Excav.
~~1098~~	3399	CY	Embank. + Shr.
			~~EAST SIDE~~
~~1866~~		CY	Uncla. Roadway Excav.
~~2910~~		CY	Embank. + Shr.
		CY	Uncla. Channel Excav.
	1090	CY	Uncla. Roadway Excav.
	1090	CY	Embank.
	425	YQ	Overhaul

2600' x 200' = 11.94 Ac.

(2600-3208) x 42 ÷ 9

℄ Sta

460 ~~209~~ 398 ~~345~~ 529 ~~305~~ 392 ~~222~~ 283 ~~177~~ 244 ~~144~~ 204 ~~118~~ 141 ~~130~~ 103 ~~113~~ 74 ~~108~~ 47 ~~104~~ 38 ~~72~~ 26 ~~69~~ 15 ~~60~~ 27 ~~83~~ 117 ~~63~~ 93 ~~31~~ 89 ~~27~~ 76 ~~22~~ 63 ~~20~~ 96 ~~18~~ 100 ~~37~~ 90 ~~57~~ 148 ~~69~~ 196 ~~72~~ 196

~~6~~ 10 ~~6~~ 0 ~~6~~ 0 ~~6~~ 57 ~~6~~ 66 ~~6~~ 60 ~~6~~ 51 ~~6~~ 70 ~~3~~ 87 ~~14~~ 110 ~~33~~ 154 ~~151~~ 181 ~~163~~ 232 ~~160~~ 306 ~~144~~ 293 ~~42~~ 296 ~~14~~ 167 ~~20~~ 153 ~~30~~ 177 ~~66~~ 183 ~~100~~ 214 ~~94~~ 219 ~~33~~ 147 ~~3~~ 65 ~~5~~ 54 ~~6~~ 47

~~289~~ ~~175~~ ~~349~~ ~~204~~ ~~151~~ ~~130~~ ~~80~~ ~~74~~ ~~63~~ ~~37~~ ~~24~~ ~~22~~ ~~20~~ ~~13~~ ~~20~~ ~~35~~ ~~30~~ ~~12~~ ~~4~~ ~~0~~ ~~0~~ ~~2~~ ~~13~~ ~~30~~ ~~34~~ ~~43~~ ~~1866~~

~~74~~ ~~74~~ ~~74~~ ~~84~~ ~~74~~ ~~74~~ ~~40~~ ~~6~~ ~~20~~ ~~83~~ ~~125~~ ~~123~~ ~~135~~ ~~245~~ ~~225~~ ~~156~~ ~~121~~ ~~120~~ ~~150~~ ~~186~~ ~~180~~ ~~180~~ ~~181~~ ~~62~~ ~~50~~ ~~62~~ ~~2910~~

103 426 — 0 0

2343 — 2343 — 11.32 % Shr.

O.H = 1402 x 4.00 ÷ 1320 = 425 yd.

24 52 — 60 117 — +31.86

1090 — 1090 — 2.25 % Shr.

Scale 1" = 1000 cy. ℄

1402 ℄

+1964

Av. Haul = 1000' - 600' FH = 400' ℄

Base line ℄

No. OH

479

630

620

STA. 1177+60.60 To STA. 1177+82.68
Exist. 2-14' Clear Spans, CB-6
2-A9-10'6" Abutments
1-Bent, B-4
34' Clear Roadway
~~PROP~~ SPECIAL EXTENSION 5'-3" RT.

STA. 1188+60
Exist. 24"x44'-1" V.C. Pipe
With CH-7-B Headwalls
~~PROP~~ EXTENSION 11'-4" RT.
WITH 24" CONC. PIPE &
CH-11-B HEADWALL

Sta. 1182+44.44
P.I. = 623.44
10% V.C.

P.I. = 624.15
10% V.C.

P.I. = 624.45
10% V.C.

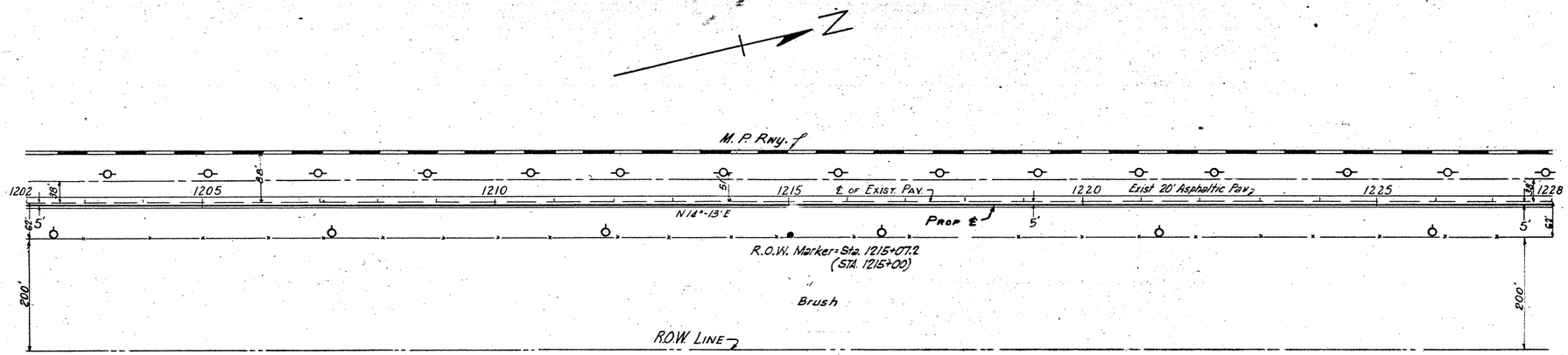
+0.17 ± %

Finished Grade ℄

+0.150 ± %

Lt. 0 Rt.

623.27 623.16 623.22 623.16 623.17 623.22 623.22 623.22 623.42 623.42 623.42



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1202	4	1.6	0	1.5	44	1.5					2
03	"	"	"	"	"	"					2
04	"	"	"	"	"	10					2
1205				"	"	"					4
06				"	"	"					4
07				"	"	"					4
08				"	"	"					4
09				"	"	"					4
1210				"	"	15					4
11	4	1.6	0	"	"	"					2
12	"	"	"	"	"	"					2
13	"	"	"	"	"	"					2
14	"	"	"	"	"	"					2
1215	"	"	"	"	"	"	5	20	4		3
16	"	"	"	"	"	"	"	"	0		2
17	"	"	"	"	"	"					2
18	"	"	"	"	"	"					2
19	"	"	"	"	"	"					2
1220	"	"	"	"	"	"					2
21	"	"	"	"	"	"					2
22	"	"	"	"	"	"					2
23	"	"	"	"	"	"					2
24	"	"	"	"	"	"					2
1225	"	"	"	"	"	"					2
26	"	"	"	"	"	"					2
27	"	"	"	"	"	"					2
1228	"	"	"	"	"	"					2

SHEET TOTALS EST	FINAL	UNIT	
	12,139	S.Y.	Stabilized Subgrade
~~11.94~~	11.92	Acre	Clearing & Grubbing
~~26~~	26	Sta.	Salvaging & Replacing Flex. Base: WEST SIDE
~~1044~~	2954	CY	Uncls. Roadway Excav.
~~1600~~	3614	CY	Embank. + Shr. EAST SIDE
~~446~~		CY	Uncls. Roadway Excav.
~~3002~~		CY	Embank. + Shr.
		CY	Uncls. Channel Excav.
	7052	CY	Uncls. Roadway Excav.
	7052	CY	Embank.
	1164	YQ	Overhaul

2600 × 42 ÷ 9

2600' × 200' = 11.94 Ac.
26

~~76~~	176	~~51~~	138	~~89~~	76	~~9~~	58	~~6~~	46	~~8~~	27	~~1~~	35	~~7~~	35	~~16~~	46	~~37~~	83	~~70~~	127	~~54~~	173	~~103~~	238	~~180~~	268	~~116~~	256	~~66~~	207
3	54	~~26~~	79	~~65~~	127	~~189~~	183	~~173~~	240	~~164~~	281	~~111~~	254	~~111~~	240	~~95~~	214	~~42~~	146	~~39~~	125	~~17~~	105	3	71	~~6~~	61	~~6~~	56	~~12~~	109

~~31~~	156	~~29~~	128	~~16~~	101	~~18~~	82	~~16~~	65	~~14~~	82	~~31~~	96	~~29~~	84	~~24~~	77	~~33~~	82	~~1044~~	2954	CY	Uncls. Roadway Excav.
~~36~~	132	~~36~~	100	~~12~~	122	~~65~~	147	~~72~~	157	~~65~~	145	~~56~~	120	~~50~~	110	~~50~~	119	~~39~~	117	~~1600~~	3614	CY	Embank. + Shr.
																				~~446~~		CY	Uncls. Roadway Excav.
																				~~3002~~		CY	Embank. + Shr.
																						CY	Uncls. Channel Excav.
																					7052	CY	Uncls. Roadway Excav.
																					7052	CY	Embank.
																					1164	YQ	Overhaul

1202	03	04	1205	06	07	08	09	1210	11	12	13	14	1215	16	17	18	19	1220	21	22	23	24	1225	26	27	28
621.13	621.42	621.81	622.00	621.89	622.08	622.48	622.17	621.96	623.75	624.04	623.33	623.43	624.32	624.21	623.30	623.77	623.24	623.30	623.57	623.83	623.70	623.37	623.63	623.90	624.17	624.43
622.94	622.89	622.98	622.98	622.92	622.60	622.66	622.74	622.26	622.84	622.28	622.62	622.78	623.72	623.02	623.13	623.00	623.36	623.56	623.64	623.60	623.65	623.91	623.97	623.80	623.72	623.72

149 | 27 | 253 | 12 | 46
46 | 10 | 253 | 37 | 146
28.41 % Shr.

OH = 3470 × 403 + 70 × 794 + 45 × 1843 ÷ 1320 = 1164 Y.Q.

7052
7052
24.33 % Shr.

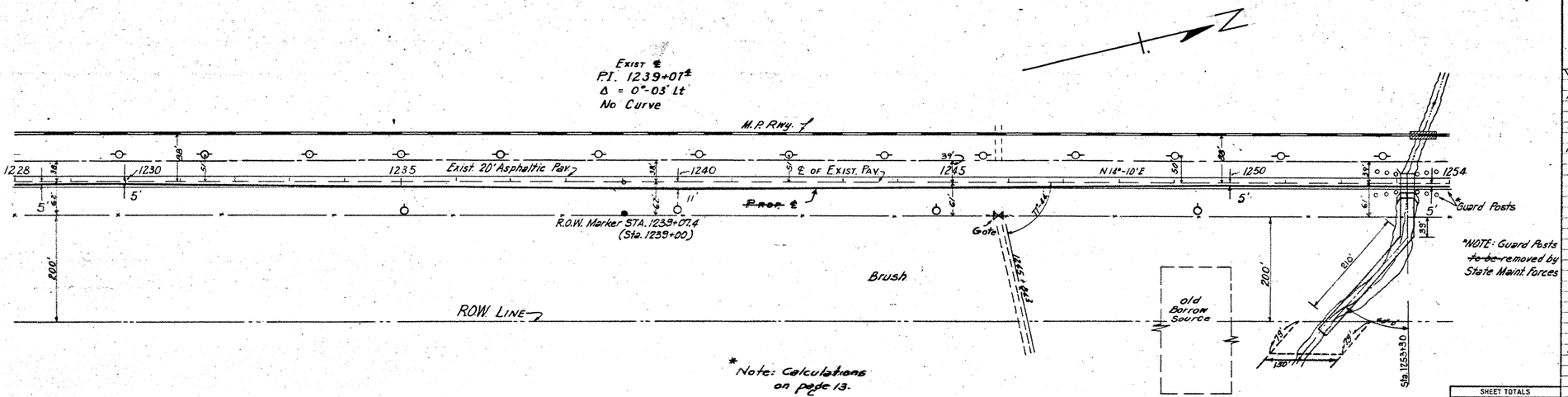
+.20163
+.08449
Scale: 1" = 1000 C.Y.
Base Line ℄
Av. Haul = 4070' - 600' FH = 3470 ?
Sub-base = 403 ?
Av. Haul = 670' - 600' FH = 70 ?
403
1,197
P.I. = 621.50
INV. ELEV.
+0.29179%
Finished Grade ℄
+0.26679%

630
620

BM. - Spike in telephone Pole
50' Lt. of Exist ℄ Sta. 1212+09
Elev. 629.65

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165 (4)	11-A
DISTRICT NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4	9	U.S. 81

136



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1228	4	1.6	0	13	44	15					N
29	"	"	"	"	"	"					N
1230	"	"	"	"	"	"					N
31	"	"	"	"	"	"					N
32	"	"	"	"	"	"					N
33	"	"	"	"	"	"					N
34	"	"	"	"	"	"					N
1235	"	"	"	"	"	"					N
36	"	"	"	"	"	"					N
37	"	"	"	"	"	"					N
38	"	"	"	"	"	"	0	1.6	4		S
39	2	"	"	"	"	"	4	"	"		S
1240	"	"	"	"	"	"	"	"	"		S
41	"	"	"	"	"	"	"	"	"		S
42	"	"	"	"	"	"	"	"	"		S
43	"	"	"	"	"	"	"	"	"		S
44	"	"	"	"	"	"	"	"	"		S
1245	4	"	"	"	"	"	"	"	"		S
46	"	"	"	"	"	"	"	"	"		S
47	"	"	"	"	"	"	"	"	"		S
48	"	"	"	"	"	"	"	"	"		S
49	"	"	"	"	"	"	"	"	"		N
1250	"	"	"	"	"	"	"	"	"		N
51	"	"	"	"	"	"	"	"	"		N
52	"	"	"	"	"	"	10	"	"		N
53	"	"	"	"	"	"	"	"	"		N
1254	4	1.6	0	"	"	"	16	"	"		N

SHEET TOTALS EST	FINAL	UNIT	
	12026	S.Y.	Stabilized Subgrade
~~12.2~~	11.94	Acre	Clearing & Grubbing
~~26~~	20.	Sta.	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~35~~ 30	66 114	~~40~~ ~~26~~	64 149 ~~17~~ ~~5~~ 79 144 ~~50~~ ~~14~~ 70 115 ~~10~~ ~~17~~ 46 151 ~~26~~ ~~53~~ 26 214 ~~17~~ ~~69~~ 18 299 ~~9~~ ~~62~~ 19 361 ~~9~~ ~~59~~ 18 299 ~~21~~ ~~26~~ 35 177 ~~7~~ ~~26~~ 120 177 ~~202~~ ~~0~~ 305 76 ~~341~~ ~~0~~ 451 24 ~~994~~ ~~0~~ 483 14 ~~330~~ ~~0~~ 404 26 ~~278~~ ~~0~~ 201 36 ~~226~~ ~~0~~ 177 51 ~~156~~ ~~0~~ 212 107 ~~176~~ ~~0~~ 118 166 ~~152~~ ~~0~~ 241 67 ~~202~~ ~~0~~ 238 59 ~~37~~ ~~0~~ 107 107 ~~117~~ ~~0~~ 120 131 ~~146~~ ~~0~~ 151 159 ~~146~~ ~~0~~ 166 166 ~~151~~ ~~12~~ 187 297 ~~102~~ ~~0~~ 295 146	~~3106~~ ~~3.50~~	4398 3655	C.Y. C.Y.	Uncls. Roadway Excav. Embank. + Shr.
											~~EAST SIDE~~
~~19~~ ~~59~~	~~19~~ ~~50~~	~~22~~ ~~39~~	~~31~~ ~~33~~	~~33~~ ~~42~~	~~14~~ ~~98~~	~~0~~ ~~89~~	~~14~~ ~~48~~	~~24~~ ~~26~~	~~66~~ ~~14~~	~~180~~ ~~0~~	~~320~~ ~~0~~	~~367~~ ~~0~~	~~319~~ ~~0~~	~~254~~ ~~0~~	~~185~~ ~~0~~	~~111~~ ~~0~~	~~176~~ ~~0~~	~~109~~ ~~0~~	~~94~~ ~~30~~	~~59~~ ~~11~~	~~59~~ ~~36~~	~~62~~ ~~125~~	~~60~~ ~~144~~	~~82~~ ~~156~~	~~68~~ ~~110~~	~~2649~~ ~~1060~~	C.Y. C.Y.	Uncls.-Roadway Excav. Embank. + Shr.
																											C.Y.	Uncls.-Channel Excav.
																											C.Y.	Uncls. Roadway Excav.
																											C.Y.	Embank.
																											Y.Q.	Overhaul

(2600'+200')+~~60.6+330~~+~~12.15 Sta.~~ = 11.94 (2600-2308)÷42=9

26

See preceding sheet

Base line

Sub-base line = 403

Scale: 1" = 1,000 C.Y.

Av. Haul = 645'-60'FH = 45'

2246

Finished Grade

+0.6875%

-0.8181%

0.00%

0.02%

STA. 1253+18.80 To STA. 1253+41.88
Exist. 2-10'×8'×54' Multiple Culvert, C-6
PROP 3'-9" RT EXTENSION WITH
2-10'-2½"×8'-0" MC10:1 MOD. &
MCW-F2 DOWNSTREAM

Fl. 629.31

Fl. 641.60
V.C. 640.13
Fl. 639.60

Sta. 1250+58
Fl. 633.88
Fl. 633.68
Fl. 633.48

B.M.-Nail in telephone pole 150' Lt. of Exist. ℄ Sta. 1232+13
Elev. - 636.93

B.M.-Spike in telephone pole 50' Lt of Exist. ℄ Sta. 1243+80
Elev. - 642.29

B.M.-N.E. Corner of West Curb of Culv. Sta. 1253+41
Elev. - 633.37

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
	TEXAS	I-165(4)			12-A
DIST. NO.	COUNTY	CONTROL SECTION	JOB	HIGHWAY NO.	
21	WEBB	18	3-4	9 U.S. 81	

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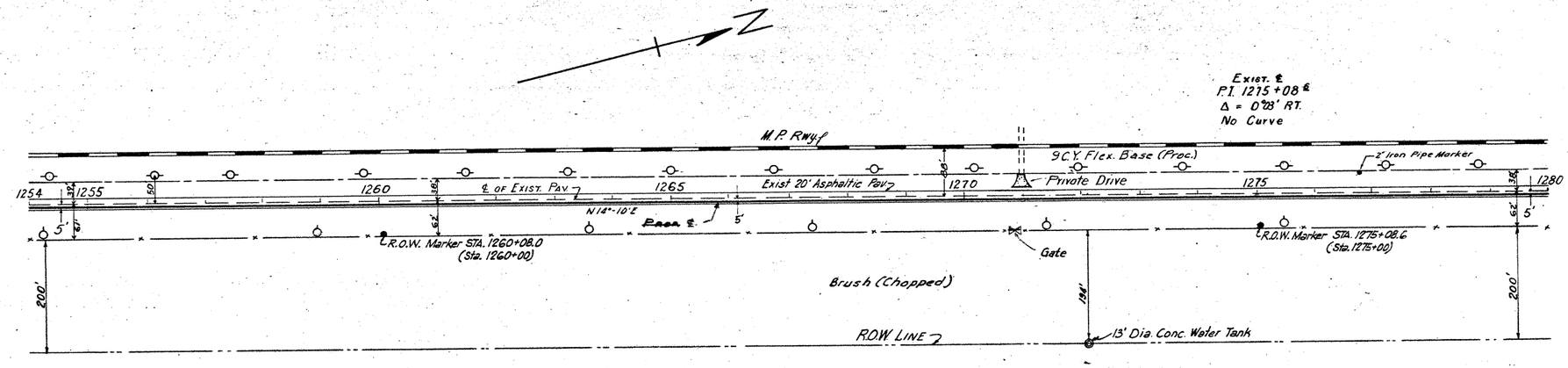


CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO.
1254	4	16.0	15	4.4	15						2
1255	"	"	"	"	"						2
56	"	"	"	"	"						2
57	"	"	"	"	"						2
58	"	"	"	"	"						2
59	"	"	"	"	"	5	16.4				2
1260	"	"	"	"	"	"	"				2
61	"	"	"	"	"	"	"				2
62	"	"	"	"	"	"	"	0			2
63	"	"	"	"	"						2
64	"	"	"	"	"						2
1265	"	"	"	"	"						2
66	"	"	"	"	"						2
67	"	"	"	"	"						2
68	"	1.6	"	"	"						2
69				"	"						2
1270				"	"						2
71				"	"						2
72	4	16.0	"	"	"						2
73	2	"	"	"	"						2
74	"	"	"	"	"	0	16.4				2
1275	"	"	"	"	"	"	"				3
76	4	"	"	"	"	"	"				3
77	2	"	"	"	"	"	"				3
78	"	1.6	"	"	"	"	"				3
79	"	"	"	"	"	"	"				3
1280	"	"	"	"	"	"	"				3

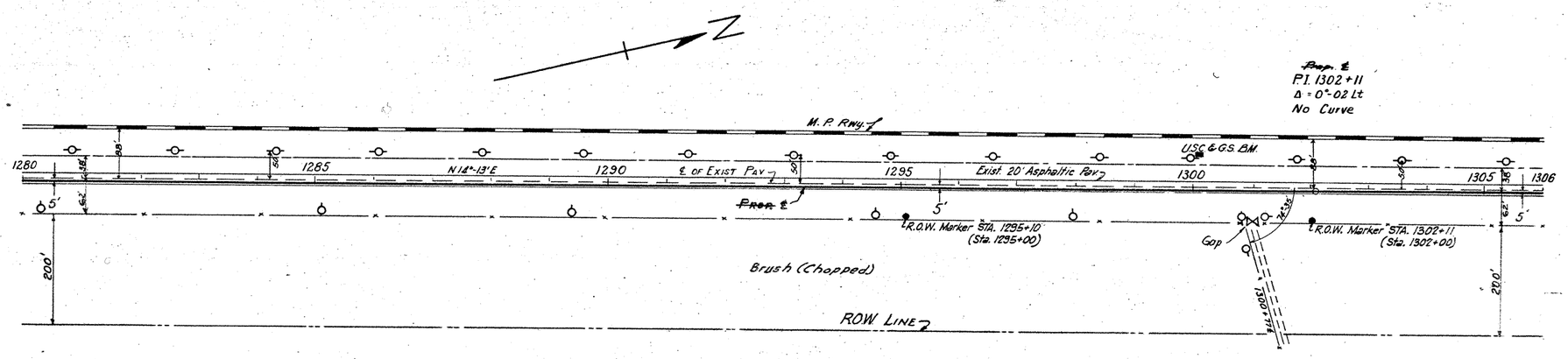
2600×42÷9

2600'x 200' = 11.94 Ac.

26

SHEET TOTALS EST	FINAL	UNIT	
	12,133	S.Y.	Stablized Subgrade
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~26~~	26	Sta	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~3037~~	3682	CY	Uncla. Roadway Excav.
~~467~~	3586	CY	Embank. + Shr.
			~~EAST SIDE~~
~~9330~~		CY	Uncla. Roadway Excav.
~~4559~~		CY	Embank. + Shr.
		CY	Uncla. Channel Excav.
		CY	Uncla. Roadway Excav.
		CY	Embank.
	237	YD.	Overhaul

| STA | | | | | |

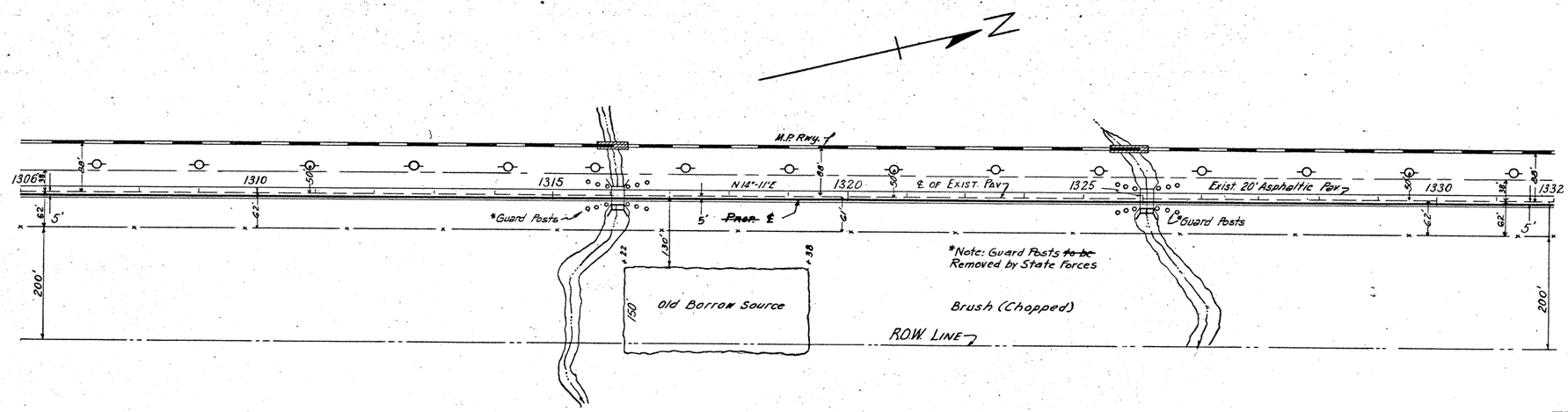


CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1280	2	1.6	0	1.5	44	1.5	0	1.6	4		10
81	"	"	"	"	"	"	"	"	"		2
82	"	"	"	"	"	"	"	"	"		4
83				"	"	"					4
84				"	"	"					4
1285				6	"	"					4
86				"	"	"					4
87				"	"	"					4
88				10	"	1.5					4
89				"	"	"					4
1290				"	"	"					4
91				1.6	"	"					4
92				"	"	"					4
93				"	"	"					4
94				"	"	"					4
1295				"	"	"					4
96	4	1.6	0	"	"	"					2
97	"	"	"	"	"	"					4
98	"	"	"	"	"	"					4
99	4	1.6	0	"	"	"					2
1300	3	"	"	"	"	"					2
01	"	"	"	"	"	"	6	1.6	4		2
02	4	"	"	"	"	"					2
03	"	"	"	"	"	"					2
04	"	"	"	"	"	"					2
1305	"	"	"	"	"	"					4
1306	"	"	"	"	"	"					4

SHEET TOTALS	EST.	FINAL	UNIT
Stabilized Subgrade		12133	S.Y.
Clearing & Grubbing	~~11.94~~	11.94	Acre
Salvaging & Replacing Flex. Base	~~26~~	26	Sta.
WEST SIDE			
Uncla. Roadway Excav.	~~363~~	6130	CY
Embank. + Shr.	~~344~~	3248	CY
EAST SIDE			
Uncla. Roadway Excav.	~~688~~		CY
Embank. + Shr.	~~4856~~		CY
Uncla. Chan. Excav.			CY
Uncla. Roadway Excav.			CY
Embank.			CY
Overhaul			YD

| | | | | |



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER XXX	TYPICAL X-SECT. NO.
1306			15	4:1	44	4:1	15				4
07			15	4:1	44	4:1	15				4
08			15	4:1	44	4:1	15				4
09			15	4:1	44	4:1	15				4
1310	4:1	6.0	15	4:1	44	4:1	15				4
11	4:1	6.0	15	4:1	44	4:1	15				4
12	4:1	6.0	15	4:1	44	4:1	15				4
13	4:1	6.0	15	4:1	44	4:1	15				4
14	4:1	6.0	15	4:1	44	4:1	15				4
1315	4:1	6.0	15	4:1	44	4:1	15				4
16	4:1	6.0	15	4:1	44	4:1	15				4
17	4:1	6.0	15	4:1	44	4:1	15				4
18	4:1	6.0	15	4:1	44	4:1	15				4
19	4:1	6.0	15	4:1	44	4:1	15				4
1320	4:1	6.0	15	4:1	44	4:1	15				4
21	4:1	6.0	15	4:1	44	4:1	15	5	1:6.0		2
22	4:1	6.0	15	4:1	44	4:1	15	5	1:6.0		2
23	4:1	6.0	15	4:1	44	4:1	15	5	1:6.0		2
24	4:1	6.0	15	4:1	44	4:1	15	5	1:6.0		2
1325	4:1	6.0	15	4:1	44	4:1	15	5	1:6.0		2
26	4:1	6.0	15	4:1	44	4:1	15	5	1:6.0		2
27	4:1	6.0	15	4:1	44	4:1	15	5	1:6.0		2
28	4:1	6.0	15	4:1	44	4:1	15	5	1:6.0		2
29	4:1	6.0	15	4:1	44	4:1	15	5	1:6.0		2
1330	4:1	6.0	15	4:1	44	4:1	15	5	1:6.0		2
31	4:1	6.0	15	4:1	44	4:1	15				4
1332	4:1	6.0	15	4:1	44	4:1	15				4

2600' x 200' = 11.94 Ac.

(1400-22.25)x42÷9

26

SHEET TOTALS EST	FINAL	UNIT	
	6430	S.Y.	Stabilized Subgrade
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~20~~	20	Sta	Salvaging & Replacing Flex. Base
~~1000~~	2441	C.Y.	Uncls. Roadway Excav.
~~640~~	5176	C.Y.	Embank. + Shr.
~~7059~~		C.Y.	Uncls. Roadway Excav.
~~2033~~		C.Y.	Embank. + Shr.
~~40~~		C.Y.	Uncls. Channel Excav.
		C.Y.	Uncls. Roadway Excav.
		C.Y.	Embank.
830		Y.Q.	Overhaul

~~0~~	68	~~0~~	92	~~11~~	130	~~27~~	228	~~37~~	227	~~35~~	123	~~36~~	79	~~10~~	78	~~55~~	126	~~110~~	100	~~91~~	122	~~122~~	193	~~177~~	144	~~66~~	114	~~63~~	32	~~55~~	1	~~122~~	47	~~133~~	53	~~118~~	22	~~111~~	15	~~74~~	102	~~27~~	66	~~23~~	60	~~16~~	66	~~53~~	69	~~39~~	81	~~1000~~	2441	C.Y.	Uncls. Roadway Excav.
~~220~~	238	~~176~~	166	~~92~~	146	~~36~~	137	~~17~~	128	~~9~~	129	~~6~~	164	~~6~~	194	~~0~~	153	~~0~~	77	~~0~~	87	~~0~~	129	~~6~~	93	~~0~~	96	~~0~~	142	~~0~~	222	~~0~~	254	~~6~~	277	~~0~~	642	~~0~~	455	~~0~~	201	~~76~~	202	~~16~~	222	~~0~~	252	~~0~~	206	~~0~~	164	~~640~~	5176	C.Y.	Embank. + Shr.

~~70~~	~~49~~	~~40~~	~~21~~	~~26~~	~~26~~	~~25~~	~~49~~	~~25~~	~~71~~	~~39~~	~~73~~	~~76~~	~~62~~	~~43~~	~~43~~	~~110~~	~~112~~	~~35~~	~~59~~	~~49~~	~~41~~	~~49~~	~~49~~	~~49~~	~~54~~	~~7059~~		C.Y.	Uncls. Roadway Excav.
~~356~~	~~309~~	~~228~~	~~117~~	~~96~~	~~101~~	~~117~~	~~116~~	~~84~~	~~97~~	~~110~~	~~171~~	~~116~~	~~89~~	~~86~~	~~99~~	~~91~~	~~145~~	~~169~~	~~70~~	~~70~~	~~59~~	~~33~~	~~11~~	~~9~~	~~6~~	~~2033~~		C.Y.	Embank. + Shr.

~~40~~	C.Y.	Uncls. Channel Excav.

		C.Y.	Uncls. Roadway Excav.

		C.Y.	Embank.

830	Y.Q.	Overhaul

5063

5063

22.71 % Shr.

O.H. = 1680 X 652 ÷ 1320 = 830 Y.Q.

3 19

87 555

+12.62

SCALE: 1" = 1000 C.Y.

Av. Haul = 2280' - 600' FH = 1660'

Base Line

SCALE: 1" = 1,000 C.Y.

-0.31827%

Sta. 1312+21 P.I. of ROOT No. V.C.

-0.05497%

Finished Grade

STA. 1316+10.2
Exist. 1-20' Cl Span, CB-6
34' Clear Roadway
2-Abutments, A9-14
~~PROP~~ SPECIAL EXTENSION 4'-0" RT

Sta. 1324+49 P.I. of 607.22 V.C. = 440' EVE = 0.37

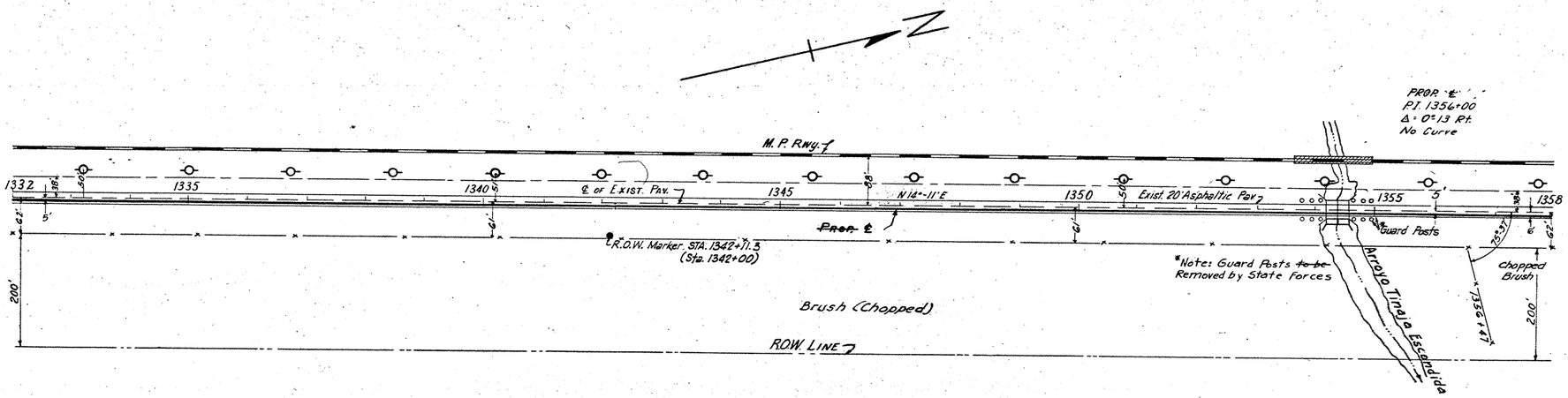
STA. 1325+00 TO STA. 1325+23.17
Exist. 2-10'-7" x 3'-4" Mult. Culvert, C-6
~~PROP~~ EXTENSION 3'-11" RT WITH 2-10'-2" x 7'-0" MC10-1 MOD. & MCW-12 DOWNSTREAM

B.M. - N.E. Corner of West curb of Bridge Sta. 1316+21 Elev. 608.56

B.M. - Spike in telephone pole 60' Lt. of Exist. ℄ Sta. 1317+40 Elev. - 606.30

B.M. - N.E. Corner of West curb of Bridge Sta. 1325+24 Elev. 608.27

| 610 | 610 | 610 |

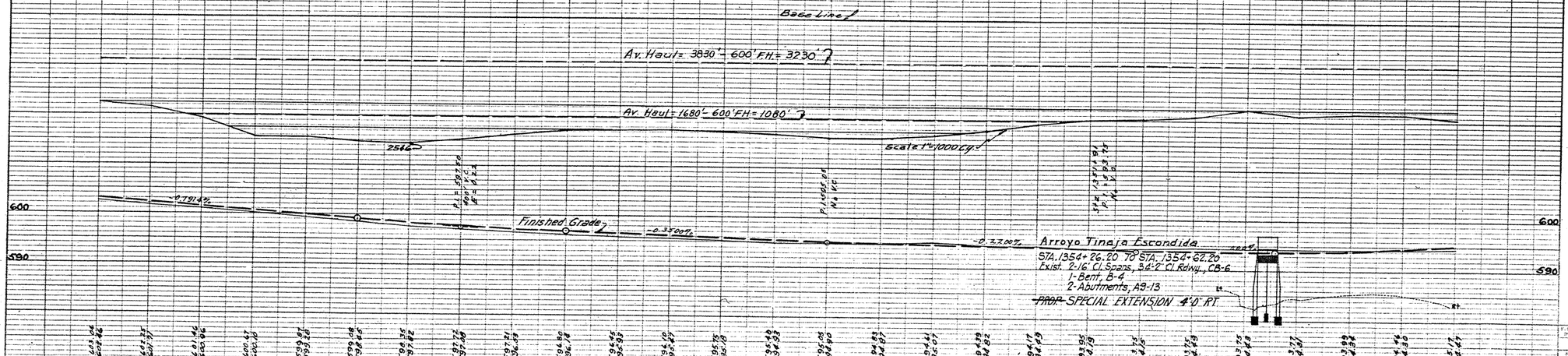


CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1332				15	44	15					1
33				"	"	"	5	1.6	4		1
34				"	"	"					1
1335				"	"	"					1
36				"	"	"					1
37				"	"	"					1
38				"	"	"					1
39				"	"	"					1
1340				"	"	"					1
41				"	"	"					1
42	4	1.6	0	"	"	"					1
43				"	"	"					2
44				"	"	"					2
1345				"	"	"					2
46	4	1.6	0	"	"	"					2
47	"	"	"	"	"	"	4	0	1.6	4	3
48	"	"	"	"	"	"	"	"	"	"	3
49	"	"	"	"	"	"	"	"	"	"	3
1350	"	"	"	"	"	"	"	"	"	"	3
51	"	"	"	"	"	"					3
52	"	"	"	"	"	"					3
53	"	"	"	"	"	"					3
54				"	"	"	5	1.6	4		2
1355				10	"	"	"	"	"		2
56				"	"	"					2
57				6	"	10					2
1358				10	"	"					4

SHEET TOTALS EST.	FINAL	UNIT	
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~26~~	26.	Sta.	Salvaging & Replacing Flex. Base
~~6~~ 68 ~~86~~ 58 ~~80~~ 60 ~~76~~ 63 ~~72~~ 68 ~~42~~ 84 ~~24~~ 132 ~~22~~ 172 ~~20~~ 142 ~~26~~ 104 ~~29~~ 88 ~~26~~ 78 ~~38~~ 71 ~~39~~ 63 ~~69~~ 85 ~~158~~ 138 ~~172~~ 164 ~~163~~ 161 ~~126~~ 140 ~~116~~ 143 ~~186~~ 172 ~~252~~ 255 ~~157~~ 112 ~~204~~ 161 ~~140~~ 189 ~~66~~ 114	~~6102~~ 3085	CY	Uncls. Roadway Excav.
~~4~~ 129 ~~11~~ 283 ~~30~~ 336 ~~61~~ 162 ~~84~~ 144 ~~25~~ 114 ~~52~~ 66 ~~33~~ 52 ~~58~~ 68 ~~40~~ 78 ~~33~~ 86 ~~42~~ 107 ~~14~~ 110 ~~2~~ 112 ~~6~~ 101 ~~0~~ 66 ~~0~~ 51 ~~0~~ 43 ~~0~~ 45 ~~0~~ 119 ~~4~~ 133 ~~6~~ 97 ~~11~~ 233 ~~17~~ 114 ~~6~~ 198 ~~56~~ 204	~~613~~ 3251	CY	Embank. + Shr.
~~46~~ ~~69~~ ~~48~~ ~~41~~ ~~87~~ ~~34~~ ~~86~~ ~~88~~ ~~15~~ ~~85~~ ~~36~~ ~~34~~ ~~41~~ ~~47~~ ~~85~~ ~~184~~ ~~143~~ ~~123~~ ~~93~~ ~~102~~ ~~139~~ ~~132~~ ~~106~~ ~~239~~ ~~120~~ ~~89~~	~~6012~~	CY	Uncls. Roadway Excav.
~~2~~ ~~60~~ ~~45~~ ~~36~~ ~~56~~ ~~66~~ ~~76~~ ~~96~~ ~~108~~ ~~69~~ ~~53~~ ~~56~~ ~~22~~ ~~6~~ ~~0~~ ~~0~~ ~~2~~ ~~0~~ ~~0~~ ~~0~~ ~~32~~ ~~34~~ ~~78~~ ~~119~~ ~~110~~ ~~69~~	~~1253~~	CY	Embank. + Shr.
		CY	Uncls. Channel Excav.
5805		CY	Uncls. Roadway Excav.
5805		CY	Embank.
13.09 % Shr.	5539	YQ	Overhaul

O.H. = 3830 X 1772 + 1080 X 486 ÷ 1320 = 5539 yd.



B.M.- Spike in telephone pole 50' Lt. of Exist ℄ Sta. 1333+15 Elev.- 602.12

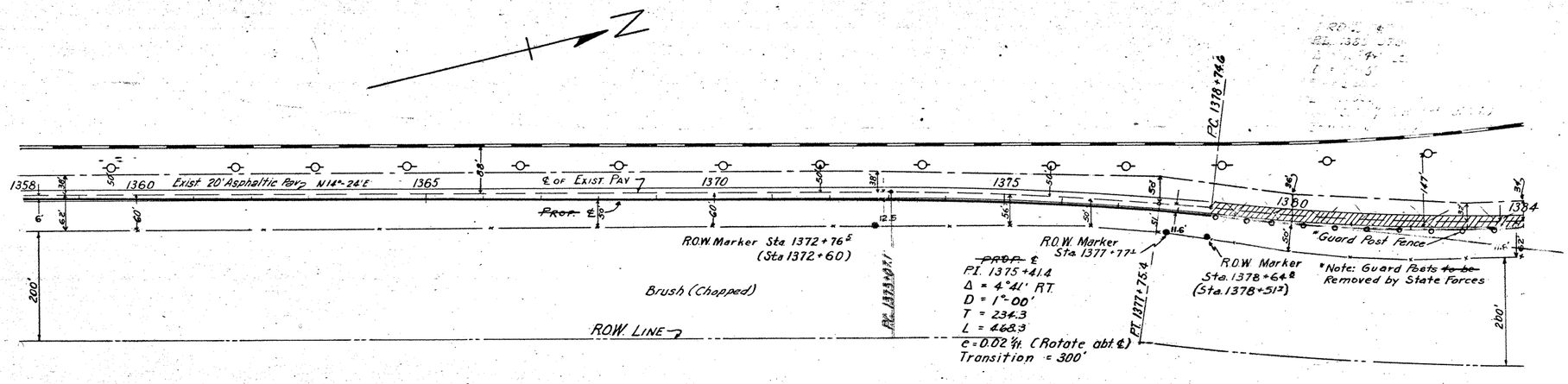
B.M.- Spike in telephone pole 50' Lt. of Exist ℄ Sta. 1350+80 Elev.- 592.69

B.M.- N.E. Corner of West curb of bridge Sta. 1354+62 Elev.- 594.38

F.A.P. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	F. 1650(4)	16-A

STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18 3-4	9	US 81

161



CROSS SECTION DATA

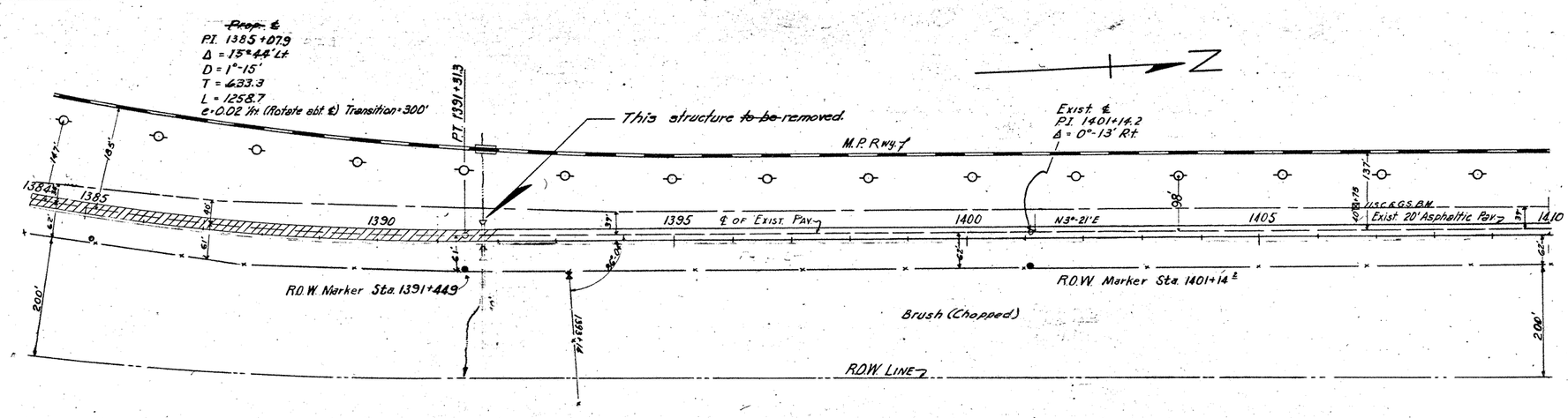
STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100	TYPICAL X-SECT. NO.
1358				10	44	10					4
59				"	"	"					4
1360				15	"	15					4
61				"	"	"					4
62				"	"	"					4
63	4	1.6	0	6	"	"					2
64	"	"	"	"	"	"	0	1.6	6		3
1365	"	"	"	"	"	"	"	"	"		3
66	"	"	"	"	"	"	"	"	"		3
67	3	"	"	"	"	"	"	"	"		3
68	"	"	"	"	"	"	"	"	"		3
69	2	"	"	"	"	"	"	"	"		3
1370	4	"	"	"	"	"	"	"	"		3
71	"	"	"	"	"	"	"	"	"		3
72	"	"	"	"	"	10	"	"	"		3
73				10	"	6					3
74				6	"	"					3
1375				"	"	"					3
76				"	"	"					3
77				10	"	"					3
78	4	1.6	0	15	"	15					3
79	"	"	"	"	"	"	0	1.6	3		3
1380	2	"	"	"	"	"	"	"	"		3
81	"	"	"	"	"	"	"	"	"		3
82	"	"	"	"	"	"	"	"	"		3
83	"	"	"	"	"	"	"	"	"		3
1384	3	"	"	"	"	"	"	"	"		3

SHEET TOTALS EST.	FINAL	UNIT	
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~26~~	26.	Sta.	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~8779~~	5317	CY	Uncls. Roadway Excav.
~~8966~~	3372	CY	Embank. + Shr.
			~~EAST SIDE~~
~~1414~~		CY	Uncls. Roadway Excav.
~~3329~~		CY	Embank. + Shr.
		CY	Uncls. Chan. Excav.
		CY	Uncls. Roadway Excav.
		CY	Embank.
		yQ	Overhaul

2600' × 200' = 11.94 Ac.

26 Sta

| | | | | |



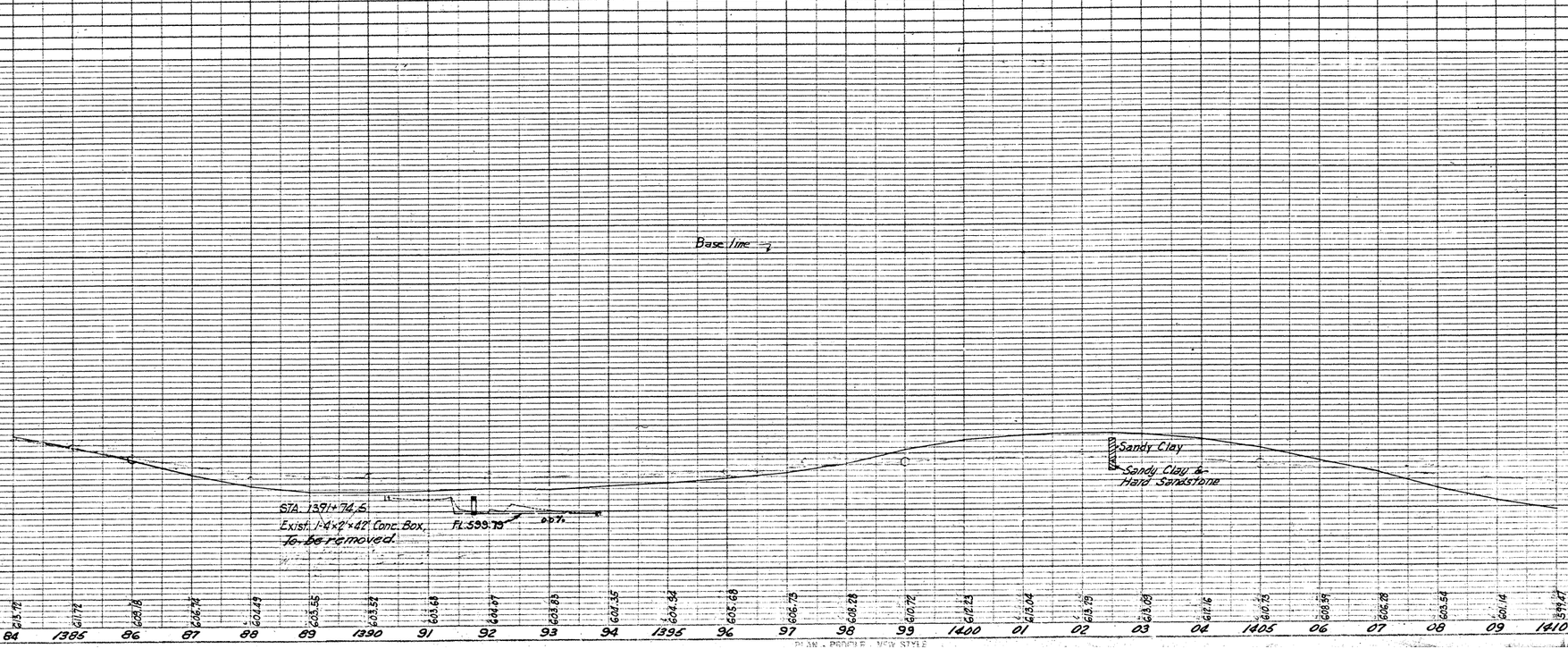
CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER NOT	TYPICAL X-SECT. NO.
1384	3	1.6	0	15	44	15	0	1.6	2		3
1385	4	"	"	"	"	"	"	"	4		4
XG	0	"	5	"	"	"	"	"	4		4
87				"	"	"					4
88				"	11	6					4
89				10	"	5					4
1390				"	"	"					4
91				"	"	6					4
92				"	"	"					4
93				"	"	"					4
94				15	"	10					4
1395				"	"	"					4
96				"	"	"					4
97	4	1.6	0	"	"	15					2
98	"	"	"	"	"	"	0	1.6	4		3
99	"	"	"	"	"	"	"	"	"		3
1400	2	"	"	"	"	"	"	"	2		3
01	"	1.4	"	"	"	"	"	"	"		3
02	"	"	"	"	"	"	"	"	"		3
03	"	"	"	"	"	"	"	"	"		3
04	"	1.6	"	"	"	"	"	"	"		3
1405	"	"	"	"	"	"	"	"	4		3
06	4	"	"	"	"	"	"	"	"		3
07				"	"	8					4
08			8	"	"	6					4
09			"	"	"	"					4
1410			4	48	4						4

SHEET TOTALS EST.	FINAL	UNIT	
~~11.92~~	11.94	Acre	Clearing & Grubbing
~~8~~	8.	Sta.	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
00		C.Y.	Uncls. Roadway Excav.
00		C.Y.	Embank. + Shr.
			~~EAST SIDE~~
00		C.Y.	Uncls. Roadway Excav.
00		C.Y.	Embank. + Shr.
		C.Y.	Uncls. Chan. Excav.
		C.Y.	Uncls. Roadway Excav.
		C.Y.	Embank.
	0	Yd.	Overhaul

8 Sta.

2600' x 200' = 11.94 Ac.



B.M.-N.E. Corner of West Hdwl of Conc. Box Sta. 1391+74
Elev.-604.39

B.M.-U.S.C.&G.S. monument 40' Lt. of Exist ℄ Sta. 1406+73
Elev.-607.40

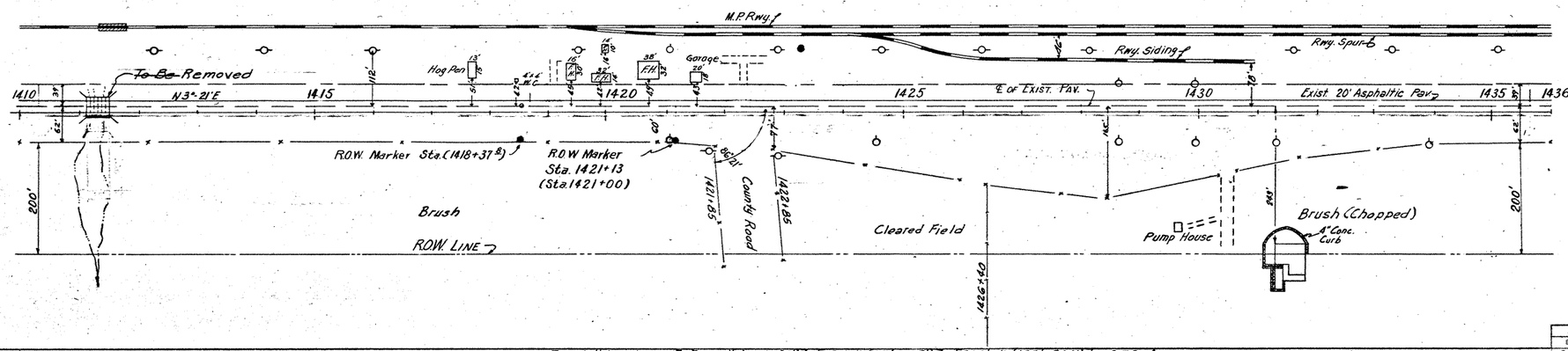
B.M.-Nail in telephone pole 98' Lt. of Exist ℄ Sta. 1407+15
Elev.-607.61

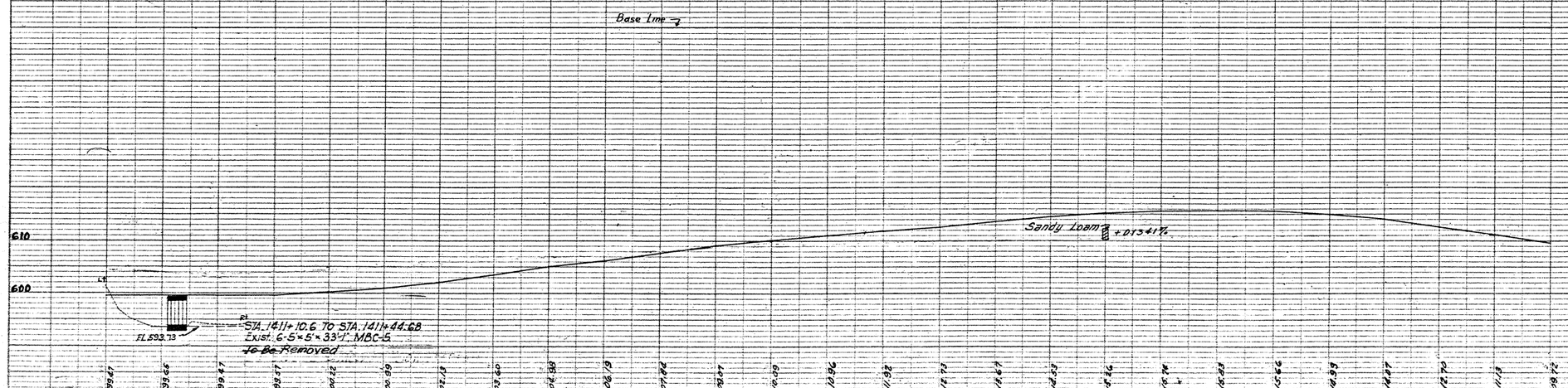
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165(6)	18-A

STATE DIST. NO.	COUNTY	CONTROL SECT. NO.	JOB NO.	PROJECT NO.	HIGHWAY NO.
21	WEBB	18	3:4	9	U.S. 81

163

CALLAGHAN SIDING





CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO
1410				4	48	4					4
11				6	"	6					4
12				4	"	4					4
13				"	"	"					4
14				6	"	"					4
1415				"	"	"					4
16				"	"	6					4
17				"	"						4
18				8	44	8					4
19				15	"	15					4
1420	6	16	0	"	"	"	0	16	6		3
21	"	"	"	"	"	"	"	"	"		3
22	"	"	"	"	"	"	"	"	"		3
23	"	"	"	"	"	"	"	"	"		3
24	2	"	"	"	"	"	"	"	"		3
1425	"	"	"	"	"	"	"	"	"		3
26	"	"	"	"	"	"	"	"	"		3
27	"	"	"	"	"	"	"	"	"		3
28	"	"	"	"	"	"	"	"	"		3
29	"	"	"	"	"	"	"	"	"		3
1430	"	"	"	"	"	"	2	"	"		3
31	"	"	"	"	"	"	"	"	"		3
32	"	"	"	"	"	"	"	"	"		3
33	"	"	"	"	"	"	"	"	"		3
34	4	"	"	"	"	"	4	"	"		3
1435	"	"	"	"	"	"					2
1436				8	"	6					4

[200'×½(1190'+1202')]+[208'×½(124'+97')]+[552'×½(97'+195')]+[200'×½(195'+200')] = 8.78 Ac.

SHEET TOTALS EST.	FINAL	UNIT	
8.78	8.78	Acre	Clearing & Grubbing
		Sta.	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~—~~		CY	Uncl. Roadway Excav.
~~—~~		C.Y.	Embank + Shr.
			~~EAST SIDE~~
~~—~~		CY	Uncl. Roadway Excav.
~~—~~			Embank + Shr.
		C.Y.	Uncl. Chan. Excav.
		C.Y.	Uncl. Roadway Excav.
		C.Y.	Embank
0		Yd.	Overhaul

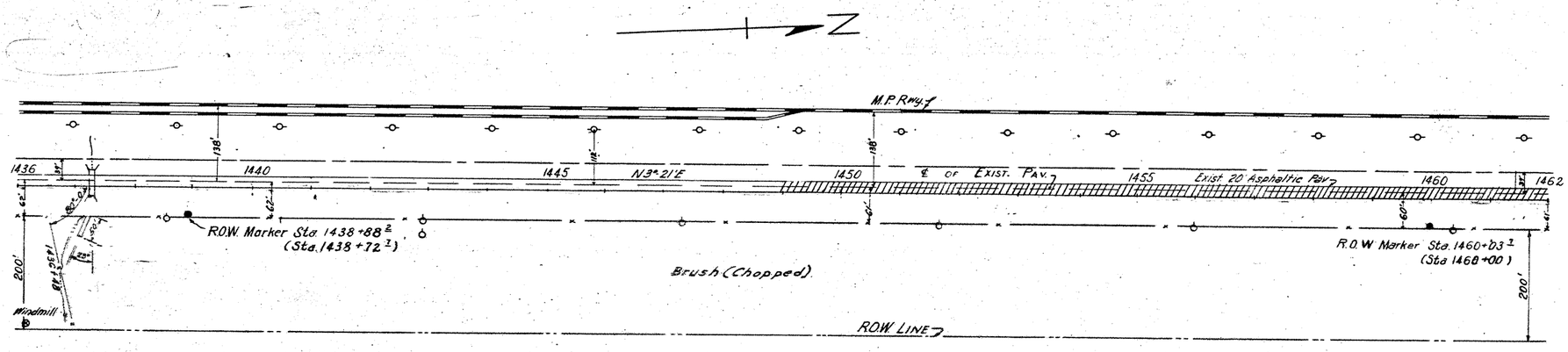
B.M.-NW. Corner of West Curb of Culv. Sta. 1411+45
Elev-600.82

B.M.- Nail in power pole 108' Lt. of Exist. ℄ Sta. 1431+75
Elev.-617.42

STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	I-165(14)	19-A

COUNTY	CONTROL SECTION NO.	
21 WEBB	18 3-4 9	U.S.81

164



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1436				8	44	6					4
37				6	"	"					4
38				"	"	8					4
39				"	"	"					4
1440				"	"	15					4
41				15	"	"					4
42	4	16	0	"	"	"					2
43	"	"	"	"	"	"					N
44	"	"	"	"	"	"					N
1445	"	"	"	"	"	"					N
46	"	"	"	"	"	"					N
47	"	"	"	"	"	"					N
48	"	"	"	"	"	"					N
49	"	"	"	"	"	"					N
1450	"	"	"	"	"	"					N
51	"	"	"	"	"	"					N
52	"	"	"	"	"	12					N
53	"	"	"	"	"	18					N
54	"	"	"	"	"	"					N
1455	"	"	"	"	"	15					N
56	"	"	"	"	"	"					N
57	"	"	"	"	"	"					N
58	0	16	5	"	"	"					N
59				"	"	"					N
1460				"	"	"					N
61				"	"	"					N
1462	0	16	5	"	"	"					N

2600' x 200' = 11.94 Ac

13 Sta

SHEET TOTALS EST.	FINAL	UNIT	
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~13~~	13	Sta	Salvaging & Replacing Flex. Base
			WEST SIDE
~~00~~	817	CY	Uncls. Roadway Excav.
~~00~~	1075	CY	Embank. + Shr.
			~~EAST SIDE~~
~~00~~		CY	Uncls. Roadway Excav.
~~00~~		CY	Embank. + Shr.
		CY	Uncls. Chan. Excav.
		CY	Uncls. Roadway Excav.
		CY	Embank.
	0	Yd.	Over haul

285	190	104	63	75	100
243	260	148	160	168	96

285	378	93	97
	378		
243		135	125

48.24 %Sm

Base Line

scale 1"=1000 CY

Exist. 1-4'x2'x42' Conc

FL 604.19 0.0% Rt

STA. 1437+19.8

620 610 600 630

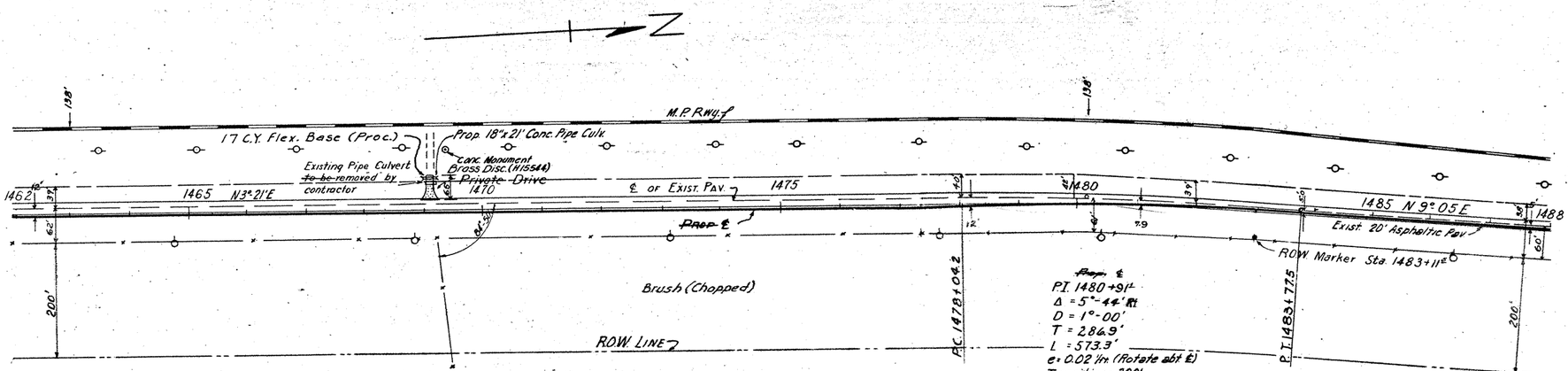
B.M.-N.E. Corner of West Hdwl. of Box Culv. Sta 1437+20
Elev. - 608.31

B.M. - Spike in mesq. tree 40' Lt. of Exist. ℄ Sta. 1448+35
Elev. 617.47

B.M.-Nail in telephone pole 95' Lt of Exist. ℄ Sta 1449+95
Elev. - 618.37

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	TEXAS	I-165(16)	20-A
STATE DIST. NO.	COUNTY	CONTROL SECTION JOB NO.	HIGHWAY NO.
21	WFBB	18 3-4 9	U.S. 81

19 of 91



CROSS SECTION DATA

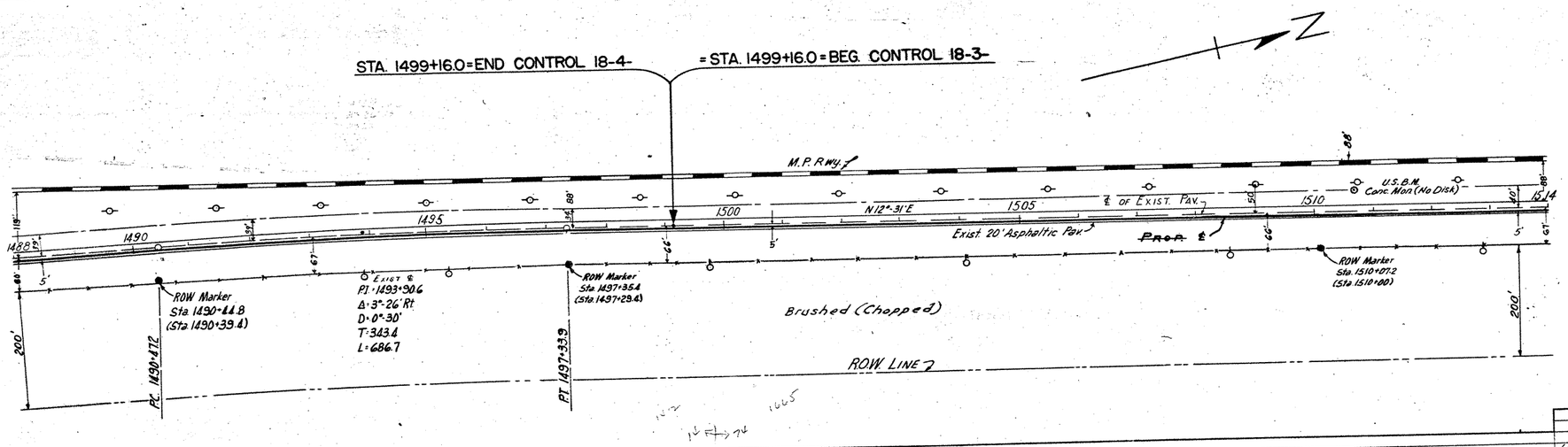
STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1462	0	1.6	5	16	44	1.5				1	2
63	11	11	11	11	11	11					2
64	4	11	0	11	11	11					2
1465	11	11	11	11	11	11					2
66	11	11	11	11	11	11					2
67	11	11	11	11	11	11					2
68	11	11	11	11	11	11					2
69	11	11	11	11	11	11					2
1470	11	11	11	11	11	11					2
71	11	11	11	11	11	11					2
72	11	11	11	11	11	11					2
73	11	11	11	11	11	11					2
74	11	11	11	11	11	11					2
1475	11	11	11	11	11	11					2
76				11	11	11					2
77				11	11	11					2
78				11	11	11					2
79				11	11	11					2
1480	0	1.6	0	11	11	11	5	1.6	6		1
81	4	11	11	11	11	11	5	1.6	6		1
82	11	11	11	11	11	11					2
83	0	1.6	0	11	11	11	5	1.6	6		1
84	11	11	11	11	11	11	5	1.6	6		1
1485	11	11	11	11	11	11	5	1.6	6		1
86				11	11	11					2
87	0	1.6	5	11	11	11					2
1488	4	11	0	11	11	11					2

SHEET TOTALS EST.	FINAL	UNIT	
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~26~~	26	Sta.	Salvaging & Replacing Flex. Base ~~WEST SIDE~~
		C.Y.	Uncls. Roadway Excav.
~~1631~~	4245	C.Y.	Embank. + Shr. ~~EAST SIDE~~
~~566~~	3948	C.Y.	Uncls. Roadway Excav.
~~1181~~		C.Y.	Embank. + Shr.
~~2050~~		C.Y.	Uncls. Channel Excav.
		C.Y.	Uncls. Roadway Excav.
		C.Y.	Embank.
		65 Y.Q.	OverHaul

2600' x 200' = 11.94 Ac.
26 Sta.

| | | | | |

STA. 1499+16.0 = END CONTROL 18-4- = STA. 1499+16.0 = BEG. CONTROL 18-3-



CROSS SECTION DATA

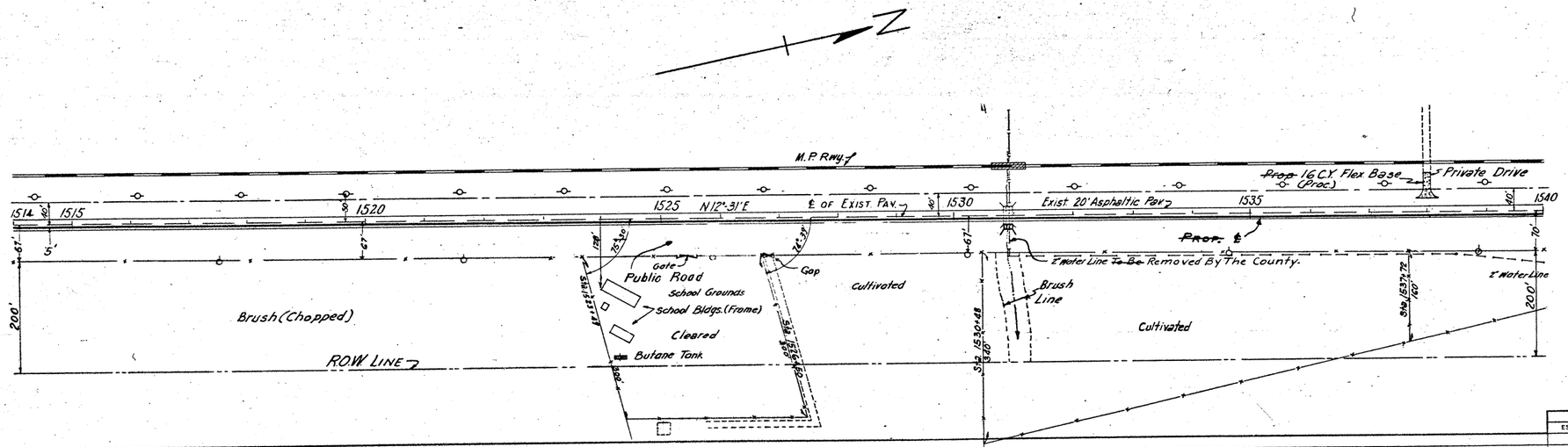
STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1488	4	16	0	16	44	16	5	16	4		2
89											2
1490											2
91	4	16	0	11							2
92											3
93											3
94											3
1495											3
96											3
97											3
98											3
99											3
1500											3
01	4	16	0								3
02											3
03											3
04											4
1505											4
06											4
07											4
08											4
09											4
1510											4
11	4	16	0								4
12											4
13											4
1514											4

SHEET TOTALS EST.	FINAL	UNIT	
~~1204~~	11.94	Acre	Clearing & Grubbing
~~26~~	26.	Sta	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~1100~~	3077	CY	Uncla. Roadway Excav.
~~1334~~	6447	CY	Embank. + Shr.
			~~EAST SIDE~~
~~1205~~		CY	Uncla. Roadway Excav.
~~1044~~		CY	Embank. + Shr.
		CY	Uncla. Chan. Excav.
		CY	Uncla. Roadway Excav.
		CY	Embank
0		YQ	Overhaul

2600' x 200' = 11.94 Ac.

26

| | | | | | | | | | | |



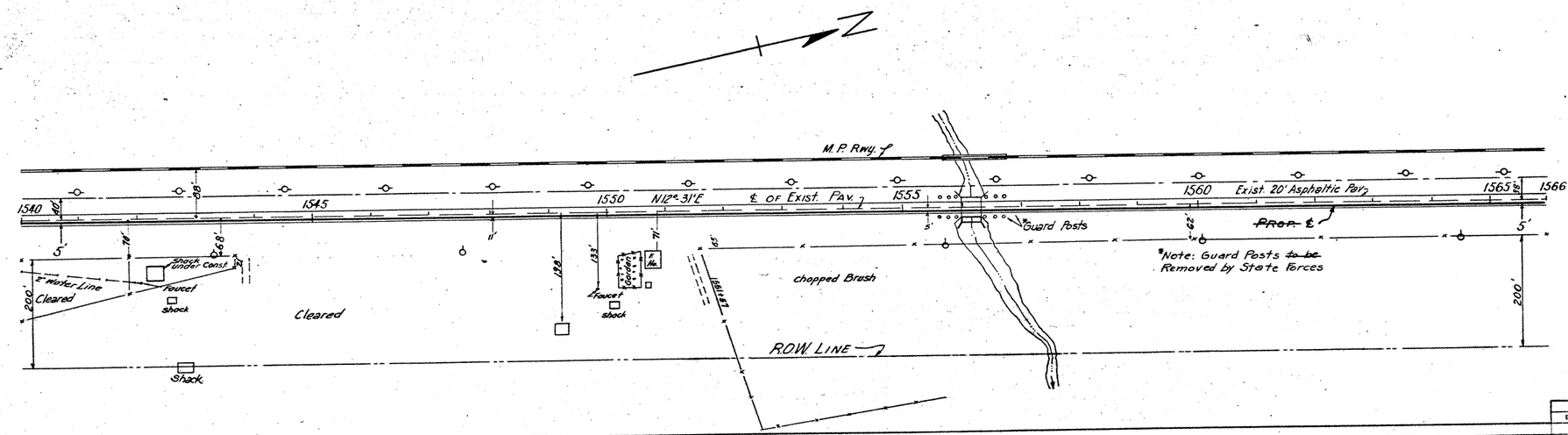
CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO
1514				15	44	15					4
15					4						4
16					4						4
17					4						4
18					4						4
19	4	16	0		4						2
1520	4				4						2
21					4						2
22					4						2
23					4				5	16	4
24					4						4
1525	4	16	0		4						2
26					4						4
27				18	4						4
28				15	4						4
29				15	4						4
1530					10						4
31					4						4
32					12						4
33					4						4
34					10						4
1535					12						4
36					15						4
37					11						4
38					4						4
39					4						4
1540					4						4

SHEET TOTALS EST	FINAL	UNIT	
~~5.87~~	5.87	Acre	Clearing & Grubbing
~~26~~	26.	Sta	Salvaging & Replacing Flex. Base
			WEST SIDE
~~1091~~	2249	CY	Uncls. Roadway Excav.
~~1536~~	5585	CY	Embank. + Shr.
			EAST SIDE
	~~804~~	CY	Uncls. Roadway Excav.
	~~3350~~	CY	Embank. + Shr.
		CY	Uncls. Chan. Excav.
		CY	Uncls. Roadway Excav.
		CY	Embank.
	12069	Y.Q.	Overhaul

[200' × ½ (976.3 + 1028.0)] + (200' × 40') + (228' × 200') + [½ (30' × 120')] = 5.87 Ac.
26

| | | | | | |



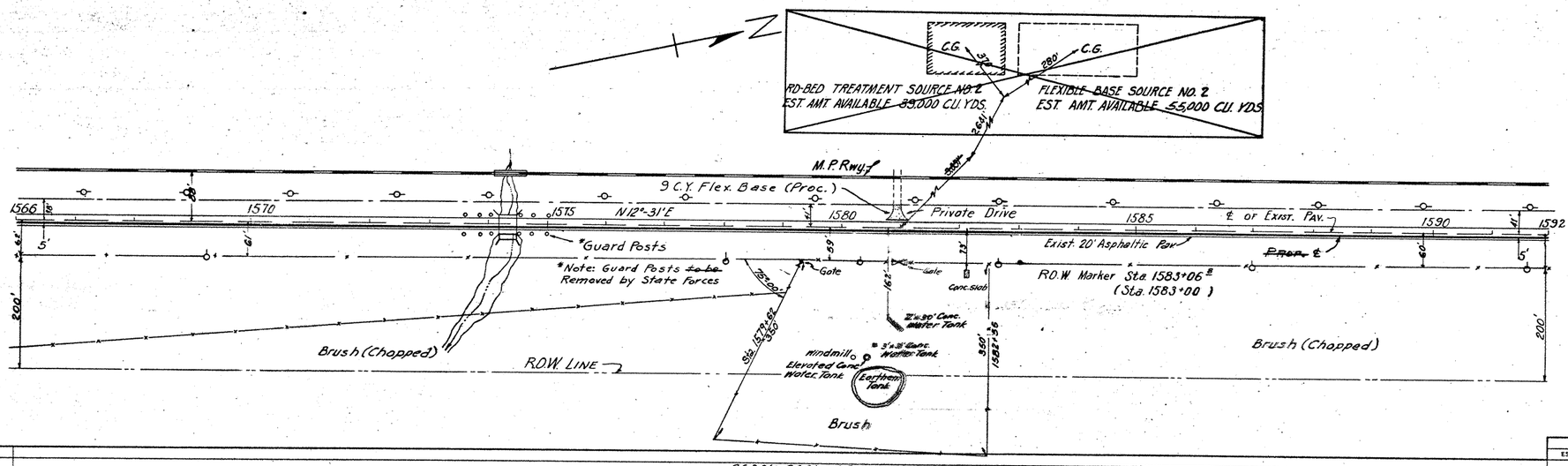
CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1540				15	44	15					4
41	4	16	0	"	"	"					2
42				"	"	"					4
43	4	16	0	"	"	"					2
44	2	"	"	"	"	"	0	16	4		3
1545	"	"	"	"	"	"	"	"	"		3
46	"	"	"	"	"	"	"	"	"		3
47	"	"	"	"	"	"	"	"	"		3
48	"	"	"	"	"	"	"	"	"		3
49	"	"	"	"	"	"	"	"	"		3
1550	3	"	"	"	"	"	"	"	"		3
51	"	"	"	"	"	"	"	"	"		3
52	"	"	"	"	"	"	"	"	"		3
53	"	"	"	"	"	"	"	"	"		3
54	"	"	"	"	"	"	"	"	"		3
1555				"	"	"					2
56				"	"	"					4
57	4	16	0	"	"	"					2
58	"	"	"	"	"	"					2
59	"	"	"	"	"	"					2
1560	"	"	"	"	"	"					2
61	"	"	"	"	"	"					2
62	"	"	"	"	"	"					2
63	"	"	"	"	"	"					2
64				"	"	"					4
1565			10	"	"	10					4
1566				"	"	"					4

SHEET TOTALS EST.	FINAL	UNIT	
~~735~~	735	Acre	Clearing & Grubbing
~~26~~	26	Sta	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~5485~~	10102	C.Y.	Uncls. Roadway Excav.
~~936~~	2448	C.Y.	Embank. + Shr.
			~~EAST SIDE~~
~~1505~~		C.Y.	Uncls. Roadway Excav.
~~1339~~		C.Y.	Embank. + Shr.
		C.Y.	Uncls. Chan. Excav.
	3046	C.Y.	Uncls. Roadway Excav.
	3046	C.Y.	Embank.
	1205	Y.D.	Overhaul

1600' x 200' = 735 Ac.
26

| | | | | |

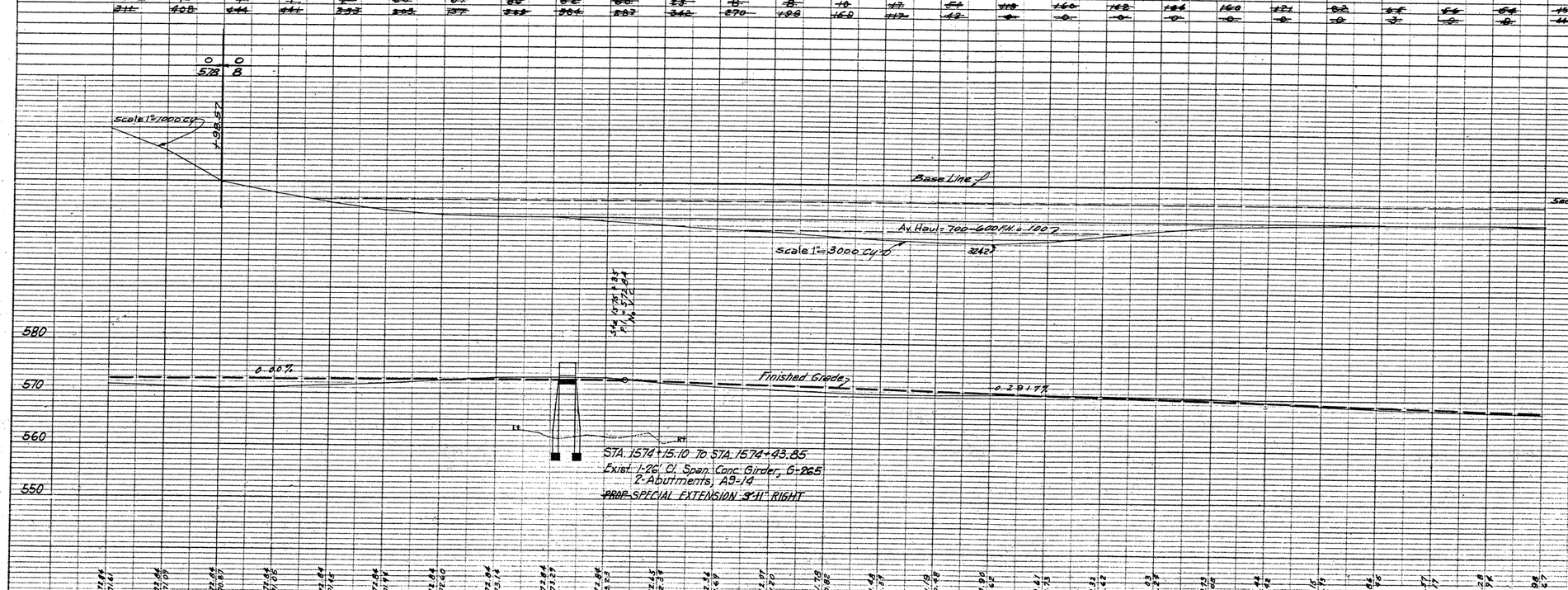


CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE, PER 100'	TYPICAL X-SECT. NO.
1566				10	44	10					4
67				"	"	"					4
68				8	"	15					4
69				"	"	10					4
1570				"	"	"					4
71				10	"	6					4
72				"	46	"					4
73				"	48	4					4
74				3	"	"					4
1575				10	"	"					4
76				"	44	10					4
77				"	"	"					4
78				15	"	15					4
79				"	"	"					4
1580				"	"	"					4
81				"	"	"					4
82	2	1	6	0	"	"	5	1	6	4	3
83	"	"	"	"	"	"	"	"	"	"	3
84	"	"	"	"	"	"	"	"	"	"	3
1585	"	"	"	"	"	"	"	"	"	"	3
86	"	"	"	"	"	"	"	"	"	"	3
87	"	"	"	"	"	"	"	"	"	"	3
88	"	"	"	"	"	"	"	"	"	"	3
89	"	"	"	"	"	"	"	"	"	"	3
1590	"	"	"	"	"	"	"	"	"	"	3
91	"	"	"	"	"	"	"	"	"	"	3
1592	"	"	"	"	"	"	5	1	6	0	3

2600' x 200' = 11.94 Ac.
26

SHEET TOTALS EST.	FINAL	UNIT	
~~5524~~	1194	Acre	Clearing & Grubbing
~~26~~	26	Sta	Salvaging & Replacing Flex. Base
			WEST SIDE
~~7~~ 12 ~~7~~ 0 ~~0~~ 0 ~~7~~ 0 ~~14~~ 18 ~~46~~ 53 ~~92~~ 110 ~~146~~ 165 ~~90~~ 117 ~~70~~ 144 ~~31~~ 82 ~~22~~ 65 ~~16~~ 56 ~~16~~ 59 ~~162~~ 67 ~~42~~ 110 ~~100~~ 211 ~~135~~ 327 ~~131~~ 347 ~~123~~ 794 ~~142~~ 242 ~~41~~ 185 ~~68~~ 155 ~~49~~ 123 ~~53~~ 122 ~~63~~ 85	~~1598~~	3151	CY	Uncls. Roadway Excav.
~~181~~ 423 ~~164~~ 586 ~~126~~ 646 ~~201~~ 522 ~~138~~ 451 ~~69~~ 321 ~~29~~ 168 ~~26~~ 204 ~~48~~ 272 ~~80~~ 387 ~~30~~ 269 ~~62~~ 258 ~~86~~ 213 ~~81~~ 225 ~~81~~ 186 ~~30~~ 163 ~~0~~ 58 ~~0~~ 87 ~~0~~ 24 ~~0~~ 31 ~~0~~ 153 ~~0~~ 172 ~~3~~ 83 ~~3~~ 87 ~~0~~ 89 ~~0~~ 263	~~1391~~	6291	CY	Embank. + Shr.
			EAST SIDE
~~1~~ ~~1~~ ~~1~~ ~~1~~ ~~2~~ ~~66~~ ~~67~~ ~~88~~ ~~96~~ ~~60~~ ~~23~~ ~~0~~ ~~8~~ ~~10~~ ~~17~~ ~~54~~ ~~118~~ ~~160~~ ~~162~~ ~~184~~ ~~160~~ ~~121~~ ~~62~~ ~~56~~ ~~56~~ ~~64~~	~~1519~~		CY	Uncls. Roadway Excav.
~~311~~ ~~408~~ ~~444~~ ~~441~~ ~~333~~ ~~203~~ ~~137~~ ~~233~~ ~~304~~ ~~283~~ ~~342~~ ~~270~~ ~~498~~ ~~168~~ ~~117~~ ~~42~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~3~~ ~~6~~ ~~10~~	~~1466~~		CY	Embank. + Shr.
			CY	Uncls. Chan. Excav.
			CY	Uncls. Roadway Excav.
			CY	Embank.
0			C.Y.	Overhaul



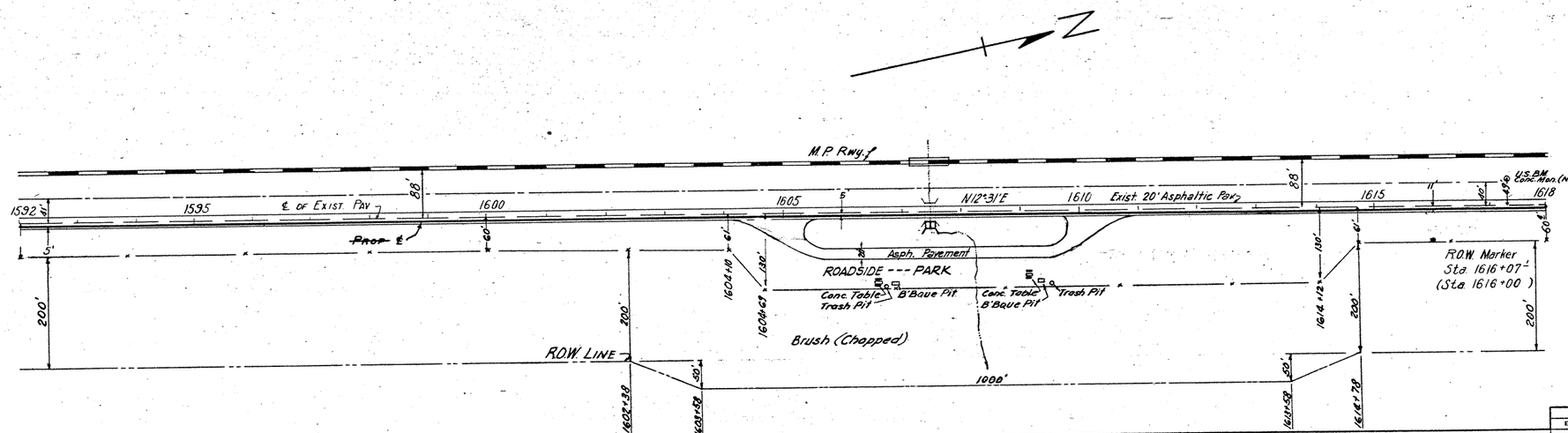
B.M.- N.E. Corner of West Curb of Bridge Sta. 1574+44 Elev. - 573.48

B.M.- Spike in telephone pole 50' Lt. of Exist. ℄ Sta. 1586+42 Elev - 571.12

B.M.- Nail in telephone pole 150' Lt. of Exist. ℄ 1588+25 Elev - 567.49

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165(6)	25A
STATE DIST. NO.	COUNTY	CONTROL SECTION JOB NO. / PROJ. NO.	
21	WEBB	12 2 1	112 01

170



CROSS SECTION DATA

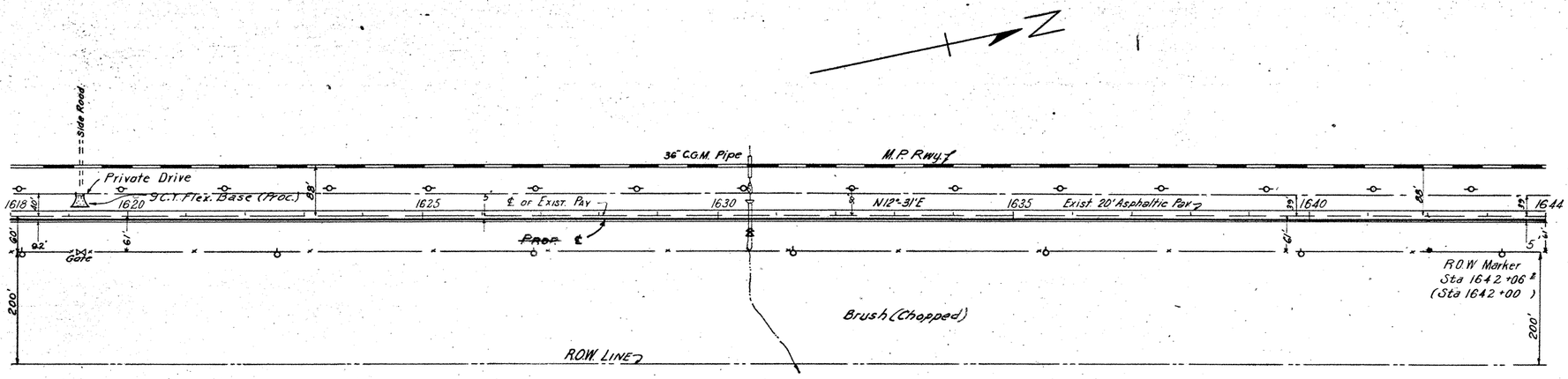
STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
X92	4	1.6	0	1.5	44	1.5	5	1.6	0		3
93	"	"	"	"	"	"					3
94	"	"	"	"	"	"					2
1595											2
96				"	"	"					4
97				"	"	"	5	1.6	0		4
98				"	"	"					4
99				"	"	"					4
1600			10	"	"	"					4
01			"	"	"	"	5	1.6	4		4
02			"	"	"	"	"	"	"		4
03			"	"	"	"					4
04			"	"	"	"					4
1605			"	"	"	"					4
06			"	"	"	"					4
07			6	"	"	10					4
08			"	"	"	"					4
09			"	"	"	"					4
1610			"	"	"	"					4
11			10	"	"	"					4
12	4	1.6	0	1.5	"	1.5					4
13	"	"	"	"	"	"	0	1.6	4		3
14	"	"	"	"	"	"	"	"	"		3
1615	3	"	"	"	"	"					3
16	2	"	"	"	"	"	3				3
17	"	"	"	"	"	"	"				3
1618	3	"	"	"	"	"	4				3

SHEET TOTALS EST.	FINAL	UNIT	
~~11.68~~	11.63	Acre	Clearing & Grubbing
~~26~~	26.	Sta	Salvaging & Replacing Flex. Base WEST SIDE
~~3780~~	6878	CY	Uncla. Roadway Excav.
~~1945~~	5933	CY	Embank. + Shr.
			~~EAST SIDE~~
~~3300~~		CY	Uncla. Roadway Excav.
~~3694~~		CY	Embank. + Shr.
		CY	Uncla. Chan. Excav.
		CY	Uncla. Roadway Excav.
		CY	Embank.
7545		YD.	Overhaul.

(1210'×200')+(200'×59')+(131'×343')+(200'×66')+(200'×322')+(1120'×50') = 11.63 Ac.
26 Sta

| | | | | | | | | | | |

172



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1618	3	1.6	0	15	44	15	0	16	4		3
19	4	"	"	"	"	"	"	"	"		3
1620	"	"	"	"	"	"	"	"	"		3
21	"	"	"	"	"	"	"	"	"		2
22	"	"	"	"	"	"	"	"	"		2
23	"	"	"	"	"	"	"	"	"		2
24				"	"	"					4
1625				"	"	"					4
26				"	"	"					4
27				"	"	"					4
28				"	"	"					4
29				"	"	"					4
1630	4	1.6	0	"	"	"					4
31	"	"	"	"	"	"					4
32	"	"	"	"	"	"					4
33				"	"	"					4
34	4	1.6	0	"	"	"					4
1635	"	"	"	"	"	"					4
36	"	"	"	"	"	"					4
37	"	"	"	"	"	"					4
38	"	"	"	"	"	"					4
39	"	"	"	"	"	"					4
1640	"	"	"	"	"	"					4
41	"	"	"	"	"	"					4
42	"	"	"	"	"	"	5	1.6	4		4
43	"	"	"	"	"	"	0	1.6	0		2
1644	"	"	"	"	"	"					2

SHEET TOTALS EST	FINAL	UNIT	
~~1106~~	11.94	Acre	Clearing & Grubbing
~~2.6~~	2.6	Sta	Salvaging & Replacing Flex. Base
			WEST SIDE
~~576~~	954	CY	Uncla. Roadway Excav.
~~0~~	0	CY	Embank. + Shr.
			EAST SIDE
~~416~~	~~210~~	CY	Uncla. Roadway Excav.
~~0~~	~~0~~	CY	Embank. + Shr.
		CY	Uncla. Chan. Excav.
	262	CY	Uncla. Roadway Excav.
	8	CY	Embank.
		599	YD. Overhaul

2600' x 200' = 11.94 Ac.

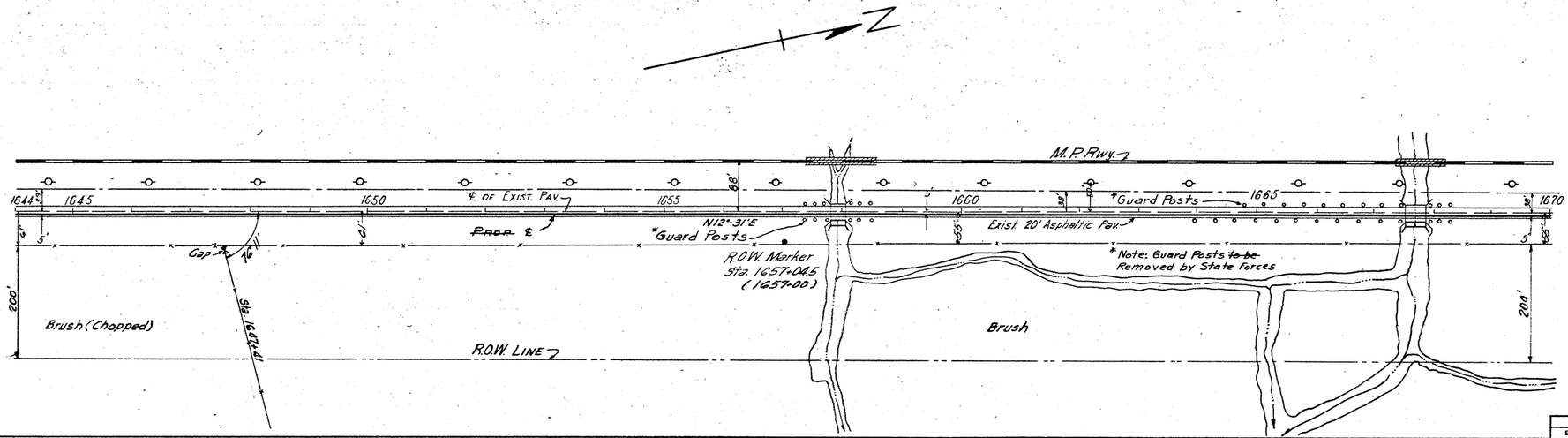
2.6 Sta

O.H. = 710 X 1114 ÷ 1320 = 599 Y.D.

B.M. - N.E. Corner of West Hdwl. of Box Culv. Sta. 1630+57 Elev. - 548.62

B.M. - Spike in telephone pole 150' Lt. Sta. 1643+90 Elev. - 550.08

TOT. PROJ. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
0	TEXAS	I-165(4)	37A
STATE DIST. NO.	COUNTY	CONTROL SECTION JOB NO.	JOB NO.	HIGHWAY NO.
18	WEBB	18	374	U.S. 81



CROSS SECTION DATA

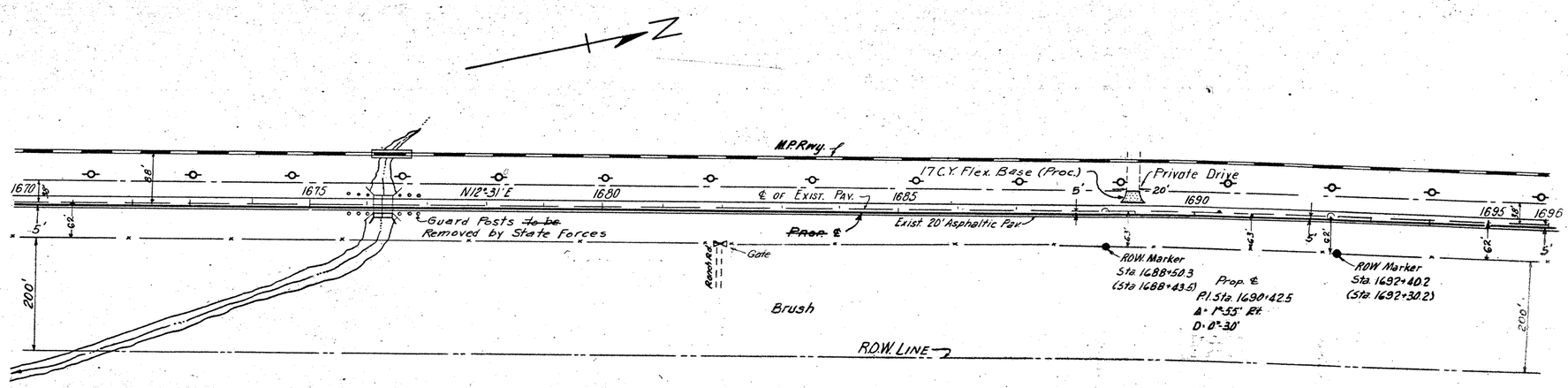
STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO.
1644	3	1.5	0	1.5	44	1.5	5	1.5	0		4
1645				"	"	"					4
46				1.0	"	1.0					4
47				"	"	"					4
48				"	"	1.5					4
49				"	"	"					4
1650				1.5	"	1.0					4
51				"	"	1.5					4
52				"	"	"					4
53				1.0	"	"					4
54				"	"	"					4
1655				"	"	"					4
56				1.5	"	1.0					4
57				"	"	"					4
58				"	"	"					4
59				1.0	"	1.5					4
1660				"	"	"					4
61				"	"	"					4
62				6	46	6					4
63				"	"	"					4
64				"	"	"					4
1665				11	"	6					4
66				6	46	6					4
67				6	48	"					4
68				3	"	4					4
69				6	"	"					4
1670				"	66	"					4

SHEET TOTALS		
EST.	FINAL	UNIT
~~77.32~~	11.94	Acre
~~80~~	26.	Sta.

2600'x 200' = 11.94 Ac.

2.6 Sta.

| | | | | |



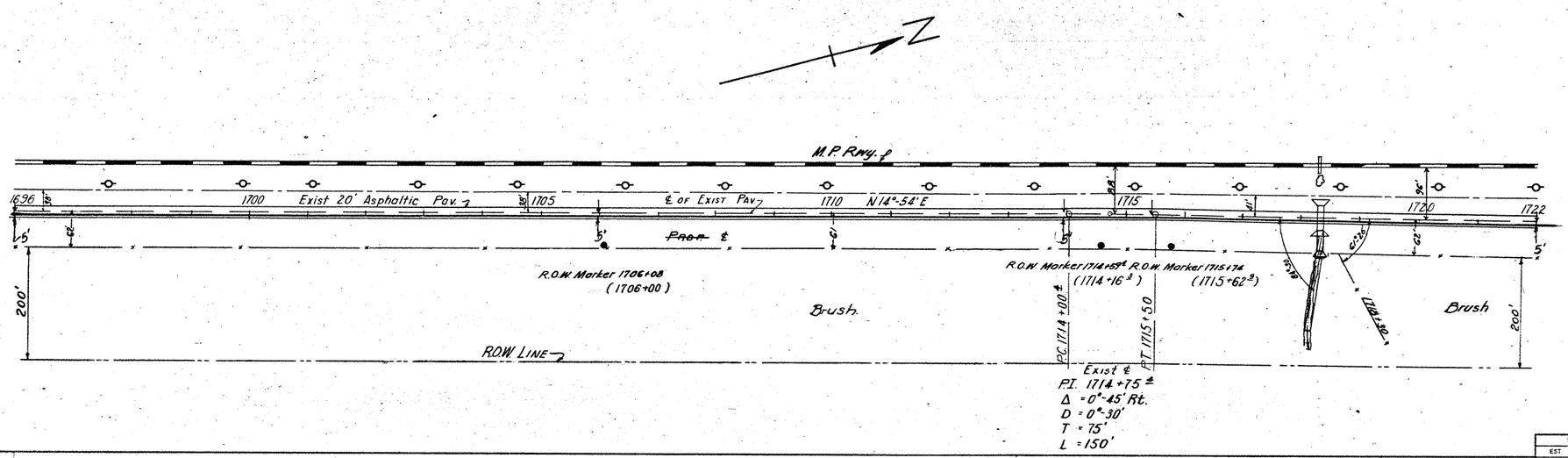
CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1670				6	46	4					4
71				"	"	"					4
72				"	"	"					4
73				"	"	"					4
74				10	"	"					4
1675				7	48	"					4
76				6	"	3					4
77				6	"	6					4
78				5	44	"					4
79				"	"	8					4
1680	4	1.6	0	"	"	10					4
81				"	"	"					4
82	4	1.6	0	"	"	5					4
83	"	"	"	"	"	"					4
84	"	"	"	"	"	"					4
1685	"	"	"	"	"	"					4
86	"	"	"	"	"	5	16	6			4
87	"	"	"	"	"	"	"	"			4
88	"	"	"	"	"	"	"	"			4
89	"	"	"	"	"	"	"	"			4
1690	"	"	"	"	"	"	"	"			4
91	"	"	"	"	"	"	"	"			4
92	"	"	"	"	"	"	"	"			4
93	"	"	"	"	"	"	"	"			4
94	"	1.3	"	"	"	"	"	"			4
1695	"	1.6	"	"	"	"	"	"			4
1696	"	1.3	"	"	"	"	"	"			4

SHEET TOTALS EST	FINAL	UNIT	
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~26~~	26.	Sta	Salvaging & Replacing Flex. Base
			WEST SIDE
~~3355~~	5595	CY	Uncls. Roadway Excav.
~~204~~	3318	CY	Embank. + Shr.
			EAST SIDE
~~4108~~		CY	Uncls. Roadway Excav.
~~3078~~		CY	Embank. + Shr.
		CY	Uncls. Channel. Excav.
		CY.	Uncls. Roadway Excav.
		CY	Embank.
6166		YR	Overhaul

2600' x 200' = 11.94 Ac.
26

| | | | | |

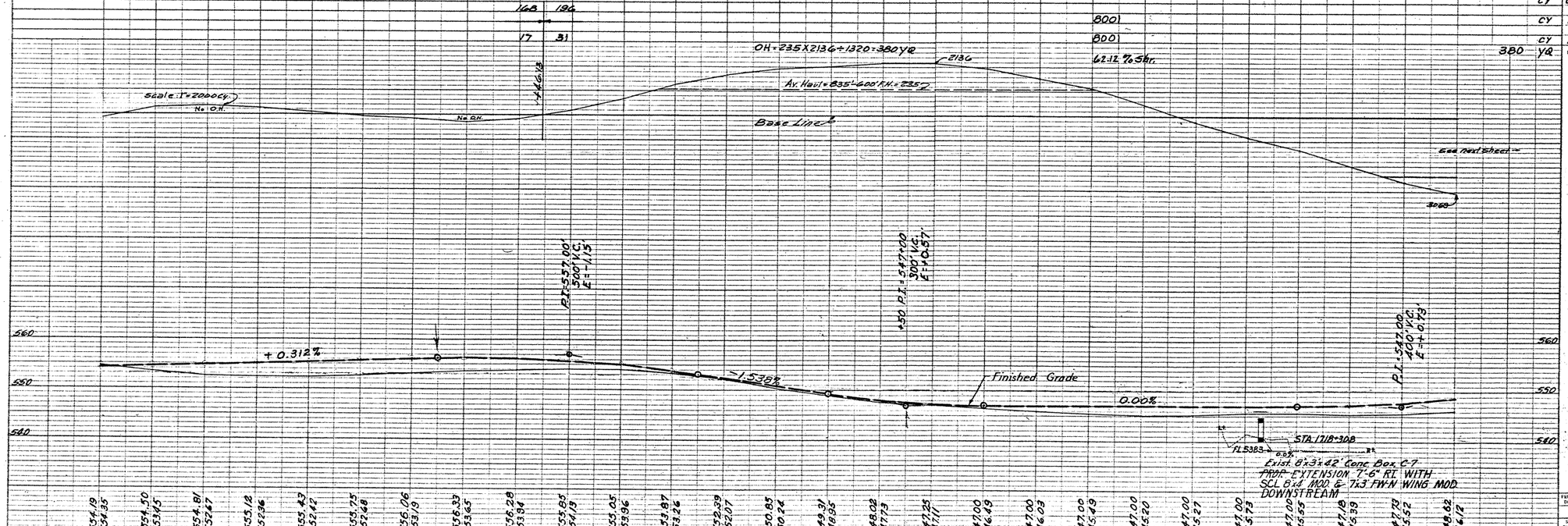


CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	COMYN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1696	2	16.5	15	4	15	5	16.4				3
97	"	"	"	"	10						2
98	4	"	"	"	"						2
99	2	"	"	"	"						2
1700	"	"	"	"	"						2
01	4	"	"	"	"						2
02	2	"	"	"	"						2
03	"	"	"	"	"						2
04	"	"	"	"	"						2
1705	"	"	"	"	15	0	16.4				3
06	"	"	"	"	"						3
07	3	"	"	"	"						3
08	4	"	"	"	8						2
09	"	"	"	"	"						2
1710				"	6						2
11				12	"						4
12				6	"						4
13				4	46						4
14				"	48	4					4
1715				"	"						4
16				"	"						4
17				"	"						4
18				6	"						4
19				"	"						4
1720				"	"						4
21				"	"						4
1722				"	"						4

SHEET TOTALS EST	FINAL	UNIT	
~~11.96~~	11.94	Acre	Clearing & Grubbing
~~26~~	26.	Sta.	Salvaging & Replacing Flex. Base
			WEST SIDE
~~111~~ 432 ~~7~~ 213 ~~0~~ 92 ~~0~~ 71 ~~0~~ 76 ~~0~~ 81 ~~0~~ 105 ~~0~~ 229 ~~0~~ 364 ~~24~~ 538 ~~69~~ 574 ~~57~~ 467 ~~54~~ 333 ~~43~~ 220 ~~127~~ 185 ~~143~~ 135 ~~54~~ 28 ~~28~~ 6 ~~0~~ 7 ~~0~~ 0 ~~0~~ 0 ~~4~~ 0 ~~4~~ 0 ~~4~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 20 ~~779~~	4156	CY	Uncla. Roadway Excav.
~~128~~ 27 ~~450~~ 107 ~~873~~ 195 ~~1053~~ 213 ~~1125~~ 192 ~~1131~~ 265 ~~1001~~ 215 ~~822~~ 82 ~~509~~ 48 ~~336~~ 24 ~~153~~ 21 ~~59~~ 26 ~~35~~ 84 ~~140~~ 115 ~~56~~ 73 ~~53~~ 118 ~~128~~ 245 ~~209~~ 370 ~~385~~ 454 ~~385~~ 455 ~~198~~ 746 ~~353~~ 559 ~~356~~ 517 ~~451~~ 645 ~~633~~ 621 ~~803~~ 454 ~~12356~~	7061	CY	Embank. + Shr.
			EAST SIDE
		CY	Uncla. Roadway Excav.
		CY	Embank. + Shr.
		CY	Uncla. Chan. Excon.
		CY	Uncla. Roadway Excav.
		CY	Embank.
	380	Y.D.	Overhaul

2600' x 200' = 11.94 Ac.



BM. - Nail in mesq. tree 150' Rt. of Exist ℄ Sta. 1712+40
Elev. = 543.45

BM. - N.E. Corner of West Curb of Culv. Sta. 1718+31
Elev. 545.65

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET
6	TEXAS	F-165(2)	30-A
STATE DIST. NO.	COUNTY	CONTROL SECTION	JOB
21	WEBB	18 3-4	9

HIGHWAY US-81

173

~~Prop~~ ℄
P.I. Sta 1731+290
Δ = 2°-16' Lt.
D = 1°-00'
T = 113.3
L = 226.7
e = 0.02 ft.

N

1722 | 1725 | Exist. 20' Asphaltic Pav't | 1730 | 1735 | ℄ of Exist. Pav't | 1740 | 1745 | 1748

42' | 5' | 58' | 63' | 5' | 5' | 5' | 58' | 62'

Prop ℄

ROW Marker Sta. 1730+08.7 (Sta 1729+94.6)

ROW Marker Sta. 1732+35.9 (Sta 1732+19.6)

N13°-03'E

35°-18'

ROW Marker Sta. 1740+87.4 (Sta 1740+18.6)

~~Prop ℄~~
P.I. 1741.535
Δ = 1°-23' Rt.
D = 0°-30'
T = 138.4
L = 276.6

200'

Brush

ROW LINE

Sta 1737+72

Clear (Chopped Brush)

200'

CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100	TYPICAL X SECT. NO.
1722				6	48	4						4
23	"	"	"	"	"	"						4
24	"	"	"	"	"	"						4
1725	4	16	0.15	44	16							2
26	"	"	"	"	"	"						2
27	"	"	"	"	"	"	0	16	4			5
28	2	"	"	"	"	"	"	"	0			3
29	"	"	"	"	"	"	"	"	"			3
1730	"	"	"	"	"	"	"	"	"			3
31	"	"	"	"	"	"	"	"	"			3
32	"	"	"	"	"	"	"	"	"			3
33	"	"	"	"	"	"	"	"	"			3
34	"	"	"	"	"	"	"	"	"			3
1735	"	"	"	"	"	"	"	"	"			3
36	"	"	"	"	"	"	"	"	"			3
37	"	"	"	"	"	"	"	"	"			3
38	4	"	"	"	"	"	"	"	"			4
39	2	"	"	"	"	"	"	"	"			3
1740	4	"	"	"	"	"	"	"	"			3
41	"	"	"	"	"	"	"	"	"			3
42	"	"	"	"	"	"	"	"	"			3
43	"	"	"	"	"							2
44			"	"	"							4
1745			"	"	"							4
46			"	"	"							4
47			"	"	"							4
1748			"	"	"							4

SHEET TOTALS EST.	FINAL	UNIT	
~~77.94~~	11.92	Acre	Clearing & Grubbing
~~86~~	26.	Sta	Salvaging & Replacing Flex. Base
			WEST SIDE
~~130.46~~	10641	CY	Uncls. Roadway Excav.
~~1150~~	5230	CY	Embank. + Shr.
			EAST SIDE
~~72~~	~~77~~	~~89~~ ~~58~~	CY Uncls. Roadway Excav.
~~128~~	~~95~~	~~84~~ ~~307~~	CY Embank. + Shr.
			CY Uncls. Chan. Excav.
			CY Uncls. Roadway Excav.
			CY Embank.
	3679	YD.	Overhaul

2600' x 200' = 11.94 Ac.
26

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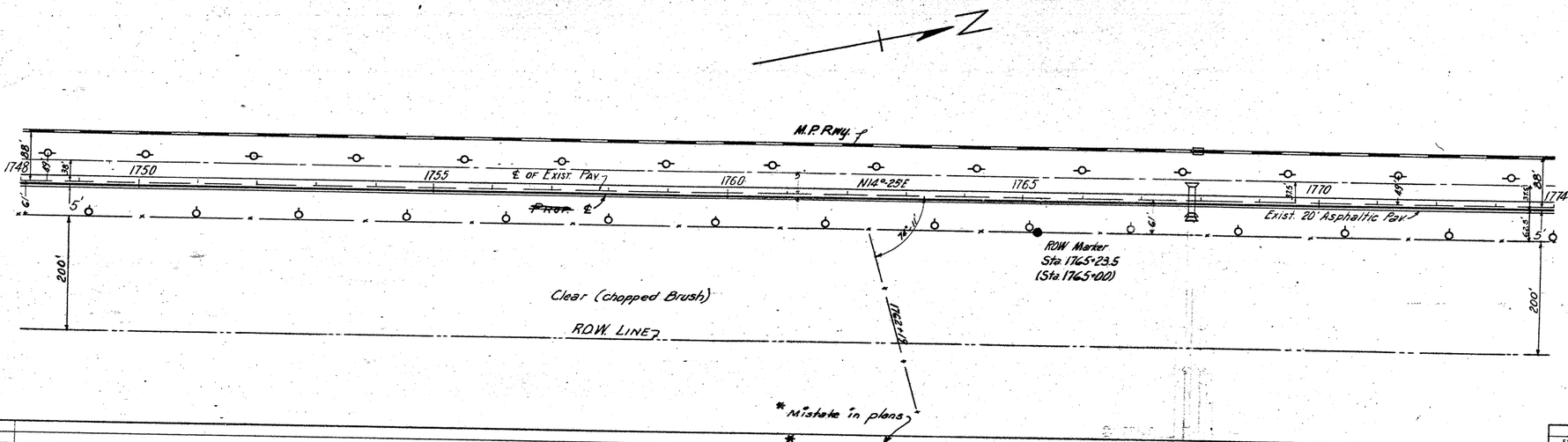


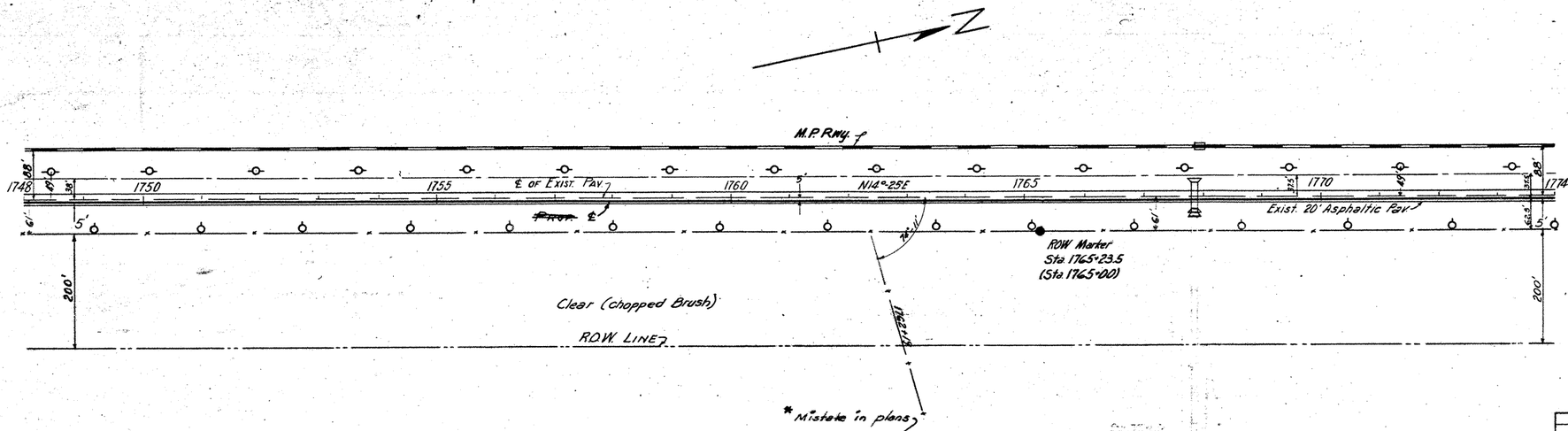
CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100	TYPICAL X-SECT NO.
1748				15	44	15					
49				"	"	"					
1750				"	"	"					
51	4	1.6	0	"	"	"					
52	"	"	"	"	"	"					
53	"	"	"	"	"	"					
54	"	"	"	"	"	"					
1755	"	"	"	"	"	"					
56	"	"	"	"	"	"					
57	"	"	"	"	"	"					
58	"	"	"	"	"	"					
59	"	"	"	"	"	"					
1760	"	"	"	"	"	"					
61	"	"	"	"	"	"					
62	"	"	"	"	"	"					
63	"	"	"	"	"	"					
64	"	"	"	"	"	"					
1765	"	"	"	"	"	"					
66	4	1.6	0	"	"	"					
67	"	"	"	"	"	"					
68	"	"	"	"	"	"					
69	4	1.6	0	"	"	"					
1770	"	"	"	"	"	"					
71	"	"	"	"	"	"					
72	"	"	"	"	"	"					
73	"	"	"	"	"	"					
1774	"	"	"	"	"	"					

(2600'÷200') ~~PROP. EXTENSION~~ = 11.92

2.6 Sta

| | | | | |



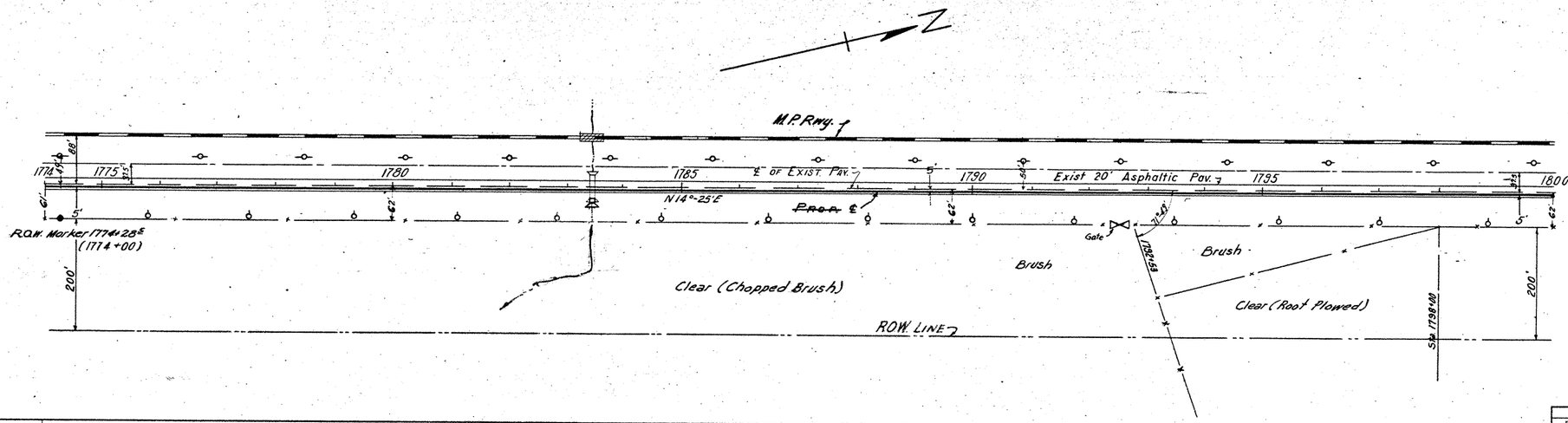
CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100	TYPICAL X-SECT. NO.
1748					15	4:1	15				2
49					"	"	"				2
1750					"	"	"				2
51	4	1.6	0		"	"	"				2
52	"	"	"		"	"	"				2
53	"	"	"		"	"	"				2
54	"	"	"		"	"	"				2
1755	"	"	"		"	"	"				2
56	"	"	"		"	"	"				2
57	"	"	"		"	"	"				2
58					"	"	"				4
59					"	"	"				4
1760					"	"	"				4
61					"	"	"				4
62					"	"	"				4
63					"	"	"				4
64					"	"	"				4
1765					"	"	"				4
66	4	1.6	0		"	"	"				2
67	"	"	"		"	"	"				2
68	"	"	"		"	"	"				2
69	4	1.6	0		"	"	"				2
1770	"	"	"		"	"	"				2
71	"	"	"		"	"	"				2
72	"	"	"		"	"	"				2
73	"	"	"		"	"	"				2
1774	"	"	"		"	"	"				2

SHEET TOTALS EST	FINAL	UNIT	
~~10.20~~	11.94	Acre	Clearing & Grubbing
~~26~~	26.	Sta	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~1259~~	1580	CY	Uncla. Roadway Excav.
~~768~~	4106	CY	Embank. + Shr.
			~~EAST SIDE~~
~~1758~~		CY	Uncla. Roadway Excav.
~~1295~~		CY	Embank. + Shr.
		CY	Uncla. Chan. Excav.
12	31	CY	Uncla. Roadway Excav.
52	105	CY	Embank.
		D Yd	Overhaul

(2600' × 200') ~~10.20~~ = 11.94 Acre
26 Sta

| | | | | |



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1774	4	1.6	0	1.5	44	1.5					2
1775	"	"	"	"	"	"					2
76	"	"	"	"	"	"					2
77	"	"	"	"	"	"					2
78	"	"	"	"	"	"					2
79				"	"	"					4
1780				"	"	"					4
81				"	"	1.0					4
82				"	"	"					4
83				"	"	"					4
84				"	"	1.5					4
1785				"	"	"					4
86				"	"	"					4
87				"	"	"					4
88	4	1.6	0	"	"	"					2
89	"	"	"	"	"	"					2
1790	"	"	"	"	"	"					2
91	"	"	"	"	"	"					2
92	"	"	"	"	"	"					2
93	"	"	"	"	"	"					2
94	"	"	"	"	"	"					2
1795				"	"	"					4
96				"	"	"					4
97				"	"	"					4
98	4	1.6	0	"	"	"					2
99	"	"	"	"	"	"					2
1800	"	"	"	"	"	"					2

SHEET TOTALS EST	FINAL	UNIT	
~~11.94~~	11.94	Acre	Clearing & Grubbing
~~26.~~	26.	Sta	Salvaging & Replacing Flex. Bases:
			WEST SIDE
~~1045~~	1131	CY	Uncla. Roadway Excav.
~~509~~	4468	CY	Embank. + Shr.
			EAST SIDE
~~870~~		CY	Uncla. Roadway Excav.
~~2239~~		CY	Embank. + Shr.
		CY	Uncla. Chan. Excav.
		CY	Uncla. Roadway Excav.
		CY	Embank.
	0	YD	Overhaul

2600' x 200' = 11.94 Ac.

26 Sta.

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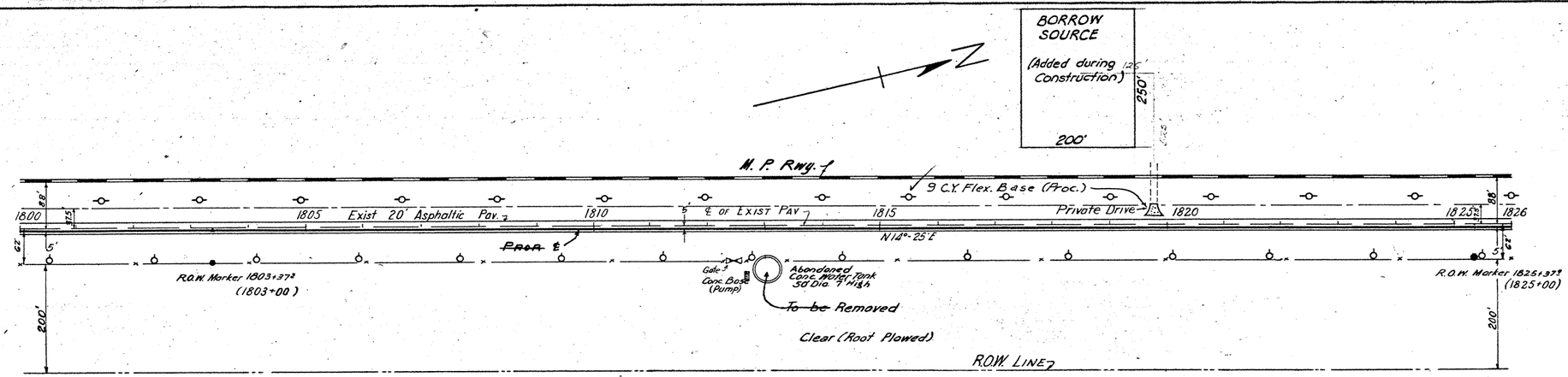

CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1800	4	1.6	0	1.5	44	1.5					2
01	"	"	"	"	"	"					2
02	4	1.6	0	"	"	"					2
03	"	"	"	"	"	"					2
04	"	"	"	"	"	"	10				2
1805	"	"	"	"	"	"					2
06	"	"	"	"	"	"					2
07	"	"	"	"	"	"					2
08	"	"	"	"	"	"					4
09	4	1.6	0	"	"	"					2
1810	"	"	"	"	"	"					2
11	"	"	"	"	"	"					2
12	"	"	"	"	"	"	15				3
13	"	"	"	"	"	"					2
14	"	"	"	"	"	"					2
1815	"	"	"	"	"	"					2
16	"	"	"	"	"	"					2
17	"	"	"	"	"	"					2
18	"	"	"	"	"	"					4
19	4	1.6	0	"	"	"					2
1820	"	"	"	"	"	"					2
21	"	"	"	"	"	"					2
22	"	"	"	"	"	"					2
23	"	"	"	"	"	"					2
24	"	"	"	"	"	"					2
1825	"	"	"	"	"	"					2
1826	"	"	"	"	"	"					2

SHEET TOTALS EST	FINAL	UNIT	
~~11.82~~	13.09	Acre	Clearing & Grubbing
~~20~~	20	Sta.	Salvaging & Replacing Flex. Base
			WEST SIDE
~~1509~~		CY	Uncla. Roadway Excav.
~~3908~~		CY	Embank. + Shr.
			EAST SIDE
~~1890~~		CY	Uncla. Roadway Excav.
~~1446~~		CY	Embank. + Shr.
		CY	Uncla. Chan. Excav.
	10469	CY	Uncla Borrow
		CY	Uncla. Roadway Excav.
		CY	Embank.
	10169	YD	Overhaul

250'+200'+2600'x200' = ~~11.82~~ Ac. 13.09

26

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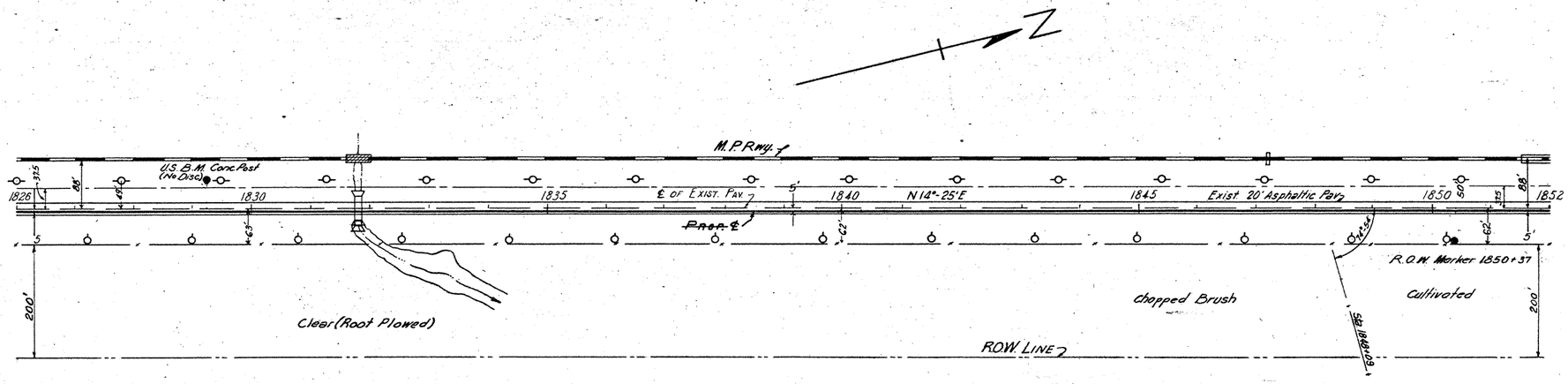

CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL & SECT. NO.
1826	4	1.6	0	1.5	44	1.5					1
27	1.5	1.5	1.5	1.5	1.5	1.5					2
28	1.5	1.5	1.5	1.5	1.5	1.5					2
29	1.5	1.5	1.5	1.5	1.5	1.5					2
1830				1.5	1.5	1.5					4
31				1.5	1.5	1.5					4
32				1.5	1.5	1.5					4
33				1.5	1.5	1.5					4
34				1.5	1.5	1.5					4
1835				1.5	1.5	1.5					4
36	4	1.6	0	1.5	1.5	1.5					2
37	1.5	1.5	0	1.5	1.5	1.5					2
38	1.5	1.5	1.5	1.5	1.5	1.5					2
39	1.5	1.5	1.5	1.5	1.5	1.5					2
1840	1.5	1.5	1.5	1.5	1.5	1.5					2
41	1.5	1.5	1.5	1.5	1.5	1.5					2
42	1.5	1.5	1.5	1.5	1.5	1.5					2
43				1.5	1.5	1.5					2
44				1.5	1.5	1.0					4
1845				1.5	1.5	1.5					4
46				1.0	1.5	1.5					4
47				1.5	1.5	1.2					4
48				1.0	1.5	1.5					4
49				1.6	1.5	1.5					4
1850				1.5	1.5	1.5					4
51				1.5	1.5	1.5					4
52				1.5	1.5	1.5					4

SHEET TOTALS EST	FINAL	UNIT	
~~10.37~~	10.37	Acre	Clearing & Grubbing
~~26~~	26.	Sta	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~2531~~	2531	CY	Uncla. Roadway Excav.
~~5519~~	5519	CY	Embank. + Shr.
			~~EAST SIDE~~
~~1114~~		CY	Uncla. Roadway Excav.
~~2323~~		CY	Embank. + Shr.
		CY	Uncla. Chan. Excav.
		CY	Uncla. Roadway Excav.
		CY	Embank.
8722		YD.	Overhaul

200' x ½ (2226+2280) = 10.37 Ac.

26

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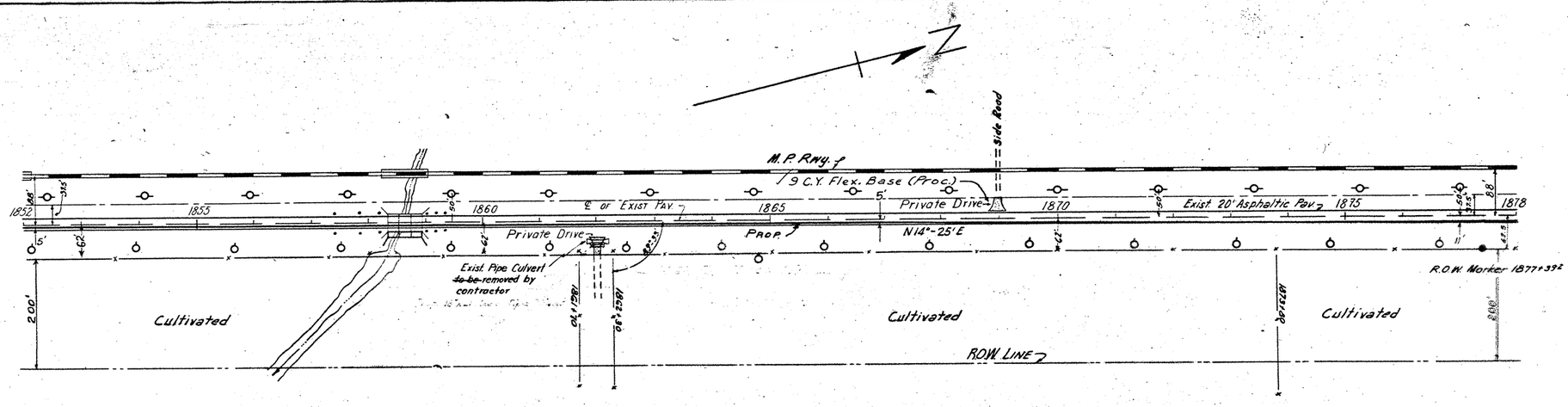
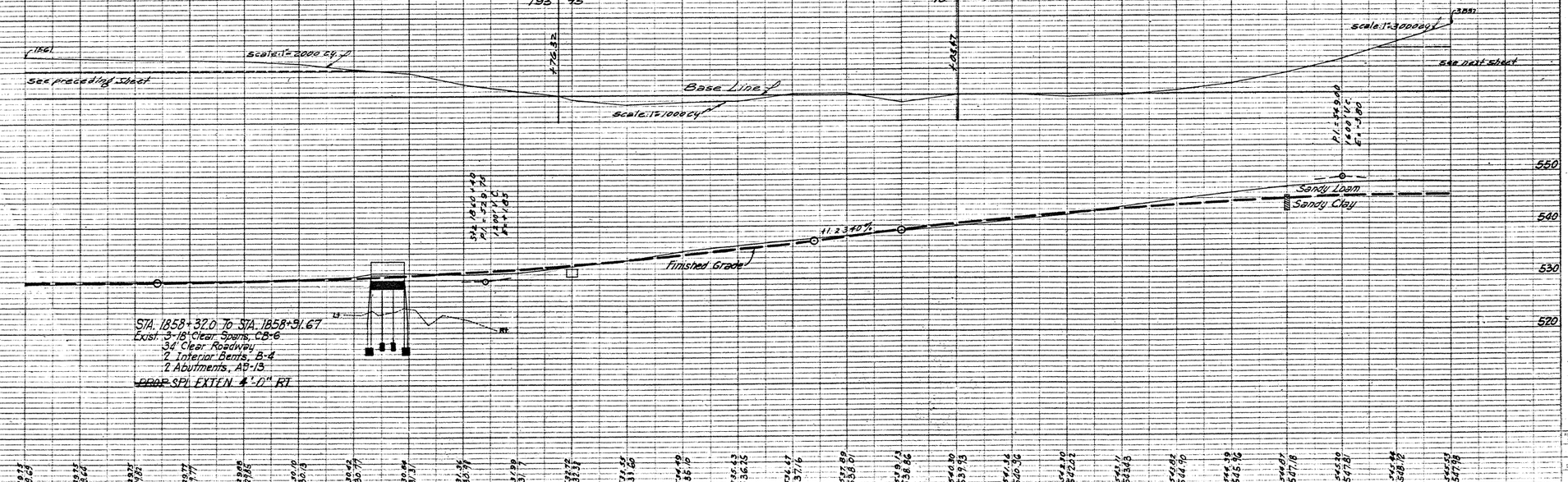


CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X-SECT. NO.
1852			15	4:1	15						4
53			"	"	10						4
54			"	"	15						4
1855			"	"	"						4
56			"	"	"						4
57			"	"	"						4
58			"	"	6						4
59			"	"	"						4
1860			"	"	10						4
61			"	"	"						4
62			15	"	"						4
63	4	1.6	0	"	"						4
64	"	"	"	"	"						5
1865	"	"	"	"	"						5
66	"	"	"	"	"						5
67	"	"	"	"	"						5
68	"	"	"	"	"						5
69	"	"	"	"	"						5
1870	4	1.6	0	"	15						5
71	"	"	"	"	"						5
72	"	"	"	"	"						5
73	"	"	"	"	"						5
74	"	"	"	"	"						5
1875	"	"	"	"	"						5
76	"	"	"	"	"						5
77	"	"	"	"	"						5
1878	"	"	"	"	"						5

SHEET TOTALS EST.	FINAL	UNIT	
~~0~~	0	Acre	Clearing & Grubbing
~~26~~	26	Sta	Salvaging & Replacing Flex. Base. WEST SIDE
~~50~~ 55 ~~50~~ 71 ~~57~~ 111 ~~57~~ 107 ~~74~~ 89 ~~69~~ 101 ~~49~~ 44 ~~57~~ 73 ~~34~~ 35 ~~31~~ 28 ~~43~~ 52 ~~146~~ 181 ~~178~~ 225 ~~161~~ 200 ~~118~~ 125 ~~98~~ 43 ~~96~~ 360 ~~96~~ 240 ~~160~~ 85 ~~116~~ 154 ~~235~~ 280 ~~295~~ 435 ~~376~~ 676 ~~459~~ 785 ~~504~~ 946 ~~140~~ 977 ~~1150~~ 6424		CY	Uncls. Roadway Excav.
~~104~~ 120 ~~111~~ 142 ~~95~~ 116 ~~128~~ 135 ~~208~~ 181 ~~204~~ 328 ~~42~~ 204 ~~208~~ 509 ~~311~~ 330 ~~179~~ 286 ~~99~~ 156 ~~0~~ 110 ~~0~~ 211 ~~0~~ 77 ~~0~~ 116 ~~0~~ 209 ~~0~~ 218 ~~3~~ 241 ~~3~~ 228 ~~0~~ 103 ~~0~~ 45 ~~0~~ 11 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~1054~~ 4088		CY	Embank. + Shr. EAST SIDE
~~46~~ ~~55~~ ~~43~~ ~~66~~ ~~69~~ ~~45~~ ~~69~~ ~~98~~ ~~33~~ ~~113~~ ~~60~~ ~~204~~ ~~30~~ ~~70~~ ~~48~~ ~~48~~ ~~158~~ ~~0~~ ~~100~~ ~~0~~ ~~195~~ ~~0~~ ~~169~~ ~~0~~ ~~101~~ ~~60~~ ~~61~~ ~~39~~ ~~46~~ ~~46~~ ~~32~~ ~~51~~ ~~43~~ ~~52~~ ~~67~~ ~~36~~ ~~135~~ ~~44~~ ~~331~~ ~~9~~ ~~315~~ ~~0~~ ~~116~~ ~~0~~ ~~520~~ ~~0~~ ~~520~~ ~~0~~ ~~3990~~ ~~1216~~		CY	Uncls. Roadway Excav.
		CY	Embank. + Shr.
		CY	Uncls. Chan. Excav.
		CY	Uncls. Roadway Excav.
		CY	Embank.
		YQ	Overhaul

1202
1202
21 7
193 95
97.05 % Shr.
9 237
10 231

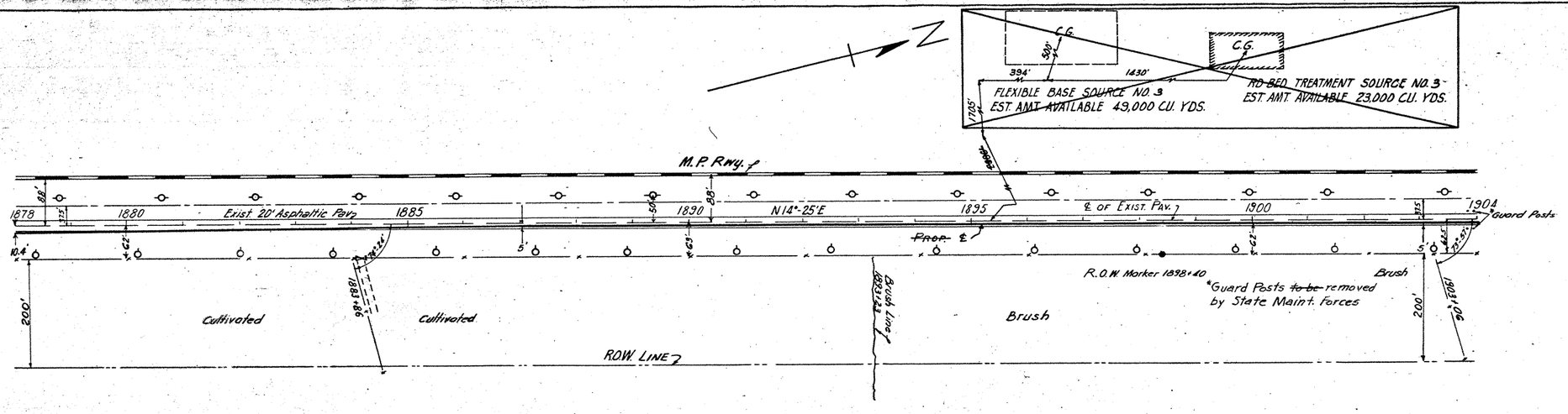


BM.- NE corner of West Curb of Bridge Sta. 1858+92 Elev. 531.02

BM.- Nail in telephone Pole 150' Lt of Exist ℄ Sta 1877+65 Elev. 542.95

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET
6	TEXAS	I-165(14)	36-A
DIST. NO.	COUNTY	HIGHWAY OR PUBLIC ROAD NO.	SHEET NO.
21	WEBB	18 3-4 9 U.S.81	

181



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO.
1878	4	1.6	0	1.5	44	1.5	0	1.6	4		3
79	"	"	"	"	"	"	"	"	"		3
1880	"	"	"	"	"	"	"	"	"		3
81	"	"	"	"	"	"	"	"	"		3
82	"	"	"	"	"	"	"	"	"		3
83	"	"	"	"	"	"	"	"	"		2
84	"	"	"	"	"	"	"	"	"		2
1885	"	"	"	"	"	"	"	"	"		2
86				"	"	"					2
87				"	"	"					4
88				"	"	"					4
89				"	"	"					4
1890				"	"	"					4
91	4	1.6	0	"	"	"					2
92				"	"	"					2
93				"	"	"					2
94				"	"	"					2
1895				"	"	"					4
96	4	1.6	0	"	"	1.5					2
97	"	"	"	"	"	"					2
98				"	"	"					4
99				"	"	"					4
1900				"	"	"					4
01				6	"	10					4
02				4	"	8					4
03				"	"	"					4
1904				"	48	6					4

SHEET TOTALS EST	FINAL	UNIT	
~~4.94~~	4.94	Acre	Clearing & Grubbing
~~26.~~	26.	Sta	Salvaging & Replacing Flex. Base
			WEST SIDE
~~336~~	333	CY	Uncls. Roadway Excav.
~~8~~	7965	CY	Embank. & Shr.
			EAST SIDE
~~337~~		CY	Uncls. Roadway Excav.
~~3072~~		CY	Embank. & Shr.
		CY	Uncls. Chan. Excav.
	15560	CY	Uncls. Roadway Excav.
	16560	CY	Embank.
	4662	YD	Overhaul

1077' x 200' = 4.94 Ac.

26 Sta.

711 | 396 | 240 | 47 | 31 | 95 | 81 | 67 | 111 | 130 | 131 | 100 | 119 | 135 | 52 | 79 | 92 | 75 | 134 | 202 | 158 | 140 | 0 | 0 | 0 | 7

0 | 8 | 42 | 117 | 134 | 153 | 265 | 369 | 444 | 501 | 463 | 342 | 242 | 216 | 228 | 263 | 284 | 321 | 262 | 139 | 227 | 312 | 525 | 700 | 744 | 476

O.H. = 1185 X 5193 ÷ 1320 = 4662 YD.

54.27 % Shr.

Av. Haul = 1785 - 600 EM. = 1185'

Scale: 1" = 3000 CY.

Base Line ℄

Finished Grade

-0.44.33%

-0.36+13%

-1.21+74

P.I. = 539.05
No. 1° 27'

P.I. = 534.60
Ang. = 0°-45'
T = 0.43

P.I. = 532.60
Ang. = 1° 12'
T = 10.61

-Sandy Clay

B.M. - Spike in telephone Pole
50' Lt. of Exist ℄ Sta. 1891+18
Elev. 538.31

B.M. - Nail in telephone Pole
150' Lt. of Exist ℄ Sta. 1893+85
Elev. 537.30

545.53	544.13	543.10	542.42	541.76	541.20	540.78	540.27	541.04	539.64	540.18	539.20	539.71	538.88	539.65	538.84	538.69	538.18	537.92	537.79	537.94	537.36	537.59	536.90	537.23	536.48	536.76	536.37	536.07	535.96	535.59	534.84	534.07	533.08	532.66	531.28	531.63	530.26	531.12	530.00	530.71	530.18
1878	79	1880	81	82	83	84	1885	86	87	88	89	1890	91	92	93	94	1895	96	97	98	99	1900	01	02	03	1904															

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHT. NO.
6	TEXAS	I-165(4)	37-A
STATE	COUNTY	CONTROL SECTION JOB	HIGHWAY NO.
21	WEBB	18 3-4 9	U.S. 81

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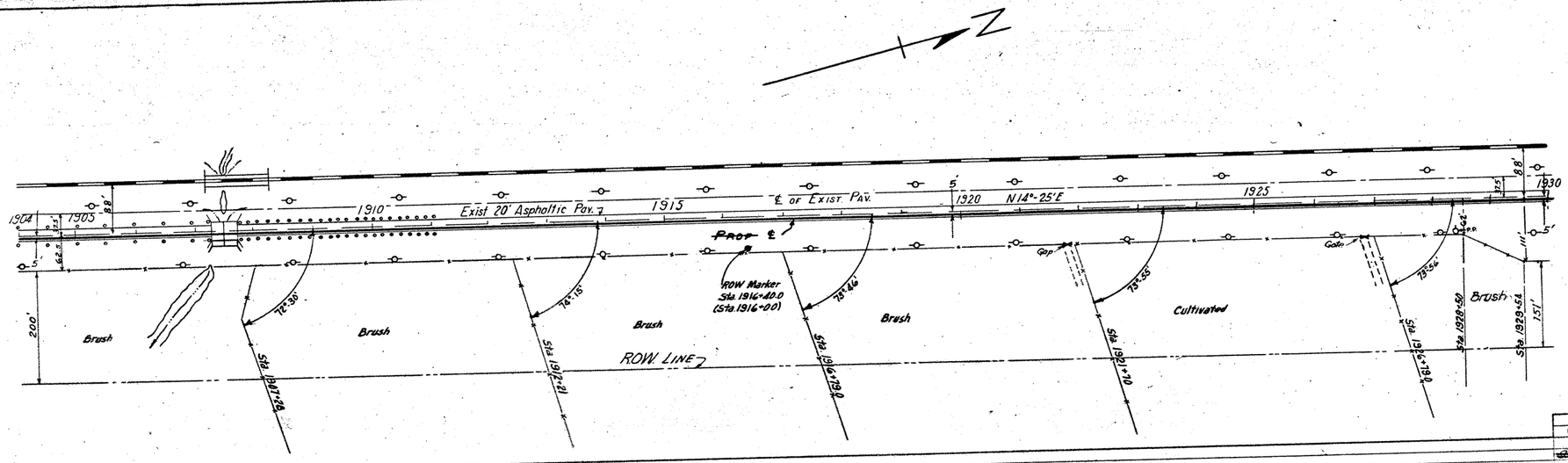


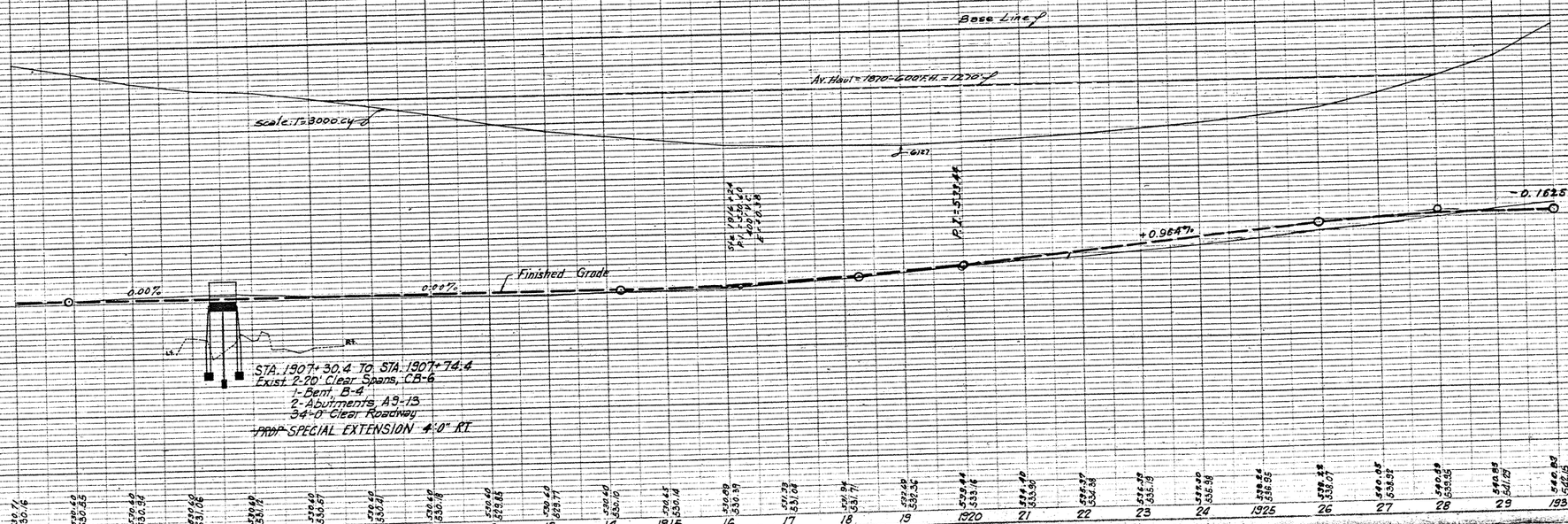
CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100	TYPICAL X-SECT. NO.
1904				4	48	6					4
1905				3	"	6					4
06				"	"	4					4
07				4	"	"					4
08				3	"	"					4
09				"	"	8					4
1910				"	"	"					4
11				4	"	"					4
12				5	"	10					4
13				6	"	"					4
14				14	"	15					4
1915				8	"	"					4
16				10	"	"					4
17				"	"	"					2
18				15	"	"					4
19	4	16	0	11	"	8					2
1920	"	"	"	"	"	"					2
21	"	"	"	"	"	"					2
22	"	"	"	"	"	"					2
23	"	"	"	"	"	"					2
24	"	"	"	"	"	"					2
1925	"	"	"	"	"	"					2
26	"	"	"	"	"	"	0	16	4		3
27	"	"	"	"	"	"	"	"	"		3
28	"	"	"	"	"	"	"	"	"		3
29	"	"	"	"	"	"	"	"	"		3
1930	"	"	"	"	"	"	"	"	"		3

SHEET TOTALS EST	FINAL	UNIT	
~~2.49~~	9.49	Acre	Clearing & Grubbing
~~20~~	26	Sta	Salvaging & Replacing Flex. Base — WEST SIDE
~~1485~~	7295	CY	Uncla. Roadway Excav.
~~1485~~	6969	CY	Embank. + Shr. — EAST SIDE
~~613~~		CY	Uncla. Roadway Excav.
~~1558~~		CY	Embank. + Shr.
		CY	Uncla. Chan. Excav.
		CY	Uncla. Roadway Excav.
		CY	Embank.
	5895	YR	Overhaul

200' x ½ (1788+1846) + 200' x ½ (303+245) + 49' x ½ (46+150) = 9.49 Ac.
26

O.H. = 121DX6127 ÷ 1820 = 5895 YR.



B.M. - N.E. Corner of West Curb of Bridge Sta 1907+75 Elev 531.11

B.M. - Spike in telephone Pole 50' Lt of Exist ℄ Sta 1919+21 Elev 531.59

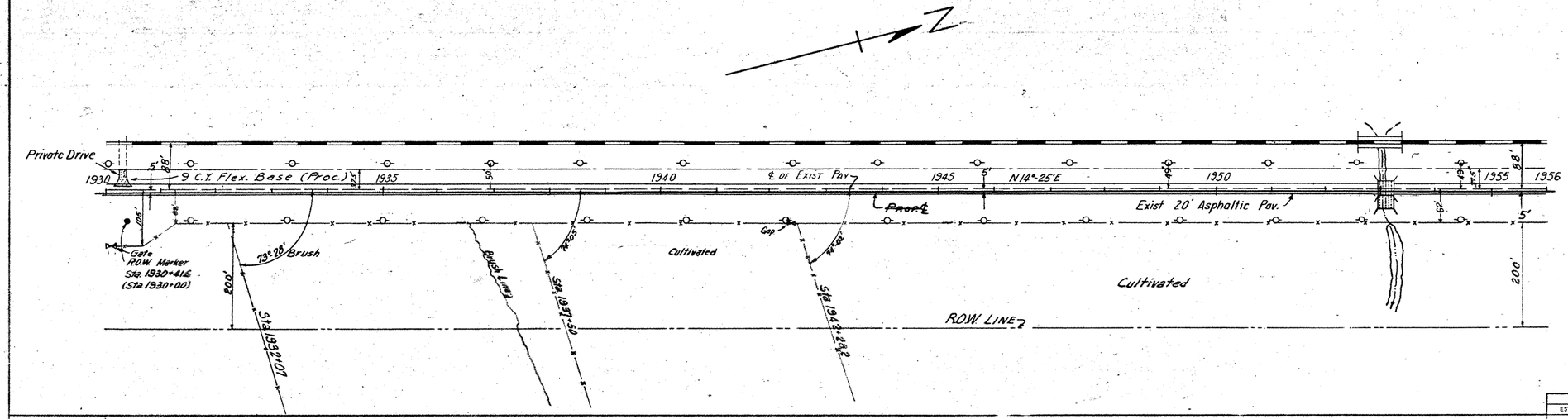
B.M. - Nail in telephone Pole 150' Lt of Exist ℄ Sta 1922+50 Elev 535.03

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.
6	ILLINOIS	I-165 (14) 38-A

STATE	COUNTY	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
21	WEBB	18	3-A 9	U.S. 81

PLAN - PROFILE - NEW STYLE

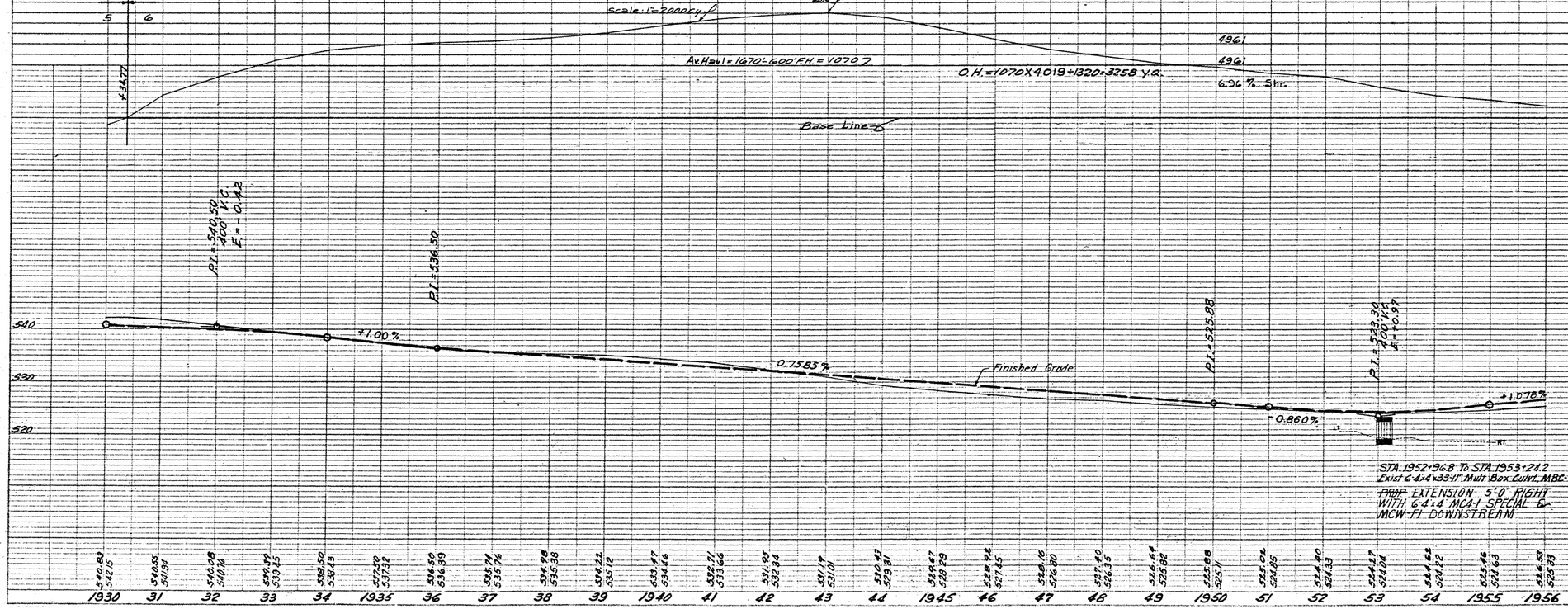
183



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO.
1930	4	16	0	15	44	15	0	16	4	-	3
31	"	"	"	"	"	"	"	"	"		3
32	"	"	"	"	"	"	"	"	"		3
33	"	"	"	"	"	"	"	"	"		3
34	"	"	"	"	15						2
1935	"	"	"	"	"						2
36	"	"	"	"	"						2
37	"	"	"	"	"						2
38	"	"	"	"	"						2
39	"	"	"	"	"						2
1940	"	"	"	"	"						2
41	"	"	"	"	"						2
42	"	"	"	"	"						2
43				"	"						4
44				12	"	12					4
1945				8	"	8					4
46				"	"	"					4
47				"	"	10					4
48				10	"	12					4
49				"	"	15					4
1950				"	"	10					4
51				6	"	6					4
52				5	48	4					4
53				2	"	2					4
54				6	"	4					4
1955				"	44	6					4
1956				"	"	"					4

SHEET TOTALS EST.	FINAL	UNIT	
~~3.67~~	3.67	Acre	Clearing & Grubbing
~~26~~	26.	Sta.	Salvaging & Replacing Flex. Base
			WEST SIDE
~~306~~ 1200	~~817~~ 817	~~221~~ 600	~~743~~ 414 ~~448~~ 272 ~~264~~ 172 ~~238~~ 123 ~~271~~ 158 ~~306~~ 241 ~~328~~ 295 ~~349~~ 278 ~~402~~ 240 ~~456~~ 130 ~~66~~ 11 ~~0~~ 0 ~~0~~ 0 ~~0~~ 0 ~~32~~ 0 ~~22~~ 4 ~~15~~ 68 ~~49~~ 53 ~~61~~ 63 ~~60~~ 46 ~~28~~ 11 ~~0~~ 25 ~~48~~ 22	~~3045~~ 5263	CY	Uncls. Roadway Excav.
~~0~~ 11 ~~0~~ 15 ~~48~~ 7 ~~89~~ 31 ~~48~~ 68 ~~48~~ 78 ~~26~~ 72 ~~0~~ 50 ~~0~~ 21 ~~0~~ 25 ~~0~~ 34 ~~44~~ 39 ~~88~~ 78 ~~183~~ 203 ~~244~~ 388 ~~350~~ 457 ~~314~~ 382 ~~278~~ 310 ~~144~~ 244 ~~249~~ 211 ~~256~~ 282 ~~68~~ 216 ~~320~~ 388 ~~280~~ 349 ~~248~~ 209 ~~198~~ 258 ~~1845~~ 4426		CY	Embank. + Shr.
			EAST SIDE
4/7 783			CY	Uncls. Roadway Excav.
5 6			CY	Embank. + Shr.
			CY	Uncls. Chan. Excav.
			496	CY	Uncls. Roadway Excav.
			496	CY	Embank.
			6.96 % Shr.	3258	CY	Overhaul



STA. 1952+96.8 To STA 1953+24.2
Exist 6-4'x4'x33'-11" Mult Box Culvt, MBC-9
~~PROP~~ EXTENSION 5'-0" RIGHT
WITH 6-4'x4' MC4-1 SPECIAL &
MCW-F1 DOWNSTREAM

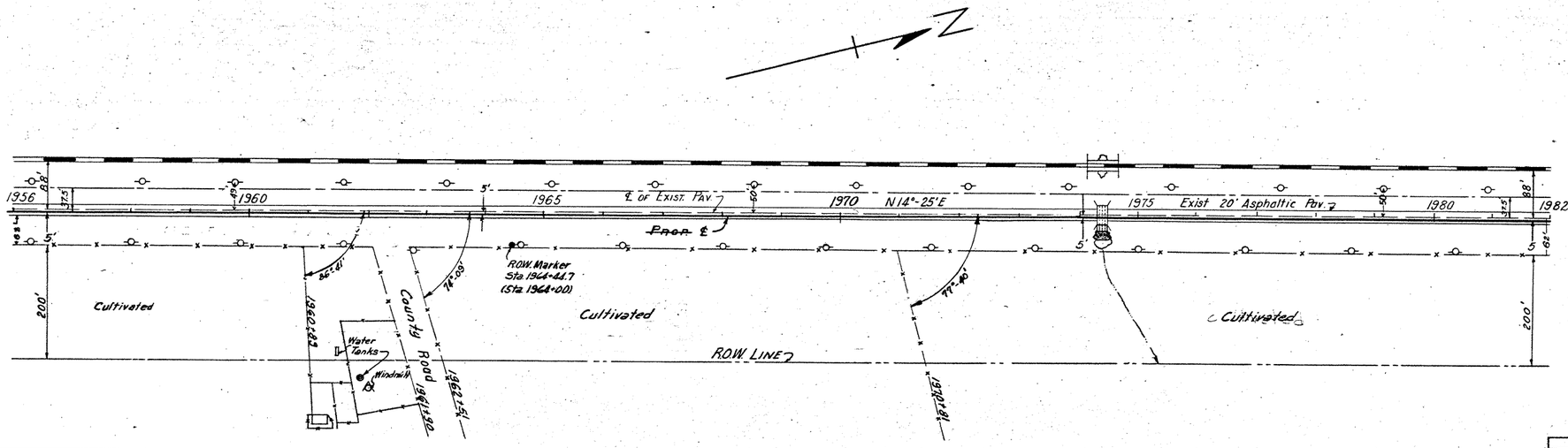
B.M. - Spike in telephone Pole
50' Lt. of Exist ℄ Sta 1933+33
Elev 539.28

B.M. - Nail in telephone Pole
150' Lt. of Exist ℄ Sta 1938+12
Elev 537.06

B.M. - N.E. Corner of West Curb
of Bridge Sta 1953+24
Elev 525.15

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-165(4)	39-A

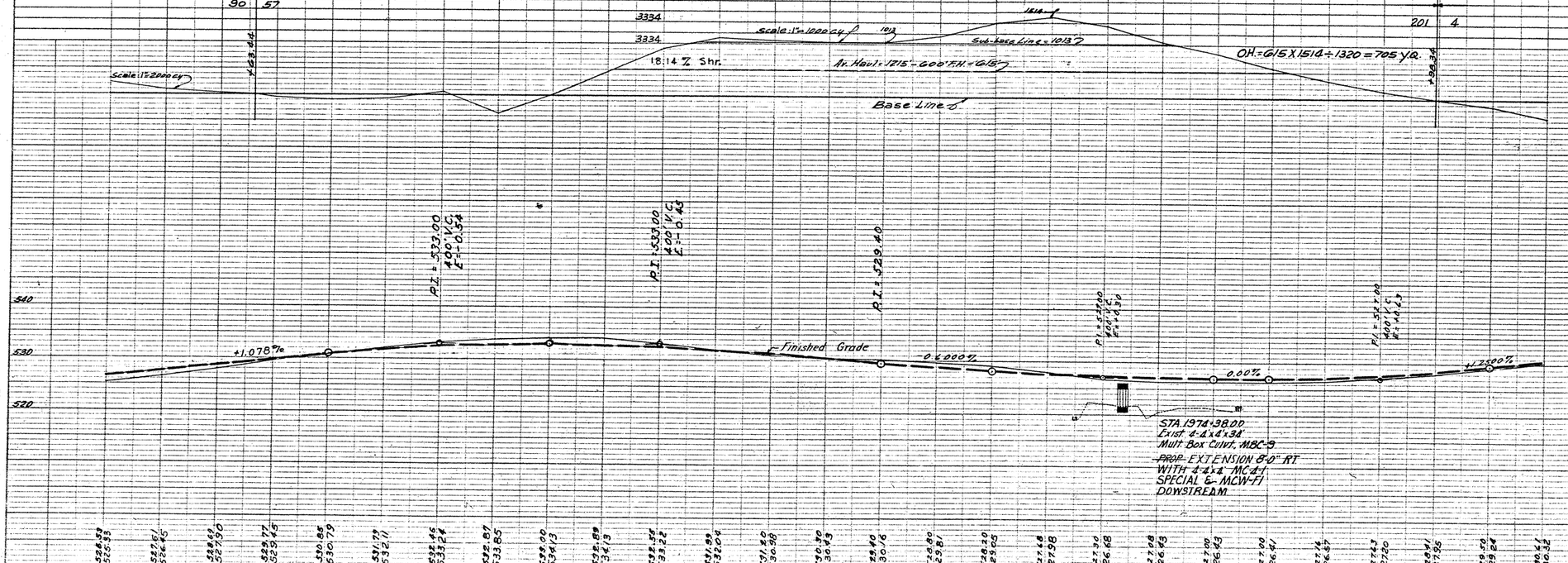
STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18 3-4	9	US 81



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO.
1956			6	44	6						4
57			15	"	15						4
58			"	"	"						4
59	4	1.6	0	"	"						2
1960	"	"	"	"	"	0	1.6	4			3
61	"	"	"	"	"	"	"	"			3
62	"	"	"	"	"	"	"	"			3
63	"	"	"	"	"	"	"	"			3
64	"	"	"	"	"	"	"	"			3
1965	"	"	"	"	"	"	"	"			3
66	"	"	"	"	"	"	"	"			3
67	"	"	"	"	"	"	"	"			3
68	"	"	"	"	"	"	"	"			3
69	"	"	"	"	"	"	"	"			2
1970	"	"	"	"	"	0	1.6	4			3
71	"	"	"	"	"	"	"	"			3
72	"	"	"	"	"	"	"	"			3
73	"	"	"	"	"	"	"	"			2
74			8	4	8	6					4
1975			"	"	"						4
76			"	"	"						4
77			"	44	"						4
78			10	"	"						4
79			15	"	"						4
1980			"	"	"						4
81			"	"	"						4
1982			"	"	15						4

SHEET TOTALS EST	FINAL	UNIT	
~~0~~	0	Acre	Clearing & Grubbing
~~26~~	26	Sta	Salvaging & Replacing Flex. Base
			~~WEST SIDE~~
~~9~~ 28 ~~75~~ 49 ~~45~~ 60 ~~30~~ 57 ~~140~~ 116 ~~219~~ 193 ~~299~~ 144 ~~396~~ 391 ~~472~~ 441 ~~400~~ 451 ~~338~~ 262 ~~406~~ 94 ~~180~~ 72 ~~90~~ 121 ~~662~~ 241 ~~653~~ 269 ~~185~~ 175 ~~67~~ 64 ~~10~~ 25 ~~26~~ 30 ~~24~~ 30 ~~24~~ 31 ~~27~~ 36 ~~27~~ 50 ~~35~~ 41 ~~11~~ 26	~~9619~~ 3517	CY	Uncla. Roadway Excav.
~~208~~ 249 ~~198~~ 201 ~~92~~ 147 ~~75~~ 118 ~~26~~ 89 ~~0~~ 54 ~~0~~ 592 ~~0~~ 2 ~~0~~ 4 ~~0~~ 19 ~~70~~ 63 ~~20~~ 110 ~~30~~ 128 ~~58~~ 135 ~~30~~ 87 ~~0~~ 39 ~~0~~ 58 ~~63~~ 198 ~~44~~ 328 ~~43~~ 287 ~~23~~ 269 ~~14~~ 266 ~~9~~ 230 ~~0~~ 205 ~~3~~ 200 ~~3~~ 190 ~~361~~ 4268		CY	Embank. + Shr.
			~~EAST SIDE~~
38 22			
~~710~~ ~~0~~	~~102~~ ~~9~~	~~10~~ ~~98~~	~~11~~ ~~232~~ ~~19~~ ~~111~~ ~~19~~ ~~101~~ ~~17~~ ~~75~~ ~~12~~ ~~14~~ ~~20~~ ~~20~~ ~~38~~ ~~38~~ ~~38~~ ~~457~~ ~~26~~ ~~40~~ ~~842~~ CY	Uncla. Roadway Excav.
			Embank. + Shr.
90 57			49 1 CY Uncla. Chan. Excav.
			201 4 CY Uncla. Roadway Excav.
			CY Embank.
			705 yd. Overhaul



BM.- Spike in telephone pole
50' Lt. of Exist. ℄ Sta. 1968+53
Elev. 530.76

BM.- N.E. Corner of West Curb
of Culv. Sta. 1974+48
Elev. 527.52

KEY MAP	STATE	FEDERAL AID PROJECT NO.	
COUNTY NO.	TEXAS	I-165(14)	40-A
STATE DIST. NO.	COUNTY	CONTROL SECTION JOB	SHEET NO.
21	WEBB	18 3-4 9	US 81

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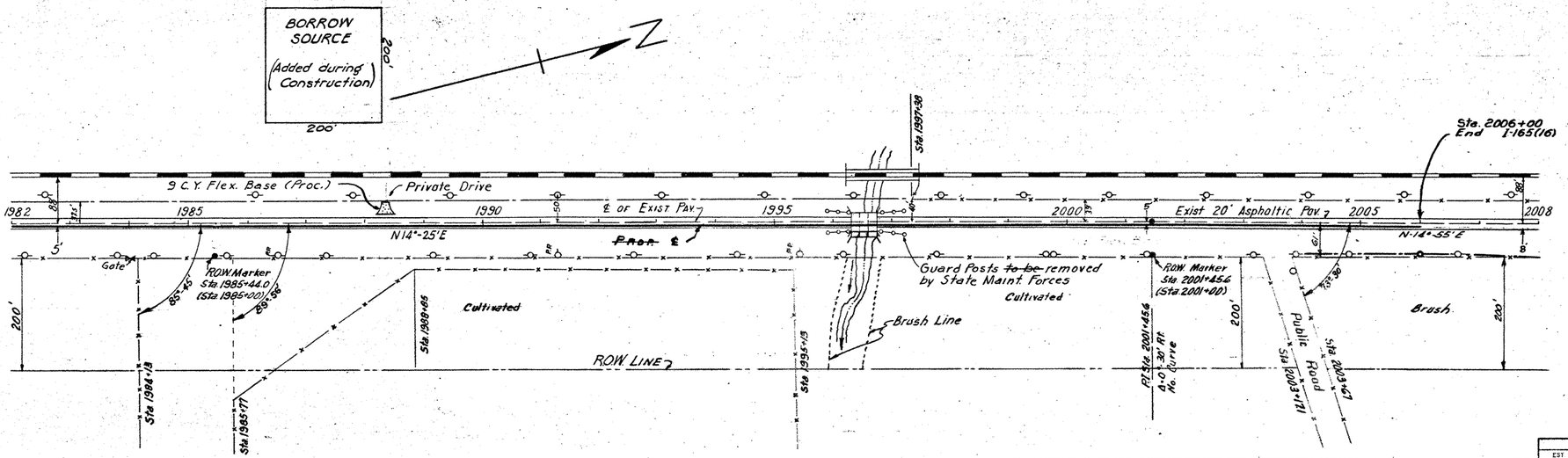
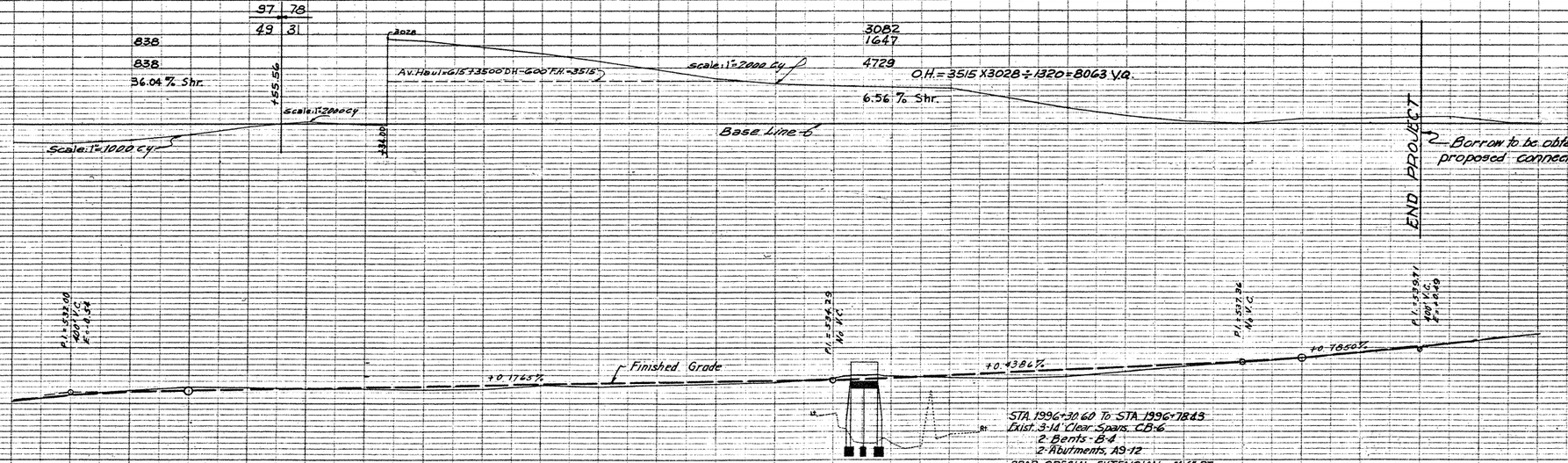




CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO.
1982			15	44	15						4
83	4	16	0	"	"	"					2
84	"	"	"	"	"	"	0	16	4		1
1985	"	"	"	"	"	"	"	"	"		1
86	"	"	"	"	"	"	"	"	"		1
87	"	"	"	"	"	"	"	"	"		1
88			"	"	"	"					4
89			"	"	"	"					4
1990			"	"	"	"					4
91			"	"	"	"					4
92			6	"	10						4
93			"	"	8						4
94			4	"	"						4
1995			"	4	6						4
96			"	"	4						4
97			3	"	"						4
98			4	"	4						4
99			6	44	6						4
2000			8	"	"						4
01			15	"	8						4
02			"	"	15						4
03	4	16	0	"	"	"					1
04	"	"	"	"	"	"					1
2005	"	"	"	"	"	"	0	16	4		1
06			"	"	"	"	"	"	"		2
07			"	"	"	"	"	"	"		2
2008			"	4	"	"					4

SHEET TOTALS EST	FINAL	UNIT	
~~9.43~~	10.55	Acre	Clearing & Grubbing
~~43.5~~	43.50	Sta	Salvaging & Replacing Flex. Base
			WEST SIDE
~~76~~ 95 ~~133~~ 156 ~~116~~ 187 ~~181~~ 235 ~~142~~ 175 ~~76~~ 64 ~~36~~ 43 ~~33~~ 36 ~~33~~ 24 ~~39~~ 24 ~~29~~ 28 ~~47~~ 26 ~~44~~ 34 ~~109~~ 79 ~~63~~ 62 ~~53~~ 92 ~~13~~ 96 ~~3~~ 80 ~~7~~ 39 ~~24~~ 26 ~~53~~ 118 ~~73~~ 177 ~~57~~ 176 ~~36~~ 131 88 52 18 116	~~1501~~ 2417	CY	Uncls. Roadway Excav.
~~2~~ 141 ~~0~~ 84 ~~0~~ 92 ~~0~~ 78 ~~0~~ 80 ~~5~~ 180 ~~11~~ 148 ~~20~~ 233 ~~20~~ 260 ~~3~~ 285 ~~11~~ 341 ~~14~~ 358 ~~50~~ 211 ~~45~~ 130 ~~44~~ 91 ~~95~~ 158 ~~200~~ 462 ~~212~~ 427 ~~111~~ 327 ~~82~~ 257 ~~6~~ 129 ~~0~~ 42 ~~0~~ 124 ~~0~~ 52 83 134 169 127	~~909~~ 5173	CY	Embank. + Shr.
			EAST SIDE
~~56~~ ~~82~~ ~~99~~ ~~110~~ ~~99~~ ~~54~~ ~~17~~ ~~16~~ ~~17~~ ~~23~~ ~~19~~ ~~21~~ ~~34~~ ~~23~~ ~~37~~ ~~36~~ ~~6~~ ~~0~~ ~~0~~ ~~34~~ ~~60~~ ~~106~~ ~~95~~ ~~95~~	~~1613~~	CY	Uncls. Roadway Excav.
~~42~~ ~~74~~ ~~2~~ ~~0~~ ~~0~~ ~~21~~ ~~25~~ ~~120~~ ~~114~~ ~~64~~ ~~75~~ ~~78~~ ~~117~~ ~~230~~ ~~243~~ ~~231~~ ~~222~~ ~~200~~ ~~98~~ ~~45~~ ~~41~~ ~~5~~ ~~0~~ ~~3~~	~~8099~~	CY	Embank. + Shr.
	3082	CY	Uncls. Chan. Excav.
			Uncl. Borrow
			Uncls. Roadway Excav.
		CY	Embank.
	8063	Y.Q.	Overhaul

BM-Nail in telephone Pole
150' Lt. of Exist ℄ Sta. 1987+25
Elev. 535.35

BM-NE Corner of West Curb of Bridge Sta 1996+77
Elev. 535.09

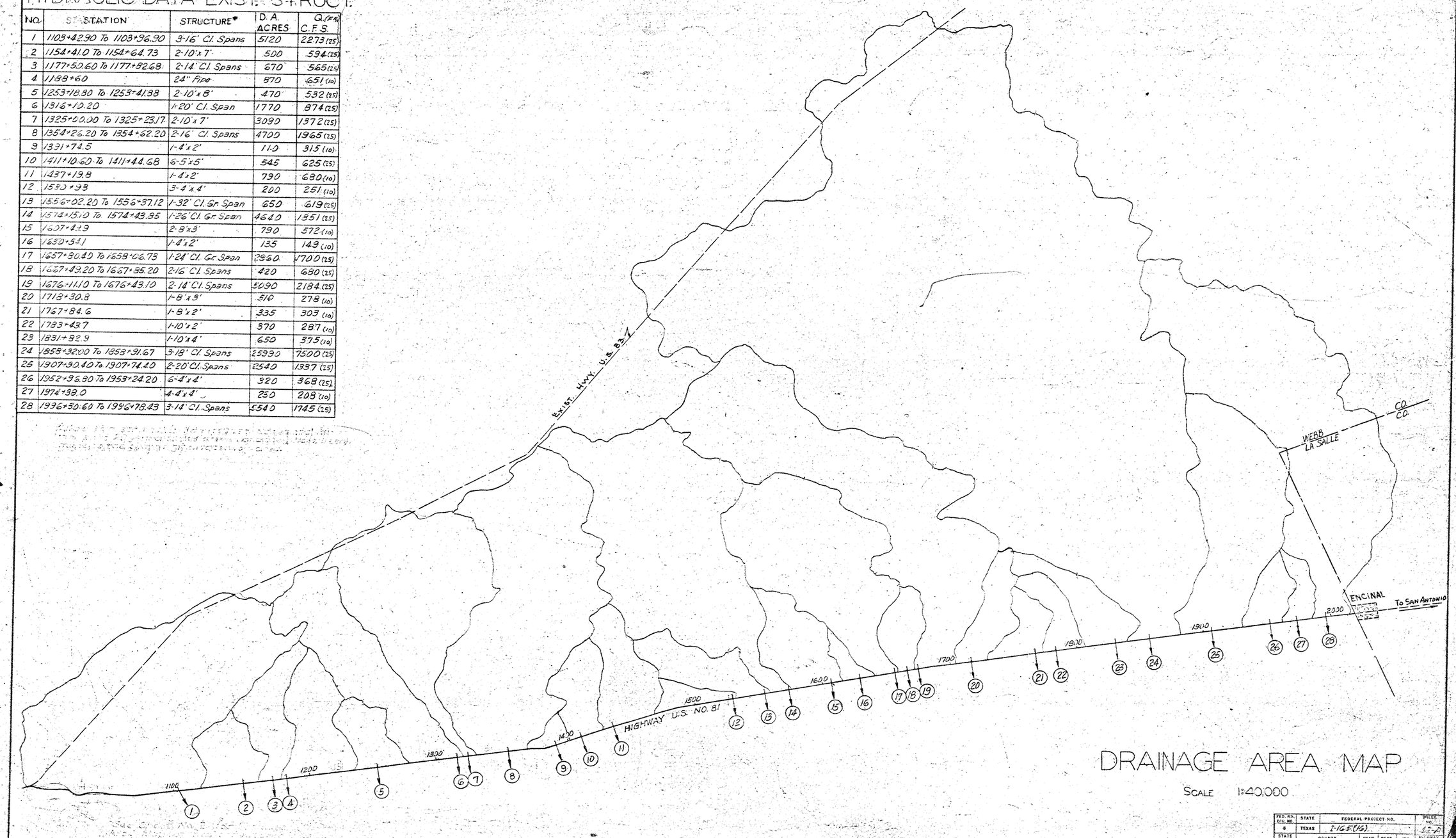
BM-Spike in telephone Pole
45' Lt. of Exist ℄ Sta 2002+36
Elev 537.01

STATE PROJECT NO.	FEDERAL AID PROJECT NO.		
8.165001	I-165(16)		41-R
STATE	COUNTY	CONTROL SECTION	SHEET NO.
21	WEBB	18 3-4 9	US-81

18

HYDRAULIC DATA-EXIST. STRUCT.

NO.	STATION	STRUCTURE*	D.A. ACRES	Q.(FR) C.F.S.
1	1103+42.90 To 1103+96.90	3-16' Cl. Spans	5120	2273 (25)
2	1154+41.0 To 1154+64.73	2-10'x7'	500	594 (25)
3	1177+50.60 To 1177+82.68	2-14' Cl. Spans	670	565 (25)
4	1188+60	24" Pipe	870	651 (10)
5	1253+18.80 To 1253+41.38	2-10'x8'	470	532 (25)
6	1316+10.20	1-20' Cl. Span	1770	874 (25)
7	1325+00.00 To 1325+23.17	2-10'x7'	3090	1372 (25)
8	1354+26.20 To 1354+62.20	2-16' Cl. Spans	4700	1965 (25)
9	1331+74.5	1-4'x2'	110	31.5 (10)
10	1411+10.60 To 1411+44.68	6-5'x5'	545	625 (25)
11	1437+19.8	1-4x2'	790	680 (10)
12	1530+93	3-4'x4'	200	251 (10)
13	1556-02.20 To 1556-37.12	1-32' Cl. Gr. Span	650	619 (25)
14	1574+15.10 To 1574+43.95	1-26 Cl. Gr. Span	4640	1951 (25)
15	1607+43.3	2-8'x3'	790	572 (10)
16	1630+54.1	1-4'x2'	135	149 (10)
17	1657+30.40 To 1658+06.73	1-24' Cl. Gr. Span	2960	1700 (25)
18	1667+49.20 To 1667+85.20	2-16' Cl. Spans	420	680 (25)
19	1676-11.10 To 1676+43.10	2-14' Cl. Spans	3090	2184 (25)
20	1718+30.8	1-8'x3'	510	278 (10)
21	1767+84.6	1-8'x2'	335	309 (10)
22	1783+43.7	1-10'x2'	370	287 (10)
23	1831+82.9	1-10'x4'	650	375 (10)
24	1858+32.00 To 1858+91.67	3-18' Cl. Spans	25990	7500 (25)
25	1907+30.40 To 1907+74.40	2-20' Cl. Spans	2540	1937 (25)
26	1952+96.30 To 1953+24.20	6-4'x4'	320	368 (25)
27	1974+38.0	4-4'x4'	250	208 (10)
28	1996+30.60 To 1996+78.43	3-14' Cl. Spans	5540	1745 (25)



DRAINAGE AREA MAP

SCALE 1:40,000

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-165(16)	12-A
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 3-4	US 81

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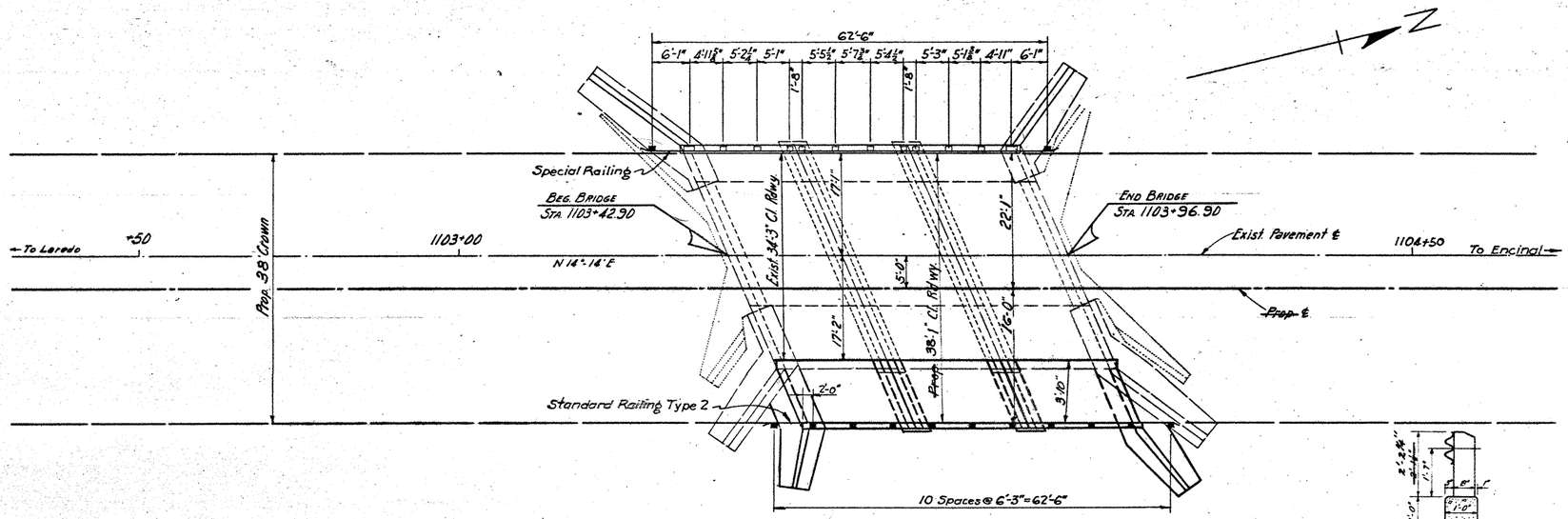
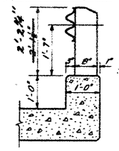
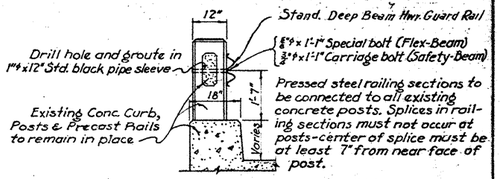
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	F-166(16)				43-A
STATE DIST. NO.	COUNTY	CONTROL	SECTION NO.	JOB NO.		HIGHWAY NO.
21	WEBB	V8	3-4	9		US81



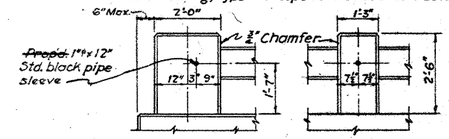


RAIL POST LOCATION ON NEW CURB



DETAIL OF LEFT CURB & POSTS

NOTES:
Place one concrete approach post and one std. flared end on each end of Special Railing.
All Special Railing materials and concrete approach posts shall conform to Standard Railing, Type 2 except as noted in these details.

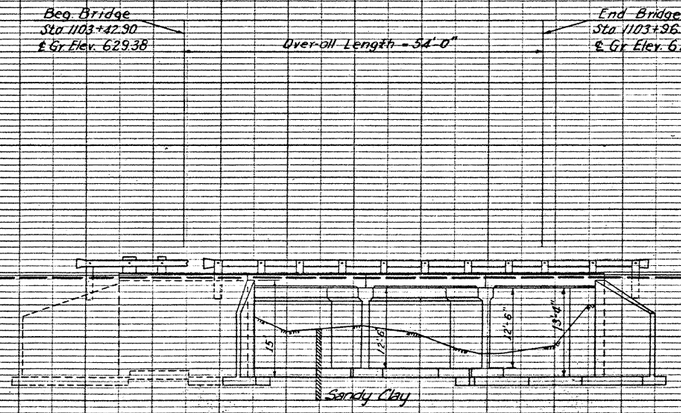


DETAIL OF EXIST. END POST

DETAIL OF EXIST. INTERIOR POST

Dimensions shown on layouts are center to center of prop'd pipe sleeves

SPECIAL RAILING DETAILS



Description	Uncl. Struct. C.Y.	Class "A" Conc. For Ext. Slabs C.Y.	Class "A" Conc. Struct. Abt.& Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.
3-16' Simple Slab Span, Spc.		14.67		2655	62.5	62.5
2-Abutments, Spc.	53		23.01	30.36		
2-Bents B-4	11		7.36	9.38		
Total	64	14.67	30.37	66.29	62.5	62.5

BRIDGE LAYOUT

STA. 1103+42.90 TO STA. 1103+96.90

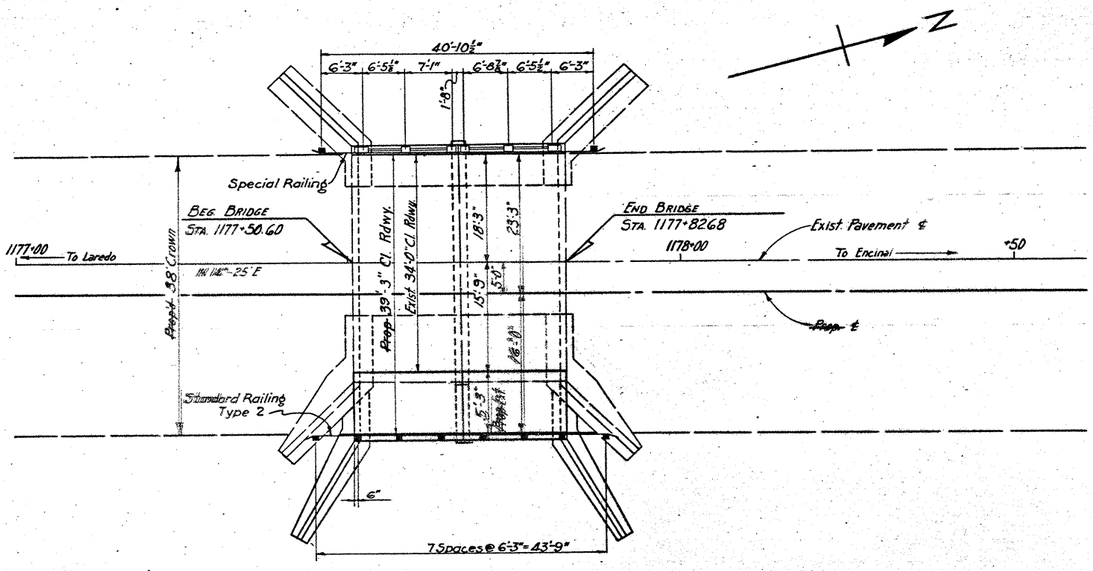
EXIST. 3-16' CL. SPANS CB-6 SKEW 23°
2-A9-15' ABUTMENTS SKEW 23°
2-B4 BENTS 14' HIGH SKEW 23°
~~PROP~~ SPL. EXTEN. 3'-10" RT.

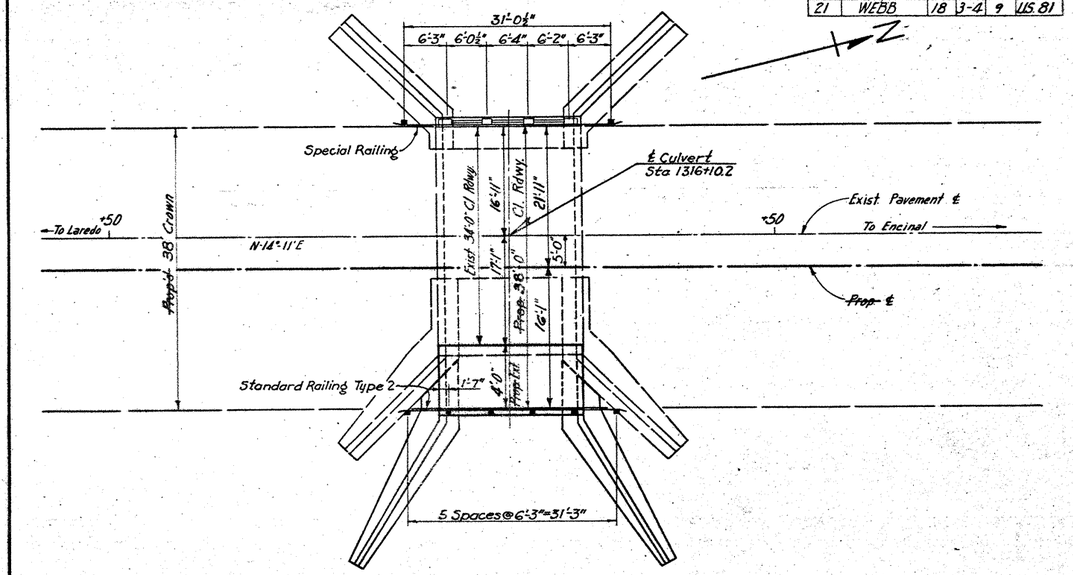
PLATE 1—PLAN-PROFILE U. S. P. R. & R. A. STANDARD

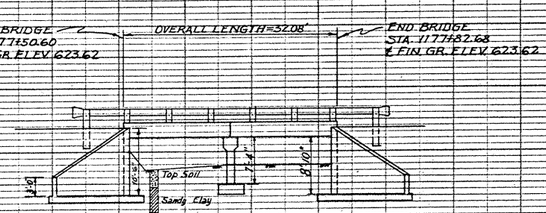
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-165 (16)				44-A
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	3-4	9		US 81

PLAN — SURVEYED / PLOTTED / QUANTITIES CHECKED / ST. OF WAY CHECKED / NOTE BOOK / NO.

PROFILE — SURVEYED / PLOTTED / QUANTITIES CHECKED / B.M.: NGVD / NO. / STRUCTURE ROAD NOS. OR KIND

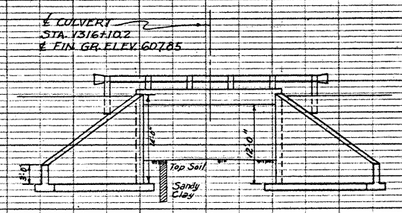






BRIDGE LAYOUT
STA. 1177+50.60 TO STA. 1177+82.68
EXIST. 2-14' CL. SPANS CB-6
2-A 9'-10'-6" ABUTMENTS
1-BA BENT 9' HIGH
~~PROP~~ SPL. EXTEN. 5'-3" RT.

Description	Uncl. Struct. C.Y.	Class "A" Conc. For Ext. Struct. Slabs C.Y.	Class "A" Conc. For Ext. Struct. Abt. & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.
2-14' Simple Slab Span, Spc.		10.16		11.02	43.75	40.875
2-Abutments, Spc.	31		15.75	18.13		
1-Bent, B-4	6		2.79	3.83		
Total	37	10.16	18.54	32.98	43.75	40.875



CULVERT LAYOUT
STA. 1316+10.2
EXIST. 1-20' CL SPAN CB-6
2-A 9-14' ABUTMENTS
~~PROP~~ SPL. EXTEN. 4'-0" RT.

Description	Uncl. Struct. C.Y.	Class "A" Conc. For Ext. Struct. Slabs C.Y.	Class "A" Conc. For Ext. Struct. Abt. & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.
1-20' Simple Slab Span, Spc.		6.96		82.7	31.25	31.042
2-Abutments,	31		29.75	39.88		
Total	31	6.96	29.75	48.15	31.25	31.042

PLATE 1 - PLAN-PROFILE & P.R.A.S.E. STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-165 (16)				45-A
STATE DIST. NO.	COUNTY		CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB		18	38-4	9	US 81

PLAN — SURVEYED / PLOTTED / NOTE BOOK / ALIGNMENT CHECKED / NO. / R/T. OF WAY CHECKED / BY / DATE

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / GRADES CHECKED / NO. / STRUCTURE NOTES CHECKED / BY / DATE

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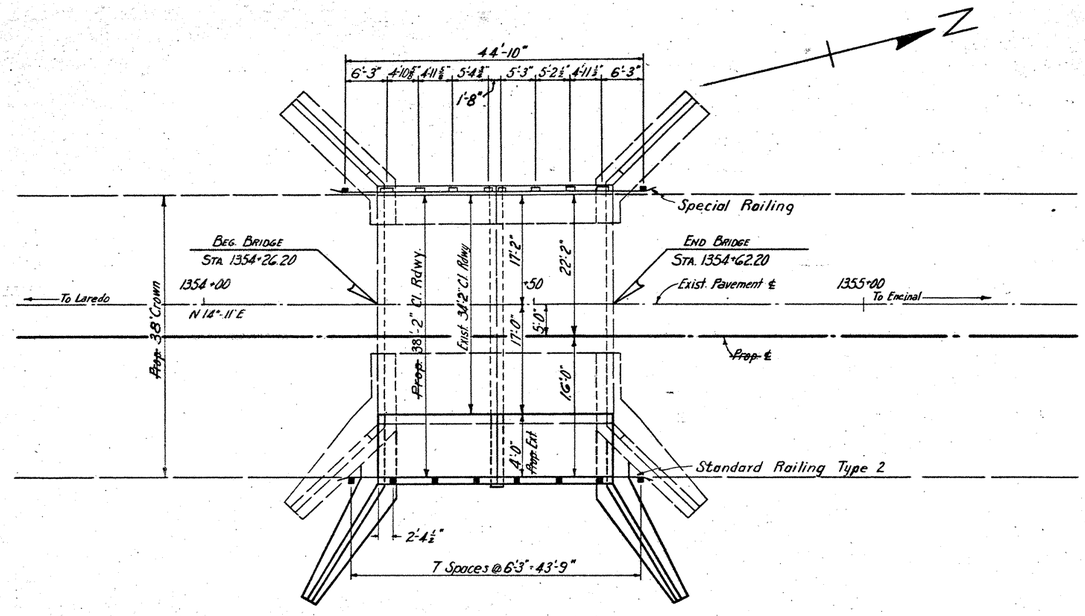
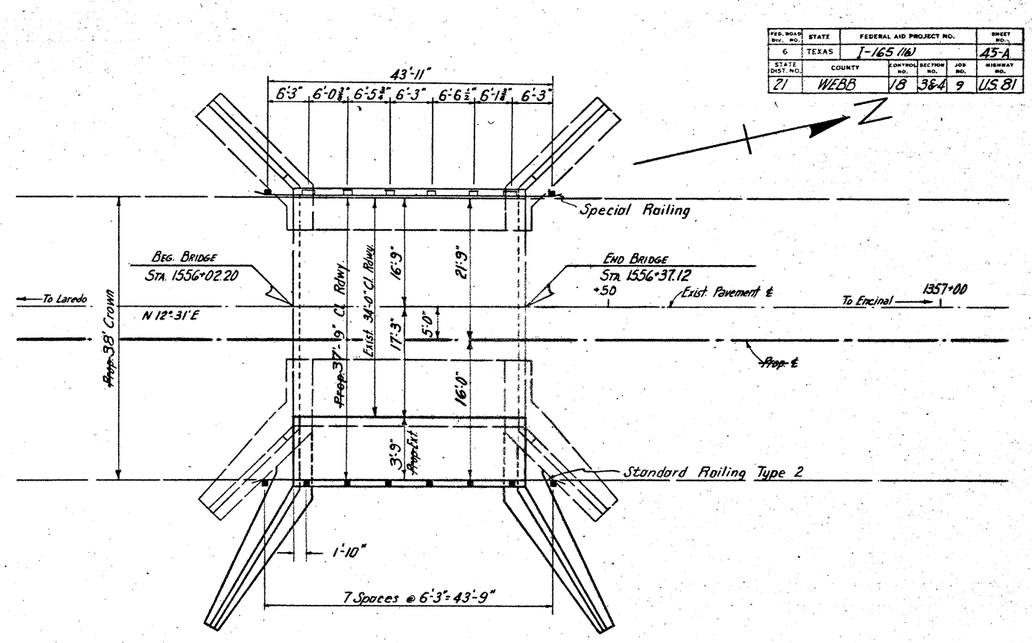
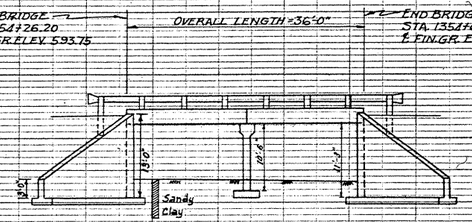
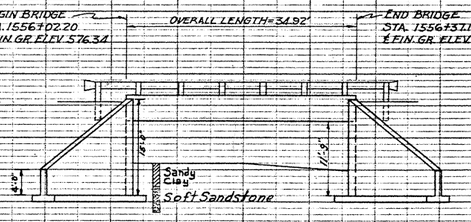






BRIDGE LAYOUT
STA. 1354+26.20 TO STA. 1354+62.20
EXIST. 2-16' CL. SPANS CB-6
2-A9-13 ABUTMENTS
1-B4 BENT 12' HIGH
~~PROP~~ SPL. EXTEN 4'-0" RT.

Description	Uncl. Struct. Excav. C.Y.	Class "A" Conc. For Ext. Struct. Slabs C.Y.	Class "A" Conc. For Ext. Struct. Abt. & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.
2-16' Simple Slab Span, Spc.		10.01		11.47	43.75	44.833
2-Abutments, Spc.	22		22.73	2966		
1-Bent, B-4	9		2.53	359		
Total	31	10.01	25.26	4472	43.75	44.833

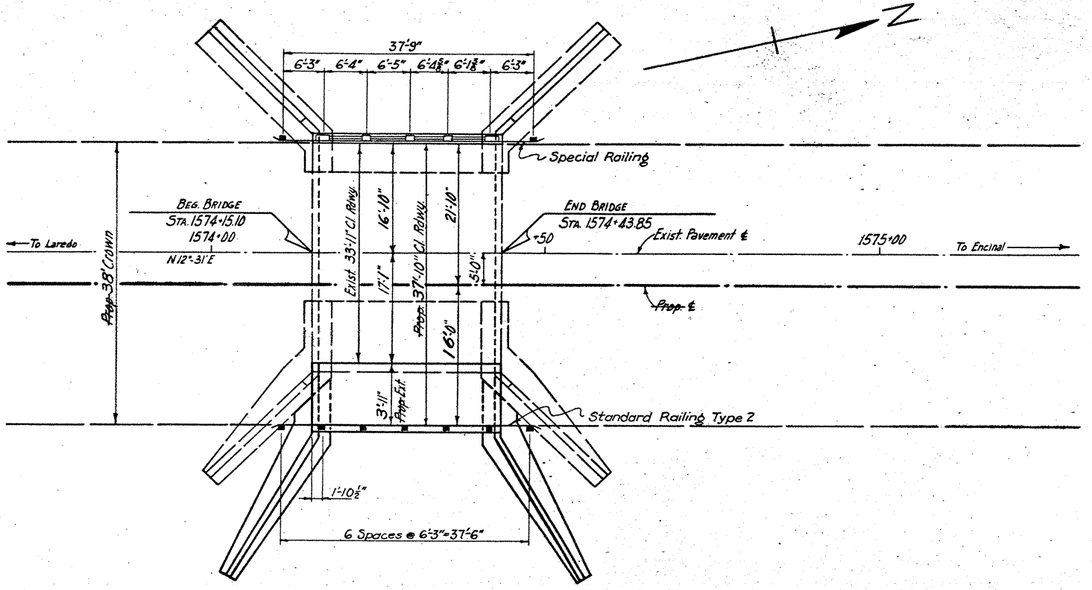


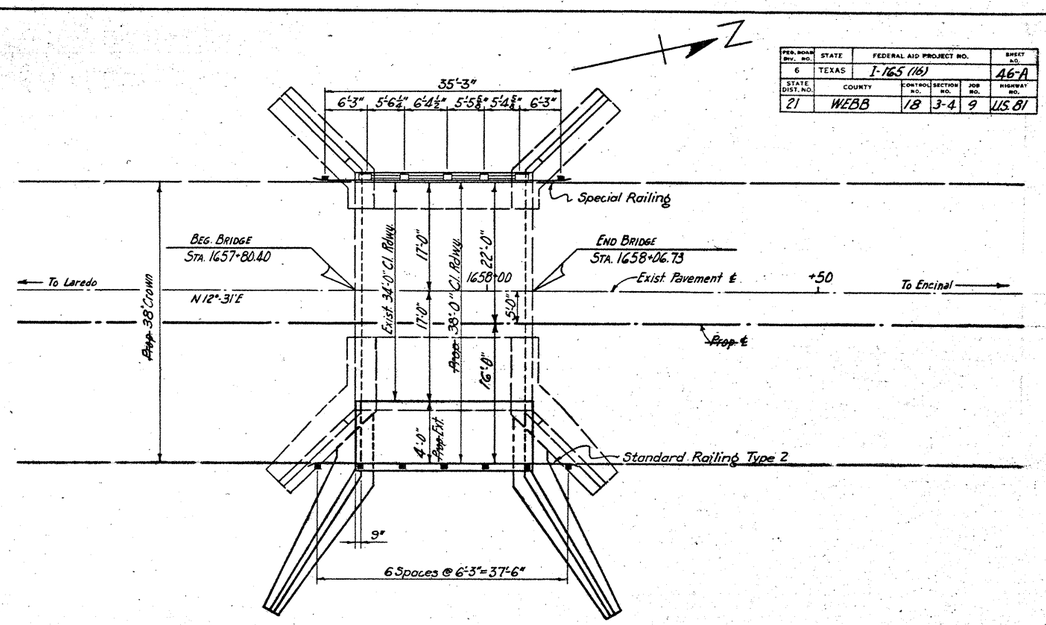
BRIDGE LAYOUT
Sta. 1556+02.20 to Sta. 1556+37.12
EXIST. 1-32' CL. SPAN G-266
2-A9-15 ABUTMENTS
~~PROP~~ SPL. EXTEN. 3'-9" RT.

Description	Uncl. Struct. Excav. C.Y.	Class "A" Conc. For Ext. Struct. Slabs & Gir. C.Y.	Class "A" Conc. For Ext. Struct. Abt. & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.
1-32' Conc. Girder Span, Spc.		8.45		1838	43.75	43.917
2-Abutments, Spc.	53		33.93	4445		
Total	53	8.45	33.93	6283	43.75	43.917

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-165 (16)				A6-A
STATE DIST. NO.	COUNTY		CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB		18	3-4	9	US 81

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, PC, TP, MH CHECKED, NOTE BOOK, NO., BY, DATE





PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, NOTE BOOK, NO., BY, DATE, H & V NOTED, STRUCTURE NOTATING CHKD.

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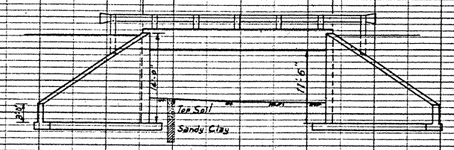
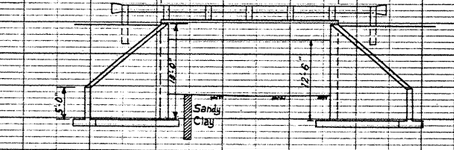


BRIDGE LAYOUT
STA. 1574+15.10 TO STA. 1574+43.85
EXIST. 1-26' CL. SPAN G-26.5
2-A9-14' ABUTEMENTS
~~PROP~~ SPL. EXTEN. 3'-11" RT.

Description	Uncl. Struct. Excav. C.Y.	Class "A" Conc. For Ext. Slabs & Gir. C.Y.	Class "A" Conc. Struct. Abt's & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.
1-25'-9" Conc. Girder Span, Spc.		6.19		15.62	37.5	37.75
2-Abutments, Spc.	39		29.39	39.40		
Total	39	6.19	29.39	55.02	37.5	37.75



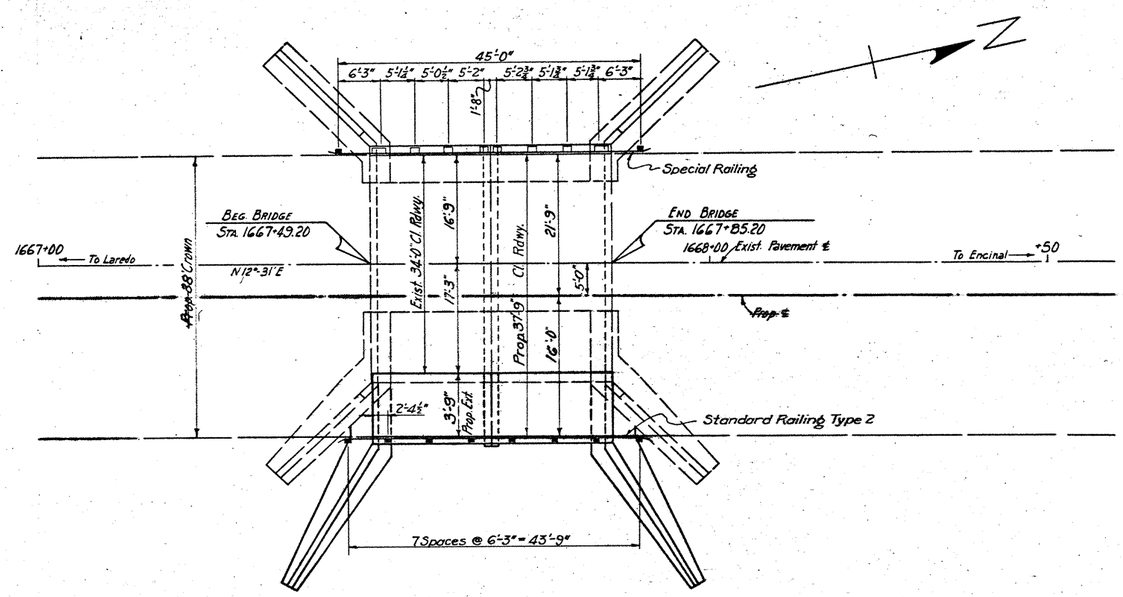
BRIDGE LAYOUT
STA. 1657+80.40 TO STA. 1658+06.73
EXIST. 1-24' CL. SPAN G-26.5
2-A9-15' ABUTMENTS
~~PROP~~ SPL. EXTEN. 4'-0" RT.

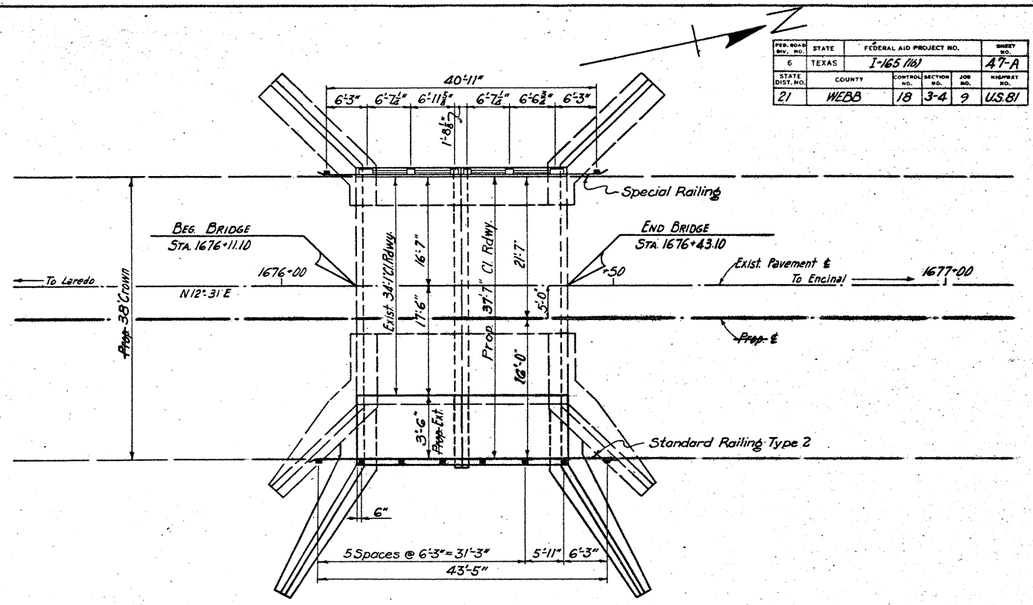
Description	Uncl. Struct. Excav. C.Y.	Class "A" Conc. For Ext. Struct. Slabs C.Y.	Class "A" Conc. For Ext. Struct. Abt's & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.
1-24' Simple Slab Span, Spc.		8.89		12.17	37.5	35.25
2-Abutments, Spc.	32		34.51	44.88		
Total	32	8.89	34.51	57.05	37.5	35.25

PLATE 1 - PLAN-PROFILE, O. P. R. & R. E. STANDARD

PROJ. NO. OR SEC. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-165 (16)				47-A
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	3-4	9		US 81

PLAN — DATE — BY — SURVEYED — PLOTTED — ALIGNMENT CHECKED — RE. OF VAC CHECKED — NOTE BOOK — PAGE — NO. — STRUCTURE NO. OR NO.





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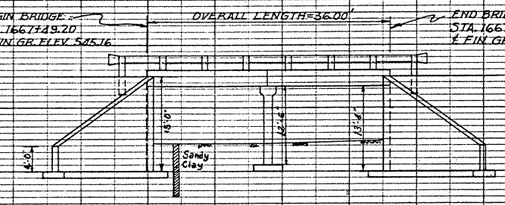
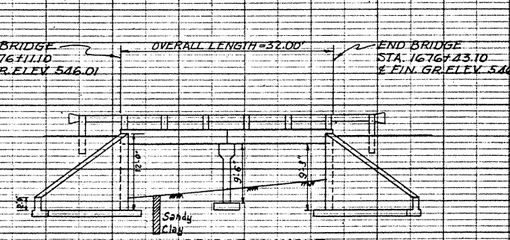
PROFILE — DATE — BY — SURVEYED — PLOTTED — ALIGNMENT CHECKED — RE. OF VAC CHECKED — NOTE BOOK — PAGE — NO. — STRUCTURE NO. OR NO.



BRIDGE LAYOUT
STA. 1667+49.20 TO STA. 1667+85.20
EXIST. 2-16' CL SPAN CB-6
2-A9-15' ABUTMENTS
1-B-4 BENT 14' HIGH
~~PROP~~ SPL. EXTEN. 3'-9" RT.

Description	Uncl. Struct. Excav. C.Y.	Class "A" Conc. For Ext. Slabs C.Y.	Class "A" Conc. For Ext. Struct. Abt. & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.
2-16' Simple Slab Span, Spc.		9.59		11.37	43.75	45.0'
2-Abutments, Spc.	39		34.88	44.43		
1-Bent, B-4	6		2.93	3.96		
Total	45	9.59	37.81	59.76	43.75	45.0'

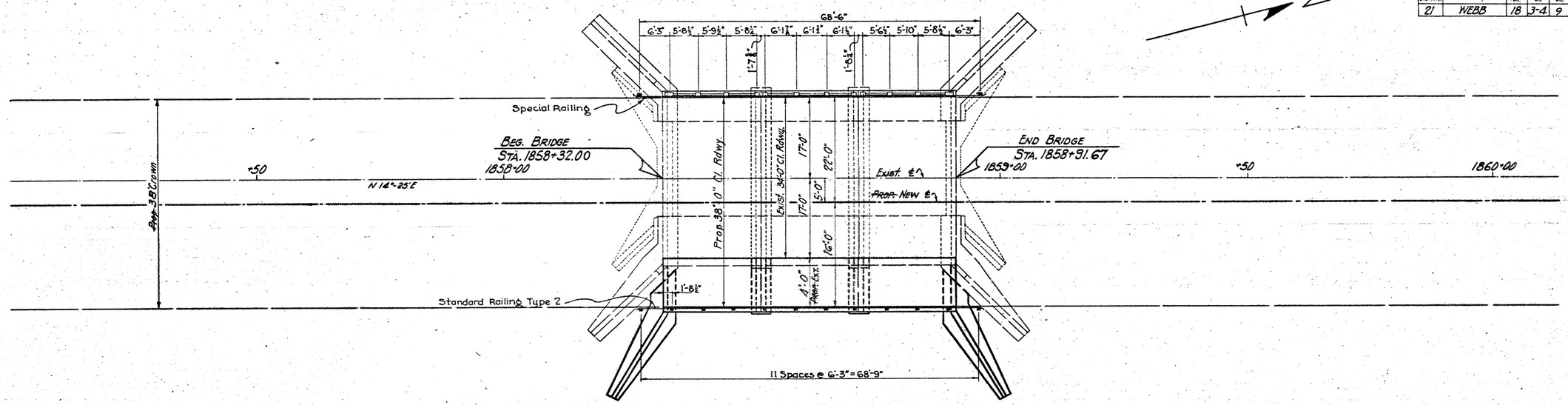


BRIDGE LAYOUT
STA. 1676+11.10 TO STA. 1676+43.10
EXIST. 2-14' CL SPANS CB-6
2-A9-13' ABUTMENTS
2-B-4 BENTS 11' HIGH
~~PROP~~ SPL. EXTEN. 3'-6" RT.

Description	Uncl. Struct. Excav. C.Y.	Class "A" Conc. For Ext. Slabs C.Y.	Class "A" Conc. For Ext. Struct. Abt. & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.	Class "B" Conc. Riprap C.Y.
2-14' Simple Slab Span, Spc.		7.93		8.38	43.417	40.917	46.3
2-Abutments, Spc.	28		20.18	25.34			
1-Bent, B-4	3		2.02	3.32			
Total	31	7.93	22.20	37.04	43.417	40.917	46.3

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-165 (16)				48-A
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	3-4	9		U.S. 81

PLAN — SURVEYED, PLOTTED, NOTE BOOK & PAGE, NO., ALIGNMENT CHECKED, PT. OF WAY CHECKED, DATE



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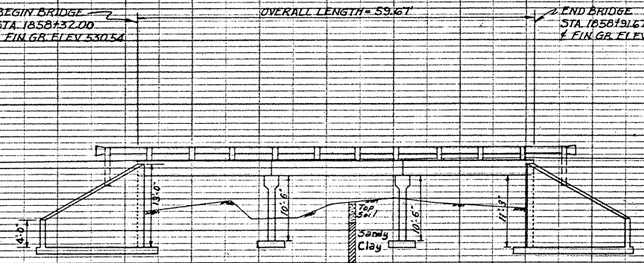


Description	Uncl. Struct. Excav. C.Y.	Class "A" Conc. For Ext Struct. Slabs C.Y.	Class "A" Conc. For Ext Struct. Abt & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.
3-18' Simple Slab Span, Spc.		17.12		20.62	68.75	68.5
2-Abutments, Spc.	43		22.73	29.66		
2-Bents, B-4	16		5.06	7.18		
Total	59	17.12	27.79	57.46	68.75	68.5

BRIDGE LAYOUT
STA. 1858+32.00 TO STA. 1858+91.67
EXIST. 3-18' CL. SPANS CB-6
2-A9-13' ABUTMENTS
2-B-4 BENTS 12' HIGH
~~PROP.~~ SPL. EXTEN. 4'-0" RT.

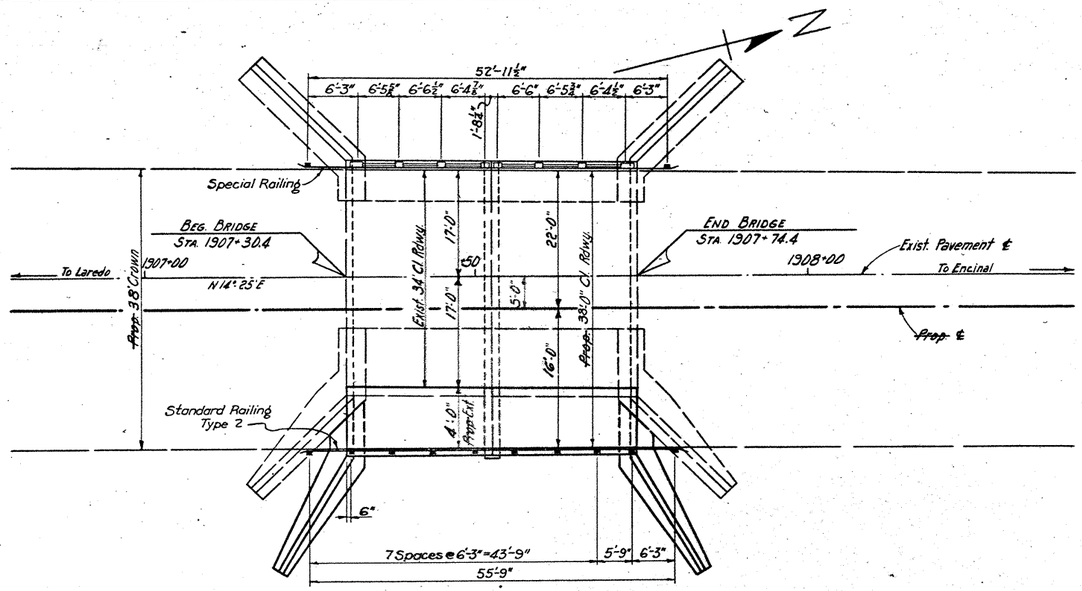
PLACE IN PLANS HOLDER OF APPROVED STANDARDS

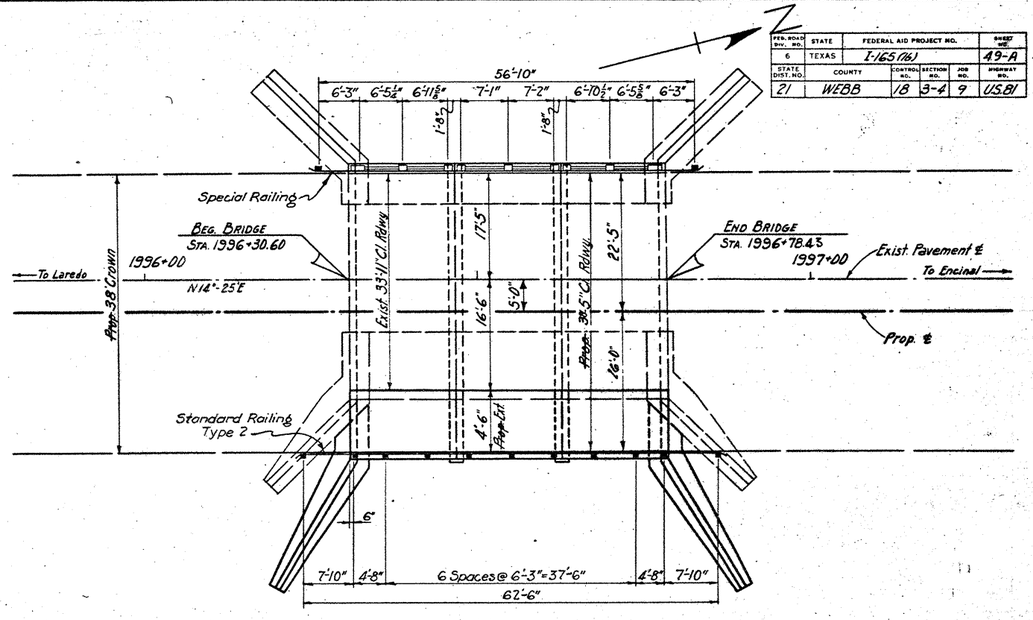
STATE HIGHWAY DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-65(116)				49-A
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	3-4	9		US81

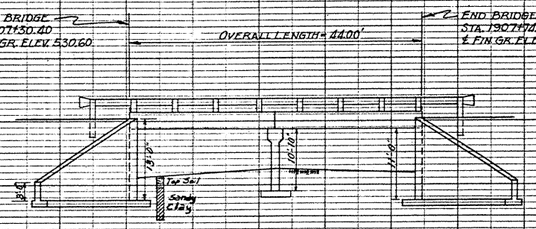
PLAN — SURVEYED ____ DATE ____ PLOTTED ____ BY ____ NOTE BOOK ____ GUIDES CHECKED ____ NO. ____ ALIGNMENT CHECKED ____ PROFILE CHECKED ____ RT. OF WAY CHECKED ____

PROFILE — SURVEYED ____ DATE ____ PLOTTED ____ BY ____ NOTE BOOK ____ GUIDES CHECKED ____ NO. ____ ALIGNMENT CHECKED ____ PROFILE CHECKED ____ RT. OF WAY CHECKED ____

194

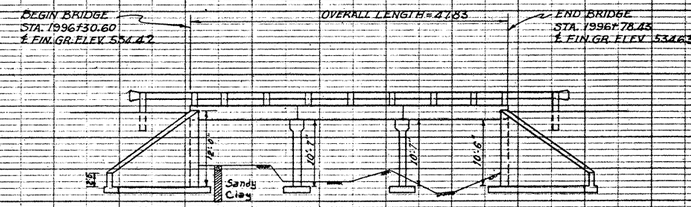






BRIDGE LAYOUT
STA. 1907+30.4 to STA 1907+74.4
EXIST 2-20' CL SPANS CB-6
2-A9-13' ABUTMENTS
1-B4 BENT 14' HIGH
~~PROP~~ SPL. EXTEN. 4'-0" RT.

Description	Uncl. Struct. Excav. C.Y.	Class "A" Conc. For Ext. Struct. Slabs C.Y.	Class "A" Conc. For Ext. Struct. Abt. & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.
2-20' Simple Slab Span Spc.		13.84		16.47	55.75	52.96
2-Abutments Spc.	41		22.60	29.17		
1-Bent, B-4	8		2.97	3.73		
Total	49	13.84	25.57	49.39	55.75	52.96



BRIDGE LAYOUT
STA. 1996+30.60 to STA 1996+78.43
EXIST 3-14' CL SPANS CB-6
2-A9-12' ABUTMENTS
2-B4 BENTS 12' HIGH
~~PROP~~ SPL. EXTEN. 4'-6" RT.

Description	Uncl. Struct. Excav. C.Y.	Class "A" Conc. For Ext. Struct. Slabs C.Y.	Class "A" Conc. For Ext. Struct. Abt. & Bents C.Y.	Reinf. Steel Lbs.	Railing Type 2 L.F.	Railing Special L.F.	Class "B" Conc. Riprap C.Y.
3-14 Simple Slab Spans, Spc.		13.71		14.07	62.50	56.83	59.3
2-Abutments, Spc.	29		21.25	26.57			
2-Bents, B-4	5		5.78	8.90			
Total	34	13.71	27.03	49.54	62.50	56.83	59.3

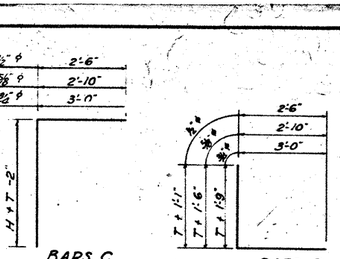
PLATE 1 — PLAN-PROFILE U. P. R. & R. E. STANDARD

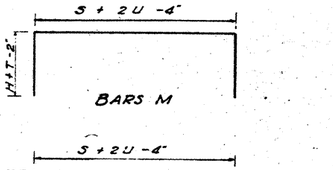
BILL OF REINFORCING STEEL FOR A 10'-0" EXTENSION ON ONE END OF CULVERT ONLY

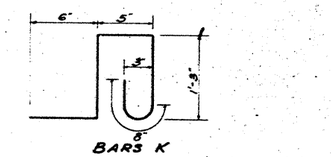
CULVERT SIZE S	CULVERT SIZE H	TYPE OF SECTION	DIMENSIONS T	DIMENSIONS U	MAX. FILL Ft.	TOTAL QUANTITIES FOR A 10' EXTENSION CONC.	TOTAL QUANTITIES FOR A 10' EXTENSION REINF.	QUANTITIES PER LIN. FT. OF BARREL EXTENSION CONC.	QUANTITIES PER LIN. FT. OF BARREL EXTENSION REINF.
3	2	1	6"	6"	14	2.47	312	0.222	26.92
	3	1	6"	6"	14	2.86	333	0.259	28.70
4	2	1	6"	6"	12	2.89	423	0.259	37.06
	3	1	6"	6"	12	3.28	449	0.296	39.35
	4	1	6"	6"	12	3.68	488	0.333	42.98
5	2	2	6"	6"	8	3.31	525	0.296	44.87
	3	2	6"	6"	8	3.70	547	0.333	46.87
	4	2	6"	6"	8	4.10	584	0.370	50.21
	5	3	6"	7"	8	4.89	732	0.444	63.66
6	3	2	6"	6"	8	4.12	695	0.370	60.70
	4	2	6"	6"	8	4.52	739	0.407	64.72
	5	3	6"	7"	8	5.31	896	0.481	78.95
	6	3	6"	7"	8	5.78	970	0.525	85.65
7	3	2	6½"	6"	8	4.81	903	0.432	78.84
	4	2	6½"	6"	8	5.20	945	0.469	83.12
	5	3	6½"	7"	8	6.01	1110	0.544	97.92
	6	3	6½"	7"	8	6.47	1155	0.587	101.94
	7	3	6½"	7"	8	6.92	1260	0.630	111.76
8	4	2	7½"	6"	8	6.25	1116	0.565	97.05
	5	3	7½"	7"	8	7.06	1258	0.640	109.43
	6	3	7½"	7"	8	7.53	1303	0.684	113.45
	7	3	7½"	7"	8	7.98	1410	0.727	123.30
	8	3	7½"	8"	8	9.06	1500	0.827	132.15
9	5	3	8"	7"	8	7.91	1462	0.718	130.39
	6	3	8"	7"	8	8.37	1513	0.761	135.13
	7	3	8"	7"	8	8.84	1622	0.805	146.43
	8	3	8"	8"	8	9.91	1685	0.905	152.12
	9	3	8"	8"	8	10.45	1836	0.955	165.09
10	5	3	8½"	7"	8	8.83	1780	0.802	154.95
	6	3	8½"	7"	8	9.29	1885	0.845	164.30
	7	3	8½"	7"	8	9.75	1975	0.888	172.36
	8	3	8½"	8"	8	10.84	2049	0.990	178.80
	9	3	8½"	8"	8	11.37	2191	1.039	185.81
	10	3	8½"	8"	8	11.89	2387	1.088	211.62

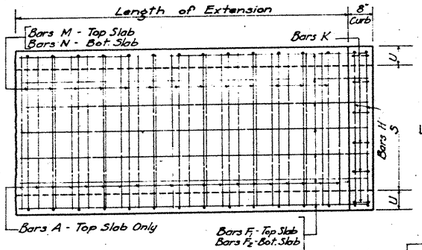
CULVERT SIZE S	CULVERT SIZE H	BARS A IN TOP SLAB NO.	SIZE	SPAC.	LGTH.	WT.	BARS B IN BOTTOM SLAB NO.	SIZE	SPAC.	LGTH.	WT.	BARS C WALLS & TOP CORNER NO.	SIZE	SPAC.	LGTH.	WT.	BARS D IN BOTTOM CORNERS NO.	SIZE	SPAC.	LGTH.	WT.	6-#6 BARS E @12" c-c LGTH.	WT.
3	2	19	⅝" ϕ	7"	3'-8"	47																	
	3	19	½" ϕ	7"	3'-8"	47																	
4	2	22	½" ϕ	6"	4'-8"	69																	
	3	22	½" ϕ	6"	4'-8"	69																	
	4	22	½" ϕ	6"	4'-8"	69																	
5	2	17	⅝" ϕ	8"	5'-8"	101	15	½" ϕ	9½"	5'-8"	57	34	½" ϕ	8"	4'-10"	110	34	½" ϕ	8"	4'-1"	93		
	3	17	⅝" ϕ	8"	5'-8"	101	15	½" ϕ	9½"	5'-8"	57	34	½" ϕ	8"	5'-10"	132	34	½" ϕ	8"	4'-1"	93		
	4	17	⅝" ϕ	8"	5'-8"	101	15	½" ϕ	9½"	5'-8"	57	34	½" ϕ	8"	6'-10"	155	34	½" ϕ	8"	4'-1"	93		
	5	17	⅝" ϕ	8"	5'-10"	103	15	½" ϕ	9½"	5'-10"	58	34	½" ϕ	8"	7'-10"	178	34	½" ϕ	8"	4'-1"	93	4'-11"	53
6	3	17	⅝" ϕ	8"	6'-8"	118	17	⅝" ϕ	8"	6'-8"	118	44	½" ϕ	6"	5'-10"	171	44	½" ϕ	6"	4'-1"	120		
	4	17	⅝" ϕ	8"	6'-8"	118	17	⅝" ϕ	8"	6'-8"	118	44	½" ϕ	6"	6'-10"	201	44	½" ϕ	6"	4'-1"	120		
	5	17	⅝" ϕ	8"	6'-10"	121	17	⅝" ϕ	8"	6'-10"	121	44	½" ϕ	6"	7'-10"	230	44	½" ϕ	6"	4'-1"	120	4'-11"	53
	6	17	⅝" ϕ	8"	6'-10"	121	17	⅝" ϕ	8"	6'-10"	121	48	½" ϕ	5½"	8'-10"	283	48	½" ϕ	5½"	4'-1"	131	5'-11"	63
7	3	20	⅝" ϕ	7"	7'-8"	152	19	⅝" ϕ	7"	7'-8"	152	36	⅝" ϕ	7⅛"	6'-2"	232	36	⅝" ϕ	7⅛"	4'-10"	181		
	4	20	⅝" ϕ	6½"	7'-8"	160	20	⅝" ϕ	6½"	7'-8"	160	34	⅝" ϕ	8"	7'-2"	254	34	⅝" ϕ	8"	4'-10"	171		
	5	20	⅝" ϕ	6½"	7'-10"	163	20	⅝" ϕ	6½"	7'-10"	163	34	⅝" ϕ	8"	8'-2"	290	34	⅝" ϕ	8"	4'-10"	171	4'-11"	53
	6	20	⅝" ϕ	6½"	7'-10"	163	20	⅝" ϕ	6½"	7'-10"	163	34	⅝" ϕ	8"	9'-2"	325	34	⅝" ϕ	8"	4'-10"	171	5'-11"	63
	7	20	⅝" ϕ	6½"	7'-10"	163	20	⅝" ϕ	6½"	7'-10"	163	36	⅝" ϕ	7⅛"	10'-2"	382	36	⅝" ϕ	7⅛"	4'-10"	181	6'-11"	74
8	4	17	¾" ϕ	8"	8'-8"	221	17	¾" ϕ	8"	8'-8"	221	36	⅝" ϕ	7⅛"	7'-3"	272	36	⅝" ϕ	7⅛"	4'-11"	185		
	5	17	¾" ϕ	8"	8'-10"	225	17	¾" ϕ	8"	8'-10"	225	34	⅝" ϕ	8"	8'-8"	293	34	⅝" ϕ	8"	4'-11"	174	4'-11"	53
	6	17	¾" ϕ	8"	8'-10"	225	17	¾" ϕ	8"	8'-10"	225	34	⅝" ϕ	8"	9'-8"	328	34	⅝" ϕ	8"	4'-11"	174	5'-11"	63
	7	17	¾" ϕ	8"	8'-10"	225	17	¾" ϕ	8"	8'-10"	225	36	⅝" ϕ	7⅛"	10'-3"	385	36	⅝" ϕ	7⅛"	4'-11"	185	6'-11"	74
	8	17	¾" ϕ	8"	9'-0"	230	17	¾" ϕ	8"	9'-0"	230	38	⅝" ϕ	7"	11'-3"	446	38	⅝" ϕ	7"	4'-11"	195	7'-11"	85
9	5	19	¾" ϕ	7"	9'-10"	281	19	¾" ϕ	7"	9'-10"	281	40	⅝" ϕ	6½"	8'-4"	348	40	⅝" ϕ	6½"	5'-0"	209	4'-11"	53
	6	19	¾" ϕ	7"	9'-10"	281	19	¾" ϕ	7"	9'-10"	281	40	⅝" ϕ	6½"	9'-4"	389	40	⅝" ϕ	6½"	5'-0"	209	5'-11"	63
	7	20	¾" ϕ	6½"	9'-10"	295	20	¾" ϕ	6½"	9'-10"	295	40	⅝" ϕ	6½"	10'-4"	431	40	⅝" ϕ	6½"	5'-0"	209	6'-11"	74
	8	20	¾" ϕ	6½"	10'-0"	300	20	¾" ϕ	6½"	10'-0"	300	40	⅝" ϕ	6½"	11'-4"	473	40	⅝" ϕ	6½"	5'-0"	209	7'-11"	85
	9	20	¾" ϕ	6½"	10'-0"	300	20	¾" ϕ	6½"	10'-0"	300	44	⅝" ϕ	6"	12'-4"	566	44	⅝" ϕ	6"	5'-0"	229	8'-11"	95
10	5	16	⅞" ϕ	8½"	10'-10"	354	16	⅞" ϕ	8½"	10'-10"	354	34	¾" ϕ	8"	8'-6"	434	34	¾" ϕ	8"	5'-5"	277	4'-11"	53
	6	17	⅞" ϕ	8"	10'-10"	376	17	⅞" ϕ	8"	10'-10"	376	34	¾" ϕ	8"	9'-6"	485	34	¾" ϕ	8"	5'-5"	277	5'-11"	63
	7	17	⅞" ϕ	8"	10'-10"	376	17	⅞" ϕ	8"	10'-10"	376	34	¾" ϕ	8"	10'-6"	536	34	¾" ϕ	8"	5'-5"	277	6'-11"	74
	8	17	⅞" ϕ	8"	11'-0"	382	17	⅞" ϕ	8"	11'-0"	382	34	¾" ϕ	8"	11'-6"	587	34	¾" ϕ	8"	5'-5"	277	7'-11"	85
	9	17	⅞" ϕ	8"	11'-0"	382	17	⅞" ϕ	8"	11'-0"	382	36	¾" ϕ	7⅛"	12'-6"	676	36	¾" ϕ	7⅛"	5'-5"	293	8'-11"	95
	10	18	⅞" ϕ	7⅛"	11'-0"	405	18	⅞" ϕ	7⅛"	11'-0"	405	38	¾" ϕ	7"	13'-6"	771	38	¾" ϕ	7"	5'-5"	309	9'-11"	106

CULVERT SIZE S	CULVERT SIZE H	½" ϕ BARS F Length 10'-4" F	SPAC.	F_2	SPAC.	F_3	SPAC.	TOTAL	WT.	2-½" ϕ ⅝" ϕ BARS H @12"-3"Hilong LGTH.	WT.	⅝" ϕ BARS K NO.	WT.	½" ϕ BARS M IN TOP SLAB & WALLS NO.	SPAC.	LGTH.	WT.	½" ϕ BARS N IN BOTTOM SLAB NO.	SPAC.	LGTH.	WT.
3	2	7	12"±		20½"	4	10"	14	97	3'-9"	5	5	13	15	9"	8'-4"	83	15	9"	6'-8"	67
	3	7	12"±	3	20½"	4	14"	14	97	3'-9"	5	5	13	15	9"	10'-4"	104	15	9"	6'-8"	67
4	2	9	12"±	4	18"±	4	10"	17	117	4'-9"	6	6	16	19	7"	9'-4"	118	19	7"	7'-8"	97
	3	9	12"±	4	18"±	4	14"	17	117	4'-9"	6	6	16	19	7"	11'-4"	144	19	7"	7'-8"	97
	4	9	12"±	4	18"±	6	15"	19	131	4'-9"	6	6	16	19	7"	13'-4"	169	19	7"	7'-8"	97
5	2	9	12"±	7	18"±	4	10"	20	138	5'-9"	8	7	18								
	3	9	12"±	7	18"±	4	14"	20	138	5'-9"	8	7	18								
	4	9	12"±	7	16"±	6	15"	22	152	5'-9"	8	7	18								
	5	9	12"±	7	18"±	16	13"	32	221	5'-11"	8	7	18								
6	3	8	18"±	8	18"±	4	14"	20	138	6'-9"	9	8	21								
	4	8	18"±	8	18"±	6	15"	22	152	6'-9"	9	8	21								
	5	8	18"±	8	18"±	16	14"	32	221	6'-11"	9	8	21								
	6	8	18"±	8	18"±	16	16"	32	221	6'-11"	9	8	21								
7	3	9	18"±	9	18"±	4	14"	22	152	7'-9"	10	9	24								
	4	9	18"±	9	18"±	6	14"	24	166	7'-9"	10	9	24								
	5	9	18"±	9	18"±	16	14"	34	235	7'-11"	11	9	24								
	6	9	18"±	9	18"±	16	16"	34	235	7'-11"	11	9	24								
	7	9	18"±	9	18"±	20	15"	38	262	7'-11"	11	9	24								
8	4	10	18"±	10	18"±	6	14⅝"	26	179	8'-9"	12	10	26								
	5	10	18"±	10	18"±	16	14"	36	248	8'-11"	12	10	26								
	6	10	18"±	10	18"±	16	16⅝"	36	248	8'-11"	12	10	26								
	7	10	18"±	10	18"±	20	16"	40	276	8'-11"	12	10	26								
	8	10	18"±	10	18"±	20	16"	40	276	9'-1"	12	10	26								
9	5	10	18"±	10	18"±	16	14"	36	248	9'-11"	13	11	29								
	6	10	18"±	10	18"±	16	16⅝"	36	248	9'-11"	13	11	29								
	7	10	18"±	10	18"±	20	16"	40	276	9'-11"	13	11	29								
	8	10	18"±	10	18"±	20	18"	40	276	10'-1"	13	11	29								
	9	10	18"±	10	18"±	24	17"	44	304	10'-1"	13	11	29								
10	5	11	18"±	11	18"±	16	14"	38	262	10'-11"	15	12	31								
	6	11	18"±	11	18"±	16	16⅝"	38	262	10'-11"	15	12	31								
	7	11	18"±	11	18"±	20	16"	42	290	10'-11"	15	12	31								
	8	11	18"±	11	18"±	20	18"	42	290	11'-1"	15	12	31								
	9	11	18"±	11	18"±	24	17"	46	317	11'-1"	15	12	31								
	10	11	18"±	11	18"±	28	16"	50	345	11'-1"	15	12	31								

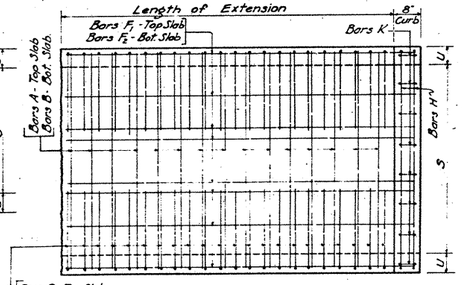








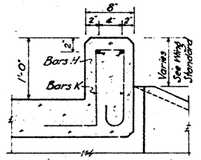
PLAN OF REINFORCING STEEL
3' x 2' TO 4' x 4'



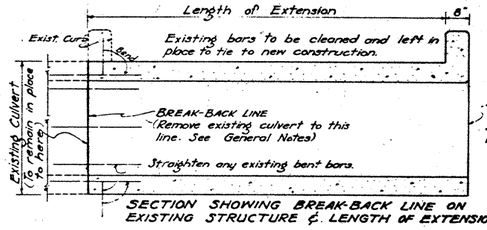
PLAN OF REINFORCING STEEL
5' x 2' TO 10' x 10'

UNIT BAR WEIGHTS				
Bar Size	½" ϕ	⅝" ϕ	¾" ϕ	⅞" ϕ
Wt. per Lin. Ft.	0.668	1.043	1.502	2044

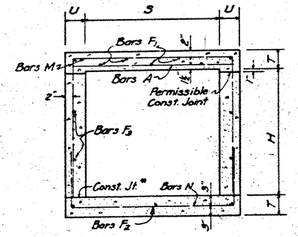
*Construction Joints shown at flow line on Sections 2 & 3 may be raised a maximum of 6" if desired, provided the Bars C are properly set in place before casting the bottom slab.



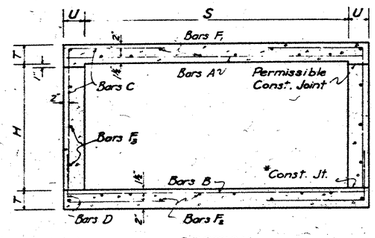
SECTION THRU CURB



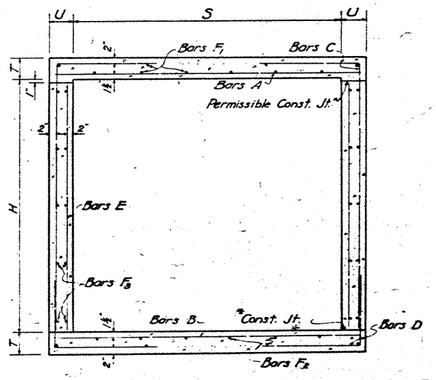
SECTION SHOWING BREAK-BACK LINE ON EXISTING STRUCTURE & LENGTH OF EXTENSION



SECTION
TYPE 1



SECTION
TYPE 2



SECTION
TYPE 3

GENERAL NOTES

This design is adopted from Texas Highway Department Standard for "Single Culverts-Normal," SC-N, as prepared in May, 1948.

All concrete shall be Class A. All exposed corners shall be chamfered ¾".

All dimensions relating to reinforcing bars are to centers of bars.

Quantities of concrete and reinforcing steel shown hereon are for a 10Ft. extension of one end of the barrel. For other lengths of extension adjust the bar lengths or number, and the total quantities of concrete and steel according to "Quantities per Lin. Ft. of Extension."

Existing bars exposed by break-back shall be cleaned and bent into position to provide a tie to the new concrete extension.

The removal of the existing structure to the break-back line shown will not be paid for directly but shall be considered subsidiary work to the bid item "Class A" Concrete for Extending Culverts."

The quantities for the new wings are not included hereon. Refer to the Standard "Flared Wings-Normal" (FW-N) or "Parallel Wings-Normal (PW-N) for wing quantities and design. Refer to plans for proposed type of Wing.

TEXAS HIGHWAY DEPARTMENT

LENGTHENING DETAILS -SINGLE BOX CULVERTS

SCL

DN: RLN	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
DR: RLN	Original	September, 1948	6	TEXAS	I-165 (16)	50A
CK: KLH			STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
TR: KLH			21	WEBB	18 / 3 / 9	US 81

18 4 9

PLAN — PROFILE
SURVEYED
PLOTTED
NOTE BOOK
NO.
DRAWN
CHECKED
CHECKED
R.L.N.
R.L.N.
K.L.H.
B. M.'s NOTED
STRUCTURE NOTATIONS CHKD
NO.
RT. OF WAY CHECKED
BY
DATE

135

BILLS OF REINFORCING STEEL ~ FOR 44' CLEAR WIDTH ~ BARRELS ONLY

2 SPANS ~ 5'x2'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	91	91	30	16	26	46	4	24
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	11'-2"	4'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	11'-2"	3'-11"	11'-2"
WEIGHT	686	355	300	284	284	464	248	402	169	30	63

3 SPANS ~ 5'x2'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	182	182	46	24	38	92	4	36
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	16'-8"	4'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	5'-6"	16'-8"	3'-11"
WEIGHT	1024	355	300	568	568	712	371	588	336	45	94

4 SPANS ~ 5'x2'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	273	273	62	32	50	138	4	46
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	22'-2"	4'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	5'-6"	22'-2"	3'-11"
WEIGHT	1362	355	300	852	852	960	495	774	507	59	120

5 SPANS ~ 5'x2'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	364	364	78	40	62	184	4	58
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	27'-8"	4'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	5'-6"	27'-8"	3'-11"
WEIGHT	1700	355	300	1136	1136	1207	619	960	676	74	152

6 SPANS ~ 5'x2'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	455	455	94	48	74	230	4	68
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	33'-2"	4'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	5'-6"	33'-2"	3'-11"
WEIGHT	2038	355	300	1419	1419	1455	743	1145	845	89	178

2 SPANS ~ 5'x3'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	91	91	30	16	26	46	4	24
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	11'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	7'-6"	11'-2"	3'-11"
WEIGHT	686	429	300	284	284	464	248	402	230	30	63

3 SPANS ~ 5'x3'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	182	182	46	24	38	92	4	36
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	16'-8"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	7'-6"	16'-8"	3'-11"
WEIGHT	1024	429	300	568	568	712	371	588	461	45	94

4 SPANS ~ 5'x3'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	273	273	62	32	50	138	4	46
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	22'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	7'-6"	22'-2"	3'-11"
WEIGHT	1362	428	300	852	852	960	495	774	691	59	120

5 SPANS ~ 5'x3'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	364	364	78	40	62	184	4	58
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	27'-8"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	7'-6"	27'-8"	3'-11"
WEIGHT	1700	428	300	1136	1136	1207	619	960	922	74	152

6 SPANS ~ 5'x3'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	455	455	94	48	74	230	4	68
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	33'-2"	5'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	7'-6"	33'-2"	3'-11"
WEIGHT	2038	428	300	1419	1419	1455	743	1145	1152	89	178

2 SPANS ~ 5'x4'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	91	91	30	16	26	46	4	24
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	11'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	9'-6"	11'-2"	3'-11"
WEIGHT	686	502	300	284	284	464	371	402	292	30	63

3 SPANS ~ 5'x4'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	182	182	46	36	38	92	4	36
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	16'-8"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	9'-6"	16'-8"	3'-11"
WEIGHT	1024	502	300	568	568	712	557	588	584	45	94

4 SPANS ~ 5'x4'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	273	273	62	48	50	138	4	46
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	22'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	9'-6"	22'-2"	3'-11"
WEIGHT	1362	502	300	852	852	960	743	774	876	59	120

5 SPANS ~ 5'x4'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	364	364	78	60	62	184	4	58
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	27'-8"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	9'-6"	27'-8"	3'-11"
WEIGHT	1700	502	300	1136	1136	1207	929	960	1168	74	152

6 SPANS ~ 5'x4'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	92	110	110	455	455	94	72	74	230	4	68
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	~	12"
LENGTH	33'-2"	6'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	9'-6"	33'-2"	3'-11"
WEIGHT	2038	502	300	1419	1419	1455	1114	1145	1460	89	178

2 SPANS ~ 5'x5'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K
NUMBER	92	110	110	91	91	30	48	26	46	46	62	4	24
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	12"	18"	~	12"
LENGTH	11'-5"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	10'-10"	3'-4"	4'-11"	11'-5"	3'-11"
WEIGHT	702	576	300	284	284	464	743	402	333	102	204	31	63

3 SPANS ~ 5'x5'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K
NUMBER	92	110	110	182	182	46	64	38	92	92	62	4	36
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	12"	18"	~	12"
LENGTH	17'-0"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	10'-10"	3'-4"	4'-11"	17'-0"	3'-11"
WEIGHT	1045	576	300	568	568	712	991	588	666	205	204	45	94

4 SPANS ~ 5'x5'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K
NUMBER	92	110	110	273	273	62	80	50	138	138	62	4	46
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	12"	18"	~	12"
LENGTH	22'-7"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	10'-10"	3'-4"	4'-11"	22'-7"	3'-11"
WEIGHT	1388	576	300	852	852	960	1238	774	998	307	204	60	120

5 SPANS ~ 5'x5'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K
NUMBER	92	110	110	364	364	78	96	62	184	184	62	4	58
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	12"	18"	~	12"
LENGTH	28'-2"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	10'-10"	3'-4"	4'-11"	28'-2"	3'-11"
WEIGHT	1712	576	300	1135	1135	1207	1486	959	1331	409	204	75	152

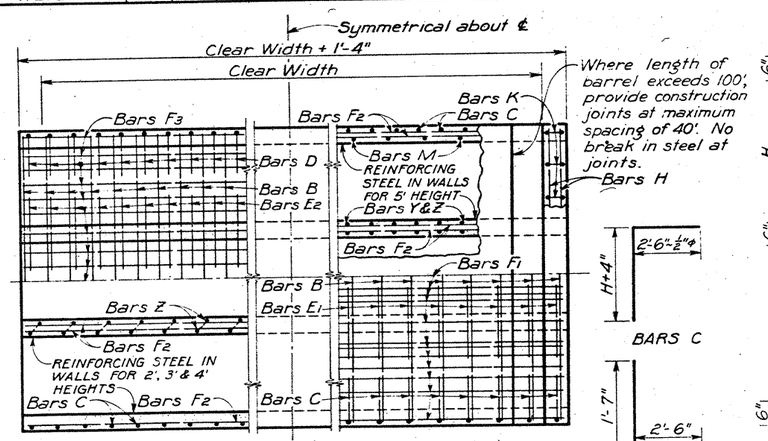
6 SPANS ~ 5'x5'

MARK	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K
NUMBER	92	110	110	455	455	94	112	74	230	230	62	4	70
SIZE	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ	1/2"Φ
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	12"	18"	~	12"
LENGTH	33'-9"	7'-10"	4'-1"	4'-8"	4'-8"	23'-2"	23'-2"	23'-2"	10'-10"	3'-4"	4'-11"	33'-9"	3'-11"
WEIGHT	2074	576	300	1419	1419	1455	1734	1145	1664	512	204	90	183

PLAN NOTE BOOK NO.

PROFILE NOTE BOOK NO.

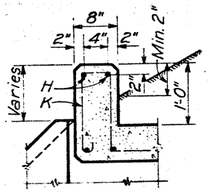
196



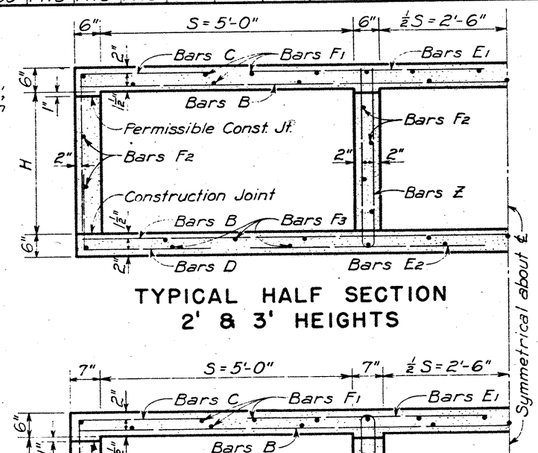
PART PLANS

BOTTOM SLAB TOP SLAB

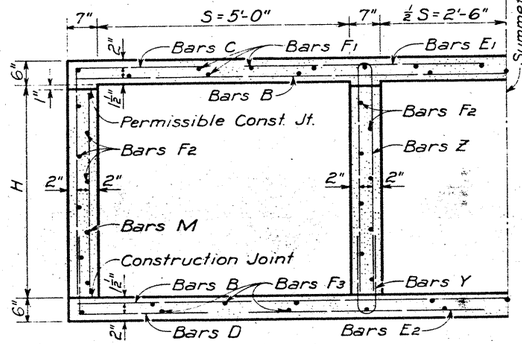
NOTE: TOP AND BOTTOM SLAB REINFORCING STEEL SIMILAR FOR CULVERT SIZES SHOWN ON THIS SHEET.



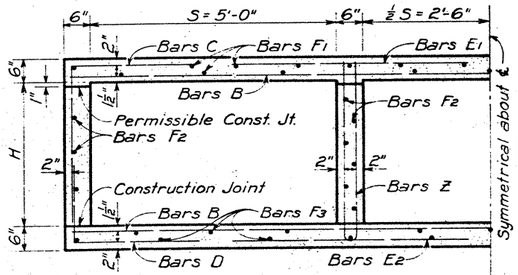
SECTION THRU CURB



TYPICAL HALF SECTION
2' & 3' HEIGHTS



TYPICAL HALF SECTION
5' HEIGHT



TYPICAL HALF SECTION
4' HEIGHT

BARREL QUANTITIES FOR 44' CLEAR WIDTH

CULVERT SIZE S H	NO. OF SPANS	LENGTH OF STRUCT.	*BARREL QUANTITIES CONC. CU.YDS	*BARREL QUANTITIES STEEL LBS.	QUANTITIES P.L.F. BBL. CONC. CU.YDS	QUANTITIES P.L.F. BBL. STEEL LBS.
5'x2'	2	11'-6"	24.91	3,285	0.537	69.41
	3	17'-0"	36.10	4,963	0.778	104.92
	4	22'-6"	47.31	6,636	1.019	140.44
	5	28'-0"	58.47	8,315	1.259	175.95
	6	33'-6"	69.65	9,986	1.500	211.47
5'x3'	2	11'-6"	27.45	3,419	0.593	72.34
	3	17'-0"	39.48	5,159	0.852	109.20
	4	22'-6"	51.48	6,893	1.111	146.05
	5	28'-0"	63.49	8,634	1.370	182.90
	6	33'-6"	75.55	10,366	1.630	219.75
5'x4'	2	11'-6"	29.94	3,678	0.648	77.96
	3	17'-0"	42.82	5,543	0.926	117.48
	4	22'-6"	55.68	7,400	1.204	157.01
	5	28'-0"	68.52	9,264	1.481	196.53
	6	33'-6"	81.40	11,119	1.759	236.05
5'x5'	2	11'-9"	34.99	4,488	0.759	95.40
	3	17'-4"	49.54	6,562	1.074	139.49
	4	22'-11"	64.10	8,629	1.389	183.58
	5	28'-6"	78.66	10,703	1.704	227.67
	6	34'-1"	93.21	12,775	2.019	271.76

*These quantities do not include toe walls or wings.

GENERAL NOTES:

Design: H20-44 or H20 S16-44 Loading in accordance with A.A.S.H.O. 1949 Standard Specifications and T.H.D. Supplement No. 1.

All concrete shall be Class A. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls and include one 30 diameter lap for each bar exceeding 40 feet in length. Barrels having a length of over 80 feet shall have quantities recalculated to include an additional 30 diameter lap for each longitudinal bar.

Construction Joint shown at flow line may be raised a maximum of 6" at the option of the contractor. Adjust length of vertical steel as required.

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES 5'x2', 5'x3', 5'x4', & 5'x5'
4'-1" TO 6'-0" FILL

MC5-2

DN	WH	DRAWING	DATE
CK. DR.	H.V.H.	Original	July 1948
DW.	M.D.A.		
CK. DW.	P.M.		
TR.	E.L.T.		
CK. TR.	M.T.		

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEX.	I-165 (16)	5-A
STATE DIST. NO.	COUNTY	JOB NO.	HIGHWAY NO.
21	WEBB	18 4 9	US 81

BILLS OF REINFORCING STEEL FOR ONE EXTENSION

3-SPANS ~ 4'×4' STA. 1530+93.00 :: LENGTH OF EXTENSION = 3'-8"

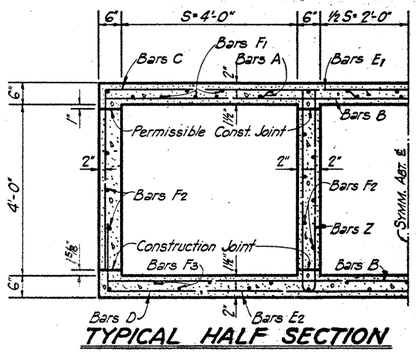
MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K	R	S	T	U
NUMBER	5	8	12	12	4	6	28	18	19	8	2	15	8	1	6	4
SIZE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"	18"	~	24"	~
LENGTH	14'-0"	13'-8"	6'-2"	3'-7"	9'-2"	9'-2"	4'-0"	3'-0"	3'-0"	9'-6"	13'-8"	3'-11"	3'-6"	12'-0"	2'-0"	13'-8"
WEIGHT	47	73	49	29	25	37	75	36	38	51	18	39	19	8	8	57

4-SPANS ~ 4'×4' STA. 1974+38.03 :: LENGTH OF EXTENSION = 8'-0"

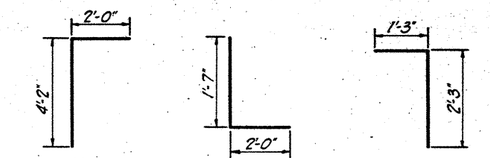
MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K	R	S	T	U
NUMBER	9	16	20	20	8	13	37	24	25	24	2	19	12	1	9	4
SIZE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"	18"	~	24"	~
LENGTH	18'-8"	18'-2"	6'-2"	3'-7"	13'-8"	13'-8"	8'-4"	7'-4"	7'-4"	9'-6"	18'-2"	3'-11"	3'-6"	16'-6"	2'-0"	18'-2"
WEIGHT	112	194	82	48	73	119	205	118	122	152	24	50	28	11	12	76

6-SPANS ~ 4'×4' STA. 1952+96.80 :: LENGTH OF EXTENSION = 5'-0"

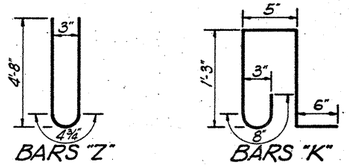
MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K	R	S	T	U
NUMBER	6	10	12	12	5	8	55	36	37	25	2	28	18	1	15	4
SIZE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"	18"	~	24"	~
LENGTH	28'-0"	27'-2"	6'-2"	3'-7"	22'-8"	22'-8"	5'-4"	4'-4"	4'-4"	9'-6"	27'-2"	3'-11"	3'-6"	25'-6"	2'-0"	27'-2"
WEIGHT	112	181	49	29	76	121	196	104	107	159	36	73	42	17	20	113



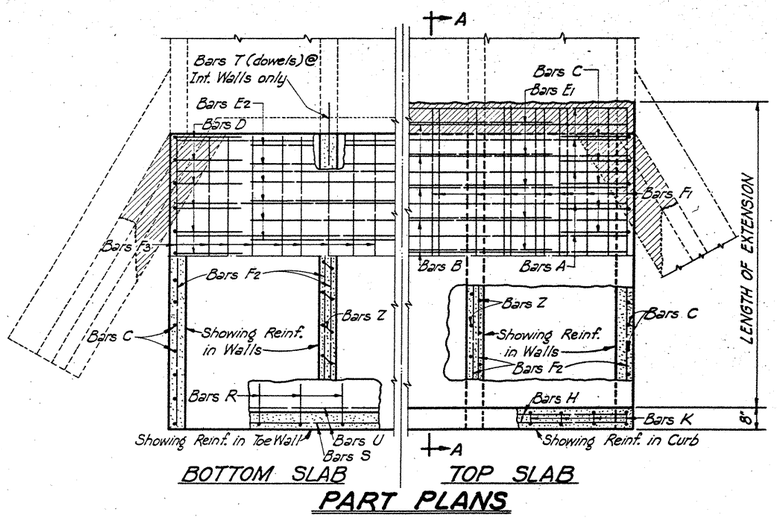
TYPICAL HALF SECTION



BARS "C" BARS "D" BARS "R"

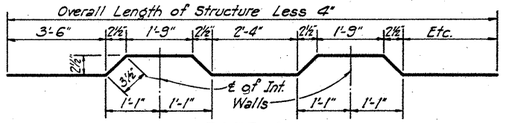


BARS "Z" BARS "K"

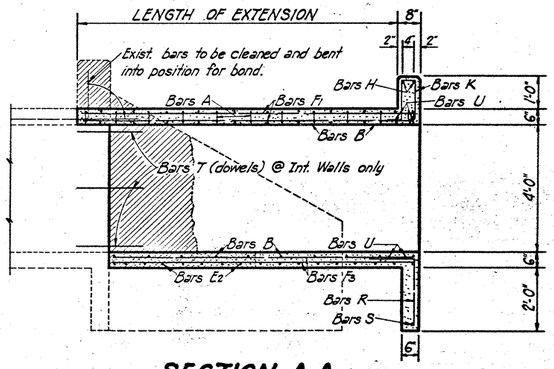


BOTTOM SLAB TOP SLAB

PART PLANS



BARS "A"



SECTION A-A

ESTIMATED QUANTITIES

STATION	DESCRIPTION	CL. "A" CONC. FOR EXT. STRUCTURES C.Y.	REINF. STEEL Lbs.
1530+93.00	3-Spans 4'×4'	3.76	609
1974+38.03	4-Spans 4'×4'	~~4.54~~ 9.50	1426
1952+96.80	6-Spans 4'×4'	9.30	1435

GENERAL NOTES:-

Design Loading: H20-44 or H20 S16-44 in accordance with A.A.S.H.O. 1949 Standard Specifications and T.H.D. Supplement No. 1.

All Concrete shall be Class "A" for extending structures. All exposed corners shall be chamfer ¾".

Dimensions relating to reinforcing steel are to centers of bars.

Shaded portions of existing structure are to be removed.

Existing Bars exposed by breakback shall be cleaned and bent into position to bond to the new construction.

All welding of reinforcing shall be done with E-6016 or E-7016 electrodes.

TEXAS STATE HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERT EXTENSION
3, 4, & 6 SPANS - 4'×4'
DIRECT TRAFFIC TO 4'-0" FILL

MC4-1 SPECIAL

FED. RO. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	F-165(14)	52-A
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 34 9	U.S. 81

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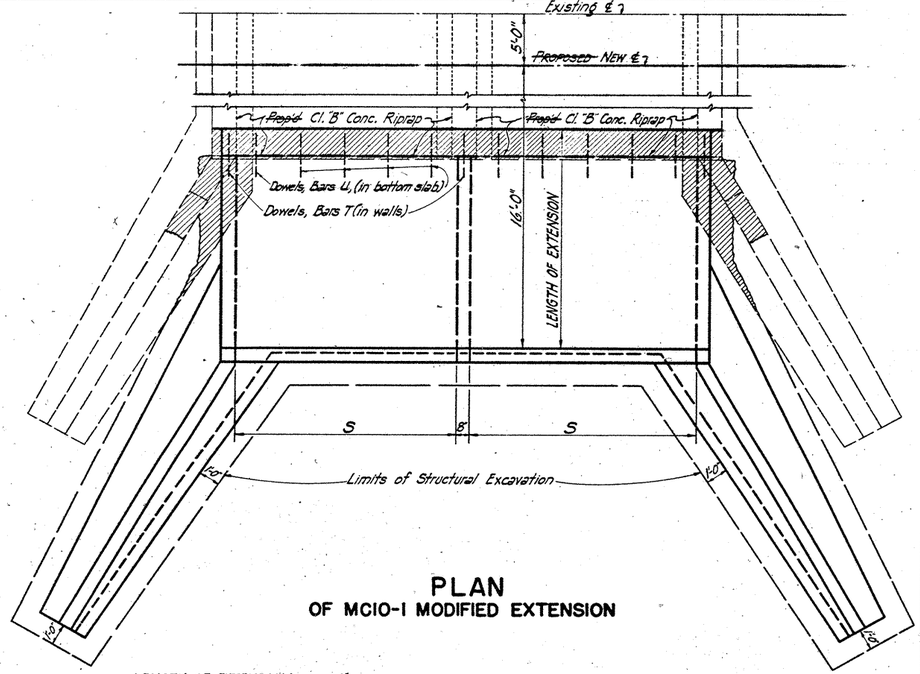
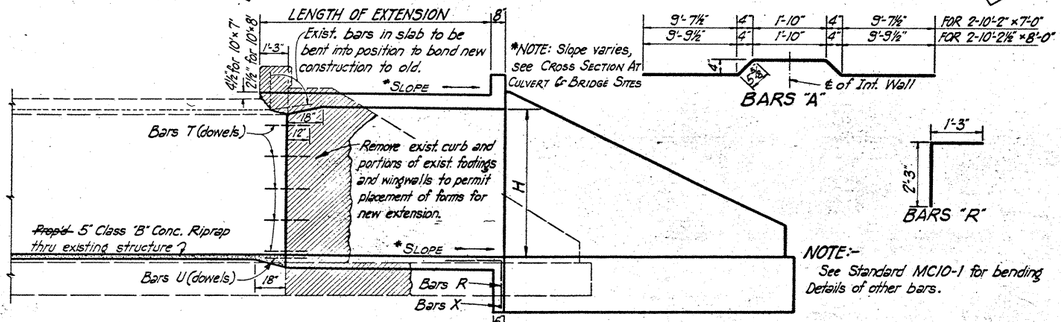
STATION AT BEGINNING OF BRIDGE	STRUCTURE	LENGTH OF EXTENSION	BILL OF REINF. STEEL FOR MC10-1 Mod. BARREL EXT. MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z	T	U	R	X
1154+41.4	S H 2-10'-2" x 7'-0"	4'-4" ON EAST SIDE ONLY	NUMBER	5	4	5	10	10	4	6	29	30	21	2	23	6	4	4	15	10	13	1
			SIZE	5	5	5	5	5	6	6	4	4	4	4	4	4	4	4	5	4	4	4
			SPACING	14"	14"	10½"	10"	10"	14"	8½"	~	17"	~	~	12"	18"	12"	12"	18"	24"	18"	~
			LENGTH	22'-0"	21'-9"	21'-9"	10'-3"	4'-11"	5'-8"	5'-8"	4'-4"	3'-7"	3'-5"	21'-9"	4'-2"	6'-11"	3'-7"	17'-1"	2'-0"	2'-0"	3'-6"	18'-0"
			WEIGHT	115	91	113	107	51	34	51	84	72	48	29	64	28	10	40	31	13	30	12
1253+18.8	2-10'-2½" x 8'-0"	3'-9" ON EAST SIDE ONLY	NUMBER	4	4	4	8	8	4	5	29	30	21	2	23	6	4	4	15	10	12	1
			SIZE	5	5	5	5	5	6	6	4	4	4	4	4	4	4	4	5	4	4	4
			SPACING	14"	14"	10½"	9½"	9⅛"	14"	8½"	~	19"	~	~	12"	18"	12"	12"	18"	24"	18"	~
			LENGTH	22'-4"	22'-1"	22'-1"	11'-3"	4'-11"	5'-8"	5'-8"	3'-	3'-0"	2'-10"	22'-1"	4'-2"	7'-11"	3'-7"	17'-1"	2'-0"	2'-0"	3'-6"	17'-7"
			WEIGHT	93	92	92	94	41	34	43	73	60	40	30	64	32	10	46	31	13	28	12
1325+00.0	2-10'-2" x 7'-0"	3'-11" ON EAST SIDE ONLY	NUMBER	4	4	4	8	8	4	5	29	30	21	2	23	6	4	4	15	10	13	1
			SIZE	5	5	5	5	5	6	6	4	4	4	4	4	4	4	4	5	4	4	4
			SPACING	14"	14"	10½"	10"	10"	14"	8½"	~	17"	~	~	12"	18"	12"	12"	18"	24"	18"	~
			LENGTH	22'-0"	21'-9"	21'-9"	10'-3"	4'-11"	5'-8"	5'-8"	3'-11"	3'-0"	3'-0"	21'-9"	4'-2"	6'-11"	3'-7"	15'-1"	2'-0"	2'-0"	3'-6"	18'-0"
			WEIGHT	92	91	91	86	41	34	43	76	63	42	29	64	28	10	40	31	13	30	12

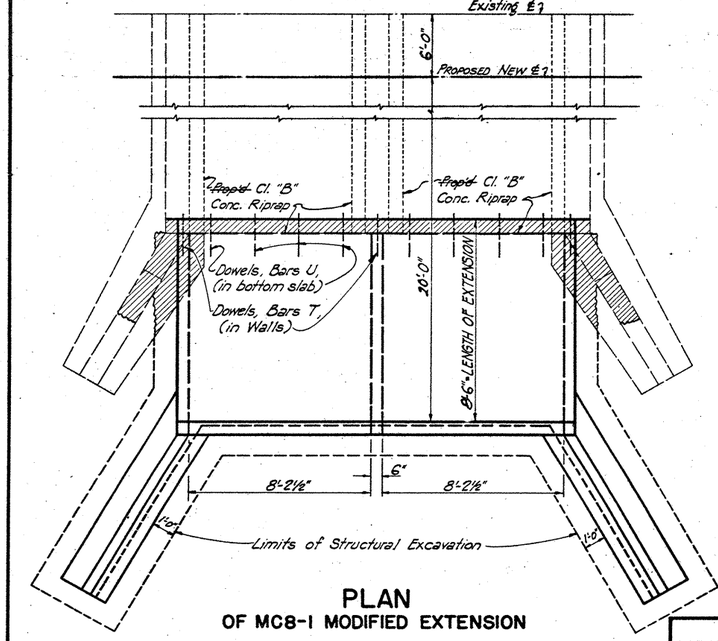


PLAN
OF MC10-1 MODIFIED EXTENSION

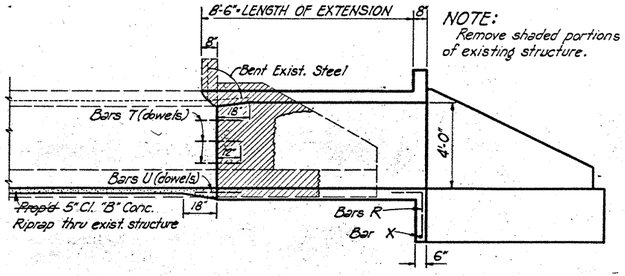


TYPICAL SECTION FOR MC10-1 Mod. EXTENSION
FOR STEEL ARRANGEMENT OTHER THAN BARS SHOWN SEE STANDARD MC10-1

STATION AT CENTERLINE OF CULVERT	STRUCTURE	LENGTH OF EXTENSION	BILL OF REINF. STEEL FOR MC8-1 Mod. BARREL EXT. MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z	T	U	R	X
1607+49.9	2-8'-2½"x4'-0"	8'-6" ON EAST SIDE ONLY	NUMBER	13	25	30	30	13	21	25	12	19	2	18	9	9	8	11	1
			SIZE	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4
			SPACING	8½"	8½"	7"	7"	8½"	5"	~	16"	~	~	12"	12"	12"±	24"±	18"	~
			LENGTH	17'-9"	17'-7"	6'-10"	4'-1"	4'-8"	4'-8"	8'-10"	8'-4"	8'-2"	17'-7"	4'-0"	9'-8"	2'-0"	2'-0"	3'-6"	15'-11"
			WEIGHT	154	294	137	82	41	65	148	69	104	23	48	58	19	11	26	11

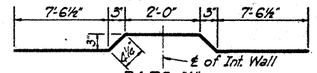


PLAN
OF MC8-1 MODIFIED EXTENSION

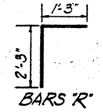


NOTE:
Remove shaded portions of existing structure.

TYPICAL SECTION FOR MC8-1 Mod. EXTENSION
FOR STEEL ARRANGEMENT OTHER THAN BARS SHOWN SEE STANDARD MC8-1



BARS "A"



BARS "R"

NOTE :-
See Standard MC8-1 for bending details of other bars.

GENERAL NOTES:-

Designs are adopted from Texas Highway Department Standards MC10-1 & MC8-1

All concrete shall be Class "A" for extending structures. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to center of bars.

Quantities of concrete and reinforcing steel shown hereon are for Barrel Extensions and Wings.

For Steel arrangement in the barrels and for dimensions relating to reinforcing steel not shown on this page, refer to Texas Highway Department Standards MC10-1 and MC8-1. See Standards MCW-F1 & MCW-F2 for Wing dimensions and design.

Existing bars exposed by breakback shall be cleaned and bent into position to bond to the new construction.

All welding of reinforcing steel shall be done with E-6016 or E-7016 electrodes.

Lengths shown for transverse bars are for estimating purposes only. All transverse bars to be cut from stock lengths at job site.

ESTIMATED QUANTITIES

STATION AT	CL. "A" CONC. FOR EXT. STRUCT. C.Y. BARREL	WINGS	TOTALS	REINFORCING STEEL Lbs. BARREL	WINGS	TOTALS
Beg. Br. 1154+41.4	7.77	6.33	14.10	1023	580	1603
Beg. Br. 1253+18.8	7.31	7.70	15.01	928	747	1675
Beg. Br. 1325+00.0	7.16	6.33	13.49	916	580	1496
℄ 1607+49.9	9.34	2.34	11.68	1288	238	1526

STRUCTURAL DETAILS
FOR
EXISTING 2-10'x7'x34', C-6 DESIGN,
2-10'x8'x34', C-6 DESIGN,
2-8'x3'x34', C-6 DESIGN
PROP. RIGHT END EXT. WITH MC8-1 MOD. & MC10-1 MOD.

CONTROL NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
0	TEXAS	F-165(06)	53-A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	3-4	9	U.S. 81

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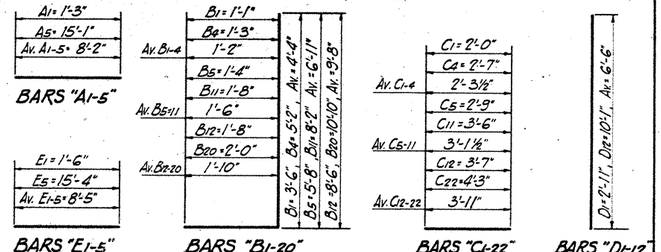
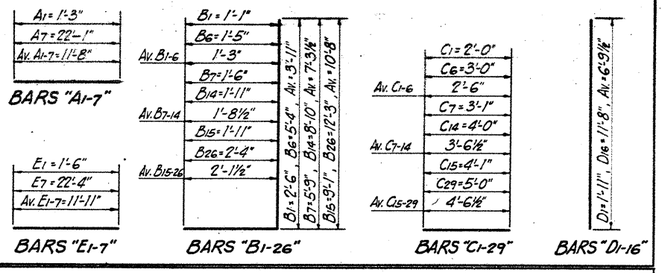
BILL OF REINFORCING STEEL FOR TWO WINGWALLS

H_1=10'-6" h=3'-0"

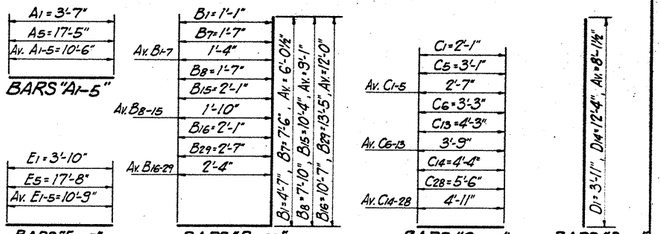
BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A1-5	10	4	18"	Av.8'-2"	55
A6	4	4	18"	17'-1"	46
B1-4	8	6	16"	Av.5'-6"	66
B5-11	14	6	12"	Av.8'-5"	177
B12-20	18	6	8"	Av.11'-6	311
C1-4	8	5	18"	Av.2'-3½"	19
C5-11	14	5	12"	Av.3'-1½"	46
C12-22	22	5	6"	Av.3'-11"	90
D1-12	24	4	18"	Av.6'-6"	104
D13	2	4	9"	10'-4"	14
E1-5	10	4	18"	Av.8'-5"	56
E6	4	4	18"	17'-4"	46
F	12	5	~	17'-7"	220
G	4	5	~	18'-8"	78
TOTAL FOR TWO WINGS					1328



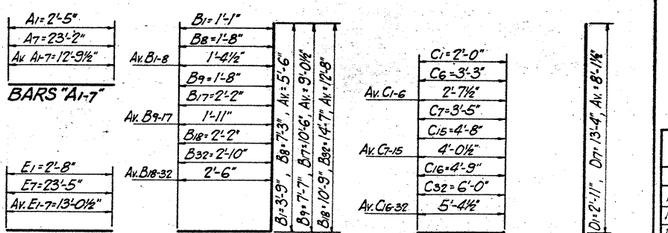
H_1=12'-0"			h=2'-0"		
BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A1-7	14	4	18"	Av.11'-8"	109
A8	2	4	18"	22'-10"	31
B1-6	12	7	16"	Av.5'-2"	127
B7-14	16	7	12"	Av.9'-0"	294
B15-26	24	7	8"	Av.12'-9½"	628
C1-6	12	5	17½"	Av.2'-6"	31
C7-14	16	5	12"	Av.3'-6½"	59
C15-29	30	5	6"	Av.4'-6½"	142
D1-16	32	4	18"	Av.6'-9½"	145
E1-7	14	4	18"	Av.11'-11"	111
E8	2	4	18"	23'-1"	31
F	12	5	~	23'-5"	293
G	4	5	~	24'-10"	104
TOTAL FOR TWO WINGS					2105



H_1=13'-0"			h=4'-0"		
BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A1-5	10	4	18"	Av.10'-6	70
A6	6	4	18"	20'-7"	83
B1-7	14	7	13½"	Av.7'-9½"	211
B8-15	16	7	10"	Av.10'-1	357
B16-29	28	7	6"	Av.14'-4"	820
C1-5	10	5	18"	Av.2'-7"	27
C6-12	14	5	12"	Av.3'-9"	55
C13-27	30	5	6"	Av.4'-11"	154
D1-14	28	4	18"	Av.8'-1½"	152
D15	2	4	18"	12'-10"	17
E1-5	10	4	18"	Av.10'-9"	72
E6	2	4	18"	20'-10"	28
F	12	5	~	21'-3"	266
G	4	5	~	21'-9"	91
TOTAL FOR TWO WINGS					2403



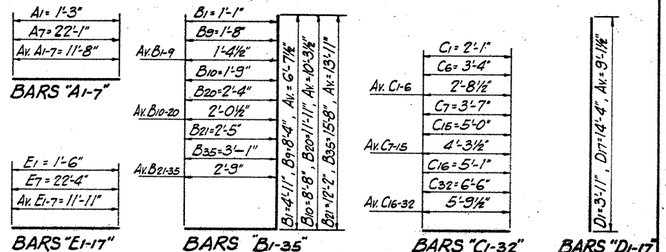
H_1=14'-0"			h=3'-0"		
BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A1-7	14	4	18"	Av.12'-9½"	120
A8	4	4	18"	25'-1"	67
B1-8	16	8	14"	Av.6'-10½"	294
B9-17	18	8	10"	Av.10'-11½"	527
B18-32	30	8	7½"	Av.15'-2"	1,215
C1-6	12	5	18"	Av.2'-7½"	33
C7-15	18	5	12"	Av.4'-0½"	76
C16-32	34	5	6"	Av.5'-4½"	191
D1-17	34	4	18"	Av.8'-1½"	185
D18	2	4	18"	13'-10"	18
E1-7	14	4	18"	Av.13'-0½"	122
E8	4	4	18"	25'-4"	68
F	12	5	~	25'-6"	319
G	4	5	~	27'-2"	113
TOTAL FOR TWO WINGS					3348



BILL OF REINFORCING STEEL FOR TWO WINGWALLS

H_1=15'-0" h=4'-0"

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A1-7	14	4	18"	Av.11'-8"	109
A8	6	4	18"	25'-1"	101
B1-9	18	8	12"	Av.8'-0"	384
B10-20	22	8	9"	Av.12'-4"	724
B21-35	30	8	7"	Av.16'-8"	1335
C1-6	12	5	18"	Av.2'-8½"	34
C7-15	18	5	12"	Av.4'-3½"	81
C16-32	34	5	6"	Av.5'-9½"	205
D1-17	34	4	18"	Av.9'-1½"	207
D18	2	4	18"	14'-10"	20
E1-7	14	4	18"	Av.11'-11"	111
E8	4	4	18"	25'-4"	68
F	12	5	~	25'-6"	319
G	4	5	~	27'-2"	113
TOTAL FOR TWO WINGS					3811



GENERAL NOTES:-

Design H-20-S16 Loading in accordance with A.A.S.H.O. 1953 Standard Specifications and T.H.D. Supplement No. 1.

All Concrete shall be Class "A" for extending structures. All exposed corners shall be chamfer ¾".

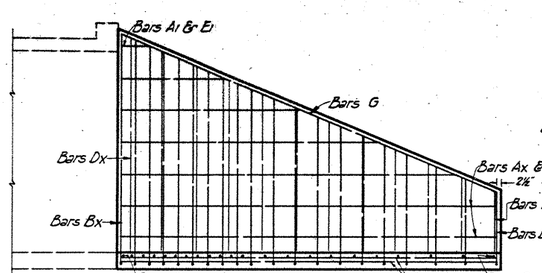
Dimensions relating to reinforcing steel are center of bars.

Existing Bars exposed by breakback shall be cleaned and bent into position to bond the new construction.

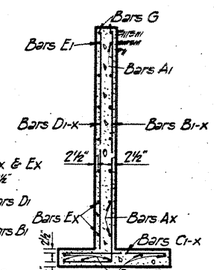
All Welding of reinforcing steel shall be done with E-6016 or E-7016 Electrodes.

Length of Bars "A" & "E" of Abut. Walls and Bars "B" & "H" of Interior Bent as shown in Tables of Sheet 2 of this Details are approximate. These Bars should be field Cut by the Contractor to fit existing condition in old structure.

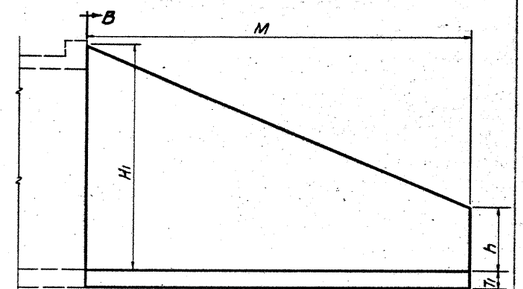
Footing Pressure : 1.5 T/s'.



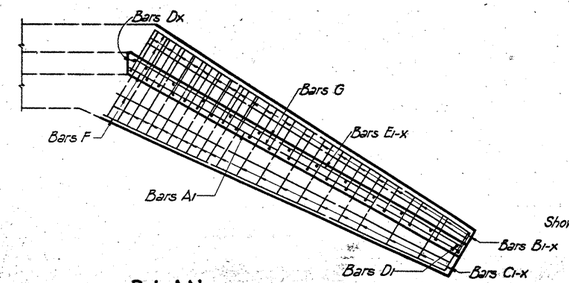
ELEVATION
Showing Reinforcing



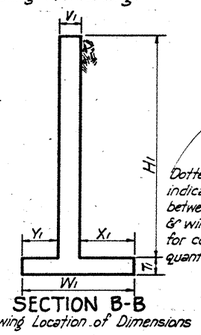
SECTION A-A
Showing Reinforcing.



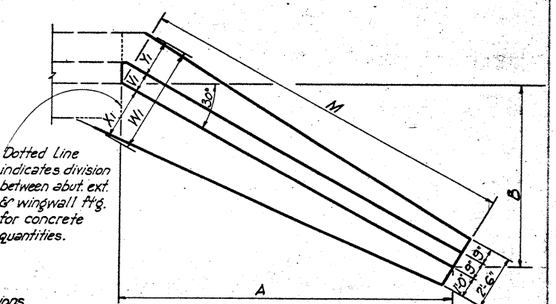
ELEVATION
Showing Location of Dimensions



PLAN
Showing Reinforcing



SECTION B-B
Showing Location of Dimensions



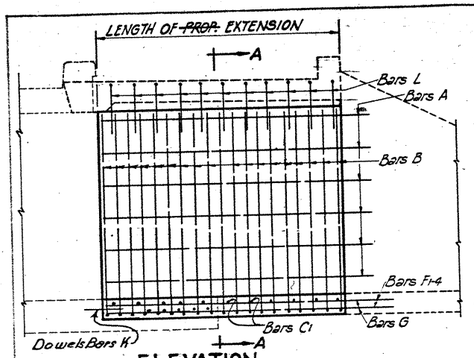
PLAN
Showing Location of Dimensions

WINGWALL DIMENSIONS											ESTIMATED QUANTITIES 2-WING			
											CONCRETE		REINF. STEEL	
H_1	h	A	B	M	V_1	W_1	X_1	Y_1	T_1		UNIT	QUANT.	UNIT	QUANT.
10'-6"	3'-0"	15'-0"	8'-7⅞"	17'-3⅞"	10½"	4'-9"	2'-3½"	1'-7"	10"		C.Y.	11.25	Lbs.	1328
12'-0"	2'-0"	20'-0"	11'-6⅝"	23'-1⅛"	12"	5'-6"	2'-8"	1'-10"	10"		C.Y.	16.70	Lbs.	2105
13'-0"	4'-0"	18'-0"	10'-4⅜"	20'-9⅜"	12½"	6'-0"	2'-11½"	2'-0"	11"		C.Y.	18.39	Lbs.	2403
14'-0"	3'-0"	22'-0"	12'-8½"	25'-4⅞"	13½"	6'-6"	3'-2½"	2'-2"	13"		C.Y.	25.15	Lbs.	3348
15'-0"	4'-0"	22'-0"	12'-8½"	25'-4⅞"	14½"	7'-0"	3'-5½"	2'-4"	15"		C.Y.	29.80	Lbs.	3811

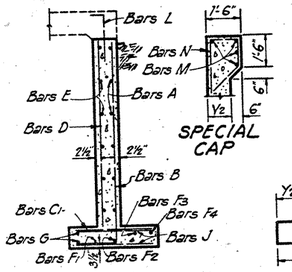
STRUCTURAL DETAILS
DETAILS AND REINFORCING OF ABUTMENT WINGWALLS
SHEET 1 OF 2 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-165 (16)	54-A
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 364 9	U.S.81

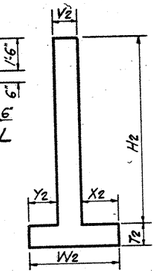
149



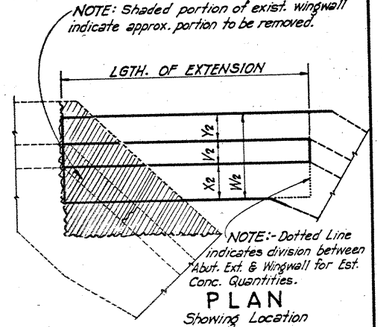
ELEVATION
Showing Reinforcing on outside face



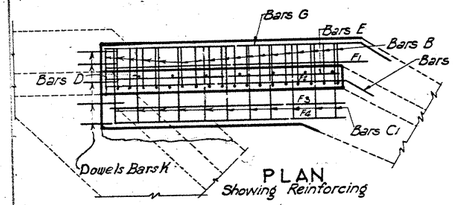
SECTION A-A
Showing Reinforcing



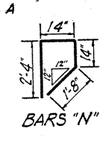
SECTION A-A
Showing Location of Dimensions



PLAN
Showing Location of Dimensions



PLAN
Showing Reinforcing



BARS "N"

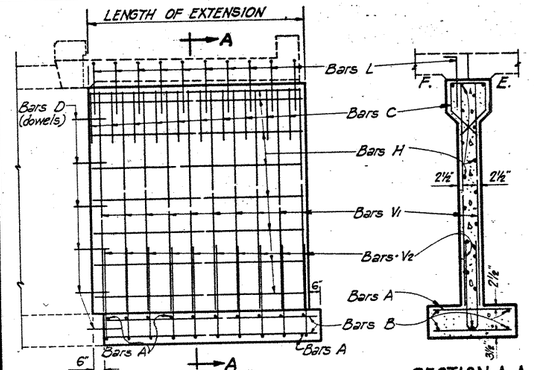
ABUTMENT WALLS

STATION AT BEG. OF BRIDGE	LGTH. OF EXT.	ABUTMENT WALL DIMENSIONS H2	W2	Y2	X2	Y2	T2	ESTIMATED QUANTITIES TWO ABUTMENT WALLS CONCRETE UNIT	QUANT.	REINF. STEEL UNIT	QUANT.
1177+50.60	5'-0"	8'-10"	4'-0"	1'-4"	1'-8"	12"	10"	C.Y.	450	Lbs.	485
℄ Sta. 13.16+10.20	3'-9"	12'-0"	5'-6"	1'-10"	2'-8"	12"	10"	C.Y.	4.60	Lbs.	640
1354+26.20	3'-9"	11'-3"	5'-3"	1'-9"	2'-6"	12"	10"	C.Y.	4.34	Lbs.	563
1556+02.20	3'-3"	11'-9"	5'-6"	1'-10"	2'-8"	12"	10"	C.Y.	4.13	Lbs.	634
1574+15.10	3'-5"	11'-6"	5'-3"	1'-9"	2'-6"	12"	10"	C.Y.	4.24	Lbs.	592
1657+80.40	3'-6"	12'-6"	5'-9"	1'-11"	2'-10"	12"	10"	C.Y.	4.71	Lbs.	677
1667+49.20	3'-6"	13'-4"	6'-3"	2'-1"	3'-2"	12"	12"	C.Y.	5.08	Lbs.	832
1676+11.10	3'-3"	10'-6"	4'-9"	1'-7"	2'-5"	12"	10"	C.Y.	3.48	Lbs.	429
1858+32.0	3'-9"	11'-3"	5'-3"	1'-9"	2'-6"	12"	10"	C.Y.	4.34	Lbs.	563
1907+30.4	3'-9"	11'-0"	5'-0"	1'-8"	2'-4"	12"	10"	C.Y.	4.21	Lbs.	514
1996+30.60	4'-3"	10'-6"	4'-9"	1'-7"	2'-2"	12"	10"	C.Y.	4.55	Lbs.	552

◇ Indicates abut. walls with Special Cap & Conc. & Steel are included herein.

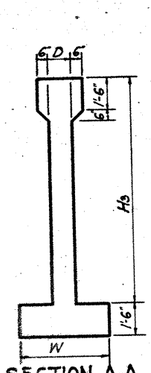
STATION AT BEG. OF BRIDGE	DIMENSIONS H2	D	W	LGTH. OF EXT.	BARS "A"-#5@12" NO.	LGTH.	WT.	BARS "B"-#5-~ NO.	LGTH.	WT.	BARS "C"-#6@12" NO.	LGTH.	WT.	BARS "D"-#5@24" NO.	LGTH.	WT.	BARS "H"-#5@18" NO.	LGTH.	WT.	BARS "V1"-#6@12" NO.	LGTH.	WT.	BARS "V2"-#6@12" NO.	LGTH.	WT.	BARS "L"-#6@12" NO.	LGTH.	WT.	ESTIMATED QUANTITIES ONE INTERIOR BENT CONCRETE UNIT	QUANT.	REINF. STEEL UNIT	QUANT.
1177+50.60	7'-4"	12"	4'-0"	5'-0"	7	3'-6"	26	5	4'-8"	24	5	6'-10"	57	7	1'-6"	11	12	4'-8"	58	10	7'-2"	108	10	6'-4"	95	5	2'-9"	9	C.Y.	2.79	Lbs.	383
1354+26.20	10'-6"	12"	4'-0"	3'-9"	6	3'-6"	22	5	3'-5"	18	4	6'-10"	41	8	1'-6"	13	16	3'-5"	57	8	10'-4"	124	8	6'-4"	76	4	2'-11"	8	C.Y.	2.53	Lbs.	359
1667+49.20	12'-6"	14"	4'-2"	3'-6"	6	3'-8"	23	5	3'-2"	17	4	7'-2"	43	10	1'-6"	16	19	3'-2"	63	8	12'-4"	148	8	6'-6"	78	4	2'-11"	8	C.Y.	2.93	Lbs.	396
1676+11.10	9'-6"	12"	4'-0"	3'-3"	6	3'-6"	22	5	2'-11"	15	4	6'-10"	41	8	1'-6"	13	15	2'-11"	46	8	9'-4"	112	8	6'-4"	76	4	2'-9"	7	C.Y.	2.08	Lbs.	332
1858+32.0	10'-6"	12	4'-0"	3'-9"	6	3'-6"	22	5	3'-5"	18	4	6'-10"	41	8	1'-6"	13	16	3'-5"	57	8	10'-4"	124	8	6'-4"	76	4	2'-11"	8	C.Y.	2.53	Lbs.	359
1907+30.4	10'-10"	14"	4'-2"	3'-9"	6	3'-8"	23	5	3'11"	20	4	7'-2"	43	9	1'-6"	14	17	3'-5"	61	8	10'-8"	128	8	6'-6"	78	4	3'-2"	8	C.Y.	2.98	Lbs.	375
1996+30.60	10'-7"	12"	4'-0"	4'-3"	7	3'-6"	26	5	3'11"	20	5	6'-10"	51	9	1'-6"	14	18	3'-11"	74	10	10'-5"	156	10	6'-4"	95	5	2'-9"	9	C.Y.	2.89	Lbs.	445

INTERIOR BENT

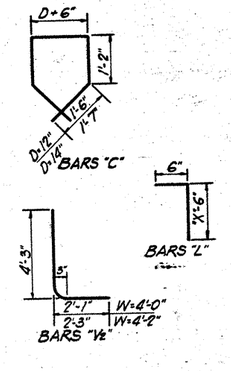


ELEVATION
Showing Reinforcing

SECTION A-A
Showing Reinforcing



SECTION A-A
Showing Location of Dimensions



BILL OF REINFORCING STEEL FOR TWO SPECIAL CAPS

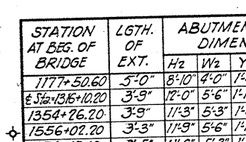
STATION AT BEG. OF BRIDGE	LGTH. OF EXT.	BARS "M"-#6 NUMBER	LENGTH	WEIGHT	BARS "N"-#4 @ 12" NUMBER	LENGTH	WEIGHT
1556+02.20	3'-3"	8	2'-11"	35	8	6'-4"	34
1574+15.10	3'-5"	8	3'-1"	37	8	6'-4"	34
1657+80.40	3'-6"	8	3'-2"	38	8	6'-4"	34

BILL OF REINF. STEEL FOR TWO ABUT. WALLS — STATION 1177+50.6

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	12	4	18"	6'-2"	49
B	18	5	7"	11'-0"	207
C1	10	5	12"	3'-6"	37
D	8	4	18"	8'-8"	46
E	12	4	18"	4'-8"	37
Fi-4	8	5	~	M 5'-3	44
G	4	5	~	6'-11"	29
K	8	6	12"	1'-6"	18
L	10	4	12"	2'-9"	18
TOTAL FOR TWO ABUT. WALLS					495

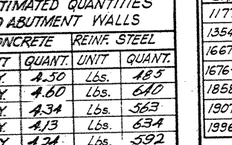
BILL OF REINF. STEEL FOR TWO ABUT. WALLS — STATION 1354+26.2

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	16	4	18"	4'-11"	53
B	14	6	7"	13'-10"	291
C1	8	5	12"	4'-9"	40
D	6	4	18"	11'-1"	44
E	16	4	18"	3'-5"	37
Fi-4	8	5	~	M 4'-8	33
G	4	5	~	6'-2"	26
K	10	6	12"	1'-6"	23
L	8	4	12"	2'-1"	16
TOTAL FOR TWO ABUT. WALLS					563



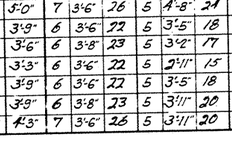
BILL OF REINF. STEEL FOR TWO ABUT. WALLS — STATION 1574+15.1

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	16	4	18"	4'-7"	49
B	12	6	7"	14'-1"	254
C1	8	5	12"	4'-9"	40
D	6	4	18"	11'-4"	45
E	16	4	18"	3'-7"	33
Fi-4	8	5	~	M 3'-8	31
G	4	5	~	6'-4"	26
K	10	6	12"	1'-6"	23
L	8	4	12"	3'-9"	20
TOTAL FOR TWO ABUT. WALLS					521



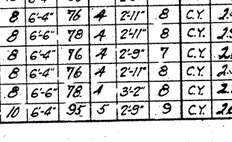
BILL OF REINF. STEEL FOR TWO ABUT. WALLS — STATION 1667+49.20

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	18	4	18"	4'-8"	56
B	10	7	8"	16'-5"	336
C1	8	5	12"	5'-9"	48
D	6	4	18"	13'-2"	53
E	18	4	18"	3'-2"	38
Fi-4	8	5	~	M 3'-9	31
G	4	5	~	6'-6"	27
K	12	6	12"	1'-6"	27
L	8	4	12"	2'-11"	16
TOTAL FOR TWO ABUT. WALLS					632



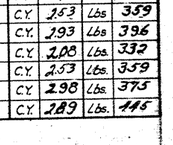
BILL OF REINF. STEEL FOR TWO ABUT. WALLS — STATION 1858+32.0

BAR	NO	SIZE	SPAC.	LGTH.	WT.
A	16	4	18"	4'-11"	53
B	14	6	7"	13'-10"	291
C1	8	5	12"	4'-9"	40
D	6	4	18"	11'-1"	44
E	16	4	18"	3'-5"	37
Fi-4	8	5	~	M 4'-8	33
G	4	5	~	6'-2"	26
K	10	6	12"	1'-6"	23
L	8	4	12"	2'-1"	16
TOTAL FOR TWO ABUT. WALLS					563



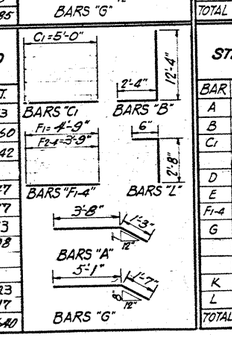
BILL OF REINF. STEEL FOR TWO ABUT. WALLS — STATION 1996+30.6

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	14	4	18"	5'-5"	51
B	14	6	8"	12'-11"	272
C1	10	5	12"	4'-3"	44
D	6	4	18"	10'-4"	41
E	14	4	18"	3'-11"	37
Fi-4	8	5	~	M 4'-8	38
G	4	5	~	6'-8"	28
K	10	6	12"	1'-6"	23
L	10	4	12"	2'-9"	18
TOTAL FOR TWO ABUT. WALLS					552



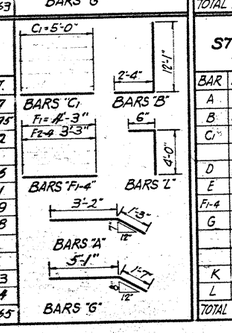
℄ STATION 1316+10.20

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	16	4	18"	4'-11"	53
B	12	7	8"	16'-8"	360
C1	8	5	12"	5'-0"	42
D	6	4	18"	11'-10"	47
E	16	4	18"	3'-5"	37
Fi-4	8	5	~	M 4'-8	33
G	4	5	~	6'-9"	28
K	10	6	12"	1'-6"	23
L	8	4	12"	3'-2"	17
TOTAL FOR TWO ABUT. WALLS					640



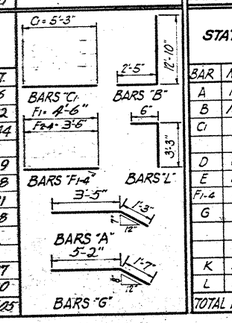
STATION 1556+02.2

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	16	4	18"	4'-5"	47
B	10	7	8"	16'-5"	295
C1	8	5	12"	5'-0"	42
D	6	4	18"	11'-7"	46
E	16	4	18"	2'-11"	31
Fi-4	8	5	~	M 3'-6	29
G	4	5	~	6'-8"	28
K	10	6	12"	1'-6"	23
L	8	4	12"	4'-6"	24
TOTAL FOR TWO ABUT. WALLS					585



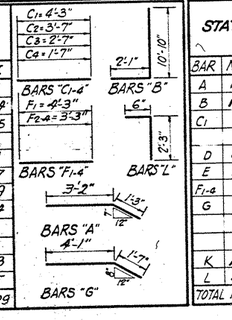
STATION 1657+80.4

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	18	4	18"	4'-8"	56
B	10	7	8"	15'-3"	312
C1	8	5	12"	5'-3"	44
D	6	4	18"	12'-4"	49
E	18	4	18"	3'-2"	38
Fi-4	8	5	~	M 3'-9	31
G	4	5	~	6'-9"	28
K	12	6	12"	1'-6"	27
L	8	4	12"	3'-5"	20
TOTAL FOR TWO ABUT. WALLS					625



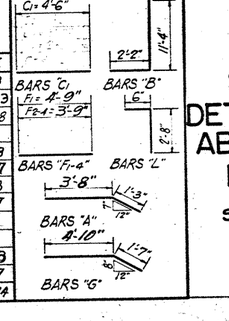
STATION 1676+11.1

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	14	4	18"	4'-5"	41
B	10	6	8"	12'-11"	194
C1	8	5	12"	4'-3"	35
D	6	4	18"	10'-4"	41
E	14	4	18"	2'-11"	27
Fi-4	8	5	~	M 3'-6	29
G	4	5	~	5'-8"	24
K	10	6	12"	1'-6"	23
L	8	4	12"	3'-2"	17
TOTAL FOR TWO ABUT. WALLS					429



STATION 1907+30.4

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A	16	4	18"	4'-11"	53
B	12	6	8"	13'-6"	243
C1	8	5	12"	4'-6"	38
D	6	4	18"	10'-10"	43
E	16	4	18"	3'-5"	37
Fi-4	8	5	~	M 4'-0	33
G	4	5	~	6'-5"	27
K	10	6	12"	1'-6"	23
L	8	4	12"	3'-2"	17
TOTAL FOR TWO ABUT. WALLS					514



STRUCTURAL DETAILS

DETAILS AND REINF. OF ABUTMENT WALLS & INTERIOR BENT

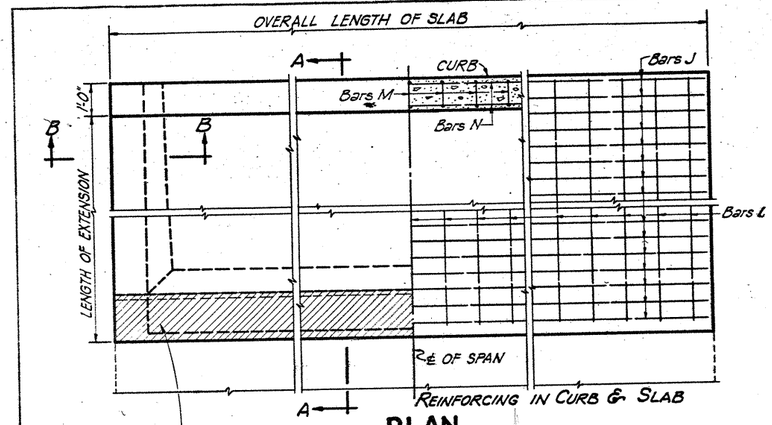
SHEET 2 OF 2 SHEETS

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	F-165(10)	55-A
STATE	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	364	9	U.S. 81

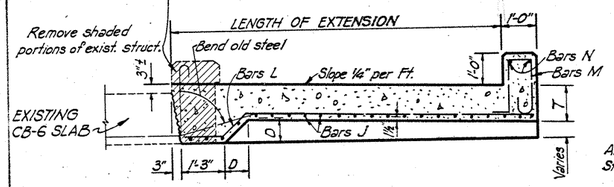
2-20

BILLS OF REINFORCING STEEL FOR CB-6 SLAB EXTENSIONS

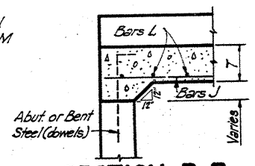
BRIDGE STATIONS BEGINNING	BRIDGE STATIONS END	LENGTH OF CLEAR SPANS	LENGTH OF EXTENSION	OVERALL LENGTH OF SLABS	BARS "J" NO.	SIZE	SPAC.	LGTH.	WT.	BARS "K"-#5 @ 12" NO.	LGTH.	WT.	BARS "L"-#5 @ 12" NO.	LGTH.	WT.	BARS "M"-#4 @ 12" NO.	LGTH.	WT.	BARS "N" SIZE-#5 NO.	LGTH.	WT.	EST. QUANTITIES STEEL Lbs.	CONCRETE C.Y.
1177+50.60	1177+82.68	2-14'	5'-3"	16'-2" (South)	11	7	7"	15'-10"	356	17	10'-6"	186	17	5'-10"	103	17	5'-2"	59	2	15'-10"	33	1102	10.16
				16'-2" (North)	11	7	7"	15'-10"	356	17	10'-6"	186	17	5'-10"	103	17	5'-2"	59	2	15'-10"	33		
1316+10.2		1-20'	4'-0"	22'-3"	10	8	6"	21'-11"	585	23	8'-11"	214	23	4'-9"	114	23	5'-4"	82	2	21'-11"	46	827	6.96
1354+26.2	1354+62.2	2-16'	4'-0"	17'-10" (South)	8	8	7½"	17'-6"	374	19	9'-1"	180	19	4'-8"	93	19	5'-2"	66	2	17'-6"	37	1149	10.01
				18'-2" (North)	8	8	7½"	17'-10"	381	19	9'-1"	180	19	4'-8"	93	19	5'-2"	66	2	17'-10"	37		
1667+49.2	1667+85.2	2-16'	3'-9"	17'-11" (South)	8	8	7½"	17'-7"	376	19	8'-10"	175	19	4'-5"	88	19	5'-2"	66	2	17'-7"	37	1137	9.59
				18'-1" (North)	8	8	7½"	17'-9"	379	19	8'-10"	175	19	4'-5"	88	19	5'-2"	66	2	17'-9"	37		
1676+11.1	1676+43.1	2-14'	3'-6"	16'-1" (South)	8	7	7"	15'-9"	258	17	8'-8"	155	17	4'-1"	72	17	5'-2"	59	2	15'-9"	33	838	7.93
				15'-10" (North)	8	7	7"	15'-6"	253	17	8'-8"	155	17	4'-1"	72	17	5'-2"	59	2	15'-6"	32		
1907+30.4	1907+74.4	2-20'	4'-0"	21'-10" (South)	10	8	6"	21'-6"	574	23	8'-11"	214	23	4'-9"	114	23	5'-4"	82	2	21'-6"	45	1647	13.84
				22'-5" (North)	10	8	6"	22'-1"	590	23	8'-11"	214	23	4'-9"	114	23	5'-4"	82	2	22'-1"	46		
1996+30.6	1996+78.43	3-14'	4'-6"	15'-10" (South)	9	7	7"	15'-6"	285	17	9'-9"	173	17	5'-1"	90	17	5'-2"	59	2	15'-6"	32	1409	13.71
				15'-11" (Center)	9	7	7"	15'-7"	287	17	9'-9"	173	17	5'-1"	90	17	5'-2"	59	2	15'-7"	33		
				16'-1" (North)	9	7	7"	15'-9"	290	17	9'-9"	173	17	5'-1"	90	17	5'-2"	59	2	15'-9"	33		
1858+32.0	1858+91.67	3-18'	4'-0"	19'-10" (South)	9	8	6½"	19'-6"	469	21	9'-0"	197	21	4'-9"	104	21	5'-2"	72	2	19'-6"	41	2062	17.12
				20'-4" (Center)	9	8	6½"	20'-0"	481	21	9'-0"	197	21	4'-9"	104	21	5'-2"	72	2	20'-0"	42		
				19'-6" (North)	9	8	6½"	19'-2"	461	21	9'-0"	197	21	4'-9"	104	21	5'-2"	72	2	19'-2"	40		



PLAN

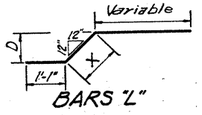


SECTION A-A

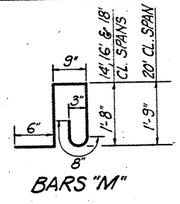


SECTION B-B

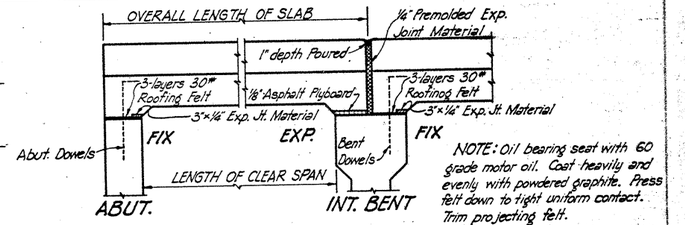
TABLE OF DIMENSIONS			
SPAN	T	D	X
14'	12"	5½"	7¾"
16'	12"	6¾"	9½"
18'	12"	8¼"	11¾"
20'	13"	9¼"	13"



BARS "L"



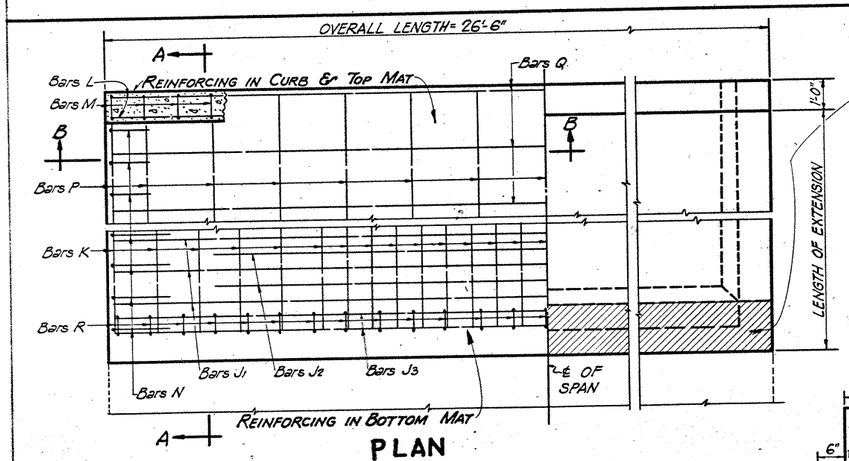
BARS "M"



NOTE: Oil bearing seat with 60 grade motor oil. Coat heavily and evenly with powdered graphite. Press felt down to tight uniform contact. Trim projecting felt.

FIX ABUT. END & EXPANSION JOINT

DETAILS OF CB-6 SLAB EXTENSION

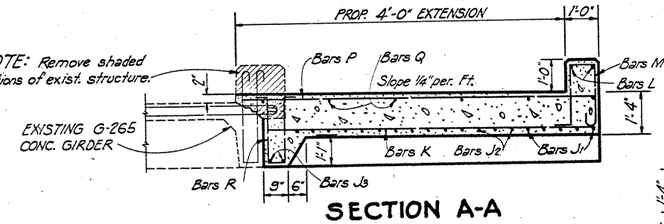


PLAN

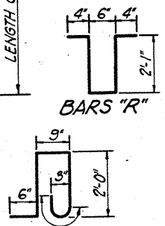
BILL OF REINFORCING STEEL FOR SIMPLE SLAB SPAN-GIRDER EXTENSION

MARK	J1	J2	J3	K	L	M	N	P	Q	R
NUMBER	4	3	2	27	2	27	5	15	3	27
SIZE	9	9	9	5	5	4	4	4	4	4
SPACING	12"	12"	~	Varies	~	12"	12"	24"±	24"±	12"
LENGTH	26'-2"	20'-0"	26'-2"	3'-10"	26'-2"	5'-10"	5'-3"	4'-6"	26'-2"	5'-4"
WEIGHT	356	204	178	108	55	105	18	45	52	96

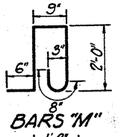
NOTE: Remove shaded portions of exist. structure.



SECTION A-A

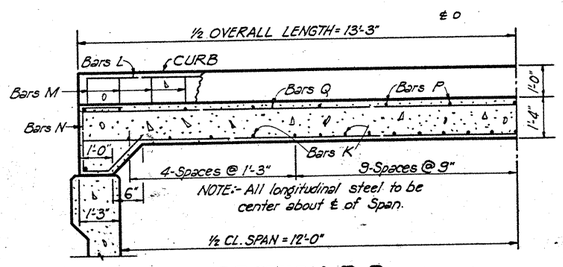


BARS "R"



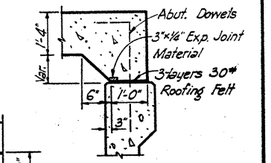
BARS "M"

BARS "N"



SECTION B-B

ESTIMATED QUANTITIES	
CONCRETE	REINF. STEEL
C.Y.	LBS.
8.89	1217



GENERAL NOTES:-

Design H20-S16 Loading in accordance with A.A.S.H.O. 1953 Standard Specifications and T.H.D. Supplement No. 1.

All concrete shall be Class "A" for Extending Structures.

Chamfer all exposed corners ¾".

Dimensions relating to reinforcing steel are to centers of bars.

Existing Bars exposed by breakback shall be cleaned and bent into position to bond the new construction. All welding of reinforcing steel shall be done with E-6016 or E-7016 electrodes.

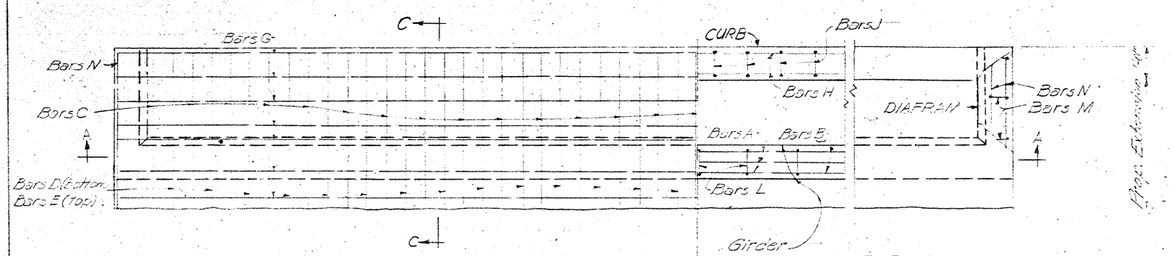
WIDENING DETAILS FOR EXISTING CB-6 SIMPLE SLABS & G-265 CONC. GIRDER WITH SIMPLE SLAB SPANS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	F-165(16)	56-A

STATE	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	384	9	U.S.81

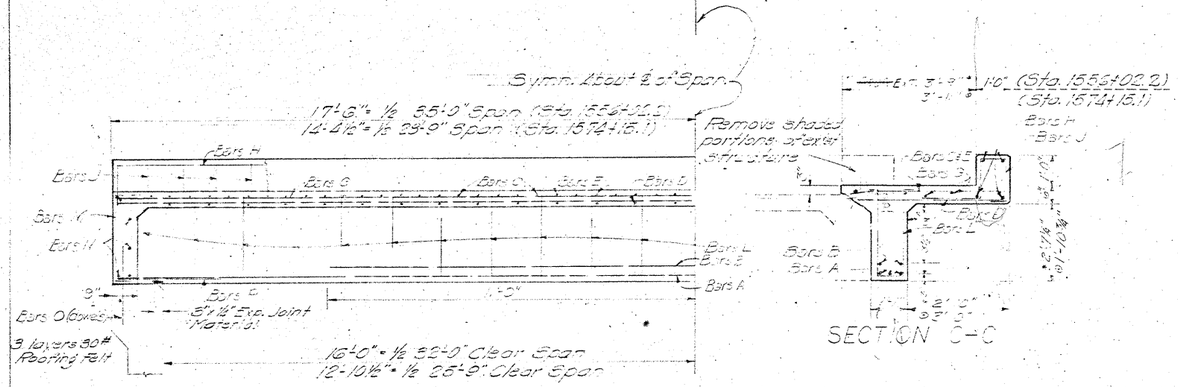
DETAILS OF SIMPLE SLAB SPAN EXTENSION FOR G-265 CONC. GIRDER AT STA. 1657+80.40 To STA. 1658+06.73

2d1



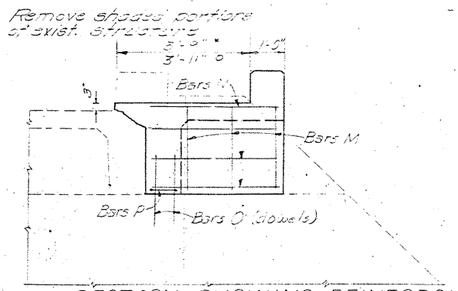
HALF PLAN
Showing Reinforcing in Slab

HALF PLAN
Showing Reinforcing in Curb, Girders & Diafram



HALF SECTION A-A

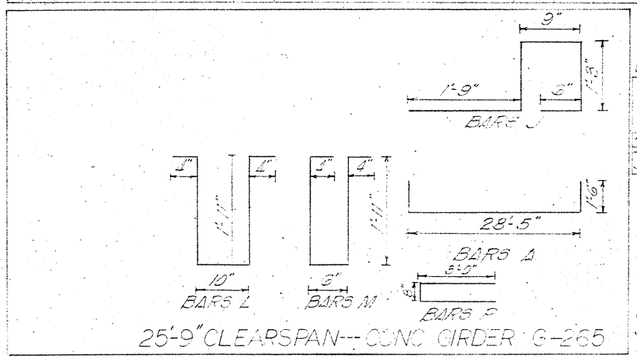
SECTION C-C



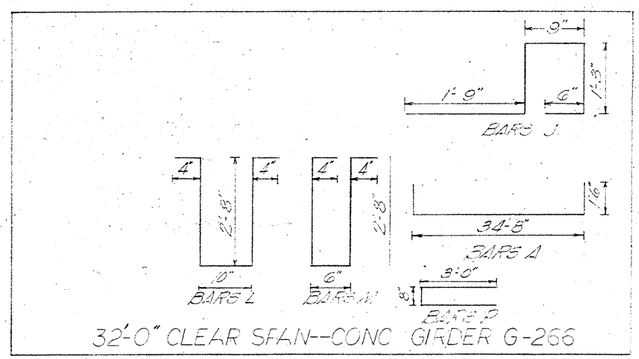
SECTION SHOWING REINFORCING IN DIAFRAM

BILLS OF REINFORCING STEEL FOR ONE EXTENSION

Mark	A	B	C	D	E	F	H	J	L	M	N	O	P
25'-9" CLEAR SPAN C CONCRETE GIRDER G-265													
Number	8	2	23	24	24	5	4	29	19	6	10	4	2
Size	11	10	5	5	5	4	6	4	4	4	5	6	6
Spacing	~	~	14"	14"	4"	~	~	12"	18"	15"	~	~	~
Length	31'-3"	22'-0"	4'-10"	4'-2"	4'-8"	23'-5"	28'-1"	5'-3"	5'-4"	5'-0"	3'-9"	2'-6"	6'-8"
Weight	601	189	115	124	~	95	171	107	65	20	39	15	20
32'-0" Clear Span ~ Concrete Girder G-266													
Number	3	2	23	28	23	5	4	36	23	6	10	4	2
Size	11	10	5	5	5	4	6	4	4	4	5	6	6
Spacing	~	~	14"	4"	14"	~	~	12"	18"	15"	~	~	~
Length	31'-3"	22'-0"	4'-8"	4'-2"	4'-5"	31'-8"	34'-8"	5'-3"	5'-10"	3'-6"	3'-7"	2'-6"	6'-8"
Weight	603	189	114	124	135	115	208	132	105	26	38	15	20



25'-9" CLEARSPAN--CONC GIRDER G-265



32'-0" CLEAR SPAN--CONC GIRDER G-266

ESTIMATED QUANTITIES

Description	Cl. A Conc. For Ext. Structures	Reinf. Steel
	C.Y.	Lbs.
25'-9" Span Conc. Gir.	6.19	1562
32'-0" Span Conc. Gir.	8.45	1838

GENERAL NOTES

Design H-20-S16 Loading in accordance with A.A.S.H.T.O. 1953 "Standard Specifications and T.H.D. Supplement No. 1.

All concrete shall be Class "A" for Extending Structures. Concrete in all columns and girder stems shall be placed monolithically.

Chamfer all exposed corners ¾".

Dimensions relating to reinforcing steel are to centers of bars.

Existing bars exposed by brick back shall be cleaned and bent into position to bond the new construction. All welding of reinforcing steel shall be done with E-6016 or E-7016 electrodes.

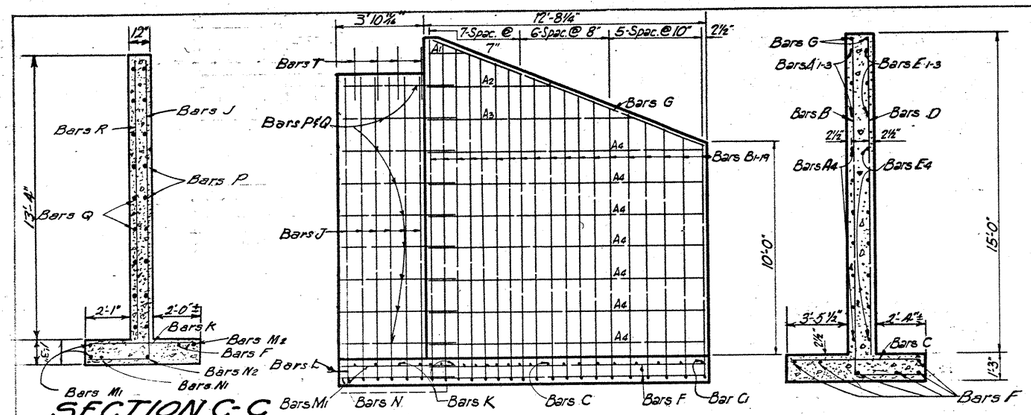
WIDENING DETAILS FOR CONCRETE GIRDERS G-265 & G-266

STA. 1556+02.2, 32'-0" CL. SPAN, G-265
STA. 1574+15.1, 25'-9" CL. SPAN, G-266

STATE	FEDERAL PROJECT NO.	SHEET NO.
TEXAS	I-165(16)	57-A

DIST.	COUNTY	SECT.	JOB	HIGHWAY NO.
21	WEBB	12	34	9 US 81

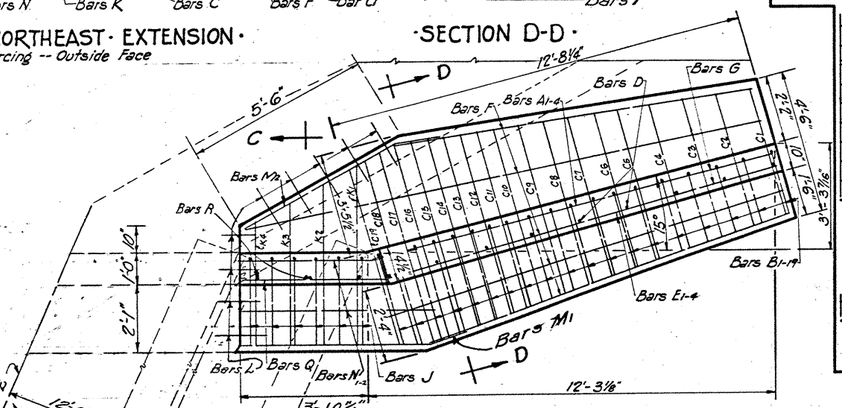
203



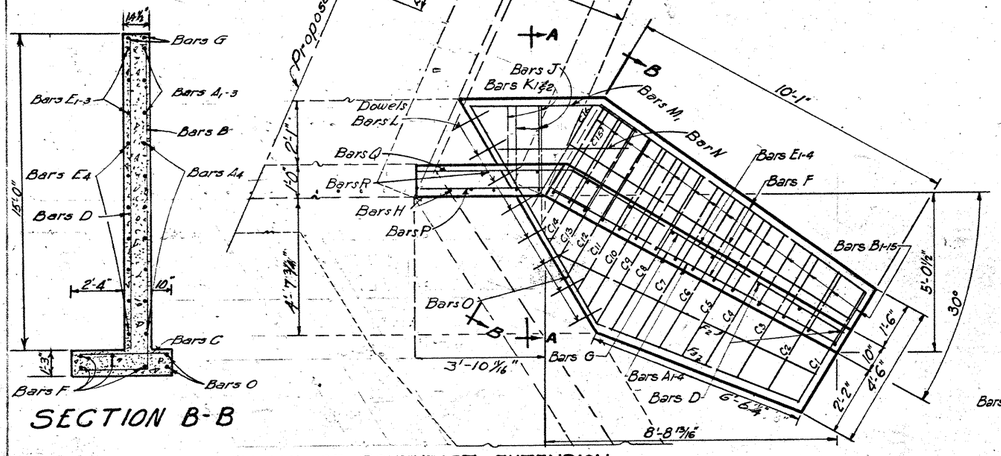
SECTION C-C

·ELEVATION·OF·NORTHEAST·EXTENSION·

Showing Reinforcing -- Outside Face

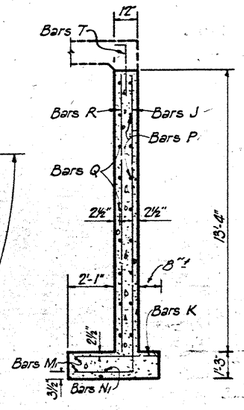


·PLAN·OF·NORTHEAST·EXTENSION·



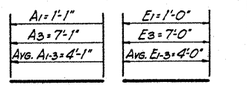
SECTION B-B

·PLAN·OF·SOUTHEAST·EXTENSION·

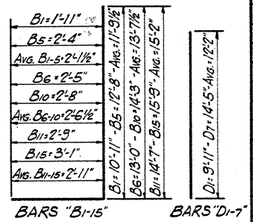


·SECTION·A-A·

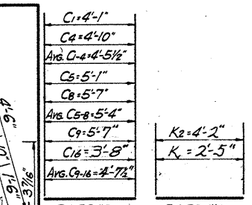
SOUTHEAST EXTENSION



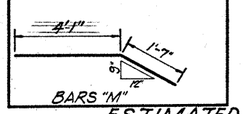
BARS "A1-3 BARS "E1-3"



BARS "B1-15" BARS "D1-7"



BARS "C1-16" BARS "K1&2



BARS "M"

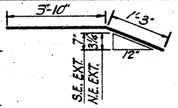
BILL OF REINFORCING STEEL

SOUTHEAST EXTENSION

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A1-3	3	4	18"	Av.=4'-1"	8
A4	7	4	18"	3'-10"	46
B1-5	5	8	10"	Av.=13'-11"	186
B6-10	5	8	8"	Av.=16'-2"	216
B11-15	5	8	7"	Av.=18'-1"	241
C1-4	4	5	12"	Av.=4'-5½"	19
C5-8	4	5	9"	Av.=5'-4"	22
C9-16	8	5	6"	Av.=4'-7½"	39
D1-7	7	4	18"	Av.=12'-2"	57
E1-3	3	4	18"	Av.=4'-0"	8
E4	7	4	18"	9'-9"	46
F	4	5	~	10'-1"	42
G	2	5	~	10'-11"	23
H	4	8	8"	13'-2"	141
J	2	8	8"	16'-9"	89
K1	1	5	~	2'-5"	3
K2	1	5	~	4'-2"	4
L	8	6	12"	1'-6"	18
M1	2	5	~	5'-8"	12
N1	1	5	~	4'-1"	4
F2	1	5	~	8'-9"	9
F3	2	5	~	6'-5"	13
M2	1	5	~	5'-10"	6
O	2	5	~	8'-2"	17
P	9	4	18"	5'-1"	31
Q	9	4	18"	6'-0"	36
R	3	4	18"	13'-2"	26
T	4	4	12"	2'-11"	8
TOTAL STEEL -- LBS.					1364

NORTHEAST EXTENSION

BAR	NO.	SIZE	SPAC.	LGTH.	WT.
A1-3	3	4	18"	Av.=5'-3"	11
A4	7	4	18"	12'-5"	58
B1-5	6	8	10"	Av.=13'-10"	222
B7-12	6	8	8"	Av.=16'-0½"	257
B13-18	6	8	7"	Av.=18'-0"	288
B19	1	8	7"	18'-8"	50
C1-5	5	5	12"	Av.=4'-5½"	23
C6-10	5	5	9"	Av.=5'-3½"	28
C11-16	6	5	6"	Av.=5'-1"	37
C17	1	5	6"	6'-1"	6
C18	1	5	6"	5'-11"	6
C19	1	5	6"	5'-9"	6
D1-9	9	4	18"	Av.=12'-4½"	74
E1-3	3	4	18"	Av.=4'-11"	10
E4	7	4	18"	12'-1"	57
F1-5	6	5	~	Av.=12'-10"	80
G	2	5	~	13'-1"	27
K1	1	5	~	2'-5"	3
J	6	8	8"	16'-9"	268
K1-4	4	5	12"	Av.=4'-9"	20
L	9	6	12"	1'-6"	20
M1-2	3	5	~	Av.=6'-10"	21
N1	1	5	~	5'-7"	6
N2	1	5	~	4'-10"	5
P	9	4	18"	5'-1"	31
Q	9	4	18"	4'-6"	27
R	3	4	18"	13'-2"	26
T	4	4	12"	2'-11"	8
TOTAL STEEL -- LBS.					1672

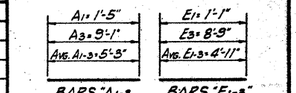


BARS "J"

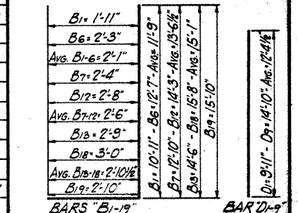
BARS "T"

BARS "P"

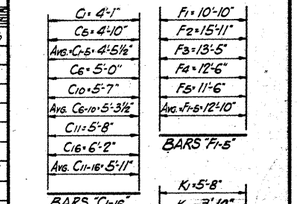
NORTHEAST EXTENSION



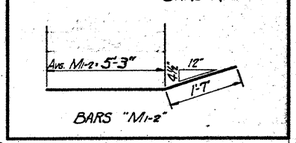
BARS "A1-3 BARS "E1-3"



BARS "B1-19" BAR "D1-9"



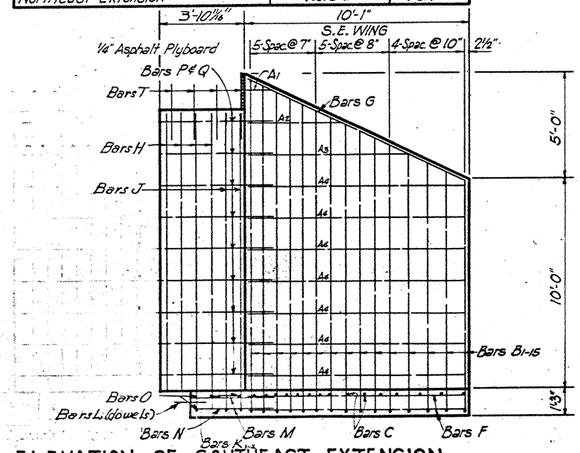
BARS "C1-16" BARS "F1-5" BARS "K1-5"



BARS "M1-2"

ESTIMATED QUANTITIES

DESCRIPTION	CL. "A" CONC. FOR EXT. STRUCTURES C.Y.	REINF. STEEL LBS.
Southeast Extension	10.37	1364
Northeast Extension	12.64	1672



·ELEVATION·OF·SOUTHEAST·EXTENSION·

Showing Reinforcing -- Outside Face

GENERAL NOTES:-

Design H-20-S16 Loading in accordance with A.A.S.H.O. 1953 Standard Specifications and T.H.D. Supplement No. 1

All Concrete shall be Class "A" for extending structures.

All exposed corners shall be chamfer ¾".

Dimensions relating to reinforcing steel are to centers of bars.

Existing Bars exposed by breakback shall be cleaned and bent into position to bond to the new construction.

All welding of reinforcing shall be done with E-6016 or E-7016 electrodes.

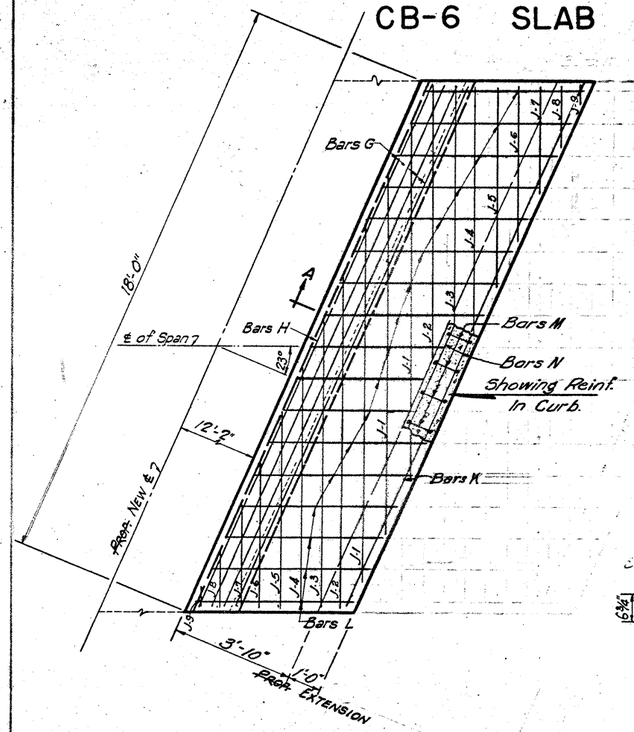
Footing Pressure : 1.5 T/s'.

WIDENING DETAILS FOR A-9-15 SKEW ABUTMENTS-- 23° RT. FWD.

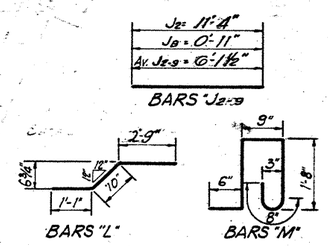
TO BE USED AT BRIDGE STA. 1103+42.90 TO STA. 1103+96.90

FED. NO. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-165(76)	58-A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	3-4	9	U.S.81

CB-6 SLAB

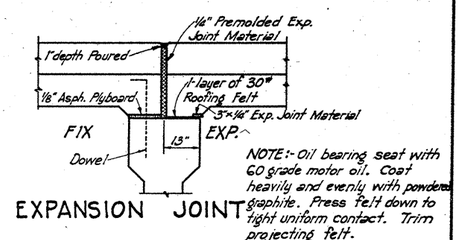


PLAN



ESTIMATED QUANTITIES

DESCRIPTION	Cl. "A" Conc. For Ext. Structures C.Y.	Reinforcing Steel LBS.
One Slab, CB-6	4.89	885



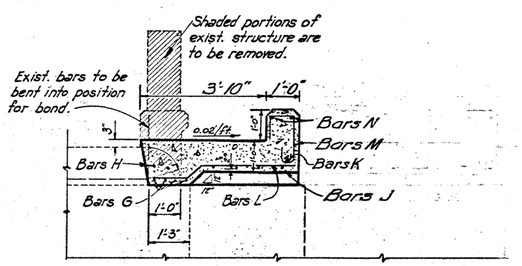
EXPANSION JOINT

NOTE:- Oil bearing seat with 60 grade motor oil. Coat heavily and evenly with powdered graphite. Press felt down to tight uniform contact. Trim projecting felt.

BILL OF REINFORCING STEEL FOR ONE INTERIOR SLAB

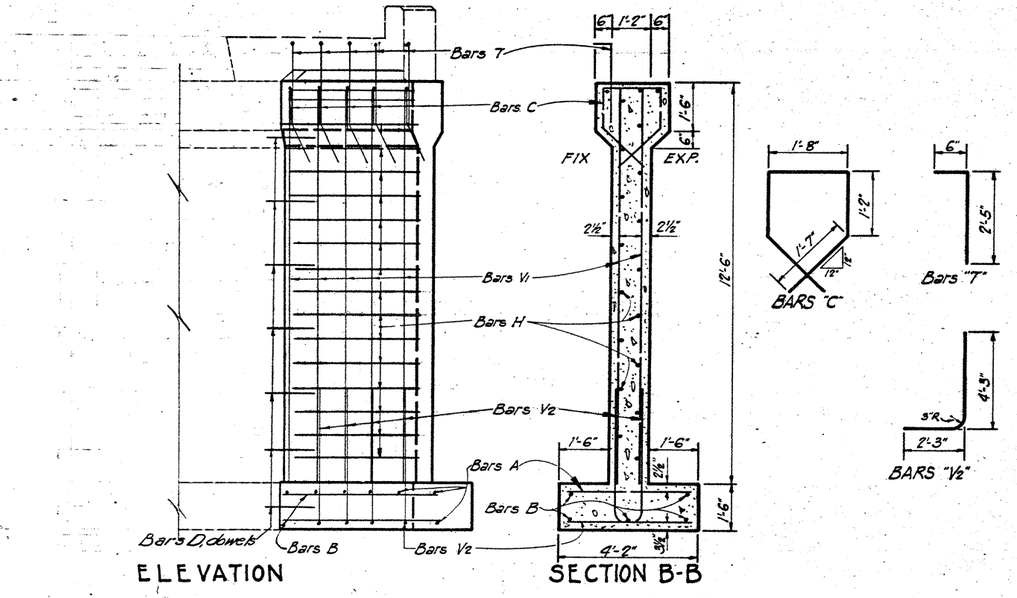
BAR	NO.	SIZE	SPAC.	LGTH.	WT.
G	4	10	~	17'-8"	304
H	1	5	~	17'-8"	18
J₁	3	8	7½"	12'-2"	97
J₂-9	16	8	7½"	Av. 6'-1½"	262
K	1	5	~	17'-8"	18
L	17	5	12"	4'-8"	83
M	19	4	12"	5'-2"	66
N	2	5	~	17'-8"	37
TOTAL FOR ONE INTERIOR SLAB					885

✧ Bars N for South Slab: One Bar N₁=17'-4", One Bar N₂=17'-7".
Bars N for North Slab: One Bar N₃=17'-3", One Bar N₄=18'-0"



SECTION A-A

B-4 BENT

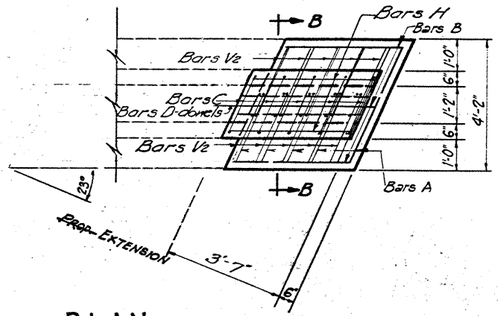


ELEVATION

SECTION B-B

BILL OF REINFORCING STEEL FOR ONE INTERIOR BENT

MARK	NO.	SIZE	SPAC.	LGTH.	WT.
A	6	5	9"	4'-0"	25
B	5	5	~	3'-8"	19
C	5	6	11"	7'-2"	54
D	9	5	24"	1'-6	14
H	19	5	18"	3'-3"	64
V₁	10	6	8"	12'-4"	185
V₂	10	6	8"	6'-6"	98
T	5	4	11"	2'-11"	10
TOTAL STEEL FOR ONE BENT--LBS.					469
TOTAL CONC. FOR ONE BENT--C.Y.					3.68



PLAN

GENERAL NOTES:-

Design H-20-S16 in accordance with A.A.S.H.O. 1965 Standard Specifications and T.H.D. Supplement No. 1.

All Concrete shall be Class "A" for extending structures.

All exposed corners shall be chamfer ¾".

Dimensions relating to reinforcing steel are to center of bars.

All welding of reinforcing steel shall be done with E-6016 or E-7016 electrodes.

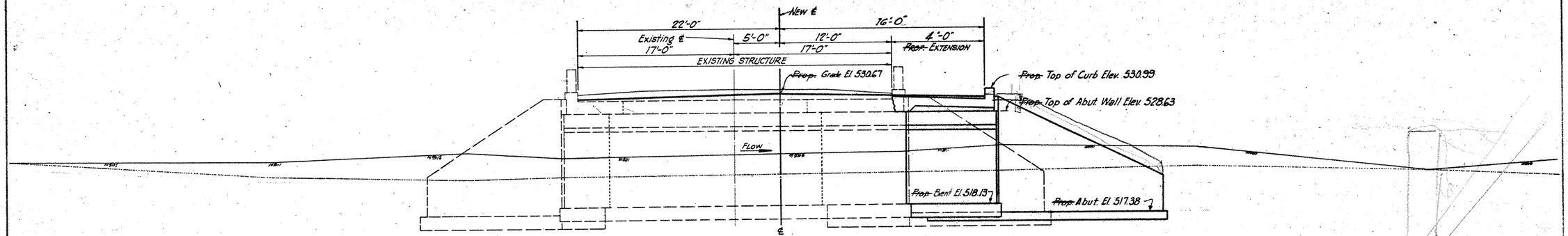
Footing Pressure : 1.5 T/s.

WIDENING DETAILS FOR CB-6 SLAB & B-4 BENT--23° SKEW

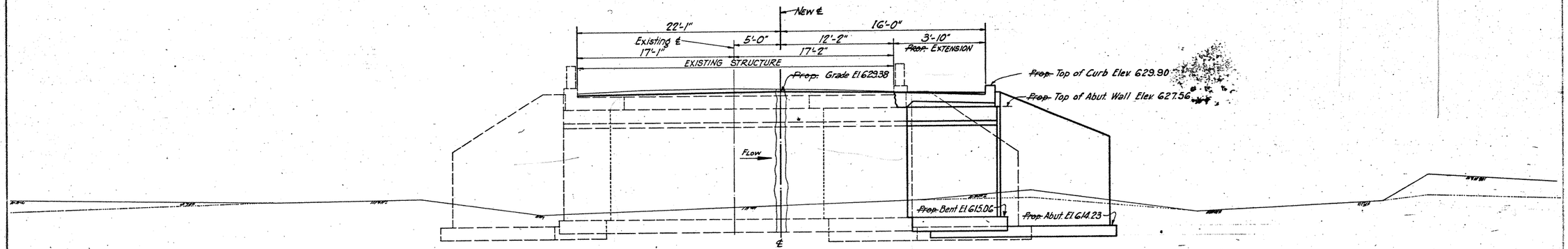
TO BE USED AT BR. STA. 1103+42.90 TO STA. 1103+96.90

FED. RD DIV. NO.	STATE	PERMANENT PROJECT NO.	SHEET NO.
6	TEXAS	I-165(14)	59-A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	3-4	9	U.S. 81

204



* STA. 1858+32.0 TO STA. 1858+91.67
EXIST. 3-18' CL. SPANS, CB-6
2-BENTS, B-4, H= 12'-0"
2-ABUTMENTS, A9-13
~~PROP.~~ 4'-0" EXTENSION ON RIGHT



* STA. 1103+42.90 TO STA. 1103+96.90
EXIST. 3-16' CL. SPANS, CB-6,
23° RT. FWD. SKEW
2-BENTS, B-4, 23° SKEW, H=14'-0"
2 ABUTMENTS, A9-15, 23° SKEW
SECTION PLOTTED NORMAL TO ℄
~~PROP.~~ SPL. EXTENSION 3'-10" RT.

* NOTE:-
~~Entire Roadway to be leveled up with Hot Mix Asphaltic Concrete Pavement (Type D)~~

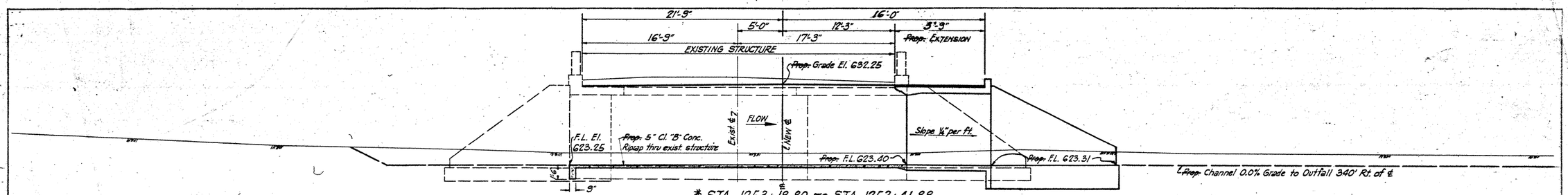
Field Change No 3.

CROSS SECTION AT CULVERT & BRIDGE SITES

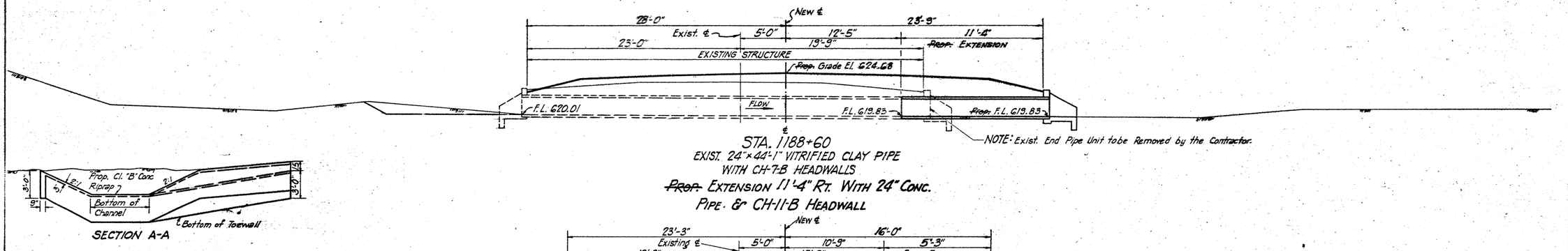
SHEET 1 OF 8 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-IGS(IA)	60-A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	364	9	U.S.81

25-1

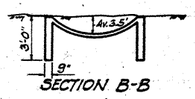


* STA. 1253+18.80 TO STA. 1253+41.88
EXIST. 2-10'×8'×34', C-6
~~PROP.~~ 3'-9" RT. EXTENSION WITH 2-10'-2½"×8'-0" MC10-1 MOD. & MCW-F2 DOWNSTREAM

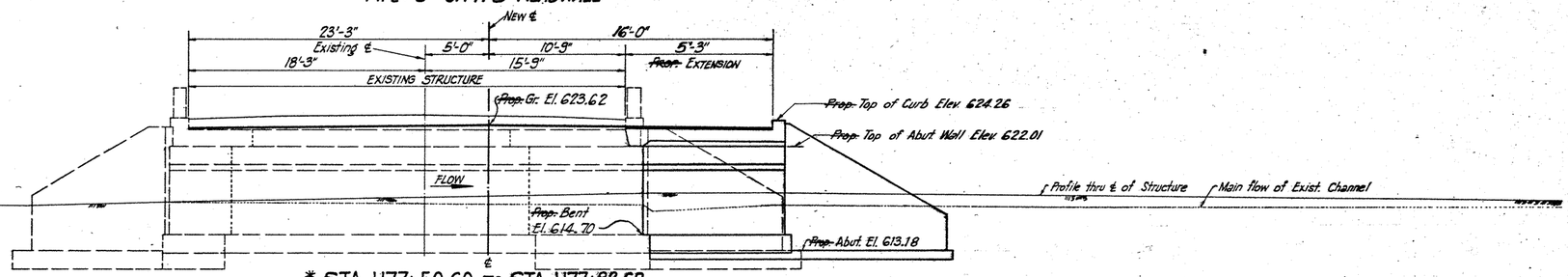


STA. 1188+60
EXIST. 24"×44'-1" VITRIFIED CLAY PIPE
WITH CH-7-B HEADWALLS
~~PROP.~~ EXTENSION 11'-4" RT. WITH 24" CONC.
PIPE & CH-11-B HEADWALL

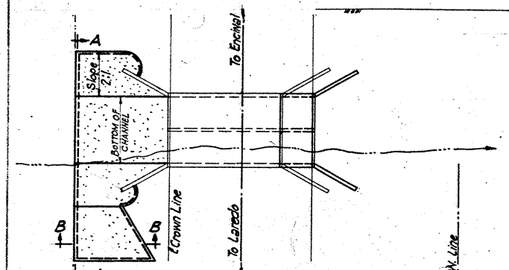
SECTION A-A



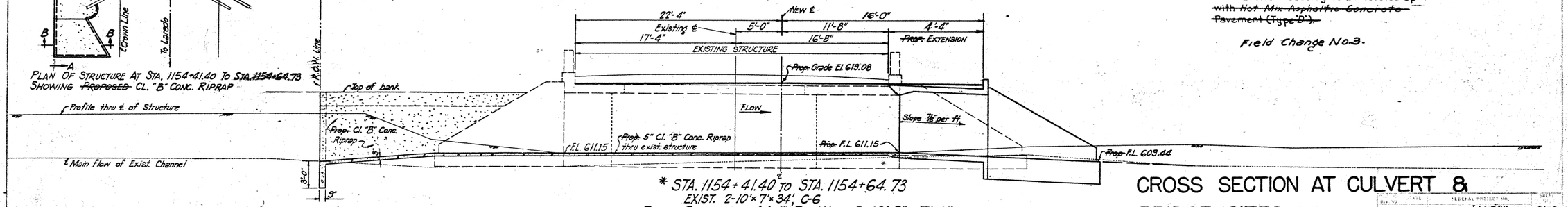
SECTION B-B



* STA. 1177+50.60 TO STA. 1177+82.68
EXIST. 2-14' CL. SPANS, 34' CL. RDWY., CB-6
1-BENT, B-4, H=9'-0"
2-ABUTMENTS, A3-10'-6"
~~PROP.~~ SPECIAL EXTENSION 5'-3" RIGHT



PLAN OF STRUCTURE AT STA. 1154+41.40 TO STA. 1154+64.73
SHOWING ~~PROPOSED~~ CL. "B" CONC. RIPRAP



* STA. 1154+41.40 TO STA. 1154+64.73
EXIST. 2-10'×7'×34', C-6
~~PROP.~~ EXTENSION 4'-4" RT. WITH 2-10'-2"×7'-0"
MC10-1 MOD. & MCW-F2

*NOTE:-
~~Entire Roadway to be leveled up with Hot Mix Asphaltic Concrete Pavement (Type D").~~

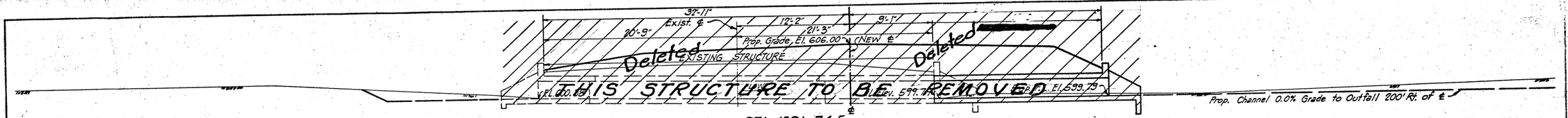
Field Change No. 3.

CROSS SECTION AT CULVERT & BRIDGE SITES

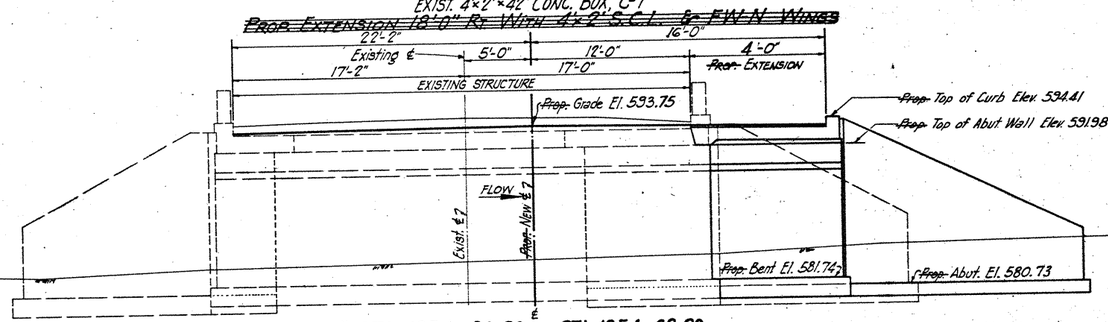
SHEET 2 OF 8 SHEETS

DIST. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-IG-5(16)	61-A
STATE	COUNTY	CONT.	SEC.	JOB	HIGHWAY NO.
21	WEBB	18	3-4	9	U.S. 81

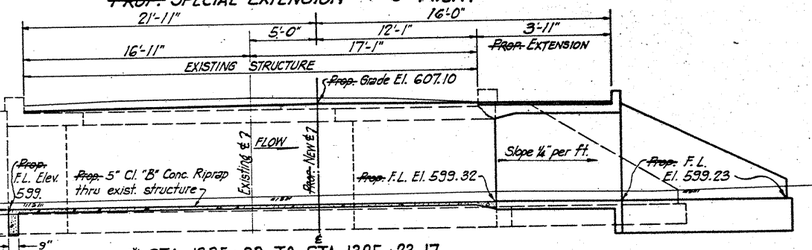
206



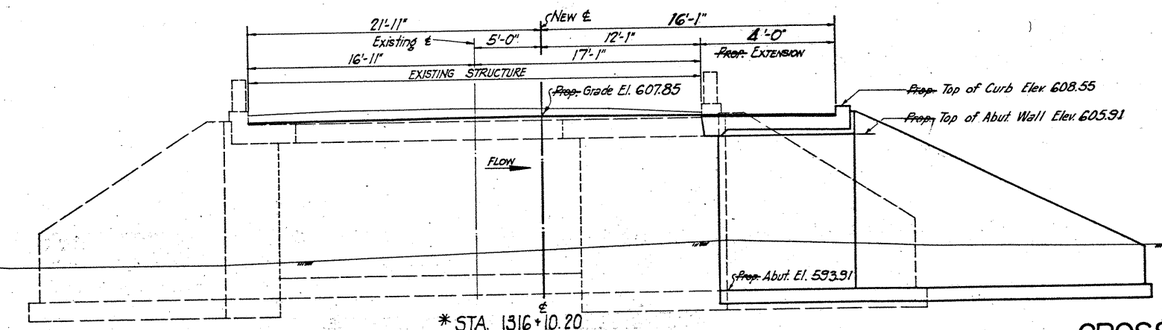
STA. 1391+74.5
EXIST. 4'×2'-42' CONC. BOX, C-7
~~PROP. EXTENSION 12'-0" Rt. WITH 4'×2' S.C.L. & FW-N WINGS~~



* STA. 1354+26.20 TO STA. 1354+62.20
EXIST. 2-16' CL. SPANS × 34'-2" CL. RDWY., CB-6
1-BENT, B-4, H= 12'-0"
2 ABUTMENTS, A9-13
~~PROP.~~ SPECIAL EXTENSION 4'-0" RIGHT



* STA. 1325+00 TO STA. 1325+23.17
EXIST. 2-10'×7'×34'-0", C-6
~~PROP.~~ EXTENSION 3'-11" Rt. WITH 2-10'-2"×7'-0" MC10-1 MOD. & MCW-F2



* STA. 1316+10.20
EXIST. 1-20' CL. SPAN, 34' CL. RDWY., CB-6
2-ABUTMENTS, A9-14
~~PROP.~~ SPECIAL EXTENSION 4'-0" RIGHT

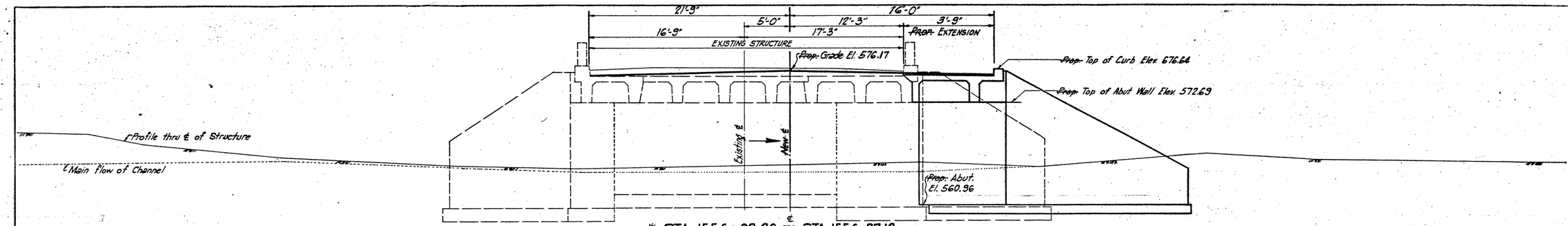
*NOTE:-
~~Entire Roadway to be leveled up with Hot Mix Asphaltic Concrete Pavement (Type 'D').~~
Field Change No. 3.

CROSS SECTION AT CULVERT & BRIDGE SITES

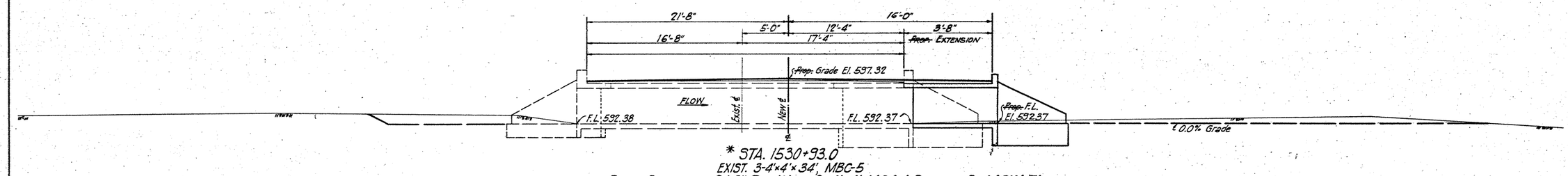
SHEET 3 OF 8 SHEETS

DIST. NO.	STATE	FEDERAL PROJECT NO.	SHT. NO.
6	TEXAS	I-16S(04)	62-A
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 3-4 9	U.S.81

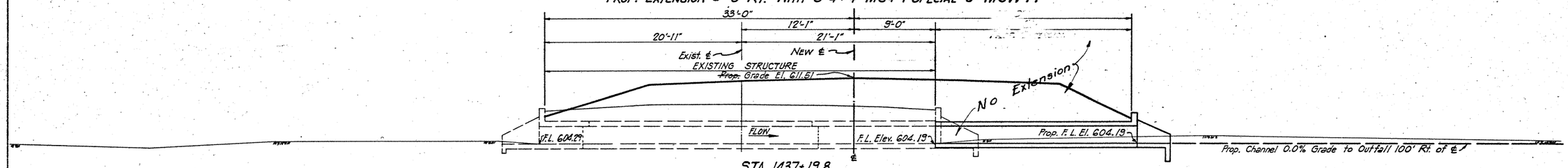
2 of 7



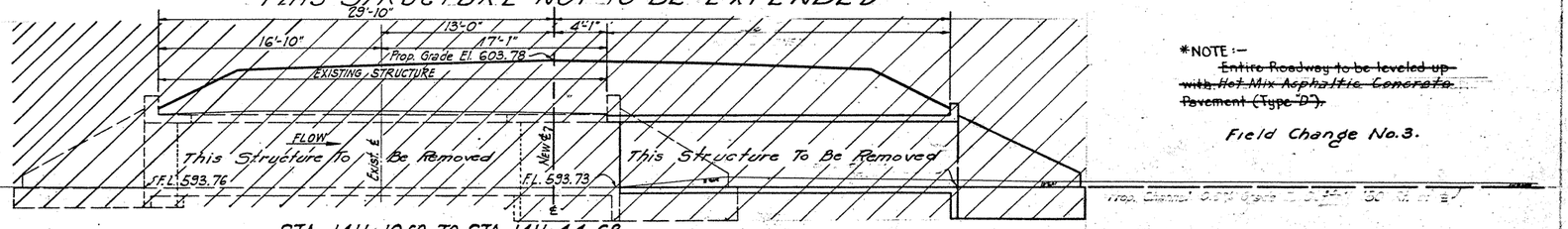
* STA. 1556+02.20 TO STA. 1556+37.12
EXIST. 1-32' CL. SPAN, 34' CL. RDWY., G-266
2 ABUTMENTS, A9-15
~~PROP.~~ SPECIAL EXTENSION 3'-9" RIGHT



* STA. 1530+93.0
EXIST. 3-4'x4'x34', MBC-5
~~PROP.~~ EXTENSION 3'-8" RT. WITH 3-4'x4' MC4-1 SPECIAL & MCW-F1



STA. 1437+19.8
EXIST. 4'x2'x42' CONC. BOX C-7
THIS STRUCTURE NOT TO BE EXTENDED



STA. 1411+10.60 TO STA. 1411+44.68
EXIST. 6-5'x5'x33'-11", MBC-5
FOR EXTENSION OF BARREL SEE MC5-2 HEREOF

*NOTE :—
~~Entire Roadway to be leveled up with Hot Mix Asphaltic Concrete Pavement (Type "D").~~

Field Change No.3.

BILL OF REINFORCING STEEL FOR 6-5'x5' BARREL EXTENSION AT STA. 1411+10.60 TO STA. 1411+44.68

MARK	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K	G
NUMBER	55	64	64	270	760	47	56	37	195	195	36	2	35	15
SIZE	4	4	4	4	4	4	4	4	4	4	4	4	4	4
SPACING	12"	10"	10"	6"	6"	~	~	~	12"	12"	18"	~	12"	24
LENGTH	33'-9"	1'-10"	4'-1"	4'-8"	4'-8"	76'-4"	75'-4"	75'-4"	10'-10"	2'-4"	6'-11"	33'-9	3'-11	2'-0"
WEIGHT	1240	335	178	842	811	827	948	676	977	301	118	45	92	20

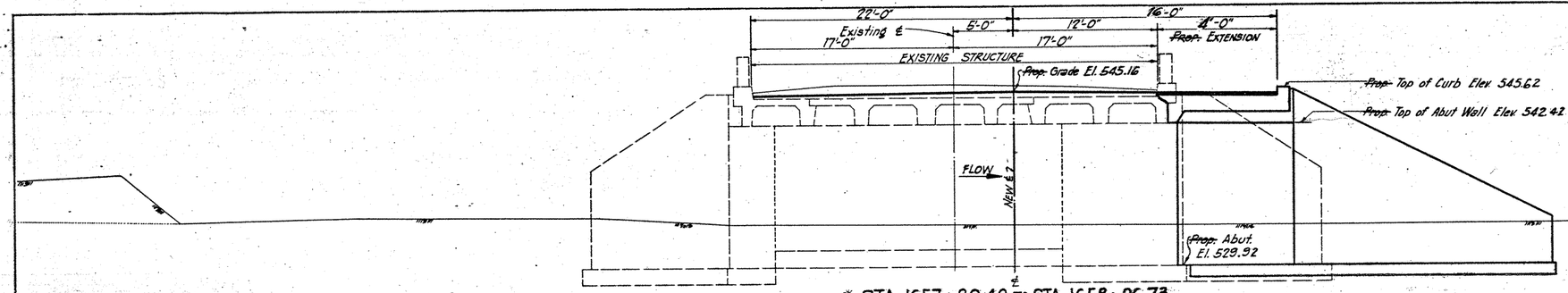
GENERAL NOTES:-
See Standard MC5-2 for Design and Dimensions of Barrel and bending details of reinforcing steel.
Bars "G" are to be used as dowels, three per interior wall.
Use one bar "Y", 3'-3¾" long and twenty-two bars "Z", 3'-6" long for toewall from "MCW-F1 Reinforcing for Culvert Toewalls.

CROSS SECTION AT CULVERT & BRIDGE SITES

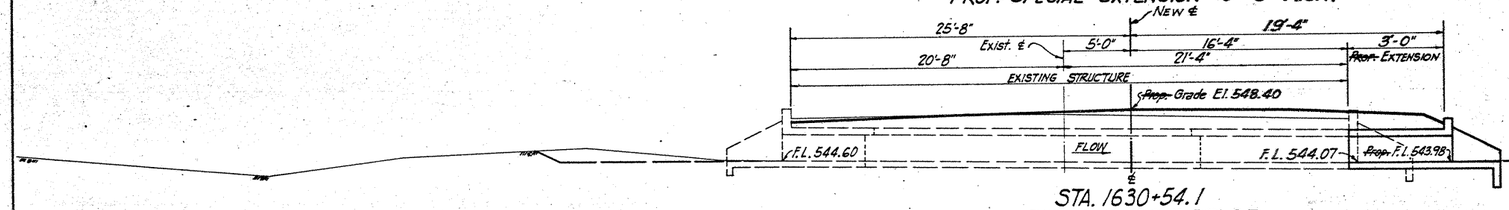
SHEET 4 OF 8 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	
6	TEXAS	I-165(14)	63-A
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	
21	WEBB	18 384 9	U.S.81

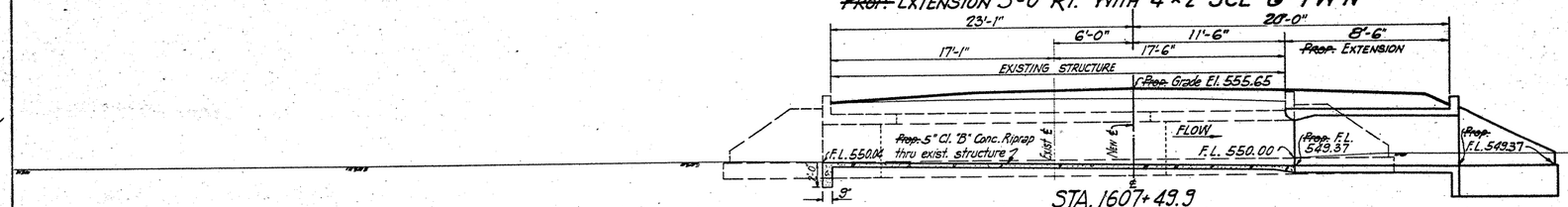
208



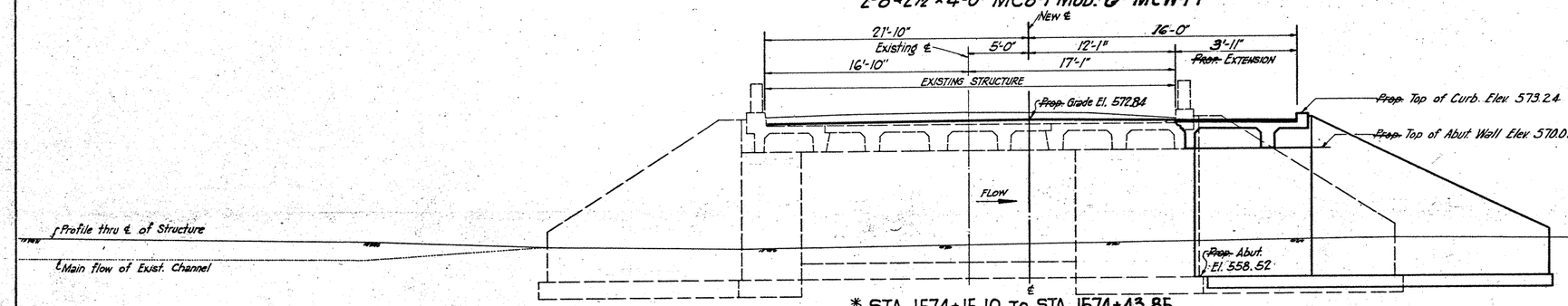
* STA. 1657+80.40 TO STA. 1658+06.73
EXIST. 1-24' CL. SPAN × 34' CL. RDWY, G-265
2-ABUTMENTS, A9-15
~~PROP.~~ SPECIAL EXTENSION 4'-0" RIGHT



STA. 1630+54.1
EXIST. 4'×2'×42' CONC. BOX, C-7
~~PROP.~~ EXTENSION 3'-0" RT. WITH 4'×2' SCL & FW-N



STA. 1607+49.9
EXIST. 2-8'×3'×34'-7" C-6
~~PROP.~~ EXTENSION 8'-6" RT. WITH
2-8'-2½"×4'-0" MC8-1 MOD. & MCW-F1



* STA. 1574+15.10 TO STA. 1574+43.85
EXIST. 1-26' CL. SPAN, 33'-11" CL. RDWY, G-265
2-ABUTMENTS, A9-14
~~PROP.~~ SPECIAL EXTENSION 3'-11" RIGHT

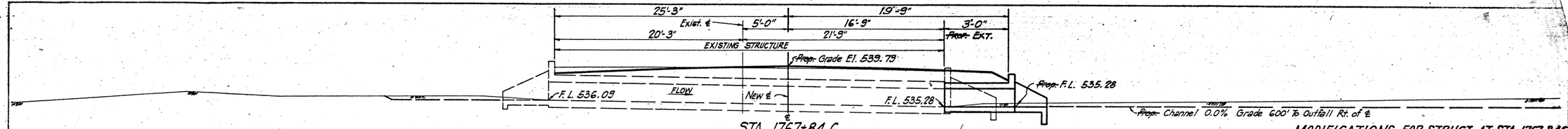
*NOTE:-
~~Entire Roadway to be leveled up with Hot Mix Asphaltic Concrete Pavement (Type "D").~~
Field Change No. 3.

CROSS SECTION AT CULVERT & BRIDGE SITES

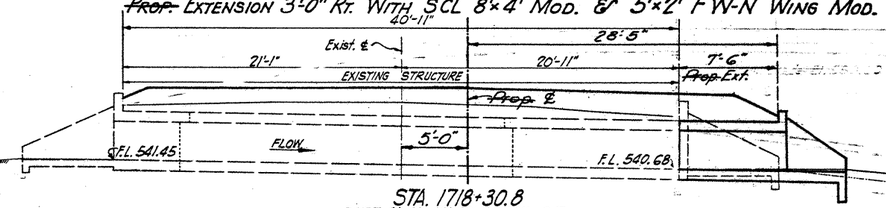
SHEET 5 OF 8 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHT. NO.
6	TEXAS	I-165(16)	64-A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	3	4	9	US 81

209



STA. 1767+84.6
EXIST. 8'×2'×42' CONC. BOX, C-7
~~PROP.~~ EXTENSION 3'-0" RT. WITH SCL 8'×4' MOD. & 5'×2' FW-N WING MOD.

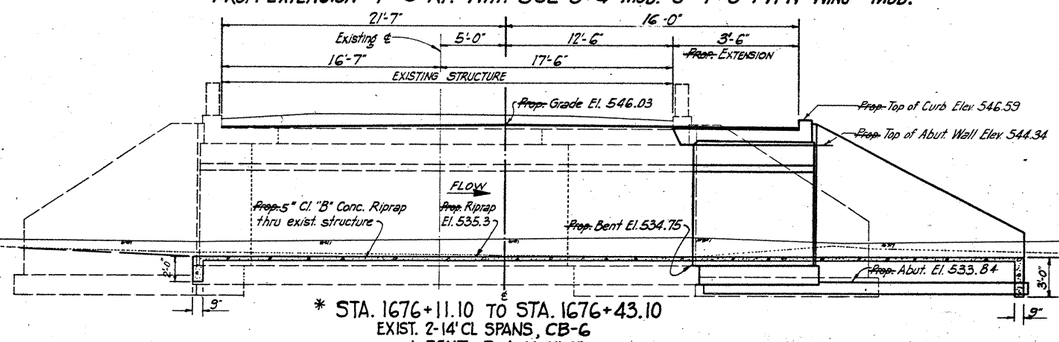


MODIFICATIONS FOR STRUCT. AT STA. 1767+84.6

LIST OF MODIFICATIONS FOR SCL 8'×4' EXTENSION
1. Modify 8'×4' SCL Extension to 8'×2' Extension.
2. Use 4 Bars "F" instead of 6.
3. Vertical dimension and length of Bars "C" shall be decreased by Two Feet.

LIST OF MODIFICATIONS FOR FW-N 5'×2' WINGS
1. Modify 5'×2' FW-N Wing to 8'×2' Wing.
2. Add 3 Bars "P".
3. Use 8'-0" Span to figure length of Bars "Q".
4. Increase length of Bars "R" by three feet.

STA. 1718+30.8
EXIST. 8'×3'×42' CONC. BOX, C-7
~~PROP.~~ EXTENSION 7'-6" RT. WITH SCL 8'×4' MOD. & 7'×3' FW-N WING MOD.



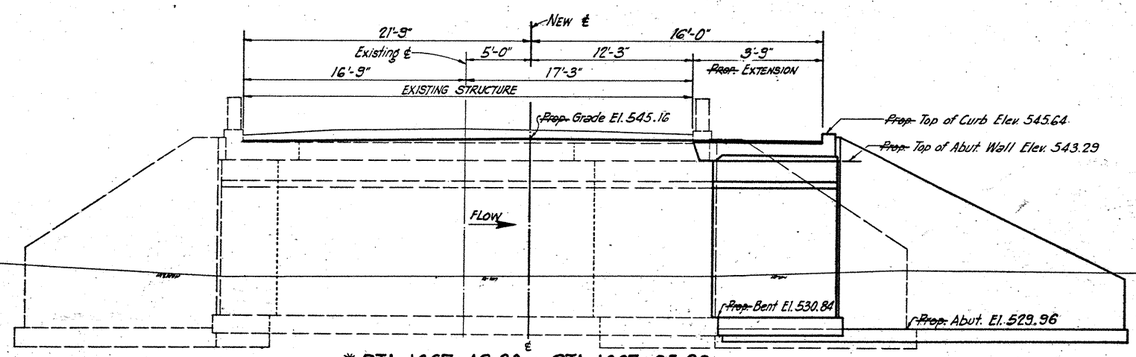
MODIFICATIONS FOR STRUCT. AT STA. 1718+30.8

LIST OF MODIFICATIONS FOR SCL 8'×4' EXTENSION
1. Modify 8'×4' SCL Extension to 8'×3' Extension.
2. Vertical dimension & length of Bars "C" shall be decreased one foot.

LIST OF MODIFICATIONS FOR FW-N 7'×3' WING
1. Modify 7'×3' Wing to 8'×3' Wing.
2. Add one Bar "P".
3. Use 8'-0" Span to figure length of Bars "Q".
4. Increase length of Bars "R" by one foot.

Profile thru ℄ of Structure
Main flow of Exist. Channel

* STA. 1676+11.10 TO STA. 1676+43.10
EXIST. 2-14' CL SPANS, CB-6
1-BENT, B-4, H=11'-0"
2-ABUTMENTS, A9-12
~~PROP.~~ SPECIAL EXTENSION 3'-6" RIGHT



* STA. 1667+49.20 TO STA. 1667+85.20
EXIST. 2-16' CL. SPANS, CB-6
1-BENT, B-4, H=14'-0"
2-ABUTMENTS, A9-15
~~PROP.~~ SPECIAL EXTENSION 3'-9" RIGHT

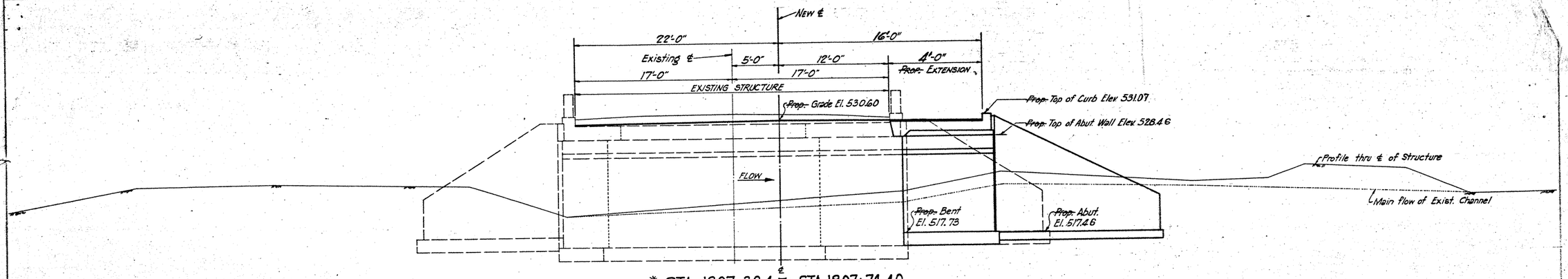
*NOTE:-
~~Entire Roadway to be leveled up with Hot Mix Asphaltic Concrete Pavement (Type "D").~~
Field Change No. 3.

CROSS SECTION AT CULVERT & BRIDGE SITES

SHEET 6 OF 8 SHEETS

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	
6	TEXAS	F-165(14)	65-A
DIST.	COUNTY		
21	WEBB	18 3-4 9	U.S. 81

210



* STA. 1907+30.4 To STA. 1907+74.40
EXIST. 2-20' CL. SPANS, CB-6
1 BENT, B-4, H=14'-0"
2 ABUTMENTS, A9-13
~~Prop.~~ SPECIAL EXTENSION 4'-0" RIGHT

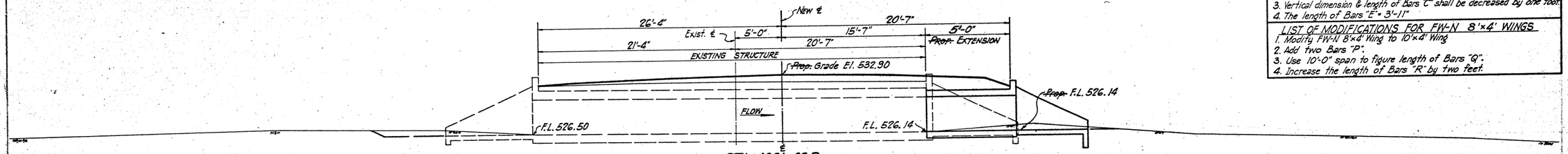
MODIFICATIONS FOR STRUCT. AT STA. 1831+82.9

LIST OF MODIFICATIONS FOR SCL 10'×5' EXTENSION

1. Modify SCL 10'×5' Extension to 10'×4' Extension.
2. Use 12 Bars "F3" instead of 16.
3. Vertical dimension & length of Bars "C" shall be decreased by one foot.
4. The length of Bars "E" = 3'-11"

LIST OF MODIFICATIONS FOR FW-N 8'×4' WINGS

1. Modify FW-N 8'×4' Wing to 10'×4' Wing.
2. Add two Bars "P".
3. Use 10'-0" span to figure length of Bars "Q".
4. Increase the length of Bars "R" by two feet.



STA. 1831+82.9
EXIST. 10'×4'×42'-1" CONC. BOX, C-7
~~Prop.~~ EXTENSION 5'-0" Rt. WITH
SCL 10'×5' MOD. & FW-N 8'×4' WING MOD.

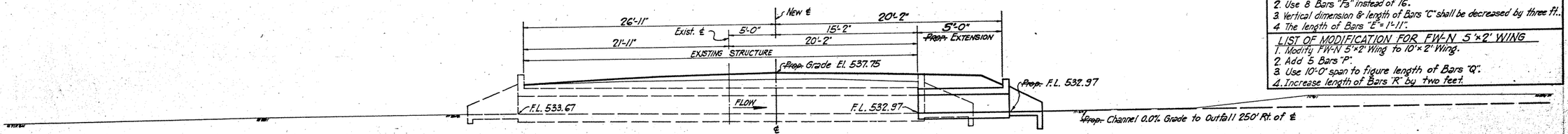
MODIFICATIONS FOR STRUCT. AT STA. 1783+43.7

LIST OF MODIFICATIONS FOR SCL 10'×5' EXTENSION

1. Modify SCL 10'×5' Extension to 10'×2' Extension.
2. Use 8 Bars "F3" instead of 16.
3. Vertical dimension & length of Bars "C" shall be decreased by three ft..
4. The length of Bars "E" = 1'-11".

LIST OF MODIFICATION FOR FW-N 5'×2' WING

1. Modify FW-N 5'×2' Wing to 10'×2' Wing.
2. Add 5 Bars "P".
3. Use 10'-0" span to figure length of Bars "Q".
4. Increase length of Bars "R" by two feet.



STA. 1783+43.7
EXIST. 10'×2'×42'-1" CONC. BOX, C-7
~~Prop.~~ EXTENSION 5'-0" Rt. WITH SCL
10'×5' MOD. & FW-N 5'×2' WING MOD.

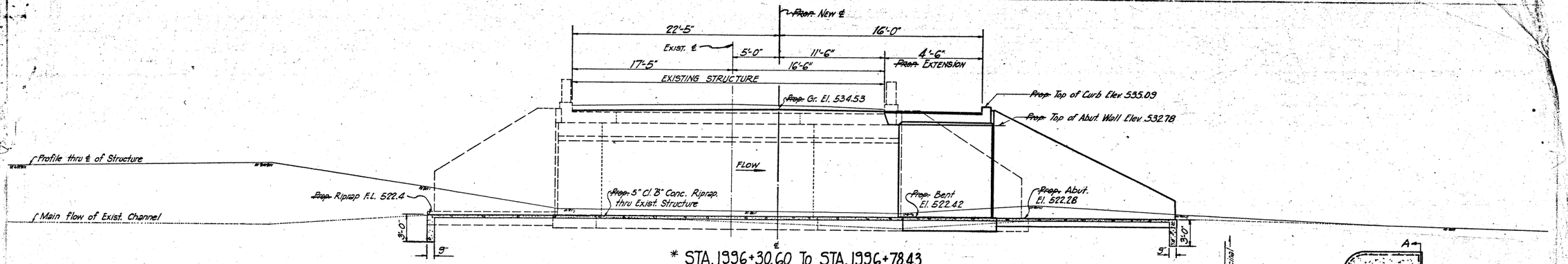
* NOTE:-
~~Entire Roadway to be leveled up with Hot Mix Asphaltic Concrete Pavement (Type "D")~~
Field Change No. 3.

CROSS SECTION AT CULVERT & BRIDGE SITES

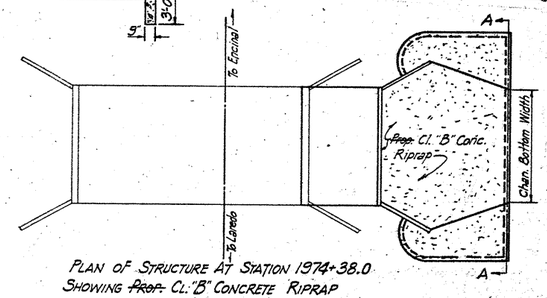
SHEET 7 OF 8 SHEETS

FED. RD. DIV. NO.	STATE	FED. AID PROJECT NO.	
6	TEXAS	F-165(14)	66A
DIST.	COUNTY	SHEET NO.	
21	WEBB	18 3-4 9	U.S. 81

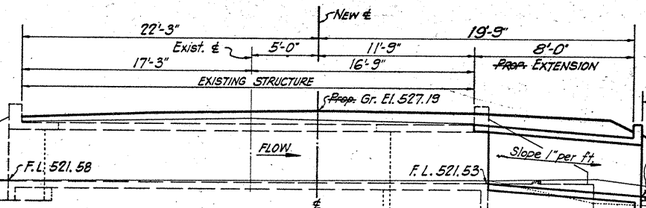
2/11



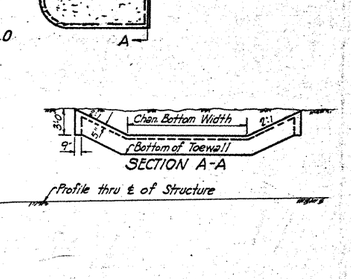
* STA. 1996+30.60 To STA. 1996+78.43
EXIST. 3-14' CL. SPANS, CB-6
2 BENTS, B-4, H=12'-0"
2 ABUTMENTS, A9-12
~~PROP.~~ SPECIAL EXTENSION 4'-6" RIGHT

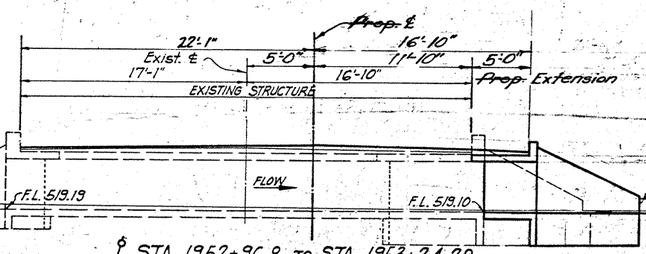


PLAN OF STRUCTURE AT STATION 1974+38.0
SHOWING ~~PROP.~~ CL. "B" CONCRETE RIPRAP



STA. 1974+38.0
EXIST. 4-4'x4'x 34' MULT. BOX CULVERT, MBC-9
~~PROP.~~ EXTENSION 8'-0" Rt. WITH 4-4'x4'
MC-4-1 SPECIAL & MCW-F1





℔ STA. 1952+96.8 TO STA. 1953+24.20
EXIST. 6-4'x4'x 33'-11' MULT. BOX CULVERT, MBC-9
~~PROP.~~ EXTENSION 5'-0" RIGHT WITH
6-4'x4' MC4-1 SPECIAL & MCW-F1

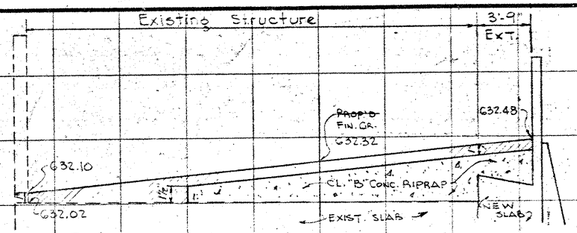
*NOTE:-
~~Entire Roadway to be leveled up with Hot Mix Asphaltic Concrete Pavement (Type "D").~~
Field Change No.3.

℔ This structure also leveled up in field change No.3.

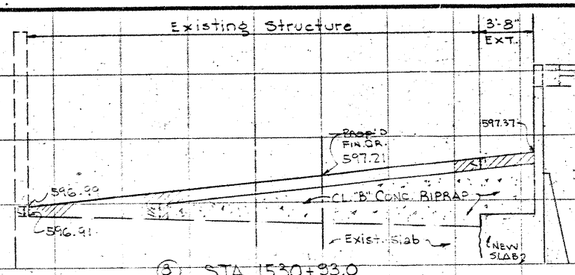
CROSS SECTION AT CULVERT & BRIDGE SITES

SHEET 8 OF 8 SHEETS

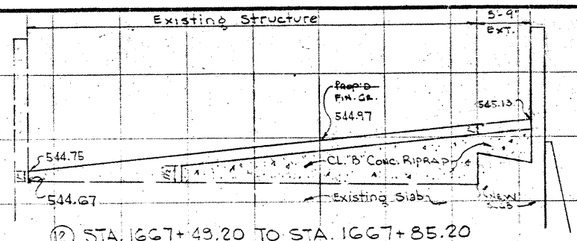
I-165(16) 67-A
21 WEBB 18 3-4 ⇒ U.S.81



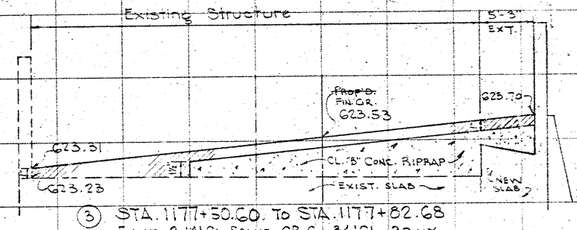
④ STA. 1253+18.80 TO STA. 1253+41.88
EXIST. 2-10'x8'x34' MULT. BOX CULVERT, C-G
EXTEND 3'-9" RT. WITH MC10-1-MOD. & MCW-F2



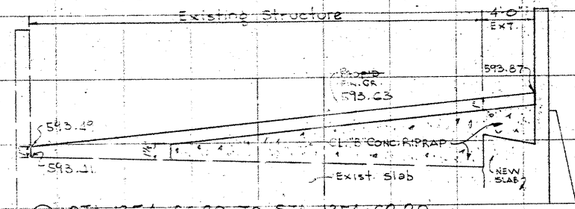
③ STA. 1530+93.0
EXIST. 3-4'x4'x34' MULT. BOX CULVERT, MBC-5
EXTEND 3'-8" RT. WITH MC4-1-SPL. & MCW-F1



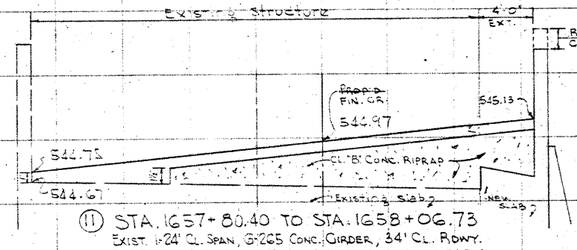
⑫ STA. 1667+49.20 TO STA. 1667+85.20
EXIST. 2-16' CL. SPANS, CB-G, 34' CL. RDWY.
EXTEND 3'-9" RT. WITH SPECIAL DESIGN



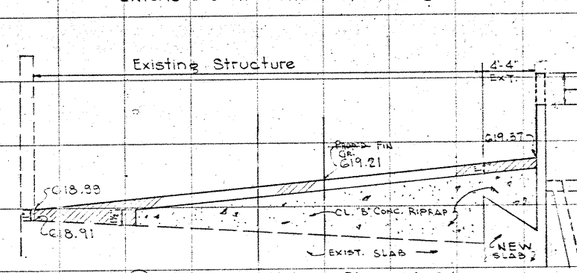
③ STA. 1177+50.60 TO STA. 1177+82.68
EXIST. 2-16' CL. SPANS, CB-G, 34' CL. RDWY.
EXTEND 5'-3" RT. WITH SPECIAL DESIGN



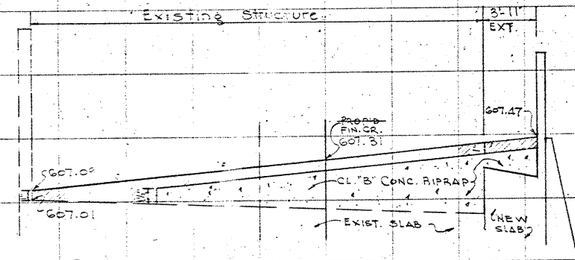
⑦ STA. 1354+06.20 TO STA. 1354+62.20
EXIST. 2-16' CL. SPANS, CB-G, 34'-2" CL. RDWY.
EXTEND 4'-0" RT. WITH SPECIAL DESIGN



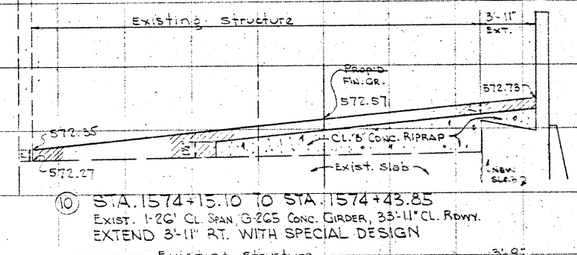
⑪ STA. 1657+80.40 TO STA. 1658+06.73
EXIST. 1-24' CL. SPAN, G-26S CONC. GIRDER, 34' CL. RDWY.
EXTEND 4'-0" RT. WITH SIMPLE SLAB, SPL. DESIGN



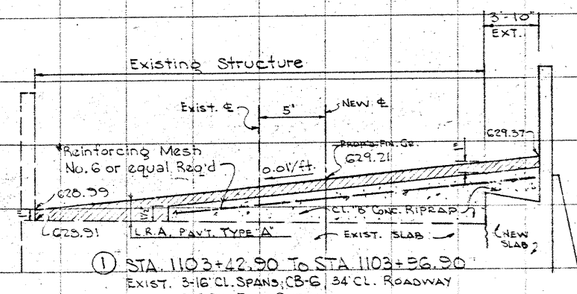
② STA. 1154+41.40 TO STA. 1154+64.73
EXIST. 2-10'x7'x34' MULT. BOX CULVERT, C-G
EXTEND 4'-4' RT. WITH MC10-1-MOD. & MCW-F2



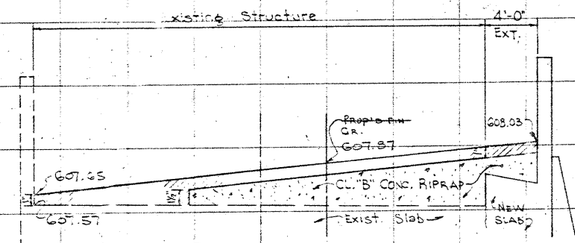
⑥ STA. 1325+00.00 TO STA. 1325+23.17
EXIST. 2-10'x ×34' MULT. BOX CULVERT, C-G
EXTEND 3' . WITH MC10-1-MOD. & MCW-F2



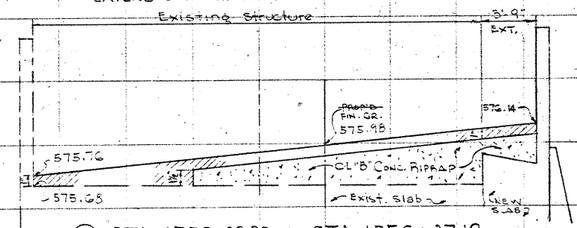
⑩ STA. 1574+15.10 TO STA. 1574+43.85
EXIST. 1-26' CL. SPAN, G-26S CONC. GIRDER, 33'-11" CL. RDWY.
EXTEND 3'-11" RT. WITH SPECIAL DESIGN



① STA. 1103+42.90 TO STA. 1103+56.90
EXIST. 3-16' CL. SPANS; CB-G | 34' CL. ROADWAY
23° RT. FWD. SKEW
EXTEND 3'-10" RT. WITH SPECIAL DESIGN



⑤ STA. 1316+10.2
EXIST. 1-20' CL. SPAN, CB-G, 34' CL. RDWY.
EXTEND 4'-0" RT. WITH SPECIAL DESIGN



⑨ STA. 1556+02.20 TO STA. 1556+37.12
EXIST. 1-32' CL. SPAN G-26S CONC. GIRDER, 34' CL. RDWY.
EXTEND 3'-9" RT. WITH SPECIAL DESIGN

* See Typical Section of Reinf. for Cl. "B" Conc. Riprap on sheet 2 of this sheets.

PROPOSED LEVEL-UP OF ROADWAY OF 17 DRAINAGE STRUCTURES ON EXISTING WEST LANE OF HIGHWAY U.S. 81

FROM: 15.5 MILES NORTH OF LAREDO
TO: WEBB- LASALLE COUNTY LINE.

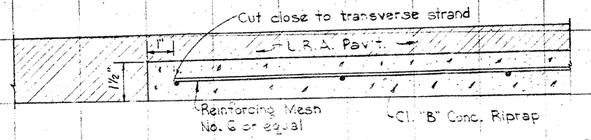
FIELD CHANGE No. 3

SCALES: 1" = 5'-0" HORIZONTAL
2" = 1'-0" VERTICAL

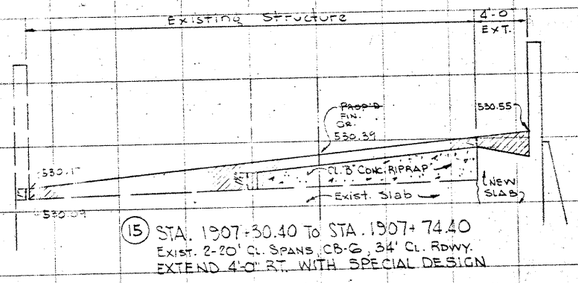
SHEET 1 OF 2 SHEETS

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-165(16)			62A
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4	9	81

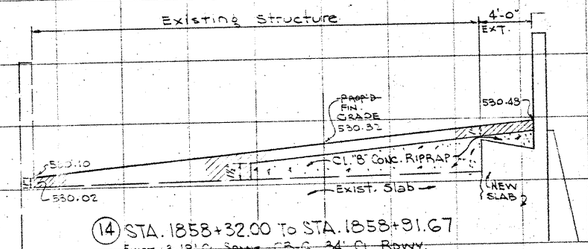
213



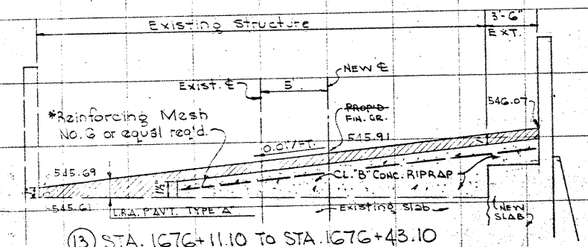
*TYPICAL SECTION - SHOWING REINF. OF CL."B" CONC. RIPRAP



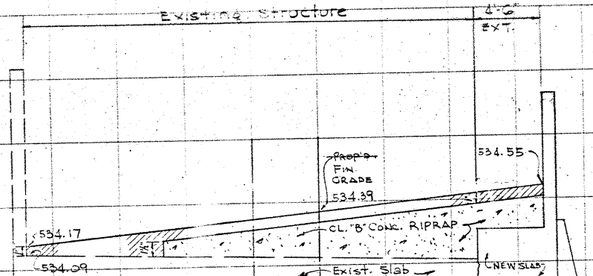
(15) STA. 1907+30.40 To STA. 1907+74.40
Exist. 2-20' Cl. Spans, CB-G, 34' Cl. Rdwy.
EXTEND 4'-0" RT. WITH SPECIAL DESIGN



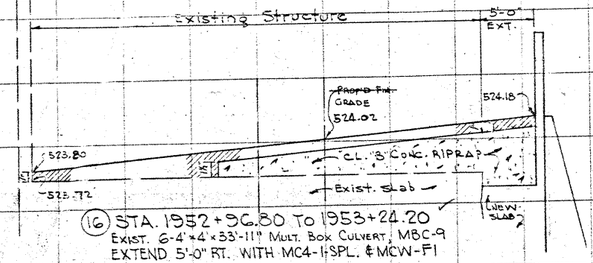
(14) STA. 1858+32.00 To STA. 1858+91.67
Exist. 3-18' Cl. Spans, CB-G, 34' Cl. Rdwy.
EXTEND 4'-0" RT. WITH SPECIAL DESIGN



(13) STA. 1676+11.10 To STA. 1676+43.10
Exist. 2-14' Cl. Spans, CB-G, 34' Cl. Rdwy.
EXTEND 3'-6" RT. WITH SPECIAL DESIGN



(17) STA. 1996+30.60 To STA. 1996+78.43
Exist. 3-14' Cl. Spans, CB-G, 34' Cl. Rdwy.
EXTEND 4'-6" RT. WITH SPECIAL DESIGN



(16) STA. 1952+96.80 To 1953+24.20
Exist. 6-4'×4'×33'-11" Mult. Box Culvert, MBC-9
EXTEND 5'-0" RT. WITH MC4-1-SPL. & MCW-F1

STRUCTURE NUMBER	ESTIMATE REQ'D. LEVEL-UP QUANTITIES		
	CL. "B" CONCRETE RIPRAP	L.R.A. PAV'T. TYPE "A"	RC-2 TACK COAT
	C.Y.	TON	GALS.
1	16.6	15	15
2	9.0	6	6
3	7.3	8	8
4	5.3	6	6
5	4.8	6	6
6	7.0	6	6
7	10.2	9	9
8	4.2	4	4
9	7.6	9	9
10	5.1	8	7
11	7.4	7	7
12	8.7	9	9
13	8.2	8	8
14	8.7	17	15
15	5.1	13	11
16	6.8	7	7
17	13.7	12	12
TOTALS	135.9	150	145

NOTE:
L.R.A. Level-up work to be done by State Forces.

PROPOSED LEVEL-UP OF ROADWAY OF 17 DRAINAGE STRUCTURES ON EXISTING WEST LANE OF HIGHWAY U.S. 81

FROM: 15.5 MILES NORTH OF LAREDO
TO: WEBB - LASALLE COUNTY LINE

FIELD CHANGE NO. 3

SCALES: 1" = 5'-0" HORIZONTAL; 2" = 1'-0" VERTICAL

SHEET 2 OF 2 SHEETS

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-	65(10)		644A
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3-4	9	81

2/4

9 / 3087 — FINAL — TOTAL SHEETS 118 — AP CARDS 3 — COUNTY 4 — DIST. 21 — Charles R. — 18-3-10 — CONTROL 52623 70LL — DATE 9-26-67

W-492

3087 / 1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I35-1(18)007, I35-1(20)020, C18-3-11, C18-4-14, C542-1-13	1

STATE DIST. NO.	COUNTY	STATE CONTROL NO.	HIGHWAY NO.
21	WEBB	18-3-10 #1	IH-35
		18-4-13 & 18-5-16	
		18-6-38	
		542-1-13	US 59

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
NOTE	SEE SHEET 1-A FOR INDEX OF SHEETS

STATE OF TEXAS
STATE HIGHWAY DEPARTMENT

PLANS OF ~~PROPOSED~~ STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT.

I35-1(18)007, I35-1(20)020, C18-3-11, C18-4-14, C542-1-13

SCALES: PLAN: 1 IN. = 100 FT.
PROFILE: 1 IN. HOR. = 100 FT., 1 IN. VERT. = 10 FT.
CROSS-SECTIONS: 1 IN. HOR. = 10 FT. 1 IN. VERT. = 5 FT.
OTHERS AS NOTED.

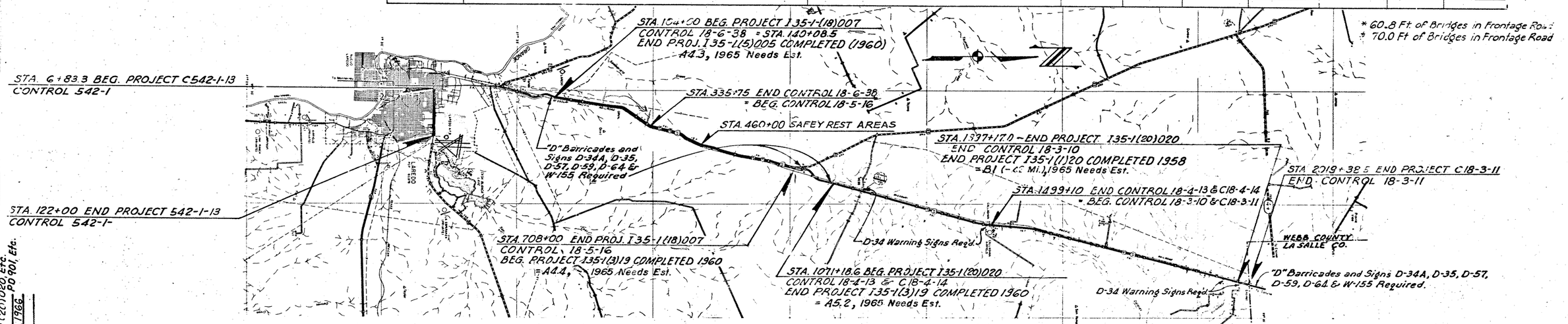
3087 / 7

NO FIELD CHANGES

WEBB COUNTY
HIGHWAYS IH-35 & US-59

PROJECT	DESCRIPTION	LIMITS FROM	LIMITS TO	NET LENGTH OF PROJECT FEET	NET LENGTH OF PROJECT MILES	BREAKDOWN OF LENGTHS CONTROL	ROADWAY FEET	ROADWAY MILES	BRIDGES FEET	BRIDGES MILES
I35-1(18)007	ASPHALTIC CONCRETE PAVEMENT ON EXPRESSWAY LANES; GRADING, STRUCTURES, FLEXIBLE BASE, AND ONE CRSE. SURFACE TREATMENT ON 10 MILES OF FRONTAGE ROAD; AND SIGNING & DELINEATION & TWO SAFETY REST AREAS.	4.3 MILES NORTH OF FARIAS STREET IN LAREDO	0.4 MILES SOUTH OF US-83 INTERCHANGE	60,476.4 FT.	11.444 MI.	18-6-38	23,233.5 FT.*	4.400 MI.	✓	
						18-5-16	37,192.9 FT.#	7.044 MI.	✓	
I35-1(20)020	ASPHALTIC CONCRETE PAVEMENT ON EXPRESSWAY LANES AND SIGNING & DELINEATION.	2 MILES NORTH OF US-83 INTERCHANGE	0.1 MILES SOUTH OF LA SALLE CO. LINE	92,598.4 FT	17.537 MI.	18-4-13	42,731.4 FT.	8.104 MI.	✓	
						18-3-10	49,807.0 FT.	9.433 MI.	✓	
C18-4-14	ASPHALTIC CONCRETE PAVEMENT ON FRONTAGE ROAD	2 MILES NORTH OF US-83 INTERCHANGE	10.1 MILES NORTH OF US-83 INTERCHANGE	34,654.6 FT.	6.563 MI.	18-4-14	34,654.6 FT.	6.563 MI.	✓	
C18-3-11	ASPHALTIC CONCRETE PAVEMENT ON FRONTAGE ROAD AND SIGNING & DELINEATION.	10.1 MILES NORTH OF US-83 INTERCHANGE	LA SALLE CO. LINE	52,028.5 FT.	9.853 MI.	18-3-11	52,028.5 FT.	9.853 MI.		
C542-1-13	ASPHALTIC CONCRETE LEVEL-UP ON US-59.	IH-35	ARKANSAS AVE. IN LAREDO	11,516.7 FT.	2.181 MI.	542-1-13	11,516.7 FT.	2.181 MI.		

* 60.8 Ft of Bridges in Frontage Road
\# 70.0 Ft of Bridges in Frontage Road



PROJECT C18-4-14
NO EQUATIONS
TWO EXCEPTIONS
STA. 1114+72.7 TO STA. 1140+04.3 = 2,532.7'
STA. 1393+25.7 TO STA. 1449+30.3 = 5,604.6'
TOTAL = 8,136.8'

PROJECT I35-1(18)007
NO EXCEPTIONS
TWO EQUATIONS
STA. 140+08.5 = STA. 139+50.0 = +58.5'
STA. 513+78.8 = STA. 520+10.9 = -32.1'

PROJECTS I35-1(20)020, C18-3-11 & C542-1-13
NO EXCEPTIONS
NO EQUATIONS

DELIVERY POINTS

LOCATION	RAILROAD
Laredo	Tex-Mex & IGN (Mo. Pac.)
Orvil Callaghan Encinal	IGN (Missouri Pacific)

The Contractor shall make his own investigations & arrangements for trackage facilities.

TRAFFIC, DETOURS, BARRICADES, ETC.
See Specification Data Sheet Relating Thereto.

SPECIFICATIONS ADOPTED BY THE STATE HIGHWAY DEPARTMENT OF TEXAS, JANUARY 2, 1962
AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT:
REQUIRED CONTRACT PROVISIONS FOR FEDERAL-AID CONTRACTS INTERSTATE HIGHWAYS (FORM PR 1273, DECEMBER 1965).

LAYOUT SCALE: 1 IN. = 10,560 FT.

CONVENTIONAL SIGNS
STATE OR NATIONAL LINE
CITY OR VILLAGE LINE
COUNTY LINE
BASE OR SURVEY LINE
RIGHT OF WAY LINE
RIGHT OF WAY MARKERS
FENCE LINE
RAILROAD
TRAVELLED WAY
CULVERT OR BRIDGE
POWER LINE
TELEGRAPH OR TELEPHONE

COUNTY WEBB — PROJ. NO. I35-1(20)020, Etc. PD 901, Etc.
HWY. NO. IH35 — LETTING DATE APRIL 28, 1966
DATE ACCEPTED JULY 7, 1967

CORRECT: 12-8 to 64 (Rev. 2-8-66)
A.C. Uhl Jr. — RESIDENT ENGINEER

APPROVED: FEB. 12, 1965
CHIEF ENGINEER HIGHWAY DESIGN

RECOMMENDED FOR APPROVAL: 12-10 to 64 (Rev. 2-16-66)
DISTRICT ENGINEER

1-66

STATE HIGHWAY DEPARTMENT

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED:
DIVISION ENGINEER — DATE

SHEET NO.	DESCRIPTION
1-A	INDEX OF SHEETS
2-2-A	SPECIFICATION DATA

ASPHALTIC CONCRETE PAVEMENT

3-5	TYPICAL CROSS SECTIONS (PROJECTS: I35-1(18)007; I35-1(20)020; & C542-1-13
6-8	ESTIMATE SUMMARY
9	SUMMARY OF DELINEATORS
10	STANDARD DETAILS FOR CROSSOVERS & ENTRANCES
11-12	PAVEMENT LAYOUT
13-18	SIGN TABULATION
19-44	PLAN & PROFILE SHEETS (SIGNING)
45	WARNING SIGNS & TYPICAL CROSSOVER LAYOUT
46	GUIDE SIGNS
47-65	STRUCT. DETAILS & STD. — 47-ISG(1); 48-ISG(2); 49-ISG(3); 50-ISG(4); 51-ISR(1); 52-ISB(1); 53-ISMW(1); 54-SMD-1; 55-SMD-3; 56-SMD-6; 57-SMD-8B-1 OF 2; 58-SMD-8B-2 OF 2; 59-SMD-10; 60-SMD-11A; 61-SMD-12-1 OF 2; 62-SMD-12-2 OF 2; 63-BW-61-(1); 64-BW-61-(2); 65-CJS-64

WEST FRONTAGE ROAD

66	TYPICAL CROSS SECTIONS
67-68	ESTIMATE & QUANTITY SHEET
69-89	PLAN & PROFILE SHEETS
90	HAUL DIAGRAM FOR FLEX. BASE & FOUNDATION COURSE
91, 91A	CONC. CURB, INLETS, DOWNDRAINS & DRAINAGE AREA MAP
92-103	STRUCT. DETAILS & STD. — 92-CH-11; 93-MCW-P; 94-MCW-F1; 95-MCW-F2; 96-MCW-F2-15°; 97, 97A-MC 15°; 98-MC 5-1; 99-MC 7-1; 100-MC 8-1; 101-MC 10-1; 102-GF(SU)65; 103-CST-62
104	CROSS SECTION AT CULVERT SITES

SHEET NO.	DESCRIPTION

SAFETY REST AREAS

105	TYPICAL CROSS SECTIONS
106-107	ESTIMATE & QUANTITY SHEETS - 1064 FINAL QUANTITY SHEET
108-113	PLAN & PROFILE SHEETS
114	HAUL DIAGRAM FOR FLEXIBLE BASE & FOUNDATION COURSE
115	CLEARING & GRUBBING LAYOUT
116	CROSS SECTION AT CULVERT SITES

INDEX OF SHEETS

I35-1(18)007 Etc. 1-A

Rev. 4-5-66 | 21 | WEBB | 18 5/6 5/56 | IH-35

GENERAL NOTES AND SPECIFICATION DATA:

GENERAL
All operations shall be conducted in such a manner as to insure safety of public travel at all times. Operations shall be so conducted as to avoid spilling or dropping on the pavement dirt, mud, or other materials that might endanger public travel. Any such materials so dropped or spilled shall be immediately cleaned from the pavement. The term pavement shall mean any pavement or asphalt surface treatment including paved shoulders.

In general the direction of public travel along the several pavement shall not be changed. The regular operation of heavy material hauling equipment, such as scrapers along any pavement will not be permitted. If such heavy material hauling equipment is used, crossing of pavements shall be made at regular established crossings as provided below. Adequate protection to avoid damage to the pavement and to protect the travelling public shall be provided at all crossings.

All equipment or vehicles shall travel in the same direction as provided for public travel when travelling along or adjacent to any pavement.

Crossings of main lanes will be permitted only at existing crossovers, provided that they occur at intervals of one mile or less. If existing crossovers are more than one mile apart, the Contractor, with the approval of the Engineer, may construct one temporary crossover. If existing crossovers are more than two miles apart, the Contractor, with the approval of the Engineer, may construct two temporary crossovers. The construction and removal of these temporary crossovers will not be paid for directly but shall be considered subsidiary to other Contract items.

The movement of equipment such as cranes, tractors, etc. across any pavement roads shall be restricted to such occassional crossings as are absolutely necessary to reach the working site. Adequate protection approved by the Engineer for the pavement and for the travelling public during such crossings shall be provided by the Contractor. Crossings shall be made in a manner to interfere with traffic for as short a time as practicable.

Access to private property shall be maintained at all times.

The Contractor shall be required to furnish, in addition to the barricades and signs shown on the title sheet of the plans, such other signs and/or flagmen, to be placed and kept not less than 1000 feet from the work in progress to warn the oncoming traffic of the construction work, as the Engineer may deem necessary.

ITEM 132: The Contractor will not be required to scarify slopes along main lanes upon which borrow is to be placed so as not to disturb the existing vegetation.

ITEM 213: The "Medium Pneumatic Tire Roller" will be permitted in lieu of the "Light Pneumatic Tire Roller" and paid for on an equal hour basis as "Roll (Light Pneumatic Tire)".

ITEM 200: The Flexible Base Source shall be stripped as directed by the Engineer.

ITEM 232: Flexible Base (Ty A Gr 2) shall conform to the following specifications:

Grading Requirements:	
Retained on 1 3/4" Sieve	0%
Retained on 3/8" Sieve	20% to 60%
Retained on No. 4 Sieve	40% to 75%
Retained on No. 40 Sieve	60% to 85%

The P. I. of the material shall not be greater than 12 before lime is added. It will not be necessary to rerun the P. I. on the material after the lime has been admixed.

The criteria for approval of sources and approval of an area and/or depth of layers in the source from which the material is to be secured, based on preliminary tests, shall be that the material will be Triaxial Class 1 after 1% of lime is admixed. The method of triaxial testing shall be in accordance with Test Method Tex-117-E.

Should the Contractor elect to use other than State optioned sources his attention is called to the fact that the preliminary Standard Triaxial Test will require approximately 15 days and he shall advise the Engineer sufficiently in advance of the location of the source to avoid delay.

The Flexible Base Material shall be stockpiled in areas indicated in the plans or as directed by the Engineer. In these areas the material shall be stockpiled in at least three successive horizontal layers not to exceed two feet in height until a seven day supply of material has been stockpiled and the oldest material shall be removed from the stockpile in successive vertical lifts. The stockpiling operation shall continue in such a manner so that there will always be left in the stockpile each day at least a seven day supply or enough to complete the project. The stockpile shall never exceed the working height of the equipment used to reload the material.

ITEM 246: Foundation Course shall conform to the following specifications: Gradation requirements are 50% to 85% retained on the #40 mesh sieve. The P. I. of the material shall not be greater than 12 before the addition of lime.

The criteria for the approval of the source and the special requirement for sources other than State optioned sources shall be the same as for Item 232 shown above.

The Foundation Course Material shall be stockpiled the same as is shown for Item 232 above.

ITEM 260 & 262: Lime may be applied, mixed and compacted in one course, provided adequate equipment is used. Lime spreader box will not be required if lime can be distributed at a uniform rate, to the satisfaction of the Engineer.

The dry method of application of lime will be required where the lime is to be added to naturally wet materials; otherwise either the dry or the slurry method of application may be used.

The minimum seven day curing period and the minimum two day requirement before opening to traffic will not apply to this project. The lime treated subgrade shall be kept moist until sealed or covered by other material.

ITEM 314: Emulsified Asphalt shall be mixed with the top portion of the base as directed by the Engineer. After the base has been finished to the required section and grade, a thin film of Emulsified Asphalt (EA-HVMS) or (EA-HVMS Mod) shall be applied the full width of the base in several applications at the rate specified by the Engineer. Usual rates of application are from 0.005 to 0.020 Gal. per S.Y. of treated base. Emulsified Asphalt treatment shall consist of several applications of mixture of Emulsified Asphalt and water. The amount of Emulsified Asphalt in the mix shall be from 2% to 15% by volume of the total mix.

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(18)007, etc.				2
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	5-6	16-58	IH 35

ITEM 320: One Course Surface Treatment shall not be applied when the air temperature is below 70° F and is falling, but it may be applied when the air temperature is above 60° F and is rising. Asphaltic material may be placed when the air temperature is between 70° and Falling and 50° and rising by preheating the aggregate to 280° F.

The rate of application and the estimated quantities of aggregate are based on the usual or average gradation of known material. Prior to shipping aggregate to the project, the Contractor shall furnish the Engineer with the samples of aggregate he proposes to use so that the gradation may be determined and the rate of application changed if necessary.

The gradation requirements for Aggregate Type A Grade 5 (Mod) are the following percentages by weight:

Retained on 1/2" Sieve	0%
Retained on 3/8" Sieve	0% to 10%
Retained on No. 4 Sieve	75% to 100%
Retained on No. 10 Sieve	95% to 100%

The modification of Asphalt EA-HVMS shall be as follows:

1. The penetration of the residue at 77° F, 100 gr., 5 sec. shall be a minimum 80, maximum 110.
2. The ductility of the residue at 77° F, 5 cm/min. cms shall be a minimum of 100.

ITEM 330, 340, 350 & 1222: In addition to the tack coat materials specified in these specifications, the Contractor, if he so desires, may use EA-HVMS, EA-HVMS (Mod) or a Rapid Curing (RC) Liquid Asphalt. The Rapid Curing (RC) Liquid Asphalt shall meet the following requirements:

Kinematic Viscosity at 140° cs	250-500	Residue from distillation at 680° F percent by volume	65+
Flash Point (Open Tag.) ° F	80+	Test on residue from distillation :	
Distillation:		Penetration at 77° F, 100 g., 5 sec.	80-120
Distillate (Percent of total distillate to 680° F		Ductility at 77° F cms	100+
to 437° F	35+	Solubility in Carbon Tetrachloride, %	99.5+
to 500° F	60+	Water, %	0.2-
to 600° F	80+		

The recommended application and mixing temperature range is 140° F - 210° F. The maximum allowable heating and storage temperature of this cut-back asphaltic material is 230° F.

Articles 330.6, 340.6, 350.6 & 1222.6 CONSTRUCTION METHODS:
All air Temperatures called for in these paragraphs shall be raised 10° F.

ITEM 340 & 1222: Prior to placing the Asphaltic mix on the pavement on the roadway and shoulders of the existing surface it shall be cleaned of all dirt and foreign material.

If the Contractor so elects, he may construct the shoulders with the same materials, with the same specification requirements, as Item 340, Type A, Material. Payment in this event would be as Item 1222.

If Item 340, Type A, Material is used in lieu of Item 1222 material then the required construction joint location for the base courses shown on Pavement Section A on Sheet No. 3 may be modified to lay the base courses in four strips of approximately equal width each but with the joints between the first and second courses staggered.

ITEM 350: Lime (Ty A or B) shall be added to the mineral aggregate at the rate of 1/2 of 1% by weight. This lime will be added to the aggregate at the cold feeder belt by means of a vibrating or reciprocating hopper with attached water sprayer or any other suitable machanical device approved by the Engineer. This lime will not be paid for directly, but shall be included in the price bid for Item 350 "Hot Mix-Cold Laid Asphaltic Concrete Pavement".

ITEM 320, 330, 340, 350: The Contractor shall select an aggregate for surfacing shoulders that will result in a permanently contrasting color and texture to the asphaltic concrete pavement used on the adjacent travelled lanes. The aggregate selected shall meet the approval of the Engineer.

ITEM 421: The type of surface finish on this project shall conform to Item 420.24 and shall be done in accordance with the requirements of a "Type 2 Finish".

ITEM 496: Material on this project not considered salvable by the Engineer shall become the property of the Contractor and removed from the project to sites out of sight of the highway.

ITEM 560: Posts for Metal Beam Guard Fence (CI B) shall be timber. The Contractor will be required to clean and paint all cut edges and bolt holes, if rail is fabricated after galvanizing in accordance with paragraph four of Article 560.4, at his expense.
ITEM 901: Borrow (Delivered)(Ordinary Compaction) shall be Type B Class 1. The criteria for approval of sources and the criteria for the approval of the areas and/or depth or layers in the source from which material is to be secured, based on preliminary tests and such other occasional tests as found necessary by the Engineer shall be as follows:

1. The P. I. shall not exceed 25.
2. The material shall be such as to produce a well-bonded embankment.
   Materials having a P. I. of 4 or less are usually doubtful as to cohesive quality but may be used if the material will properly bond.

The method of removing this material and placing in the embankment shall be such as to produce as uniform a material as practical.

The Contractor's attention is called to the fact that the preliminary test for the approval of sources will required approximately 7 days and that he shall advise the Engineer sufficiently in advance of the location of the source to avoid delay.

No excavation of borrow material which would result in creating a pit below natural ground within 500' of any road designated or maintained as part of the system of roads under the jurisdiction of the State Highway Department will be permitted without the written approval of the Engineer, and no such excavation of borrow within 500' of any other public road will be permitted without the consent of the County Commissioner's Court or City Commission if within a City Limits. The securing of borrow material by the excavation of ditches for beneficial drainage purposes, the removal of spoil banks, and the removal of hills for land levelling within 500' of any public road will be permitted.

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(18)007, etc.				2
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	5-6	16-58	IH 35

Any rolling required on delivered borrow material shall be done with a light pneumatic tire roller. The medium pneumatic tire roller will be permitted, but shall be paid for on an equal hourly basis as a light pneumatic roller.

ITEM 1222: The stability shall be not less than 30%.

Article 2(1)(a) Coarse Aggregate: Coarse Aggregate will be tested in accordance with the Test Method Tex-406-A for decantation, and material removed will not be more than 2 percent by weight. The abrasion shall not exceed 40 percent when tested by the Los Angeles Abrasion Test.

Article 2(1)(b) Fine Aggregate: The last sentence is hereby voided and not replaced.

Article 3(1) Types: The master grading for Type A shall be as follows:

Passing 2" Sieve	100
Passing 2" Sieve, retained on 7/8" Sieve	20 to 40
Passing 7/8" Sieve, retained on 3/8" Sieve	15 to 40
Passing 3/8" Sieve, retained on #10 Sieve	15 to 30
Total retained on No. 10 Sieve	60 to 80
Passing No. 10 Sieve, retained on No. 80 Sieve	5 to 30
Passing No. 80 Sieve, retained on No. 200 Sieve	2 to 15
Passing No. 200 Sieve	0 to 8

Artcile 6 Construction Method: All courses shall be placed with the specified spreading and finishing machine except that on narrow strips and small areas as set out in Article 6(4)(c) the material may be placed as set out in Article 6(4)(c).

SPECIFICATION DATA
SHEET C

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I 35-1(18)007, etc.			2A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	5/6	16/38	IH 35

SIGNING AND DELINEATION

ITEM 7: PROTECTION OF TRAFFIC:
Erection of Interstate signs shall be scheduled to interfere as little as possible with vehicle traffic on the expressway. The following requirement must be observed: Portable W-155 signs shall be displayed on the median and shoulder 700' in advance of any work being performed. Signs shall be removed from view at all times when work is not in progress. Flagmen and appropriate signs shall be used for the full time that construction requires Public Travel at a reduced speed and where construction equipment occupies a travel lane or adjacent shoulder.

SCOPE OF WORK: It is the intent of these plans to provide for a complete system of Interstate signs installed at the locations indicated in these plans. All work, material, and services not expressly called for in the specifications or not shown in the plans, which may be necessary for complete and proper construction shall be performed, furnished, and installed.

Upon completion of the work and before acceptance and final payment is made, the Contractor shall clean, remove rubbish from the site of the work, restore in an acceptable manner all property, both public and private which has been damaged during the prosecution of the work, and leave the site of work in a neat and presentable condition throughout.

No extra compensation will be allowed for fulfilling the requirements stated above.

All signs shall be erected according to the station number shown on the Plan and Profile sheets except that the Engineer may shift a sign in order to secure a more desirable location. The Engineer will stake all sign locations, and no changes in these locations shall be made without prior approval of the Engineer.

ITEM 7161: Dimensions for corner radii above 3" may vary plus or minus 1". Dimensions for border width may vary as much as plus 1/2". Borders and corner radii be of matching widths.

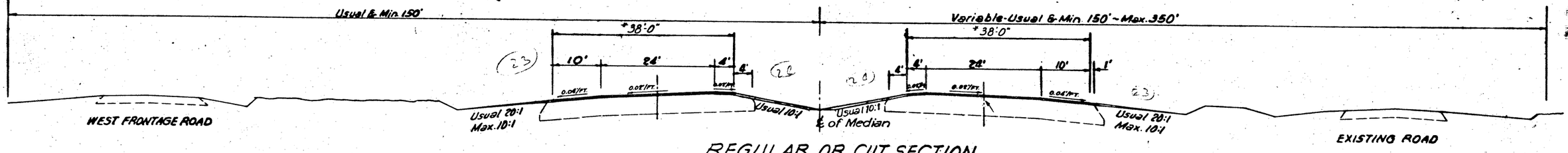
ALTERNATE NO. 2: Aluminum Signs Type E can be used as an alternate for some Plywood signs as indicated in the Sign Tabulation Sheets. Length of Posts shown for these signs have been figured on the basis of Plywood Type A or Type B being the sign blank material according to Standard Plan Sheet SMD-88, should contract be awarded on basis of Aluminum Signs Type E, that is 2 1/2" honeycomb aluminum sign blanks, the Contractor must order post lengths according to Standard Plan Sheet SMD-10.

ITEM 7 (Cont'd.)

THE CONTRACTOR SHALL USE LIGHTS TO MARK THE FOOTING NEAREST THE PAVEMENT EDGE OF THROUGH TRAFFIC LANES THAT ARE OPEN TO TRAFFIC FOR EACH TRAFFIC-SIGN SUPPORT, AND FOOTINGS AT OTHER LOCATIONS AS DIRECTED BY THE ENGINEER. THE LIGHTS, WHICH MAY BE FLARES OR THE FLASHING, ELECTRIC TYPE, SHALL BE USED BETWEEN SUNSET AND SUNRISE FOR THE PERIOD OF TIME FROM THE BEGINNING OF CONSTRUCTION OF THE FOOTING THROUGH THE ATTACHMENT OF THE SIGN (S) TO THE SUPPORT.

SPECIFICATION DATA
SHEET D

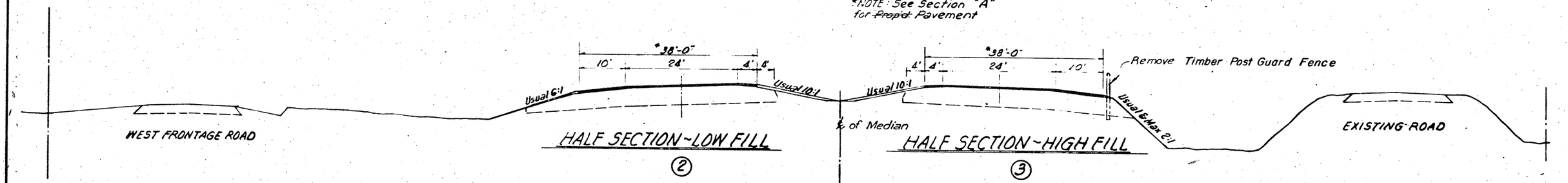
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I 35-1(18)007, etc.			2A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	5/6	16/38	IH 35



REGULAR OR CUT SECTION

①

*NOTE: See Section "A" for ~~Propd~~ Pavement

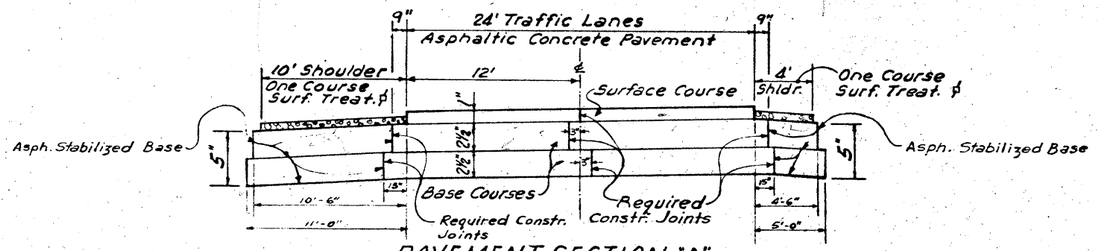


HALF SECTION~LOW FILL

②

HALF SECTION~HIGH FILL

③



PAVEMENT SECTION "A"

FOR
PROJECTS~I35-1(18)007 AND I35-1(20) 020

All pavement thickness dimensions shown are approximate and are intended to illustrate the approximate ~~proposed~~ pavement structure (based on 100#/SY = 1").

℗ To be of contrasting color to traffic lanes.

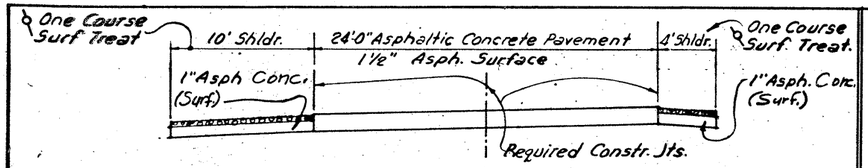
RK 150/0

FOR
PROJS.~I35-1(18)007 & I35-1(20) 020
CONTROL 18-3-10
CONTROL 18-4-13
CONTROL 18-5-16
CONTROL 18-6-38

TYPICAL CROSS SECTIONS
MAIN LANES SURFACING

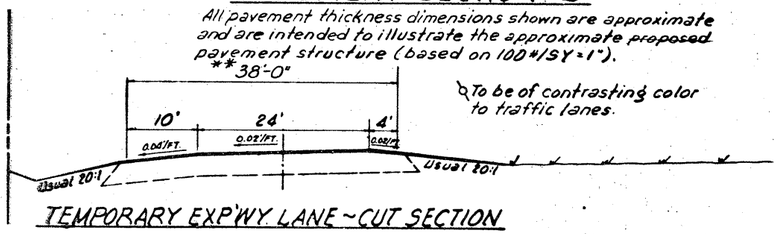
SHEET 1 OF 3 SHEETS

I35-1(18)007 etc. 3



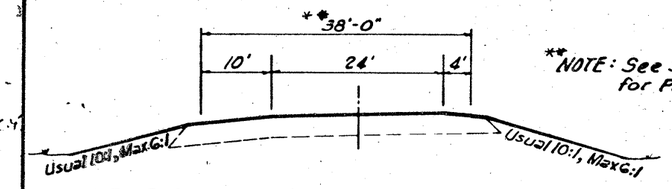
PAVEMENT SECTION "B"

All pavement thickness dimensions shown are approximate and are intended to illustrate the approximate proposed pavement structure (based on 100#/SY=1").



TEMPORARY EXP'WY. LANE ~ CUT SECTION

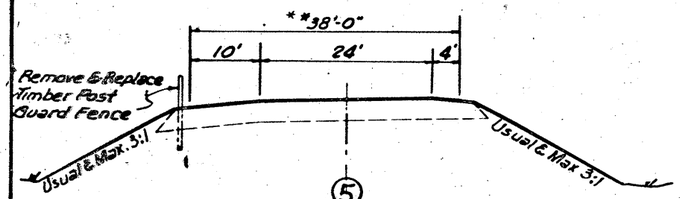
⑦



**NOTE: See Section "B" for Pavement

TEMPORARY EXP'WY. LANE ~ LOW FILL SECTION

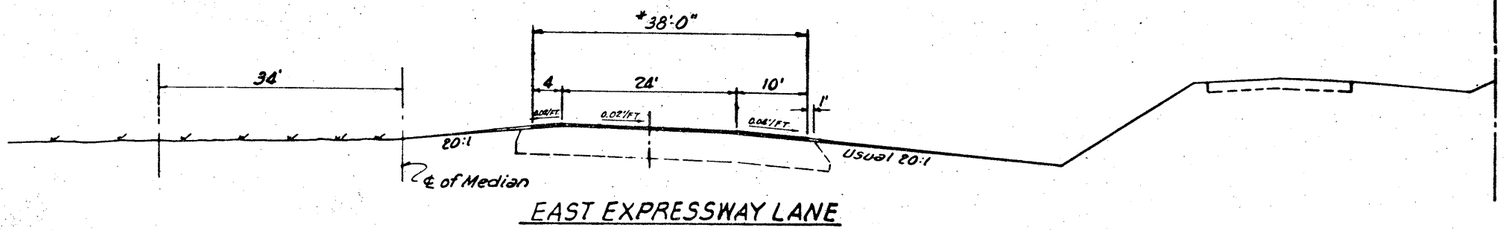
⑥



TEMPORARY EXP'WY. LANE ~ HIGH FILL SECTION

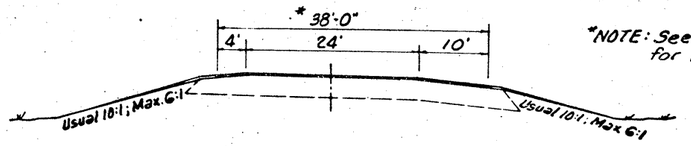
⑤

PROJ'S.: C18-3-11 & C18-4-14



EAST EXPRESSWAY LANE

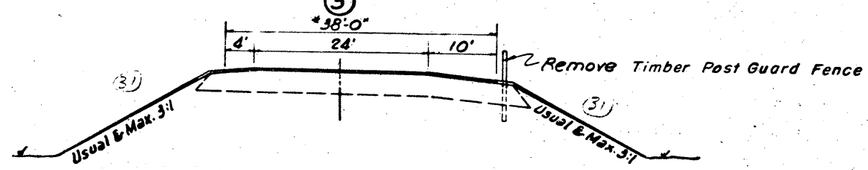
④



*NOTE: See Section "A" for Pavement (Sheet 1)

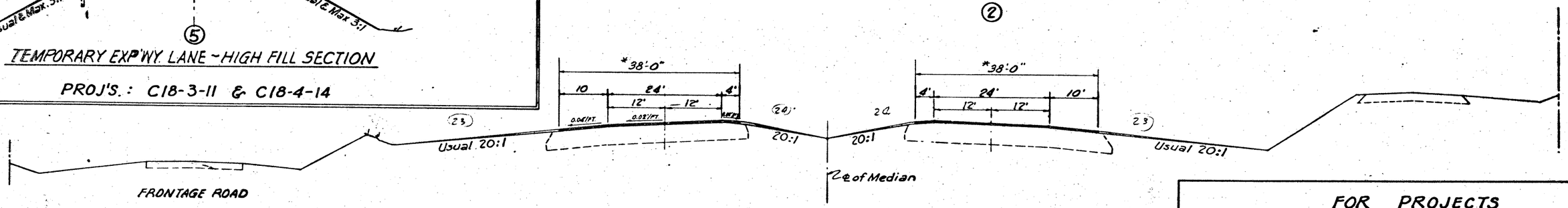
HALF SECTION ~ LOW FILL

③



HALF SECTION ~ HIGH FILL

②



EXPRESSWAY LANES IN ULTIMATE LOCATION

①

PROJ. 135-1(20)020

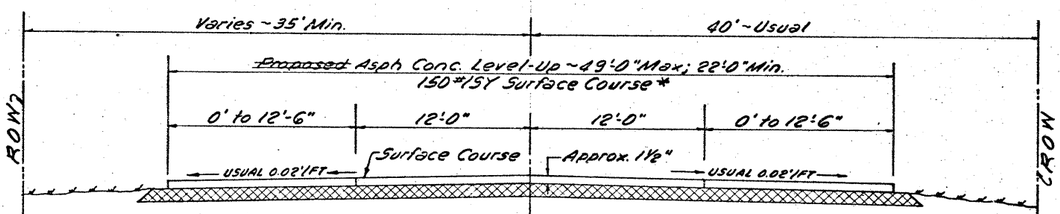
FOR PROJECTS
I35-1(20)020
C18-3-11 & C18-4-14
CONTROL 18-3-10
CONTROL 18-4-13

TYPICAL CROSS SECTIONS
MAIN LANES & WEST FRONTAGE ROAD SURFACING

SHEET 2 OF 3 SHEETS

Rev. 6-12-64

PROJ. NO. REF. NO.	STATE	FEDERAL PROJECT NO.		SHEET NO.
6	TEXAS	I35-1(20)020 etc		2
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB
21	WEBB	18	3,4	10,13,14



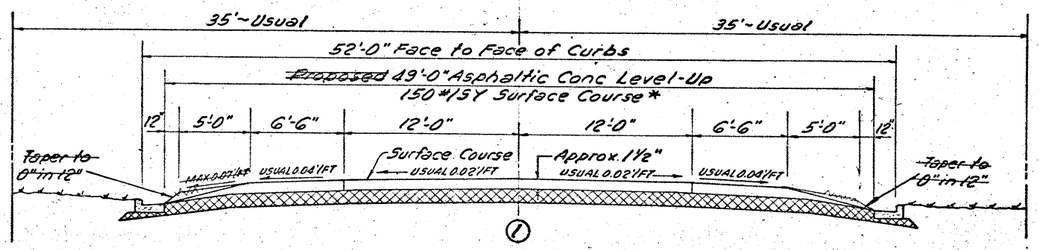
②

TRANSITION SECTION

~~To Be~~ Used Approx. 3.6 Sta.
Sta. 118+38.0 To Sta 122+00

SUMMARY OF LEVEL-UP

LOCATION	AREA SQ YARDS	ASPHALT 5.5% BY WT TON	AGGREGATE 94.5% BY WT TON	TACK COAT 0.02 GAL PER SY GAL	TOTAL A.C.R TON
Hwy. US-59	62,159	256	4.406	1.243	4.662



①

REGULAR SECTION

~~To Be~~ Used Approx. 111.5 Sta.
Sta. 6+83.3 to Sta. 118+38.0

* Surface Course Base Bid: Item 340 Ty "D"
~~Alternate 1A: Item 330 Ty "B"~~
~~Alternate 1B: Item 350 Ty "DB"~~

TYPICAL CROSS SECTIONS FOR LEVEL-UP COURSE ON US-59

SHEET 3 OF 3 SHEETS

DIST. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
5	TEXAS	C-542-1-13	5

STATE DIST. NO.	COUNTY	FUNC. SYST.	SECT.	JOB	HIGHWAY NO.
21	WEBB	542	1	13	US-59

ESTIMATE SUMMARY

PROJECT I 35-1(18)007 P.D. 9010

Control 18-6-38						Control 18-5-16					
Expwy Lanes		West Frontage Road Roadway		Bridges		Expwy Lanes		West Frontage Road Roadway		Bridges	
EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL
								22.04	20.89		
								531.5	531.5		
		21366.	18028.					73888	71,224		
		123.	133.					502	708		
5.25	5.25					5.85	5.85	5.50	5.50		
								1388	0		
533.	370.45	1971.	727.0			1333.	628.1	9842	28955		
52.	0.	46.	38.5			92.	0.	177	105.5		
		36.	35.25					238	191.5		
119.	83.0	78.	80.5			289.	184.0	355	222.0		
		38.	39.25					220	171.25		
		4946.	5220.					24,423	24095.		
		95714.	95714.					184,176	184,176.		
								12,263	7365.		
								82,274	82,274.		
		240.	240.					1,394	1,395.		
		259.	257.66					898	901.13		
		38375.	38375					132,910	132,910		
		67.	60.25					514	451.45		
	10800.	8722.	7400.				17100.	28,135	30,000.		
		419.	432.					947.	917.		
513.	507.5					907.	872.8	41	63.6		
24636.	26620.	15705.	15330.			43533.	44100.	37,475	35,840.		
2114.	480.					3767.	880.	624	0		
6562.	2158.					10113.	3251.				
4990.	5326.58					8896.	10358.45	2089	23604.3		
31783.	32301.03					52855.	62695.43				
1673.	1454.08					2781.	2791.54				
290.	307.37					518.	594.05	121	131.12		
		25.	25.	90.	90.			318.	300.	163.	163.
		27.24	27.26	117.04	115.51			10.65	10.65	159.34	159.41
		2.7	0.	12.0	17.05			15.4	0		8.23
		3428.	3427.	15981.	15884.			1016.	1016.	19705.	19640.
								248.	251.50		
								244.	246.22		
								120.	122.34		
								3.	3.0		
								3.	3.0		
								504.	502.84		
								1.	1.0		
								2.	2.0		
								2220	2452.5		
								544.5	544.5		
		200.	200.					3,075	3,0750		
								1,166	1166.		
		23.	22.					121	99.75		
893.	762.85					1471.	1468.51				
16970.	17202.19					27956.	32871.47				
3656.	1132.00					5562.	1706.				
						21.	110.				

PROJECT I 35-1(20)020 P.D. 9020

Control 18-4-13		Control 18-3-10				P.D. 0020 C 18-4-14		P.D. 0010 C 18-3-11		P.D. 0590 C 542-1-13		ALT	ITEM-CODE			DESCRIPTION	UNIT	TOTAL	
Expwy Lanes		Expwy Lanes				Control 18-4-14 Frontage Road		Control 18-3-11 Frontage Road		Control 542-1-13 Level-Up US-59			ITEM NO.	DESC CODE	SP NO.			EST	FINAL
EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL								
													102	001		CLEAR AND GRUB	Ac	22.04	20.89
													104	003		REMOV OLD CONC (CURB OR C AND G)	LF	531.5	531.50
													110	001	001	UNCL RD EXCAV (ORD COMP)	CY	95254.	89,252.
													120	001	001	UNCL CHAN EXCAV (ORD COMP)	CY	625.	841.0
			13.00	13.00									170	001	001	OBLIT ABAND RD	Sta	29.60	29.60
													200	001		STRIP	CY	1388.	0
1044.	414.4	976.	427.9			285.	72.0	409.	140.0				204	001		SPRINK	MG	15393.	5675.35
67.	14.5	67.	13.0			46.	11.0	67.	15.				210	001	003	ROLL (FLAT WHEEL)	Hr	614.	197.50
													211	001		ROLL (TAMP)	Hr	274.	226.75
225.	194.0	212.	183.0			69.	51	98.	107				213	001	001	ROLL (LIGHT PNEUM TIRE)	Hr	1445.	1104.5
													214	001		ROLL (HEAVY PNEUM)	Hr	258.	210.50
													232	003		FLEX BASE (ORD COMP)(TY A GR 2)	CY	29369.	29,315.
													232	017		ADDL QTR MI HAUL	CY	279890.	279,890.
													246	001		FND CRSE (ORD COMP)	CY	12263.	7365.
													246	005		ADDL QTR MI HAUL	CY	82274.	82,274.
													252	003		SALV AND REPL BASE (ORD COMP)	CY	1634.	1,635.
													260	003		LIME (TY A OR B)	Ton	1157.	1,158.79
													260	010		LIME TREAT SUBGR (ORD COMP)(6 IN)	SY	171285.	171,285.
													262	003		LIME (TY A OR B)	Ton	581.	511.70
		14600.		9,400.									314	006	003	EMUL ASPH (EA-HVMS) OR (EA-HVMS MOD)	Gal	36857.	89,300.
													320	003		AGGR (TY A GR 3)	CY	1366.	1,349.
637.	646.75	625.	637			441.	445.5	674.	688.0				320	163		AGGR (TY A GR 5 MOD)	CY	3838.	3841.15
30581.	30,895.	30016.	30130			21189.	21,110.	32351.	31,920.				320	241		ASPH (EA-HVMS MOD)	Gal	235486.	235945
2834.	480.	2749.	630.			3001.	340.	4713.	570.	1243.	815.	1	340	013	041	TACK COAT (SURF)	Gal	21045.	4,155.
6417.	1640.	6228.	1436.			400.	0	400.	0				340	015	041	TACK COAT (BASE)	Gal	30120.	8485.
6715.	7,182.65	6506.	7122.0			9345.	8,951.16	14692.	14,055.71	4406.	3,893.83	1	340	031	041	AGGR (TY D)(SURF)	Ton	57639.	59,250.81
36427.		35408.	37,190.74			950.	0	950.	0				340	045	041	AGGR (TY A) (BASE)	Ton	158373.	170848.57
1918.	1,799.11	1864.	1,752.43			50.	0	50.	0				340	046	041	ASPH (AC-20) (BASE)	Ton	8336.	7797.16
391.	410.00	379.	406.55			543.	510.94	856.	802.34	256.	222.27	1	340	047	041	ASPH (AC-20) (SURF)	Ton	3354.	3,384.64
													400	009		UNCL STR EXCAV	CY	596.	578.
													421	001	016	CL A CONC (CULV)	CY	314.27	312.83
													432	003		RIPRAP (CONC)(CL B)	CY	30.1	25.28
													440	001	001	REINF STL	LB	40130.	39,967.
													464	003	008	R C PIPE (CL III)(18 IN)	LF	248.	251.50
													464	005	008	R C PIPE (CL III)(24 IN)	LF	244.	246.22
													464	009	008	R C PIPE (CL III)(36 IN)	LF	120.	122.34
													470	002		INLET (COMPL)	Ea	3.	3.
													471	001		GRATE	Ea	3.	3.
													472	004		RELAY CULV PIPE (18 IN)	LF	504.	502.84
													496	002		REMOV OLD STR (SMALL)	Ea	1.	1.
													496	019		REMOV OLD STR (REST AREA SHELTER)	Ea	2.	2.
													520	001		CONC CURB	LF	2220.	2452.5
													524	001		SDWLK	SY	544.5	544.5
													560	002	012	METAL BEAM GD FENCE (CL B)	LF	3275.	3275.
						0.5	0.5	0.5	0.5				580	001	021	FIELD OFFICE AND LAB (TY D)	Ea	1.	1.
31545.	30,540.	28969.	27,830.			4649.	4,186.	6280.	5635.				901	001		BORROW (DEL)(ORD COMP)(TY B CL 1)	CY	71443.	68,251.
													936	001		REMOV WIRE MESH GD FENCE	LF	1166.	1,166.
													939	001		ROLL (VIB ROLL)	Hr	144.	121.75
1018.	943.85	991.	919.37										1222	008		ASPH (AC-20) (BASE)	Ton	4373.	4,090.58
19334.	20,030.80	18825.	19511.11										1222	009		AGGR (TY A) (BASE)	Ton	83085.	89641.54
3604.	860	3413.	754.										1222	010		TACK COAT (BASE)	Gal	16235.	4,452.
													1400	001		REMOV AND REPL DELIN ASSEM	Ea	21.	110.

Projects: I 35-1(18)007, I 35-1(20)020, C18-4-14, C18-3-11, C542-1-13

Controls: C18-6-38, C18-5-16, C18-4-13, C18-3-10 C18-4-14, C18-3-11 & C542-1-13

Sheet 1 of 3 Sheets

ESTIMATE & QUANTITY SHEET

Rev. 4-5-66

FED RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(18)007, etc.				G
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	Webb		18	5/6	16/38	IH 35

ESTIMATE SUMMARY

PROJECT I 35-1(18)007 P.D. 9010

Control 18-6-38

*Non-Participating Expwy Lanes EST	*Non-Participating Expwy Lanes FINAL	West Frontage Road Roadway EST	West Frontage Road Roadway FINAL	West Frontage Road Bridges EST	West Frontage Road Bridges FINAL
*74.04	*74.04				
118.50	118.50				
17.63	52.89				
6.	6.0				
13.	13.0				
37.00	37.0				
4.	4.0				
13.25	39.42				
*101.67	*101.67				
12.83	38.83				
*390.0	*390.00				
636.0	636.00				
*31	*31				
108	108				
72.	73				
*7	*31				
180	181				
*42.0	*42.0				
14.5	25.5				
10.0	10.0				

Control 18-5-16

Expwy Lanes EST	Expwy Lanes FINAL	West Frontage Road Roadway EST	West Frontage Road Roadway FINAL	West Frontage Road Bridges EST	West Frontage Road Bridges FINAL	Non-Participating Expwy Lanes EST	Non-Participating Expwy Lanes FINAL
167.00	167.00	441.0	441.0			74.04	74.04
78.64	96.27					7.33	7.33
		11.0	11.0				
		49.0	49.0				
8.	8.0						
14.	14.0						
42.00	42.0	162.0	162.0				
		4.0	4.0				
4.	4.0	24.0	24.0				
57.67	70.75					13.83	13.83
						102.17	102.17
51.59	64.58					13.83	13.83
1143.0	1143.0	2532.0	2532.0			1029.0	1029.0
197.	197.					15.	15.
		37.0	35.0				
76.	75.						
1.	1.	2.0	2.0				
274	273.	39.0	37.0			15.	15.
		42.0	42.0			42.0	42.0
40.0	45.5					14.5	14.5
		48.0	48.0				
15.0	15.0					10.0	10.0

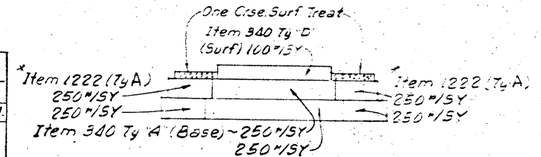
PROJECT I 35-1(20)020 P.D. 9020

Control 18-4-13

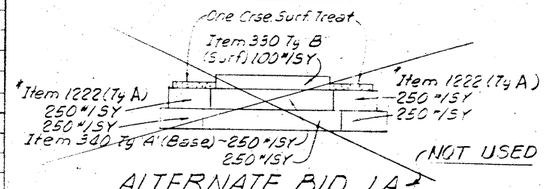
Expwy Lanes EST	Expwy Lanes FINAL
632.79	632.79
29.24	73.10

SUMMARY OF PAVEMENT

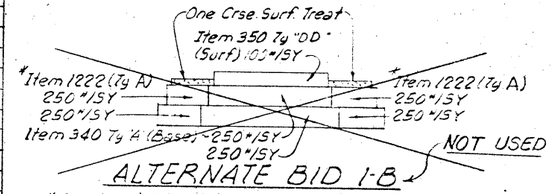
PROJECT	LOCATION	BASE COURSE — ASPHALTIC CONCRETE PAVEMENT-TYPE "A"				SURFACE COURSE — ASPHALTIC CONCRETE PAVEMENT-TYPE "D"				BASE COURSE — ASPHALT STAB. BASE-TYPE "A"				ONE COURSE SURFACE TREATMENT				
			ASPHALT 5.0% BY WT.	AGGREGATE 95.0% BY WT.	TACK COAT BASE CRSE. 0.02 GAL/SY		ASPHALT 5.5% BY WT.	AGGREGATE 94.5% BY WT.	TACK COAT SURF CRSE 0.02 GAL/SY		ASPHALT 5.0% BY WT.	AGGREGATE 95.0% BY WT.	TACK COAT BASE CRSE 0.02 GAL/SY	AREA SY	EMULSIFIED ASPHALTS MOD. 0.40 GAL/SY ONE CRSE. GALS	TY. A-GR5 MOD. ONE CRSE. (1:120) C.Y.	FLAT WHEEL 7 HRS/MI. PER ROAD HRS	LIGHT PNEUM. 7 HRS/MI. PER ROAD HRS
		TONS	TONS	TONS	GALS	TONS	TONS	TONS	GALS	TONS	TONS	TONS	GALS					
I35-1(15)COT 8-6-38	Traffic Lanes	28,456	1,423	27,033	4,562	5,280	290	4,990	2,114									
	Shoulders									14,863	743	14,120	2,456	61,589	24,636	513	52	52
	Crossovers																	
	Entrances																	
	Leveling-Up	5,000	250	4,750	2,000					3,000	150	2,850	1,200					
	SUB-TOTAL	33,456	1,673	31,783	6,562	5,280	290	4,990	2,114	17,863	893	16,970	3,656		24,636	513	52	52
I35-1(15)COT 8-5-16	Traffic Lanes	50,582	2,529	48,053	8,102	9,365	515	8,850	3,748									
	Shoulders									26,427	132	25,106	4,362	108,833	43,533	907	92	92
	Crossovers	28	1	27	5	13	1	12	5									
	Entrances	26	1	25	6	36	2	34	14									
	Leveling-Up	5,000	250	4,750	2,000					3,000	150	2,850	1,200					
	SUB-TOTAL	55,636	2,781	52,855	10,113	9,414	518	8,896	3,767	29,427	1,471	27,956	5,562		43,533	907	92	92
PROJECT TOTAL		89,092	4,454	84,638	16,675	14,694	808	13,886	5,881	47,290	2,364	44,926	9,218		68,169	1420	144	144
I35-1(20)020 15-4-13	Traffic Lanes	37,053	1,853	35,200	5,950	6,816	375	6,441	2,723									
	Shoulders									19,352	968	18,384	3,204	76,453	30,581	637	67	67
	Crossovers	140	7	133	31	82	5	77	31									
	Entrances	152	8	144	36	208	11	197	80									
	Leveling-Up	1,000	50	950	400					1,000	50	950	400					
	SUB-TOTAL	38,345	1,918	36,427	6,417	7,106	391	6,715	2,834	20,352	1,018	19,334	3,604		30,581	637	67	67
I35-1(20)020 18-3-10	Traffic Lanes	36,026	1,801	34,225	5,768	6,641	365	6,276	2,656									
	Shoulders									18,816	941	17,875	3,013	75,039	30,016	625	67	67
	Crossovers	132	7	125	33	88	5	83	33									
	Entrances	114	6	108	27	156	9	147	60									
	Leveling-Up	1,000	50	950	400					1,000	50	950	400					
	SUB-TOTAL	37,272	1,864	35,408	6,228	6,885	379	6,506	2,749	19,816	991	18,825	3,413		30,016	625	67	67
PROJECT TOTAL		75,617	3,782	71,835	12,645	13,991	770	13,221	5,583	40,168	2,009	38,159	7,017		60,597	1262	134	134
C18-4-14 18-4-14	Traffic Lanes					6,936	381	6,555	1,851									
	Shoulders					2,697	148	2,549	1,080					52,973	21,189	441	46	46
	Crossovers					189	10	179	49									
	Entrances					66	4	62	21									
	Leveling-Up	1,000	50	950	400													
PROJECT TOTAL		1,000	50	950	400	9,888	543	9,345	3,001						21,189	441	46	46
C18-3-11 18-3-11	Traffic Lanes					10,853	597	10,256	2,896									
	Shoulders					4,174	230	3,944	1,671					80,878	32,351	674	67	67
	Crossovers					324	18	306	84									
	Entrances					197	11	186	62									
	Leveling-Up	1,000	50	950	400													
PROJECT TOTAL		1,000	50	950	400	15,548	856	14,692	4,713						32,351	674	67	67
TOTAL FOR ALL PROJECTS		166,709	8,336	158,373	30,120	54,121	2,977	51,144	19,178	87,458	4,373	83,085	16,235		182,306	3797	391	391



BASE BID



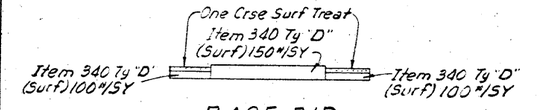
ALTERNATE BID 1A



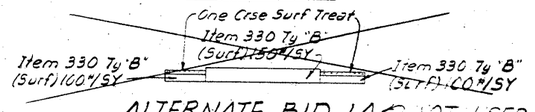
ALTERNATE BID 1-B

*Asphalt Stabilized Base

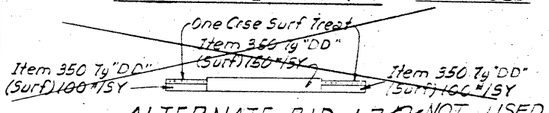
PROJECTS ~ I35-1(18)007 & I35-1(20) 020



BASE BID



ALTERNATE BID 1A ~ NOT USED



ALTERNATE BID 1B ~ NOT USED

PROJECTS ~ C18-3-11 & C18-4-14

BASIS OF ESTIMATE

DESCRIPTION	RATE	PROJECT I35-1(18)007 CONTROL 18-6-38 EMBK'T. = 13464 C.Y.	PROJECT I35-1(18)007 CONTROL 18-5-16 EMBK'T. = 39375 C.Y.	PROJECT I35-1(20)020 CONTROL 18-4-13 EMBK'T. = 31,545 C.Y.	PROJECT I35-1(20)020 CONTROL 18-3-10 EMBK'T. = 28,969 C.Y.	PROJECT C18-4-14 CONTROL 18-4-14 EMBK'T. = 4,649 C.Y.	PROJECT C18-3-11 CONTROL 18-3-11 EMBK'T. = 6,280 C.Y.
Sprinkling (Embankment)	25 Gal/CY	337 M.G.	984 M.G.	789 M.G.	724 M.G.	116 M.G.	157 MG.
Sprinkling (Dust Control)	1000 Gal/Sta.	196 MG	349 MG	255 M.G.	252 M.G.	169 M.G.	252 M.G.
Rolling (Light Pneum Tire)(Emb.)	Hr/200CY	67 Hrs.	197 Hrs.	158 Hrs.	145 Hrs.	23 Hrs.	31 Hrs.

ESTIMATE & QUANTITY SHEET

SHEET 3 OF 3 SHEETS

PROJECTS
I-35-1(18)007, I35-1(20)020, C18-3-11 & C18-4-14
CONTROLS
18-6-38, 18-5-16, 18-4-13 & 18-3-10

I35-1(18)007 etc. 8

21 WEBB 18 5/6 4/38 1H-35

SUMMARY OF DELINEATORS

PROJECT I 35-1(18) 007

EST.-CONTROL 18-6-38

PLAN & PROFILE SHEET NO.	DELINEATORS - EA. I	II	III	DELIN. POSTS EA.
1 of 26	50		14	64
2 of 26	15		21	36
3 of 26	52		19	71
4 of 26	22		18	40
Totals-Participating	108		72	180
Totals-Non-Part.	31			31
Totals Cont 18-6-38	139		72	211

EST. - CONTROL 18-5-16

PLAN & PROFILE SHEET NO.	DELINEATORS - EA. I	II	III	IV	DELIN. POSTS EA.	RELOCATED DELINEATORS EA. I	II	III
4 of 26	6		7		13			
5 of 26	44		21		65			
6 of 26	63		23		86		1	
7 of 26	66		11		77			
8 of 26	31		14		45			1
10 of 26	2			1	3	2	17	
Totals-Participating	187		76	1	274		21	
Totals-Non Part	15				15			
Totals Cont 18-5-16	212		76	1	289			

FINAL - CONTROL 18-6-38

PLAN & PROFILE SHEET NO.	DELINEATORS - EA. I	II	III	DELIN. POSTS EA.
1 of 26	50		15	65
2 of 26	15		21	36
3 of 26	52		19	71
4 of 26	22		18	40
Totals-Participating	108		73	181
Totals-Non-Part.	31			31
Totals Cont 18-6-38	139		73	212

SAFETY REST AREAS

CONTROL 18-5-16-EST.

PLAN & PROF. SHEET NO.	DELIN. - EA I	II	III	IV	DELIN POSTS EA
6 of 26	~	29	~	1	30
7 of 26	~	8	~	1	9
TOTALS	~	37	~	2	39

PROJECT I 35-1(20) 020

EST.-CONTROL 18-4-13

PLAN & PROFILE SHEET NO	DELINEATORS - EA. I	II	III	DELIN. POSTS EA.
11 of 26	34		4	38
12 of 26	31		12	43
13 of 26	2		4	6
14 of 26	6		4	10
15 of 26	6		12	18
16 of 26	56	10	16	82
17 of 26	51		4	55
18 of 26	1			1
TOTALS	187	10	56	253

FINAL - CONTROL 18-4-13

PLAN & PROFILE SHEET No	DELINEATORS - EA. I	II	III	DELIN. POSTS EA.
11 of 26	34		4	38
12 of 26	31		12	43
13 of 26	2		4	6
14 of 26	6		4	10
15 of 26	6		12	18
16 of 26	56	10	16	82
17 of 26	51		4	55
18 of 26	1			1
TOTALS	187	10	56	253

EST.-CONTROL 18-3-10

PLAN & PROFILE SHEET NO.	DELINEATORS - EA. I	II	III	DELIN. POSTS EA.
18 of 26	17		8	25
19 of 26	4		8	12
20 of 26	21		16	37
21 of 26	14		4	18
22 of 26	2		10	12
23 of 26	26		8	34
24 of 26	8		4	12
25 of 26	32	20	13	65
26 of 26	12			12
Totals-Participating	92	0	56	150
Totals-Non-Part.	44	20	15	77
Totals Cont 18-3-10	136	20	71	227

Non-Participating - F.A.I.

PROJECT C 18-3-11

EST. - CONTROL 18-3-11

PLAN & PROFILE SHEET NO.	DELINEATORS - EA. I	II	IV	DELIN. POSTS EA
26 of 26			1	1
TOTALS			1	1

FINAL - CONTROL 18-3-11

PLAN & PROFILE SHEET NO.	DELINEATORS - EA. I	II	IV	DELIN. POSTS EA
26 of 26			1	1
TOTALS			1	1

SUMMARY OF TIMBER POST GUARD FENCE (~~TO BE~~ REMOVED BY THD MAINTEANCE FORCES)

PROJECT I35-1(18)007

CONTROL 18-6-38

	EAST LANE LT	RT	WEST LANE LT	RT
131+00 To 139+00			11	
158+00 To 162+00		5	5	
185+37 To 189+37		5	5	
209+00 To 213+00		5		
245+70.7 To 256+17.4		12		12
258+44.7 To 266+76.7	10		10	
268+85 To 288+34.8	28		28	
269+35 To 273+35		5		
308+50 To 312+50			5	
314+00 To 318+00			5	
333+00 To 335+75			3	
TOTAL - 154				

CONTROL 18-5-16

	EAST LANE LT	RT	WEST LANE LT	RT
335+75 To 339+00			4	
346+96.8 To 363+66.0		23		23
377+00 To 382+00		6		
389+00 To 396+00		8		
411+01.5 To 431+46.5	30		30	
429+02.8 To 442+87.8		19		19
456+00 To 460+00			5	
464+90.5 To 483+70.5		20		20
492+67 To 496+67		5		
492+78.4 To 510+45.1	19		19	
507+78.8 To 522+78.8		16		16
530+00 To 534+00			5	
531+00 To 550+00		20		
556+09.4 To 566+65.7		12		12
569+00 To 573+00			5	
624+00 To 628+00		5	5	
662+39.4 To 672+08.0	13		13	
675+58.3 To 683+01.2		9		9
TOTAL - 390				

PROJECT I35-1(20)020

CONTROL 18-4-13

	EAST LANE LT	RT	WEST LANE LT	RT
1062+00 To 1074+00		12		
1090+00 To 1107+00	15		11	
1101+00 To 1114+00		12		13
1142+00 To 1151+00				10
1148+00 To 1157+00			10	
1371+00 To 1393+00		27	10	17
1407+00 To 1418+00		11		
1443+00 To 1457+00				8
1453+00 To 1465+00			13	
1474+00 To 1499+00	27		26	
TOTAL - 222				

CONTROL 18-3-10

	EAST LANE LT	RT
1527+00 To 1534+00	7	7
1630+00 To 1635+00	6	6
1830+00 To 1836+00	7	7
1843+00 To 1861+00	16	16
1993+00 To 2000+00	6	6
2001+00 To 2008+00		10
TOTAL - 94		

SAFETY REST AREAS

FINAL - CONTROL 18-5-16

PLAN & PROF. SHEET NO.	DELIN. - EA I	II	III	IV	DELIN. POSTS EA.
6 of 26		27		1	28
7 of 26		8		1	9
TOTALS		35		2	37

FINAL - CONTROL 18-5-16

PLAN & PROFILE SHEET NO.	DELINEATORS - EA. I	II	III	IV	DELIN POSTS EA.	RELOCATED DELINEATORS EA. I	II	III
4 of 26	6		7		13			
5 of 26	44		22		66			
6 of 26	61		21		82		1	
7 of 26	66		11		77			
8 of 26	32		14		46			1
9 of 26						63		2
10 of 26	3			1	4	22	21	
Totals-Participating	197		75	1	273	85	22	3
Totals-Non-Part.	15				15			
Totals Cont 18-5-16	212		75	1	288	110		

FINAL-CONTROL 18-3-10

PLAN & PROFILE SHEET NO.	DELINEATORS - EA. I	II	III	DELIN. POSTS EA.
18 of 26	17		8	25
19 of 26	4		8	12
20 of 26	21		16	37
21 of 26	14		4	18
22 of 26	2		10	12
23 of 26	22		8	30
24 of 26	8		4	12
25 of 26	33	20	13	66
26 of 26	12			12
Totals Participating	88	0	58	146
Totals-Non-Part.	45	20	13	78
Totals Cont 18-3-10	133	20	71	224

PROJECT C18-4-14

CONTROL 18-4-14

	WEST LANE LT	RT
1115+00 To 1118+00		4
1394+00 To 1397+00	2	3
1407+00 To 1418+00	11	
1446+00 To 1449+00		4
TOTAL - 24		

PROJECT C18-3-11

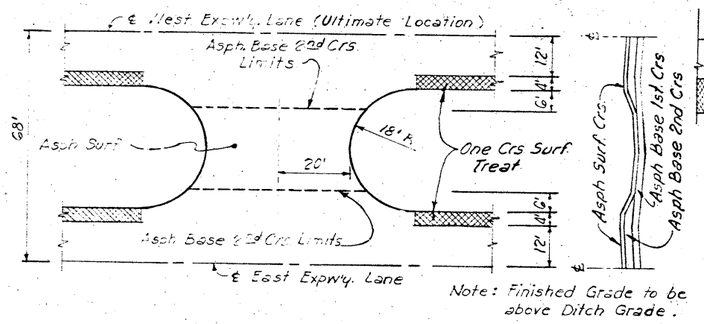
CONTROL 18-3-11

	WEST LANE LT	RT
1527+00 To 1534+00	4	4
1572+00 To 1576+00		5
1607+00 To 1609+00	3	3
1630+00 To 1635+00		2
1656+00 To 1680+00	15	22
1830+00 To 1836+00	4	4
1843+00 To 1861+00	5	6
1903+00 To 1912+00	10	10
1993+00 To 2000+00	8	8
TOTAL - 113		

SUMMARY OF DELINEATORS

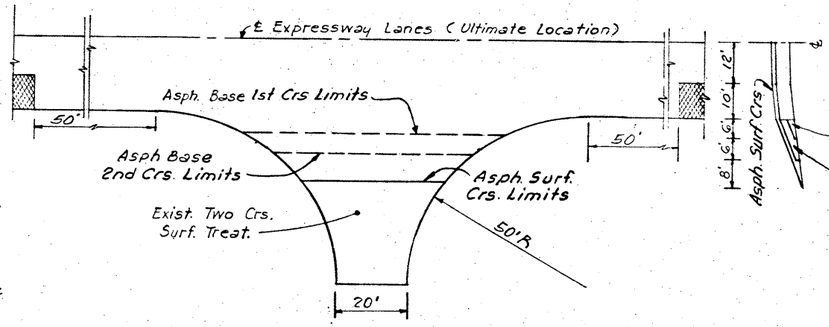
ESTIMATE & QUANTITY SHEET

Rev. 4-5-66 21 WEBB 18 5/6 14/33 IH-35

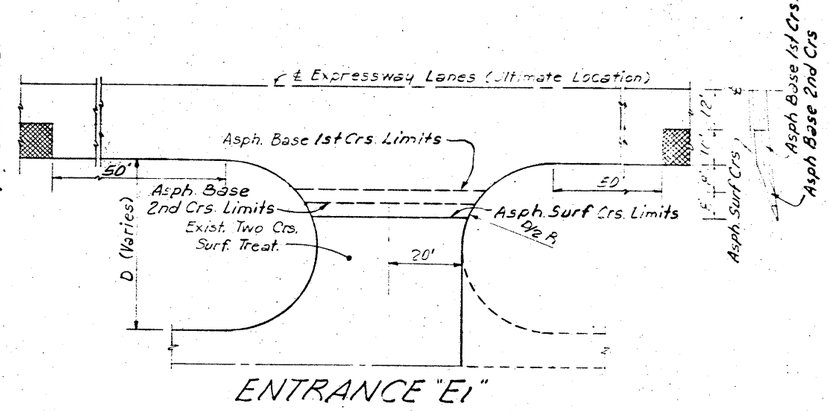


Note: Finished Grade to be above Ditch Grade.

CROSSOVER X



ENTRANCE E



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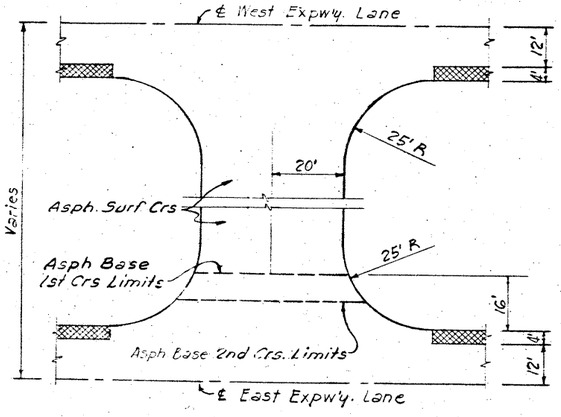

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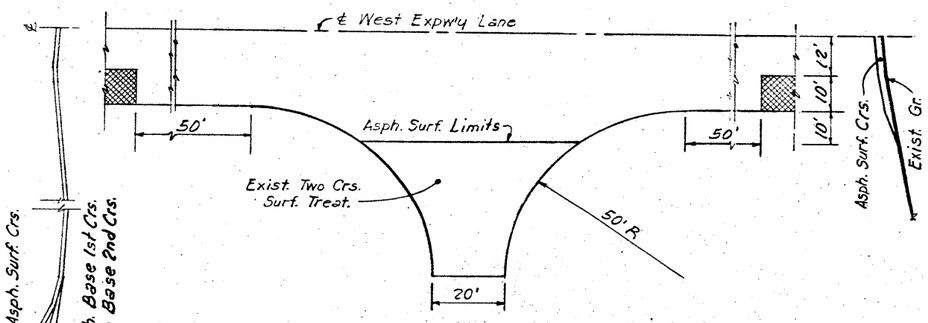
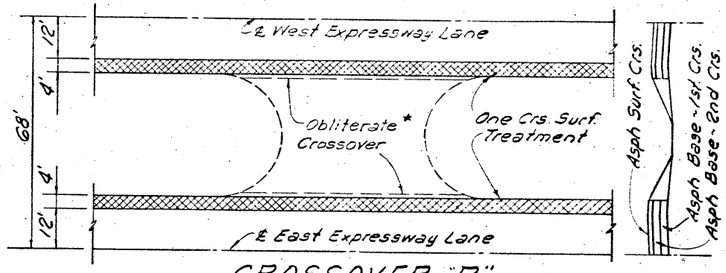


ENTRANCE E



CROSSOVER "R"
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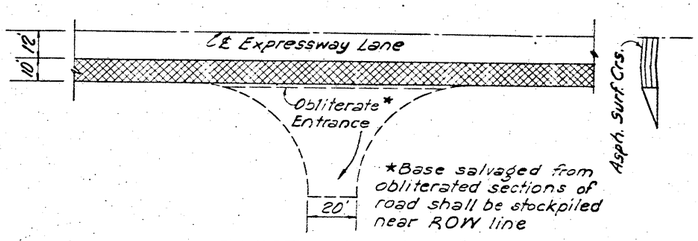
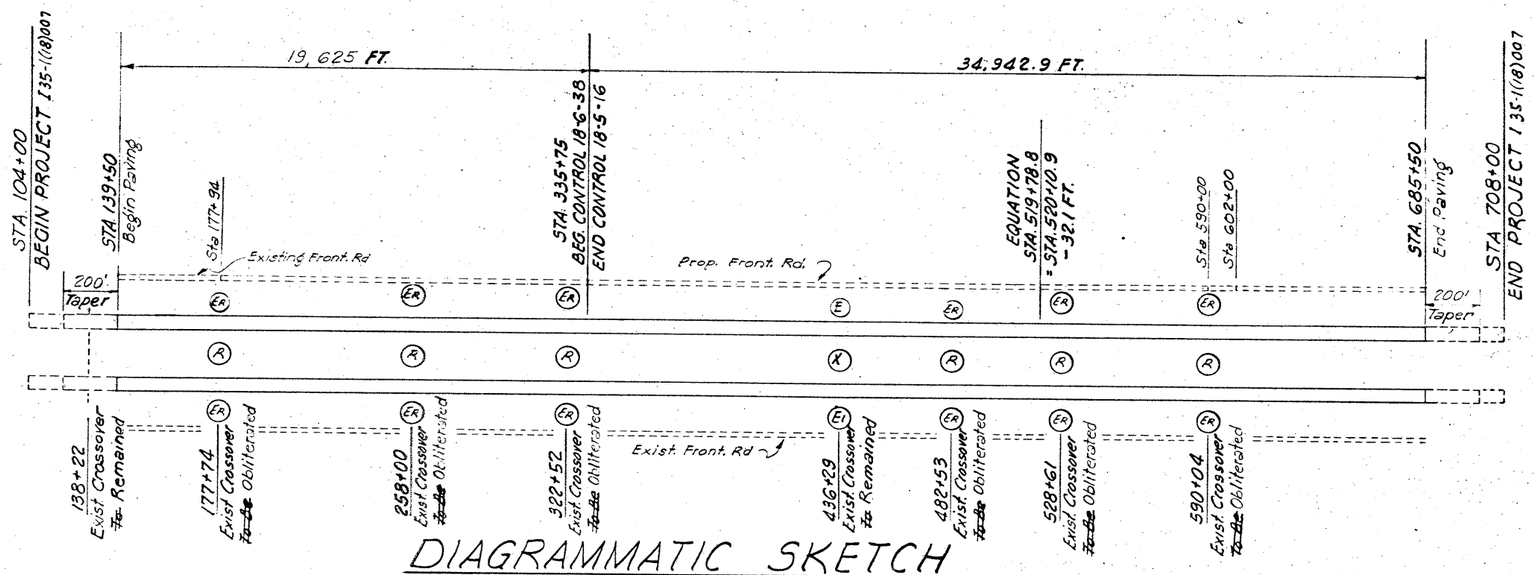


ENTRANCE "ER"
TO BE REMOVED

STANDARD DETAILS FOR CROSSOVERS & ENTRANCES

PROJECTS
I 35-1(18) 007, I35-1(20)020, C18-3-11 & C18-4-14
CONTROLS
18-3-10, 18-4-13, 18-5-16 & 18-6-38

I 35-1(18)007,etc. 10
21 WEBB 18 5/6 4/8 IH-35



DIAGRAMMATIC SKETCH

SHOWING PROJECT I35-1(18)007

OBLITERATING ABANDONED ROAD

STATION	LOCATION	LENGTH STA.	18" RCP ~~TILE~~ REMOVED * LF	SALV. BASE C.Y.
PROJ. I 35-1(18)007 CONT. 18-6-38				
177+74	Lt.	0.52		152
	Median	0.34	36	
	Rt.	0.48	36	
258+00	Lt.	0.73	36	280
	Median	0.34	36	
	Rt.	0.52	36	
322+52	Lt.	1.21		160
	Median	0.34	36	
	Rt.	0.47	36	
TOTAL		5.23	252	592
PROJ. I 35-1(18)007 CONT. 18-5-16				
482+53	Lt.	1.17		168
	Median	0.34		
	Rt.	0.52		
528+61	Lt.	1.21	36	136
	Median	0.34	36	
	Rt.	0.47	36	
590+04	Lt.	0.47	36	112
	Median	0.34	36	
	Rt.	0.47	36	
TOTAL		5.85	216	416

*Under Item 472

MAIN LANES & SHOULDERS

DESCRIPTION	AREA S.Y.	ASPH. CONC. PAV'T. BASE COURSE TYPE "A" TONS	ASPH. CONC. PAV'T. SURFACE COURSE TYPE "D" TONS	ASPH. STAB. BASE TYPE "A" TONS	TACK COAT BASE COURSE GALS.	TACK COAT SURFACE COURSE GALS.	ASPH. STAB. BASE - TYPE "A" GALS.
PROJECT I 35-1(18)007 CONTROL 18-6-38							
Main Lanes	113,388	28,347	5,233		4536	2,093	
Taper		109	47		26	21	
Shoulders	*60,967			14,806			2,442
Taper	* 622			57			14
Level Up		5000		3,000	2000		1,200
TOTAL		33,456	5,280	17,863	6,562	2,114	3656
PROJECT I 35-1(18)007 CONTROL 18-5-16							
Main Lanes	201,892	50,473	9318		8076	3,727	
TAPER		109	47		26	21	
Shoulders	*108,211			26370			4348
Taper	* 622			57			14
Level Up		5000		3000	2000		1,200
TOTAL		55,582	9365	29,427	10,102	3,748	5562

* Note: Area for One Crs. Surf. Treat. Only.

CROSSOVERS & ENTRANCES

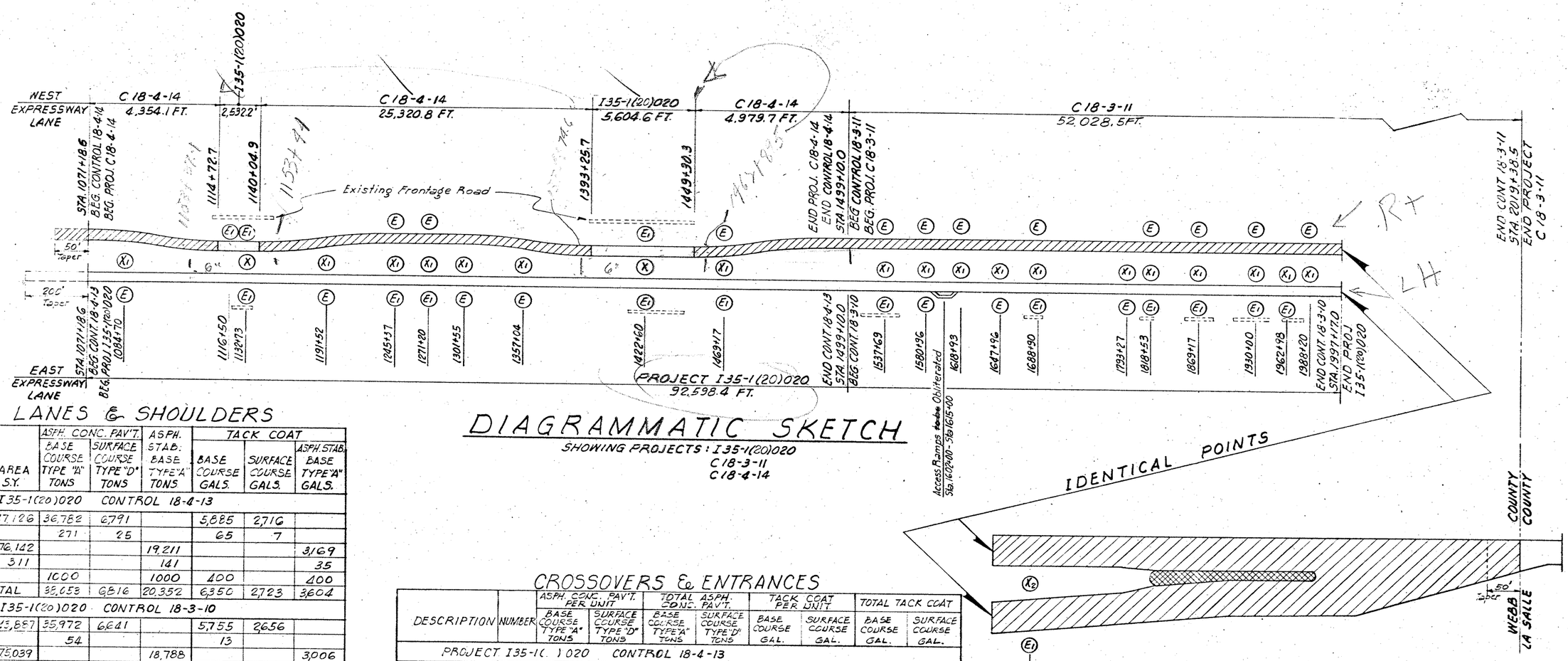
DESCRIPTION	NUMBER	ASPH. CONC. PAV'T. PER UNIT: BASE COURSE TYPE "A" TONS	ASPH. CONC. PAV'T. PER UNIT: SURF. COURSE TYPE "D" TONS	TOTAL ASPH. CONC. PAV'T.: BASE COURSE TYPE "A" TONS	TOTAL ASPH. CONC. PAV'T.: SURF. COURSE TYPE "D" TONS	TACK COAT PER UNIT: BASE COURSE GAL	TACK COAT PER UNIT: SURFACE COURSE GAL.	TOTAL TACK COAT: BASE COURSE GAL.	TOTAL TACK COAT: SURFACE COURSE GAL.
PROJECT I35-(18)007 CONTROL 18-6-38									
PROJECT I35-1(18)007 CONTROL 18-5-16									
Crossover X	1	28	13	28	13	5	5	5	5
Entrance E	1	14	20	14	20	3	8	3	8
Entrance E1	1	12	16	12	16	3	6	3	6

PAVEMENT LAYOUT

PROJECT I35-1(18)007

I35-1(18)007 11

Rev. 4-5-66 21 WEBB 18 ~~5 6 15 38~~ 11



DIAGRAMMATIC SKETCH

SHOWING PROJECTS: I35-1(20)020
C18-3-11
C18-4-14

MAIN LANES & SHOULDERS

DESCRIPTION	AREA S.Y.	ASPH. CONC. PAV'T. BASE COURSE TYPE "A" TONS	ASPH. CONC. PAV'T. SURFACE COURSE TYPE "D" TONS	ASPH. STAB. BASE TYPE "A" TONS	TACK COAT BASE COURSE GALS.	TACK COAT SURFACE COURSE GALS.	TACK COAT ASPH. STAB. BASE TYPE "A" GALS.
PROJECT I35-1(20)020 CONTROL 18-4-13							
Main Lanes	147,126	36,782	6,791		5,885	2,716	
Taper		271	25		65	7	
Shoulders	*76,142			19,211			3,169
Taper	* 311			141			35
Level Up		1000		1000	400		400
TOTAL		38,053	6,816	20,352	6,350	2,723	3,604
PROJECT I35-1(20)020 CONTROL 18-3-10							
Main Lanes	143,887	35,972	6,641		5,755	2,656	
Taper		54			13		
Shoulders	*75,039			18,788			3,006
Taper				28			7
Level Up		1000		1000	400		400
TOTAL		37,026	6,641	19,816	6,168	2,656	3,413
PROJECT C18-4-14 CONTROL 18-4-14							
Main Lanes	92,212		6931			1848	
Taper	133		5			3	
Shoulders	*52895		2695			1078	
Taper	* 78		2			2	
Level Up		1000			400		
TOTAL		1000	9633		400	2931	
PROJECT C18-3-11 CONTROL 18-3-11							
Main Lanes	135,760		10,182			2,715	
Shoulders	*76,801		3,960			1,584	
Sta. 2002+68.5-C.L	9,043		671			181	
Shoulders "	*4,077		214			87	
Level Up		1000			400		
TOTAL		1000	15,027		400	4,567	

* NOTE Area for One Crs. Surf. Treat.
‡ Includes 50' Taper

CROSSOVERS & ENTRANCES

DESCRIPTION	NUMBER	ASPH. CONC. PAV'T. PER UNIT BASE COURSE TYPE "A" TONS	ASPH. CONC. PAV'T. PER UNIT SURFACE COURSE TYPE "D" TONS	TOTAL ASPH. CONC. PAV'T. BASE COURSE TYPE "A" TONS	TOTAL ASPH. CONC. PAV'T. SURFACE COURSE TYPE "D" TONS	TACK COAT PER UNIT BASE COURSE GAL.	TACK COAT PER UNIT SURFACE COURSE GAL.	TOTAL TACK COAT BASE COURSE GAL.	TOTAL TACK COAT SURFACE COURSE GAL.
PROJECT I35-1( )020 CONTROL 18-4-13									
Crossover X	2	28	13	56	26	5	5	10	10
Crossover X_1	7	12	8	84	56	3	3	21	21
Entrance E	4	14	20	56	80	3	6	12	32
Entrance E_1	8	12	16	96	128	3	6	24	48
PROJECT I35-1( )020 CONTROL 18-3-10									
Crossover X_1	11	12	8	132	88	3	3	33	33
Entrance E	3	14	20	42	60	3	8	9	24
Entrance E_1	6	12	16	72	96	3	6	18	36
PROJECT C18-4-14 CONTROL 18-4-14									
Crossover X_1	7		27		189		7		49
Entrance E	3		22		66		7		21
PROJECT C18-3-11 CONTROL 18-3-11									
Crossover X_2	1		27		27		7		7
Crossover X_1	11		27		297		7		77
Entrance E	8		22		176		7		56
Entrance E_1	1		21		21		6		6

OBLITERATING ABANDONED ROAD

STATION - STATION	LENGTH STA.	SALV. BASE C.Y.
PROJ. I35-1( )020	CONT. 18-3-10	
1602+00 - 1615+00	13.00	436

PAVEMENT LAYOUT

PROJECT I35-1(20)020
C18-4-14
C18-3-11

ALT	PLAN & PROF. SH NO	SIGN NO.	LOCATION	STATION	SIGN TYPE	TEXT ■ REMOVABLE COPY ● DIRECT SCREENED ●● REVERSED SCREENED	SIGN BLANKS: SIGN BACK-GROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TY A SF	SHEET ALUM	SHEET ALUM	PLYWOOD TY A SF	PLYWOOD TY A or B SF	LETTERS & NUMBERS: UPPER CASE & NUMBERS EA	LOWER CASE EA	CAPITALS & NUMBERS EA	WHITE ARROWS EA	WHITE BORDER RADII EA	WHITE BORDER LF	TYPE OF MOUNT	GALVANIZED PIPE POST: 2"D	2 1/2 D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH NO 1	LENGTH NO 2	LENGTH NO 3	LENGTH STUB POSTS	TOTAL WEIGHT LB.	NON-REINF DRILLED SHAFTS L.F. 12"D	18"D	REINF DRILLED SHAFTS L.F. 18"D	24"D		OTLN U.S. RT MKR-EA	"U" URBAN OR "R" RURAL
						▲-Non-Participating Signs																																	
	1 of 26	1	East Lane	123+80	IW-6	● ✚	Yellow	48"x48"					16.00							F-2					31 5.7	11'-10"	12'-1"		3'-3½	194	7.0						R
	1 of 26	2	Crossover	139+10	IR-1GR	●● ONE WAY	Black	48"x16"					5.33							A		12'-2"									3.5						R
	1 of 26	3	Crossover	138-35	IR-1GL	●● ONE WAY	Black	48"x16"					5.33							A		12'-2"									3.5						R
	1 of 26	4	Crossover	138+50	IR-1A	●● STOP	Red	30"x30"				5.18								A		13'-3"									3.5						R
	1 of 26	5	Crossover	138+50	IR-1A	●● STOP	Red	30"x30"				5.18								A		13'-3"									3.5						R
	1 of 26	6	Crossover	139+10	IR-1A	●● STOP	Red	30"x30"				5.18								A		13'-3"									3.5						R
	1 of 26	7	Crossover	139+10	IR-1A	●● STOP	Red	30"x30"				5.18								A		13'-3"									3.5						R
	1 of 26	8	Crossover	139+25	IR-1GL	●● ONE WAY	Black	48"x16"					5.33							A		12'-2"									3.5						R
	1 of 26	9	Crossover	138+35	IR-1GR	●● ONE WAY	Black	48"x16"					5.33							A		12'-2"									3.5						R
	1 of 26	10	West Lane	153+27	IW-6	● ✚	Yellow	48"x48"					16.00							F-2					31 5.7	12'-0"	12'-3"		3'-3½	196	7.0						R
						Total Non-Participating Control 18-6-38						20.72	53.32																										
2	2 of 26	1	West Lane	155+00	IG-1B	■ Laredo 7 , Monterrey 154	Green	16'-6"x5'-0"					82.50	6		13		4	37.00	320		10'-8"								390	42.0						R
	2 of 26	2	West Lane	165+00	IR-2	● SPEED LIMIT 70	White	48"x60"					20.00							G					68 8.5	12'-9"	13'-11"		2'-0"	290			10.0				R
					IR-3	●● NIGHT 65	Black	48"x48"					16.00												41 7.7	16'-9"	17'-1"		4'-3½"	346		9.0					R
	2 of 26	3	West Lane	175+00	IM-CC	●● INTERSTATE - TEXAS 35	Red-Blue	36"	7.18																													
					IM1-1	● US-81	White	24"	3.01											C-1	13'-3"		12'-10"								5.5						R
					IM1-1	● US-83	White	24"	3.01																													
	2 of 26	3	West Lane	175+00	IM6-2S IM6-1S	●● SOUTH ● SOUTH	Blue White	30"x16" 21"x15"	3.12 1.31																													
					TOTAL PARTICIPATING - CONTROL 18-6-38				12.64 13.45				118.50	6		13		4	37.00			34'-5" 33'-3"		38'-11" 37'-10"					636		13.5 14.5		10.0			
						SAFETY REST AREAS CONTROL 18-5-																																	
2	5 of 26	4	East Lane	391+50	IG-4A	■ REST AREA 1 MILE	Blue	11'-6"x5'-0"					57.50			4	9																					
																		4	27.00	320				41 7.7	12'-9"	13'-8"		1'-6"	246			8.0				R
2	6 of 26	11	East Lane	440+60	IG-5	■ REST AREA ↗	Blue	11'-6"x5'-0"					57.50				8	1																			
																		4	27.00	320				41 7.7	12'-10"	13'-7"		1'-6"	246			8.0				R
2	6 of 26	12	East Lane	446+45	IG-5	■ REST AREA ↗	Blue	11'-6"x5'-0"					57.50				8	1																			
																		4	27.00	320				41 7.7	11'-4"	11'-4"		1'-6"	218			8.0				R
	6 of 26	14	East Rest Area	449+00	IR-15	● DO NOT ENTER	White	48"x48"					16.00							F-2					31 5.7	11'-2"	11'-4"		3'-3½	185	7.0						R
	6 of 26	15	East Rest Area	449+00	IR-15	● DO NOT ENTER	White	48"x48"					16.00							F-2					31 5.7	11'-2"	11'-4"		3'-3½	185	7.0						R
	6 of 26	16	East Lane	454+00	IW-6O	● MERGING TRAFFIC	Yellow	48"x48"					16.00							F-2					31 5.7	11'-10"	12'-0"		3'-3½	193	7.0						R
	6 of 26	17	West Lane	461+00	IW-6O	● MERGING TRAFFIC	Yellow	48"x48"					16.00							F-2					31 5.7	12'-0"	12'-3"		3'-3½	196	7.0						R
	6 of 26	18	West Rest Area	470+00	IR-15	● DO NOT ENTER	White	48"x48"					16.00							F-2					31 5.7	11'-2"	11'-4"		3'-3½	185	7.0						R
	6 of 26	19	West Rest Area	470+00	IR-15	● DO NOT ENTER	White	48"x48"					16.00							F-2					31 5.7	11'-2"	11'-4"		3'-3½	185	7.0						R
2	6 of 26	20	West Lane	474+00	IG-5	■ REST AREA ↗	Blue	11'-6"x5'-0"					57.50				8	1																			
																		4	27.00	320				41 7.7	11'-6"	11'-6"		1'-6"	220			8.0				R
2	7 of 26	1	West Lane	481+15	IG-5	■ REST AREA ↗	Blue	11'-6"x5'-0"					57.50				8	1																			
																		4	27.00	320				41 7.7	12'-1"	12'-4"		1'-6"	231			8.0				R
2	7 of 26	2	West Lane	505+00	IG-4A	■ REST AREA 9/10 MILE	Blue	11'-6"x5'-0"					57.50				8	1																			
																		4	27.00	320				41 7.7	12'-8"	13'-2"		1'-6"	242			8.0				R
						SAFETY REST AREAS SUB-TOTAL CONTROL 18-5-							441.0				11	49	4		24		162.0								2532	42.0		48.0				
	5 of 26	1	East Lane	360+00	IF-2A IR-2A	●● NORTH ● NORTH	Blue White	30"x15" 21"x15"	3.12 1.31																													
					IM-CC	●● INTERSTATE - TEXAS - 35	Red-Blue	36"	7.18																													
	5 of 26	1	East Lane	360+00	IM1-1	● US-81	White	24"	3.01											C-1	13'-3"		13'-2"								5.5						R
					IM1-1	● US-83	White	24"	3.01																													
	5 of 26	2	East Lane	370+00	IR-2	● SPEED LIMIT 70	White	48"x60"					20.00							G					41 7.7	16'-11"	17'-4"		4'-3½	349		9.0					R
					IR-3	●● NIGHT 65	Black	48"x48"					16.00																									
2	5 of 26	3	East Lane	380+00	IG-1B	■ Encinal 25 ; San Antonio 141	Green	19'-0"x5'-0"					95.00	8		14		4	42.00	330				68 8.5	13'-0"	14'-0"	15'-0"	2'-0"	452				15.0			R
	5 of 26	5	West Lane	408+80	IR-2	● SPEED LIMIT 70	White	48"x60"					20.00							G					41 7.7	16'-7"	16'-9"		4'-3½	342		9.0					R
					IR-3	●● NIGHT 65	Black	48"x48"					16.00																									
	6 of 26	1	West Lane	418+80	IM6-2S IM6-1S	●● SOUTH ● SOUTH	Blue White	30"x15" 21"x15"	3.12 1.31																													
					IM-CC	●● INTERSTATE TEXAS-35	Red-Blue	36"	7.18																													
	6 of 26	1	West Lane	418+80	IM1-1	● US-81	White	24"	3.01											C-1	13'-3"		12'-11"								5.5						R
					IM1-1	● US-83	White	24"	3.01																													
	6 of 26	2	East Lane	421+29	IW-6	● ✚	Yellow	48"x48"					16.00							F-2					31 5.7	11'-10"	12'-0"		3'-3½	193	7.0						R
	6 of 26	3	Crossover	436+55	IR-1GR	●● ONE WAY	Black	48"x16"					5.33							A		12'-3"									3.5						R
	6 of 26	4	Crossover	435+84	IR-1GL	●● ONE WAY	Black	48"x16"					5.33							A		11'-9"									3.5						R
	6 of 26	5	Crossover	435+99	IR-1A	●● STOP	Red	30"x30"				5.18								A		13'-5"									3.5						R
	6 of 26	6	Crossover	435+99	IR-1A	●● STOP	Red	30"x30"				5.18								A		13'-6"									3.5						R
	6 of 26	7	Crossover	436+59	IR-1A	●● STOP	Red	30"x30"				5.18								A		12'-11"									3.5						R
	6 of 26	8	Crossover	436+59	IR-1A	●● STOP	Red	30"x30"				5.18								A		13'-7"									3.5						R
	6 of 26	9	Crossover	436+64	IR-1GL	●● ONE WAY	Black	48"x16"					5.33							A		12'-4"									3.5						R
	6 of 26	10	Crossover	435+84	IR-1GR	●● ONE WAY	Black	48"x16"					5.33							A		12'-5"									3.5						R

▲-Non-Participating

ESTIMATE
SIGN TABULATION
SHEET 1 OF 6 SHEETS

I 35-1 (18) 007

FED RD DIV NO.	STATE	FEDERAL PROJECT NO	SHEET NO.
6	TEXAS	I 35-1 (18) 007	13
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 6 5 16/98	IH-35

ALT	PLAN & PROF SH NO	SIGN NO.	LOCATION	STATION	SIGN TYPE	TEXT REMOVABLE COPY DIRECT SCREENED REVERSED SCREENED	SIGN BACK-GROUND COLOR	SIGN BLANKS SIZE	SIGN BLANK MATERIAL SHEET ALUM TY A SF	SIGN BLANK MATERIAL PLYWOOD TY A SF	SIGN BLANK MATERIAL PLYWOOD TY A or B SF	LETTERS & NUMBERS UPPER CASE & NUMBERS EA	LETTERS & NUMBERS LOWER CASE EA	LETTERS & NUMBERS CAPITALS & NUMBERS EA	WHITE ARROWS EA	WHITE BORDER RADII EA	WHITE BORDER LF	TYPE OF MOUNT	GALVANIZED PIPE POST 2'D	2 1/2 D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH NO 1	LENGTH NO 2	LENGTH NO 3	LENGTH STUB POSTS	TOTAL WEIGHT LB.	NON-REINF DRILLED SHAFTS L.F. 12"D	18"D	REINF DRILLED SHAFTS L F 18"D	24"D	OTLN U.S. RT MKR - EA	"U" URBAN OR "R" RURAL
												13.3'		10"	10"	12"	A-2		2" R=9"		2"														
												CONTROL 18-6-38																								
	2 of 26		East Lane	168+44	IM6-2N	• • NORTH	Blue	30"x15"	3.12													C-1	13'-1"			13'-0"							5.5				R
					IM-CC	• • INTERSTATE - TEXAS 35	Red-Blue	36"	7.18																												
					M6-1N	• NORTH	White	21"x9"	1.31																												
					IM1-1	• US 81	White	24"	3.01																												
					IM1-1	• US 83	White	24"	3.01																												
	3 of 26		West Lane	274+40	IM6-2S	• • SOUTH	Blue	30"x15"	3.12													C-1	13'-1"			13'-0"							5.5				R
					IM-CC	• • INTERSTATE - TEXAS 35	Red-Blue	36"	7.18																												
					M6-1S	• SOUTH	White	21"x9"	1.31																												
					IM1-1	• US 81	White	24"	3.01																												
					IM1-1	• US 83	White	24"	3.01																												

SIGN TABULATION

SHEET 1A OF 6 SHEETS

STATE	FEDERAL PROJECT NO.	SHEET NO.
	I35-1(18)007	1A

DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	38	IH-35

ALT	PLAN & PROF. SH. NO	SIGN NO.	LOCATION	STATION	SIGN TYPE	TEXT ■ REMOVABLE COPY ● DIRECT SCREENED ●● REVERSED SCREENED	SIGN BACK-GROUND COLOR	SIGN BLANKS SIZE	SIGN BLANK MATERIAL SHEET ALUM TY A SF	SHEET ALUM	SHEET ALUM	PLYWOOD TY A SF	PLYWOOD TY A or B SF	LETTERS & NUMBERS UPPER CASE & NUMBERS EA	LOWER CASE EA	CAPITALS & NUMBERS EA	WHITE ARROWS EA	WHITE BORDER RADII EA	WHITE BORDER LF	TYPE OF MOUNT	GALVANIZED PIPE POST 2"D	2 1/2 D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH NO 1	NO 2	NO 3	STUB POSTS	TOTAL WEIGHT LB.	NON-REINF DRILLED SHAFTS L.F. 12"D	18"D	REINF DRILLED SHAFTS L.F. 18"D	24"D	DTLN U.S. RT MKR EA	"U" URBAN OR "R" RURAL
▲ - Non-Participating																																					
														CONTROL 18-5-16 CONT'D.																									
	6 of 26	13	West Lane	449+00 ▲	IW-6	● ✚	Yellow	48"×48"				16.00								F-2					31 5.7	12'-7"	13'-2"		3'-3½"	204	7.0						R
	8 of 26		East Lane	591+16	IM6-2N	●● NORTH	Blue	30"×15"	3.12											C-1	13'-1"		13'-0"								5.5						R
					IM-CC	●● INTERSTATE - TEXAS 35	Red-Blue	36"	7.18																													
					MG-1N	● NORTH	White	21"×9"	1.31																													
					IM1-1	● US 81	White	24"	3.01																													
					IM1-1	● US 83	White	24"	3.01																													
	9 of 26	1	NEW LOCATION WEST LANE	659+90	IG-18*	Exist. Sign at Sta. 662+80 - West Lane	Green	16'-6"×5'-0"												320					GB 8.5	12'-8"	13'-8"		2'-0"	♦ 287				♦ 10.0			R
	10 of 26	1	New Location West Lane	669+90	IR-2*	Exist. Signs at Sta. 672+80 - West Lane	White	48"×60"												G					41 7.7	16'-8"	17'-0"		4'-3½"	♦ 345		♦ 9.0				R
					IR-3*		Black	48"×48"																													
	10 of 26	2	New Location West Lane	679+90	IM-22S*	Exist. Sign at Sta. 683+00 - West Lane	Blue	30"×15"												C-1	♦ 13'-10"		♦ 13'-10"								♦ 5.5						R
					IM-1C*	Exist. Sign at Sta. 683+00 - West Lane	Red-Blue	36"																														
					MG-1S♦	● SOUTH	White	21"×9"	♦1.31																													
					IM1-1♦	● US-81	White	24"	♦3.01																													
					MG-1S	● SOUTH	White	21"×9"	1.31																													
					IM1-1♦	● US 83	White	24"	♦3.01																													
	10 of 26	3	Entrance Ramp	696+55	IM6-1S	●● SOUTH	Blue	21"×9"	1.31											C	15'-7"		12'-11"								5.5						R
					IM-BB	●● INTERSTATE - TEXAS - 35	Red-Blue	24"	3.19																													
					IM4-2L	●●	Blue	21"×15"	2.19																													
					MG-1S	● SOUTH	White	21"×9"	1.31																													
					M1-2	●● US-83	Black	24"×24"	4.00																													
					M4-2L	●	White	21"×15"	2.19																													
	10 of 26	4	West Front Road	700+50	IM6-1S	●● SOUTH	Blue	21"×9"	1.31											C	15'-7"		12'-7"								5.5						R
					IM-BB	●● INTERSTATE - TEXAS - 35	Red-Blue	24"	3.19																													
					IM3-2L	●●	Blue	21"×15"	2.19																													
					MG-1S	● SOUTH	White	21"×9"	1.31																													
					M1-2	●● US-81	Black	24"×24"	4.00																													
					M3-2L	●	White	21"×15"	2.19																													
					MG-1S	● SOUTH	White	21"×9"	1.31																													
					M1-2	●● US-83	Black	24"×24"	4.00																													
					M3-2L	●	White	21"×15"	2.19																													
					Totals - Non-Participating - Cont 18-5-16				7.33			20.72	53.32									13'-10"	102'-2"		13'-10"					1029	42.0	14.5		10.0			
					Totals - Participating - Cont 18-5-16				3627 SF 2.4 LB 8713 SF 60.33 LB				167.00	8		14		4	42.0		54'-7" 51'-6"	102'-2"		54'-7" 51'-6"					1143		43.5 40.4		150			
			SUB-TOTAL CONTROL 18-5-16									20.72	220.32	8		14		4	42.0		54'-7" 51'-6"	102'-2"		54'-7" 51'-6"					2172	42.0	60		250			
														CONTROL 18-4-13																							
	12 of 26	1	East Lane	1117+73	IW-6	● ✚	Yellow	48"×48"				16.00								F-2					31 5.7	12'-1"	12'-4"		3'-3½"	197	7.0						R
	12 of 26	2	Crossover	1132+03	IR-1GR	●● ONE WAY	Black	48"×16"				5.33								A	11'-10"										3.5						R
	12 of 26	3	Crossover	1132+28	IR-1GL	●● ONE WAY	Black	48"×16"				5.33								A	12'-5"										3.5						R
	12 of 26	4	Crossover	1132+43	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-0"										3.5						R
	12 of 26	5	Crossover	1132+43	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-1"										3.5						R
	12 of 26	6	Crossover	1133+03	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-6"										3.5						R
	12 of 26	7	Crossover	1133+03	IR-1A	●● STOP	Red	30"×30"			5.18									A	12'-10"										3.5						R
	12 of 26	8	Crossover	1133+18	IR-1GL	●● ONE WAY	Black	48"×16"				5.33								A	12'-0"										3.5						R
	12 of 26	9	Crossover	1132+23	IR-1GR	●● ONE WAY	Black	48"×16"				5.33								A	11'-8"										3.5						R
	12 of 26	10	West Lane	1147+73	IW-6	● ✚	Yellow	48"×48"				16.00								F-2					31 5.7	11'-10"	12'-1"		3'-3½"	194	7.0						R
	12 of 26	11	East Lane	1176+52	IW-6	● ✚	Yellow	48"×48"				16.00								F-2					31 5.7	11'-10"	12'-1"		3'-3½"	194	7.0						R
	11 of 26		East Lane	1068+98	IM6-2N	●● NORTH	Blue	30"×15"	3.12											A-1		19'-0"									4.5						R
					IM-CC	●● INTERSTATE - TEXAS	Red-Blue	36"	7.18																													
					MG-1N	● NORTH	White	21"×9"	1.31																													
					IM1-1	● US 81	White	24"	3.01																													

*NOTE: Existing signs to be salvaged & relocated.

♦ New material required - Non-Participating in F.A.I.

ESTIMATE
SIGN TABULATION
SHEET 2 OF 6 SHEETS

I 35-1(18)007
I 35-1(20)020

FED RD DIV NO	STATE	FEDERAL PROJECT NO	SHEET NO.
6	TEXAS	I 35-1(18)007, etc.	14
STATE DIST. NO	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 5 6 15 18	IH-35

CONTROL 18-4-13 CONT'D.

ALT	PLAN & PROF SH NO	SIGN NO.	LOCATION	STATION	SIGN TYPE	TEXT ■ REMOVABLE COPY ● DIRECT SCREENED ●● REVERSED SCREENED	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TY A SF	SHEET ALUM		PLYWOOD TY A SF	PLYWOOD TY A or B SF	LETTERS & NUMBERS: UPPER CASE & NUMBERS EA 13.3"	LOWER CASE EA 10"	CAPITALS & NUMBERS EA 10" 12"	WHITE ARROWS EA A-2	WHITE BORDER RADII EA 1" R=3" 2" R=9"	WHITE BORDER LF 2"	TYPE OF MOUNT	GALVANIZED PIPE POST 2"D	2 1/2 D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH NO 1	NO 2	NO 3	STUB POSTS	TOTAL WEIGHT LB.	NON-REINF DRILLED SHAFTS L.F. 12"D	18"D	REINF DRILLED SHAFTS L.F. 18"D	24"D	OTLN U.S., RT MKR - EA	"U" URBAN OR "R" RURAL
	13 of 26	1	Crossover	1191+80	IR-1GR	●● ONE WAY	Black	48"×16"					5.33							A	11'-8"									3.5					R
	13 of 26	2	Crossover	1191+17	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	12'-2"									3.5					R
	13 of 26	3	Crossover	1191+22	IR-1A	●● STOP	Red	30"×30"			5.18									A	12'-10"									3.5					R
	13 of 26	4	Crossover	1191+82	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-4"									3.5					R
	13 of 26	5	Crossover	1191+82	IR-1A	●● STOP	Red	30"×30"			5.18									A	12'-9"									3.5					R
	13 of 26	6	Crossover	1191+87	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	12'-1"									3.5					R
	13 of 26	7	West Lane	1206+52	IW-7	●	Yellow	48"×48"					16.00							F-2					31 5.7	11'-10"	12'-0"		3-3½"	193	7.0					R
	13 of 26	8	West Lane	1164+58 1227+00	IR-2	● SPEED LIMIT 70	White	48"×60"					20.00							G					41 7.7	16'-6"	16'-8"		4-3½"	341		9.0			R
					IR-3	●● NIGHT 65	Black	48"×48"					16.00																						
	13 of 26	9	East Lane	1230+37	IW-6	●	Yellow	48"×48"					16.00							F-2					31 5.7	11'-10"	12'-0"		3-3½"	193	7.0					R
	13 of 26	10	West Lane	1174+58 1234+00	IM-CC	●● INTERSTATE - TEXAS - 35	Red Blue	36"	7.18											A-1		19'-3"									4.5					R
					IM1-1	● US-81	White	24"	3.01																										
					IM6-2S	●● SOUTH	Blue	30"×15"	3.12																										
					M6-1S	● SOUTH	White	21"×9"	1.31																										
	14 of 26	1	Crossover	1245+62	IR-1GR	●● ONE WAY	Black	48"×16"					5.33							A	11'-9"									3.5					R
	14 of 26	2	Crossover	1244+92	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	12'-3"									3.5					R
	14 of 26	3	Crossover	1245+07	IR-1A	●● STOP	Red	30"×30"			5.18									A	12'-11"									3.5					R
	14 of 26	4	Crossover	1116+19 1245+07	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-2"									3.5					R
	14 of 26	5	Crossover	1245+67	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-4"									3.5					R
	14 of 26	6	Crossover	1245+67	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-0"									3.5					R
	14 of 26	7	Crossover	1245+72	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	12'-3"									3.5					R
	14 of 26	8	Crossover	1116+05 1245+72	IR-1GR	●● ONE WAY	Black	48"×16"					5.33							A	12'-0"									3.5					R
	14 of 26	9	East Lane	1256+26	IW-6	●	Yellow	48"×48"					16.00							F-2					31 5.7	11'-10"	12'-1"		3-3½"	194	7.0					R
	14 of 26	10	West Lane	1260+37	IW-6	●	Yellow	48"×48"					16.00							F-2					31 5.7	11'-11"	12'-3"		3-3½"	195	7.0					R
	14 of 26	11	Crossover	1271+60	IR-1GR	●● ONE WAY	Black	48"×16"					5.33							A	11'-10"									3.5					R
	14 of 26	12	Crossover	1270+81	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	12'-2"									3.5					R
	14 of 26	13	Crossover	1270+96	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-0"									3.5					R
	14 of 26	14	Crossover	1270+96	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-0"									3.5					R
	14 of 26	15	Crossover	1271+56	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-3"									3.5					R
	14 of 26	16	Crossover	1271+56	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-0"									3.5					R
	14 of 26	17	Crossover	1271+61	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	11'-11"									3.5					R
	14 of 26	18	Crossover	1270+90	IR-1GR	●● ONE WAY	Black	48"×16"					5.33							A	11'-11"									3.5					R
	14 of 26	19	West Lane	1286+26	IW-6	●	Yellow	48"×48"					16.00							F-2					31 5.7	12'-0"	12'-3"		3-3½"	196	7.0					R
	14 of 26	20	East Lane	1286+55	IW-6	●	Yellow	48"×48"					16.00							F-2					31 5.7	11'-9"	11'-11"		3-3½"	192	7.0					R
	14 of 26	21	Crossover	1301+80	IR-1GR	●● ONE WAY	Black	48"×16"					5.33							A	11'-7"									3.5					R
	14 of 26	22	Crossover	1301+20	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	12'-0"									3.5					R
	14 of 26	23	Crossover	1301+25	IR-1A	●● STOP	Red	30"×30"			5.18									A	12'-8"									3.5					R
	14 of 26	24	Crossover	1301+85	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-1"									3.5					R
	14 of 26	25	Crossover	1301+85	IR-1A	●● STOP	Red	30"×30"			5.18									A	12'-11"									3.5					R
	14 of 26	26	Crossover	1301+90	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	12'-2"									3.5					R
					IM6-2N	●● NORTH	Blue	30"×15"	3.12																										
					M6-1N	● NORTH	White	21"×9"	1.31																										
	15 of 26	1	East Lane	1280+18 1310+00	IM-CC	●● INTERSTATE - TEXAS - 35	Red-Blue	36"	7.18											A-1		19'-1"									4.5					R
					IM1-1	● US-81	White	24"	3.01																										
	15 of 26	2	West Lane	1316+55	IW-7	●	Yellow	48"×48"					16.00							F-2					31 5.7	11'-8"	11'-10"		3-3½"	191	7.0					R
	15 of 26	3	East Lane	1291+50 1320+00	IR-2	● SPEED LIMIT 70	White	48"×60"					20.00							G					41 7.7	16'-6"	16'-8"		4-3½"	341		9.0			R
					IR-3	●● NIGHT 65	Black	48"×48"					16.00																						
	15 of 26	4	East Lane	1342+04	IW-6	●	Yellow	48"×48"					16.00							F-2					31 5.7	11'-10"	12'-0"		3-3½"	193	7.0					R
	15 of 26	5	Crossover	1357+29	IR-1GR	●● ONE WAY	Black	48"×16"					5.33							A	11'-7"									3.5					R
	15 of 26	6	Crossover	1356+69	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	12'-2"									3.5					R
	15 of 26	7	Crossover	1356+71	IR-1A	●● STOP	Red	30"×30"			5.18									A	12'-9"									3.5					R
	15 of 26	8	Crossover	1357+34	IR-1A	●● STOP	Red	30"×30"			5.18									A	13'-3"									3.5					R
	15 of 26	9	Crossover	1357+34	IR-1A	●● STOP	Red	30"×30"			5.18									A	12'-8"									3.5					R
	15 of 26	10	Crossover	1357+39	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	12'-5"									3.5					R
	16 of 26	1	West Lane	1372+04	IW-7	●	Yellow	48"×48"					16.00							F-2					31 5.7	11'-10"	12'-1"		3-3½"	194	7.0					R
	16 of 26	2	East Lane	1407+60	IW-6	●	Yellow	48"×48"					16.00							F-2					31 5.7	12'-0"	12'-4"		3-3½"	196	7.0					R
	16 of 26	3	Crossover	1422+90	IR-1GR	●● ONE WAY	Black	48"×16"					5.33							A	11'-10"									3.5					R
	16 of 26	4	Crossover	1422+15	IR-1GL	●● ONE WAY	Black	48"×16"					5.33							A	12'-1"									3.5					R

ESTIMATE
SIGN TABULATION
SHEET 3 OF 6 SHEETS

FED RD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I 35-1(20)020	15
STATE DIST. NO.	COUNTY	CONT. SECT JOB	HIGHWAY NO.
21	WEBB	18 4 13	IH-35

ALT	PLAN & PROF. SH NO.	SIGN NO.	LOCATION	STATION	SIGN TYPE	TEXT ■ REMOVABLE COPY ● DIRECT SCREENED ●● REVERSED SCREENED	SIGN BLANKS: SIGN BACK-GROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TY A SF	SIGN BLANK MATERIAL: PLYWOOD TY A SF	SIGN BLANK MATERIAL: PLYWOOD TY A or B SF	LETTERS & NUMBERS: UPPER CASE & NUMBERS EA	LETTERS & NUMBERS: LOWER CASE EA	LETTERS & NUMBERS: CAPITALS & NUMBERS EA	WHITE ARROWS EA	WHITE BORDER RADII EA	WHITE BORDER LF	TYPE OF MOUNT	GALVANIZED PIPE POST: 2"D	2 1/2 D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH: NO 1	NO 2	NO 3	STUB POSTS	TOTAL WEIGHT LB.	NON-REINF DRILLED SHAFTS L.F.: 12"D	18"D	REINF DRILLED SHAFTS L.F.: 18"D	24"D	OTLN U.S. RT MKR - EA	"U" URBAN OR "R" RURAL
												13.3'			10"	10"	12"		A-2			1" R=3"	2" R=9"		2"													
												CONTROL 18-4-13 CONT'D.																										
	13 of 26	1	Crossover	1191+80	IR-1GR	●● ONE WAY	Black	48"×16"			5.33								A	11'-8"											3.5					R
	13 of 26	2	Crossover	1191+17	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	12'-2"											3.5					R
	13 of 26	3	Crossover	1191+22	IR-1A	●● STOP	Red	30"×30"		5.18									A	12'-10"											3.5					R
	13 of 26	4	Crossover	1191+82	IR-1A	●● STOP	Red	30"×30"		5.18									A	13'-4"											3.5					R
	13 of 26	5	Crossover	1191+82	IR-1A	●● STOP	Red	30"×30"		5.18									A	12'-9"											3.5					R
	13 of 26	6	Crossover	1191+87	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	12'-1"											3.5					R
	13 of 26	7	West Lane	1206+52	IW-7	●	Yellow	48"×48"			16.00								F-2					31 5.7	11'-10"	12'-0"		3-3½	193	7.0					R
	13 of 26	8	West Lane	1164+58 1227+00	IR-2	● SPEED LIMIT 70	White	48"×60"			20.00								G					41 7.7	16'-6"	16'-8"		4-3½"	341		9.0				R
					IR-3	●● NIGHT 65	Black	48"×48"			16.00																									
	13 of 26	9	East Lane	1230+37	IW-6	●	Yellow	48"×48"			16.00								F-2					31 5.7	11'-10"	12'-0"		3-3½	193	7.0					R
	13 of 26	10	West Lane	1174+58 1237+00	IM-CC	●● INTERSTATE - TEXAS - 35	Red Blue	36"	7.18										A-1		19'-3										4.5					R
					IM1-1	● US-81	White	24"	3.01																											
					IM6-2S	●● SOUTH	Blue	30"×15"	3.12																											
					M6-1S	● SOUTH	White	21"×9"	1.31																											
	14 of 26	1	Crossover	1245+62	IR-1GR	●● ONE WAY	Black	48"×16"			5.33								A	11'-9"											3.5					R
	14 of 26	2	Crossover	1234+92	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	12'-3"											3.5					R
	14 of 26	3	Crossover	1245+07	IR-1A	●● STOP	Red	30"×30"		5.18									A	12'-11"											3.5					R
	14 of 26	4	Crossover	1114+18 1414+05	IR-1A	●● STOP	Red	30"×30"		5.18									A	13'-2"											3.5					R
	14 of 26	5	Crossover	1245+67	IR-1A	●● STOP	Red	30"×30"		5.18									A	13'-4"											3.5					R
	14 of 26	6	Crossover	1245+67	IR-1A	●● STOP	Red	30"×30"		5.18									A	13'-0"											3.5					R
	14 of 26	7	Crossover	1245+72	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	12'-3"											3.5					R
	14 of 26	8	Crossover	1114+05 1226+69	IR-1GR	●● ONE WAY	Black	48"×16"			5.33								A	12'-0"											3.5					R
	14 of 26	9	East Lane	1256+26	IW-6	●	Yellow	48"×48"			16.00								F-2					31 5.7	11'-10"	12'-1"		3-3½	194	7.0					R
	14 of 26	10	West Lane	1260+37	IW-6	●	Yellow	48"×48"			16.00								F-2					31 5.7	11'-11"	12'-3"		3-3½	195	7.0					R
	14 of 26	11	Crossover	1271+60	IR-1GR	●● ONE WAY	Black	48"×16"			5.33								A	11'-10"											3.5					R
	14 of 26	12	Crossover	1270+81	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	12'-2"											3.5					R
	14 of 26	13	Crossover	1270+96	IR-1A	●● STOP	Red	30"×30"		5.18									A	13'-0"											3.5					R
	14 of 26	14	Crossover	1270+96	IR-1A	●● STOP	Red	30"×30"		5.18									A	13'-0"											3.5					R
	14 of 26	15	Crossover	1271+56	IR-1A	●● STOP	Red	30"×30"		5.18									A	13'-3"											3.5					R
	14 of 26	16	Crossover	1271+56	IR-1A	●● STOP	Red	30"×30"		5.18									A	13'-0"											3.5					R
	14 of 26	17	Crossover	1271+61	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	11'-11"											3.5					R
	14 of 26	18	Crossover	1270+90	IR-1GR	●● ONE WAY	Black	48"×16"			5.33								A	11'-11"											3.5					R
	14 of 26	19	West Lane	1286+26	IW-6	●	Yellow	48"×48"			16.00								F-2					31 5.7	12'-0"	12'-3"		3-3½	196	7.0					R
	14 of 26	20	East Lane	1286+55	IW-6	●	Yellow	48"×48"			16.00								F-2					31 5.7	11'-9"	11'-11"		3-3½	192	7.0					R
	14 of 26	21	Crossover	1301+80	IR-1GR	●● ONE WAY	Black	48"×16"			5.33								A	11'-7"											3.5					R
	14 of 26	22	Crossover	1301+20	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	12'-0"											3.5					R
	14 of 26	23	Crossover	1301+25	IR-1A	●● STOP	Red	30"×30"		5.18									A	12'-8"											3.5					R
	14 of 26	24	Crossover	1301+85	IR-1A	●● STOP	Red	30"×30"		5.18									A	13'-1"											3.5					R
	14 of 26	25	Crossover	1301+85	IR-1A	●● STOP	Red	30"×30"		5.18									A	12'-11"											3.5					R
	14 of 26	26	Crossover	1301+90	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	12'-2"											3.5					R
	15 of 26	1	East Lane	1280+18 1310+00	IM6-2N	●● NORTH	Blue	30"×15"	3.12																										
					M6-1N	● NORTH	White	21"×9"	1.31																											
					IM-CC	●● INTERSTATE - TEXAS - 35	Red-Blue	36"	7.18																										
					IM1-1	● US-81	White	24"	3.01																										
	15 of 26	2	West Lane	1316+55	IW-7	●	Yellow	48"×48"			16.00								F-2					31 5.7	11'-8"	11'-10"		3-3½	191	7.0					R
	15 of 26	3	East Lane	1291+50 1320+00	IR-2	● SPEED LIMIT 70	White	48"×60"			20.00								G					41 7.7	16'-6"	16'-8"		4-3½"	341		9.0				R
					IR-3	●● NIGHT 65	Black	48"×48"			16.00																									
	15 of 26	4	East Lane	1342+04	IW-6	●	Yellow	48"×48"			16.00								F-2					31 5.7	11'-10"	12'-0"		3-3½	193	7.0					R
	15 of 26	5	Crossover	1357+29	IR-1GR	●● ONE WAY	Black	48"×16"			5.33								A	11'-7"											3.5					R
	15 of 26	6	Crossover	1356+69	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	12'-2"											3.5					R
	15 of 26	7	Crossover	1356+71	IR-1A	●● STOP	Red	30"×30"		5.18									A	12'-9"											3.5					R
	15 of 26	8	Crossover	1357+34	IR-1A	●● STOP	Red	30"×30"		5.18									A	13'-3"											3.5					R
	15 of 26	9	Crossover	1357+34	IR-1A	●● STOP	Red	30"×30"		5.18									A	12'-8"											3.5					R
	15 of 26	10	Crossover	1357+39	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	12'-5"											3.5					R
	16 of 26	1	West Lane	1372+04	IW-7	●	Yellow	48"×48"			16.00								F-2					31 5.7	11'-10"	12'-1"		3-3½	194	7.0					R
	16 of 26	2	East Lane	1407+60	IW-6	●	Yellow	48"×48"			16.00								F-2					31 5.7	12'-0"	12'-4"		3-3½	196	7.0					R
	16 of 26	3	Crossover	1422+90	IR-1GR	●● ONE WAY	Black	48"×16"			5.33								A	11'-10"											3.5					R
	16 of 26	4	Crossover	1422+15	IR-1GL	●● ONE WAY	Black	48"×16"			5.33								A	12'-1"											3.5					R

ESTIMATE
SIGN TABULATION
SHEET 3 OF 6 SHEETS

FED RD DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(20)020				15
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	4	13	IH-35

ALT	PLAN & PROF. SH. NO.	SIGN NO.	LOCATION	STATION	SIGN TYPE	TEXT ■ REMOVABLE COPY ● DIRECT SCREENED ●● REVERSED SCREENED	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM. TY. A SF	SIGN BLANK MATERIAL: PLYWOOD TY. A SF	SIGN BLANK MATERIAL: PLYWOOD TY. A or B SF	LETTERS & NUMBERS: UPPER CASE & NUMBERS EA (13.3")	LETTERS & NUMBERS: LOWER CASE EA (10")	LETTERS & NUMBERS: CAPITALS & NUMBERS EA (10" 12")	WHITE ARROWS EA (A-2)	WHITE BORDER RADII EA (2" R=9")	WHITE BORDER LF (2")	TYPE OF MOUNT	GALVANIZED PIPE POST: 2"D	2 1/2 D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH: NO 1	NO 2	NO 3	STUB POSTS	TOTAL WEIGHT LB.	NON-REINF DRILLED SHAFTS L.F.: 12"D	18"D	REINF DRILLED SHAFTS L.F.: 18"D	24"D	OTLN U.S. RT MKR - EA	"U" URBAN OR "R" RURAL

ALT	PLAN & PROF SH NO	SIGN NO.	LOCATION	STATION	SIGN TYPE	TEXT ■ REMOVABLE COPY ● DIRECT SCREENED ●● REVERSED SCREENED	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TY A SF	SHEET ALUM	SHEET ALUM	PLYWOOD TY A SF	PLYWOOD TY A or B SF	LETTERS & NUMBERS: UPPER CASE & NUMBERS EA 13.3"	LOWER CASE EA 10"	CAPITALS & NUMBERS EA 10" 12"	WHITE ARROWS EA A-2	WHITE BORDER RADII EA 2" R=9"	WHITE BORDER LF 2"	TYPE OF MOUNT	GALVANIZED PIPE POST 2"D	2 1/2 D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH NO 1	NO 2	NO 3	STUB POSTS	TOTAL WEIGHT LB.	NON-REINF DRILLED SHAFTS L.F. 12"D	18"D	REINF DRILLED SHAFTS L.F. 18"D	24"D	OTLN U.S. RT MKR - EA "U" URBAN OR "R" RURAL
						CONTROL 18-3-10 CONT'D.																															
	19 of 26	12	Crossover	1618+58	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	12'-3"										3.5				R
	19 of 26	13	Crossover	1618+63	IR-1A	●● STOP	Red	30"x30"				5.18									A	12'-10"										3.5				R
	19 of 26	14	Crossover	1618+63	IR-1A	●● STOP	Red	30"x30"				5.18									A	13'-2"										3.5				R
	19 of 26	15	Crossover	1619+23	IR-1A	●● STOP	Red	30"x30"				5.18									A	12'-11"										3.5				R
	19 of 26	16	Crossover	1619+28	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	12'-1"										3.5				R
	19 of 26	17	Crossover	1618+58	IR-1GR	●● ONE WAY	Black	48"x16"					5.33								A	11'-9"										3.5				R
	20 of 26	1	East Lane	1632+36	IW-6	● ✚	Yellow	48"x48"					16.00								F-2					31 5.7	12'-2"	12'-7"		3'-3½"	198	7.0				R
	20 of 26	2	West Lane	1633+33	IW-6	● ✚	Yellow	48"x48"					16.00								F-2					31 5.7	11'-10"	12'-1"		3'-3½"	194	7.0				R
	20 of 26	3	Crossover	1618+20	IR-1GR	●● ONE WAY	Black	48"x16"					5.33								A	11'-9"										3.5				R
	20 of 26	4	Crossover	1617+61	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	12'-1"										3.5				R
	20 of 26	5	Crossover	1647+66	IR-1A	●● STOP	Red	30"x30"				5.18									A	12'-11"										3.5				R
	20 of 26	6	Crossover	1648+26	IR-1A	●● STOP	Red	30"x30"				5.18									A	13'-3"										3.5				R
	20 of 26	7	Crossover	1648+26	IR-1A	●● STOP	Red	30"x30"				5.18									A	13'-0"										3.5				R
	20 of 26	8	Crossover	1648+31	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	12'-2"										3.5				R
	20 of 26	9	West Lane	1662+96	IW-7	● ✚	Yellow	48"x48"					16.00								F-2					31 5.7	12'-5"	12'-11"		3'-3½"	202	7.0				R
	20 of 26	10	East Lane	1673+90	IW-6	● ✚	Yellow	48"x48"					16.00								F-2					31 5.7	11'-8"	11'-9"		3'-3½"	191	7.0				R
	20 of 26	11	Crossover	1689+25	IR-1GR	●● ONE WAY	Black	48"x16"					5.33								A	11'-8"										3.5				R
	20 of 26	12	Crossover	1688+35	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	12'-2"										3.5				R
	20 of 26	13	Crossover	1688+60	IR-1A	●● STOP	Red	30"x30"				5.18									A	12'-10"										3.5				R
	20 of 26	14	Crossover	1688+60	IR-1A	●● STOP	Red	30"x30"				5.18									A	13'-2"										3.5				R
	20 of 26	15	Crossover	1689+20	IR-1A	●● STOP	Red	30"x30"				5.18									A	13'-2"										3.5				R
	20 of 26	16	Crossover	1689+25	IR-1A	●● STOP	Red	30"x30"				5.18									A	12'-11"										3.5				R
	20 of 26	17	Crossover	1689+25	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	12'-0"										3.5				R
	20 of 26	18	Crossover	1688+60	IR-1GR	●● ONE WAY	Black	48"x16"					5.33								A	11'-9"										3.5				R
	21 of 26	1	West Lane	1703+90	IW-6	● ✚	Yellow	48"x48"					16.00								F-2					31 5.7	11'-8"	11'-10"		3'-3½"	191	7.0				R
	21 of 26	2	West Lane	1798+18 1745+00	IR-2	● SPEED LIMIT 70	White	48"x60"					20.00								G					41 7.7	16'-9"	17'-0"		4'-3½"	345		9.0			R
					IR-3	●● NIGHT 65	Black	48"x48"					16.00																							
					IM6-2S	●● SOUTH	Blue	30"x15"	3.12																											
					M6-1S	● SOUTH	White	21"x9"	1.31																											
	22 of 26	1	West Lane	1808+18 1758+00	IM-CC	●● INTERSTATE - TEXAS - 35	Red-Blue	36"	7.18																											
					IM1-1	● US - 81	White	24"	3.01												A-1		18'-11"									4.5				R
	22 of 26	2	East Lane	1778+27	IW-6	● ✚	Yellow	48"x48"					16.00								F-2					31 5.7	12'-2"	12'-7"		3'-3½"	198	7.0				R
	22 of 26	3	Crossover	1793+57	IR-1GR	●● ONE WAY	Black	48"x16"					5.33								A	11'-8"										3.5				R
	22 of 26	4	Crossover	1792+92	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	12'-3"										3.5				R
	22 of 26	5	Crossover	1792+97	IR-1A	●● STOP	Red	30"x30"				5.18									A	12'-9"										3.5				R
	22 of 26	6	Crossover	1793+57	IR-1A	●● STOP	Red	30"x30"				5.18									A	13'-4"										3.5				R
	22 of 26	7	Crossover	1793+57	IR-1A	●● STOP	Red	30"x30"				5.18									A	12'-8"										3.5				R
	22 of 26	8	Crossover	1793+62	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	12'-2"										3.5				R
	22 of 26	9	East Lane	1913+78 1800+00	IM-CC	●● INTERSTATE - TEXAS - 35	Red-Blue	36"	7.18																											
					IM1-1	● US - 81	White	24"	3.01												A-1		19'-2"									4.5				R
	22 of 26	10	East Lane	1803+53	IW-6	● ✚	Yellow	48"x48"					16.00								F-2					31 5.7	11'-11"	12'-2"		3'-3½"	195	7.0				R
	22 of 26	11	West Lane	1806+16 1802+53	IW-7	● ✚	Yellow	48"x48"					16.00								F-2					31 5.7	11'-8"	11'-10"		3'-3½"	191	7.0				R
	22 of 26	12	East Lane	1810+00	IR-2	● SPEED LIMIT 70	White	48"x60"					20.00								G					41 7.7	16'-5"	16'-10"		4'-3½"	341		9.0			R
					IR-3	●● NIGHT 65	Black	48"x48"					16.00																							
	22 of 26	9	East Lane	1913+78 1800+00	IM6-2N	●● NORTH	Blue	30"x15"	3.12																											
					M6-1N	● NORTH	White	21"x9"	1.31																											
	23 of 26	1	Crossover	1818+83	IR-1GR	●● ONE WAY	Black	48"x16"					5.33								A	11'-9"										3.5				R
	23 of 26	2	Crossover	1818+08	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	11'-11"										3.5				R
	23 of 26	3	Crossover	1818+23	IR-1A	●● STOP	Red	30"x30"				5.18									A	12'-11"										3.5				R
	23 of 26	4	Crossover	1818+23	IR-1A	●● STOP	Red	30"x30"				5.18									A	13'-4"										3.5				R
	23 of 26	5	Crossover	1818+83	IR-1A	●● STOP	Red	30"x30"				5.18									A	13'-2"										3.5				R
	23 of 26	6	Crossover	1818+83	IR-1A	●● STOP	Red	30"x30"				5.18									A	12'-11"										3.5				R
	23 of 26	7	Crossover	1818+88	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	12'-3"										3.5				R
	23 of 26	8	Crossover	1818+23	IR-1GR	●● ONE WAY	Black	48"x16"					5.33								A	11'-9"										3.5				R
	23 of 26	9	West Lane	1833+53	IW-6	● ✚	Yellow	48"x48"					16.00								F-2					31 5.7	12'-5"	12'-10"		3'-3½"	201	7.0				R
	23 of 26	10	East Lane	1854+17	IW-6	● ✚	Yellow	48"x48"					16.00								F-2					31 5.7	11'-11"	12'-1"		3'-3½"	194	7.0				R
	23 of 26	11	Crossover	1869+49	IR-1GR	●● ONE WAY	Black	48"x16"					5.33								A	11'-8"										3.5				R
	23 of 26	12	Crossover	1868+??	IR-1GL	●● ONE WAY	Black	48"x16"					5.33								A	12'-1"										3.5				R
	23 of 26	13	Crossover	1868+87	IR-1A	●● STOP	Red	30"x30"				5.18									A	12'-10"										3.5				R
					IM6-2S	●● NORTH	Blue	30"x15"	3.12																											
	21 of 26		East Lane	1702+58	IM-CC	●● INTERSTATE - TEXAS 35	Red-Blue	36"	7.18												A-1		19-0									4.5				R
					M6-1S	● NORTH	White	21"x9"	1.31																											
					IM1-1	● US 81	White	24"	3.01																											

ESTIMATE
ESTIMATE

SIGN TABULATION
SHEET 5 OF 6 SHEETS

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FED. RD DIV NO	STATE	FEDERAL PROJECT NO			SHEET NO.
6	TEXAS	I35-1(20)020			17
STATE DIST NO.	COUNTY	CONT	SECT	JOB	HIGHWAY NO
21	WEBB	18	3	10	IH-35

ALT	PLAN & PROF. SH NO	SIGN NO.	LOCATION	STATION	SIGN TYPE	TEXT ■ REMOVABLE COPY ● DIRECT SCREENED ●● REVERSED SCREENED	SIGN BLANKS: SIGN BACK-GROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TY A SF			SIGN BLANK MATERIAL: PLYWOOD TY A SF	SIGN BLANK MATERIAL: PLYWOOD TY A or B SF	LETTERS & NUMBERS: UPPER CASE & NUMBERS EA	LETTERS & NUMBERS: LOWER CASE EA	LETTERS & NUMBERS: CAPITALS & NUMBERS EA		WHITE ARROWS EA	WHITE BORDER RADII EA	WHITE BORDER LF	TYPE OF MOUNT	GALVANIZED PIPE POST: 2"D	2 1/2 D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH: NO 1	NO 2	NO 3	STUB POSTS	TOTAL WEIGHT LB.	NON-REINF DRILLED SHAFTS L.F.: 12"D	18"D	REINF DRILLED SHAFTS L.F.: 18"D	24"D		OTLN U.S. RT MKR -EA	"U" URBAN OR "R" RURAL
														13.3'		10"		10"	12"		A-2			2" R=9"		2"																
														CONTROL 18-3-10 CONT'D.																												
	23 of 26	14	Crossover	1868+87	IR-1A	●● STOP	Red	30"x30"				5.18											A	13'-1"																R
	23 of 26	15	Crossover	1869+47	IR-1A	●● STOP	Red	30"x30"				5.18											A	13'-2"																R
	23 of 26	16	Crossover	1869+47	IR-1A	●● STOP	Red	30"x30"				5.18											A	12'-10"																R
	23 of 26	17	Crossover	1869+52	IR-16L	●● ONE WAY	Black	48"x16"					5.33										A	12'-0"																R
	23 of 26	18	Crossover	1868+87	IR-16R	●● ONE WAY	Black	48"x16"					5.33										A	11'-8"																R
	24 of 26	1	West Lane	1884+17	IW-6	● ✚	Yellow	48"x48"					16.00										F-2					31 5.7	11'-11"	12'-2"		3-3½	195	7.0					R
	24 of 26	2	East Lane	~~1917+00~~ 1917+00	IW-6	● ✚	Yellow	48"x48"					16.00										F-2					31 5.7	12'-2"	12'-6"		3-3½	198	7.0					R
	24 of 26	3	Crossover	1930+25	IR-16R	●● ONE WAY	Black	48"x16"					5.33										A	12'-0"																R
	24 of 26	4	Crossover	1929+55	IR-16L	●● ONE WAY	Black	48"x16"					5.33										A	12'-1"																R
	24 of 26	5	Crossover	1929+70	IR-1A	●● STOP	Red	30"x30"				5.18											A	13'-1"																R
	24 of 26	6	Crossover	1929+70	IR-1A	●● STOP	Red	30"x30"				5.18											A	13'-3"																R
	24 of 26	7	Crossover	1930+30	IR-1A	●● STOP	Red	30"x30"				5.18											A	13'-1"																R
	24 of 26	8	Crossover	1930+30	IR-1A	●● STOP	Red	30"x30"				5.18											A	12'-8"																R
	24 of 26	9	Crossover	1930+35	IR-16L	●● ONE WAY	Black	48"x16"					5.33										A	11'-10"																R
	24 of 26	10	Crossover	1929+70	IR-16R	●● ONE WAY	Black	48"x16"					5.33										A	11'-6"																R
	24 of 26	11	West Lane	1945+00	IW-6	● ✚	Yellow	48"x48"					16.00										F-2					31 5.7	11'-10"	12'-0"		3-3½	193	7.0					R
	25 of 26	1	East Lane	1947+38	IW-6 *	● ✚	Yellow	48"x48"					16.00										F-2					31 5.7	11'-11"	12'-3"		3-3½	195	7.0					R
	25 of 26	2	Crossover	1963+28	IR-16R *	●● ONE WAY	Black	48"x16"					5.33										A	11'-7"																R
	25 of 26	3	Crossover	1962+53	IR-16L *	●● ONE WAY	Black	48"x16"					5.33										A	12'-0"																R
	25 of 26	4	Crossover	1962+68	IR-1A *	●● STOP	Red	30"x30"				5.18											A	12'-8"																R
	25 of 26	5	Crossover	1963+28	IR-1A *	●● STOP	Red	30"x30"				5.18											A	13'-3"																R
	25 of 26	6	Crossover	1963+28	IR-1A *	●● STOP	Red	30"x30"				5.18											A	12'-11"																R
	25 of 26	7	Crossover	1963+33	IR-16L *	●● ONE WAY	Black	48"x16"					5.33										A	12'-1"																R
	25 of 26	8	East Lane	1973+20	IW-7 *	● ✚	Yellow	48"x48"					16.00										F-2					31 5.7	12'-4"	12'-9"		3-3½	200	7.0					R
	25 of 26	9	West Lane	1977+98	IW-7 *	● ✚	Yellow	48"x48"					16.00										F-2					31 5.7	11'-11"	12'-3"		3-3½	195	7.0					R
	25 of 26	10	Crossover	1987+85	IR-16L *	●● ONE WAY	Black	48"x16"					5.33										A	12'-2"																R
	25 of 26	11	Crossover	1987+90	IR-1A *	●● STOP	Red	30"x30"				5.18											A	12'-11"																R
	25 of 26	12	Crossover	1987+90	IR-1A *	●● STOP	Red	30"x30"				5.18											A	13'-2"																R
	25 of 26	13	Crossover	1988+50	IR-1A *	●● STOP	Red	30"x30"				5.18											A	12'-11"																R
	25 of 26	14	Crossover	1988+55	IR-16L *	●● ONE WAY	Black	48"x16"					5.33										A	12'-0"																R
	25 of 26	15	Crossover	1987+90	IR-16R *	●● ONE WAY	Black	48"x16"					5.33										A	11'-10"																R
	25 of 26	16	East Lane	1984+35	IW-6 *	● ✚	Yellow	48"x48"					16.00										F-2					31 5.7	11'-10"	12'-1"		3-3½	194	7.0					R
2	25 of 26	17	West Lane	1999+00	IG-18 *	■ Laredo 37, Monterrey 184	Green	16'-6"x5'-0"					82.50	7		13			4		37.00		320					6B 8.5	12'-9"	13'-11"		2'-0"	290			10.0			R
	25 of 26	19	West Lane	2003+20	IW-6 *	● ✚	Yellow	48"x48"					16.00										F-2					31 5.7	12'-5"	12'-11"		3-3½	202	7.0					R
	25 of 26	20	Crossover	2004+65	IR-16R *	●● ONE WAY	Black	48"x16"					5.33										A	11'-7"																R
	25 of 26	21	Crossover	2003+90	IR-16L *	●● ONE WAY	Black	48"x16"					5.33										A	12'-7"																R
	25 of 26	22	Crossover	2004+05	IR-1A *	●● STOP	Red	30"x30"				5.18											A	12'-9"																R
	25 of 26	23	Crossover	2004+65	IR-1A *	●● STOP	Red	30"x30"				5.18											A	13'-8"																R
	25 of 26	24	Crossover	2004+65	IR-1A *	●● STOP	Red	30"x30"				5.18											A	12'-11"																R
	25 of 26	25	Crossover	2004+70	IR-16L *	●● ONE WAY	Black	48"x16"					5.33										A	12'-3"																R
	26 of 26	3	Crossover	2019+35	IW-7 *	● ✚	Yellow	48"x48"					16.00										F-2					31 5.7	12'-2"	12'-6"		3-3½	198	7.0					R
						Totals Non-Participating -Cont. 18-3-10						46.62	~~226.47~~ 240.47	7		13			4		37.00														1674	105.0			10.0		
						Totals Participating -Cont. 18-3-10			~~84.23~~ 84.23			170.94	~~785.39~~ 801.39	14		27			8		79.00			~~225-8~~ 225-8		114-6								5602	~~326.0~~ 326.0	36.00		25.0		
						SUB-TOTAL CONTROL 18-3-10			~~87.72~~ 87.72			217.56	~~1011.86~~ 1041.86	21		40			12		116.00			~~1048-8~~ 1048-8		114-6								7076	~~411.0~~ 411.0	36.00		35.0		
						NON PARTICIPATING F.A.I. CONTROL 18-3-11																																		
	25 of 26	18	East Lane	2002+00	IW-21 *	● DIVIDED HIGHWAY ENDS	Yellow	48"x48"					16.00										F-2					31 5.7	12'-3"	12'-8"		3-3¼	199	7.0					R
	25 of 26	26	East Lane	2007+00	IR-17 *	● TWO WAY TRAFFIC AHEAD	White	48"x60"					20.00										F-2					31 5.7	12'-0"	12'-1"		3-3½	195	7.0					R
	25 of 26	27	East Lane	2007+00	IR-17 *	● TWO WAY TRAFFIC AHEAD	White	48"x60"					20.00										F-2					31 5.7	12'-11"	13'-4"		3-3½	207	7.0					R
	26 of 26	1	West Lane	2015+00	IW-20A *	● DIVIDED HIGHWAY	Yellow	48"x48"					16.00										F-2					31 5.7	12'-2"	12'-6"		3-3½	198	7.0					R
	26 of 26	2	East Lane	2015+00	IW-20A *	● DIVIDED HIGHWAY	Yellow	48"x48"					16.00										F-2					31 5.7	12'-2"	12'-6"		3-3½	198	7.0					R
	26 of 26	4	East Lane	2012+00	IR-11 *	● DO NOT PASS	White	48"x60"					20.00										F-2					31 5.7	12'-11"	13'-3"		3-3½	206	7.0					R
	26 of 26	5	Median	2015+00	IR-14 *	● KEEP RIGHT	White	48"x60"					20.00										F-2					31 5.7	11'-9"	11'-9"		3-3½	191	7.0					R
						SUB-TOTAL NON PARTICIPATING F.A.I. CONTROL 18-3-11							~~128.00~~																				~~7394~~	~~43.0~~					
	26 of 26		West Lane	2019+38	IM6-25 *	●● SOUTH	Blue	30"x15"	3.12																															
					IM-CC *	●● INTERSTATE - TEXAS 35	Red-Blue	36"	7.18														A-1			19'-0"									4.5					R
					IM6-13 *	● SOUTH	White	21"x9"	1.31																															
					IM1-1 *	● US 81	White	24"	2.00																															
						TOTALS			~~158.36~~			~~409.22~~	~~2455.57~~	~~35~~		~~67~~		~~11~~	~~69~~	~~4~~		~~44~~		~~357.00~~			~~18-3~~	~~1977-1~~	~~105-8~~	~~26-3~~			17,987	~~1780~~	~~103.0~~	~~48.0~~	~~70.0~~		
						SUB-TOTAL NON PARTICIPATING F.A.I. CONTROL 18-3-11			14.62			128.00																													
																									19.0							1394	53.5					
						TOTALS			331.93			409.22	2455.57	35		67		11	69	4		44		357.00			126-0	1977-1	228-8	17-3			17,987	1006.0	139.5	48.0	70.0		

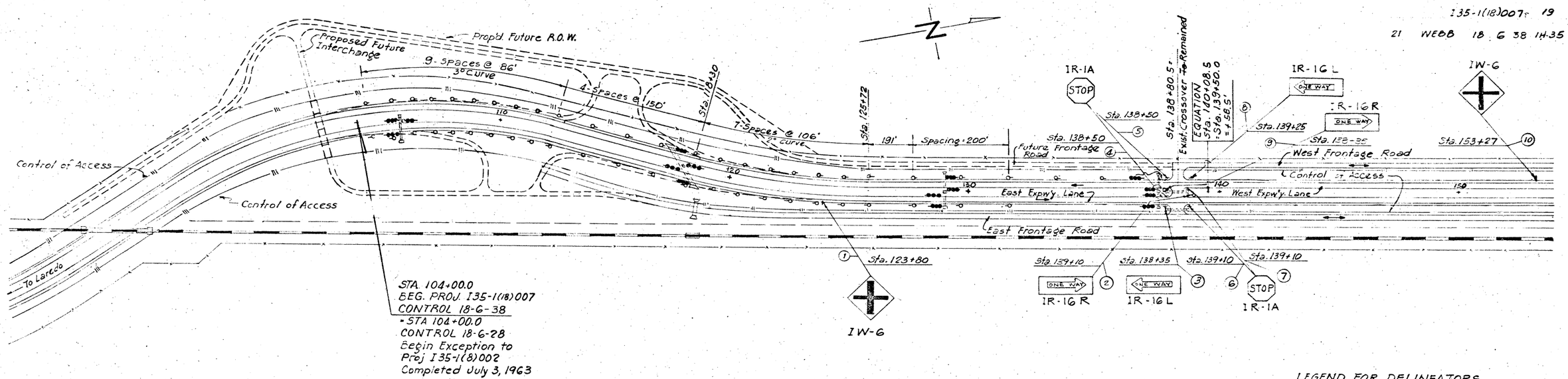
ESTIMATE
SIGN TABULATION
SHEET 6 OF 6 SHEETS

I 35-1(20)020
C 18-3-11

FED RD DIV. NO.	STATE	FEDERAL PROJECT NO				SHEET NO.
6	TEXAS	I 35-1(20)020,etc.				18
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	3	19 11	IH-35

I 35-1(18)007 19

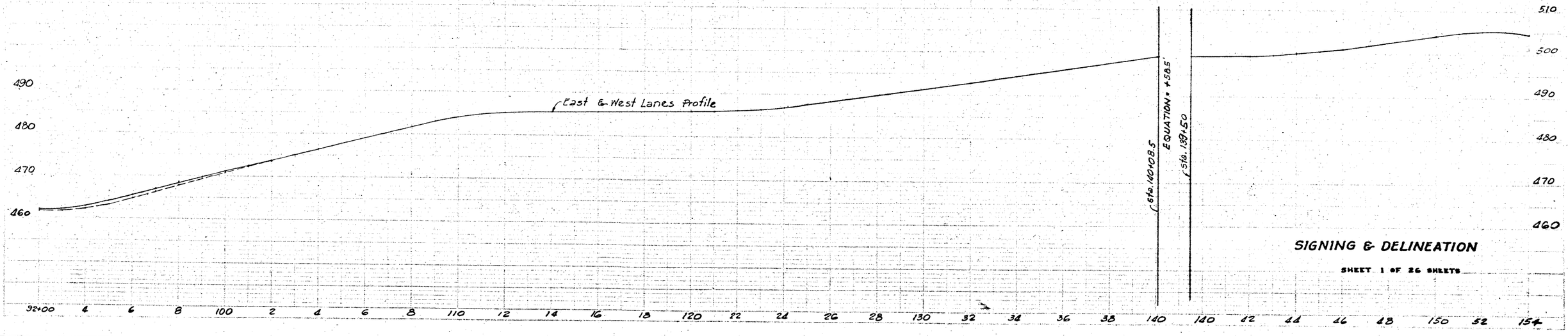
21 WEBB 18 6 38 IH-35



LEGEND FOR DELINEATORS

- Type I - Single White
- Type II - Double Amber
- Type III - Triple Amber
- Type IV - Triple Amber

All signs on this Sheet Non-Participating in F.A.I.

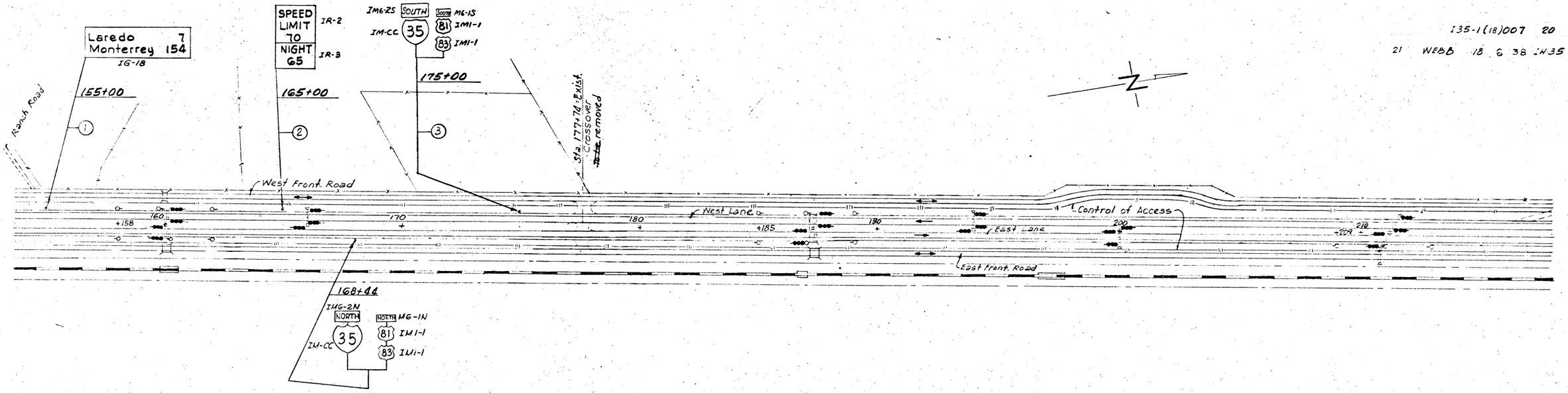


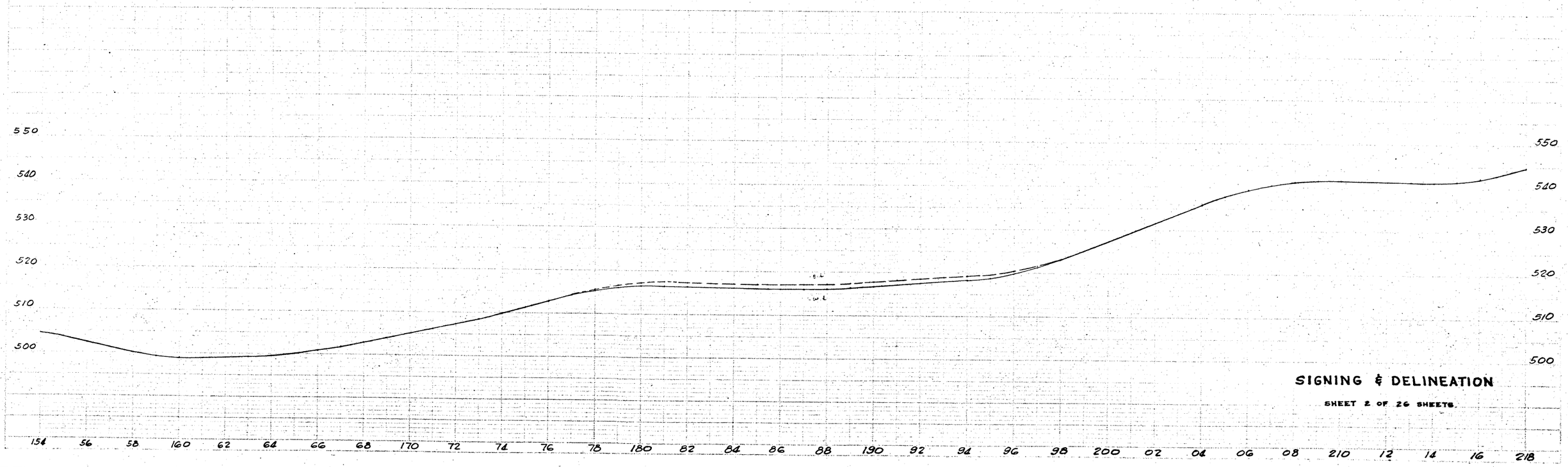
SIGNING & DELINEATION

SHEET 1 OF 26 SHEETS

I35-1(18)007 20

21 WEBB 18 & 38 IH35



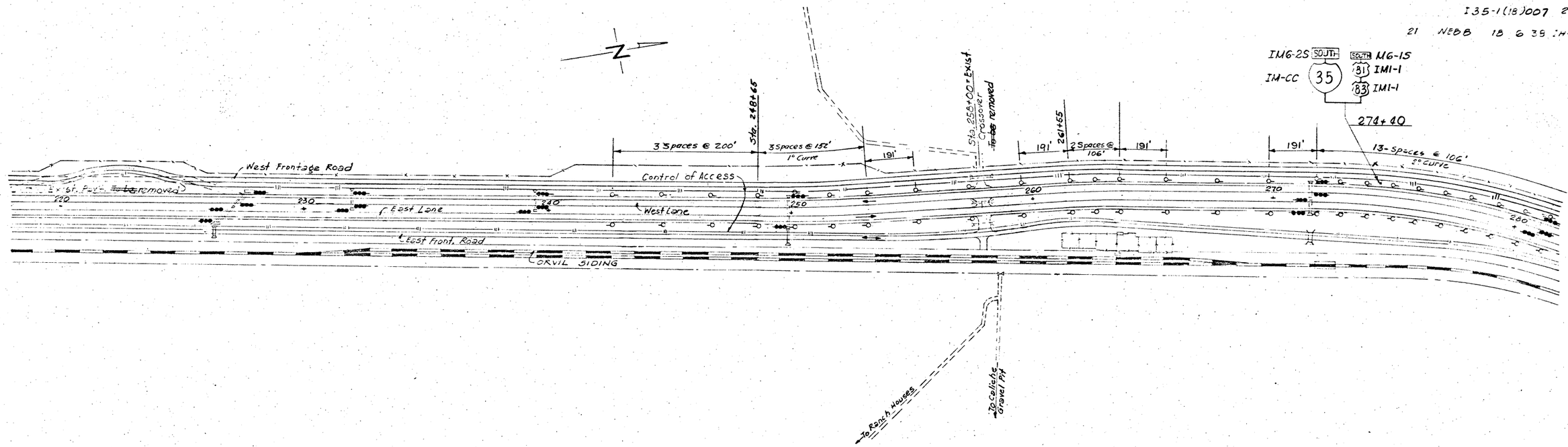


SIGNING & DELINEATION

SHEET 2 OF 26 SHEETS.

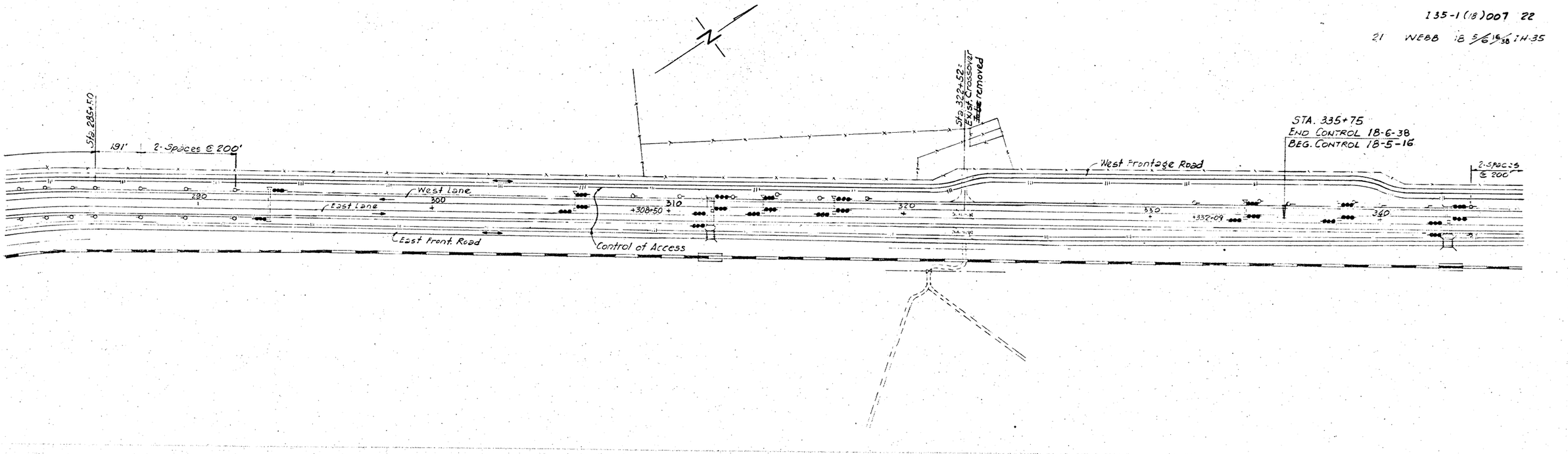
I35-1(18)007 21

21 NEBB 18 6 39 :IH35



SIGNING & DELINEATION

SHEET 3 OF 26 SHEETS

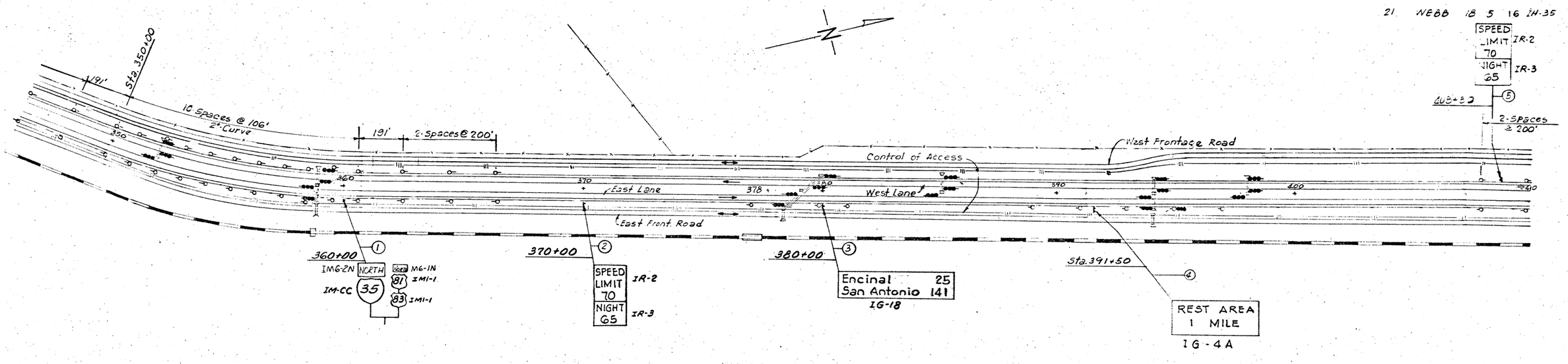


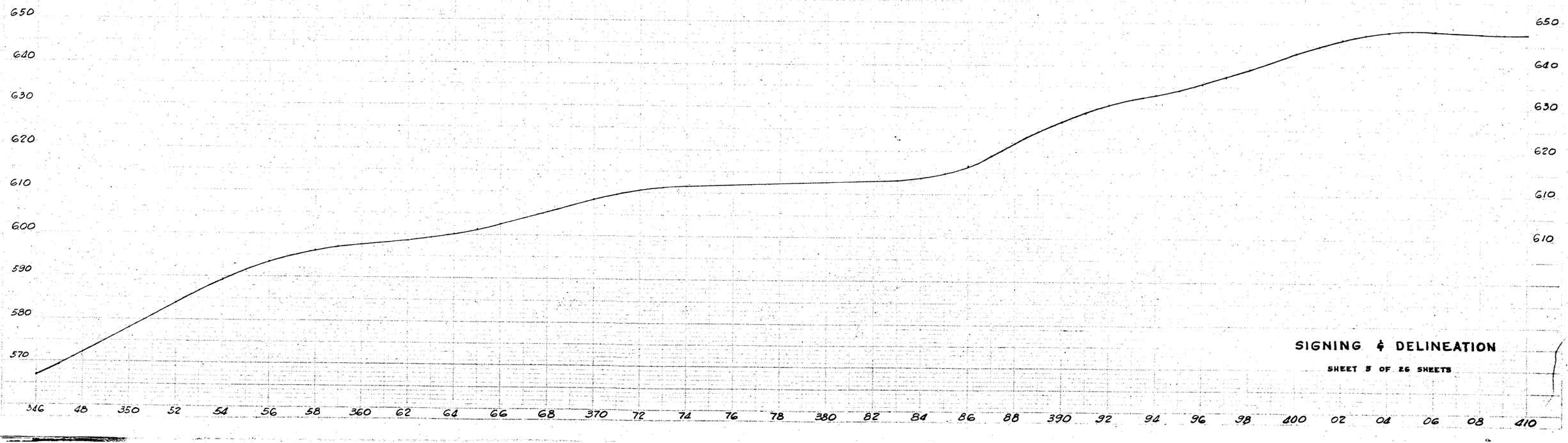
SIGNING & DELINEATION

SHEET 4 OF 26 SHEETS

I35-1(18)007 23

21 WEBB 18 5 16 IH-35





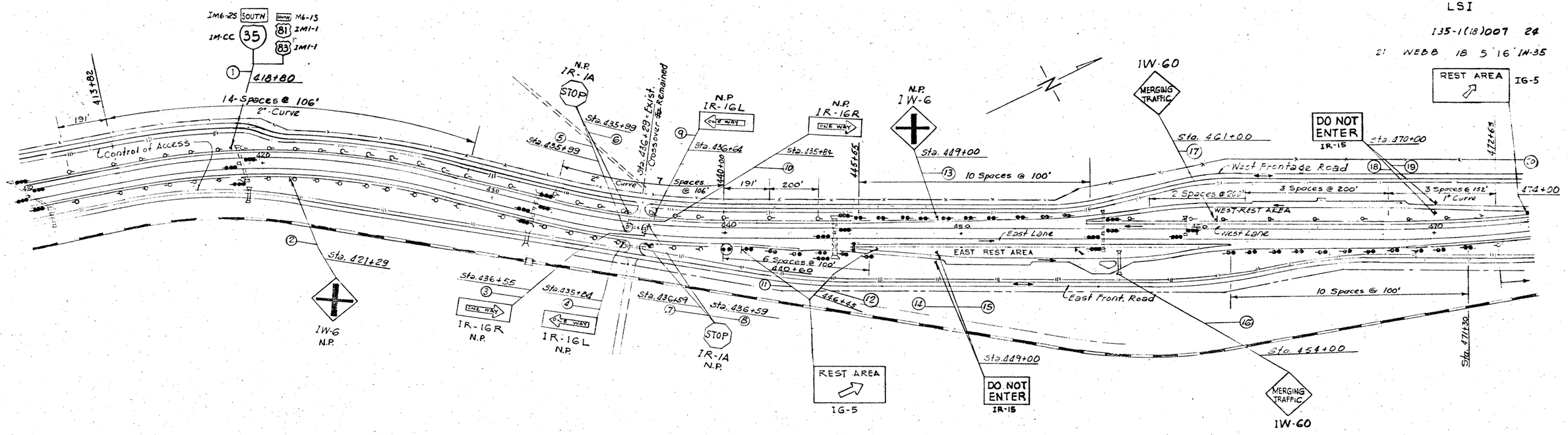
SIGNING & DELINEATION

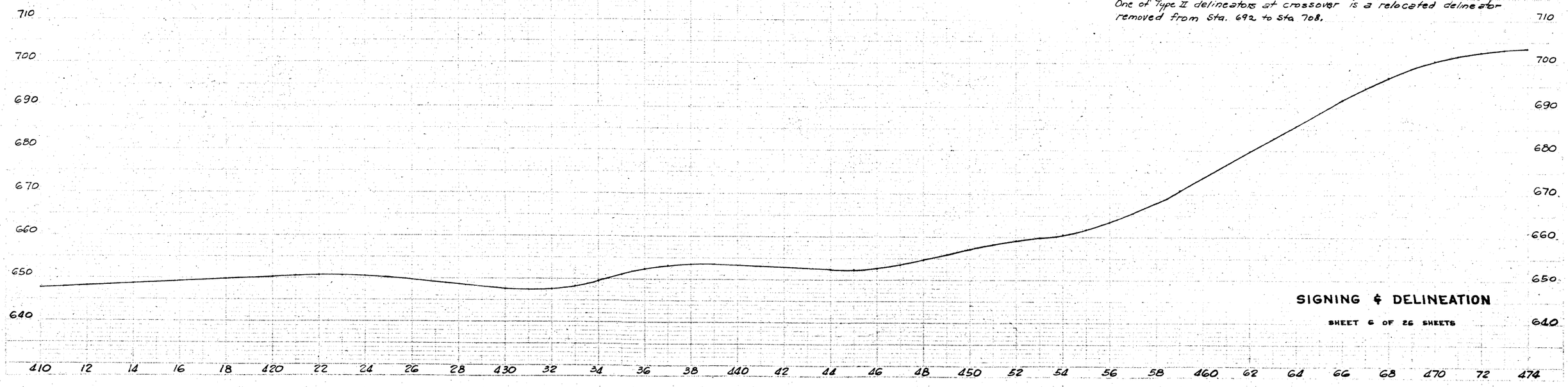
SHEET 5 OF 26 SHEETS

LSI

I35-1(18)007 24

21 WEBB 18 5 16 IN-35





Note: The Type IV Delineator and all Type II Delineators except the two at the Crossover are chargeable to Rest Area Project. One of Type II delineators at crossover is a relocated delineator removed from Sta. 692 to sta 708.

SIGNING & DELINEATION

SHEET 6 OF 26 SHEETS

IG-5
REST AREA

481+15

House

West Front. Road

7 Spaces @ 100'

3 Spaces @ 200'
Control of Access

3 Spaces @ 200'

16 Spaces @ 152'
2-1° Curves

Future Ramp

REST AREA
6/10 MILE
IG-4A

Sta. 505+00

Future Ramp

West Lane

Future Interchange

East Lane

Future Ramp

6 Spaces @ 152'
1° Curve

East Front. Road
7 Spaces @ 200'

Future Ramp

Sta. 482+63 Exist. Crossover To be removed

Ranch Road

Ranch Road

EQUATION
Sta. 519+78.8 = Sta. 520+10.9

3 Spaces @ 200'

13 Spaces @ 200'
For High Fill

Sta. 528+61 Exist. Crossover To be removed

Note: Type II & IV Delineators are all chargeable to Rest Area Project.

710
700
690
680
670
660

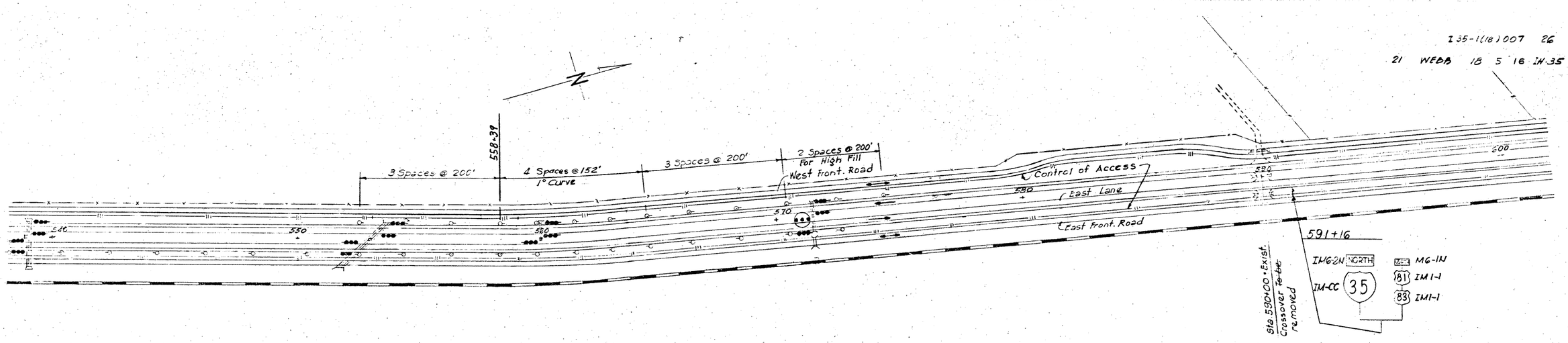
474 76 78 480 82 84 86 88 490 92 94 96 98 500 02 04 06 08 510 12 14 16 18 520 22 24 26 28 530 32 34 36 538

SIGNING & DELINEATION

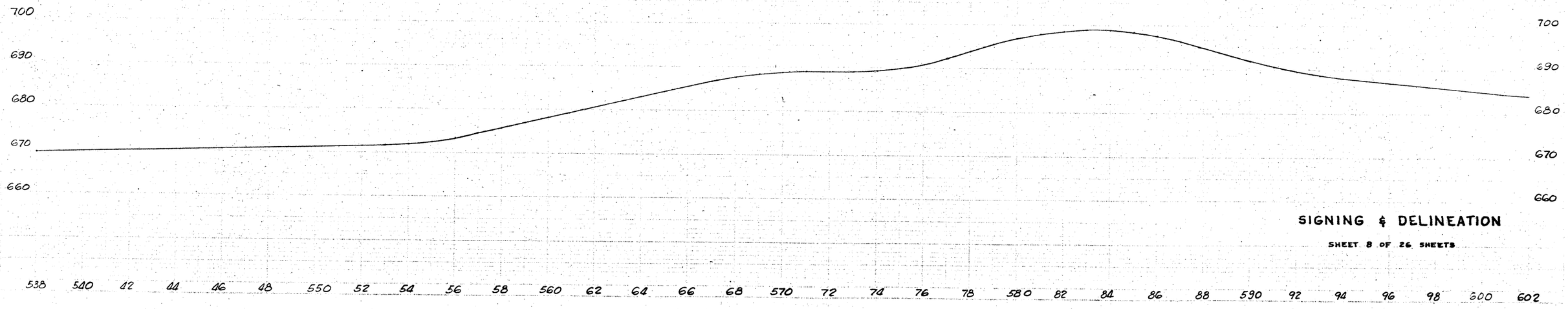
SHEET 7 OF 26 SHEETS

I 35-1(18)007 26

21 WEBB 18 5 16 IM-35

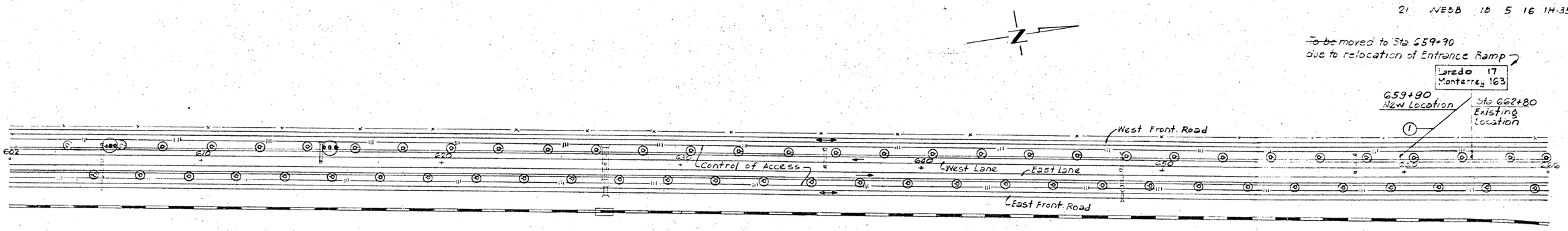


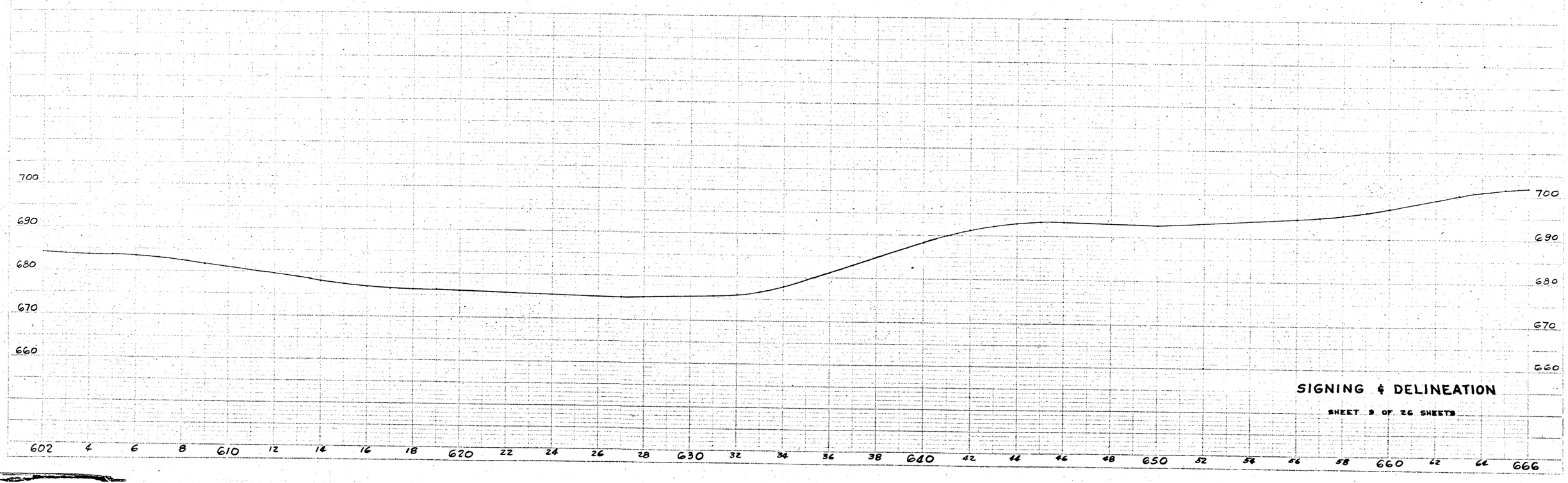
Note: One of Type III Delineators is a relocated delineator removed from Sta. 690.



SIGNING & DELINEATION

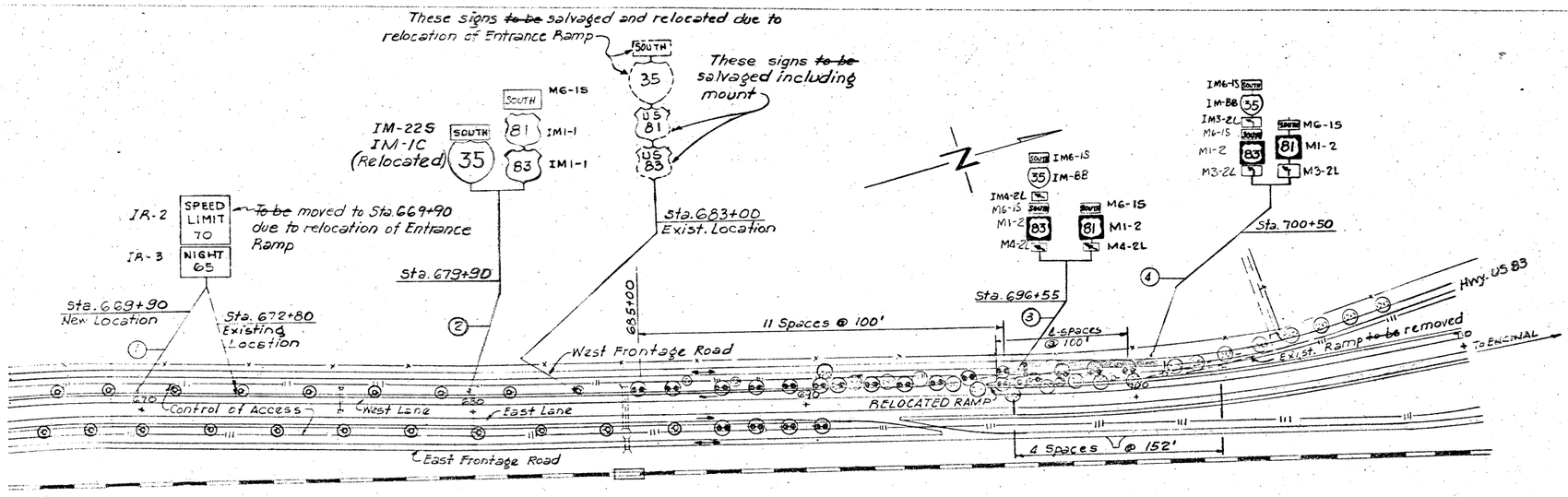
SHEET 8 OF 26 SHEETS





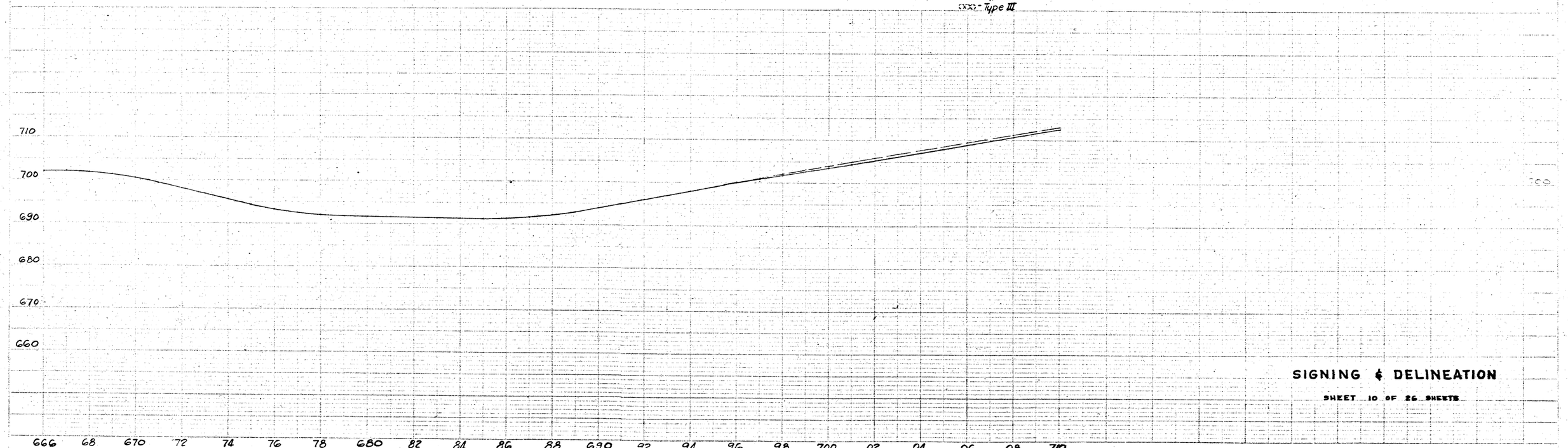
SIGNING & DELINEATION

SHEET 9 OF 26 SHEETS



Note: Delineators shown with dashed lines installed under Project I35-1(8)002. Delineators with ◯ around them ~~are to be~~ removed and relocated because of the relocation of Entrance Ramp
◯ - Type I
◯◯ - Type II
◯◯◯ - Type III

Delineators shown with solid lines with a ◯ around them were removed from another position and placed here.



SIGNING & DELINEATION

EQUATION
STA. 797+94.3
= STA. 1024+53.0
= -26,658.7'

STA. 1071+18.6
BEG. PROJECT I35-1(20)020
CONTROL 18-4-13
= Sta. 1071+18.6
Control 18-4-12
Proj. I35-1(8)002
Completed July 3, 1963

To Laredo

3 Spaces @ 200'

3-Spaces @ 123'
1°30' Curve

Sta. 1093+60

Sta. 1097+29

Spacing @ 200'

INT. G.N. R.R. (M.P.)

Sta. 1107+29

7-Spaces @ 123'
1°30' Curve

790

1070

1080

Crossover to Remained

1090

EAST EXPRESSWAY LANE

WEST EXPRESSWAY LANE

1100

West Front Road

Control of Access

1110

EQUATION
STA. 798+63.1
= STA. 1068+24.6
= -26,661.5'

SAME POINT

NORTH IM6-2N
35 IM-CC
1068+98
NORTH M6-IN
81 IM1-1

Signing For this Crossover has been done under Project I-35-1(8)002

Control of Access
4-Spaces @ 114'
1°45' Curve

3 Spaces @ 200'

Sta. 1105+29

Sta. 1109+85

750

790

Control of Access

620
630
620

℄ Fin. Grade - West Lane
℄ Fin. Grade - East Lane

798 1070 72 74 76 78 1080 82 84 86 88 1090 92 94 96 98 1100 02 04 06 08 1110 12 1114

SIGNING & DELINEATION

SHEET 11 OF 26 SHEETS

I35-1(20)020 30

21 WEBB 18 & 13 I-35

STOP IR-1A

1116+19
Moved from
Sta. 1245+07

3 Spaces @ 200'

WEBB SIDING

IR-1A
STOP

Sta. 1132+43 Sta. 1132+43

Sta. 1132+73 = Exist. Crossover to Remained

IR-16L
ONE WAY

Sta. 1133+18

IR-16R
ONE WAY

Sta. 1132+23

IW-6

Sta. 1147+73

Sta. 1148+46

Sta. 1150+37

191'

4 Spaces @ 106'
2° Curve

Sta. 1154+61

3 Spaces @ 200'

3 Spaces @ 200'

2 Spaces @ 152'
1° Curve

West Front Road

East Front Road

West Lane

East Lane

Control of Access

1120 1130 1140 1150 1160 1170

9 Spaces @ 200'

1151+60

Sta. 1117+73

1116+05
Moved from
Sta 1241+67

ONE WAY IR-16R

IW-6

Sta. 1133+03 Sta. 1132+28

ONE WAY IR-16R

ONE WAY IR-16L

Sta. 1133+03 Sta. 1133+03

STOP IR-1A

SPEED LIMIT 70 NIGHT 65 IR-2 IR-3

Moved from
Sta. 1227+00

1164+58

SOUTH I-16-2S

35 IM-1-CC

SOUTH MG-1S

31 IM1-1

Moved from
Sta. 1237+00

1174+58

Sta. 1176+52

Sta. 1177+85

IW-6

630
620
610

East & West Lanes

West Lane

East Lane

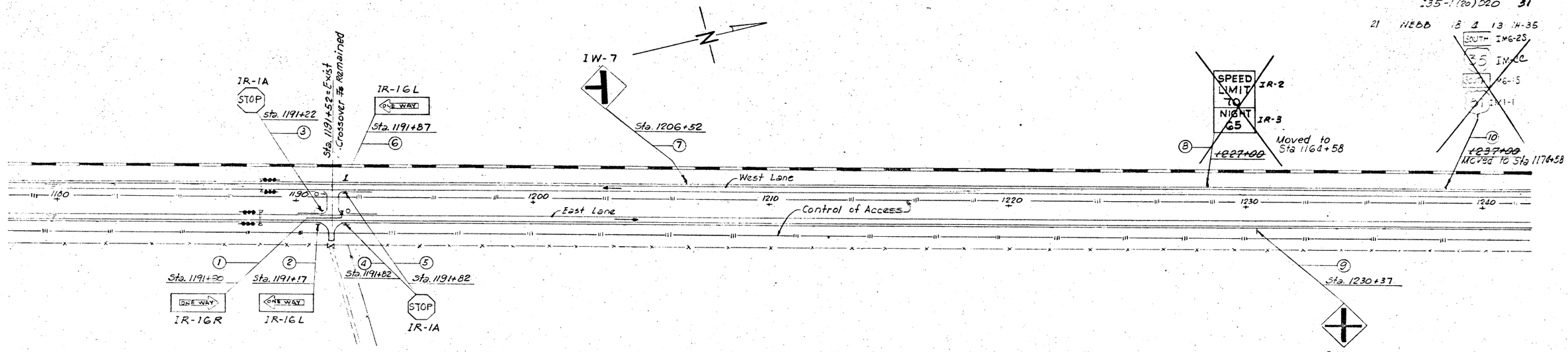
1114 16 18 1120 22 24 26 28 1130 32 34 36 38 1140 42 44 46 48 1150 52 54 56 58 1160 62 64 66 68 1170 72 74 76 1178

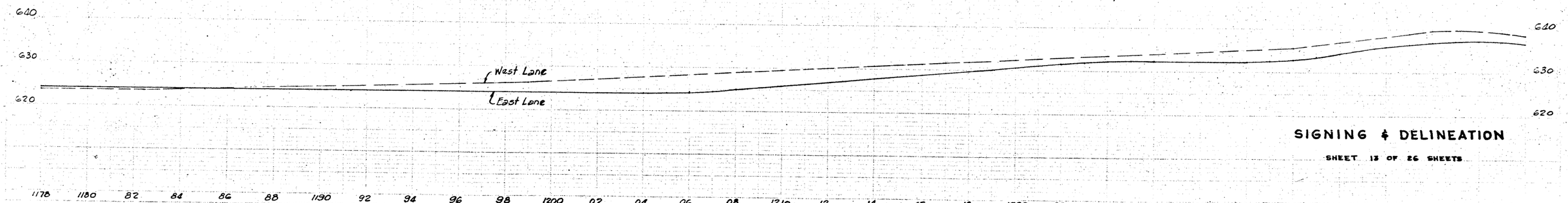
SIGNING & DELINEATION

SHEET 12 OF 26 SHEETS

I35-1(20)020 31

21 WEBB 18 4 13 I-35



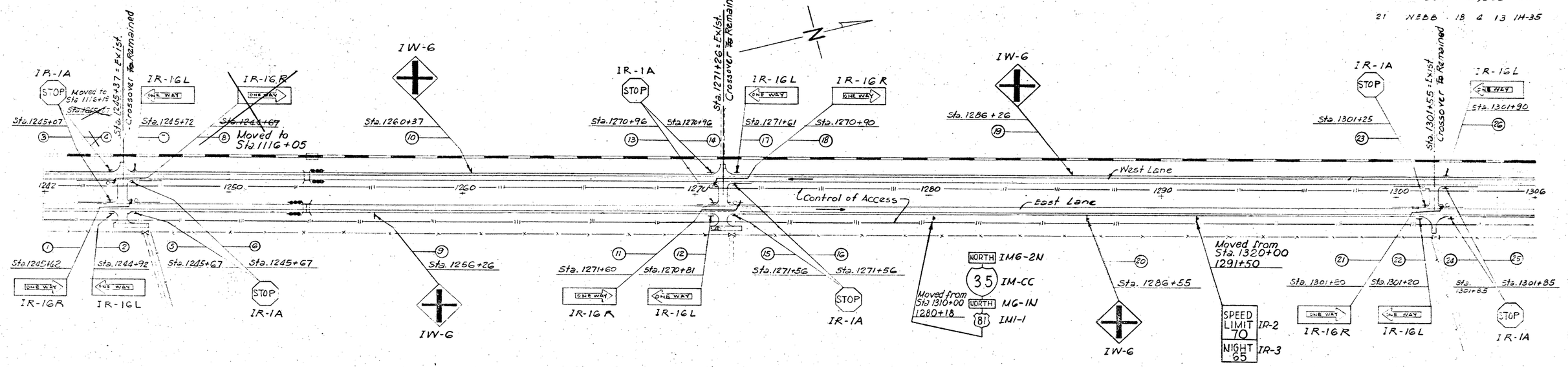


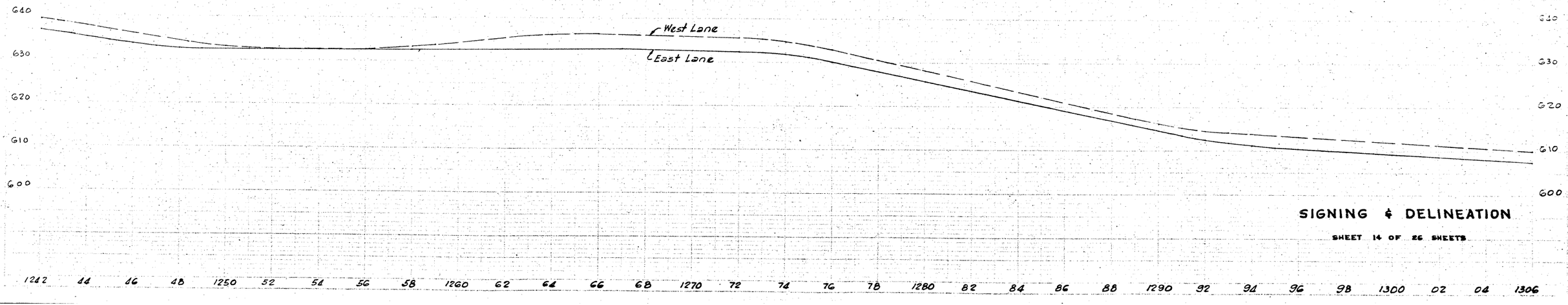
SIGNING & DELINEATION

SHEET 13 OF 26 SHEETS

I35-1(20)020 32

21 WEBB 18 & 13 IH-35



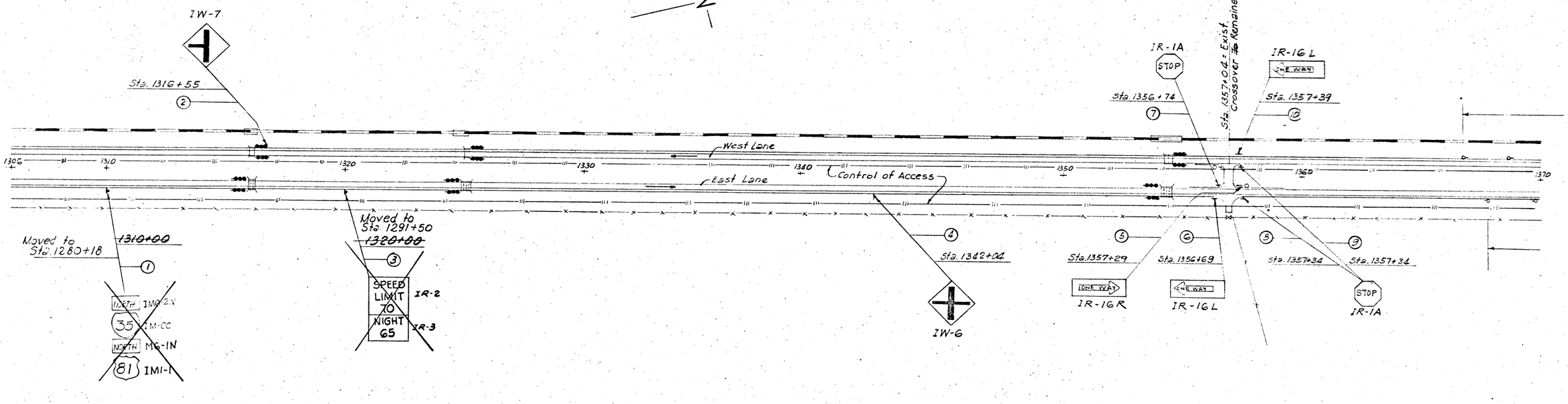


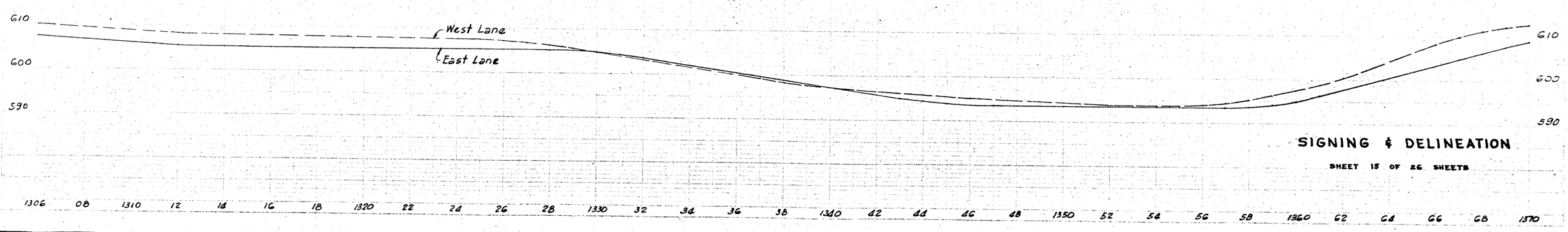
SIGNING & DELINEATION

SHEET 14 OF 26 SHEETS

135-1(20)020 33

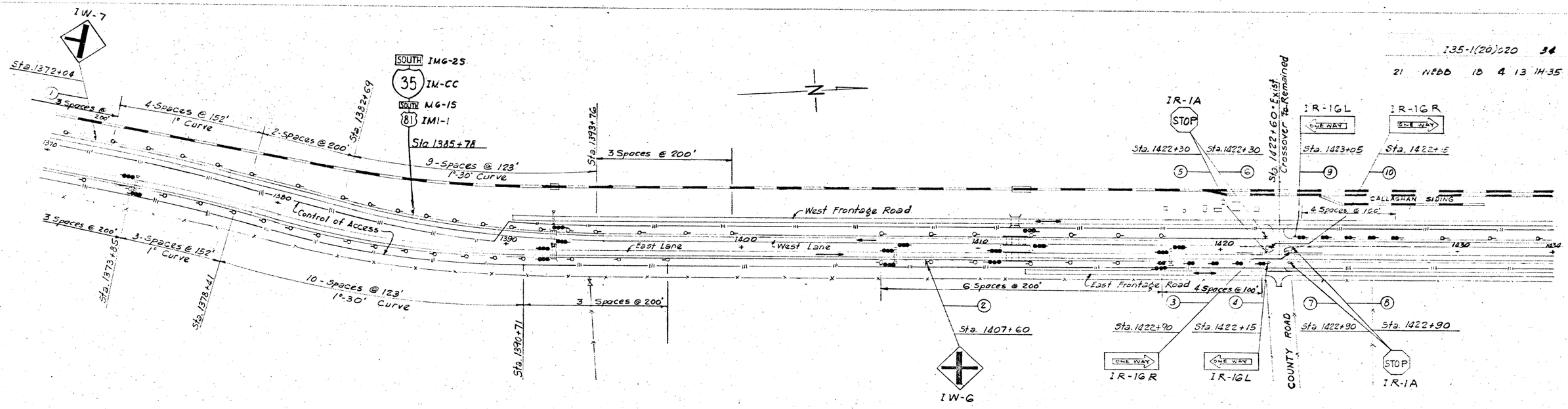
21 NEBB 18 & 13 I-35

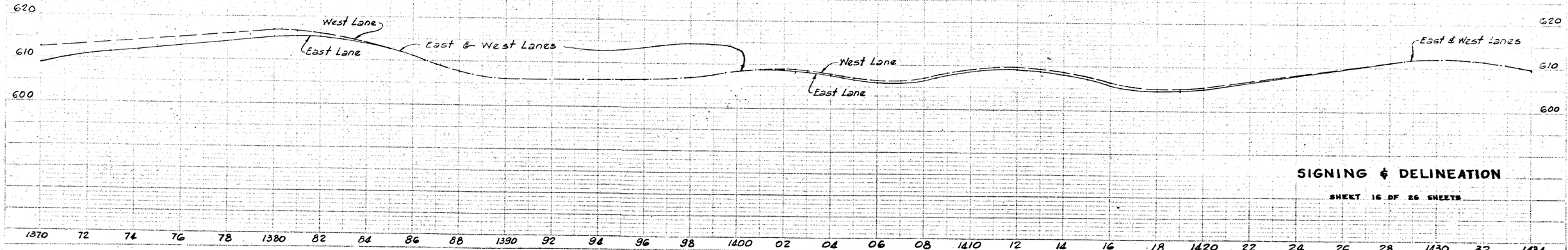




SIGNING & DELINEATION

SHEET 15 OF 26 SHEETS





SIGNING & DELINEATION

SHEET 16 OF 26 SHEETS

I35-1(120)020 35

21 WEBB 18 4 13 IH-35

IW-6

Sta. 1437+60

1

11 Spaces @ 200'

Sta. 1443+76

8-Spaces @ 152'
2-1° Curves

Sta. 1461+92

West Front Road

Control of Access

West Lane

3 Spaces @ 200'

1430

1440

1450

1460

1470

East Lane

East Front Road

Control of Access

Sta. 1434+71

2

Sta. 1454+17

IW-6

IR-1A

STOP

Sta. 1468+87

5

Sta. 1468+87

6

Sta. 1469+17
Ex. Crossover
Remained

IR-1GL

ONE WAY

Sta. 1469+52

9

IR-1GR

ONE WAY

Sta. 1468+87

10

3 Spaces @ 200'

Sta. 1477+65

IW-6

Sta. 1484+17

11

6-Spaces @ 152'
1° Curve

Sta. 1483+73

10 Spaces @ 200'

Sta. 1497+73

1480

1490

1498

3

4

Sta. 1469+47

Sta. 1468+72

ONE WAY

IR-1GR

ONE WAY

IR-1GL

7

8

3 Spaces @ 200'

Sta. 1469+47

Sta. 1469+47

STOP

IR-1A

Sta. 1476+71

5-Spaces @ 152'
1° Curve

9 Spaces @ 200'

Sta. 1484+31

Sta. 1491+38

Sta. 1496+31

NORTH IM6-2N

35 IM-CC

NORTH IM6-1N

81 IM1-1

650
640
630
620
610
600

East & West Lanes

West Lane

East Lane

1434 36 38 1440 42 44 46 48 1450 52 54 56 58 1460 62 64 66 68 1470 72 74 76 78 1480 82 84 86 88 1490 92 94 96 1498

SIGNING & DELINEATION

SHEET 17 OF 26 SHEETS

(7)

135-1(20)020 36

21 WEBB 18-4-3 13 10 IH-35

Laredo 27
Monterrey 174
IG-18

Sta. 1499+73

1500+00 ①

STA. 1499+10.0
END CONTROL 18-4-13
BEG. CONTROL 18-3-10

SPEED LIMIT 70 NIGHT 65 IR-2 IR-3

1510+00 ②

IM6-2S SOUTH
IM-CC 35
M6-1S SOUTH
IM1-1 81

1520+00 ③

1517+00

High Fill

Control of Access

East Lane

Control of Access

Sta. 1498+31

Sta. 1522+69 ④

IW-6

IR-1A STOP

Sta. 1537+39 ⑦ Sta. 1537+39 ⑧

Sta. 1537+69 Exist. Crossover to Remained

IR-1GL ONE WAY

IR-1GR ONE WAY

Sta. 1538+04 ⑪ Sta. 1537+39 ⑫

IW-6

Sta. 1552+69 ⑮

1498 1500 1510 1520 1530 1540 1550 1560 1562

East Front Road

⑤ Sta. 1537+99 ⑥ Sta. 1537+24 ⑨ Sta. 1537+99 ⑩ Sta. 1537+99

ONE WAY IR-1GR

ONE WAY IR-1GL

STOP IR-1A

⑬ 1540+00

IM6-2N NORTH
IM-CC 35
M6-1N NORTH
IM1-1 81

⑭ 1550+00

SPEED LIMIT 70 NIGHT 65 IR-2 IR-3

⑯ 1560+00

Encinal 9
San Antonio 125
IG-18

640 630 620 610 600 590 580 570

East Lane
West Lane

1498 1500 02 04 06 08 1510 12 14 16 18 1520 22 24 26 28 1530 32 34 36 38 1540 42 44 46 48 1550 52 54 56 58 1560 1562

600 590 580 570

SIGNING & DELINEATION

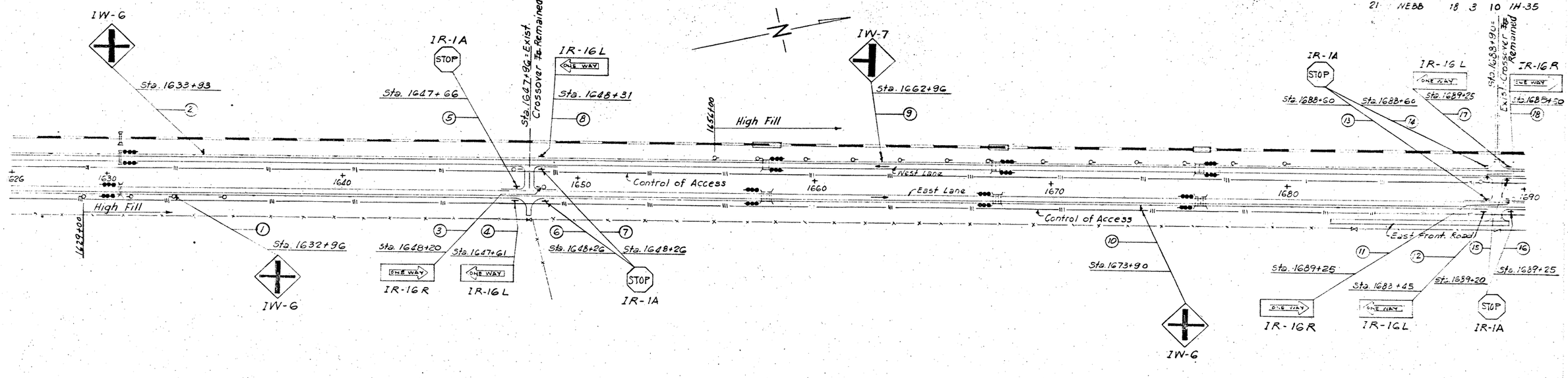
SHEET 18 OF 26 SHEETS

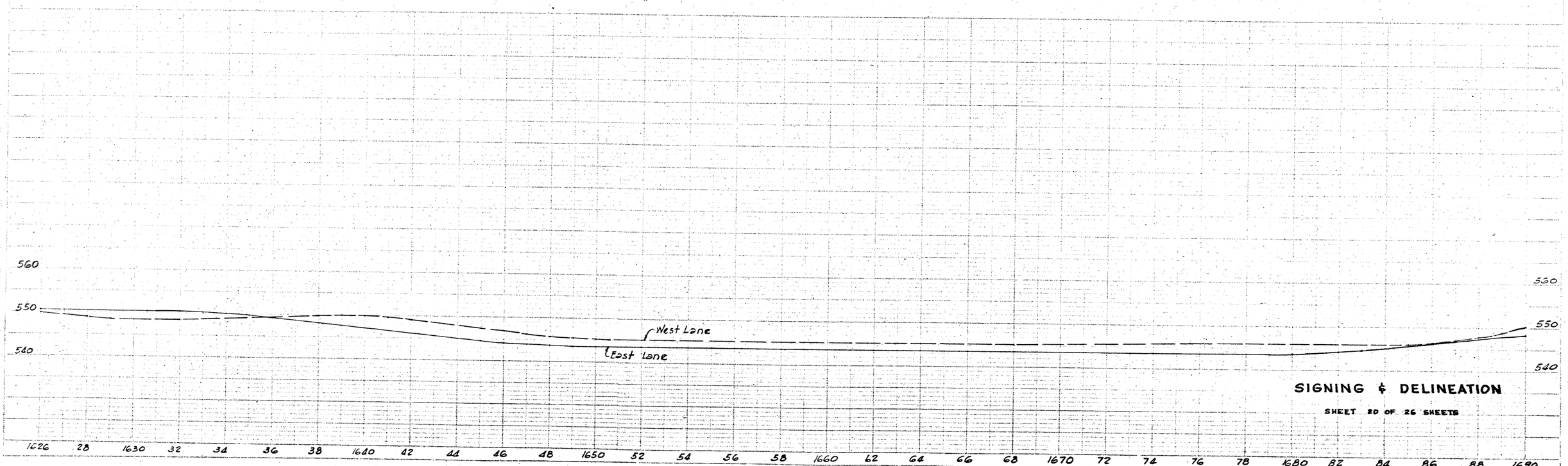
IR-1A STOP
Sta. 1580+66
Sta. 1580+66
Sta. 1580+96: Exist. Crossover ~~to be~~ Remained
IR-1G L ONE WAY
Sta. 1581+31
IR-1G R ONE WAY
Sta. 1580+66
IW-6
Moved to Sta. 1593+96
~~Sta. 1595+96~~
SOUTH IMG-2S
35 IM-CC
SOUTH MG-1S
81 IM1-1
Sta. 1596+98
West Lane
Control of Access
East Lane
Control of Access
Exist. Pavement ~~to be~~ removed
1562
1570
1580
1590
1600
1610
1620
1626
1 Sta. 1565+96 IW-6
2 Sta. 1581+24 ONE WAY IR-1G R
3 Sta. 1580+61 ONE WAY IR-1G L
6 Sta. 1581+26
7 Sta. 1581+26 STOP IR-1A
11 Sta. 1603+93 IW-7
IR-1A STOP
Sta. 1618+63
Sta. 1618+63
Sta. 1618+93: Exist. Crossover ~~to be~~ Remained
IR-1G L ONE WAY
Sta. 1619+28
IR-1G R ONE WAY
Sta. 1618+58
Sta. 1618+58 ONE WAY IR-1G L
Sta. 1619+28 STOP IR-1A

580
570
560
550
West Lane
East Lane
1562 64 66 68 1570 72 74 76 78 1580 82 84 86 88 1590 92 94 96 98 1600 02 04 06 08 1610 12 14 16 18 1620 22 24 1626

SIGNING & DELINEATION

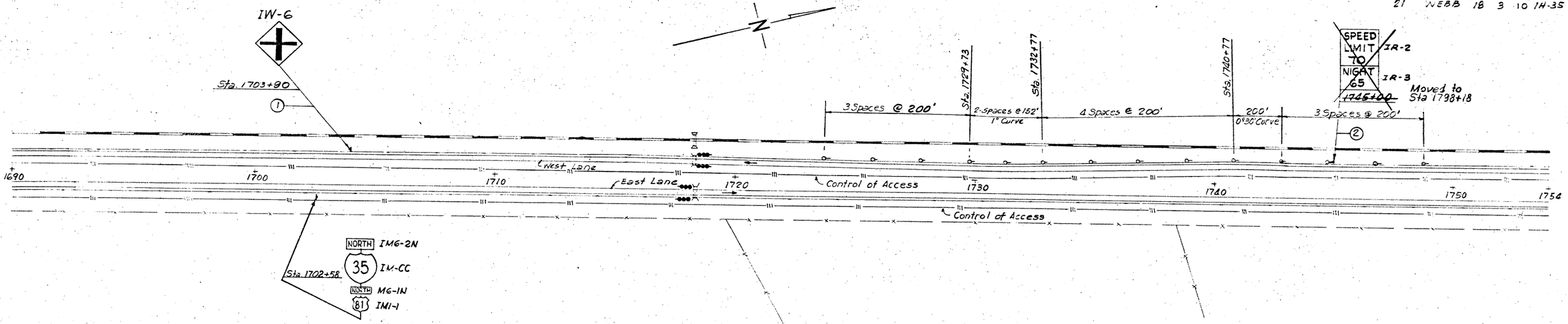
SHEET 19 OF 26 SHEETS

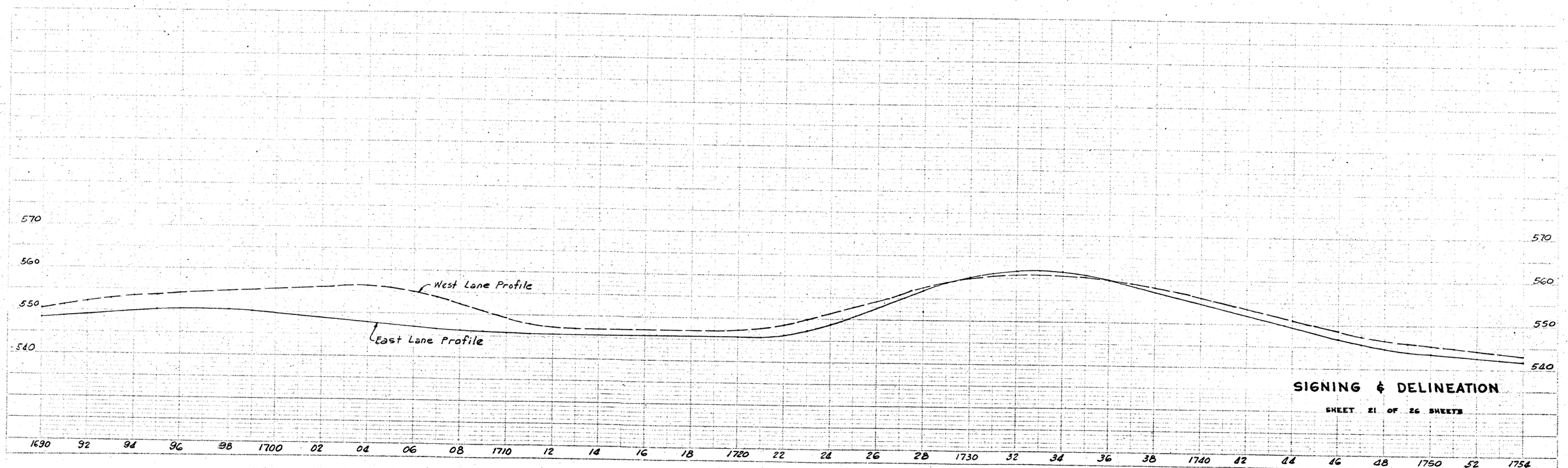




SIGNING & DELINEATION

SHEET 20 OF 26 SHEETS





SIGNING & DELINEATION

SHEET 21 OF 26 SHEETS

IM6-2S SOUTH
IM-CC 35
MG-1S SOUTH
IM1-1 81

Moved to Sta. 1808+18
~~1755+00~~

IR-1A STOP
Sta. 1792+97
5

Sta. 1793+27 = Exist. Crossover to Remained

IR-1GL ONE WAY
Sta. 1793+62
8

SPEED LIMIT 70 NIGHT 65
IR-2
IR-3

Moved from Sta. 1745+00
Sta. 1798+18

IW-7
Moved to Sta. 1806+18
~~Sta. 1808+27~~
11

SOUTH IM6-2S
35 IM-CC
SOUTH MG-1S
31 IM1-1
Moved from Sta. 1755+00
1803+18

West Lane

1754 1760 1770 1780 East Lane 1790 1800 Control of Access 1810 18:8

Control of Access

East Front. Road

2
Sta. 1778+27

3
Sta. 1793+57
ONE WAY
IR-1GR

4
Sta. 1792+92
ONE WAY
IR-1GL

6
Sta. 1793+57

7
Sta. 1793+57
STOP
IR-1A

9
Moved to Sta. 1913+78
~~1800+00~~

10
Sta. 1803+53

12
1810+00
SPEED LIMIT 70 NIGHT 65
IR-2
IR-3

IW-6

NORTH IM6-2N
35 IM-CC
NORTH MG-1N
81 IM1N

IW-6

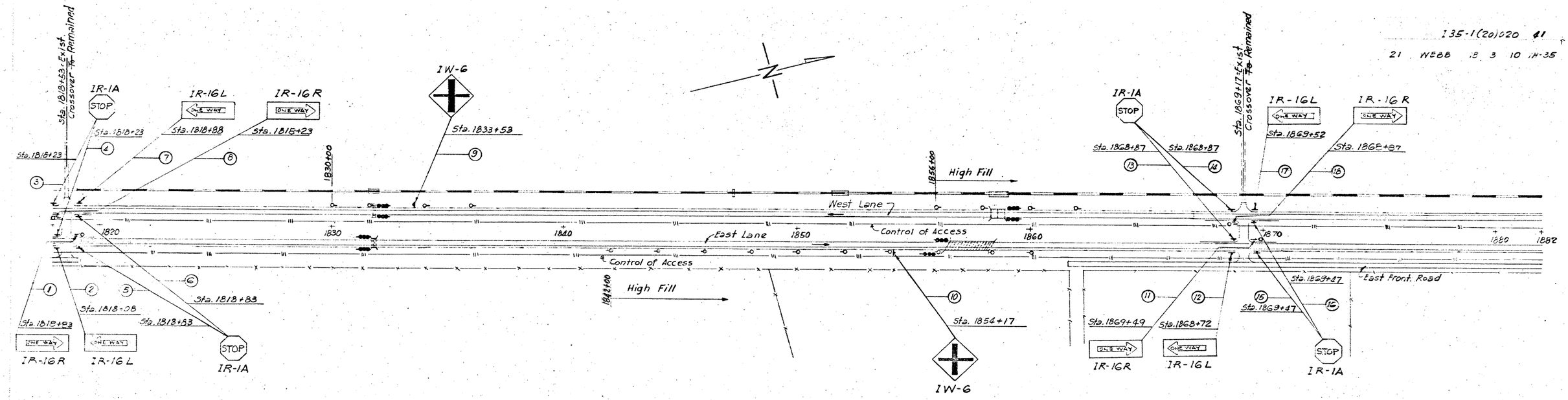
550
540
530

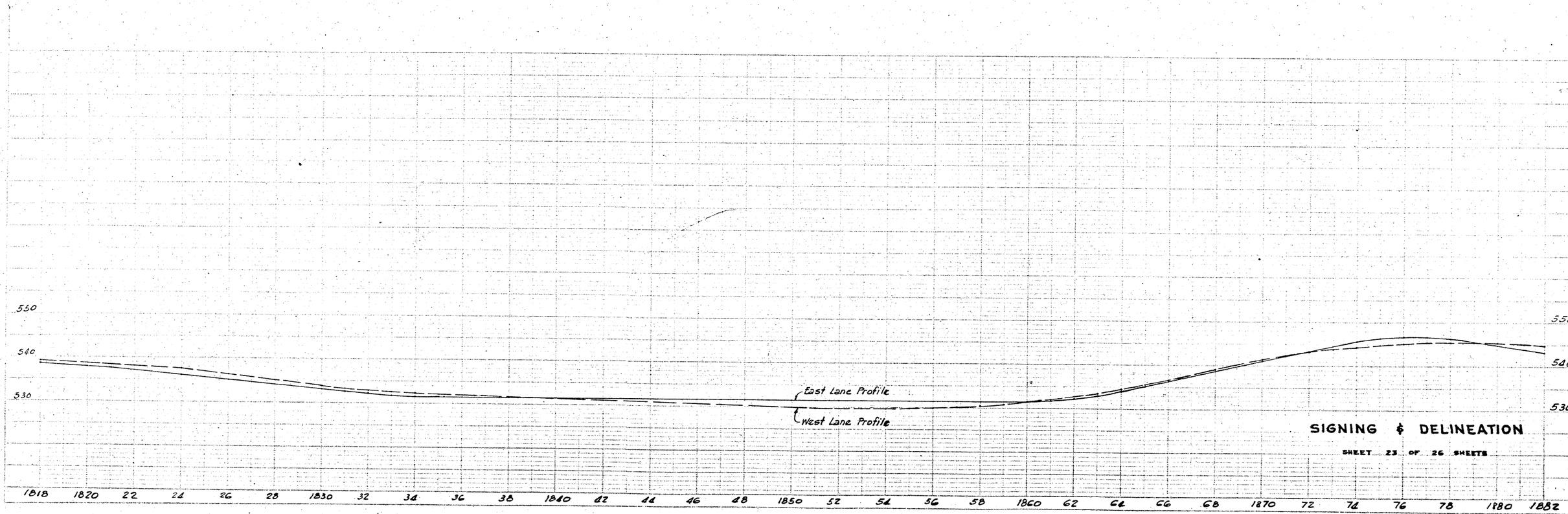
West Lane Profile
East Lane Profile

1754 56 58 1760 62 64 66 68 1770 72 74 76 78 1780 82 84 86 88 1790 92 94 96 98 1800 02 04 06 08 1810 12 14 16 1818

SIGNING & DELINEATION

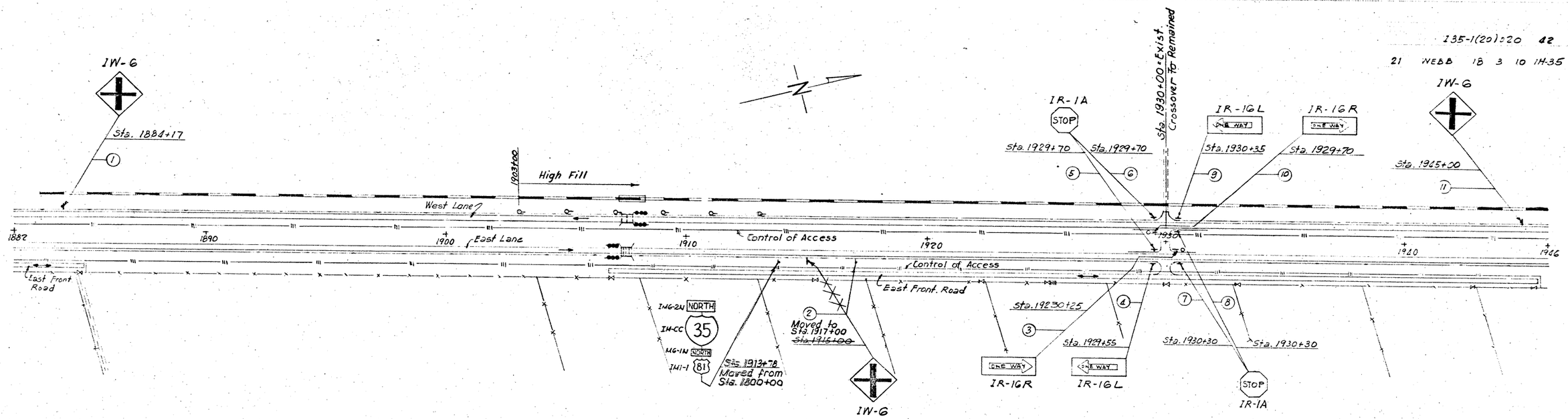
12

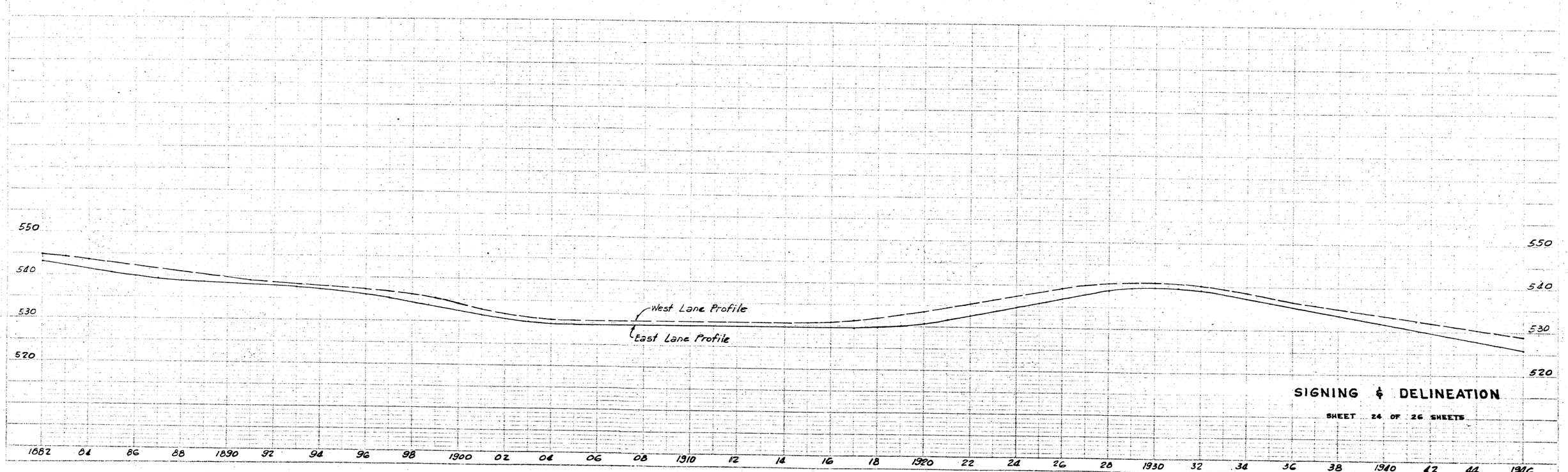




SIGNING & DELINEATION

SHEET 23 OF 26 SHEETS





SIGNING & DELINEATION

SHEET 24 OF 26 SHEETS

997+17

C 18-3-11

I 35-1(20)020 43

21 WEBB 18 3 10 11 IH-35

STA. 1997+00.0
END PROJECT
I35-1(20)020
CONTROL 18-3-10
=STA. 1997+00.0
BEG. PROJECT
C18-3-11
CONTROL 18-3-11

IG-18
Laredo 37
Monterrey 184

IW-G

IR-1A STOP

IR-1GL ONE WAY

IR-16R ONE WAY

IR-17 TWO WAY TRAFFIC AHEAD

IW-7

IW-21 DIVIDED HIGHWAY ENDS

Sta. 1962+68

Sta. 1962+98 Exist. Crossover To Remained

Sta. 1963+33

Sta. 1977+98

Sta. 1987+90

Sta. 1988+20 Exist. Crossover To Remained

Sta. 1988+55

Sta. 1987+90

Sta. 1999+00

Sta. 2003+20

Sta. 2004+05

Sta. 2004+35 Exist. Crossover To Remain

Sta. 2004+70

Sta. 2007+00

Sta. 2007+00

4 Spaces @ 100'

5 Spaces @ 200'

Future Prop'd. Ent. Ramp.

High Fill

Non Participating F.A.I.

1966 1950 1960 1970 1980 1990 2000 2010

West Lane

East Lane 1980 Future Prop'd. West Lane

Future Prop'd Temp. Connection

Control of Access

East Front Road

Future Prop'd Exit Ramp

5 Spaces @ 200'

4 Spaces @ 100'

Sta. 1947+98

Sta. 1963+28

Sta. 1962+53

Sta. 1963+28

Sta. 1963+28

Sta. 1973+20

Sta. 1957+55

Sta. 1983+50

Sta. 1983+35

5 Spaces @ 200'

Future Prop'd East ROW
Future Prop'd East Frontage Rd

Sta. 2000+31

Sta. 2002+31

Sta. 2002+00

Sta. 2004+65

Sta. 2003+90

Sta. 2004+65

Sta. 2004+65

4 Spaces @ 100' Curve

Sta. 2008+58

Future Prop'd. Exit Ramp

IW-G

IW-7

IR-16R ONE WAY

IR-16L ONE WAY

IR-1A STOP

IR-16L ONE WAY

IR-1A STOP

IW-G

IR-16R ONE WAY

IR-16L ONE WAY

IR-1A STOP

* 4 Spaces @ 100'

550
540
530
520

West Lane Profile

East Lane Profile

East & West Lane Profile

1946 48 1950 52 54 56 1958 1960 62 64 66 68 1970 72 74 76 78 1980 82 84 86 88 1990 92 94 96 98 2000 02 04 06 08 2010

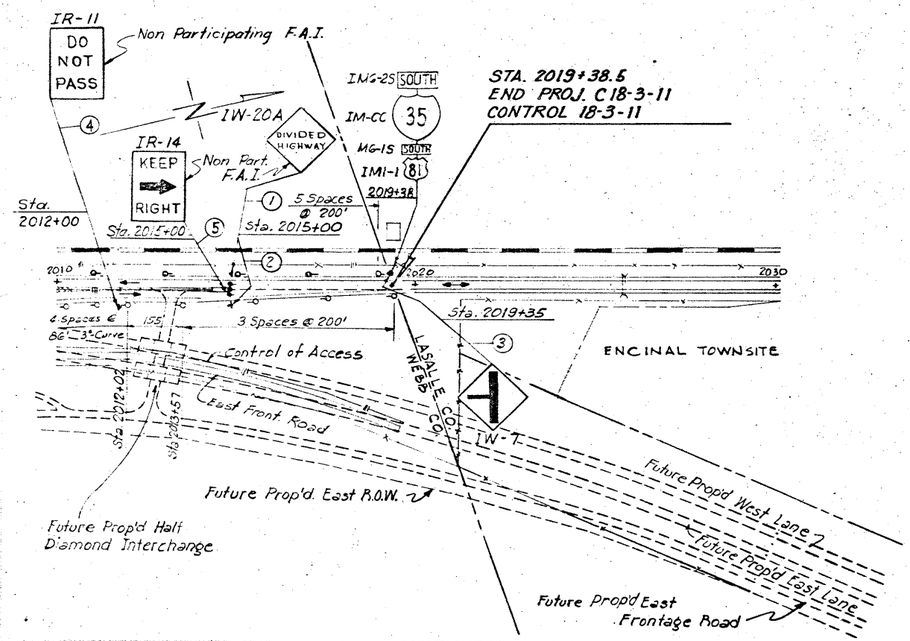
SIGNING & DELINEATION

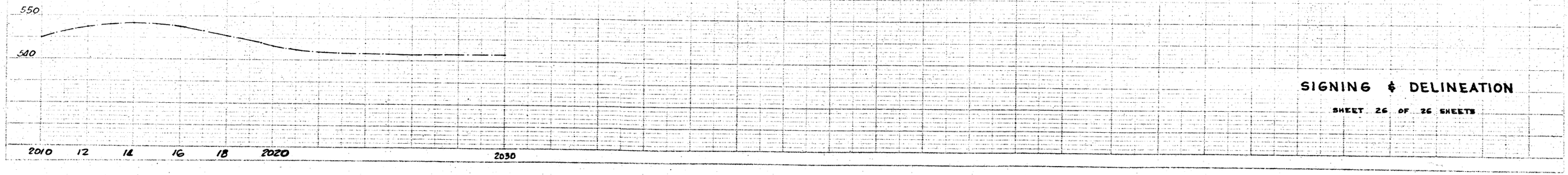
SHEET 25 OF 26 SHEETS

C 18-3-11

135-1(20)020 44

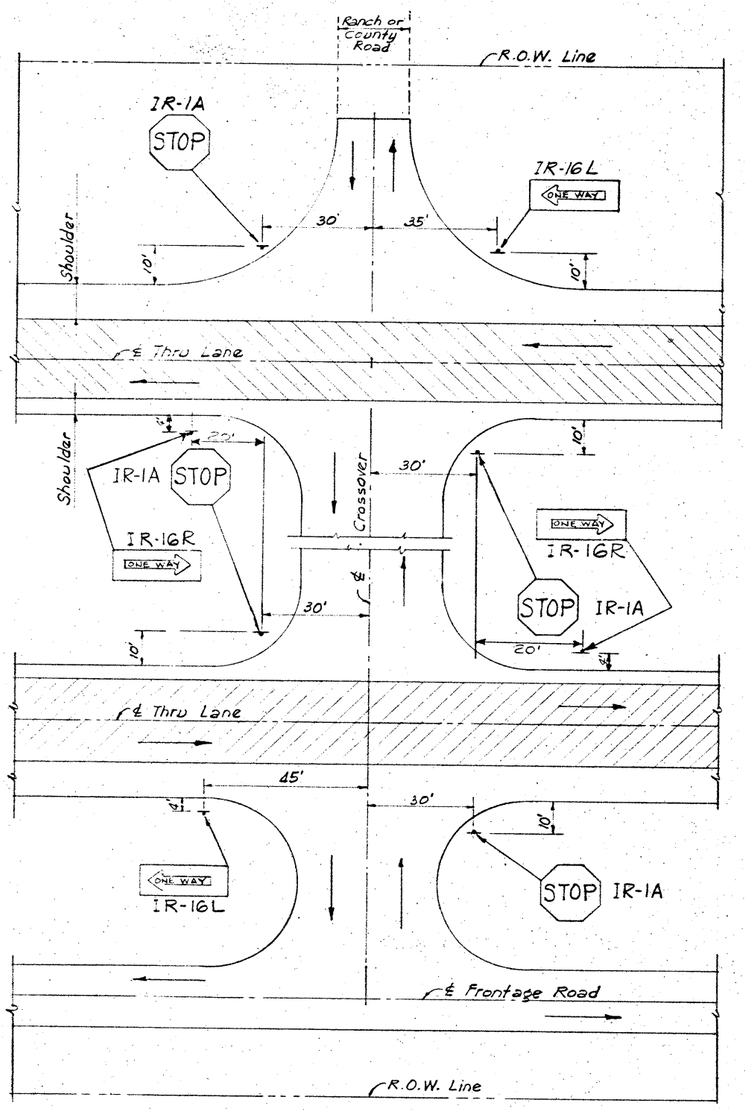
21 WEBB 18 3 10/11 IH-35



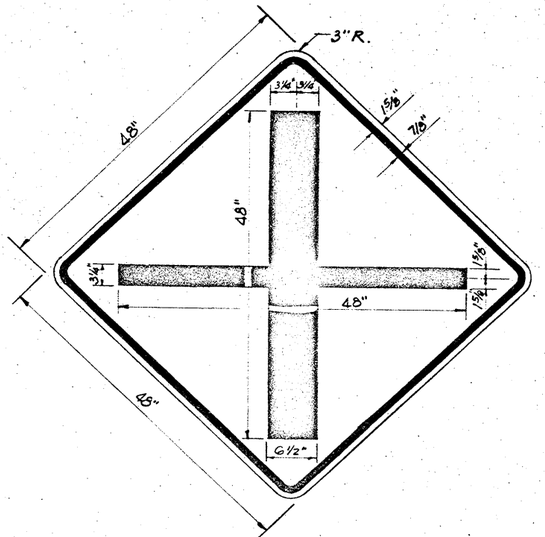


SIGNING & DELINEATION

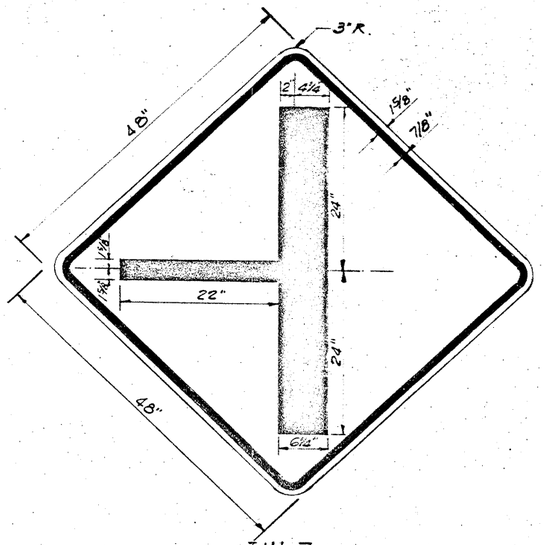
SHEET 26 OF 26 SHEETS



TYPICAL CROSSOVER LAYOUT



IW-6
48" × 48"



IW-7
48" × 48"

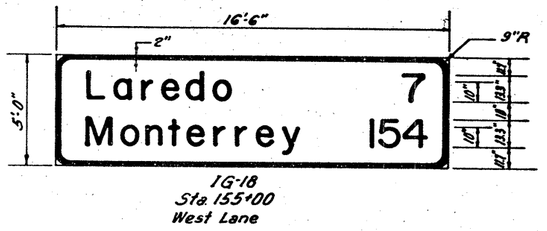
NOTE:
General notes for warning signs IW-6 & IW-7 refer to TEXAS HIGHWAY DEPT. Standard Interstate Signs sheet 15 MW(1).

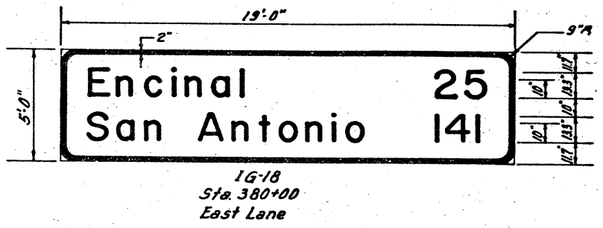
WARNING SIGNS AND TYPICAL CROSSOVER LAYOUT

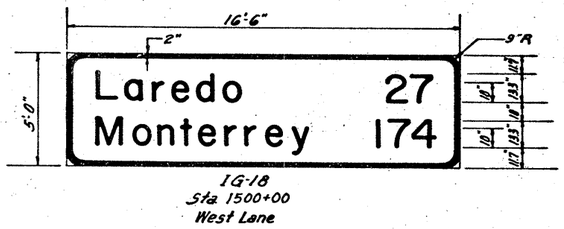
I 35-1(18)007
I 35-1(20)020

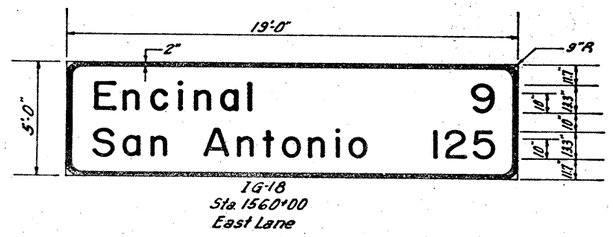
DIST.	COUNTY	PROJECT NO.	SHEET NO.
21	WEBB	18	15

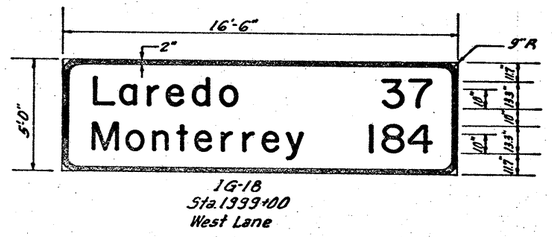
TEXAS I 35-1(18)007, etc.

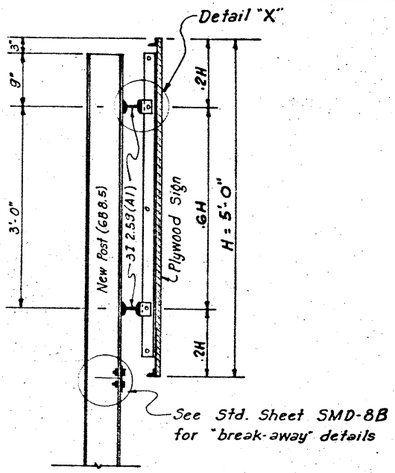






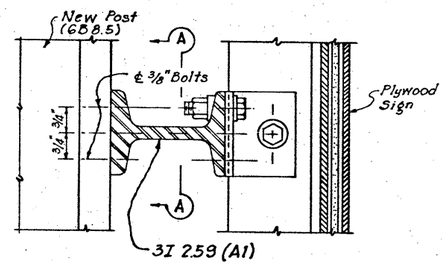




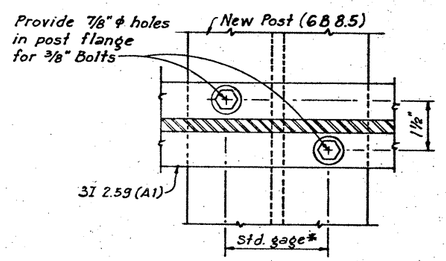


SIDE VIEW

NOTE: Use all bolts and washers from existing sign to mount sign assembly on new posts.



DETAIL "X"



* Field drill new 7/8" holes in 3I 2.59 (A1) Wind Beams to fit Std. gage for new Post (6B8.5)

SECTION A-A

EXIST. SIGN AT STA. 662+80 - WEST LANE - ~~TO BE~~ RELOCATED AT STA. 659+90 - Contractor to furnish new mount.

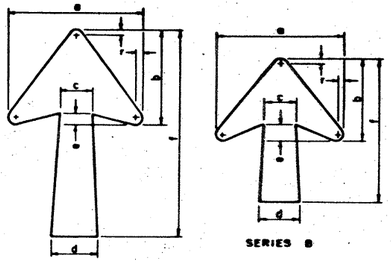
GENERAL NOTES:-
For all IG-18 Signs, background shall be of Interstate Green reflective material.
For all other General Notes see "Standard Interstate Signs"~ "Guide" 15G(1).

GUIDE SIGNS

I 35-1(18)007
I 35-1(20)020

I 35-1(18)007 etc. 46

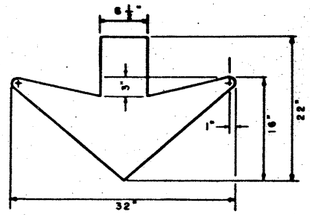
21 WEBB 18 5/3 E 38/16 10 IH-35



DIMENSIONS OF ARROW WHEN USED WITH VARIOUS LETTER SIZES

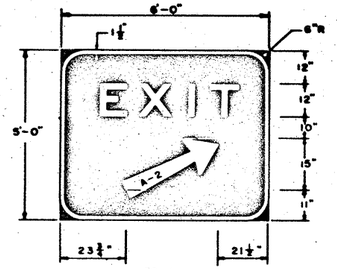
CODE	LETTER SIZE	ARROW DIMENSIONS IN INCHES						
		a	b	c	d*	e	f*	r
A-1	8" Cap	15 9/16	11 13/16	3 3/4	5	1 3/16	24 1/4	1 1/2
A-2	13 1/2" U.C., 10-12" Cap	18 1/2	14	4 1/2	6	1 1/2	29 1/2	2
A-3	16" U.C.	22 1/2	17	5 5/8	7 1/8	1 3/4	35 3/8	1
B-1	8"-10" Cap	14 1/2	9 1/16	3 5/8	4 1/2	1 1/16	17 1/2	3/4
B-2	13 1/2" U.C., 12" Cap	17 1/2	11 1/2	4 3/8	5 3/8	1 1/2	20 1/2	1
B-3	16" U.C.	21 1/2	14 1/2	5	6 3/8	1 3/4	25	1

* RECOMMENDED DIMENSIONS. TAPER SHOULD BE HELD CONSTANT FOR LONGER OR SHORTER SHAFT LENGTHS.

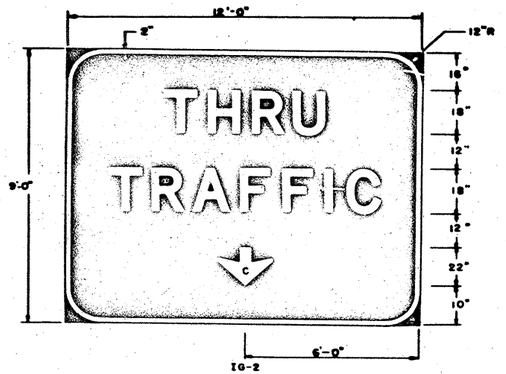


C
32" x 22"

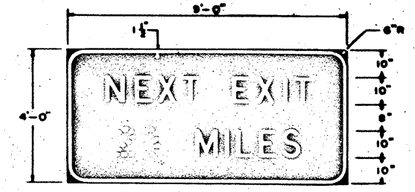
Where a removable reflectorized arrow is required on a green guide sign which has a depth of 2'-0" and which is usually erected on ramps and crossroads at interchanges, (often referred to as IG-25 or IG-26) the arrow shall be a Series B-1.



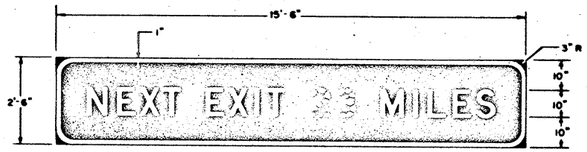
IG-1
6'-0" x 5'-0"



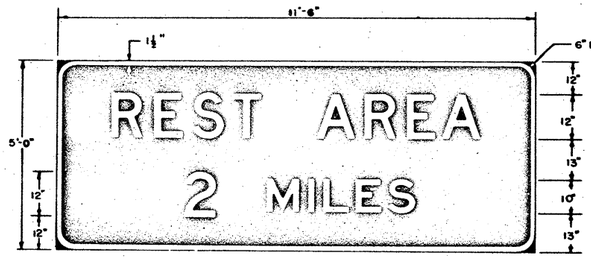
IG-2
12'-0" x 9'-0"



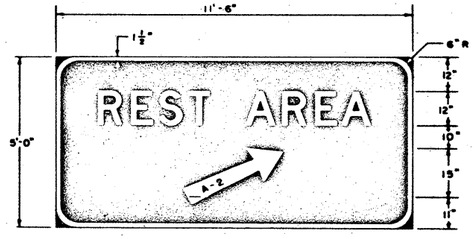
IG-3
9'-0" x 4'-0"



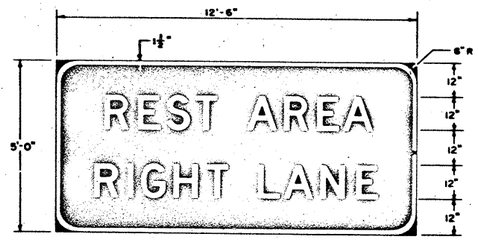
IG-3A
15'-6" x 2'-6"



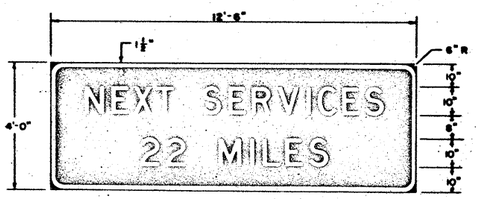
IG-4A
11'-6" x 5'-0"



IG-5
11'-6" x 5'-0"



IG-5A
12'-6" x 5'-0"



IG-8
12'-6" x 4'-0"

GENERAL NOTES

The alphabets and lateral spacing between letters and words shall conform with the U. S. Bureau of Public Roads standard rounded capital letter alphabets with any applicable modifications stated in the American Association of State Highway Officials Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways - 1961, and/or subsequent revisions thereto. Lateral spacing of text shall be such as to provide a balanced appearance.

For IG-1, IG-2, IG-3, and IG-3A signs, the letters, borders, numerals, and arrows shall be reflectorized removable copy conforming with the specifications, and except for signs which are independently illuminated, the background shall be an Interstate Green reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint and beads conforming with the specifications. For signs which are independently illuminated, the background shall be Interstate Green porcelain enamel conforming with the specifications.

For IG-4, IG-5, IG-5A, and IG-8 signs, the letters, borders, numerals, and arrows shall be reflectorized removable copy conforming with the specification, and the background shall be flat surface reflective sheeting having an Interstate Blue Color.

All removable copy letters, numerals, arrows, and borders used on signs for this contract shall be of the same manufacture.

The sign blanks for all signs which are independently illuminated shall be extruded aluminum, multi-increment aluminum panels, or 1 (one) inch honeycomb aluminum panels as specified in the contract award. Should the contract award specify the use of extruded aluminum alloy panels, the aluminum alloy shall conform with the item, "Aluminum Signs Type B." Should the contract award specify 1 (one) inch honeycomb panels, the aluminum alloy shall conform with the item, "Aluminum Signs Type C." Should the contract award specify multi-increment panels, the aluminum alloy shall conform with the item, "Aluminum Signs Type D." The aluminum alloy shall be a minimum of 0.109 inch thick for the face section of extruded panels, 0.040 inch thick for 1 (one) inch honeycomb panels, and 0.125 inch thick for multi-increment panels. The sign blanks for all signs shown on this sheet which are not independently illuminated shall be 5/8 inch thick plywood or 2 1/2 inch honeycomb panels. Plywood signs shall conform to Standard Sheet SMD-8 and the specifications. The 2 1/2 inch honeycomb panels shall be aluminum alloy conforming with the item, "Aluminum Signs Type E" and Standard Sheet SMD-10. The aluminum alloy shall be a minimum of 0.063 inch thick for the front face of the panel, and a minimum of 0.040 inch thick for the back face of the panel. The sign area outside the corner radius need not be trimmed.

When reflective sheeting is used for background reflectorization, the plywood shall be Type A, High Density. When paint and beads are used for background reflectorization, the plywood shall be Type B, Medium Density.

TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

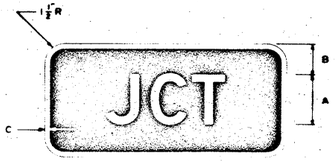
GUIDE

SHEET 1 of 6

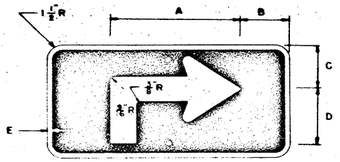
ISG(1)

REVISED	1-18-65	R.T.		STATE	FEDERAL PROJECT NO.				SHEET NO.
REVISED	7/65 T.K.			TEXAS					27
REVISED				STATE PROJ. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
REVISED	12/65 T.K.					1	5/6	16/38	

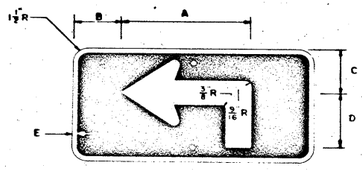
1



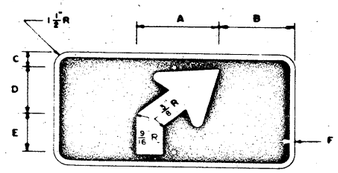
IM2-1
21" X 15"
A = 9" C
B = 3"
C = $\frac{1}{2}$"



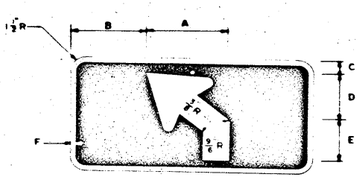
IM3-1R
21" X 15"
A = 12 $\frac{13}{16}$"
B = 3 $\frac{3}{8}$"
C = 5 $\frac{7}{16}$"
D = 7 $\frac{1}{8}$"
E = $\frac{1}{2}$"



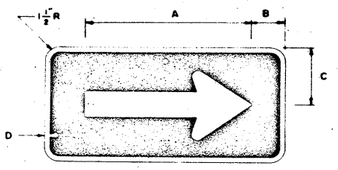
IM3-1L
21" X 15"
A = 12 $\frac{13}{16}$"
B = 3 $\frac{3}{8}$"
C = 5 $\frac{7}{16}$"
D = 7 $\frac{1}{8}$"
E = $\frac{1}{2}$"



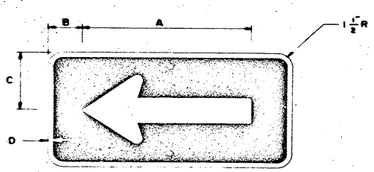
IM3-2R
21" X 15"
A = 8 $\frac{1}{4}$"
B = 6"
C = 2 $\frac{3}{4}$"
D = 4 $\frac{3}{4}$"
E = 5 $\frac{7}{16}$"
F = $\frac{1}{2}$"



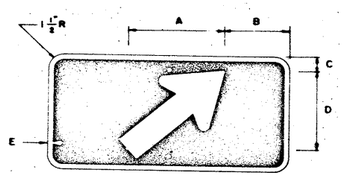
IM3-2L
21" X 15"
A = 8 $\frac{1}{4}$"
B = 6"
C = 2 $\frac{3}{4}$"
D = 4 $\frac{3}{4}$"
E = 5 $\frac{7}{16}$"
F = $\frac{1}{2}$"



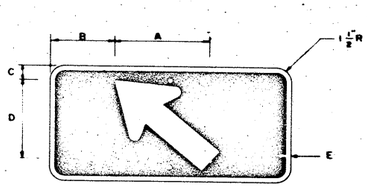
IM4-1R
21" X 15"
A = 14 $\frac{3}{8}$"
B = 3"
C = 7 $\frac{1}{2}$"
D = $\frac{1}{2}$"



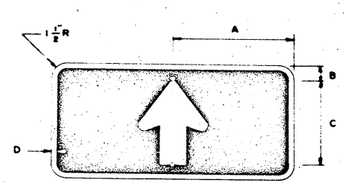
IM4-1L
21" X 15"
A = 14 $\frac{3}{8}$"
B = 3"
C = 7 $\frac{1}{2}$"
D = $\frac{1}{2}$"



IM4-2R
21" X 15"
A = 10 $\frac{11}{16}$"
B = 4 $\frac{7}{8}$"
C = 2 $\frac{7}{16}$"
D = 9 $\frac{3}{8}$"
E = $\frac{1}{2}$"

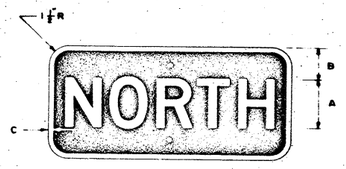


IM4-2L
21" X 15"
A = 10 $\frac{11}{16}$"
B = 4 $\frac{7}{8}$"
C = 2 $\frac{7}{16}$"
D = 9 $\frac{3}{8}$"
E = $\frac{1}{2}$"



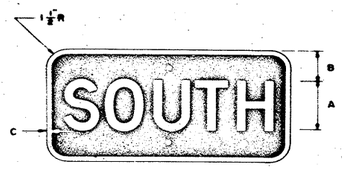
IM4-3
21" X 15"
A = 10 $\frac{1}{2}$"
B = 2 $\frac{3}{4}$"
C = 9 $\frac{1}{2}$"
D = $\frac{1}{2}$"

JUNCTION AND DIRECTIONAL MARKERS



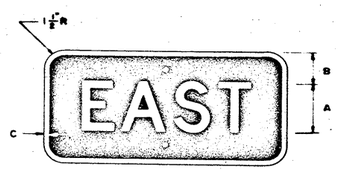
IM6-1N
21" X 9"
A = 5" C
B = 2"
C = $\frac{1}{2}$"

IM6-2N
30" X 15"
A = 7" C
B = 4"
C = $\frac{1}{2}$"



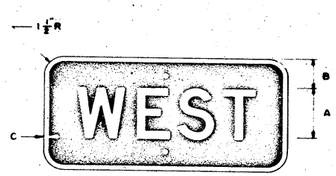
IM6-1S
21" X 9"
A = 5" C
B = 2"
C = $\frac{1}{2}$"

IM6-2S
30" X 15"
A = 7" C
B = 4"
C = $\frac{1}{2}$"



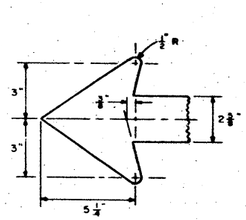
IM6-1E
21" X 9"
A = 5" C
B = 2"
C = $\frac{1}{2}$"

IM6-2E
30" X 15"
A = 7" C
B = 4"
C = $\frac{1}{2}$"



IM6-1W
21" X 9"
A = 5" C
B = 2"
C = $\frac{1}{2}$"

IM6-2W
30" X 15"
A = 7" C
B = 4"
C = $\frac{1}{2}$"



FOR 21" x 15" BLANK

CARDINAL DIRECTION MARKERS

GENERAL NOTES:

Alphabets and lateral spacing between letters shall conform with the U. S. Bureau of Public Roads standard rounded capital letter alphabets. Lateral spacing of text shall be such as to provide a balanced appearance.

The letters, arrows, and borders shall be white reflective, and the background shall be Interstate Blue reflectorized with blue transparent ink on a white reflectorized flat surface. Letters, arrows, and borders shall be reverse screened.

The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with the Item, "Aluminum Signs Type A," or one piece 12 gauge sheet steel conforming with the Item, "Sheet Steel Signs Type A."

For sign blank punching details, see sheet on "Sign Blank Punching Details."

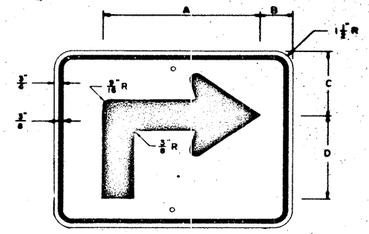
TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

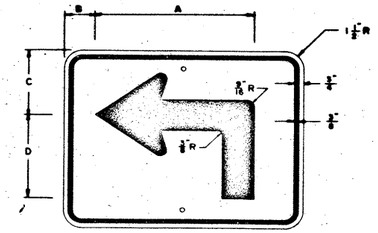
SHEET 2 of 6

ISG(2)

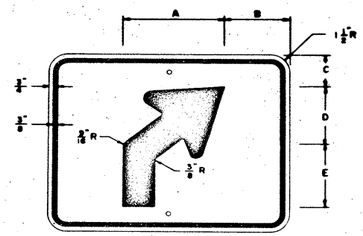
REVISED	2/62	CH	FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
	6/62	BD	6	TEXAS	[illegible] 18 [illegible] 615	48
	7/62	JG	STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
	7/64	CH	[illegible]	[illegible]	1? 58 [illegible]	[illegible]



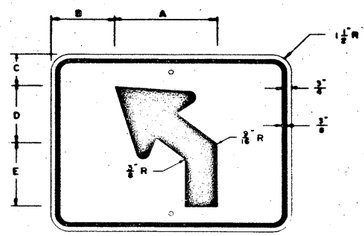
M3-1R
21"X15"
A=12 11/16" B=3 3/8"
C=5 7/16" D=7 1/8"



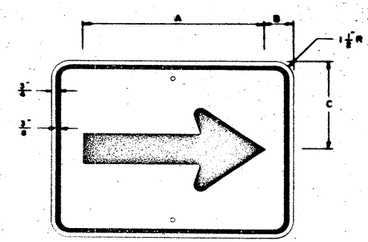
M3-1L
21"X15"
A=12 11/16" B=3 3/8"
C=5 7/16" D=7 1/8"



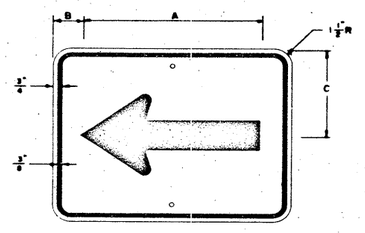
M3-2R
21"X15"
A=8 1/4" B=6"
C=2 3/4" D=4 4/8"
E=5 7/16"



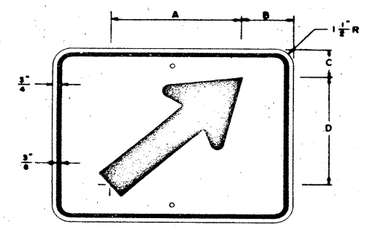
M3-2L
21"X15"
A=8 1/4" B=6"
C=2 3/4" D=4 4/8"
E=5 7/16"



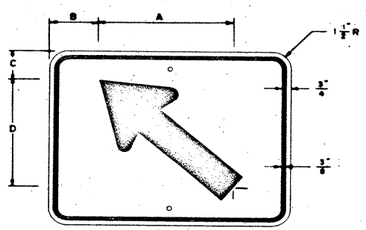
M4-1R
21"X15"
A=14 5/8" B=3"
C=7 1/2"



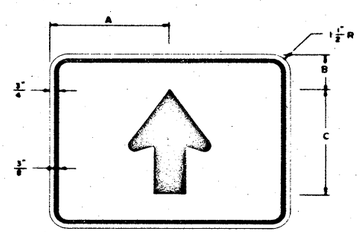
M4-1L
21"X15"
A=14 5/8" B=3"
C=7 1/2"



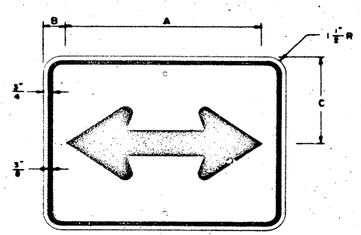
M4-2R
21"X15"
A=10 11/16" B=4 3/8"
C=2 7/16" D=9 3/8"



M4-2L
21"X15"
A=10 11/16" B=4 3/8"
C=2 7/16" D=9 3/8"

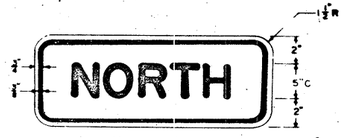


M4-3
21"X15"
A=10 1/4" B=2 3/4"
C=9 1/2"



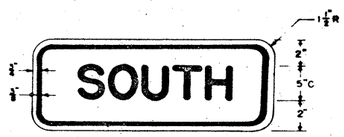
M4-4
21"X15"
A=15" B=3"
C=7 1/2"

DIRECTIONAL ARROW MARKERS



M6-1N
21" x 9"

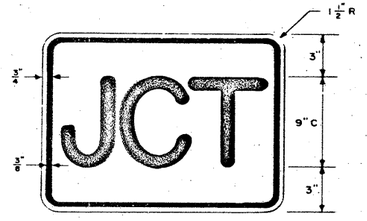
M6-1E
21" x 9"



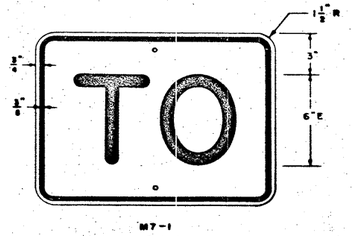
M6-1S
21" x 9"

M6-1W
21" x 9"

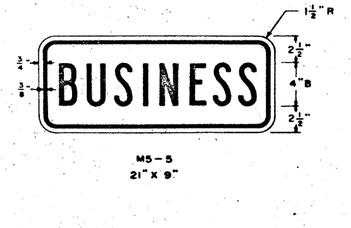
CARDINAL DIRECTION MARKERS



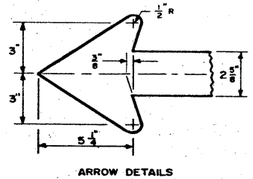
M2-1
21"X15"



M7-1
18" X 12"



M5-5
21" X 9"



ARROW DETAILS

GENERAL NOTES FOR DIRECTIONAL ARROW MARKERS AND CARDINAL DIRECTION MARKERS

Alphabets and lateral spacing between letters shall conform with the U. S. Bureau of Public Roads standard roadside capital letter alphabets. Lateral spacing of text shall be such as to provide a balanced appearance.

The letters, arrows, and borders shall be black, and the background shall be a white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint and beads conforming with the specifications.

The letters, arrows, and border shall be applied directly to the surface of the reflective material by the silk screen process.

The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with **the Item**, "Aluminum Signs Type A," or one piece 12 gauge sheet steel conforming with **the Item,** "Sheet Steel Signs Type A."

For sign blank punching details, see sheet on "Sign Blank Punching Details."

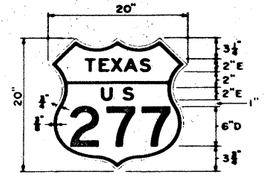
TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

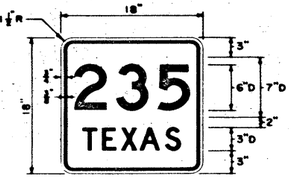
SHEET 3 of 6

ISG(3)

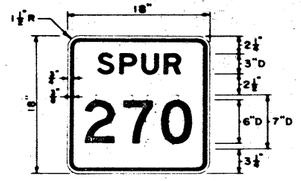
REVISED			FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
	7/62 JG	7/64 CH				
	8/62 CH		6	TEXAS	I-35-1(18)307 etc	49
	8/63 CH		STATE DIST. NO.	COUNTY	CONT. DIST. JOB	HIGHWAY NO.
	12/63 BD		2	VARIOUS	8 5/6 1638	IH 35



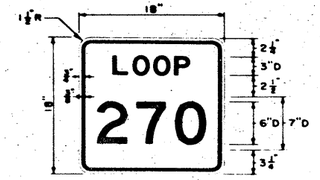
MI-1A



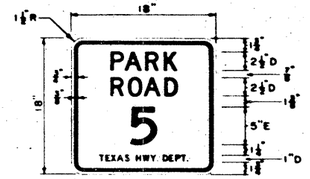
MI-3T



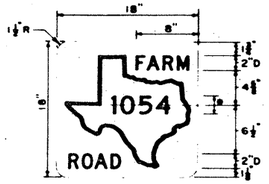
MI-3S



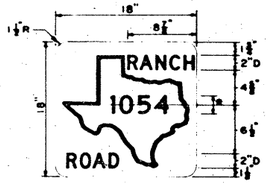
MI-3L



MI-3P



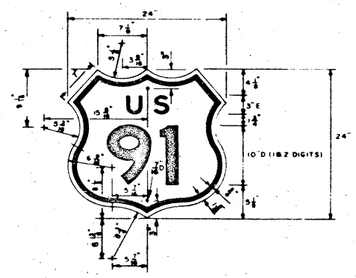
MI-3F



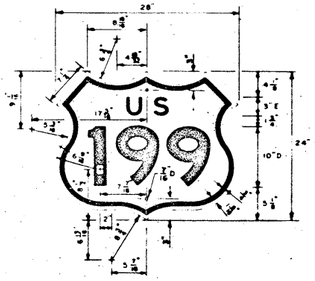
MI-3R

* No. of Digits			
1	2	3	4
5"D	4"D	3-1/2"D	2-1/2"D

The MI Series Route Markers shown on this sheet (20"x20" & 18"x18" blanks) are to be used only as Confirming Route Markers except that they will not be used as such on the Main Lanes of Controlled Access Facilities.

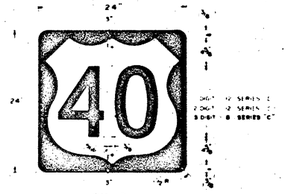


IMI-1

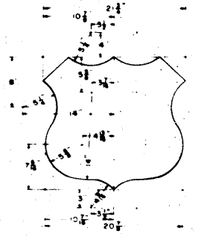


IMI-1A

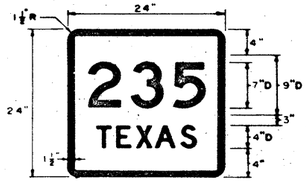
The IMI-1 and IMI-1A Route Markers are to be used only as Confirming Route Markers on the Main Lanes of Controlled Access Facilities.



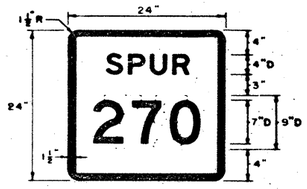
MI-2



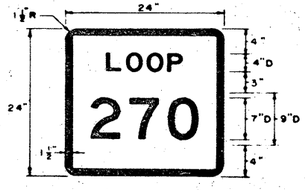
DETAIL OF SHIELD SYMBOL



MI-4T

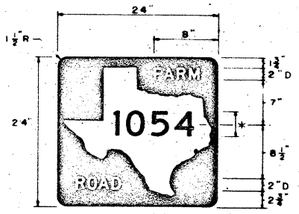


MI-4S

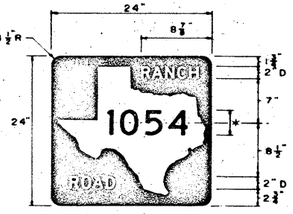


MI-4L

MI-4P



MI-4F



MI-4R

* No. of Digits			
1	2	3	4
6"D	6"D	5"D	4"D

The MI Series Route Markers shown on this sheet (24"x24" blanks) are to be used in Route Turn Assemblies, Advance Turn Assemblies, Directional Assemblies and Junction Assemblies. The MI-4L and MI-4T Route Markers shall also be used as Confirming Markers on the Main Lanes of Controlled Access Facilities when applicable.

STANDARD U. S. AND STATE HIGHWAY ROUTE MARKERS

GENERAL NOTES FOR U. S. AND STATE HIGHWAY ROUTE MARKERS

For the MI-3F, MI-3R, MI-4F, and MI-4R Route Markers a print of the Texas State outline shall be obtained from the TEXAS HIGHWAY DEPARTMENT to be used for making a stencil.

For all Route Markers on this sheet, except MI-2, MI-4F, and MI-4R, letters, numerals, and border shall be black and the background shall be a white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting, or paint and beads conforming with the specifications. The letters, numerals, and border shall be applied direct to the surface of the reflective material by the silk screen process.

For the MI-2, MI-4F, and MI-4R Route Markers, the U.S. and State outline shall be white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting, or paint and beads conforming with the specifications. The numerals and background shall be black and applied by the reverse screen process.

The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with the Item "Aluminum Signs Type A," or one piece 12 gauge sheet steel conforming with the Item, Sheet Steel Signs Type A.

For sign blank punching details see sheet on "Sign Blank Punching Details."

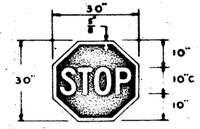
TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

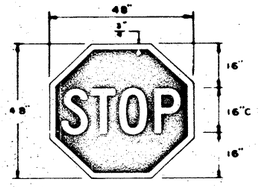
SHEET 4 of 6

ISG(4)

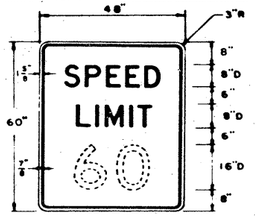
REVISED	7/62 JG		FED. AID DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
	10-63 WLD		6	TEXAS	I-35-1(18)...CONT'G	50
	7/64 CH		STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
			2	...ELL	2 5/6 6/38	IH 35



IR-1A*
30"x30"

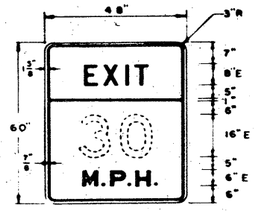


IR-1B*
48"x48"



IR-2
48"X60"

WHEN USED IN CONJUNCTION WITH AN IR-3 SIGN, ONLY THAT PART OF THE WHITE BACKGROUND BEARING THE WORDS "SPEED LIMIT" SHALL BE REFLECTORIZED

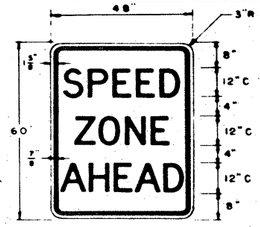


IR-2A
48"X60"

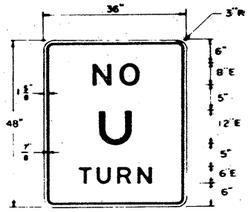
LETTERS, BORDERS, NUMERALS — BLACK BACKGROUND — INTERSTATE YELLOW REFLECTIVE MATERIAL

IR-3
48"X48"

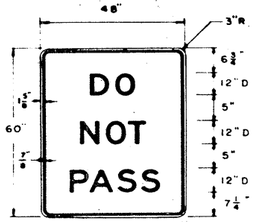
LETTERS, NUMERALS, BORDERS — WHITE REFLECTIVE MATERIAL BACKGROUND — BLACK (REVERSE SCREENED)



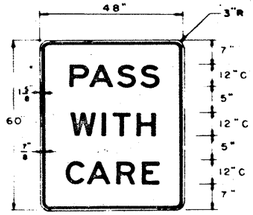
IR-4
48"X60"



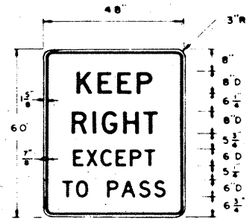
IR-8
36"x48"



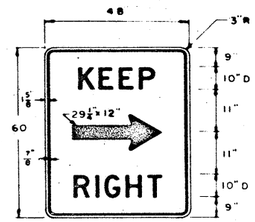
IR-11
48"X60"



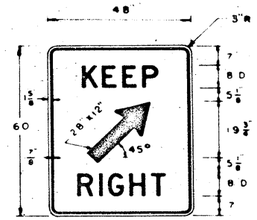
IR-12
48"X60"



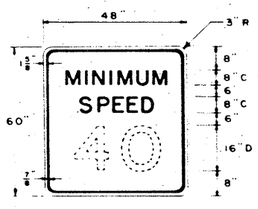
IR-13
48"X60"



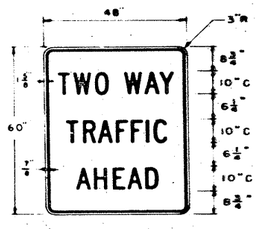
IR-14
48"X60"



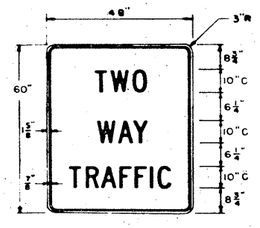
IR-14A
48"X60"



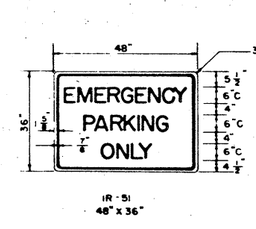
IR-2F
48"X60"



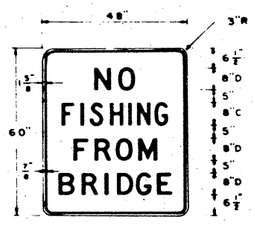
IR-17
48"X60"



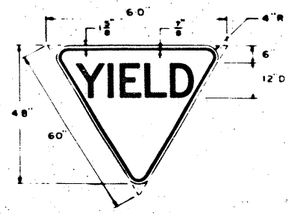
IR-17A
48"X60"



IR-51
48"X36"

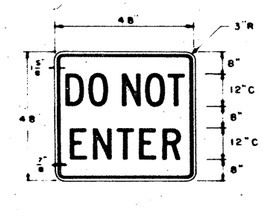


IR-41
48"X60"

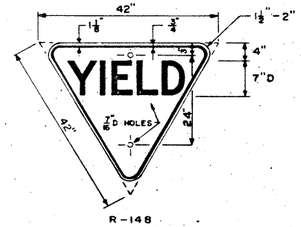


IR-48
60"x48"

LETTERS, BORDERS — BLACK BACKGROUND — INTERSTATE YELLOW REFLECTIVE MATERIAL

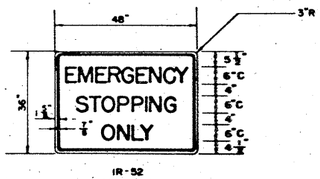


IR-15
48"X48"

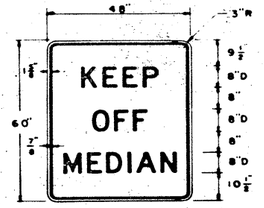


R-148
42"

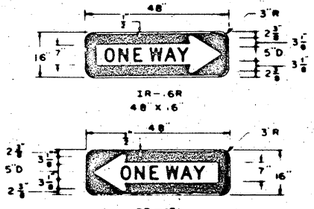
BORDERS, LETTERS — BLACK
BACKGROUND — INTERSTATE YELLOW REFLECTIVE MATERIAL



IR-52
48"X36"



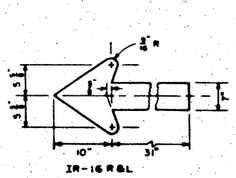
IR-50
48"X60"



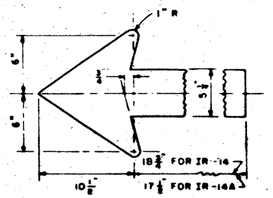
IR-6R
48"X6"

IR-16L
48"X16"

ARROW, BORDERS — WHITE REFLECTIVE MATERIAL
LETTERS, BACKGROUND — BLACK (REVERSE SCREENED)



IR-16 R&L



IR-14 & IR-14A

ARROW DETAILS

GENERAL NOTES FOR REGULATORY SIGNS

Alphabets and lateral spacing between letters and words shall conform with U. S. Bureau of Public Roads standard rounded capital letter alphabets. Lateral spacing of text shall be such as to provide a balanced appearance.

Unless otherwise noted under specific signs, all letters, numerals, arrows, and borders shall be black, and the background shall be a white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting, or paint and beads, conforming with the specifications. Reflective sheeting for STOP signs shall have a flat surface.

Unless otherwise stated all letters, numerals, arrows and borders shall be applied direct to the surface of the reflective material by the silk screen process.

The sign blanks shall be one piece, 5/8 inch thick plywood conforming with the specifications. When reflective sheeting is used for background reflectorization, the plywood shall be Type A, High Density. When paint and beads are used for background reflectorization, the plywood shall be Type B, Medium Density.

For sign blank punching details, see sheet on "Sign Blank Punching Details."

TEXAS HIGHWAY DEPARTMENT

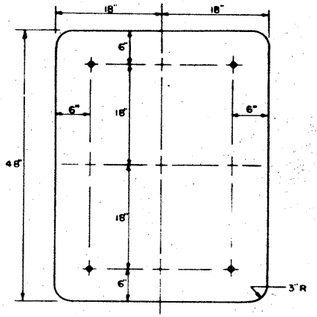
STANDARD INTERSTATE SIGNS

REGULATORY

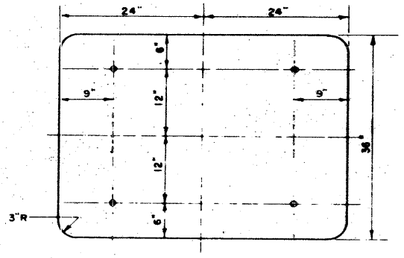
ISR(1)

REVISED	6/62 JG	2/64 BD	FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
	7/62 JG	9/64 CH	6	TEXAS	I-35-1(18)66TOL				51
	8/63 CH		STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
	1/64 CH			WILL		17	5.6	16.43	I-35

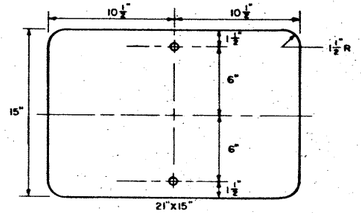
6



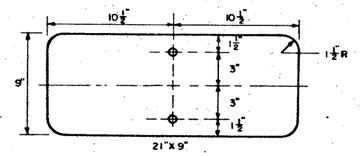
36"x 48"



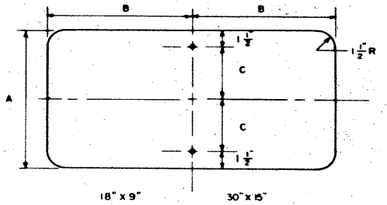
48"x 36"



21"x15"

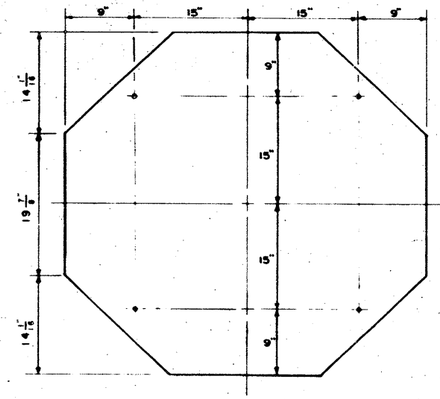


21"x 9"

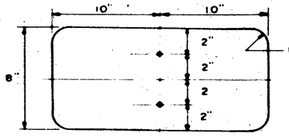


18"x 9"
A= 9"
B= 9"
C= 3"

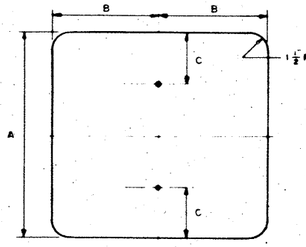
30"x 15"
A= 15"
B= 15"
C= 6"



48"x 48"

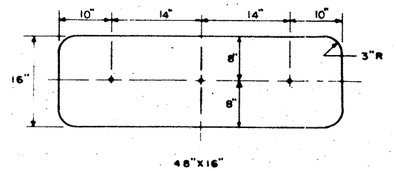


20"x 8"

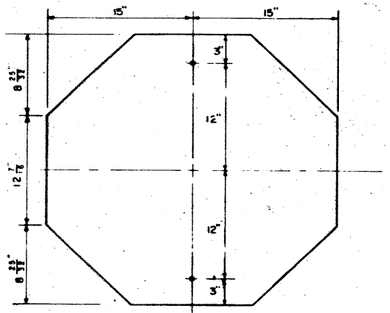


18"x 18"
A = 18"
B = 9"
C = 4½"

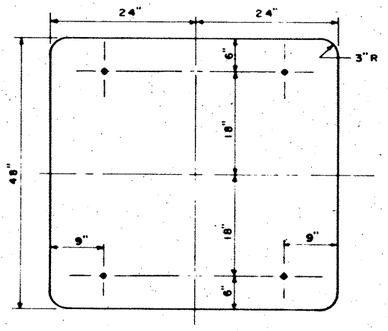
24"x 24"
A = 24"
B = 12"
C = 3"



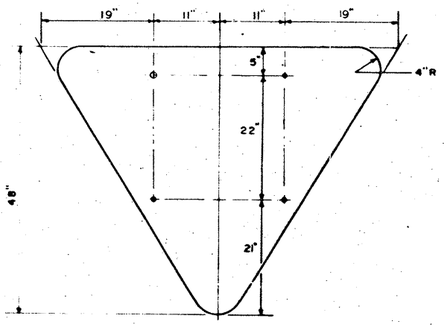
48"x16"



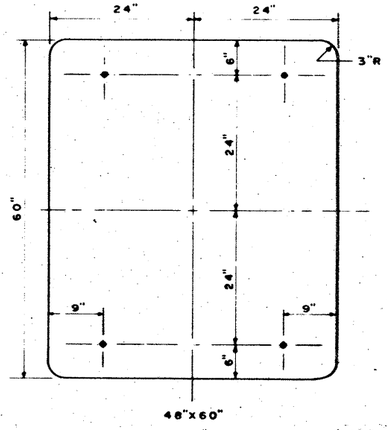
30"x 30"



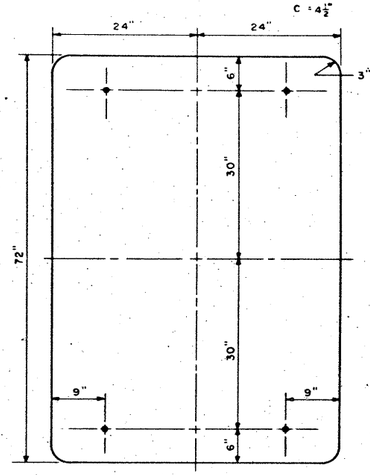
48"x 48"



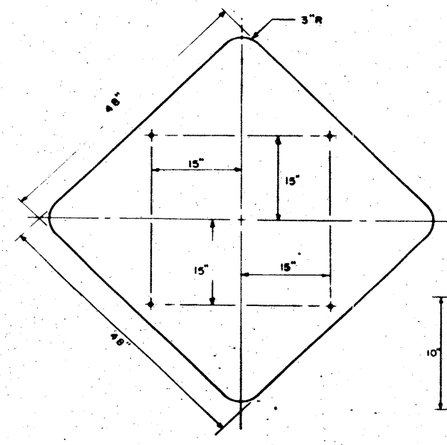
60"x 48"



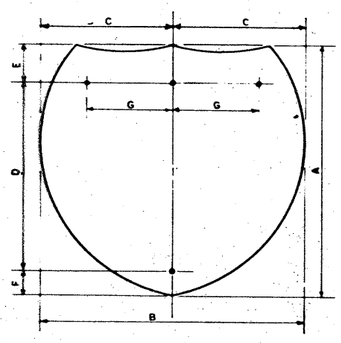
48"x 60"



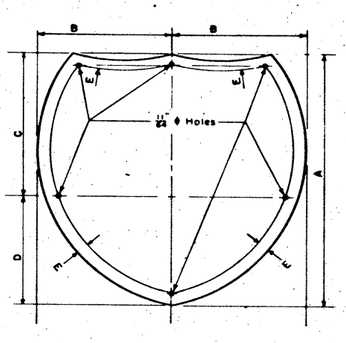
48"x 72"



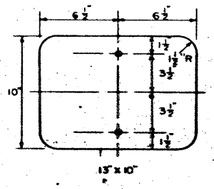
48"x 48"



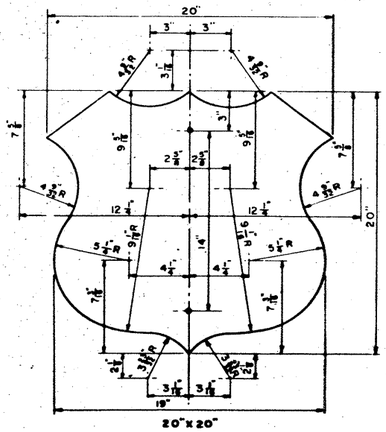
A	B	C	D	E	F	G
18"	21"	10½"	11"	4"	3"	
24"	24"	12"	14½"	5⅛"	4"	
25"	30"	15"	15½"	5½"	4"	
36"	36"	18"	22"	8"	6"	14"
36"	42"	21"	22"	8"	6"	16"



A	B	C	D	E
36"	18"	21"	15"	1½"
48"	24"	28"	20"	1⅞"
51"	29"	28"	23"	1⅞"



15"x 10"

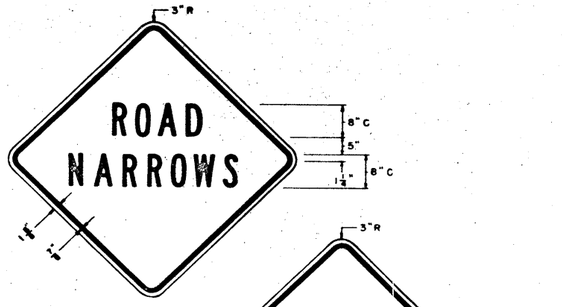


20"x 20"

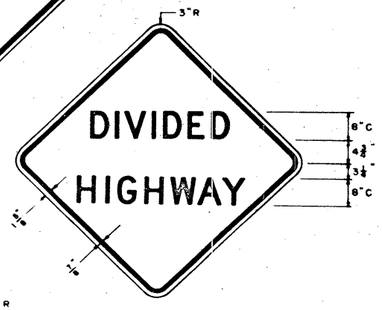
NOTE:
EXCEPT AS OTHERWISE NOTED ALL HOLES SHALL BE 13/16" DIAMETER.

TEXAS HIGHWAY DEPARTMENT
STANDARD INTERSTATE SIGNS
SIGN BLANK PUNCHING DETAILS
ISB(I)

REVISED	8/63	CH	FED RD DIV NO	STATE	FEDERAL PROJECT NO	SHEET NO
			6	TEXAS	I 35-1(18) 66 etc	52
			STATE DIST. NO	COUNTY	DIST.	SECT	HIGHWAY NO
			24	WEBB	7	5/6	16/38	I-35

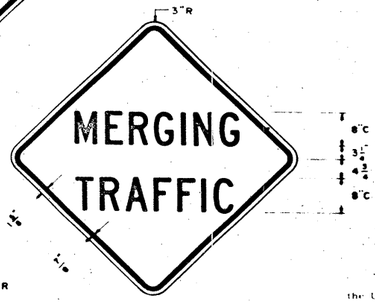


IW5-1
48"x48"

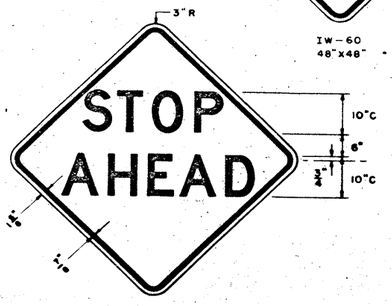


IW-20A
48"x48"

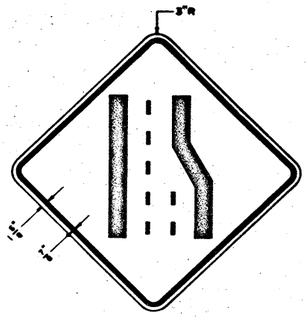
IW-21
48"x48"



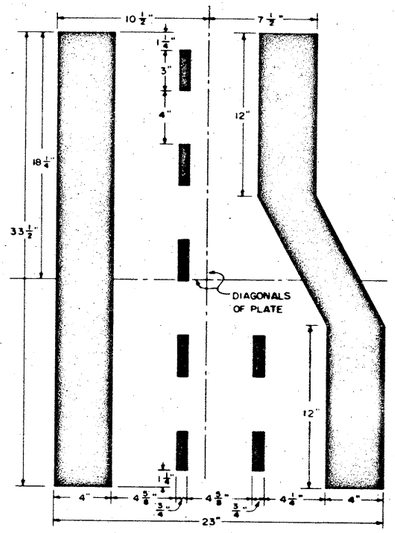
IW-60
48"x48"



IW-13
48"x48"



IW4-2
48"x48"



GENERAL NOTES FOR WARNING SIGNS

The alphabets and lateral spacing between letters shall conform with the U. S. Bureau of Public Roads standard rounded capital letter alphabets. Lateral spacing of text shall be such as to provide a balanced appearance.

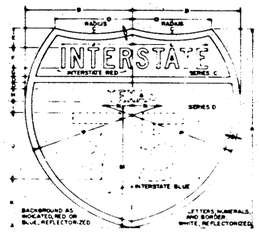
The letters, symbols, and borders shall be black, and the background shall be an Interstate yellow reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint and beads conforming with the specifications.

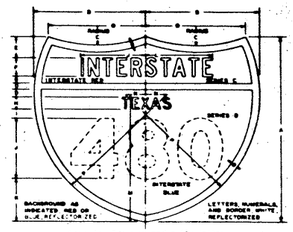
Letters, symbols, and borders shall be applied direct to the surface of the reflective material by the silk screen process.

The sign blanks shall be one piece, 5/8 inch thick plywood conforming with the specifications. When reflective sheeting is used for background reflectorization, the plywood shall be Type A, High Density. When paint and beads are used for background reflectorization, the plywood shall be Type B, Medium Density.

For sign blank punching details, see sheet on "Sign Blank Punching Details."

WARNING

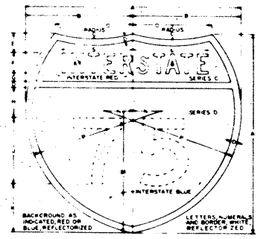


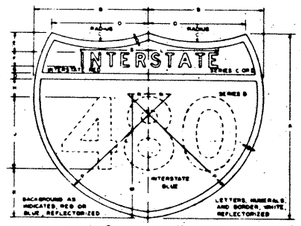


Also for 2 digits and suffix letter

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
IM-AA	18	12½	3½	2⅜	2⅝	1½	¾	8	1½	6	4½	6½	2	1½	9½	2
IM-BB	24	17	15	3	2⅞	2⅔	-	12	1⅜	8	5½	9½	4⅝	2⅝	12⅝	4⅜
IM-CC	36	18	22½	4½	3⅝	3½	1½	24	2⅝	12	8½	12	7	2⅝	17½	2 2⅜

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
IM-DD	8	6	1½	1	¾	½	¼	2	⅜	1½	1	2½	1⅛	⅝	2⅜	½
IM-EE	12	9	2¼	1½	1	¾	⅜	3	½	2	1½	3½	1⅝	⅞	3⅜	¾
IM-FF	36	27	6¾	4½	3	2¼	1⅛	9	1½	6	4½	10½	4⅞	2⅝	10⅛	2¼

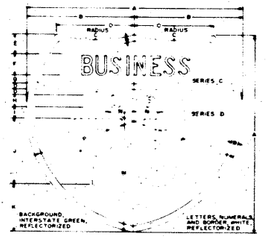


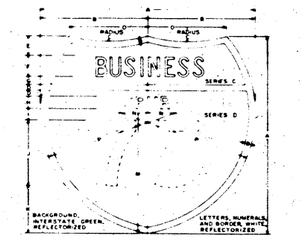


Also for 2 digits and suffix letter

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	S	T
IM-GG	36	18	22½	1⅛	3½	3C	1½	3⅛	12	2	9½	21½	4½	12⅝	9	2 2⅜		
IM-HH	48	24	30	1½	4½	5C	2	4	18	2½	16½	29½	5½	17½	6	2 3		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	S	T
IM-JJ	24	12	15	3	2⅜	2⅔	1	2	8	½	5½	13½	3	8	2	½		
IM-KK	36	18	22½	4½	3½	4	1½	3	12	¾	8½	21½	4½	12⅝	4	2 2⅜		





	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
BM-L	24	12	15	3	2⅜	2⅔	1	2	8	½	5½	14	2⅝	8	2	½
BM-M	36	18	22½	4½	3½	4	1½	3	12	¾	8½	21½	4½	12⅝	4	2 2⅜
BM-N	48	24	30	1½	4½	5	2	3	3	15	11½	29½	6	17½		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
IM-HP	24	12	15	3	2⅜	2⅔	1	2	8	½	5½	14	2⅝	8	2	½
IM-IR	36	18	22½	4½	3½	4	1½	3	12	¾	8½	21½	4½	12⅝	4	2 2⅜
IM-IS	48	24	30	1½	4½	5	2	3	3	15	11½	29½	6	17½		

INTERSTATE ROUTE MARKERS

GENERAL NOTES FOR INTERSTATE ROUTE MARKERS

The alphabets and lateral spacing between letters and numerals shall conform with the U. S. Bureau of Public Roads standard rounded capital letter alphabets.

Colors of lettering, numerals, border and background shall be as shown on the Route Marker sign details. Reflective sheeting shall be flat surface reflective sheeting. Letters, numerals, and border shall be reverse screened.

The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with the Item, "Aluminum Signs Type A," or one piece 12 gage sheet steel conforming with the Item, Sheet Steel Signs Type A, when used on Ground Signs, independent mounted.

For sign blank punching details, see sheet of Sign Blank Punching Details.

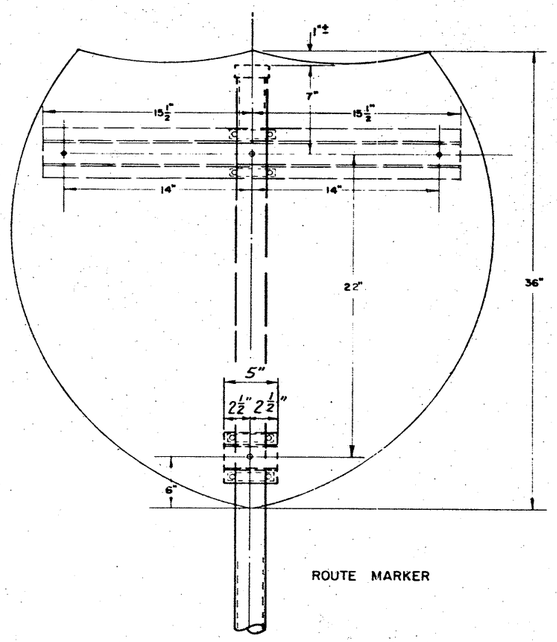
TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

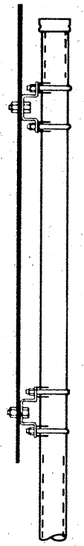
ISMW(1)

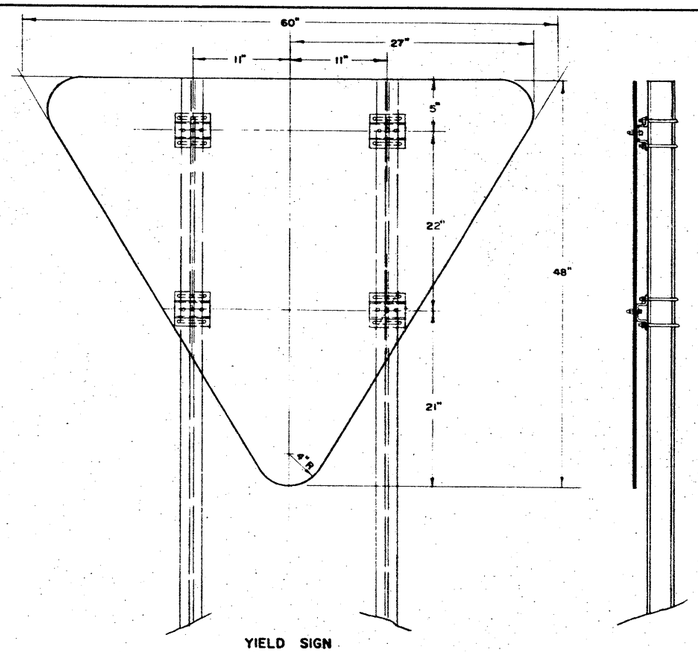
REVISED	6/62	JG	FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
	7/62	JG	6	TEXAS	I-35-1(8)101(1)				53
	12/62	JG	STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
	7/64	CH	2	Hill		1	5/6	16/38	I-35

8

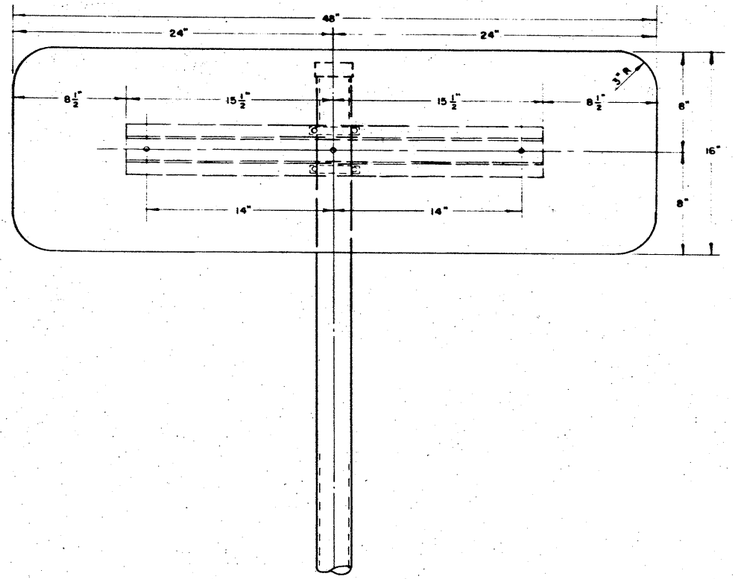


ROUTE MARKER

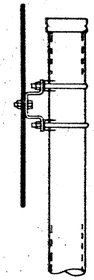


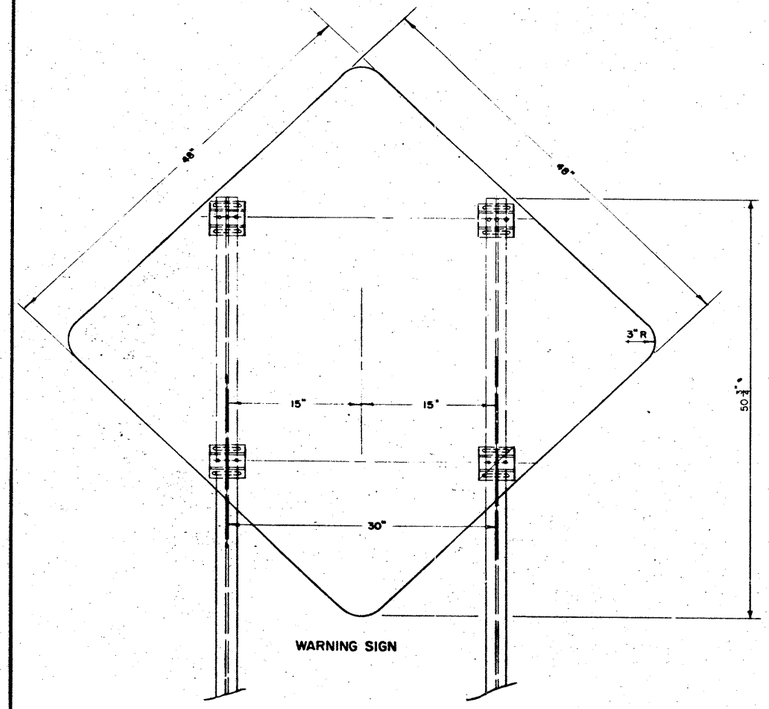


YIELD SIGN

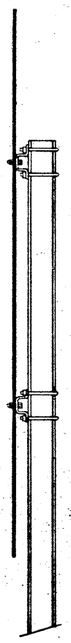


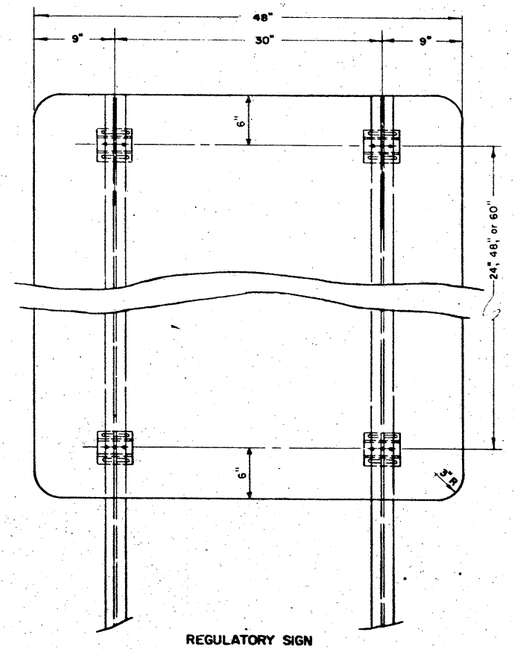
IR-16 ONE WAY SIGN





WARNING SIGN





REGULATORY SIGN

NOTE:

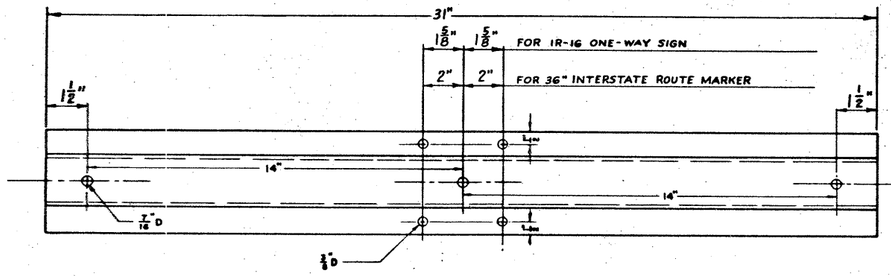
SEE SHEET SMD-3 FOR CLAMP DETAILS.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE
STANDARD ROADSIDE SIGN MOUNTING DETAILS
SMD-1

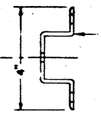
ROUTE MARKERS, WARNING, AND REGULATORY SIGNS

REVISED	6/62 JG	7/65 TK	FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
	7/62 BD		6	TEXAS	IFS-IC(18)-0071(2)	54
	8/63 CH		STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
	2/69 JK		E	LEE	19 5/6 1(38)	I-35

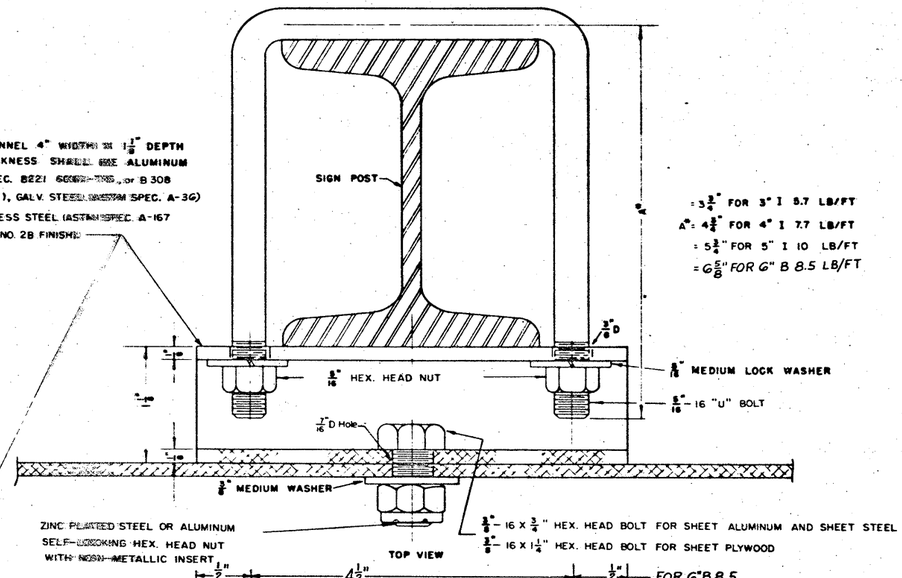
SHEET 1 OF 8

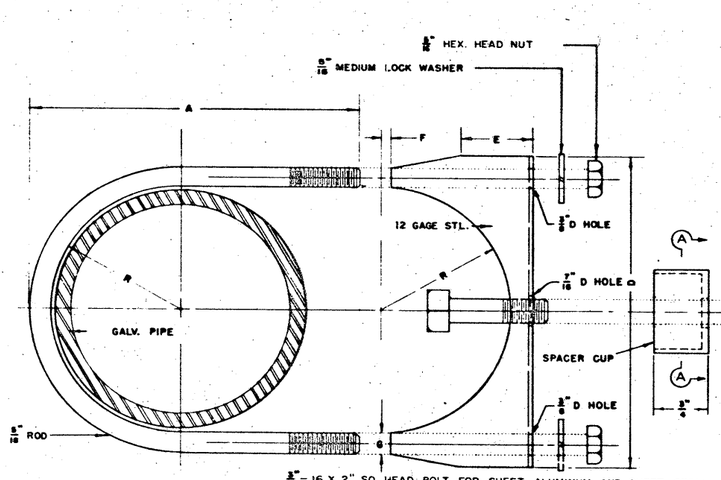


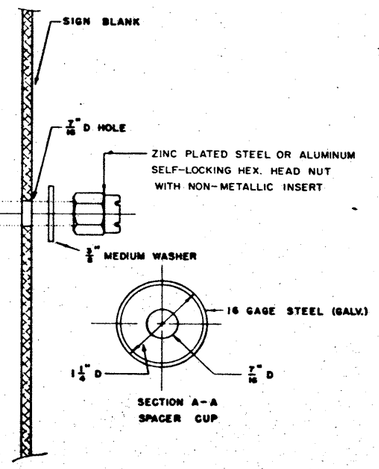
CHANNEL FOR MOUNTING 36" INTERSTATE ROUTE MARKER AND 1R-16 ONE-WAY SIGN



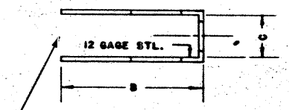
WING CHANNEL 4" WIDTH X 1 1/8" DEPTH X 1/8" THICKNESS SHALL BE ALUMINUM (ASTM SPEC. B221 60002-T6, or B 308 6061-T6), GALV. STEEL (ASTM SPEC. A-36) OR STAINLESS STEEL (ASTM SPEC. A-167 TYPE 304 NO. 2B FINISH)





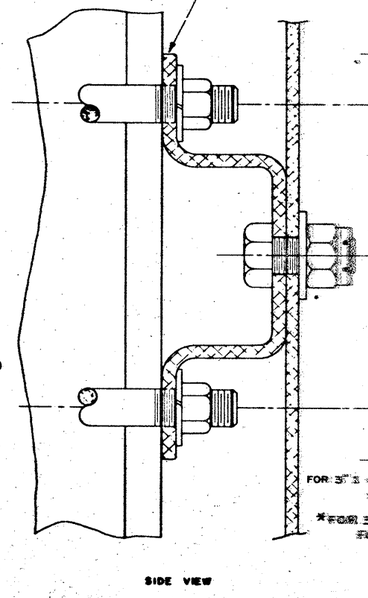


PIPE SIZE	OD.	A	B	C	D	E	F	G	R
1 1/2	1 15/16	3 1/8	1 1/4	5/8	3	5/8	1/8	5/16	15/16
2	2 3/8	3 1/2	1 3/8	5/8	3 3/8	11/16	1/8	5/16	1 3/16
2 1/2	2 7/8	4	1 5/8	5/8	4	7/8	1/8	5/16	1 7/16
3	3 1/2	4 5/8	2	5/8	4 5/8	1	1/8	5/16	1 13/16

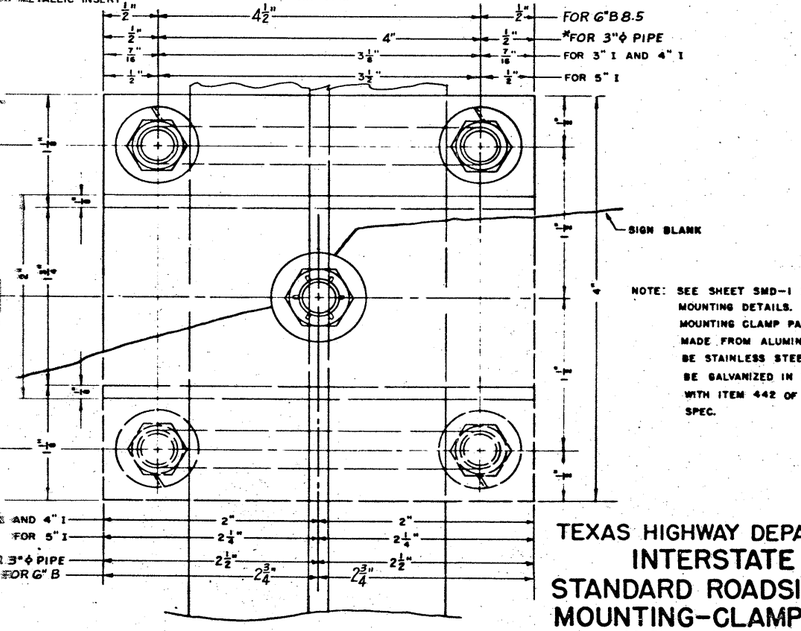


TOP VIEW OF MUFFLER CLAMP

MUFFLER CLAMP FOR HOLDING SIGNS TO MOUNT TYPES A,B,C,& D AND SERIES OF THESE TYPES OF MOUNTS



SIDE VIEW



CLAMP DETAIL FOR HOLDING SIGNS TO MOUNT TYPES F-1, F-2, G, & H

*CLAMP DETAIL FOR PIPE MOUNT TYPE A-1 IS SIMILAR EXCEPT THE PIPE MUFFLER CLAMP SHALL BE USED IN LIEU OF THE I BEAM U-BOLT.

NOTE: SEE SHEET SMD-1 FOR MOUNTING DETAILS. ALL SIGN MOUNTING CLAMP PARTS NOT MADE FROM ALUMINUM SHALL BE STAINLESS STEEL OR SHALL BE GALVANIZED IN CONFORMANCE WITH ITEM 442 OF THE STD. SPEC.

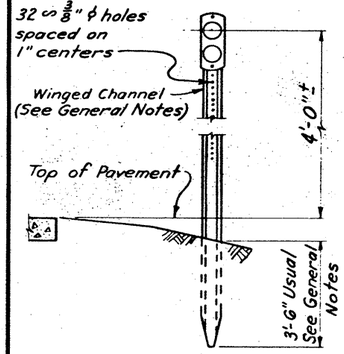
TEXAS HIGHWAY DEPARTMENT
INTERSTATE STANDARD ROADSIDE SIGN MOUNTING-CLAMP DETAILS

ROUTE MARKERS, WARNING, AND REGULATORY SIGNS

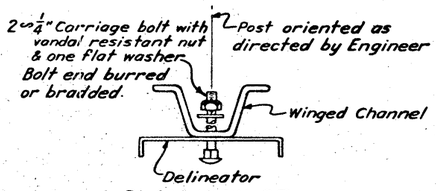
SMD-3

REVISED	1/64 CH		FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
	2/64 JK		6	TEXAS	F-35-(18)607 etc			55
Added GBB-5	3/65 JK		STATE DIST. NO.	COUNTY		DIST.	JOB	SHEET NO.
			24	NUECES		16	5/6 10/38	1 OF 55

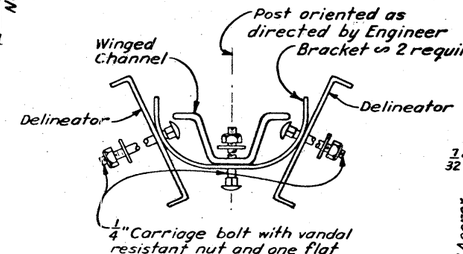
SHEET 3 OF 8



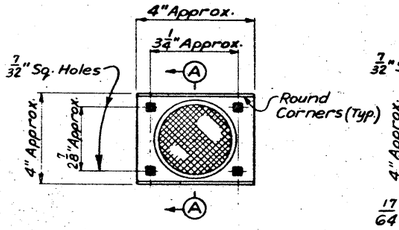
ELEVATION OF DELINEATOR MOUNT (TYPICAL)



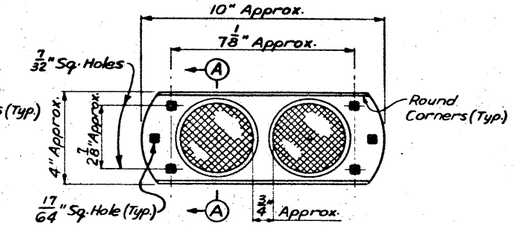
PLAN VIEW OF MONODIRECTIONAL DELINEATOR MOUNT TYPES I, II, & III



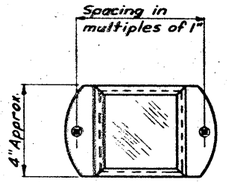
PLAN VIEW OF BIDIRECTIONAL DELINEATOR MOUNT



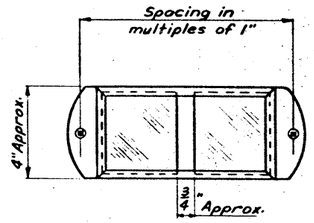
TYPE I
Single White Reflector Unit



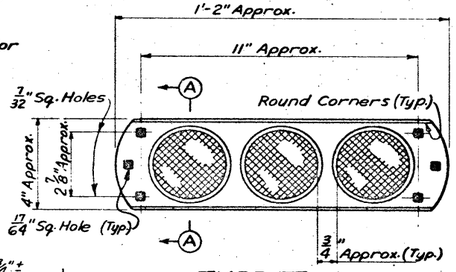
TYPE II
Double Yellow Reflector Units



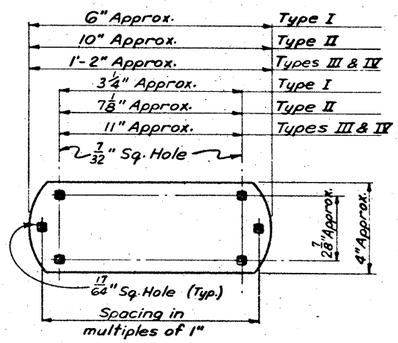
TYPE I
Single White Reflector Unit



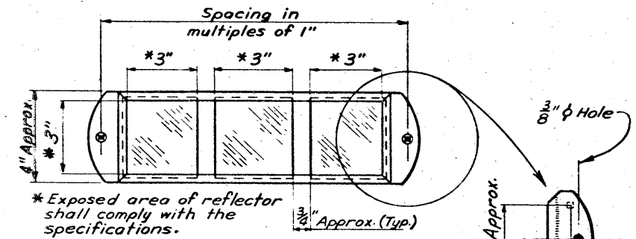
TYPE II
Double Yellow Reflector Units



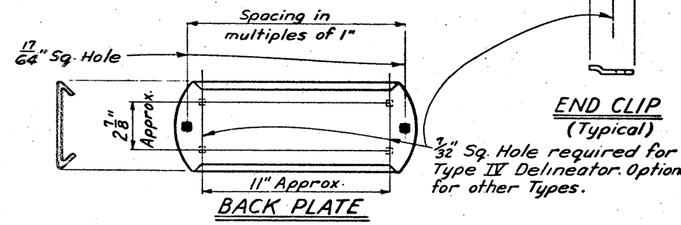
TYPE III
Triple Yellow Reflector Units



BACK PLATE



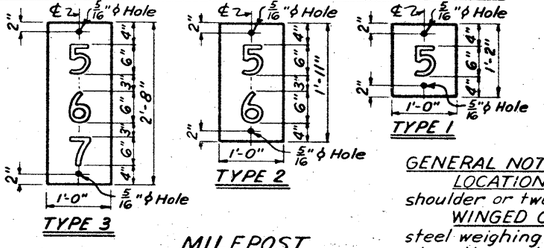
TYPE III
Triple Yellow Reflector Units



END CLIP (Typical)

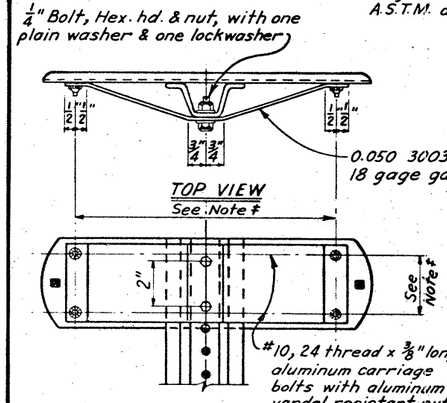
BACK PLATE

ACRYLIC PLASTIC REFLECTOR UNIT DELINEATORS



ENCAPSULATED REFLECTIVE SHEETING DELINEATORS

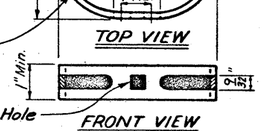
(Illustrative only ⌀ see specifications for limitations)



REAR VIEW

‡NOTE: This dimension same as that for Type III delineator frame.

TYPE IV DELINEATOR
Triple Yellow Reflector Units

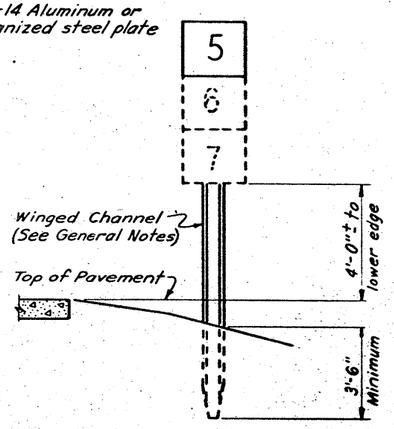


TOP VIEW

FRONT VIEW

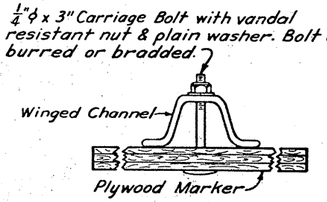
BIDIRECTIONAL BRACKET

(Obtainable from the Texas Highway Dept.)

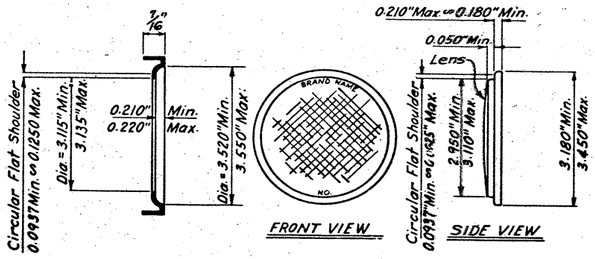


ELEVATION OF MILEPOST MARKER

MILEPOST MARKER DETAILS



PLAN VIEW OF MILEPOST MARKER



SECTION A-A

FRONT VIEW

REFLECTOR UNIT

SIDE VIEW

GENERAL NOTES:

LOCATION of Delineators and Milepost Markers: facing on-coming traffic, two feet from edge of shoulder or two feet from face of unmountable curb or in line with guard fence where guard fence is used.

WINGED CHANNELS for Delineators and Milepost Markers shall be galvanized steel weighing two pounds per foot and shall have thirty-two 3/8" diameter holes spaced on 1" centers along the center line at the upper end.

MILEPOST numerals shall be 6" Series D white reflective with Interstate Green background reflectorized with green transparent ink on a white flat surface reflective sheeting, using the reverse screen process. Milepost marker blanks shall be 5/8" Type A, High Density plywood.

HARDWARE shall be galvanized steel, stainless steel, or aluminum; except as noted.

CONSTRUCTION: Delineator and Milepost Marker posts shall be driven, using an approved driving cap, prior to the installation of delineators or milepost markers. If rock is encountered, a 6" or larger diameter hole shall be drilled and the post set in Class A Concrete. The hole shall be drilled 3'-6" deep or to a minimum depth of 2'-0" into the rock.

TEXAS HIGHWAY DEPARTMENT

INTERSTATE

STANDARD ROADSIDE SIGN MOUNTING DETAILS FOR MILEPOST MARKERS & DELINEATORS

SMD-6

ORIGINAL DRAWING DATE: 19 Feb, 1964	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT			SHEET
DN:-C.H. REVISIONS	21	6	I-35-1(18)207 etc			56
CK:-D.L.M. 1-66- Tolerance	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DW:-J.K.	Webb		18	5/6	6/38	I.H.35
CK:-C.H.						

	TWO POSTS (120)							THREE POSTS (130)								
Sign Width (W)	4' thru 12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	24'	25'	26'	27'	28'
Max Wind Beam Spa	4'-0"	3'-8"	3'-4"	3'-0"	2'-8"	2'-4"	2'-0"	4'-0"	4'-0"	3'-9"	3'-6"	3'-3"	3'-0"	2'-9"	2'-6"	2'-3"	2'-0"

ZONE 1 (TYPES 100)

	TWO POSTS (220)		THREE POSTS (230)									
Sign Width (W)	4' thru 16'	17'	18'	19'	20'	21'	22'	23'	24'	25'	26'	27'	28'
Max Wind Beam Spa	4'-0"	3'-9"	3'-6"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	3'-9"	3'-6"	3'-3"	3'-0"

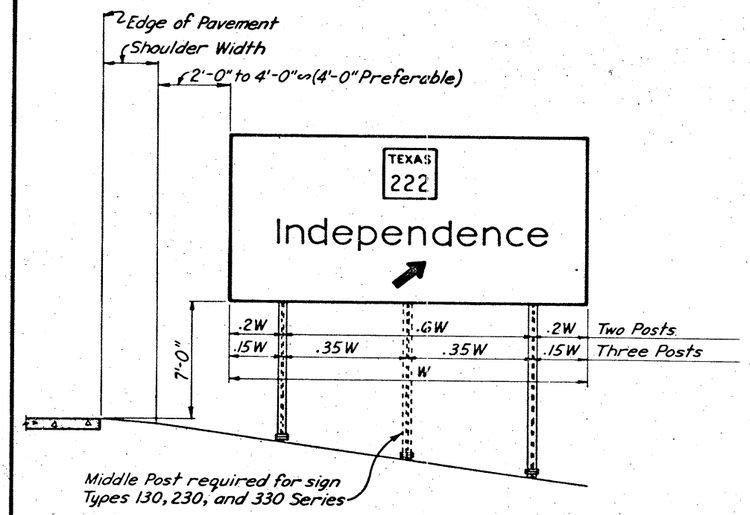
ZONE 2 (TYPES 200)

	TWO POST (320)	THREE POSTS (330)
Sign Width (W)	4' thru 18'	19' thru 28'
Max Wind Beam Spa	4'-0"	4'-0"

ZONE 3 (TYPES 300)

WIND BEAM TABLES

NOTE: Wind beam spacings for sign widths other than even feet: select from next longer even feet.



TYPICAL SIGN INSTALLATION AND LOCATION

NOTE:

A tolerance of plus or minus ¼ inch will be permitted in the plan dimensions for fabrication of each single increment sign panel when necessary for squaring. A tolerance of plus or minus ¼ inch will be permitted for each increment of a multi-increment sign panel where necessary to secure square, tight-fitting joints.

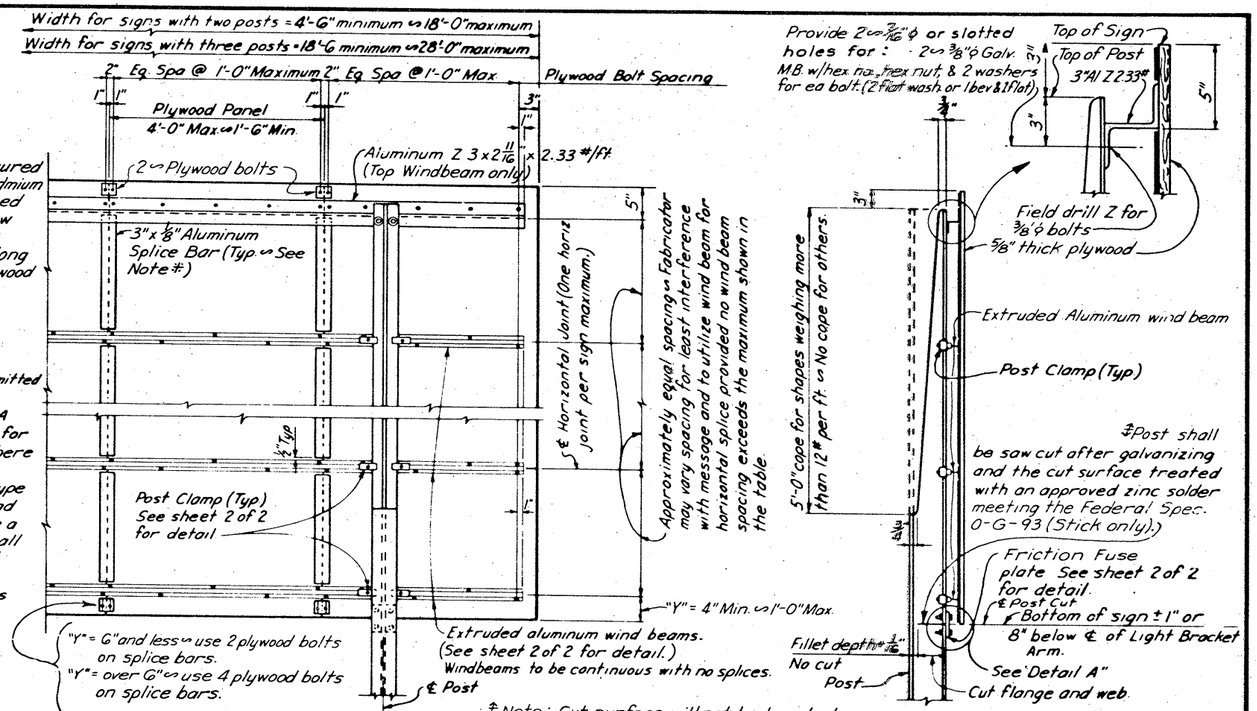
Plywood Bolts ∽ 5/16" ℄ x 1½" flat head elevator type steel bolt with ¾" minimum thread length. The head shall have a minimum diameter of ⅞" and shall have a minimum of two fins on the underside. Each bolt shall be provided with one 5/16" steel hex nut, one 5/16" steel flat washer, and one 5/16 steel lock washer. Bolts, nuts, and washers shall be hot dipped galvanized as per item 442 of Standard Specifications.

NOTE:

A tolerance of plus or minus ¼ inch will be permitted in the plan dimensions for fabrication of each single increment sign panel when necessary for squaring. A tolerance of plus or minus ¼ inch will be permitted for each increment of a multi-increment sign panel where necessary to secure square, tight-fitting joints.

Plywood Bolts ∽ 5/16" ℄ x 1½" flat head elevator type steel bolt with ¾" minimum thread length. The head shall have a minimum diameter of ⅞" and shall have a minimum of two fins on the underside. Each bolt shall be provided with one 5/16" steel hex nut, one 5/16" steel flat washer, and one 5/16 steel lock washer. Bolts, nuts, and washers shall be hot dipped galvanized as per item 442 of Standard Specifications.

NOTE: Splice bars shall be secured with 5/8" long x #10 round head, cadmium plated, brass wood screws spaced at 6" maximum along double row spacing with the exception at extreme ends of splice bars, along outside edge of sign, where plywood bolts shall be used as shown.



SIDE VIEW

REAR ELEVATION

(Showing Typical Assembly for Ground Mounted Signs)

GENERAL NOTES:

Design conforms with AASHO Specifications for the design and Construction of Structural Supports for Highway Signs.

Materials and Fabrication shall conform to the requirements of Texas Highway Department Standard Specifications and Special Specifications.

All Structural Steel shall conform to ASTM-A441. Flange holes for fuse bolts shall be drilled.

All Sheet and Plate Aluminum shall conform to ASTM-B209 alloy 6061-T6. All Extruded Aluminum shall conform to ASTM-B221 alloy 6061-T6. Cast Aluminum post clamps shall conform to ASTM-B26 alloy SG70A-T6, ASTM-B108 alloy SG70A-T6, ASTM-B26 alloy ZC81A, or ASTM-B108 alloy ZC81B.

Notched steel fuse plates shall conform to the requirements of ASTM-A441. All holes shall be drilled. All plate cuts shall preferably be saw cuts, however; flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.

All high strength bolts, nuts, and washers shall conform to ASTM-A325.

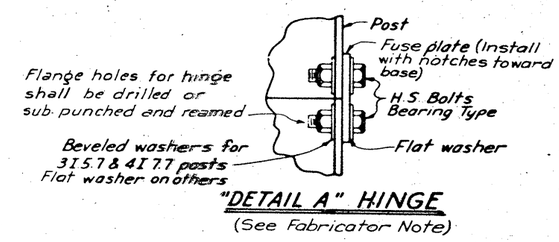
Tighten the high strength bolts in the base connection only to the torque shown in the table. DO NOT OVERTIGHTEN.

All bolts other than high strength bolts shall conform to ASTM-A307, Class A.

All structural steel, bolts, nuts, and washers shall be galvanized as per Item 442 of the Standard Specifications except as noted. Structural Steel to be galvanized after fabrication except as noted.

FABRICATOR NOTE: **IMPORTANT** - All friction fuse bolts shall be tightened in the shop following a method approved by the Engineer. Tightening shall be to such a degree as to obtain the following minimum residual tension in each bolt:

Bolt Size	Min. Residual Bolt Tension
½" ℄	12050 Lbs.
5/8" ℄	19200 Lbs.
¾" ℄	28400 Lbs.
⅞" ℄	39050 Lbs.



"DETAIL A" HINGE

(See Fabricator Note)

SIGN TYPE 130 — Wind Design Zone; Series No. (Zero denotes plywood); No. Of Posts

CODE

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

STANDARD ROADSIDE PLYWOOD GUIDE SIGNS BREAK-AWAY TYPE POSTS

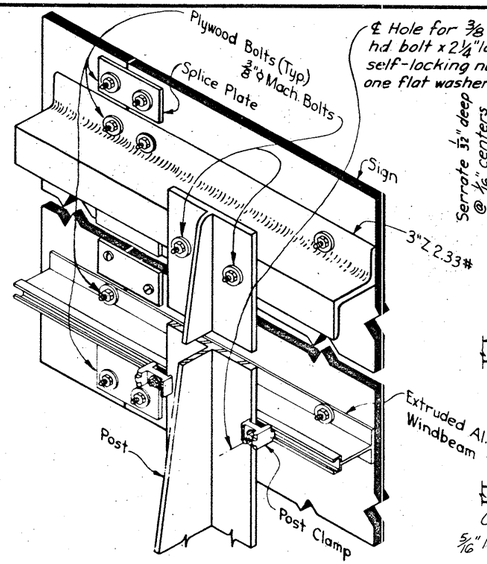
Sheet 1 of 2

SMD-88

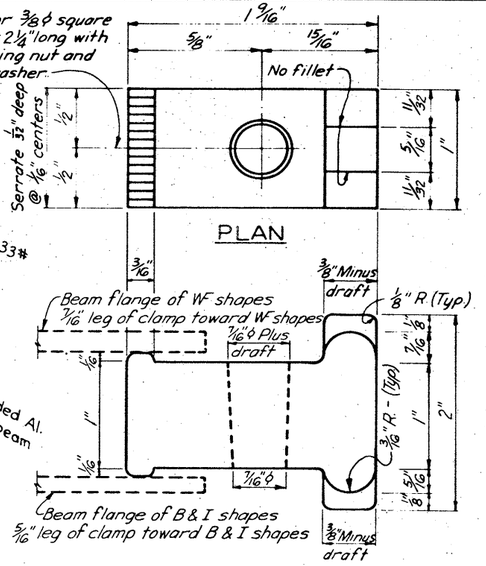
ORIGINAL DRAWING DATE Nov. 1964	STATE DISTRICT	FEDERAL NO.	FEDERAL AID PROJECT	SHEET
BH - DLM 2/66 Flange Holes	21	6	I-35-1(18)307(4)	57
CK - DBD 2/1970 BM - 65/65 - A	COUNTY		CONTROL	SECT NO.	JOB
DW - JK Mod Erection Note - 11/65 X	Webb		12	56	6/38
CK - DBD 1/66 - Fuse					11/35

Issued ∽ 1-65

14E

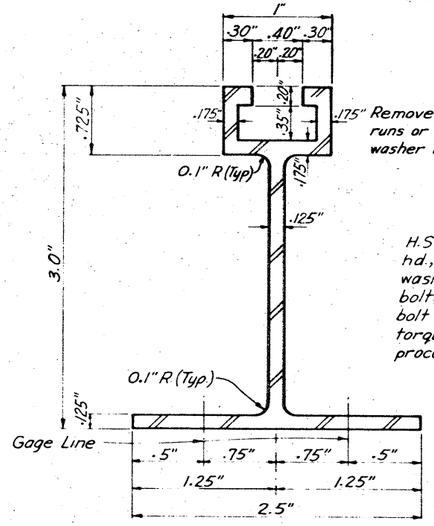


ISOMETRIC SHOWING SIGN COMPONENTS

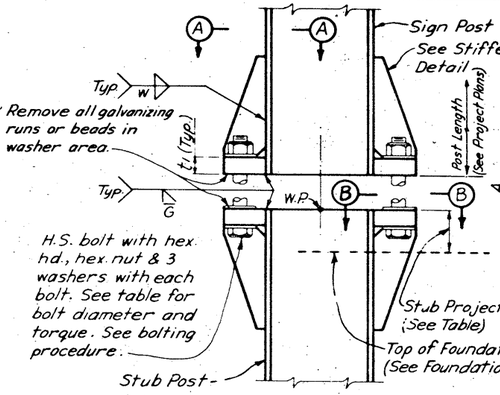


ELEVATION

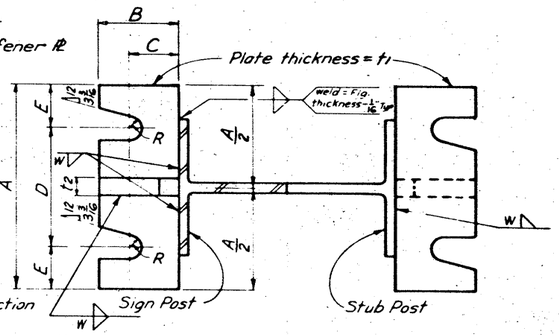
POST CLAMP DETAIL (.173 # Each)



WINDBEAM CROSS SECTION (1.175 #/per ft.)



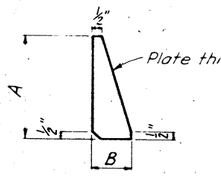
SIGN POST AND STUB POST ELEVATION (For WF and B Shapes)



SECTION A-A SECTION B-B

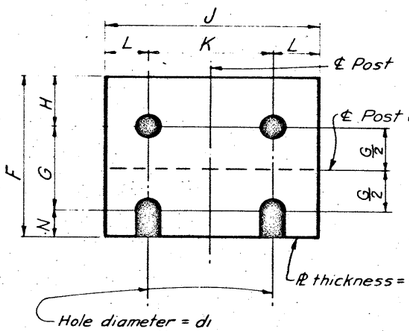
(See Table for Dimensions)

Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.



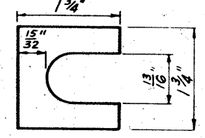
STIFFENER PLATE DETAIL

(See Table for Dimensions)



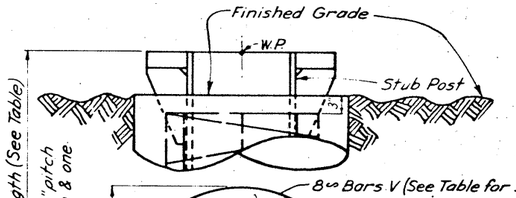
FUSE PLATE DETAIL

(See Table for Dimensions and Weight)



Furnish 2 ea .012"± thick and 2 ea .032"± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M.-B36.

SHIM DETAIL

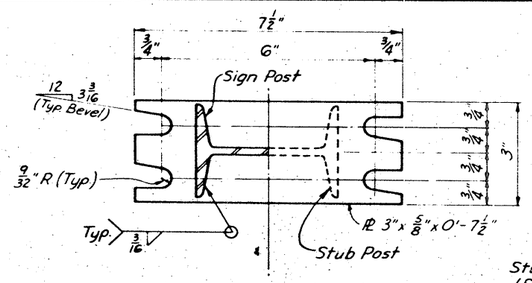


FOUNDATION DETAIL

Dimension / Post Size	BASE CONNECTION DATA TABLE: Bolt Size & Torque	A	B	C	D	E	t1	t2	W	R
GBB.5	5/8"ϕ x 2¾" Torque=450"#	5"	2"	¼"	2¾"	⅛"	¾"	½"	¼"	11/32
GB12										
GB15.5										
8WF17										
8WF20	¾"ϕ x 3½" Torque=750"#	6"	2¼"	⅜"	3½"	¼"	1"	¾"	5/16"	13/32
10WF21										
10WF25										
12WF27										
3I5.7	½"ϕ x 2½" Torque=200"#	SEE DETAIL								
4I7.7										

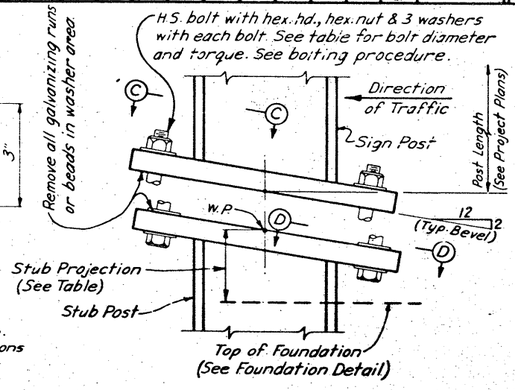
FUSE PLATE DATA TABLE: F	G	H	J	K	L	N	d1	t3	Bolt Dia	Wt. of Each Fuse ℞
3 5/8"	2"	1⅛"	4"	2¼	⅞"	½"	9/16"	¼"	⅛"ϕ	1.09#
3¾"	2"	1⅛"	4"	2¼	⅞"	5/8"	11/16"	3/8"	5/8"ϕ	1.60#
4½"	2½"	1¼"	6"	3½"	1¼"	¾"	13/16"	½"	¾"ϕ	3.75#
4½"	2½"	1¼"	5⅛"	2¾"	1¼"	⅞"	13/16"	9/16"	⅞"ϕ	3.27#
4⅜"	2½"	1½"	5⅛"	2¾"	1¼"	⅞"	15/16"	9/16"	⅞"ϕ	3.93#
5⅜"	3"	1½"	5¾"	2¾"	1½"	⅞"	15/16"	9/16"	7/8"ϕ	4.75#
5⅜"	3"	1½"	5¾"	2¾"	1½"	⅞"	15/16"	9/16"	⅞"ϕ	4.79#
5⅜"	3"	1½"	6½"	3½"	1½"	⅞"	15/16"	9/16"	⅞"ϕ	5.42#
3⅛"	1½"	1⅛"	2⅝"	1½"	9/16"	½"	9/16"	¼"	½"ϕ	0.64#
3⅛"	1½"	1⅛"	2⅝"	1½"	9/16"	½"	9/16"	¼"	½"ϕ	0.64#

FOUNDATION DATA: Stub Length	Stub Projection	Dr. Shaft Diameter	Bars V Size
2'-0"	3"	2'-0"	#5
2'-0"	3"	2'-0"	#5
2'-6"	3"	2'-0"	#6
2'-6"	3"	2'-0"	#7
3'-0"	2½"	2'-0"	#8
3'-0"	2½"	2'-0"	#9
3'-0"	2½"	2'-0"	#10
3'-0"	2½"	2'-0"	#11
1'-6"	3½"	1'-6"	#5
1'-6"	3½"	1'-6"	#5



SECTION C-C SECTION D-D

Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.



SIGN POST AND STUB POST ELEVATION

(For 4I7.7 and 3I5.7 Shapes)

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. Assemble post to stub with bolts and WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with 12" to 15" wrench to bed washers and shims and to clean bolt threads then loosen each bolt in turn and retighten in a systematic order to the presribed torque. (See Table)
4. Burr threads at junction with nut using a center punch to prevent nut loosening.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

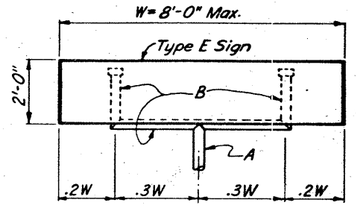
STANDARD ROADSIDE PLYWOOD GUIDE SIGNS BREAK-AWAY TYPE POSTS

Sheet 2 of 2 SMD-8B

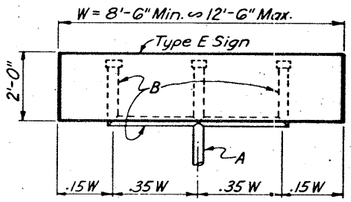
ORIGINAL DRAWING DATE Nov., 1964	REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN -DLH	4/6/65 - ½"ϕ Bolt Lgth.	21	6	I-35-1(18)007&c	58
CK -DBD	11/65 - Bolting Procedure	COUNTY		CONTROL	SECT. NO.	JOB	HIGHWAY
DW -JK	1/66 - Fuse	Webb		18	5/6	16/38	I 35
CK -DBD							

Issued 1-65

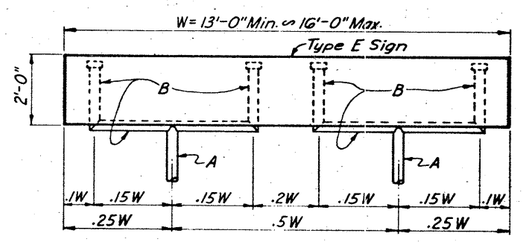
14F



TYPE D-2-1
TYPE D-2-2
TYPE D-2-3

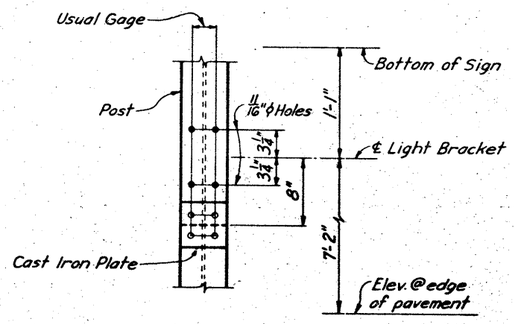


TYPE D-4-1
TYPE D-4-2
TYPE D-4-3

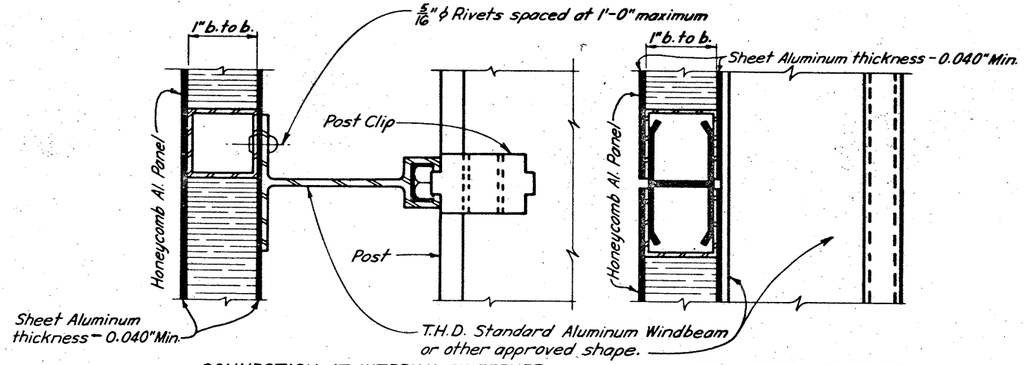


TYPE D-G-1
TYPE D-G-2
TYPE D-G-3

PIPE MOUNTS



POST MODIFICATION FOR LIGHT BRACKET

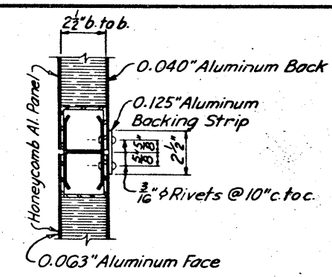


CONNECTION AT INTERNAL STIFFENER

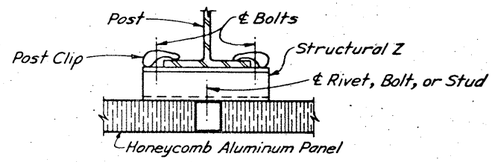
CONNECTION AT SPLICE

TYPE "C" SIGN BLANK

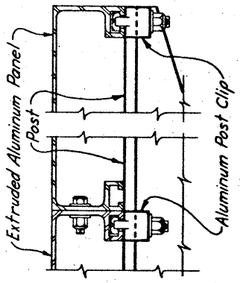
(1" Honeycomb)
For Illuminated Signs



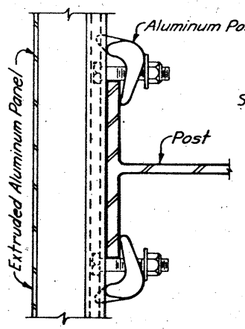
ELEVATION SECTION



PLAN SECTION



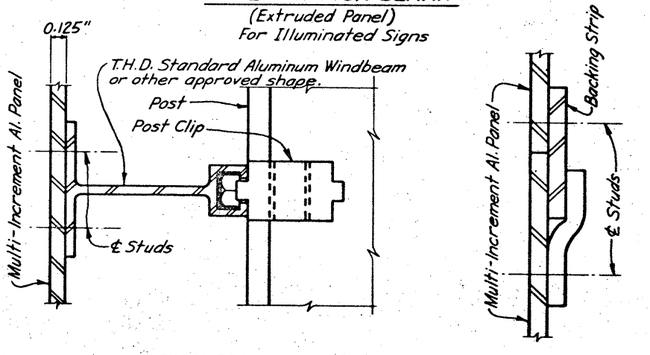
ELEVATION SECTION



PLAN SECTION

TYPE "B" SIGN BLANK

(Extruded Panel)
For Illuminated Signs

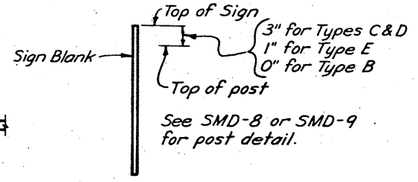


ELEVATION SECTION

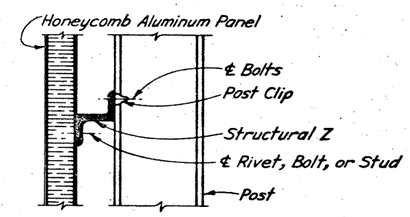
SECTION @ SPLICE

TYPE "D" SIGN BLANK

(Multi-Increment Panel)
For Illuminated Signs



TOP OF POST LOCATION

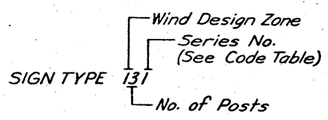


ELEVATION SECTION

TYPE "E" SIGN BLANK

(2½" Honeycomb)
For Non-Illuminated Signs

GENERAL NOTES:
See sheets SMD-8 and SMD-9 for General Notes and details not shown.



CODE

CODE TABLE		
Series No.	Type	Panel
1	E	2½" Honeycomb
2	C	1" Honeycomb
3	B	Extruded Aluminum
4	D	Multi-Increment

Connection details of Aluminum panels on this sheet are suggestions only. Connections used are supplier's choice subject to approval of the Engineer.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

STANDARD ROADSIDE ALUMINUM GUIDE SIGNS

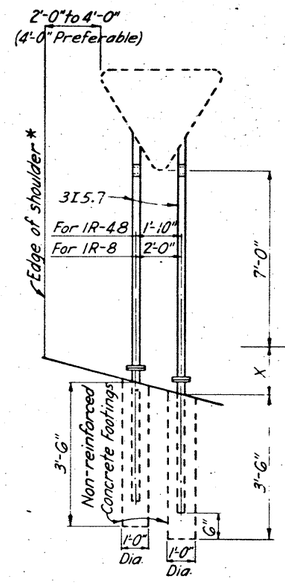
Sheet 1 of 1

SMD – 10

ORIGINAL DRAWING DATE: Nov., 1964	STATE DISTRICT	FEDERAL RECORDS	FEDERAL AID PROJECT	SHEET
DM.:- D.L.M. 7/65 T.K. REVISIONS	21	6	I-35-1(18)207 etc	59
CK.:- D.B.D.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
DW.:- J.K.	Webb	18	5	38	I-H 35
CK.:- D.B.D.	Issued 1-65				

IGA

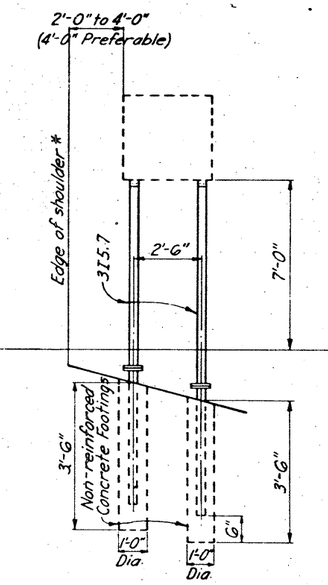
* Or face of mountable curbs. The clearance shall be 2'-0" for those signs at locations where there are unmountable curbs.



MAIN LANE BEAM MOUNT

TYPE F-1

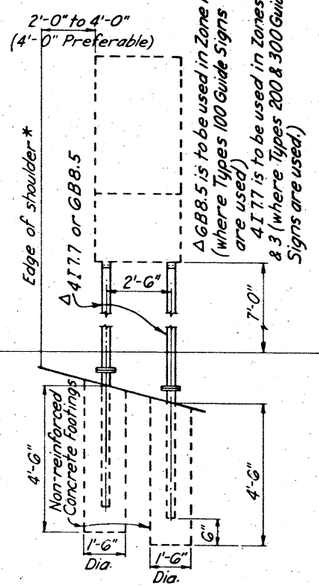
This type beam mount to be used to mount the IR-48 Yield Right of Way sign and the IR-8 No U Turn sign. Note the post spacing.



MAIN LANE & FRONTAGE ROAD BEAM MOUNT

TYPE F-2

This type beam mount to be used to mount the following signs: IRseries - 2A, 4, 11, 12, 13, 14, 14A, 15, 17, 17A, 1B, 41, 50, 51 & 52. & IWseries - 5-1, 13, 20A, 21, 60, & 4-2.

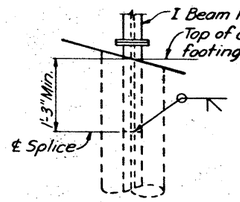


MAIN LANE BEAM MOUNT

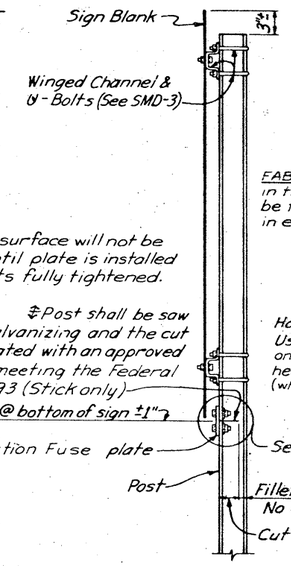
TYPE G

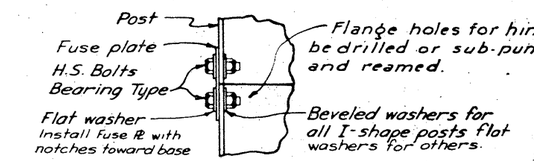
This type beam mount to be used for Speed Limit sign IR-2 when used in combination with IR-3 & IR-2F.

ELEVATION @ EDGE OF PAVEMENT



PERMISSIBLE SHOP SPLICE

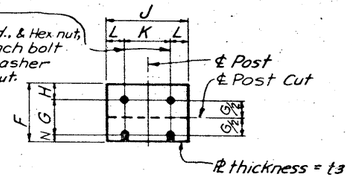




"DETAIL A" HINGE

FABRICATOR NOTE : **IMPORTANT** - All friction fuse bolts shall be tightened in the shop following a method approved by the Engineer. Tightening shall be to such a degree as to obtain the following minimum residual tension in each bolt:

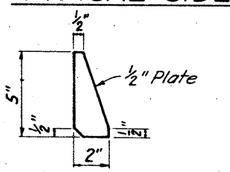
Bolt Size	Min. Residual Bolt Tension
1/2" ϕ	12050 Lbs.
5/8" ϕ	19200 Lbs.
3/4" ϕ	28400 Lbs.
7/8" ϕ	36050 Lbs.



FUSE PLATE DETAIL

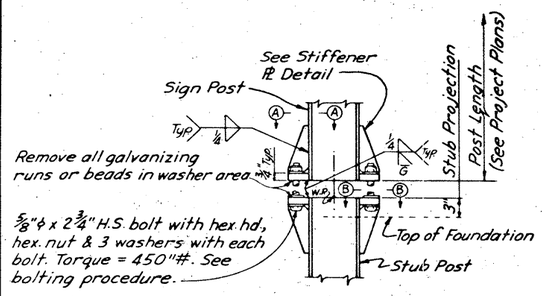
(See Table for Dimensions and Weight)

TYPICAL SIDE VIEW



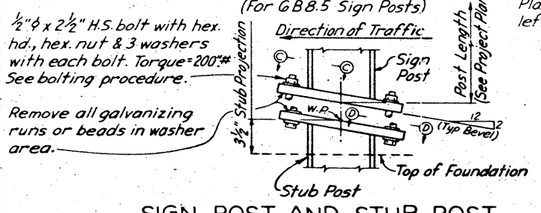
STIFFENER ℞ DETAIL

Dimension / Post Size	F	G	H	J	K	L	N		d1	t3	Bolt Dia.	Wt. of Each Fuse ℞
GB8.5	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"		9/16"	1/4"	1/2"ϕ	1.09#
3I5.7	3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"		9/16"	1/4"	1/2"ϕ	0.64#
4I7.7	3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"		9/16"	1/4"	1/2"ϕ	0.64#



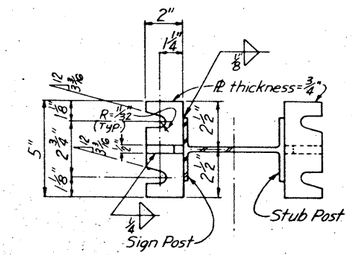
SIGN POST AND STUB POST ELEVATION

(For GB8.5 Sign Posts)



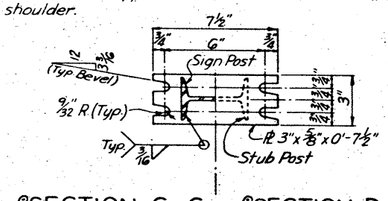
SIGN POST AND STUB POST ELEVATION

(For 3I5.7 and 4I7.7 Only)



©SECTION A-A ©SECTION B-B

©NOTE: Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.

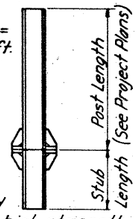


©SECTION C-C ©SECTION D-D

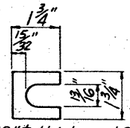
POST WEIGHT DATA	
Post Size‡	Weight
GB8.5	135.7 #
3I5.7	85.9#
4I7.7	119.9#

‡Last figures = post wt. per ft.

Weight Data is the weight of items shown for one post - (includes 10' of post length, post foundation stub, related base connection plates and stiffeners, Friction Fuse ℞ and all high strength bolts, nuts and washers.)



POST WEIGHT DATA



Furnish 2 ea .012"± thick and 2 ea .032"± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M. - B36.

SHIM DETAIL

GENERAL NOTES:

Design conforms with AASHO Specifications for the design and Construction of Structural Supports for Highway Signs.

Materials and Fabrication shall conform to the requirements of Texas Highway Department Standard Specifications and Special Specifications.

All high strength bolts, nuts, and washers shall conform to ASTM-A325.

Notched steel fuse plates shall conform to the requirements of ASTM-A441. All holes shall be drilled. All plate cuts shall preferably be saw cuts, however; flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.

Tighten the high strength bolts in the base connection only to the torque shown, DO NOT OVERTIGHTEN.

All bolts other than high strength bolts shall conform to ASTM-A307, Class A.

All structural steel, bolts, nuts, and washers shall be galvanized as per Item 442 of the Standard Specifications. Struct steel to be galv. after fabrication except as noted.

See Standard Plan Sheets SMD-1 and SMD-3 for sign fastening details.

Where solid rock is encountered, footing shall be plan depth or extend two feet minimum into the rock.

Structural steel shall conform with the requirements of ASTM Specification A441.

Galvanizing of all posts shall be projection above concrete plus 6" minimum.

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

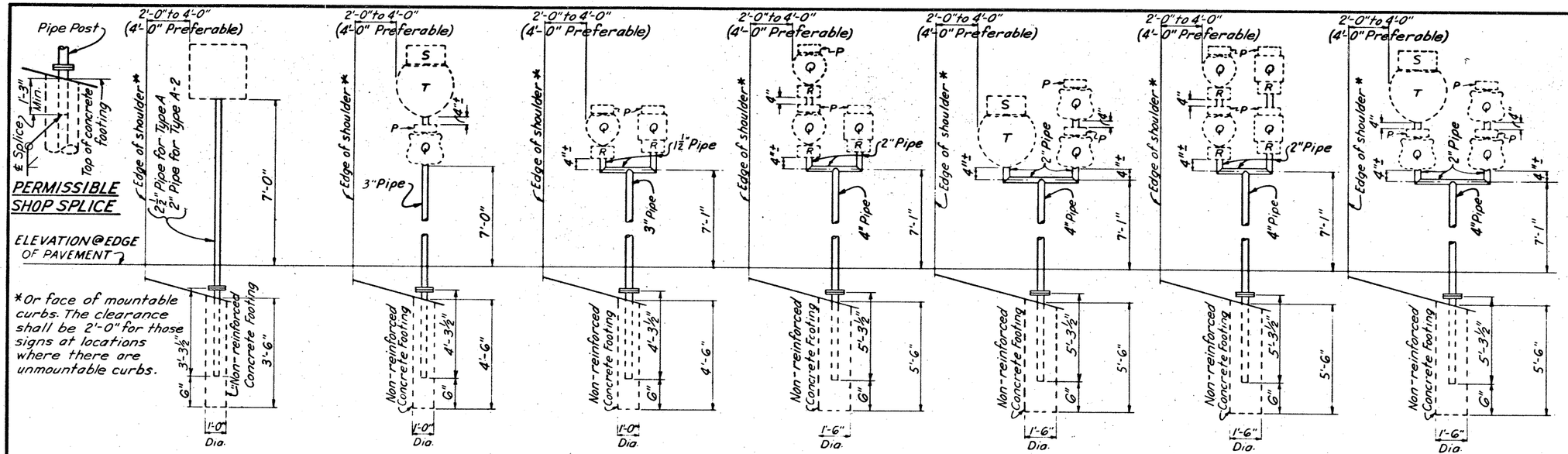
1. Assemble post to stub with bolts and WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with 12" to 15" wrench to bed washers and shims and to clean bolt threads then loosen each bolt in turn and retighten bolts in a systematic order to the prescribed torque. (See Table)
4. Burr threads at junction with nut using a center punch to prevent nut loosening.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

STANDARD ROADSIDE SIGNS BREAK-AWAY TYPE POSTS WARNING AND REGULATORY SIGNS

SMD - 11A

ORIGINAL DRAWING DATE June, 1965	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
REVISIONS	21	6	I-35-1(18)00 7nk	60
DN - D.L.M. 2/66 - Flange Holes	COUNTY	CONTROL	SECT-JOB	JOB	ECONOMY
CK - F.D.M. 1/65 - Bolting Procedure	Hidalgo	18	5/6	16/38	1435
DW - J.K. 1/66 - Fuse					100
CK - D.L.M.					



FRONTAGE ROAD PIPE MOUNTS

TYPES A & A-2

TYPE A - This type pipe mount to be used when one Route Marker is required, for IR-1A, IR-1G signs and other sign areas not exceeding 8 square feet.

TYPE A-2 - This type pipe mount to be used for any sign or combination of signs not exceeding a total of 4 square feet in area.

MAIN LANE & FRONTAGE ROAD PIPE MOUNT

TYPE A-1

This type pipe mount to be used for a 36" Interstate Route Marker with a 24" Route Marker on Main Lanes or as a specified optional substitute for Type B.

FRONTAGE ROAD PIPE MOUNT

TYPE B

This type pipe mount to be used when 2 Route Markers of the same type or 2 Route Markers of different types are required.

FRONTAGE ROAD PIPE MOUNT

TYPE C

This type pipe mount to be used when 3 Route Markers are required.

MAIN LANE PIPE MOUNT

TYPE C-1

This type pipe mount to be used for a 36" Interstate Route Marker with two 24" Route Markers.

FRONTAGE ROAD PIPE MOUNT

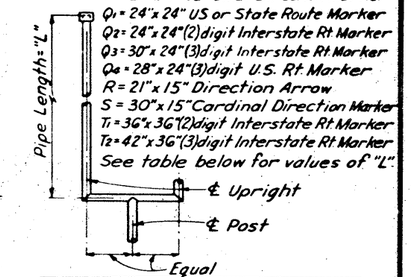
TYPE D

This type pipe mount to be used when 4 Route Markers are required.

MAIN LANE PIPE MOUNT

TYPE D-1

This type pipe mount to be used for a 36" Interstate Route Marker with three 24" Route Markers.



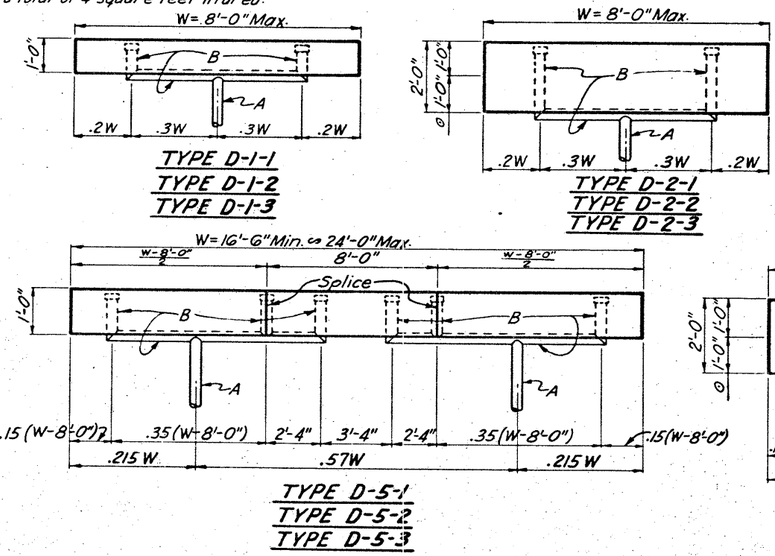
MARKER COMBINATIONS	"L"
2P + 2Q + 2R + 7"	8'-7"
P + 2Q + 2R + 7"	7'-10"
2Q + 2R + 7"	7'-1"
Q + R + 3"	3'-6"
S + T + 3"	4'-6"
P + Q + R + 3"	4'-3"
P + Q + S + T + 7"	7'-7"

DIMENSION "S"

"S" = 1'-4½" for Q_1 or Q_2
"S" = 1'-7½" for Q_3
"S" = 1'-6½" for Q_4
"S" = 1'-10½" for T_1
"S" = 2'-1½" for T_2

Dimension "S" equals the distance from the ℄ of Upright to the ℄ of clearance between sign group.

TYPE OF MOUNT	PIPE A	PIPE B	FOUNDATION Footing Dia.	FOUNDATION Footing Depth
D-1-1	3"ϕ	2"ϕ	1'-0"	4'-6"
D-1-2	2½"ϕ	1½"ϕ	1'-0"	4'-6"
D-1-3	2"ϕ	1½"ϕ	1'-0"	4'-6"
D-2-1	4"ϕ	3"ϕ	1'-6"	5'-6"
D-2-2	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-2-3	3"ϕ	2"ϕ	1'-6"	4'-6"
D-3-1	4"ϕ	3"ϕ	1'-6"	5'-6"
D-3-2	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-3-3	3"ϕ	2"ϕ	1'-6"	4'-6"
D-4-1	5"ϕ	3"ϕ	1'-6"	5'-6"
D-4-2	4"ϕ	3"ϕ	1'-6"	5'-6"
D-4-3	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-5-1	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-5-2	3"ϕ	2"ϕ	1'-6"	4'-6"
D-5-3	2½"ϕ	1½"ϕ	1'-6"	4'-6"
D-6-1	4"ϕ	3"ϕ	1'-6"	5'-6"
D-6-2	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-6-3	3"ϕ	2"ϕ	1'-6"	4'-6"

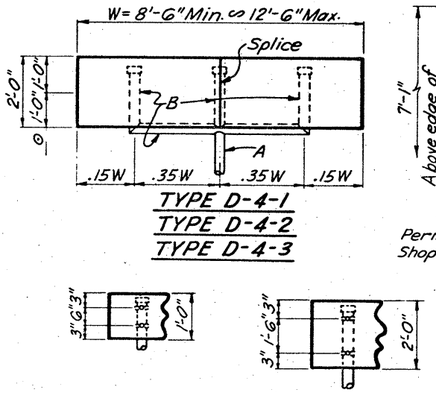


NOTE: (For Types D-1-1, 2 & 3 thru D-6-1, 2 & 3)

The last number in Type designation denotes zone for which structure is to be used.

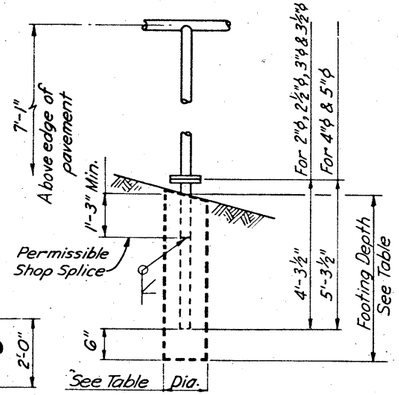
Plywood shall be ⅜" thick.

Ø Double destination DI-A signs for mount types D-2-1, D-2-2, D-2-3, D-4-1, D-4-2, D-4-3, D-6-1, D-6-2 & D-6-3 shall be combined on a single panel without a horizontal joint.



MUFFLER CLAMP LOCATION

(For clamp detail see sheet SMD-3)



FOUNDATION DETAIL

(Non-reinforced)

FOR TYPES D-1-1 THRU D-6-3

NOTE:

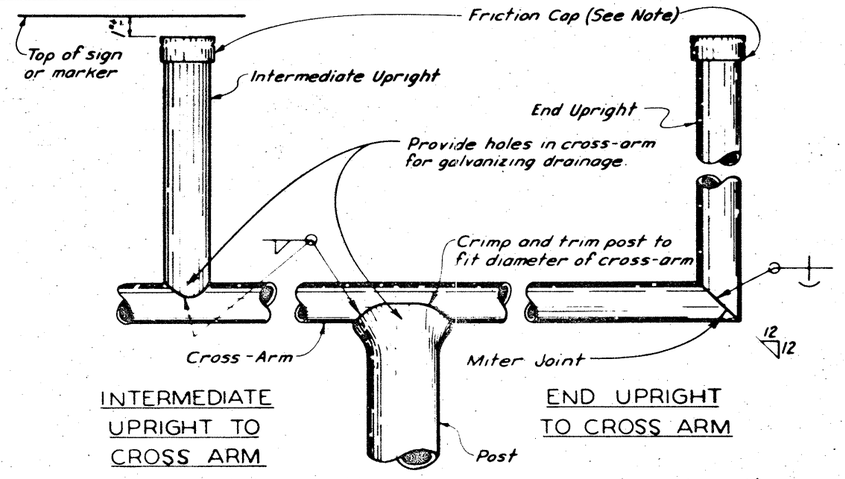
DI-A signs with a vertical dimension of 11½" in compliance with the Texas Highway Department Manual on Traffic Sign Design Standards may be used in lieu of DI-A signs having a vertical dimension of 12" as shown on the plans, where a sign manufacturer has screens already made for the 11½" vertical dimension but not for the 12" vertical dimension. Measurement for payment, however, shall be made on the basis of the dimensions for the signs as actually erected.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

STANDARD ROADSIDE SIGNS
WARNING, REGULATORY AND SMALL GUIDE SIGNS
BREAK-AWAY TYPE POSTS
SMD-12

Sheet 1 of 2

ORIGINAL DRAWING DATE June, 1965	STATE DISTRICT	FEDERAL AID CODE	FEDERAL AID PROJECT	SHEET
DR.:-B.D.	21	6	I-35-1(18)207 etc	61
CK.:-C.H. REVISIONS	COUNTY		CONTROL	SECT. NO.	JOB	HIGHWAY
DSN.:-J.K.	Webb		12	5/6	162	I-H 35
CK.:-D.B.D.						



WELDED PIPE MOUNT DETAILS

NOTE:
The Contractor, at his option may furnish Standard Weight pipe conforming to A.S.T.M. Specification A-53, or Standard Weight pipe conforming to API5L, Grade B. Pipe made from materials conforming to the API5L Specifications shall meet all requirements of those specifications except that the Official API Monogram identification is not required.

Combinations of pipe material meeting different specifications may be used in the same project.

The pipe may be welded or seamless.

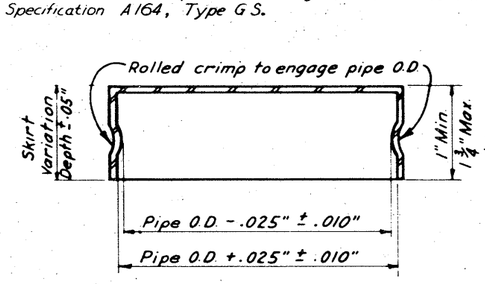
Hydrostatic tests are not required.

NOTES:
FRICTION CAPS— Caps may be manufactured from either hot rolled or cold rolled steel sheets. For pipe sizes 3½" and smaller the minimum sheet metal thickness shall be 24 gauge.

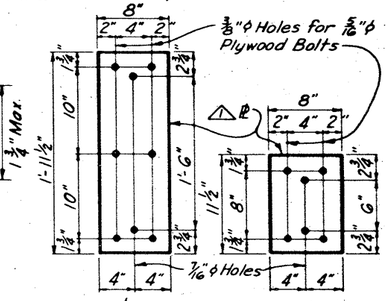
The rim edges shall be reasonably straight and smooth.

Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of A.S.T.M. Specification A164, Type G S.



FRICTION CAP DETAIL



⚠ May be ⅛"(A.S.T.M.-A36) steel Pl or 0.187" aluminum plate.

SPLICE Pls

GENERAL NOTES:
Design conforms with A.A.S.H.O. Specifications For The Design And Construction Of Structural Supports For Highway Signs.

Material and fabrication shall conform to the requirements of Texas Highway Department Standard Specifications.

Aluminum splice plates shall conform with the requirements of A.S.T.M.-B-209 alloy 6061-T6, or A.S.T.M.-B-221 alloy 6061-T6.

All structural steel, bolts, nuts and washers shall be galvanized as per Item 442 of the Standard Specifications except as noted. Galvanizing of all posts shall be projection above concrete plus 6" minimum.

All high strength bolts and washers shall conform to A.S.T.M.-A325. All high strength nuts shall be of such capacity as to develope the bolt strength.

Tighten the high strength bolts in the base connection only to the torque shown, DO NOT OVERTIGHTEN.

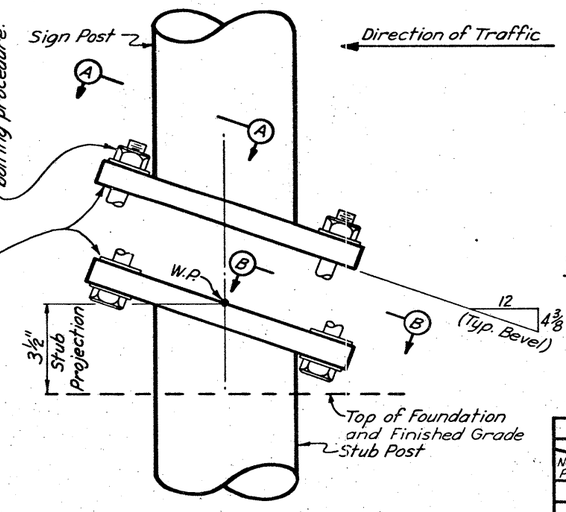
All bolts other than high strength bolts shall conform to A.S.T.M.-A307, Class A.

See Standard Plan Sheets SMD-1 and SMD-3 for sign fastening details.

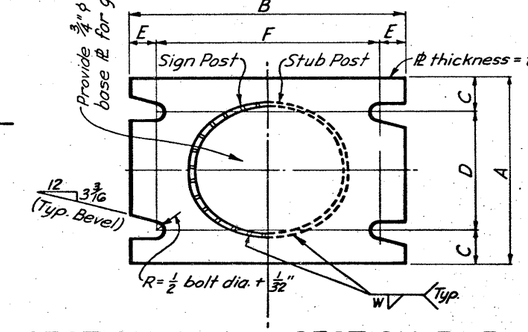
Where solid rock is encountered, footing shall be plan depth or extend two feet minimum into the rock.

H.S. bolt with hex. hd., hex nut & 3 washers with each bolt. See table for bolt diameter and torque. See bolting procedure.

Remove all galvanizing runs or beads in washer area



SIGN POST AND STUB POST ELEVATION



SECTION A-A SECTION B-B

(See Table for Dimensions)

Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.

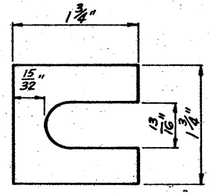
*BASE CONNECTION DATA TABLE

Nom. Pipe Size \ Dimension	Bolt Size & Torque	A	B	C	D	E	F	t	W
2"ϕ	½"ϕ x 2" Torque=200'#	4½"	6¼"	1"	2½"	¾"	4¾"	½"	¼"
2½"ϕ		4½"	6¼"	1"	2½"	¾"	4¾"	½"	5/16"
3"ϕ	½"ϕ x 2½" Torque=200'#	4½"	7"	1"	2½"	¾"	5½"	⅝"	5/16"
3½"ϕ		5½"	7¾"	1"	3½"	¾"	6¼"	⅝"	⅜"
4"ϕ		5½"	7¾"	1"	3½"	¾"	6¼"	⅝"	⅜"
5"ϕ	⅝"ϕ x 2¾" Torque=450'#	6½"	9¾"	1⅛"	4"	⅞"	8"	1"	7/16"

*Plates for base connection shall conform with the requirements of A.S.T.M. A36. Payment will be included in price bid per linear foot of pipe.

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. Assemble post to stub with bolts and WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with 12" to 15" wrench to bed washers and shims and to clean bolt threads then loosen.
4. Retighten bolts in a systematic order to the prescribed torque.(See Table)
5. Loosen each bolt and retighten to prescribed torque in the same order as initial retightening.
6. Burr threads at junction with nut using a center punch to prevent nut loosening.



Furnish 2 ea .012"± thick and 2 ea .032"± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M.-B36.

SHIM DETAIL

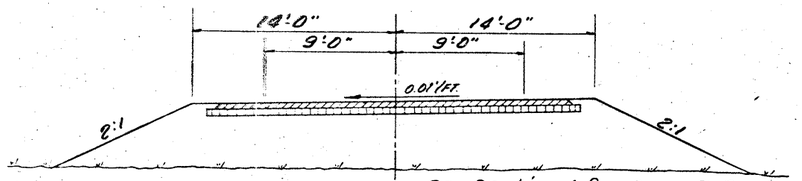
TEXAS HIGHWAY DEPARTMENT
INTERSTATE

STANDARD ROADSIDE SIGNS
WARNING, REGULATORY AND SMALL GUIDE SIGNS
BREAK-AWAY TYPE POSTS
SMD-12

Sheet 2 of 2

Des. & Dt.	D.L.H.	Drawing	Date	Proj. Board Ord. No.	State	Federal and Project No.	Sheet No.
Co. Dwg.	D.B.D.	ORIGINAL	June, 1965				
Rev. & Dt.	J.K.	11)G5-Mod. Bolt Procedure		6	TEXAS	I-35-1(18)00?-4(K)	62
Co. Dwg.	D.L.H.			State Dist. No.	County	Hwy. No. / Proj. No. / Sec. No. / Job No.	
Rev. & Dt.				21	Webb	17 5/6 16/38 1435	
Co. Rev.							

10C

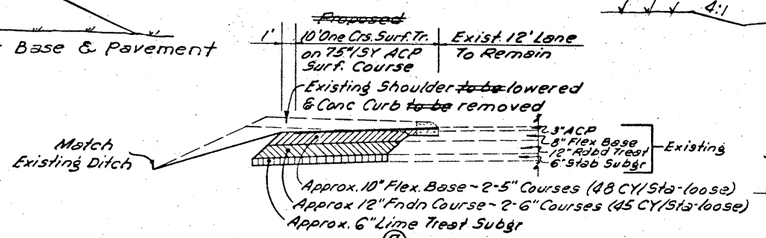


③

SPECIAL SECTION

~~To be~~ used adjacent to Direct Traffic Type Structures ~ Transition from Crown Section to this Section in 100'
~~To Be~~ Used Approx. 9 Stations

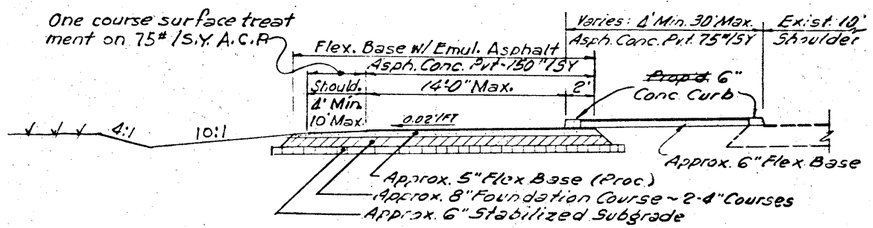
See Section 1 for Base & Pavement



⑦

SPECIAL SHOULDER SECTION

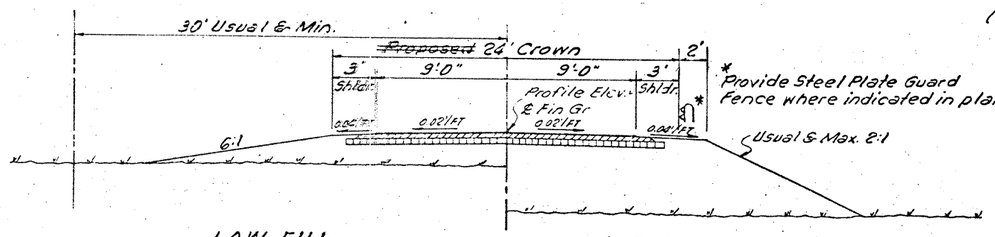
~~To be~~ used approx. 2.7 Sta.
(Sta. 701+77 to Sta. 704+50)



⑥

SHOWING ~~PROPOSED~~ RAMP ADJACENT TO EXISTING EXPRESSWAY SHOULDER

~~To Be~~ Used Approx. 12 Stations



LOW FILL

~~To Be~~ Used Approx. 73 Stations

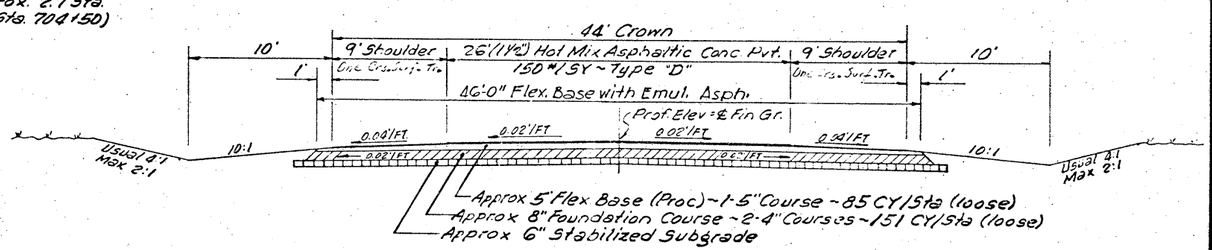
HIGH FILL

~~To Be~~ Used Approx 26 Stations

②

FILL SECTION

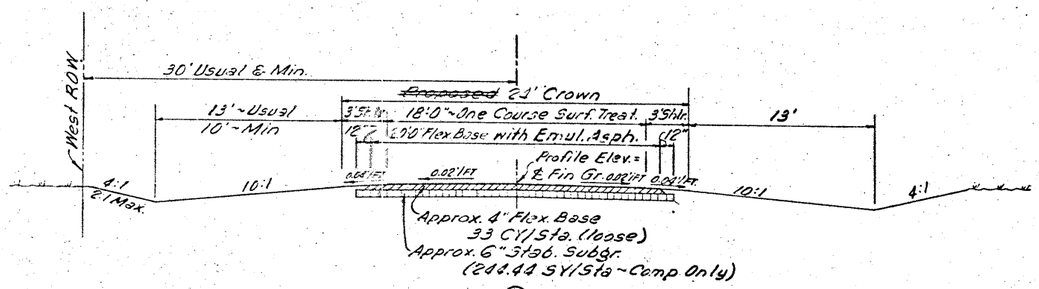
See Section 1 For Base & Pavement



⑤

REGULAR OR CUT SECTION

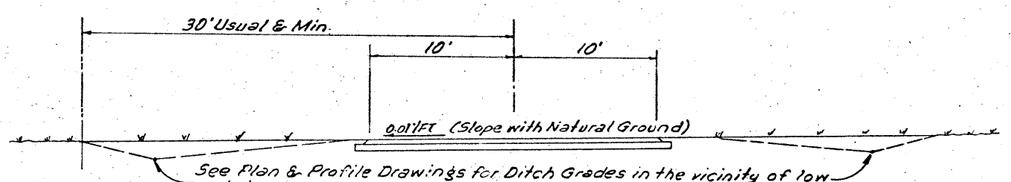
HIGHWAY US-83 CONNECTION
~~To Be~~ Used Approx. 12 Stations



①

REGULAR OR CUT SECTION

~~To Be~~ Used Approx. 316 Stations



④

LOW POINT SECTION

See Section 1 For Base & Pavement
~~To be~~ Used Approx. 93 Stations

~~PROPOSED~~ WEST FRONTAGE ROAD SECTIONS

DESIGN NOTE:

The design criteria for the pavement, base and sub-base, ~~as proposed~~, requires certain minimum triaxial values for each layer to provide the design load capacity. The addition of lime to the flexible base, to the roadbed treatment, and to the subgrade is required to insure that each layer will have the desired support value as indicated by preliminary triaxial tests, P.I. tests and under known field conditions as observed in other previously completed projects.

TYPICAL CROSS SECTIONS WEST FRONTAGE ROAD, US-83 & RAMP

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(18)007				66
STATE DIST. NO.	COUNTY	CONT.	SECT	JOB		HIGHWAY NO.
21	WEBB	18	5	6	16/38	11-35

BASIS OF ESTIMATE

DESCRIPTION	EMBANKMENT			FLEXIBLE BASE			LIME TREATED SUBGRADE			FOUNDATION COURSE		TOTAL	
	CONT. 18-6-38 6,043 CY CONT. 18-5-16 22,802 CY			CONT. 18-6-38 4946 CY CONT. 18-5-16 13,071 CY CONT. 18-6-38 34,887 SY CONT. 18-5-16 85,054 SY			CONT. 18-6-38 6,396 CY CONT. 18-5-16 16,284 CY CONT. 18-6-38 38,375 SY CONT. 18-5-16 97,701 SY			CONT. 18-5-16 2,192 CY			
	RATE	TOTAL CONT. 18-6-38	TOTAL CONT. 18-5-16	RATE	TOTAL CONT. 18-6-38	TOTAL CONT. 18-5-16	RATE	TOTAL CONT. 18-6-38	TOTAL CONT. 18-5-16	RATE	TOTAL	CONT. 18-6-38	CONT. 18-5-16
Sprinkling	25 Gal/CY	151 MG	570 MG	100 Gal/CY	495 MG	1307 MG	30 Gal/CY	1151 MG	2931 MG	60 Gal/CY	132 MG	1797 MG	4940 MG
Rolling (Flatwheel)				1 Hr/200 CY	25 Hrs.	65 Hrs						25 Hrs	65 Hrs
Rolling (Tamping)	1 Hr/300 CY	20 Hrs.	76 Hrs				1 Hr/400 CY	16 Hrs	41 Hrs	1 Hr/300 CY	7 Hrs	36 Hrs	124 Hrs
Rolling (Light Pneum Tire)				1 Hr/200 CY	25 Hrs	65 Hrs	1 Hr/200 CY	32 Hrs	81 Hrs	1 Hr/200 CY	11 Hrs	57 Hrs	157 Hrs
Rolling (Heavy Pneum)	1 Hr/600 CY	10 Hrs	38 Hrs	1 Hr/400 CY	12 Hrs	33 Hrs	1 Hr/400 CY	16 Hrs	41 Hrs	1 Hr/400 CY	5 Hrs	38 Hrs	117 Hrs
Rolling (Vib Roll)				1 Hr/500 CY	10 Hrs	26 Hrs	1 Hr/500 CY	13 Hrs	33 Hrs	1 Hr/500 CY	4 Hrs	23 Hrs	63 Hrs
Emul Asph (EA-HVMS) or (EA-HVMS Mod)				0.25 Gal/SY	8722 Gal	21264 Gal						8722 Gal	21264 Gal
Lime - Item 260 (Ty A)							3% by Wt.	259 Tons	660 Tons			259 Tons	660 Tons
Lime - Item 262 (Ty A or B)				1% by Wt.	67 Tons	176 Tons				1% by Wt.	30 Tons	67 Tons	206 Tons
Sprinkling for Emul Asph				20:1 by Vol.	174 MG	425 MG						174 MG	425 MG

Note: Wt. of Flex. Base 3600 #/CY (Comp.)
Wt. of Stab. Subgr. 2700 #/CY (Comp.)

SUMMARY OF GRADING

PLAN & PROFILE SHEET NO.	LOCATION	UNCLASSIFIED ROAD EXCAVATION C.Y.		OBLITERATING ABANDONED ROAD STA.		*EXCESS ROAD EXCAVATION C.Y.		LIME TREATED SUBGRADE (6 IN.) S.Y.		SALVAGE & REPLACE FLEX. BASE C.Y.		UNCLASSIFIED CHANNEL EXCAVATION C.Y.			
	STATION - STATION	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	PROJ. I 35-1(18)007 CONTROL 18-6-38														
1 of 21	178+00 - 188+00	2468	1659			2221	0	2363	2363			31	34		
2 of 21	188+00 - 214+00	3006	1828			1319	0	6355	6355						
3 of 21	214+00 - 240+00	2351	2551			1260	205	6355	6355						
4 of 21	240+00 - 266+00	3988	4127			3107	1632	6355	6355	240	240				
5 of 21	266+00 - 292+00	2952	2192			2274	749	6318	6318			31	34		
6 of 21	292+00 - 318+00	3705	3269			2826	1880	6290	6290			61	65		
7 of 21	318+00 - 335+75	2896	2402			457	1335	4339	4339						
	SUB-TOTAL	21,366	18028			13,464	5801	38,375	38375	240	240	123	133		
	PROJ. I 35-1(18)007 CONTROL 18-5-16														
7 of 21	335+75 - 344+00	1821	1699			2343	620	1911	1911			152	347		
8 of 21	344+00 - 370+00	4288	3927			3194	2223	6355	6355						
9 of 21	370+00 - 396+00	3838	4032			1714	1433	6355	6355						
10 of 21	396+00 - 422+00	5999	5350			4230	1989	6355	6355						
11 of 21	422+00 - 448+00	4326	2707			3736	770	6355	6355						
12 of 21	448+00 - 474+00	4552	4462			1991	258	6355	6355						
13 of 21	474+00 - 500+00	4019	3812			3166	2694	6355	6355						
14 of 21	500+00 - 526+00	5913	5911			4614	3602	6355	6355						
15 of 21	526+00 - 552+00	4442	4037			3703	2534	6328	6328						
16 of 21	552+00 - 578+00	4322	3303			3826	1856	6355	6355						
17 of 21	578+00 - 604+00	2429	4377			536	2257	3422	3422						
18 of 21	604+00 - 630+00	1836	1744			0	0	6290	6290			218	224		
19 of 21	630+00 - 656+00	3119	2898			1232	494	6355	6355						
20 of 21	656+00 - 682+00	3272	1934			2229	0	6355	6355						
21 of 21	682+00 - 708+00	5649	6827	5.5	5.5	2861	3818	16,200	16,200						
	SUB-TOTAL	59,825	57020	5.5	5.5	39375	24548	97,701	97,701			370	571		
	TOTAL	81,191	75048	5.5	5.5	52,839	30349	136,076	136,076	240	240	493	704		

OBLITERATED ABANDONED ROAD

STATION TO STATION	LENGTH STA.	SALVAGE BASE CY
CONTROL 18-5-16		
701+70 - 707+20	5.5	~~200~~

ESTIMATE & QUANTITY SHEET

WEST FRONTAGE ROAD
SHEET 1 OF 2 SHEETS

I35-C(18)007 67

Rev. 4-5-66. 21 WEBB 18 5/6 MILE IH-35

SUMMARY OF SMALL STRUCTURES

PLAN & PROFILE SHEET NO.	STATION	DESCRIPTION	UNCL. STRUCT. EXCAV~CY		CL "A" CONC C.Y.		18" RC PIPE CL III ~ LF		REINF STEEL LBS		INLETS (COMPL.)~ EA.		CL "B" CONC RIPRAP~CY		RELAY CULV. PIPE 18" DIA & UNDER~LF		GRATE EA.	
			EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL
CONTROL 18-6-38																		
	271+65	2-7'x4'x24' Mult. Box Culv. MC7-1 (Direct Traffic) & MCW-F1	25	25	27.24	27.26			3,428	3,427								
CONTROL 18-6-38 TOTALS			25	25	27.24	27.26			3,428	3,427								
CONTROL 18-5-16																		
	693+60~696+80	1-18"x320' RCP with One Inlet	84	84			248	251.50			1	1	1.3	0	72	68.67	1	1
*	Lt of Sta 704+30	1-18"x36' RCP with CH 11-B Hdwlls	18	*. 0											36	36.00		
CONTROL 18-5-16 TOTALS			102	84			248	251.50			1	1	1.3	0	108	104.67	1	1

*Relocate Side Drain at Private Entrance

*. Error in Estimate not to be measured for payment as specified in Section 400.6(7).

SUMMARY OF LARGE STRUCTURES

BRIDGE NO.	STATION BEGIN	STATION END	DESCRIPTION	UNCL. STRUCT EXCAV~CY		LENGTH	CL "A" CONC~CY CULVERTS		REINF STEEL LBS		CL "B" CONC RIPRAP~CY	
				EST	FINAL	FT	EST	FINAL	EST	FINAL	EST	FINAL
CONTROL 18-6-38												
	187+20.25	187+53.75	6-5'x4'x24' Mult Box Culv MC5-1 & MCW-P	34	34	33.50	59.50	59.51	8,207	8,200	12	17.05
	311+58.00	311+85.26	3-8'x7'x24' MBC~15° Rt Fwd Skew MC8-1, MC-15° & MCW-F2-15°	56	56	27.26	57.54	56.00	7,774	7,684		
CONTROL 18-6-38 TOTALS				90	90	60.76	117.04	115.51	15,981	15,884	12	17.05
CONTROL 18-5-16												
	342+87.33	343+30.66	4-10'x8'x24' Mult. Box Culv MC10-1 & MCW-F2	83	83	43.33	94.91	94.93	11,696	11,645	0	8.23
	626+71.00	626+97.67	3-8'x8'x24' Mult. Box Culv. MC8-1 & MCW-F2	80	80	26.67	64.43	64.48	8,009	7,995		
CONTROL 18-5-16 TOTALS				163	163	70.00	159.34	159.41	19,705	19,640	0	8.23

SUMMARY OF METAL BEAM GUARD FENCE

STATION TO STATION	LENGTH~LF EST LT	EST RT	FINAL LT	FINAL RT
CONTROL 18-6-38				
203+50 To 205+50		200		200
CONT. 18-6-36-TOTAL	200		200	
CONTROL 18-5-16				
399+50 To 401+50	200		200	
406+50 To 408+00	150		150	
465+75 To 468+25	250		250	
521+50 To 526+50		500		500
584+00 To 587+50	350		350	
CONT. 18-5-16-TOTAL	1450		1450	
TOTAL	1650		1650	

SUMMARY OF PAVEMENT

LOCATION	AREA SQ YARDS	ASPHALTIC CONCRETE PAVEMENT TYPE "D" RATE LBS PER SY	ASPHALT 5.5% BY WT TON	AGGREGATE 94.5% BY WT TON	TACK COAT 0.02 GAL PER SY GAL
Relocated Entrance Ramp	1913	150	8	136	38
10' Shoulder & Gore	636	75	1	23	13
US Hwy 83 Reloc	2829	150	12	201	57
Expressway Lane Overlay	3080	150	13	218	62
CONT. 18-5-16 ~ TOTALS			34	578	170

SUMMARY OF CONCRETE CURB

STATION & LOCATION	LENGTH~LF EST	FINAL
Sta ~~694+57~~ 694+96 To Sta ~~696+90~~ 696+76:		
Along West Expressway Lane	190	233
Along Entrance Ramp (Incl. 12'R)	194	237
CONT. 18-5-16 ~ TOTAL	384	470

SUMMARY OF DOWNDRAINS

LOCATION	CL "B" CONC. RIPRAP~CY EST	FINAL
CONTROL 18-6-38		
RT ~ 194+50	2.7	0
CONT. 18-6-38-TOTAL	2.7	0
CONTROL 18-5-16		
RT ~ 388+00	3.5	0
CONT. 18-5-16-TOTAL	3.5	0
TOTAL	6.2	0

SUMMARY OF CONCRETE CURB AND CURB & GUTTER TO BE REMOVED

STATION & LOCATION	LENGTH~LF EST	FINAL
Sta 701+70 To Sta 704+50:		
Along West Expressway Lane	273.2'	273.2'
Along Exit Ramp	258.3'	258.3'
CONT. 18-5-16 ~ TOTAL	531.5'	531.5'

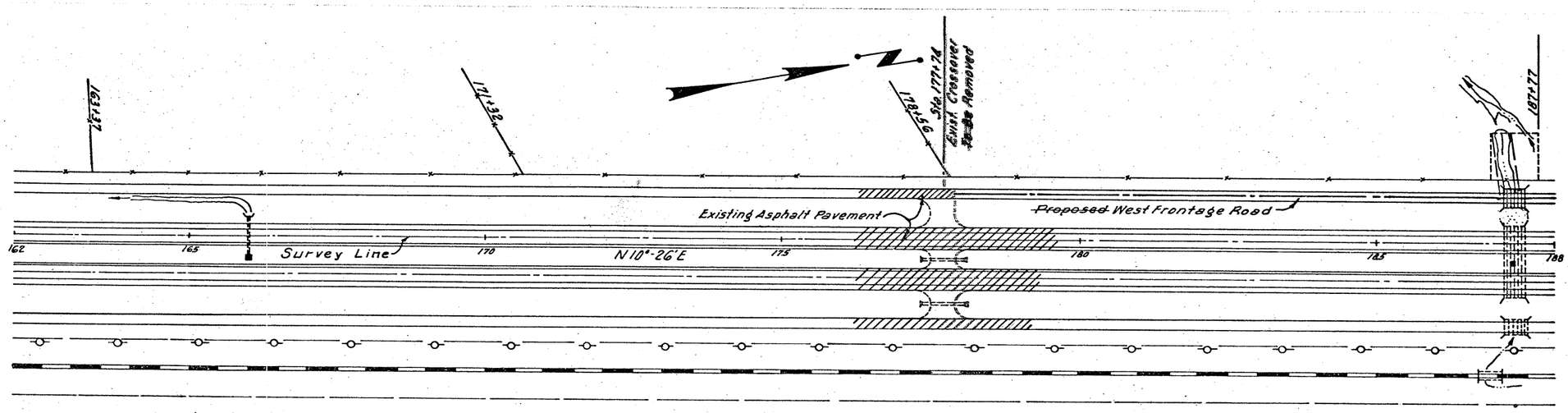
SUMMARY OF PAVEMENT ONE COURSE SURFACE TREATMENT

LOCATION	AREA SY	ASPHALT EA-HVMS MOD. 0.5 GAL/SY GAL	AGGREGATE TY "A" GR. 3 1:75 CY	ROLLING FLATWHEEL 7 HRS/MI HR	ROLLING LIGHT PNEUM 7 HRS/MI HR
CONTROL 18-6-38					
West Frontage Road	31,410	15,705	419	21	21
SUB-TOTAL		15,705	419	21	21
CONTROL 18-5-16					
West Frontage Road	69,650	34,825	929	46	46
Expressway Lane Shoulders*	1,354	677	18	1	1
SUB-TOTAL		35,502	947	47	47
TOTAL		51,207	1,366	68	68

*West Expressway Lane Shoulders & Ramp Shoulder at US-83 Ramp Relocation

ESTIMATE & QUANTITY SHEET
WEST FRONTAGE ROAD
SHEET 2 OF 2 SHEETS

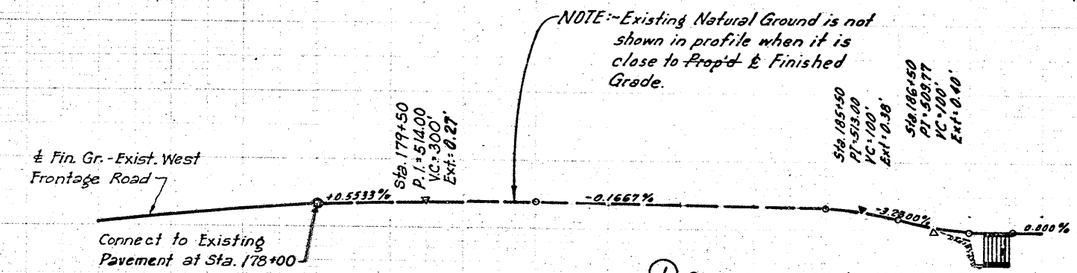
I 35-1 (18) 007 68
21 WEBB 18 5/6 16/38 IH-35



9.665 × 244.44 = 2363 S.Y. ~~2363~~ 2363 S.Y. Lime Treat. Subgr.

~~365~~ 313 ~~241~~ 223 ~~85~~ 91 ~~85~~ 89 ~~143~~ 89 ~~162~~ 90 ~~309~~ 217 ~~496~~ 309 ~~582~~ 238 ~~2468~~ 1659 C.Y. Uncl Road Excavation
~~31~~ 34 ~~31~~ 34 C.Y. Channel Excavation
~~16~~ 18 ~~15~~ 15 ~~85~~ 61 ~~85~~ 59 ~~15~~ 27 ~~15~~ 40 ~~16~~ 44 ~~16~~ 54 ~~15~~ 74 ~~278~~ 392 C.Y. Embankment + Shrinkage
~~2221~~ ** C.Y. Excess Road Excavation*

* Excess Road Excavation to be used as Embankment on Expressay Lane Shoulders.
** Combined with Sheet No. 70 & 71



(1) STA. 187+20.25 to 187+53.75
~~PROP'D~~ G-5'x4'x24' MBC
MC5-1 (Direct Traffic) & MCW-P
FL. LT. 505.04 & RT. 505.30

BM: USC & GS G-39 40' East of RR. Tracks Opposite Sta. 177+00
El. 515.71

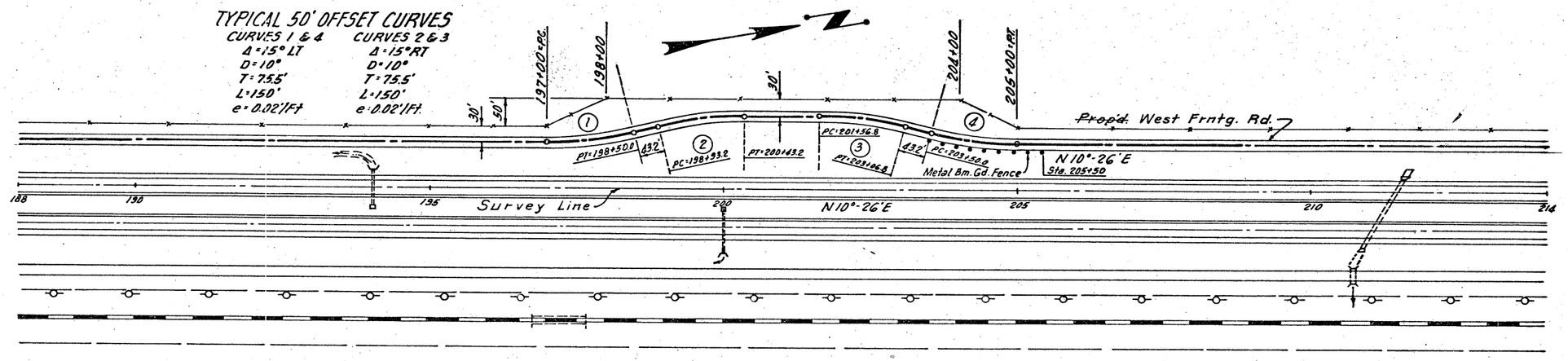
WEST FRONTAGE ROAD
Sheet 1 of 21 Sheets

I 35-1(18)007 69

21 WEBB 18 6 38 IH-35

TYPICAL 50' OFFSET CURVES

CURVES 1 & 4	CURVES 2 & 3
Δ = 15° LT	Δ = 15° RT
D = 10°	D = 10°
T = 75.5'	T = 75.5'
L = 150'	L = 150'
e = 0.02'/Ft	e = 0.02'/Ft



26.00 × 244.44 = 6355 S.Y.

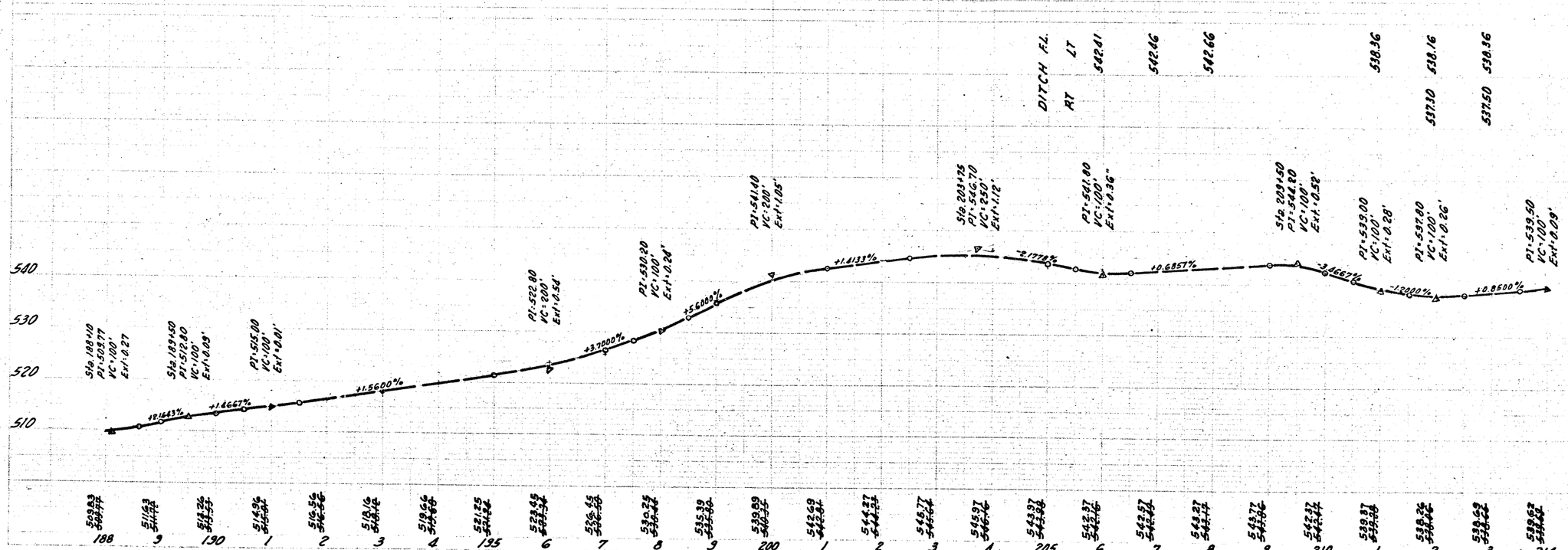
~~6355~~ 6355 SY Lime Treat Subgr

~~482~~ 325 ~~241~~ 175 ~~122~~ 80 ~~128~~ 58 ~~123~~ 48 ~~155~~ 56 ~~244~~ 80 ~~272~~ 123 ~~164~~ 100 ~~88~~ 87 ~~67~~ 110 ~~14~~ 64 ~~51~~ 41 ~~44~~ 34 ~~16~~ 14 ~~56~~ 27 ~~75~~ 30 ~~46~~ 9 ~~71~~ 18 ~~95~~ 42 ~~117~~ 62 ~~124~~ 69 ~~86~~ 62 ~~50~~ 38 ~~42~~ 28 ~~93~~ 48 ~~3006~~ 1828 CY Road Excavation

~~15~~ 101 ~~15~~ 61 ~~15~~ 67 ~~49~~ 103 ~~105~~ 145 ~~89~~ 130 ~~33~~ 92 ~~18~~ 106 ~~131~~ 206 ~~135~~ 337 ~~66~~ 273 ~~97~~ 171 ~~61~~ 203 ~~40~~ 236 ~~66~~ 265 ~~72~~ 309 ~~167~~ 322 ~~166~~ 217 ~~41~~ 127 ~~29~~ 126 ~~40~~ 120 ~~49~~ 130 ~~97~~ 103 ~~27~~ 70 ~~22~~ 54 ~~192~~ 30 ~~1687~~ 4104 CY Embankment + Shrinkage

~~1310~~ * CY Excess Excavation

* Combined with Sheet No. 69 & 71



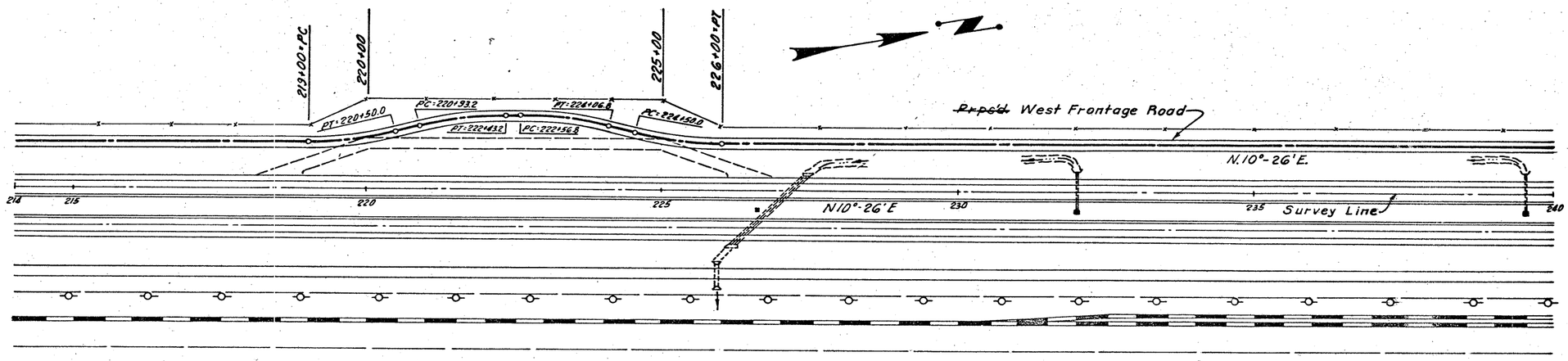
B.M.: Nail in telephone pole Sta. 196+50, East of R.R. tracks: Elev. 521.65

B.M.: S. W. corner of East Hdwl. (old U.S. #81) Str. Sta. 210+71: Elev. 534.89

WEST FRONTAGE ROAD
Sheet 2 of 21 Sheets

I 35-1(18)007 70

21 WEBB 18 G 38 IH-35



2600 × 244.44 = 6355 S.Y.

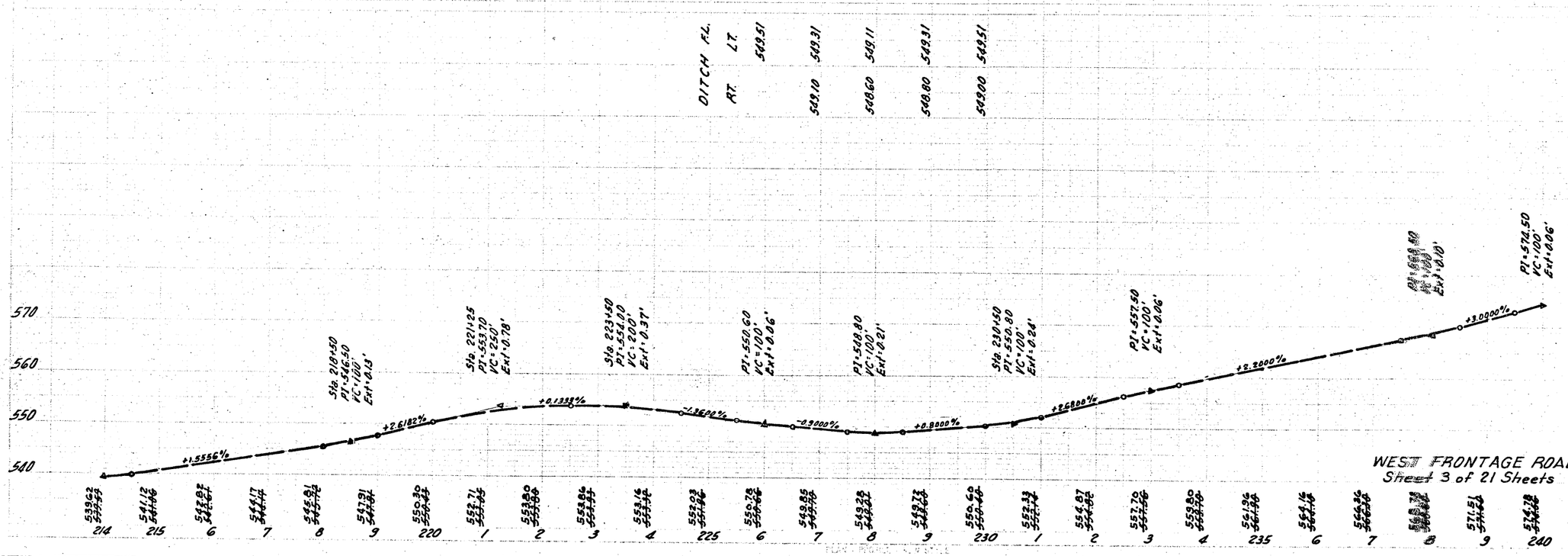
~~6355~~ 6355 SY Lime Treat Subgr.

~~46~~ 69 ~~88~~ 78 ~~97~~ 86 ~~116~~ 85 ~~103~~ 67 ~~99~~ 119 ~~71~~ 195 ~~38~~ 174 ~~73~~ 137 ~~111~~ 161 ~~95~~ 143 ~~66~~ 93 ~~93~~ 80 ~~99~~ 59 ~~44~~ 39 ~~23~~ 42 ~~65~~ 48 ~~70~~ 53 ~~74~~ 71 ~~158~~ 124 ~~182~~ 128 ~~107~~ 94 ~~123~~ 105 ~~116~~ ~~79~~ ~~91~~ 83 ~~103~~ 139 ~~235+~~ 2551 CY **Road Excavation**

~~103~~ 31 ~~20~~ 25 ~~22~~ 23 ~~18~~ 34 ~~62~~ 56 ~~62~~ 69 ~~84~~ 66 ~~89~~ 51 ~~20~~ 39 ~~28~~ 34 ~~48~~ 53 ~~78~~ 71 ~~50~~ 59 ~~69~~ 96 ~~90~~ 108 ~~44~~ 69 ~~27~~ 56 ~~20~~ 45 ~~19~~ 49 ~~19~~ 41 ~~15~~ 30 ~~16~~ 55 ~~16~~ 66 ~~19~~ ~~62~~ ~~32~~ 51 ~~29~~ 32 ~~109+~~ 1371 CY Embankment + Shrinkage

~~1260~~ * 205 CY Excess **Excavation**

* Includes totals on Sheets No. 69 & 70



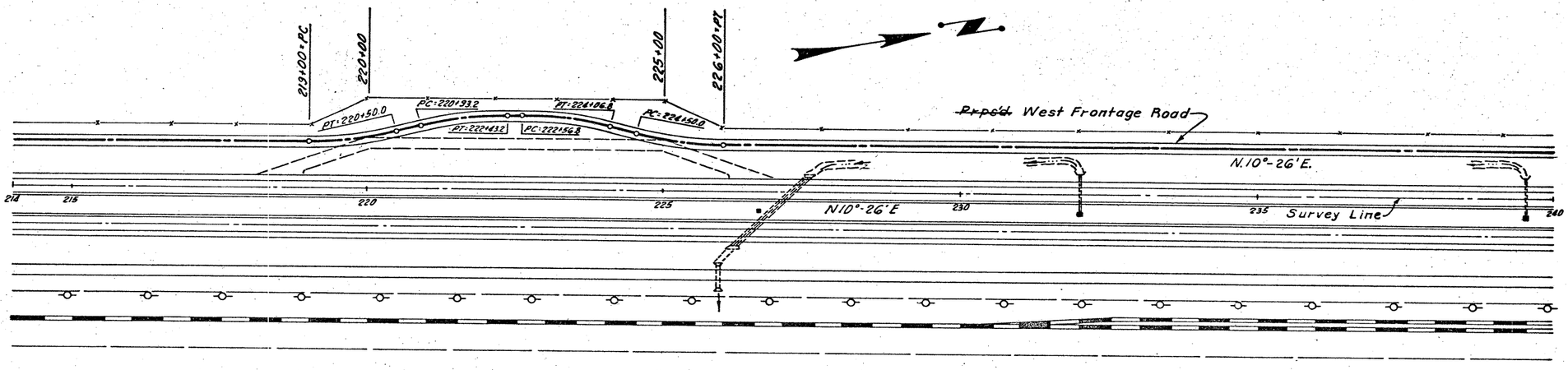
WEST FRONTAGE ROAD
Sheet 3 of 21 Sheets

BM: Spike in Telephone Pole Opposite Sta. 233+20 East of RR. Tracks El. 556.93

BM: Spike in Telephone Pole 255' Rt. of Sta. 236+60 El. 564.18

I35-1(18)007 71

21 WEBB 18 G 38 IH-35



2600 × 244.44 = 6355 S.Y.

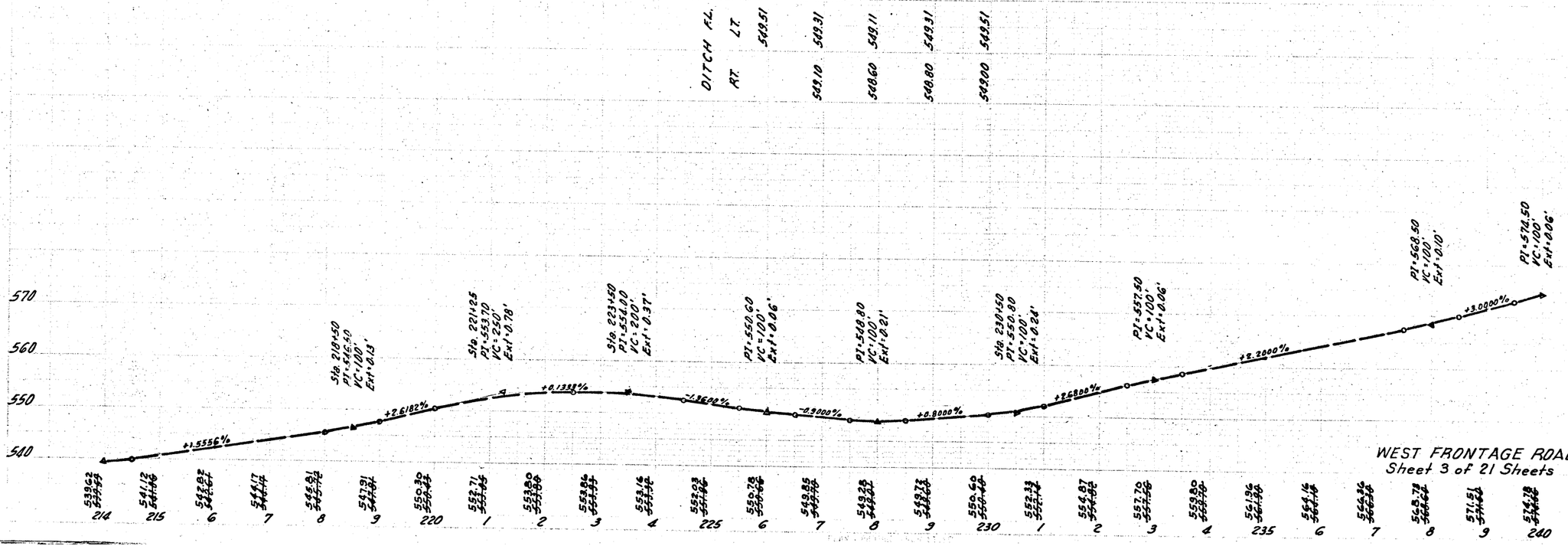
~~6355~~ 6355 SY Lime Treat Subgr.

~~46~~ 69 ~~88~~ 78 ~~97~~ 86 ~~116~~ 85 ~~103~~ 67 ~~99~~ 119 ~~71~~ 195 ~~38~~ 174 ~~73~~ 137 ~~111~~ 161 ~~95~~ 143 ~~66~~ 93 ~~93~~ 80 ~~99~~ 59 ~~44~~ 39 ~~23~~ 42 ~~65~~ 48 ~~70~~ 53 ~~74~~ 71 ~~158~~ 124 ~~182~~ 128 ~~107~~ 94 ~~123~~ 105 ~~116~~ 79 ~~91~~ 83 ~~109~~ 139 ~~2951~~ 2551 CY **Road Excavation**

~~109~~ 31 ~~20~~ 25 ~~22~~ 23 ~~18~~ 34 ~~61~~ 56 ~~62~~ 69 ~~84~~ 66 ~~89~~ 51 ~~20~~ 39 ~~28~~ 34 ~~48~~ 53 ~~70~~ 71 ~~50~~ 59 ~~69~~ 96 ~~90~~ 108 ~~44~~ 69 ~~27~~ 56 ~~20~~ 45 ~~10~~ 49 ~~10~~ 41 ~~15~~ 30 ~~16~~ 55 ~~16~~ 66 ~~10~~ 62 ~~32~~ 51 ~~29~~ 32 ~~1091~~ 1371 CY Embankment + Shrinkage

~~1260~~ * 205 CY Excess **Excavation**

* Includes totals on Sheets No. 69 & 70



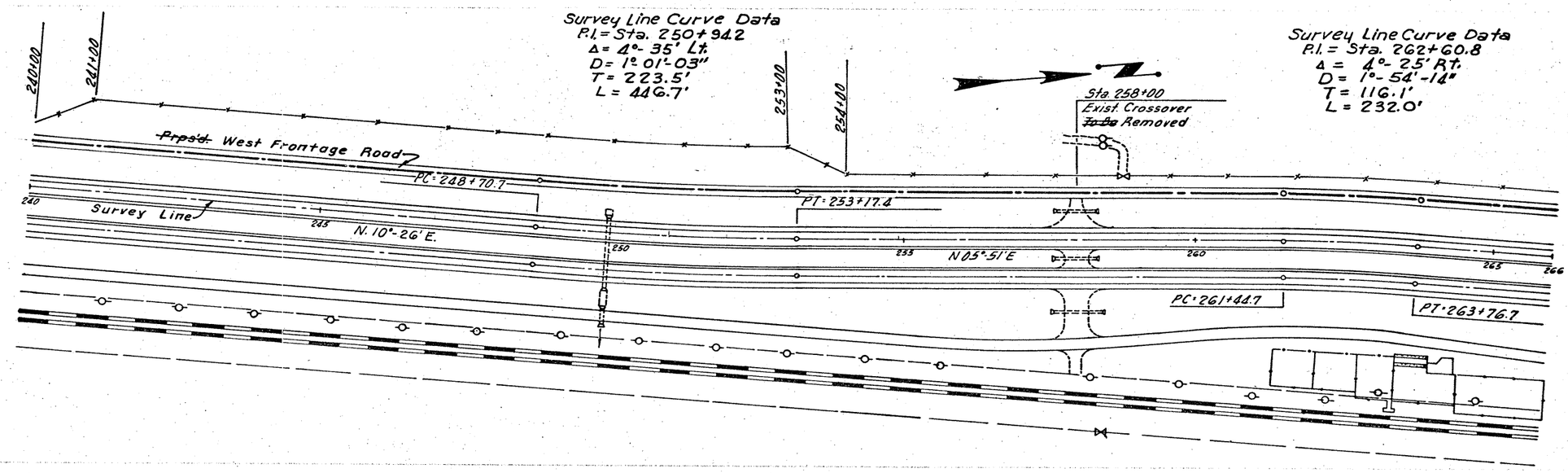
WEST FRONTAGE ROAD
Sheet 3 of 21 Sheets

BM: Spike in Telephone Pole Opposite Sta. 233+20 East of RR. Tracks El. 556.93

BM: Spike in Telephone Pole 255' Rt. of Sta. 236+60 El. 564.18

I35-1(18)007 71

21 WEBB 18 G 38 IH-35



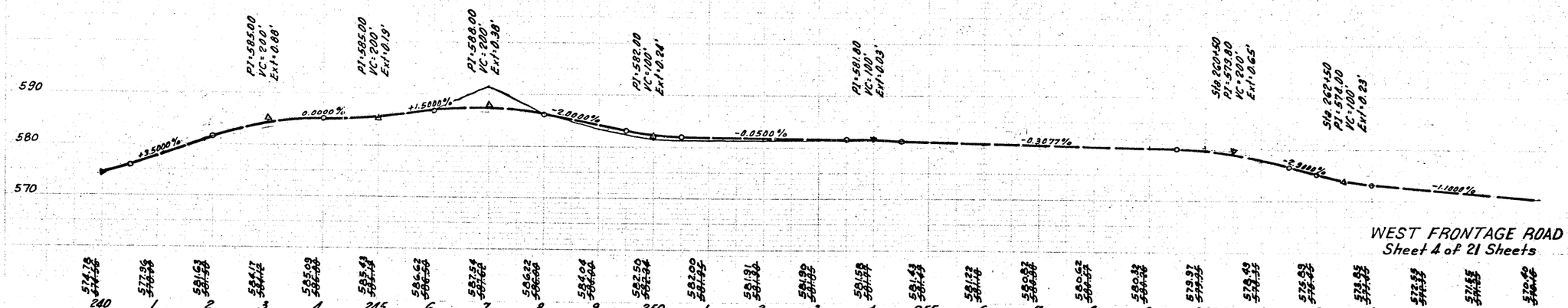
2600 x 244.44 = 6355 S.Y.

~~8355~~ 6355 SY Lime Treat Subgr

~~121~~ 141 ~~170~~ 176 ~~232~~ 239 ~~195~~ 200 ~~170~~ 145 ~~238~~ 233 ~~539~~ 617 ~~524~~ 597 ~~142~~ 192 ~~55~~ 82 ~~57~~ 70 ~~68~~ 96 ~~74~~ 104 ~~66~~ 94 ~~67~~ 93 ~~57~~ 85 ~~42~~ 76 ~~97~~ 128 ~~161~~ 137 ~~171~~ 128 ~~98~~ 111 ~~57~~ 56 ~~100~~ 54 ~~100~~ 69 ~~156~~ 91 ~~222~~ 113 ~~3988~~ 4127 CY Road Excavation

~~16~~ 81 ~~15~~ 127 ~~15~~ 86 ~~16~~ 70 ~~16~~ 71 ~~15~~ 46 ~~16~~ 74 ~~18~~ 127 ~~68~~ 144 ~~94~~ 209 ~~62~~ 258 ~~53~~ 213 ~~49~~ 175 ~~42~~ 111 ~~40~~ 62 ~~58~~ 73 ~~66~~ 61 ~~38~~ 24 ~~18~~ 36 ~~18~~ 60 ~~42~~ 79 ~~41~~ 92 ~~16~~ 79 ~~18~~ 58 ~~16~~ 36 ~~15~~ 43 ~~881~~ 2495 CY Embankment + Shrinkage

~~3107~~ 1632 CY Excess Excavation



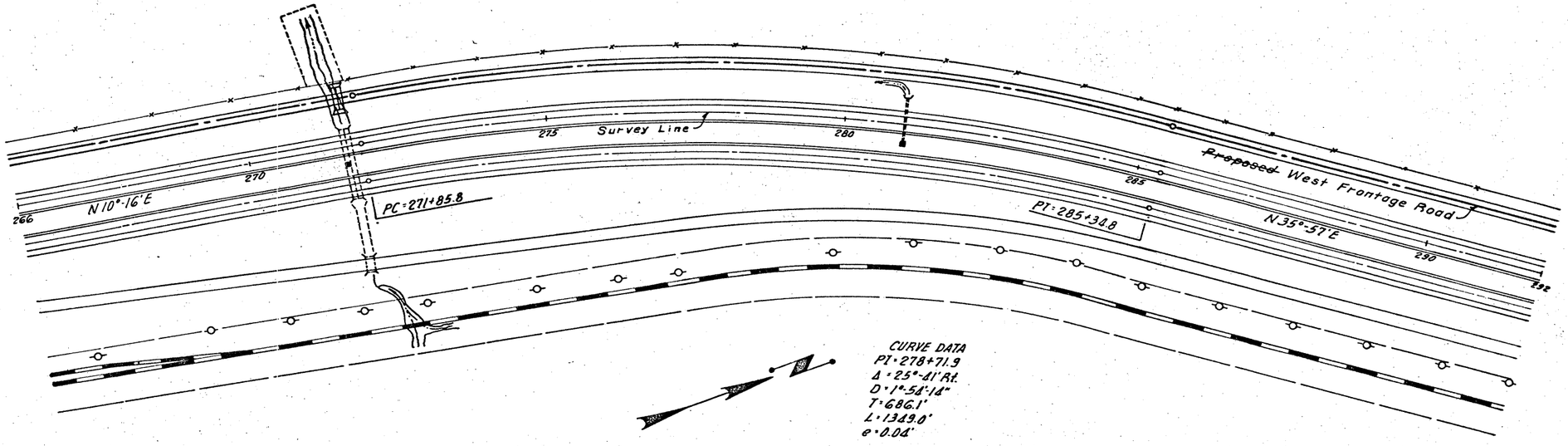
WEST FRONTAGE ROAD
Sheet 4 of 21 Sheets

BM: S.E. Corner of East Hdwl. Str 249+96 (Old U.S. 81) Elev. 575.82

BM: Spike in Power pole 170' Lt. Sta. 258+15 Elev. 582.13

I35-1(18)007 72

21 WEBB 18 G 38 IH-35



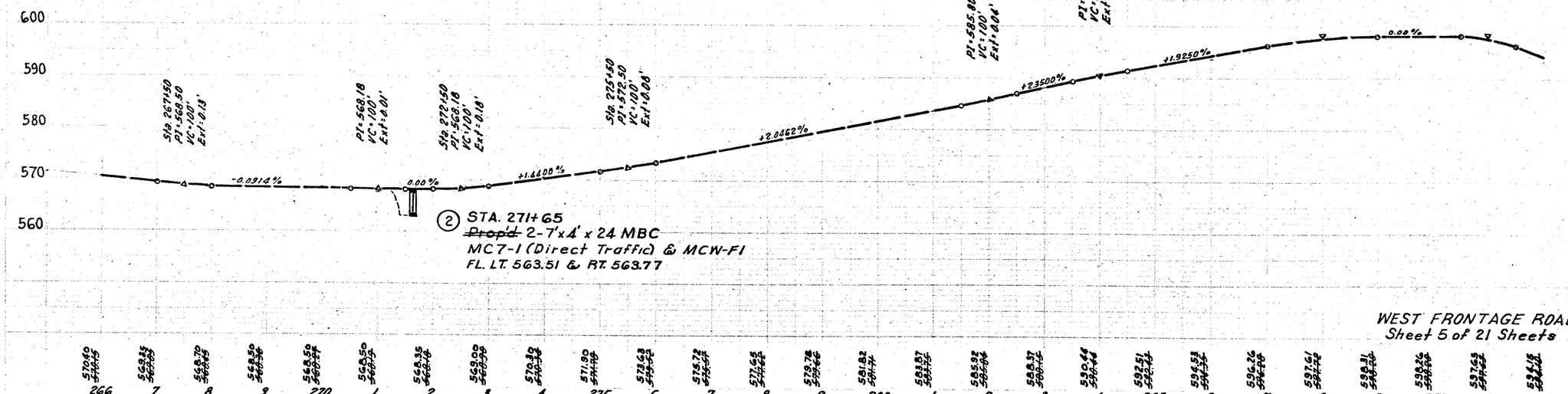
25.845 × 244.44 = 6318 S.Y.

~~6318~~ 6318 SY Lime Treat Subgr.

~~228~~ 132 ~~191~~ 112 ~~170~~ 103 ~~175~~ 118 ~~124~~ 70 ~~166~~ 102 ~~184~~ 131 ~~111~~ 89 ~~108~~ 80 ~~119~~ 82 ~~125~~ 93 ~~97~~ 82 ~~73~~ 58 ~~42~~ 42 ~~26~~ 25 ~~77~~ 57 ~~110~~ 83 ~~67~~ 47 ~~63~~ 58 ~~69~~ 48 ~~101~~ 60 ~~113~~ 90 ~~90~~ 89 ~~101~~ 105 ~~52~~ 80 ~~170~~ 156 ~~2952~~ 2192 CY Road Excavation
~~31~~ 34 ~~31~~ 34 Channel Excavation

~~15~~ 40 ~~16~~ 29 ~~18~~ 31 ~~16~~ 24 ~~24~~ 65 ~~24~~ 73 ~~16~~ 78 ~~24~~ 67 ~~24~~ 60 ~~16~~ 65 ~~19~~ 66 ~~23~~ 66 ~~22~~ 56 ~~44~~ 71 ~~85~~ 102 ~~59~~ 83 ~~15~~ 50 ~~16~~ 42 ~~20~~ 46 ~~46~~ 94 ~~42~~ 79 ~~27~~ 34 ~~28~~ 44 ~~18~~ 42 ~~25~~ 39 ~~27~~ 31 ~~709~~ 1477 CY Embankment + Shrinkage

~~2274~~ 749 CY Excess Excavation



SET B.M.: S.W. Corner of East Hdwll (W.F.R.) Sta. 271+65 Elev. 569.34.

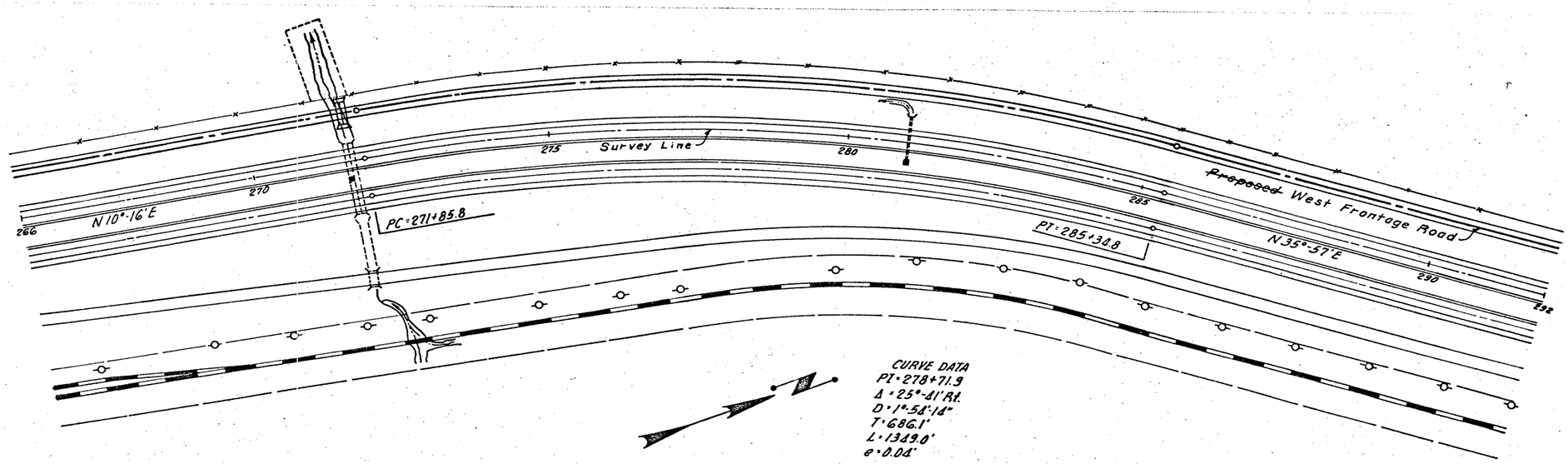
BM: N.W. Corner of East Hdwll. Sta. 271+71 (Old US-81) Elev. 576.53

BM: RR. Spike on Tel. Pole East of Tracks Sta. 286+20 Elev. 601.74

BM: Sta. 290+00 94' Left Top of ROW Marker Elev. 598.47

I 35-1(18)007 73

21 WEBB 18 G 38 IH-35



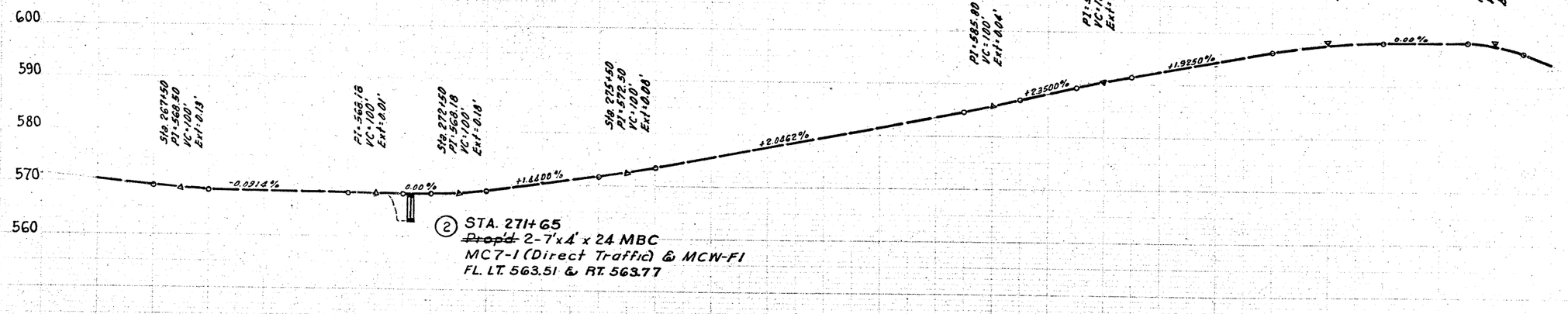
25.845 × 244.44 = 6318 S.Y.

~~6318~~ 6318 SY Lime Treat Subgr.

~~228~~ 132 ~~191~~ 112 ~~170~~ 103 ~~175~~ 118 ~~124~~ 70 ~~166~~ ~~31~~ 102 ~~184~~ 34 131 ~~111~~ 89 ~~108~~ 80 ~~119~~ 82 ~~125~~ 93 ~~97~~ 82 ~~73~~ 58 ~~42~~ 42 ~~26~~ 25 ~~77~~ 57 ~~110~~ 83 ~~67~~ 47 ~~63~~ 58 ~~69~~ 48 ~~101~~ 60 ~~113~~ 90 ~~90~~ 89 ~~101~~ 105 ~~52~~ 80 ~~170~~ 156 ~~2952~~ ~~31~~ 2192 34 CY *Road Excavation* Channel Excavation

~~15~~ 40 ~~16~~ 29 ~~18~~ 31 ~~16~~ 24 ~~24~~ 65 ~~24~~ 73 ~~16~~ 78 ~~24~~ 67 ~~24~~ 60 ~~16~~ 65 ~~19~~ 66 ~~23~~ 66 ~~22~~ 56 ~~44~~ 71 ~~85~~ 102 ~~59~~ 83 ~~15~~ 50 ~~16~~ 42 ~~20~~ 46 ~~46~~ 94 ~~42~~ 79 ~~27~~ 34 ~~28~~ 44 ~~18~~ 42 ~~25~~ 39 ~~27~~ 31 ~~709~~ 1477 CY Embankment + Shrinkage

~~2274~~ 749 CY Excess *Excavation*



② STA. 271+65
~~Propd~~ 2-7'x4' x 24 MBC
MC7-1 (Direct Traffic) & MCW-F1
FL. LT. 563.51 & RT. 563.77

570.40 266 | 569.35 7 | 568.70 8 | 568.50 9 | 568.50 270 | 568.50 1 | 568.35 2 | 569.00 3 | 570.30 4 | 571.90 275 | 573.63 6 | 574.72 7 | 577.65 8 | 579.78 9 | 581.82 280 | 583.87 1 | 585.92 2 | 588.17 3 | 590.44 4 | 592.51 285 | 594.53 6 | 596.26 7 | 597.61 8 | 598.31 9 | 598.26 290 | 597.65 1 | 594.48 292

WEST FRONTAGE ROAD
Sheet 5 of 21 Sheets

SET B.M.: S.W. Corner of East Hdwll (W.F.R.) Sta. 271+65 Elev. 569.34.

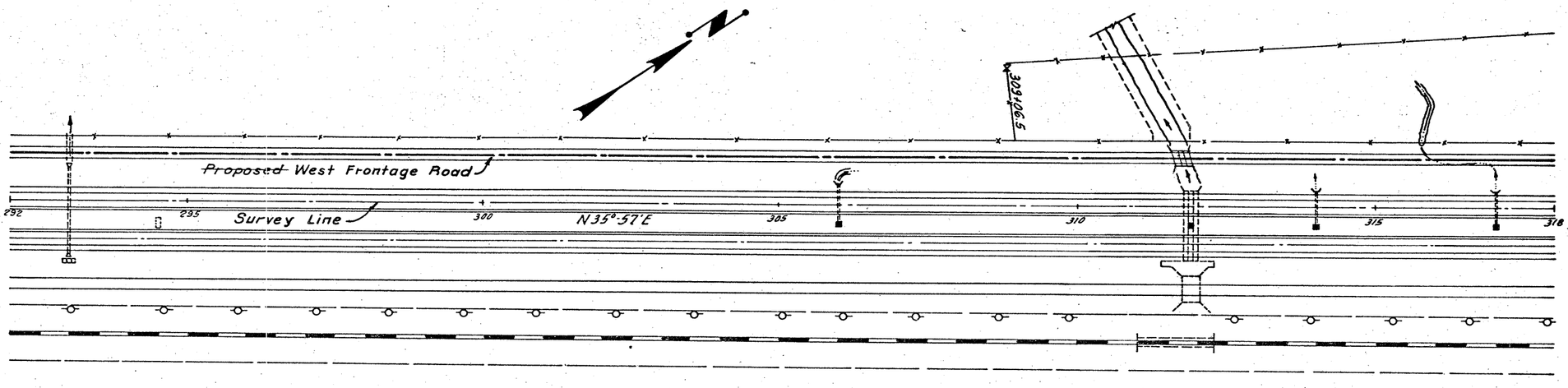
BM: N.W. Corner of East Hdwll. Str. 271+71 (Old US-81) Elev. 576.53

BM: RR. Spike on Tel. Pole East of Tracks Sta. 286+20 Elev. 601.74

BM: Sta. 290+00 94' Left Top of ROW Marker Elev. 598.47

I 35-1(18)007 73

21 WEBB 18 G 38 IH-35



25.731 × 244.44 = 6290

~~6290~~ 6290 SY Lime Treat. Subgr.

~~281~~ 201 ~~161~~ 134 ~~96~~ 119 ~~85~~ 96 ~~115~~ 119 ~~127~~ 130 ~~105~~ 114 ~~124~~ 124 ~~146~~ 132 ~~156~~ 112 ~~118~~ 79 ~~113~~ 81 ~~164~~ 109 ~~145~~ 103 ~~116~~ 89 ~~211~~ 189 ~~210~~ 180 ~~111~~ 55 ~~48~~ 12 ~~63~~ 54 ~~103~~ 229 ~~150~~ 98 ~~262~~ 227 ~~174~~ 195 ~~109~~ 104 ~~202~~ 164 ~~3705~~ 3269 CY Road Excavation
~~61~~ 65 Channel Excavation

~~16~~ 19 ~~18~~ 20 ~~18~~ 29 ~~22~~ 31 ~~26~~ 32 ~~16~~ 40 ~~20~~ 34 ~~19~~ 18 ~~15~~ 23 ~~18~~ 37 ~~19~~ 43 ~~18~~ 50 ~~15~~ 58 ~~32~~ 85 ~~32~~ 85 ~~15~~ 46 ~~44~~ 64 ~~46~~ 117 ~~204~~ 256 ~~206~~ 140 ~~31~~ 38 ~~25~~ 49 ~~15~~ 42 ~~20~~ 34 ~~20~~ 30 ~~16~~ 34 ~~948~~ 1454 CY Embankment + Shrinkage

~~2826~~ 1880 CY Excess Excavation

DITCH FL. RT. 557.80 LT. 558.25 558.75

557.80
557.30

P.I.=590.00 V.C.=60' Ext.=0.53'
P.I.=593.00 V.C.=100' Ext.=0.63'
P.I.=591.80 V.C.=100' Ext.=0.14'
P.I.=592.50 V.C.=100' Ext.=0.21'
P.I.=596.80 V.C.=100' Ext.=0.27'
P.I.=574.50 V.C.=200' Ext.=0.44'
Sta. 309+75 P.I.=565.73 V.C.=150' Ext.=1.13'
Sta. 312+50 P.I.=565.73 V.C.=100' Ext.=0.33'
P.I.=561.80 V.C.=100' Ext.=0.45'
P.I.=562.80 V.C.=100' Ext.=0.70'
P.I.=558.20 V.C.=100' Ext.=1.00'

-1.1200% +3.8000% -0.4000% +0.7000% -0.9500% -2.9750% -2.0116% 0.00% -2.6200% +1.8808% -4.6000% +3.4333%

600 590 580 570 560

(3) STA. 311+58.00 To STA. 311+85.26
~~Propd.~~ 3-8'x7'x24' MBC
15° RT. Fwd. Skew, MC8-1 & MC-15°
(Direct Traffic) & MCW-F2-15°
FL. LT. 558.06 & RT. 558.32

WEST FRONTAGE ROAD
Sheet 6 of 21 Sheets

SET B.M: S.W. Corner of East Hdwll. (W.F.R.) Sta. 311+58.0 Elev. 566.83

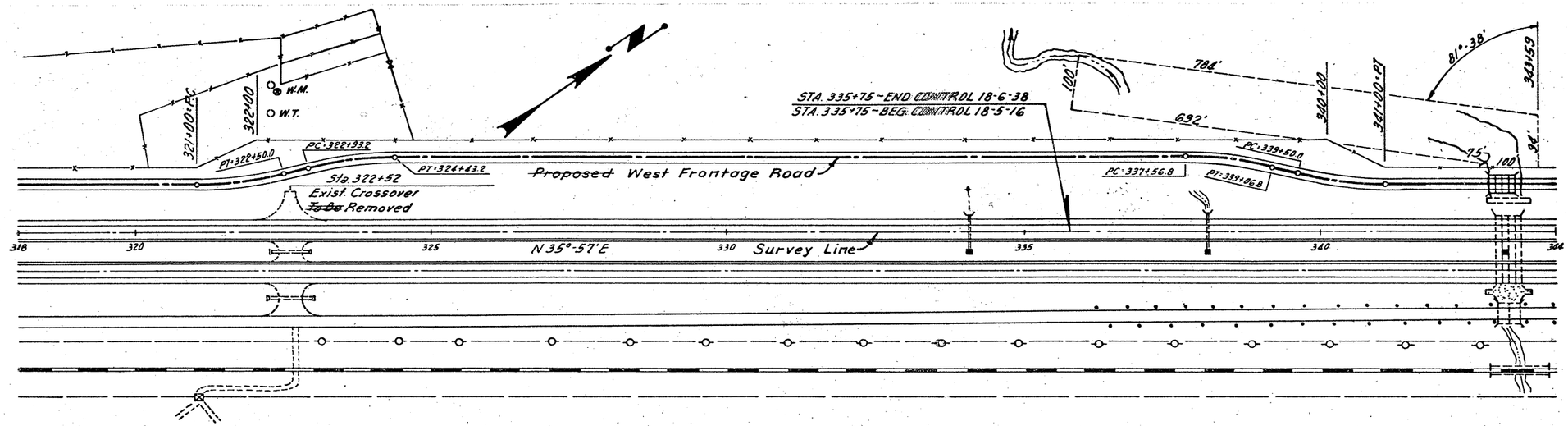
B.M: Spike in Telephone Pole Rt. Sta. 301+45 East RR Tracks Elev. 592.78

B.M: Top of S.E. Corner Hdwll. (Pipe Culv.) Sta. 317+00 Elev. 566.41

594.15 594.65	590.65 590.65	588.55 588.54	587.25 587.25	587.22 587.22	587.22 587.22	587.22 587.22	586.91 586.91	586.72 586.72	588.82 588.82	587.87 587.87	586.42 586.42	583.80 583.80	580.85 580.85	577.75 577.75	574.05 574.05	569.67 569.67	566.42 566.42	565.67 565.67	565.62 565.62	565.62 565.62	565.62 565.62	562.17 562.17	559.27 559.27	561.41 561.41	565.16 565.16
292	3	4	295	6	7	8	9	300	1	2	3	4	305	6	7	8	9	310	1	2	3	4	315	6	7	318

I 35-1(18)007 74

21 WEBB 18 6 38 IH-35



17.75 × 244.44 = 4334 S.Y.

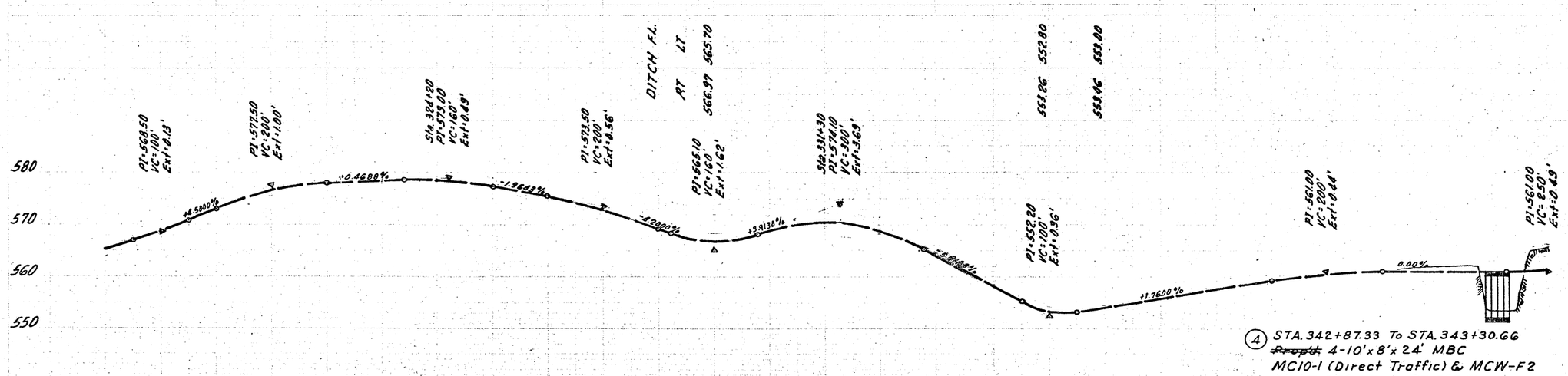
7.817 × 244.44 1911

~~6250~~ 6250 S.Y. Lime Treat Subgr.

~~270~~ 204 ~~301~~ 243 ~~229~~ 230 ~~152~~ 145 ~~134~~ 114 ~~83~~ 82 ~~85~~ 86 ~~156~~ 114 ~~220~~ 122 ~~201~~ 110 ~~102~~ 135 ~~169~~ 205 ~~209~~ 169 ~~65~~ 65 ~~96~~ 65 ~~[illegible]~~ 125 ~~131~~ 96 ~~140~~ 122 ~~198~~ 136 ~~180~~ 106 ~~151~~ 126 ~~108~~ 124 ~~140~~ 143 ~~301~~ 256 ~~214~~ 235 ~~494~~ 543 ~~4717~~ 4101 C.Y. Road Excavation
~~152~~ 347 ~~152~~ 347 C.Y. Channel Excavation

~~16~~ 24 ~~15~~ 25 ~~18~~ 23 ~~22~~ 101 ~~20~~ 138 ~~24~~ 100 ~~28~~ 88 ~~15~~ 81 ~~16~~ 83 ~~15~~ 68 ~~20~~ 54 ~~22~~ 49 ~~35~~ 141 ~~48~~ 291 ~~48~~ 238 ~~[illegible]~~ 124 ~~41~~ 108 ~~40~~ 72 ~~15~~ 90 ~~16~~ 88 ~~19~~ 85 ~~25~~ 111 ~~29~~ 64 ~~22~~ 30 ~~738~~ 15 ~~738~~ 14 ~~2069~~ 2305 CY Embankment & Shrinkage

~~2800~~ 1955 CY Excess Excavation



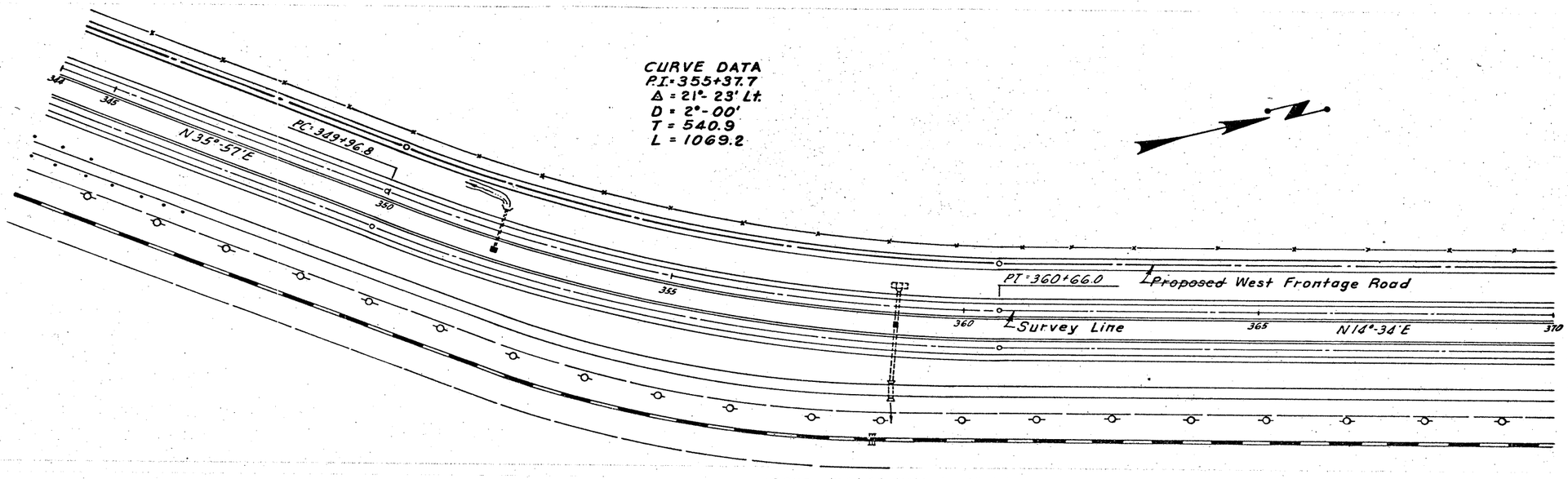
④ STA. 342+87.33 To STA. 343+30.66
~~Propld~~ 4-10'x8'x24' MBC
MC10-1 (Direct Traffic) & MCW-F2
FL. LT. 552.25 & RT. 552.51

SET B.M.: SW Corner East Hdwll. (W.F.R.) Sta. 342+87.33 Elev. 562.11

B.M.: Spike in Telephone Pole Rt. Sta. 331+35 East RR. Tracks Elev. 575.35

WEST FRONTAGE ROAD
Sheet 7 of 21 Sheets

I35-1(18)007 75
21 WEBB 18 665 3/16 IH-35



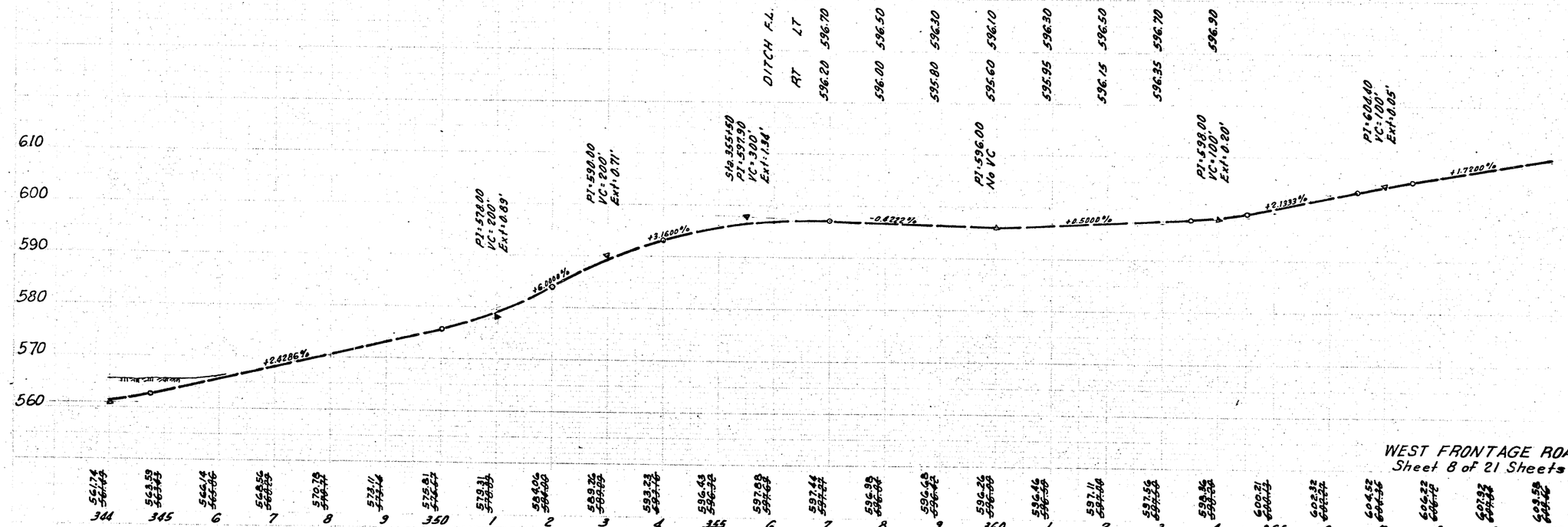
2600 x 244.44 S.Y.

~~6355~~ 6355 SY Lime Treat. Subgrade

~~832~~ 717 ~~451~~ 388 ~~152~~ 142 ~~91~~ 98 ~~116~~ 115 ~~186~~ 166 ~~206~~ 175 ~~121~~ 121 ~~195~~ 160 ~~130~~ 154 ~~39~~ 55 ~~47~~ 27 ~~44~~ 39 ~~72~~ 82 ~~91~~ 96 ~~79~~ 106 ~~176~~ 157 ~~171~~ 145 ~~75~~ 66 ~~99~~ 40 ~~95~~ 60 ~~135~~ 118 ~~216~~ 163 ~~213~~ 161 ~~167~~ 190 ~~143~~ 186 ~~4288~~ 3927 CY Road Excavation

~~15~~ 31 ~~15~~ 24 ~~27~~ 49 ~~40~~ 69 ~~75~~ 64 ~~67~~ 66 ~~41~~ 90 ~~162~~ 146 ~~166~~ 108 ~~44~~ 66 ~~38~~ 102 ~~37~~ 139 ~~33~~ 149 ~~32~~ 84 ~~15~~ 42 ~~15~~ 39 ~~15~~ 34 ~~16~~ 31 ~~23~~ 39 ~~24~~ 42 ~~42~~ 52 ~~41~~ 56 ~~15~~ 57 ~~15~~ 55 ~~40~~ 36 ~~41~~ 34 ~~1094~~ 1704 CY Embankment + Shrinkage

~~3134~~ 2223 CY Excess Excavation



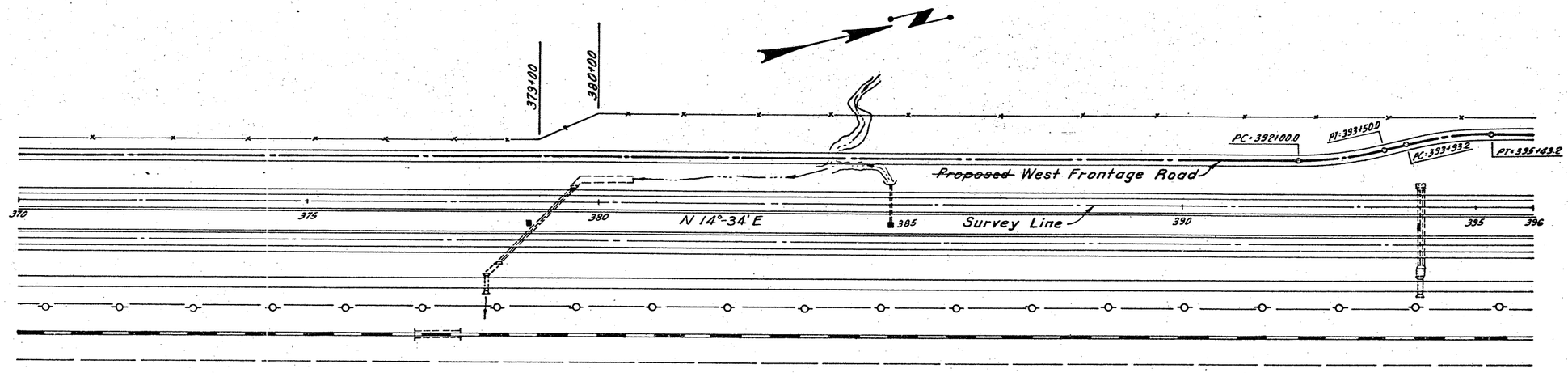
WEST FRONTAGE ROAD
Sheet 8 of 21 Sheets

BM: Nail in Coma tree
190' Lt. Sta. 347+10
El. 570.93

BM: S.E. Corner of East
Headwall Str. 358+95
(East Frontage Rd.)
El. 590.93

I35-1(18)007 76

21 WEBB 18 5 16 IH-35



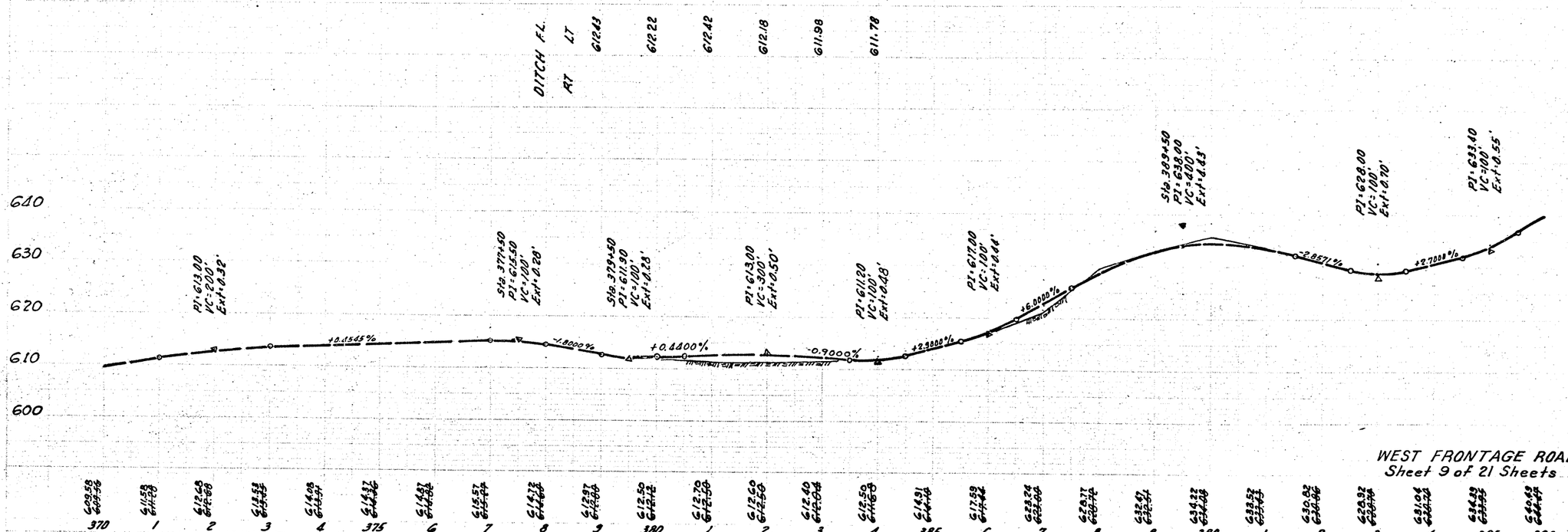
2600 × 244.44 = 6355 S.Y.

~~6355~~ 6355 S.Y. Lime Treat. Subgr.

~~185~~ 169 ~~220~~ 193 ~~225~~ 214 ~~209~~ 219 ~~209~~ 226 ~~160~~ 182 ~~110~~ 113 ~~140~~ 130 ~~118~~ 123 ~~36~~ 56 ~~6~~ 22 ~~6~~ 20 ~~11~~ 29 ~~30~~ 28 ~~37~~ 35 ~~93~~ 59 ~~79~~ 52 ~~144~~ 211 ~~324~~ 399 ~~465~~ 492 ~~448~~ 469 ~~183~~ 233 ~~51~~ 100 ~~47~~ 86 ~~130~~ 62 ~~172~~ 110 ~~3838~~ 4032 C.Y. Road Excavation

~~20~~ 41 ~~23~~ 60 ~~25~~ 61 ~~22~~ 42 ~~15~~ 35 ~~23~~ 51 ~~31~~ 78 ~~23~~ 67 ~~32~~ 36 ~~38~~ 89 ~~175~~ 196 ~~358~~ 200 ~~328~~ 137 ~~167~~ 123 ~~92~~ 126 ~~62~~ 101 ~~146~~ 207 ~~161~~ 189 ~~40~~ 67 ~~25~~ 75 ~~16~~ 66 ~~55~~ 74 ~~63~~ 60 ~~88~~ 150 ~~80~~ 187 ~~16~~ 81 ~~2124~~ 2599 C.Y. Embankment + Shrinkage

~~1714~~ 1433 C.Y. Excess Excavation



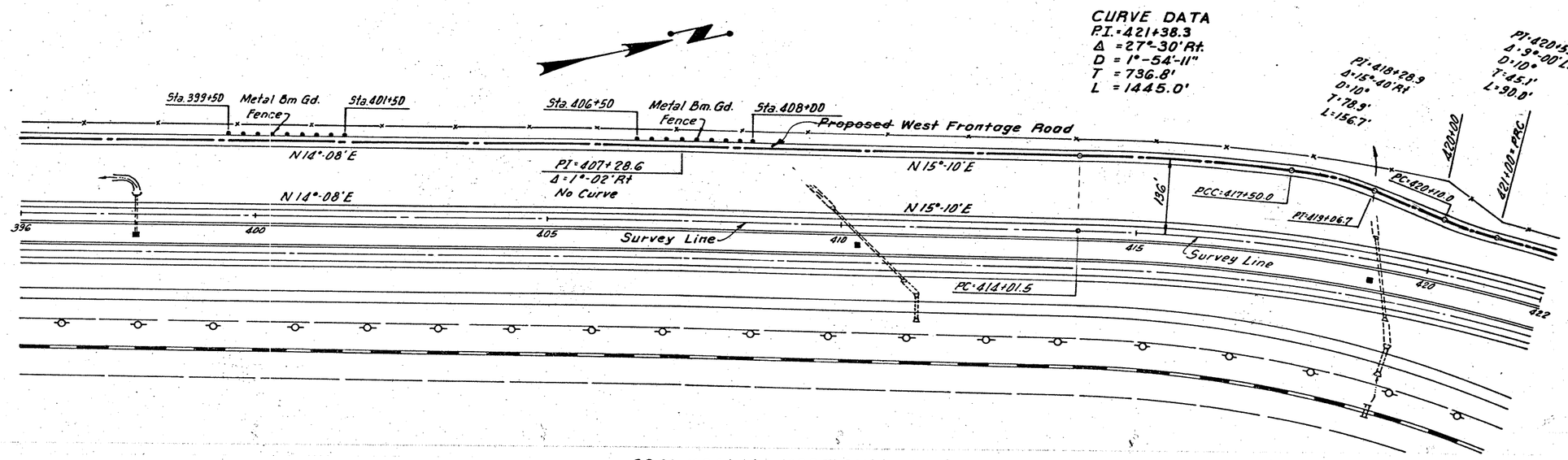
BM: N.E. Corner of East Hdwll. Sta. 378+10 (E. Frntg. Rd.) El. 604.94

BM: USC & GS 40' East of RR. Tracks Sta. 395+15 El. 626.23

WEST FRONTAGE ROAD
Sheet 9 of 21 Sheets

I35-1(18)007 77

21 WEBB 18 5 16 IH-35



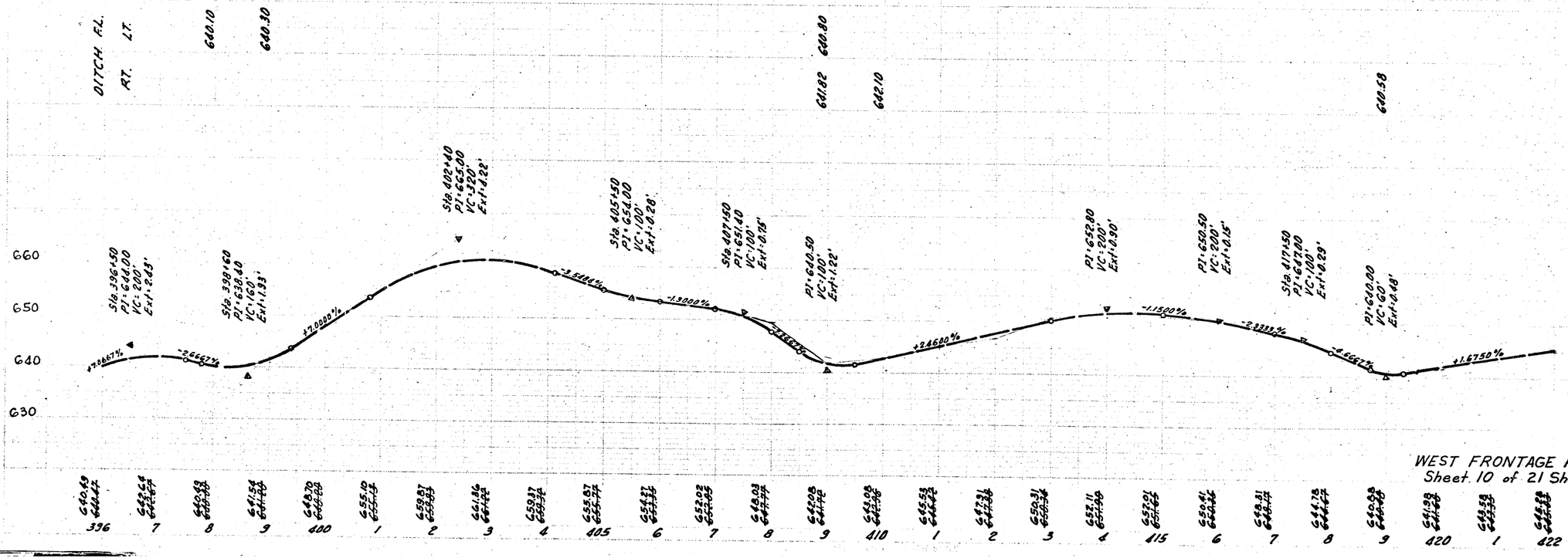
26.00 x 244.44 = 6355 S.Y.

~~6355~~ 6355 S.Y. Lime Treat. Subgrade

~~105~~ 137 ~~125~~ 97 ~~145~~ 93 ~~189~~ 140 ~~238~~ 219 ~~389~~ 372 ~~460~~ 312 ~~276~~ 141 ~~173~~ 156 ~~269~~ 210 ~~325~~ 268 ~~365~~ 330 ~~271~~ 204 ~~102~~ 64 ~~110~~ 128 ~~143~~ 182 ~~325~~ 313 ~~375~~ 339 ~~171~~ 217 ~~167~~ 250 ~~262~~ 303 ~~362~~ 276 ~~165~~ 155 ~~150~~ 144 ~~201~~ 174 ~~189~~ 126 ~~5995~~ 5350 C.Y. Road Excavation

~~48~~ 61 ~~46~~ 74 ~~53~~ 123 ~~152~~ 222 ~~269~~ 256 ~~109~~ 142 ~~16~~ 171 ~~16~~ 176 ~~118~~ 133 ~~181~~ 213 ~~163~~ 194 ~~116~~ 127 ~~32~~ 81 ~~15~~ 73 ~~38~~ 69 ~~107~~ 104 ~~84~~ 91 ~~15~~ 41 ~~46~~ 79 ~~46~~ 93 ~~16~~ 80 ~~16~~ 103 ~~45~~ 167 ~~44~~ 201 ~~19~~ 182 ~~19~~ 105 ~~1769~~ 3361 C.Y. Embankment + Shrinkage

~~1230~~ 1989 C.Y. Excess Excation

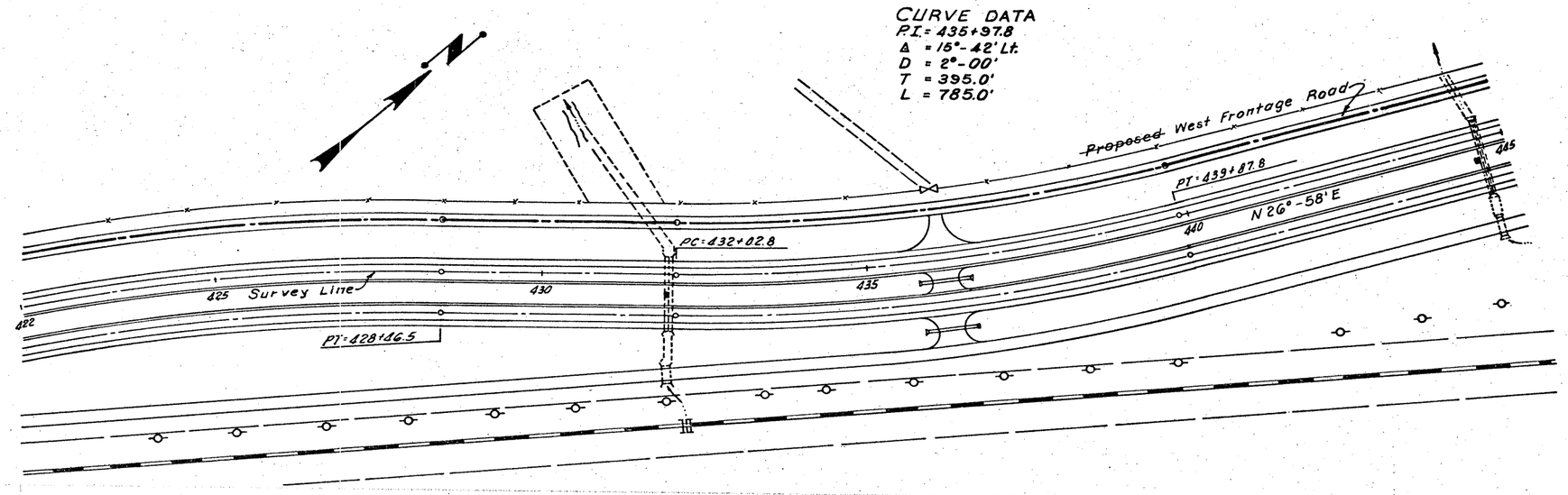


WEST FRONTAGE ROAD
Sheet 10 of 21 Sheets

BM: N.E. Corner of East Headwall Sta. 411+30 (East Frontage Rd.) El. 647.96

I35-1(18)007 78

21 WEBB 18 5 16 IH-35



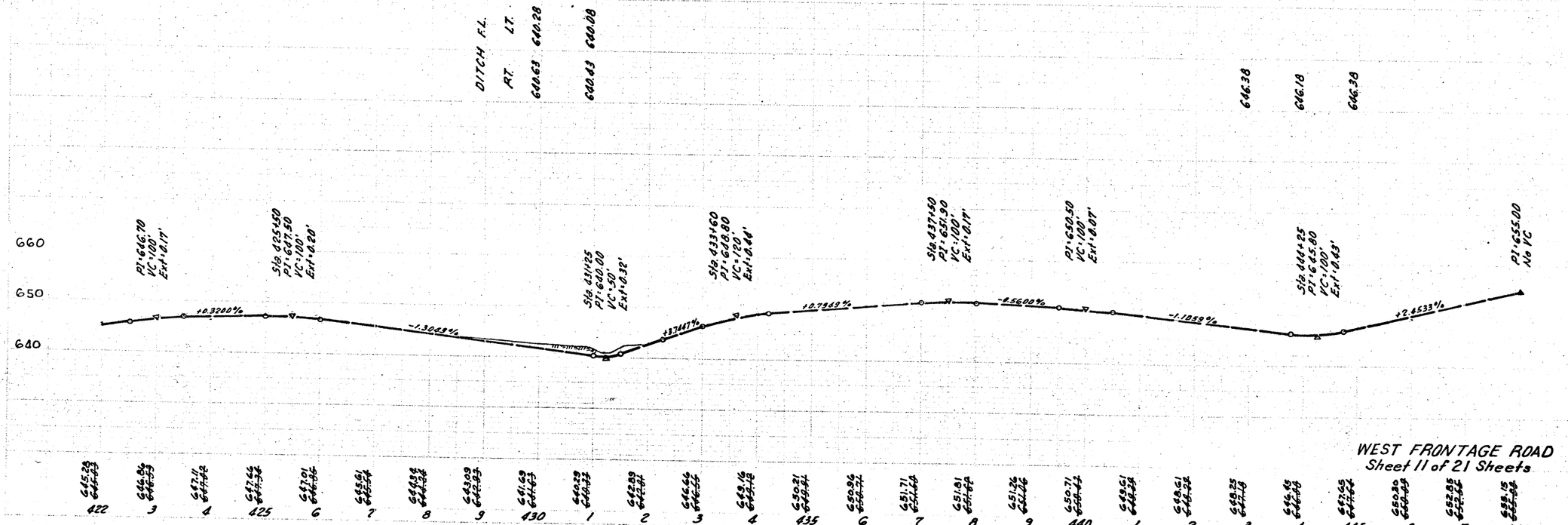
26.00 × 244.44 = 6355 S.Y.

~~6355~~ 6355 S.Y. Lime Treat Subgrade

~~230 126 155 86 151 79 152 70 150 71 203 188 246 226 315 244 353 350 235 225 143 76 97 49 73 22 119 23 143 50 144 67 119 56 125 68 164 96 169 80 132 31 168 75 221 107 123 62 83 75 113 105 4326~~ 2707 C.Y. Road Excavation

~~25 62 63 112 53 99 16 62 16 40 15 21 15 26 15 41 15 34 16 169 18 186 25 70 27 66 19 45 19 51 16 55 18 61 18 63 18 44 18 40 16 98 16 100 16 62 40 104 41 118 16 108 590~~ 1937 C.Y. Embankment + Shrinkage

~~3736~~ 770 C.Y. Excess Excavation



BM: Nail in Mesquite Tree 190' Lt. of Sta. 424+25 El. 641.60

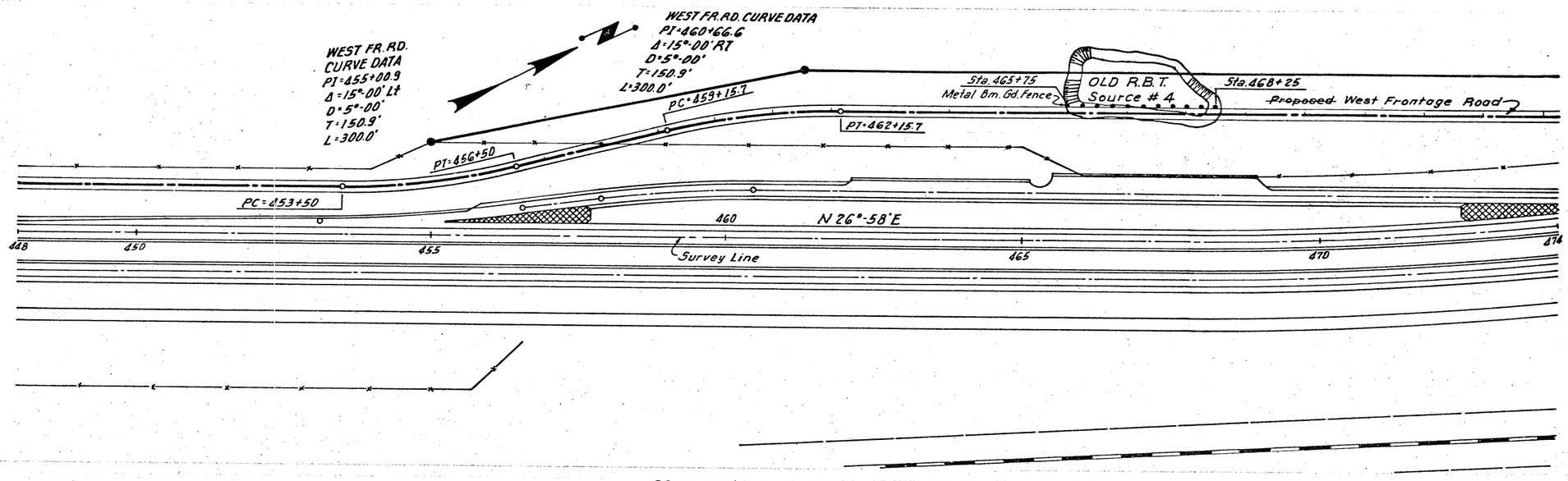
BM: N.E. Corner of East Headwall Sta. 431+90 (East Frontage Rd.) El. 651.10

BM: N.E. Corner of East Headwall Sta. 444+50 (East Frontage Rd.) El. 654.92

WEST FRONTAGE ROAD
Sheet 11 of 21 Sheets

I35-1(18)007 79

21 WEBB 18 5 16 IH-35



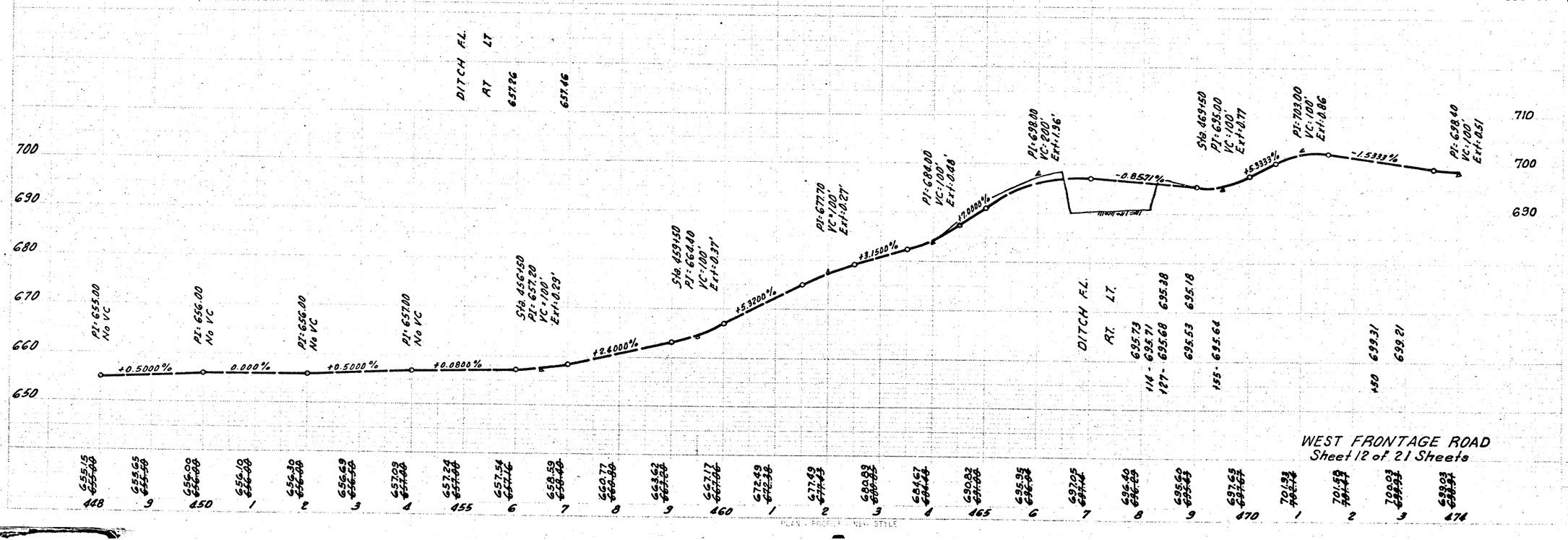
26.00 × 244.44 = 6355 S.Y.

~~6355~~ 6355 SY Lime Treat. Subgr.

~~139~~ 110 ~~135~~ 92 ~~103~~ 80 ~~108~~ 82 ~~131~~ 74 ~~134~~ 84 ~~90~~ 66 ~~60~~ 38 ~~89~~ 73 ~~114~~ 135 ~~141~~ 116 ~~202~~ 147 ~~220~~ 193 ~~275~~ 210 ~~278~~ 242 ~~290~~ 182 ~~308~~ 227 ~~385~~ 323 ~~256~~ 227 ~~174~~ 378 ~~206~~ 344 ~~82~~ 215 ~~241~~ 303 ~~186~~ 221 ~~76~~ 186 ~~135~~ 164 ~~4552~~ 4462 CY Road Excavation

~~15~~ 110 ~~18~~ 100 ~~18~~ 91 ~~15~~ 104 ~~18~~ 113 ~~19~~ 80 ~~19~~ 105 ~~26~~ 156 ~~15~~ 82 ~~16~~ 90 ~~16~~ 139 ~~15~~ 81 ~~35~~ 83 ~~54~~ 99 ~~85~~ 67 ~~122~~ 79 ~~19~~ 86 ~~119~~ 489 ~~646~~ 863 ~~864~~ 711 ~~158~~ 315 ~~76~~ 14 ~~15~~ 17 ~~36~~ 63 ~~96~~ 53 ~~16~~ 14 ~~256~~ 4204 CY Embankment + Shrinkage

~~1991~~ 258 CY Excess Excavation

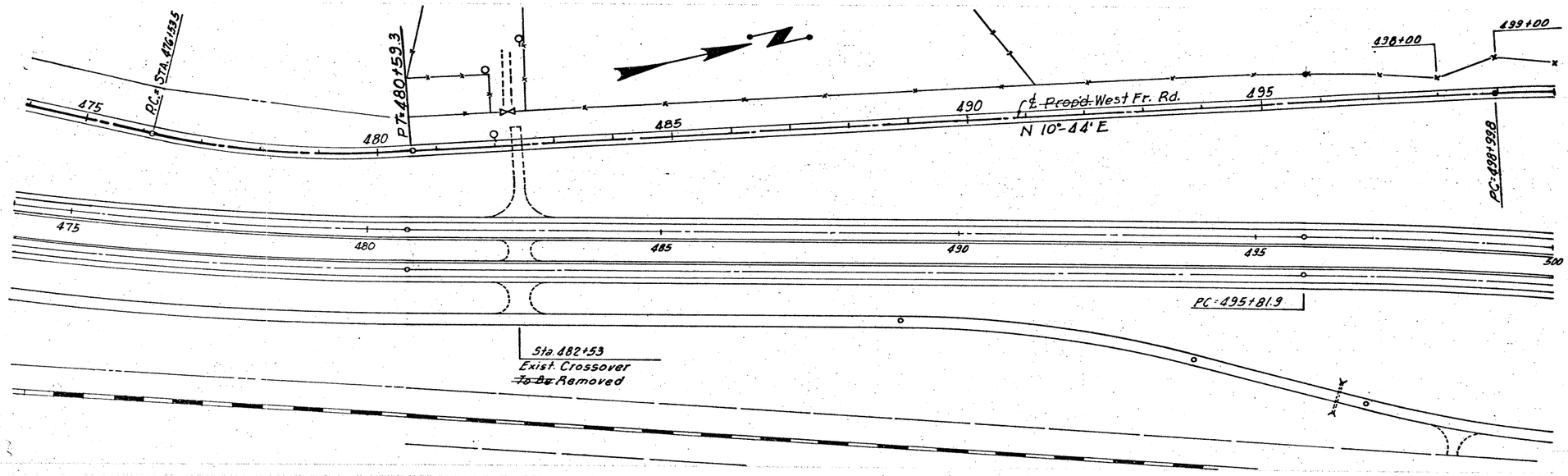


448 450 455 460 465 470 474

WEST FRONTAGE ROAD
Sheet 12 of 21 Sheets

I35-1(18)007 80

21 WEBB 18 5 16 IH-35



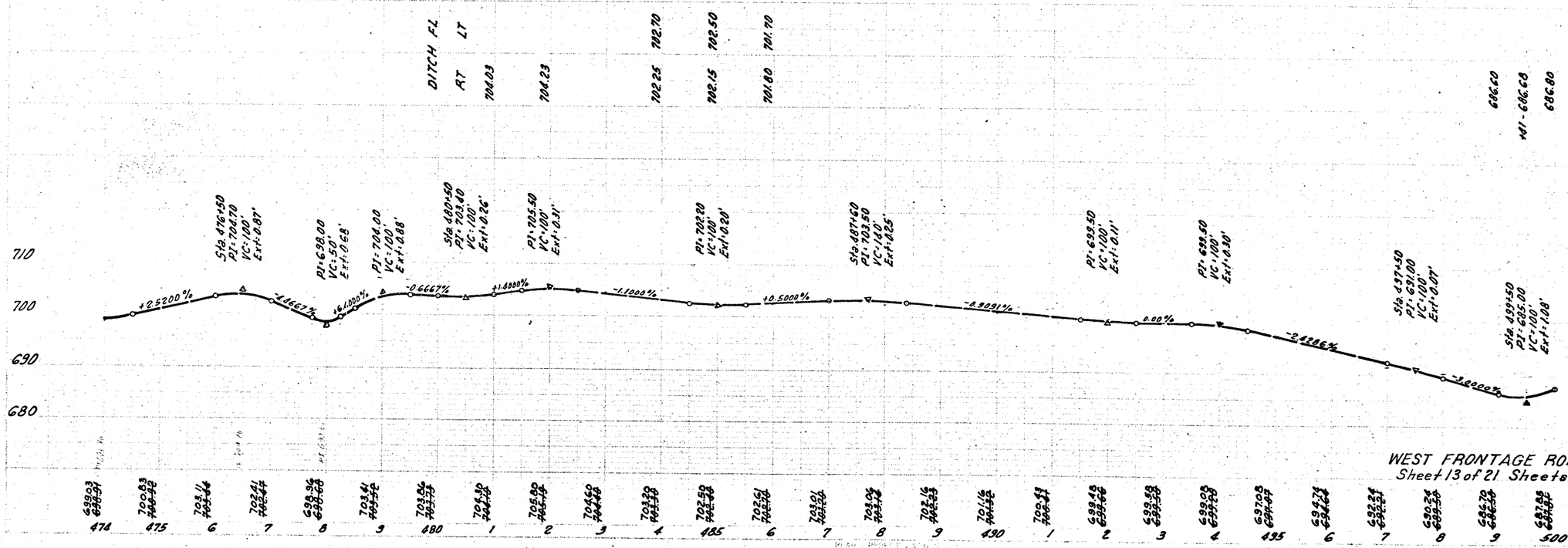
26.00 × 244.44 = 6355 S.Y.

~~6355~~ 6355 S.Y. Lime Treat. Subgrade

~~274~~ 200 ~~209~~ 189 ~~52~~ 100 ~~61~~ 141 ~~56~~ 164 ~~177~~ 192 ~~140~~ 113 ~~149~~ 65 ~~209~~ 98 ~~153~~ 104 ~~80~~ 98 ~~87~~ 129 ~~128~~ 175 ~~121~~ 166 ~~145~~ 166 ~~150~~ 179 ~~164~~ 170 ~~196~~ 176 ~~159~~ 159 ~~188~~ 195 ~~220~~ 225 ~~165~~ 148 ~~134~~ 89 ~~275~~ 150 ~~252~~ 168 ~~47~~ 53 ~~4019~~ 3812 C.Y. Road Excavation

~~18~~ 14 ~~41~~ 29 ~~44~~ 30 ~~54~~ 73 ~~51~~ 86 ~~15~~ 26 ~~32~~ 47 ~~32~~ 54 ~~15~~ 35 ~~15~~ 30 ~~15~~ 38 ~~15~~ 38 ~~16~~ 38 ~~20~~ 62 ~~28~~ 55 ~~16~~ 40 ~~16~~ 45 ~~15~~ 50 ~~15~~ 41 ~~15~~ 24 ~~15~~ 13 ~~37~~ 37 ~~181~~ 98 ~~107~~ 66 ~~15~~ 10 ~~53~~ 39 ~~853~~ 1118 C.Y. Embankment + Shrinkage

~~3166~~ 2694 C.Y. Excess Excavation



WEST FRONTAGE ROAD
Sheet 13 of 21 Sheets

BM: S.E. Corner on conc. base of Radio Tower Left of Sta. 482+00
El. 706.33
BM: P.C. Existing Curve Top of ROW Marker Lt. Sta. 495+81.9
El. 699.58

I35-1(18)007 81

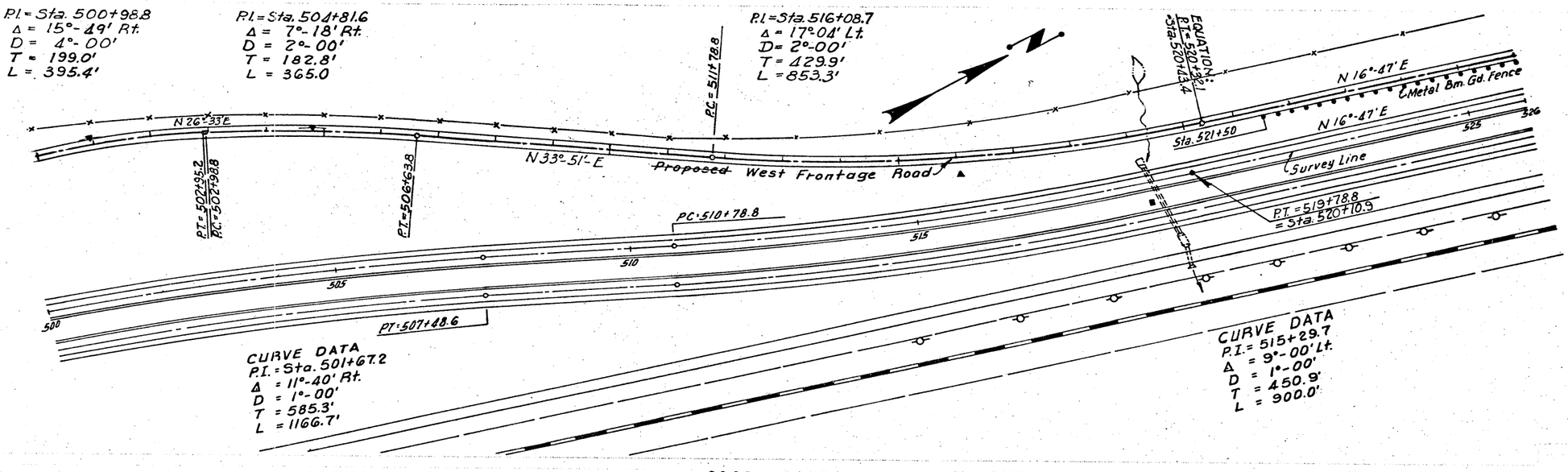
21 WEBB 18 5 16 IH-35

P.I. = Sta. 500+98.8
Δ = 15°-49' Rt.
D = 4°-00'
T = 199.0'
L = 395.4'

P.I. = Sta. 504+81.6
Δ = 7°-18' Rt.
D = 2°-00'
T = 182.8'
L = 365.0

P.I. = Sta. 516+08.7
Δ = 17°04' Lt.
D = 2°-00'
T = 429.9'
L = 853.3'

EQUATION:
P.I. = Sta. 520+43.2
= Sta. 520+43.4



CURVE DATA
P.I. = Sta. 501+67.2
Δ = 11°-40' Rt.
D = 1°-00'
T = 585.3'
L = 1166.7'

CURVE DATA
P.I. = 515+29.7
Δ = 9°-00' Lt.
D = 1°-00'
T = 450.9'
L = 900.0'

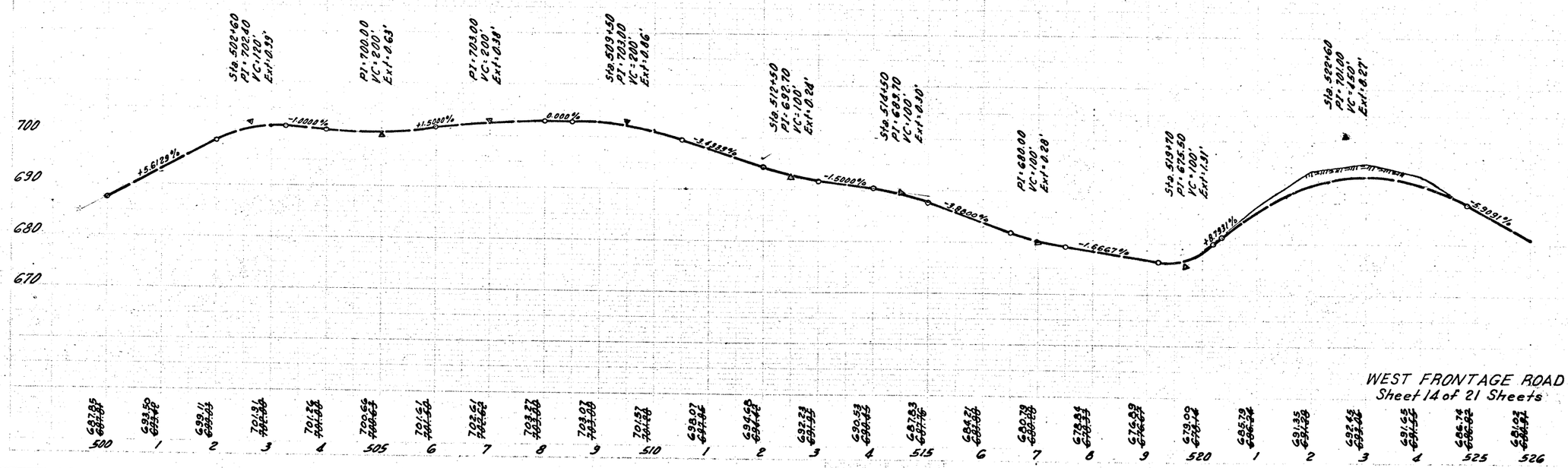
26.00 × 244.44 = 6355 S.Y.

~~6355~~ 6355 S.Y. Lime Treat Subgrade

~~51~~ 44 ~~38~~ 249 ~~38~~ 281 ~~63~~ 98 ~~122~~ 108 ~~157~~ 135 ~~145~~ 142 ~~109~~ 102 ~~111~~ 88 ~~131~~ 99 ~~125~~ 79 ~~95~~ 58 ~~117~~ 89 ~~164~~ 165 ~~161~~ 200 ~~195~~ 192 ~~233~~ 169 ~~277~~ 165 ~~304~~ 168 ~~324~~ 125 ~~368~~ 370 ~~630~~ 667 ~~814~~ 849 ~~666~~ 716 ~~302~~ 345 ~~179~~ 208 ~~5913~~ 5911 C.Y. Road Excavation

~~53~~ 67 ~~55~~ 59 ~~72~~ 38 ~~70~~ 47 ~~15~~ 30 ~~15~~ 21 ~~22~~ 15 ~~61~~ 49 ~~136~~ 87 ~~119~~ 65 ~~37~~ 45 ~~15~~ 73 ~~31~~ 84 ~~54~~ 60 ~~72~~ 78 ~~131~~ 118 ~~118~~ 152 ~~30~~ 189 ~~15~~ 124 ~~15~~ 56 ~~15~~ 74 ~~15~~ 102 ~~15~~ 141 ~~22~~ 193 ~~40~~ 210 ~~50~~ 132 ~~1299~~ 2309 C.Y. Embankment + Shrinkage

~~4614~~ 3602 C.Y. Excess Excavation



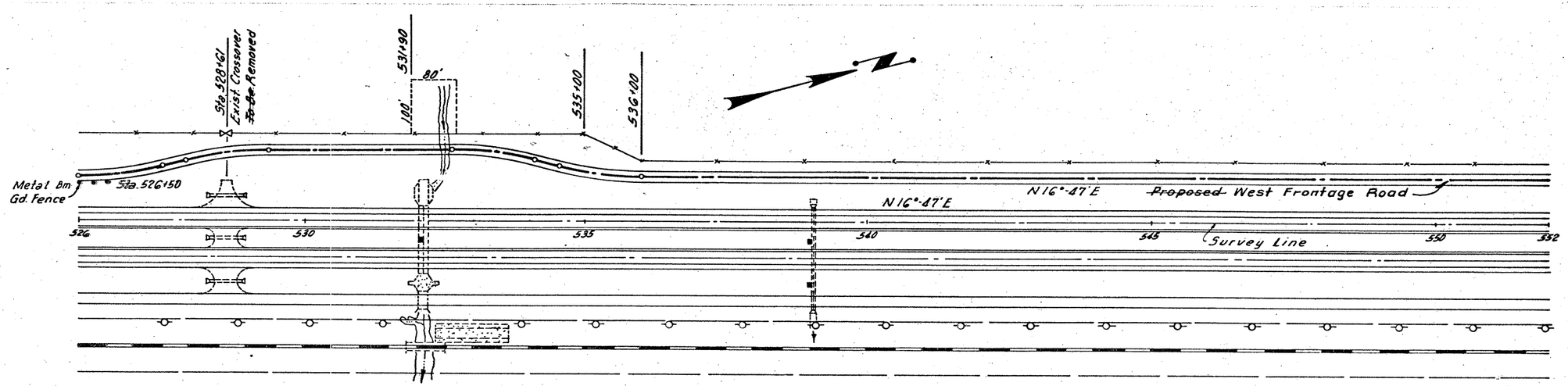
WEST FRONTAGE ROAD
Sheet 14 of 21 Sheets

BM: Top of ROW Marker
30' Rt. Sta. 511+10
El. 696.76

BM: N.E. Corner of East
Headwall Sta. 519+75
(East Frontage Rd.)
El. 674.61

I35-1(18)007 82

21 WEBB 18 5 16 IH-35



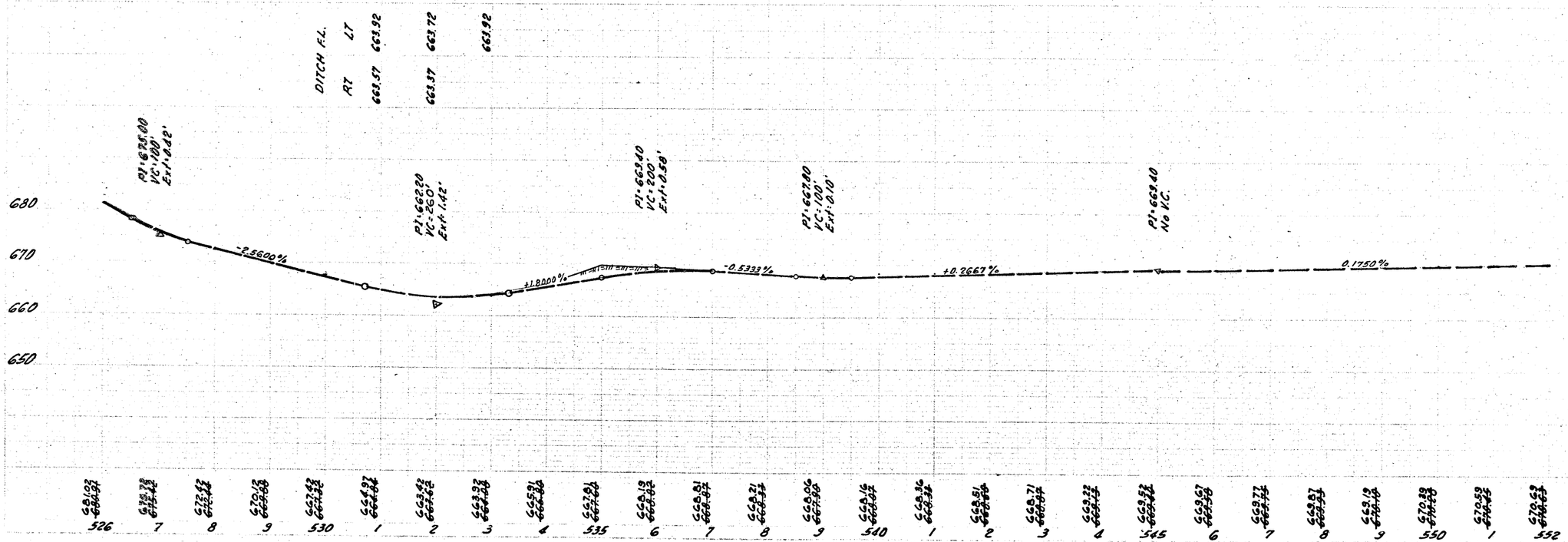
25.887 x 244.44 = 6328 S.Y.

~~6328~~ 6328 S.Y. Lime Treat. Subgrade

~~151~~ 111 ~~103~~ 122 ~~156~~ 175 ~~249~~ 193 ~~200~~ 155 ~~78~~ 189 ~~14~~ 148 ~~90~~ 104 ~~435~~ 349 ~~472~~ 384 ~~213~~ 216 ~~167~~ 148 ~~160~~ 125 ~~180~~ 124 ~~196~~ 143 ~~161~~ 150 ~~126~~ 145 ~~128~~ 128 ~~142~~ 113 ~~151~~ 123 ~~127~~ 109 ~~110~~ 86 ~~117~~ 104 ~~136~~ 116 ~~176~~ 122 ~~204~~ 155 ~~4442~~ 4037 C.Y. Road Excavation

~~35~~ 73 ~~23~~ 37 ~~20~~ 85 ~~72~~ 119 ~~72~~ 91 ~~15~~ 66 ~~33~~ 74 ~~41~~ 88 ~~23~~ 173 ~~15~~ 152 ~~16~~ 25 ~~24~~ 37 ~~24~~ 44 ~~15~~ 35 ~~15~~ 26 ~~16~~ 22 ~~22~~ 27 ~~22~~ 36 ~~22~~ 39 ~~32~~ 37 ~~38~~ 41 ~~36~~ 39 ~~36~~ 37 ~~33~~ 46 ~~23~~ 36 ~~16~~ 18 ~~739~~ 1503 C.Y. Embankment + Shrinkage

~~3709~~ 2534 C.Y. Excess Excavation

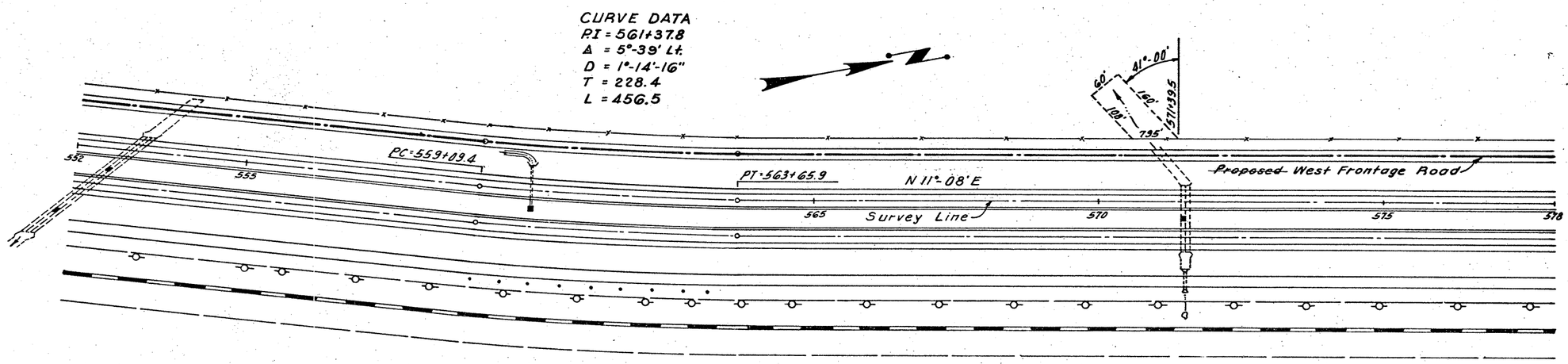


BM: N.E. Corner of East Curb
Sta. 532+10 (E. Frntg. Rd)
El. 665.42
BM: Spike in Telephone Pole
Opposite Sta. 544+40
East of Tracks
El. 661.70

WEST FRONTAGE ROAD
Sheet 15 of 21 Sheets

I 35-1(18)007 83

21 WEBB 18 5 16 IH-35



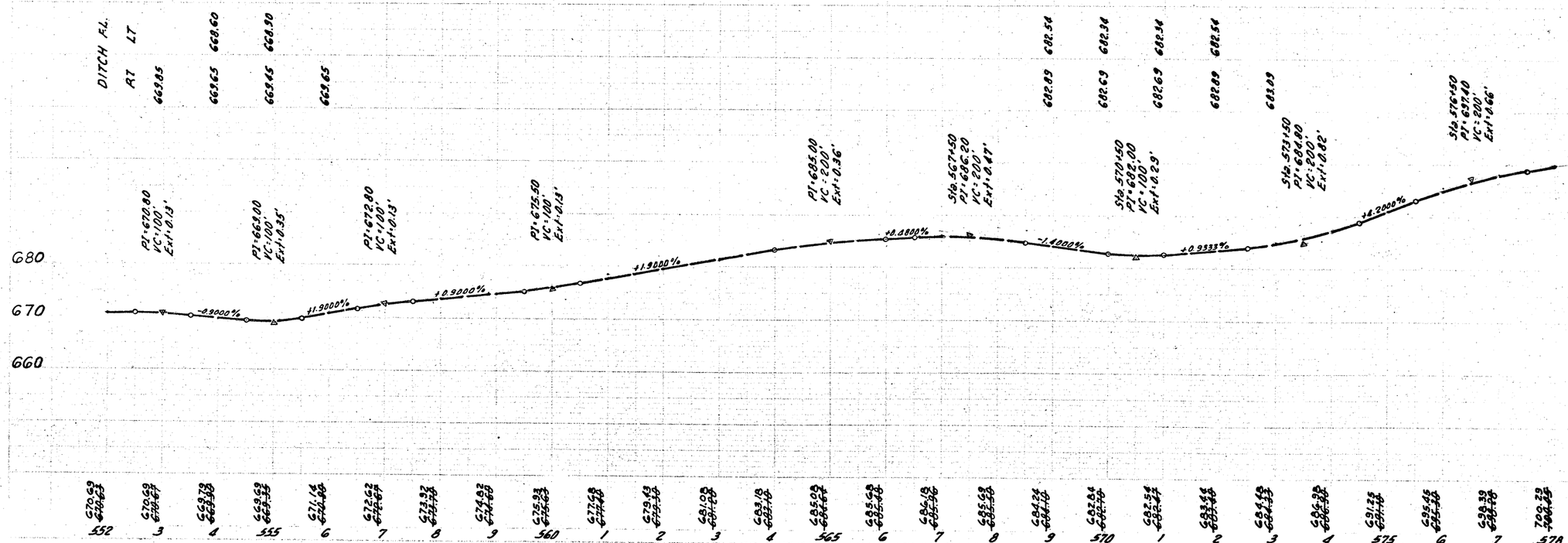
26.00 × 244.44 = 6355

~~6355~~ 6355 S.Y. Lime Treat. Subgrade

~~184~~ 145 ~~112~~ 104 ~~54~~ 54 ~~82~~ 42 ~~105~~ 68 ~~105~~ 72 ~~134~~ 63 ~~158~~ 64 ~~293~~ 196 ~~302~~ 257 ~~190~~ 210 ~~202~~ 200 ~~198~~ 158 ~~232~~ 190 ~~249~~ 199 ~~195~~ 148 ~~134~~ 95 ~~83~~ 60 ~~92~~ 65 ~~117~~ 77 ~~224~~ 114 ~~301~~ 180 ~~210~~ 157 ~~143~~ 114 ~~114~~ 136 ~~109~~ 135 ~~4322~~ 3303 C.Y. Road Excavation

~~15~~ 27 ~~31~~ 39 ~~35~~ 38 ~~18~~ 27 ~~16~~ 21 ~~16~~ 41 ~~16~~ 54 ~~16~~ 42 ~~15~~ 30 ~~15~~ 27 ~~15~~ 36 ~~15~~ 40 ~~15~~ 93 ~~16~~ 81 ~~16~~ 19 ~~15~~ 30 ~~15~~ 39 ~~15~~ 29 ~~15~~ 21 ~~10~~ 42 ~~16~~ 246 ~~15~~ 232 ~~15~~ 35 ~~19~~ 54 ~~37~~ 52 ~~48~~ 52 ~~496~~ 1447 C.Y. Embankment + Shrinkage

~~3826~~ 1856 C.Y. Excess Excavation



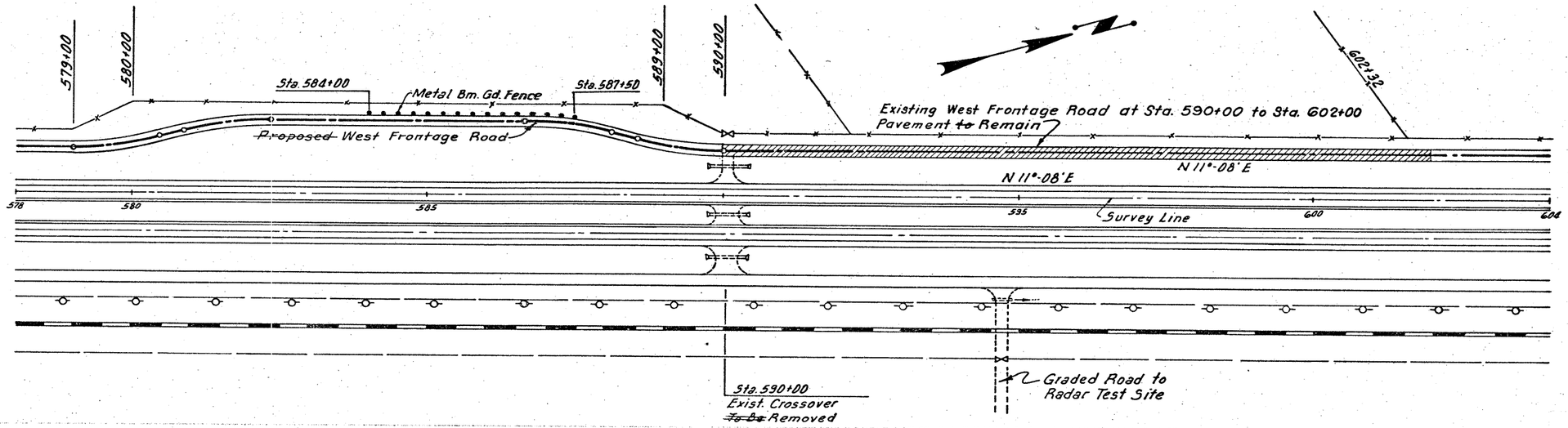
BM: Nail in Mesquite Tree
190' Lt. Sta. 559+30
El. 673.56

BM: Nail in Mesquite Tree
200' Lt. Sta. 574+45
El. 690.80

WEST FRONTAGE ROAD
Sheet 16 of 21 Sheets

I35-1(18)007 84

21 WEBB 18 5 16 IH-35



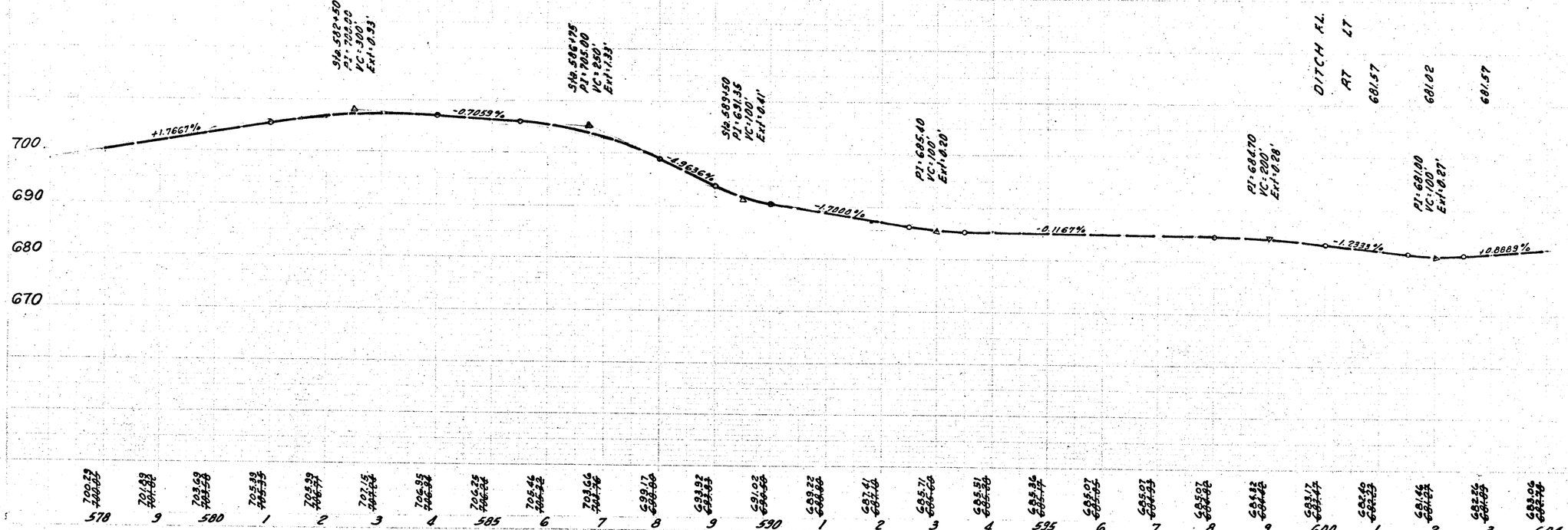
14.00 × 244.44 = 34.22 S.Y.

~~3422~~ 3422 S.Y. Lime Treat. Subgrade

~~131~~ 127 ~~246~~ 244 ~~288~~ 336 ~~126~~ 339 ~~54~~ 346 ~~108~~ 402 ~~117~~ 405 ~~89~~ 264 ~~80~~ 179 ~~147~~ 225 ~~160~~ 227 ~~98~~ 193 ~~115~~ 161 ~~87~~ 94 ~~68~~ 84 ~~76~~ 81 ~~49~~ 110 ~~54~~ 111 ~~57~~ 79 ~~47~~ 72 ~~31~~ 74 ~~40~~ 88 ~~51~~ 85 ~~27~~ 33 ~~39~~ 7 ~~44~~ 11 ~~2429~~ 4377 C.Y. Road Excavation

~~100~~ 112 ~~142~~ 130 ~~76~~ 64 ~~29~~ 25 ~~31~~ 42 ~~70~~ 93 ~~232~~ 193 ~~335~~ 280 ~~263~~ 277 ~~115~~ 170 ~~102~~ 147 ~~88~~ 114 ~~20~~ 33 ~~18~~ 38 ~~20~~ 29 ~~25~~ 19 ~~23~~ 10 ~~18~~ 17 ~~16~~ 25 ~~18~~ 30 ~~18~~ 41 ~~19~~ 30 ~~18~~ 18 ~~15~~ 33 ~~25~~ 54 ~~51~~ 96 ~~1893~~ 2120 C.Y. Embankment + Shrinkage

~~538~~ 2257 C.Y. Excess Excavation

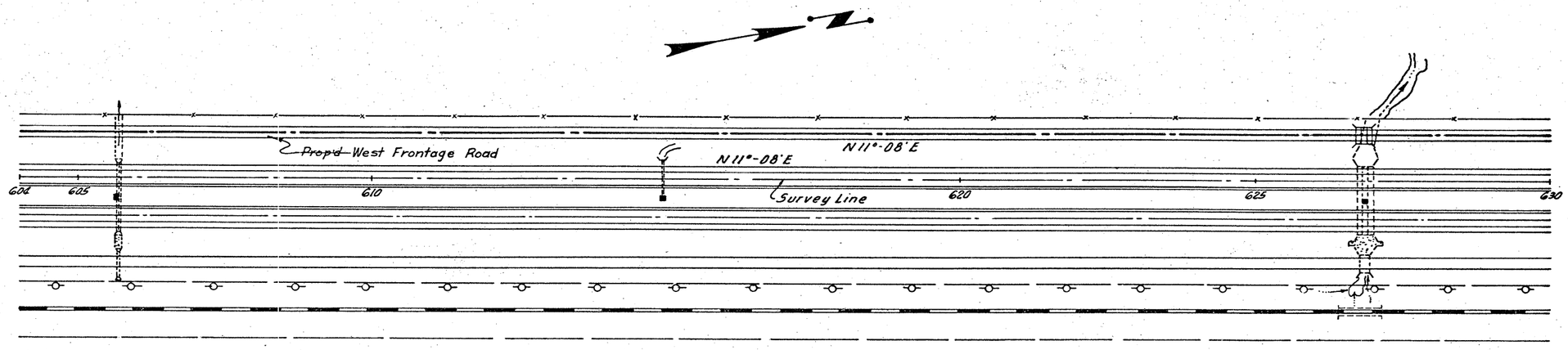


BM: Nail in Telephone Pole
94' Lt. Sta. 601+60
El. 682.38

WEST FRONTAGE ROAD
Sheet 17 of 21 Sheets

I 35-1(18)007 85

21 WEBB 18 5 16 IH-35



25.733 x 244.44 = 6290 S.Y.

~~6290~~ 6290 SY Lime Treat Subgr.

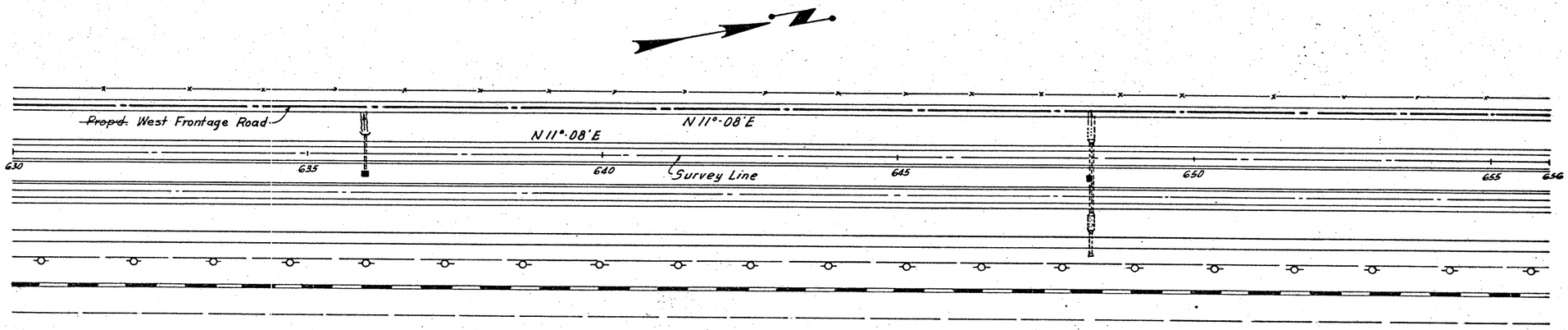
~~47~~ 36 ~~84~~ 72 ~~38~~ 76 ~~21~~ 90 ~~69~~ 80 ~~134~~ 91 ~~133~~ 114 ~~74~~ 94 ~~112~~ 103 ~~93~~ 82 ~~56~~ 46 ~~103~~ 62 ~~141~~ 95 ~~160~~ 123 ~~112~~ 131 ~~90~~ 146 ~~144~~ 141 ~~107~~ 69 ~~29~~ 16 ~~2~~ 4 ~~2~~ 4 ~~11~~ 6 ~~10~~ ~~218~~ 1 224 ~~7~~ 10 ~~22~~ 28 ~~35~~ 24 ~~1836~~ ~~218~~ 1744 224 CY **Road Excavation** Channel Excavation

~~46~~ 84 ~~18~~ 38 ~~330~~ 46 ~~331~~ 60 ~~18~~ 48 ~~15~~ 27 ~~18~~ 31 ~~23~~ 50 ~~36~~ 61 ~~49~~ 61 ~~42~~ 114 ~~48~~ 129 ~~24~~ 78 ~~16~~ 49 ~~20~~ 24 ~~20~~ 32 ~~15~~ 48 ~~20~~ 60 ~~46~~ 88 ~~184~~ 192 ~~295~~ 257 ~~309~~ 295 ~~634~~ 501 ~~597~~ 651 ~~142~~ 148 ~~41~~ 73 ~~3335~~ 3245 CY Embankment + Shrinkage

* CY Excess *Excavation*

* Combined with next sheet

	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630
DITCH FL.																											
RT																											
	679.44																										
			678.69																								
					678.44																						
							678.64																				



26.00 x 244.44 = 6355 S.Y.

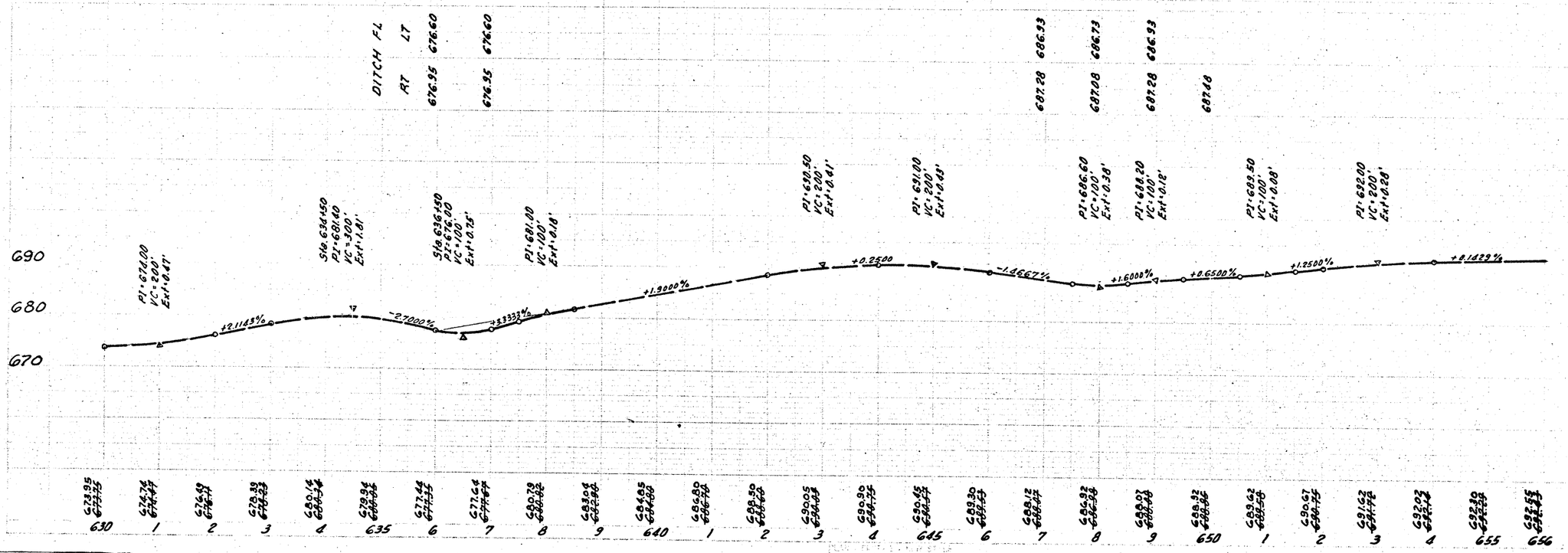
~~6355~~ 6355 S.Y. Lime Treat. Subgr.

~~57~~ 37 ~~108~~ 64 ~~140~~ 93 ~~108~~ 115 ~~74~~ 174 ~~64~~ 124 ~~189~~ 133 ~~239~~ 208 ~~148~~ 131 ~~155~~ 118 ~~156~~ 123 ~~110~~ 94 ~~66~~ 103 ~~104~~ 118 ~~125~~ 103 ~~117~~ 110 ~~154~~ 172 ~~161~~ 188 ~~127~~ 117 ~~101~~ 85 ~~119~~ 74 ~~126~~ 90 ~~73~~ 83 ~~72~~ 73 ~~101~~ 82 ~~131~~ 86 ~~3119~~ 2898 CY Excavation

~~95~~ 70 ~~79~~ 60 ~~16~~ 61 ~~18~~ 31 ~~18~~ 12 ~~18~~ 40 ~~16~~ 58 ~~15~~ 39 ~~15~~ 47 ~~15~~ 58 ~~15~~ 42 ~~20~~ 48 ~~36~~ 47 ~~31~~ 27 ~~16~~ 35 ~~16~~ 36 ~~15~~ 20 ~~15~~ 5 ~~15~~ 34 ~~19~~ 41 ~~18~~ 26 ~~18~~ 24 ~~52~~ 54 ~~71~~ 82 ~~45~~ 69 ~~24~~ 61 ~~606~~ 1127 CY Embankment + Shrinkage

*~~1232~~ 494 CY Excess

*Includes previous sheet totals



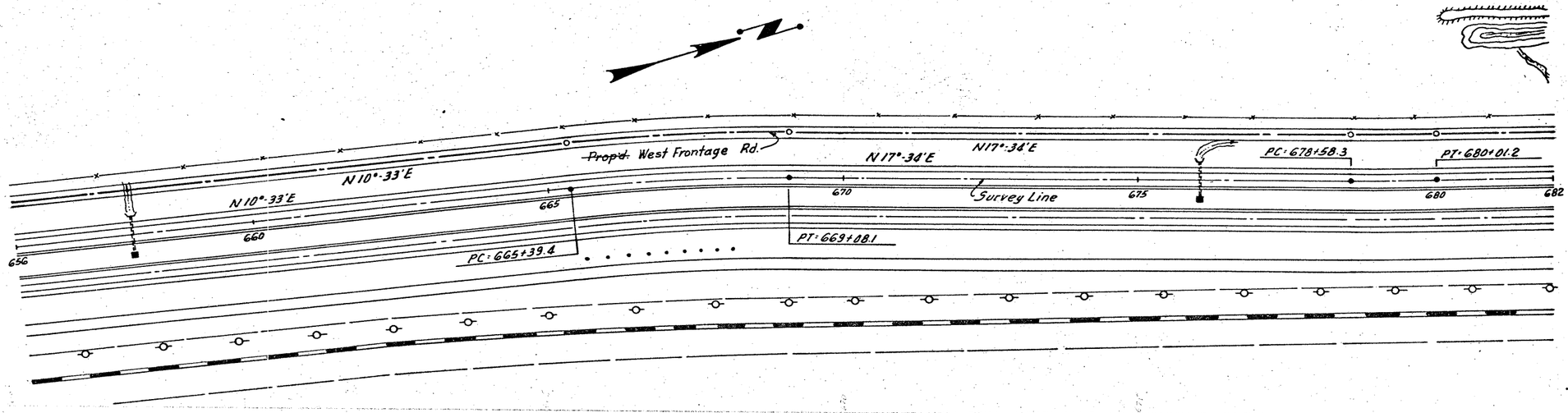
BM: Nail in Mesquite Tree
195' Lt. of Sta. 640+00
El. 683.36

BM: Spike in Mesquite Tree
200' Lt. Sta. 654+90
El. 689.09

WEST FRONTAGE ROAD
Sheet 19 of 21 Sheets

I 35-1(18)007 87

21 WEBB 18 5 16 IH-35



26.00 x 244.44 = 6355 S.Y.

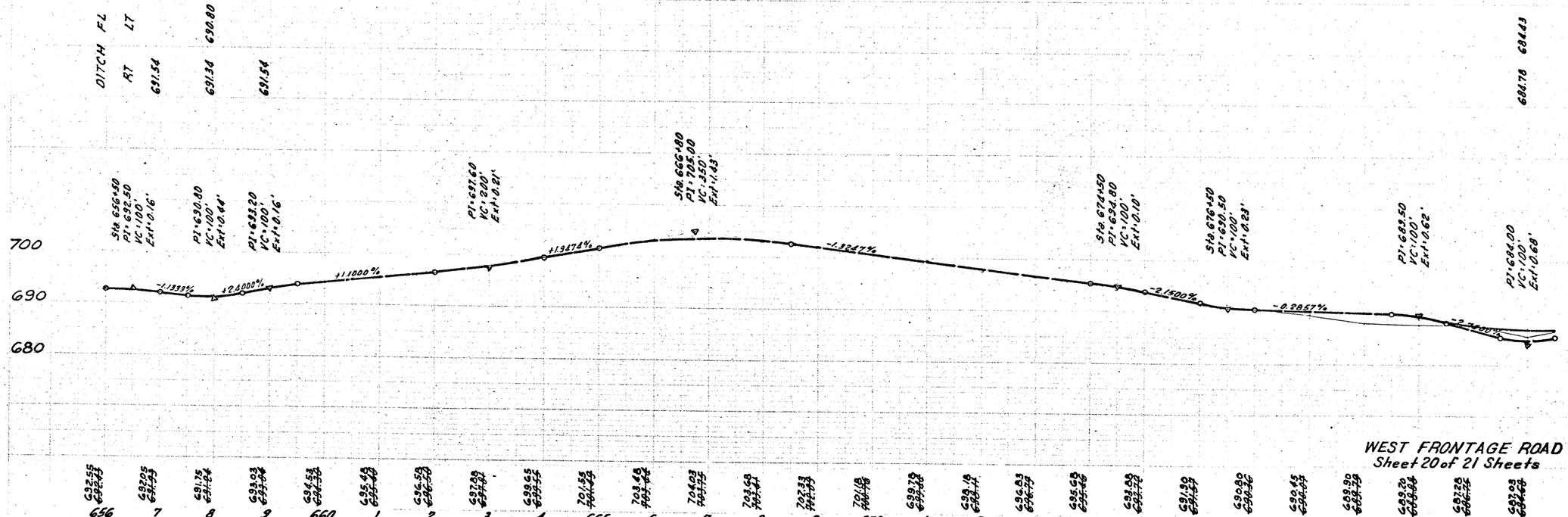
~~6355~~ 6355 S.Y. Lime Treat. Subgr.

~~131~~ 92 ~~63~~ 41 ~~136~~ 70 ~~224~~ 124 ~~195~~ 93 ~~191~~ 88 ~~170~~ 86 ~~144~~ 77 ~~170~~ 97 ~~113~~ 115 ~~27~~ 91 ~~35~~ 74 ~~98~~ 97 ~~120~~ 80 ~~102~~ 54 ~~90~~ 59 ~~78~~ 68 ~~61~~ 78 ~~76~~ 86 ~~128~~ 99 ~~132~~ 67 ~~58~~ 32 ~~147~~ 20 ~~154~~ 11 ~~150~~ 65 ~~284~~ 70 ~~3272~~ 1934 C.Y. Excavation

~~19~~ 44 ~~19~~ 87 ~~15~~ 102 ~~16~~ 56 ~~16~~ 50 ~~15~~ 53 ~~15~~ 65 ~~18~~ 63 ~~18~~ 41 ~~28~~ 54 ~~103~~ 132 ~~172~~ 149 ~~18~~ 101 ~~16~~ 77 ~~15~~ 68 ~~15~~ 67 ~~18~~ 48 ~~19~~ 31 ~~16~~ 38 ~~15~~ 36 ~~19~~ 33 ~~71~~ 88 ~~67~~ 187 ~~96~~ 250 ~~102~~ 165 ~~22~~ 115 ~~1043~~ 2200 C.Y. Embankment + Shrinkage

~~2229~~ * C.Y. Excess

* Combined with next sheet



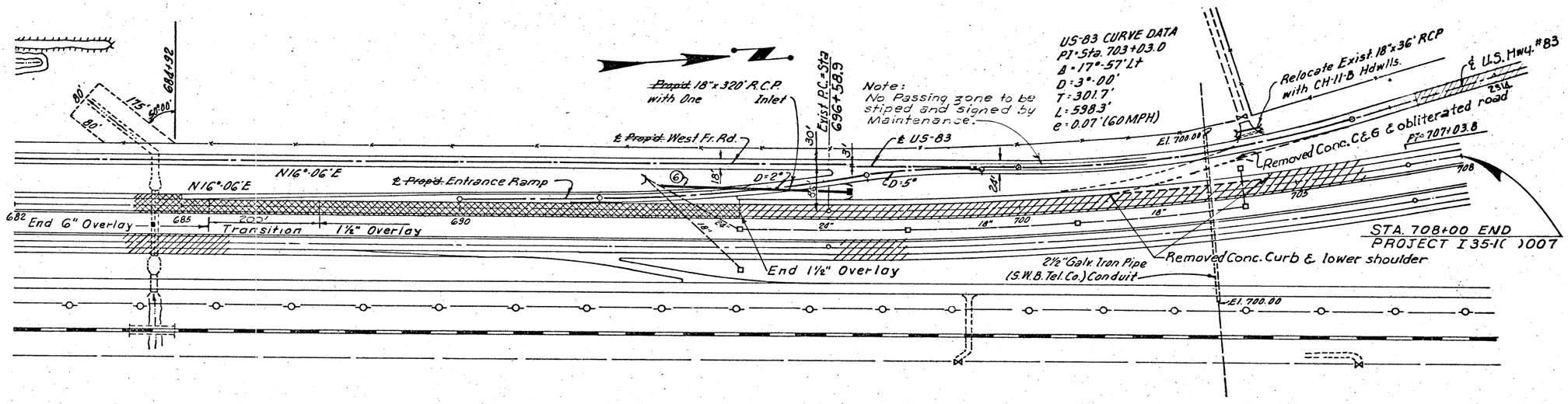
BM: Top of ROW Marker
94' Lt. PC. 665+39.4
El. 702.26

BM: Nail in Mesquite Tree
210' Lt. Sta. 670+00
El. 697.49

WEST FRONTAGE ROAD
Sheet 20 of 21 Sheets

I35-1(18)007 88

21 WEBB 18 5 16 IH-35



West Fr. Rd. = 14.59 x 244.44 = 3566 Shoulder = 9.2 x 273/9 = 279 US. 83 = 1061 x 44/9 = 5187 Ramp = 7168.

| | | |

FLEXIBLE BASE

SALV. FLEX. BASE				~~240~~																		
WEST FRONTAGE RD.	~~404~~	~~436~~	~~436~~	~~196~~	~~436~~	~~436~~	~~436~~	~~430~~	~~436~~	~~436~~	~~427~~	~~436~~	~~1~~	420	~~436~~	~~436~~	~~436~~	~~436~~	~~436~~	~~436~~	~~436~~	~~436~~
ADD. QTR. MILE HAUL	10100	10464	10028	4312	9156	8720	8284	7740	7412	6976	6405	6104	13	5460	5232	4796	4360	3924	3488	3052	2616	2180	1744
	EXCEPTION BR. 33.5'							EXCEPTION CULV. 15.5'			EXCEPTION BR. 26.9'			EXCEPTION BR. 43.3'									
177 + 33	190 + 53	203 + 73	216 + 93	230 + 13	243 + 33	256 + 53	269 + 73	282 + 93	296 + 13	309 + 33	322 + 53	335 + 73		348 + 93	362 + 13	375 + 33	388 + 53	401 + 73	414 + 93	428 + 13	441 + 33	454 + 53	467 + 73
← TO LAREDO																							
	26	25	24	23	22	21	20	19	18	17	16	15		14	13	12	11	10	9	8	7	6	5

BEG. PROJ. 177+94

CONTROL 18-6-38 ← STA. 335+75 → CONTROL 18-5-16

	~~131~~	LOWERED SHOULDER
~~208~~	~~*1237~~	U.S. 83 RELOC. & RAMP
3744	25992	ADD. QTR. MILE HAUL

~~436~~	~~106~~	~~436~~	~~436~~	~~436~~	~~436~~	~~436~~	~~436~~	~~436~~	~~436~~	~~40~~	~~436~~	~~427~~	~~436~~	~~436~~	~~436~~	~~436~~	~~436~~	~~38~~	
1308	212	1308	1744	2180	2616	3052	3488	3924	4360	440	5232	5551	6104	6540	6976	7412	7848	722	
				EQUATION 520+32.1 = 520+43.4						EXCEPTION 1200'		EXCEPTION BR. 26.7'							
467 + 73	480 + 93	484 + 13	497 + 33	510 + 53	523 + 84	537 + 04	550 + 24	563 + 44	576 + 64	589 + 84	603 + 04	616 + 24	629 + 44	642 + 64	655 + 84	669 + 04	682 + 24	695 + 44	708 + 00
	4	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

CROSSOVER @ 482+53
3800' D.H.

END PROJ. 708+00

* Includes ~~89~~ C.Y. for Ramp and ~~74~~ C.Y. for Gore.

NOT USED

FLEX. BASE SOURCE NO. 1
U.S. RUBBER CO.

SUMMARY OF FLEXIBLE BASE

SOURCE NO.	CONTROL 18-6-38		CONTROL 18-5-16	
	FLEX. BASE-C.Y.	ADD. QTR. MI. HAUL-C.Y.	FLEX. BASE-C.Y.	ADD. QTR. MI. HAUL-C.Y.
~~1~~	~~4946~~	~~95714~~	~~13071~~	~~137605~~
FINAL		95714		137605
SAFETY REST AREAS-TOTAL				46571
TOTAL	5220	95714	24095	184176

SUMMARY OF FOUNDATION COURSE

SOURCE NO.	CONTROL 18-5-16	
	FOUND. COURSE-C.Y.	ADD. QTR. MILE HAUL-C.Y.
~~1~~	~~2192~~	~~41283~~
FINAL		41283
SAFETY REST AREAS-TOTAL		40991
TOTAL	7365	82274

NOT USED

23,760' D.H.

FOUNDATION COURSE SOURCE NO.1-U.S. RUBBER CO.

FOUNDATION COURSE

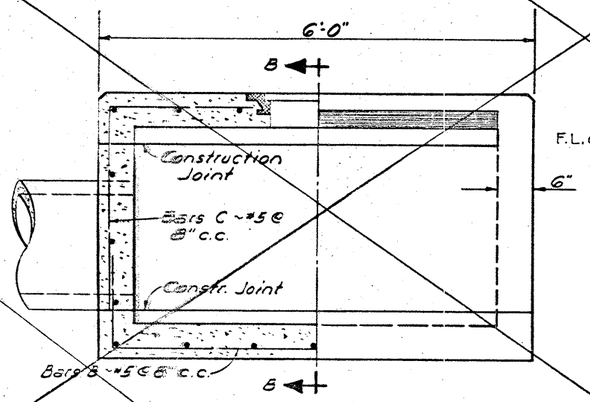
~~365~~	~~1704~~	U.S. 83 RELOC. & RAMP
	~~123~~	LOWERED SHOULDER
6570	34713	ADD. QTR. MILE HAUL

682+24	695+44	708+00
19	20	

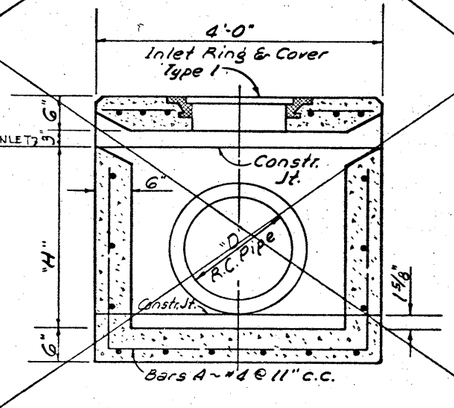
NOTE:
Add'l. Qtr. Mile Haul totals are to be the final pay quantities as provided for in Supplemental Agreement No. 1

ESTIMATE & FINAL HAUL DIAGRAMS FOR FOUNDATION COURSE & FLEXIBLE BASE U.S. 83 & WEST FRONTAGE ROAD

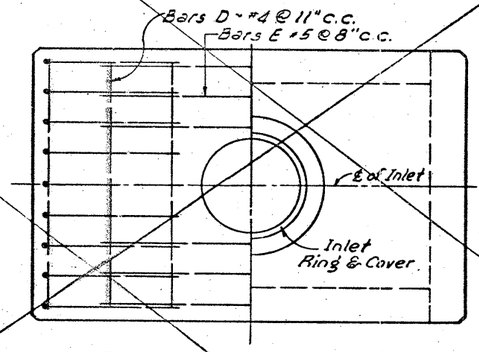
FED. RD. DIV. NO.	STATE	FEDERAL PROJ. NO.	SHT. NO.
		I 35-1(18)007	90
STATE	COUNTY	CONT. NO.	JOB NO.
21	WEBB	18 5 6 4/38 I 35	



HALF SECTION HALF ELEVATION



SECTION "B-B"

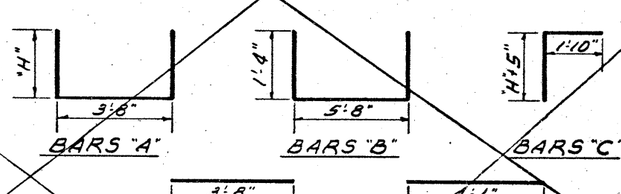


HALF PLAN Showing Reinforcing HALF PLAN Showing Ring & Cover

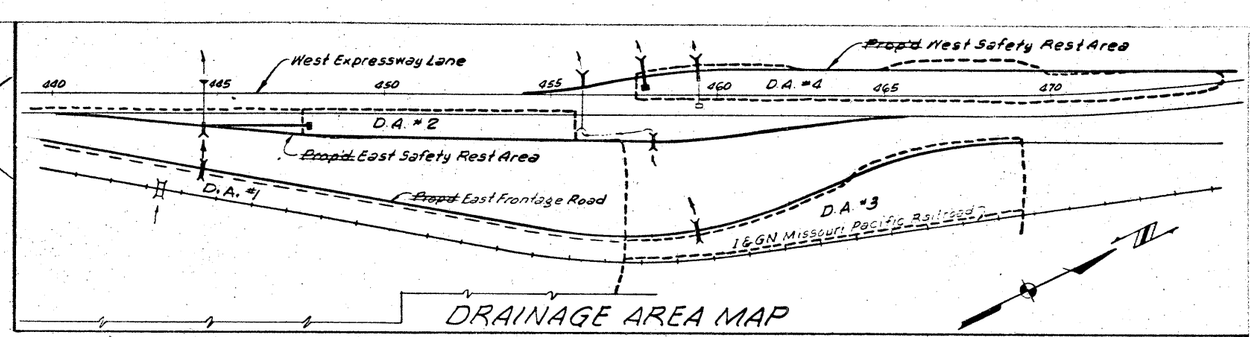
PLAN

TYPE "A" INLETS

INLET NO.	STATION	INLET FL.	PIPE ELEV.	"H"
1	447+79.5	653.80	650.89	3'-3"
2	457+90	665.37	661.00	4'-9"
3	696+82	699.00	696.50	2'-10"



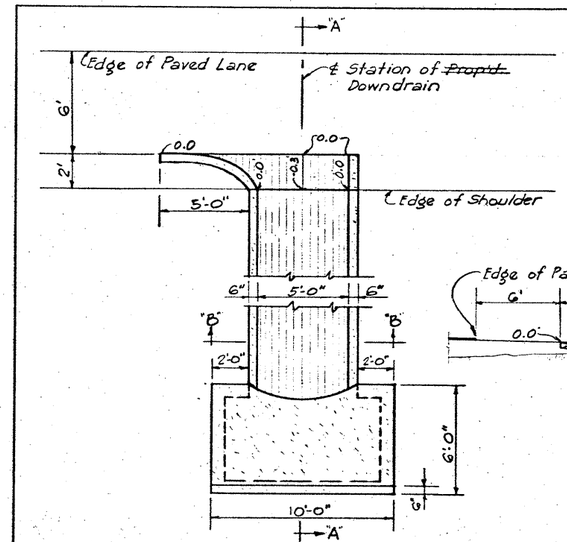
TYPE "A" INLET DETAILS

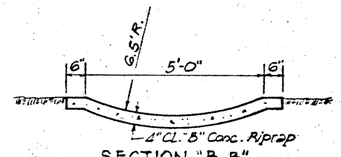


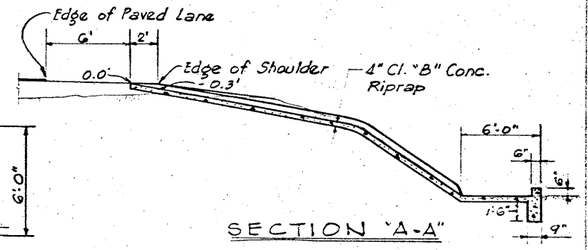
DRAINAGE AREA MAP

RUNOFF COMPUTATIONS

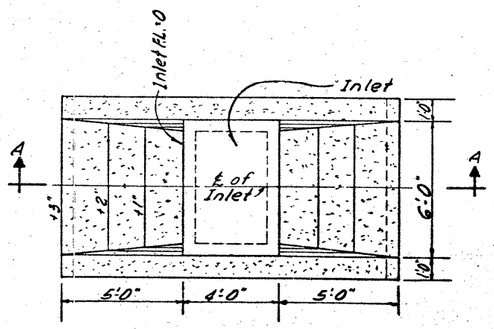
STATION	DRAINAGE AREA NO.	DRAINAGE AREA ACRES	C	CA	TIME OF CONC. MINUTES	I INCHES/HR	Q5 c.f.s.
444+60	1	.50	0.45	22.5	30	4.0	90
447+78	2	1.7	0.70	1.2	10	6.0	7
460+00	3	8.0	0.50	4.0	20	4.9	20
457+90	4	3.4	0.70	2.4	10	6.0	14



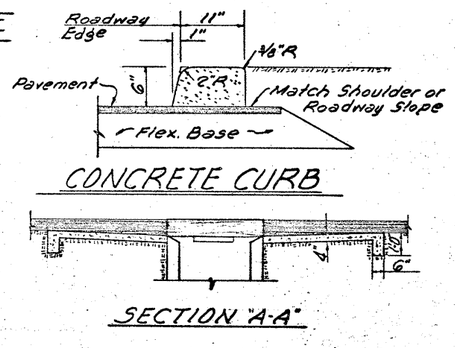




DETAILS OF DOWNDRAIN



CONCRETE RIPRAP DETAIL



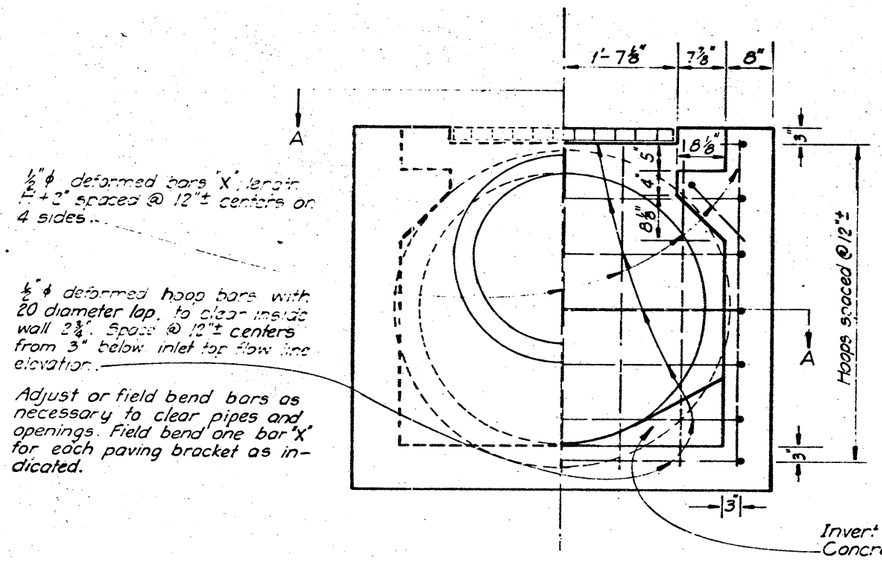
CONCRETE CURB

SECTION "A-A"

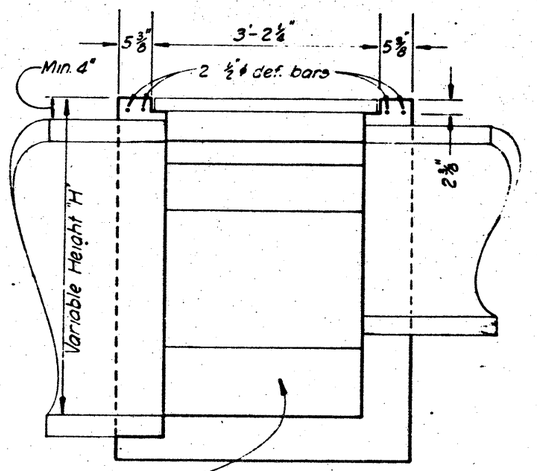
DRAINAGE AREA MAP AND DETAILS OF DOWNDRAIN & CONCRETE CURB

SAFETY REST AREAS & WEST FRONTAGE ROAD

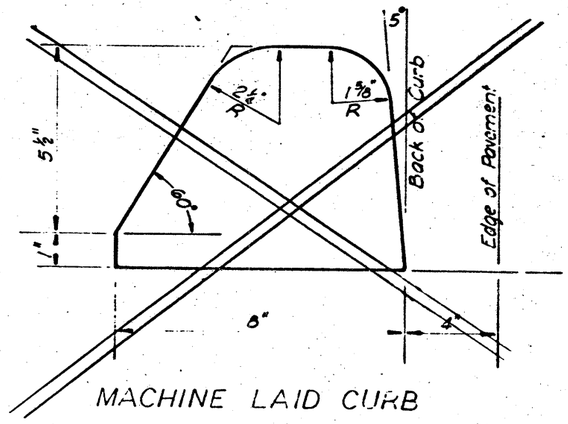
FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
	TEXAS	I 35-1(18)007	91
DIST. NO.	COUNTY	CONT. SECT. JOB NO.	HIGHWAY NO.
21	WEBB	18 5/6	IH 35



ELEVATION



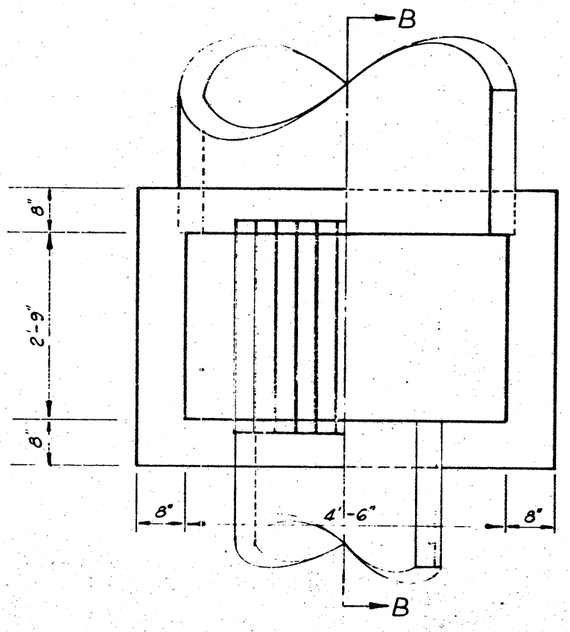
END VIEW
SECTION B-B



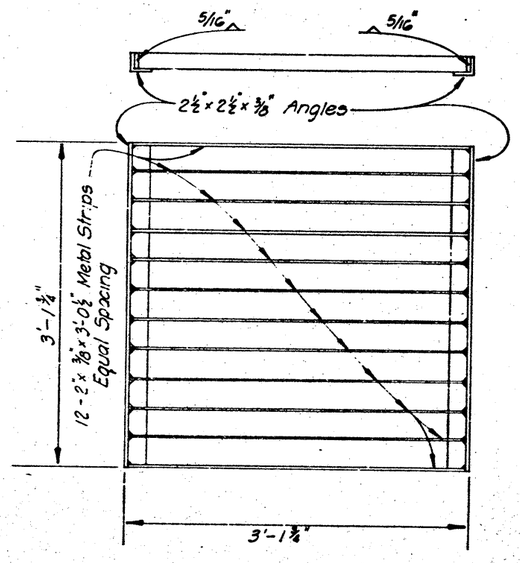
MACHINE LAID CURB

INLETS

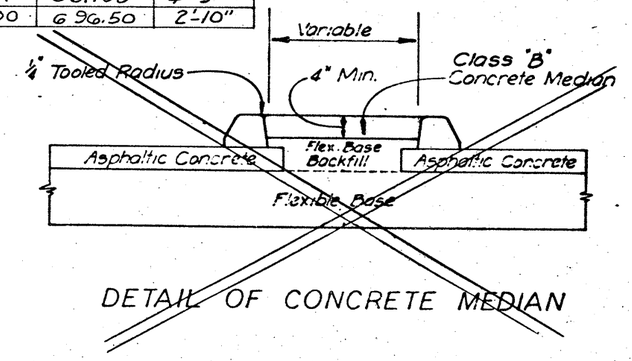
INLET NO.	STATION	INLET F.L.	PIPE ELEV.	"H"
1	447+79.5	653.80	650.89	3'-3"
2	457+90	665.37	661.00	4'-3"
3	696+82	699.00	696.50	2'-10"



PLAN VIEW
SECTION A-A



GRATE



DETAIL OF CONCRETE MEDIAN

DROP INLET GENERAL NOTES

All concrete shall be Class 'A'. Chamfer all exposed corners ¾". All concrete surfaces exposed to view after backfilling shall receive a 'Type 1' surface finish. Concrete Pipe shall be reinforced concrete pipe of the class specified.

Payment for DROP INLETS shall be in accordance with Item "Inlet (Compl)". Payment for GRATES shall be in accordance with Item 471, "Frames, Grates, Rings & Covers." EXCAVATION for Drop Inlets shall be paid for in accordance with Item 400, "Unclassified Structural Excavation."

For installation on box culverts, adjustments may be made by the Engineer to fit unusual conditions.

DROP INLET

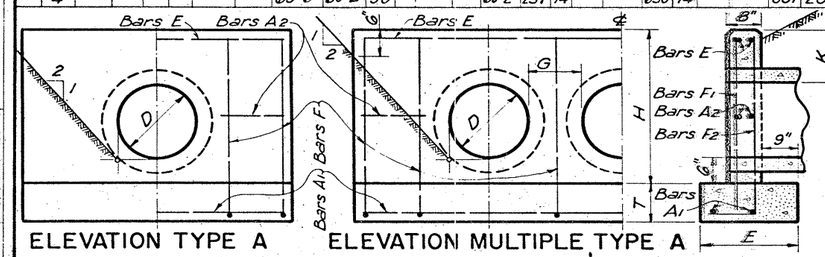
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.		SHEET NO.
6	TEXAS	I 35-1(18)007, Etc.		91-A
STATE DIST. NO.	COUNTY	SHEET NO.	TOTAL SHEETS	HIGHWAY NO.
21	WEBB	18	56	IH-35

TABLE OF DIMENSIONS AND QUANTITIES FOR TWO TYPE A HEADWALLS

NO. OF PIPES	DIAM. OF PIPES	TABLE OF DIMENSIONS G	K	T	E	H	W	REINF. STEEL FOR TWO HEADWALLS BARS A1 4~#3 Lgth	Wt	BARS A2 #3 @ 13" ± No	Lgth	Wt	BARS E 4~#5 Lgth	Wt	BARS F1 @ 12" ± No	Size	Lgth	Wt	BARS F2 @ 12" ± No	Size	Lgth	Wt	TOTAL QUANTITIES STEEL LBS.	CONC. C.Y.
1	12"	~	12"	9"	1'-9"	2'-6"	7'-0"	6'-8"	10	8	2'-6"	8	6'-8"	28	12	#4	2'-11"	23	12	#4	3'-8"	29	98	1.48
2	"	10"	"	"	"	"	8'-10"	8'-6"	13	"	"	"	8'-6"	35	14	"	"	27	14	"	"	34	117	1.81
3	"	"	"	"	"	"	10'-8"	10'-4"	16	"	"	"	10'-4"	43	16	"	"	31	16	"	"	39	137	2.15
4	"	"	"	"	"	"	12'-6"	12'-2"	18	"	"	"	12'-2"	51	18	"	"	35	18	"	"	44	156	2.48
1	15"	~	12"	9"	1'-9"	2'-9"	8'-3"	7'-11"	12	8	3'-0"	9	7'-11"	33	12	#4	3'-2"	25	12	#4	3'-11"	31	110	1.82
2	"	1'-0"	"	"	"	"	10'-6"	10'-2"	15	"	"	"	10'-2"	42	14	"	"	30	14	"	"	37	133	2.24
3	"	"	"	"	"	"	12'-9"	12'-5"	19	"	"	"	12'-5"	52	16	"	"	34	16	"	"	42	156	2.66
4	"	"	"	"	"	"	15'-0"	14'-8"	22	"	"	"	14'-8"	61	18	"	"	38	18	"	"	47	177	3.09
1	18"	~	12"	9"	1'-9"	3'-0"	9'-6"	9'-2"	14	8	3'-6"	11	9'-2"	38	20	#4	3'-5"	46	20	#4	4'-2"	56	165	2.19
2	"	1'-2"	"	"	"	"	12'-2"	11'-10"	18	"	"	"	11'-10"	49	22	"	"	50	22	"	"	61	189	2.70
3	"	"	"	"	"	"	14'-10"	14'-6"	22	"	"	"	14'-6"	60	24	"	"	55	24	"	"	67	215	3.21
4	"	"	"	"	"	"	17'-6"	17'-2"	26	"	"	"	17'-2"	72	26	"	"	59	26	"	"	72	240	3.73
1	24"	~	12"	9"	2'-0"	3'-6"	12'-0"	11'-8"	18	8	4'-6"	14	11'-8"	49	24	#4	3'-11"	63	24	#4	4'-11"	79	223	3.17
2	"	1'-5"	"	"	"	"	15'-5"	15'-1"	23	"	"	"	15'-1"	63	26	"	"	68	26	"	"	85	253	3.89
3	"	"	"	"	"	"	18'-10"	18'-6"	28	"	"	"	18'-6"	77	28	"	"	73	28	"	"	92	284	4.62
4	"	"	"	"	"	"	22'-3"	21'-11"	33	"	"	"	21'-11"	91	30	"	"	79	30	"	"	99	316	5.35
1	30"	~	12"	9"	2'-3"	4'-0"	14'-6"	14'-2"	21	16	5'-6"	33	14'-2"	59	28	#4	4'-5"	83	28	#4	5'-8"	106	302	4.31
2	"	1'-8"	"	"	"	"	18'-8"	18'-4"	28	"	"	"	18'-4"	76	32	"	"	94	32	"	"	121	352	5.28
3	"	"	"	"	"	"	22'-10"	22'-6"	34	"	"	"	22'-6"	94	36	"	"	106	36	"	"	136	403	6.26
4	"	"	"	"	"	"	27'-0"	26'-8"	40	"	"	"	26'-8"	111	40	"	"	118	40	"	"	152	454	7.24
1	36"	~	12"	12"	2'-6"	4'-6"	17'-0"	16'-8"	25	16	6'-6"	39	16'-8"	70	32	#4	5'-2"	111	32	#4	6'-8"	143	388	6.40
2	"	1'-11"	"	"	"	"	21'-11"	21'-7"	32	"	"	"	21'-7"	90	36	"	"	124	36	"	"	160	445	7.89
3	"	"	"	"	"	"	26'-10"	26'-6"	40	"	"	"	26'-6"	111	40	"	"	138	40	"	"	178	506	9.37
4	"	"	"	"	"	"	31'-9"	31'-5"	47	"	"	"	31'-5"	131	44	"	"	152	44	"	"	196	565	10.85
1	42"	~	12"	12"	2'-9"	5'-0"	19'-6"	19'-2"	29	16	7'-6"	45	19'-2"	80	36	#4	5'-8"	136	36	#4	7'-5"	178	468	8.10
2	"	2'-2"	"	"	"	"	25'-2"	24'-10"	37	"	"	"	24'-10"	104	40	"	"	152	40	"	"	198	536	9.96
3	"	"	"	"	"	"	30'-10"	30'-6"	46	"	"	"	30'-6"	127	44	"	"	167	44	"	"	218	603	11.80
4	"	"	"	"	"	"	36'-6"	36'-2"	54	"	"	"	36'-2"	151	48	"	"	182	48	"	"	238	670	13.68
1	48"	~	15"	12"	3'-0"	5'-9"	23'-0"	22'-8"	34	24	8'-9"	79	22'-8"	95	40	#5	6'-5"	268	40	#5	8'-5"	351	827	10.74
2	"	2'-5"	"	"	"	"	29'-5"	29'-1"	44	"	"	"	29'-1"	121	44	"	"	295	44	"	"	386	925	13.08
3	"	"	"	"	"	"	35'-10"	35'-6"	53	"	"	"	35'-6"	148	48	"	"	321	48	"	"	422	1023	15.43
4	"	"	"	"	"	"	42'-3"	41'-11"	63	"	"	"	41'-11"	175	52	"	"	348	52	"	"	457	1122	17.77
1	54"	~	15"	12"	3'-3"	6'-3"	25'-6"	25'-2"	38	24	9'-9"	88	25'-2"	105	44	#5	6'-11"	318	44	#5	9'-2"	421	970	12.87
2	"	2'-10"	"	"	"	"	32'-10"	32'-6"	49	"	"	"	32'-6"	136	50	"	"	361	50	"	"	478	1112	15.77
3	"	"	"	"	"	"	40'-2"	39'-10"	60	"	"	"	39'-10"	166	56	"	"	404	56	"	"	536	1254	18.66
4	"	"	"	"	"	"	47'-6"	47'-2"	71	"	"	"	47'-2"	197	62	"	"	447	62	"	"	593	1396	21.55
1	60"	~	15"	12"	3'-6"	6'-9"	28'-0"	27'-8"	42	24	10'-9"	97	27'-8"	115	48	#5	7'-5"	371	48	#5	9'-11"	497	1122	15.20
2	"	3'-0"	"	"	"	"	36'-0"	35'-8"	54	"	"	"	35'-8"	149	54	"	"	418	54	"	"	559	1277	18.55
3	"	"	"	"	"	"	44'-0"	43'-8"	66	"	"	"	43'-8"	182	60	"	"	466	60	"	"	621	1430	21.89
4	"	"	"	"	"	"	52'-0"	51'-8"	78	"	"	"	51'-8"	216	66	"	"	511	66	"	"	683	1585	25.24
1	66"	~	15"	12"	3'-9"	7'-3"	30'-6"	30'-2"	45	32	11'-9"	141	30'-2"	126	52	#5	7'-11"	430	52	#5	10'-8"	579	1321	17.72
2	"	3'-1"	"	"	"	"	39'-1"	38'-9"	58	"	"	"	38'-9"	162	58	"	"	479	58	"	"	645	1485	21.49
3	"	"	"	"	"	"	47'-8"	47'-4"	78	"	"	"	47'-4"	198	64	"	"	529	64	"	"	712	1651	25.27
4	"	"	"	"	"	"	56'-3"	55'-11"	84	"	"	"	55'-11"	233	70	"	"	578	70	"	"	779	1815	29.05
1	72"	~	15"	12"	4'-0"	7'-9"	33'-0"	32'-8"	49	32	12'-9"	153	32'-8"	136	56	#5	8'-5"	492	56	#5	11'-5"	667	1497	20.42
2	"	3'-2"	"	"	"	"	42'-2"	41'-10"	63	"	"	"	41'-10"	175	62	"	"	544	62	"	"	738	1673	24.66
3	"	"	"	"	"	"	51'-4"	51'-0"	77	"	"	"	51'-0"	213	68	"	"	597	68	"	"	810	1850	28.89
4	"	"	"	"	"	"	60'-6"	60'-2"	90	"	"	"	60'-2"	251	74	"	"	650	74	"	"	881	2025	33.12

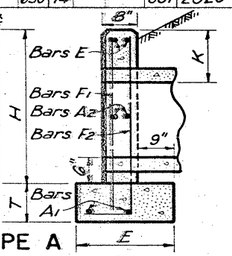
TABLE OF DIMENSIONS AND QUANTITIES FOR TWO TYPE B HEADWALLS

NO. OF PIPES	DIAM. OF PIPES	TABLE OF DIMENSIONS G	K	X	H	Y	W	REINFORCING STEEL AND QUANTITIES FOR TWO HEADWALLS BARS A1-Ax #4 @ 12" ± No	Av Lgth	Wt	BARS B #3 @ 18" ± No	Lgth.	Wt	BARS B1-Bx #3 @ 18" ± No	Av Lgth	Wt	C=2'-0" #4 @12" ± No	Wt	BARS D1-Dx #3 @ 12" ± No	Av Lgth	Wt	BARS E 8~#5 Lgth.	Wt	BARS F No	Size	Lgth.	Wt	BARS G 4~#3 Lgth.	Wt	BARS S 12~#4 Lgth.	Wt	BARS V1-Vx #4 @ 12" ± No	Av Lgth	Wt	BARS W 4~#5 Lgth	Wt	*TOTAL QUANTITIES STEEL LBS.	CONC. C.Y.
1	12"	~	12"	2'-4"	2'-0"	1'-0"	2'-4"	2	2'-8"	4	6	2'-6"	6	~	~	~	4	5	~	~	~	2'-0"	17	8	#4	2'-2"	12	2'-8"	4	8"	5	4	2'-11"	8	1'-8"	7	68	.52
2	"	"	"	4'-2"	"	"	4'-2"	"	4'-6"	6	8	"	8	~	~	~	"	"	~	~	~	3'-10"	32	12	"	"	17	4'-6"	7	"	"	"	"	"	"	"	"	95	.82
3	"	"	"	6'-0"	"	"	6'-0"	"	6'-4"	8	10	"	9	~	~	~	"	"	~	~	~	5'-8"	47	16	"	"	23	6'-4"	10	"	"	"	"	"	"	"	"	122	1.11
4	"	"	"	7'-10"	"	"	7'-10"	"	8'-2"	11	12	"	11	~	~	~	"	"	~	~	~	7'-6"	63	20	"	"	29	8'-2"	12	"	"	"	"	"	"	"	"	151	1.40
1	15"	~	12"	2'-7½"	2'-3"	1'-6"	3'-2½"	4	3'-0"	8	6	3'-0"	7	4	1'-10"	3	8	11	~	~	~	2'-3"	19	8	#4	2'-5"	13	3'-7"	5	1'-3"	10	8	3'-0"	16	2'-3"	9	101	.75
2	"	1'-0"	"	4'-10½"	"	"	5'-5½"	"	5'-3"	14	8	"	9	"	"	"	"	"	~	~	~	4'-6"	38	12	"	"	19	5'-10"	9	"	"	"	"	"	"	"	"	138	1.16
3	"	"	"	7'-1½"	"	"	7'-8½"	"	7'-6"	20	10	"	11	"	"	"	"	"	~	~	~	6'-9"	56	16	"	"	26	8'-1"	12	"	"	"	"	"	"	"	"	174	1.57
4	"	"	"	9'-4½"	"	"	9'-11½"	"	9'-9"	26	14	"	16	"	"	"	"	"	~	~	~	9'-0"	75	20	"	"	32	10'-4"	16	"	"	"	"	"	"	"	"	214	1.98
1	18"	~	12"	2'-11"	2'-6"	2'-0"	4'-0⅛"	4	3'-10"	10	6	3'-6"	8	4	1'-10"	3	8	11	4	1'-0"	2	2'-7"	22	8	#4	2'-8"	14	4'-5"	7	1'-10"	15	12	3'-2"	25	2'-11"	12	129	1.00
2	"	1'-2"	"	5'-7"	"	"	6'-8⅜"	"	6'-6"	17	8	"	11	"	"	"	"	"	"	"	"	5'-3"	44	12	"	"	21	7'-1"	11	"	"	"	"	"	"	"	"	172	1.55
3	"	"	"	8'-3"	"	"	9'-4⅞"	"	9'-2"	25	12	"	16	"	"	"	"	"	"	"	"	7'-11"	66	16	"	"	29	9'-9"	15	"	"	"	"	"	"	"	"	219	2.11
4	"	"	"	10'-11"	"	"	12'-0⅜"	"	11'-10"	32	16	"	21	"	"	"	"	"	"	"	"	10'-7"	88	20	"	"	36	12'-5"	19	"	"	"	"	"	"	"	"	264	2.65
1	24"	~	12"	3'-6"	3'-0"	3'-0"	5'-9¾"	6	5'-0"	20	6	4'-6"	10	4	1'-10"	3	8	11	4	1'-0"	2	3'-2"	26	8	#4	3'-2"	17	6'-2"	9	3'-0"	24	16	3'-5"	37	4'-2"	17	176	1.62
2	"	1'-5"	"	6'-11"	"	"	9'-2¾"	"	8'-5"	34	10	"	17	"	"	"	"	"	"	"	"	6'-7"	55	12	"	"	25	9'-7"	14	"	"	"	"	"	"	"	"	239	2.46
3	"	"	"	10'-4"	"	"	12'-7⅞"	"	11'-10"	47	16	"	27	"	"	"	"	"	"	"	"	9'-10"	82	16	"	"	34	13'-0"	20	"	"	"	"	"	"	"	"	304	3.32
4	"	"	"	13'-9"	"	"	16'-0¾"	"	15'-3"	61	20	"	34	"	"	"	"	"	"	"	"	13'-5"	112	20	"	"	42	16'-5"	25	"	"	"	"	"	"	"	"	368	4.18
1	30"	~	12"	4'-1"	3'-6"	4'-0"	7'-6⅝"	8	6'-2"	33	6	5'-6"	12	8	2'-1"	9	12	16	8	2'-2"	7	3'-9"	31	8	#4	3'-8"	20	7'-11"	12	4'-2"	33	20	3'-8"	49	5'-5"	23	245	2.34
2	"	1'-8"	"	8'-3"	"	"	11'-8⅝"	"	10'-4"	55	12	"	25	"	"	"	"	"	"	"	"	7'-11"	66	16	"	"	39	12'-1"	18	"	"	"	"	"	"	"	"	340	3.58
3	"	"	"	12'-5"	"	"	15'-10⅝"	"	14'-6"	77	18	"	37	"	"	"	"	"	"	"	"	12'-1"	101	24	"	"	59	16'-3"	24	"	"	"	"	"	"	"	"	435	4.80
4	"	"	"	16'-7"	"	"	20'-0⅝"	"	18'-8"	100	24	"	50	"	"	"	"	"	"	"	"	16'-3"	136	32	"	"	78	20'-5"	31	"	"	"	"	"	"	"	"	532	6.04
1	36"	~	12"	4'-8"	4'-0"	5'-0"	9'-3½"	10	7'-4"	49	8	6'-6"	20	8	3'-1"	9	12	16	8	2'-2"	7	4'-4"	36	8	#4	4'-2"	22	9'-8"	15	5'-4"	43	24	3'-11"	63	6'-8"	28	308	3.23
2	"	1'-11"	"	9'-7"	"	"	14'-2½"	"	12'-3"	82	14	"	34	"	"	"	"	"	"	"	"	9'-3"	77	16	"	"	45	14'-7"	22	"	"	"	"	"	"	"	"	426	4.89
3	"	"	"	14'-6"	"	"	19'-1½"	"	17'-2"	115	20	"	49	"	"	"	"	"	"	"	"	14'-2"	118	24	"	"	67	19'-6"	29	"	"	"	"	"	"	"	"	544	6.55
4	"	"	"	19'-5"	"	"	24'-0½"	"	22'-1"	147	28	"	68	"	"	"	"	"	"	"	"	19'-1"	159	32	"	"	89	24'-5"	37	"	"	"	"	"	"	"	"	666	8.22
1	42"	~	12"	5'-3"	4'-6"	6'-0"	11'-0¼"	12	8'-6"	68	8	7'-6"	23	12	4'-5"	20	16	21	12	3'-3"	15	4'-11"	41	8	#4	4'-8"	25	11'-5"	17	6'-5"	51	28	4'-2"	78	7'-11"	33	392	4.23
2	"	2'-2"	"	10'-11"	"	"	16'-8¼"	"	14'-2"	114	16	"	45	"	"	"	"	"	"	"	"	10'-7"	88	16	"	"	50	17'-1"	26	"	"	"	"	"	"	"	"	541	6.40
3	"	"	"	16'-7"	"	"	22'-4¼"	"	19'-10"	159	24	"	68	"	"	"	"	"	"	"	"	16'-3"	136	24	"	"	75	22'-9"	34	"	"	"	"	"	"	"	"	690	8.56
4	"	"	"	22'-3"	"	"	28'-0¼"	"	25'-6"	204	32	"	90	"	"	"	"	"	"	"	"	21'-11"	183	32	"	"	100	28'-5"	43	"	"	"	"	"	"	"	"	838	10.74
1	48"	~	15"	5'-10"	5'-3"	7'-0"	12'-9⅛"	14	9'-8"	90	10	8'-6"	32	12	4'-5"	20	16	21	12	3'-4"	15	5'-6"	46	8	#5	5'-5"	45	13'-2"	20	7'-7"	61	32	4'-5"	94	9'-3"	39	483	5.43
2	"	2'-5"	"	12'-3"	"	"	19'-2⅛"	"	16'-1"	150	18	"	58	"	"	"	"	"	"	"	"	11'-11"	99	16	"	"	90	19'-7"	29	"	"	"	"	"	"	"	"	676	8.25
3	"	"	"	18'-8"	"	"	25'-7⅛"	"	22'-6"	210	26	"	83	"	"	"	"	"	"	"	"	18'-4"	153	24	"	"	136	26'-0"	39	"	"	"	"	"	"	"	"	871	11.07
4	"	"	"	25'-1"	"	"	32'-0⅛"	"	28'-11"	270	36	"	115	"	"	"	"	"	"	"	"	24'-9"	207	32	"	"	181	32'-5"	49	"	"	"	"	"	"	"	"	1072	13.89
1	54"	~	15"	6'-5"	5'-9"	8'-0"	14'-6"	16	10'-10"	116	10	9'-6"	36	12	4'-5"	20	20	27	16	4'-5"	27	6'-1"	51	8	#5	5'-11"	49	14'-10"	22	8'-9"	70	40	4'-8"	125	10'-5"	43	586	6.71
2	"	2'-10"	"	13'-9"	"	"	21'-10"	"	18'-2"	194	20	"	71	"	"	"	"	"	"	"	"	13'-5"	112	20	"	"	123	22'-2"	33	"	"	"	"	"	"	"	"	845	10.28
3	"	"	"	21'-1"	"	"	29'-2"	"	25'-6"	273	30	"	107	"	"	"	"	"	"	"	"	20'-9"	173	32	"	"	198	29'-6"	44	"	"	"	"	"	"	"	"	1107	13.84
4	"	"	"	28'-5"	"	"	36'-6"	"	32'-10"	351	40	"	143	"	"	"	"	"	"	"	"	28'-1"	234	44	"	"	272	36'-10"	55	"	"	"	"	"	"	"	"	1367	17.42
1	60"	~	15"	7'-0"	6'-3"	9'-0"	16'-2⅞"	18	12'-0"	144	10	10'-6"	39	16	5'-9"	35	20	27	16	4'-5"	27	6'-8"	56	8	#5	6'-5"	54	16'-7"	25	9'-11"	80	44	4'-11"	145	11'-8"	49	681	8.11
2	"	3'-0"	"	15'-0"	"	"	24'-2⅞"	"	20'-0"	240	22	"	87	"	"	"	"	"	"	"	"	14'-8"	122	20	"	"	134	25'-7"	38	"	"	"	"	"	"	"	"	984	12.34
3	"	"	"	23'-0"	"	"	32'-2⅞"	"	28'-0"	337	32	"	126	"	"	"	"	"	"	"	"	22'-8"	189	32	"	"	214	32'-7"	49	"	"	"	"	"	"	"	"	1278	16.57
4	"	"	"	31'-0"	"	"	40'-2⅞"	"	36'-5"	438	44	"	174	"	"	"	"	"	"	"	"	30'-8"	256	44	"	"	295	40'-8"	61	"	"	"	"	"	"	"	"	1587	20.82
1	66"	~	15"	7'-4"	6'-9"	10'-0"	17'-11¾"	20	13'-2"	176	12	11'-6"	52	16	5'-9"	35	24	32	20	5'-7"	42	7'-3"	60	8	#5	6'-11"	58	18'-4"	28	11'-1"	89	48	5'-2"	166	13'-0"	54	792	9.65
2	"	3'-1"	"	16'-2"	"	"	21'-9¾"	"	21'-9"	291	24	"	104	"	"	"	"	"	"	"	"	15'-10"	132	20	"	"	144	26'-11"	40	"	"	"	"	"	"	"	"	1129	14.54
3	"	"	"	24'-9"	"	"	33'-1¾"	"	30'-4"	405	34	"	147	"	"	"	"	"	"	"	"	24'-5"	204	32	"	"	231	35'-6"	53	"	"	"	"	"	"	"	"	1458	19.42
4	"	"	"	33'-4"	"	"	43'-2¾"	"	39'-8"	530	46	"	199	"	"	"	"	"	"	"	"	33'-0"	275	44	"	"	318	44'-2"	67	"	"	"	"	"	"	"	"	1807	24.31
1	72"	~	15"	8'-2"	7'-3"	11'-0"	14'-8⅝"	22	14'-4"	211	12	12'-6"	56	16	5'-9"	35	24	32	20	5'-7"	42	7'-10"	65	8	#5	7'-5"	62	20'-1"	30	12'-3"	98	52	5'-5"	188	14'-3"	59	878	11.32
2	"	3'-2"	"	17'-4"	"	"	28'-10⅝"	"	23'-6"	345	24	"	113	"	"	"	"	"	"	"	"	17'-0"	142	20	"	"	155	29'-3"	44	"	"	"	"	"	"	"	"	1253	16.91
3	"	"	"	26'-6"	"	"	38'-0⅝"	"	32'-10"	482	38	"	179	"	"	"	"	"	"	"	"	26'-2"	218	32	"	"	248	38'-5"	58	"	"	"	"	"	"	"	"	1639	22.52
4	"	"	"	35'-8"	"	"	47'-2⅝"	"	41'-10"	615	50	"	235	"	"	"	"	"	"	"	"	35'-4"	295	44	"	"	341	47'-8"	72	"	"	"	"	"	"	"	"	2017	28.11

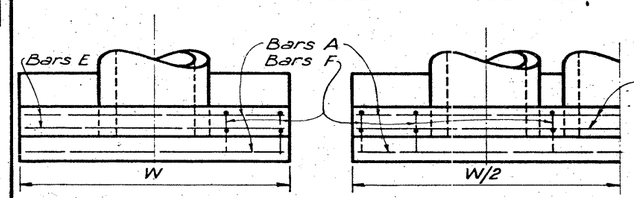


ELEVATION TYPE A

ELEVATION MULTIPLE TYPE A

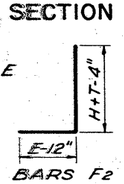


℄ SECTION



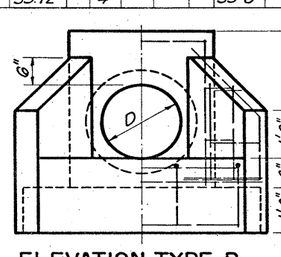
PLAN TYPE A

PLAN MULTIPLE TYPE A

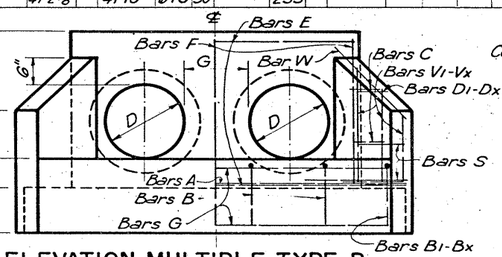


BARS F2

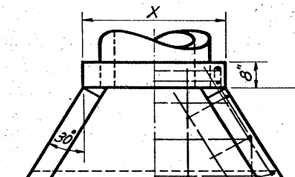
*Concrete Quantities increase slightly for metal pipe installations.



ELEVATION TYPE B



ELEVATION MULTIPLE TYPE B



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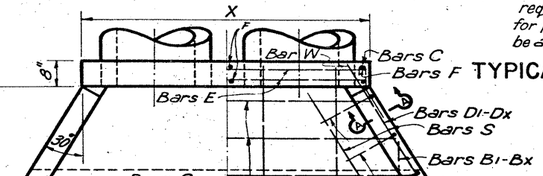
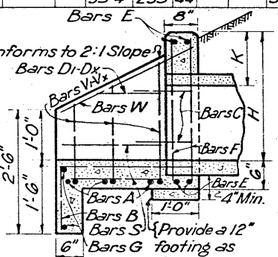
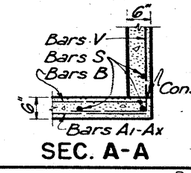


PLAN MULTIPLE TYPE B



required to maintain 4" Min. cover for pipes. Concrete for footing shall be added to Total Quantities shown.

TYPICAL WING ELEVATION



SEC. A-A

$A_1 = W + 4\frac{1}{2}"$
$A_2 = W - 9\frac{3}{8}"$

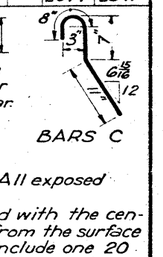
This dimension reduced 1'-1⅛" for each successive bar.

BARS A1-Ax

$B = Y + 4"$
$B_1 = 8"$

This dimension increased 2'-7" for each successive bar.

BARS B & B1-Bx



BARS C

GENERAL NOTES :-

All concrete shall be Class A. All exposed corners shall be chamfered ¾".

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete. Total Quantities include one 20 diameter lap for all bars over 60'-0" in length.

TEXAS HIGHWAY DEPARTMENT

CONCRETE HEADWALLS FOR PIPE CULVERTS

12 TO 72 INCHES IN DIAMETER

CH-11

DN: THD	CK. DN. THD	DW: MDA	CK. DW. KM	TR: OCK	CK. TR. MDA
DRAWING	Original	Rev. 24 Quant. note			
DATE	Feb. 1950				

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I 35-1(18)007, Etc.	92

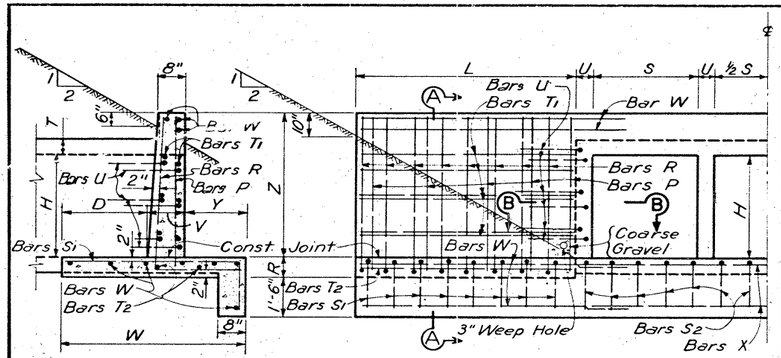
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5 6	1'538	IH 35

Rev. Jan. '59.

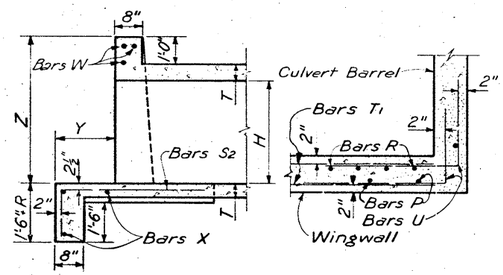
PLAN

PROFILE

DIRECTORY
PLOTTED BY
CHECKED BY
DATE
REVISIONS
NO.
NOTE BOOK

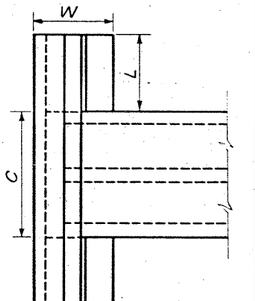


DETAIL OF WINGWALL

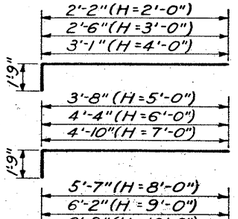


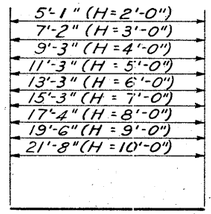
LONGITUDINAL SECTION THRU BOX SHOWING DETAIL OF APRON

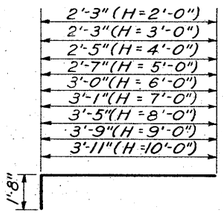
SECTION B-B



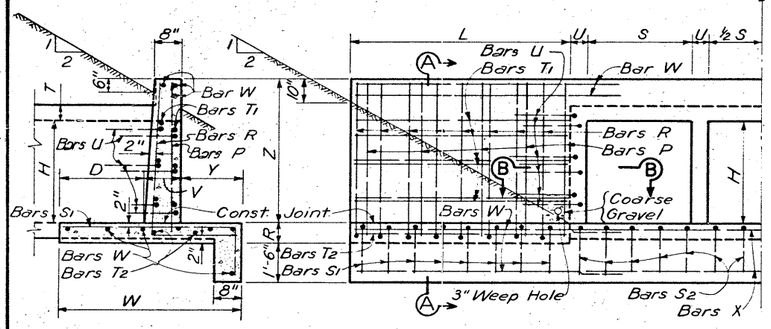
PLAN VIEW OF WINGWALL







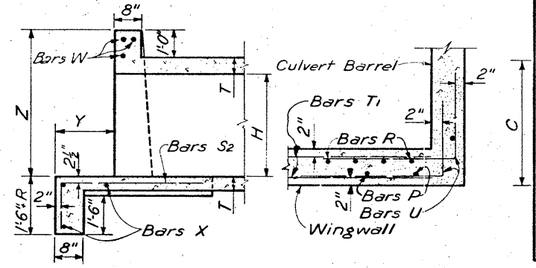
REINFORCING FOR 2 CULVERT APRONS																CULVERT SIZE	TABLE OF DIMENSIONS								TOTAL QUANTITIES (FOR 4 WINGS AND 2 APRONS)									
*BARS X - #4 @12" ±							BARS S2 ~ #4 @12" ±										SLAB	WING							APRON					NUMBER OF SPANS					
NUMBER OF SPANS							NUMBER OF SPANS																		C					2		3		4	
2		3		4		5		6			2		3		4		5		6																	



SECTION A-A

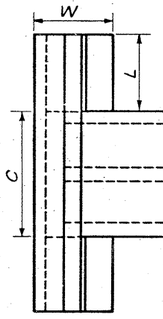
HALF ELEVATION

DETAIL OF WINGWALL

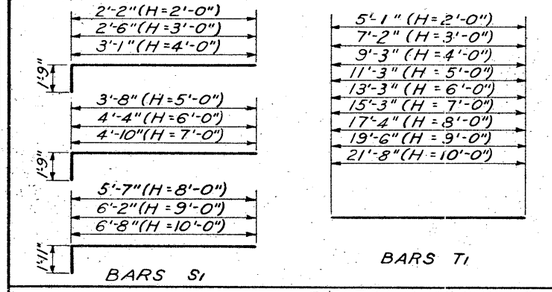


LONGITUDINAL SECTION THRU BOX SHOWING DETAIL OF APRON

SECTION B-B

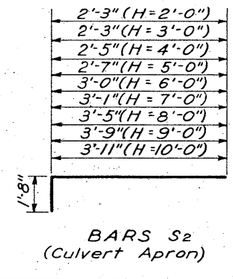


PLAN VIEW OF WINGWALL



BARS S1

BARS T1



BARS S2 (Culvert Apron)

REINFORCING FOR 2 CULVERT APRONS																						CULVERT SIZE	TABLE OF DIMENSIONS												TOTAL QUANTITIES (FOR 4 WINGS AND 2 APRONS)									
*BARS X - #4 @12"±						BARS S2 - #4 @ 12"±																	SLAB	WING					APRON							NUMBER OF SPANS									
NUMBER OF SPANS						NUMBER OF SPANS																							C																	
2		3		4		5		6		LENGTH	2		3		4		5		6									NUMBER OF SPANS							2		3		4		5		6	
WT.		WT.		WT.		WT.		WT.			NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.															CONC	REINF.	CONC	REINF.	CONC	REINF.	CONC	REINF.	CONC	REINF.
																							S	H	T	Z	L	R	W	V	D	Y	2	3	4	5	6	CY	LBS.	CY.	LBS.	CY.	LBS.	CY.	LBS.	CY.	LBS.
31	45	60	75	90		3'-11"	24	63	36	94	46	120	58	152	68	178							5 × 2	MC5-1½2	6"	3'-6"	5'-4"	7"	2'-6"	8"	10"	1'-0"	11'-6"	17'-0"	22'-6"	28'-0"	33'-6"	5.11	592	5.75	637	6.38	678	7.01	725	7.65	766
31	45	60	75	90		3'-11"	24	63	36	94	46	120	58	152	68	178							5 × 3		6"	4'-6"	7'-4"	7"	2'-10"	8"	1'-2"	1'-0"	11'-6"	17'-0"	22'-6"	28'-0"	33'-6"	7.47	883	8.10	928	8.73	969	9.37	1016	10.00	1057
31	45	60	75	90		4'-1"	24	65	36	98	46	125	58	158	68	185							5 × 4		6"	5'-6"	9'-4"	7"	3'-5"	8"	1'-7"	1'-2"	11'-6"	17'-0"	22'-6"	28'-0"	33'-6"	10.61	1433	11.27	1480	11.94	1522	12.61	1570	13.28	1612
47	69	92	114	137		4'-3"	24	68	36	102	46	131	58	165	68	193							5 × 5		6"	6'-6"	11'-4"	7"	4'-0"	8"	2'-0"	1'-4"	11'-9"	17'-4"	22'-11"	28'-6"	34'-1"	14.37	2101	15.08	2157	15.80	2209	16.51	2265	17.22	2316
36	53	71	88	105		3'-11"	28	73	42	110	54	141	68	178	80	209							6 × 3	MC6-1½2	6"	4'-6"	7'-4"	7"	2'-10"	8"	1'-2"	1'-0"	13'-6"	20'-0"	26'-6"	33'-0"	39'-6"	7.70	898	8.45	952	9.19	1001	9.94	1055	10.69	1103
36	53	71	88	105		4'-1"	28	76	42	114	54	147	68	185	80	218							6 × 4		6"	5'-6"	9'-4"	7"	3'-5"	8"	1'-7"	1'-2"	13'-6"	20'-0"	26'-6"	33'-0"	39'-6"	10.85	1449	11.64	1504	12.43	1555	13.22	1610	14.00	1660
55	81	108	134	161		4'-3"	28	79	42	119	54	153	68	193	80	227							6 × 5		6"	6'-6"	11'-4"	7"	4'-0"	8"	2'-0"	1'-4"	13'-9"	20'-4"	26'-11"	33'-6"	40'-1"	14.63	2120	15.47	2186	16.31	2247	17.15	2313	17.99	23 74
55	81	108	134	161		4'-8"	28	87	42	131	54	168	68	212	80	250							6 × 6		6"	7'-6"	13'-4"	7"	4'-8"	8"	2'-3"	1'-9"	13'-9"	20'-4"	26'-11"	33'-6"	40'-1"	19.20	3016	20.14	3086	21.08	3150	22.02	3220	22.96	3285
41	61	81	102	122		3'-11"	32	84	48	126	62	162	78	204	92	241							7 × 3	MC7-1/2t3	6½"	4'-6½"	7'-5"	7"	2'-10"	8"	1'-2"	1'-0"	15'-6"	23'-0"	30'-6"	38'-0"	45'-6"	8.04	914	8.92	976	9.79	1032	10.66	1095	11.53	1152
41	61	81	102	122		4'-1"	32	87	48	131	62	169	78	213	92	251							7 × 4		6½"	5'-6½"	9'-5"	7"	3'-5"	8"	1'-7"	1'-2"	15'-6"	23'-0"	30'-6"	38'-0"	45'-6"	11.24	1465	12.16	1529	13.08	1587	14.00	1652	14.92	1710
63	94	124	154	185		4'-3"	32	91	48	136	62	176	78	221	92	261							7 × 5		6½"	6'-6½"	11'-5"	7"	4'-0"	8"	2'-0"	1'-4"	15'-9"	23'-4"	30'-11"	38'-6"	46'-1"	15.06	2140	16.04	2216	17.02	2286	18.01	2361	18.99	2432
63	94	124	154	185		4'-8"	32	100	48	150	62	193	78	243	92	287							7 × 6		6½"	7'-6½"	13'-5"	7"	4'-8"	8"	2'-3"	1'-9"	15'-9"	23'-4"	30'-11"	38'-6"	46'-1"	19.70	3037	20.81	3118	21.92	3191	23.03	3271	24.14	3346
63	94	124	154	185		4'-9"	32	102	48	152	62	197	78	247	92	292							7 × 7		6½"	8'-6½"	15'-5"	8"	5'-2"	9½"	2'-6½"	1'-10"	15'-9"	23'-4"	30'-11"	38'-6"	46'-1"	26.80	4345	27.97	4426	29.13	4501	30.30	4581	31.47	4657
47	69	92	115	138		4'-1"	36	98	54	147	70	191	88	240	104	283							8 × 4	MC 8-1	6½"	5'-6½"	9'-5"	7"	3'-5"	8"	1'-7"	1'-2"	17'-6"	26'-0"	34'-6"	43'-0"	51'-6"	11.48	1482	12.53	1553	13.57	1620	14.62	1692	15.66	1758
71	106	140	174	209		4'-3"	36	102	54	153	70	199	88	250	104	295							8 × 5		6½"	6'-6½"	11'-5"	7"	4'-0"	8"	2'-0"	1'-4"	17'-9"	26'-4"	34'-11"	43'-6"	52'-1"	15.32	2159	16.43	2245	17.54	2325	18.65	2410	19.77	24.90
71	106	140	174	209		4'-8"	36	112	54	168	70	218	88	275	104	324							8 × 6		6½"	7'-6½"	13'-5"	7"	4'-8"	8"	2'-3"	1'-9"	17'-9"	26'-4"	34'-11"	43'-6"	52'-1"	19.99	3057	21.25	3148	22.50	3232	23.76	3323	25.02	3407
71	106	140	174	209		4'-9"	36	114	54	171	70	222	88	279	104	330							8 × 7		6½"	8'-6½"	15'-5"	8"	5'-2"	9½"	2'-6½"	1'-10"	17'-9"	26'-4"	34'-11"	43'-6"	52'-1"	27.11	4365	28.43	4457	29.75	4542	31.07	4633	32.39	4719
96	143	189	235	281		5'-1"	36	122	54	183	70	238	88	299	104	353							8 × 8		6½"	9'-6½"	17'-5"	9"	5'-9"	10½"	2'-8½"	2'-2"	18'-0"	26'-8"	35'-4"	44'-0"	52'-8"	35.77	6166	37.25	6274	38.74	6375	40.22	6482	41.71	6582
47	69	92	115	138		4'-1"	36	98	54	147	70	191	88	240	104	283							8 × 4	MC 8-2	7"	5'-7"	9'-6"	7"	3'-5"	8"	1'-7"	1'-2"	17'-6"	26'-0"	34'-6"	43'-0"	51'-6"	11.63	1482	12.69	1553	13.75	1620	14.81	1692	15.86	1758
71	106	140	174	209		4'-3"	36	102	54	153	70	199	88	250	104	295							8 × 5		7"	6'-7"	11'-6"	7"	4'-0"	8"	2'-0"	1'-4"	17'-9"	26'-4"	34'-11"	43'-6"	52'-1"	15.49	2159	16.62	2245	17.75	2325	18.88	2410	20.01	2490
71	106	140	174	209		4'-8"	36	112	54	168	70	218	88	275	104	324							8 × 6		7"	7'-7"	13'-6"	7"	4'-8"	8"	2'-3"	1'-9"	17'-9"	26'-4"	34'-11"	43'-6"	52'-1"	20.21	3057	21.50	3148	22.78	3232	24.07	3323	25.35	3407
71	106	140	174	209		4'-9"	36	114	54	171	70	222	88	279	104	330							8 × 7		7"	8'-7"	15'-6"	8"	5'-2"	9½"	2'-6½"	1'-10"	17'-9"	26'-4"	34'-11"	43'-6"	52'-1"	27.37	4365	28.72	4457	30.07	4542	31.43	4633	32.78	4719
96	143	189	235	281		5'-1"	36	122	54	183	70	238	88	299	104	353							8 × 8		7"	9'-7"	17'-6"	9"	5'-9"	10½"	2'-8½"	2'-2"	18'-0"	26'-8"	35'-4"	44'-0"	52'-8"	36.09	6166	37.62	6274	39.14	6375	40.67	6482	42.19	6582
47	69	92	115	138		4'-1"	36	98	54	147	70	191	88	240	104	283							8 × 4	MC 8-3	7½"	5'-7½"	9'-7"	7"	3'-5"	8"	1'-7"	1'-2"	17'-6"	26'-0"	34'-6"	43'-0"	51'-6"	11.78	1482	12.85	1553	13.92	1620	14.99	1692	16.07	1758
71	106	140	174	209		4'-3"	36	102	54	153	70	199	88	250	104	295							8 × 5		7½"	6'-7½"	11'-7"	7"	4'-0"	8"	2'-0"	1'-4"	17'-9"	26'-4"	34'-11"	43'-6"	52'-1"	15.67	2159	16.82	2245	17.97	2325	19.12	2410	20.27	2490
71	106	140	174	209		4'-8"	36	112	54	168	70	218	88	275	104	324							8 × 6		7½"	7'-7½"	13'-7"	7"	4'-8"	8"	2'-3"	1'-9"	17'-9"	26'-4"	34'-11"	43'-6"	52'-1"	20.44	3057	21.75	3148	23.06	3232	24.38	3323	25.69	3407
71	106	140	174	209		4'-9"	36	114	54	171	70	222	88	279	104	330							8 × 7		7½"	8'-7½"	15'-7"	8"	5'-2"	9½"	2'-6½"	1'-10"	17'-9"	26'-4"	34'-11"	43'-6"	52'-1"	27.64	4365	29.02	4457	30.40	4542	31.79	4633	33.17	4719
96	143	189	235	281		5'-1"	36	122	54	183	70	238	88	299	104	353							8 × 8		7½"	9'-7½"	17'-7"	9"	5'-9"	10½"	2'-8½"	2'-2"	18'-0"	26'-8"	35'-4"	44'-0"	52'-8"	36.41	6166	37.98	6274	39.54	6375	41.11	6482	42.67	6582
79	118	156	194	233		4'-3"	40	114	60	170	78	221	98	278	118	335							9 × 5	MC 9-1	7"	6'-7"	11'-6"	7"	4'-0"	8"	2'-0"	1'-4"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	15.76	2179	17.02	2274	18.28	2363	19.54	2458	20.80	2554
79	118	156	194	233		4'-8"	40	125	60	187	78	243	98	306	118	368							9 × 6		7"	7'-7"	13'-6"	7½"	4'-9"	8½"	2'-3⅜"	1'-9"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	21.36	3078	22.82	3179	24.27	3273	25.72	3374	27.18	3475
79	118	156	194	233		4'-9"	40	127	60	190	78	247	98	311	118	374							9 × 7		7"	8'-7"	15'-6"	8½"	5'-4"	9½"	2'-7½"	1'-11"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	28.56	4386	30.13	4488	31.69	4583	33.25	4685	34.81	4787
107	159	210	262	314		5'-1"	40	136	60	204	78	265	98	333	118	400							9 × 8		7"	9'-7"	17'-6"	9½"	6'-0"	11"	2'-11"	2'-2"	20'-0"	29'-8"	39'-4"	49'-0"	58'-8"	38.14	6191	39.86	6311	41.58	6423	43.30	6543	45.02	6662
107	159	210	262	314		5'-5"	40	145	60	217	78	282	98	355	118	427							9 × 9		7"	10'-7"	19'-6"	10"	6'-6"	12⅛"	2'-11½"	2'-6"	20'-0"	29'-8"	39'-4"	49'-0"	58'-8"	48.54	8379	50.42	8503	52.30	8619	54.18	8744	56.06	8868
79	118	156	194	233		4'-3"	40	114	60	170	78	221	98	278	118	335							9 × 5	MC 9-2	8"	6'-8"	11'-8"	7"	4'-0"	8"	2'-0"	1'-4"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	16.13	2179	17.43	2274	18.73	2363	20.03	2458	21.33	2554
79	118	156	194	233		4'-8"	40	125	60	187	78	243	98	306	118	368							9 × 6		8"	7'-8"	13'-8"	7½"	4'-9"	8½"	2'-3⅜"	1'-9"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	21.84	3078	23.35	3179	24.87	3273	26.39	3374	27.91	3475
79	118	156	194	233		4'-9"	40	127	60	190	78	247	98	311	118	374							9 × 7		8"	8'-8"	15'-8"	8½"	5'-4"	9½"	2'-7½"	1'-11"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	29.41	4386	31.09	4488	32.76	4583	34.43	4685	36.11	4787
107	159	210	262	314		5'-1"	40	136	60	204	78	265	98	333	118	400							9 × 8		8"	9'-8"	17'-8"	9½"	6'-0"	11"	2'-11"	2'-2"	20'-0"	29'-8"	39'-4"	49'-0"	58'-8"	38.83	6191	40.64	6311	42.45	6423	44.26	6543	46.07	6662
107	159	210	262	314		5'-5"	40	145	60	217	78	282	98	355	118	427							9 × 9		8"	10'-8"	19'-8"	10"	6'-6"	12⅛"	2'-11½"	2'-6"	20'-0"	29'-8"	39'-4"	49'-0"	58'-8"	49.27	8379	51.81	8503	53.85	8619	55.90	8744	57.94	8868
87	130	172	214	260		4'-8"	44	137	66	206	86	268	108	337	130	406							10 × 6	MC 10-1	7½"	4'-9"	8½"	2'-3½"	1'-9"	21'-9"	32'-4"	42'-11"	53'-6"	64'-1"	21.91	3098	23.55	3210	25.19	3314	26.83	3425	28.47	3540
87	130	172	214	260		4'-9"	44	140	66	209	86	273	108	343	130	412							10 × 7		7½"	8'-7½"	15'-7"	8½"	5'-4"	9½"	2'-7½"	1'-11"	21'-9"	32'-4"	42'-11"	53'-6"	64'-1"	29.18	4407	30.95	4519	32.71	4625	34.48	4737	36.25	4852
118	175	232	289	350		5'-1"	44	149	66	224	86	292	108	366	130	441							10 × 8		7½"	9'-7½"	17'-7"	9½"	6'-0"	11"	2'-11"	2'-2"	22'-0"	32'-8"	43'-4"	54'-0"	64'-8"	38.85	6215	40.79	6347	42.74	6472	44.69	6603	46.64	6739
118	175	232	289	350		5'-5"	44	159	66	239	86	311	108	391	130	471							10 × 9		7½"	10'-7½"	19'-7"	10"	6'-6"	12⅛"	2'-11½"	2'-6"	22'-0"	32'-8"	43'-4"	54'-0"	64'-8"	49.35	8404	51.49	8541	53.62	8670	55.75	8807	57.89	8948
118	175	232	289	350		5'-7"	44	164	66	246	86	321	108	403	130	485							10 × 10		7½"	11'-7½"	21'-7"	11"	7'-0"	13½"	3'-2½"	2'-8"	22'-0"	32'-8"	43'-4"	54'-0"	64'-8"	61.68	10,820	63.94	10,959	66.20	11,091	68.46	11,230	70.72	11,373
87	130	172	214	260		4'-8"	44	137	66	206	86	268	108	337	130	406							10 × 6	MC 10-2	8½"	5'-6½"	9'-5"	7"	3'-5"	8"	1'-7"	1'-2"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	22.40	3098	24.11	3210	25.82	3314	27.54	3425	29.25	3540
87	130	172	214	260		4'-9"	44	140	66	209	86	273	108	343	130	412							10 × 7		8½"	6'-8½"	11'-5"	7"	4'-0"	8"	2'-0"	1'-4"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	29.76	4407	31.61	4519	33.46	4625	35.31	4737	37.16	4852
118	175	232	289	350		5'-1"	44	149	66	224	86	292	108	366	130	441							10 × 8		8½"	7'-8½"	13'-5"	7"	4'-8"	8"	2'-3"	1'-9"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	32.40	6215	34.26	6347	36.12	6472	37.98	6603	39.55	6739
118	175	232	289	350		5'-5"	44	159	66	239	86	311	108	391	130	471							10 × 9		8½"	8'-8½"	15'-5"	8"	5'-2"	9½"	2'-6½"	1'-10"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	35.95	8404	37.89	8541	39.84	8670	41.79	8807	43.74	8948
118	175	232	289	350		5'-7"	44	164	66	246	86	321	108	403	130	485							10 × 10		8½"	9'-8½"	17'-5"	9"	5'-9"	10½"	2'-8½"	2'-2"	22'-0"	32'-8"	43'-4"	54'-0"	64'-8"	50.19	8404	52.44	8541	54.70	8670	56.96	8807	59.21	8948
87	130	172	214	260		4'-8"	44	137	66	206	86	268	108	337	130	406							10 × 6	MC 10-3	8½"	5'-6½"	9'-6"	7"	3'-5"	8"	1'-7"	1'-2"	19'-9"	29'-4"	38'-11"	48'-6"	58'-1"	22.89	3098	24.67	3210	26.46	3314	28.24	3425	30.02	3540
87	130	172	214	260		4'-9"	44	140	66	209	86	273	108	343	130	412							10 × 7		9½"	8'-9½"	15'-7"	8½"	5'-4"	9½"	2'-7½"	1'-11"	21'-9"	32'-4"	42'-11"	53'-6"	64'-1"	30.35	4407	32.28	4519	34.21	4625	36.14	4737	38.07	4852
118	175	232	289	350		5'-1"	44	149	66	224	86	292	108	366	130	441							10 × 8		9½"	9'-9½"	17'-11"	9½"	6'-0"	11"	2'-11"	2'-2"	22'-0"	32'-8"	43'-4"	54'-0"	64'-8"	40.26	6215	42.41	6347	44.56	6472	46.70	6603	48.85	6739
118	175	232	289	350		5'-5"	44	159	66	239	86	311	108	391	130	471							10 × 9		9½"	10'-9½"	19'-11"	10"	6'-6"	12⅛"	2'-11½"	2'-6"	22'-0"	32'-8"	43'-4"	54'-0"	64'-8"	51.03	8404	53.41	8541	55.79	8670	58.16	8807	60.54	8948
118	175	232	289	350		5'-7"	44	164	66	246	86	321	108	403	130	485							10 × 10		9½"	11'-9½"	21'-11"	11"	7'-0"	13⅛"	3'-2½"	2'-8"	22'-0"	32'-8"	43'-4"	54'-0"	64'-8"	63.59	10,820	66.11	10,959	68.63	11,091	71.16	11,230	73.68	11,373

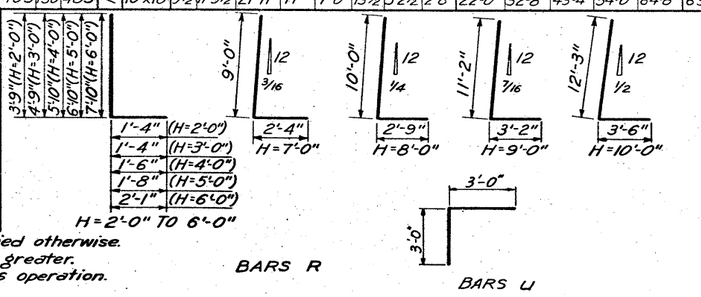
TABLE OF REINFORCING STEEL FOR 4 WINGWALLS

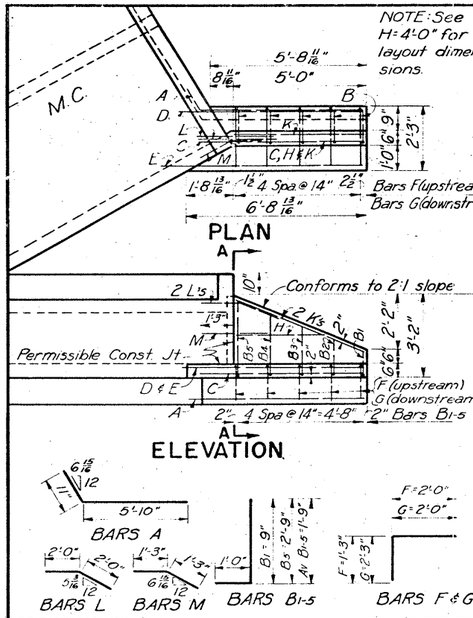
WING SIZE		BARS R					BARS S1					*A BARS T1 @18"			*A1 BARS T2 @12"			BARS U					*A BARS P @18" cc			*A BARS W @12"			TOTAL
H	L	NO.	SIZE	SP.	LGTH	WT.	NO.	SIZE	SP.	LGTH	WT.	NO.	LGTH	WT.	NO.	LGTH	WT.	NO.	SIZE	SP.	LGTH	WT.	NO.	LGTH.	WT.	NO.	LGTH.	WT.	WEIGHT
2'-0"	5'-4"	24	#4	12"	5'-1"	81	24	#4	12"	3'-11"	63	16	5'-1"	54	8	5'-0"	27	16	#5	18"	6'-0"	100	20	3'-9"	50	28	6'-7"	123	498
3'-0"	7'-5"	36	#4	11"	6'-1"	146	36	#4	11"	4'-3"	102	24	7'-2"	115	8	7'-1"	38	24	#5	18"	6'-0"	150	24	4'-9"	76	28	8'-8"	162	789
4'-0"	9'-6"	68	#4	7"	7'-4"	333	68	#4	7"	4'-10"	219	32	9'-3"	198	8	9'-2"	49	32	#5	18"	6'-0"	200	28	5'-9"	108	32	10'-9"	230	1337
5'-0"	11'-6"	68	#5	8"	8'-6"	603	68	#5	8"	5'-5"	384	32	11'-3"	240	12	11'-2"	90	32	#5	18"	6'-0"	200	36	6'-9"	162	36	12'-9"	307	1986
6'-0"	13'-6"	96	#5	7"	9'-11"	993	96	#5	7"	6'-1"	609	40	13'-3"	354	12	13'-2"	106	40	#5	18"	6'-0"	250	40	7'-5"	207	36	14'-9"	355	2874
7'-0"	15'-6"	136	#5	5½"	11'-4"	1607	136	#5	5½"	6'-7"	933	48	15'-3"	489	12	15'-2"	122	48	#5	18"	6'-0"	300	48	8'-5"	281	40	16'-9"	448	4180
8'-0"	17'-7"	132	#6	6½"	12'-9"	2528	132	#6	6½"	7'-6"	1487	48	17'-4"	556	16	17'-3"	184	48	#5	18"	6'-0"	300	52	9'-9"	339	44	18'-10"	554	5948
9'-0"	19'-9"	172	#6	5½"	14'-4"	3702	172	#6	5½"	8'-1"	2087	56	19'-6"	729	16	19'-5"	208	56	#5	18"	6'-0"	350	60	10'-10"	434	44	21'-0"	617	8127
10'-0"	21'-11"	212	#6	5"	15'-9"	5015	212	#6	5"	8'-7"	2732	64	21'-8"	926	16	21'-7"	231	64	#5	18"	6'-0"	401	62	11'-10"	490	48	23'-2"	743	10,538

*NO. BARS X (Lgth. = Dim. "C")

2 Bars when H = 2', 3' & 4'
3 Bars when H = 5', 6' & 7'
4 Bars when H = 8', 9' & 10'

GENERAL NOTES: All concrete shall be Class A. Chamfer all exposed corners ¾" unless specified otherwise. All dimensions relating to reinforcing steel are to centers of bars. Provide Weep holes for H = 5'-0" and greater. The bottom slab of the barrel, wing footings and toewalls shall be placed in one continuous operation.

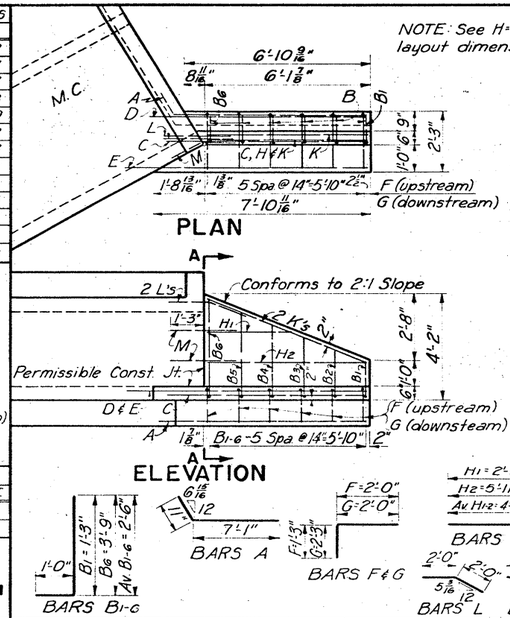

3'9" (H = 2'-0")
4'9" (H = 3'-0")
5'10" (H = 4'-0")
6'10" (H = 5'-0")
7'10" (H = 6'-0")
1'-4" (H = 2'-0")
1'-4" (H = 3'-0")
1'-6" (H = 4'-0")
1'-8" (H = 5'-0")
2'-1" (H = 6'-0")
H = 2'-0" TO 6'-0"
9'-0"
12
3/16
2'-4"
H = 7'-



BILL OF REINF. STEEL - 4 WINGS					
BAR	NO.	SIZE	SPA.	LGTH.	WT.
A	4	#4	~	6'-9"	18
B1-5	20	#4	14"	Av 2'-9"	37
C	4	#4	~	6'-3"	17
D	4	#4	~	6'-9"	18
E	4	#4	~	7'-5"	20
F	10	#4	14"	3'-3"	22
G	10	#4	14"	4'-3"	28
H	4	#4	~	3'-1"	8
K	8	#4	~	5'-2"	28
L	8	#5	~	4'-0"	33
M	4	#4	~	2'-6"	7
TOTAL FOR 4 WINGS					236

ESTIMATED QUANT. - 4 WINGS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	2.16
REINF. STEEL	LB.	236

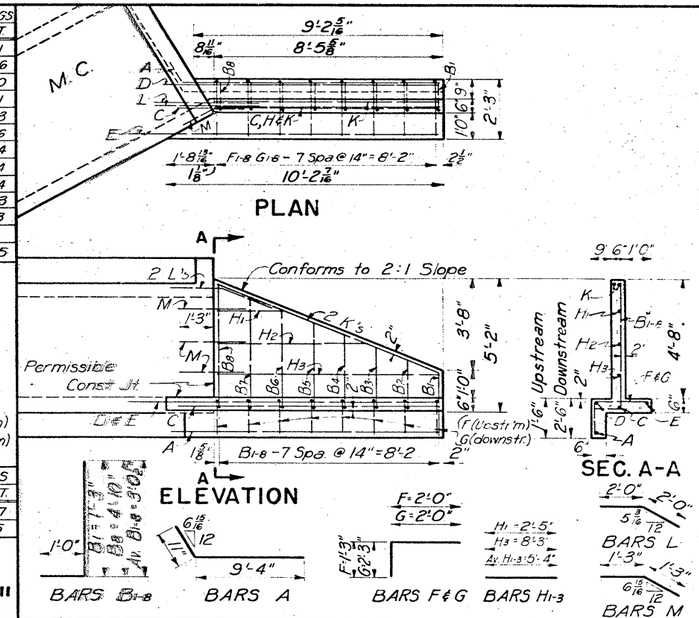
WINGWALLS FOR M.C.'s.
H = 2'-0"



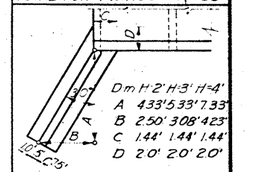
BILL OF REINF. STEEL - 4 WINGS					
BAR	NO.	SIZE	SPA.	LGTH.	WT.
A	4	#4	~	8'-0"	21
B1-6	24	#4	14"	Av 3'-6"	56
C	4	#4	~	7'-5"	20
D	4	#4	~	7'-11"	21
E	4	#4	~	8'-7"	23
F	12	#4	14"	3'-3"	26
G	12	#4	14"	4'-3"	34
H1-2	8	#4	15"	Av 4'-5"	24
K	8	#4	~	6'-5"	34
L	8	#5	~	4'-0"	33
M	8	#4	15"	2'-6"	13
TOTAL FOR 4 WINGS					305

ESTIMATED QUANT. - 4 WINGS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	2.97
REINF. STEEL	LB.	305

WINGWALLS FOR M.C.'s.
H = 3'-0"

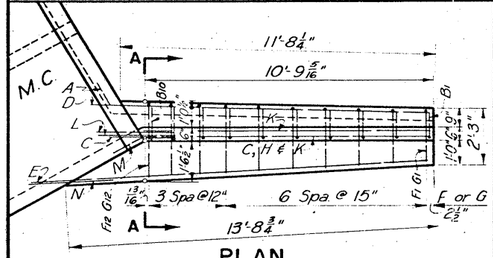


BILL OF REINF. STEEL - 4 WINGS					
BAR	NO.	SIZE	SPA.	LGTH.	WT.
A	4	#4	~	8'-0"	21
B1-8	32	#4	14"	Av 4'-0"	86
C	4	#4	~	9'-8"	26
D	4	#4	~	10'-2"	27
E	4	#5	~	11'-5"	48
F	16	#4	14"	3'-3"	35
G	16	#4	14"	4'-3"	45
H1-3	12	#4	15"	Av 5'-4"	43
K	8	#5	~	9'-0"	75
L	8	#5	~	4'-0"	33
M	12	#4	15"	2'-6"	20
TOTAL FOR 4 WINGS					465

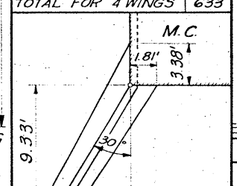


ESTIMATED QUANT. - 4 WINGS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	4.34
REINF. STEEL	LB.	465

WINGWALLS FOR M.C.'s.
H = 4'-0"

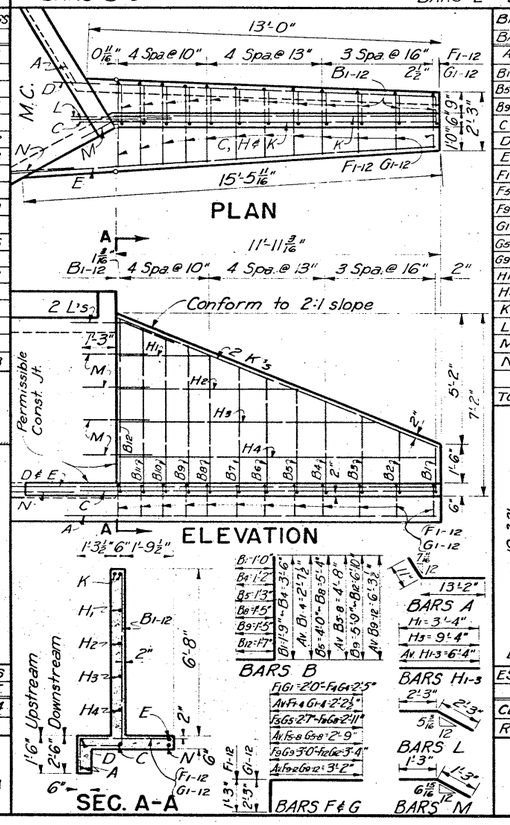


BILL OF REINF. STEEL - 4 WINGS					
BAR	NO.	SIZE	SPA.	LGTH.	WT.
A	4	#4	~	12'-9"	34
B1-7	28	#4	15"	Av 3'-11"	73
B8-10	12	#4	12"	Av 6'-7"	53
C	4	#4	~	12'-0"	32
D	4	#4	~	12'-8"	34
E	4	#5	~	14'-10"	62
F1-7	14	#4	15"	Av 3'-6"	33
F8-10	6	#4	12"	Av 4'-0"	16
G1-7	14	#4	15"	Av 4'-6"	42
G8-10	6	#4	12"	Av 5'-0"	20
H1-3	12	#4	18"	Av 6'-5"	51
K	8	#5	~	11'-6"	96
L	8	#6	~	4'-6"	51
M	12	#4	18"	2'-6"	20
N	4	#5	~	3'-2"	13
TOTAL FOR 4 WINGS					633

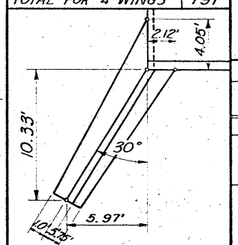


ESTIMATED QUANT. - 4 WINGS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	6.34
REINF. STEEL	LB.	633

WINGWALLS FOR M.C's
H = 5'-0"

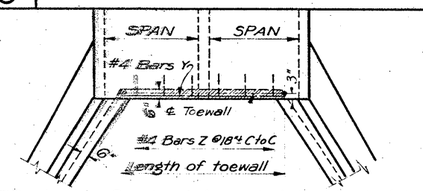


BILL OF REINF. STEEL - 4 WINGS					
BAR	NO.	SIZE	SPA.	LGTH.	WT.
A	4	#4	~	14'-1"	38
B1-4	16	#4	16"	Av 3'-8"	39
B5-8	16	#4	13"	Av 6'-0"	64
B9-12	16	#4	10"	Av 7'-9"	83
C	4	#4	~	13'-2"	35
D	4	#4	~	14'-0"	37
E	4	#5	~	16'-9"	70
F1-4	8	#4	16"	Av 3'-5"	18
F5-8	8	#4	13"	Av 4'-0"	21
F9-12	8	#4	10"	Av 4'-5"	24
G1-4	8	#4	16"	Av 4'-5"	24
G5-8	8	#4	13"	Av 5'-0"	27
G9-12	8	#4	10"	Av 5'-5"	29
H1-3	12	#4	16"	Av 6'-4"	51
H4	4	#4	~	11'-8"	31
K	8	#5	~	12'-8"	106
L	8	#6	~	4'-6"	54
M	16	#4	16"	2'-6"	27
N	4	#5	~	3'-2"	13
TOTAL FOR 4 WINGS					791



ESTIMATED QUANT. - 4 WINGS		
ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	7.95
REINF. STEEL	LB.	791

WINGWALLS FOR M.C's.
H = 6'-0"



NOTE: Limits of culvert toewall shown by hatched area on above sketch. Length measured along ℄ of wall.

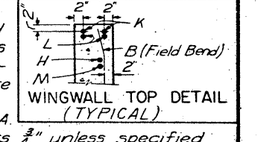
PLAN SHOWING TYPICAL REINFORCING FOR CULVERT TOEWALLS

SEC. THRU TOEWALL BARS Z

TABLE OF TOEWALL LENGTHS FOR M.C.'s

WING WALL	SPAN	LENGTH				
		2 SPANS	3 SPANS	4 SPANS	5 SPANS	6 SPANS
H=2'-0"	5'-0"	9'-5 3/4"	14'-11 3/4"	20'-5 3/4"	25'-11 3/4"	31'-5 3/4"
H=3'-0"	5'-0"	9'-5 3/4"	14'-11 3/4"	20'-5 3/4"	25'-11 3/4"	31'-5 3/4"
	6'-0"	11'-5 3/4"	17'-11 3/4"	24'-5 3/4"	30'-11 3/4"	37'-5 3/4"
	7'-0"	13'-5 3/4"	20'-11 3/4"	28'-5 3/4"	35'-11 3/4"	43'-5 3/4"
H=4'-0"	5'-0"	9'-5 3/4"	14'-11 3/4"	20'-5 3/4"	25'-11 3/4"	31'-5 3/4"
	6'-0"	11'-5 3/4"	17'-11 3/4"	24'-5 3/4"	30'-11 3/4"	37'-5 3/4"
	7'-0"	13'-5 3/4"	20'-11 3/4"	28'-5 3/4"	35'-11 3/4"	43'-5 3/4"
	8'-0"	15'-5 3/4"	23'-11 3/4"	32'-5 3/4"	40'-11 3/4"	49'-5 3/4"
H=5'-0"	5'-0"	8'-11 7/8"	14'-6 7/8"	20'-1 7/8"	25'-8 3/4"	31'-3 3/4"
	6'-0"	10'-11 7/8"	17'-6 7/8"	24'-1 7/8"	30'-8 3/4"	37'-3 3/4"
	7'-0"	12'-11 7/8"	20'-6 7/8"	28'-1 7/8"	35'-8 3/4"	43'-3 3/4"
	8'-0"	14'-11 7/8"	23'-6 7/8"	32'-1 7/8"	40'-8 3/4"	49'-3 3/4"
	9'-0"	16'-11 7/8"	26'-6 7/8"	36'-1 7/8"	45'-8 3/4"	55'-3 7/8"
	6'-0"	10'-4 7/8"	16'-11 7/8"	23'-6 7/8"	30'-1 7/8"	36'-8 1/4"
H=6'-0"	7'-0"	12'-4 7/8"	19'-11 7/8"	27'-6 7/8"	35'-1 7/8"	42'-8 1/4"
	8'-0"	14'-4 7/8"	22'-11 7/8"	31'-6 7/8"	40'-1 7/8"	48'-8 1/4"
	9'-0"	16'-4 7/8"	25'-11 7/8"	35'-6 7/8"	45'-1 7/8"	54'-8 1/4"
	10'-0"	18'-4 7/8"	28'-11 7/8"	39'-6 7/8"	50'-1 7/8"	60'-8 1/4"

GENERAL NOTES:-
DESIGN:- Wing Walls designed in accordance with Rankine's theory of retaining wall design. Elements of design are shown on sketch at right.
All concrete shall be Class A.
Chamfer all exposed corners 3/4" unless specified otherwise.
All dimensions relating to reinforcing steel are to centers of bars.
Toe walls for culvert and wing walls shall be omitted when structure is founded on solid rock.

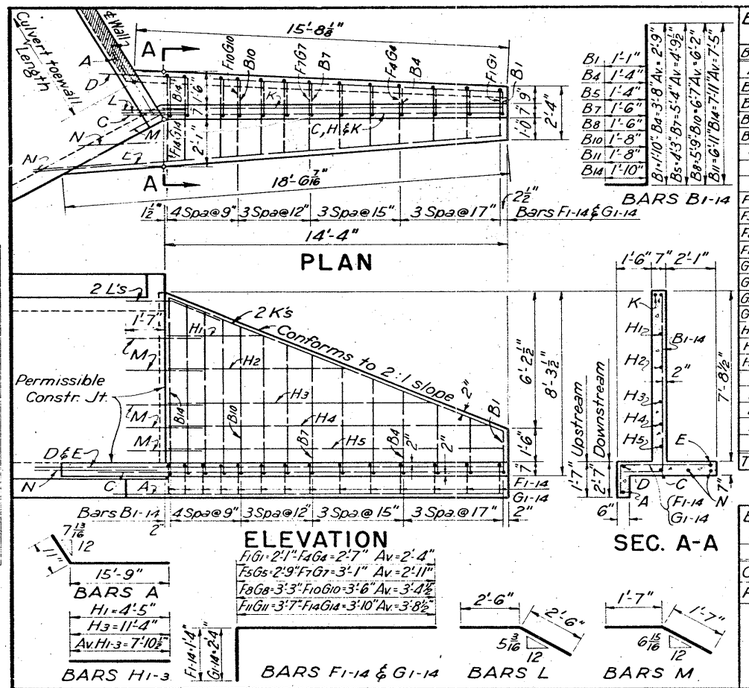


TEXAS HIGHWAY DEPARTMENT

FLARED WINGWALLS FOR MULTIPLE CULVERTS H = 2'-0" TO 6'-0" INCL.

MCW-F1

DN.: A.B.L.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.		SHEET NO.
CK.DN.: T.J.W.	Original	Aug. 1948					
DW.: A.B.L.	Rev. 12-58 - Dwgn for H=5'-0"		6	TEXAS	I 35-1(18)007 Etc.		94
CK.DW.: K.M.	Rev. Jan. 1959						
TR.: C.W.W.	Rev. Nov. 1964		STATE DIST. NO.	COUNTY	CONTROL NO.	SECT'N NO.	JOB NO.	HIGHWAY NO.
CK.TR.: M.D.A.			21	WEBB	18	5 6	'38	IH 35



BILL OF REINF. STEEL FOR 4 WINGWALLS

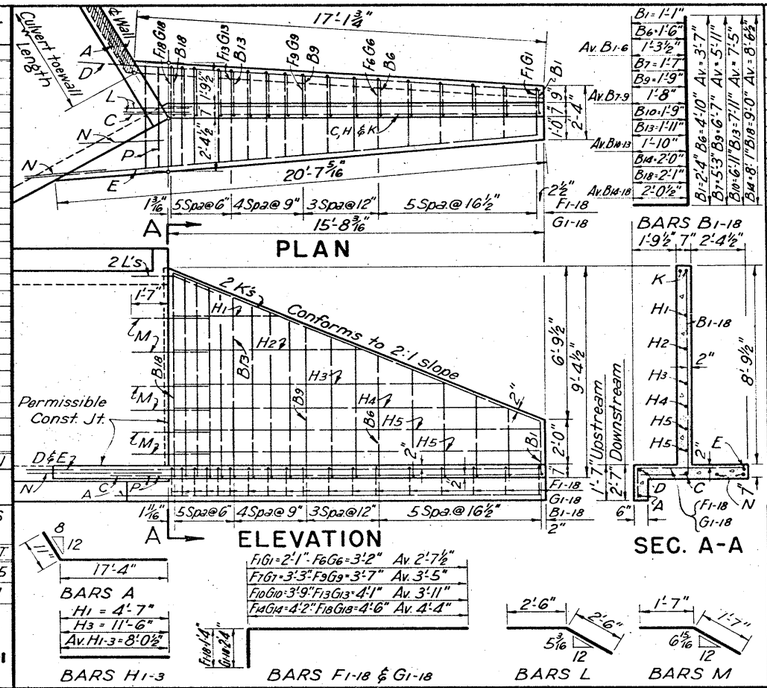
BAR	NO.	SIZE	SPAC	LGTH	WT
A	4	#4	~	16'-8"	45
B1-4	16	#4	17"	Av 3'-11"	42
B5-7	12	#4	15"	Av 6'-2"	49
B8-10	12	#4	12"	Av 7'-9"	62
B11-14	16	#4	9"	Av 9'-2"	98
C	4	#5	~	16'-0"	67
D	4	#5	~	17'-0"	71
E	4	#5	~	19'-7"	82
F1-4	8	#4	17"	Av 3'-8"	20
F5-7	6	#4	15"	Av 4'-3"	17
F8-10	6	#4	12"	Av 4'-8"	19
F11-14	8	#4	9"	Av 5'-0"	27
G1-4	8	#4	17"	Av 4'-8"	25
G5-7	6	#4	15"	Av 5'-3"	21
G8-10	6	#4	12"	Av 5'-8"	23
G11-14	8	#4	9"	Av 6'-0"	32
H1-3	12	#4	18"	Av 7'-10"	63
H4	4	#4	12"	13'-8"	37
H5	4	#4	12"	14'-1"	38
K	8	#5	~	15'-5"	129
L	8	#7	~	5'-0"	82
M	20	#5	12&18	3'-2"	66
N	8	#5	~	3'-2"	26
TOTAL FOR 4 WINGS					1,141

B1 1'-1" B4 1'-4" B5 1'-4" B7 1'-6" B8 1'-6" B10 1'-8" B11 1'-8" B14 1'-10"
B1-4 1'-10" Ba=3'-8" Av. 2'-9"
B5-7 3'-3" Ba=5'-4" Av. 4'-3½"
B8-10 5'-9" Ba=6'-7" Av. 6'-2"
B11-14 6'-11" Ba=7'-11" Av. 7'-5"

ESTIMATED QUANTITIES FOR 4 WINGWALLS

ITEM	UNIT	QUANT
CL. A CONCRETE	C.Y.	12.05
REINF. STEEL	LB.	1,141

WINGWALLS FOR M.C's. H = 7'-0"



BILL OF REINF. STEEL FOR 4 WINGWALLS

BAR	NO.	SIZE	SPAC	LGTH	WT.
A	4	#4	~	18'-2"	49
B1-6	24	#4	16½"	Av 4'-10"	77
B7-9	12	#4	12"	Av 7'-7"	61
B10-13	16	#4	9"	Av 9'-3"	99
B14-18	20	#4	6"	Av 10'-7"	141
C	4	#5	~	17'-3"	72
D	4	#5	~	18'-6"	77
E	4	#5	~	21'-8"	90
F1-6	12	#4	16½"	Av 3'-11"	31
F7-9	6	#4	12"	Av 4'-9"	19
F10-13	8	#4	9"	Av 5'-3"	28
F14-18	10	#4	6"	Av 5'-8"	38
G1-6	12	#4	16½"	Av 4'-11"	39
G7-9	6	#4	12"	Av 5'-9"	23
G10-13	8	#4	9"	Av 6'-3"	33
G14-18	10	#4	6"	Av 6'-8"	45
H1-3	12	#4	18"	Av 8'-0"	64
H4	4	#4	12"	13'-10"	37
H5	8	#4	12"	15'-5"	82
K	8	#5	~	16'-9"	140
L	8	#7	~	5'-0"	82
M	24	#5	12&18	3'-2"	79
N	8	#5	~	3'-2"	26
P	8	#5	6"	4'-7"	38
TOTAL FOR 4 WINGS					1470

B1 1'-1" B6 1'-6" 1'-3½" B7 1'-7" B9 1'-9" 1'-8" B10 1'-9" B13 1'-11" 1'-10" B14 2'-0" B18 2'-1"
B1-6 2'-4" Ba=4'-10" Av. 3'-7"
B7-9 3'-1" Ba=5'-11" Av. 5'-5"
B10-13 4'-1" Ba=6'-7" Av. 7'-5"
B14-18 5'-3" Ba=8'-6" Av. 9'-0"

ESTIMATED QUANTITIES FOR 4 WINGWALLS

ITEM	UNIT	QUANT
CL. A CONCRETE	C.Y.	14.78
REINF. STEEL	LB.	1,470

WINGWALLS FOR M.C's. H = 8'-0"

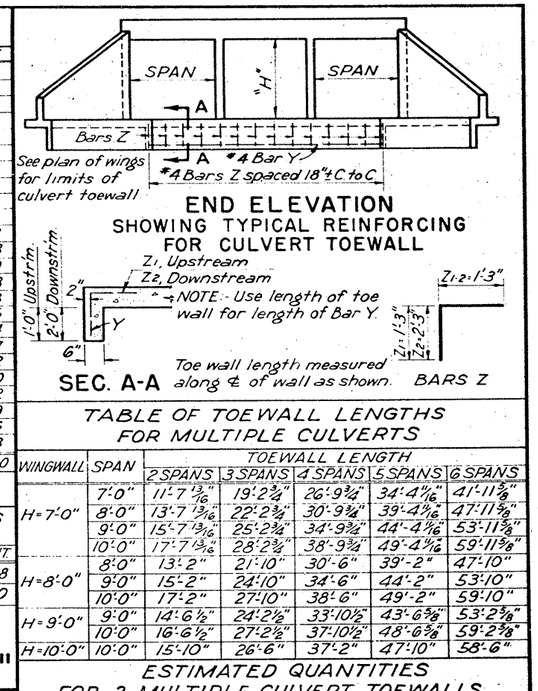
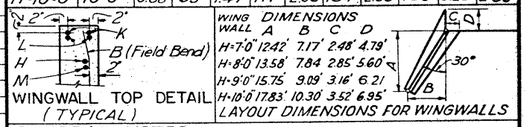


TABLE OF TOEWALL LENGTHS FOR MULTIPLE CULVERTS

WINGWALL	SPAN	TOEWALL LENGTH 2 SPANS	3 SPANS	4 SPANS	5 SPANS	6 SPANS
H=7'-0"	7'-0"	11'-7 13/16"	19'-2 1/4"	26'-9 3/4"	34'-4 5/16"	41'-11 7/8"
	8'-0"	13'-7 13/16"	22'-2 3/4"	30'-9 3/4"	39'-4 5/16"	47'-11 7/8"
	9'-0"	15'-7 13/16"	25'-2 3/4"	34'-9 3/4"	44'-4 5/16"	53'-11 7/8"
	10'-0"	17'-7 13/16"	28'-2 3/4"	38'-9 3/4"	49'-4 5/16"	59'-11 7/8"
H=8'-0"	8'-0"	13'-2"	21'-10"	30'-6"	39'-2"	47'-10"
	9'-0"	15'-2"	24'-10"	34'-6"	44'-2"	53'-10"
	10'-0"	17'-2"	27'-10"	38'-6"	49'-2"	59'-10"
H=9'-0"	9'-0"	14'-6 1/2"	24'-2 1/2"	33'-10 1/2"	43'-6 3/8"	53'-2 3/8"
	10'-0"	16'-6 1/2"	27'-2 1/2"	37'-10 1/2"	48'-6 3/8"	59'-2 3/8"
H=10'-0"	10'-0"	15'-10"	26'-6"	37'-2"	47'-10"	58'-6"

ESTIMATED QUANTITIES FOR 2 MULTIPLE CULVERT TOEWALLS

WING WALL	SPAN LENGTH	2 SPANS CONC. C.Y.	2 SPANS REINF. LB.	3 SPANS CONC. C.Y.	3 SPANS REINF. LB.	4 SPANS CONC. C.Y.	4 SPANS REINF. LB.	5 SPANS CONC. C.Y.	5 SPANS REINF. LB.	6 SPANS CONC. C.Y.	6 SPANS REINF. LB.
H=7'-0"	7'-0"	0.65	52	1.07	82	1.49	112	1.91	142	2.33	172
	8'-0"	0.76	58	1.24	94	1.71	129	2.19	161	2.68	196
	9'-0"	0.87	65	1.40	106	1.93	143	2.47	183	3.00	221
	10'-0"	0.98	76	1.57	118	2.16	160	2.74	202	3.33	244
H=8'-0"	8'-0"	0.73	58	1.21	93	1.69	125	2.18	160	2.66	196
	9'-0"	0.84	64	1.38	105	1.94	142	2.45	179	2.99	222
	10'-0"	0.95	71	1.55	117	2.14	159	2.73	201	3.32	244
H=9'-0"	9'-0"	0.81	63	1.35	100	1.88	141	2.42	178	2.96	215
	10'-0"	0.92	70	1.51	112	2.10	155	2.70	196	3.29	240
H=10'-0"	10'-0"	0.88	69	1.47	111	2.06	154	2.66	196	3.25	239



GENERAL NOTES:-

DESIGN: Wing Walls designed in accordance with Rankine's theory of retaining wall design. Elements of design shown on sketch above.

All concrete shall be Class A. Chamfer all exposed corners ¾" unless specified otherwise.

All dimensions relating to reinforcing steel are to centers of bars.

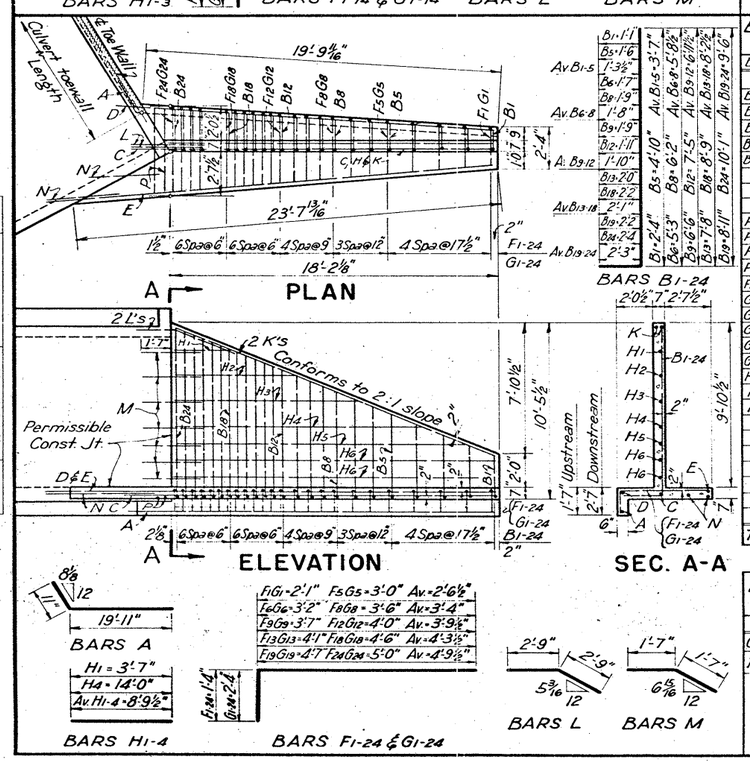
Toewalls for culverts and wingwalls shall be omitted when structure is founded on solid rock.

TEXAS HIGHWAY DEPARTMENT

FLARED WINGWALLS

FOR MULTIPLE CULVERTS H = 7'-0" TO 10'-0" INCL.

MCW-F2



BILL OF REINF. STEEL FOR 4 WINGWALLS

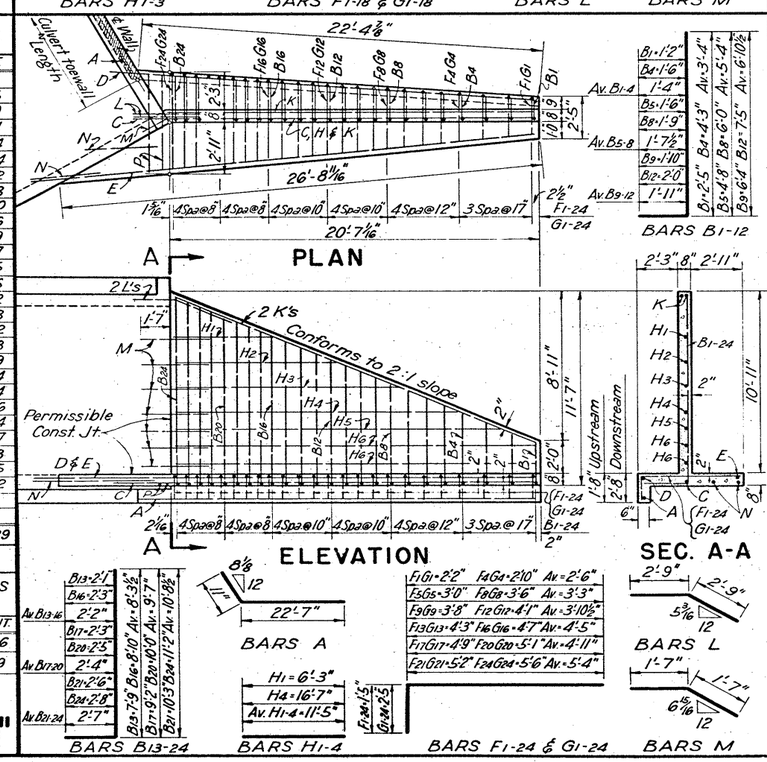
BAR	NO.	SIZE	SPAC	LGTH.	WT.
A	4	#4	~	20'-10"	56
B1-5	20	#4	17½"	Av 4'-10"	65
B6-8	12	#4	12"	Av. 7'-4"	59
B9-12	16	#4	9"	Av 8'-9"	94
B13-18	24	#4	6"	Av 10'-3"	164
B19-24	24	#5	6"	Av 11'-9"	294
C	4	#5	~	19'-9"	82
D	4	#5	~	21'-2"	88
E	4	#6	~	25'-0"	150
F1-5	10	#4	17½"	Av 3'-10"	26
F6-8	6	#4	12"	Av 4'-8"	19
F9-12	8	#4	9"	Av 5'-1"	27
F13-18	12	#4	6"	Av 5'-7"	45
F19-24	12	#5	6"	Av 6'-1"	76
G1-5	10	#4	17½"	Av 4'-10"	32
G6-8	6	#4	12"	Av 5'-8"	23
G9-12	8	#4	9"	Av 6'-1"	32
G13-18	12	#4	6"	Av 6'-7"	53
G19-24	12	#5	6"	Av 7'-1"	89
H1-4	16	#4	18"	Av 8'-9"	94
H-5	4	#4	12"	16'-4"	44
H-6	8	#4	12"	17'-11"	96
K	8	#6	~	19'-6"	234
L	8	#8	~	5'-6"	117
M	28	#5	12&18	3'-2"	93
N	8	#6		3'-9"	45
P	8	#5	6"	5'-1"	42
TOTAL FOR 4 WINGS					2,239

B1 1'-2" B4 1'-6" 1'-4" B5 1'-6" B8 1'-9" 1'-7½" B9 1'-10" B12 1'-11" 2'-0"
B1-4 2'-5" Ba=4'-3" Av. 3'-4"
B5-8 3'-4" Ba=6'-0" Av. 5'-4"
B9-12 4'-4" Ba=7'-5" Av. 6'-10½"
B13-18 5'-2" Ba=8'-9" Av. 8'-3"
B19-24 6'-4" Ba=10'-1" Av. 9'-6"

ESTIMATED QUANTITIES FOR 4 WINGWALLS

ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	18.36
REINF. STEEL	LB.	2,239

WINGWALLS FOR M.C's. H = 9'-0"



BILL OF REINF. STEEL FOR 4 WINGWALLS

BAR	NO.	SIZE	SPAC	LGTH.	WT.
A	4	#4	~	23'-6"	63
B1-4	16	#4	17"	Av 4'-8"	50
B5-8	16	#4	12"	Av 6'-11"	74
B9-12	16	#4	10"	Av 8'-9"	94
B13-16	16	#5	10"	Av 10'-5"	174
B17-20	16	#5	8"	Av 11'-11"	199
B21-24	16	#6	8"	Av 13'-3"	318
C	4	#5	~	22'-2"	92
D	4	#5	~	23'-9"	99
E	4	#6	~	27'-2"	163
F1-4	8	#4	17"	Av 3'-11"	21
F5-8	8	#4	12"	Av 4'-8"	25
F9-12	8	#4	10"	Av 5'-3"	28
F13-16	8	#5	10"	Av 5'-10"	49
F17-20	8	#5	8"	Av 6'-4"	53
F21-24	8	#6	8"	Av 6'-9"	81
G1-4	8	#4	17"	Av 4'-11"	26
G5-8	8	#4	12"	Av 5'-8"	30
G9-12	8	#4	10"	Av 6'-3"	33
G13-16	8	#5	10"	Av 6'-10"	57
G17-20	8	#5	8"	Av 7'-4"	61
G21-24	8	#6	8"	Av 7'-9"	93
H1-4	16	#4	18"	11'-5"	122
H5	4	#4	12"	15'-11"	51
H6	8	#4	12"	20'-4"	109
K	8	#6	~	22'-2"	266
L	8	#8	~	5'-6"	117
M	28	#5	12&18	3'-2"	93
N	8	#6	~	3'-9"	45
P	8	#6	8"	5'-7"	67
TOTAL FOR 4 WINGS					2753

ESTIMATED QUANTITIES FOR 4 WINGWALLS

ITEM	UNIT	QUANT.
CL. A CONCRETE	C.Y.	25.21
REINF. STEEL	LB.	2,753

WINGWALLS FOR M.C's. H = 10'-0"

DN	A.B.L.	DRAWING	DATE
CK.DN	T.J.W.	ORIGINAL	SEPT. 1949
DW	A.B.L.	Rev 6-50 - Dimen. "D"	
CK.DW	M.D.A.	Rev Jan '59	
TR.	O.C.K.	Rev. 11-1-1964	
CK.TR.	M.D.A.		

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I 35-1(18)007, Etc.	95

STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5 6	16 38	IH 35

PLAN — SHEETS NOTED — NOTE BOOK — SHEETS NOTED — NO. — STRUCTURE NOTATIONS CHKD.

PROFILE — SHEETS NOTED — GRADE CHECKED — K-'s NOTED — STRUCTURE NOTATIONS CHKD. — NO. — BY — DATE

BILLS OF REINFORCING STEEL FOR FOUR WINGS

CULVERT HEIGHT	QUANTITIES FOR FOUR WINGS Conc CY	Steel LB	2 Bars As Size #4 Lgth	Wt	2 Bars Al Size #4 Lgth	Wt	Bars Bs1-x No	Size	Spa	Lgth	Wt	Bars Bl1-x No	Size	Spa	Lgth	Wt	2 Bars Gs Size #5 Lgth	Wt	2 Bars Gl Size #5 Lgth	Wt	2 Bars Ds Size #5 Lgth	Wt	2 Bars Dl Size #5 Lgth	Wt	2 Bars Es Size	Lgth	Wt	2 Bars El Size	Lgth	Wt
7'	11.3	1102	14'5"	19	14'8"	22	6	#4	17"	3'8"	15	8	#4	17"	3'11"	21	14'6"	30	16'0"	33	14'3"	31	17'0"	35	#5	18'3"	38	#5	19'6"	41
							6	#4	15"	5'10"	23	6	#4	15"	6'2"	25														
							6	#4	12"	7'6"	30	6	#4	12"	7'9"	31														
							8	#4	9"	9'1"	49	8	#4	9"	9'2"	49														
8'	13.9	1456	15'3"	21	15'8"	24	10	#4	16"	4'11"	33	12	#4	16"	4'10"	39	15'8"	33	17'3"	36	16'1"	34	18'6"	39	#5	20'2"	42	#5	21'6"	45
							6	#4	12"	7'7"	30	6	#4	12"	7'7"	30														
							8	#4	9"	9'2"	49	8	#4	9"	9'3"	49														
							10	#4	7½"	10'7"	71	10	#4	6"	10'7"	71														
9'	17.4	2165	18'1"	24	20'10"	28	8	#4	12"	7'8"	25	10	#4	12"	7'8"	32	17'10"	37	19'9"	41	18'5"	38	21'2"	44	#6	23'3"	70	#6	24'8"	74
							6	#4	12"	7'8"	28	6	#4	12"	7'8"	29														
							8	#4	9"	8'8"	46	8	#4	9"	8'8"	47														
							10	#4	6"	10'7"	67	12	#4	6"	10'7"	82														
							12	#5	6"	11'8"	146	12	#5	6"	11'8"	147														
10'	23.9	2648	20'4"	27	22'6"	31	6	#4	17"	4'11"	18	8	#4	17"	4'8"	25	20'0"	42	22'2"	46	20'7"	43	23'9"	50	#6	26'1"	78	#6	27'8"	83
							8	#4	12"	6'7"	35	8	#4	12"	6'11"	37														
							8	#4	10"	8'7"	46	8	#4	10"	8'9"	47														
							6	#5	10"	10'2"	64	8	#5	10"	10'5"	87														
							8	#5	8"	11'8"	97	8	#5	8"	11'11"	99														
							8	#6	8"	13'2"	158	8	#6	8"	13'3"	159														

CULVERT HEIGHT	2 Bars Es Size #5 Lgth	Wt	Bars Fs1-x No	Size	Spa	Lgth	Wt	Bars Fl1-x No	Size	Spa	Lgth	Wt	Bars Gs1-x No	Size	Spa	Lgth	Wt	Bars Gl1-x No	Size	Spa	Lgth	Wt	Bars Hs1-x Size #4 No	Spa	Lgth	Wt	Bars Hl1-x Size #4 No	Spa	Lgth	Wt
7'			3	#4	17"	3'7"	7	4	#4	17"	3'8"	10	3	#4	12"	4'7"	9	4	#4	17"	4'8"	12	6	18"	5'9"	27	6	18"	4'10"	30
			3	#4	15"	4'2"	8	5	#4	15"	4'3"	9	3	#4	15"	5'2"	10	3	#4	15"	5'3"	11	2	12"	11'0"	16	2	12"	13'5"	18
			3	#4	12"	4'7"	9	5	#4	12"	4'8"	9	3	#4	12"	5'7"	11	3	#4	12"	5'8"	11	2	12"	12'7"	17	2	12"	15'2"	19
			4	#4	9"	5'0"	13	4	#4	9"	5'0"	13	4	#4	9"	6'0"	16	4	#4	9"	6'0"	16								
8'			5	#4	16"	3'8"	13	6	#4	16"	3'11"	16	5	#4	16"	4'10"	16	6	#4	16"	4'11"	20	6	18"	6'4"	28	6	18"	5'7"	31
			3	#4	12"	4'8"	9	3	#4	12"	4'9"	10	3	#4	12"	5'8"	11	3	#4	12"	5'9"	12	2	12"	13'6"	18	2	12"	15'9"	18
			4	#4	9"	5'2"	14	4	#4	9"	5'3"	14	4	#4	9"	6'2"	16	4	#4	9"	6'3"	17	4	12"	13'10"	37	4	12"	15'6"	41
			5	#4	5½"	5'7"	19	5	#4	6"	5'8"	19	5	#4	6"	6'7"	22	5	#4	6"	6'8"	22								
9'	17.6"	4'10"	4	#4	17½"	3'9"	10	5	#4	17½"	3'10"	13	5	#4	17½"	4'9"	13	5	#4	17½"	4'10"	16	8	18"	4'2"	41	8	18"	3'6"	43
			3	#4	12"	4'6"	9	3	#4	12"	5'6"	11	3	#4	12"	6'5"	11	3	#4	12"	5'6"	11	2	12"	14'8"	19	2	12"	16'0"	21
			4	#4	9"	5'0"	13	4	#4	9"	5'1"	14	4	#4	9"	6'0"	16	4	#4	9"	6'1"	16	4	12"	16'1"	43	4	12"	18'0"	48
			6	#4	6"	5'6"	18	6	#4	6"	5'7"	22	5	#4	6"	6'6"	22	6	#4	6"	6'7"	26								
			6	#5	6"	6'0"	38	6	#5	6"	6'1"	38	6	#5	6"	7'0"	44	6	#5	6"	7'1"	44								
10'	20.0"	4'2"	8	#4	17"	3'11"	10	8	#4	17"	4'0"	10	4	#4	17"	4'11"	12	8	#4	17"	4'11"	15	8	18"	3'6"	52	8	18"	2'8"	58
			4	#4	12"	4'7"	12	4	#4	12"	5'7"	15	4	#4	12"	5'8"	15	4	#4	12"	5'8"	15	2	12"	16'6"	22	2	12"	18'5"	25
			5	#4	10"	5'3"	14	4	#4	10"	5'3"	17	4	#4	10"	6'3"	17	4	#4	10"	6'3"	17	4	12"	18'8"	49	4	12"	20'5"	55
			3	#5	10"	5'9"	18	4	#5	10"	5'10"	21	4	#5	10"	6'9"	21	4	#5	10"	6'10"	29								
			4	#5	8"	6'3"	26	4	#5	8"	6'4"	26	4	#5	8"	7'3"	30	4	#5	8"	7'4"	31								
			4	#6	8"	6'9"	41	4	#6	8"	6'9"	41	4	#6	8"	7'9"	47	4	#6	8"	7'9"	47								

CULVERT HEIGHT	4 Bars Ks Size #3 Lgth	Wt	4 Bars Kl Size #7 Lgth	Wt	8 Bars L Size #3 Lgth	Wt	Bars M Size #3 & #5 No	Spa	Lgth	Wt	8 Bars N Size #6 Lgth	Wt	8 Bars P Size #6 & #8 Lgth	Wt
7'	#3 14'3"	59	#7 5'3"	64	#7 5'0"	82	20	6"	6'6"	66	32"	38	—	—
8'	#3 15'7"	65	#5 6'3"	70	#7 5'0"	82	24	6"	7'9"	79	32"	38	47"	55
9'	#3 16'8"	108	#6 19'6"	177	#6 5'6"	117	28	6"	9'2"	92	32"	38	5'1"	61
10'	#3 18'0"	108	#6 20'10"	189	#6 6'0"	117	28	6"	10'5"	92	32"	38	5'7"	67

TABLE OF TOEWALL LENGTHS FOR MUTIPLE CULVERTS

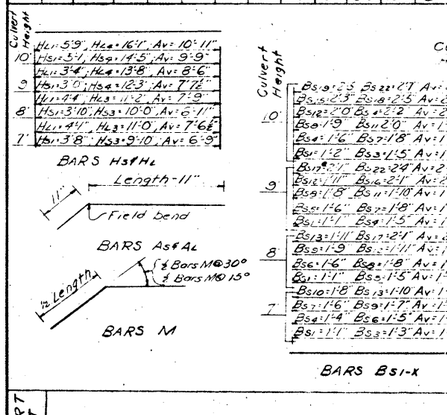
Ht	Span	2 Spans	3 Spans	4 Spans	5 Spans	6 Spans	Add. Span
7'	7	12'-6"	20'-0"	28'-1"	36'-2"	44'-3"	7'-0"
	8	14'-6"	23'-5"	32'-4"	41'-3"	50'-1"	8'-10"
	9	16'-7"	26'-8"	36'-8"	46'-9"	56'-10"	9'-11"
	10	18'-8"	29'-8"	40'-7"	51'-7"	62'-6"	10'-11"
8'	8	14'-10"	23'-11"	32'-10"	41'-9"	50'-8"	8'-11"
	9	16'-11"	26'-11"	36'-11"	46'-11"	56'-11"	10'-0"
	10	18'-11"	29'-11"	40'-10"	51'-10"	62'-9"	11'-0"
9'	9	17'-1"	27'-2"	37'-3"	47'-4"	57'-5"	10'-0"
	10	17'-8"	28'-3"	38'-9"	49'-2"	59'-7"	10'-10"
10'	10	17'-10"	28'-4"	38'-10"	49'-3"	59'-8"	10'-10"

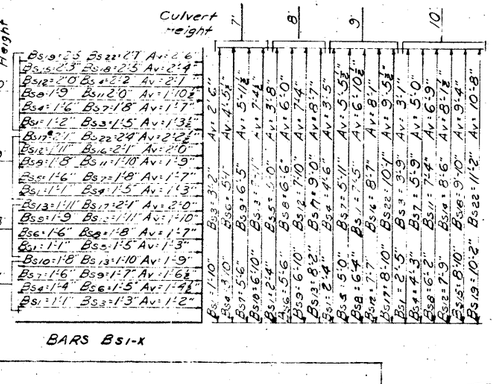
ESTIMATED QUANTITIES FOR 2 MULTIPLE CULVERT TOEWALLS

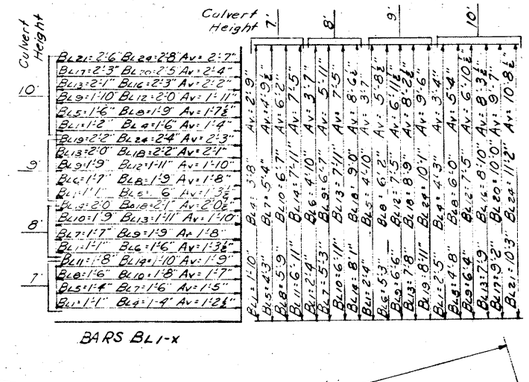
Ht	Span	2 Spans Conc CY	2 Spans Steel Lb	3 Spans Conc CY	3 Spans Steel Lb	4 Spans Conc CY	4 Spans Steel Lb	5 Spans Conc CY	5 Spans Steel Lb	6 Spans Conc CY	6 Spans Steel Lb	Add. Span Conc CY	Add. Span Steel Lb
7'	7'	0.70	53	1.13	83	1.57	114	2.00	148	2.44	180	0.236	30.5
	8'	0.81	59	1.30	95	1.80	131	2.29	168	2.78	204	0.494	36.0
	9'	0.92	70	1.48	108	2.03	149	2.58	191	3.13	228	0.551	41.3
	10'	1.04	77	1.65	120	2.26	167	2.87	210	3.48	253	0.609	42.8
8'	8'	0.79	59	1.28	95	1.76	131	2.28	168	2.78	204	0.459	36.1
	9'	0.90	66	1.46	107	2.01	148	2.57	187	3.13	228	0.556	41.5
	10'	1.02	76	1.63	119	2.24	163	2.86	210	3.47	253	0.614	42.9
9'	9'	0.87	65	1.43	106	1.98	144	2.54	186	3.09	227	0.552	41.4
	10'	0.98	72	1.60	118	2.21	161	2.83	205	3.44	252	0.614	42.9
10'	10'	0.95	71	1.56	118	2.17	160	2.79	204	3.40	247	0.614	42.9

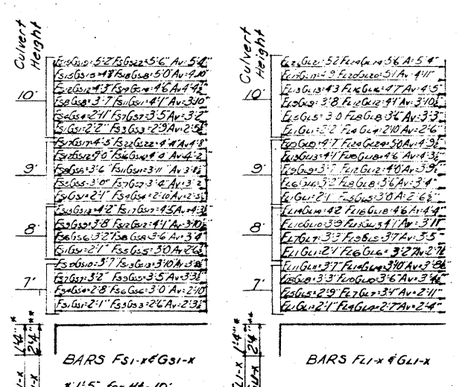
TABLE OF LAYOUT DIMENSIONS

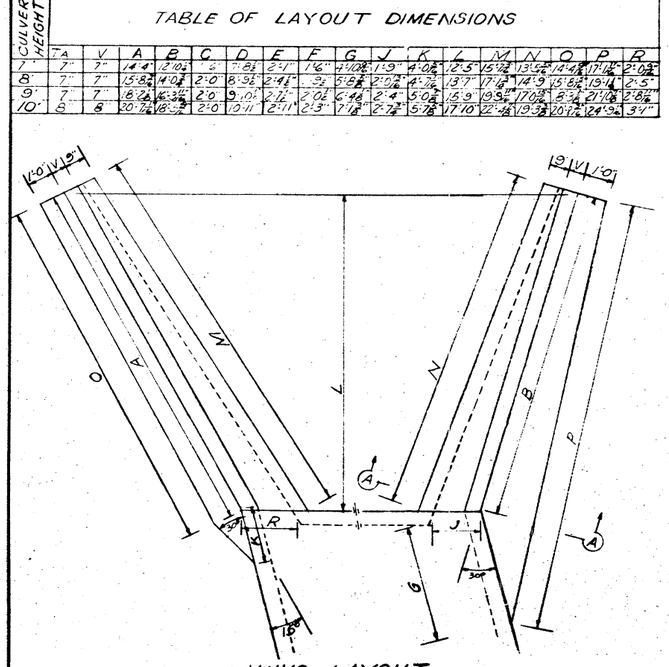
CULVERT HEIGHT	A	V	A	B	C	D	E	F	G	J	K	L	M	N	O	P	R
7'	7"	7"	14'4"	2'10½"	6"	1'8½"	2'-1"	1'6"	4'10½"	1'-9"	4'0½"	2'5"	15'½"	13'5"	14'4"	17'11"	2'0½"
8'	7"	7"	15'8½"	4'0½"	2'0"	8'9½"	2'4½"	9"	5'8½"	2'0½"	4'7½"	3'7"	17'1"	14'9"	15'8½"	19'4"	2'5"
9'	7"	7"	16'8½"	5'-¾"	2'0"	9'10½"	2'7½"	2'0½"	6'-9"	2'4"	5'0½"	5'9"	19'5"	17'0"	16'8½"	21'½"	2'8½"
10'	8"	8"	20'7½"	8'-3"	2'0"	10'11"	2'11"	2'3"	7'3"	2'7½"	5'5½"	7'10"	22'-4½"	19'3"	20'7½"	24'9¾"	3'4"

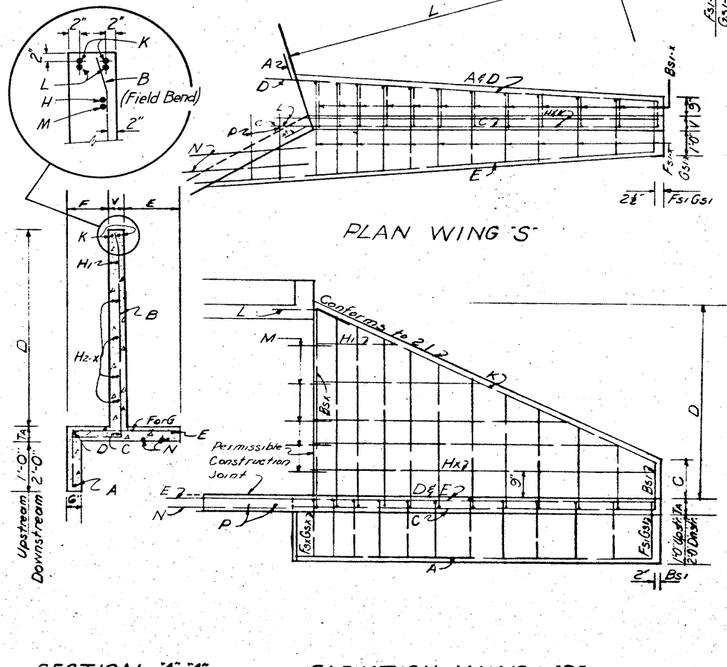


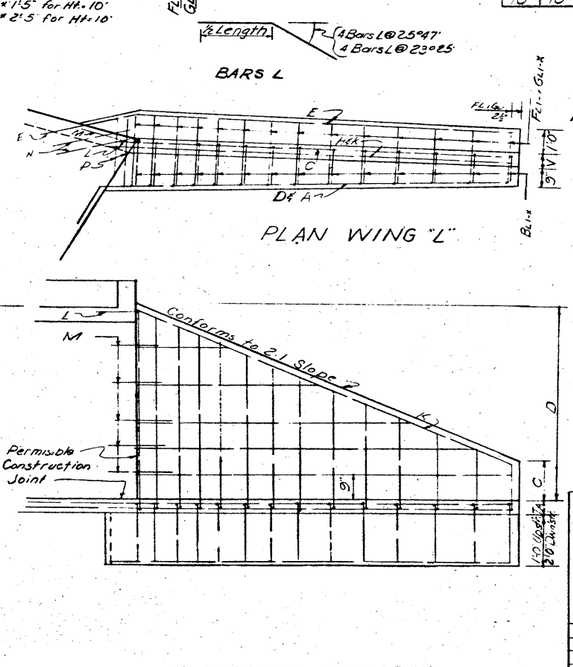


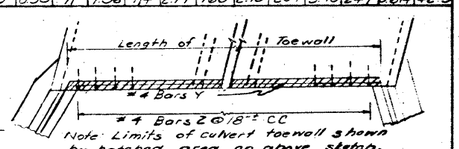












PLAN SHOWING TYPICAL REINFORCING FOR CULVERT TOEWALLS

Use toewall length of Bar Y. Include One 20 diameter lap for bars in excess of 40'.

GENERAL NOTES:

All concrete shall be Class "A" Chamfer all exposed corners ¾" unless specified otherwise.

All dimensions relating to reinforcing steel are to centers of bars.

Toe walls for culverts and wingwalls shall be omitted when founded on solid rock.

TEXAS HIGHWAY DEPARTMENT
BRIDGE DIVISION

FLARED WINGWALLS - 15° SKEW FOR MULTIPLE BOX CULVERTS H=7'-0" TO H=10'-0"

MCW-F2-15°

Rev 7-1-62

FED RD DIV NO	STATE	FEDERAL PROJECT NO	SHT NO
6	TEXAS	I35-1(18)007, Etc.	96

STATE DIST NO	COUNTY	CONT	SECT	JOB	HIGHWAY NO
21	WEBB	18	5 6	1 6 5 6	IH 35

TABLE OF DIMENSIONS & REINFORCING STEEL MODIFICATIONS

ENTER WITH NORMAL CULVERT SPAN & WIDTH

SPAN S	SPAN S	DIMENSIONS WIDTH	b	a	d	NO. LENGTH K	H	MC--1 NO. BARS A	B/B_1	B_2	LENGTH OF VARIABLE BARS (FIRST & LAST) A	A	*B, B1, or B2	B/B_1	B_2	SPACES X	Y	Z	MC--2 Y	LENGTH LAST B	NO B	MC--3 Y	LENGTH LAST B	NO B
5	2	11'- 6"	11.91	3.08	43.85	24	11'- 7"	44	86	-	7'-11"	4'- 2"	9'- 9"	2'- 3"	-	2	3	-	3	2'- 3"	86	-	-	-
5	3	17'- 0"	17.60	4.56	42.38	36	17'- 3"	43	84	-	13'- 5"	2'- 2"	15'- 3"	4'- 1"	-	4	4	-	4	4'- 1"	84	-	-	-
5	4	22'- 6"	23.29	6.03	40.90	46	22'-11"	41	80	-	18'-11"	3'-11"	20'- 9"	2'- 1"	-	5	6	-	6	2'- 1"	80	-	-	-
5	5	28'- 0"	28.99	7.50	39.43	58	28'- 8"	40	78	-	24'- 5"	2'- 0"	26'- 3"	3'-10"	-	7	7	-	7	3'-10"	78	-	-	-
5	6	33'- 6"	34.68	8.98	37.96	70	34'- 4"	38	74	-	29'-11"	3'- 9"	31'- 9"	1'-10"	-	8	9	-	9	1'-10"	74	-	-	-
5	2	11'- 9"	12.16	3.15	43.78	24	11'-10"	44	86	-	8'- 2"	4'- 5"	10'- 0"	2'- 6"	-	2	3	-	3	2'- 6"	86	-	-	-
5	3	17'- 4"	17.95	4.64	42.29	36	17'- 7"	43	84	-	13'- 9"	2'- 7"	15'- 7"	4'- 5"	-	4	4	-	4	4'- 5"	84	-	-	-
5	4	22'-11"	23.73	6.14	40.79	48	23'- 5"	41	80	-	19'- 4"	4'- 5"	21'- 2"	2'- 6"	-	5	6	-	6	2'- 6"	80	-	-	-
5	5	28'- 6"	29.51	7.64	39.30	60	29'- 2"	40	78	-	24'-11"	2'- 6"	26'- 9"	4'- 4"	-	7	7	-	7	4'- 4"	78	-	-	-
5	6	34'- 1"	35.29	9.13	37.80	70	34'-11"	38	74	-	30'- 6"	4'- 4"	32'- 4"	2'- 6"	-	8	9	-	9	2'- 6"	74	-	-	-
6	2	13'- 6"	13.98	3.62	43.32	28	13'- 8"	53	104	-	10'- 2"	3'-11"	11'- 9"	2'- 5"	-	3	4	-	5	1'-10"	130	-	-	-
6	3	20'- 0"	20.71	5.36	41.57	42	20'- 4"	50	98	-	16'- 8"	4'- 3"	18'- 3"	2'- 8"	-	5	6	-	7	3'- 4"	124	-	-	-
6	4	26'- 6"	27.44	7.10	39.83	56	27'- 1"	48	94	-	23'- 2"	4'- 6"	24'- 9"	3'- 0"	-	7	8	-	10	2'- 4"	118	-	-	-
6	5	33'- 0"	34.16	8.84	38.09	68	33'-10"	46	90	-	29'- 8"	1'- 8"	31'- 3"	3'- 3"	-	10	10	-	12	3'-11"	114	-	-	-
6	6	39'- 6"	40.89	10.58	36.35	82	40'- 6"	44	86	-	36'- 2"	1'-11"	37'- 9"	3'- 6"	-	12	12	-	15	2'-11"	108	-	-	-
6	2	13'- 9"	14.24	3.68	43.25	28	13'-10"	53	104	-	10'- 5"	4'- 2"	12'- 0"	2'- 8"	-	3	4	-	5	2'- 1"	130	-	-	-
6	3	20'- 4"	21.05	5.45	41.49	42	20'- 9"	50	98	-	17'- 0"	4'- 7"	18'- 7"	3'- 0"	-	5	6	-	7	3'- 8"	124	-	-	-
6	4	26'-11"	27.87	7.21	39.72	56	27'- 6"	48	94	-	23'- 7"	1'-10"	25'- 2"	3'- 5"	-	8	8	-	10	2'- 9"	118	-	-	-
6	5	33'- 6"	34.68	8.98	37.96	70	34'- 4"	46	90	-	30'- 2"	2'- 2"	31'- 9"	3'- 9"	-	10	10	-	13	1'-11"	114	-	-	-
6	6	40'- 1"	41.50	10.74	36.19	84	41'- 2"	44	86	-	36'- 9"	2'- 6"	38'- 4"	4'- 1"	-	12	12	-	15	3'- 6"	108	-	-	-
7	2	15'- 6"	16.05	4.15	42.78	32	15'- 9"	52	102	-	12'- 2"	2'-10"	13'- 9"	4'- 5"	-	4	4	-	6	2'- 1"	136	4	4'- 5"	102
7	3	23'- 0"	23.81	6.16	40.77	48	23'- 5"	50	98	-	19'- 8"	4'- 1"	21'- 3"	2'- 7"	-	6	7	-	9	2'- 7"	130	7	2'- 7"	98
7	4	30'- 6"	31.58	8.17	38.76	64	31'- 3"	47	92	-	27'- 2"	2'- 3"	28'- 9"	2'-10"	-	9	9	-	12	3'- 1"	124	9	3'-10"	92
7	5	38'- 0"	39.34	10.18	36.75	80	39'- 0"	45	88	-	34'- 8"	3'- 7"	36'- 3"	2'- 1"	-	11	12	-	15	3'- 7"	118	12	2'- 1"	88
7	6	45'- 6"	47.11	12.19	34.74	94	46'- 9"	42	82	-	42'- 2"	1'- 9"	43'- 9"	3'- 4"	-	14	14	-	19	1'- 9"	110	14	3'- 4"	82
7	2	15'- 9"	16.31	4.22	42.71	32	16'- 0"	52	102	-	12'- 5"	3'- 1"	14'- 0"	1'- 7"	-	4	5	-	6	2'- 4"	136	5	1'- 7"	102
7	3	23'- 4"	24.16	6.25	40.68	48	23'-10"	49	96	-	20'- 0"	4'- 5"	21'- 7"	2'-11"	-	6	7	-	9	2'-11"	130	7	2'-11"	96
7	4	30'-11"	32.01	8.28	38.65	64	31'- 8"	47	92	-	27'- 7"	2'- 8"	29'- 2"	4'- 4"	-	9	9	-	12	3'- 6"	124	9	4'- 4"	92
7	5	38'- 6"	39.86	10.32	36.62	80	39'- 6"	45	88	-	35'- 2"	4'- 1"	36'- 9"	2'- 6"	-	11	12	-	16	1'- 9"	116	12	2'- 6"	88
7	6	46'- 1"	47.71	12.35	34.59	96	47'- 4"	42	82	-	42'- 9"	2'- 4"	44'- 4"	3'-11"	-	14	14	-	19	2'- 4"	110	14	3'-11"	82
8	2	17'- 6"	18.12	4.69	42.24	36	17'- 9"	60	118	-	14'- 5"	3'-10"	15'- 9"	2'- 6"	-	5	6	-	7	2'- 8"	144	8	2'- 8"	168
8	3	26'- 0"	26.92	6.97	39.97	54	26'- 7"	57	112	-	22'-11"	1'- 9"	24'- 3"	3'- 1"	-	9	9	-	11	2'- 6"	136	13	1'-10"	160
8	4	34'- 6"	35.72	9.24	37.69	72	35'- 4"	54	106	-	31'- 5"	2'- 4"	32'- 9"	3'- 8"	-	12	12	-	15	2'- 3"	128	17	2'-11"	150
8	5	43'- 0"	44.52	11.52	35.41	90	44'- 2"	51	100	-	39'-11"	2'-11"	41'- 3"	1'- 7"	-	15	16	-	19	2'- 0"	122	22	2'- 1"	142
8	6	51'- 6"	53.32	13.80	33.13	108	53'- 0"	47	92	-	48'- 5"	3'- 6"	49'- 9"	2'- 2"	-	18	19	-	23	1'-10"	114	26	3'- 1"	132
8	2	17'- 9"	18.38	4.76	42.18	38	18'- 0"	60	118	-	14'- 8"	4'- 1"	16'- 0"	2'- 9"	-	5	6	-	7	2'-11"	144	8	2'-11"	168
8	3	26'- 4"	27.26	7.06	39.88	54	26'-11"	57	112	-	23'- 3"	2'- 1"	24'- 7"	3'- 5"	-	9	9	-	11	2'-10"	136	13	2'- 2"	160
8	4	34'-11"	36.15	9.36	37.58	72	35'-10"	54	106	-	31'-10"	2'- 9"	33'- 2"	4'- 1"	-	12	12	-	15	2'- 8"	128	17	3'- 4"	150
8	5	43'- 6"	45.04	11.66	35.28	90	44'- 9"	51	100	-	40'- 5"	3'- 5"	41'- 9"	2'- 1"	-	15	16	-	19	2'- 7"	120	22	2'- 7"	142
8	6	52'- 1"	53.92	13.96	32.98	108	53'- 7"	47	92	-	49'- 0"	4'- 1"	50'- 4"	2'- 9"	-	18	19	-	23	2'- 5"	112	27	1'-10"	132
8	2	18'- 0"	18.64	4.82	42.11	38	18'- 3"	60	118	-	14'-11"	1'- 8"	16'- 3"	3'- 0"	-	6	6	-	7	3'- 2"	144	8	3'- 2"	168
8	3	26'- 8"	27.61	7.15	39.79	56	27'- 3"	57	112	-	23'- 7"	2'- 5"	24'-11"	3'- 9"	-	9	9	-	11	3'- 2"	136	13	2'- 6"	160
8	4	35'- 4"	36.58	9.47	37.47	74	36'- 3"	54	106	-	32'- 3"	3'- 2"	33'- 7"	1'-10"	-	12	13	-	15	3'- 1"	128	18	1'-10"	150
8	5	44'- 0"	45.55	11.79	35.14	92	45'- 2"	50	98	-	40'-11"	3'-11"	42'- 3"	2'- 7"	-	15	16	-	19	3'- 1"	120	22	3'- 1"	140
8	6	52'- 8"	54.53	14.11	32.82	110	54'- 2"	47	92	-	49'- 7"	2'- 0"	50'-11"	3'- 4"	-	19	19	-	23	3'- 0"	112	27	2'- 5"	132
9	2	19'- 9"	20.45	5.29	41.64	42	20'- 1"	56	55	66	16'- 7"	2'- 7"	18'- 0"	4'- 0"	1'- 8"	6	6	8	9	3'- 1"	166	7	3'- 1"	124
9	3	29'- 4"	30.37	7.86	39.07	62	30'- 0"	53	52	62	26'- 2"	3'- 9"	27'- 7"	2'- 5"	1'-11"	9	10	12	14	3'- 4"	156	11	2'- 8"	116
9	4	38'-11"	40.29	10.43	36.51	80	40'- 0"	49	48	58	35'- 9"	2'- 2"	37'- 2"	3'- 7"	2'- 2"	13	13	16	20	1'- 9"	146	15	2'- 4"	110
9	5	48'- 6"	50.21	13.00	33.94	100	49'-10"	46	45	54	45'- 4"	3'- 4"	46'- 9"	2'- 0"	2'- 5"	16	17	20	25	2'- 0"	136	19	2'- 0"	102
9	6	58'- 1"	60.13	15.56	31.37	120	59'- 9"	42	41	50	54'-11"	1'- 9"	56'- 4"	3'- 2"	2'- 8"	20	20	24	30	2'- 3"	126	23	1'- 7"	94
9	2	20'- 0"	20.71	5.36	41.57	42	20'- 4"	56	55	71	16'-10"	2'-10"	18'- 3"	4'- 3"	3'- 0"	6	6	8	9	3'- 4"	166	7	3'- 4"	124
9	3	29'- 8"	30.71	7.95	38.98	62	30'- 4"	53	52	67	26'- 6"	4'- 1"	27'-11"	2'- 9"	1'-10"	9	10	13	15	1'-10"	156	11	3'- 0"	116
9	4	39'- 4"	40.72	10.54	36.39	82	40'- 4"	49	48	62	36'- 2"	2'- 7"	37'- 7"	4'- 0"	2'- 9"	13	13	17	20	2'- 2"	146	15	2'- 9"	108
9	5	49'- 0"	50.73	13.13	33.80	102	50'- 4"	46	45	58	45'-10"	3'-10"	47'- 3"	2'- 6"	1'- 6"	16	17	22	25	2'- 6"	136	19	2'- 6"	100
9	6	58'- 8"	60.74	15.72	31.21	122	60'- 4"	42	41	53	55'- 6"	2'- 4"	56'-11"	3'- 9"	2'- 6"	20	20	26	30	2'-10"	124	23	2'- 2"	94
10	2	21'- 9"	22.52	5.83	41.11	46	22'- 2"	36	35	47	17'-10"	4'- 9"	20'- 0"	2'- 7"	3'- 8"	4	5	6	8	2'- 7"	122	8	3'- 8"	132
10	3	32'- 4"	33.47	8.66	38.27	68	33'- 1"	33	32	43	28'- 5"	2'- 3"	30'- 7"	4'- 5"	4'- 5"	7	7	9	12	3'- 3"	114	13	2'- 7"	122
10	4	42'-11"	44.43	11.50	35.43	90	44'- 1"	31	30	40	39'- 0"	4'- 2"	41'- 2"	2'- 0"	2'- 0"	9	10	13	16	3'-10"	106	18	1'- 6"	112
10	5	53'- 6"	55.39	14.34	32.60	112	55'- 0"	28	27	37	49'- 7"	1'- 8"	51'- 9"	3'-10"	2'- 9"	12	12	16	21	2'- 0"	98	22	2'- 9"	104
10	6	64'- 1"	66.35	17.17	29.76	134	66'- 0"	26	25	34	60'- 2"	3'- 7"	62'- 4"	5'- 9"	3'- 7"	14	14	19	25	2'- 7"	88	27	1'- 8"	94
10	2	22'- 0"	22.78	5.89	41.04	46	22'- 5"	36	35	46	18'- 1"	5'- 1"	20'- 3"	2'-10"	3'-11"	4	5	6	8	2'-10"	122	9	1'- 7"	130
10	3	32'- 8"	33.82	8.75	38.18	68	33'- 6"	33	32	43	28'- 9"	2'- 7"	30'-11"	4'- 9"	1'- 6"	7	7	10	12	3'- 7"	114	13	2'-11"	122
10	4	43'- 4"	44.86	11.61	35.32	90	44'- 6"	31	30	40	39'- 5"	4'- 7"	41'- 7"	2'- 5"	2'- 5"	9	10	13	17	1'- 9"	106	18	1'-11"	112
10	5	54'- 0"	55.91	14.47	32.46	112	55'- 7"	28	27	37	50'- 1"	2'- 3"	52'- 3"	4'- 4"	3'- 3"	12	12	16	21	2'- 6"	96	22	3'- 3"	104
10	6	64'- 8"	66.95	17.33	29.61	134	66'- 7"	26	25	33	60'- 9"	4'- 2"	62'-11"	1'-11"	4'- 2"	14	15	19	25	3'- 2"	88	27	2'- 3"	94

*Length of first variable B bar is the same for MC--2 & MC--3.

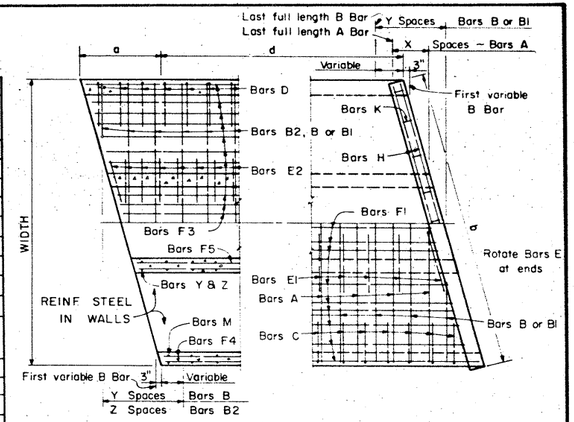
NO. BARS REQUIRED

NO. SPANS=	2	3	4	5	6
H	BARS F_4	BARS F_5				
2	4	4	8	12	16	20
3	4	4	8	12	16	20
4	6	6	12	18	24	30
5	16	8	16	24	32	40
6	16	8	16	24	32	40
7	20	10	20	30	40	50
8	20	10	20	30	40	50
9	24	12	24	36	48	60
10	28	14	28	42	56	70
** SPAC	BARS C & D	BARS E_1 OR E_2				
4½"	-	125	250	375	500	625
5 "	226	113	226	339	452	565
5½"	206	103	206	309	412	515
6 "	188	94	188	282	376	470
6½"	174	87	174	261	348	435
7 "	162	81	162	243	324	405
7½"	150	75	150	225	300	375
8 "	142	17	142	213	284	355
8½"	-	67	134	201	268	335
9 "	126	63	126	189	252	315
9½"	120	-	-	-	-	-
10 "	114	57	114	171	228	285
10½"	108	-	-	-	-	-
12 "	-	47	94	141	188	235
14 "	-	41	82	123	164	205
	BARS M	BARS Y & Z				
	64	47	94	141	188	235

**Determine spacing of Bars C, D, E_1 & E_2 from the normal culvert standard.

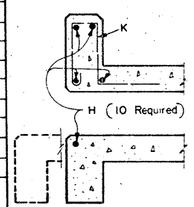
SUPPLEMENT TO TABLE OF DIMENSIONS & REINFORCING STEEL MODIFICATIONS

SPANS	9'x5' MC--2 LENGTH LAST B	9'x5' MC--2 NO B	9'x5' MC--3 Y	9'x5' MC--3 LENGTH LAST B	9'x5' MC--3 NO B	10'x9' MC--1 Z	10'x9' LENGTH LAST B_2	10'x9' NO B_2	10'x10' MC--1 Z	10'x10' LENGTH LAST B_2	10'x10' NO B_2
2	9	1'-10"	154	7	2'- 2"	116	7	1'- 7"	49	7	2'- 6"	51
3	13	3'- 4"	144	10	3'-10"	110	10	2'-11"	45	10	4'- 4"	48
4	18	2'-10"	134	14	2'-10"	102	13	4'- 3"	42	14	3'- 2"	44
5	23	2'- 3"	126	18	1'-10"	96	17	2'- 6"	39	18	2'- 0"	41
6	28	1'- 9"	116	21	3'- 6"	88	20	3'-10"	35	21	3'-10"	37



BOTTOM SLAB

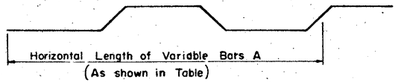
TOP SLAB



CURB & TOEWALL SEC.

LENGTH F BARS
F1, F3 & F4 = 46'-7"
F5 = 46'-5"

F4 replace F2 in ext. wall
F5 replace F2 in int. wall



BARS A

For ease of fabrication, it is pointed out that variable length A Bars may be fabricated full length and cut off. The cut off portions can then be used for the other end of the skewed portion with a very slight amount of waste.

TEXAS HIGHWAY DEPARTMENT
BRIDGE DIVISION

MULTIPLE BOX CULVERT
15° SKEW

MC-15°

Sheet 1 of 2

ORIGINAL DRAWING DATE May 1964	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN: THD REVISIONS	21	6	I35-1(18)007, Etc.	97
CK: DW: CK:	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
	WEBB	18	5 6	79 38	IH35

BARREL QUANTITIES FOR 44'-0" CLEAR WIDTH

	S	H	2 Span		3 Span		4 Span		5 Span		6 Span	
	ft	ft	Conc	Reinf.	Conc	Reinf.	Conc	Reinf.	Conc	Reinf.	Conc	Reinf.
MC5-1	5	2	25.79	3777	37.37	5570	48.95	7357	60.53	9150	72.11	10937
	5	3	28.40	3924	40.85	5782	53.30	7631	65.75	9488	78.20	11339
	5	4	31.01	4197	44.33	6181	57.64	8156	70.96	10140	84.28	12117
	5	5	36.23	5040	51.29	7241	66.36	9435	81.42	11637	96.48	13841
MC5-2	5	2	25.79	3417	37.37	5160	48.95	6899	60.53	8644	72.11	10381
	5	3	28.40	3557	40.85	5364	53.30	7165	65.75	8974	78.20	10774
	5	4	31.01	3821	44.33	5755	57.64	7682	70.96	9617	84.28	11545
	5	5	36.23	4649	51.29	6797	66.36	8941	81.42	11070	96.48	13242
MC6-1	6	3	31.98	4734	46.22	7013	60.46	9284	74.69	11561	88.93	13834
	6	4	34.59	5016	49.69	7421	64.80	9817	79.91	12221	95.02	14621
	6	5	39.81	5874	56.66	8497	73.51	11114	90.36	13740	107.21	16364
	6	6	42.85	6074	60.72	8760	78.58	11442	96.45	13697	114.31	16818
MC6-2	6	3	31.98	5007	46.22	7613	60.46	10210	74.69	12811	88.93	15410
	6	4	34.59	5303	49.69	8035	64.80	10758	79.91	13485	95.02	16212
	6	5	39.81	6170	56.66	9118	73.51	12061	90.36	15009	107.21	17958
	6	6	42.85	6384	60.72	9394	78.58	12403	96.45	15413	114.31	18425
MC7-1	7	3	37.80	5061	54.92	7478	72.04	9883	89.15	12299	106.27	14705
	7	4	40.41	5342	58.40	7885	76.38	10417	94.37	12958	112.35	15491
	7	5	45.68	6198	65.41	8961	85.15	11715	104.89	14477	124.63	17233
	7	6	48.72	6398	69.47	9225	90.22	11942	110.97	14868	131.73	17686
	7	7	51.76	6786	73.53	9740	95.29	12682	117.06	15634	138.82	18577
MC7-2	7	3	37.80	5206	54.92	7920	72.04	10628	89.15	13342	106.27	16050
	7	4	40.41	5487	58.40	8327	76.38	11160	94.37	14002	112.35	16837
	7	5	45.68	6341	65.41	9399	85.15	12454	104.89	15514	124.63	18570
	7	6	48.72	6575	69.47	9732	90.22	12885	110.97	16044	131.73	19198
	7	7	51.76	6963	73.53	10247	95.29	13524	117.06	16810	138.82	20089
MC7-3	7	3	37.80	5900	54.92	9101	72.04	12298	89.15	15502	106.27	18697
	7	4	40.41	6188	58.40	9516	76.38	12837	94.37	16169	112.35	19491
	7	5	45.68	7053	65.41	10601	85.15	14146	104.89	17697	124.63	21241
	7	6	48.72	7303	69.47	10960	90.22	14611	110.97	18270	131.73	21922
	7	7	51.76	7909	73.53	11693	95.29	15470	117.06	19255	138.82	23032
MC8-1	8	4	44.28	6385	64.20	9417	84.12	12437	104.04	15472	123.96	18496
	8	5	49.54	7264	71.22	10513	92.89	13761	114.56	17016	136.24	20267
	8	6	52.59	7515	75.27	10868	97.96	14218	120.65	17576	143.33	20929
	8	7	55.63	7917	79.33	11396	103.03	14871	126.73	18357	150.43	21834
	8	8	62.63	8435	88.67	11960	114.70	15551	140.74	19110	166.78	22660
MC8-2	8	4	46.82	6362	67.97	9640	89.12	12908	110.27	16184	131.42	19457
	8	5	52.12	7235	75.03	10727	97.95	14221	120.87	17716	143.79	21216
	8	6	55.16	7448	79.09	11005	103.02	14562	126.95	18121	150.88	21684
	8	7	58.20	7852	83.15	11534	108.09	15217	133.04	18901	157.98	22591
	8	8	65.24	8363	92.53	12123	119.83	15887	147.12	19644	174.41	23401

BARREL QUANTITIES FOR 44'-0" CLEAR WIDTH

	S	H	2 Span		3 Span		4 Span		5 Span		6 Span	
	ft	ft	Conc	Reinf.	Conc	Reinf.	Conc	Reinf.	Conc	Reinf.	Conc	Reinf.
MC8-3	8	4	49.35	7273	71.73	11107	94.11	14931	116.49	18764	138.87	22593
	8	5	54.68	8168	78.84	12218	103.00	16268	127.16	20323	151.32	24377
	8	6	57.73	8400	82.90	12513	108.07	16627	133.24	20745	158.42	24864
	8	7	60.77	8977	86.95	13216	113.14	17455	139.33	21690	165.51	25944
	8	8	67.84	9251	96.39	13568	124.94	17892	153.48	22210	182.03	26522
MC9-1	9	5	56.27	7893	81.26	11565	106.26	15242	131.25	18919	156.24	22596
	9	6	59.31	8141	85.32	11913	111.33	15687	137.33	19464	163.34	23238
	9	7	62.35	8544	89.37	12441	116.40	16341	143.42	20243	170.44	24144
	9	8	69.39	9179	98.72	13221	128.13	17275	157.50	21327	186.87	25371
	9	9	72.87	9599	103.40	13766	133.92	17945	164.45	22122	194.98	26293
MC9-2	9	5	61.99	7722	89.76	11480	117.53	15236	145.29	18996	173.06	22757
	9	6	65.03	8234	93.81	12148	122.60	16059	151.38	19977	180.16	23893
	9	7	68.07	8644	97.87	12684	127.67	16720	157.46	20765	187.26	24807
	9	8	75.19	9171	107.32	13393	139.52	17627	171.69	21860	203.86	26083
	9	9	78.66	9590	111.99	13939	145.32	18298	178.64	22658	211.97	27011
MC9-3	9	5	64.85	8642	94.01	12979	123.17	17315	152.33	21656	181.48	25994
	9	6	67.89	9222	98.07	13767	128.24	18311	158.41	22861	188.58	27408
	9	7	70.94	9643	102.12	14314	133.31	18984	164.49	23658	195.68	28330
	9	8	78.08	10433	111.62	15307	145.22	20190	177.79	25074	212.36	29951
	9	9	81.56	10877	116.29	15876	151.02	20886	185.75	25895	220.47	30899
MC10-1	10	6	66.62	8959	96.24	13089	125.86	17213	155.48	21336	185.10	25602
	10	7	69.66	9500	100.30	13790	130.93	18075	161.57	22359	192.20	26786
	10	8	76.74	9874	109.73	14229	142.73	18595	175.72	22959	208.72	27460
	10	9	80.22	10510	114.37	15061	148.52	19622	182.67	24182	216.83	28881
	10	10	83.69	11355	119.01	16101	154.32	20857	189.63	25613	224.94	30513
MC10-2	10	6	72.92	9595	105.61	14262	138.29	18918	170.98	23576	203.66	28385
	10	7	75.96	10109	109.66	14901	143.36	19683	177.06	24465	210.76	29400
	10	8	83.11	10593	119.19	15350	155.28	20217	191.36	25077	227.44	30086
	10	9	86.59	11280	123.83	16324	161.07	21480	198.31	26427	235.55	31624
	10	10	90.07	12131	128.47	17355	166.87	22589	205.27	27815	243.67	33192
MC10-3	10	6	79.23	10251	114.98	15269	150.74	20280	186.49	25286	222.24	30456
	10	7	82.27	10946	119.04	16089	155.80	21225	192.57	26357	229.34	31653
	10	8	89.49	11250	128.67	16460	167.84	21679	207.02	26893	246.19	32263
	10	9	92.97	12034	133.30	17368	173.64	22713	213.97	28053	254.30	33549
	10	10	96.44	13101	137.94	18652	179.43	24211	220.92	29764	262.42	35466

GENERAL NOTES:

The necessary details for adapting normal MULTIPLE BOX CULVERT Standards, MC-5-1 through MC-10-3, to 15° Skew Culverts are shown on these sheets. Refer to the appropriate normal Standard for details, dimensions, sections, notes and bar diagrams not shown hereon.

Quantities shown hereon are for 44'-0" Clear Width between headwalls measured perpendicular to the center line. Quantities of reinforcing steel are approximate. Quantities P.L.F. Barrel shown on normal MC Standards may be converted to P.L.F. Clear Width by Multiplying by 1.0353.

The number of variable length bars required: Bars A = 2X, Bars B = 4Y, Bars B_1 = 2Y, and Bars B_2 = 2Z.

Size of Bars H: #4 for Spans = 5'-7', #5 for Spans = 8'-10'.

TEXAS HIGHWAY DEPARTMENT
BRIDGE DIVISION

MULTIPLE BOX CULVERT
15° SKEW

MC-15°

Sheet 2 of 2

ORIGINAL DRAWING DATE: MAY, 1964	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
ON THD REVISIONS	21	6	I35-1(18)007 Etc.	97A
CK:	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DW:	WEBB		18	54	16	IH35
CK:					36	

BILLS OF REINFORCING STEEL - FOR 44' CLEAR WIDTH - BARRELS ONLY

2 SPANS ~ 5' x 2'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	45	78	19	8	13	46	4	24
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	11'-4"	11'-2"	4'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	5'-6"	11'-2"	3'-11"
WEIGHT	348	679	394	333	140	243	572	241	391	169	30	63

3 SPANS ~ 5' x 2'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	90	156	29	12	19	92	4	36
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	17'-0"	16'-8"	4'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	5'-6"	16'-8"	3'-11"
WEIGHT	522	1013	394	333	281	487	873	361	572	338	45	94

4 SPANS ~ 5' x 2'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	135	234	39	16	25	138	4	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	22'-8"	22'-2"	4'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	5'-6"	22'-2"	3'-11"
WEIGHT	697	1347	394	333	421	730	1174	482	753	507	59	120

5 SPANS ~ 5' x 2'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	180	312	49	20	31	184	4	58
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	28'-4"	27'-8"	4'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	5'-6"	27'-8"	3'-11"
WEIGHT	871	1682	394	333	562	973	1475	602	933	676	74	152

6 SPANS ~ 5' x 2'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	225	390	59	24	37	230	4	68
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	34'-0"	33'-2"	4'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	5'-6"	33'-2"	3'-11"
WEIGHT	1045	2016	394	333	702	1217	1776	722	1114	845	89	178

2 SPANS ~ 5' x 3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	45	78	19	8	13	46	4	24
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	11'-4"	11'-2"	5'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	7'-6"	11'-2"	3'-11"
WEIGHT	348	679	475	333	140	243	572	241	341	230	30	63

3 SPANS ~ 5' x 3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	90	156	29	12	19	92	4	36
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	17'-0"	16'-8"	5'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	7'-6"	16'-8"	3'-11"
WEIGHT	522	1013	475	333	281	487	873	361	572	461	45	94

4 SPANS ~ 5' x 3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	135	234	39	16	25	138	4	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	22'-8"	22'-2"	5'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	7'-6"	22'-2"	3'-11"
WEIGHT	697	1347	475	333	421	730	1174	482	753	691	59	120

5 SPANS ~ 5' x 3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	180	312	49	20	31	184	4	58
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	28'-4"	27'-8"	5'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	7'-6"	27'-8"	3'-11"
WEIGHT	871	1682	475	333	562	973	1475	602	933	922	74	152

6 SPANS ~ 5' x 3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	225	390	59	24	37	230	4	68
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	34'-0"	33'-2"	5'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	7'-6"	33'-2"	3'-11"
WEIGHT	1045	2016	475	333	702	1217	1776	722	1114	1152	89	178

2 SPANS ~ 5' x 4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	45	78	19	12	13	46	4	24
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	11'-4"	11'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	9'-6"	11'-2"	3'-11"
WEIGHT	348	679	557	333	140	243	572	361	391	292	30	63

3 SPANS ~ 5' x 4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	90	156	29	18	19	92	4	36
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	17'-0"	16'-8"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	9'-6"	16'-8"	3'-11"
WEIGHT	522	1013	557	333	281	487	873	542	572	584	45	94

4 SPANS ~ 5' x 4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	135	234	39	24	25	138	4	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	22'-8"	22'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	9'-6"	22'-2"	3'-11"
WEIGHT	697	1347	557	333	421	730	1174	722	753	876	59	120

5 SPANS ~ 5' x 4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	180	312	49	30	31	184	4	58
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	28'-4"	27'-8"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	9'-6"	27'-8"	3'-11"
WEIGHT	871	1682	557	333	562	973	1475	903	933	1168	74	152

6 SPANS ~ 5' x 4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	H	K
NUMBER	46	91	122	122	225	390	59	36	37	230	4	68
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"
LENGTH	34'-0"	33'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	9'-6"	33'-2"	3'-11"
WEIGHT	1045	2016	557	333	702	1217	1776	1084	1114	1460	89	178

2 SPANS ~ 5' x 5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K
NUMBER	46	91	122	122	45	78	19	24	13	46	46	62	4	24
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	~	12"	~	12"
LENGTH	11'-7"	11'-5"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	9'-6"	11'-2"	3'-11"	11'-5"	3'-11"
WEIGHT	356	694	638	333	140	243	572	722	391	333	102	204	31	63

3 SPANS ~ 5' x 5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K
NUMBER	46	91	122	122	90	156	29	32	19	92	92	62	4	36
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	12"	18"	~	12"
LENGTH	17'-4"	17'-0"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	10'-10"	3'-4"	4'-11"	17'-0"	3'-11"
WEIGHT	533	1033	638	333	281	487	873	963	572	666	205	204	45	94

4 SPANS ~ 5' x 5'

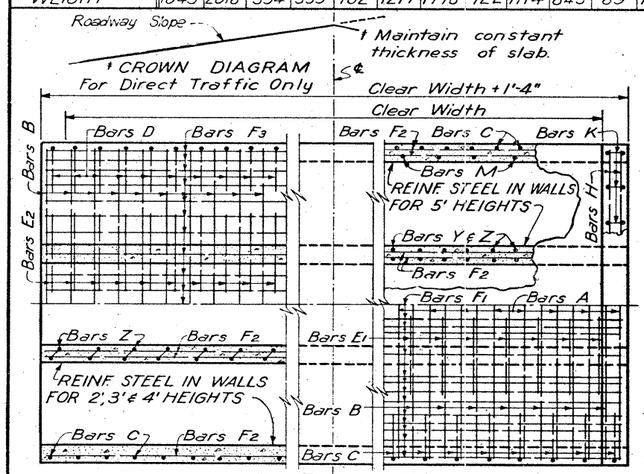
MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K
NUMBER	46	91	122	122	135	234	39	40	25	138	138	62	4	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	12"	18"	~	12"
LENGTH	23'-1"	22'-7"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	10'-10"	3'-4"	4'-11"	22'-7"	3'-11"
WEIGHT	709	1373	638	333	421	730	1174	1204	753	998	307	204	60	120

5 SPANS ~ 5' x 5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K
NUMBER	46	91	122	122	180	312	49	48	31	184	184	62	4	58
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	12"	18"	~	12"
LENGTH	28'-10"	28'-2"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	10'-10"	3'-4"	4'-11"	28'-2"	3'-11"
WEIGHT	886	1712	638	333	562	973	1475	1445	933	1331	409	204	75	152

6 SPANS ~ 5' x 5'

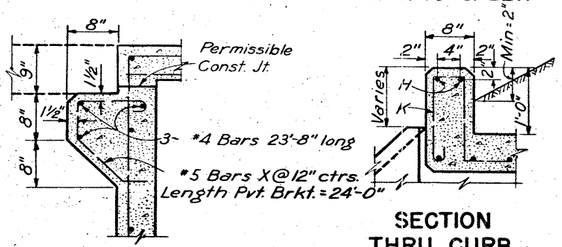
MARK	A	B	C	D	E1	E2	F1	F2	F3	Z	Y	M	H	K
NUMBER	46	91	122	122	225	390	59	56	37	230	230	62	4	70
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	12"	12"	9"	9"	12"	7"	~	~	~	12"	12"	18"	~	12"
LENGTH	34'-7"	33'-9"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	10'-10"	3'-4"	4'-11"	33'-9"	3'-11"
WEIGHT	1063	2052	638	333	702	1217	1776	1686	1114	1664	512	204	90	183



PART PLANS

BOTTOM SLAB TOP SLAB

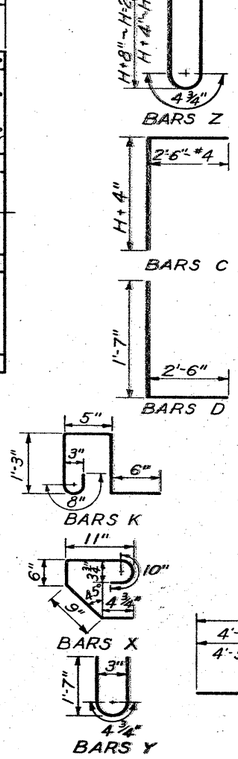
NOTE: TOP & BOTTOM SLAB REINFORCING STEEL SIMILAR FOR CULVERT SIZES SHOWN ON THIS SHEET.

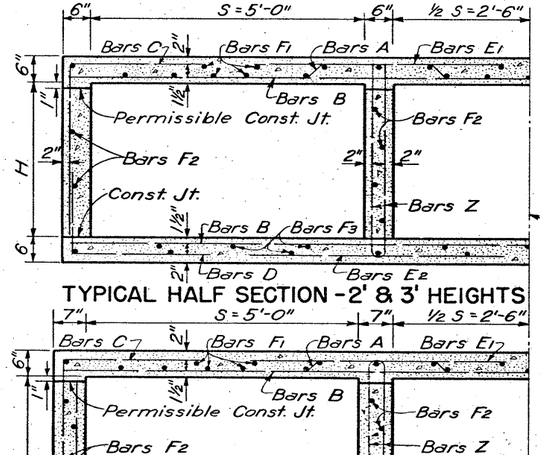


PAVEMENT BRACKET

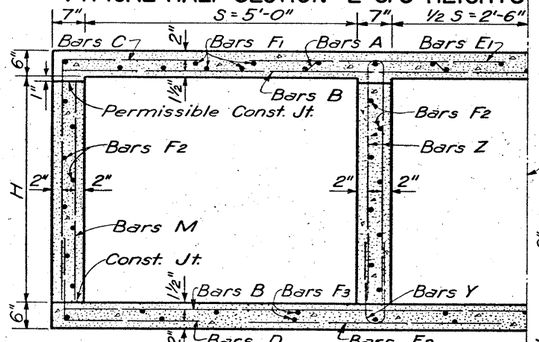
To be used only when called for on plans.

SECTION THRU CURB

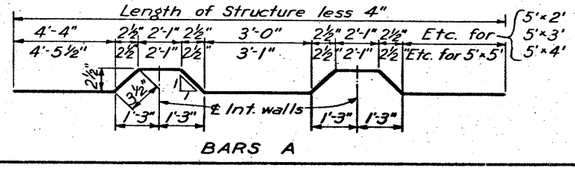


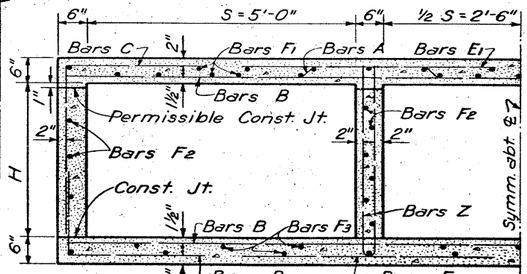


TYPICAL HALF SECTION - 2' & 3' HEIGHTS



TYPICAL HALF SECTION - 5' HEIGHT





TYPICAL HALF SECTION - 4' HEIGHT

BARREL QUANTITIES FOR 44' CLEAR WIDTH

* These quantities do not include paving brackets, toe walls or wings.

CULVERT SIZE S	H	NO. OF SPANS	LENGTH OF STRUCT.	*BARREL QUANTITIES CONC. CU.YDS.	*BARREL QUANTITIES STEEL LBS	QUANTITIES P.L.F. BBL. CONC. CU.YDS	QUANTITIES P.L.F. BBL. STEEL LBS.
5'x2'		2	11'-6"	24.91	3603	0.537	77.23
		3	17'-0"	36.10	5313	0.778	113.86
		4	22'-6"	47.31	7017	1.019	150.49
		5	28'-0"	58.46	8727	1.259	187.11
		6	33'-6"	69.65	10,431	1.500	223.75
5'x3'		2	11'-6"	27.45	3745	0.593	80.34
		3	17'-0"	39.48	5517	0.852	118.34
		4	22'-6"	51.48	7282	1.111	156.28
		5	28'-0"	63.49	9054	1.370	194.24
		6	33'-6"	75.55	10819	1.630	232.20
5'x4'		2	11'-6"	29.94	4009	0.648	86.13
		3	17'-0"	42.82	5903	0.926	126.77
		4	22'-6"	55.69	7789	1.204	167.41
		5	28'-0"	68.52	9683	1.481	208.04
		6	33'-6"	81.40	11571	1.759	248.78
5'x5'		2	11'-9"	34.99	4822	0.759	103.93
		3	17'-4"	49.55	6927	1.074	149.18
		4	22'-11"	64.10	9024	1.389	194.44
		5	28'-6"	78.66	11128	1.704	239.69
		6	34'-1"	93.21	13234	2.019	284.95

PVT. BRKT. QUANTITIES

2 - PVT. BRACKETS 24'-0" LONG	
CONCRETE	STEEL
Cu. Yd.	Lb
1.19	264

GENERAL NOTES :-

Design Loading: H20- or H20 S16- in accordance with A.A.S.H.O. 1957 Standard Specifications.

All concrete shall be Class A. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls.

CONSTRUCTION JOINT SHOWN AT THE FLOW LINE MAY BE RAISED A MAXIMUM OF 6" AT THE CONTRACTOR'S OPTION. BARS M MAY BE CUT OFF OR RAISED. BARS C & D MAY BE REVERSED (D ON TOP) AND BARS Y & Z MAY BE REVERSED (Y ON TOP).

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES 5'x2', 5'x3', 5'x4', 5'x5'

DIRECT TRAFFIC TO 4'-0" FILL

MC5-1

DN. :W H	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK. DN.:R M M	Original	JAN 1958	6	TEXAS	I 35-1(18)007 Etc	98
DN. :M D A	Rev. Jan. 1959					
CK. DW.: K M	Rev. Nov. 1964					
TR. :A D B						
CK. TR.:M D A						

STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5 6	6 38	IH 35

BILLS OF REINFORCING STEEL - FOR 44' CLEAR WIDTH - BARRELS ONLY

2 SPANS ~ 7'x3'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	54	91	23	8	17	4	32	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	12"
LENGTH	15'-4"	15'-2"	5'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	15'-2"	3'-11"	7'-8"
WEIGHT	563	1105	530	371	168	284	692	241	512	41	84	236

3 SPANS ~ 7'x3'

NUMBER	55	109	136	136	108	182	35	12	25	4	48	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	12"
LENGTH	23'-1"	22'-8"	5'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	22'-8"	3'-11"	7'-8"
WEIGHT	848	1651	530	371	337	568	1054	371	753	61	126	471

4 SPANS ~ 7'x3'

NUMBER	55	109	136	136	162	273	47	16	33	4	62	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	12"
LENGTH	30'-9"	30'-2"	5'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	30'-2"	3'-11"	7'-8"
WEIGHT	1130	2197	530	371	505	852	1415	482	993	81	162	707

5 SPANS ~ 7'x3'

NUMBER	55	109	136	136	216	364	59	20	41	4	78	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	12"
LENGTH	38'-6"	37'-8"	5'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	37'-8"	3'-11"	7'-8"
WEIGHT	1414	2743	530	371	674	1136	1776	602	1231	101	204	943

6 SPANS ~ 7'x3'

NUMBER	55	109	136	136	270	455	71	24	49	4	92	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	12"
LENGTH	46'-2"	45'-2"	5'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	45'-2"	3'-11"	7'-8"
WEIGHT	1696	3289	530	371	842	1420	2137	722	1475	121	241	1178

2 SPANS ~ 7'x4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	55	109	136	136	54	91	23	12	17	4	32	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	-	16"	~	~	12"	12"
LENGTH	15'-4"	15'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	15'-2"	3'-11"	9'-8"
WEIGHT	563	1105	620	371	168	284	692	361	512	41	84	297

3 SPANS ~ 7'x4'

NUMBER	55	109	136	136	108	182	35	18	25	4	48	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	-	16"	~	~	12"	12"
LENGTH	23'-1"	22'-8"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	22'-8"	3'-11"	9'-8"
WEIGHT	848	1651	620	371	337	568	1054	542	753	61	126	594

4 SPANS ~ 7'x4'

NUMBER	55	109	136	136	162	273	47	24	33	4	62	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	16"	~	~	12"	12"
LENGTH	30'-9"	30'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	30'-2"	3'-11"	9'-8"
WEIGHT	1130	2197	620	371	505	852	1415	723	993	81	162	891

5 SPANS ~ 7'x4'

NUMBER	55	109	136	136	216	364	59	30	41	4	78	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	16"	~	~	12"	12"
LENGTH	38'-6"	37'-8"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	37'-8"	3'-11"	9'-8"
WEIGHT	1414	2743	620	371	674	1136	1776	903	1234	101	204	1189

6 SPANS ~ 7'x4'

NUMBER	55	109	136	136	270	455	71	36	49	4	92	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	16"	~	~	12"	12"
LENGTH	46'-2"	45'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	45'-2"	3'-11"	9'-8"
WEIGHT	1696	3289	620	371	842	1420	2137	1084	1475	121	241	1486

2 SPANS ~ 7'x5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	54	91	23	24	17	4	32	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	15"	~	~	12"	18"	12"	12"
LENGTH	15'-7"	15'-5"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	15'-5"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	572	1123	711	371	168	284	692	722	512	41	84	204	105	336

3 SPANS ~ 7'x5'

NUMBER	55	109	136	136	108	182	35	32	25	4	48	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	15"	~	~	12"	18"	12"	12"
LENGTH	23'-5"	23'-0"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	23'-0"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	860	1675	711	371	337	568	1054	963	753	61	126	204	210	671

4 SPANS ~ 7'x5'

NUMBER	55	109	136	136	162	273	47	40	33	4	62	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	15"	~	~	12"	18"	12"	12"
LENGTH	31'-2"	30'-7"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	30'-7"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	1145	2227	711	371	505	852	1415	1204	993	82	162	204	315	1007

5 SPANS ~ 7'x5'

NUMBER	55	109	136	136	216	364	59	48	41	4	78	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	15"	~	~	12"	18"	12"	12"
LENGTH	39'-0"	38'-2"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	38'-2"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	1433	2779	711	371	674	1136	1776	1445	1234	102	204	204	420	1342

6 SPANS ~ 7'x5'

NUMBER	55	109	136	136	270	455	71	56	49	4	92	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	15"	~	~	12"	18"	12"	12"
LENGTH	46'-9"	45'-9"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	45'-9"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	1686	3331	711	371	842	1420	2137	1686	1475	122	241	204	526	1678

2 SPANS ~ 7'x6'

	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	54	91	23	24	17	4	32	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	18"	12"	12"
LENGTH	15'-7"	15'-5"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	15'-5"	3'-11"	5'-11"	3'-5"	10'-11"
WEIGHT	572	1123	802	371	168	284	692	722	512	41	84	245	105	397

3 SPANS ~ 7'x6'

NUMBER	55	109	136	136	108	182	35	32	25	4	48	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	18"	12"	12"
LENGTH	23'-5"	23'-0"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	23'-0"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	860	1675	802	371	337	568	1054	963	753	61	126	245	210	794

4 SPANS ~ 7'x6'

NUMBER	55	109	136	136	162	273	47	40	33	4	62	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	18"	12"	12"
LENGTH	31'-2"	30'-7"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	30'-7"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	1145	2227	802	371	505	852	1415	1204	993	82	162	245	315	1191

5 SPANS ~ 7'x6'

NUMBER	55	109	136	136	216	364	59	48	41	4	78	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	18"	12"	12"
LENGTH	39'-0"	38'-2"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	38'-2"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	1433	2779	802	371	674	1136	1776	1445	1234	102	204	245	420	1588

6 SPANS ~ 7'x6'

NUMBER	55	109	136	136	270	455	71	56	49	4	92	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	18"	~	~	12"	18"	12"	12"
LENGTH	46'-9"	45'-9"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	45'-9"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	1718	3331	802	371	842	1420	2137	1686	1475	122	241	245	526	1985

2 SPANS ~ 7'x7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	55	109	136	136	54	91	23	30	17	4	32	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	17"	~	~	12"	18"	12"	12"
LENGTH	15'-7"	15'-5"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	15'-5"	3'-11"	6'-11"	3'-5"	14'-11"
WEIGHT	572	1123	893	371	168	284	692	903	512	41	84	287	105	458

3 SPANS ~ 7'x7'

NUMBER	55	109	136	136	108	182	35	40	25	4	48	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	17"	~	~	12"	18"	12"	12"
LENGTH	23'-5"	23'-0"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	23'-0"	3'-11"	6'-11"	3'-5"	14'-11"
WEIGHT	860	1675	893	371	337	568	1054	1204	753	61	126	287	210	917

4 SPANS ~ 7'x7'

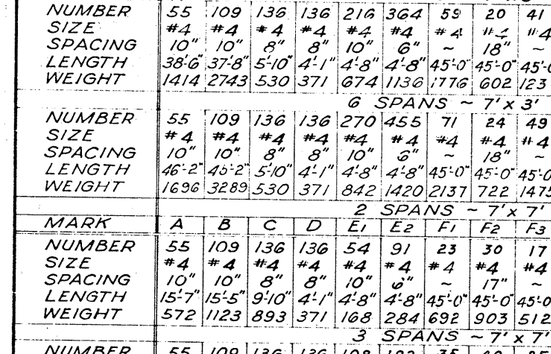
NUMBER	55	109	136	136	162	273	47	50	33	4	62	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	17"	~	~	12"	18"	12"	12"
LENGTH	31'-2"	30'-7"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	30'-7"	3'-11"	6'-11"	3'-5"	14'-11"
WEIGHT	1145	2227	893	371	505	852	1415	1505	993	82	162	287	315	1375

5 SPANS ~ 7'x7'

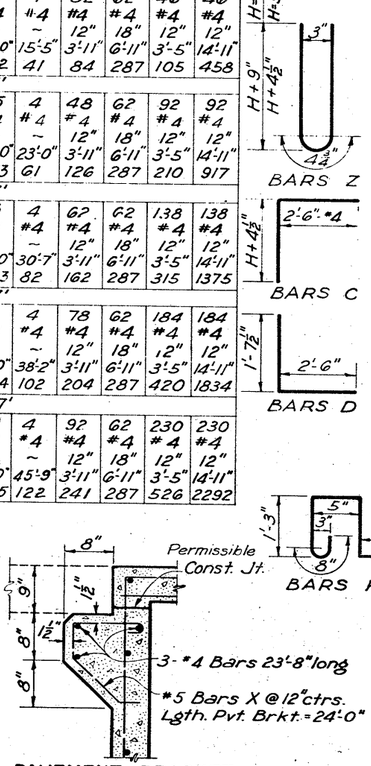
NUMBER	55	109	136	136	216	364	59	60	41	4	78	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	17"	~	~	12"	18"	12"	12"
LENGTH	39'-0"	38'-2"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	38'-2"	3'-11"	6'-11"	3'-5"	14'-11"
WEIGHT	1433	2779	893	371	674	1136	1776	1806	1234	102	204	287	420	1834

6 SPANS ~ 7'x7'

NUMBER	55	109	136	136	270	455	71	70	49	4	92	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	10"	8"	8"	10"	6"	~	17"	~	~	12"	18"	12"	12"
LENGTH	46'-9"	45'-9"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	45'-9"	3'-11"	6'-11"	3'-5"	14'-11"
WEIGHT	1718	3331	893	371	842	1420	2137	2107	1475	122	241	287	526	2292

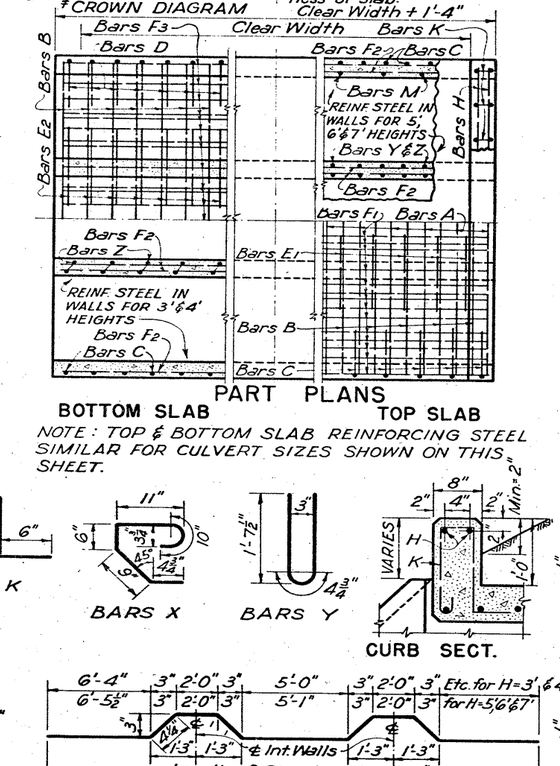


TYPICAL HALF SECT. - HEIGHT = 4'8 & UNDER



PAVEMENT BRACKET

To be used only when called for on plans.



TYPICAL HALF SECT. - HEIGHT = 5'8 & OVER

PART PLANS

BOTTOM SLAB TOP SLAB

NOTE : TOP & BOTTOM SLAB REINFORCING STEEL SIMILAR FOR CULVERT SIZES SHOWN ON THIS SHEET.

BARREL QUANTITIES FOR 44'CLEAR WIDTH

CULVERT SIZE S	H	NO. OF SPANS	LENGTH OF STRUCT.	*BARREL QUANTITIES CONC. CU.YDS.	*BARREL QUANTITIES STEEL LBS.	QUANTITIES PER L.F. BBL. CONC. CU.YDS.	QUANTITIES PER L.F. BBL. STEEL LBS.
7'x3'		2	15'-6"	36.53	4827	0.789	103.63
		3	23'-0"	53.04	7,131	1.145	153.01
		4	30'-6"	69.60	9,425	1.502	202.32
		5	38'-0"	86.11	11,728	1.858	251.67
		6	45'-6"	102.61	14,022	2.214	300.99
7'x4'		2	15'-6"	39.03	5,098	0.844	109.66
		3	23'-0"	56.40	7,525	1.219	161.69
		4	30'-6"	73.77	9,940	1.594	213.68
		5	38'-0"	91.14	12,365	1.969	265.71
		6	45'-6"	108.51	14,782	2.344	317.70
7'x5'		2	15'-9"	44.12	5,925	0.956	127.76
		3	23'-4"	63.17	8,564	1.368	184.48
		4	30'-11"	82.27	11,193	1.781	241.11
		5	38'-6"	101.32	13,831	2.193	297.81
		6	46'-1"	120.37	16,463	2.605	354.45
7'x6'		2	15'-9"	47.06	6,118	1.021	132.00
		3	23'-4"	67.11	8,819	1.455	190.05
		4	30'-11"	87.16	11,509	1.889	248.02
		5	38'-6"	107.17	14,209	2.322	306.05
		6	46'-1"	127.21	16,901	2.756	364.03
7'x7'		2	15'-9"	50.01	6,493	1.086	140.24
		3	23'-4"	71.01	9,316	1.541	200.95
		4	30'-11"	92.06	12,127	1.997	261.60
		5	38'-6"	113.06	14,949	2.452	322.31
		6	46'-1"	134.10	17,762	2.908	382.95

*These quantities do not include toe walls, wings or paving bracket.

PVT. BRKT. QUANT.	
2 PVT. BRKTS. 24'-0" long	
CONC. CU. YDS.	STEEL LBS.
1.19	264

GENERAL NOTES :-

Design Loading : H-20- or H20S16- in accordance with A.A.S.H.O. 1957 Standard Specifications

All concrete shall be Class A. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls.

CONSTRUCTION JOINT SHOWN AT THE FLOW LINE MAY BE RAISED A MAXIMUM OF 6" AT THE CONTRACTOR'S OPTION. BARS M MAY BE CUT OFF OR RAISED. BARS C & D MAY BE REVERSED (D ON TOP) AND BARS Y & Z MAY BE REVERSED (Y ON TOP).

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES - 7'x3', 7'x4', 7'x5', 7'x6' & 7'x7'

DIRECT TRAFFIC TO 2'-0" FILL

MC7-1

DN. W.H.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK.DN. R.M.M.	ORIGINAL	'58				
DW. M.D.A.	Rev. Jan. 1959		6	TEXAS	I 35-1 (18) 007, Etc.	59
CK.DW. K.M.	Rev. Nov. 1964		STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
TR. O.C.K.			21	WEBB	18 / 56 / 1/8	IH-35
CK.TR. M.D.A.						

PROFILE

BILLS OF REINFORCING STEEL — FOR 44' CLEAR WIDTH — BARRELS ONLY

2 SPANS 8' × 4'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	65	129	156	156	64	109	25	12	19	4	36	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	—	16"	—	—	12"	12"
LENGTH	17'-4"	17'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	17'-2"	4'-0"	9'-8"
WEIGHT	752	1480	712	425	200	340	753	361	572	46	96	297

3 SPANS 8' × 4'

NUMBER	65	129	156	156	128	218	38	18	28	4	54	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	—	16"	—	—	12"	12"
LENGTH	26'-1"	25'-8"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	25'-8"	4'-0"	9'-8"
WEIGHT	1132	2212	712	425	399	680	1144	542	843	69	144	594

4 SPANS 8' × 4'

NUMBER	65	129	156	156	192	327	51	24	37	4	70	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	—	16"	—	—	12"	12"
LENGTH	34'-9"	34'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	34'-2"	4'-0"	9'-8"
WEIGHT	1509	2944	712	425	599	1020	1535	722	1114	91	187	891

5 SPANS 8' × 4

NUMBER	65	129	156	156	256	436	64	30	46	4	88	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	—	16"	—	—	12"	12"
LENGTH	43'-6"	42'-8"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	42'-8"	4'-0"	9'-8"
WEIGHT	1889	3677	712	425	799	1360	1926	903	1385	114	235	1189

6 SPANS 8' × 4'

NUMBER	65	129	156	156	320	545	77	36	55	4	104	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	—	16"	—	—	12"	12"
LENGTH	52'-2"	51'-2"	6'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	51'-2"	4'-0"	9'-8"
WEIGHT	2265	4409	712	425	998	1700	2318	1084	1656	137	278	1486

2 SPANS 8' × 5'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	64	109	25	24	19	4	36	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	—	15"	—	—	12"	18"	12"	12"
LENGTH	17'-7"	17'-5"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	17'-5"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	763	1501	816	425	200	340	753	722	572	47	96	204	105	336

3 SPANS 8' × 5'

NUMBER	65	129	156	156	128	218	38	32	28	4	54	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	6½"	5"	—	15"	—	—	12"	18"	12"	12"
LENGTH	26'-5"	26'-0"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	26'-0"	4'-0"	4'-1"	3'-5"	10'-11"
WEIGHT	1147	2240	816	425	399	680	1144	963	843	69	144	204	210	671

4 SPANS 8' × 5'

NUMBER	65	129	156	156	192	327	51	40	37	4	70	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	—	15"	—	—	12"	18"	12"	12"
LENGTH	35'-2"	34'-7"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	34'-7"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	1527	2980	816	425	599	1020	1535	1204	1114	92	187	204	315	1007

5 SPANS 8' × 5'

NUMBER	65	129	156	156	256	436	64	48	46	4	88	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	—	15"	—	—	12"	18"	12"	12"
LENGTH	44'-0"	43'-2"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	43'-2"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	1911	3720	816	425	799	1360	1926	1444	1385	115	235	204	420	1342

6 SPANS 8' × 5'

NUMBER	65	129	156	156	320	545	77	56	55	4	106	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	5"	—	15"	—	—	12"	18"	12"	12"
LENGTH	52'-9"	51'-9"	7'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	51'-9"	4'-0"	4'-1"	3'-5"	10'-1"
WEIGHT	2290	4459	816	425	998	1700	2318	1686	1656	138	283	204	525	1678

2 SPANS 8' × 6'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	64	121	25	24	19	4	36	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	—	18"	—	—	12"	18"	12"	12"
LENGTH	17'-7"	17'-5"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	17'-5"	4'-0"	5'-11"	3'-5"	12'-11"
WEIGHT	763	1501	920	425	200	377	753	722	572	47	96	245	105	397

3 SPANS 8' × 6'

NUMBER	65	129	156	156	128	242	38	32	28	4	54	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	—	18"	—	—	12"	18"	12"	12"
LENGTH	26'-5"	26'-0"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	26'-0"	4'-0"	5'-11"	3'-5"	12'-11"
WEIGHT	1147	2240	920	425	399	755	1144	963	843	69	144	245	210	794

4 SPANS 8' × 6'

NUMBER	65	129	156	156	192	363	51	40	37	4	70	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	—	18"	—	—	12"	18"	12"	12"
LENGTH	35'-2"	34'-7"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	34'-7"	4'-0"	5'-11"	3'-5"	12'-11"
WEIGHT	1527	2980	920	425	599	1132	1535	1204	1114	92	187	245	315	1191

5 SPANS 8' × 6'

NUMBER	65	129	156	156	256	484	64	48	46	4	88	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	—	18"	—	—	12"	18"	12"	12"
LENGTH	44'-0"	43'-2"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	43'-2"	4'-0"	5'-11"	3'-5"	12'-11"
WEIGHT	1911	3720	920	425	799	1510	1926	1444	1385	115	235	245	420	1588

6 SPANS 8' × 6'

NUMBER	65	129	156	156	320	605	77	56	55	4	106	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	—	18"	—	—	12"	18"	12"	12"
LENGTH	52'-9"	51'-9"	8'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	51'-9"	4'-0"	5'-11"	3'-5"	12'-11"
WEIGHT	2290	4459	920	425	998	1887	2318	1686	1656	138	283	245	525	1985

2 SPANS 8' × 7'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	156	156	64	121	25	30	19	4	36	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	—	17"	—	—	12"	18"	12"	12"
LENGTH	17'-7"	17'-5"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	17'-5"	4'-0"	6'-11"	3'-5"	14'-11"
WEIGHT	763	1501	1024	425	200	377	753	903	572	47	96	287	105	458

3 SPANS 8' × 7'

NUMBER	65	129	156	156	128	242	38	40	28	4	54	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	—	17"	—	—	12"	18"	12"	12"
LENGTH	26'-5"	26'-0"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	26'-0"	4'-0"	6'-11"	3'-5"	14'-11"
WEIGHT	1147	2240	1024	425	399	755	1144	1204	843	69	144	287	210	917

4 SPANS 8' × 7'

NUMBER	65	129	156	156	192	363	51	50	37	4	70	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	—	17"	—	—	12"	18"	12"	12"
LENGTH	35'-2"	34'-7"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	34'-7"	4'-0"	6'-11"	3'-5"	14'-11"
WEIGHT	1527	2980	1024	425	599	1132	1535	1505	1114	92	187	287	315	1375

5 SPANS 8' × 7'

NUMBER	65	129	156	156	256	484	64	60	46	4	88	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	—	17"	—	—	12"	18"	12"	12"
LENGTH	44'-0"	43'-2"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	43'-2"	4'-0"	6'-11"	3'-5"	14'-11"
WEIGHT	1911	3720	1024	425	799	1510	1926	1806	1385	115	235	287	420	1834

6 SPANS 8' × 7'

NUMBER	65	129	156	156	320	605	77	70	55	4	106	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	7"	7"	8½"	4½"	—	17"	—	—	12"	18"	12"	12"
LENGTH	52'-9"	51'-9"	9'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	51'-9"	4'-0"	6'-11"	3'-5"	14'-11"
WEIGHT	2290	4459	1024	425	998	1887	2318	2107	1656	138	283	287	525	2292

2 SPANS 8' × 8'

MARK	A	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	65	129	182	182	64	121	25	30	19	4	36	62	46	46
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	6"	6"	8½"	4½"	—	19"	—	—	12"	18"	12"	12"
LENGTH	17'-10"	17'-8"	10'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	11'-8"	4'-0"	7'-11"	3'-5"	16'-11"
WEIGHT	774	1523	1317	496	200	377	753	903	572	47	96	328	105	520

3 SPANS 8' × 8'

NUMBER	65	129	182	182	128	242	38	40	28	4	54	62	92	92
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	6"	6"	8½"	4½"	—	19"	—	—	12"	18"	12"	12"
LENGTH	26'-9"	26'-4"	10'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	26'-4"	4'-0"	7'-11"	3'-5"	16'-11"
WEIGHT	1161	2269	1317	496	399	755	1114	1204	843	70	144	328	210	1040

4 SPANS 8' × 8'

NUMBER	65	129	182	182	192	363	51	50	37	4	72	62	138	138
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	6"	6"	8½"	4½"	—	19"	—	—	12"	18"	12"	12"
LENGTH	35'-7"	35'-0"	10'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	35'-0"	4'-0"	7'-11"	3'-5"	16'-11"
WEIGHT	1545	3016	1317	496	599	1132	1535	1505	1114	94	192	328	315	1560

5 SPANS 8' × 8'

NUMBER	65	129	182	182	256	484	64	60	46	4	90	62	184	184
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	6"	6"	8½"	4½"	—	19"	—	—	12"	18"	12"	12"
LENGTH	44'-6"	43'-8"	10'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	43'-8"	4'-0"	7'-11"	3'-5"	16'-11"
WEIGHT	1932	3763	1317	496	799	1510	1926	1806	1385	117	240	328	420	2080

6 SPANS 8' × 8'

NUMBER	65	129	182	182	320	605	77	70	55	4	106	62	230	230
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	8½"	8½"	6"	6"	8½"	4½"	—	19"	—	—	12"	18"	12"	12"
LENGTH	53'-4"	52'-4"	10'-10"	4'-1"	4'-8"	4'-8"	45'-0"	45'-0"	45'-0"	52'-4"	4'-0"	7'-11"	3'-5"	16'-11"
WEIGHT	2316	4510	1317	496	998	1887	2318	2107	1656	140	283	328	525	2600

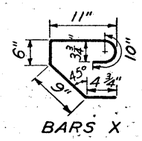
TYPICAL HALF SEC.-HEIGHT= 5' & OVER

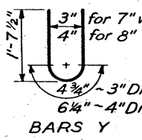
PAVEMENT BRACKET

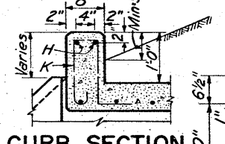
To be used only when called for on plans.

PART PLANS

NOTE: TOP & BOTTOM SLAB REINF. STEEL SIMILAR FOR CULVERT SIZES SHOWN ON THIS SHEET.







TYPICAL HALF SEC.-HEIGHT= 4'

BARREL QUANTITIES FOR 44'CLEAR WIDTH

CULV. SIZE S × H	NO. OF SPANS	LENGTH OF STRUCT.	*BARREL QUANTITIES CONC. Cu.Yds.	*BARREL QUANTITIES STEEL Lbs.	QUANTITIES P.L.F. BBL. CONC. Cu.Yds.	QUANTITIES P.L.F. BBL. STEEL Lbs.
8' × 4'	2	17'-6"	42.75	6034	0.924	129.47
	3	26'-0"	61.99	8896	1.339	190.80
	4	34'-6"	81.26	11749	1.755	252.05
	5	43'-0"	100.50	14614	2.170	313.38
	6	51'-6"	119.73	17468	2.585	374.63
8' × 5'	2	17'-9"	47.84	6880	1.036	147.99
	3	26'-4"	68.80	9955	1.489	214.00
	4	34'-11"	89.72	13025	1.941	279.94
	5	43'-6"	110.63	16102	2.393	345.96
	6	52'-1"	131.59	19176	2.846	411.90
8' × 6'	2	17'-9"	50.79	7123	1.101	153.33
	3	26'-4"	72.70	10298	1.575	221.52
	4	34'-11"	94.61	13466	2.049	289.62
	5	43'-6"	116.52	16643	2.523	357.81
	6	52'-1"	138.44	19815	2.997	425.91
8' × 7'	2	17'-9"	53.74	7511	1.166	161.86
	3	26'-4"	76.60	10808	1.661	232.72
	4	34'-11"	99.51	14097	2.157	303.49
	5	43'-6"	122.42	17397	2.653	374.35
	6	52'-1"	145.28	20689	3.148	445.13
8' × 8'	2	18'-0"	60.50	8011	1.315	172.78
	3	26'-8"	85.64	11350	1.860	245.21
	4	35'-4"	110.77	14748	2.405	317.56
	5	44'-0"	135.95	18119	2.951	389.98
	6	52'-8"	161.09	21481	3.496	462.33

* These quantities do not include toe walls, paving bracket or wings.

GENERAL NOTES:

Design Loading: H20- or H20 S16- in accordance with A.A.S.H.O. 1957 Standard Specifications

All concrete shall be Class A. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls.

CONSTRUCTION JOINT SHOWN AT THE FLOW LINE MAY BE RAISED A MAXIMUM OF 6" AT THE CONTRACTOR'S OPTION. BARS M MAY BE CUT OFF OR RAISED, BARS C & D MAY BE REVERSED (D ON TOP) AND BARS Y & Z MAY BE REVERSED (Y ON TOP).

PVT. BRKT. QUANT.

2-PVT. BRACKETS 24'-0" LONG	
CONC.	STEEL
Cu. Yd.	Lb.
1.19	264

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES 8'x4', 8'x5', 8'x6', 8'x7', 8'x8'

DIRECT TRAFFIC TO 2'-0" FILL

MC8-1

DN. M.D.A.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK. DN. W.H.	Original	JAN. 1958	6	TEXAS	I 35-1(18)007, Etc.	100
DW. K.M.	Rev. Jan. 1959		STATE DIST. NO.	COUNTY	HIGHWAY NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
CK. DW. M.D.A.	Rev. Nov. 1964		21	WEBB	18 / 5 6 / 16 38	IH 35
TR. A.O.B.						
CK. TR. K.M.						

BILLS OF REINFORCING STEEL ~ FOR 44'-0" CLEAR WIDTH ~ BARRELS ONLY

2 SPANS ~ 10'x6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	104	104	39	61	29	24	21	4	44	62	46	46
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	10½"	10½"	14"	9"	-	18"	-	-	12"	18"	12"	12"
LENGTH	21'-8"	21'-5"	21'-5"	9'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	21'-5"	4'-2"	5'-11"	3'-7"	13'-1"
WEIGHT	904	871	1162	1003	534	332	519	873	722	632	57	123	245	110	402

3 SPANS ~ 10'x6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	104	104	78	122	44	32	31	4	66	62	92	92
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	10½"	10½"	14"	9"	-	18"	-	-	12"	18"	12"	12"
LENGTH	32'-6"	32'-0"	32'-0"	9'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	32'-0"	4'-2"	5'-11"	3'-7"	13'-1"
WEIGHT	1356	1302	1736	1003	534	664	1039	1324	963	933	86	184	245	220	804

4 SPANS ~ 10'x6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	104	104	117	183	59	40	41	4	88	62	138	138
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	10½"	10½"	14"	9"	-	18"	-	-	12"	18"	12"	12"
LENGTH	43'-4"	42'-7"	42'-7"	9'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	42'-7"	4'-2"	5'-11"	3'-7"	13'-1"
WEIGHT	1808	1732	2310	1003	534	996	1558	1776	1204	1234	114	245	245	330	1206

5 SPANS ~ 10'x6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	104	104	156	244	74	48	51	4	108	62	184	184
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	10½"	10½"	14"	9"	-	18"	-	-	12"	18"	12"	12"
LENGTH	54'-3"	53'-2"	53'-2"	9'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	53'-2"	4'-2"	5'-11"	3'-7"	13'-1"
WEIGHT	2263	2163	2884	1003	534	1329	2078	2227	1445	1535	142	301	245	440	1608

6 SPANS ~ 10'x6'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	104	104	195	305	89	56	61	4	130	62	230	230
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	10½"	10½"	14"	9"	-	18"	-	-	12"	18"	12"	12"
LENGTH	66'-1"	64'-9"	64'-9"	9'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	63'-9"	4'-2"	5'-11"	3'-7"	13'-1"	
WEIGHT	2757	2634	3512	1003	534	1661	2597	2679	1686	1836	170	362	245	550	2010

2 SPANS ~ 10'x 10'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	58	138	138	39	73	29	42	21	4	46	62	46	46
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	9½"	8"	8"	14"	7½"	-	-	-	-	12"	18"	12"	12"
LENGTH	21'-11"	21'-8"	21'-8"	13'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	21'-8"	4'-2"	9'-11"	3'-7"	21'-1"
WEIGHT	915	881	1311	1907	708	332	622	873	1264	632	58	128	411	110	648

3 SPANS ~ 10'x10'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	58	138	138	78	146	44	56	31	4	66	62	92	92
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	9½"	8"	8"	14"	7½"	-	-	-	-	12"	18"	12"	12"
LENGTH	32'-10"	32'-4"	32'-4"	13'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	32'-4"	4'-2"	9'-11"	3'-7"	21'-1"
WEIGHT	1370	1315	1956	1907	708	664	1243	1324	1686	933	86	184	411	220	1295

4 SPANS ~ 10' x 10'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	58	138	138	117	219	59	70	41	4	88	62	138	138
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	9½"	8"	8"	14"	7½"	-	-	-	-	12"	18"	12"	12"
LENGTH	43'-9"	43'-0"	43'-0"	13'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	43'-0"	4'-2"	9'-11"	3'-7"	21'-1"
WEIGHT	1825	1749	2601	1907	708	996	1865	1776	2107	1234	115	245	411	330	1943

5 SPANS ~ 10' x 10'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	58	138	138	156	292	74	84	51	4	110	62	184	184
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	9½"	8"	8"	14"	7½"	-	17"	-	-	12"	18"	12"	12"
LENGTH	54'-9"	53'-8"	53'-8"	13'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	53'-8"	4'-2"	9'-11"	3'-7"	21'-1"
WEIGHT	2284	2183	3246	1907	708	1329	2487	2227	2526	1535	143	306	411	440	2591

6 SPANS ~ 10' x 10'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	58	138	138	195	365	89	98	61	4	130	62	230	230
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	9½"	8"	8"	14"	7½"	-	17"	-	-	12"	18"	12"	12"
LENGTH	66'-8"	65'-4"	65'-4"	13'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	64'-4"	4'-2"	9'-11"	3'-7"	21'-1"
WEIGHT	2781	2658	3952	1907	708	1661	3108	2679	2950	1836	172	362	411	550	3239

2 SPANS ~ 10'x7'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	110	110	39	65	29	30	21	4	44	62	46	46
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	10"	10"	14"	8½"	-	17"	-	-	12"	18"	12"	12"
LENGTH	21'-8"	21'-5"	21'-5"	10'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	21'-5"	4'-2"	6'-11"	3'-7"	15'-1"
WEIGHT	904	871	1162	1176	564	332	554	873	903	632	57	123	287	110	463

3 SPANS ~ 10'x7'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	110	110	78	130	44	40	31	4	66	62	92	92
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	10"	10"	14"	8½"	-	17"	-	-	12"	18"	12"	12"
LENGTH	32'-6"	32'-0"	32'-0"	10'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	32'-0"	4'-2"	6'-11"	3'-7"	15'-1"
WEIGHT	1356	1302	1736	1176	564	664	1107	1324	1204	933	86	184	287	220	927

4 SPANS ~ 10'x7'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	110	110	117	195	59	50	41	4	88	62	138	138
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	10"	10"	14"	8½"	-	17"	-	-	12"	18"	12"	12"
LENGTH	43'-4"	42'-7"	42'-7"	10'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	42'-7"	4'-2"	6'-11"	3'-7"	15'-1"
WEIGHT	1808	1732	2310	1176	564	996	1661	1776	1505	1234	114	245	287	330	1390

5 SPANS ~ 10'x7'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	110	110	156	260	74	60	51	4	108	62	184	184
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	10"	10"	14"	8½"	-	17"	-	-	12"	18"	12"	12"
LENGTH	54'-3"	53'-2"	53'-2"	10'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	53'-2"	4'-2"	6'-11"	3'-7"	15'-1"
WEIGHT	2263	2163	2884	1176	564	1329	2214	2227	1806	1535	142	301	287	440	1854

6 SPANS ~ 10'x7'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	110	110	195	325	89	70	61	4	130	62	230	230
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	10"	10"	14"	8½"	-	17"	-	-	12"	18"	12"	12"
LENGTH	66'-1"	64'-9"	64'-9"	10'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	63'-9"	4'-2"	6'-11"	3'-7"	15'-1"
WEIGHT	2757	2634	3512	1176	564	1661	2768	2679	2107	1836	170	362	287	550	2317

2 SPANS ~ 10'x8'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	116	116	39	65	29	30	21	4	46	62	46	46
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	9½"	9½"	14"	8½"	-	19"	-	-	12"	18"	12"	12"
LENGTH	21'-11"	21'-8"	21'-8"	11'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	21'-8"	4'-2"	7'-11"	3'-7"	17'-1"
WEIGHT	915	881	1175	1361	595	332	554	873	903	632	58	128	328	110	525

3 SPANS ~ 10'x8'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	116	116	78	130	44	40	31	4	66	62	92	92
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	9½"	9½"	14"	8½"	-	19"	-	-	12"	18"	12"	12"
LENGTH	32'-10"	32'-4"	32'-4"	11'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	32'-4"	4'-2"	7'-11"	3'-7"	17'-1"
WEIGHT	1370	1315	1753	1361	595	664	1107	1324	1204	933	86	184	328	220	1050

4 SPANS ~ 10'x8'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	116	116	117	195	59	50	41	4	88	62	138	138
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	9½"	9½"	14"	8½"	-	19"	-	-	12"	18"	12"	12"
LENGTH	43'-9"	43'-0"	43'-0"	11'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	43'-0"	4'-2"	7'-11"	3'-7"	17'-1"
WEIGHT	1825	1749	2332	1361	595	996	1661	1776	1505	1234	115	245	328	330	1575

5 SPANS ~ 10'x8'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	116	116	156	260	74	60	51	4	110	62	184	184
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	9½"	9½"	14"	8½"	-	19"	-	-	12"	18"	12"	12"
LENGTH	54'-9"	53'-8"	53'-8"	11'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	53'-8"	4'-2"	7'-11"	3'-7"	17'-1"
WEIGHT	2284	2183	2911	1361	595	1329	2214	2227	1806	1535	143	306	328	440	2099

6 SPANS ~ 10'x8'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	52	116	116	195	325	89	70	61	4	130	62	230	230
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10½"	9½"	9½"	14"	8½"	-	19"	-	-	12"	18"	12"	12"
LENGTH	66'-8"	65'-4"	65'-4"	11'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	64'-4"	4'-2"	7'-11"	3'-7"	17'-1"
WEIGHT	2781	2658	3543	1361	595	1661	2768	2679	2107	1836	172	362	328	550	2624

2 SPANS ~ 10'x9'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	55	122	122	39	69	29	36	21	4	46	62	46	46
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10"	9"	9"	14"	8"	-	18"	-	-	12"	18"	12"	12"
LENGTH	21'-11"	21'-8"	21'-8"	12'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	21'-8"	4'-2"	7'-11"	3'-7"	17'-1"
WEIGHT	915	881	1243	1559	626	332	588	873	1084	632	58	128	369	110	586

3 SPANS ~ 10'x9'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	55	122	122	78	138	44	48	31	4	66	62	92	92
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10"	9"	9"	14"	8"	-	18"	-	-	12"	18"	12"	12"
LENGTH	32'-10"	32'-4"	32'-4"	12'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	32'-4"	4'-2"	8'-11"	3'-7"	19'-1"
WEIGHT	1370	1315	1855	1559	626	664	1175	1321	1445	933	86	184	369	220	1173

4 SPANS ~ 10'x9'

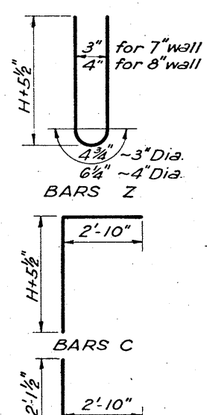
MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	55	122	122	117	207	59	60	41	4	88	62	138	138
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10"	9"	9"	14"	8"	-	18"	-	-	12"	18"	12"	12"
LENGTH	43'-9"	43'-0"	43'-0"	12'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	43'-0"	4'-2"	8'-11"	3'-7"	19'-1"
WEIGHT	1825	1749	2467	1559	626	996	1763	1776	1806	1234	115	245	369	330	1759

5 SPANS ~ 10'x9'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	55	122	122	156	276	74	72	51	4	110	62	184	184
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10"	9"	9"	14"	8"	-	18"	-	-	12"	18"	12"	12"
LENGTH	54'-9"	53'-8"	53'-8"	12'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	53'-8"	4'-2"	8'-11"	3'-7"	19'-1"
WEIGHT	2284	2183	3079	1559	626	1329	2351	2227	2167	1535	143	306	369	440	2345

6 SPANS ~ 10'x9'

MARK	A	B1	B2	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	40	39	55	122	122	195	345	89	84	61	4	130	62	230	230
SIZE	#5	#5	#5	#5	#5	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	14"	14"	10"	9"	9"	14"	8"	-	18"	-	-	12"	18"	12"	12"
LENGTH	66'-8"	65'-4"	65'-4"	12'-3"	4'-11"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	64'-4"	4'-2"	8'-11"	3'-7"	19'-1"
WEIGHT	2781	2658	3748	1559	626	1661	2938	2679	2528	1836	172	362	369	550	2931



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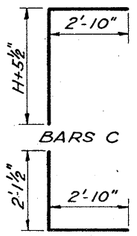

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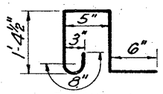
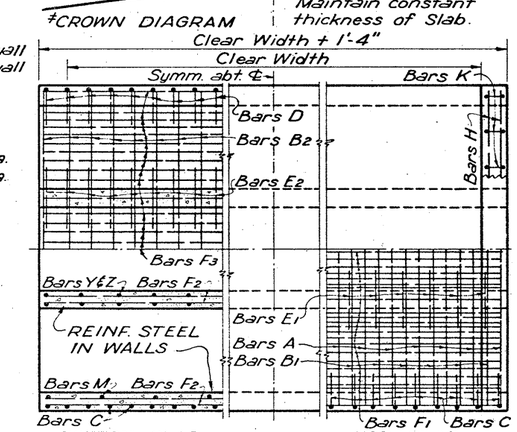


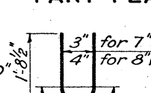
BARS K



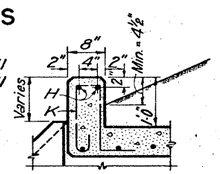
BOTTOM SLAB TOP SLAB

PART PLANS

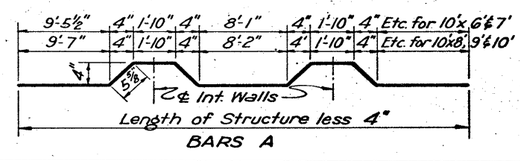
BARS X



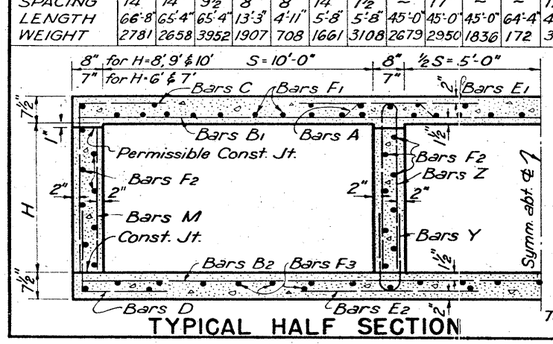
BARS Y



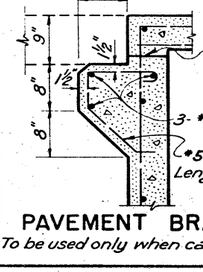
CURB SECTION



BARS A



TYPICAL HALF SECTION



PAVEMENT BRACKET

To be used only when called for on plans.

BARREL QUANTITIES FOR 44' CLEAR WIDTH

CULVERT SIZE	NO. OF SPANS	LENGTH OF STRUCT.	*BARREL QUANTITIES CONC. Cu.Yds.	*BARREL QUANTITIES STEEL Lbs.	QUANTITIES PL.F. BBL. CONC. Cu.Yds.	QUANTITIES PL.F. BBL. STEEL Lbs.
S H						
10'x6'	2	21'-9"	64.36	8489	1.396	182.30
	3	32'-4"	92.94	12393	2.015	265.88
	4	42'-11"	121.57	16295	2.635	349.46
	5	53'-6"	150.20	20197	3.255	433.12
	6	64'-1"	178.79	24236	3.874	519.68
10'x7'	2	21'-9"	67.31	9011	1.461	193.40
	3	32'-4"	96.89	13070	2.102	280.32
	4	42'-11"	126.47	17128	2.743	367.24
	5	53'-6"	156.05	21185	3.384	454.24
	6	64'-1"	185.63	25380	4.025	544.14
10'x8'	2	22'-0"	74.12	9370	1.611	201.00
	3	32'-8"	105.97	13494	2.302	289.51
	4	43'-4"	137.87	17627	2.994	378.01
	5	54'-0"	169.72	21761	3.685	466.60
	6	64'-8"	201.62	26025	4.377	558.86
10'x9'	2	22'-0"	77.47	9984	1.685	214.42
	3	32'-8"	110.46	14298	2.401	306.99
	4	43'-4"	143.44	18619	3.117	399.65
	5	54'-0"	176.43	22943	3.833	492.29
	6	64'-8"	209.41	27398	4.544	587.80
10'x10'	2	22'-0"	80.83	10800	1.759	232.04
	3	32'-8"	114.95	15302	2.500	328.83
	4	43'-4"	149.07	19812	3.241	426.29
	5	54'-0"	183.14	24325	3.981	522.69
	6	64'-8"	217.26	28974	4.722	622.39

* These quantities do not include paving brackets, toe walls or wings.

PVT. BRKT. QUANT.

2-PVT. BRACKETS 24'-0" Long	
CONC.	STEEL
Cu. Yd.	Lb.
1.19	272

GENERAL NOTES :-

Design Loading : H20- or H20S16- in accordance with A.A.S.H.O. 1957 Standard Specifications

All concrete shall be Class A. Chamfer exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Quantities of reinforcing steel shown hereon are for 44'-0" clear width between headwalls and include one 20 diameter lap for all bars exceeding 60 feet in length.

CONSTRUCTION JOINT SHOWN AT THE FLOW LINE MAY BE RAISED A MAXIMUM OF 6" AT THE CONTRACTOR'S OPTION. BARS H MAY BE CUT OFF OR RAISED, BARS C & D MAY BE REVERSED (D ON TOP) AND BARS Y & Z MAY BE REVERSED (Y ON TOP).

TEXAS HIGHWAY DEPARTMENT

MULTIPLE BOX CULVERTS

SIZES - 10'X 6', 10'X 7', 10'X 8', 10'X 9' & 10'X10'

DIRECT TRAFFIC TO 2'-0" FILL

MC 10-1

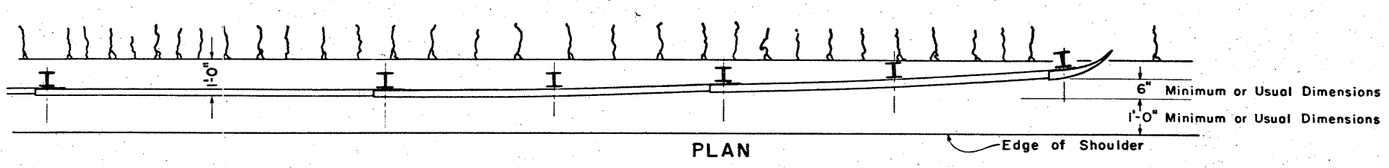
DN MDA	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK DN WH	ORIGINAL	JAN 1958	6	TEXAS	I35-1(18)207, Etc.	101
DW MDA	Rev. Jan. 1959					
CK DW K.M.	Rev. Nov. 1964		STATE DIST. NO	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
TR OCK			21	WEBB	18 / 5C / 76	IH 35
CK TR K.M.					38	

PLAN NOTE BOOK

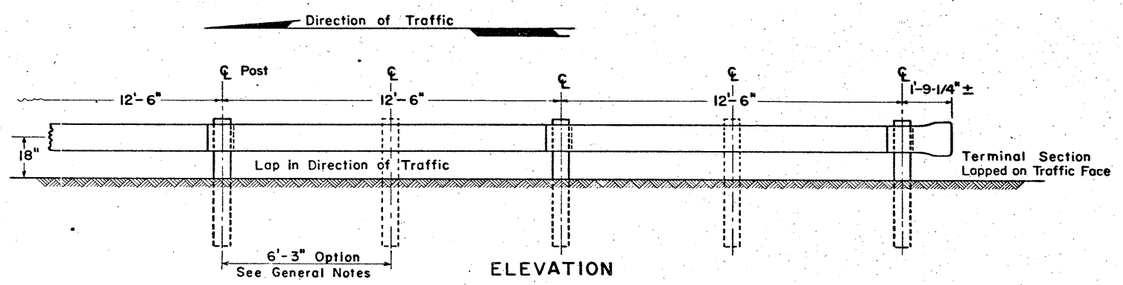
PROFILE NOTE BOOK

SITE PLAN

QUANTITY SLOPE & CHECKED DETAILED BY DIRECTION NOTES CHECKED BY



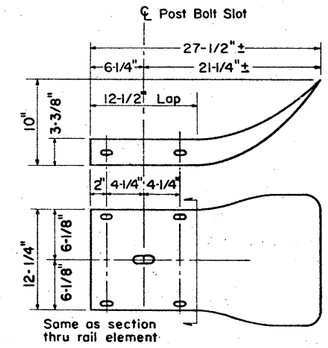
PLAN



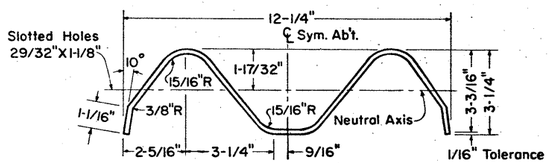
ELEVATION

GENERAL NOTES

1. SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS AND CONSTRUCTION METHODS.
2. SPECIAL FABRICATION WILL BE REQUIRED IN INSTALLATIONS HAVING A CURVATURE OF LESS THAN 150' RADIUS.
3. SECTIONS OF COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.
4. POST SPACING OF 6'-3" MAY BE USED AT HAZARDOUS LOCATIONS AS INDICATED ELSEWHERE ON THE PLANS.
5. EXCEPT WHERE USED AT STRUCTURES OR UNDERPASSES THAT ARE NARROWER THAN CROWN WIDTH, OR WHERE OTHERWISE INDICATED ON THE PLANS, THE GUARD FENCE SHALL BE LOCATED A MINIMUM OF ONE FOOT OUTSIDE THE SHOULDER SURFACE.
6. AT THE OPTION OF THE CONTRACTOR, THE RAIL ELEMENT FOR THE GUARD FENCE MAY BE FURNISHED IN 25 FOOT LENGTHS WITH POST BOLT SLOTS FOR 5/8" DIAMETER BOLT ANCHORAGE TO INTERMEDIATE POSTS.
7. BOLTS USED IN ATTACHING RAIL TO POST SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT. RECTANGULAR WASHERS, AS INDICATED, SHALL BE USED.
8. ALL STEEL FITTINGS SHALL BE GALVANIZED.
9. IF ALUMINUM RAIL ELEMENTS ARE FURNISHED, A 1-1/2" ϕ x 1/8" ELASTOMETRIC WASHER SHALL BE PROVIDED BETWEEN THE POST AND ALUMINUM MEMBER. THE RECTANGULAR WASHER SHALL BE AN ALUMINUM ALLOY.
10. WHERE SHOWN ON THE PLANS, STEEL LINE POSTS SHALL BE SET IN CONCRETE AS DIRECTED BY THE ENGINEER.
11. WHEN GUARD FENCE IS USED, FINISH CROWN WIDTH WILL BE WIDENED TO ACCOMMODATE GUARD FENCE.

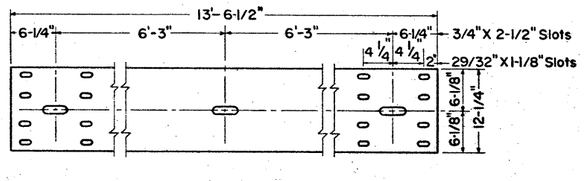


TERMINAL SECTION

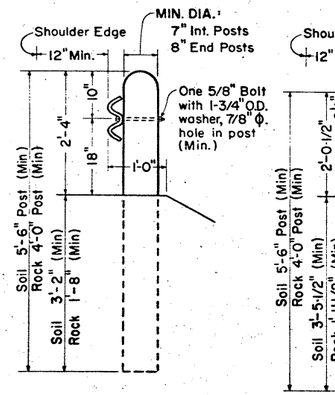


NOTE: Actual section may be slightly different depending upon the manufacturer.

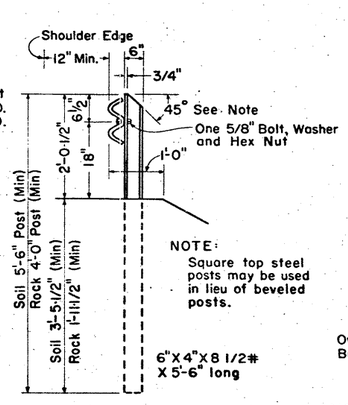
SECTION THRU RAIL ELEMENT



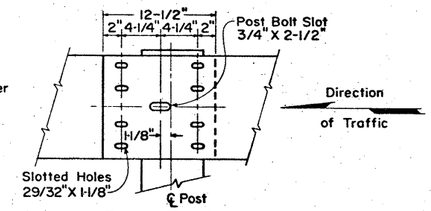
ELEVATION OF GUARD RAIL



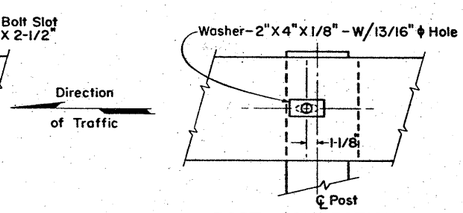
WOOD LINE POST



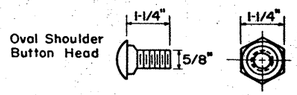
STEEL LINE POST



RAIL SPLICE
STEEL POST



POST CONNECTION
STEEL POST



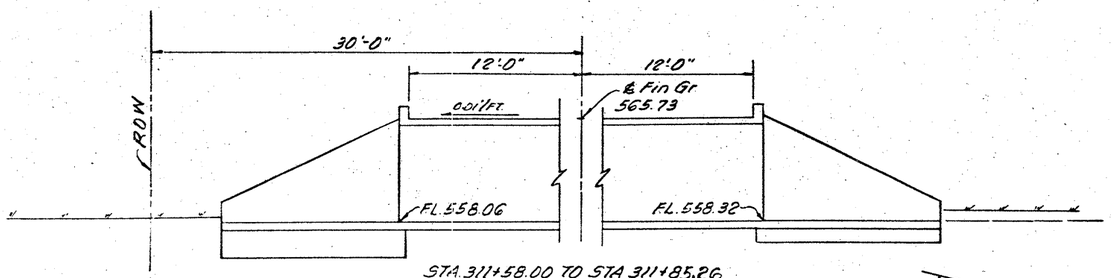
ANCHOR OR SPLICE BOLT NUT
POST BOLT: Similar except length

TEXAS HIGHWAY DEPARTMENT

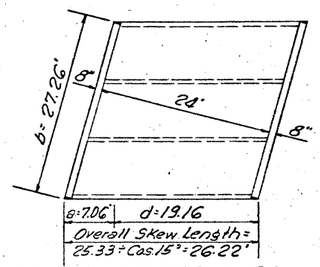
METAL BEAM GUARD FENCE

GF(SU)-65

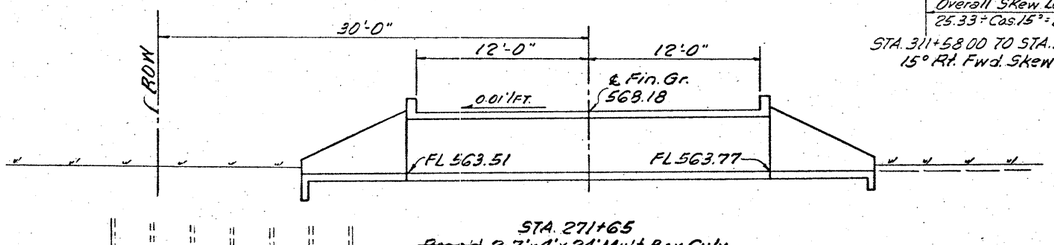
DN.	DRAWING	DATE	FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
CK. DN.	ORIGINAL	FEB. 1965	6	TEXAS	I 35-1(18)007, etc.	102
DW. C.A.K.	REVISED		STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
CK. DW.			21	Webb	18 5 6 16 25	I 35
TR.						
CK. TR.						



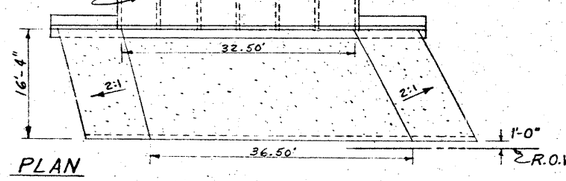
STA. 311+58.00 TO STA 311+85.26
~~Prop'd~~ 3-8'x7'x24' Mult. Box Culv.
15° Rt. Fwd Skew
MC8-1 & MC-15° (Direct Traffic) & MCW-F2-15°



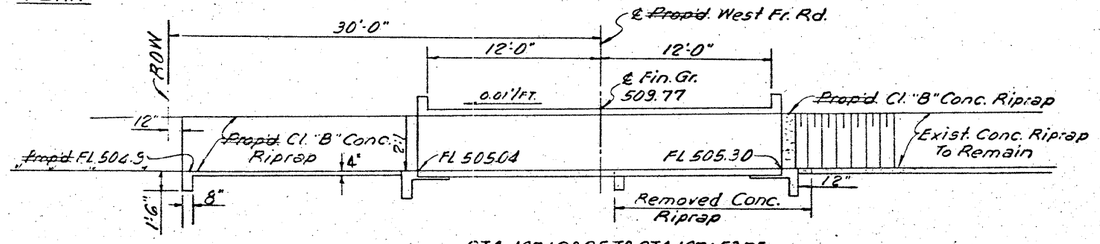
STA. 311+58.00 TO STA. 311+85.26
15° Rt. Fwd. Skew



STA. 271+65
~~Prop'd~~ 2-7'x9'x24' Mult. Box Culv.
MC7-1 (Direct Traffic) & MCW-F1

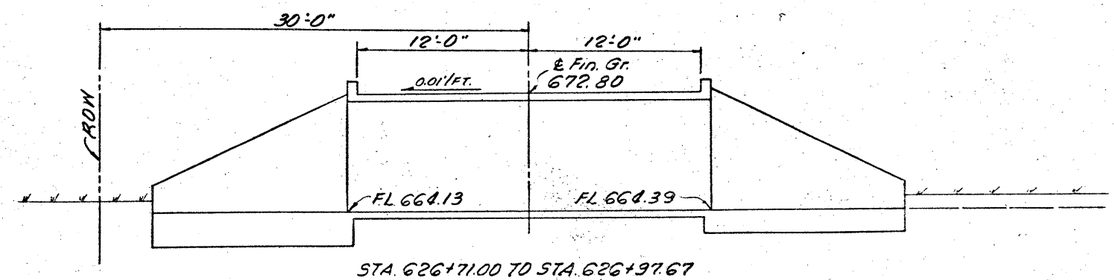


PLAN

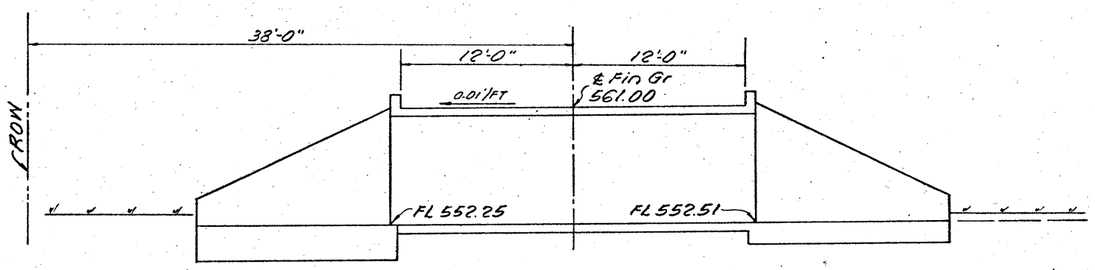


STA. 187+20.25 TO STA 187+53.75
~~Prop'd~~ 6-5'x4'x24' Mult. Box Culv.
MC5-1 (Direct Traffic) & MCW-P

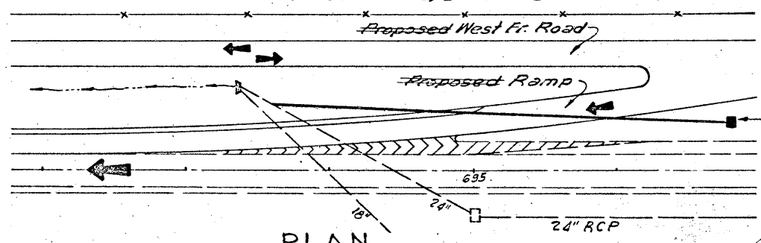
NOTE: ~~Proposed~~ frontage road structures match in size the existing main lane structures, which have proven hydraulically adequate, to prevent siltation of the main lane structures due to constricted flow under the frontage road.



STA. 626+71.00 TO STA. 626+97.67
~~Prop'd~~ 3-8'x8'x24' Mult Box Culv
MC8-1 (Direct Traffic) & MCW-F2

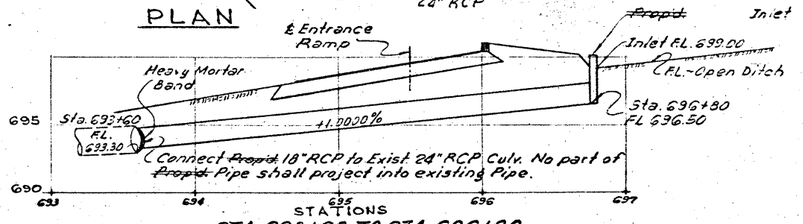


STA. 342+87.33 TO STA. 343+30.66
~~Prop'd~~ 4-10'x8'x24' Mult. Box Culv.
MC10-1 (Direct Traffic) & MCW-F2



Drainage Area = 2 Acres
Freq. = 10 yrs.
C = 0.45
I = 4.7"/Hr.
Q = 4 cfs

PLAN

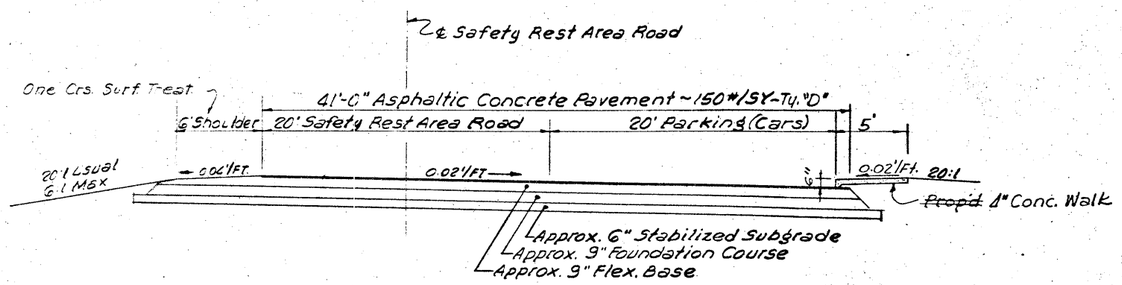


STA. 693+60 TO STA. 696+80
~~PROP'D~~ 18"x320' RC PIPE WITH ONE INLET

CROSS SECTION AT CULVERT SITES
WEST FRONTAGE ROAD

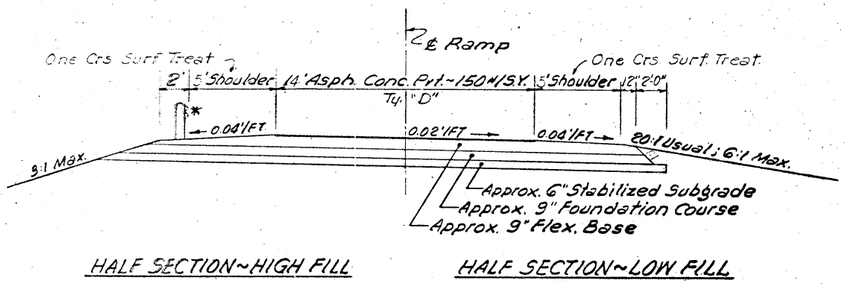
Rev. 4-5-66

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(18)007				104
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	5	6	16	IH-35



SECTION 3

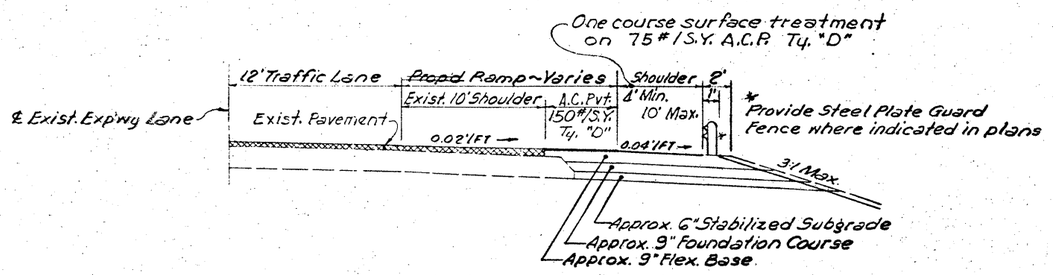
SHOWING ~~PROPOSED~~ SAFETY REST AREA ROAD & PARKING AREA



HALF SECTION ~ HIGH FILL HALF SECTION ~ LOW FILL

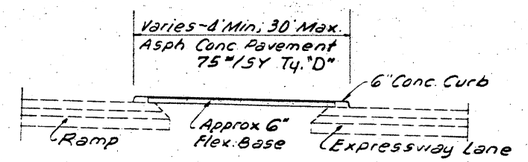
SECTION 2

SHOWING ~~PROPOSED~~ RAMP

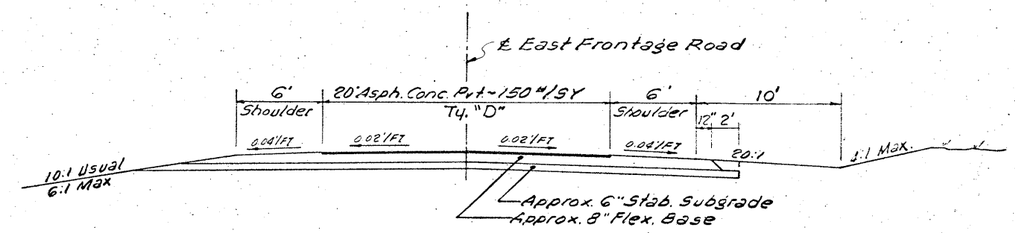


SECTION 1

SHOWING ~~PROPOSED~~ RAMP CONNECTION TO EXISTING EXPRESSWAY LANE

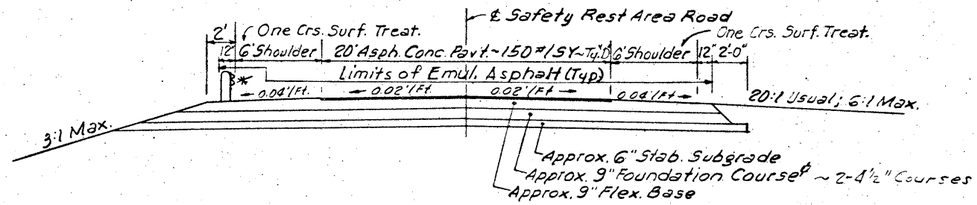


GORE SECTION



HALF SECTION ~ LOW FILL HALF SECTION ~ CUT

SECTION 5



HALF SECTION ~ HIGH FILL HALF SECTION ~ LOW FILL

SECTION 4

Place salvaged base from East Frontage Road ~~to be~~ obliterated on First Course of Foundation Course on East Safety Rest Area Road from Sta. 442+00 to Sta. 457+00.

See Sheet 66 for Design Note

TYPICAL CROSS SECTIONS
SAFETY REST AREAS

ESTIMATE – SUMMARY OF GRADING ~ FOUNDATION COURSE & FLEXIBLE BASE

EAST FRONTAGE ROAD

Lime Treated Subgrade		422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422
Uncl. Road Excav.		122	117	200	152	39								44	80	65	89	135	128	52			132	630	398	
Uncl. Chan. Excav.											132														
Emb'k't. + Shrinkage		18		6	45	146	293	469	469	378	396	392	255	67						28	97	244	176		132	573
Foundation Course		131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131
Flexible Base		126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126

EAST SAFETY REST AREA

Lime Treated Subgrade									150	244	339	355	333	367	400	417	512	578	578	564	422	570	658	583	417	358
Uncl. Road Excav.									13	170	391	465	469	487	426	370	380	339	333	331	280	357	337	157	70	19
Emb'k't. + Shrinkage									31	113	104	31	31	28	21	21	21	21	24	28	27	21	24	94	182	228
Salv. & Repl. Flex. Base									24	31	48	65	64	61	61	61	78	89	89	89	65	102	143	107	69	68
Foundation Course									24	31	48	65	63	60	60	60	77	89	89	89	65	101	142	107	68	67
Flexible Base									36	60	91	116	219 *	116	119	119	150	173	173	173	125	198	280	212	132	130

WEST SAFETY REST AREA

Lime Treated Subgrade													43	60	73	87	98	100	117	150	206	257	300	310	404	413
Uncl. Road Excav.													31	41	17	13	9	6	4	6	6	2				
Emb'k't. + Shrinkage													94	15	31	42	43	64	116	167	342	661	941	1,011	1,525	1,628
Foundation Course													20	39	39	39	39	39	40	48	70	96	118	135	139	147
Flexible Base													18	34	34	34	34	34	35	43	65	91	205 *	130	134	142
STATION	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460

* Includes 103 CY for Gore
* Includes 92 CY for Gore
⊡ Includes 75 CY for Gore
⊙ Includes 100 CY for Gore

ESTIMATE – SUMMARY OF GRADING ~ FOUNDATION COURSE & FLEXIBLE BASE

EAST FRONTAGE ROAD

												UNIT	TOTAL QUANTITIES ESTIMATE	TOTAL QUANTITIES FINAL
Lime Treated Subgrade	422	422	422	422	422	422	422	422	422	422	422	S.Y.	15,192	*-1
Uncl. Road Excav.				170	272	276	263	93	30	78	54	C.Y.	3519	
Uncl. Chan. Excav.												C.Y	132	
Emb'k't. + Shrinkage	827	706	347	57	115	134	134	132	106	72	27	C.Y	6841	
Foundation Course	131	131	131	131	131	131	131	131	131	131	131	C.Y.	4716	
Flexible Base	126	126	126	126	126	126	126	126	126	126	126	C.Y.	4536	

EAST SAFETY REST AREA

Lime Treated Subgrade	333	289	239	178	167	161	150	133	117	83		S.Y.	9895	
Uncl. Road Excav.	76	155	69	17	19	20	20	28	22	19		C.Y.	5839	
Emb'k't. + Shrinkage	210	70	66	97	97	36	21	13	8			C.Y.	1728	
Salv. & Repl. Flex. Base	53	27										C.Y.	⊕1394	
Foundation Course	53	101	92	73	59	50	44	36	36	39		C.Y.	1888	
Flexible Base	176 ⊡	123	87	70	57	48	42	34	34	26		C.Y.	3319	

WEST SAFETY REST AREA

Lime Treated Subgrade	420	422	462	467	467	460	576	578	578	446	422	422	362	322	353	328	217	133	67	S.Y	10,122		
Uncl. Road Excav.	130	661	755	209	28	124	370	556	302	57	280	437	431	46	28	52	43	30	31	C.Y.	4705		
Emb'k't. + Shrinkage	541	41	302	609	417	101	52	27	347	356	34	27	39	94	85	28	31	28	13	C.Y.	9852		
Foundation Course	142	130	142	150	155	169	186	186	183	156	130	130	127	125	111	82	77	39	39	C.Y.	3467		
Flexible Base	137	125	137	145	150	164	181	181	178	151	125	125	122	220 ⊙	106	77	72	34	34	C.Y.	3497		
STATION	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479			

ESTIMATE GRADING QUANTITIES

ITEM	EAST FRONT. ROAD	EAST SAFETY REST AREA	WEST SAFETY REST AREA	TOTAL
Lime Treat. Subgrade	15192	9895	10122	35209 S.Y.
Uncl. Road Excav.	3519	5839	4705	14063 C.Y.
Uncl. Chan. Excav.	132			132 C.Y.
Emb'k't. + Shrinkage	6841	1728	9852	18421 C.Y.
Foundation Course	4716	1888	3467	10071 C.Y.
Solvg. & Replc. Base		1394		1394 C.Y.
Flexible Base	1536	3319	3497	11352 C.Y.

⊕ Salvage and Replace Flexible Base from Sta. 435+00 To Sta 469+85 on Existing Frontage Road: 3485 Sta. @ 40 CY/Sta = 1,394 CY

NOTE:
321 C.Y. Excess Rdwy Excavation from East Safety Rest Area Plus 4226 C.Y. Excess Rdwy. Excav. from West Frontage Road ~~will be~~ used to make up the 5,147 C.Y. Embankment required to balance the West Safety Rest Area grading quantities.

*(1) Final Quantities shown on Sheet 106-A & in Estimate & Quantity Sheets.
*(2) Drop Inlets do not require riprap.

*Any work required to connect extension to existing headwall will not be paid directly but will be considered subsidiary to the various bid items.

SUMMARY OF DRAINAGE STRUCTURES

PLAN & PROFILE SHEET NO.	STATION	LOCATION	DESCRIPTION OF EXISTING STRUCTURE	DESCRIPTION OF ~~PROPOSED~~ EXTENSION OR NEW CONSTRUCTION	TO BE EXTENDED FT. LT.	TO BE EXTENDED FT. RT.	UNCLASSIFIED STRUCT EXCAV CY EST.	UNCLASSIFIED STRUCT EXCAV CY FINAL	CL. "A" CONC. CY EST.	CL. "A" CONC. CY FINAL	CL "B" CONC RIPRAP CY EST.	CL "B" CONC RIPRAP CY FINAL	REINF STEEL LB EST.	REINF STEEL LB FINAL	REINF CONC PIPE CL III ~ LF 24" DIA EST.	24" DIA FINAL	36" DIA EST.	36" DIA FINAL	INLETS (COMPL) EA. EST.	INLETS (COMPL) EA. FINAL	GRATE EA. EST.	GRATE EA. FINAL	RELAYING CULV. PIPE 18" DIA & UNDER L.F EST.	RELAYING CULV. PIPE 18" DIA & UNDER L.F FINAL
111	444+85	East Frontage Rd	NONE	3-24"x44' RCP pipes with CH-11-B Hdwlls			43	43	3.32	3.32			304	304	132.0	133.38								
111	444+60	~~Proposed~~ Ramp	3-36"x124' RCP with CH-11-B Hdwlls	Ext. with 3-36" RC Pipes & 1-CH-11-B Hdwll*		28.0	25	25	3.28	3.28			272	272			84.0	86.13						
111	444+66 TO 447+78	30' Rt. & Parallel to East Expwy Lane	NONE	18"x312' RCP with one Type 'A' Inlet			113	113			1.30								1	1	1	1	312.0	313.50
109	455+98	West Safety Rest Area Acces.	36"x126' RCP with CH-11-B Hdwlls	Ext. with 36" RCP & Relocate one Hdwll.	36.0		5	5									36.0	36.21						
109	457+90	West Safety Rest Area Road	NONE	24"x56' RCP with 1-CH-11-B Hdwll & 1-Ty 'A' Inlet			12	12	0.81	0.81	1.30		88	88	56.0	56.42			1	1	1	1		
112	458+12	East Safety Rest Area Road	24"x39.2' RCP with Conc Hdwlls	Ext. with 24" RCP & CH-11-B Hdwlls*	4.0	4.0	3	3	1.62	1.62			176	176	8.0	8.0								
112	460+00	East Fr Road	NONE	24"x48' RCP with CH-11-B Hdwlls			6	6	1.62	1.62			176	176	48.0	48.42								
109	459+50	West Safety Rest Area Road	18" RCP with CH-11-B Hdwlls	Ext. with 18" RCP & Relocate one Hdwll.	84.0		9	9															84.0	84.67
			TOTALS				216	216	10.65	10.65	2.60	0*2	1016	1016	244.0	246.22	120.0	122.34	2	2	2	2	396.0	398.17

*Any work required to connect extension to existing headwall will not be paid directly but will be considered subsidiary to the various bid items.

ESTIMATE AND QUANTITY SHEET
SAFETY REST AREAS
SHEET 1 OF 2 SHEETS

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SUMMARY OF GRADING

EAST FRONTAGE ROAD

Lime Treated Subgrade	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422
Uncl. Road Excav.	90	89	114	139	164	100	5	12	13	11	11	1	51	84	58	77	110	97	145	120	15	242	646	430	33
Uncl. Chan. Excav.										137															
Emb'kt. + Shrinkage	39	26	18	37	54	167	356	352	305	309	309	255	96	9	13	10	16	30	33	89	255	192	28	138	695

EAST SAFETY REST AREA

Lime Treated Subgrade								150	244	339	355	333	367	400	417	512	578	578	564	422	570	858	583	417	358
Uncl. Road Excav.							19	43	67	261	394	370	435	417	396	402	382	344	298	298	330	269	122	39	13
Emb'kt. + Shrinkage							28	73	109	78	67	140	94	46	70	64	67	67	78	97	62	195	283	244	356

WEST SAFETY REST AREA

Lime Treated Subgrade												43	60	73	87	98	100	117	150	206	257	300	310	404	413
Uncl. Road Excav.												7	13	9	24	32	13	7	9	4					
Emb'kt. + Shrinkage												13	83	140	80	45	76	78	119	246	566	1135	1865	2477	2274

STATION	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460

SUMMARY OF GRADING

EAST FRONTAGE ROAD

																				UNIT	TOTAL QUANTITIES	
																						FINAL
Lime Treated Subgrade	422	422	422	422	422	422	422	422	422	422	422									S.Y.		15,192
Uncl. Road Excav.	31	58	69	149	216	237	236	124	147	213	358									C.Y.		4,695
Uncl. Chan. Excav.																				C.Y.		137
Emb'kt. + Shrinkage	865	513	258	72	120	131	120	124	60	12	12									C.Y.		6,118

EAST SAFETY REST AREA

Lime Treated Subgrade	333	289	239	178	167	161	150	133	117	83										S.Y.		9,895
Uncl. Road Excav.	70	117	174	187	133	70	22	30	28	9										C.Y.		5,739
Emb'kt. + Shrinkage	322	153	67	62	64	52	36	31	46	28										C.Y.		3,079

WEST SAFETY REST AREA

Lime Treated Subgrade	420	422	462	467	467	460	578	578	578	446	422	422	362	322	353	328	217	133	67	S.Y.		10,122
Uncl. Road Excav.	28	559	707	102	79	220	283	543	293	26	230	304	102	9	33	56	41	22	15	C.Y.		3,770
Emb'kt. + Shrinkage	1151	340	433	970	913	371	143	45	59	246	70	48	109	216	185	80	62	101	128	C.Y.		14,301

STATION	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479

GRADING QUANTITIES

ITEM	EAST FRONT. ROAD	EAST SAFETY REST AREA	WEST SAFETY REST AREA	TOTAL
Lime Treat. Subgrade	5192	9895	10122	35209SY.
Uncl. Road Excav	4695	5739	3770	14204 C.Y.
Uncl. Chan. Excav.	137			137 C.Y.
Emb'kt. + Shrinkage	6118	3079	14301	23498 C.Y.

FINAL
QUANTITY SHEET
SAFETY REST AREAS

SHEET 1 OF 2 SHEETS

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SUMMARY OF CONCRETE CURB

STATION & LOCATION	LENGTH-LF EST	LENGTH-LF FINAL
Sta 443+16 To Sta 447+35		
Along East Expressway Lane	225	247
Along Exit Ramp (Incl. 5' R)	239	262
Sta 453+32 To Sta 456+32		
Along East Expressway Lane	200	255
Along Entrance Ramp (Incl. 12" R)	204	260
Sta 455+01 To Sta 457+01		
Along West Expressway Lane	250	246.2
Along Entrance Ramp (Incl. 12" R)	254	250.0
Sta 471+31 To Sta 474+21		
Along West Expressway Lane	225	224.3
Along Exit Ramp (Incl. 5' R)	239	238.0
TOTAL	1836	1982.5

SUMMARY OF REMOVING OLD STRUCTURES (REST AREA SHELTERS)

LOCATION	UNIT	EST	FINAL
Right of Sta 450+00	EA	1	1
Right of Sta 452+50	EA	1	1
TOTAL		2	2

SUMMARY OF DOWNDRAINS

LOCATION	CL "B" CONC RIPRAP-CY EST	CL "B" CONC RIPRAP-CY FINAL
RT-460+80	4.0	0
RT-467+50	4.0	0
TOTAL	8.0	0

SUMMARY OF METAL BEAM GUARD FENCE

STATION TO STATION	LENGTH-LF EST LT	LENGTH-LF EST RT	LENGTH-LF FINAL LT	LENGTH-LF FINAL RT
WEST SAFETY REST AREA				
455+00 TO 460+75	575		575	
459+50 TO 468+50		900		900
EAST SAFETY REST AREA				
458+00 TO 459+50		150	150	
TOTAL	1625		1625	

SUMMARY OF CONCRETE SIDEWALKS

STATION TO STATION	LOCATION	AREA-SY EST	AREA-SY FINAL
462+25 TO 465+25	West Safety Rest Area	166.7	166.7
465+66 TO 469+06	West Safety Rest Area	188.9	188.9
451+00 TO 454+96	East Safety Rest Area	188.9	188.9
TOTAL		544.5	544.5

SUMMARY OF REMOVING WIRE MESH GUARD FENCE

STATION TO STATION	LOCATION	LENGTH-LF EST	LENGTH-LF FINAL
445+60 TO 456+60	Old East ROW Line	1166	1166
TOTAL		1166	1166

SUMMARY OF REMOVING OLD STRUCTURES (SMALL)

STATION	LOCATION	DESCRIPTION	UNIT	EST	FINAL
444+60	Existing East Fr. Road	8'x2'x35'-4" Conc. Box	EA.	1	1
TOTAL				1	1

SUMMARY OF PAVEMENT

LOCATION	AREA SQ YARDS	ASPHALTIC CONCRETE PAVEMENT TYPE "D" RATE LBS PER SY	ASPHALT 5.5% BY WT TON	AGGREGATE 94.5% BY WT TON	TACK COAT .002 GAL PER SY GAL	ONE COURSE SURFACE TREATMENT ASPHALT EA-HVMS (MOD) 0.20 GALS./SY. GAL	AGGREGATE TY. A GR. 5 MOD (1:120) CY	ROLLING FLAT WHEEL 7 HRS/MI. HRS.	ROLLING LIGHT PNEUM 7 HRS/MI. HRS.
East Frontage Road	8000	150	33	567	160				
East Safety Rest Area	5653	150	23	401	113				
West Safety Rest Area	6200	150	26	439	124				
Ramp Gores (4)	1668	75	3	60	33				
East Safety Rest Area 4' Shdr.	615	75	1	22	12	246	5	1	1
West Safety Rest Area 4' Shdr.	615	75	1	22	12	246	5	1	1
East Safety Rest Area 6' Shdr.	1673					669	14	3	3
West Safety Rest Area 6' Shdr.	2030					812	17	3	3
TOTAL			87	1511	454	1973	41	8	8

BASIS OF ESTIMATE

DESCRIPTION	EMBANKMENT 18,421 CY RATE	EMBANKMENT 18,421 CY TOTAL	FLEXIBLE BASE 11,352 CY 27,482 SY RATE	FLEXIBLE BASE 11,352 CY 27,482 SY TOTAL	LIME TREATED SUBGRADE 5,868 CY 35,209 SY RATE	LIME TREATED SUBGRADE 5,868 CY 35,209 SY TOTAL	FOUNDATION COURSE *11,465 CY RATE	FOUNDATION COURSE *11,465 CY TOTAL	TOTAL
Sprinkling	25 Gal/CY	461 MG	100 Gal/CY	1135 MG	30 Gal/SY	1056 MG	60 Gal/CY	688 MG	3340 MG
Rolling (Flatwheel)			1 Hr/200 CY	57 Hrs					57 Hrs
Rolling (Tamping)	1 Hr/300 CY	61 Hrs			1 Hr/400 CY	15 Hrs	1 Hr/300 CY	38 Hrs	114 Hrs
Rolling (Light Pneum Tire)			1 Hr/200 CY	57 Hrs	1 Hr/200 CY	29 Hrs	1 Hr/200 CY	57 Hrs	143 Hrs
Rolling (Heavy Pneum)	1 Hr/600 CY	31 Hrs	1 Hr/400 CY	28 Hrs	1 Hr/400 CY	15 Hrs	1 Hr/400 CY	29 Hrs	103 Hrs
Rolling (Vibrating)			1 Hr/500 CY	23 Hrs	1 Hr/500 CY	12 Hrs	1 Hr/500 CY	23 Hrs	58 Hrs
Emul Asph (EA-HVMS) or (EA-HVMS Mod)			0.25 Gal/SY	6871 Gals					6871 Gals
Lime - Item 260 (Ty A)					3% by wt	238 Tons			238 Tons
Lime - Item 262 (Ty A or B)			1% by wt	153 Tons			1% by wt	155 Tons	308 Tons
Sprinkling For Emul Asph			20:1 by vol.	137 MG					137 MG

NOTE:- Wt of Flex Base - 3600 #/CY (Comp)
Wt of Subgr. Mat'l - 2700 #/CY (Comp)

*Includes 1394 CY Salv & Repl Base

ESTIMATE & QUANTITY SHEET
SAFETY REST AREAS

SHEET 2 OF 2 SHEETS

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"HOLIDAY INN" Sign
CSR Sign Co.

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℄ REA RL.

PT. 433+87.8

℄ Exist. Crossover

20'

20'

N 26°58'E

West Frontage Road

435

440

445

445+50

10'

(653.61) N 26°58'E (654.63) (655.81) (656.98) 450 (658.31) (659.38)

12 1/2'

+50

℄ of Existing West Expressway Lane

3-36"x120' RC Pipes

129'

U.S. Rubber Entrance

(650.00) = ~~Proj'd~~ ℄ Fin. Grade after 6" A.C.P. overlay

PI 635.00
No V.C.
~~Proj'd~~ ℄ of West Fr. Road
PI 656.00
No V.C.
+0.5000%
0.00%

660
650
640

West Fr. Road ℄ Fin. Gr.
635.00
655.50
656.00
656.00

SEE SHEET No. 106 FOR
SAFETY REST AREA
GRADING QUANTITIES

℄ West Lane
~~Proj'd~~ ℄ of West Safety Rest Area

660
650

WEST SAFETY REST AREA
Sheet 1 of 3

West Safety Rest Area ℄ Fin. Gr.
651.77
655.59
656.19
651.77

445 446 447 448 449 450 451

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RAMP CURVE DATA
P.I. = Sta. 454+87.2
Δ = 7°-00' Lt.
D = 2°-00
T = 175.2.
L = 350.00

WEST FR. RD. CURVE DATA
PI = 455+00.9
Δ = 15°-0' Lt
D = 5°-00'
T = 150.9'
L = 300.0'

WEST FR. RD CURVE DATA
PI = 460+66.6
Δ = 15°-0' Rt
D = 5°-00'
T = 150.9'
L = 300.0'

N 26°-58' E ~ 1,470.00'

N 14°-53' E ~ 653.97'

C P & L

REA ~ Medina Elec. Co-op.

PC = 453+50

PT = 456+50

PC = 459+15.7

PT = 462+15.7

Old R.B.T. Source #4

690

PI: Sta. 459+27.3
Δ = 7°-55' Rt.
D = 3°-00'
T = 132.2'
L = 263.9'

Sta. 460+75

Prop'd. West Frontage Road

Prop'd Conc. Walk

Sta. 455+00

Metal Beam Gd. Fence

PT = 456+62

PC: Sta. 453+12.00

PC: Sta. 457+95.1

PT Sta. 460+59.0

Sta. 459+50

Metal Bm. Gd. Fence

Prop'd Conc. Curb

N 26°-58' E

+658.98 659.60 660.21 +662.07 660.69 661.45 662.71 660.52 666.56

659.38 660.04 660.69 661.45 662.71 660.52 666.56

N 16°-03' E +660.93

3.80

665.50

627.50

455

460

465

670 675 680 685 690 695 700

WEST FR. ROAD 656.00 656.50 657.00 657.08 657.16 657.16 658.40 660.80 663.20 667.06 672.38 677.43 680.85 684.18 691.10 696.04 697.14

DITCH F.L. LT 657.16 RT 657.16

PI: 656.00 No V.C.

PI: 657.00 No V.C.

Sta. 456+50 PI: 657.20 VC: 100' Ext: 0.29'

Prop'd ℄ of West Fr. Road

Sta. 459+50 PI: 662.40 VC: 100' Ext: 0.37

PI: 677.70 VC: 100' Ext: 0.27'

PI: 684.00 VC: 100' Ext: 0.48

PI: 688.00 VC: 200' Ext: 1.36'

PI: 693.00 300' V.C. Ext: 1.13'

+0.5000% +0.0800% +2.6000% +5.3200% +3.1500% +7.0000%

PI: 669.70 200' V.C. Ext: 1.18'

PI: 693.70 400' V.C. Ext: 4.10'

STA. 455+98
Exist. 36"x 126" R.C.P. With CH-11-B Hdwlls.
EXT. 36' LT. WITH 36" R.C.P. (CL. III) AND ONE CH-11-B HDWLL.
F.L. 657.25 LT. & 657.57 RT. (EXIST.)

STA. 459+50
Exist. 18" R.C.P. With CH-11-B Hdwlls.
EXT. 84' LT. WITH 18" R.C.P. (CL. III) & ONE CH-11-B HDWLL.
F.L. 666.00 Lt. & 666.40 RT. (Exist.)

Prop'd ℄ of Safety Rest Area Road

-0.2000%

+2.8000%

+2.1000%

+8.000%

℄ West Lane

Natural Ground

STA. 457+90
~~PROP'D~~ 24"x56" R.C.P. (CL. III) WITH ONE CH-11-B HDWLL. & ONE INLET
F.L. 660.44 LT. & 661.00 RT.

WEST SAFETY AREA ℄ P.I. Sta. 451+65.98 659.98 659.60 660.21 660.93 661.07 663.10 665.50 667.60 671.18 677.70 684.67 689.60 692.47 693.30 694.60 694.90 697.20

451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467

WEST SAFETY REST AREA
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WEST FRONTAGE ROAD
P.I. = Sta. 478+57.8
Δ = 16°-14' Lt.
D = 4°00'
T = 204.3'
L = 405.8'

N 26°-58' E

N 22°-07' E ~ 397.19'

P.C. = Sta 476+53.5

P.T. = Sta. 480+59.3

N 10°-44' E

℄ Prop'd West Frontage Road

CP&L

REA

Prop'd. Conc. Walk

Prop'd Exit Ramp for West Safety Rest Area

P.C. = Sta. 474+75

Prop'd. Conc. Curb

5' Shldr.

14'

Shldr.

LT. EDGE ~ RAMP PVT.
Δ = 12°-48' Lt
D = 2°-00'
T = 321.36'
L = 640.00'

Existing Crossover (To Be Removed)

P.T. = Sta. 481+15

153

℄ Metal Beam Gd Fence

Sta. 468+50

N 26°-58' E

℄ Existing West Expressway Lane

The pavement marking is not the responsibility of the Contractor

WEST FR. ROAD DITCH FL AT LT

PT=700.00 200' V.C. 14-695.71 27-695.68 Ext=0.57

PT=635.00 VC=100' Ext=0.77'

PI=703.00 VC=100' Ext=0.96'

PI=698.40 VC=100' Ext=0.51'

Sta 476+50 PT=704.70 VC=100' Ext=0.87'

PI=698.00 VC=50' Ext=0.68'

PI=700.40 VC=100' Ext=0.88'

-0.8571%

+5.5333%

-1.5833%

+2.5200%

-0.4667%

+6.4000%

-0.6667%

+0.5400%

Prop'd ℄ of Safety Rest Area Road

Natural Ground

℄ West Lane

WEST SAFETY REST AREA PROFILE

WEST SAFETY REST AREA
Sheet 3 of 3

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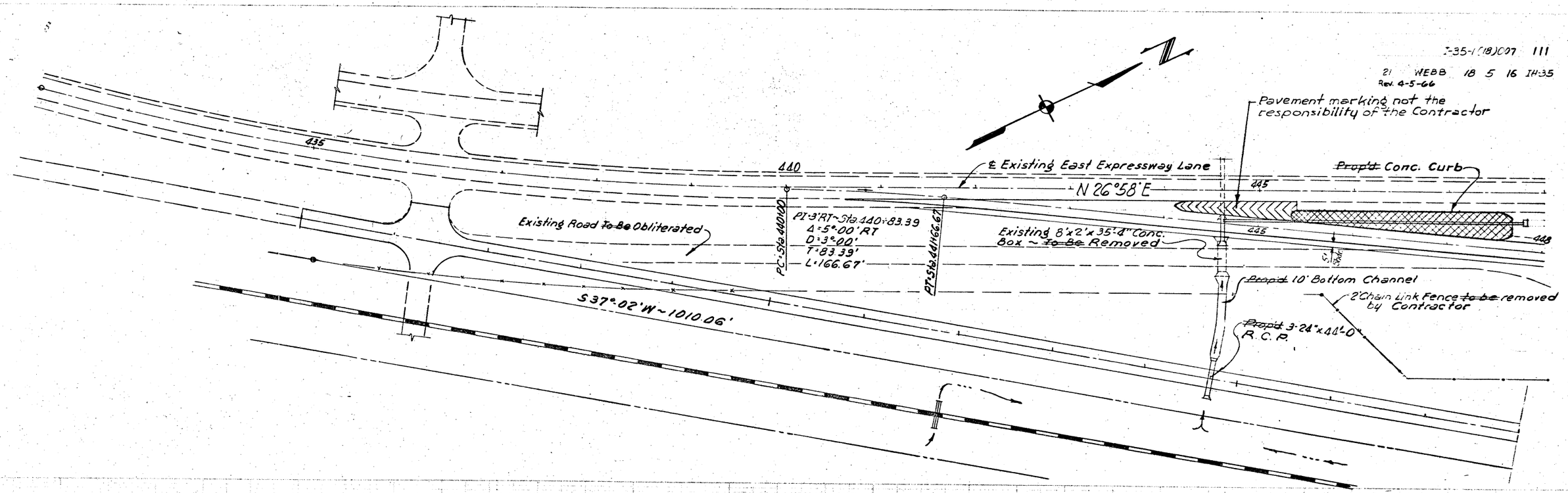
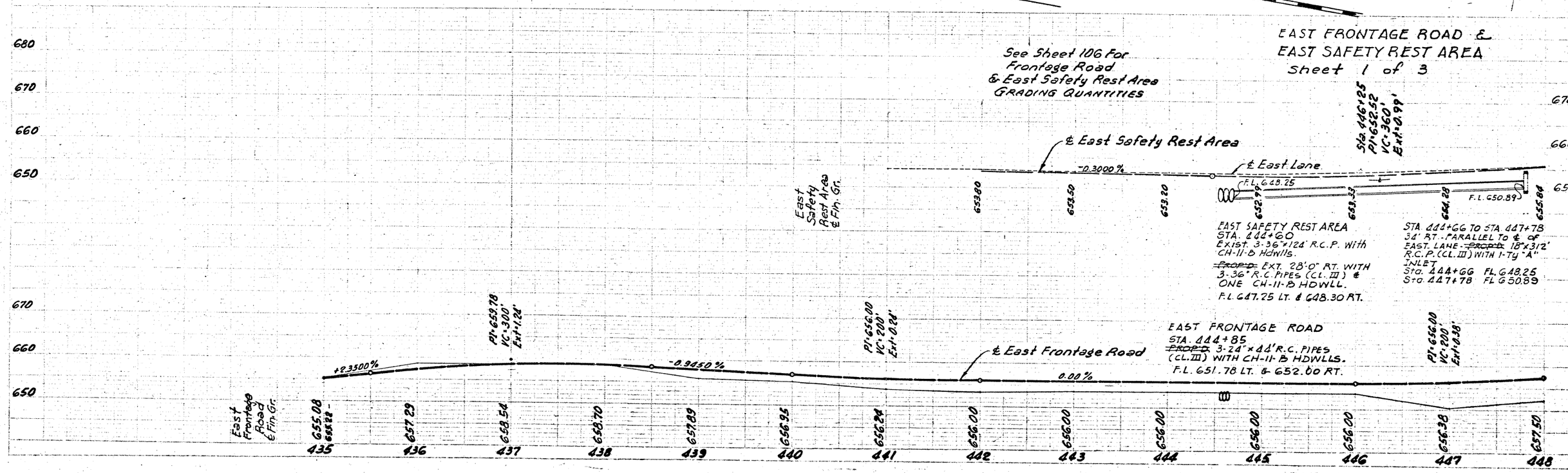


EAST FRONTAGE ROAD ℄
EAST SAFETY REST AREA
Sheet 1 of 3

See Sheet 106 For Frontage Road & East Safety Rest Area GRADING QUANTITIES



PLAN — SURVEYED, PLOTTED, NOTE BOOK, ALIGNMENT CHECKED, NO., RT. OF WAY CHECKED, BY, DATE

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, GRADES CHECKED, NO., BY, STRUCTURE NOTES CHECKED

℄ Existing East Expressway Lane

N 26°-58' E

PC: Sta 448+71.88

PI: Sta 449+55.27
Δ = 5°-00' Lt
D = 3°-00'
T = 83.39'
L = 166.67'

N 31°-58' E

PT: Sta 450+38.55

Prop'd Conc. Walk

Safety Rest Area

Shelters to be removed by Contractor

2' Chain Link Fence to be removed by Contractor

PC: 455+13.4

ROW

PC: 457+24.27

5' Shd

Sta 458+00

RAMP CURVE DATA
PI = Sta 458+34.33
Δ = 8°-50' Lt
D = 4°-00'
T = 110.66'
L = 220.83'

CURVE DATA
PI = Sta 458+79.2
Δ = 35°-24' Lt.
D = 5°-00'
T = 365.8'
L = 708.00'

PC: 459+80.24

PT = 459+45.10

Sta 459+50

Metal Bm. GD

Fence

Existing Road to be Obliterated

RAMP CURVE DATA
PI = Sta 461+78.88
of ℄ E. Lane - 461+78.89
Δ = 7°-55' Rt
D = 2°-00'
T = 198.24'
L = 395.83'

PT = 462+21.4

PC: 464+78.8

PT = 463+76.07

℄ Shd - 2

Rev. 4-5-66

Sta 457+25
PI: 662.00
VC = 200'
Ext. 0.28'

+1.8760%

+0.7740%

℄ East Safety Rest Area

℄ East Lane

Sta 458+75
PI: 667.81'
VC: 400'
Ext. 1.19'

+3.7529%

PI: 670.10
VC: 200'
Ext. 0.41'

PI: 662.50
VC: 200'
Ext. 0.43'

+1.5000%

+3.2000%

+1.5778%

Sta 457+50
PI: 672.20
VC: 300'
Ext. 1.22'

-1.6800%

PI: 673.00
VC: 200'
Ext. 0.67'

+1.2000%

Sta 462+50
PI: 675.50
VC: 300'
Ext. 1.50'

+5.0000%

EAST SAFETY REST AREA STA. 458+12
EXIST 24"x 32'6" YC PIPE WITH CONC HDWLLS
EXT 40' LT & RT WITH
24" RC PIPE - (CL III) &
CH-II-B HDWLLS
FL 663.26 LT & 663.98 RT

EAST FRONTAGE ROAD
Sta 460+00
~~PROP'D~~ 24"x 48" R.C. PIPE (CL III)
WITH CH-II-B HDWLLS.
FL 669.00 LT & 670.40 RT

EAST FRONTAGE ROAD &
EAST SAFETY REST AREA
Sheet 2 of 3

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.		SHEET NO.
6	TEXAS	I-35-1(13)0027		112
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5	16	IH-35

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(8)0[illegible]7	113

STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5 16	IH-35

PLAN | SURVEYED | DATE | BY
NOTE BOOK | PLOTTED
NO. | ALIGNMENT CHECKED
RT. OF WAY CHECKED

PROFILE | SURVEYED | DATE | BY
NOTE BOOK | CROSS SECTIONS CHECKED
NO. | STRUCTURE NOTAT NO CH'KD

687.05 689.89 692.18 695.29 691.87 699.79 701.34 694.85 697.80

N26°58'E

N26°-03'E

465 470 475 480

Exist Road To Be Obliterated

466+30

End Frontage Rd. Reloc: EQUATION: 471+00 = 469+85.2

12' 10'

471+30

℄ Existing East Expressway Lane

℄ ~~Propd.~~ East Frontage Road

Existing East ROW

℄ Existing East Frontage Road - ~~To~~ remained

CURVE DATA
PI=Sta 467+35.9
Δ = 25°-17' Rt.
D = 5°-00'
T = 257.1'
L = 505.7'

PT: 469+84.5

U.S. ROYAL SIGN

~~Proposed~~ R.O.W. Line

Sta 468+50
PT: 700.50
VC: 300'
Ext: 1.17'

PT 680.00
VC = 200'
Ext: 2.36'

℄ East Frontage Road

+3.571 4 %

+0.446 1%

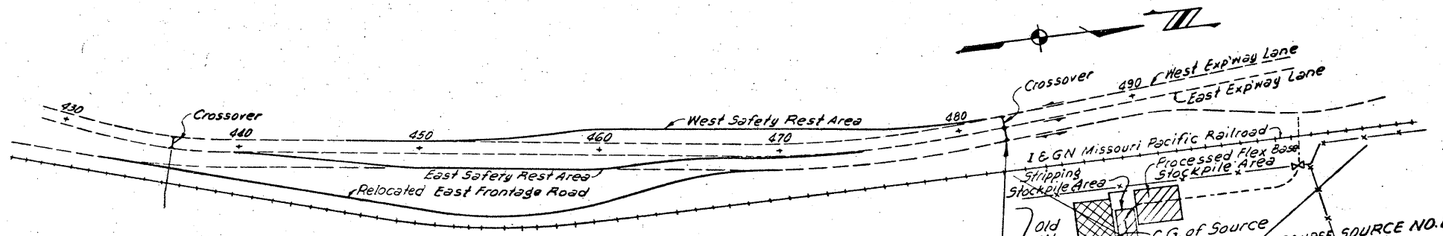
EAST FRONTAGE ROAD PROFILE

700 690 680 670 660 650

687.64 691.57 695.14 698.19 700.20 701.17 701.62

465 466 467 468 469 470 471

EAST FRONTAGE ROAD &
EAST SAFETY REST AREA
Sheet 3 of 3



NOT USED – Source No. 1 & Calculations

~~CALCULATIONS~~

Clearing & ~~Grubbing~~
Processed Flex. Base Stockpile Area:
$\frac{250 \times 200}{43,560} = 1.15$ Ac.

~~Stripping~~
$\frac{500 \times 150 \times 0.5}{27} = 1,388$ CY

FOUNDATION COURSE	Sta. 452+35	Sta. 466+45	Sta. 479+35
West Safety Rest Area	~~253~~	~~1,671~~	~~1,543~~
Add'l Qtr. Mi. Haul	1,265	6,684	4,629
FLEXIBLE BASE			
West Safety Rest Area	~~221~~	~~* 1,697~~	~~$ 1,579~~
Add'l Qtr. Mi. Haul	1,105	6,788	4,737
Quarter	6	5	4

~~*Includes 92 C.Y. for Gore~~

~~$Includes 100 C.Y. for Gore~~

FOUNDATION COURSE	Sta. 438+15	Sta. 451+35	Sta. 464+55
East Safety Rest Area		~~513~~	~~1,137~~
Reloc. East Frontage Road	~~413~~	~~1,729~~	~~1,729~~
			~~232~~
			~~845~~
Add'l Qtr. Mi. Haul	2,478	11,240	11,464
			3,231
FLEXIBLE BASE			
East Safety Rest Area		~~* 1,087~~	~~□ 2,022~~
Reloc. East Frontage Road	~~397~~	~~1,663~~	~~1,663~~
			~~210~~
			~~813~~
Add'l. Qtr. Mi. Haul	2382	13,750	14,740
			3,069
Quarter	7	6	5
			4

~~*Includes 103 C.Y. for Gore~~

~~□Includes 75 C.Y. for Gore~~

SOURCE	DESCRIPTION	FOUNDATION COURSE CY	FOUNDATION COURSE ADD'L. QTR. MI. HAUL-CY	FLEXIBLE BASE CY	FLEXIBLE BASE ADD'L. QTR. MI. HAUL-CY
~~U.S.~~ RUBBER CO.	West Safety Rest Area	~~3,467~~	12,578	~~3,497~~	12,630
	East Safety Rest Area & Reloc. East Fr. Road	~~6,604~~	28,413	~~7,855~~	33,941
	TOTALS	~~10,071~~	40,991	~~11,352~~	46,571

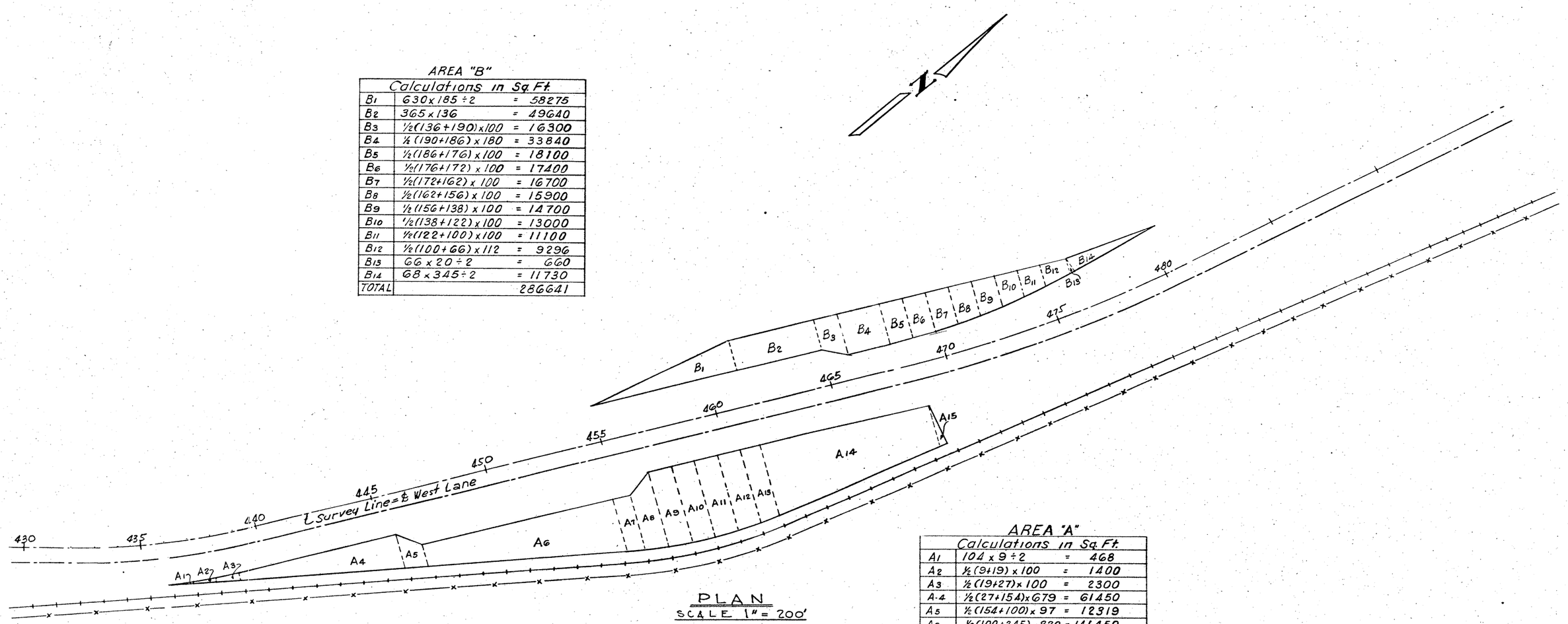
NOTE:
See page 90 for Final totals

HAUL DIAGRAM FOR FOUNDATION COURSE & FLEXIBLE BASE SAFETY REST AREAS

FED. NO.	STATE	FEDERAL PROJECT NO.
DIV. NO.		I-35-1(18)007 114
DIST.	COUNTY	CONT. SECT. JOB
21	WEBB	18 5 16 11

AREA "B"

Calculations in Sq Ft		
B1	630 x 185 ÷ 2	= 58275
B2	365 x 136	= 49640
B3	½(136+190) x 100	= 16300
B4	½(190+186) x 180	= 33840
B5	½(186+176) x 100	= 18100
B6	½(176+172) x 100	= 17400
B7	½(172+162) x 100	= 16700
B8	½(162+156) x 100	= 15900
B9	½(156+138) x 100	= 14700
B10	½(138+122) x 100	= 13000
B11	½(122+100) x 100	= 11100
B12	½(100+66) x 112	= 9296
B13	66 x 20 ÷ 2	= 660
B14	68 x 345 ÷ 2	= 11730
TOTAL		286641



PLAN
SCALE 1" = 200'

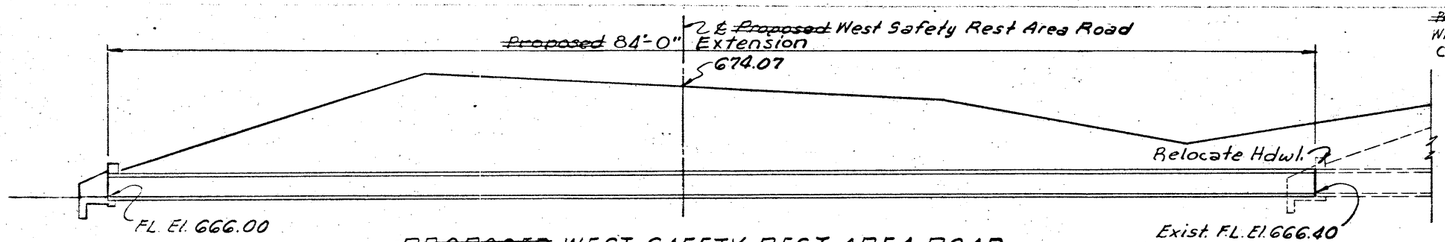
ESTIMATED QUANTITIES		
Area No.	Sq. Ft.	Acreage
A	623,512	14.31
B	286,641	6.58
Total	910,153	20.89

AREA "A"

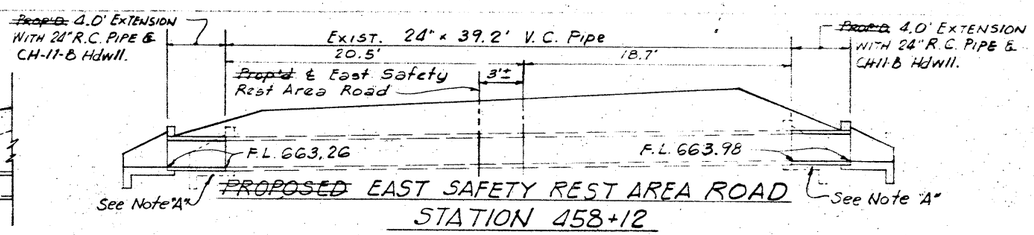
Calculations in Sq Ft		
A1	104 x 9 ÷ 2	= 468
A2	½(9+19) x 100	= 1400
A3	½(19+27) x 100	= 2300
A4	½(27+154) x 679	= 61450
A5	½(154+100) x 97	= 12319
A6	½(100+245) x 820	= 141450
A7	½(245+251) x 75	= 18600
A8	½(251+345) x 100	= 29800
A9	½(345+350) x 100	= 34750
A10	350 x 100	= 35000
A11	½(350+346) x 100	= 34800
A12	½(346+340) x 100	= 34300
A13	½(340+326) x 85	= 28305
A14	½(326+185) x 727	= 185749
A15	182 x 31 ÷ 2	= 2821
TOTAL		623512

LAYOUT OF
CLEARING & GRUBBING
SAFETY REST AREAS

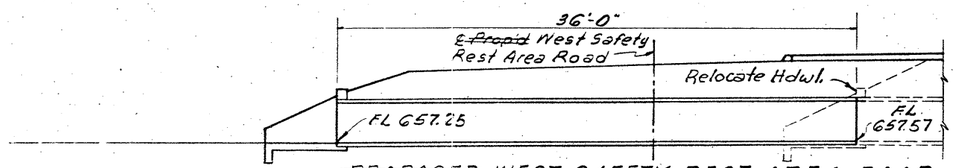
I-35-1(108)007 115
21 WEBB 18 5 16 1H-2



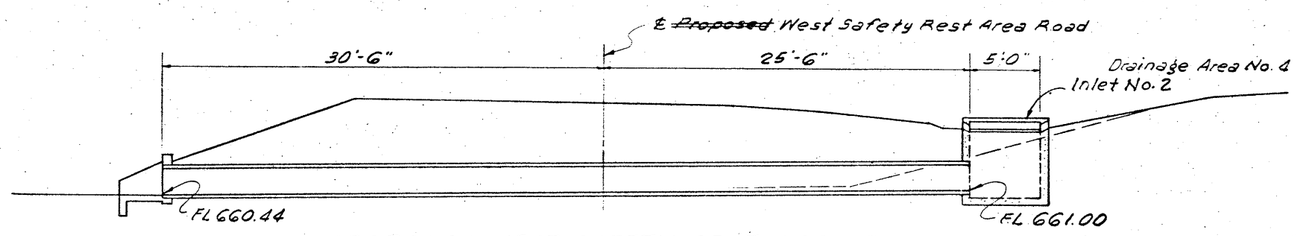
PROPOSED WEST SAFETY REST AREA ROAD
STATION 459+50
Exist. 18" R.C.P. with CH-11-B Headwalls
Ext. 84' Left with one 18" R.C.P. (Cl. III) and
Relocate one CH-11-B Headwall



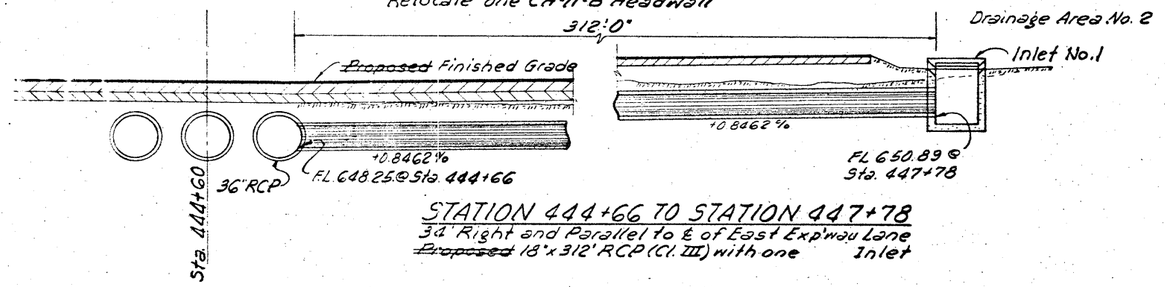
PROPOSED EAST SAFETY REST AREA ROAD
STATION 458+12
Exist. 24" x 39.2' V.C. Pipe with Conc. Hdwlls
Ext. 4.0' LT. & RT. WITH 24" R.C.P. (CL. III) AND
CH-11-B HEADWALLS



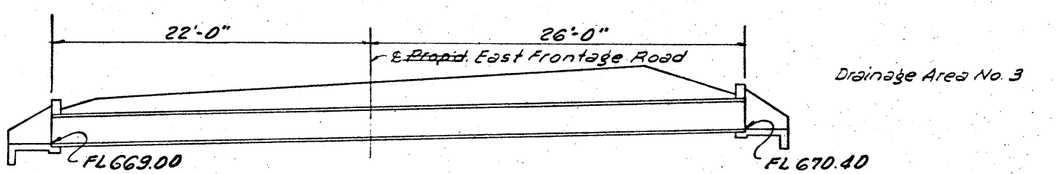
PROPOSED WEST SAFETY REST AREA ROAD
STATION 455+98
Exist. 36" x 126' RCP with CH-11-B Headwalls
Ext. 36' Left with 36" RCP (Cl. III) and
Relocate one CH-11-B Headwall



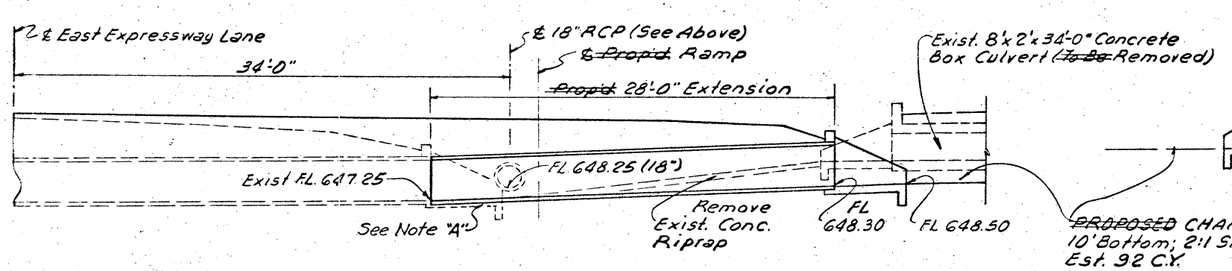
PROPOSED WEST SAFETY REST AREA ROAD
STATION 457+90
Propd 24" x 56' R.C.P (Cl. III) with one CH-11-B Headwall
and one Inlet.



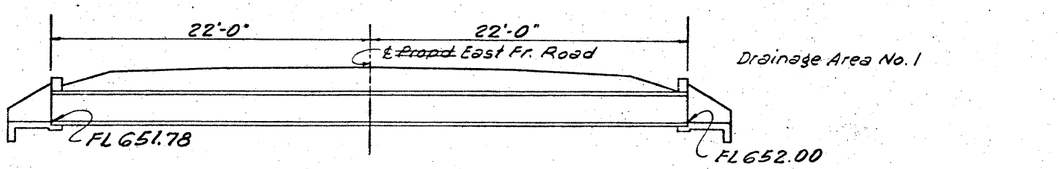
STATION 444+66 TO STATION 447+78
34' Right and Parallel to ℄ of East Exp'way Lane
Proposed 18" x 312' RCP (Cl. III) with one Inlet



PROPOSED EAST FRONTAGE ROAD
STATION 460+00
Propd. 24" x 48' RCP (Cl. III)
with CH-11-B Headwalls



PROPOSED RAMP
STATION 444+60
Exist. 3-36" x 124' RCP with CH-11-B Headwalls
Ext. 28'-0" Right with 3-36" RCP (Cl. III) and
one CH-11-B Headwall



PROPOSED EAST FRONTAGE ROAD
STATION 444+85
Propd. 3-24" x 44' RCP (Cl III) with
CH-11-B Headwalls

3087 9

Note "A": Remove portion of Headwall necessary to make connection for extending structures.

CROSS SECTION AT CULVERT SITES
SAFETY REST AREAS

I 35-1((18)007 116
21 WEBB 18 5 14 IH-35

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I 35 - 1 (30) 002	1

STATE DIST. NO.	COUNTY	STATE CONTROL NO.			HIGHWAY NO.
21	WEBB	18	6	65	IH35
		18	5	25	
		18	4	22	
		18	3	19	

IPE 922

7300 / 01 B

W-422A

CODED D.R.L. 6-78

STATE OF TEXAS
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT.

I 35 - 1 (30) 002

SCALES: PLAN: 1 IN. = 100 FT.
PROFILE: 1 IN. HOR. = 100 FT., 1 IN. VERT. = 10 FT.
CROSS-SECTIONS: 1 IN. HOR. AND VERT. = 5 FT.
OTHERS AS NOTED.

NET LENGTH OF PROJECT = 196469.7 FT. = 37.210 MI.

	FEET	MILE
18-6-65	54797.0	10.378
18-5-25	43706.7	8.278
18-4-22	45937.5	8.700
18-3-19	52028.5	9.854

Urban = 21969 Ft. = 4.161 Mi.
Rural = 32828 Ft. = 6.217 Mi.

WEBB COUNTY
HIGHWAY IH 35
FROM THE INTERSECTION OF GARZA STREET, NORTH, TO THE LA SALLE COUNTY LINE
DELINEATION, SIGNING AND STRIPING PROJECT

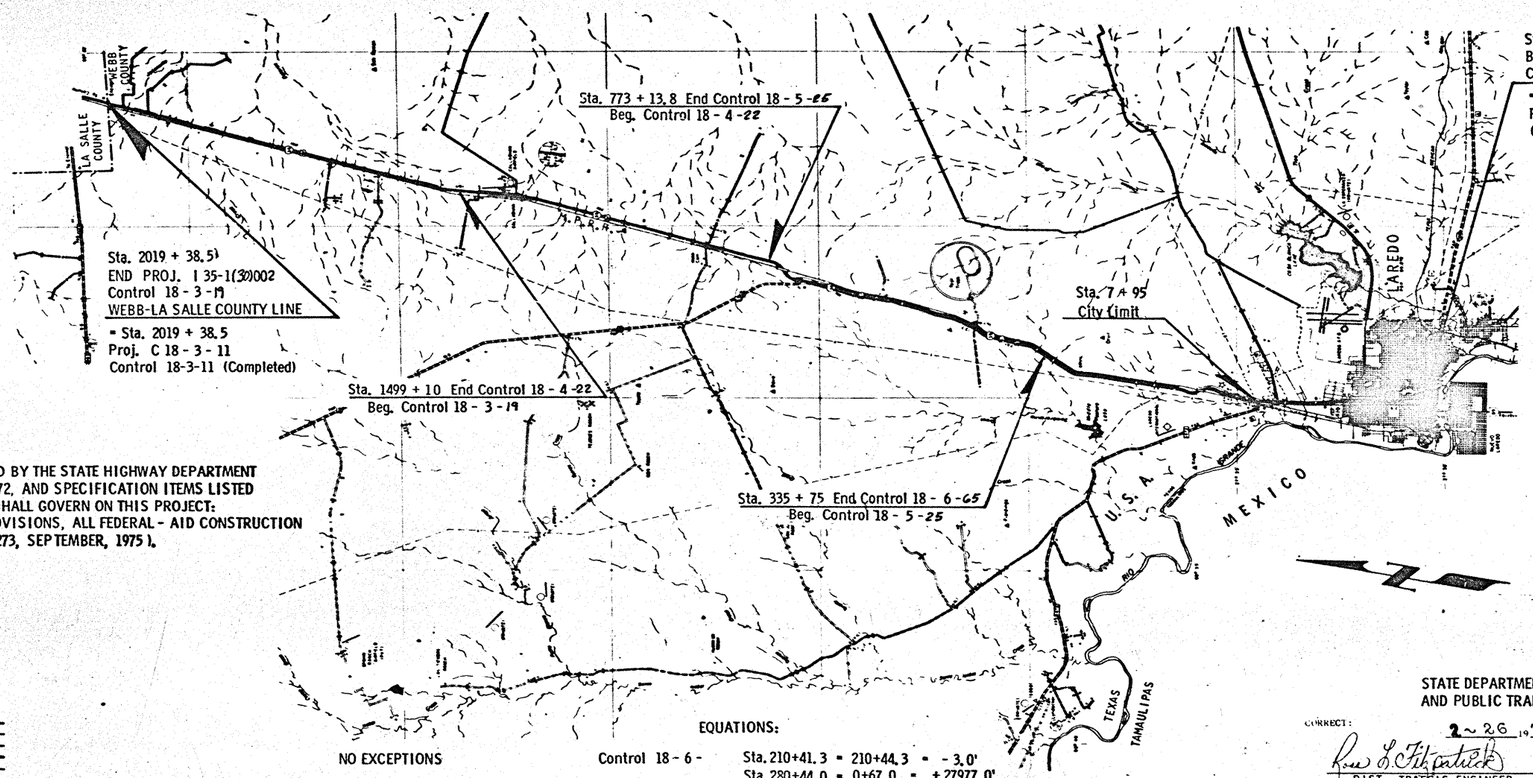
MODIFY EXISTING ROADSIDE TRAFFIC SIGNS AND SUPPORTS, INSTALL EXIT NUMBER PANELS AND MILE POST SIGNS, REPLACE REGULATORY AND WARNING SIGNS AS REQUIRED AND INSTALL MAIN LANE EDGE LINES

FIELD CHANGE NO 1

DESCRIPTION
Install two destination plywood signs to replace existing unsatisfactory destination plywood signs shown on sheet no 23, signs no 23 and no 26.
CONTROL 18-5-25 RURAL

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2 - 11A	ESTIMATE AND QUANTITY
12	SPECIFICATION DATA
13	TYPICAL SECTIONS
14 - 60	PLAN PROFILE
61 - 62	GUIDE SIGNS
63 - 69	IE (1), IM (1) THRU (4) AND M (1&2)
70 - 73	IR (1&2) AND IW (1&2)
74 - 80	SMD (1-1) THRU (1-3), SMD (2) AND SMD (8-1) THRU (8-3)
81 - 82	SMD (8W1) AND SMD (8W2)
83-84	D & M (1 of 2)
85-86	RPM (1 of 2)
87-92	BC (1) THRU (6) - 76A



FINAL PLANS

TRAFFIC DETOURS, BARRICADES, ETC.
See General Notes and Item 7 of the Standard Specifications.
TYPE III (C) Barricades with signs G20-1, G20-2, G20-6, R10-8 and CW20-1D shall be erected at each end of the Project.
TYPE I Barricades with signs CW20-1D and CW13-4 shall be erected at entrance ramps. Additional barricades and signs shall be used to direct traffic and protect the work in the immediate vicinity of operations as directed by the Engineer.
TYPE III (C) Barricades may consist of one panel on each side of pavement where the right of way width is too narrow to allow placing of two panels.

SPECIFICATIONS ADOPTED BY THE STATE HIGHWAY DEPARTMENT OF TEXAS JANUARY 3, 1972, AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS, ALL FEDERAL - AID CONSTRUCTION CONTRACTS (FROM PR-1273, SEPTEMBER, 1975).

CONVENTIONAL SIGNS
STATE OR NATIONAL LINE
CITY OR VILLAGE LINE
COUNTY LINE
BASE OR SURVEY LINE
RIGHT OF WAY LINE
RIGHT OF WAY MARKERS
FENCE LINE
RAILROAD
TRAVELLED WAY
CULVERT OR BRIDGE
POWER LINE
TELEGRAPH OR TELEPHONE

COUNTY WEBB PROJ. NO. I 35-1(30)002
HWY. NO. IH35 LETTING DATE 3-24-77
DATE ACCEPTED 11-3-77
DATE WORK BEGAN 4-24-77 DATE WORK COMPLETED 11-8-77

J. W.H.
DISTRICT SAFETY COMMITTEE

NO EXCEPTIONS

EQUATIONS:

Control 18 - 6 - Sta. 210+41.3 = 210+44.3 = - 3.0'
Sta. 280+44.0 = 0+67.0 = +27977.0'
Sta. 56+93.0 = 57+03.5 = -10.5'
Sta. 140+08.5 = 139+50.0 = +58.5'
Control 18 - 5 - Sta. 519+78.8 = 520+10.9 = -32.1'
Control 18 - 4 - Sta. 797+94.3 = 1064+53.0 = -26658.7'

Layout Scale: 1 In = 10,560 Ft.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

CORRECT: 2-26-1976
Russ L. Fitzpatrick
DIST. TRAFFIC ENGINEER
2/26/1976

APPROVED FOR LETTING: 1-26-77

J. W. Harris
DIST. DESIGN ENGINEER
RECOMMENDED FOR APPROVAL: Feb 26 1976

Joe B. Davis
FOR CHIEF ENGINEER OF HIGHWAY DESIGN
RECOMMENDED FOR APPROVAL: 3-12-76

D. D. Davis
DISTRICT ENGINEER

Richard H. Olivas
ENGINEER OF TRAFFIC

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration

APPROVED:

DIVISION ADMINISTRATOR DATE

SIGN TABULATION

LEGEND
S = Special Mounting
X = Existing Breakaway Post
N = Without Breakaway Post
742 = Mounted on Wing Channel Post
728 = M. P. Mounting (See D&M(2) Standard)'
PP = Mounted on Two Pipe Post

PLAN PROFILE SHEET NO.		NEW SIGN NO.	STATION OF EXISTING SIGN	SIGN TYPE	EXISTING TEXT	EXISTING STRUCTURE: TYPE OF MOUNT	GALVANIZED PIPE POST (L.F.) 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POST: EXIST. SIZE	NUMBER OF POSTS	TOT. WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS (L.F.)	PROPOSED SIGN: LOCATION OF NEW SIGN AND/OR POST STATION	SIGN TYPE	TEXT OF SIGN	SIGN BLANK: SIZE OF SIGN	MATERIAL (SQ. FT.): PLY TY A or ALT. ALUM. OVERLAY PANELS	ALUMINUM TYPE A	PLYWOOD TYPE A	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS (L.F.) 1¼"	1½"	2"	2½"	3"	3½"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	No. 2	WEIGHT No. 3 POUNDS	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	24"D	(5) CONST. NEW SIGN COMPLETE (See Material Each Sign)	(5) REMOV. EXIST. RDSIDE TRAF SIGNS (Item 7148) EA.	(6) REMOV & RELOC EXIST RDSIDE TRAF SIGNS (Item 7550) EA.	NON-PARTICIPATING (See Summary Sheet) (n)
			I 35-1(30) 002	(18-6-65)	URBAN																																			
3	of 47	38&39		None														~~72+30 Rt.~~	2) R5-9	Wrong Way	2-36"x24"		12.00	A			21.0										5.0		2-(a)			
3	of 47	40&41		None														~~75+70 Rt.~~	2) R5-9	Wrong Way	2-36"x24"		12.00	A			21.0										5.0		2-(a)			
3	of 47	42&43		None														73+10 Lt.	2) R5-9	Wrong Way	2-36"x24"		12.00	A			21.0										5.0		2-(a)			
3	of 47	44&45		None														77+25 Lt.	2) R5-9	Wrong Way	2-36"x24"		12.00	A			21.0										5.0		2-(a)			
4	of 47	8	86+00 Rt.	IR-2	Maximum Speed-55	X-G					41-7.7	2	353		9.0			86+00 Rt.	IR2-1	Speed Limit-55	48"x60"		20.00	(1)																	
3	of 47	2	68+80 Rt.	W114	Signals Ahead	A			13.3					3.5				68+80 Rt.	W3-3A	Signal Ahead, Etc.	36" x 36" etc		12.00	A			12.5										2.5		(a)	1		
3	of 47	24	70+80 Rt.	IR-15	Do Not Enter	PP	28.0							7.0				70+80 Rt.	IR5-1	Do Not Enter	48" x 48"		16.00	(1)																	
3	of 47	25	70+80 Rt.	IR-15	Do Not Enter	PP	28.0							7.0				70+80 Rt.	IR5-1	Do Not Enter	48" x 48"		16.00	(1)																	
3	of 47	27	71+60 Lt.	IR-15	Do Not Enter	PP	28.0							7.0				71+60 Lt.	IR5-1	Do Not Enter	48" x 48"		16.00	(1)																	
3	of 47	28	71+60 Lt.	IR-15	Do Not Enter	PP	28.0							7.0				71+60 Lt.	IR5-1	Do Not Enter	48" x 48"		16.00	(1)																	
3	of 47	29	74+20 Rt.	IR-15	Do Not Enter	PP	28.0							7.0				74+20 Rt.	IR5-1	Do Not Enter	48" x 48"		16.00	(1)																	
5	of 47	11		None														97+80 Rt.	R5-1	Do Not Enter	30" x 30"		6.25	A			11.0										2.5		(a)			
3	of 47	30	74+20 Rt.	IR-15	Do Not Enter	PP	28.0							7.0				74 +20 Rt.	IR5-1	Do Not Enter	48" x 48"		16.00	(1)																	
3	of 47	14	74+28 Rt.	IM6-1N	North, Etc.	N-C	13.3			13.5					5.5			74+28 Rt.	IM6-1BN	North, Etc.	24" x 12"	2.00		C			12.8		9.9								3.5				1	
				M6-1N	North, Etc.														M6-1N	North, Etc.	24" x 12"	2.00																	
				M6-1N	North, Etc.																																			
3	of 47	15	74+83 Rt.	R-14	Keep Right	A-2	12.0							3.5				74+83 Rt.	R4-7	Keep Right	24" x 30" etc.		8.00	A			12.9										2.5		(a)	1		
3	of 47	10	74+72 Lt.	R-14	Keep Right	A-2	12.0							3.5				74+72 Lt.	R4-7	Keep Right	24" x 30" etc.		8.00	A			12.9										2.5		(a)	1		
3	of 47	31	75+25 Lt.	R5-1	Do Not Enter	A-2	12.1							3.5				75+25 Lt.	R5-1	Do Not Enter	30" x 30"		6.25	(1)																	
3	of 47	32	75+25 Lt.	R5-1	Do Not Enter	A-2	12.1							3.5				75+25 Lt.	R5-1	Do Not Enter	30" x 30"		6.25	(1)																	
3	of 47	17	75+29 Rt.	IM6-1N	North, Etc.	N-C	13.3			13.5					5.5			75+29 Rt.	IM6-1BN	North, Etc.	24" x 12"	2.00		C			12.8		9.9								3.5				1	
				M6-1N	North Etc.														M6-1N	North, Etc.	24" x 12"	2.00																	
				M6 1N	North, Etc.																																			
3	of 47	33	77+00 Rt.	IM6-1N	North, Etc.	N-C	13.5			13.5					5.5			77+00 Rt.	IM6-1BN	North, Etc.	24" x 12"	2.00		C			12.8		9.9								3.5				1	
				M6-1N	North, Etc.														M6-1N	North, Etc.	24" x 12"	2.00																	
				M6-1N	North, Etc.														M3-3L		21" x 15"	2.20																	
3	of 47	18	76+00 R t.	IW60	Merging Traffic	NF-2					31-5.7	2	182	7.0				76+00 Rt	IW4-1	Merge &	48" x 48" etc		19.00	F			3.0		13.9								3.5		(a)	1		
5	of 47	12		None														96+30 Rt.	R5-9	Wrong Way	36"x24"		6.00	A			10.5										2.5		(a)			
5	of 47	13		None														96+30 Rt.	R5-9	Wrong Way	36"x24"		6.00	A			10.5										2.5		(a)			
3	of 47	19	77+53 Lt.	W114	Signals Ahead	A			13.3					3.5				77+53 Lt.	W3-3	Signals Ahead	36" x 36" etc		12.00	A			12.5										2.5		(a)	1		
3	of 47	37	77+53 Lt.	W114	Signals Ahead	A-2	13.3							3.5				77+53 Lt.	W3-3	Signals Ahead	36" x 36" etc.		12.00	A			12.5										2.5		(a)	1		
3	of 47	20	78+05 Lt.	IR-1A	Stop, Etc.	N-B	6.0			13.3				4.5				78+05 Lt.	(2)					B		7.8		9.9								3.5				1	
4	of 47	11	86+50 Lt.	IR-16R	One Way	A	11.8							3 5																										
4	of 47	13		None														82+77 Lt.	IR5-9	Wrong Way	48" x 36"		12.00	F			3.0		12.2								3.5		(a)			
4	of 47	9 & 14	81+85 Lt.	IR-15	Do Not Enter	X-F					31-5.7	2	180	7 0				80+94 Lt.	IR5-1	Do Not Enter	48" x 48"		16.00	F			3.0		13.1								3.5		(a)	1		
4	of 47	10 & 15	81+85 Lt.	IR-15	Do Not Enter	X-F					31-5.7	2	180	7.0				80+94 Lt.	IR5-1	Do Not Enter	48" x 48"		16.00	F			3.0		13.1								3.5		(a)	1		
4	of 47	5	84+65 Lt.	IG-1	Exit, Etc.	320					31-5.7	2	180	7.0				84+65 Lt.	F6-E2	1B (Number Panel)	3'6"x2'0"		7.00	(1)																	
4	of 47	6	93+00 Lt.	IG-11	Park St.-Sanchez St., Etc.	X-4					8X8X31#	2	1337			17.0		93+00 Lt.	F6-E2	Exit 1B	7'6" x2'0"		16.00	(1)																	
4	of 47	12		None														82+77 Lt.	IR5-9	Wrong Way	48" x 36"		12.00	F			3.0		12.0								3.5		(a)			
5	of 47	9	97+80 Rt.	R5-1	Do Not Enter	A-2	12.1							3.5				97+80 Rt.	R5-1	Do Not Enter	30" x 30"		6.25	(1)																	
5	of 47	5	98+70 Lt.	R5-1	Do Not Enter	A-2	12.1							3.5				98+70 Lt.	R5-1	Do Not Enter	30" x 30"		6.25	(1)																	
5	of 47	6	98+70 Lt.	R5-1	Do Not Enter	A-2	12.1							3.5				98+70 Lt.	R5-1	Do Not Enter	30" x 30"		6.25	(1)																	
5	of 47	3	108+50 Rt.	IG-11	(59 US Route Marker)	X-4					10X8X45#	2	2357			19.0		108+50 Rt.	F6-E1	(Exit 2)	6'0"x2'0"		12.00	(1)																	
					(Laredo AFB - Houston, Etc.)														IM-1A3F	(59 US Route Marker)	36" x 36"	7.15		(1)																	(N)
																			F2-1	(Freer-Houston)	16'6"x14' 6"		239.25	(1)																	
5	of 47	14		None														100+20 Lt.	R5-9	Wrong Way	36"x24"		6.0	A			10.5										2.5		(a)			
5	of 47	15		None														100+20 Lt.	R5-9	Wrong Way	36"x24"		6.0	A			10.5										2.5		(a)			
																				TOTAL THIS SHEET	Control 18-6-65URBAN	21.35	625.75			7.8	253.7		14.2	29.7						76.5			4	
																																					(7)	

(1) Proposed Sign To Be Installed on Existing Sign or Post.
(2) Existing Sign To Be Installed on Proposed Post and Foundation.
(3) New Sign and Post To Be Installed on Existing Footings.
(4) Existing Sign Is To Remain In Place and Refurbished, Sign Face Overlayed, Text Modified and Exit Number Panel Installed.

ESTIMATE & QUANTITY 2
SHEET 1 OF 11 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHT. NO.
6	TEXAS	I-35-1(30)002	2
STATE DIST.	COUNTY	CONT. SECT. JOB	HWY. NO.
21	WEBB	18 6 65	IH 35

LEGEND

S = Special Mounting
X = Existing Breakaway Post
N = Without Breakaway Post
742 = Mounted on Wing Channel Post
728 = M. P. Mounting (See D&M(2) Standard)
PP = Mounted on Two Pipe Post

SIGN TABULATION

PLAN PROFILE SHEET NO.	NEW SIGN NO.	STATION OF EXISTING SIGN	SIGN TYPE	EXISTING TEXT	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST (L. F.) 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POST: EXIST. SIZE	NUMBER OF POSTS	TOT. WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS (L. F.) 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS (L. F.)	LOCATION OF NEW SIGN AND/OR POST STATION	SIGN TYPE	TEXT OF SIGN	SIGN BLANK: SIZE OF SIGN	MATERIAL (SQ. FT.): PLY. TY. A or ALT. ALUM. OVERLAY PANELS	ALUMINUM TYPE A	PLYWOOD TYPE A	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS (L. F.) 1¼"	1½"	2"	2½"	3"	3½"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	LENGTH No. 2	LENGTH No. 3	WEIGHT POUNDS	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 24"D	CONST. NEW SIGN COMPLETE (See Material Each Sign) (a)	(5) REMOV, EXIST, RDSIDE TRAF SIGNS (Item 7148) EA.	(6) REMOV & RELOC EXIST RDSIDE TRAF SIGNS (Item 7150) EA.	NON-PARTICIPATING (See Summary Sheet) (n)
6 of 47	1	115+00 Rt.	IG-1	Exit, Etc	320					31-5.7	2	171	7.0			115+00Rt.	F6-2	2 (Number Panel)	3'6"x2'0"			7.00	(1)																
6 of 47	15	118+50 Rt	IR-15	Do Not Enter	XF-2					31-5.7	2	180	7.0			118+50 Rt	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
6 of 47	16	118+50 Rt	IR-15	Do Not Enter	XF-2					31-5.7	2	180	7.0			118+50 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
6 of 47	18	119+10 Rt.	IE9-15	Mile 2	742											119+10 Rt.	F18-1	Mile 2	12" x 24"		2.00		728	8.5											(a)	1		
6 of 47	17	119+10 Lt	IE9-15	Mile 2	742											119+10 Lt	F18-1	Mile 2	12" x 24"		2.00		728	8.5											(a)	1		
6 of 47	6	121+40 Lt.	IR-1A	Stop, Etc	N-B	6.0		13.3					4.5			121+40 Lt	(2)						B		7.8		9.9						3.5				1	
6 of 47	9	121+85 Rt.	IR-1A	Stop, Etc	N-B	6.0		13.3					4.5			121+85 Rt	(2)						B		7.8		9.9						3.5				1	
6 of 47	11	123+00 Rt.	IG-9	(San Bernardo Ave.)	X-5					10x8x39#	2	1880			18.0	123+00 Rt	F6-E2	Exit 3A	(24) ~~6'0"~~x2'0"		(25) ~~12.00~~		(1)															
				(Calton Rd.)													F3-2A	(San Bernardo Ave., Etc.)	24'0"x8'-6"	204.00			(4)															
				(Exit 7/10 Mile)														(3/4 Mile)																				
6 of 47	12	123+50 Rt.	IG-25	(Laredo AFB 2 Etc.)	N-4A					5x5x16#	2				10.0	123+50 Rt	F12-2	(Freer 61, Etc.)	13'0"x4'0"	52.00			320						41-7.7	10.2	10.2		228	7.0			1	
				(Houston 309 Etc)														(Houston 309, Etc.)																				
6 of 47	13	124+00 Lt.	IW-60	Merging Traffic	NF-2					31-5.7	2	183	7.0			124+00 Lt	IW4-1	Merge, Etc.	48"x48"etc			19.00	F		3.0		13.9							3.5		(a)	1		
6 of 47	19	123+50 Lt.	IM6-1S	South, Etc.	N-C	11.3			13.5					5.5		123+50 Lt	IM6-1BS	South, Etc.	24" x 12"		2.00		C		12.8		9.9							3.5			1	
			M6-1S	South, Etc.													M6-1S	South, Etc.	24" x 12"		2.00																	
			M6-1S	South, Etc.																																		
6 of 47	23		None													116+50 Rt	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		12.2							3.5		(a)			
7 of 47	1	124+30 Lt.	M6-1N	North, Etc.	N-C	13.3			13.5					5.5		124+30 Lt	M6-1N	North, Etc.	24" x12"		2.00		C		14.6		9.9							3.5			1	
			M6-1S	South, Etc.													M6-1S	South, Etc.	24" x 12"		2.00																	
			M6-1S	South, Etc.																																		
7 of 47	4	125+40	IM6-1S	South, Etc.	N-C	13.3			13.5					5.5		125+40	IM6-1BS	South, Etc	24" x 12"		2.00		C		12.8		9.9							3.5			1	
			M6-1S	South, Etc.													M6-1S	South, Etc.	24" x 12"		2.00																	
			M6-1S	South, Etc.																																		
6 of 47	14	113+10 Rt.	IR-16R	One Way	A	11.8							3.5																							1		
7 of 47	11	125+48	IM6-1N	North, Etc.	N-C	13.3			13.5					5.5		125+48	IM6-1BN	North, Etc.	24" x 12"		2.00		C		12.8		9.9							3.5			1	
			M6-1N	North, Etc.													M6-1N	North, Etc.	24" x 12"		2.00																	
			M6-1N	North, Etc.																																		
7 of 47	12	125+58	IG-25	San Antonio 150, Etc.	N-4A					5x5x16#	2	464			10.0	125+53	(2)		13'6"x2'0"				320						31-5.7	8.3	8.3		152	7.0			1	
7 of 47	15	125+78 Rt.	M6-1N	North, Etc.	N-C	13.3			13.5					5.5		125+78 Rt	M6-1N	North, Etc.	24" x 12"		2.00		C		12.8		9.9							3.5			1	
			M6-1N	North, Etc													M6-1N	North, Etc.	24"x12"		2.00																	
			M6-1N	North, Etc.																																		
6 of 47	22	109+40 Lt.	IR-2	Speed Limit -55	X-G					4I-7.7	2	323			9.0	109+40 Lt.	IR2-1	Speed Limit -55	48" x 60"			20.00	(1)																
6 of 47	25 & 26		None													122+70 Rt	2) IR5-9	Wrong Way	2-48" x 36"			24.00	2-F		6.0		24.4							7.0	2(a)			
6 of 47	24		None													116+50Lt	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		12.2							3.5	(a)			
7 of 47	16	126+90 Lt	IG-25	(Laredo AFB 2, Etc.)	N-4A					5x5x16#	2	521			10.0	126+95 Lt.	F12-2	(Freer 61, Etc.)	13'0"x4' 0"	52.00			320						41-7.7	10.2	10.2		228	7.0			1	
				(Houston 309, Etc.														(Houston, 309, Etc.)																				
7 of 47	18	128+06 Lt	IR-1A	Stop, Etc.	N-B	6.0		13.3					4.5			128+06 Lt	(2)						B		7.8		9.9						3.5				1	
7 of 47	23	128+75 Lt.	IG-9	(Park St. - Sanchez St.)	320					6B 15.5	2	616			14.0	128+75 Lt.	F6-E2	Exit 1B	7'6"x2'0"			15.00	(1)																
				(Exit 9/10 Mile)													F3-2A	(Etc. 3/4 Mile)	16'0"x8'6"	136.00			(4)															
7 of 47	20	127+50 Rt	IW-60	Merging Traffic	NF-2					31-5.7	2	182	7.0			127+50 Rt	IW4-1	Merge	48"x48" Etc			19.00	F		3.0		13.9							3.5		(a)	1		
7 of 47	14	127+75 Rt	IM6-1N	North, Etc.	N-C	13.3			13.5					5.5		127+75 Rt	IM6-1BN	North, Etc	24" x 12"		2.00		C		12.8		9.9							3.5			1	
			M6-1N	North, Etc													M6-1N	North, Etc.	24" x 12"		2.00																	
			M6-1N	North, Etc.																																		
7 of 47	22	128+53 Rt	IR-1A	Stop, Etc.	N-B	6.0		13.3					4.5			128+53 Rt	(2)						B		7.8		9.9						3.5			1	
7 of 47	32	136+50 Lt.	IR-16R	One Way	A	11.8							3.5																							1		
7 of 47	30	131+40 Lt.	IR-15	Do Not Enter	XF-2					31-5.7	2	180	7.0			131+40 Lt	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
7 of 47	31	131+40 Lt.	IR-15	Do Not Enter	XF-2					31-5.7	2	180	7.0			131+40 Lt	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
7 of 47	29	143+70 Lt.	IG-1	Exit, Etc.	320					31-5.7	2	169	7.0			134+70 Lt	F6-2	2 (Number Panel)	3'6"x2'0"			7.00	(1)																
7 of 47	41		None													132+80 Lt	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		12.2							3.5		(a)			
7 of 47	42		None													132+80 Lt	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		12.2							3.5		(a)			
8 of 47	1	139+50 Lt.	IM-1A3F	(59 US Route Marker)	X-4					10x8x45#	2	2375			19.0	139+50 Lt	F6-E1	Exit 2	6'0" x 2'0"			12.00																	
			IG-11	(Laredo AFB)													IM-1A3F	(59 Route Marker)	36" x 36"		7.15																	
				(Houston, Etc.)													F2-1	(Freer-Houston, Etc	16'6"x14'6"			239.25	(1)																(N)
8 of 47	5	141+10 Rt	IR-15	Do Not Enter	PP	24.0							7.0			141+10 Rt	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
8 of 47	6	141+10 Rt	IR-15	Do Not Enter	PP	24.0							7.0			141+10 Rt	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
8 of 47	3	142+10 Lt	IR-15	Do Not Enter	PP	24.0							7.0			142+10 Lt	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
7 of 47	43 & 44		None													127+35Lt	2) IR5-9	Wrong Way	2-48" x 36"			24.00	2-F		6.0		24.4							7.0	2(a)			
8 of 47	13 & 14		None													139+10 Rt	2) R5-9	Wrong Way	2-36" x 24"			12.00	2-A		21.0		21.0							5.0	2(a)			
										TOTAL THIS SHEET						Control 18-6-65 URBAN				444.00	35.15	~~570.25~~ (573.25)		17.0	~~52.2~~ (31.2)	~~128.6~~ (127.6)		165.0	59.4			60.8	96.0			6	13	

(1) Proposed Sign To Be Installed on Existing Sign or Post.
(2) Existing Sign To Be Installed on Proposed Post and Foundation.
(3) New Sign and Post To Be Installed on Existing Footings.
(4) Existing Sign Is To Remain In Place and Refurbished, Sign Face Overlayed, Text Modified and Exit Number Panel Installed.

ESTIMATE & QUANTITY

SHEET 2 OF 11 SHEETS

3

NO.	DATE	FEDERAL PROJECT NO.	SHT. NO.
0	TEXAS	I-35-1(30)002	3
STATE DIST.	COUNTY	CONT. SECT. JOB	HWY. NO.
21	WEBB	18 6 65	IH 35

LEGEND
S = Special Mounting
X = Existing Breakaway Post
N = Without Breakaway Post
742 = Mounted on Wing Channel Post
728 = M.P. Mounting (See D&M(2) Standard)
PP = Mounted on Two Pipe Post

SIGN TABULATION

PLAN PROFILE SHEET NO.	NEW SIGN NO.	STATION OF EXISTING SIGN	SIGN TYPE	EXISTING TEXT	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST (L. F.) 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POST: EXIST. SIZE	NUMBER OF POSTS	TOT. WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS (L. F.) 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS (L. F.)	LOCATION OF NEW SIGN AND/OR POST STATION	PROPOSED SIGN: SIGN TYPE	TEXT OF SIGN	SIGN BLANK: SIZE OF SIGN	MATERIAL (SQ. FT.): PLY. TY. A or ALT. ALUM. OVERLAY PANELS	ALUMINUM TYPE A	PLYWOOD TYPE A	NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS (L. F.) 1¼"	1½"	2"	2½"	3"	3½"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	LENGTH No. 2	LENGTH No. 3	WEIGHT POUNDS	NON-REINFORCED DRILLED CONCRETE FOOTINGS 12"D	REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 24"D	CONST. NEW SIGN COMPLETE (See Material Each Sign) (a)	(5) REMOV. EXIST. RDSIDE TRAF. SIGNS (Item 7148) EA.	(6) RFMOV & RELOC EXIST RDSIDE TRAF SIGNS (Item 7150) EA.	NON-PARTICIPATING (See Summary Sheet) (n)
8 of 47	4	142+10 Lt	IR-15	Do Not Enter	PP	24.0							7.0			142+10 Lt	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
8 of 47	11	147+80 Rt	IR-15	Do Not Enter	PP	24.0							7.0			147+80 Rt	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
8 of 47	12	147+80 Rt	IR-15	Do Not Enter	PP	24.0							7.0			147+80 Rt	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
8 of 47	7	148+70 Lt.	IR-15	Do Not Enter	PP	24.0							7.0			148+70 Lt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
8 of 47	8	148+70 Lt.	IR-15	Do Not Enter	PP	24.0							7.0			148+70 Lt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
9 of 47	1	155+75 Rt.	IG-11	(San Bernardo Ave.) (Calton Rd., Etc.)	330					8WF17	3	974			21.0	155+75 Rt.	F6-E2	Exit 3A	7'6"x2'0"			15.00	(1)																
9 of 47	2	160+70 Rt.	IG-1	Exit, Etc.	320					3I-5.7	2	170	7.0			160+70 Rt.	F6-2	3A (Number Panel)	3'6"x2'0"			7.00	(1)																
9 of 47	13		None													164+33 Rt.	IR5-9	Wrong Way	48"x36"			12.00	F		3.0		12.2					3.5		(a)			
9 of 47	14		None													164+33 Rt.	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		12.2					3.5		(a)			
9 of 47	11	165+65 Rt.	IR-15	Do Not Enter	XF-2					3I-5.7	2	180	7.0			165+65 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
9 of 47	12	165+65 Rt.	IR-15	Do Not Enter	XF-2					3I-5.7	2	180	7.0			165+65 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																
9 of 47	7	168+00 Lt.	IW-60	Merging Traffic	NF-2					3I-5.7	2	191	7.0			168+00 Lt.	IW4-1	Merge, Etc.	48"x48" Ea			19.00	F		3.0		13.9					3.5		(d)	1		
9 of 47	9	157+00 Lt.	IG-10	(Laredo International Airport NEXT RIGHT)	330					6WF15.5	3	811			21.0	157+00 Lt.	F6-E1	EXIT 2 (Laredo International, Etc.)	6'0"x 2'0"			12.00	(1)																
9 of 47	10	159+00 Rt.	IR-16R	One Way	A	11.8							3.5																						1	
10 of 47	9	169+50 Lt.	1M6-1S	South, Etc.	N-B	13.3		13.5					4.5			169+50 Lt.	1M6-1BS	South, Etc.	24" x 12"		2.00		C		12.8			10.3				3.5				1	
			2)M6-1S	South, Etc. & South, Etc.													M6-1S	South, Etc.	24" x 12"		2.00																
8 of 47	15&16		None													144+10Lt.	2)R5-9	Wrong Way	2-36"x24"			12.00	2-A		21.0							5.0		2(a)			
10 of 47	10	171+90 Lt.	1E9-15	Mile 3	742											171+90 Lt.	F18-1	Mile 3	12" x 24"		2.00		728	8.5											(a)	1		
10 of 47	12	171+90 Rt.	1E9-15	Mile 3	742											171+90 Rt.	F18-1	Mile 3	12" x 24"		2.00		728	8.5											(a)	1		
10 of 47	11	171+95 Rt.	IR-15	Do Not Enter	N-A			16.0						5.5		171+95, Rt	IR5-1	Do Not Enter	48" x 48"			16.00	F		3.0		14.0					3.5		(a)	1		
10 of 47	13	171+95 Rt.	IR-15	Do Not Enter	N-A			16.0						5.5		171+95 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00	F		3.0		14.0					3.5		(a)	1		
10 of 47	14	172+05 Rt.	1M21N	North, Etc.	N-B	13 3		13.5					4.5			172+05 Rt.	1M6-1BN	North, Etc.	24" x 12"		2.00		C		12.8			10.3				3.5				1	
			2)M6-1N	North, Etc. & North, Etc.													M6-1N	North, Etc.	24" x 12"		2.00																
8 of 47	10&17	146+15 Rt.	R2-1	Speed Limit - 45	A	11.3							3.5			146+15Rt.	R5-9	Wrong Way	36"x24"			6.00	(1)																
11 of 47	28		None													194+05 Lt.	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		12.8					3.5		(a)			
11 of 47	29		None													194+05 Lt.	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		12.8					3.5		(a)			
11 of 47	30		None													207+45 Rt.	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		12.8					3.5		(a)			
11 of 47	31		None													207+45 Rt.	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		12.8					3.5		(a)			
12 of 47	25		None													226+85 Lt.	IR5-9	Wrong Way	48"x 36"			12.00	F		3.0		12.8					3.5		(d)			
10 of 47	6	173+20 Rt.	1M6-1N	North, Etc.	N-A			19.3						5.5		173+20 Rt.	1M6-1BN	North, Etc.	24"x12"		2.00		A-1				19.5					3.5			1		
			1M6-1S	North, Etc.													1M6-1BS	South, Etc.	24"x 12"		2.00																
9 of 47	4	163+00 Rt.	IR-2	Speed Limit 55	X-G					4"I 7.7	2	323		9.0		163+00 Rt.	IR 2-1	Speed Limit-55	48"x 60"			20.00	(1)																
10 of 47	8	172+75 Rt.	IR-14	Keep Right	XF-2					3I-5.7	2	177	4.5			172+75 Rt.	IR4-7	Keep Right, Etc.	48"x60" Rt.			23.00	320						3I-5.7	13.0	13.0	155			(3)			
10 of 47	1	172+75 Lt.	2-(M1-2)	U.S. 81 - U.S. 83	N-B	13.3		13.5					4.5			172+75 Lt.	2(M1-4A2)	U.S. 81 - U.S. 83	2(24"x24")		8.00		C		21.5			10.3				3.5		.		1	
			1M-21N	North, Etc.	N-B	13.3		13.5									1M6-1BN	North, Etc.	24" x 12"		2.00																
			1M-21S	South, Etc.													2)M6-1N	North, Etc.	2-24"x24"		4.00																
			M6-1N	North Etc.													1M6-1BS	South, Etc.	24" x 12"		2.00																
10 of 47	7	173+30 Lt.	IR-14	Keep Right	XF-2					31-5.7	2	187	7.0			173+30 Lt.	IR4-7	Keep Right	48"x60"etc			23.00	320						31-5.7	12.9	12.9	154			(3)			
12 of 47	26		None													226+85 Lt.	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		12.8					3.5		(a)			
10 of 47	5	174+20 Lt.	IR-15	Do Not Enter	NF-2					31-5.7	2	160	7.0			174+20 Lt.	IR5-1	Do Not Enter	48" x 48"			16.00	F		3.0		14.0					3.5		(a)	1		
10 of 47	15	174+20 Lt.	IR-15	Do Not Enter	N-B	6.0		10.7					4.5			174+20 Lt.	IR5-1	Do Not Enter	48" x 48"			16.00	F		3.0		14.0					3.5		(a)	1		
10 of 47	19	174+75 Rt.	1M6-1N	North, Etc.	N-B	13.3		13.5					4.5			174+75 Rt.	1M6-1BN	North, Etc.	24" x 12"		2.00		C		12.8			10.3				3.5				1	
			2)M6-1N	North, Etc. & North, Etc.													M6-1N	North, Etc.	24" x 12"		2.00																
8 of 47	9&18	146+15 Rt.	R2-1	Speed Limit - 45	A	11.3							3.5			146+15Rt.	R5-9	Wrong Way	36"x24"			6.00	(1)																
11 of 47	2	183+80 Lt.	1M-21S	South, Etc.	N-B	13.3		13.5					4.5			183+80 Lt.	1M6-1BS	South, Etc.	24" x 12"		2.00		C		12.8			10.3				3.5				1	
				South, Etc. & South, Etc.													M6-1S	South, Etc.	24"X 12"		2.00																
8 of 47	19&20		None													150+70Lt.	2)R5-9	Wrong Way	2-36"x24"			12.00	2-A		21.0							5.0		2(a)			
11 of 47	11	181+70 Lt.	R-15	Do Not Enter	A-2	12.1							3.5			181+70 Lt.	R5-1	Do Not Enter	30" X 30"			6.25	(1)																
11 of 47	12	187+80 Lt.	IG-9	(59 US-Route Marker)	320					8WF20	2	1091			16.0	187+80 Lt.	F6-E1	Exit 2	6'0"X 2'0"			12.00	(1)																
				(Laredo AFB - Houston)													1M-1A3F	(59 US-Route Marker)	36"X 36"		7.15		(1)															
				(Exit 1 Mile)													F3-2A	(Freer, etc- 1 Mile)	16'6"X18'0"			231.00	(1)															(N)
11 of 47	7	194+10 Lt.	IG-1	Exit, Etc.	320					31-5.7	2	171	7.0			194+10 Lt.	F6-2	3A (Number Panel)	3'6"X2'0"			7.00	(1)																
11 of 47	9	203+80 Lt.	IG-11	(San Bernardo Ave.) (Calton Rd., Etc.)	330					8WF17	3	1086			21.0	203+80 Lt.	F6-E2	Exit 3A	7'6"X2'0"			15.00	(1)																
9 of 47	9	154+05 Lt.	IR-2	Maximum Speed - 55	X-G					4I-7.7	2			9.0		154+05Lt.	IR2-1	Speed Limit - 55	48"x60"			20.00	(1)																
11 of 47	15	200+21 Lt.	IR-16R	One Way	A	11.8							3.5																						1	
12 of 47	8	212+50 Rt.	IG-9	(FM 1472-Route Marker)	N-5					10X10I5#	2	3222			17.0	212+50 Rt.	F6-E1	Exit 4	6'0" X 2'0"			12.00	(1)																
				(Del Mar Blvd- Santa Maria Ave)													1M-2F2F	(FM 1472- Route Marker)	84" X 36"		21.00		(1)															
				(Exit 1/2 Mile)													F3-2A	(Del Mar Etc.- ½ Mile)	23'6"X13'0"	305.00	(2)		(4)															
																TOTAL THIS SHEET Control 18-6-6SURBAN				~~305.00~~	68.15	730.25		17.0		153.7		190.6	51.5			309.0	76.5		9	6	

(305.50)

(1) Proposed Sign To Be Installed on Existing Sign or Post.
(2) Existing Sign To Be Installed on Proposed Post and Foundation.
(3) New Sign and Post To Be Installed on Existing Footings.
(4) Existing Sign Is To Remain in Place and Refurbished, Sign Face Overlayed, Text Modified and Exit Number Panel Installed.

ESTIMATE & QUANTITY
SHEET 3 OF 11 SHEETS 4

DIST.	STATE	FED. ROAD PROJECT NO.	SHT. NO.
21	TEXAS	1-35-1(30)002	7
DIST.	COUNTY	CONT.	SECT.	JOB	HWY. NO.
21	WEBB	18	6	65	IH 35

LEGEND
S = Special Mounting
X = Existing Breakaway Post
N = Without Breakaway Post
742 = Mounted on Wing Channel Post
728 = M. P. Mounting (See D&M(2) Standard)'
PP = Mounted on Two Pipe Post

SIGN TABULATION

PLAN PROFILE SHEET NO.	NEW SIGN NO.	STATION OF EXISTING SIGN	SIGN TYPE	EXISTING TEXT	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST (L. F.) 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POST: EXIST. SIZE	NUMBER OF POSTS	TOT. WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.): 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS (L.F.)	LOCATION OF NEW SIGN AND/OR POST: STATION	PROPOSED SIGN: SIGN TYPE	TEXT OF SIGN	SIGN BLANK: SIZE OF SIGN	MATERIAL (SQ. FT.): PLY. TY. A or ALT. ALUM. OVERLAY PANELS	ALUMINUM TYPE A	PLYWOOD TYPE A	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS — (L. F.) 1¼"	1½"	2"	2½"	3"	3½"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	No. 2	No. 3	WEIGHT POUNDS	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 24"D	CONST. NEW SIGN COMPLETE (See Material Each Sign)	(5) REMOV. EXIST. RDSIDE TRAF SIGNS (Item 7148) EA.	(6) REMOV & RELOC EXIST RDSIDE TRAF SIGNS (Item 7150) EA.	NON-PARTICIPATING (See Summary Sheet)
11 of 47	17		None															R5-9	Wrong Way	36" x 24"			6.00	A			11.0								2.5		(a)			
11 of 47	18		None															R5-9	Wrong Way	36" x 24"			6.00	A			10.5								2.5		(a)			
12 of 47	12	217+00 Lt.	IG-10	(Business 81 & 83)	320					6B12				12.0		217+00 Lt	F6-E2	Exit 3A	7'6" x 2'0"			15.00	(1)																	
				(Next Right)													2) IM-1A2F	81 & 83 Route Markers, Etc.	2-36"x36"		14.30		(1)																		
11 of 47	25	183+95 Lt.	R10-	Road Closed To Thru Traffic	PP	23.2							5.0			183+95Lt.	W6-3A	Lane Ends 400 Ft.	36"x36"			9.00	A			12.3								2.5	(a)	1			
																	W13-1A	20 M.P.H.	24"x24"			4.00																		
12 of 47	1	225+0 0 Lt.	IG-9	(San Bernardo Ave.)	330					8WF17	3	1234		21.0		225+00 Lt.	F6-E2	Exit 3A	7'6" x 2'0"			15.00																		
				(Calton Road)													F3-2A	(San Bernardo Ave. Etc.)	25'0"x8'6"			212.50	(1)																	(N)
				(Exit 6/10 Mile), Etc.														(1/2 Mile) Etc.																					
12 of 47	9	224+73 Lt.	IE9-15	Mile 4	742											224+73 Lt.	F18-1	Mile 4	12" x 24"		2.00		728	8.5													1		
12 of 47	10	224+73 Rt.	IE9-15	Mile 4	742											224+73 Rt.	F18-1	Mile 4	12" x 24"		2.00		728	8.5													1		
12 od 47	2	234+00 Rt.	IG-11	(FM 1472 Route Marker)	330					10WF21	3	1611		27.0		234+00 Rt.	F6-E1	Exit 4	6'-0"x2'-0"			12.00	(1)																	
				(Del Mar Blvd. - Santa Maria Ave.)													IM-2F2F	(FM 1472 Route Marker)	84" x 36"		21.00		(1)																	
				(Etc.)														(Del Mar Blvd, Etc)																					
12 of 47	3	239+14 Rt.	IG-1	Exit, Etc.	320					3I-5.7	2	170	7.0			239+14 Rt.	F6-2	4 (Number Panel)	3'6"x2'0"			7.00	(1)																	
12 of 47	15	218+80 Rt.	R-114	Keep Right	A-2	12.0							3.5			218+80 Rt.	R4-7	Keep Right Etc.	24" x 30" Etc.			8.00	(1)																	
12 of 47	7	237+30 Rt.	IR-16R	One Way	A	11.8							3.5																							1			
13 of 47	2 & 40	247+00 Rt.	IR-15	Do Not Enter	XF-2					3I-5.7	2	180	7.0			246+23 Rt.	IR5-9	Wrong Way	48" x 36"			12.00	F			3.0		12.2						3.5		(a)	1		
13 of 47	2A & 41	247+00 Rt.	IR-15	Do Not Enter	XF-2					3I-5.7	2	180	7.0			246+23 Rt.	IR5-9	Wrong Way	48" x 36"			12.00	F			3.0		12.2						3.5		(a)	1		
13 of 47	38	248+00 Rt.	IR-15R	Do Not Enter Ramp	XF-2					3I-5.7	2	191	7.0			248+00 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																	
13 of 47	38A	248+60 Rt.	IR 15R	Do Not Enter Ramp	XF-2					3I-5.7	2	191	7.0			248+60 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																	
13 of 47	22	252+30 Rt.	M6-1N	North, Etc.	N-B	12.3		11.5					4.5			252+30 Rt.	M6-1N	North, Etc.	24" x 12"		2.00		B		9.3		9.9						3.5				1	
			M6-1N	North, Etc.													M6-1N	North, Etc.	24" x 12"		2.00																	
12 of 47	16	218+00 Lt.	R-114	Keep Right	A-2	12.0							3.5			218+00 Lt.	R4-7	Keep Right, Etc.	24" x 30" etc.			8.00	(1)																	
13 of 47	7	251+27 Lt.	IM-21S	South, Etc.	N-B	13.3		13.5					4.5			251+27 Lt.	IM6-1BS	South, Etc.	24" x 12"		2.00		C			12.8		10.3						3.5				1	
			2)M6-1S	South, Etc. & South, Etc.													M6-1S	South, Etc.	24" x 12"		2.00																	
10 of 47	21 & 23		None													169+95Rt.	2) R5-9	Wrong Way	2-36" x 24"			12.00	2-A			21.0								5.0	2(a)				
13 of 47	33	253+20 Lt.	IW-60	Merging Traffic	NF-2					3I-5.7	2	180	10.0			253+20 Lt.	IW4-1	Merge, Etc.	48" x 48" etc.			19.00	F			3.0		13.9						3.5		(a)	1		
13 of 47	44	251+00 Rt.	IG-9A	Texas Tourist Bur. - Rest Area, Etc.	330					8WF20	3	1730		24.0		251+00 Rt.	F21-3A	Texas Tourist Bur. Etc. 1 1/4 Mi	19'0" x 14'0"	266.00			(4)																	
13 of 47	28	256+10 Rt.	IM-21N	North, Etc.	N-A			21.2					5.5			256+10 Rt.	IM6-1BN	North, Etc.	24" x 12"		2.00		C			12.8		10.3						3.5				1	
			2)M6-1N	North, Etc. & North, Etc.													M6-1N	North, Etc.	24" x 12"		2.00																	
10 of 47	20 & 26		None													176+20Lt.	2) R5-9	Wrong Way	2-36" x 24"			12.00	2-A			21.0								5.0	2(a)				
13 of 47	29	256+25 Rt.	IG-25	San Antonio 149-Carrizo Springs 77	N-4A					5x5x16#	2	504		9.0		256+25 Rt.	(2)	San Antonio, Etc.	15'0" x 4'0"				320						41-7.7	11.1	11.1		241	7.0			1	
11 of 47	28	186+90 Lt.	IR6-5	Two Way Traffic	PP		27.5						6.0			186+90Lt.	IW6-6	Two Way Traffic (Symbol)	48"x48" Etc.			19.00	(1)																	
11 of 47	21		None													190+00 Rt.	F22-6	Hospital - Next Right	10'0" x 3'6"			35.00	320						41-7.7	11.9	12.3		257	7.0		(a)			
																	F6-E2	Exit 3B	7'6" x 2'0"			15.00																		
13 of 47	45		None													242+50 Lt.	F22-6	Hospital - Next Right	10'0" x 3'6"			35.00	320						41-7.7	12.6	12.9		267	7.0		(a)			
																	F6-E2	Exit 3B	7'6" x 2'0"			15.00																		
13 of 47	30	257+00 Rt.	IM-21N	North, Etc.	N-A			19.3					5.5			257+00	IM6-1BS	South, Etc.	24" x 12"		2.00		A-1				19.5								3.5				1	
			IM-21S	South, Etc.													IM6-1BN	North, Etc.	24" x 12"		2.00																	
13 of 47	37	256+55 Rt.	IR-14	Keep Right, Etc.	XF-2					3I-5.7	2	175	7.0			256+55 Rt.	IR4-7	Keep Right, Etc.	48" x 60" etc.			23.00	320						31-5.7	11.5	11.5		142	(3)					
13 of 47	36	256+55 Lt.	IR-14	Keep Right, Etc.	XF-2					3I-5.7	2	187	7.0			256+55 Lt.	IR4-7	Keep Right, Etc.	48" x 60" etc.			23.00	320						31-5.7	11.5	11.5		142	(3)					
13 of 47	6	256+05 Lt.	IM-21N	North, Etc.	N-A			21.2					5.5			256+05 Lt.	IM6-1BN	North, Etc.	24" x 12"		2.00		C			12.8		~~10.8~~ 10.3						3.5				1	
			2)M6-1N	North, Etc. & North, Etc.													M6-1N	North, Etc.	24" x 12"		2.00																	
12 of 47	27 & 28		None													215+90 Rt	2) R5-9	Wrong Way	2-36" x 24"			12.00	2-A			21.0								5.0	2(a)				
13 of 47	4	256+30 Lt.	M1-6F	FM 1472, Etc.	N-A			14.5					5.5			256+30 Lt.	(2)						A			12.4								2.5				1	
13 of 47	5A	256+30 Lt.	2D-1A	Laredo Airport 3 Etc.	ND-23	8.8		11.3						4.5		256+30 Lt.	(2)		2-84" x 12"				D-2		5.1		10.0							2.5				1	
13 of 47	6A	256+25 Lt.	IM-21S	South, Etc.	N-A			21.2					5.5			256+25 Lt.	IM6-1BS	South, Etc.	24" x 12"		2.00		C			12.8		10.3						3.5				1	
			2)M6-1S	South, Etc. & South, Etc.													M6-1S	South, Etc.	24" x 12"		2.00																	
12 of 47	29 & 30		None													220+50 Lt	2) R5-9	Wrong Way	2-36" x 24"			12.00	2-A			21.0								5.0	2(a)				
13 of 47	11	256+90 Lt.	IM-21S	South, Etc.	N-A			21.2					5.5			256+90 Lt.	IM6-1BS	South, Etc.	24" x 12"		2.00		C			12.8		10.3						3.5				1	
			2)M6-1S	South, Etc. & South, Etc.													M6-1S	South Etc.	24" x 12"		2.00																	
13 of 47	24 & 25		None													253+90 Rt	2) R5-9	Wrong Way	2-36"x24"			12.00	2-A			21.0								5.0	2(a)				
13 of 47	20	257+13 Lt.	IR-15R	Do Not Enter Ramp	XF-2					3I-5 7	2	197	7.0			257+13 Lt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																	
13 of 47	21	257+13 Lt.	IR-15R	Do Not Enter Ramp	XF-2					3I-5.7	2	191	7.0			257+13 Lt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)																	
13 of 47	39 & 42	258+25 Lt.	IR-15	Do Not Enter	XF-2					3I-5.7	2	188	7.0			259+10 Lt.	IR5-9	Wrong Way	48" x 36"			12.00	F			3.0		12.2						3.5		(a)	1		
13 of 47	39A & 43	258+25 Lt.	IR-15	Do Not Enter	XF-2					3I-5.7	2	176	7.0			259+10 Lt.	IR5-9	Wrong Way	48" x 36"			12.00	F			3.0		12.2						3.5		(a)	1		
11 of 47	26		None													186+35 Lt.	R3-7LA	All Traffic Must Turn Left	36" x 30"			7.50	A			10.8								2.5		(a)			
11 of 47	27		None													187+80 Lt.	W1-8LA		12'-0" x 3'-0"			36.00	320						31-5.7	10.6	10.8		180	7.0		(a)			
11 of 47	10	209+50 Rt.	IR-2	Maximum Speed-55	X-G					41-7.7	2	359		9.0		209+50 Rt.	IR2-1	Speed Limit-55	48"x60"			20.00	(1)																	
																TOTAL THIS SHEET		Control 18-6-65 URBAN		266.00	67.30	722.00		17.0	14.4	241.0	10.0	~~192.4~~ (192)	~~41.2~~ (51.5)				1229	110.0		9	10

(1) Proposed Sign To Be Installed on Existing Sign or Post.
(2) Existing Sign To Be Installed on Proposed Post and Foundation.
(3) New Sign and Post To Be Installed on Existing Footings.
(4) Existing Sign Is To Remain in Place and Refurbished, Sign Face Overlayed, Text Modified and Exit Number Panel Installed.

ESTIMATE & QUANTITY

SHEET 4 OF 11 SHEETS 5

DIST.	STATE	FEDERAL PROJECT NO.	SHT. NO.
6	TEXAS	I-35-1(30)002	5
STATE DIST.	COUNTY	CONT.	SECT.	JOB	HWY. NO.
21	WEBB	18	6	65	IH 35

SIGN TABULATION

LEGEND
S = Special Mounting
X = Existing Breakaway Post
N = Without Breakaway Post
742 = Mounted on Wing Channel Post
728 = M.P. Mounting (See D&M(2) Standard)
PP = Mounted on Two Pipe Post

PLAN PROFILE SHEET NO.	NEW SIGN NO.	STATION OF EXISTING SIGN	SIGN TYPE	EXISTING TEXT	EXISTING STRUCTURE: TYPE OF MOUNT	GALVANIZED PIPE POST (L.F.) 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POST: EXIST. SIZE	NUMBER OF POSTS	TOT. WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS (L.F.)	LOCATION OF NEW SIGN AND/OR POST STATION	SIGN TYPE	TEXT OF SIGN	SIGN BLANK: SIZE OF SIGN	MATERIAL (SQ. FT.): PLY. TY. A or ALT. ALUM. OVERLAY PANELS	ALUMINUM TYPE A	PLYWOOD TYPE A	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS (L.F.) 1¼"	1½"	2"	2½"	3"	3½"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	No. 2	No. 3	WEIGHT POUNDS	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	24"D	CONST. NEW SIGN COMPLETE (See Material Each Sign) (a)	(5) REMOV. EXIST. RDSIDE TRAF. SIGNS (Item 7148) EA.	(6) REMOV & RELOC EXIST RDSIDE TRAF SIGNS (Item 7150) EA.	NON-PARTICIPATING (See Summary Sheet) (n)
4 of 47	3	90+00 Rt.	IG-10	(Laredo International Airport) (NEXT RIGHT)	330					6B12	3	689			21	91+00 Rt.	F6-E1 F-8-2	EXIT 2 (Laredo Intl. Airport, Etc.)	6'-0"x2'-0"			12.00	(1)																		
5 of 47	1	95+00 Rt.	1M6-2BN	North	X-C	12.6			15.3						5.5	95+00 Rt.	1M6-2BN	NORTH				(1)																		
			1M CC	Interstate 35													1M-CC	INTERSTATE 35																						
			2(M6-1N	North - North													M6-1N	NORTH	24" x 12"		2.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S. 81	24" x 24"		4.00																		
																	M1 4A2	U.S. 83	24" x 24"		4.00																		
5 of 47	2	103+00 Lt.	1M6-2BS	South	X C	12.6			15.8						5.5	103+00 Lt.	1M6-2BS	SOUTH				(1)																		
			1M-CC	Interstate 35													1M-CC	INTERSTATE 35																						
			2(M6-1S	South - South													M6-1S	SOUTH	24" x 12"		2.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S.81	24" x 24"		4.00																		
																	M1-4A2	U.S. 83	24" x 24"		4.00																		
8 of 47	2	150+00 Rt.	1M6-2BN	North	X-C	12.6			15.3						5.5	150+00 Rt.	1M6-2BN	NORTH				(1)																		
			1M-CC	Interstate 35													1M-CC	INTERSTATE 35																						
			2(M6-1N	North - North													M6-1N	NORTH	24" x 12"		2.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S. 81	24" x 24"		4.00																		
																	M1-4A2	U.S. 83 (3)	24" x 24"		4.00																		
11 of 47	8	199+50 Rt.	1M6-2BN	North	XC-1	14.3			13.4						5.5	199+50 Rt.	1M6-2BN	NORTH																						
			1M-CC	Interstate 35													1M-CC	INTERSTATE 35																						
			2(M6-1N	North - North													M6-1N	NORTH	24" x 12"		2.00	(1)																	
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S. 81	24" x 24"		4.00																		
																	M1-4A2	U.S. 83	24" x 24"		4.00																		
				SHEET TOTAL																	40.00	12.00																
				CONTROL 18-6-65 URBAN																																		
14 of 47	14	20+00 Rt.	1M6-2BN	North	XC-1	14.3			13.4						5.5	20+00 Rt.	1M-CC, etc.	NORTH - INTERSTATE 35				(1)																		
			1M-CC	Interstate 35													M6-1N	NORTH	24" x 12"		2.00																		
			2(M6-1N	North - North													M1-4A2	U.S. 81	24" x 24"		4.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S. 83	24" x 24"		4.00																		
17 of 47	1	83+00 Rt.	1M6-2BN	North	XC-1	14.3			12.2						5.5	83+00 Rt.	1M-CC, etc.	NORTH - INTERSTATE 35				(1)																		
			1M-CC	Interstate 35													M6-1N	NORTH	24" x 12"		2.00																		
			2(M6-1N	North- North													M1-4A2	U.S. 81	24" x 24"		4.00																		
			2(1M1-1	U.S. 8 - U.S. 83													M1-4A2	U.S. 83	24" x 24"		4.00																		
19 of 47	8	164+44 Rt.	1M6-2BN	North	XC-1	14.3			13.4						5.5	164+44 Rt.	1M-CC, etc.	NORTH - INTERSTATE 35				(1)																		
			1M-CC	Interstate 35													M6-1N	NORTH	24" x 12"		2.00																		
			M6-1N	North													M1-4A2	U S. 8	24" x 24"		4.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S. 83	24" x 24"		4.00																		
19 of 47	3	175+00 Lt.	1M6-2BS	South	XC-1	13.3			12.8						5.5	175+00 Lt.	1M-CC, etc.	SOUTH - INTERSTATE 35				(1)																		
			1M-CC	Interstate 35													M6-1S	SOUTH	24" x 12"		2.00																		
			M6-1S	South													M1-4A2	U.S. 81	24" x 24"		4.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S. 83	24" x 24"		4.00																		
20 of 47	5	274+40 Lt.	1M6-2BS	South	XC-1	13.3			12.8						5.5	274+40 Lt.	1M-CC, etc.	SOUTH INTERSTATE 35				(1)																		
			1M-CC	Interstate 35													M6-1S	SOUTH	24" x 12"		2.00																		
			M6-1S	South													M1-4A2	U.S. 81	24" x 24"		4.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S. 83	24" x 24"		4.00																		
				SHEET TOTAL																	50.00																	
				CONTROL 18-6-65 RURAL																																		
22 of 47	1	360+00 Rt.	1M6-2BN	North	XC-1	13.3			13.2						5.5	360+00 Rt.	1M-CC, etc.	NORTH - INTERSTATE 35				(1)																		
			1M-CC	Interstate 35													M6-1N	NORTH	24" x 12"		2.00																		
			M6-1N	North													M1-4A2	U S. 81	24" x 24"		4.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S. 83	24" x 24"		4.00																		
				SHEET TOTAL														CONTROL 18-5-25 RURAL			10.00																	

(1) Proposed Sign To Be Installed on Existing Sign or Post.
(2) Existing Sign To Be Installed on Proposed Post and Foundation.
(3) New Sign and Post To Be Installed on Existing Footings.
(4) Existing Sign Is To Remain in Place and Refurbished, Sign Face Overlayed, Text Modified and Exit Number Panel Installed.

ESTIMATE & QUANTITY
SHEET 5 OF 11 SHEETS 6

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHT. NO.
6	TEXAS	I-35-1(30)002	6
STATE DIST.	COUNTY	CONT. SECT. JOB	HWY. NO.
21	WEBB	18 6 5 [illegible]	IH 35

LEGEND
S = Special Mounting
X = Existing Breakaway Post
N = Without Breakaway Post
742 = Mounted on Wing Channel Post
728 = M. P. Mounting (See D&M(2) Standard)*
PP = Mounted on Two Pipe Post

SIGN TABULATION

PLAN PROFILE SHEET NO.	NEW SIGN NO.	STATION OF EXISTING SIGN	SIGN TYPE	EXISTING TEXT	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST (L. F.) 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POST: EXIST. SIZE	NUMBER OF POSTS	TOT. WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS (L.F.)	LOCATION OF NEW SIGN AND/OR POST: STATION	PROPOSED SIGN: SIGN TYPE	TEXT OF SIGN	SIGN BLANK: SIZE OF SIGN	SIGN BLANK: MATERIAL (SQ. FT.): PLY. TY. A or ALT. ALUM. OVERLAY PANELS	ALUMINUM TYPE	PLYWOOD TYPE	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS (L. F.) 1½"	1¾"	2"	2½"	3"	3½"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	LENGTH No. 2	LENGTH No. 3	WEIGHT POUNDS	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 24"D	CONST. NEW SIGN COMPLETE (See Material Each Sign) (a)	(5) REMOV. EXIST. RDSIDE TRAF SIGNS (Item 7148) EA.	(6) REMOV & RELOC EXIST RDSIDE TRAF SIGNS (Item 7150) EA.	NON-PARTICIPATING (See Summary Sheet) (n)
						2"D	2½"D	3"D	4"D				12"D	18"D		STATION																										
13 of 47	34	264+20 Rt.	IM6-1N	North, Etc.	N-B	13.3		13.5					4.5			264+20 Rt.	IM6-1BN	North, Etc.	24" x 12"		2.00		C			12.8			10.3							3.5				1
			M6-1N	North, Etc.													M6-1N	North, Etc.	24" x 12"		2.00																			
			M6-1N	North, Etc.																																				
13 of 47	31	267+00 Rt.	IW-60	Merging Traffic	NF-2					31-5.7	2	180	10.0			267+00 Rt.	IW4-1	Merge	48" x 48"etc.			19.00	F			3.0		13.9							3.5		(a)	1		
12 of 47	6	239+42 Lt.	IR-2	Maximum Speed - 55	X-G					4I-7.7	2	350		9.0		239+42 Lt.	IR2-1	Speed Limit-55	48"x 60"			20.00	(1)																	
14 of 47	1	270+00 Lt.	IG-1	Exit, Etc.	320					31-5.7	2	172	7.0			270+00 Lt.	F6-2	4 (Number Panel)	3'6" x2'0"			7.00	(1)																	
14 of 47	2	275+26 Lt.	IG-11	(FM 1472)	330					10WF21	3	1623			21.	275+26 Lt.	F6-E1	Exit 4	6'0" x2'0"			12.00	(1)																	
				(Del Mar Blvd)													IM-2F2F	(FM 1472 Route Marker)	84" x36"		21.00		(1)																	
				(Santa Maria Ave. Etc.)														(Del Mar Blvd Etc)																					
14 of 47	16	2+00 Lt.	IR-2	Maximum Speed - 55	X-G					4I-7.7	2	359		9.0		2+00 Lt.	IR2-1	Speed Limit - 55	48"x60"			20.00	(1)																	
14 of 47	18	271+88 Lt.	IR-16R	One Way	A	11.8							3.5																										
14 of 47	4	277+53 Lt.	IE9-15	Mile 5	742											277+53 Lt.	F18-1	Mile 5	12" x 24"		2.00		728	8.5													1		
14 of 47	3	277+53 Rt.	IE9-15	Mile 5	742											277+53 Rt.	F18-1	Mile 5	12" x 24"		2.00		728	8.5												(a)	1		
	SHEET	TOTAL		CONTROL 18-6-65 URBAN																	29.00	78.00		17.0		15.8		13.9	10.3						7.0		4	1	
GRAND	TOTAL	135-1(30)002		CONTROL 18-6-65 URBAN																~~1075.8~~ (815.5)	260.95	~~2798.25~~ (2741.75)		68.0	74.4	772.8	10.	516.1	192.1				2146.0	366.0		~~38~~ 31	34	
15 of 47	9	40+00 Rt.	IG-11A	Texas Tourist Bur. Rest Area, Etc.	330					8WF17	3	1221			21.	40+00 Rt.	F21-1A	Texas Tourist Bur.-Rest Area	19'0" x 13'6"	256.50			(4)																	
14 of 47	22	16+00 Lt.	R6-3	Two Way Traffic Ahead	A-2	12.6							3.5			16+00 Lt.	W6-6	Two Way Traffic, Etc.	30" x 30"etc.			9.25	(1)																	
14 of 47	15	17+00 Lt.	IG-9	(FM 1472)	330					8WF20	3	1437			24.	17+00 Lt.	F6-E1	Exit 4	6'0"x2'0"			12.00	(1)																	
				(Del Mar Blvd - Santa Maria Ave.)													IM2F2F	(FM 1472 Route Marker)	84" x 36"		21.00		(1)																	
				(Exit 1/2 Mile)													F3-2A	(Del Mar, Etc, 1/2 Mile)	23'6"x13'0"			305.50	(1)																	(N)
14 of 47	23	15+50 Rt.	IR2-8A	Maximum Legal Speeds, Etc.	ND-SP			110.0						22.5																									1		(N)
15 of 47	1	22+00 Rt.	IE5-2A	Informacion Gratuita, Etc.	330					6B-8.5	3	420			15.0	22+00 Rt.	F21-2A	Informacion Gratuita, Etc.	22'0" x 4'6"			99.00	(1)																	
15 of 47	2	32+60 Lt.	R6-3	Two Way Traffic Ahead	A-2	12.6							3.5			32+60 Lt.	W6-6	Two Way Traffic, Etc.	30" x 30"etc.			9.25	(1)																	
15 of 47	6	48+27 Lt.	IG-9	(FM 1472)	330					10WF21	3	1594			27.	48+27 Lt.	F6-E1	Exit 4	6'0" x2'0"			12.00	(1)																	
				(Del Mar Blvd-Santa Maria Ave.)													IM-2F2F	(FM 1472 Route Marker)	84" x 36"		21.00		(1)																	
				(Exit 1 Mile, Etc.)													F3-2A	(Del Mar Etc.- 1 Mile, Etc)	23'6" x13'0"			305.50	(1)																	(N)
15 of 47	3	46+80 Rt.	IG-1	Exit, Etc.	320					31-5.7	2	169	7.0			46+90 Rt.	F21-1A	Texas Tourist Bureau	9'0" x 8'6"			76.50	320							6B-8.5	15.4	15.6		327		12.0	(a)	1		
15 of 47	4	48+50 Rt.	IR-15	Do Not Enter	NA-1			14.6					4.5			49+50 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00	F			3.0		14.4							3.5		(a)	1		
15 of 47	5	48+50 Rt.	IR-15	Do Not Enter	NA-1			14.6					4.5			49+50 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00	F			3.0		14.4							3.5		(a)	‡		
15 of 47	7	48+50 Rt.	IR-2A	Exit 30 MPH	320					31-5.7	2	142	7.0			47+50 Rt.	IR5-9	Wrong Way	48" x 36"			12.00	F			3.0		15.4							3.5		(a)		1	
16 of 47	1	50+56 Rt.	IE9-15	Mile 6	742											50+56 Rt.	F18-1	Mile 6	12" x 24"		2.00		728	8.5												(a)	1		
16 of 47	2	50+56 Lt.	IE9-15	Mile 6	742											50+56 Lt.	F18-1	Mile 6	12"x 24"		2.00		728	8.5												(a)	1		
16 of 47	9	50+85 Rt.	D-5-1A	Tourist Bureau, Etc. Rest Area, Etc.	PP			23.5					7.0			50+90 Rt.	F1-2A	Tourist Bureau Rest Area, Etc.	13'0"x4'0"			52.00	320							4I-7.7	10.9	11.1		240	7.0		(a)	1		
16 of 47	3	60+85 Rt.	IW-60	Merging Traffic	NF-2					31-5.7	2	200	7.0			60+86 Rt.	IW4-1	Merge, Etc.	48" x 48"etc.			19.00	F			3.0		13.9							3.5		(a)	1		
15 of 47	8		None													47+50 Rt.	IR5-9	Wrong Way	48" x 36"			12.00	F			3.0		12.9							3.5		(a)			
16 of 47	10	60+70 Lt.	IR-17A	Two Way Traffic	N-A			16.0					5.5			60+70 Lt.	IW6-7	Two Way Traffic	48" x 48"			16.00	F			3.0		13.9							3.5		(a)	1		
16 of 47	4	61+50 Lt.	IR-48	Yield	XF-1					31-5.7	2	183	7.0			61+50 Lt.	IR1-2	Yield	6ft"			10.00	(1)																	
16of 47	11	61+10 Lt.	IR-15A	Do Not Enter Ramp	XF-2					31-5.7	2	191	7.0			61+10 Lt.	IR5-1 Etc.	Do Not Enter-Ramp	48" x 48"etc.			22.00	F			3.0		14.1							3.5		(a)	1		
14 of 47	17	14+00 Rt.	IR-2	Speed Limit - 55	X-G					4I-7.7	2	336		9.0		14+00 Rt.	IR2-1	Speed Limit - 55	48"x 60"			20.00	F			3.0		14.9							3.5		(a)	1		
			IR-2I	88 KM/H Maxima	XF-2					3I-5.7	2	227	7.0				(2)	88 KM/H Maxima	48 x 60"				F			3.0		15.2							3.5				1	
16 of 47	11A	61+30 Lt.	IR-15A	Do Not Enter Ramp	XF-2					31-5.7	2	191	7.0			61+30 Lt.	IR5-1 Etc.	Do Not Enter-Ramp	48" x 48" etc.			22.00	320							31-5.7	12.3	12.3		150	(3)					
16 of 47	12 & 16	62+50 Lt.	IR-15	Do Not Enter	XF-2					31-5.7	2	181	7.0			63+20 Lt.	IR5-9	Wrong Way	48" x 36"			12.00	F			3.0		12.9							3.5		(a)	1		
16 of 47	12 A & 17	62+50 Lt.	IR-15	Do Not Enter	XF-2					31-5.7	2	182	7.0			63+20 Lt.	IR5-9	Wrong Way	48" x 36"			12.00	F			3.0		12.9							3.5		(a)	1		
16 of 47	6	65+63 Lt.	IG-1	Exit, Etc.	320					31-5.7	2	177	7.0			65+50 Lt.	F21-1A	Texas Tourist Bureau	9'0"x8'6"			76.50	320							6B-8.5	15.7	16.2		334		12.0	(a)	1		
16 of 47	13	67+90 Lt.	IR-16R	One Way	A	11.8																																1		
16 of 47	7	71+00 Lt.	IG-11	Texas Tourist Bureau, Etc.	330					6B15.5	3	890			18.0	71+00 Lt.	F21 1A	Texas Tourist Bureau, Etc.	19'0" x 10'0"	190.00			(4)																	
17 of 47	11		None													92+80 Rt.	D 25	16 FT 6 IN	84" X 24"			14.00	D-2		8.2		9.5							2.5		(a)			
17 of 47	12		None													92+40 Lt.	D 25	16 FT 5 IN	84" X 24"			14.00	D-2		8.2		9.5							2.5		(a)			
17 of 47	6	103+46 Rt.	IE9-15	Mile 7	742											103+46 Rt.	F18-1	Mile 7	12" x 24"		2.00		728	8.5												(a)	1		
17 of 47	7	103+46 Lt.	IE9-15	Mile 7	742											103+46 Lt.	F18-1	Mile 7	12" x 24"		2.00		728	8.5												(a)	1		
17 of 47	10	110+00 Lt.	IG-9	Texas Tourist Bureau Exit 8/10 Mile	330					6B12	3	705			18.0	110+00 Lt.	F21-3A	Texas Tourist Bureau-3/4 Mile	19'0" x8'6"	161.50			(4)																	
				Free Maps & Literature														Free Maps & Literature																					
17 of 47	5	96+00 Rt.	IR-2	Speed Limit - 55	X-G					4I-7.7	2	342		9.0		96+00 Rt.	IR2-1	Speed Limit - 55	48" x 60"			20.00	F			3.0		15.3							3.5		(a)	1		
19 of 47	2	165+00 Lt.	IR-2	Speed Limit - 55	X-G					4I-7.7	2	345		9.0		165+00 Lt.	IR2-1	Speed Limit - 55	48" x 60"			20.00	F			3.0		15.2							3.5		(a)	1		
																		SHEET TOTAL Control 18-6-65 RURAL		608.00	50.00	1214.50		34.0	16.4	39.0	19.0	185.4				1051		57.5	28.0		19	2	

(1) Proposed Sign To Be Installed on Existing Sign or Post.
(2) Existing Sign To Be Installed on Proposed Post and Foundation.
(3) New Sign and Post To Be Installed on Existing Footings.
(4) Existing Sign Is To Remain In Place and Refurbished, Sign Face Overlayed, Text Modified and Exit Number Panel Installed.

ESTIMATE & QUANTITY
SHEET 6 OF 11 SHEETS 7

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHT. NO.
6	TEXAS	I-35-1(30)002	7

STATE DIST.	COUNTY	CONT.	SECT.	JOB	HWY. NO.
21	WEBB	18	6	65	IH 35

(18)

SIGN TABULATION

LEGEND
S = Special Mounting
X = Existing Breakaway Post
N = Without Breakaway Post
742 = Mounted on Wing Channel Post
728 = M.P. Mounting (See D&M(2) Standard)
PP = Mounted on Two Pipe Post

PLAN PROFILE SHEET NO.	NEW SIGN NO.	STATION OF EXISTING SIGN	SIGN TYPE	EXISTING TEXT	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST (L.F.) 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POST: EXIST. SIZE	NUMBER OF POSTS	TOT. WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS (L.F.)
19 of 47	4	155+68 Lt.	IE9-15	Mile 8	742										
19 of 47	7	155+68 Rt.	IE9-15	Mile 8	742										
19 of 47	9	208+48 Lt.	IE9-15	Mile 9	742										
19 of 47	10	208+48 Rt.	IE9-15	Mile 9	742										
20 of 47	3	261+28 Rt.	IE9-15	Mile 10	742										
20 of 47	4	261+28 Lt.	IE9-15	Mile 10	742										
21 of 47	1	314+08 Lt.	IE9-15	Mile 11	742										
21 of 47	2	314+08 Rt.	IE9-15	Mile 11	742										
		TOTAL THIS SHEET		CONTROL 18-6-65 RURAL											
		GRAND TOTAL	135-1(22)	000 CONTROL 18-6-65 RURAL											
		135-1(22)000	CONTROL	18-5-25 RURAL											
22 of 47	9	380+20 Lt.	IE5-3A	Texas Tourist Bureau-6 Miles Etc	330					8WF17	3	1221			21.0
22 of 47	5	366+88 Lt.	IE9-15	Mile 12	742										
22 of 47	6	366+88 Rt.	IE9-15	Mile 12	742										
23 of 47	21	419+68 Lt.	IE9-15	Mile 13	742										
23 of 47	22	419+68 Rt.	IE9-15	Mile 13	742										
23 of 47	27		None												
23 of 47	14	449+00 Rt.	IR-15	Do Not Enter	XF-2					31-5.7	2	185	7.0		
23 of 47	15	449+00 Rt.	IR-15	Do Not Enter	XF-2					31-5.7	2	185	7.0		
23 of 47	16	454+00 Rt.	IW-60	Merging Traffic	XF-2					31-5.7	2	198	7.0		
23 of 47	28		None												
23 of 47	17	461+00 Lt.	IW-60	Merging Traffic	XF-2					31-5.7	2	196	7.0		
23 of 47	18	470+00 Lt.	IR-15	Do Not Enter	XF-2					31-5.7	2	185	7.0		
23 of 47	19	470+00 Lt.	IR-15	Do Not Enter	XF-2					31-5.7	2	185	7.0		
23 of 47	29		None												
23 of 47	25	472+48 Rt.	IE9-15	Mile 14	742										
23 of 47	26	472+48 Lt.	IE9-15	Mile 14	742										
23 of 47	30		None												
22 of 47	2	370+00 Rt.	IR-2	Speed Limit-55	X-G					4I-7.7	2	349		9.0	
23 of 47	1	419+75 Lt.	IR-2	Speed Limit-55	X-G					4I-7.7	2	342		9.0	
24 of 47	4	526+60 Lt.	IE9-15	Mile 15	742										
24 of 47	5	526+60 Rt.	IE9-15	Mile 15	742										
25 of 47	2	578+40 Lt.	IE9-15	Mile 16	742										
25 of 47	3	578+40 Rt.	IE9-15	Mile 16	742										
26 of 47	1	600+95 Rt.	IG-9	(83 US Route Marker) (North) (Carrizo Springs Etc.- Exit 1 3/4 Miles)	330					8WF20	3	1315			24
28 of 47	2	669+90 Lt.	IR-2	Speed Limit-55	X-G					4I-7.7	2	343		9.0	
26 of 47	3	608+95 Rt.	IG-10	(Eagle Pass Etc) (Next Right)	320					6B-8.5	2	309			10
27 of 47	2	631+20 Rt.	IE9-15	Mile 17	742										
27 of 47	3	631+20 Lt.	IE9-15	Mile 17	742										
27 of 47	1	635+20 Rt.	IG-9	(83 US Route Marker) (North) (Carrizo Springs Etc) (Exit 1 Mile)	330					8WF20	3	1408			24
28 of 47	7	691+70 Rt.	IR-16R	One Way	A	11.8							3.5		
28 of 47	14	677+27 Lt.	IW13-4	Slow(Fold Up Face)	NA-1	7.3			13.5				4.5		
28 of 47	15	679+40 Lt.	IW8-5B	High Water (Fold Up Face)	NA-1	7.3			13.5				4.5		
28 of 47	10	684+00 Lt.	IE9-15	Mile 18	742										
28 of 47	11	684+00 Rt.	IE9-15	Mile 18	742										
28 of 47	13	666+20 Rt.	IR-2	Speed Limit-55	X-PP				28.3				9.0		
			IR-2I	88 KM/H Maxima	X-PP				29.4				9.0		
				SHEET TOTAL											

PLAN PROFILE SHEET NO.	NEW SIGN NO.	LOCATION OF NEW SIGN AND/OR POST STATION	SIGN TYPE	TEXT OF SIGN	PROPOSED SIGN: SIGN BLANK SIZE OF SIGN	MATERIAL (SQ. FT.) PLY. TY. A or ALT. ALUM. OVERLAY PANELS	ALUMINUM TYPE A	PLYWOOD TYPE A
19 of 47	4	155+68 Lt.	F18-1	Mile 8	12" x 24"		2.00	
19 of 47	7	155+68 Rt.	F18-1	Mile 8	12" x 24"		2.00	
19 of 47	9	208+48 Lt.	F18-1	Mile 9	12" x 24"		2.00	
19 of 47	10	208+48 Rt.	F18-1	Mile 9	12" x 24"		2.00	
20 of 47	3	261+28 Rt.	F 18-2	Mile 10	12" x 36"		3.00	
20 of 47	4	261+28 Lt.	F 18-2	Mile 10	12" x 36"		3.00	
21 of 47	1	314+08 Lt.	F 18-2	Mile 11	12" x 36"		3.00	
21 of 47	2	314+08 Rt.	F 18-2	Mile 11	12" x 36"		3.00	
						608..	120.00	214.5
					(5)	~~256.50~~		
22 of 47	9	380+20 Lt.	F21-3A	Texas Tourist Bureau-6 Miles Etc.	19'0" x ~~12'6"~~ 6"	~~237.50~~		
22 of 47	5	366+88 Lt.	F18-2	Mile 12	12" x 36"		3.00	
22 of 47	6	366+88 Rt.	F18-2	Mile 12	12" x 36"		3.00	
23 of 47	21	419+68 Lt.	F18-2	Mile 13	12" x 36"		3.00	
23 of 47	22	419+68 Rt.	F18-2	Mile 13	12" x 36"		3.00	
23 of 47	27	447+00 Rt.	IR5-9	Wrong Way	48" x 36"			12.00
23 of 47	14	449+00 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00
23 of 47	15	449+00 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00
23 of 47	16	454+00 Rt.	IW4-1	Merge Etc	48" x 48"etc.			19.00
23 of 47	28	447+00 Rt.	IR5-9	Wrong Way	48" x 36"			12.00
23 of 47	17	461+00 Lt	IW4-1	Merge Etc.	48" x 48"			19.00
23 of 47	18	470+00 Lt.	IR5-1	Do Not Enter	48" x 48"			16.00
23 of 47	19	470+00 Lt.	IR5-1	Do Not Enter	48" x 48"			16.00
23 of 47	29	472+00 Lt.	IR5-9	Wrong Way	48" x 36"			12.00
23 of 47	25	472+48 Rt.	F18-2	Mile 14	12" x 36"		3.00	
23 of 47	26	472+48 Lt.	F18-2	Mile 14	12" x 36"		3.00	
23 of 47	30	472+00 Lt.	IR5-9	Wrong Way	48" x 36"			12.00
22 of 47	2	370+00 Rt.	IR2-1	Speed Limit-55	48"x60"			20.00
23 of 47	1	419+75 Lt.	IR2-1	Speed Limit-55	48"x60"			20.00
24 of 47	4	526+60 Lt.	F18-2	Mile 15	12" x 36"		3.00	
24 of 47	5	526+60 Rt.	F18-2	Mile 15	12" x 36"		3.00	
25 of 47	2	578+40 Lt.	F18-2	Mile 16	12" x 36"		3.00	
25 of 47	3	578+40 Rt.	F18-2	Mile 16	12" x 36"		3.00	
26 of 47	1	600+95 Rt.	F6-E2	Exit 18	7'6" x 2'0"			15.00
			IM-1A3F	(83 US Route Marker)	36" x 36"		7.15	
			F3-2A	(North Etc.1 3/4 Miles	21'0" x 13'0"			273.00
28 of 47	2	669+90 Lt.	IR2-1	Speed Limit-55	48"x60"			20.00
26 of 47	3	608+95 Rt.	F6-E2	Exit 18	7'6" x 2'0"			15.00
27 of 47	2	631+20 Rt.	F18-2	Mile 17	12" x 36"		3.00	
27 of 47	3	631+20 Lt.	F18-2	Mile 17	12" x 36"		3.00	
27 of 47	1	635+20 Rt.	F6-E2	Exit 18	7'6" x 2'0"			15.00
			IM-1A3F	(83 US Route Marker)	36" x 36"		7.15	
			F3-2A	(North Etc.1 Mile)	21'0" x 13'0"	273.00		
28 of 47	7				48" x 48"			
28 of 47	14	677+27 Lt.	(2)		48" x 48"			
28 of 47	15	679+40 Lt.	(2)		48" x 48"			
28 of 47	10	684+00 Lt.	F18-2	Mile 18	12" x 36"		3.00	
28 of 47	11	684+00 Rt.	F18-2	Mile 18	12" x 36"		3.00	
28 of 47	13	666+20 Rt.	IR2-1	Speed Limit-55	48"x60"			20.00
		666+20 Rt.	(2)	88 KM/H Maxima	48"x60			
				CONTROL 18-5-25 RURAL		~~510.00~~ 529.50	56.30	548.00

PLAN PROFILE SHEET NO.	NEW SIGN NO.	NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS (L.F.) 1¼"	1½"	2"	2½"	3"	3½"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	No. 2	No. 3	WEIGHT POUNDS	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	24"D	(5) CONST. NEW SIGN COMPLETE (See Material Each Sign)	(5) REMOV. EXIST. RDSIDE TRAF SIGNS (Item 7148) EA.	(6) REMOV & RELOC EXIST RDSIDE TRAF SIGNS (Item 7150) EA.	NON-PARTICIPATING (See Summary Sheet) (n)
19 of 47	4	728	8.5													(a)	1		
19 of 47	7	728	8.5													(a)	1		
19 of 47	9	728	8.5													(a)	1		
19 of 47	10	728	8.5													(a)	1		
20 of 47	3	728	9.5													(a)	1		
20 of 47	4	728	9.5													(a)	1		
21 of 47	1	728	9.5													(a)	1		
21 of 47	2	728	9.5													(a)	1		
			72.0														8		
			106.	16.4	39.0	19.0	185.4						1051.	57.5	24.0		~~29.~~ 1(2)	~~8.~~ 1(1)	
22 of 47	9	(4)																	
22 of 47	5	728	9.5													(a)	1		
22 of 47	6	728	9.5													(a)	1		
23 of 47	21	728	9.5													(a)	1		
23 of 47	22	728	9.5													(a)	1		
23 of 47	27	F			3.0		12.9							3.5		(a)			
23 of 47	14	(1)																	
23 of 47	15	(1)																	
23 of 47	16	320							31-5.7	11.3	11.4		140	(3)					
23 of 47	28	F			3.0		12.9							3.5		(a)			
23 of 47	17	320							31-5.7	11.4	11.7		142	(3)					
23 of 47	18	(1)																	
23 of 47	19	(1)																	
23 of 47	29	F			3.0		12.9							3.5		(a)			
23 of 47	25	728	9.5													(a)	1		
23 of 47	26	728	9.5													(a)	1		
23 of 47	30	F			3.0		12.9							3.5		(a)			
22 of 47	2	F			3.0		15.6							3.5		(2)	1		
23 of 47	1	F			3.0		15.5							3.5		(2)	1		
24 of 47	4	728	9.5													(a)	1		
24 of 47	5	728	9.5													(a)	1		
25 of 47	2	728	9.5													(a)	1		
25 of 47	3	728	9.5													(a)	1		
26 of 47	1	(1)																	
		(1)																	(N)
28 of 47	2	F			3.0		19.5							3.5		(2)	1		
26 of 47	3	(1)																	
27 of 47	2	728	9.5													(a)	1		
27 of 47	3	728	9.5													(a)	1		
27 of 47	1	(1)																	
		(1)																	
		(4)																	
28 of 47	7																1		
28 of 47	14	F			3.0		14.3							3.5				1	
28 of 47	15	F			3.0		14.3							3.5				1	
28 of 47	10	728	9.5													(a)	1		
28 of 47	11	728	9.5													(a)	1		
28 of 47	13	F			3.0		15.5							3.5		(a)	1		
		F			3.0		16.1							3.5				1	
			29.4		33.0		162.4						282	38.5			19	3	

(1) Proposed Sign To Be Installed on Existing Sign or Post.
(2) Existing Sign To Be Installed on Proposed Post and Foundation.
(3) New Sign and Post To Be Installed on Existing Footings.
(4) Existing Sign Is To Remain in Place and Refurbished, Sign Face Overlayed, Text Modified and Exit Number Panel Installed.

ESTIMATE & QUANTITY
SHEET 7 OF 11 SHEETS
8

DIST.	STATE	FEDERAL PROJECT NO.	SHT. NO.
6	TEXAS	I-35-1(30)002	8
STATE DIST.	COUNTY	CONT. SECT. JOB	HWY. NO.
21	WEBB	18 6/5 25	IH 35

SIGN TABULATION

LEGEND
S = Special Mounting
X = Existing Breakaway Post
N = Without Breakaway Post
742 = Mounted on Wing Channel Post
728 = M. P. Mounting (See D&M(2) Standard)
PP = Mounted on Two Pipe Post

PLAN PROFILE SHEET NO.	NEW SIGN NO.	STATION OF EXISTING SIGN	SIGN TYPE	EXISTING TEXT	EXISTING STRUCTURE: TYPE OF MOUNT	GALVANIZED PIPE POST (L. F.) 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POST: EXIST. SIZE	NUMBER OF POSTS	TOT. WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L. F.) 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS (L.F.)	LOCATION OF NEW SIGN AND/OR POST STATION	PROPOSED SIGN: SIGN TYPE	TEXT OF SIGN	SIGN BLANK: SIZE OF SIGN	MATERIAL (SQ. FT.): PLY. TY. A or ALT. ALUM. OVERLAY PANELS	ALUMINUM TYPE A	PLYWOOD TYPE A	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS (L. F.) 1¼"	1½"	2"	2½"	3"	3½"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	No. 2	No. 3	WEIGHT POUNDS	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	24"D	(5) CONST. NEW SIGN COMPLETE (See Material Each Sign) (a)	REMOV. EXIST. RDSIDE TRAF SIGNS (Item 7148) EA.	(6) REMOV & RELOC EXIST RDSIDE TRAF SIGNS (Item 7150) EA.	NON-PARTICIPATING (See Summary Sheet) (n)
24 of 47	3	483+00 Lt.	1M6-2BS	South	XC-1	13.3			12.9					5.5		483+00 Lt.	1M-CC etc	SOUTH - INTERSTATE 35				(1)																		
			1M-CC	Interstate 35													M6-1S	SOUTH	24" x 12"		2.00																		
			M6-1S	South													M1-4A2	U. S. 81	24" x 24"		4.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U. S. 83	24" x 24"		4.00																		
25 of 47	1	591+16 Rt.	1M6-2BN	North	XC-1	13.1			13.0					5.5		591+16 Rt.	1M-CC etc	NORTH - INTERSTATE 35				(1)																		
			1M-CC	Interstate 35													M6-1N	NORTH	24" x 12"		2.00																		
			M6-1N	North													M1-4A2	U.S. 81	24" x 24"		4.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S. 83	24" x 24"		4.00																		
28 of 47	3	679+90 Lt.	1M6-2BS	South	XC-1	13.2			13.0					5.5		679+90 Lt.	1M-CC etc	SOUTH INTERSTATE 35				(1)																		
			1M-CC	Interstate 35													M6-1S	SOUTH	24" x 12"		2.00																		
			M6-1S	South													M1-4A2	U.S. 81	24" x 24"		4.00																		
			2(1M1-1	U.S. 81 - U.S. 83													M1-4A2	U.S. 83	24" x 24"		4.00																		
29 of 47	35	717+97 Rt.	M1-A	Texas U.S. 81	A-2	10.7								3.5		717+97 Rt.	1M6-1BN	NORTH	24" x 12"		2.00	B		7.8		10.3						3.5		(2)	1		
																	1M-BB	INTERSTATE 35	24" x 24"		3.19																		
																	M6-1N	NORTH	24" x 12"		2.00																		
																	M1-4A2	U.S. 81	24" x 24"		4.00																		
				SHEET TOTAL																	41.19			7.8		10.3						3.5			1		
				CONTROL 18-5-25 RURAL																																		
32 of 47	17	1068+98 Rt	1M-CC etc.	North - Interstate 35	XA-1				19.0					4.5		1068+98 Rt	M6-1N	NORTH	24" x 12"		2.00	(1)																	
			1M1-1 etc.	North - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
33 of 47	12	1174+58 Lt.	1M-CC etc.	South - Interstate 35	XA-1				19.3					4.5		1174+58 Lt.	M6-1S	SOUTH	24" x 12"		2.00	(1)																	
			1M1 -1etc.	South - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
35 of 47	27	1280+18 Rt	1M-CC etc	North - Interstate 35	XA-1				19.1					4.5		1280+18 Rt.	M6-1N	NORTH	24" x 12"		2.00	(1)																	
			1M1-1 etc.	North - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
35 of 47	30	1291+50 Rt.	IR-2	Speed Limit - 55	X-G					41-7.7	2	341	9.0			1291+50 Rt	IR2-1	SPEED LIMIT - 55	48" x 60"			20.00	F		3.0		15.0						3.5		(a)	1		
37 of 47	13	1385+78 Lt.	1M-CC etc	South - Interstate 35	XA-1				19.0					4.5		1385+78 Lt.	M6-1S	SOUTH	24" x 12"		2.00	(1)																	
			1M1-1 etc.	South - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
38 of 47	14	1491+38 Rt.	1M-CC etc	North - Interstate 35	XA-1				19.0					4.5		1491+38 Rt.	M6-1N	NORTH	24" x 12"		2.00	(1)																	
			1M1-1, etc.	North - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
				SHEET TOTAL																	30.00	20.00		3.0		15.0						3.5			1		
				CONTROL 18-4-22 RURAL																																		
39 of 47	3	1520+00 Lt.	1M-CC etc	South - Interstate 35	XA-1				19.2					4.5		1520+00 Lt.	M6-1S	SOUTH	24" x 12"		2.00	(1)																	
			1M1-1 etc.	South - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
39 of 47	13	1540+00 Rt.	1M-CC etc.	North - Interstate 35	XA-1				19.1					4.5		1540+00 Rt.	M6-1N	NORTH	24" x 12"		2.00	(1)																	
			1M1-1 etc.	North - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
40 of 47	18	1596+98 Lt.	1M-CC etc.	South - Interstate 35	XA-1				19.0					4.5		1596+98 Lt.	M6-1S	SOUTH	24" x 12"		2.00	(1)																	
			1M1-1 etc.	South - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
42 of 47	2	1702+58 Rt.	1M-CC etc.	North - Interstate 35	XA-1				19.0					4.5		1702+58 Rt.	M6-1N	NORTH	24" x 12"		2.00	(1)																	
			1M1-1 etc.	North - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
43 of 47	1	1808+18 Lt.	1M-CC etc	South - Interstate 35	XA-1				18.9					4.5		1808+18 Lt.	M6-1S	SOUTH	24" x 12"		2.00	(1)																	
			1M1-1 etc.	South - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
45 of 47	14	1913+78 Rt.	1M-CC etc.	North - Interstate 35	XA-1				19.2					4.5		1913+78 Rt	M6-1N	NORTH	24" x 12"		2.00	(1)																	
			1M1-1 etc.	North - U.S. 81													M1-4A2	U.S. 81	24" x 24"		4.00																		
				SHEET TOTAL														CONTROL 18-3-19 RURAL			36.00																		

(1) Proposed Sign To Be Installed on Existing Sign or Post.
(2) Existing Sign To Be Installed on Proposed Post and Foundation.
(3) New Sign and Post To Be Installed on Existing Footings.
(4) Existing Sign Is To Remain in Place and Refurbished, Sign Face Overlayed, Text Modified and Exit Number Panel Installed.

ESTIMATE & QUANTITY
SHEET 8 OF 11 SHEETS 9

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHT. NO.
6	TEXAS	I-35-1(30) 002	9
STATE DIST.	COUNTY	CONT / SECT / JOB	HWY. NO.
21	WEBB	18 / 5/3 / 25/19 (18 / 4 / 22)	IH 35

SIGN TABULATION

LEGEND
S = Special Mounting
X = Existing Breakaway Post
N = Without Breakaway Post
742 = Mounted on Wing Channel Post
728 = M. P. Mounting (See D&M(2) Standard)
PP = Mounted on Two Pipe Post

PLAN PROFILE SHEET NO.	NEW SIGN NO.	STATION OF EXISTING SIGN	SIGN TYPE	EXISTING TEXT	EXISTING STRUCTURE: TYPE OF MOUNT	GALVANIZED PIPE POST (L. F.) 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POST: EXIST. SIZE	NUMBER OF POSTS	TOT. WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L. F.) 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS (L.F.)	LOCATION OF NEW SIGN AND/OR POST STATION	PROPOSED SIGN: SIGN TYPE	TEXT OF SIGN	SIGN BLANK: SIZE OF SIGN	MATERIAL (SQ. FT.): PLY. TY. A or ALT. ALUM. OVERLAY PANELS	ALUMINUM TYPE A	PLYWOOD TYPE A	NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS (L. F.) 1¼"	1½"	2"	2½"	3"	3½"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	No. 2	No. 3	WEIGHT POUNDS	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L.F.) 12"D	24"D	(5) CONST. NEW SIGN COMPLETE (See Material Each Sign) (a)	(5) REMOV. EXIST. RDSIDE TRAF SIGNS (Item 7148) EA.	(6) REMOV & RELOC EXIST RDSIDE TRAF SIGNS (Item 7150) EA.	NON-PARTICIPATING (See Summary Sheet) (n)
28 of 47	4	688+00 Rt.	IG-11	(83 US Route Marker)	330					8WF20	3	1367			24	688+00 Rt.	F6-E2	Exit 18	7'6" x2'0"		~~3.00~~	15.00	(1)																
				(North)													IM-1A3F	(83 US-Route Marker)	36" x 36"		7.15		(1)																
				(Carrizo Springs Etc)																																				
28 of 47	5	693+00 Rt.	IR-48	Yield	XF-1					31-5.7	2	178	10.0			693+00 Rt.	IR1-2	Yield	60"			10.00	(1)															
28 of 47	17	690+00 Lt.	IW8-5B	High Water(Fold Up Face)	NA-1	7.3		13.5					4.5			690+00 Lt.	(2)		48" x 48"				F		3.0		14.3							3.5				1	
28 of 47	18	692+34 Lt.	IW13-4	Slow(Fold Up Face)	NA-1	7.3		13.5					4.5			692+34 Lt.	(2)		48" x 48"				F		3.0		14.3							3.5				1	
29 of 47	1	693+29 Rt.	IG-1	Exit,Etc.	320					31-5.7	2	170	7.0			693+29 Rt.	F6-2	18 (Number Panel)	3'6" x 2'0"			7.00	(1)															
29 of 47	5		None													693+30 Rt.	IR5-9	Wrong Way	48" x 36"			12.00	F		3.0		13.0							3.5		(a)			
29 of 47	31	693+70 Rt.	IR-15R	Do Not Enter Ramp	XF-2					31-5.7	2	193	7.0			693+70 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00	320						31-5.7	12.8	12.6		154	(3)				
																	IR5-1	Ramp	48" x 18"			6.00																
29 of 47	31A	694 + 50 Rt.	IR-15R	Do Not Enter Ramp	XF-2					31-5.7	2	196	7.0			694 + 30 Rt.	IR5-1	Do Not Enter	48" x 48"			16.00	F		3.0		14.1							3.5		(a)	1		
																	IR5-1	Ramp	48" x 18"			6.00																
29 of 47	36	697+80 Lt.	IM6-1S	South, Etc.	X-C	15.6			12.9					5.5		697+80 Lt.	IM6-1BS	South, Etc.	24" x 12"		2.00		C		12.8			10.3						3.5				1	
			M6-1S	South, Etc.													M6-1S	South, Etc.	24" x 12"		2.00																
			M6-1S	South, Etc.																																		
29 of 47	3	696+00 Rt.	IR-48	Yield	XF-1					31-5.7	2	186	7.0			696+00 Rt.	IR1-2	Yield	60"		~~(10)~~	~~20.00~~	(1)															
29 of 47	4	696+50 Rt.	IR-17A	Two Way Traffic	XF-2					31-5.7	2	182	7.0			696+50 Rt.	IW6-7	Two Way Traffic	48" x 48"			16.00	(1)															
29 of 47	7	709+70 Lt.	IW-60	Merging Traffic	NF-2					31-5.7	2	191	10.0			709+70 Lt.	IW4-1	Merge,Etc.	48" x 48"etc.			19.00	F		3.0		13.9							3.5		(a)	1		
29 of 47	11	2309+02 Lt.	IR-17A	Two Way Traffic	XF-2					31-5.7	2	189	7.0			2309+02 Lt	IW6-7	Two Way Traffic	48" x 48"			16.00	(1)															
29 of 47	13	2307+65 Lt.	IG-25	Carrizo Springs 64,Etc.	N-4A					5x5x16#	2	588			9	2307+65 Lt.	(2)		15'0" x 4'0"				320						41-7.7	11.0	11.3		242	7.0			1	
29 of 47	14	2307+36 Lt.	M6-1N	North	N-A			15.5					5.5			2307+36 Lt.	M6-1N	North, Etc.	24" x 12"		2.00		A		13.3									2.5				1	
			M-1Aetc.	US 83,Etc.													M1-4A2	US. 83	24" x 24"		4.00																
29 of 47	18	2308+15 Lt.	IR-1A	Stop	N-A			14.5					5.5			2308+15 Lt.	(2)		30"				A		11.6									2.5			1		
29 of 47	20	715+60 Lt.	IR-15R	Do Not Enter Ramp	XF-2					31-5.7	2	191	7.0		715	715+60 Lt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)															
29 of 47	21	715+60 Lt.	IR-15R	Do Not Enter Ramp	XF-2					31-5.7	2	191	7.0		715	715+60 Lt.	IR5-1	Do Not Enter	48" x 48"			16.00	(1)															
29 of 47	32	717+00 Lt.	IR-15	Do Not Enter	XF-2					31-5.7	2	165				717+00 Lt.	IR5-9	Wrong Way	48" x 36"			12.00	(1)															
29 of 47	32A	717+00 Lt.	IR-15	Do Not Enter	XF-2					31-5.7	2	189				717+00 Lt.	IR5-9	Wrong Way	48" x 36"			12.00	(1)															
29 of 47	33	712+89 Rt.	IR-17A	Two Way Traffic	XF-2					31-5.7	2	184	7.0			712+89Rt.	IW6-7	Two Way Traffic	48" X 48"			16.00	(1)															
29 of 47	25	714+80 Rt.	IR-1A	Stop	N-A			14.5					5.5			710+80 Rt.	(2)		30"				A		11.6									2.5			1		
29 of 47	29	716+65 Rt.	IR-17A	Two Way Traffic	XF-2					31-5.7	2	176	7.0			716+65 Rt.	IW6-7	Two Way Traffic	48" X 48"			16.00	(1)															
29 of 47	30	718+00 Rt.	IW-60	Merging Traffic	NF-2					31-5.7	2	190	10.0			718+00 Rt.	IW4-1	Merge,Etc.	48" x 48"etc.			19.00	F		3.0		13.9							3.5		(a)	1		
30 of 47	2	726+10 Lt.	IG-1	Exit,Etc.	320					31-5.7	2	169	10.0			726+10 Lt.	F6-2	18 (Number Panel)	3'6" x2'0"			7.00	(1)															
30 of 47	3	731+00 Lt.	IG-11	(83 US-Route Marker)	330					8WF20	3	1435			24.0	731+00 Lt.	F6-E2	Exit 18	7'6" x 2'0"			15.00	(1)															
				(North)													IM-1A3F	(83 US-Route Marker)	36"		7.15		(1)																
				(Carrizo Springs, Etc)																																		
30 of 47	5	736+80 Lt.	IE9-15	Mile 19	742											736+80 Lt.	F18-2	Mile 19	12" x 36"		3.00		728	9.5													(a)	1		
30 of 47	10	736+80 Rt.	IE9-15	Mile 19	742											736+80 Rt.	F18-2	Mile 19	12" x 36"		3.00		728	9.5													(a)	1		
30 of 47	9	728+00 Lt.	IR-16R	One Way	A	11.8							3.5																									1		
30 of 47	11	None														746+30 Rt.	D25	14 Ft 3 In.	84" x 24"			14.00	D-2	8.2		9.5								2.5		(a)			
30 of 47	12	None														748+75 Lt.	D25	14 Ft 5 In.	84" x 24"			14.00	D-2	8.2		9.5								2.5		(a)			
30 of 47	6	754+00 Rt.	IR-2	Speed Limit - 55	X-G					41-7.7	2	322		9.0		754+00 Rt.	IR2-1	Speed Limit - 55	48" X 60"		~~(303)~~	~~33.34~~	~~$36.85~~	(324)	19.0	16.4	70.3	19.0	97.5	10.3				3.5		(a)	1		
		TOTAL THIS SHEET																																				
GRAND	TOTAL	135-1(30) 002	CONTROL	18-5-25 RURAL																																		
	135-1(30)	002 CONTROL	18-4-22)	RURAL																																		
32 of 47	12	789+00 Lt.	IG-9	(83 US-Route Marker)	330					8WF20	3	1442			24.0	789+00 Lt.	F6-E2	Exit 18	7'6" x2'0"			15.00	(1)															
				(North)(Carrizo Springs, ETC)													IM-1A3F	(83 US-Route Marker)	36"		7.15		(1)																
				(Exit 1 Mile)													F3-2A	(North Etc,1 Mile)	21'0" x 13'0"			273.00	(1)															(N)
32 of 47	13	789+60 Lt.	IE9-15	Mile 20	742											789+60 Lt.	F18-2	Mile 20	12" x 36"		3.00		728	9.5													(a)	1		
32 of 47	14	789+60 Rt.	IE9-15	Mile 20	742											789+60 Rt.	F18-2	Mile 20	12" x 36"		3.00		728	9.5													(a)	1		
30 of 47	13	746+25 Rt.	IM-1Cetc.	North - I 35	A1			19.5					4.5			731+00 Rt.	IM-CCetc.	North-Interstate 35	36" x 36"etc.		10.31		A-1				3.3		Reuse	Exist. Post			3.5				1	
			IM1-1etc.	North - US 81													M1-4A2etc	North - US 81	24" x 24"etc.		6.00																
32 of 47	9	1108+98 Rt.	IE9-15	Mile 21	742											1108+98 Rt	F18-2	Mile 21	12" x 36"		3.00		728	9.5													(a)	1		
32 of 47	10	1108+98 Lt.	IE9-15	Mile 21	742											1108+98 Lt	F18-2	Mile 21	12" x 36"		3.00		728	9.5													(a)	1		
33 of 47	14	1161+78 Lt.	IE9 15	Mile 22	742											1161+78 Lt	F18-2	Mile 22	12" x 36"		3.00		728	9.5													(a)	1		
33 of 47	15	1161+78 Rt.	IE9-15	Mile 22	742											1161+78 Rt	F18-2	Mile 22	12" x 36"		3.00		728	9.5													(a)	1		
33 of 47	13	1164+58 Lt.	IR-2	Speed Limit-55	X-G					41-7.7	2	341		9.0		1164+58Lt	IR2-1	Speed Limit - 55	48"X 60"			20.00	F		3.0		15.2							3.5		(a)	1		
																	SHEET TOTAL Control 18-4-22RURAL				41.46	308.00		57.0		3.0		18.5						7.0			7	≠	

(1) Proposed Sign To Be Installed on Existing Sign or Post.
(2) Existing Sign To Be Installed on Proposed Post and Foundation.
(3) New Sign and Post To Be Installed on Existing Footings.
(4) Existing Sign Is To Remain in Place and Refurbished, Sign Face Overlayed, Text Modified and Exit Number Panel Installed.

ESTIMATE & QUANTITY
SHEET 9 OF 11 SHEETS 10

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHT. NO.
6	TEXAS	I-35-1(30) 002	10
STATE DIST.	COUNTY	CONT. SECT. JOB	HWY. NO.
21	WEBB	18 5/4 23-52	IH 35

LEGEND
S = Special Mounting
X = Existing Breakaway Post
N = Without Breakaway Post
742 = Mounted on Wing Channel Post
728 = M. P. Mounting (See D&M(2) Standard)
PP = Mounted on Two Pipe Post

SIGN TABULATION

PLAN PROFILE SHEET NO.	NEW SIGN NO.	STATION OF EXISTING SIGN	SIGN TYPE	EXISTING TEXT	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST (L. F.) 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POST: EXIST. SIZE	NUMBER OF POSTS	TOT. WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS (L. F.) 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS (L. F.)	PROPOSED SIGN: LOCATION OF NEW SIGN AND/OR POST STATION	SIGN TYPE	TEXT OF SIGN	SIGN BLANK: SIZE OF SIGN	SIGN BLANK: MATERIAL (SQ. FT.) PLY. TY.A or ALT. ALUM. OVERLAY PANELS	ALUMINUM TYPE A	PLYWOOD TYPE A	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS (L. F.) 1¼"	1½"	2"	2½"	3"	3½"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	LENGTH No. 2	LENGTH No. 3	WEIGHT POUNDS	NON-REINFORCED DRILLED CONCRETE FOOTINGS (L. F.) 12"D	REINFORCED DRILLED CONCRETE FOOTINGS (L. F.) 24"D	CONST. NEW SIGN COMPLETE (See Material Each Sign)	(5) REMOV. EXIST. RDSIDE TRAF SIGNS (Item 7148) EA.	(6) REMOV & RELOC EXIST RDSIDE TRAF SIGNS (Item 7150) EA.	NON-PARTICIPATING (See Summary Sheet)
34 of 47	8	1214+58 Rt.	IE9-15	Mile 23	742											1214+58 Rt	F18-2	Mile 23	12" x 36"		3.00		728	9.5														(a)	1		
34 of 47	10	1214+58 Lt.	IE9-15	Mile 23	742											1214+58 Lt	F18-2	Mile 23	12" x 36"		3.00		728	9.5														(a)	1		
35 of 47	28	1267+38 Rt.	IE9-15	Mile 24	742											1267+38 Rt	F18-2	Mile 24	12" x 36"		3.00		728	9.5														(a)	1		
35 of 47	29	1267+38 Lt.	IE9-15	Mile 24	742											1267+38 Lt.	F18-2	Mile 24	12" x 36"		3.00		728	9.5														(a)	1		
36 of 47	1	1320+19 Rt.	IE9-15	Mile 25	742											1320+19 Rt	F18-2	Mile 25	12" x 36"		3.00		728	9.5														(a)	1		
36 of 47	3	1320+19 Lt.	IE9-15	Mile 25	742											1320+19 Lt.	F18-2	Mile 25	12" x 36"		3.00		728	9.5														(a)	1		
37 of 47	14	1372+98 Lt.	IE9-15	Mile 26	742											1372+98 Lt.	F18-2	Mile 26	12" x 36"		3.00		728	9.5														(a)	1		
37 of 47	15	1372+98 Rt.	IE9-15	Mile 26	742											1372+98 Rt	F18-2	Mile 26	12" x 36"		3.00		728	9.5														(a)	1		
37 of 47	11	1425+78 Lt.	IE9-15	Mile 27	742											1425+78 Lt.	F18-2	Mile 27	12" x 36"		3.00		728	9.5														(a)	1		
37 of 47	12	1425+78 Rt.	IE9-15	Mile 27	742											1425+78 Rt	F18-2	Mile 27	12" x 36"		3.00		728	9.5														(a)	1		
38 of 47	12	1478+58 Lt.	IE9-15	Mile 28	742											1478+58 Lt.	F18-2	Mile 28	12" x 36"		3.00		728	9.5														(a)	1		
38 of 47	13	1478+58 Rt.	IE9-15	Mile 28	742											1478+58 Lt.	F18-2	Mile 28	12" x 36"		3.00		728	9.5														(a)	1		
		TOTAL THIS SHEET		CONTROL 18-4-22 RURAL																	36.00			114.0														12	
	GRAND	TOTAL 135-1	(30)002	CONTROL 18-4-22 RURAL																	107.46	328.		171.		6.0		33.5						10.5			20.	⊕
		CONTROL	135-1(30)	002 (18-3-19) RURAL																																			
39 of 47	2	1510+00 Lt.	IR-2	Speed Limit-55	X-G					4I-7.7	2	344		9.0		1510+00 Lt.	IR2-1	Speed Limit-55	48"x60"			20.00	F			3.0		15.4						3.5		(a)	1		
39 of 47	17	1531+39 Lt.	IE9-15	Mile 29	742											1531+39 Lt.	F18-2	Mile 29	12" x 36"		3.00		728	9.5														(a)	1		
39 of 47	18	1531+39 Rt.	IE9-15	Mile 29	742											1531+39 Rt	F18-2	Mile 29	12" x 36"		3.00		728	9.5														(a)	1		
40 of 47	19	1584+19 Lt.	IE9-15	Mile 30	742											1584+19 Lt.	F18-2	Mile 30	12" x 36"		3.00		728	9.5														(a)	1		
40 of 47	20	1584+19 Rt.	IE9-15	Mile 30	742											1584+19 Rt	F18-2	Mile 30	12" x 36"		3.00		728	9.5														(a)	1		
41 of 47	21	1636+99 Rt.	IE9-15	Mile 31	742											1636+99 Rt	F18-2	Mile 31	12" x 36"		3.00		728	9.5														(a)	1		
41 of 47	22	1636+99 Lt.	IE9-15	Mile 31	742											1636+99 Lt.	F18-2	Mile 31	12" x 36"		3 00		728	9.5														(a)	1		
41 of 47	19	1689+79 Lt.	IE9-15	Mile 32	742											1689+79 Lt.	F18-2	Mile 32	12" x 36"		3.00		728	9.5														(a)	1		
41 of 47	20	1689+79 Rt.	IE9-15	Mile 32	742											1689+79 Rt	F18-2	Mile 32	12" x 36"		3.00		728	9.5														(a)	1		
42 of 47	5	1742+58 Lt.	IE9-15	Mile 33	742											1742+58 Lt.	F18-2	Mile 33	12" x 36"		3.00		728	9.5														(a)	1		
42 of 47	6	1742+58 Rt.	IE9-15	Mile 33	742											1742+58 Rt	F18-2	Mile 33	12" x 36"		3.00		728	9.5														(a)	1		
43 of 47	13	1795+38 Rt.	IE9-15	Mile 34	742											1795+38 Rt	F18-2	Mile 34	12" x 36"		3.00		728	9.5														(a)	1		
43 of 47	14	1795+38 Lt.	IE9-15	Mile 34	742											1795+38 Lt.	F18-2	Mile 34	12" x 36"		3.00		728	9.5														(a)	1		
44 of 47	19	1848+19 Lt.	IE9-15	Mile 35	742											1848+19 Lt.	F18-2	Mile 35	12" x 36"		3.00		728	9.5														(a)	1		
44 of 47	20	1848+19 Rt.	IE9-15	Mile 35	742											1848+19 Rt	F18-2	Mile 35	12" x 36"		3.00		728	9.5														(a)	1		
45 of 47	12	1900+99 Lt.	IE9-15	Mile 36	742											1900+99 Lt	F18-2	Mile 36	12" x 36"		3.00		728	9.5														(a)	1		
45 of 47	13	1900+99 Rt.	IE9-15	Mile 36	742											1900+99 Rt	F18-2	Mile 36	12" x 36"		3.00		728	9.5														(a)	1		
46 of 47	32	1953+79 Lt.	IE9-15	Mile 37	742											1953+79 Lt.	F18-2	Mile 37	12" x 36"		3.00		728	9.5														(a)	1		
46 of 47	33	1953+79 Rt.	IE9-15	Mile 37	742											1953+79 Rt	F18-2	Mile 37	12" x 36"		3.00		728	9.5														(a)	1		
~~46 of 47~~	~~28~~	~~2006+59 Lt.~~	~~IE9-15~~	~~Mile 38~~	~~742~~											~~2006+59 Lt~~	~~F18-2~~	~~Mile 38~~	~~12" x 36"~~		~~3.00~~		~~728~~	~~9.5~~														~~(a)~~	~~1~~		
~~46 of 47~~	~~29~~	~~2006+59 Rt.~~	~~IE 9-15~~	~~Mile 38~~	~~742~~											~~2006+59 Rt~~	~~F18-2~~	~~Mile 38~~	~~12" x 36"~~		~~3.00~~		~~728~~	~~9.5~~														~~(a)~~	~~1~~		
~~46 of 47~~	~~18~~	~~2002+00 Rt.~~	~~IW-21~~	~~Divided Highway Ends~~	~~XF-2~~					~~3I-5.7~~	~~2~~	~~199~~	~~7.0~~			~~2002+00 Rt~~	~~IW6-2~~	~~Divided Highway Ends, etc.~~	~~48" x 48" etc.~~			~~19.00~~	~~320~~							~~3I-5.7~~	~~11.6~~	~~12.0~~		~~145~~	~~(3)~~			
~~46 of 47~~	~~26~~	~~2007+00 Lt.~~	~~IR-17~~	~~Two Way Traffic Ahead~~	~~XF-2~~					~~3I-5.7~~	~~2~~	~~199~~	~~7.0~~			~~2007+00 Lt~~	~~IW4-3R~~	~~Lane Ends Merge Left~~	~~48" x 48"~~			~~16.00~~	~~(1)~~															
~~46 of 47~~	~~27~~	~~2007+00 Rt.~~	~~IR-17~~	~~Two Way Traffic Ahead~~	~~XF-2~~					~~3I-5.7~~	~~2~~	~~195~~	~~7.0~~			~~2007+00 Rt~~	~~IW4-3R~~	~~Lane Ends Merge Left~~	~~48" x 48"~~			~~16.00~~	~~(1)~~															
~~47 of 47~~	~~5~~	~~2015+00 Cl.~~	~~IR-14~~	~~Keep Right Etc~~	~~XF-2~~					~~3I-5.7~~	~~2~~	~~191~~	~~7.0~~			~~2015+00 Cl~~	~~IR4-7~~	~~Keep Right, etc.~~	~~48" x 60" etc.~~			~~23.00~~	~~320~~							~~3I-5.7~~	~~11.5~~	~~11.5~~		~~142~~	~~(3)~~			
~~47 of 47~~	~~4~~	~~2012+00 Rt.~~	~~IR-11~~	~~Do Not Pass~~	~~XF-2~~					~~3I-5.7~~	~~2~~	~~206~~	~~7.0~~			~~2012+00 Rt~~	~~IW4-2R~~	~~Symbol - Merge Left~~	~~48" x 48"~~			~~16.00~~	~~(1)~~															
~~47 of 47~~	~~2~~	~~2015+00 Rt.~~	~~IW-20A~~	~~Divided Highway~~	~~XF-2~~					~~3I-5.7~~	~~2~~	~~198~~	~~7.0~~			~~2015+00 Rt~~	~~IW6-6~~	~~Two Way Traffic, etc.~~	~~48" x 48" etc.~~			~~19.00~~	~~320~~							~~3I-5.7~~	~~11.5~~	~~11.9~~		~~144~~	~~(3)~~			
																~~2015+00 Rt~~	~~IR5-1~~	~~Do Not Enter~~	~~48" x 48"~~			~~16.00~~																
~~47 of 47~~	~~1~~	~~2015+00 Lt.~~	~~IW-20A~~	~~Divided Highway~~	~~XF-2~~					~~3I-5.7~~	~~2~~	~~198~~	~~7.0~~			~~2017+00 Lt.~~	~~IW6-1~~	~~Divided Highway, Etc.~~	~~48" x 48" etc.~~			~~19.00~~	~~F~~			~~3.0~~		~~13.9~~						~~3.5~~		~~(a)~~	~~1~~	
~~39 of 47~~	~~14~~	~~1550+00 Rt.~~	~~IR-2~~	~~Speed Limit-55~~	~~X-G~~					~~4I-7.7~~	~~2~~	~~343~~		~~9.0~~		~~1550+00 Rt~~	~~IR 2-1~~	~~Speed Limit-55~~	~~48"X 60"~~			~~20.00~~	~~F~~			~~3.0~~		~~15.3~~						~~3.5~~		~~(a)~~	~~1~~	
~~43 of 47~~	~~9~~	~~1798+18 Lt.~~	~~IR-2~~	~~Speed Limit-55~~	~~X-G~~					~~4I-7.7~~	~~2~~	~~345~~		~~9.0~~		~~1798+18 Lt~~	~~IR2-1~~	~~Speed Limit-55~~	~~48" X 60"~~			~~20.00~~	~~F~~			~~3.0~~		~~15.5~~						~~3.5~~		~~(a)~~	~~1~~	
~~43 of 47~~	~~12~~	~~1810+00 Rt.~~	~~IR-2~~	~~Speed Limit-55~~	~~X-G~~					~~4I-7.7~~	~~2~~	~~341~~		~~9.0~~		~~1810+00 Rt~~	~~IR2-1~~	~~Speed Limit-55~~	~~48" X 60"~~			~~20.00~~	~~F~~			~~3.0~~		~~15.2~~						~~3.5~~		~~(a)~~	~~1~~	
~~47 of 47~~	~~6~~	~~2019+38 Lt.~~	~~EXIT 6A~~	~~SOUTH - Interstate 35~~	~~XA-1~~				~~19.0~~				~~4.5~~			~~2019+38 Lt~~	~~M6-1S~~	~~South~~	~~24"x12"~~		~~2.00~~		~~(1)~~																
			~~ENTRANCE~~	~~SOUTH - U.S. 81~~													~~M1-4A2~~	~~U.S. 81~~	~~24"x36"~~		~~4.00~~																
		TOTAL THIS SHEET CONTROL 18-3-19 RURAL																			54.00	80.00		171		12.0		61.4						14.0			22	
		GRAND TOTAL 135-1(30)002 See Sheet 11A																Control 18-3-19 RURAL			90.00	80.00		171		12.0		61.4						14.0			22	

(1) Proposed Sign To Be Installed on Existing Sign or Post.
(2) Existing Sign To Be Installed on Proposed Post and Foundation.
(3) New Sign and Post To Be Installed on Existing Footings.
(4) Existing Sign Is To Remain In Place and Refurbished, Sign Face Overlayed, Text Modified and Exit Number Panel Installed.

ESTIMATE & QUANTITY
SHEET 10 OF 11 SHEETS 11

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHT. NO.
6	TEXAS	I-35-1(30)002	11
STATE DIST.	COUNTY	CONT. SECT. JOB	HWY. NO.
21	WEBB	18 4/3 22/19	IH 35

SUMMARY OF TY I-R PAVM'T MARKERS		
STATION	EST.	FIN.
123+20 Rt.	38	38
126+85 Lt.	38	38
143+60 Lt.	38	38
146+65 Rt.	38	38
170+45 Rt.	38	38
175+70 Lt.	38	38
216+40 Rt.	38	38
220+00 Lt.	38	38
254+40 Rt.	38	38
TOTAL	342	342

ESTIMATE SUMMARY

I - 35 - 1 (30) 002

	18 - 6 - 65 URBAN		18 - 6 - 65 RURAL		18 - 5 - 25 RURAL		18 - 4 - 22 RURAL		18 - 3 - 19 RURAL		ALT.	ITEM-CODE			ITEM DESCRIPTION	UNIT	TOTAL	
	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		ITEM NO.	DESC. CODE	S. P. NO.			EST.	FINAL
			24.	24.								416	521		Drill Shaft (24 In)(Sign Mts)	LF	24.	24.
	366.0	373.00	57.5	50.50	89.5	93.00	10.5	7.00	14.0	14.00		416	525		Drill Shaft (Non-Reinf)(12 In)(Sign Mts)	LF	537.5	537.50
	260.95	260.95	120.	120.00	140.79	154.10	107.96	91.15	90.00	90.00		704	501	002	Al Sign Ty A	SF	719.2	716.20
	74.4	58.13	16.40	14.08	24.2	25.33						728	501	001	1.5 In Galv Pipe Post	LF	115.	99.54
	772.8	823.99	39.	39.00	103.3	104.58	6.0	6.00	12.0	12.00		728	502	001	2 In Galv Pipe Post	LF	939.1	985.57
	10.	10.00	19.	19.00		19.00						728	503	001	2.5 In Galv Pipe Post	LF	48.	48.00
	546.1	565.90	185.4	155.30	270.2	270.20	33.5	30.20	61.4	61.40		728	504	001	3 In Galv Pipe Post	LF	1096.6	1083.00
	192.1	202.40			10.3	10.30						728	505	001	3.5 In Galv Pipe Post	LF	202.4	212.70
	68.	68.00	106.	106.00	152.	152.00	171.	171.00	171.	171.00		728	508	001	1.25 In Galv Pipe Post	LF	668.	668.00
	2146.	2146.00	1051.	1051.00	678.	678.00						730	501	001	Galv Str Stl Post	LB	3875.	3875.00
	38.	37.	27.	26.	27.	29.	20.	20.	22.	22.		7148	501		Remov Exist Rdside Traf Signs	EA	134.	134.
	34.	34.	2.	2.	8.	8.	1.	0.				7150	501		Remov and Reloc Exist Rdside Traf Sign	EA	45.	44.
			49.	49.	34.	34.	113.	113.	148.	148.		740	501		Delin Ty I (Ind Housed)	EA	344.	344.
			49.	49.	34.	34.	113.	113.	148.	148.		7222	504		Delin Post (6.5 ft)	EA	344.	344.
Participating	2831.25	2834.75	1211.50	1112.50	1121.50	1130.50	55.00	55.00	80.00	80.00								
Non-Participating	922.00	922.00	611.00	710.00	273.00	360.00	273.00	273.00										
Total	3753.25	3756.75	1822.50	1822.50	1394.50	1490.50	328.00	328.00	80.00	80.00	1	7223	501		Ply Sign Ty A	SF	7378.25	7477.75
															STATE FORCE ACCOUNT WORK (PART)			
	53.	53.	18.	18.	20.	20.	10.	10.	12.	12.					01 Remov Small Rdsd Sign Fr Post	EA	113.	113.
	4.	4.	1.	1.	5.	5.			1.	1.					02 Remov Small Rdsd Sign & Post	EA	11.	11.
	4.	4.	3.	3.	1.	1.	1.	1.							03 Remov Large Rdsd Guide Sign Fr Post	EA	9.	9.
					1.	1.									04 Mod Sign Text	EA	1.	1.
	257.	257.	31.	31.	119.	119.	28.	28.	20.	20.					05 Mod Ty I, II, and III Delin.	EA	455.	455.
	2.1	2.1	7.5	7.5	11.7	11.7	22.1	22.1	15.5	15.5					06 Paint ML Right Shld Edge Line	MI	58.9	58.9
	342.	342.													07 Install Pav Mark (Refl) (Ty I-R)	EA	342.	342.
															~~ALTERNATE 1A~~			
Participating	1816.25	———	603.50	———	611.00	———	55.00	———	80.00	———								
Non-Participating	922.00	———	611.00	———	273.00	———	273.00	———										
Total	2738.25	———	1214.50	———	884.00	———	328.00	———	80.00	———		7223	501		Ply Sign Ty A	SF	5244.75	———
	1015.00	———	608.00	———	510.50	———						7119	503	001	Al Ovlay Sign Panel (Flat Surf)	SF	2133.50	———

ESTIMATE & QUANTITY
SHEET 11 OF 11 SHEETS 11-A

FED. RY. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(30) 002	11A
STATE DIST. NO.	COUNTY	CONT. / SECT. / JOB / HIGHWAY NO.	
21	WEBB	18 / 6/5 / 68 / 85 / IH 35	
		18 / 4/3 / 53 / 73 / EXPWY	

GENERAL NOTES AND SPECIFICATION DATA:

The Engineer will stake all sign locations, and no changes in these locations shall be made without prior approval of the Engineer. It is the intent of the plans to erect all major signs 30' and minor signs 18' from the edge of pavement. In places where these minimum distances cannot be obtained because of the frontage road, clearances will be maintained as close to these minimums as practical and still kept a minimum distance of 8' from the edge of the frontage road.

Strict adherence to the dimensions shown on the Sign Support Detail sheets will not excuse the Contractor from the responsibility of checking dimensions Any detail which conflicts with the Standard Plan Sheets should be brought to the attention of the Engineer prior to construction unless a note is placed adjacent to the detail to indicate an intentional deviation from the Standard Plan Sheets.

ITEM 416: State Department of Highways and Public Transportation penetrometer values used for estimating length of drilled shafts were 10 and 15 blows per foot for sign structures located on regular and high fill sections respectively, unless otherwise noted on plans. The Contractor shall probe before drilling foundations to determine the location of all utilities and structures. He shall be paid for drilling shaft once only regardless of any extra work caused by the occurence of these obstructions.

All excess excavation shall be spread uniformly inside the right of way as directed by the Engineer and shall be included in the price bid for these items.

ITEM 446: All paints purchased from the Department will be charged to the Contractor as prices in accordance with the following Paint Price List:

Stock No.	Type of Paint	Price per 5 Gallons
3020000	#702 Aluminum Finish Coat (Slow Dry)	$26.80
Stock No.		
Stock No.	Type of Paint	Price per Gallon
3051600	WES-2 White Enamel, Sign	$5.25
3057500	YES-2 Yellow Enamel, Sign	7.40
3038500	GES-2 Green Enamel, Sign	7.90
3024700	BES-2 Blue Enamel, Sign	8.60
3025000	BPE-1 Black Exterior	6.60
3046040	OES-2 Orange Enamel, Sign	5.30

ITEMS 704 & 7223: Completed sign blanks and panels shall be handled and stored at the job site in such a manner that corners, edges and faces are not damaged. Finished sign blanks shall be stored in either a weather-proof warehouse or outside and off the ground in a vertical position. All paper, cardboard and chemically treated separators and packaging shall be removed prior to outside storage. All guide signs number panels and exit sign number panels to be installed are of standard size and a field review of existing roadside guide signs should be made to determine required material and hardware for attaching and mounting the panels to existing guide signs. All material removed by the Contractor to be reused shall be handled and stored in such a manner to insure no damage and salvable material not be reused shall become property of the State Maintenance Forces. Mounting height and horizontal clearance requirements for the installation of regulatory, warning and route marker assembly signing on frontage roads, ramps or behind guardrail are shown in the 1971 AASHO Manual on Uniform Traffic Control Devices. Existing sign post without signs and existing or new sign foundation stubs when left without signs and posts installed overnight shall be protected by the Contractor with flashing electric lights.

ITEM 724: Dimensions for corner radii above 3" may vary plus or minus 1" Dimensions for border width may vary as much as plus 1/2". Borders and corner radii must be of matching widths.

Border widths and radii for all signs shall be as follows:

Sign Area (S.F.)	Border Width	Radii
0-60	1 1/2"	6"
60-96	2"	9"
Above 96	3"	12"

Wind Design Velocity - 67 M.P.H.

Use Zone 3 Table on SMD (8 W1)

ITEM 5134: The square footage requirements in this Special Specification are not applicable to this project.

ITEM 7150: Existing sign supports designated in the plans for reuse including the necessary hardware for erection shall be included in this Item.

ITEMS 704 & 7223: The Contractor's attention is directed to the fact that the hole punching details shown on the SMD sheets may not be correct for signs which are to be placed on existing mounts. For these signs it may be necessary to modify or change the hole punching details in order to fit the existing mounts. These details shall be approved by the Engineer prior to placement of the sign blanks.

SPECIFICATION DATA
SHEET

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I 35-1(22)000			
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	3		IH 35

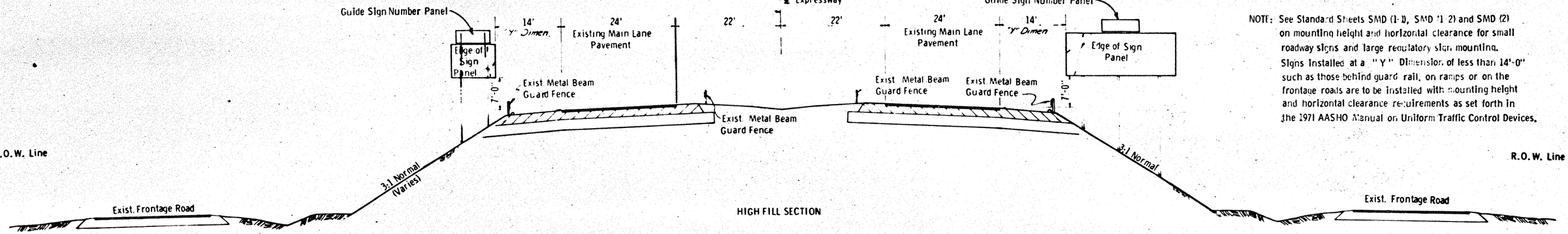
Etc.

SPECIFICATION DATA
SHEET A

12

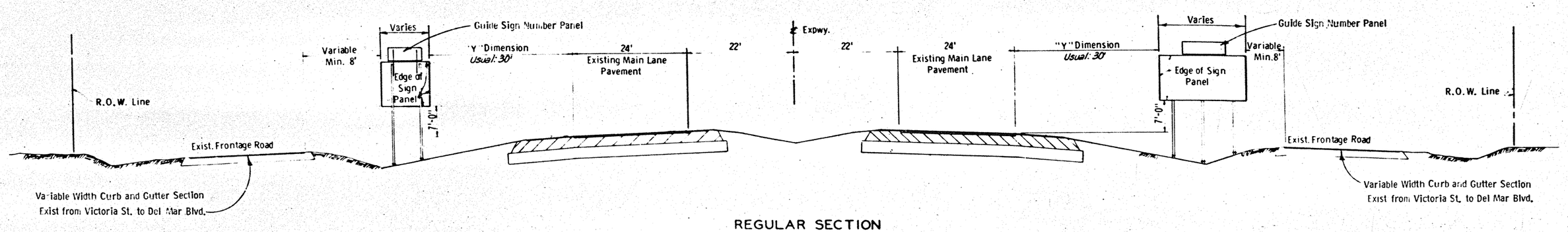
FED. RD. DIV. NO.	STATE	STATE PROJECT NO.			SHEET NO.
6	TEXAS	I 35-1(30)002			12
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	3	19	IH 35

Etc.

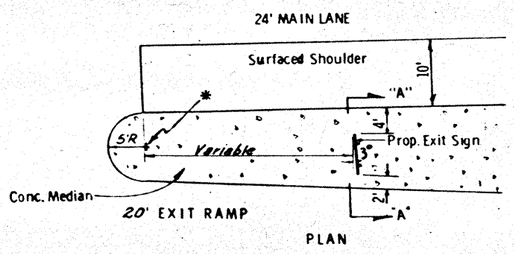


HIGH FILL SECTION

NOTE: See Standard Sheets SMD (1-1), SMD (1-2) and SMD (2) on mounting height and horizontal clearance for small roadway signs and large regulatory sign mounting. Signs installed at a "Y" Dimension of less than 14'-0" such as those behind guard rail, on ramps or on the frontage roads are to be installed with mounting height and horizontal clearance requirements as set forth in the 1971 AASHO Manual on Uniform Traffic Control Devices.

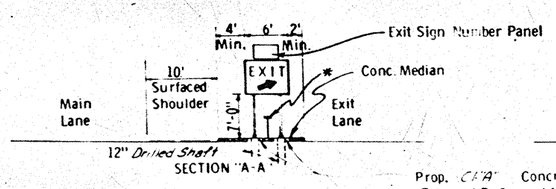


REGULAR SECTION



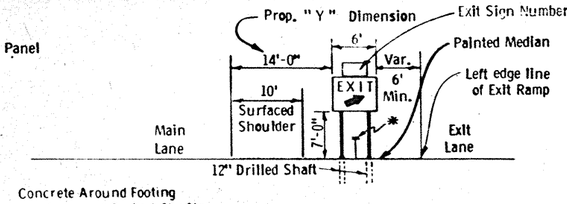
PLAN

Exit Gore Signs of 9'-0" width are to be installed by the contractor at Sta. 46+90 Rt. and 65+50 Lt. with the same 14'-0" "Y" Dimension and ramp clearance as shown below.
Painted edge lines installed by State Maint. Forces are to be installed as required by the Manual on Uniform Traffic Control Devices.
* Type III Clearance Markers at Gore points are to be modified by State Maint. Forces to Type IV Object Markers

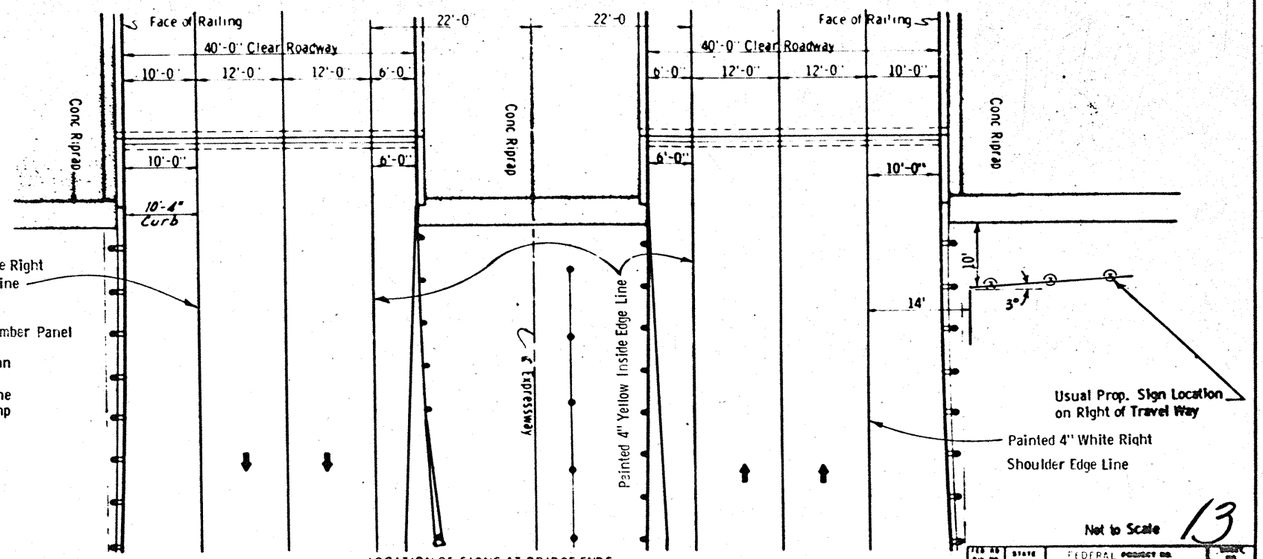


TYPICAL EXIT SIGN LOCATION ON CONCRETE GORE

Prop. "A" Concrete Around Footing
Required To Finish Median at Drilled Shafts Will Not Be Paid For Directly But Will Be Considered Subsidiary To The Various Bid Items of This Project.



TYPICAL EXIT SIGN LOCATION AT PAINTED GORE



LOCATION OF SIGNS AT BRIDGE ENDS

TYPICAL SECTIONS

Not to Scale

13

FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1 (30) 092	13
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6/5	4&5	I H
		18	4/3	77/09	35

ENDWAY SIGNS IN MEDIAN WITH MEDIAN

STATE	DISTRICT	FEDERAL PROJECT NO.			SHEET NO.
TEXAS	21	I-35-1(30)002			14
COUNTY		SHEET	SHEET	SHEET	TOTAL SHEETS
WEBB		18	6	65	IN 35

STA. 40 ± 74
CONTROL 18-6-
- STA. 40 + 74
PROJECT I 35 - 1 (19) 000
CONTROL 18-6-43 (COMPLETED)

N

Traffic Signals

Railroad Flashing Signals

SHEET 1 of 47 SHEETS

14

CONT. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
	TEXAS	I-35-1(30)002				15
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.	
21	WEBB	18	6	65	IH-35	

SANTA URSULA

SAN DARIO AVE.

GO AVE.

C. of A Line

℄ OF MEDIAN

N

STA. 51+20.15

STA. 54+55.50

STA. 57+30.06

STA. 61+23.50

WEST EXPRESSWAY CURVE DATA
P.I.- 34' LT.-Sta.
Δ= 6°-00' LT. 64+40.0
D= 2°-00'
T= 150.1'
L= 299.9'

EAST EXPRESSWAY LANE
CURVE DATA
P.I.- 141.76' Rt.-Sta. 52+44
Δ= 10°-00' Lt
D= 6°-00'
T= 83.6'
L= 166.7'

EAST EXPRESSWAY-CURVE DATA
P.I.-34' Rt.-Sta. 58+55.1
Δ= 10°-00' RT.
D= 2°-00'
T= 250.7'
L= 500.0'

SCOTT ST. STA. 51+19.85

COKE ST STA. 54+54.95

BENAVIDES ST. STA. 57+89.50

GARCIA ST. STA. 61+22.83

SCOTT STREET CROSSING

WEST EXPRESSWAY LANE

EAST EXPRESSWAY LANE

+0.2000%

℄ Finished Grade

SHEET 2 of 47 SHEETS

15

DIST. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(30)002				16
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB		ADDENDUM NO.
21	WEBB	18	6	65		IN35

N

STA. 64+57.07
PI. Δ=0°-07'-00"LT.

IE9-15 MILE 1 66+30

R-16R ONE WAY

R-1A STOP 64+33

SANTA URSULA AVE

67+92

STA. 68+00
BEG. PROJECT I35-1(22)000
CONTROL 18-6-
= STA. 68+00
PROJECT I 35-1(19)000
CONTROL 18-6-43 (COMPLETED)

64+50

417.20 t of Lane Fin Grade

Metal Beam Guard Fence

64+56 TOTTER BRIDGE 67+91

SAN DARIO AVE 70

64+30
SLOWER TRAFFIC KEEP RIGHT
IR4-3

CALLAGHAN ST. STA. 64+56.18
PI. Δ=0°-03'-00"RT.

64+80 STOP R-1A ONE WAY R-16R

59 Freer Houston EXIT 9/16 MILE IG-9

66+30 MILE 1 IE9-15

GARZA ST. STA. 67+90.63

68+14 STOP R-1A ONE WAY R-16R

68+80 W3-3A SIGNALS AHEAD W3-3

39 WRONG WAY R5-9 ONE WAY R-16R 69 78+30

SANCHEZ ST. STA. 71+23.90

R2-1 SPEED LIMIT 30 69+78

35 36 Traffic Signals

IR5-1 DO NOT ENTER 71+60

STA. 71+24.94

6+34 8+74 C of A Line

R5-9 WRONG WAY 73+10

R-14 KEEP RIGHT R4-7 74+78

R-16L ONE WAY

STA. 74+76.64

Fixed Illumination

FREEWAY ENDS 4/10 MILE OSE

W3-3A SIGNALS AHEAD W3-3

R5-1 DO NOT ENTER 75+25

77+53 78+06 78+16 Traffic Signals

R-16R ONE WAY R-1A STOP

BRUNI ST. STA. 76+28.10

77+25 WRONG WAY R5-9

Sta. 75+52.44 End Struct.

Metal Beam Guard Fence

Median - Survey Line

74+83 R-14 KEEP RIGHT R4-7 R-16L ONE WAY

C of A Line

IR5-1 DO NOT ENTER 70+80

IW-GO MERGE IW4-1

Toe of Slope

PARK ST. STA. 74+75.78

72 75+70 WRONG WAY R5-9

IR5-1 DO NOT ENTER 74+20

Traffic Signals

75+29 SPEED LIMIT 30 R2-1

77-00 FEDERAL HOUSING AUTHORITY

IM6-1BN NORTH 81 M1-2 M4-1R M6-1N

IM6-1BN NORTH 83 M1-2 M4-1R M6-1N

IM6-1BN NORTH 35 M4-1L M6-1N

IM-BB IM3-2BL

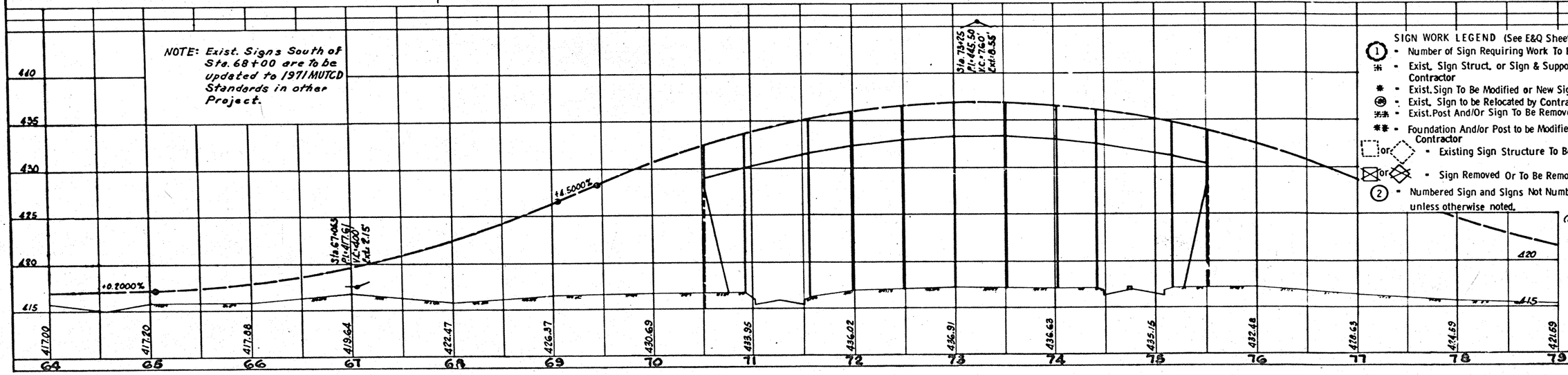
NORTH M6-1N 81 M1-4A2

NORTH M6-1N 83 M1-4A2

Add Sign M3-3L

ENTRANCE RAMP "G" CURVE DATA
PI: 137.1' Rt. Sta. 78+00
Δ = 10°-00' LT.
D = 3°-00'
T = 167.1'
L = 333.3'

NOTE: Exist. Signs South of Sta. 68+00 are to be updated to 1971 MUTCD Standards in other Project.



SIGN WORK LEGEND (See E&Q Sheets for Detail)

(1) - Number of Sign Requiring Work To Be Done
* - Exist. Sign Struct. or Sign & Supports to be Removed by Contractor
* - Exist. Sign To Be Modified or New Sign Installed by Contractor
(*) - Exist. Sign to be Relocated by Contractor
** - Exist. Post And/Or Sign To Be Removed by STATE Maint. Forces
** - Foundation And/or Post to be Modified, Reloc. or Installed by Contractor
or - Existing Sign Structure To Be Removed by Contractor
or - Sign Removed Or To Be Removed under Other Project
(2) - Numbered Sign and Signs Not Numbered are to remain in place unless otherwise noted.

(N) = Non-Participating

16

FED. RD. DIST. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(30)002				17
CONT. SECT. JOB NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	6	65	IH-35

IR2-1 SPEED LIMIT 45

IR5-1 DO NOT ENTER *

R-16L ONE WAY

R-16R ONE WAY

R-1A STOP

DO NOT ENTER

IR-15 Exist Sign To Be Used In Place

IR-2A EXIT 30 MPH

F6-2 1B * EXIT

F1-1

W4-2L

W4-3R LANE ENDS MERGE RIGHT

F6-E1 EXIT 2 *

Exist. Sign to be Used in Place

Laredo International Airport NEXT RIGHT

F6-2

F6-E2 EXIT 1B *

Park St. Sanchez St.

F2-1

Exist Sign To Be Used In Place

STA 81+61.64 P.I. 4°-0'-10.00" RT.

STA 84+94.82

STA 88+26.2

STA 91+61.60

81+85

80+20

80+94

81+62

84+00

84+65

84+71

84+96

86+10

87+60

88+08

88+28

91+00

91+40

91+62

93+00

NO°-5'-0"W SANTA URSULA AVE.

6" Curb & Gutter

50' Transition from 4" Curb to 6" Curb

6" Curb

C. of A. Line

Exist. Frontage Road and Exit Ramp Channelization

IR5-9 PROPOSED New Signs

WRONG WAY

82+77

86+50

EXIT RAMP "H" CURVE DATA
P.I. 37' Lt. Sta. 89+10
Δ = 4°-30' LT.
D = 2°-00'
T = 112.6'
L = 225.0'

IR-16R ONE WAY

Metal Beam Guard Fence

80+00

NO°-0'-1"W

NO°09'-08"W

℄ Median = Survey Line

ENTRANCE RAMP "G" CURVE DATA
P.I. 49' RT. Sta. 82+99.4
Δ = 10°-00' RT.
D = 3°-00'
T = 167.1'
L = 333.5'

Sta 82+10

Sta 82+00

C. of A. Line

SAN DARIO AVE.

79+45

81+60

81+85

84+94

85+15

88+27

88+52

86+00

91+61

91+84

IR2-1 MAXIMUM SPEED 55 IR-2 *

MINIMUM SPEED 40 IR-2F

Exist. Sign and Supports to be Used in Place

BEGIN:
Prop. Painted Main Lane White 4 Inch Right Shoulder Edge Line.

Edge Lines to be Installed by STATE Maint. Forces.

GONZALEZ ST STA. 81+60.30 P.I. 4°-0'-10.00" RT

POGGENPOHL ST STA 84+93.70

SHEA ST. STA 88+27.1

GARDEN ST STA 91+60.50

FEDERAL HOUSING AUTHORITY

M6-1N M1-2 M4-2L

81 83 36

SHEET 4 of 47 SHEETS

ENTRANCE RAMP "G"

EXIT RAMP "H"

Sta 79+10 P.I. 419.20 400' V.C. Ext. 2.15'

Sta 93+30 P.I. 416.36 310' V.C. Ext. 1.65'

-0.2000%

Delineator to be Modified by State Forces

TOTAL EACH 27 Type 2

17

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I-35-1(30)002			18
DISTRICT NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	65	IH-35

MG-1S*
IM1-1 *
MG-1S ~~Sign to be Removed~~ Sign and not Replaced
IM1-1 *

IM6-2BS
IM-CC

R5-9 WRONG WAY
R5-1 DO NOT ENTER
R2-1 SPEED LIMIT 30
R2-1 SPEED LIMIT 30
R2-1 SPEED LIMIT 30
R2-1 SPEED LIMIT 30
R1-A STOP
R1-A STOP
R1-A STOP

PROJ. NO. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(30)002	19
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 6 65	IH-35

SOUTH 81 M3-2L
SOUTH M6-1S
83 M1-4A2
M3-2L 123+50

SPEED LIMIT 55 MINIMUM SPEED 40 IR2-1 IR2-4

Exist. Sign and Supports ~~To Be~~ Used in Place

R-16R R-1A STOP 111+38 109+40 22

STA. 111+61.63

R-16R ONE WAY 111+62 IR-16R 14

R-16R R-1A STOP 114+10

STA. 114+94.90 P.I. Δ=0°-01'-00" RT.

R-16R ONE WAY 114+95

R-16R ONE WAY R-1A STOP 118+29 118+05

STA. 118+28.75

F18-1 MILE 2 119+10

118+73

R-16R ONE WAY 121+65 7

R-16R ONE WAY R-1A STOP IR-1A 121+40 6

STA. 121+62.60

R2-1 SPEED LIMIT 30 122+50

IM6-1BS SOUTH 35 IM-BB IM3-2BL 21 20 19

SANTA URSULA AVE.

ENTRANCE RAMP "F" CURVE DATA
P.I. 49'LT. - Sta. 115+30.6
Δ = 10°00' LT. T = 167.1'
D = 3°-00' L = 333.3'

℄ C. of A. Line

ENTRANCE RAMP "F" CURVE DATA
P.I. 137.1' LT. - Sta. 120+30
Δ = 10°00 RT. T = 167.1'
D = 3°-00' L = 333.3'

MBG Fence

IW-60 MERGE IW4-1 13 124+00

℄ Median = Survey Line

PROPOSED New Signs

WRONG WAY IR5-9 23 116+50

YIELD IR-4B 3 118+30

DO NOT ENTER IR5-1 IR-15 15 118+50

Metal Beam Guard Fence

IR5-9 122+70

Exist. Frontage Road and Exit Ramp Channelization

WRONG WAY 26

~~Prop~~ Wrong Way Arrows

Freer 61
Houston 309
F12-2

EXIT RAMP "E" CURVE DATA
P.I. = 37' RT. - Sta. 110+71.0
Δ = 5°20' RT T = 133.4'
D = 2°-00' L = 266.6'

℄ C. of A. Line

SAN DARIO AVE.

24 2 16 8 25 12 123+50

ONE WAY R-16R 111+61

BLAIR ST. STA. 111+60.50

STOP R-1A 111+85 112+75 ONE WAY R-16R

LANE ENDS MERGE RIGHT W4-3R

114+25 W4-2L

F6-2 2 EXIT F1-1 115+00 1

EXIST SIGN ~~TO BE~~ USED IN PLACE

SHERMAN ST. STA. 114+33.70 P.I. Δ=0°-01'-00" RT.

STOP R-1A ONE WAY R-16R 115+17

ONE WAY R-16R 114+94

EXIT 30 MPH IR-2A 115+70

ONE WAY R-16R 118+28

BURNSIDE ST. STA. 118+27.53

118+49 STOP R-1A ONE WAY R-16R

5 ONE WAY R-16L 119+80

ONE WAY R-16R 121+61 121+13

MADISON ST. STA. 121+61.36

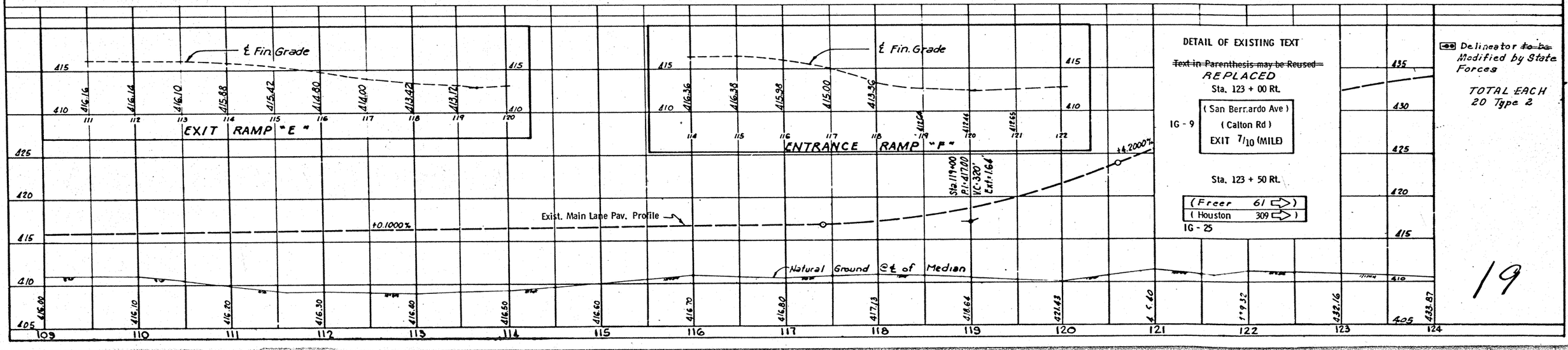
9 121+85 STOP R-1A ONE WAY R-16R

10 11 123+00 F6-E2 EXIT 3A

San Bernardo Ave
Calton Rd.
3/4 MILE
F3-2A

SIGNALS AHEAD W3-3

SHEET 6 of 47 SHEETS



DETAIL OF EXISTING TEXT

~~Text in Parenthesis may be Reused~~
REPLACED
Sta. 123 + 00 Rt.
(San Berrardo Ave)
(Calton Rd)
EXIT 7/10 (MILE)
IG - 9

Sta. 123 + 50 Rt.
(Freer 61)
(Houston 309)
IG - 25

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH 20 Type 2

19

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I-35-1(30)002			20
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	65	IH-35

F12-2 Freer 61 / Houston 309

F6-E1 EXIT 1B Park St. Sanchez St. 3/4 MILE

F3-2A

IR1-2 YIELD

IR-16 DO NOT ENTER

IR5-1

IR-2A EXIT 30 MPH

IR5-9 WRONG WAY

PROPOSED New Signs

R6-1R ONE WAY

F6-2 2 EXIT

F1-1

W4-2L

W4-3R LANE ENDS MERGE RIGHT

R2-1 SPEED LIMIT 30

W3-3 SIGNALS AHEAD

R-16R ONE WAY

R-1A STOP

R-16L ONE WAY

M6-15 M1-7 M1-8 M4-3 M6-15 M1-8 M4-3

M6-1N M1-2 M4-3 M6-1N M1-2 M6-2BN M3-2BL M6-1N M1-4A2 M3-2L M6-1N M1-4A2 M3-2L

F12-1 San Antonio 150

LAFAYETTE ST. STA. 124+95.19 HWY US-59

STA. 124+96.45

STA. 126+30.30

STA. 128+30.30

STA. 131+64.13

STA. 134+97.18

STA. 138+30.23

BALTIMORE ST. STA. 128+29.02

PIERCE ST. STA. 131+62.82

BOSTON ST. STA. 134+95.75

PHILADELPHIA ST. STA. 138+28.68

STA. 124+02 RD. STRUCTURE

Traffic Signals

Prop. Wrong Way Arrows

WRONG WAY R5-9

Exist. Frontage Road and Exit Ramp Channelization

℄ RAMP "D"

℄ Median Survey Line

Metal Beam Guard Fence

℄ RAMP "C"

℄ of A Line

SANTA URSULA AVENUE

SAN DARIO AVENUE

EXIT RAMP "D" - CURVE DATA
PI: 37' LT. Sta. 139+10
Δ: 5°20' LT. T: 133.4'
D: 2°00' L: 266.7'

ENTRANCE RAMP "C" - CURVE DATA
PI: 137.1' RT. Sta 129+00.3
Δ: 10°00' LT. T: 100.3'
D: 5°00' L: 200.0'

ENTRANCE RAMP "C" - CURVE DATA
PI: 49' RT. Sta. 133+99.7
Δ: 10°00' RT. T: 100.3'
D: 5°00' L: 200.0'

DETAIL OF EXISTING TEXT

~~Text in Parenthesis may be Reused~~

REPLACED

Sta. 126+90 Lt.

(Freer 61)
(Houston 309)

IG-25

Sta. 128+75 Lt.

IG-9 (Park St) (Sanchez St) EXIT 9/10 (MILE)

ENTRANCE RAMP "C"

EXIT RAMP "D"

Sta. 125+00 P.I. 442.20 V.C. 740' Ext. 7.76'

Sta. 130+10 P.I. 418.32 V.C. 320' Ext. 1.76'

Sta. 138+15 P.I. 419.81 V.C. 400' Ext. 2.40'

-1.1895%

+0.2000%

Exist. Main Lane Pav. Profile

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH 19 - Type 2

SHEET 7 of 47 SHEETS

20

STATE	FEDERAL PROJECT NO.				SHEET NO.
TEXAS	I-35-1(30)002				21
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	G	65	IH-35

F6-E1 EXIT 2 59 Freer Houston F2-1 IM-1A3F (N)

R-16R ONE WAY R-1A STOP 141+42

IR5-1 DO NOT ENTER 141+10

STA. 141+63.28

R-16R ONE WAY 8+35 8+75 3 4 IR5-1 DO NOT ENTER 142+10

R5-9 WRONG WAY 144+10 15 16

R-16R ONE WAY R-1A STOP 144+74

STA. 144+96.34

Railroad Flashing Signals

1B R R W-32 147+03

R-16R ONE WAY R-1A STOP 148+07

STA. 148+29.67

R-16R ONE WAY 8+35 8+75 7 8

IR5-1 DO NOT ENTER 148+70

R5-9 WRONG WAY 150+70 19 20

R-1A STOP 151+39

R-16R ONE WAY 151+63

STA. 151+63.06

SANTA URSULA AVENUE

Sta. 140+93.63 Beg. Struct.

Prop Wrong Way Arrows

℄ of A. Line

STA. 148+97.28 END STRUCT.

℄ Median Survey Line

Metal Beam Guard Fence

R-16R ONE WAY R-16L ONE WAY R-1A STOP 146+15 R5-9 WRONG WAY 17 18

℄ of A. Line

Prop Wrong Way Arrows

SAN DARIO AVENUE

13 WRONG WAY R5-9 14 139+10

IR5-1 DO NOT ENTER 141+10 5 6

R-16R ONE WAY

UGARTE ST. STA. 141+61.61

R-1A STOP 141+86 142+57 1A R R W-32

Railroad Flashing Signals

PACE ST. STA. 144+94.56

R-1A STOP 145+15 R-16R ONE WAY

10 SPEED LIMIT 45 R2-1 146+15

IR5-1 DO NOT ENTER 147+80 11+27 11+67

R-16R ONE WAY

CHICAGO ST. STA. 148+27.89

R-1A STOP 148+51

2 IR5-1 DO NOT ENTER 150+00 151+61

R-16R ONE WAY

TACUBA ST. STA. 151+61.22

R-1A STOP 151+84 R-16R ONE WAY

IM6-28N IM-CC 35 M6-1N 81 IM1-1* M6-1N 83 IM1-1*

Signs and mountings to Remain in place

Sign to be Removed and not Replaced

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
7 - Type 2

SHEET 8 of 47 SHEETS

DETAIL OF EXISTING SIGN

Contractor ~~is to~~ install new Sign on Exist. Post after this Sign ~~is~~ removed by T. H. D.

IG-11 59 Freer Houston

Sta. 139+50

Sta 145+00
P.I.-454.06
V.C.-840'
Ext.-10.50'

+5.000%

-5.000%

℄ Fin. Grade East & West Expressway Lanes

Sta. 151+69.51
P.I.-420.58
V.C.-480'
Ext.-3.12'

B.M. - Top of Conc. Monument - Pace St. & San Dario Ave. EL 417.62

445 440 435 430 425 420 415 410

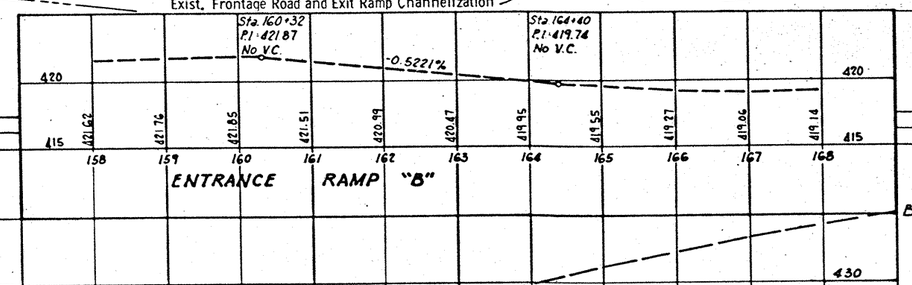
421.85 424.07 434.04 438.21 441.19 442.98 443.50 442.98 441.19 438.21 434.04 429.33 425.63 423.01 421.49 421.04

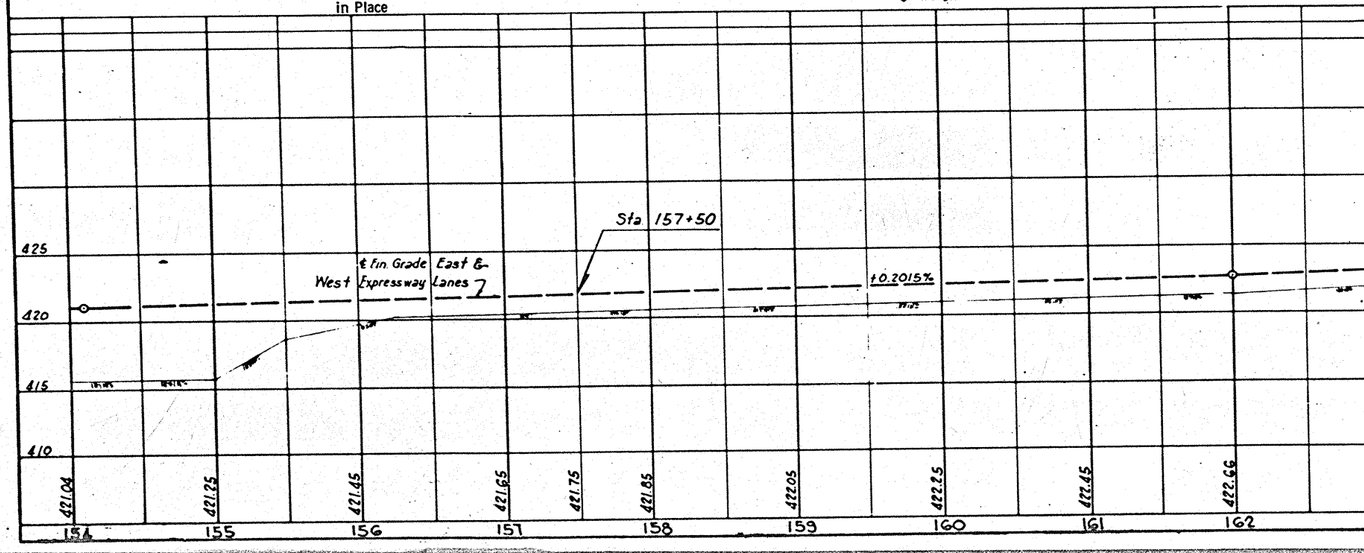
139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154

21

FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I-35-1(30)002			22
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	65	IH-35

MAXIMUM SPEED 55
MINIMUM SPEED 40
IR2-1
Exist. Sign and Post ~~to be~~ Used in Place
~~Proposed~~ Painted Main Lane White 4 Inch Right Shoulder Edge Line
Edge Lines ~~are to be~~ Installed by State Maint. Forces.
STA. 154+96.33
STA. 158+29.66
R-16R ONE WAY
R-1A STOP
154+05
154+72
154+96
158+07
158+80
F6-E1
EXIT 2
Laredo International Airport NEXT RIGHT
137+00
F8-2
Exist. Sign ~~to be~~ Used in Place
ENTRANCE-RAMP "B" CURVE DATA
P.I. 149.0' Lt. Sta. 159+50
Δ = 8°-00' Lt.
D = 2°-00'
T = 200.3'
L = 400.0'
M6-1S SOUTH
M1-2 81
M4-2L
M6-1S SOUTH
M6-1S SOUTH
M1-2 35 83
M4-2L
5
164+20
ENTRANCE RAMP "B" CURVE DATA
P.I. 140.3' Lt. Sta. 166+04.6
Δ = 8°-00' Rt.
D = 2°-00'
T = 200.3'
L = 400.0'
SANTA URSULA AVENUE
STA. 157+95.0
℄ C. of A. Line
℄ RAMP "B"
IR-16B ONE WAY
159+00
IW4-1
MERGE
7
168+00
Grd Fence
℄ Fin. Grade
℄ MEDIAN SURVEY LINE
Metal Beam Guard Fence
Metal Bm Grd Fence
SAN DARIO AVENUE
STA. 157+50.0 EAST FRONTAGE ROAD
Gutter Grades
F6-2
3A EXIT
160+70
Exist Sign ~~to be~~ used in Place
2
F1-1
EXIT 30 MPH
IR-2A
3
161+00
IR2-1
SPEED LIMIT 55
MINIMUM SPEED 40
IR-2
IR-2F
Exist. Sign and Post ~~to be~~ Used in Place
4
163+00
~~PROPOSED~~ New Signs
IR5-9
WRONG WAY
164+33
℄ RAMP "A"
13
14
YIELD
IR-4B
6
11
IR-15
DO NOT ENTER
IR5-1
165+65
12
8
R-1GL ONE WAY
167+20
SIGNAL AHEAD
169+01
155+19
155+75
F6-E2
EXIT 3A
San Bernardo Ave
Calton Rd.
F2-1
Exist Sign ~~to be~~ used in Place
1
ORTIZ ST
STA. 154+94.55
FARIAS ST
STA. 158+27.88
EAST FRONTAGE ROAD CURVE DATA
P.I. 144.1' Rt. Sta. 159+19.6
Δ = 8°-00' Rt.
D = 5°-00'
T = 80.1'
L = 159.9'
LANE ENDS MERGE RIGHT
W4-3R
EXIT RAMP "A" CURVE DATA
P.I. 37' Rt. Sta. 159+17.0
Δ = 14°-20' Rt.
D = 5°-00'
T = 180.1
L = 358.3'
160+85
W4-2L
RAMP "A" CURVE DATA
P.I. 163.2 Rt. Sta. 164+11.0
Δ = 9°-16' Lt.
D = 4°-00
T = 116.1'
L = 231.7'
Exist. Frontage Road and Exit Ramp Channelization





SHEET 9 of 47 SHEETS

B.M. - Top of South end - West Hdwll. Struct. on Sta 121+54.2 Hwy US 81 El. 417.91

-●● Delineator ~~to be~~ Modified by State Forces.

TOTAL EACH
25-Type 2

22

FED.RD. DIV.NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(30)002				23
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB		HIGHWAY NO.
21	WEBB	18	6	65		IH-35

SURVEY LINE CURVE DATA
PI: Sta. 175+47.4
Δ = 5°-36'-Lt
D = 2°-00'
T = 140.1'
L = 280.0'
Max. e = 0.02'/Ft.
Rotated Abt. ℄

Prop. New Sign
Exist. Sign to be Modified

To San Bernardo
Calton Road
Signal Light
℄ R.O.W
West Frontage Road
SIGNAL AHEAD
EQ. 177+40.0
177+63.0
R5-9 WRONG WAY 176+20
ONE WAY
DO NOT ENTER
Prop. Wrong Way Arrows
Toe of slope
Paved
Metal Bm Grd Fence?
Exist. IW-60 Sign To Be Removed and New IW4-1 Sign to be Installed at Sta. 180+00 under other contract.
Sta 172+27.15 Beg. Struct.
Sta 173+82.03 End Struct.
Conc. lined open ditch
Exist. 10" Cast Iron Water Line
Exist. 8" Cast Iron Water Line
PT: 171+06.1
PC: 174+07.9
PT: 176+87.3
EXIT 3 B F6-E2
Mann Rd
1/2 MILE F3-2A
MERGE
SPEED LIMIT 45 R2-1
RAMP 'C' CURVE DATA
P.I.=178' RT-STA. 180+17.0
Δ = 12°-39' LT.
D = 5°-00'
T = 27.1
L = 253.0'
℄ Fin. Grade East & West Expressway Lanes

SIGN WORK LEGEND (See E&Q Sheets for Detail)

- (1) = Number of Sign Requiring Work To Be Done
- ⁜ = Exist Sign Struct. or Sign & Supports to be Removed by Contractor
- ✱ = Exist Sign to be Modified or New Sign Installed by Contractor
- ⊕ = Exist Sign to be Relocated by Contractor
- ⁜⁜ = Exist. Post And/Or Sign To Be Removed by STATE Maint. Forces
- ✱✱ = Foundation And/Or Post to be Modified, Reloc. or Installed by Contractor
- □ or ◇ = Existing Sign Structure To Be Removed by Contractor
- ⊠ or ⊗ = Sign Removed Or To Be Removed under Other Project
- (2) = Numbered Sign and Signs Not Numbered are to remain in place unless otherwise noted.

(N) = Non-Participating

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
1 - Type 1
1 - Type 2

SHEET 10 of 47 SHEETS

23

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(30)002	24
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 6 65	IH-35

SANDS MOTEL

HOLIDAY INN

IR5-1 DO NOT ENTER 187+90

F6-E1 EXIT 2 59 Freer Houston 1 MILE F3-2A

IM-1A3F (N)

SOUTH 81 M6-1S M1-4A2 SOUTH 83 M6-1S M1-4A2 IM-6-1B IM-1B IM-9L

W1-8L(A) 187+80

ALL TRAFFIC MUST TURN LEFT 186+35

W6-3A LANE ENDS 400 FT RIO-3B 20 M.P.H. 183+80 183+95

R3-7L(A)

IR6-5B Prop. New Signs TWOWAY TRAFFIC IW6-6

R5-1 DO NOT ENTER 181+70

R-1G(R)

West Frontage Road 186+90

Hillside Road

STOP IR-1A

NORTH 81 M6-1N M1-2 M4-2L NORTH 83 M6-1N M1-2 M4-2L IM-2IN IM-1B IM-10 L 181+14

IR5-1 DO NOT ENTER 188+35

187+80

R5-9 WRONG WAY 189+70 Prop. New Signs

IR5-1 DO NOT ENTER

IR1-2 YIELD 192+50

IW13-3 EXIT 30 M.P.H. 194+75

R.O.W.

Exist. Frontage Road and Exit Ramp Channelization

Exist. Hwy US 181 (West Frontage Road)

West Expressway Lanes

East Expressway Lanes

East Frontage Road

W4-2L 198+60

Exist Sign ~~to be~~ used in Place

F6-2 3 A EXIT F1-1

F6-E2 EXIT 3 A San Bernardo Ave. Calton Road F2-1

LANE ENDS MERGE RIGHT W4-3R 201+10 203+80

194+10

W4-2L 203+05

Prop. New Signs IR5-9 WRONG WAY 207+45

IM-8B Etc. SOUTH 81 83 SOUTH 35 209+80

EXIT 3 B F6-E2 HOSPITAL NEXT RIGHT F22-6 190+00

~~Proposed~~ New Sign

See Standard Sheet IE-(1) for Design

R5-9 WRONG WAY 194+05 IR5-9 ~~Proposed~~ New Signs

EXIT 3 B F6-E2 Mann Rd F2-1 198+00

ONE WAY IR-16R 200+21

LANE ENDS MERGE RIGHT W4-3R 200+55

IM-6-2BN NORTH 35 IM-6C 196+50

NORTH 81 M6-1N M1-1 NORTH 83 M6-1N M1-1 IM-6-1N

EXIT 30 M.P.H. IW13-3 205+30

Sign ~~to be~~ Removed and not Replaced

EXIT 3 B F6-2 F1-1 205+90

MAXIMUM SPEED 55 MINIMUM SPEED 40 IR2-1 IR-2F 209+50

YIELD

Exist. Sign and Post ~~Tobe~~ used in place

Exist. Frontage Road and Exit Ramp Channelization 209+10

DO NOT ENTER IR5-1

DETAIL OF EXISTING SIGN

Contractor ~~is to~~ install new Sign on Exist. Post after this Sign ~~is~~ removed by T. H. D. Maint. Forces.

IG-9

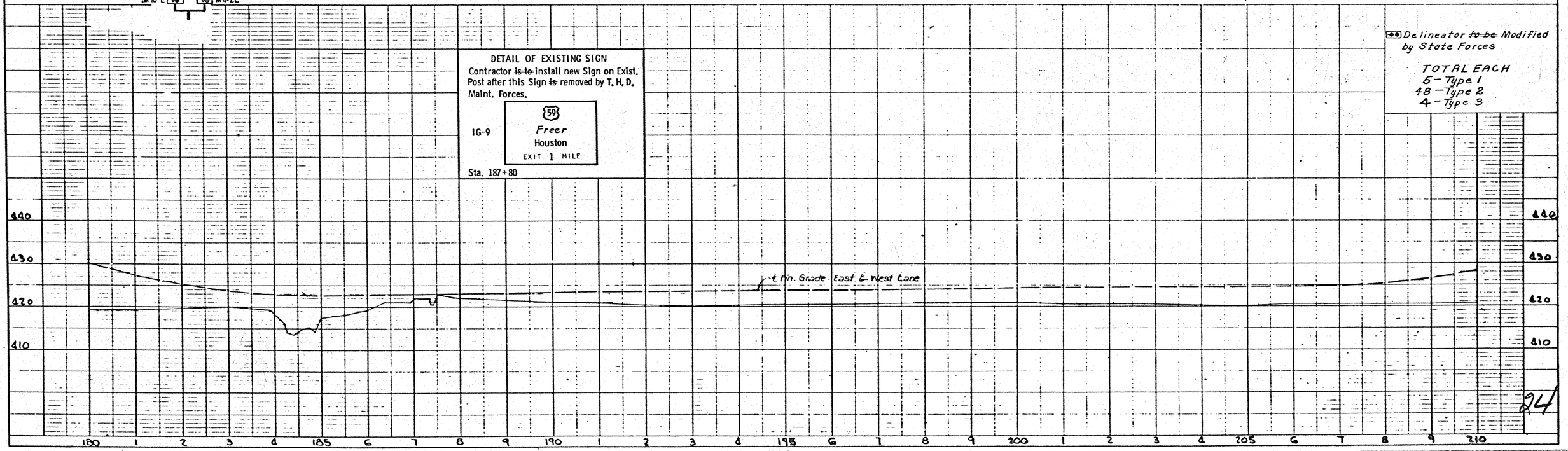
59 Freer Houston EXIT 1 MILE

Sta. 187+80

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
5 - Type 1
48 - Type 2
4 - Type 3

SHEET 11 OF 47 SHEETS



24

FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.		SHEET NO.
6	TEXAS	I-35-1(30)002		25
STATE DIST. NO	COUNTY	CONT. NO.	SECT. NO	JOB NO.
21	WEBB	18	6	65

SHEET 12 OF 47 SHEETS

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH

32 - Type 2
2 - Type 3

DETAIL OF EXISTING TEXT

~~Text in Parenthesis may be Reused~~

Sta. 212+50 Rt. REPLACED

IG-9 | F.M. 1472 / (Del Mar Blvd) / (Santa Maria Ave) / EXIT (1/2 MILE)

DETAIL OF EXISTING SIGN

Contractor ~~is to~~ install new Sign on Exist. Post after this Sign ~~is~~ removed by State Maint. Forces.

IG-9 | San Bernardo Ave / Calton Road / EXIT 6/10 MILE

Sta. 225+00 Lt.

PLATE 1 - PLAN-PROFILE O.A.R.A.B.E. STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(30)002				26
DIST. COUNTY		CONTROL	SECTION	JOB NO.		HIGHWAY NO.
21	WEBB	18	6	65		IH-35

Santa Maria Avenue - 20' C Pavement

~~Proposed~~ New Sign
See Standard Sheet IE-(1) for Design

SLOWER TRAFFIC KEEP RIGHT

EXIT 3B
HOSPITAL NEXT RIGHT

Exist. Hwy. U.S 81 (West Frontage Road)

West Expressway Lane

Exist. Frontage Road and Exit Ramp Channelization

East Expressway Lane

East Frontage Road

TEXAS TOURIST BUREAU REST AREA 1 1/4 MILE
OFICINA DE TURISMO ESTADO DE TEXAS

SIGNAL AHEAD

MERGE

YIELD

WRONG WAY

DO NOT ENTER

ONE WAY

KEEP RIGHT

SPEED LIMIT 45

Prop. New Signs R5-9

Wrong Way Arrows

Signal Light

Del Mar Blvd.

Laredo Airport 3

San Antonio 149
Carrizo Springs 77

LAREDO 4
SAN ANTONIO 149

Del Mar Blvd.
Santa Maria Ave

F.M. 1472

EXIT 45 MPH

Mann Rd 3/4 MILE

R.O.W.

Metal Beam Guard Fence

Sign changed to "Signal Ahead" in other project.

DETAIL OF EXISTING TEXT
~~Text in Parenthesis may be Reused~~

IG-9A

Texas
Tourist Bureau
(REST AREA)
EXIT (1) 3/10 MILE
(OFICINA DE TURISMO)
(ESTADO DE TEXAS)

Sta. 251+00 Rt. REPLACED

SHEET 13 OF 47 SHEETS

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
36 - Type 2
1 - Type 3

℄ Fin. Grade - East & West Lanes

440
430
420
410

240 1 2 3 4 245 6 7 8 9 250 1 2 3 4 255 6 7 8 9 260 1 2 3 4 265 6 7 8 9 270

26

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I 35-1(39)002			27
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	6	65	IM-35

Proposed Signs

F6-E1 EXIT 4 * FM 1472 Del Mar Blvd, Santa Maria Ave F2-1

* IM-2F2F

F6-2 4 * EXIT F1-1

Exist. Sign to be Used in Place

Exist Sign to be used in Place

W-32

To Dolores Mines

FARM 1472 ROAD M-2F M-9R

FARM 1472 ROAD M-2F M-9L

R1-1 STOP

W3-1 STOP AHEAD

JCT M2-1 1472 M1-4F

IR2-1 MAXIMUM SPEED 55 MINIMUM SPEED 40 IR-2* IR-2F

Exist. Sign and Supports to be Used in Place

IW5-5A HIGHWAY INTERSECTION 1000 FT.

Laredo CITY LIMITS IG-21

R2-1 SPEED LIMIT 45

R2-1 SPEED LIMIT 55

W6-6 TWO WAY TRAFFIC R6-3 *

* IM-2F2F EXIT 4 F6-E1 * FM 1472 Del Mar Blvd Santa Maria Ave 1/2 MILE F3-2A

(N)

Laredo Airport 3

Laredo Airport 3

Eq. 280+44.0' -0+67 = - 27977.0'

West Expressway Lane

West Frontage Road

East Expressway Lane

East Frontage Road

Sta 7+95 City Limits

LAREDO CITY LIMITS

CITY OF LAREDO (INC.)
1970 CENSUS = 69024

MILE 5 F18-1 *

SLOWER TRAFFIC KEEP RIGHT IR4-3

Public Road

ONEWAY IR-16R

R2-1 SPEED LIMIT 55

IR2-1 SPEED LIMIT 55 IR-2*

88 KM/H MAXIMA

IM6-2BN NORTH IM-CC 35 M6-1N* M1-1* M6-1N* M1-1*

Sign to be Removed and not Replaced

MAXIMUM LEGAL SPEEDS
TRUCKS
CARS- BUSES (DAY) 55
CARS- BUSES (NIGHT) Etc. 55
IR2-8A

SHEET 14 OF 47 SHEETS

Delineator to be Modified by State Forces

TOTAL EACH
25- Type 2
1 - Type 3

CONTROL SECTION TOTAL
18-6-65 (Urban)
6- Type 1
243- Type 2
8- Type 3

DETAIL OF EXISTING SIGN
Contractor is to install new Sign on Exist. Post after this Sign is removed by State Forces

IG-9 F.M. 1472 Del Mar Blvd Santa Maria Ave EXIT 1/2 MILE

Sta. 17+00 Lt.

PROFILE SURFACE PLOTTED GRADES CHECKED STRUCTURE NOTES CHKD. NOTE BOOK NO. ALIGNMENT CHECKED RT OF WAY CHECKED

E Mn Grade - East & West Lanes

450 440 430 420

270 1 2 3 4 275 6 7 8 9 280 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

27

		FEDERAL AID PROJECT NO.					SHEET NO.
STATE	DISTRICT	I 35-1(30)002					28.
CONTROL	SECTION	JOB	HIGHWAY NO.				
21	WEBB	18	6	65	IH-35		

F6-E1 EXIT 4 *

(NEW) IM-2F2LF *

(N) FM 1472 Del Mar Blvd. Santa Maria Ave 1 MILE * F3-2A

GAS-FOOD-LODGING IG-7

Exist Sign IG-7 ~~to be~~ used in Place

48+27

W6-6

R6-3

TWO WAY TRAFFIC *

32+60

Exist Hwy. US-81 (West Frontage Road)

West Expressway Lane

East Expressway Lane

East Frontage Road

20 25 30 35 40 45 50

IR5-1 DO NOT ENTER *

49+50

Exit Ramp

22+00

INFORMACION GRATUITA PROXIMA SALIDA * F21-2A (N)

40+00

TEXAS TOURIST BUREAU REST AREA OFICINA DE TURISMO ESTADO DE TEXAS F21-1A

46+90

TEXAS TOURIST BUREAU IG-1 F21-1A

47+50

IR5-3 WRONG WAY ~~PROPOSED~~

47+50

EXIT 30 MPH IW13-3

New Signs

Relocated Sign ~~to be~~ installed Back to Back with This Sign

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH 9- Type 2

SHEET 15 OF 47 SHEETS

DETAIL OF EXISTING SIGN
Contractor ~~is to~~ install new Sign on Exist. Post after this Sign ~~is~~ removed by State Forces

IE5-2A Informacion Gratuita / Proxima Salida

Sta. 22+00 Rt.

DETAIL OF EXIST. TEXT
~~Text in Parenthesis may be Reused~~

IG-11A Texas / Tourist Bureau / (REST AREA ⇗) / (OFICINA DE TURISMO) / (ESTADO DE TEXAS)

Sta. 40+00 Rt. REPLACED

DETAIL OF EXISTING SIGN
Contractor ~~is to~~ install new Sign on Exist. Post after this Sign ~~is~~ removed by State Forces

IG-9 F.M. 1472 / Del Mar Blvd / Santa Maria Ave / EXIT 1 MILE

Sta. 48+27 Lt.

450 440 430 420 410

& Fin. Grade - East & West Lanes

20 1 2 3 4 25 6 7 8 9 30 1 2 3 4 35 6 7 8 9 40 1 2 3 4 45 6 7 8 9 50

28

FED. RD. DIST. NO.	STATE	FEDERAL AID PROJ. NO.			SHEET NO.
6	TEXAS	I 35-1(30)002			29
STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	SUB NO.	HIGHWAY NO.
21	WEBB	18	6	65	IH-35

Sign ~~to be~~ Removed and not Replaced

~~PROPOSED~~ New Signs

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
19-Type 2
1-Type 3

DETAIL OF EXISTING TEXT
~~The A-2 Arrow, Only, may be Reused~~
IG-11 — Texas Tourist Bureau (⇗) Sta. 71+00 Lt. REPLACED

~~To be~~ Removed

& Fin. Grade - East & West Lanes

SHEET 16 OF 47 SHEETS

PLATE 1 PLAN PROFILE

						SHEET NO.
		I 35 (30)002				30
			DIST.	COUNTY		SHEET NO.
21	WEBB	18	6	65	IM-35	

D 25
16 FT 5 IN *
12
92+40 Lt.

IW12-2
16 FT 5 IN
96+97
CLEARANCE

F18-1
MILE
7 *
103+46

9
West Expressway Lane
100

7
6

Proposed Painted Main Lane
White 4 Inch Right Shoulder Edge Line
Edge Lines ~~are to be~~ installed by State
Maint. Forces.

~~Bottom 19'-0" by 2'-0" Sign To Be Removed by State and the Text is To Be Applied to Parent Sign, inside 3" Borders, by the Contractor.~~ (See Sheet 62 For Design)

F21-3A
TEXAS
TOURIST BUREAU
3/4 MILE
FREE MAPS & LITERATURE
110+00 AND

10

105

110

2
3
81+50
ROAD
ENDS
3/10 MILE
IW6-3

Sta 83+00
1
MG-IN *
IM1-1 *
IM-6-2BN NORTH
IM-CC 35
MG-IN ~~2~~ Sign ~~to be~~ Removed
IM1-1 * and not Replaced

4
88+18
IW12-2
16 FT 5 IN
CLEARANCE

11
92+80 Rt.
D 25
16 FT 5 IN

Ranch Road

5
96+00
IR2-1
SPEED LIMIT 55
IR2-2 *

East Expressway Lane

8
104+00
Encinal 31
San Antonio 146
IG-18

SHEET 17 OF 47 SHEETS

DETAIL OF EXISTING TEXT
~~Text in Parenthesis may be Reused~~
REPLACED
Sta. 110+00 Lt.
Texas
Tourist Bureau
EXIT 8/10 MILE
(FREE MAPS & LITERATURE) SAME
IG-9

490
480
470
460

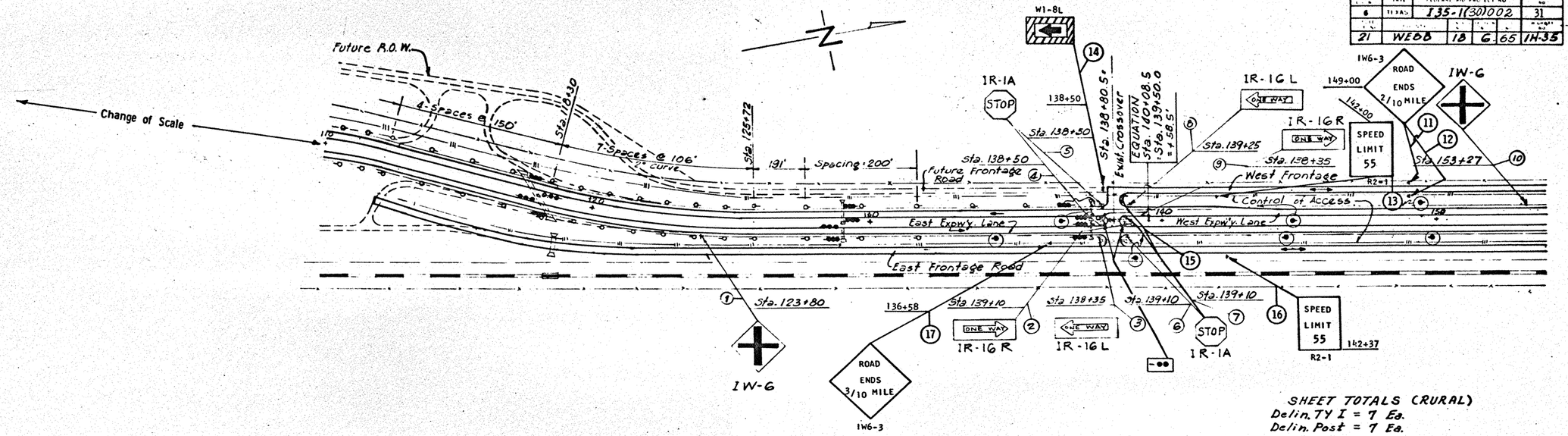
℄ Fin. Grade - East & West Lanes

80 1 2 3 4 85 6 7 8 9 90 1 2 3 4 95 6 7 8 9 100 1 2 3 4 105 6 7 8 9 110

30

PLATE 1 PLAN PROFILE O.P.H.&W.E. STANDARD

	STATE	FEDERAL AID PROJECT NO			SHEET NO
6	TEXAS	I35-1(30)002			31
21	WEBB	18	C	65	IH-35



SHEET TOTALS (RURAL)
Delin. TY I = 7 Ea.
Delin. Post = 7 Ea.

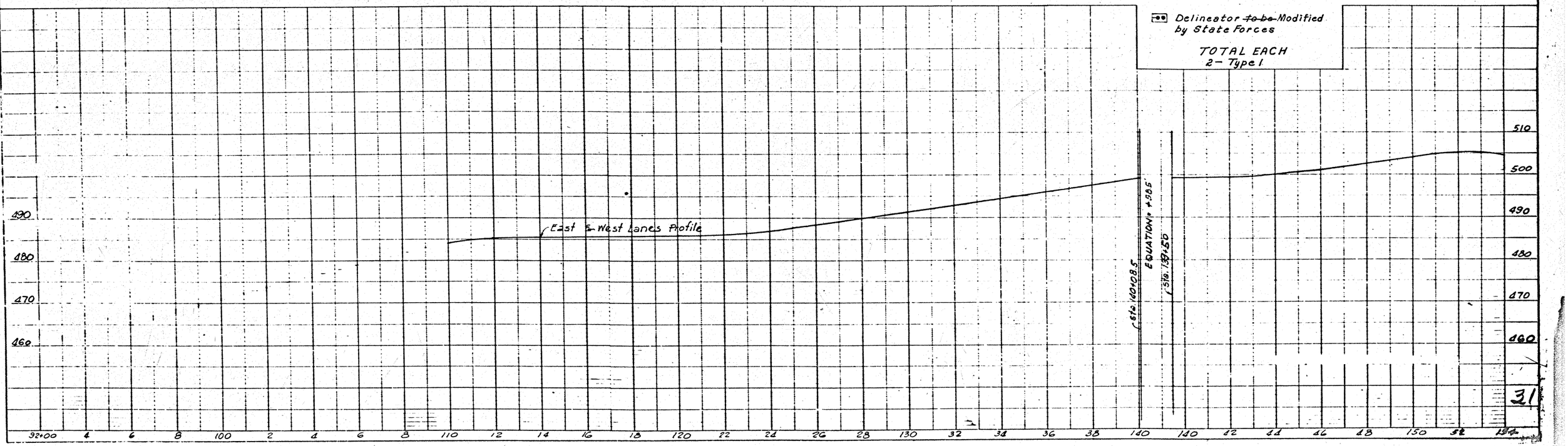
SCALE: 1" = 200'

(●) Denotes ~~Prop.~~ Ty I Delin. Assem.
NOTE: Spacing for Ty I Delineators ~~to~~ be min. 200', max. 528' with usual 528' as Shown on plans.

SHEET 18 of 47 SHEETS

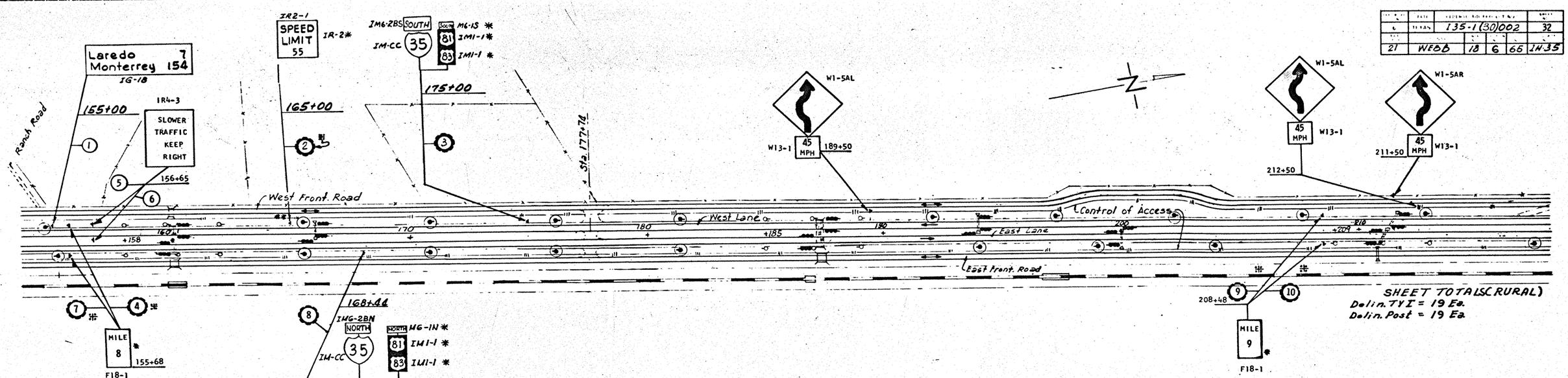
Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
2 - Type I



31

	DATE	FEDERAL AID PROJECT NO.				SHEET NO.
STATE	TEXAS	135-1(30)002				32
DIST.	COUNTY					
21	WEBB	18	6	66	IM35	

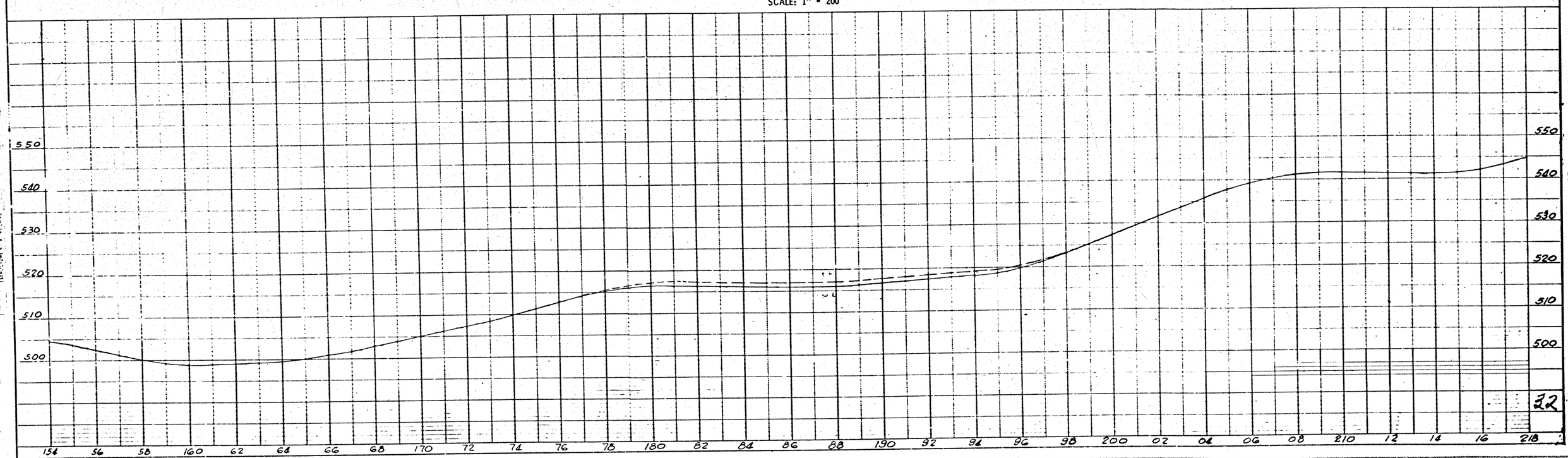


SHEET TOTALS (RURAL)
Delin. TY I = 19 Ea.
Delin. Post = 19 Ea.

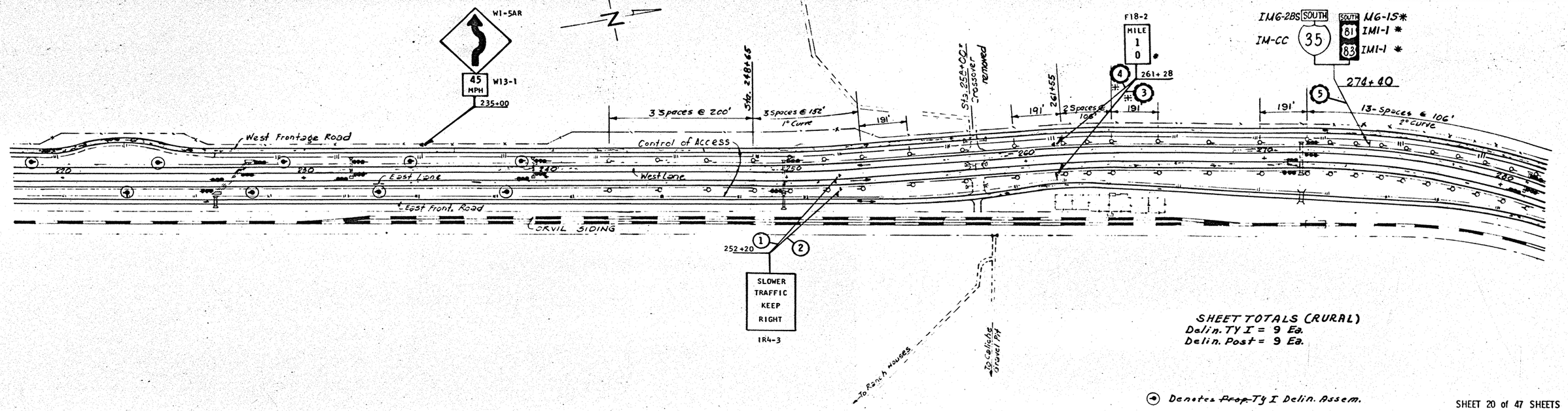
Ⓟ Denotes Prop. Ty I Delin. Assem.

SCALE: 1" = 200'

SHEET 19 of 47 SHEETS



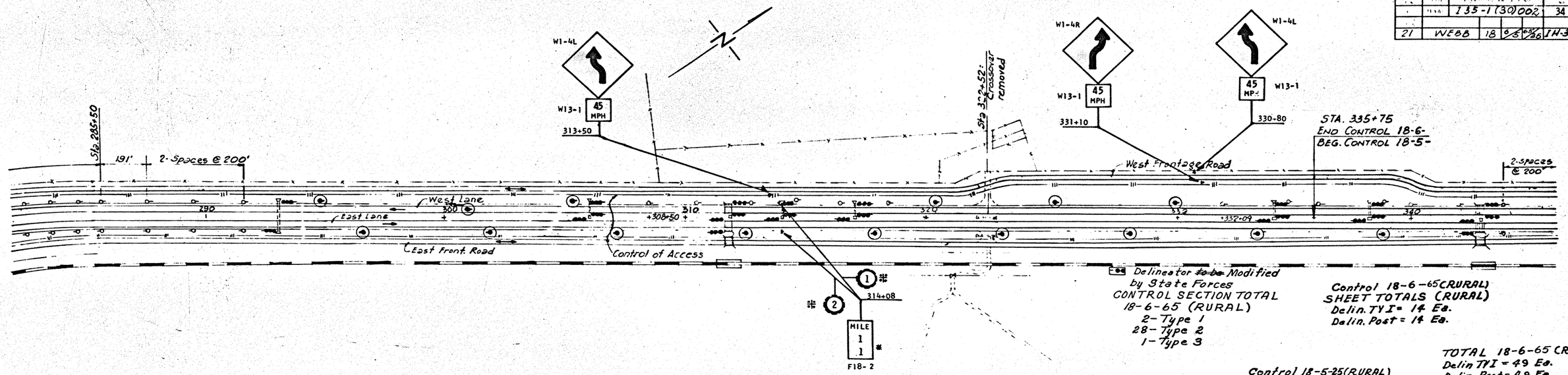
	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
	TEXAS	I 35-1(30)002				33
21	WEBB	18	6	65	IH-35	



SHEET TOTALS (RURAL)
Delin. TY I = 9 Ea.
Delin. Post = 9 Ea.

⊛ Denotes ~~Prop.~~ Ty I Delin. Assem.

		135-1(30)002				34
21	WEBB	18	8	85/86	IH-35	



Delineator ~~to be~~ Modified by State Forces
CONTROL SECTION TOTAL
18-6-65 (RURAL)
2-Type 1
28-Type 2
1-Type 3

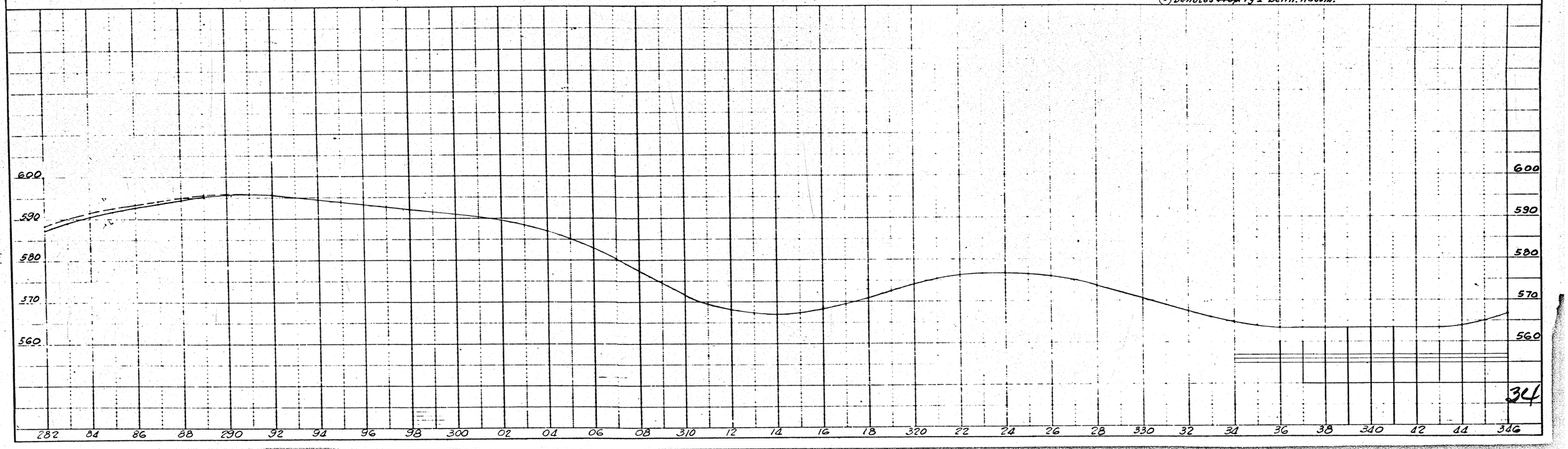
Control 18-6-65(RURAL)
SHEET TOTALS (RURAL)
Delin. TYI = 14 Ea.
Delin. Post = 14 Ea.

TOTAL 18-6-65 (RURAL)
Delin TYI = 49 Ea.
Delin Post = 49 Ea.

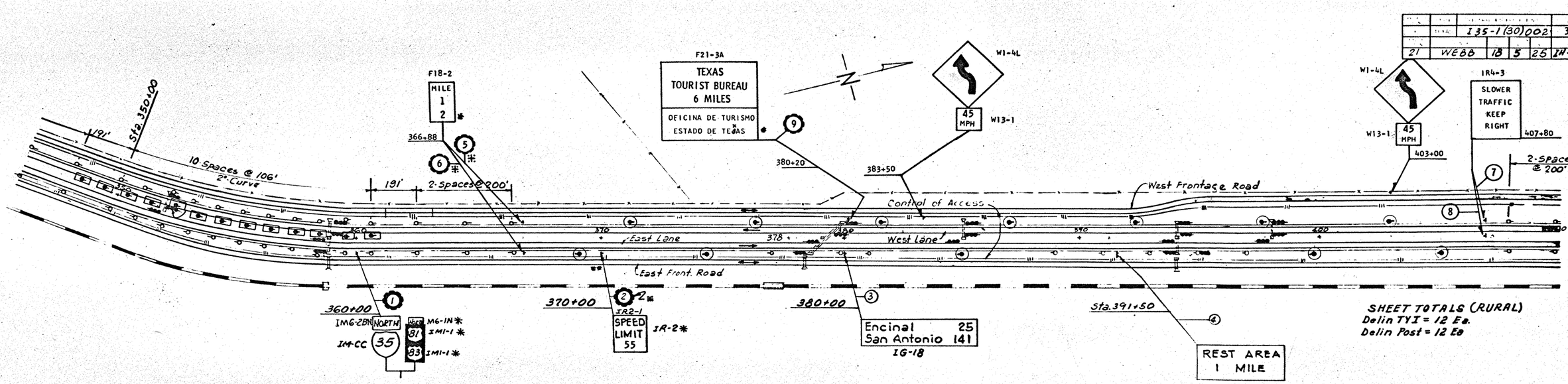
Control 18-5-25(RURAL)
SHEET TOTALS
Delin. TYI = 1 Ea.
Delin. Post = 1 Ea.

SHEET 21 of 47 SHEETS

Ⓣ Denotes ~~Prop.~~ Ty I Delin. Assem.



		I 35-1(30)002			35
21	WEBB	18	5	25	IH-35

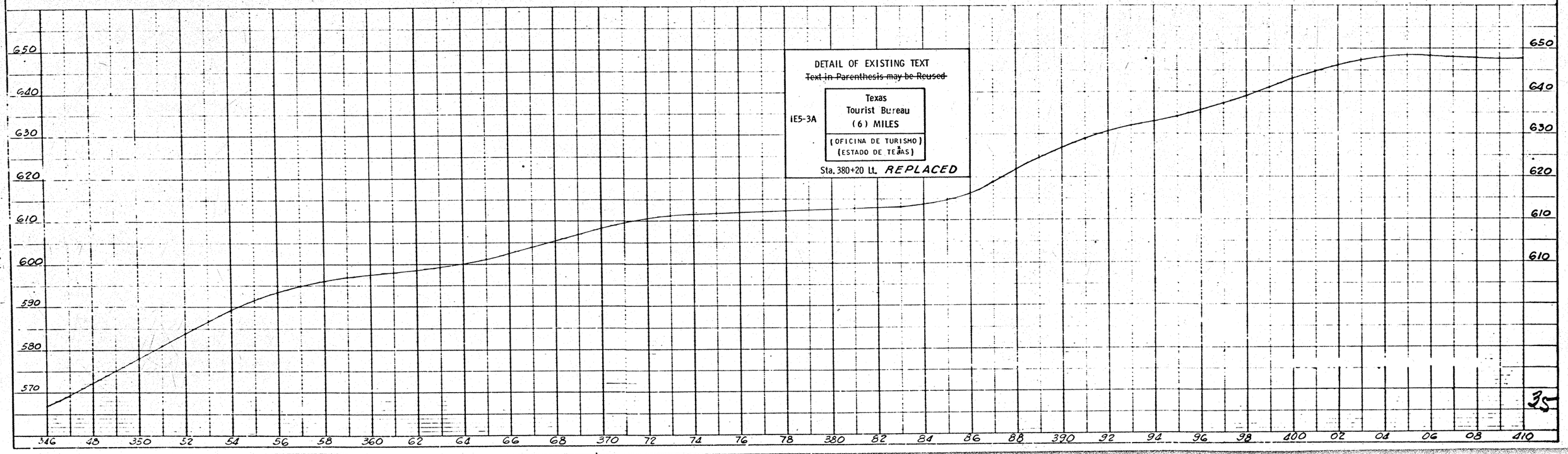


SHEET TOTALS (RURAL)
Delin TYI = 12 Ea.
Delin Post = 12 Ea

Delineator ~~to be~~ Modified by State Forces
TOTAL EACH
13- Type I

Denotes ~~Prop.~~ Ty I Delin Assem.

SHEET 22 of 47 SHEETS



DETAIL OF EXISTING TEXT
~~Text in Parenthesis may be Reused~~

iE5-3A

Texas
Tourist Bureau
(6) MILES
(OFICINA DE TURISMO)
(ESTADO DE TEXAS)

Sta. 380+20 Lt. REPLACED

~~PROPOSED~~ New Signs

					SHEET NO.
	TEXAS	FEDERAL AID PROJECT NO.			
		135-1(30)002			36
DIST.	COUNTY	SEC.	SHEET NO.		
21	WEBB	18	S	26	IH-35

W1-4R W13-1 45 MPH 411+00 413+82 191' Control of Access 420 430 440 419+68 MILE 1 3 F18-2 21 22 1 2 IR-2 SPEED LIMIT 55 IRE-1 419+75 14-Spaces @ 106' 2° Curve 2 Sta. 421+29 IW-6 Sta. 436+55 3 ONE WAY IR-1GR Sta. 435+84 4 ONE WAY IR-1GL W1-4R W13-1 45 MPH 428+50 R1-1 STOP 5 Sta. 435+99 23 2° Curve 6 Sta. 436+59 7 8 STOP R1-1 Sta. 436+29 Existing Crossover 9 IR-1GL ONE WAY Sta. 436+64 440+00 191' 200' 10 Spaces @ 106' 24 11 Sta. 436+59 446+45 W1-4L W13-1 45 MPH IR-1GR ONE WAY Sta. 435+84 445+65 IW-6 Sta. 449+00 446+40 13 10 Spaces @ 100' 6 Spaces @ 100' 440+60 EAST REST AREA East Lane 12 14 15 27 28 447+00 REST AREA IB-5 WRONG WAY IR5-9 ~~PROPOSED~~ New Signs Sta. 449+00 DO NOT ENTER IR-15 IR5-1 450+50 W1-4L W13-1 45 MPH 16 460+00 461+00 Sta. 454+00 East Front. Road 10 Spaces @ 100' IW-60 IW4-1 MERGE Sta. 461+00 17 West Frontage Road 2 Spaces @ 200' 3 Spaces @ 200' 3 Spaces @ 152' 1° Curve 18 19 WEST REST AREA West Lane IW-60 IW4-1 MERGE W1-4L W13-1 45 MPH IR5-1 DO NOT ENTER IR-15 Sta. 470+00 469+60 472+65 REST AREA IB-5 IR5-9 WRONG WAY 30 29 20 472+00 474+00 Sta. 471+30 26 25 472+48 MILE 1 4 F18-2 FASTEN SEAT BELTS D-44A

SHEET TOTALS (RURAL)
Delin. Ty I = 4 Ea.
Delin. Post = 4 Ea.

⊕ Denotes ~~Prop.~~ Ty I Delin. Assem.

SHEET 23 of 47 SHEETS

-●● Delineator ~~to be~~ Modified by State Forces
TOTA EACH
10 - Type I
28 Type II

NOTE BOOK | GRADE CHECKED | PLOTTED | STRUCTURE NO.

710 700 690 680 670 660 650 640

410 12 14 16 18 420 22 24 26 28 430 32 34 36 38 440 42 44 46 48 450 52 54 56 58 460 62 64 66 68 470 72 474

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	IR5-1(130)002			37
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5	26	IH-35

TB-5
REST AREA
481+15
Exist "6/10" Mileage Numerial ~~is to be~~ Changed to (1/2) by State Maint Forces
F21-3
REST AREA
1/2 MILE
Sta. 505+00
2
State Forces Work only Modifying Text as shown
IM6-2BS
IM-CC
SOUTH 35
SOUTH 81 83
IM6-1S*
IM1-1*
IM1-1*
3
483+00
House
West Front Road
481+15
7 Spaces @ 100'
3 Spaces @ 200'
Control of Access
3 Spaces @ 200'
16 Spaces @ 152' 2-1° Curves
Future Ramp
Future Ramp
West Lane
Future Interchange
East Lane
Future Ramp
Future Ramp
East Front Road
7 Spaces @ 200'
6 Spaces @ 152' 3° Curve
476+00
W1-4L
45 MPH
W13-1
Sta. 482+63 Crossover removed
Ranch Road
Ranch Road
W1-5AL
W13-1
45 MPH
518+50
P.T. = 514.519+76.8 ELEVATION = 532.1
P.C. = STA 520+10.9
3 Spaces @ 200'
526+60
4
5
MILE 1 5
F18-2
6
13 Spaces @ 200' For High Fill
7
527+40
Sta. 528+61 Crossover removed
SLOWER TRAFFIC KEEP RIGHT
IR4-3
Delineator ~~To be~~ Modified by State Forces
TOTAL EACH
8-Type 2
SHEET TOTALS (RURAL)
Delin. Ty I = 1 Ea.
Delin Post = 1 Ea.
Denotes ~~Prop.~~ Ty I Delin Assem.
SHEET 24 of 47 SHEETS.

PLAN
SURVEYED
PLOTTED
DESIGN CHECKED
R.I. OF WAY CHECKED
NOTE BOOK
NO.

PROFILE
SURVEYED
PLOTTED
DESIGN CHECKED
B.M.'S NOTED
STRUCTURE NOTATION = ○

Delineator ~~To be~~ Modified by State Forces
TOTAL EACH
8-Type 2

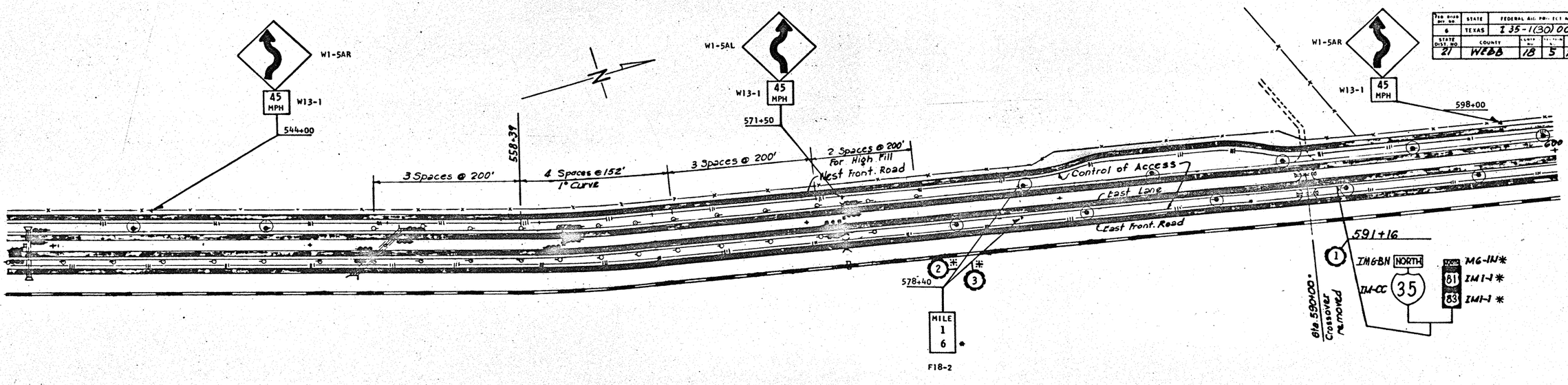
710
700
690
680
670
660

P.C. = STA 520+10.9
ELEVATION = 532.1

37

474 76 78 480 82 84 86 88 490 92 94 96 98 500 02 04 06 08 510 12 14 16 18 520 22 24 26 28 530 32 34 36 538

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I 35-1(30) 002	38
STATE DIST. NO.	COUNTY	CONTROL NO.	SECT. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5	25	IH 35



SHEET TOTALS (RURAL)
Delin. Ty I = 12 Ea.
Delin. Post = 12 Ea.

⊕ Denotes Prop. Ty I Delin. Assem.

PLAN
SUBMITTED
PLOTTED
NOTE BOOK
NO.
CHKD. BY
DATE
CHECKED
RT. OF WAY CHECKED

PROFILE
SUBMITTED
PLOTTED
GRADES CHECKED
R.P. NOTE BOOK
STRUCTURE DETAILS CHKD.
NO.
CHKD. BY
DATE

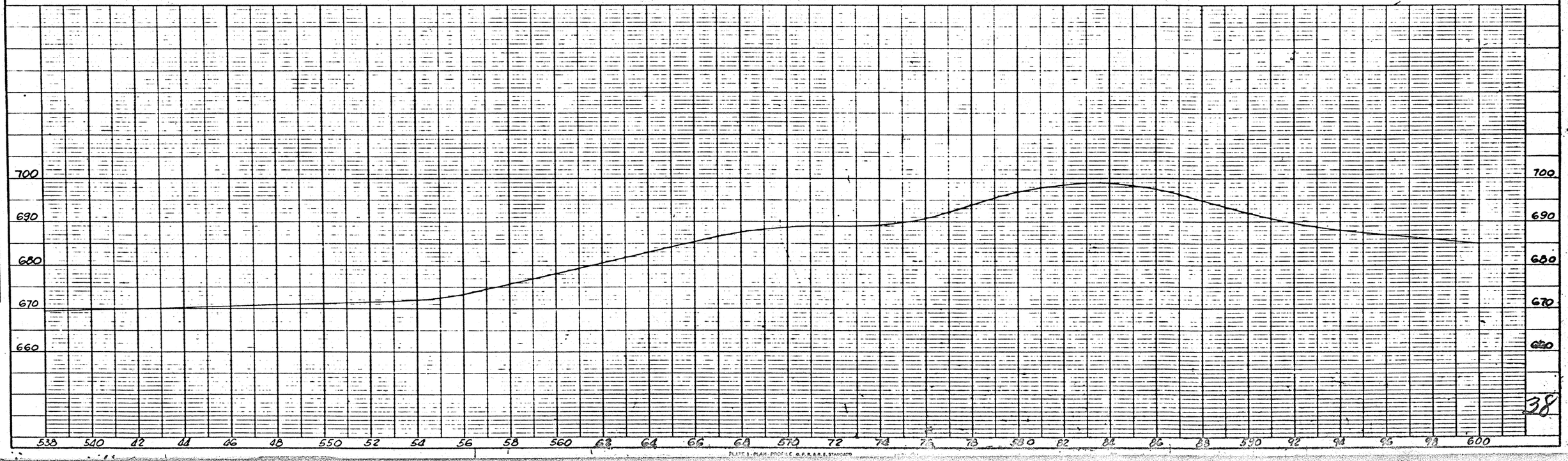
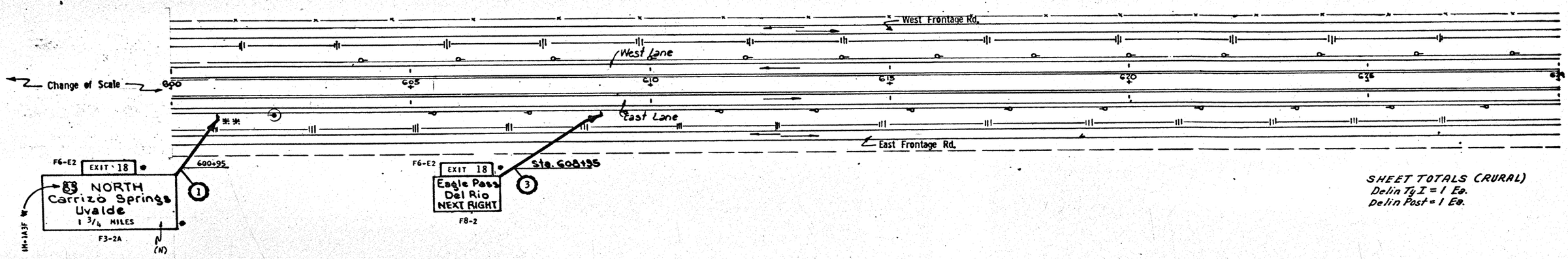


PLATE 1-PLAN-PROFILE 6-8-66 E STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(30)002				39
STATE DIST. NO.	COUNTY	CONTROL	SECTION NO.	JOB NO.	HIGHWAY NO.	
21	WEBB	18	5	25	I.H.-35	



SHEET TOTALS (RURAL)
Delin Ty I = 1 Ea.
Delin Post = 1 Ea.

⊙ Denotes Prop. Ty I Delin Assem.

SCALE: 1" = 100'

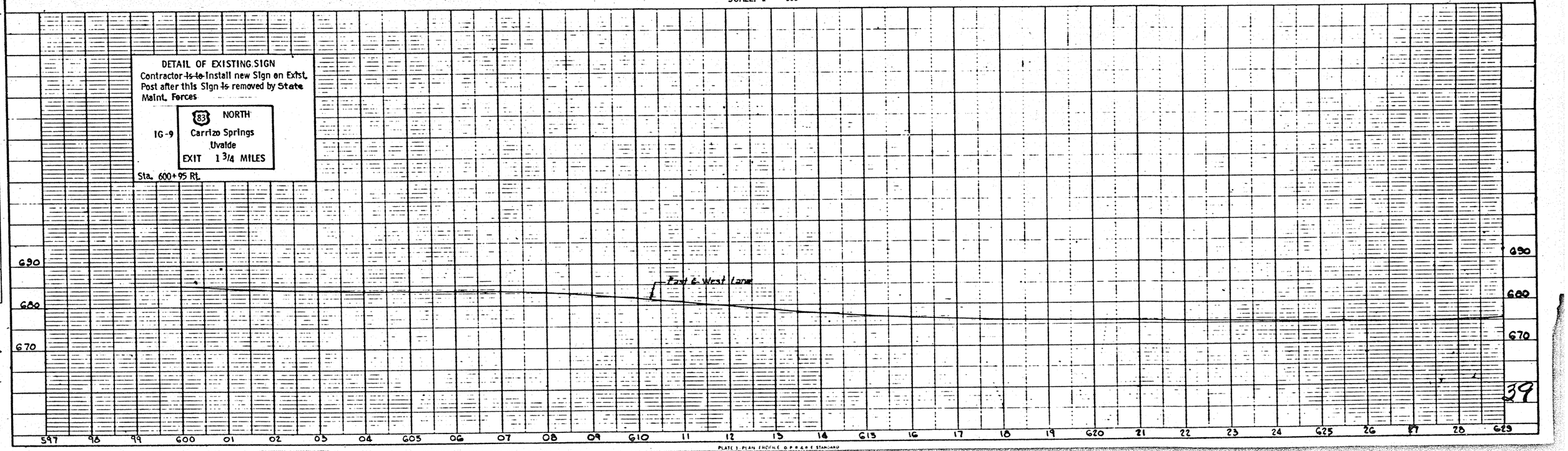
SHEET 26 OF 47 SHEETS

DETAIL OF EXISTING SIGN
Contractor ~~is to~~ Install new Sign on Exist. Post after this Sign ~~is~~ removed by State Maint. Forces

IG-9

83 NORTH
Carrizo Springs
Uvalde
EXIT 1 3/4 MILES

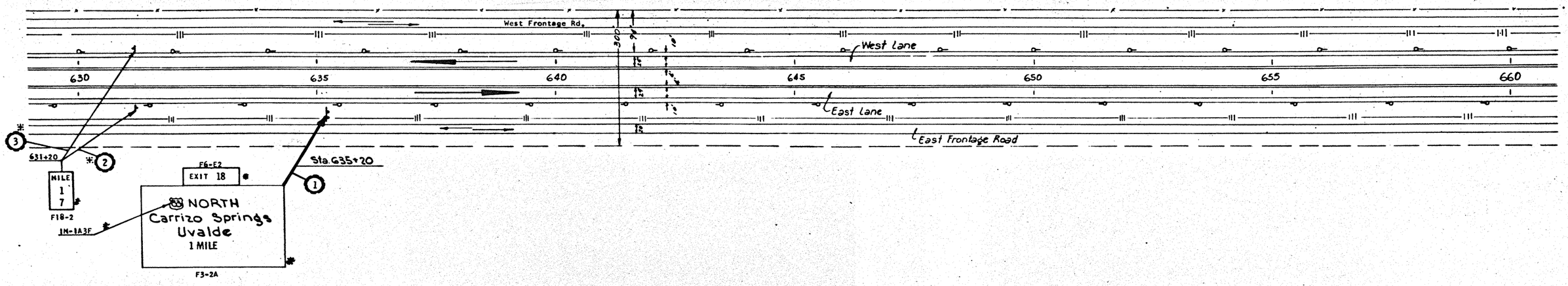
Sta. 600+95 Rt.



39

PLATE 1 PLAN SHOWING OPPOSITE STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(30)002				40
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.	
21	WEBB	18	5	25	I.H.-35	



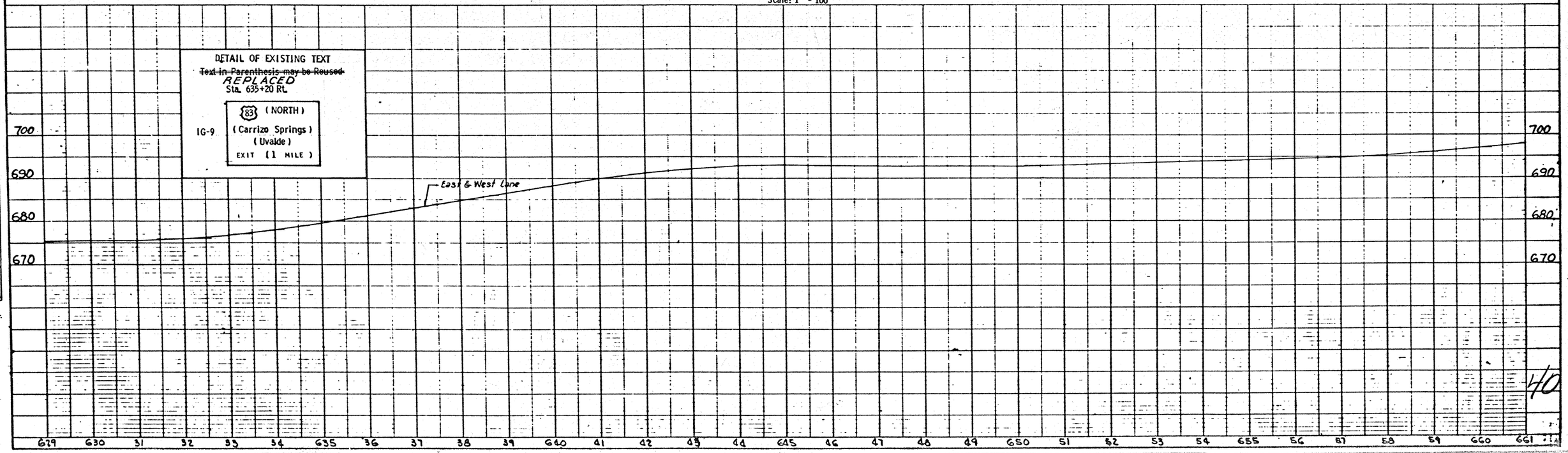
Scale: 1" = 100'

SHEET 27 OF 47 SHEETS

DETAIL OF EXISTING TEXT
~~Text in Parenthesis may be Reused~~
REPLACED
Sta. 635+20 RL

IG-9

83 (NORTH)
(Carrizo Springs)
(Uvalde)
EXIT (1 MILE)



40

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
NOTE BOOK
NO.
STRUCTURE NOTATIONS CHKD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(30)002	41
DIST.	COUNTY	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5	25	I.H.-35

Laredo 17
Monterrey 163
IG-18

Sta. 658+90

1 West Lane

665

East Lane

East Frontage Road

666+20

13 R2-1 *

SPEED LIMIT 55
IR2-1

IR-2I
82 KM/H
MAXIMA

IR-2 * IR 2-1

2 SPEED LIMIT 55

Sta. 669+90

670

675

680

IW13-4 SLOW 14

677+27

IW8-58 HIGH WATER 15

IM6-2BS SOUTH 35

679+40

3 G79+90

IM6-1S * SOUTH 81
IM1-1 * 83
IM1-1 *

300'

West Frontage Rd.

R2-1 SPEED LIMIT 55 16

683+00

IR4-3 SLOWER TRAFFIC KEEP RIGHT

684+40 8 684+40 9

685

690

IW8-58 HIGH WATER 17

690+00

ONE WAY
IR-16R

IW13-4 SLOW 18

692+34

IR-2A EXIT 30 MPH

Sta. 693+00

Sta. 691+70

7

6

5 YIELD IR-48

IR1-2

STA. 693+00

10 684+00

11 684+00

MILE 1 8
F18-2

Proposed Signs
IM-1A3F

F6-F2 Sta. 688+00
EXIT 18 *
83 NORTH
Carrizo Springs
Uvalde
F2-1

4

Exist. Sign ~~to be~~ Used in Place

~~Proposed~~ Painted Main Lane White 4 Inch Right Shoulder Edge Line
Edge Lines ~~are to be~~ installed by STATE Maint. Forces.

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
15 — Type 2

SHEET 28 OF 47 SHEETS

PLOTTED
NOTE BOOK
NO

NOTE BOOK
NO

700
690
680

East & West Lane

700
690
680

41

661 62 63 64 665 66 67 68 69 670 71 72 73 74 675 76 77 78 79 680 81 82 83 84 685 86 87 88 89 690 91 92 693

STATE	DISTRICT	SHEET NO.
TEXAS	1-35-7(30)002	42
COUNTY		
WEBB	18 5 25	I.H.-35

NOTE: Sign no 24 and 26 replaced as indicated on Field change No 1.

SHEET TOTALS (RURAL)
Delin Ty I = 3 Ea.
Delin Post = 3 Ea.

SHEET 29 OF 47 SHEETS

Denotes ~~Prop~~ Ty I Delin. Assem.

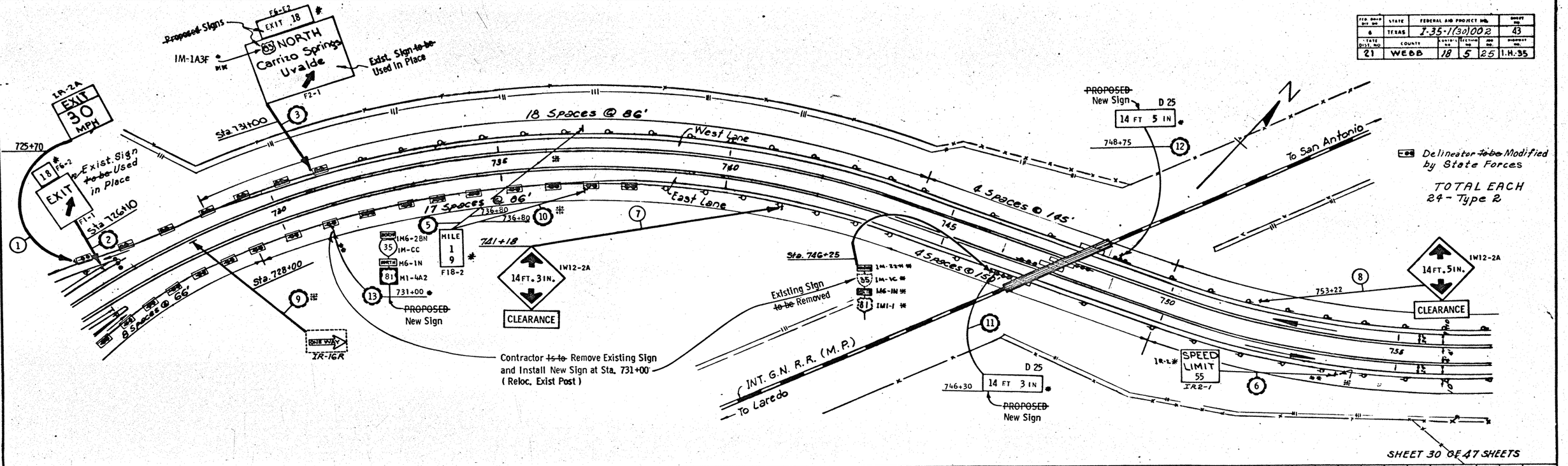
Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
21 - Type 2

PLOTTED
GRADES CHECKED
R.O.W. NOTED
STRUCTURES NOTED
CHECKED

NOTE BOOK
PLAN/MAP CHECKED
PROF. OF WAY CHECKED
NO.

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I-35-1(30)002			43
I. STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5	25	I.H. 35



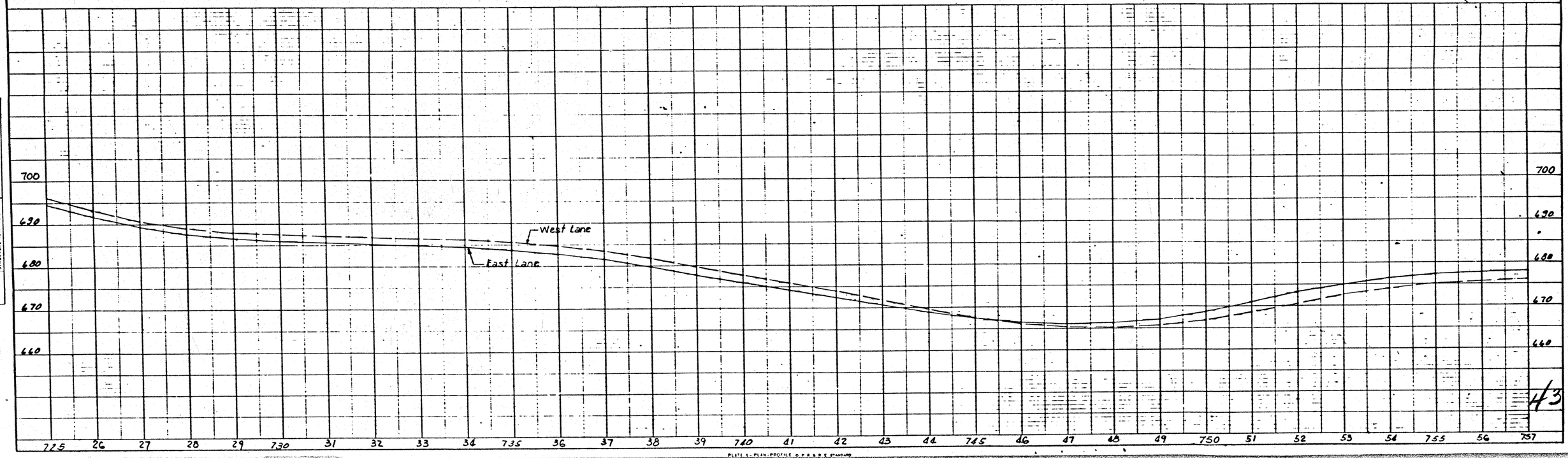


PLATE 1 - PLAN-PROFILE O F B & B E STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(30)002	44
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5A	25,22	IH.-35

PLOTTED ____ NOTE BOOK ALIGNMENT CHECKED ____ PT OF WAY CHECKED ____ NO ____

PROFILE (S) SHEET(S) PLOTTED ____ NOTE BOOK CHECKED ____ NO WAS NOTED ____ STRUCTURE NOTATIONS CHKD

STA. 773+13.8
END CONTROL 18-5-

STA. 773+13.8
BEG. CONTROL 18-4-

N

22 Spaces @ 88'
West Lane

22 Spaces @ 88'
East Lane

158'

158'

760 765 770 775 780 785 789

Sta 763+50

Encinal 19
San Antonio 134
IG-18

(1)

TOTAL 18-5-25(RURAL)
Delin. Ty I = 34 Ea.
Delin Post = 34 Ea.

Delineator ~~to be~~ Modified by State Forces

CONTROL SECTION TOTAL
18-5-25 (RURAL)

23 - Type - 1
96 - Type - 2

Control 18-4-22(RURAL)
SHEET TOTALS (RURAL)
Delin Ty I = 4 Ea.
Delin Post = 4 Ea.

Ⓓ Denotes ~~Prop.~~ Ty I Delin. Assem.

SHEET 31 OF 47 SHEETS

Scale: 1" = 100'

680
670
660

East Lane
West Lane

680
670
660

757 58 59 760 61 62 63 64 765 66 67 68 69 770 71 72 73 74 775 76 77 78 79 780 81 82 83 84 785 86 87 88 89

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	135-1(30)002				45
STATE DIST. NO.	COUNTY	CONTROL SECT. NO.	JOB NO.	HIGHWAY NO.		
21	WEBB	15	4	22	IH-35	

F6-E2
EXIT 18
IM-1A3F
83 NORTH
Carrizo Springs
Uvalde
1 MILE
(N)
F3-2A

EQUATION
STA. 797+94.3
= STA. 1064+53.0
= -26,658.7'

~~Proposed~~ Painted Main Lane White
4 Inch Right Shoulder Edge Line
Edge Lines ~~are to be~~ Installed by STATE Maint. Forces

R1-1 STOP
IR6-1R ONE WAY
IW2-2L
IW2-1
IR6-1L ONE WAY
R1-1 STOP
IR4-3 SLOWER TRAFFIC KEEP RIGHT
F18-2 MILE 2 0
F18-2 MILE 2 1
NORTH 35 IM-CC
NORTH 81 IM-1N*
IM-2BN
IMI-1*

3 Spaces @ 200'
3 Spaces @ 123' 1°30' Curve
Spacing @ 200'
7 Spaces @ 123' 1°30' Curve
4 Spaces @ 114' 1°45' Curve
3 Spaces @ 200'
Sta. 1093+60
Sta. 1097+29
Sta. 1105+29
Sta. 1109+45
INT. G.N. R.R. (M.P.)
To Laredo
Crossover
WEST EXPRESSWAY LANE
EAST EXPRESSWAY LANE
West Front Road
Control of Access
Control of Access

Change of Scale

789+00 789+55 789+60 1071+00 1084+06 1084+30 1085+20 1097+85 1108+98

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
2 - Type 2

SHEET TOTALS (RURAL)
Delin Ty I = 12 Ea.
Delin Post = 12 Ea.

SCALE: 1" = 200'

Denotes Prop. Ty I Delin. Assem.

SHEET 32 of 47 SHEETS

DETAIL OF EXISTING SIGN
Contractor ~~is to~~ install new Sign on Exist. Post after this Sign ~~is~~ removed by STATE Maint. Forces

IG-9
83 NORTH
Carrizo Springs
Uvalde
EXIT 1 MILE

Sta. 789+00 Lt.

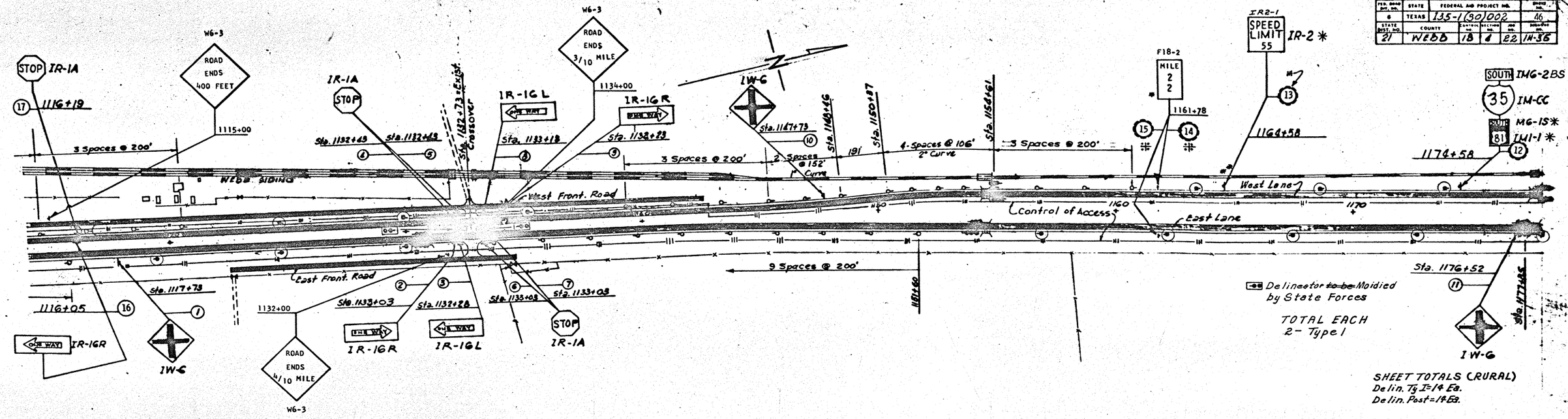
℄ Fin. Grade - West Lane
℄ Fin. Grade - East Lane

660 650 640 630 620

789 790 92 94 796 1066 68 1070 72 74 76 78 1080 82 84 86 88 1090 92 94 96 98 1100 02 04 06 08 1110 12

PLOTTED
NOTE BOOK
GRADES CHECKED
R. W. NOTED
STRUCTURE BOUNDARIES CHKD
NO.

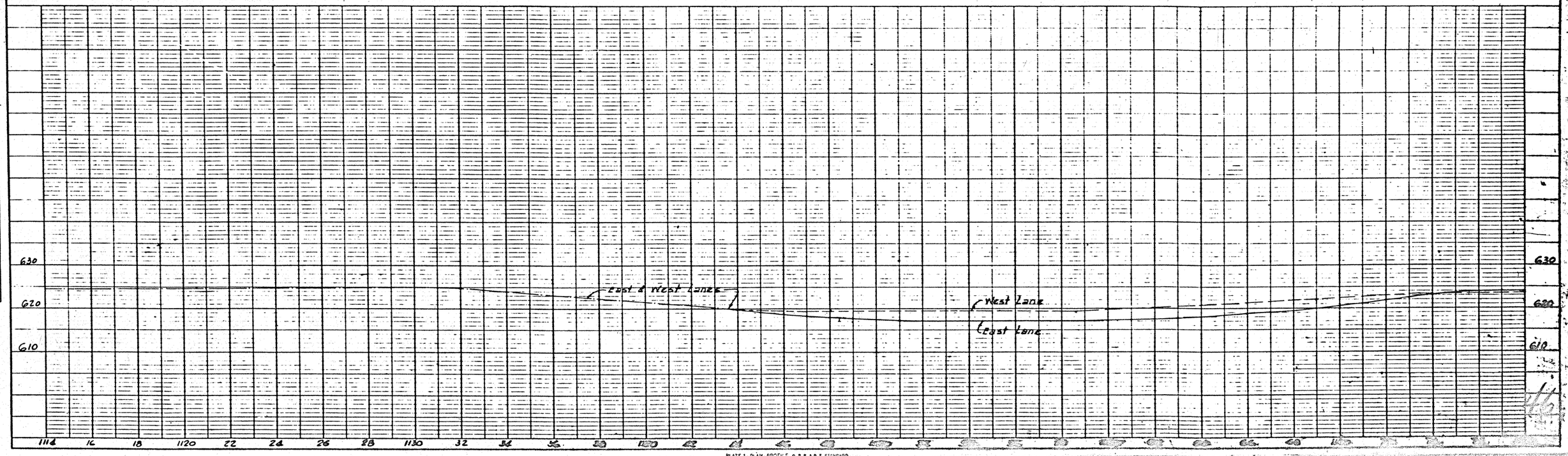
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	135-1(30)002			46
STATE DIST. NO.	COUNTY	CONTROL	SECTION NO.	JOB NO.	SUBSHEET NO.
21	WEBB	18	6	22	14-36



SCALE: 1" = 200'

Denotes Prop Ty I Delin Assem.

SHEET 33 of 47 SHEETS


630
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610
East & West Lanes
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East Lane
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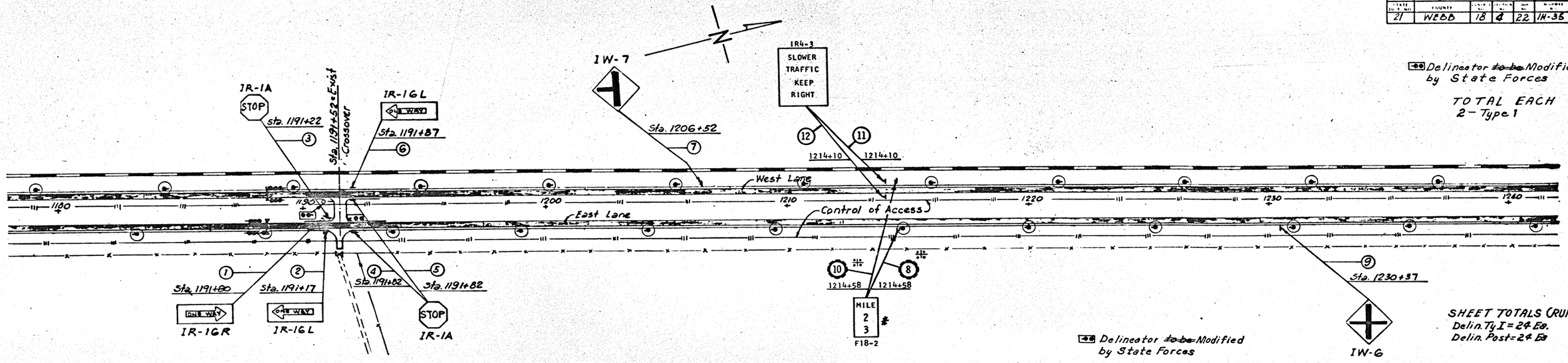
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.		SHEET NO.
6	TEXAS	I35-1(30)002		47
STATE DIST. NO.	COUNTY	CONTROL SECT. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	4 22	IH-35

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
CHECKED
BY
DATE
CHECKED
STRUCTURE NOTATIONS CHKD



Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
2-Type 1

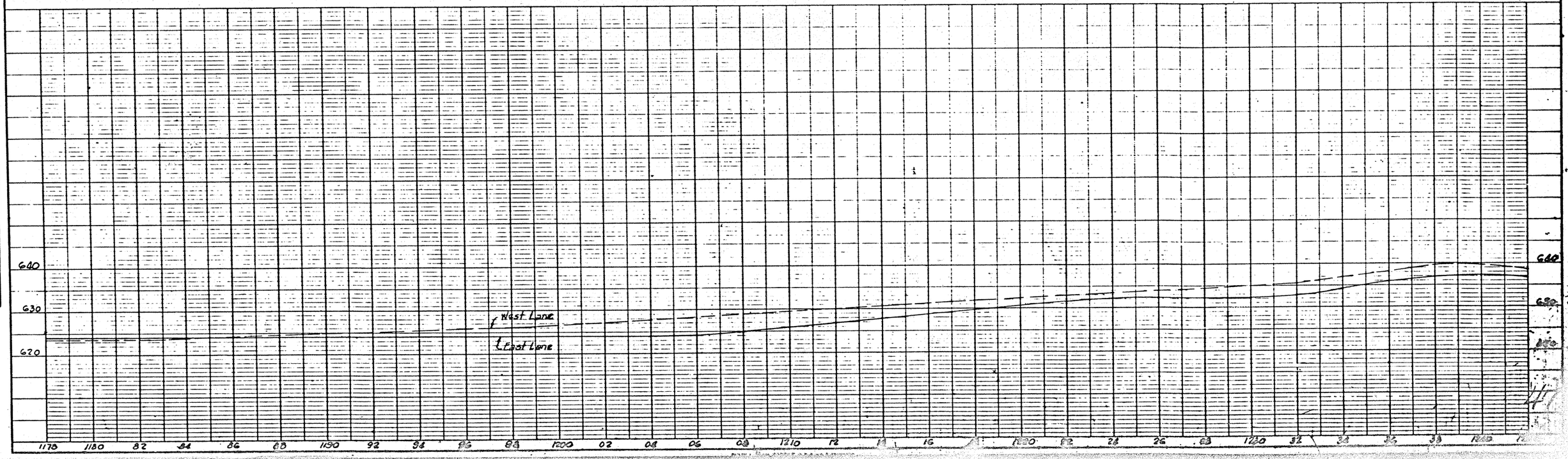
SHEET TOTALS (RURAL)
Delin. Ty I = 24 Ea.
Delin. Post = 24 Ea

Delineator ~~to be~~ Modified by State Forces

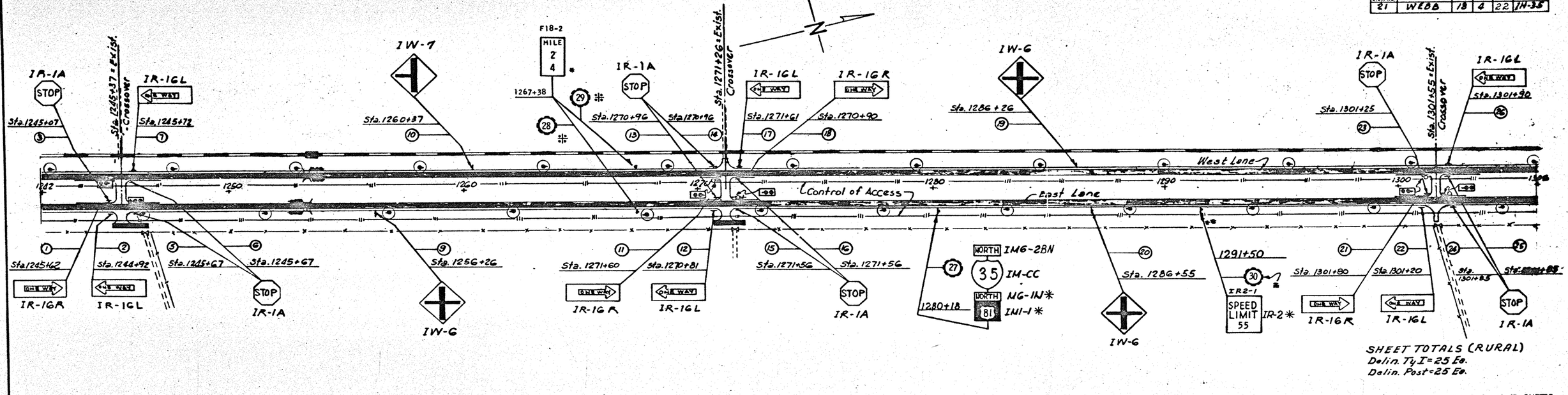
TOTAL EACH
2-Type-1

Denotes ~~Prop~~ Ty I Delin. Assem.

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
CROSS SECTIONED
BY
DATE
CHECKED
NO.
STRUCTURE NOTATIONS CHKD



FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I35-1(130)002	48
STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	13	4	22	IH-35



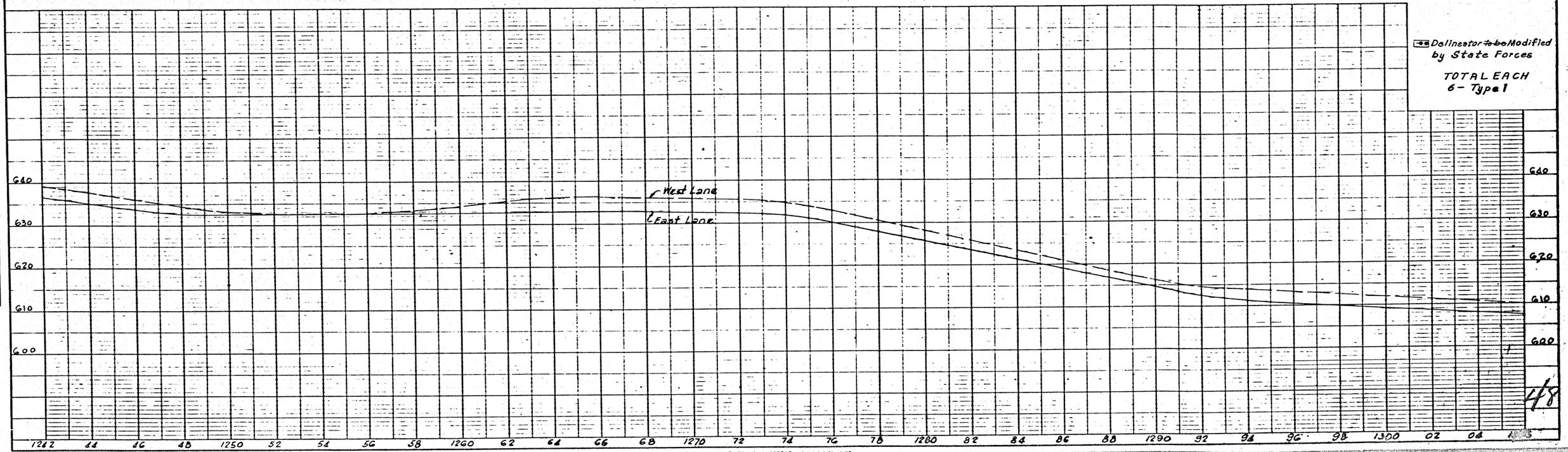
SHEET TOTALS (RURAL)
Delin. Ty I = 25 Ea.
Delin. Post = 25 Ea.

Denotes Prop. Ty I Delin Assem.

SHEET 35 of 47 SHEETS

Delinator ~~to be~~ Modified by State Forces

TOTAL EACH
6 - Type 1



48

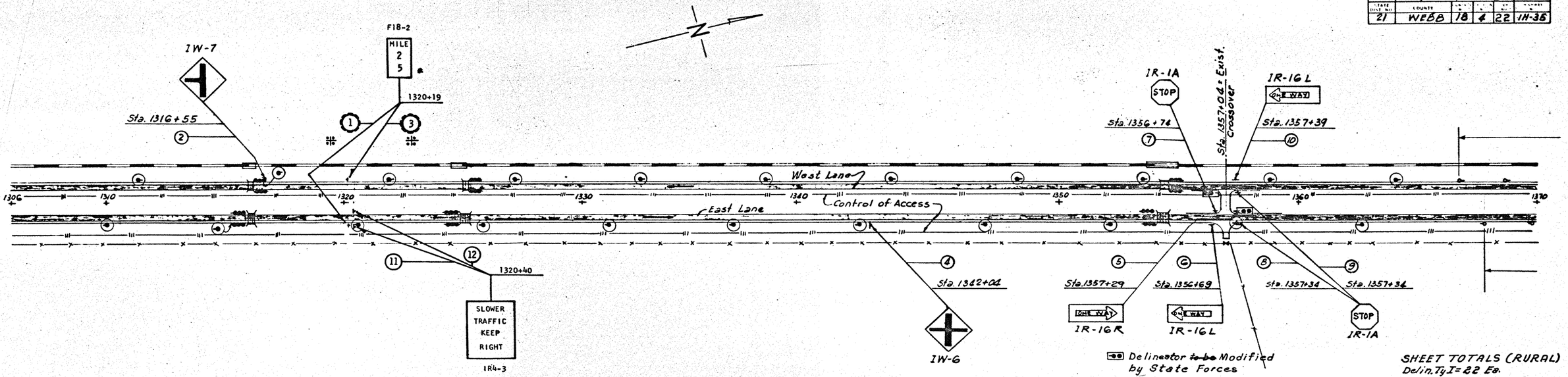
PLATE I PLAN-PROFILE (12'-24' ROAD) STANDARD

NOTE BOOK ..... SHEETS CHECKED
NO. ..... O.K. & NOTED
TRUCTURE NOTES INCLUDED

NO. OF WAY CHECKED

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJ. NO.	SHEET NO.
6	TEXAS	135-1(30)002	49
STATE DIST. NO.	COUNTY		
21	WEBB	18 4 22	IH-35

PLAN
SURVEYED
PLOTTED
NOTE BOOK ALIGNMENT CHECKED BY
NO. OF MAP CHECKED



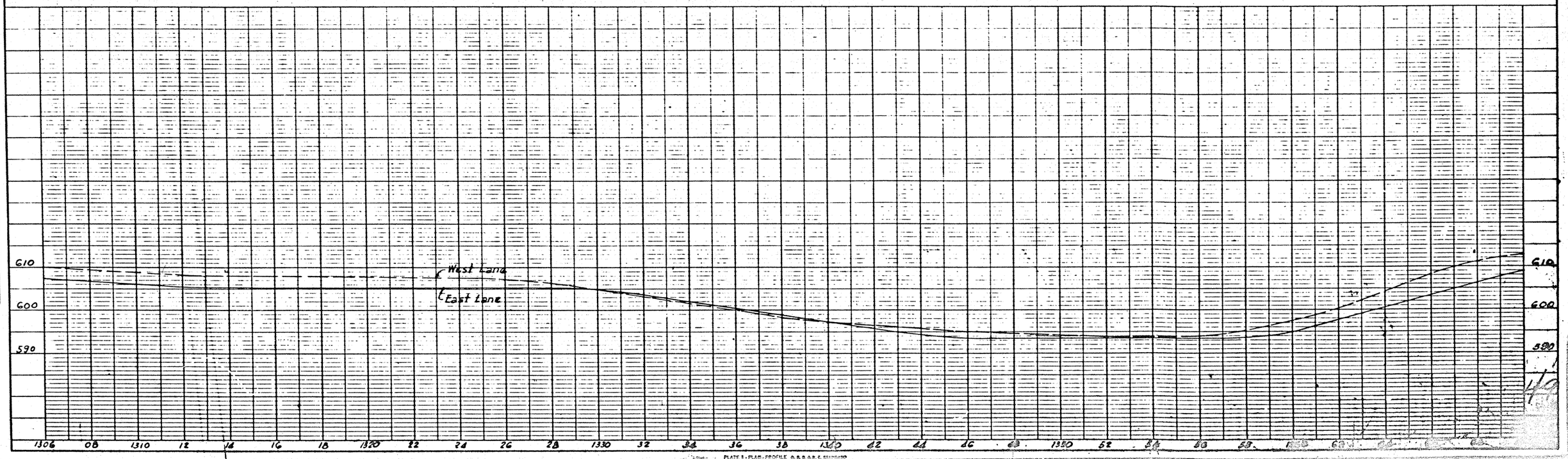
Delineator ~~to be~~ Modified by State Forces

TOTAL EACH
2- Type 1

SHEET TOTALS (RURAL)
Delin. Ty I = 22 Ea.
Delin. Post = 22 Ea.

Denotes ~~Prop~~ Ty I Delin. Assem.

PROFILE
SURVEYED
PLOTTED
NOTE BOOK GRADES CHECKED
NO. ALIGNMENT CHECKED
STRUCTURE NO. (IF ANY) CHECKED
DATE
BY



FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	135-1(30)002			50
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	4	22	IH-35

IW-7

Sta. 1372+04

3 Spaces @ 200'

4-Spaces @ 152' 1° Curve

2-Spaces @ 200'

Sta. 1382+69

9-Spaces @ 123' 1°-30' Curve

SOUTH IMG-2BS

35 IM-CC

SOUTH 81 IMG-15 *

IMI-1 *

13 Sta. 1385+78

W6-3 ROAD ENDS 800 FT.

Sta. 1393+76

1399+00

3 Spaces @ 200'

1370

1380 Control of Access

1390

14 3 Spaces @ 200'

15 3-Spaces @ 152' 1° Curve

1372+98 1372+98

MILE 2 6 F18-2

Sta. 1373+85

Sta. 1378+41

10-Spaces @ 123' 1°-30' Curve

3 Spaces @ 200'

Sta. 1390+71

West Frontage Road

East Lane

1400

West Lane

1410

1420

6 Spaces @ 200'

East Frontage Road 4 Spaces @ 100'

2

Sta. 1407+60

IW-G

IR-1A STOP

Sta. 1422+30

Sta. 1422+30

5 6

Sta. 1422+60 Exist. Crossover

IR-1GL ONE WAY

Sta. 1423+05

9

IR-1GR ONE WAY

Sta. 1422+15

10

11 1425+78

F18-2 MILE 2 7 *

1425+78

12

CALLAGHAN SIDING

4 Spaces @ 100'

3 4

Sta. 1422+90

Sta. 1422+15

7 8

Sta. 1422+90

Sta. 1422+90

ONE WAY IR-1GR

ONE WAY IR-1GL

COUNTY ROAD

STOP IR-1A

1421+00

ROAD ENDS 900 FT. W6-3

Delineator ~~to be~~ Modified by State Forces TOTAL EACH 2-Type 1 10-Type 2

Denotes ~~Prop.~~ TyI Delin. Assem.

SHEET TOTALS (RURAL)
Delin. TyI = 5 Ea.
Delin Post = 5 Ea.

SHEET 37 OF 47 SHEETS

620
610
600

West Lane
East Lane
East & West Lanes
West Lane
East Lane
East & West Lanes

1370 72 74 76 78 1380 82 84 86 88 1390 92 94 96 98 1400 02 04 06 08 1410 12 14 16 18 1420 22 24 26 28 1430 32 1434

620
610
600

50

PLOTTED ON MICROFILM
NOTE BOOK ELEMENTS, CHECKED
NO. STRUCTURE NOTES, ON FILE
NO.

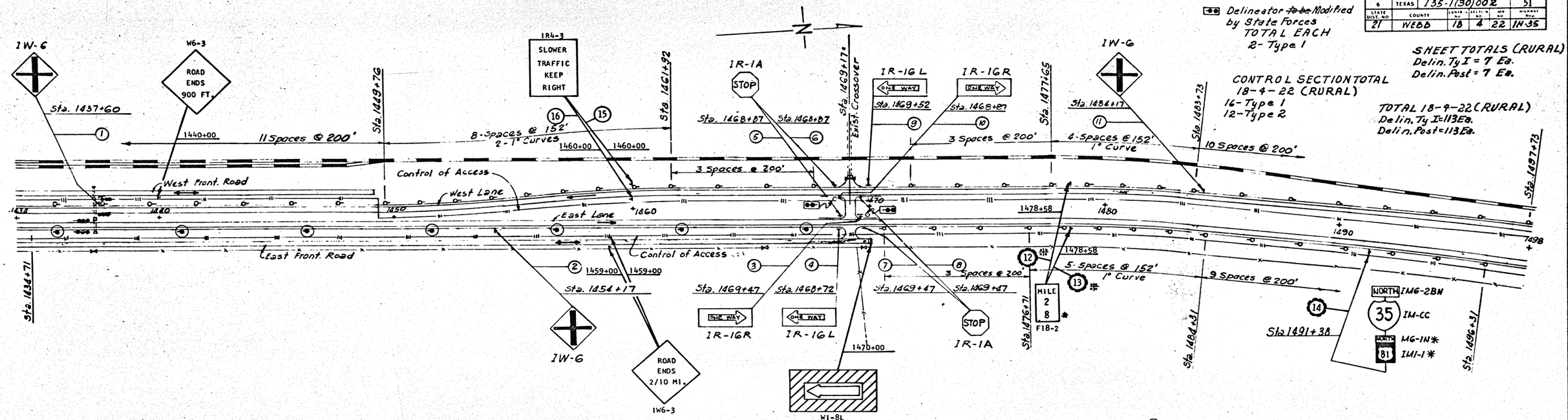
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	135-1(30)002				51
STATE DIST. NO.	COUNTY	CONTR. SECT. NO.	JOB NO.		HIGHWAY NO.	
21	WEBB	18	4	22	IH-35	

Delineator ~~To be~~ Modified by State Forces
TOTAL EACH
2- Type 1

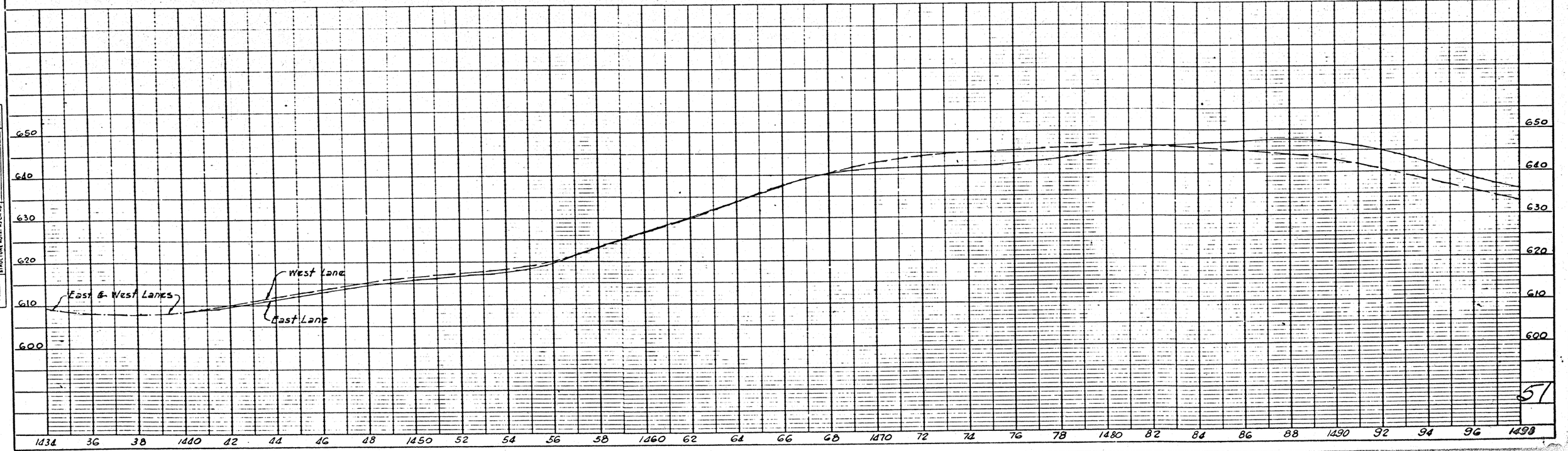
SHEET TOTALS (RURAL)
Delin. Ty I = 7 Ea.
Delin. Post = 7 Ea.

CONTROL SECTION TOTAL
18-4-22 (RURAL)
16- Type 1
12- Type 2

TOTAL 18-9-22 (RURAL)
Delin. Ty I = 113 Ea.
Delin. Post = 113 Ea.



Denotes ~~Prop.~~ Ty I Delin Assem.



51

PLOTTED FROM DATA PROVIDED IN THIS NOTE.
NOTE BOOK ____ NO. ____
STRUCTURE NOTAT WS CH-10

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	135-1(30)002	52
STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
21	WEBB	18 / 3 / 19	IH-35

Laredo 27
Monterrey 174
16-18

Sta. 1499+73

1500+00

STA. 1499+10.0
END CONTROL 18-4-22
BEG. CONTROL 18-3-19

IR2-1
SPEED LIMIT 55
IR-2*

1510+00

IM6-2BS SOUTH
IM-CC 35
*M6-1S SOUTH
*IMI-1 81

1520+00

F18-2
MILE 2 9

1531+39

1522+00
High Fill

IR-1A STOP

Sta. 1537+69 Exist. Crossover

IR-1GL ONE WAY
IR-1GR ONE WAY

Sta. 1538+04
Sta. 1537+39

IW-6

Sta. 1552+69

SHEET TOTALS (RURAL)
Delin. Ty I = 18 Ea.
Delin. Post = 18 Ea.

Control of Access
East Lane
Control of Access
East Front Road

1498 1500 1510 1520 1530 1540 1550 1560 1562

Sta. 1496+31

Sta. 1522+69

Sta. 1537+99
Sta. 1537+24
Sta. 1537+99
Sta. 1537+99

IR-1GR ONE WAY
IR-1GL ONE WAY
IR-1A STOP

1540+00

IM6-2BN NORTH
IM-CC 35
*MG-1N NORTH
*IMI-1 81

1550+00

IR2-1
SPEED LIMIT 55
IR-2*

1560+00

Encinal 9
San Antonio 125
16-18

Delineator ~~to be~~ Modified by State Forces
TOTAL EACH
2 - Type 1

Denotes ~~Prop.~~ Ty I Delin. Assem.

SHEET 39 of 47 SHEETS

NOTE BOOK ALIGNMENT CHECKED
NO. RT. OF WAY CHECKED
LINE & GRADE SUPPLIED
PLANS PREPARED
NOTE BOOK GRADES CHECKED
B M'S NOTED
STRUCTURE NOTES MARKED

640 630 620 610 600 590 580 570

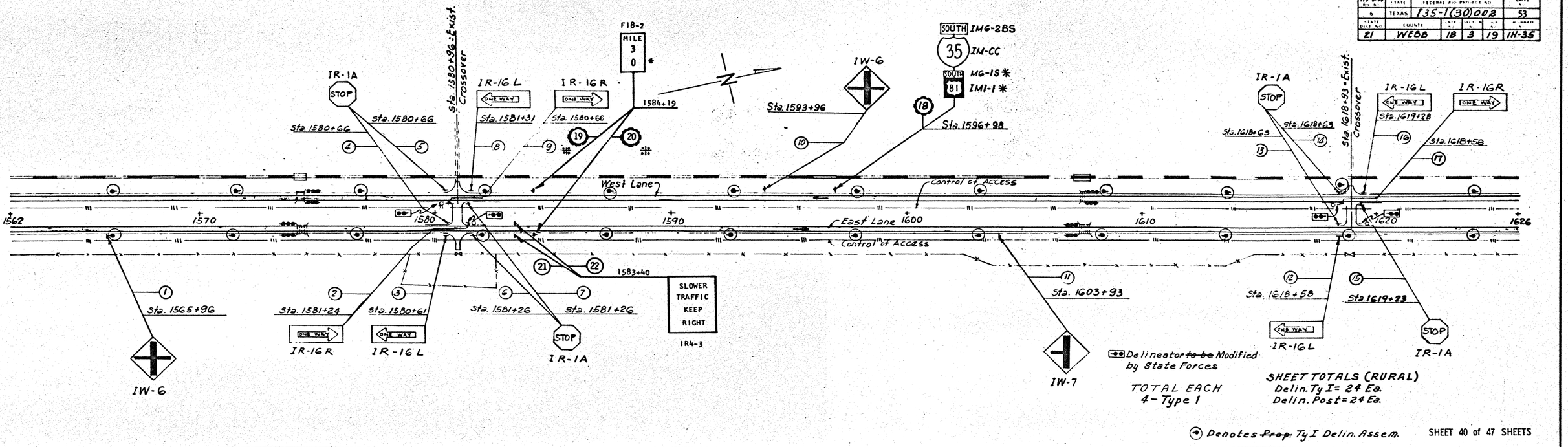
East Lane
West Lane

600 590 580 570

1498 1500 02 04 06 08 1510 12 14 16 18 1520 22 24 26 28 1530 32 34 36 38 1540 42 44 46 48 1550 52 54 56 58 1560 1562

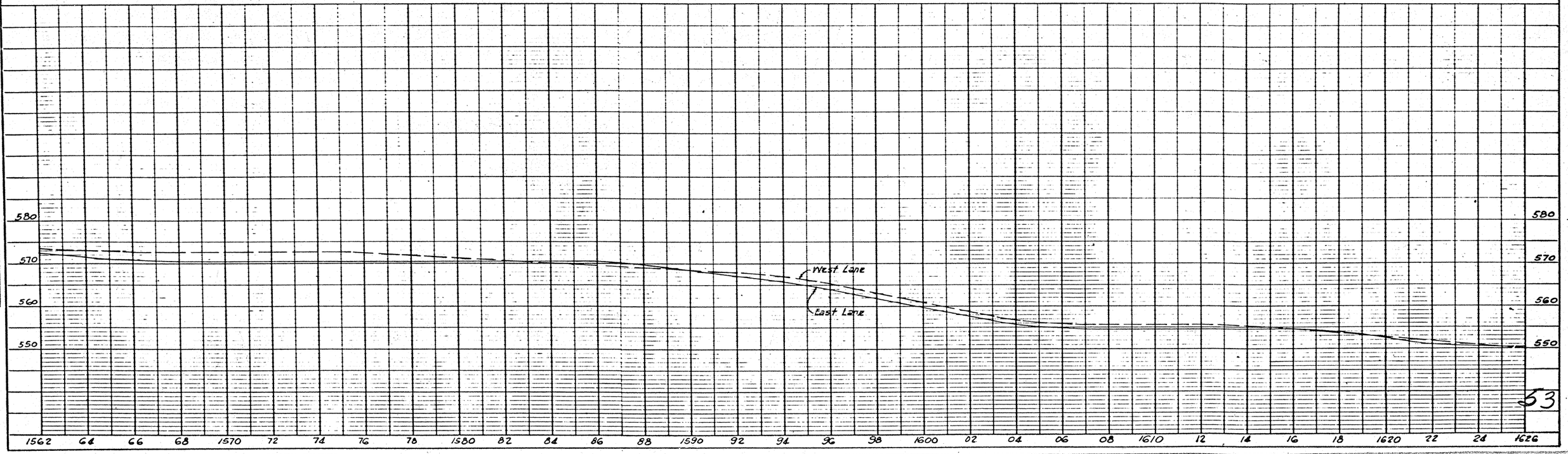
52

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I35-1(30)008			53
STATE DIST. NO.	COUNTY	SEC. NO.	SHEET NO.	NO. OF SHEETS	HIGHWAY NO.
21	WEBB	18	3	19	IH-35



Denotes ~~Prop.~~ Ty I Delin. Assem.

SHEET 40 of 47 SHEETS



FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	135-1(30)002			54
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3	19	IH-35

IW-6

F18-2 MILE 3 1 *

1636+99

IR-1A STOP

Sta. 1633+93

Sta. 1647+66

Sta. 1647+96 = Exist. Crossover

IR-16L ONE WAY

Sta. 1648+31

IW-7

Sta. 1662+96

1655+00

High Fill

IR-1A STOP

IR-16L ONE WAY

Sta. 1688+90 = Exist. Crossover

IR-16R ONE WAY

Sta. 1688+60

Sta. 1688+60

Sta. 1689+25

Sta. 1680+60

1626

1630

1640

1650

Control of Access

1660

West Lane

East Lane

1670

1680

1690

High Fill

1622+00

Control of Access

East Front Road

Sta. 1632+96

Sta. 1648+20

Sta. 1647+61

Sta. 1648+26

Sta. 1648+26

Sta. 1673+90

Sta. 1689+25

Sta. 1688+45

Sta. 1689+20

Sta. 1689+25

IR-16R ONE WAY

IR-16L ONE WAY

IR-1A STOP

IW-6

IW-6

1689+79

MILE 3 2 *

Delineator ~~to be~~ Modified by State Forces

TOTAL EACH 4-Type 1

SHEET TOTALS (RURAL)
Delin. Ty I = 17 Ea.
Delin. Post = 17 Ea

Denotes ~~Prop.~~ Ty I Delin. Assem.

SHEET 41 of 47 SHEETS

F18-2

PROFILE SURVEYED ___ PLOTTED ___ NOTE BOOK ___ NO. ___ GRADES CHECKED ___ B MS NOTED ___ STRUCTURE NOTE(S) W'S CK'D ___

560

550

540

West Lane

East Lane

54

1626 28 1630 32 34 36 38 1640 42 44 46 48 1650 52 54 56 58 1660 62 64 66 68 1670 72 74 76 78 1680 82 84 86 88 1690

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(30)002				55
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	3	19		IH-35

IW-6

Sta. 1703+90

(1)

(2)

Sta. 1702+58

NORTH 35 IM6-2BN IM-CC

NORTH 81 MG-IN * IMI-1 *

IR4-3 SLOWER TRAFFIC KEEP RIGHT

Sta. 1729+73

Sta. 1732+77

Sta. 1740+77

3 Spaces @ 200'

2 Spaces @ 152' 1° Curve

4 Spaces @ 200'

200' 0°30' Curve

3 Spaces @ 200'

(4) 1742+40 (3)

1742+40

1742+58 (5) * * (6) 1742+58

MILE 3 3 *

F18-2

West Lane

East Lane

Control of Access

Control of Access

1690 1700 1710 1720 1730 1740 1750 1754

SHEET TOTALS (RURAL)
Delin. Ty I = 20
Delin. Post = 20

PROFILE SURVEYED, PLOTTED, NOTE BOOK, NO. GRADES CHECKED, IS NOT NOTED, STRUCTURE NOTES IN CH-10

ALIGNMENT CHECKED, RT. OF WAY CHECKED

NOTE BOOK

NO.

⊙ Denotes ~~Prop.~~ Ty I Delin. Assem.

570
560
550
540

West Lane Profile

East Lane Profile

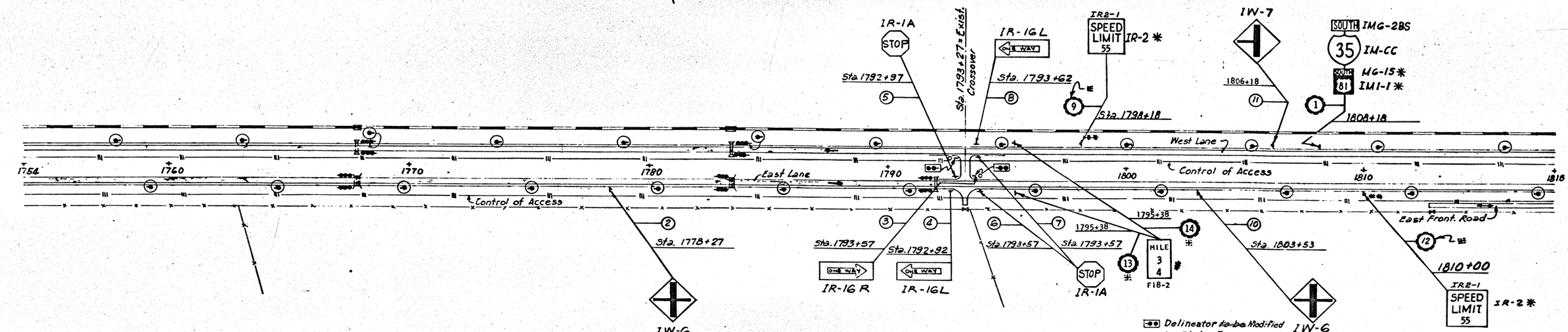
1690 92 94 96 98 1700 02 04 06 08 1710 12 14 16 18 1720 22 24 26 28 1730 32 34 36 38 1740 42 44 46 48 1750 52 1754

55

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	I35-7(30)002			56
STATE DIST. NO.	COUNTY	SCALE 1" =	SCALE 1" =	SCALE 1" =	HIGHWAY NO.
21	WEBB	18	3	19	IH-35

PROFILE: SURVEYED, PLOTTED, GRADES CHECKED, NOTE BOOK, NO. — STRUCTURE NOTATIONS CHKD

NOTE BOOK: ALIGNMENT CHECKED, RT. OF WAY CHECKED, NO.

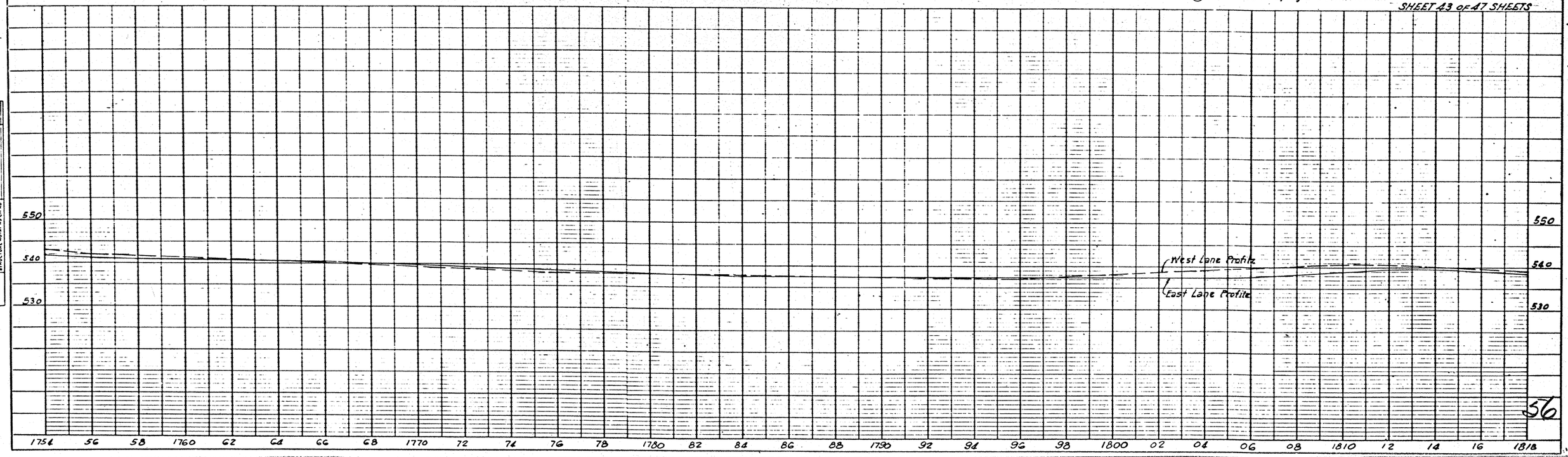


Delineator ~~to be~~ Modified by State Forces

TOTAL EACH 2-Type1

SHEET TOTALS (RURAL)
Delin. Ty I = 24 Ea.
Delin. Post = 24 Ea.

Denotes ~~Prop.~~ Ty I Delin. Assem.



56

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	135-1(30)002				57
STATE DIST. NO.	COUNTY	CONT.	SEC. NO.	SUB NO.		NUMBER
21	WEBB	18	3	19		IH-35

Sta. 1818+53 Exist. Crossover

IR-1A STOP Sta. 1818+23

IR-1G L ONE WAY Sta. 1818+88

IR-1G R ONE WAY Sta. 1818+23

IW-6 Sta. 1833+53

F18-2 MILE 35

1848+19

1830+00

1856+00

High Fill

West Lane

East Lane

Control of Access

1842+00

High Fill

1848+68

SLOWER TRAFFIC KEEP RIGHT

IR4-3

IW-6 Sta. 1854+17

1867+50

ROAD ENDS 1/10 MILE

W6-3

IR-1A STOP Sta. 1868+87

Sta. 1869+17 Exist. Crossover

IR-1G L ONE WAY Sta. 1869+52

IR-1G R ONE WAY Sta. 1868+87

1870

East Front. Road

Sta. 1869+47

Delineator to be Modified by State Forces

TOTAL EACH 4-Type I

Sta. 1869+49

Sta. 1868+72

IR-1G R ONE WAY

IR-1G L ONE WAY

Sta. 1869+47

STOP IR-1A

1874+00

ROAD ENDS 2/10 MILE

W6-3

Sta. 1818+23

Sta. 1818+08

Sta. 1818+83

Sta. 1818+83

Sta. 1818+83

IR-1G R ONE WAY

IR-1G L ONE WAY

STOP IR-1A

1820 1830 1840 1850 1860 1880 1882

SHEET TOTALS (RURAL)
Delin. Ty I = 18 Ea.
Delin. Post = 18 Ea.

Denotes ~~Prop.~~ Ty I Delin. Assem.

SHEET 44 of 47 SHEETS

PLOTTED CHECKED
FIELD BOOK LAID OUT
NO. IN R.O.W. NOTID.
STRUCTURE NOTATIONS CH NO.

INT. OF WAY CHECKED
NO.

550
540
530

East Lane Profile
West Lane Profile

57

1818 1820 22 24 26 28 1830 32 34 36 38 1840 42 44 46 48 1850 52 54 56 58 1860 62 64 66 68 1870 72 74 76 78 1880 1882

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	135-1(130)002	58
STATE DIST. NO.	COUNTY		
21	WEBB	18 3 19	IH35

IW-6

Sta. 1884+17

(1)

F18-2

MILE 3 6

1900+99

(12)

(13)

1903+00

High Fill

West Lane

East Lane

1882 1890 1900 1910 1920 1930 1940 1946

Control of Access

Control of Access

East Front. Road

East Front. Road

IM6-2BN NORTH

IM-CC 35

M6-1M NORTH 81

IM1-1

(14)

Sta. 1913+78

(2)

Sta. 1917+00

IW-6

Sta. 19 30+25

(3)

Sta. 1929+55

IR-1GR

IR-1GL

(4)

(7)

1928+00

Sta. 1930+30

ROAD ENDS 2/10 MILE

W6-3

IR-1A STOP

Sta. 1929+70

(5)

Sta. 1929+70

(6)

Sta. 1930+00 Exist. Crossover

IR-1GL ONE WAY

Sta. 1930+35

(8)

1935+50

Sta. 1930+30

IR-1A STOP

ROAD ENDS 2/10 MILE

W6-3

IR-1GR ONE WAY

Sta. 1929+70

(10)

IW-6

Sta. 1945+00

(11)

Delineator ~~to be~~ Modified by State Forces TOTAL EACH 2- Type 1

SHEET TOTALS (RURAL)
Delin. Ty I = 22 Ea.
Delin. Post = 22 Ea.

Denotes ~~Prop.~~ Ty I Delin. Assem.

SHEET 45 of 47 SHEETS

PLAN SURVEYED PLOTTED CHECKED NOTE BOOK BY WAY NO. AT WAY CHECKED

PROFILE SURVEYED PLOTTED CHECKED NOTE BOOK BY WAY NO. STRUCTURE NOTES CHKD DATE

West Lane Profile

East Lane Profile

550 540 530 520

1882 84 86 88 1890 92 94 96 98 1900 02 04 06 08 1910 12 14 16 18 1920 22 24 26 28 1930 32 34 36 38 1940 42 44 1946

58

STATE	FEDERAL AID PROJECT NO.	SHEET
TEXAS	I 35-1(30)002	99

DISTRICT	COUNTY			CONTROL SECTION JOB
21	WEBB	18	3	19 IH-35

F18-2 MILE 3 7

F13-2 MILE 3 8

IG-18 Laredo 37 Monterrey 184

1953+79

Sta. 1962+68

Sta. 1962+98 Exist. Crossover

Sta. 1963+33

Station 1968+00 END ~~Proposed~~ Painted Main Lane White 4 Inch Outside Edge Line

Sta. 1977+98

4 Spaces @ 100'

Future Prop'd. Ent. Ramp

Sta. 1987+90

Sta. 1988+20 Exist. Crossover

Sta. 1988+55

Sta. 1987+90

1993+00 High Fill

Sta. 1999+00

Sta. 2003+20

2005+59

Sta. 2004+05

Sta. 2004+35 Exist. Crossover

Sta. 2004+70

Sta. 2007+00

Sta. 2007+00

2007+20

1946 1950 1960 1970 West Lane East Lane 1980 Future Prop'd. West Lane 1990 2000 2010

Future Prop'd Temp. Connection

Control of Access

East Front Road

Prop'd Future Exit Ramp

5 Spaces @ 200'

4 Spaces @ 100'

Sta. 1947+98

Sta. 1963+28

Sta. 1962+53

Sta. 1963+28

Sta. 1963+28

1965+20

Sta. 1973+20

Sta. 1987+85

Sta. 1988+50

Sta. 1989+35

Future Prop'd East ROW

Future Prop'd East Frontage Rd

Sta. 2000+31

Sta. 2002+00

Sta. 2002+00

Sta. 2004+65

Sta. 2004+65

Sta. 2003+90

Sta. 2004+65

3° Curve

Sta. 2005+58

East Front Road

Future Prop'd. Exit Ramp

IR-1A STOP

IR-1GL ONE WAY

IR-1GR ONE WAY

IW-7

IW-G

IW-21

IW6-2 DIVIDED HIGHWAY ENDS

W6-3 ROAD ENDS 4/10 MILE

IW4-3R LANE ENDS MERGE LEFT IR-17

IR4-3 SLOWER TRAFFIC KEEP RIGHT

Delineator ~~to be~~ Modified by State Forces TOTAL EACH 2 - Type I

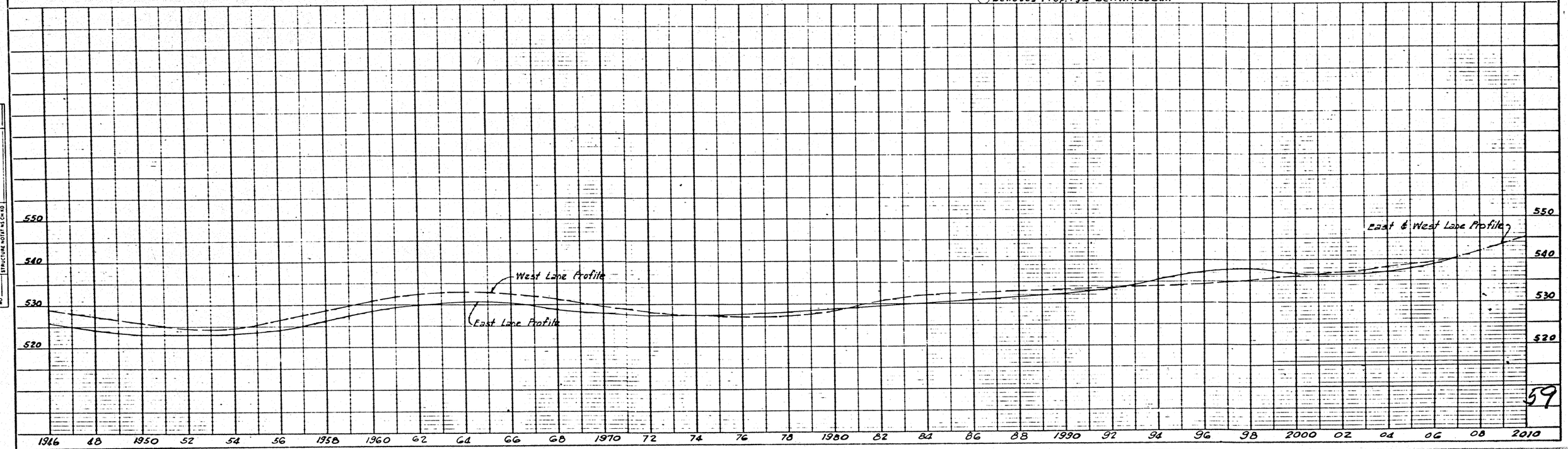
SHEET TOTALS (RURAL)
Delin. Ty I = 5 Ea.
Delin. Post = 5 Ea.

Denotes ~~Prop.~~ Ty I Delin. Assem.

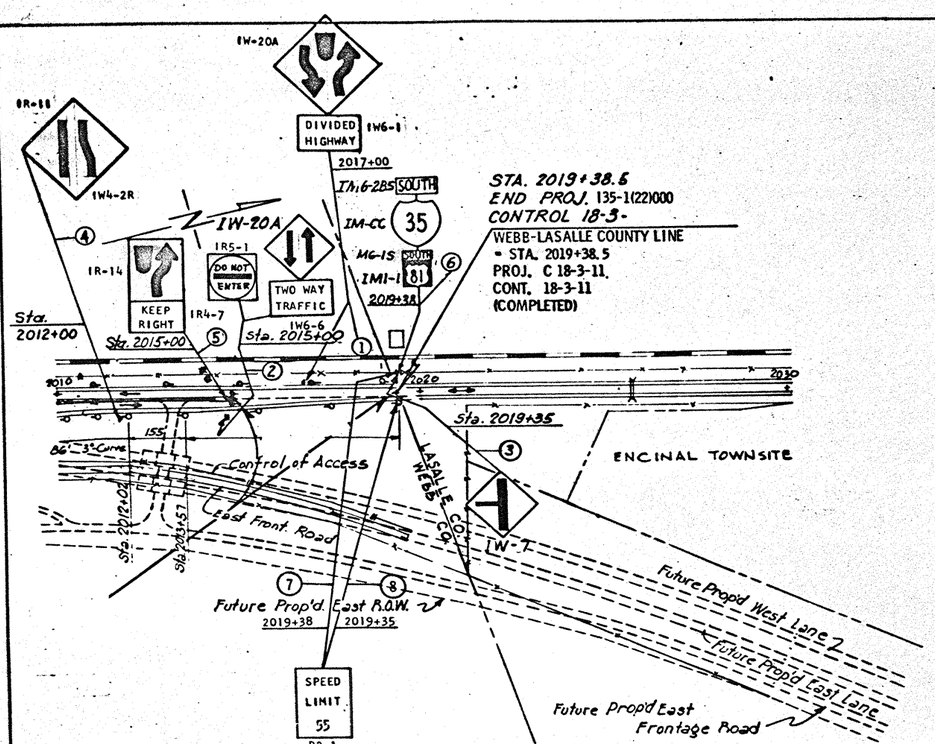
SHEET 46 of 47 SHEETS

NOTE BOOK ALIGNMENT CHECKED BY: CY WAY CHECKED: NO.

PLOTTED GRADES CHECKED BY: M.S. NOTED STRUCTURE NOTES CHKD



59



SHEET TOTALS (RURAL)
Delin. Ty I = 0 Ea.
Delin. Post = 0 Ea.

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	135-1(30)002			60
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3	19	IH35

TOTAL 18-3-19 (RURAL)
Delin Ty I = 148 Ea.
Delin Post = 148 Ea.

SUMMARY

CONTROL	DELIN TY I	DELIN POST
18-6-65 (Rural)	49 Ea.	49 Ea.
18-5-25 (Rural)	34 Ea.	34 Ea.
18-4-22 (Rural)	113 Ea.	113 Ea.
18-3-19 (Rural)	148 Ea.	148 Ea.
GRAND TOTAL	344 Ea.	344 Ea.

Delineator ~~to be~~ Modified by State Forces

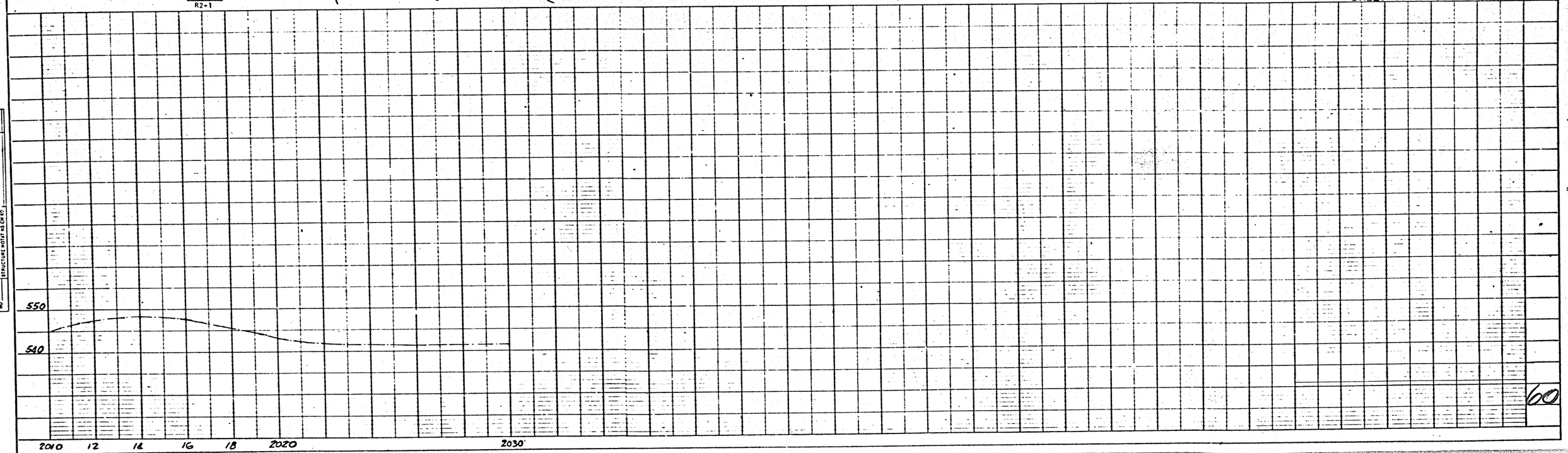
CONTROL SECTION TOTAL
18-3-19 (RURAL
20-Type 1

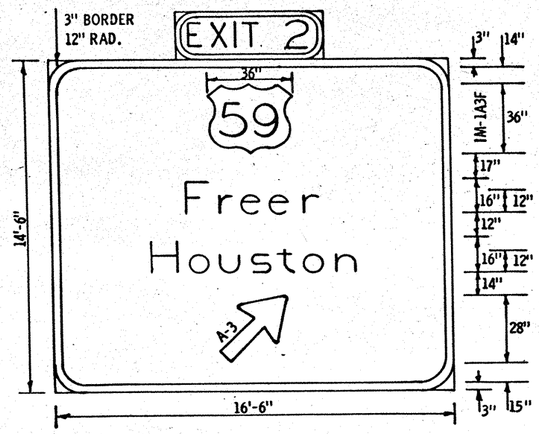
~~TO BE~~ MODIFIED BY STATE FORCES

CONTROL	DELIN. TY I	DELIN. TY II	DELIN. TY III
18-6-65 (U)	6	243	8
18-6-65 (R)	2	28	1
18-5-25 (R)	23	96	
18-4-22 (R)	16	12	
18-3-19 (R)	20	–	
GRAND TOTAL	67	379	9

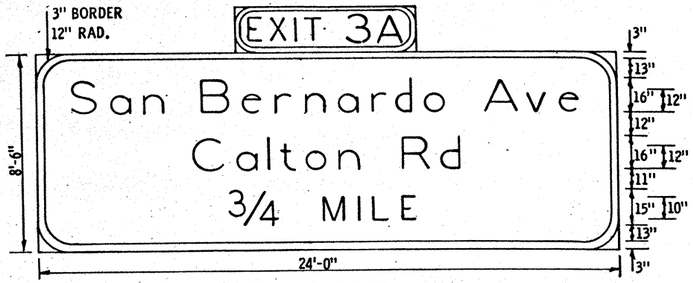
SHEET 47 of 47 SHEETS

PROFILE SURVEYED / PLOTTED / NOTE BOOK / GRADES CHECKED / STRUCTURE NOTES CHECKED / NO.



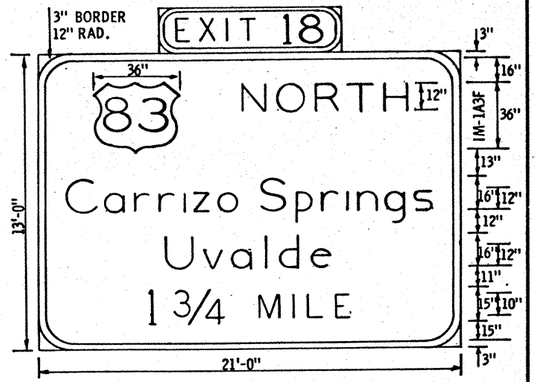


Sign 3 - Sheet 5 of 47
Sign 1 - Sheet 8 of 47

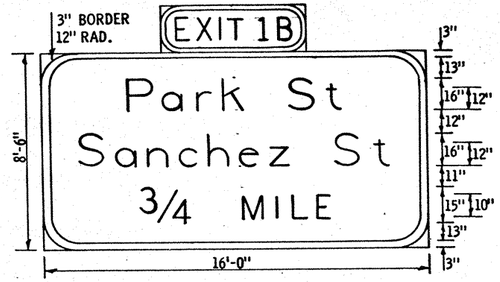


Sign 11 - Sheet 6 of 47

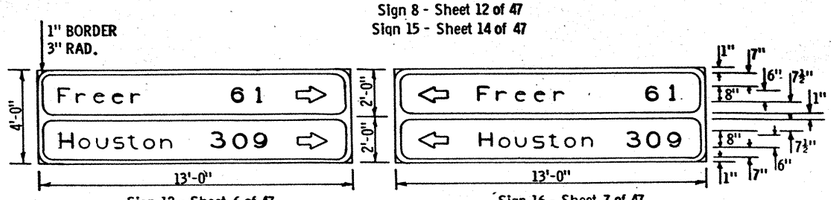
Sign 8 - Sheet 12 of 47
Sign 15 - Sheet 14 of 47



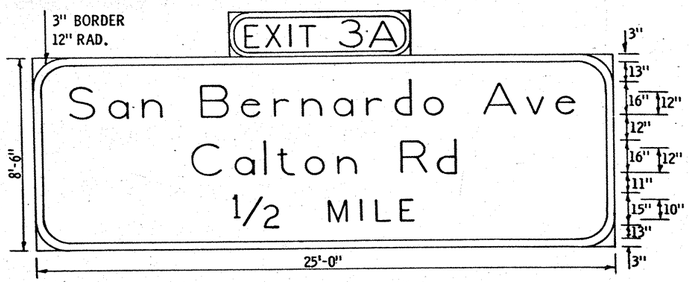
Sign 1 - Sheet 26 of 47



Sign 23 - Sheet 7 of 47

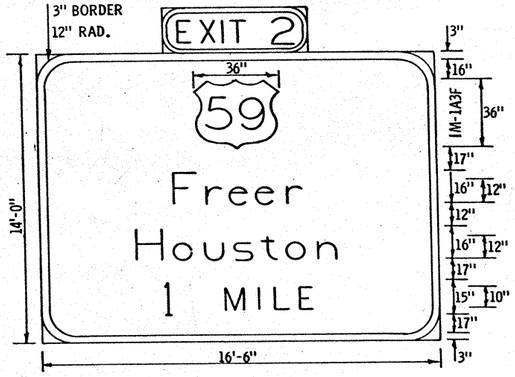


Sign 12 - Sheet 6 of 47
Sign 16 - Sheet 7 of 47



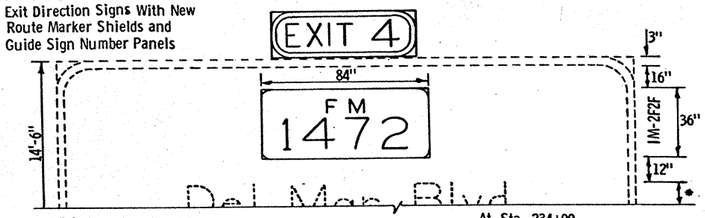
Sign 1 - Sheet 12 of 47

Sign 6 - Sheet 15 of 47



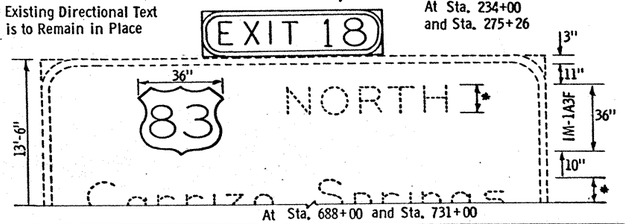
Sign 12 - Sheet 11 of 47

TYPICAL SPACING
Exit Direction Signs With New Route Marker Shields and Guide Sign Number Panels

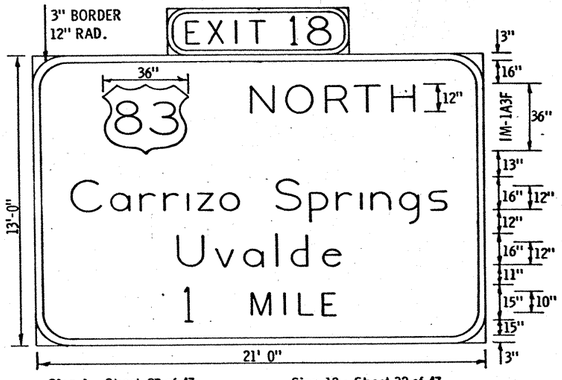


* Existing Directional Text is to Remain in Place

At Sta. 234+00 and Sta. 275+26



At Sta. 688+00 and Sta. 731+00



Sign 1 - Sheet 27 of 47
Sign 12 - Sheet 32 of 47

NOTES:

SEE Standard Sheet IE (1) and Tabulation Shts. for Design and Text Spacing of Proposed Guide Sign Number Panels and Exit Sign Number Panels Listed Below by Location:

GUIDE SIGN NUMBER PANELS

Station	Station	Station
	93+00 Lt.	108+50 Rt.
123+00 Rt.	128+75 Lt.	139+50 Lt.
155+75 Rt.	187+80 Lt.	203+80 Lt.
212+50 Rt.	217+00 Lt.	90+00 Rt.
225+00 Lt.	234+00 Rt.	275+26 Lt.
157+00 Lt.	17+00 Lt.	48+27 Lt.
600+ 95 Rt.	608+95 Rt.	635+20 Rt.
688+00 Rt.	731+00 Lt.	789+00 Lt.
ⓐ 190+00 Rt.	ⓐ 242+50 Lt.	

EXIT SIGN NUMBER PANELS

Station	Station	Station
84+65 Lt.	115+00 Rt.	134+70 Lt.
160+70 Rt.	194+10 Lt.	239+14 Rt.
270+00 Lt.	693+29 Rt.	726+10 Lt.

The background of Interstate Guide Signs shall be of interstate green flat surface reflective sheeting and all legend and borders shall be reflectorized removable copy with white frames conforming with the specifications. See Standard Sheets IE (1), IM (1) and IM (2) for additional details. ⓐ - Sign Background to be blue for Hospital, Tourist Bureau and Rest Area Signs.

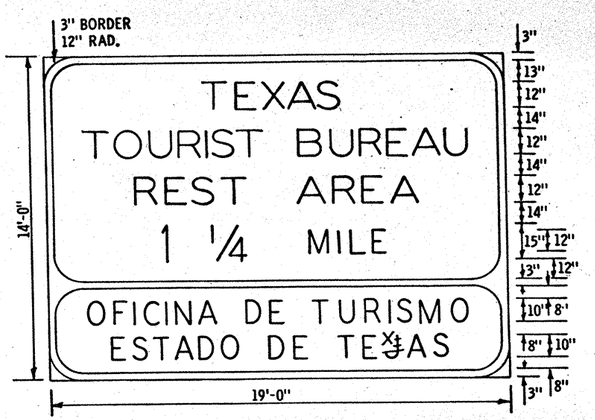
A field review of existing roadside guide signs is recommended to determine required material and hardware for attaching and mounting Number Panels to existing guide signs constructed with horizontal 31-2.59 aluminum wind beams. All guide sign number panels and exit sign number panels as shown on the Tabulation Sheets are of Standard Sizes.

INTERSTATE GUIDE SIGNS

61

SHEET 1 OF 2 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJ. NO.			SHT. NO.
6	TEXAS	I-35-1 (30) 002			61
STATE DIST.	COUNTY	CONT.	SECT.	JOB	HWY. NO.
21	WEBB	18	6	65	I H
		18	5/4	25/52	35



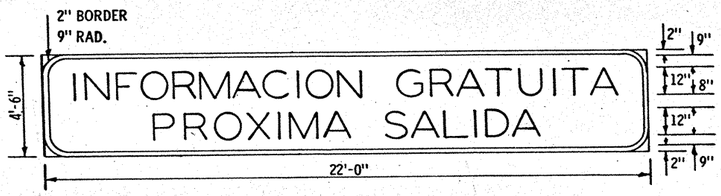
Sign 44 - Sheet 13 of 47

Sign 9 - Sheet 22 of 47

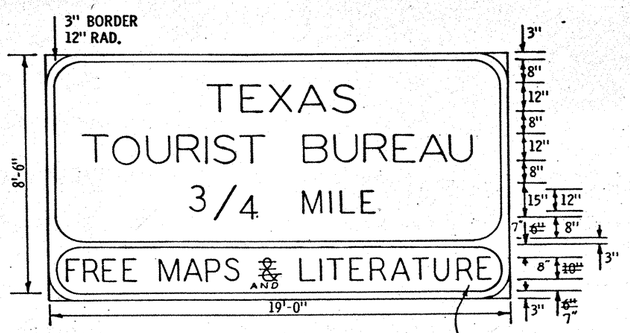
NOTES:

The background of all Tourist Bureau and Rest Area Signs shall be of interstate blue flat surface reflective sheeting and all legend and borders shall be reflectorized removable copy with white frames conforming with the specifications. See Standard Sheet IE (1) and IM (2) for additional details. The panel and background material shall be the same as the parent sign.

Sign 9 - Sheet 16 of 47



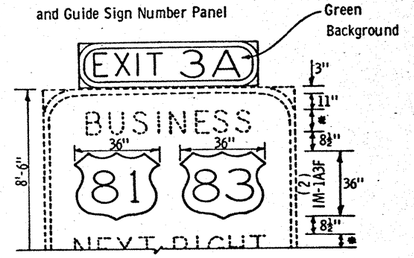
Sign 1 - Sheet 15 of 47



Sign 10 - Sheet 17 of 47

Spacing of Other Text on Parent Sign within 3" Borders.

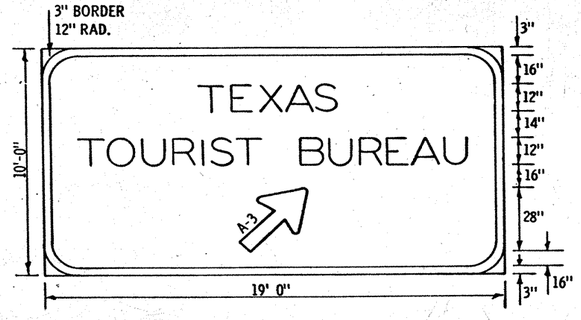
Text Spacing of Supplemental Guide Sign with Two New Route Marker Shields and Guide Sign Number Panel



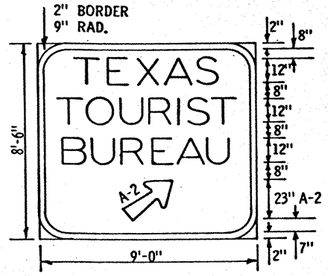
* Existing Text is to Remain in Place

At Sta. 217+00

Sign 9 - Sheet 15 of 47



Sign 7 - Sheet 16 of 47



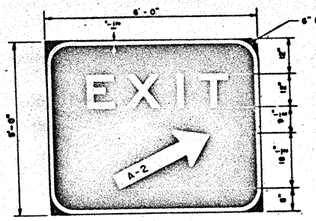
Sign 3 - Sheet 15 of 47
Sign 6 - Sheet 16 of 47

INTERSTATE GUIDE SIGNS

SHEET 2 OF 2 SHEETS

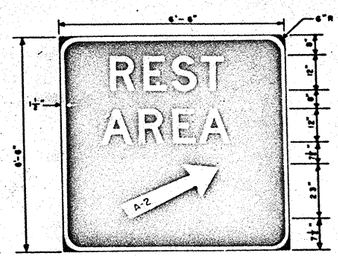
62

FED. RD. DIV. NO.	STATE	FEDERAL PROJ. NO.				SHT. NO.
6	TEXAS	I-35-1 (30) 002				62
STATE DIST.	COUNTY	CONT	SECT	JOB		HWY. NO.
21	WEBB	18	6/5	65/25		IH 35



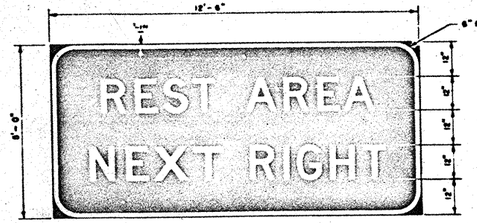
F1-1
6'-0" x 5'-0"

LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – GREEN REFLECTIVE



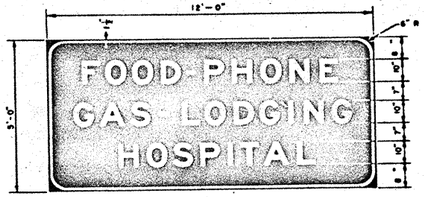
F21-1
6'-6" x 6'-6"

LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – BLUE REFLECTIVE



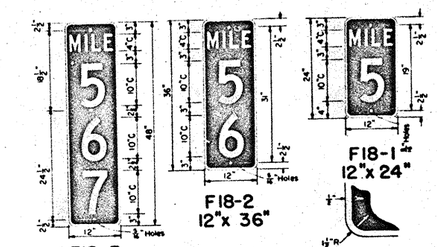
F21-2
12'-6" x 5'-0"

LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – BLUE REFLECTIVE

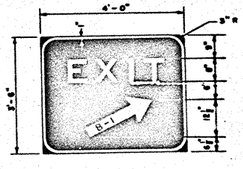


F22-5A
12'-0" x 5'-0"

LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – BLUE REFLECTIVE

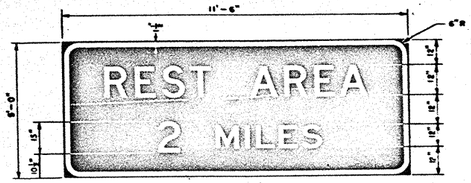


LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – GREEN REFLECTIVE
(LEGEND & BORDER NOT REMOVABLE)



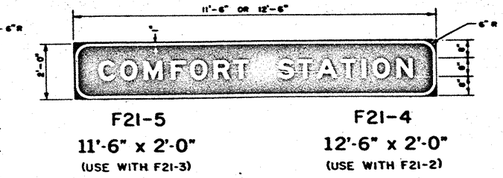
F1-2
4'-0" x 3'-6"

LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – GREEN REFLECTIVE



F21-3
11'-6" x 5'-0"

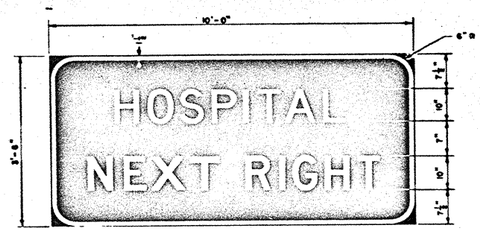
LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – BLUE REFLECTIVE



F21-5
11'-6" x 2'-0"
(USE WITH F21-3)

F21-4
12'-6" x 2'-0"
(USE WITH F21-2)

LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – BLUE REFLECTIVE



F22-6
10'-0" x 3'-6"

LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – BLUE REFLECTIVE

NOTE FOR IE6-1 AND IE6-6:

THE ADDITIONAL LEGEND "CAMPING" AND/OR APPROPRIATE DIRECTIONAL MESSAGE SUCH AS "SECOND RIGHT" MAY HAVE BEEN ADDED TO OR SUBSTITUTED DURING PLAN PREPARATION FOR ANY OF THE ABOVE LINES OF TEXT TO FIT INDIVIDUAL CONDITIONS. SEE THE GUIDE SIGN TABULATION SHEET FOR EXACT SIGN TEXT AND SIZE. THE LETTER SIZE AND SPACING SHOWN SHALL BE MAINTAINED.

GENERAL NOTES FOR GUIDE SIGNS

THE ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND WORDS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. THE LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

UNLESS OTHERWISE SPECIFIED, ALL LEGEND AND BORDERS FOR ALL GREEN AND BLUE BACKGROUND GUIDE SIGNS SHALL HAVE REFLECTORIZED REMOVABLE COPY WITH WHITE FRAMES CONFORMING WITH THE SPECIFICATIONS. DIMENSIONS SHOWN FOR REMOVABLE COPY BORDERS AND CORNER RADII ARE NOMINAL DIMENSIONS. HOWEVER, REMOVABLE COPY BORDERS MAY VARY IN WIDTH AS MUCH AS PLUS ONE-HALF INCH; LIKEWISE, CORNER RADII ABOVE THREE INCHES MAY ALSO VARY IN RADIUS PLUS OR MINUS ONE INCH. BORDERS AND CORNER RADII MUST BE OF MATCHING WIDTHS. THE SIGN AREA OUTSIDE THE CORNER RADIUS NEED NOT BE TRIMMED.

THE BACKGROUND OF GROUND MOUNTED GUIDE SIGNS SHALL BE OF INTERSTATE GREEN FLAT SURFACE REFLECTIVE SHEETING CONFORMING WITH THE SPECIFICATIONS. THE BACKGROUND OF GROUND MOUNTED REST AREA AND SERVICES GUIDE SIGNS SHALL BE OF INTERSTATE BLUE FLAT SURFACE REFLECTIVE SHEETING CONFORMING WITH THE SPECIFICATIONS. THE BACKGROUND OF OVERHEAD GUIDE SIGNS SHALL BE INTERSTATE GREEN PORCELAIN ENAMEL CONFORMING WITH THE SPECIFICATIONS, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.

ALL GROUND MOUNTED GUIDE SIGNS SHALL BE MADE OF 5/8" PLYWOOD (TYPE A) PANELS CONFORMING WITH THE SPECIFICATIONS, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.

UNLESS OTHERWISE SPECIFIED, ALL OVERHEAD GUIDE SIGNS SHALL BE MADE OF ALUMINUM PANELS WHICH HAVE GREEN PROCELAIN ENAMEL ON ONE SIDE CONFORMING WITH THE SPECIFICATIONS. THE ALUMINUM PANELS SHALL BE TYPE B (EXTRUDED) OR TYPE C (HONEYCOMB) AS SPECIFIED IN THE CONTRACT AWARD. THE ALUMINUM PANEL THICKNESS SHALL BE AS SHOWN ON STANDARD PLAN SHEET IM(2).

SIGNS (SUCH AS EXIT NUMBER PANELS OR COMFORT STATION PANELS) ATTACHED ABOVE OR BELOW A PARENT SIGN SHALL BE MADE OF THE SAME TYPE OF MATERIAL AS THE PARENT SIGN.

MOUNTING DETAILS FOR GROUND MOUNTED GUIDE SIGNS ARE SHOWN ON THE STANDARD PLAN SHEETS SMD SERIES. THE MOUNTING DETAIL FOR THE OVERHEAD SIGNS SHALL BE AS DETAILED ELSEWHERE IN THE PLANS OR THE SUPPLIER'S CHOICE SUBJECT TO APPROVAL BY THE ENGINEER.

GENERAL NOTES FOR SIGNS ON THIS SHEET

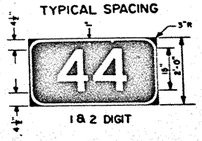
F6 TYPE NUMBER PANELS SHOWN ARE USUAL AND STANDARD SIZES. HOWEVER, INDIVIDUAL PANEL SIZES MAY HAVE BEEN ADJUSTED DURING PLAN PREPARATION TO FIT ACTUAL PARENT SIGN SIZES WHERE NECESSARY. PANEL SIZES TO BE FURNISHED SHOULD BE AS DETAILED ELSEWHERE IN THE PLANS AND/OR AS SHOWN ON THE SIGN TABULATION SHEETS. THE PANEL AND BACKGROUND MATERIAL SHALL BE THE SAME AS THE PARENT SIGN.

FOR F18 AND F24 TYPE SIGNS, THE BACKGROUND SHALL BE A REFLECTIVE MATERIAL ON ONE PIECE SHEET ALUMINUM ALLOY 0.080 INCH THICK CONFORMING WITH THE SPECIFICATION ITEM 704. THE F24 TYPE SIGNS SHALL BE ATTACHED TO THE GUIDE SIGN AS DETAILED ON STANDARD SHEET IM(2). THE F18 TYPE SIGN IS MOUNTED AS SHOWN ON STANDARD SHEET D & M(1).

EXIT SIGN NUMBER PANELS

LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – GREEN (SEE GENERAL NOTES)

TYPICAL SPACING



F6-2
3'-6" x 2'-0"

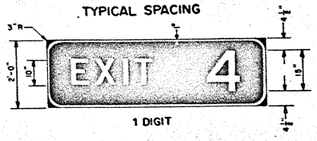
F6-3
5'-0" x 2'-0"

F6-4
6'-6" x 2'-0"

GUIDE SIGN NUMBER PANELS

LEGEND – WHITE REFLECTIVE
BORDER – WHITE REFLECTIVE
BACKGROUND – GREEN (SEE GENERAL NOTES)

TYPICAL SPACING



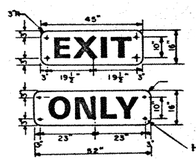
F6-E1
6'-0" x 2'-0"

F6-E4
10'-6" x 2'-0"

F6-E2
7'-6" x 2'-0"

F6-E5
13'-6" x 2'-0"

F6-E3
9'-0" x 2'-0"



LEGEND – SERIES D LETTERS

F24-2

LEGEND – BLACK
BACKGROUND – YELLOW REFLECTIVE
(LEGEND NOT REMOVABLE)

AREA = 10.78 SQ.FT.

F24-1

LEGEND – BLACK
BACKGROUND – YELLOW REFLECTIVE
(LEGEND NOT REMOVABLE)

AREA = 11.11 SQ FT.

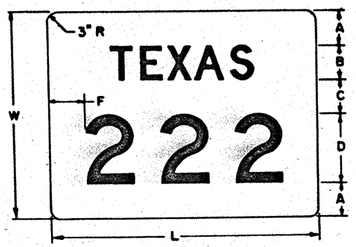
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

INTERSTATE GUIDE SIGNS

63

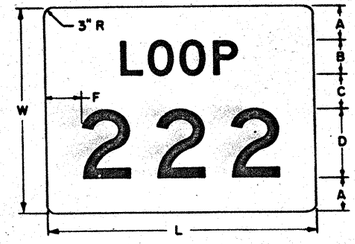
IE(1)

ORIGINAL DRAWING DATE: 7-72 esr	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT				SHEET
DN:- REVISIONS 10-73: notes & sign numbers	21		I 35-1(30)VOR				63
CK.:-	COUNTY		CONTROL	SECTION	JOB	HIGHWAY	
DW.:-	Webb		5	9 st	248	IH 35	
CK.:-							1

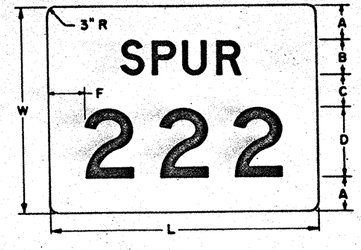


Sign Type	Digits	W
IM-2T1F	4	24
IM-2T2F	4	36
IM-2T3F	4	48
IM-2T4F	3	24
IM-2T5F	3	36
IM-2T6F	3	48
IM-2T7F	2	24
IM-2T8F	2	36
IM-2T9F	2	48
IM-2T10F	1	24
IM-2T11F	1	36
IM-2T12F	1	48

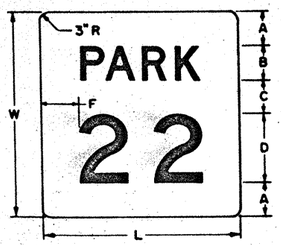
VERTICAL SPACING AT RIGHT →



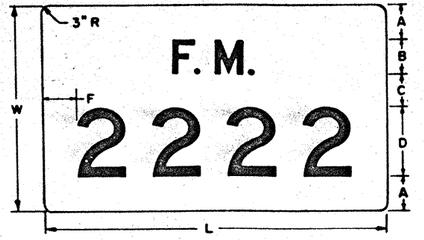
Sign Type	Digits	W
IM-2L1F	4	24
IM-2L2F	4	36
IM-2L3F	4	48
IM-2L4F	3	24
IM-2L5F	3	36
IM-2L6F	3	48
IM-2L7F	2	24
IM-2L8F	2	36
IM-2L9F	2	48
IM-2L10F	1	24
IM-2L11F	1	36
IM-2L12F	1	48



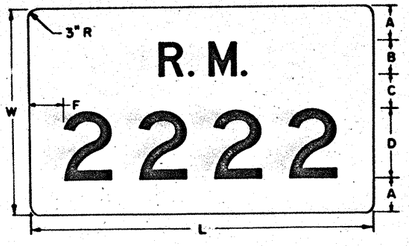
Sign Type	Digits	W
IM-2S1F	4	24
IM-2S2F	4	36
IM-2S3F	4	48
IM-2S4F	3	24
IM-2S5F	3	36
IM-2S6F	3	48
IM-2S7F	2	24
IM-2S8F	2	36
IM-2S9F	2	48
IM-2S10F	1	24
IM-2S11F	1	36
IM-2S12F	1	48



Sign Type	Digits	W
IM-2P1F	4	24
IM-2P2F	4	36
IM-2P3F	4	48
IM-2P4F	3	24
IM-2P5F	3	36
IM-2P6F	3	48
IM-2P7F	2	24
IM-2P8F	2	36
IM-2P9F	2	48
IM-2P10F	1	24
IM-2P11F	1	36
IM-2P12F	1	48



Sign Type	Digits	W
IM-2F1F	4	24
IM-2F2F	4	36
IM-2F3F	4	48
IM-2F4F	3	24
IM-2F5F	3	36
IM-2F6F	3	48
IM-2F7F	2	24
IM-2F8F	2	36
IM-2F9F	2	48
IM-2F10F	1	24
IM-2F11F	1	36
IM-2F12F	1	48



Sign Type	Digits	W
IM-2R1F	4	24
IM-2R2F	4	36
IM-2R3F	4	48
IM-2R4F	3	24
IM-2R5F	3	36
IM-2R6F	3	48
IM-2R7F	2	24
IM-2R8F	2	36
IM-2R9F	2	48
IM-2R10F	1	24
IM-2R11F	1	36
IM-2R12F	1	48

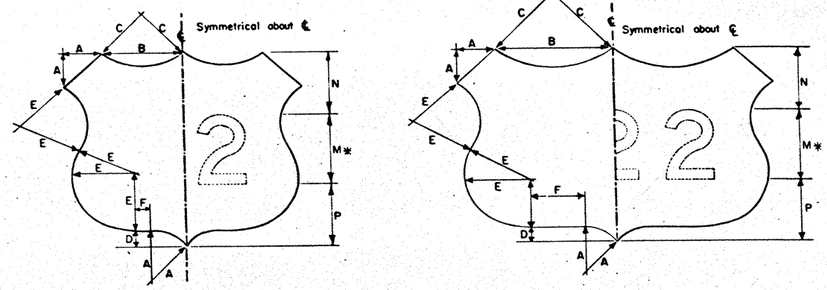
F (minimum): $5\frac{1}{2}$" for 12" numeral
$8\frac{1}{2}$" for 18" numeral
11" for 24" numeral

L: Variable with the number of digits; however, total marker length shall be adjusted to nearest 1" multiple.

VERTICAL SPACING FOR STATE ROUTE MARKERS

W	A	B	C	D
24	$2\frac{1}{2}$	4	3	12
36	4	6	4	18
48	5	8	6	24

STATE ROUTE MARKERS FOR GUIDE SIGN USE

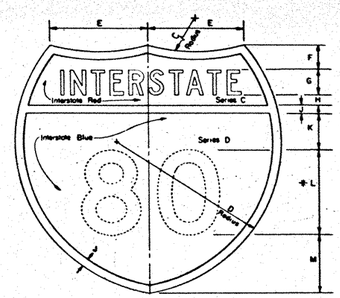


	SIZE	A	B	C	D	E	F	M*	N	P	AREA
IM-1A1F	12" NUMERALS 2 DIGIT	24x24	5	7	5	2	7	1	12	$5\frac{1}{2}$	$6\frac{1}{2}$	3.18
IM-1A2F	12" NUMERALS 3 DIGIT	30x24	5	10	9	2	7	4	12	$5\frac{1}{2}$	$6\frac{1}{2}$	4.05
IM-1A3F	18" NUMERALS 2 DIGIT	36x36	$7\frac{1}{2}$	$10\frac{1}{2}$	$7\frac{1}{2}$	3	$10\frac{1}{2}$	$1\frac{1}{2}$	18	$8\frac{1}{4}$	$9\frac{3}{4}$	7.15
IM-1A4F	18" NUMERALS 3 DIGIT	45x36	$7\frac{1}{2}$	15	$13\frac{1}{2}$	3	$10\frac{1}{2}$	6	18	$8\frac{1}{4}$	$9\frac{3}{4}$	9.11
IM-1A5F	24" NUMERALS 2 DIGIT	48x48	10	14	10	4	14	2	24	11	13	12.70
IM-1A6F	24" NUMERALS 3 DIGIT	60x48	10	20	18	4	14	8	24	11	13	16.20

ALL LENGTHS SHOWN ARE IN INCHES, ALL AREAS ARE IN SQUARE FEET.

NOTES:
1. DIMENSIONS FOR THE U.S. ROUTE MARKER OUTLINES ARE SCALE DIMENSIONS AND MAY BE ADJUSTED SLIGHTLY WHERE NECESSARY FOR CLOSURE OF THE OUTLINES.
2. *. IN A FEW CASES NUMERALS CANNOT BE ACCOMMODATED WITHIN THE SPACE AVAILABLE. FOR THESE CASES, THE STANDARD SERIES D MAY BE REDUCED TO SERIES C, OR AS A SECOND CHOICE REDUCED TO THE NEXT SMALLER HEIGHT COMMONLY AVAILABLE.

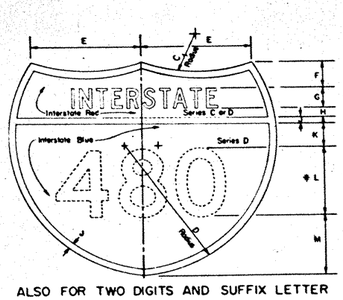
US. ROUTE MARKERS FOR GUIDE SIGN USE



IM - GG
36" x 36"

IM - HH
48" x 48"

LETTERS - WHITE REFLECTIVE
NUMERALS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND (UPPER PORTION) - RED REFLECTIVE
BACKGROUND (LOWER PORTION) - BLUE REFLECTIVE

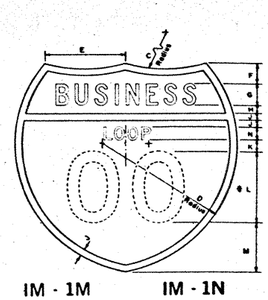


ALSO FOR TWO DIGITS AND SUFFIX LETTER

IM - JJ
45"x 36"

IM - KK
60"x 48"

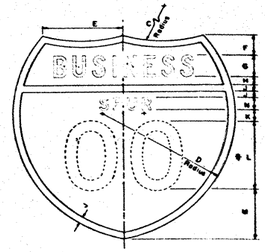
LETTERS - WHITE REFLECTIVE
NUMERALS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND (UPPER PORTION) - RED REFLECTIVE
BACKGROUND (LOWER PORTION) - BLUE REFLECTIVE



IM - 1M
36" x 36"

IM - 1N
48" x 48"

LETTERS - WHITE REFLECTIVE
NUMERALS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE



IM - 1R
36" x 36"

IM - 1S
48" x 48"

LETTERS - WHITE REFLECTIVE
NUMERALS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

* IN A FEW CASES NUMERALS CANNOT BE ACCOMMODATED WITHIN THE SPACE AVAILABLE. FOR THESE CASES, THE STANDARD SERIES D MAY BE REDUCED TO SERIES C, OR AS A SECOND CHOICE REDUCED TO THE NEXT SMALLER HEIGHT COMMONLY AVAILABLE.

			SIZE	C	D	E	F	G	H	J	K	L*	M	N	AREA
INTERSTATE	IM-GG	18" NUMERALS 2 DIGIT	36x36	$22\frac{1}{2}$	$22\frac{1}{2}$	$13\frac{1}{8}$	3	$3\frac{3}{4}$C	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{2}$	18D	$8\frac{1}{4}$	—	7.18
	IM-HH	24" NUMERALS 2 DIGIT	48x48	30	30	$17\frac{3}{8}$	4	5C	1	1	2	24D	11	—	12.76
	IM-JJ	18" NUMERALS 3 DIGIT	45x36	36	$25\frac{1}{2}$	$20\frac{1}{8}$	3	$3\frac{3}{4}$C	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{2}$	18D	$8\frac{1}{4}$	—	9.41
	IM-KK	24" NUMERALS 3 DIGIT	60x48	48	34	$26\frac{7}{8}$	4	5D	1	1	2	24D	11	—	16.74
BUSINESS LOOP SPUR	IM-1M	18" NUMERALS 2 DIGIT	36x36	$22\frac{1}{2}$	$22\frac{1}{2}$	$13\frac{1}{8}$	3	$3\frac{3}{4}$C	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	15D	9	$2\frac{1}{2}$D	7.18
	IM-1N	24" NUMERALS 2 DIGIT	48x48	30	30	$17\frac{3}{8}$	4	5C	1	1	1	20D	12	3D	12.76
	IM-1R	18" NUMERALS 2 DIGIT	36x36	$22\frac{1}{2}$	$22\frac{1}{2}$	$13\frac{1}{8}$	3	$3\frac{3}{4}$C	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	15D	9	$2\frac{1}{2}$D	7.18
	IM-1S	24" NUMERALS 2 DIGIT	48x48	30	30	$17\frac{3}{8}$	4	5C	1	1	1	20D	12	3D	12.76

ALL LENGTHS SHOWN ARE IN INCHES, ALL AREAS ARE IN SQUARE FEET.

INTERSTATE ROUTE MARKERS FOR GUIDE SIGN USE

GENERAL NOTES:

THE ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMBERALS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

THE FACE OF ALL U.S. AND STATE ROUTE MARKERS SHALL BE WHITE REFLECTIVE SHEETING CONFORMING WITH THE SPECIFICATION ITEM 716. THE LETTERS AND NUMERALS FOR THE U.S. AND STATE ROUTE MARKERS SHALL BE BLACK AND APPLIED TO THE REFLECTIVE MATERIAL BY THE SILK SCREEN PROCESS. THE SIGN BLANKS SHALL BE ONE PIECE SHEET ALUMINUM ALLOY 0.063 INCH THICK CONFORMING WITH THE SPECIFICATION ITEM 704.

THE FACE OF ALL INTERSTATE ROUTE MARKERS SHALL HAVE COLORED TRANSPARENT INK APPLIED OVER FLAT SURFACE REFLECTIVE SHEETING BY THE REVERSE SCREEN PROCESS. THE SIGN BLANKS SHALL BE ONE PIECE SHEET ALUMINUM ALLOY 0.063 INCH THICK CONFORMING WITH THE SPECIFICATION ITEM 704.

ALL SIGN BLANKS ON THIS SHEET SHALL BE ATTACHED TO THE GUIDE SIGN AS DETAILED ON STANDARD SHEET IM(2).

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

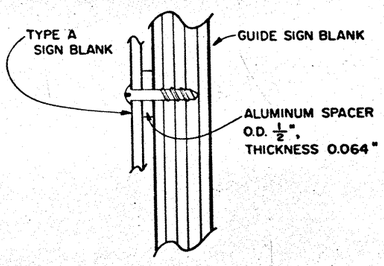
INTERSTATE, U.S. AND STATE ROUTE MARKERS 64

FOR ATTACHMENT TO GUIDE SIGNS

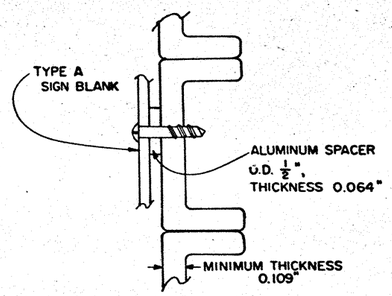
IM(1)

ORIGINAL DRAWING DATE: 7-72 esr	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
REVISIONS 8-73: notes and borders	21		F 35-1(36) 002	2
DN:-- CK:-- DW:-- CK:--	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
	WEBB	18	33	41	7

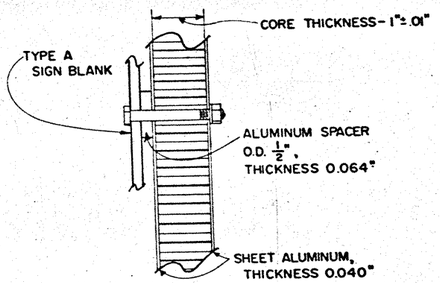
TYPICAL ATTACHMENT OF ROUTE MARKERS AND "EXIT ONLY" PANELS TO GUIDE SIGNS
DETAIL OF THICKNESSES FOR ALUMINUM TYPES B, C, E, G, K, AND L



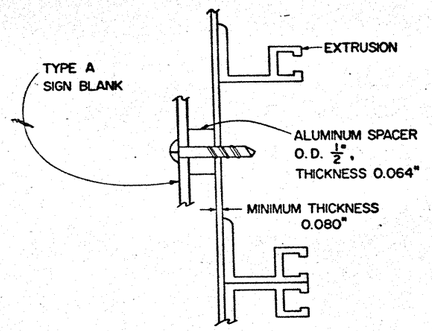
PLYWOOD GUIDE SIGN
($\frac{5}{8}$" TYPE A)



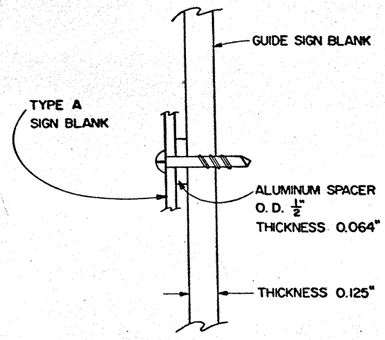
TYPE B AND E GUIDE SIGNS
(EXTRUDED ALUMINUM PANELS)



TYPE C AND G GUIDE SIGNS
(SHEET ALUMINUM HONEYCOMB PANELS)



TYPE K GUIDE SIGN
(EXTRUSHEET ALUMINUM PANELS)



TYPE L GUIDE SIGN
(MULTI-INCREMENT ALUMINUM PANELS)

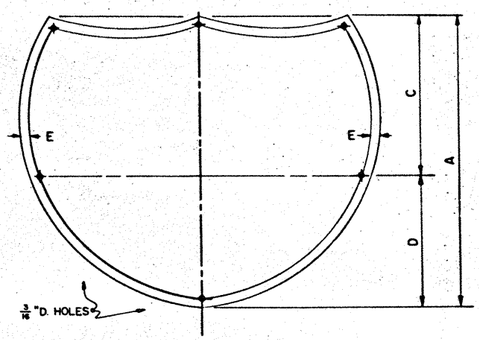
NOTES

(1) ROUTE MARKERS ATTACHED TO GUIDE SIGNS SHALL BE TYPE A ALUMINUM, AS REQUIRED BY THE PLANS. SKETCHES SHOWN ABOVE ARE EXAMPLES ONLY.

(2) SCREWS OR BOLTS, NUTS AND WASHERS SHALL BE EITHER STAINLESS STEEL, GALVANIZED STEEL, OR ALUMINUM.

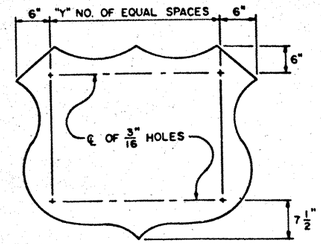
(3) ROUTE MARKERS ON "EXIT ONLY" PANELS SHALL BE ATTACHED TO PLYWOOD AND ALUMINUM TYPE B, E, K AND L SIGNS WITH SCREWS OF SUFFICIENT LENGTH TO HOLD THE BLANK FIRMLY IN PLACE. THE SCREWS FOR PLYWOOD SIGNS SHALL NOT PROTRUDE THROUGH THE BACK OF THE SIGN. ALL HOLES REQUIRED IN THE PUNCHING DETAIL OF THE BLANK SHALL HAVE SCREWS.

(4) ROUTE MARKERS OR "EXIT ONLY" PANELS SHALL BE ATTACHED TO ALUMINUM SIGNS TYPE C OR G BY 1/8" DIAMETER SLOTTED ROUND HEAD BOLTS WHICH PASS THROUGH THE GUIDE SIGN BLANK AND ARE SECURED WITH WASHERS AND NUTS ON THE BACK SIDE. PROJECTING THREADS SHALL BE BURRED TO PREVENT LOOSENING OF THE NUT.



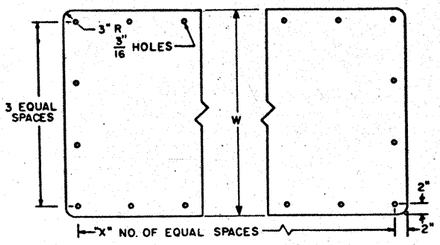
A	C	D	E
36	21	15	1 1/2
48	28	20	1 3/4

INTERSTATE ROUTE MARKERS



Sign Type	"Y"
IM-1A1F	2
IM-1A2F	3
IM-1A3F	3
IM-1A4F	4
IM-1A5F	4
IM-1A6F	5

U.S. ROUTE MARKERS

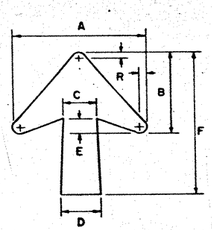


NO. OF DIGITS	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

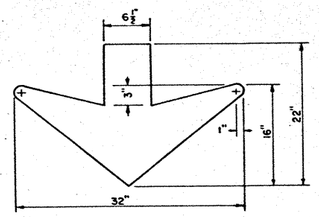
FOR ALL 1 & 2 DIGIT SIGNS "X" IS 3.

STATE ROUTE MARKERS

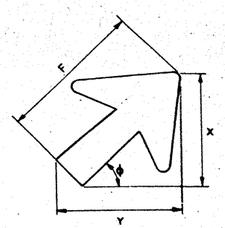
SIGN BLANK PUNCHING DETAILS FOR ROUTE MARKERS WHEN ATTACHED TO GUIDE SIGN



Type A
or
Type B



Type C



CODE	LETTER SIZE	ARROW DIMENSIONS IN INCHES							ϕ = 30°		ϕ = 45°		ϕ = 60°	
		A	B	C	D*	E	F*	R	X	Y	X	Y	X	Y
A-1	8" Cap	15 1/8	11 9/16	3 3/4	5	1 5/16	24 1/4	13/16	15 5/8	22 1/4	19 1/8	19 1/8	22 3/8	15 5/8
A-2	13 1/3" U.C., 10-12" Cap	18 1/4	14	4 1/2	6	1 1/2	29 1/4	3/4	18 1/2	27	23	23	27	19
A-3	16" U.C.	22 1/4	17	5 3/8	7 1/8	1 3/4	35 5/8	1	22 5/8	32 3/4	28	28	32 3/4	22 3/4
B-1	8"-10" Cap	14 1/4	9 13/16	3 3/8	4 1/2	1 5/16	17 1/4	3/4	12 1/2	16 1/4	14	14	16 1/8	12 1/2
B-2	13 1/3" U.C., 12" Cap	17 1/2	11 3/4	4 3/8	5 5/8	1 1/2	20 1/4	7/8	15 1/2	19 1/8	16 5/8	16 5/8	19	15 1/2
B-3	16" U.C.	21 7/8	14 1/4	5	6 3/4	1 3/4	25	1	19 1/8	23 1/2	20 3/8	20 3/8	23 1/2	19 1/4

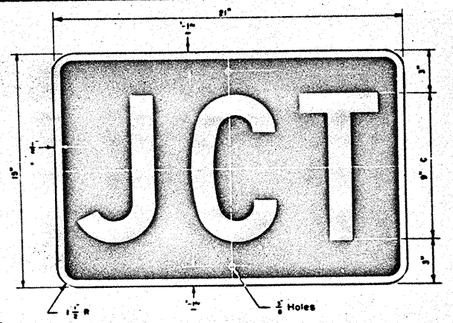
WHERE A REMOVABLE REFLECTORIZED ARROW IS REQUIRED ON A GREEN GUIDE SIGN WHICH HAS A DEPTH OF 2' - 0" AND WHICH IS USUALLY ERECTED ON RAMPS AND CROSSROADS AT INTERCHANGES, THE ARROW SHALL BE A TYPE B - 1.

* RECOMMENDED DIMENSIONS: TAPER SHOULD BE HELD CONSTANT FOR LONGER OR SHORTER SHAFT LENGTHS.

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION

INTERSTATE, U.S. AND STATE ROUTE MARKERS 65
FOR ATTACHMENT TO GUIDE SIGNS
IM(2)

ORIGINAL DRAWING DATE: 7-72		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DN:-- CK.:-- DW:-- CK.:--	REVISIONS 10-73: types K & L added	21		I35-1(35)062		65
		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
		WASH		5	35	403	I-35

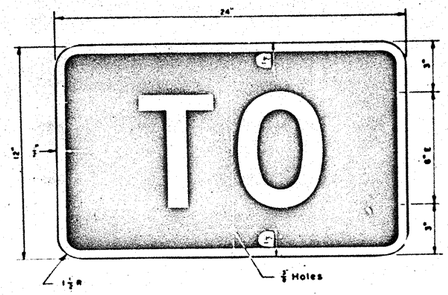


IM2 - 1B
21" x 15"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM2 - 1G
21" x 15"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

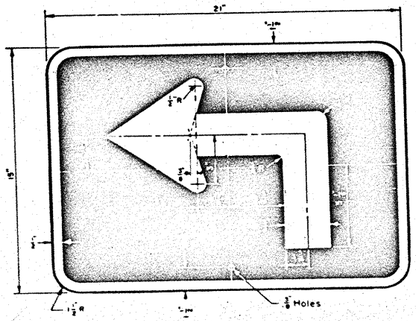


IM7 - 1B
24" x 12"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM7 - 1G
24" x 12"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

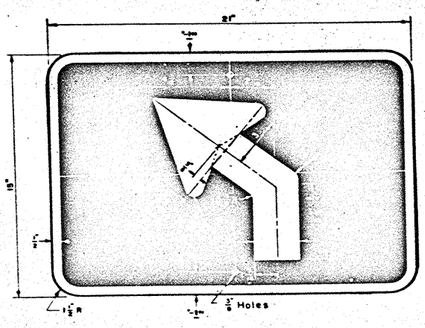


IM3 - 1BL (AS SHOWN)
IM3 - 1BR (OPP. HAND)
21" x 15"

SYMBOL - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM3 - 1GL
IM3 - 1GR
21" x 15"

SYMBOL - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

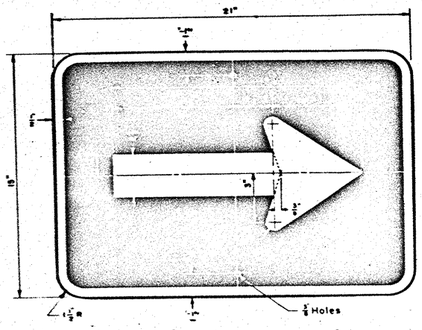


IM3 - 2BL (AS SHOWN)
IM3 - 2BR (OPP. HAND)
21" x 15"

SYMBOL - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM3 - 2GL
IM3 - 2GR
21" x 15"

SYMBOL - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

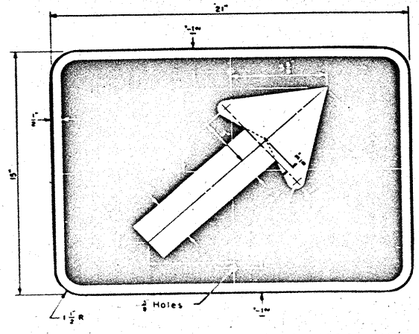


IM4 - 1B
21" x 15"

SYMBOL - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM4 - 1G
21" x 15"

SYMBOL - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

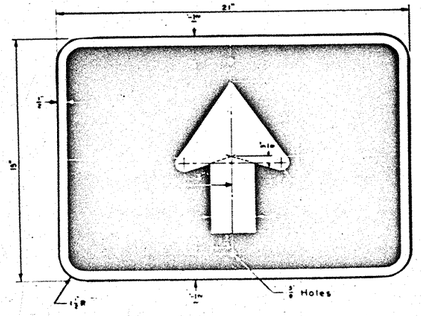


IM4 - 2BR (AS SHOWN)
IM4 - 2BL (OPP. HAND)
21" x 15"

SYMBOL - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM4 - 2GR
IM4 - 2GL
21" x 15"

SYMBOL - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

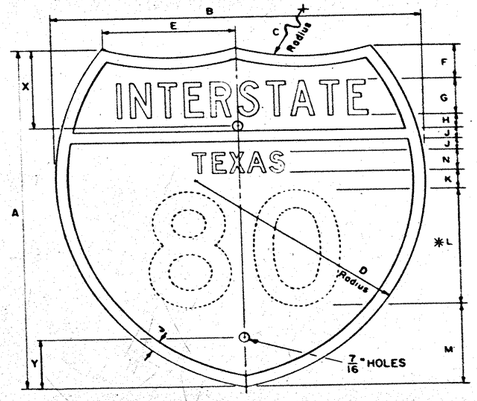


IM4 - 3B
21" x 15"

SYMBOL - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM4 - 3G
21" x 15"

SYMBOL - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE



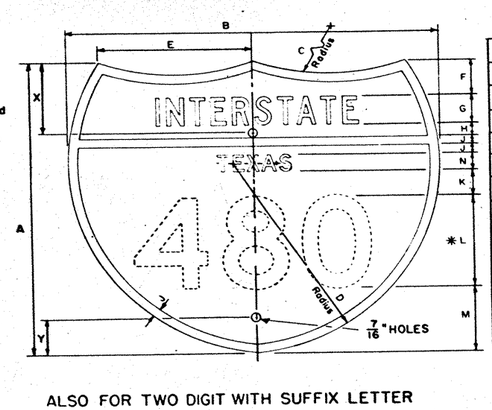
IM - BB
24" x 24"
X=4¾" Y=4"

IM - CC
36" x 36"
X=7⅛" Y= 6"

	IM-BB 10" NUMERALS 2 DIGITS	IM-CC 15" NUMERALS 2 DIGITS
A	24	36
B	24	36
C	15	22-1/2
D	15	22-1/2
E	8-7/8	13-1/8
F	2	3
G	2-1/2C	3-3/4C
H	1/2	3/4
J	1/2	3/4
K	1/2	3/4
*L	10D	15D
M	6	9
N	1-1/2 D	2-1/4 D
AREA	3.19	7.18

* NOTE: In a few cases numerals cannot be accommodated within the available space. For these cases, the standard series D numeral may be reduced to series C, or as a second choice to the next smaller height commonly available.

LETTERS - WHITE REFLECTIVE
NUMERALS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND (UPPER PORTION) - RED REFLECTIVE
BACKGROUND (LOWER PORTION) - BLUE REFLECTIVE



ALSO FOR TWO DIGIT WITH SUFFIX LETTER

IM - EE
30"x 24"
X=4¾" Y=4"

IM - FF
45"x 36"
X=7⅛" Y=6"

LETTERS - WHITE REFLECTIVE
NUMERALS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND (UPPER PORTION) - RED REFLECTIVE
BACKGROUND (LOWER PORTION) - BLUE REFLECTIVE

	IM-EE 10" NUMERALS 3 DIGIT	IM-FF 15" NUMERALS 3 DIGIT
A	24	36
B	30	45
C	24	36
D	17	25-1/2
E	13-3/8	20-1/8
F	2	3
G	2-1/2 C	3-3/4C
H	1/2	3/4
J	1/2	3/4
K	1/2	3/4
*L	10D	15D
M	6	9
N	1-1/2D	2-1/4D
AREA	4.18	9.41

GENERAL NOTES:

ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

SIGNS SHALL HAVE COLORED TRANSPARENT INK OVER FLAT SURFACE REFLECTIVE SHEETING USING THE REVERSE SCREEN PROCESS.

THE SIGN BLANKS SHALL BE ONE PIECE SHEET ALUMINUM ALLOY 0.080 INCH THICK CONFORMING WITH THE SPECIFICATION ITEM 704, EXCEPT IM-FF SHALL BE ONE PIECE SHEET ALUMINUM ALLOY 0.100 INCH THICK CONFORMING WITH THE SPECIFICATION ITEM 704.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

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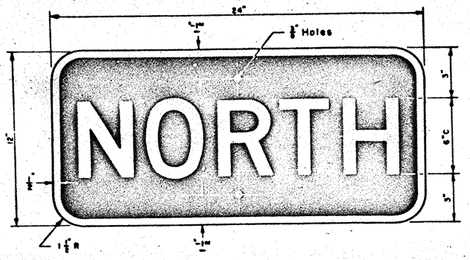
INTERSTATE MARKERS
FOR INDEPENDENT MOUNTING

IM(3)

ORIGINAL DRAWING DATE: 7-72 esr		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT				SHEET
DN:- CK:- DW:- CK:-	REVISIONS 10-73: notes	21		I-35-1(37)262				66
		COUNTY		CONTROL	SECTION	JOB	HIGHWAY	
		TRAVIS		5	3	4	[illegible]	
								4

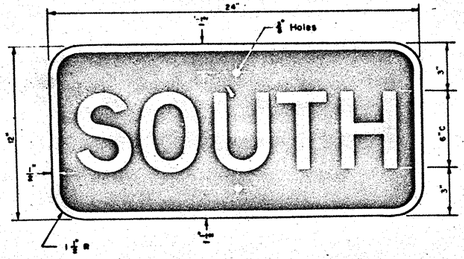


IM6 - 1BN
24 x 12"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM6 - 1GN
24" x 12"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

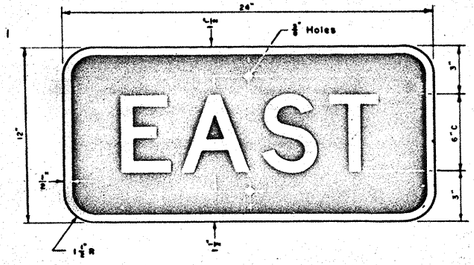


IM6 - 1BS
24" x 12"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM6 - 1GS
24" x 12"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

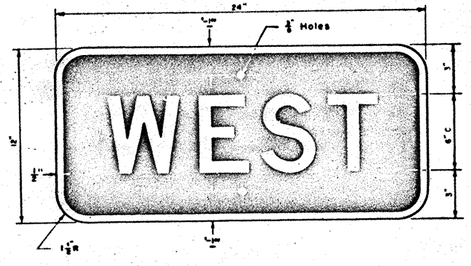


IM6 - 1BE
24" x 12"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM6 - 1GE
24" x 12"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

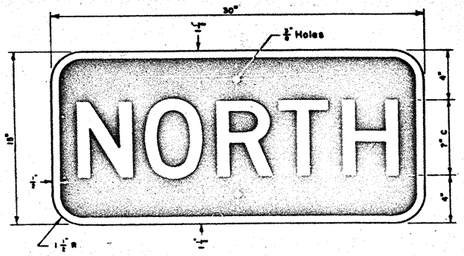


IM6 - 1BW
24" x 12"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM6 - 1GW
24" x 12"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

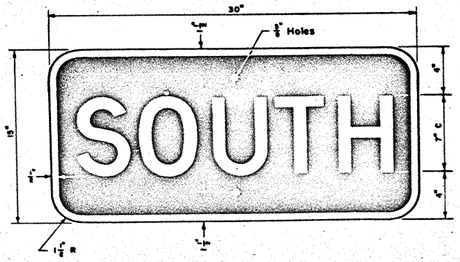


IM6 - 2BN
30" x 15"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM6 - 2GN
30" x 15"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

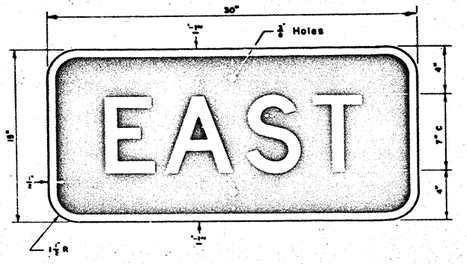


IM6 - 2BS
30" x 15"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM6 - 2GS
30" x 15"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

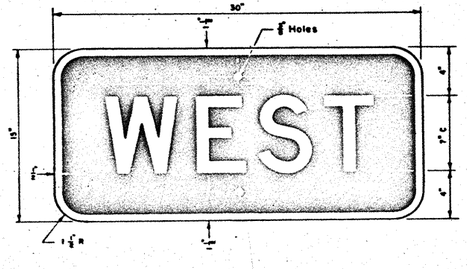


IM6 - 2BE
30" x 15"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM6 - 2GE
30" x 15"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE



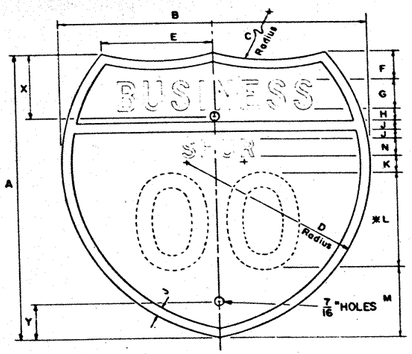
IM6 - 2BW
30" x 15"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - BLUE REFLECTIVE

IM6 - 2GW
30" x 15"

LETTERS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

* NOTE: In a few cases numerals cannot be accommodated within the space available. For these cases, the standard series D numeral may be reduced to series C, or as a second choice to the next smaller height commonly available.

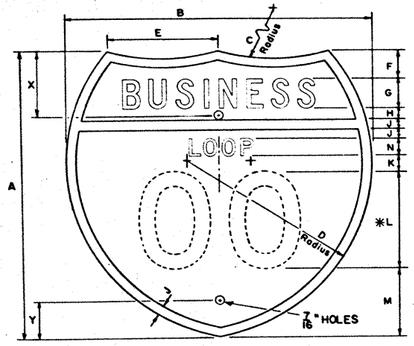


	IM-2P 10" NUMERALS 2 DIGITS	IM-2R 15" NUMERALS 2 DIGITS
A	24	36
B	24	36
C	15	22-1/2
D	15	22-1/2
E	8-7/8	13-1/8
F	2	3
G	2-1/2 C	3-3/4 C
H	1/2	3/4
J	1/2	3/4
K	1/2	3/4
*L	10D	15D
M	6	9
N	1-1/2D	2-1/4D
AREA	3.19	7.18

IM - 2P
24" x 24"
X = 4 3/4" Y = 4

IM - 2R
36" x 36"
X = 7 1/8" Y = 6"

LETTERS - WHITE REFLECTIVE
NUMERALS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE



	IM-2L 10" NUMERALS 2 DIGITS	IM-2M 15" NUMERALS 2 DIGITS
A	24	36
B	24	36
C	15	22-1/2
D	15	22-1/2
E	8-7/8	13-1/8
F	2	3
G	2-1/2 C	3-3/4 C
H	1/2	3/4
J	1/2	3/4
K	1/2	3/4
*L	10 D	15 D
M	6	9
N	1-1/2 D	2-1/4 D
AREA	3.19	7.18

IM - 2L
24" x 24"
X = 4 3/4" Y = 4"

IM - 2M
36" x 36"
X = 7 1/8" Y = 6"

LETTERS - WHITE REFLECTIVE
NUMERALS - WHITE REFLECTIVE
BORDER - WHITE REFLECTIVE
BACKGROUND - GREEN REFLECTIVE

GENERAL NOTES:

ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

SIGNS SHALL HAVE COLORED TRANSPARENT INK OVER FLAT SURFACE REFLECTIVE SHEETING USING THE REVERSE SCREEN PROCESS.

THE SIGN BLANKS SHALL BE ONE PIECE SHEET ALUMINUM ALLOY 0.080 INCH THICK CONFORMING WITH THE SPECIFICATION ITEM 704.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

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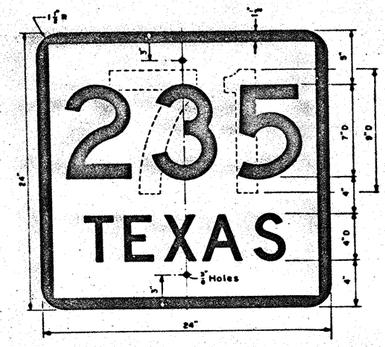
INTERSTATE MARKERS

FOR INDEPENDENT MOUNTING

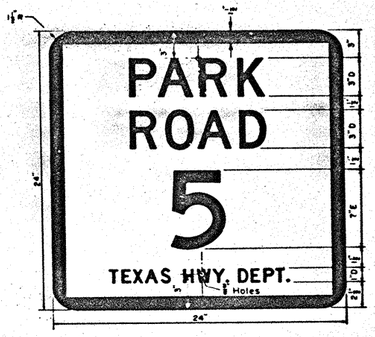
IM(4)

ORIGINAL DRAWING DATE: 7-72 esr	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN:-- REVISIONS 10-73: notes & sign borders	21		I-35-1(38)202	5
CK:--	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
DW:--	WEBB	15	1		
CK:--					



M1-6T
24" x 24"

LETTERS - BLACK
NUMERALS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE

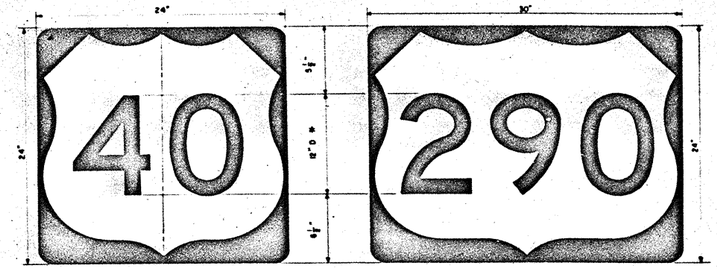


M1 - 6P
24" x 24"

LETTERS - BLACK
NUMERALS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE

M1-4A2
24" x 24"

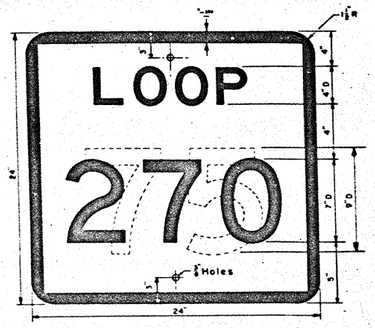
NUMERALS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



* In a few cases numerals cannot be accommodated within the space available. For these situations, the standard Series D numeral may be reduced to Series C, or as a second choice to the next height commonly available.

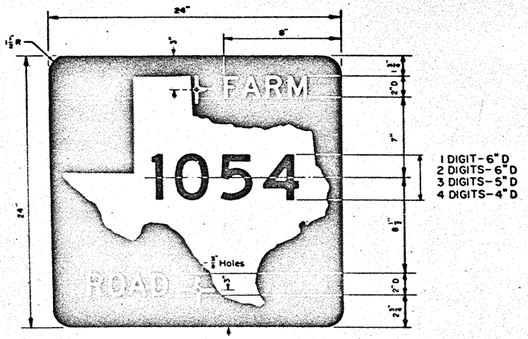
M1-4A3
30" x 24"

NUMERALS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



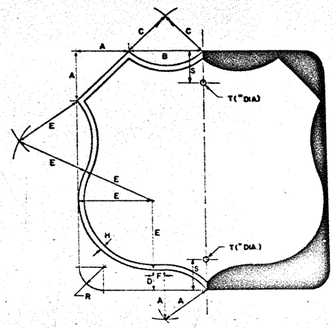
M1 - 6L
24" x 24"

LETTERS - BLACK
NUMERALS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



M1 - 6F
24" x 24"

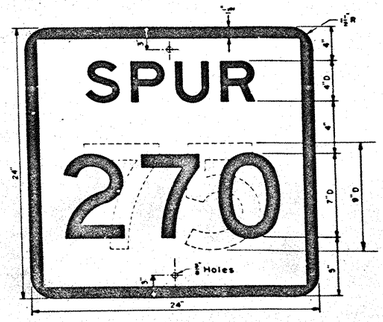
LETTERS - WHITE REFLECTIVE
NUMERALS - BLACK
SYMBOL - WHITE REFLECTIVE
BACKGROUND - BLACK



		A	B	C	D	E	F	H	R	S	T
M1-4A2	24 x 24 2 DIGIT	5	7	5	2	7	1	1/2	1 1/2	3	3/8
M1-4A3	30 x 24 3 DIGIT	5	10	9	2	7	4	1/2	1 1/2	3	3/8

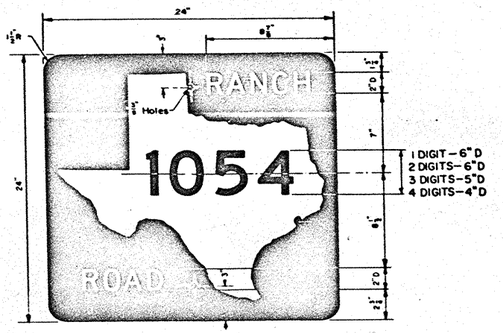
ALL DIMENSIONS SHOWN ARE IN INCHES

NOTE : DIMENSIONS FOR THE U.S. ROUTE MARKER OUTLINES ARE SCALE DIMENSIONS AND MAY BE ADJUSTED SLIGHTLY WHERE NECESSARY FOR CLOSURE OF THE OUTLINES.



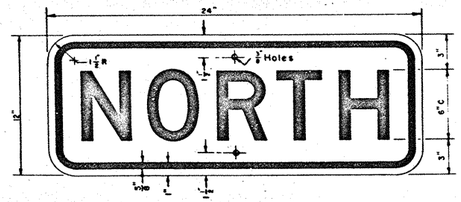
M1 - 6S
24" x 24"

LETTERS - BLACK
NUMERALS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



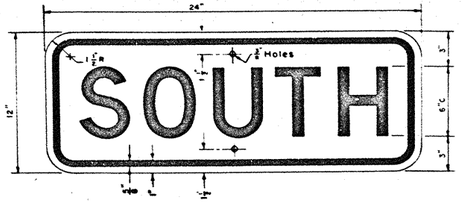
M1 - 6R
24" x 24"

LETTERS - WHITE REFLECTIVE
NUMERALS - BLACK
SYMBOL - WHITE REFLECTIVE
BACKGROUND - BLACK



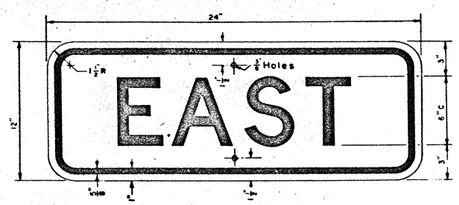
M6 - 1N
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



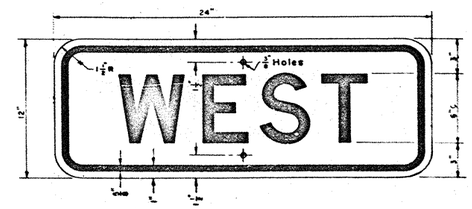
M6 - 1S
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



M6 - 1E
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



M6 - 1W
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE

GENERAL NOTES:

ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

SIGN BACKGROUNDS SHALL BE OF FLAT SURFACE REFLECTIVE SHEETING CONFORMING TO THE SPECIFICATIONS. THE LETTERS, NUMERALS AND BACKGROUND OF M1-4A2, M1-4A3, M1-6F AND M1-6R SHALL BE APPLIED BY THE REVERSE SCREEN PROCESS. FOR THE OTHER SIGNS, THE LETTERS, NUMERALS, AND BORDERS SHALL BE APPLIED TO THE REFLECTIVE MATERIAL BY THE SILK SCREEN PROCESS.

M1-4A2, M1-4A3, M1-6T, M1-6L, M1-6S, M1-6P, M1-6F AND M1-6R ROUTE MARKERS ARE TO BE USED AS CONFIRMING AND REASSURANCE ROUTE MARKERS AND AS COMPONENT PARTS OF A JUNCTION, ROUTE TURN, DIRECTIONAL, OR TRAILBLAZER ASSEMBLY.

FOR THE M1-6F AND M1-6R ROUTE MARKERS, A PRINT OF THE TEXAS STATE OUTLINE MAY BE OBTAINED FROM THE TEXAS HIGHWAY DEPARTMENT TO BE USED FOR MAKING A STENCIL.

THE SIGN BLANKS SHALL BE ONE PIECE SHEET ALUMINUM ALLOY 0.080 INCH THICK CONFORMING WITH THE SPECIFICATION ITEM 704.

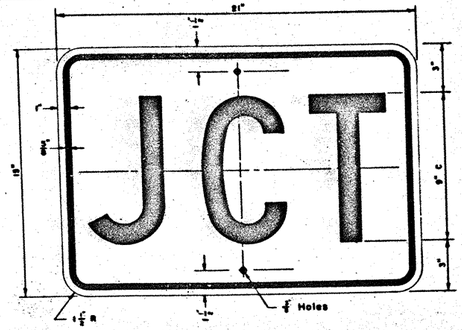
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

U.S. & STATE MARKERS 68

FOR INDEPENDENT MOUNTING

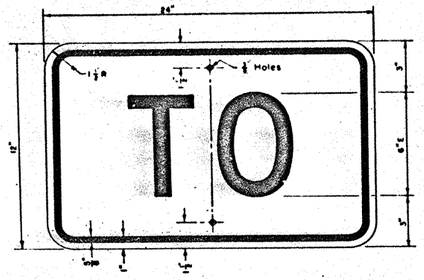
M(1)

ORIGINAL DRAWING DATE: 7-72 esr		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
D.H.-	REVISIONS 10-73 : notes & sign borders	21		I 35-1(30)002		GB
C.K.-		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
D.E.-		WEBB		18	3	68	I-35
C.K.-							6



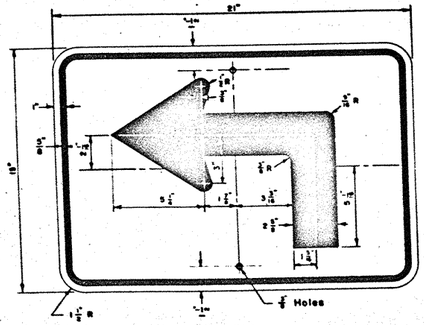
M2 - 1
21" x 15"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



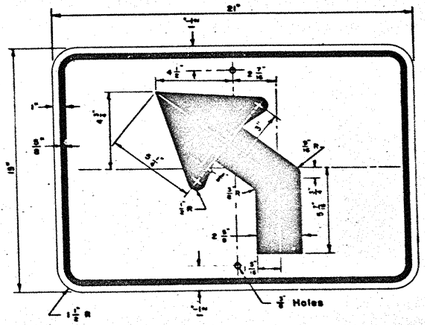
M7 - 1
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



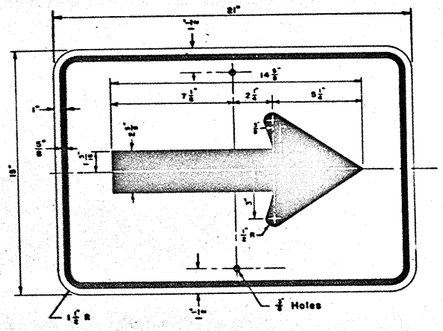
M3 - 1L (AS SHOWN)
M3 - 1R (OPP. HAND)
21" x 15"

SYMBOL - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



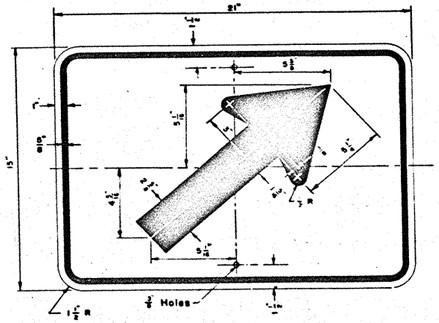
M3 - 2L (AS SHOWN)
M3 - 2R (OPP. HAND)
21" x 15"

SYMBOL - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



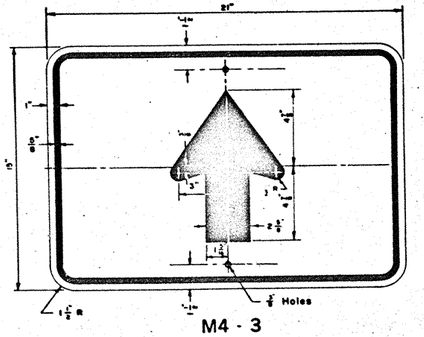
M4 - 1
21" x 15"

SYMBOL - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



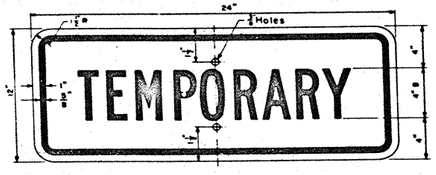
M4 - 2R (AS SHOWN)
M4 - 2L (OPP. HAND)
21" x 15"

SYMBOL - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



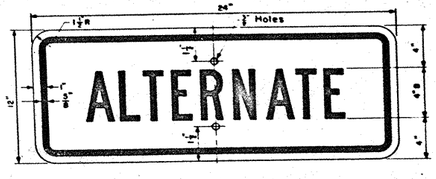
M4 - 3
21" x 15"

SYMBOL - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



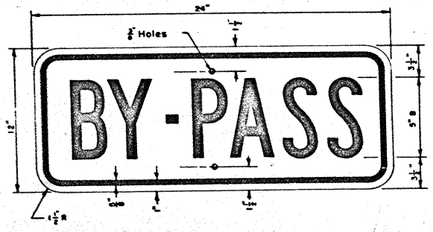
M5 - 1
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



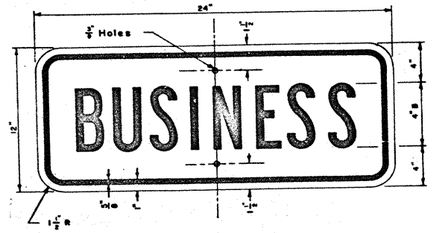
M5 - 2
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



M5 - 3
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



M5 - 5
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE

GENERAL NOTES:

ALPHABETS AND LATERAL SPACING BETWEEN LETTERS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

THE SIGN BACKGROUND SHALL BE OF FLAT SURFACE REFLECTIVE SHEETING, CONFORMING WITH THE SPECIFICATIONS.

THE LETTERS, ARROWS, AND BORDER SHALL BE APPLIED DIRECTLY TO THE SURFACE OF THE REFLECTIVE MATERIAL BY THE SILK SCREEN PROCESS.

THE SIGN BLANKS SHALL BE ONE PIECE SHEET ALUMINUM ALLOY 0.080 INCH THICK CONFORMING WITH THE SPECIFICATION ITEM 704.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

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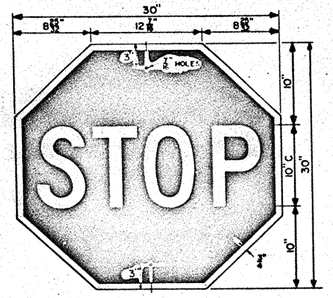
U.S. & STATE MARKERS
FOR INDEPENDENT MOUNTING

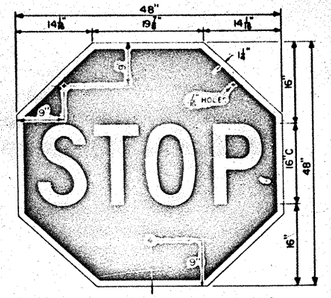
M(2)

ORIGINAL DRAWING DATE: 7-72 esr		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT			SHEET
DN:-- CK.:-- DW.:-- CK.:--	REVISIONS 10-73-notes & sign border	21		I35-1(36)302			69
		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
		Webb		12	3.55	ETC.	ETC.
							7



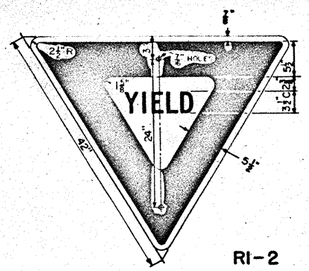
R1-1
30" x 30"

Letters - White Reflective
Border - White Reflective
Background - Red Reflective



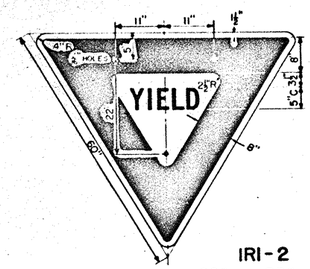
IR1-1
48" x 48"

Letters - White Reflective
Border - White Reflective
Background - Red Reflective



RI-2
42" x 42" x 42"

Letters - Red Reflective
Border Band - Red Reflective
Background - White Reflective

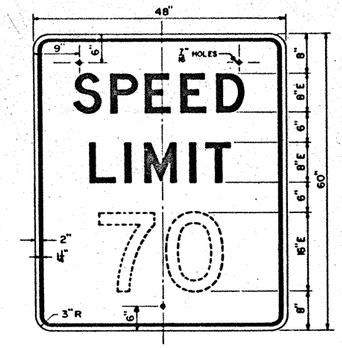


IRI-2
60" x 60" x 60"

Letters - Red Reflective
Border Band - Red Reflective
Background - White Reflective

R2-1
24" x 30"

Letters - Black
Numerals - Black
Border - Black
Background - White Reflective

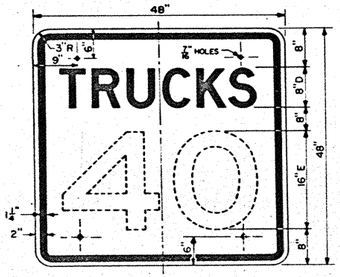


IR2-1
48" x 60"

Letters - Black
Numerals - Black
Border - Black
Background - White Reflective

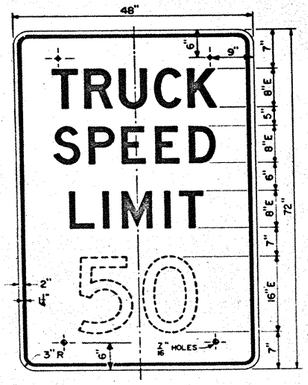
NOTE: (1) When R2-1 or IR2-1 are used above a NIGHT ( ) sign only that part of the background bearing the words SPEED LIMIT shall be white reflective with the remainder white.

(2) When IR2-1 is mounted on a Type G Mount, see sheet SMD(2), there shall be a 7/16" diameter hole in each corner located as dimensioned in the upper left corner of this blank.



IR2-2
48" x 48"

Letters - Black
Numerals - Black
Border - Black
Background - White Reflective



IR2-2A
48" x 72"

Letters - Black
Numerals - Black
Border - Black
Background - White Reflective

R2-3
24" x 24"

Letters - White Reflective
Numerals - White Reflective
Border - White Reflective
Background - Black

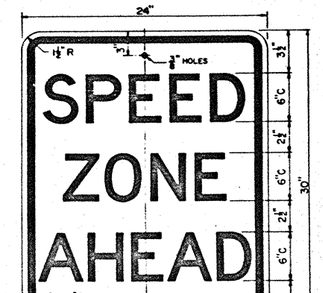
IR2-3
48" x 48"

Letters - White Reflective
Numerals - White Reflective
Border - White Reflective
Background - Black

IR2-4
48" x 60"

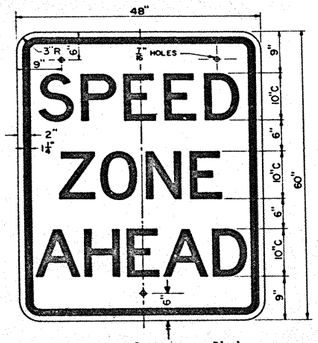
Letters - Black
Numerals - Black
Border - Black
Background - White Reflective

When IR2-4 is mounted on a Type G Mount, see sheet SMD(2), there shall be a 7/16" diameter hole in each corner located as dimensioned in the upper left corner of this blank.



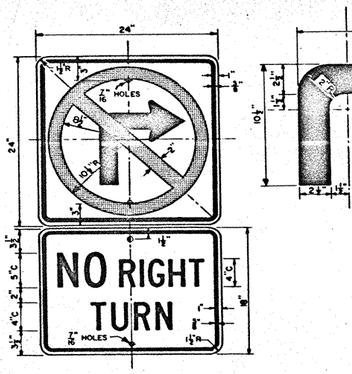
R2-5
24" x 30"

Letters - Black
Border - Black
Background - White Reflective



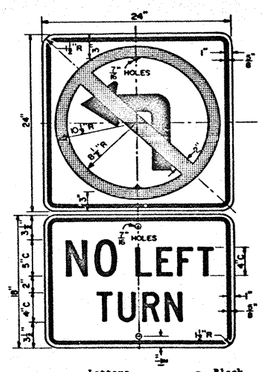
IR2-5
48" x 60"

Letters - Black
Border - Black
Background - White Reflective



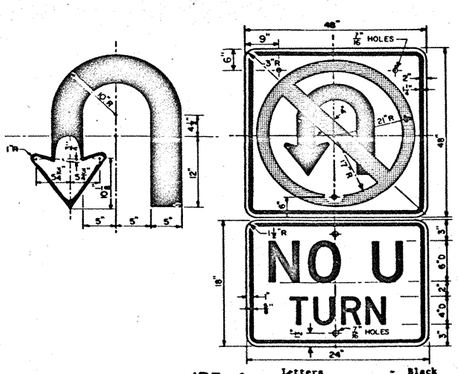
R3-1
24"x24"
24"x18"

Letters - Black
Arrow - Black
Border - Black
Circle & Diagonal - Red Reflective
Background - White Reflective



R3-2
24"x24"
24"x18"

Letters - Black
Arrow - Black
Border - Black
Circle & Diagonal - Red Reflective
Background - White Reflective



IR3-4
48"x48"
24"x18"

Letters - Black
Arrow - Black
Border - Black
Circle & Diagonal - Red Reflective
Background - White Reflective

GENERAL NOTES:

ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

SIGN BACKGROUNDS SHALL BE OF FLAT SURFACE REFLECTIVE SHEETING, CONFORMING WITH THE SPECIFICATIONS. SIGNS CONTAINING A RED COLOR MUST BE MADE OF FLAT SURFACE REFLECTIVE SHEETING USING THE REVERSE SCREEN PROCESS. THE BLACK BACKGROUND OF THE NIGHT SPEED LIMIT SIGN SHALL BE APPLIED TO THE WHITE REFLECTIVE MATERIAL BY THE REVERSE SCREEN PROCESS. FOR THE OTHER SIGNS, THE LETTERS, NUMERALS, AND BORDERS SHALL BE APPLIED TO THE REFLECTIVE MATERIAL BY THE SILK SCREEN PROCESS.

THE SIGN BLANKS SHALL BE ONE PIECE 5/8 INCH THICK PLYWOOD (TYPE A) CONFORMING WITH THE SPECIFICATIONS, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.

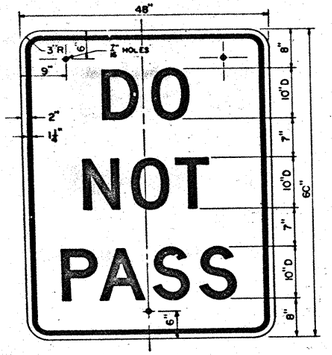
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

REGULATORY SIGNS

70

IR(1)

ORIGINAL DRAWING DATE: 2-76 esf		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT			SHEET
DN:-	REVISIONS	2		I 35-1(30)602			70
CK:-		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DW:-		Hall		15	4-5	--	4-57
CK:-							8

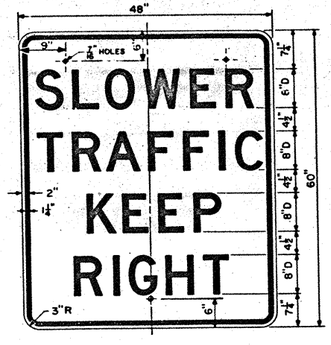


IR4 - 1
48" x 60"

Letters - Black
Border - Black
Background - White Reflective

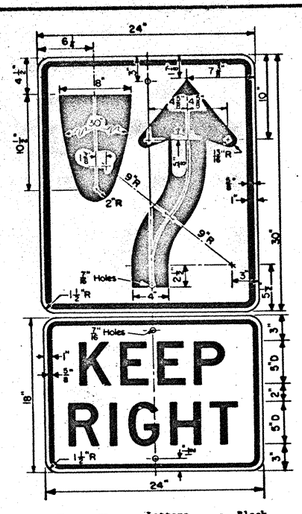
IR4 - 2
48" x 60"

Letters - Black
Border - Black
Background - White Reflective



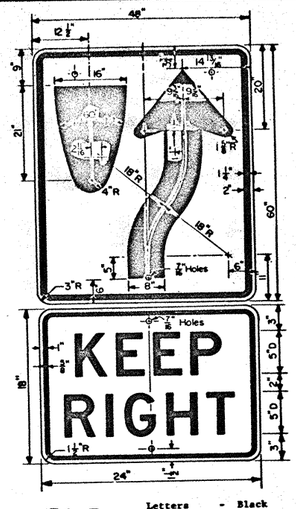
IR4 - 3
48" x 60"

Letters - Black
Border - Black
Background - White Reflective



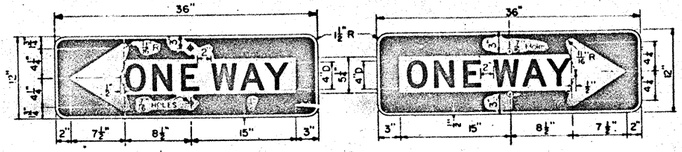
R4-7
24"x 30"
24"x 18"

Letters - Black
Symbol - Black
Border - Black
Background - White Reflective



IR4-7
48"x 60"
24"x 18"

Letters - Black
Symbol - Black
Border - Black
Background - White Reflective

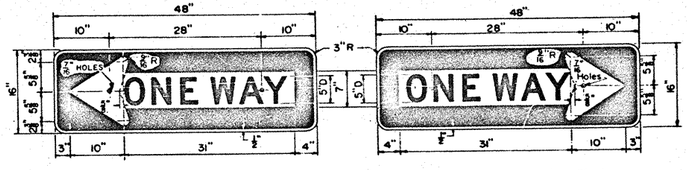


R6- 1L
36" x 12"

Letters - Black
Symbol - White Reflective
Border - White Reflective
Background - Black

R6 - 1R
36" x 12"

Letters - Black
Symbol - White Reflective
Border - White Reflective
Background - Black

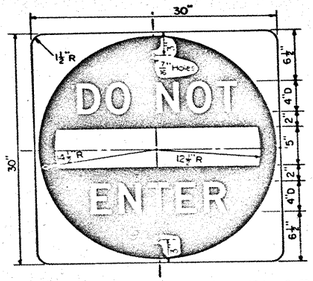


IR6 - 1L
48" x 16"

Letters - Black
Symbol - White Reflective
Border - White Reflective
Background - Black

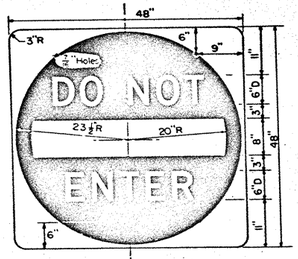
IR6 - 1R
48" x 16"

Letters - Black
Symbol - White Reflective
Border - White Reflective
Background - Black



R5-1
30" x 30"

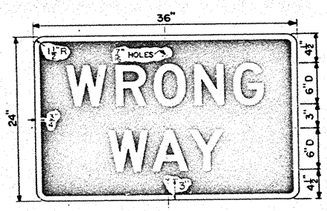
Letters - White Reflective
Bar - White Reflective
Border - White Reflective
Background - Red Reflective



IR5-1
48" x 48"

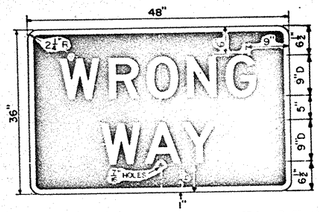
Letters - White Reflective
Bar - White Reflective
Border - White Reflective
Background - Red Reflective

When IR5-1 is mounted on a Type G Mount, see sheet SMD(2), there shall be a 7/16" diameter hole in each corner located as dimensioned in the upper right corner of this blank.



R5-9
36" x 24"

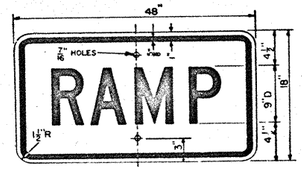
Letters - White Reflective
Border - White Reflective
Background - Red Reflective



IR5-9
48" x 36"

Letters - White Reflective
Border - White Reflective
Background - Red Reflective

When IR5-9 is mounted on a Type C Mount, see sheet SMD(2), there shall be a 7/16" diameter hole in each corner located as dimensioned in the upper right corner of this blank.

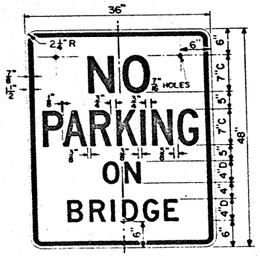


IR5-10
48" x 18"

Letters - Red Reflective
Border - Red Reflective
Background - White Reflective

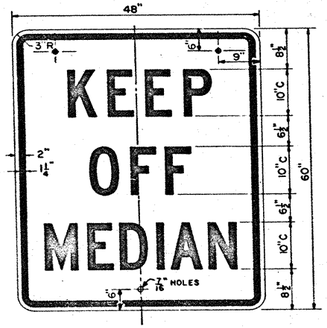
IR8 - 4
48" x 36"

Letters - Black
Border - Black
Background - White Reflective



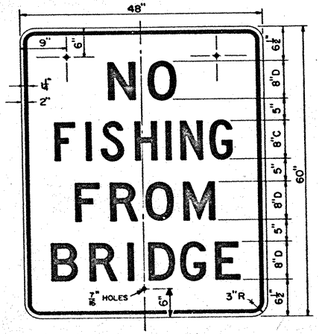
IR8 - 5
36" x 48"

Letters - Red Reflective
Border - Red Reflective
Background - White Reflective



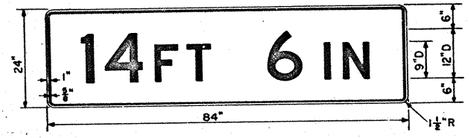
IR10 - 1
48" x 60"

Letters - Black
Border - Black
Background - White Reflective



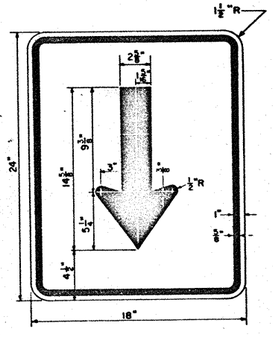
IR10 - 6
48" x 60"

Letters - Black
Border - Black
Background - White Reflective



D-25
84"x24"

Letters - Black
Numerals - Black
Border - Black
Background - Yellow Reflective



Arrow Plaque
18" x 24"

Symbol - Black
Border - Black
Background - Yellow Reflective

GENERAL NOTES:

ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

SIGN BACKGROUNDS SHALL BE OF FLAT SURFACE REFLECTIVE SHEETING, CONFORMING WITH THE SPECIFICATIONS. SIGNS CONTAINING A RED COLOR MUST BE MADE OF FLAT SURFACE REFLECTIVE SHEETING USING THE REVERSE SCREEN PROCESS. THE LETTERS AND BACKGROUND OF THE ONE WAY SIGNS SHALL BE APPLIED TO THE WHITE REFLECTIVE MATERIAL BY THE REVERSE SCREEN PROCESS. FOR THE OTHER SIGNS, THE LETTERS, NUMERALS AND BORDERS SHALL BE APPLIED TO THE REFLECTIVE MATERIAL BY THE SILK SCREEN PROCESS.

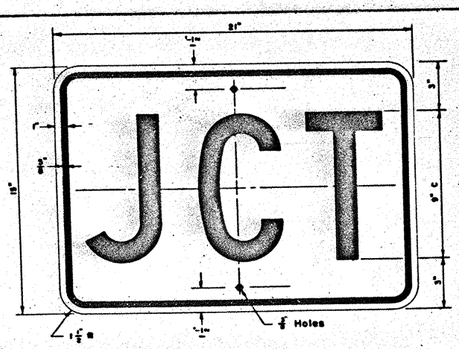
THE SIGN BLANKS SHALL BE ONE PIECE 5/8 INCH THICK PLYWOOD (TYPE A) CONFORMING WITH THE SPECIFICATIONS, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

REGULATORY SIGNS

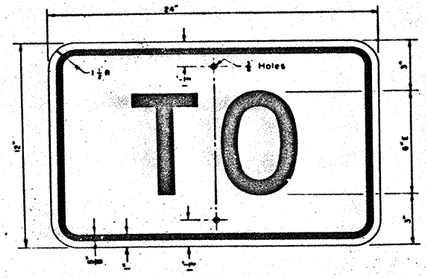
IR(2)

ORIGINAL DRAWING DATE: 2-76		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DN:-- CK.:-- DW.:-- CK.:--	REVISIONS	21		I35-1(30)002		71
		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
		WEBB		18	32	142	7-5



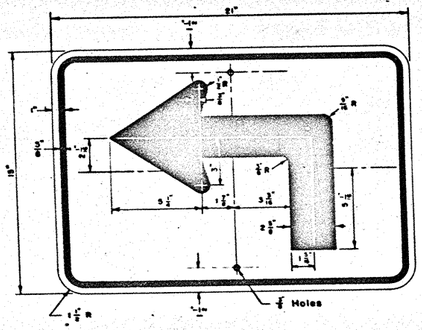
M2 - 1
21" x 15"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



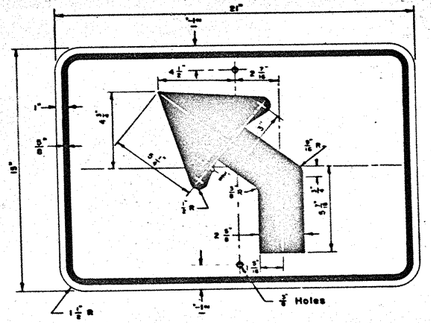
M7 - 1
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



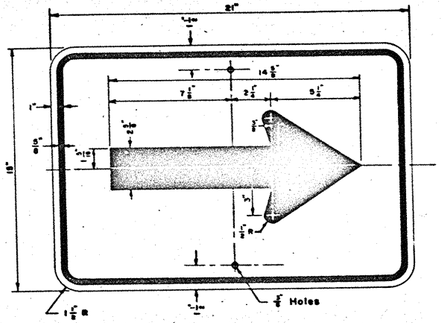
M3 - 1L (AS SHOWN)
M3 - 1R (OPP. HAND)
21" x 15"

SYMBOL - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



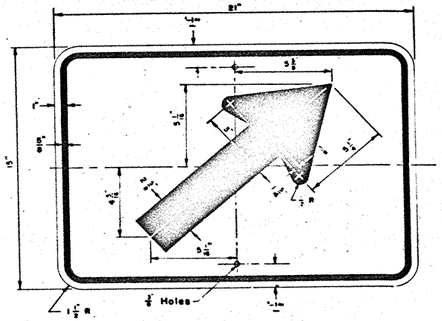
M3 - 2L (AS SHOWN)
M3 - 2R (OPP. HAND)
21" x 15"

SYMBOL - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



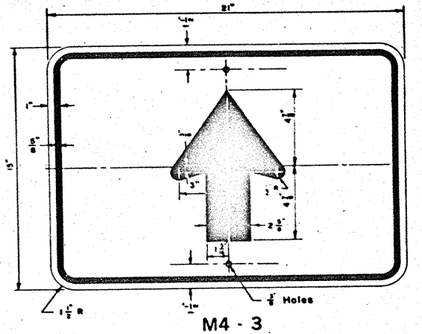
M4 - 1
21" x 15"

SYMBOL - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



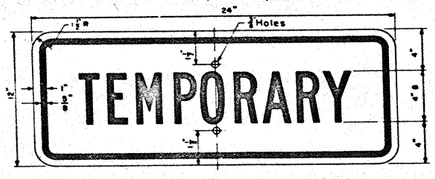
M4 - 2R (AS SHOWN)
M4 - 2L (OPP. HAND)
21" x 15"

SYMBOL - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



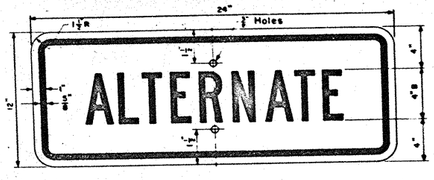
M4 - 3
21" x 15"

SYMBOL - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



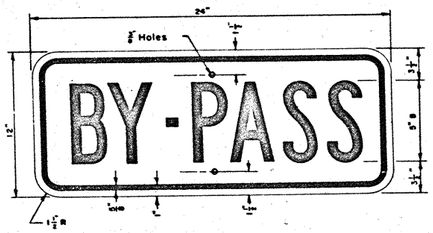
M5 - 1
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



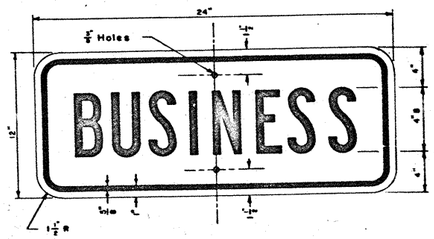
M5 - 2
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



M5 - 3
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE



M5 - 5
24" x 12"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE

GENERAL NOTES:

ALPHABETS AND LATERAL SPACING BETWEEN LETTERS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

THE SIGN BACKGROUND SHALL BE OF FLAT SURFACE REFLECTIVE SHEETING, CONFORMING WITH THE SPECIFICATIONS.

THE LETTERS, ARROWS, AND BORDER SHALL BE APPLIED DIRECTLY TO THE SURFACE OF THE REFLECTIVE MATERIAL BY THE SILK SCREEN PROCESS.

THE SIGN BLANKS SHALL BE ONE PIECE SHEET ALUMINUM ALLOY 0.080 INCH THICK CONFORMING WITH THE SPECIFICATION ITEM 704.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

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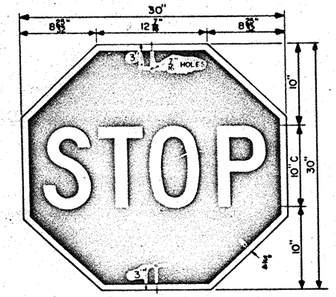
U.S. & STATE MARKERS

FOR INDEPENDENT MOUNTING

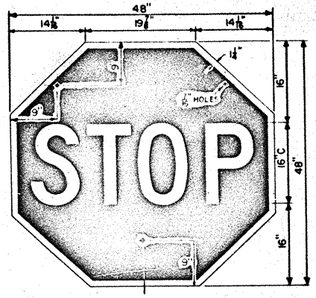
M(2)

ORIGINAL DRAWING DATE: 7-72 esr		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT				SHEET
DN:-	REVISIONS	21		F 35-1(30)602				69
CK.:-	10-73 - notes & sign border	COUNTY		CONTROL	SECTION	JOB	HIGHWAY	
DW.:-		Webb		18	3.4	--	--	
CK.:-								7



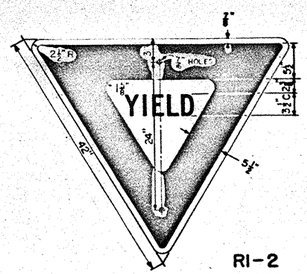
R1-1
30" x 30"

Letters - White Reflective
Border - White Reflective
Background - Red Reflective



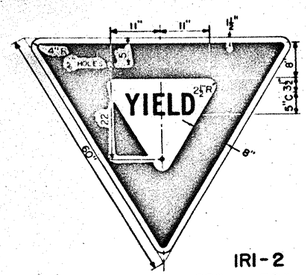
IR1-1
48" x 48"

Letters - White Reflective
Border - White Reflective
Background - Red Reflective



RI-2
42" x 42" x 42"

Letters - Red Reflective
Border Band - Red Reflective
Background - White Reflective

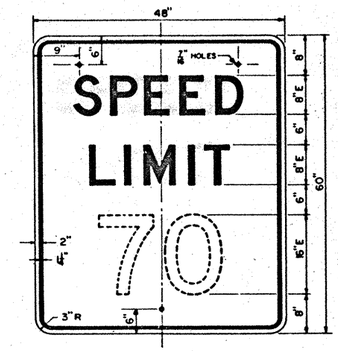


IRI-2
60" x 60" x 60"

Letters - Red Reflective
Border Band - Red Reflective
Background - White Reflective

R2-1
24" x 30"

Letters - Black
Numerals - Black
Border - Black
Background - White Reflective

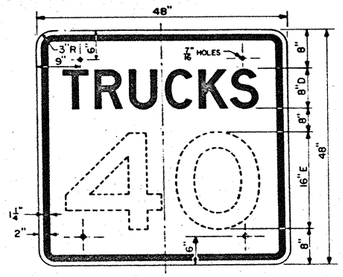


IR2-1
48" x 60"

Letters - Black
Numerals - Black
Border - Black
Background - White Reflective

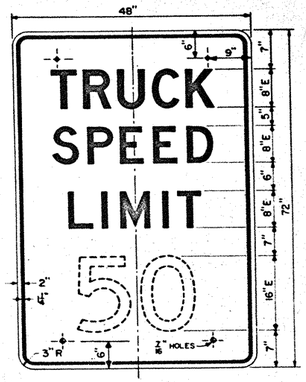
NOTE: (1) When R2-1 or IR2-1 are used above a NIGHT ( ) sign only that part of the background bearing the words SPEED LIMIT shall be white reflective with the remainder white.

(2) When IR2-1 is mounted on a Type G Mount, see sheet SMD(2), there shall be a 7/16" diameter hole in each corner located as dimensioned in the upper left corner of this blank.



IR2-2
48" x 48"

Letters - Black
Numerals - Black
Border - Black
Background - White Reflective



IR2-2A
48" x 72"

Letters - Black
Numerals - Black
Border - Black
Background - White Reflective

R2-3
24" x 24"

Letters - White Reflective
Numerals - White Reflective
Border - White Reflective
Background - Black

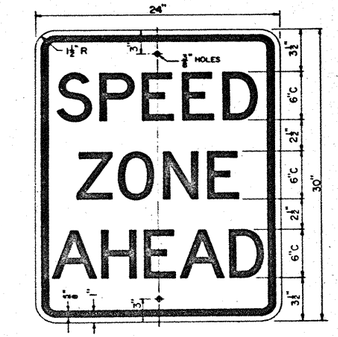
IR2-3
48" x 48"

Letters - White Reflective
Numerals - White Reflective
Border - White Reflective
Background - Black

IR2-4
48" x 60"

Letters - Black
Numerals - Black
Border - Black
Background - White Reflective

When IR2-4 is mounted on a Type G Mount, see sheet SMD(2), there shall be a 7/16" diameter hole in each corner located as dimensioned in the upper left corner of this blank.

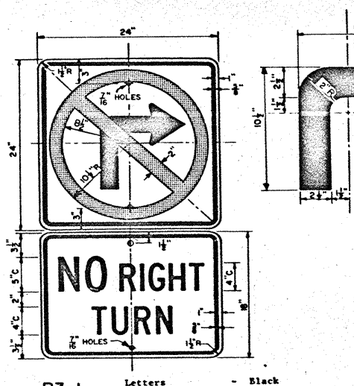


R2-5
24" x 30"

Letters - Black
Border - Black
Background - White Reflective

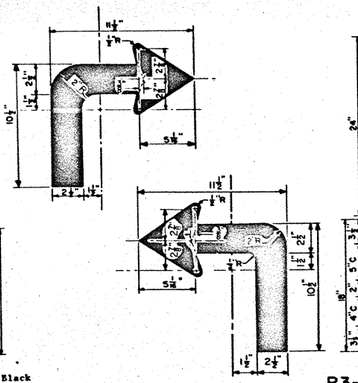
IR2-5
48" x 60"

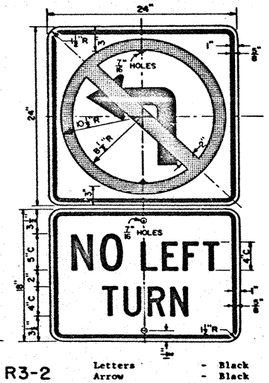
Letters - Black
Border - Black
Background - White Reflective



R3-1
24"x24"
24"x18"

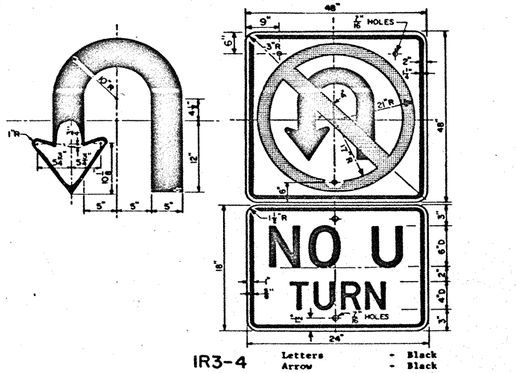
Letters - Black
Arrow - Black
Border - Black
Circle & Diagonal - Red Reflective
Background - White Reflective





R3-2
24"x24"
24"x18"

Letters - Black
Arrow - Black
Border - Black
Circle & Diagonal - Red Reflective
Background - White Reflective



IR3-4
48"x48"
24"x18"

Letters - Black
Arrow - Black
Border - Black
Circle & Diagonal - Red Reflective
Background - White Reflective

GENERAL NOTES:

ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

SIGN BACKGROUNDS SHALL BE OF FLAT SURFACE REFLECTIVE SHEETING, CONFORMING WITH THE SPECIFICATIONS. SIGNS CONTAINING A RED COLOR MUST BE MADE OF FLAT SURFACE REFLECTIVE SHEETING USING THE REVERSE SCREEN PROCESS. THE BLACK BACKGROUND OF THE NIGHT SPEED LIMIT SIGN SHALL BE APPLIED TO THE WHITE REFLECTIVE MATERIAL BY THE REVERSE SCREEN PROCESS. FOR THE OTHER SIGNS, THE LETTERS, NUMERALS, AND BORDERS SHALL BE APPLIED TO THE REFLECTIVE MATERIAL BY THE SILK SCREEN PROCESS.

THE SIGN BLANKS SHALL BE ONE PIECE 5/8 INCH THICK PLYWOOD (TYPE A) CONFORMING WITH THE SPECIFICATIONS, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.

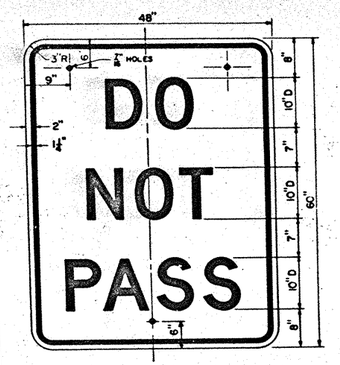
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

REGULATORY SIGNS

70

IR(1)

ORIGINAL DRAWING DATE: 2-76 esr		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DN:- CK.:- DW.:- CK.:-	REVISIONS	21		I 35-(30)612		70
		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
		HILL		16	3	37	ETC.

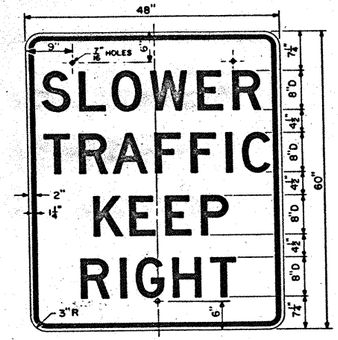


IR4 - 1
48" x 60"

Letters - Black
Border - Black
Background - White Reflective

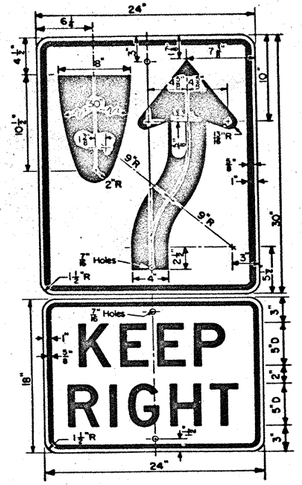
IR4 - 2
48" x 60"

Letters - Black
Border - Black
Background - White Reflective



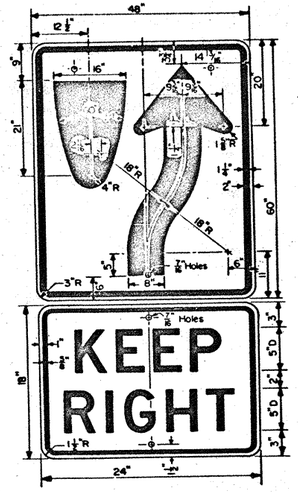
IR4 - 3
48" x 60"

Letters - Black
Border - Black
Background - White Reflective



R4-7
24"x 30"
24"x 18"

Letters - Black
Symbol - Black
Border - Black
Background - White Reflective

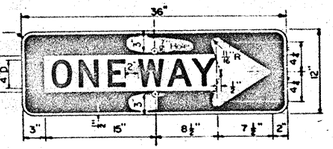


IR4-7
48" x 60"
24" x 18"

Letters - Black
Symbol - Black
Border - Black
Background - White Reflective

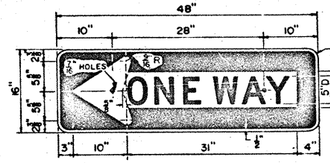
R6- 1L
36" x 12"

Letters - Black
Symbol - White Reflective
Border - White Reflective
Background - Black



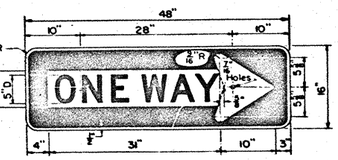
R6 - 1R
36" x 12"

Letters - Black
Symbol - White Reflective
Border - White Reflective
Background - Black



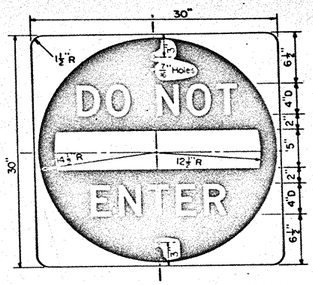
IR6 - 1L
48" x 16"

Letters - Black
Symbol - White Reflective
Border - White Reflective
Background - Black



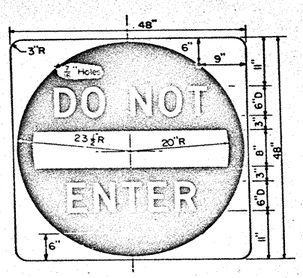
IR6 - 1R
48" x 16"

Letters - Black
Symbol - White Reflective
Border - White Reflective
Background - Black



R5-1
30" x 30"

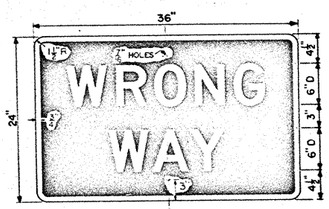
Letters - White Reflective
Bar - White Reflective
Border - White Reflective
Background - Red Reflective



IR5-1
48" x 48"

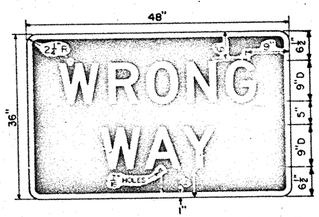
Letters - White Reflective
Bar - White Reflective
Border - White Reflective
Background - Red Reflective

When IR5-1 is mounted on a Type C Mount, see sheet SMD(2), there shall be a 7/16" diameter hole in each corner located as dimensioned in the upper right corner of this blank.



R5-9
36" x 24"

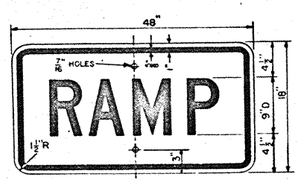
Letters - White Reflective
Border - White Reflective
Background - Red Reflective



IR5-9
48" x 36"

Letters - White Reflective
Border - White Reflective
Background - Red Reflective

When IR5-9 is mounted on a Type C Mount, see sheet SMD(2), there shall be a 7/16" diameter hole in each corner located as dimensioned in the upper right corner of this blank.



IR5-10
48" x 18"

Letters - Red Reflective
Border - Red Reflective
Background - White Reflective

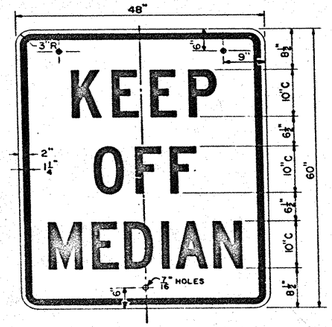
IR8 - 4
48" x 36"

Letters - Black
Border - Black
Background - White Reflective

STOPPING IR8-4A

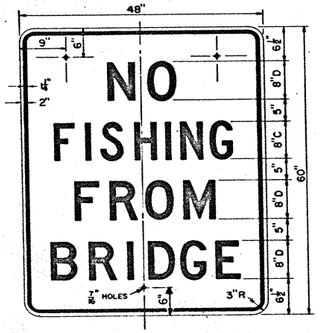
IR8 - 5
36" x 48"

Letters - Red Reflective
Border - Red Reflective
Background - White Reflective



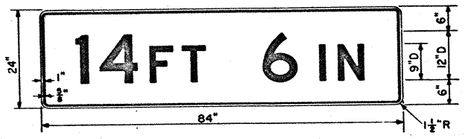
IR10 - 1
48" x 60"

Letters - Black
Border - Black
Background - White Reflective



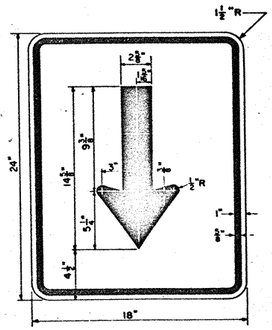
IR10 - 6
48" x 60"

Letters - Black
Border - Black
Background - White Reflective



D-25
84"x24"

Letters - Black
Numerals - Black
Border - Black
Background - Yellow Reflective



Arrow Plaque
18" x 24"

Symbol - Black
Border - Black
Background - Yellow Reflective

GENERAL NOTES:

ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

SIGN BACKGROUNDS SHALL BE OF FLAT SURFACE REFLECTIVE SHEETING, CONFORMING WITH THE SPECIFICATIONS. SIGNS CONTAINING A RED COLOR MUST BE MADE OF FLAT SURFACE REFLECTIVE SHEETING USING THE REVERSE SCREEN PROCESS. THE LETTERS AND BACKGROUND OF THE ONE WAY SIGNS SHALL BE APPLIED TO THE WHITE REFLECTIVE MATERIAL BY THE REVERSE SCREEN PROCESS. FOR THE OTHER SIGNS, THE LETTERS, NUMERALS AND BORDERS SHALL BE APPLIED TO THE REFLECTIVE MATERIAL BY THE SILK SCREEN PROCESS.

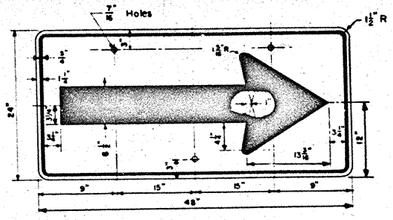
THE SIGN BLANKS SHALL BE ONE PIECE 5/8 INCH THICK PLYWOOD (TYPE A) CONFORMING WITH THE SPECIFICATIONS, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

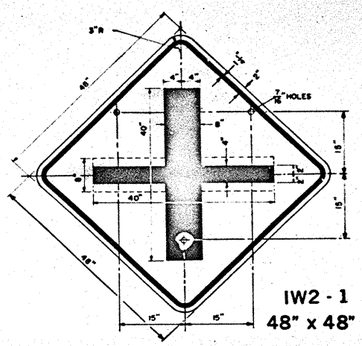
REGULATORY SIGNS

IR(2)

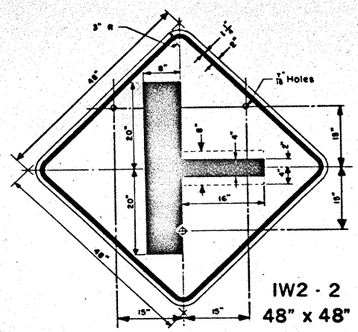
ORIGINAL DRAWING DATE: 2-76		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT				SHEET
DN:-	REVISIONS	21		I35-1(32)002				71
CK:-		COUNTY		CONTROL	SECTION	JOB	HIGHWAY	
DW:-		WEBB		18	35	402	I-35	
CK:-								9



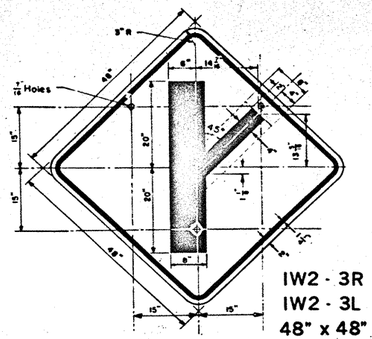
W1 - 6
48" x 24"



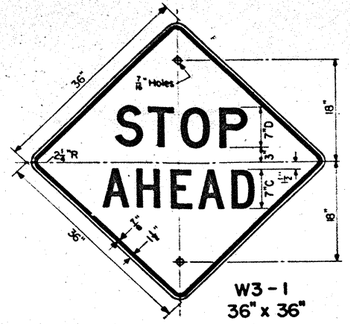
IW2 - 1
48" x 48"



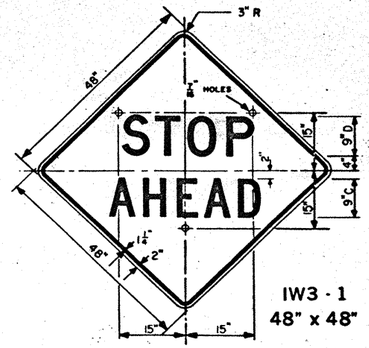
IW2 - 2
48" x 48"



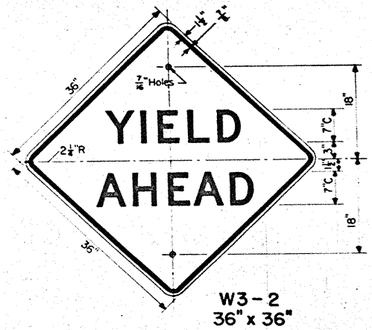
IW2 - 3R
IW2 - 3L
48" x 48"



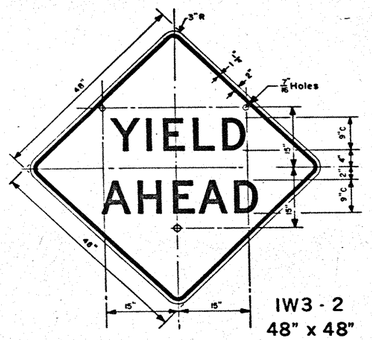
W3 - 1
36" x 36"



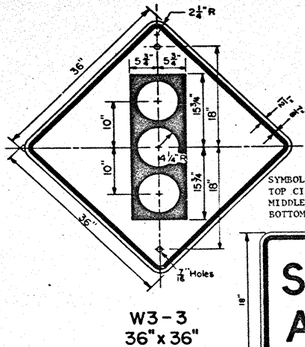
IW3 - 1
48" x 48"



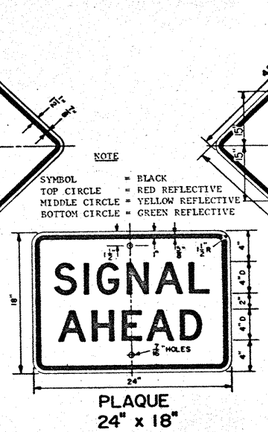
W3 - 2
36" x 36"



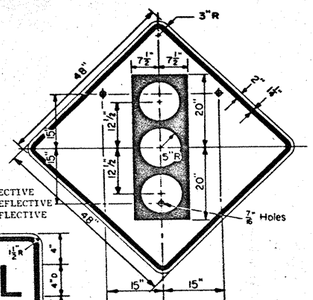
IW3 - 2
48" x 48"



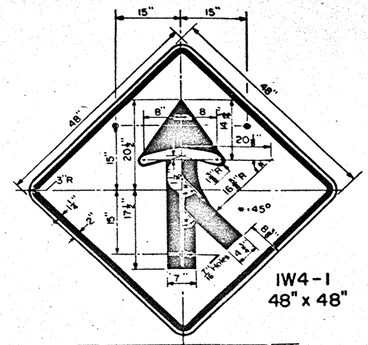
W3 - 3
36" x 36"



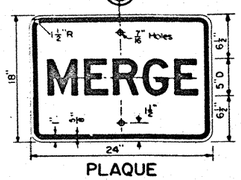
PLAQUE
24" x 18"



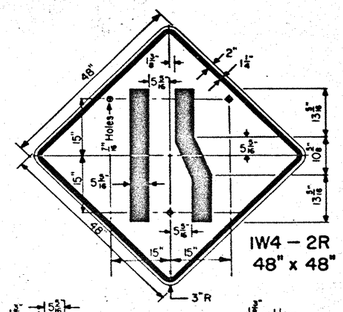
IW3 - 3
48" x 48"



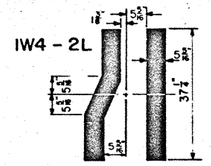
IW4 - 1
48" x 48"



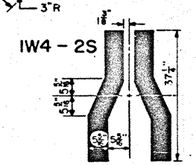
PLAQUE
24" x 18"



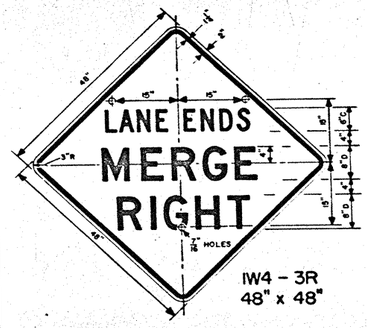
IW4 - 2R
48" x 48"



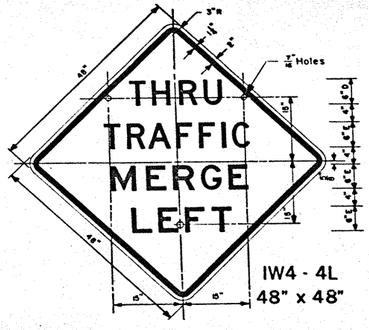
IW4 - 2L



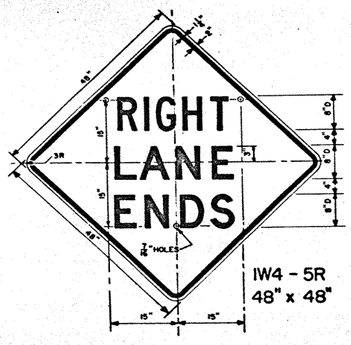
IW4 - 2S



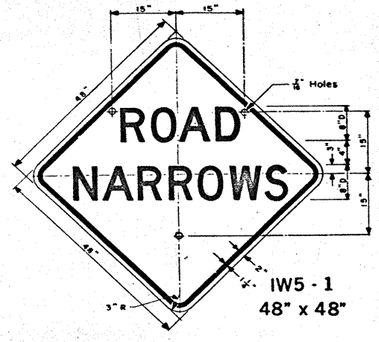
IW4 - 3R
48" x 48"



IW4 - 4L
48" x 48"



IW4 - 5R
48" x 48"



IW5 - 1
48" x 48"

LEFT
IW4 - 3L

RIGHT
IW4 - 4R

LEFT
IW4 - 5L

GENERAL NOTES:

THE ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

THE SYMBOLS EXCEPT(WHERE NOTED ABOVE), LETTERS, AND BORDERS SHALL BE BLACK, AND THE BACKGROUND SHALL BE OF INTERSTATE YELLOW FLAT SURFACE REFLECTIVE SHEETING, CONFORMING WITH THE SPECIFICATIONS.

LETTERS, SYMBOLS, AND BORDERS SHALL BE APPLIED DIRECT TO THE SURFACE OF THE REFLECTIVE MATERIAL BY THE SILK SCREEN PROCESS.

THE SIGN BLANKS SHALL BE ONE PIECE 5/8 INCH THICK PLYWOOD (TYPE A) CONFORMING WITH THE SPECIFICATIONS, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION

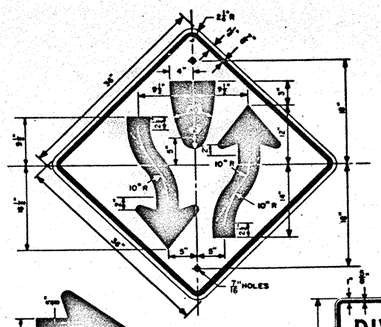
WARNING SIGNS

42

IW(1)

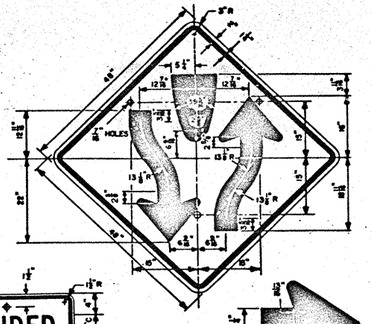
ORIGINAL DRAWING DATE 5-74 BSF		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN:--	REVISIONS	21		I 35-1(30)202	72
CK.:--		COUNTY		CONTROL SECTION JOB	HIGHWAY
DN.:--		Webb		15 30 10	I-35
CK.:--					

10

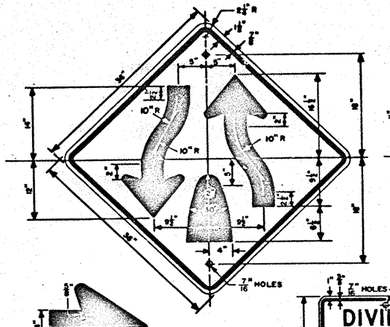


W6 - 1
36"x 36"

PLAQUE
24" x 18"

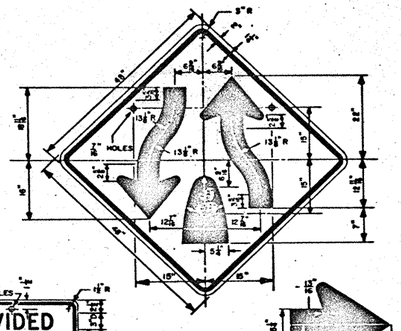


IW6 - 1
48" x 48"

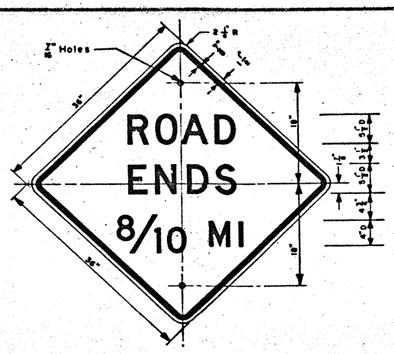


W6 - 2
36" x 36"

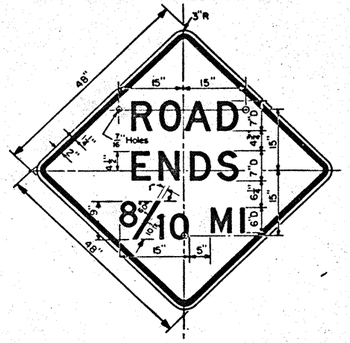
PLAQUE
24" x 18"



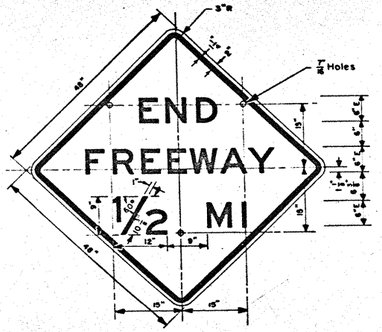
IW6 - 2
48" x 48"



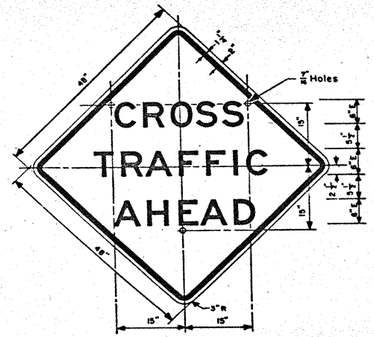
W6 - 3
36" x 36"



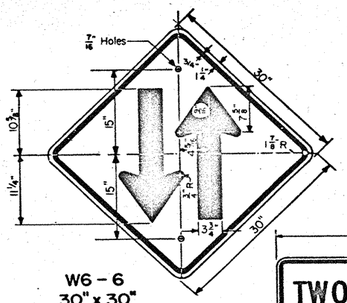
IW6 - 3
48" x 48"



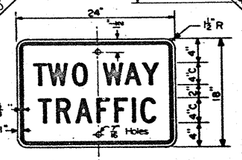
IW6 - 4
48" x 48"



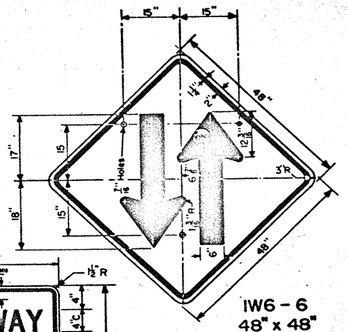
IW6-5
48" x 48"



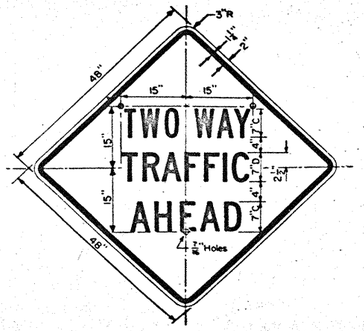
W6 - 6
30" x 30"



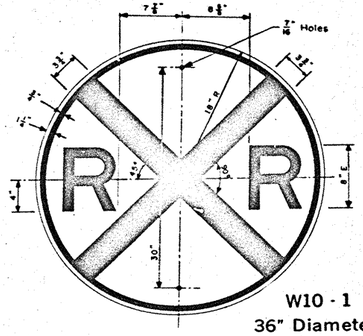
PLAQUE
24" x 18"



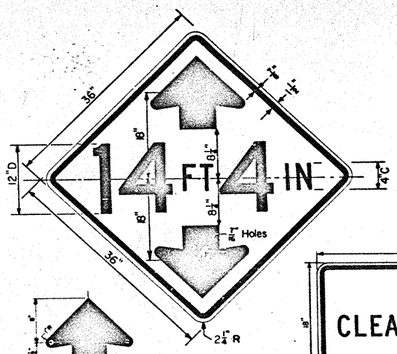
IW6 - 6
48" x 48"



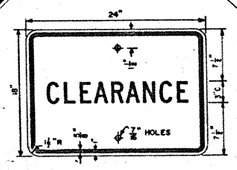
IW6 - 7
48" x 48"

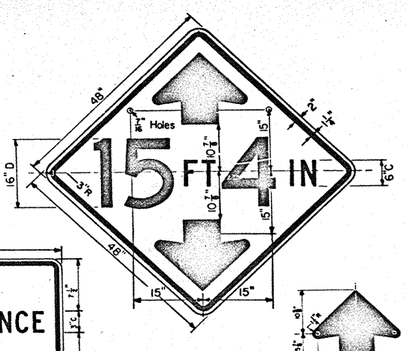


W10 - 1
36" Diameter

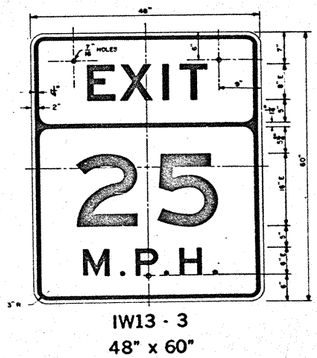


W12 - 2
36"x 36"
24"x 18"



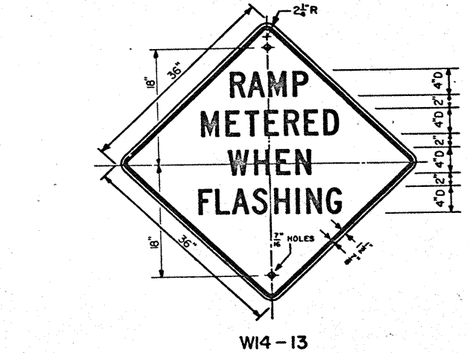


IW12-2
48"x 48"
24" x 18"



IW13 - 3
48" x 60"

IW13-3A
48" x 60"



WI4 - 13
36"x 36"

RAMP

(Same as IW13-3 except "EXIT" replaced with "RAMP".)

GENERAL NOTES:

THE ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

THE LETTERS, SYMBOLS, AND BORDERS SHALL BE BLACK, AND THE BACKGROUND SHALL BE OF INTERSTATE YELLOW FLAT SURFACE REFLECTIVE SHEETING, CONFORMING WITH THE SPECIFICATIONS.

LETTERS, SYMBOLS, AND BORDERS SHALL BE APPLIED DIRECT TO THE SURFACE OF THE REFLECTIVE MATERIAL BY THE SILK SCREEN PROCESS.

THE SIGN BLANKS SHALL BE ONE PIECE 5/8 INCH THICK PLYWOOD (TYPE A) CONFORMING WITH THE SPECIFICATIONS, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.

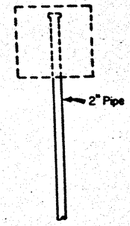
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

WARNING SIGNS

73

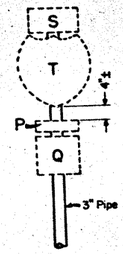
IW(2)

ORIGINAL DRAWING DATE: 5-74	8SF	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT			SHEET
DN.:- REVISIONS		21		I 35-1(30)100R			72
CK.:-		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DW.:-		Webb		15	5	64	2125
CK.:-							



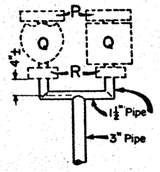
Type A

THIS TYPE PIPE MOUNT TO BE USED FOR ANY SIGN OR COMBINATION OF SIGNS WHEN THE SIGN AREA DOES NOT EXCEED 10 SQUARE FEET EXCEPT IR6-1 AND IW1-6 SIGNS (SEE TYPE D-1). THE AREA OF THE REGULATORY OR WARNING SIGN SUPPLEMENTARY PLAQUES SHALL NOT BE USED IN DETERMINING THE ABOVE SIGN AREA.



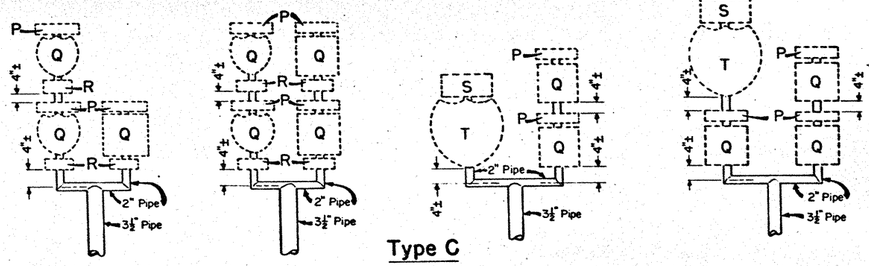
Type A-1

THIS TYPE PIPE MOUNT TO BE USED FOR A 36" OR 45" INTERSTATE ROUTE MARKER WITH A 24" OR 30" ROUTE MARKER ON MAIN LANES OR AS A SPECIFIED OPTIONAL SUBSTITUTE FOR TYPE B.



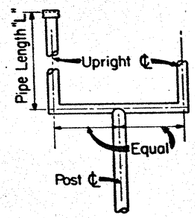
Type B

THIS TYPE PIPE MOUNT TO BE USED WHEN 2 ROUTE MARKERS OF THE SAME TYPE OR 2 ROUTE MARKERS OF DIFFERENT TYPES ARE REQUIRED.



Type C

THIS TYPE PIPE MOUNT TO BE USED:
1. WHEN 3 OR 4 ROUTE MARKERS ARE REQUIRED; OR
2. FOR A 36" OR 45" INTERSTATE ROUTE MARKER WITH 2 OR 3 24" AND/OR 30" ROUTE MARKERS.



See table at right for values of "L"

P = 24" x 12" Cardinal Direction Marker
Q_1 = 24" x 24" Interstate, U.S. or State Route Marker
Q_2 = 30" x 24" Interstate or U.S. Route Marker
R = 21" x 15" Direction Arrow
S = 30" x 15" Cardinal Direction Marker
T_1 = 36" x 36" (2) digit Interstate Route Marker
T_2 = 45" x 36" (3) digit Interstate Route Marker

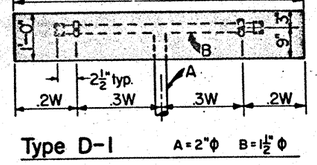
Marker Combinations	"L"
2P + 2Q + 2R + 7"	9'-1"
P + 2Q + 2R + 7"	8'-1"
2Q + 2P + 7"	6'-7"
Q + R + 3"	3'-6"
S + T + 3"	4'-6"
P + Q + R + 3"	4'-6"
P + Q + S + T + 7"	7'-10"

DIMENSION "S"

DIMENSION "S" EQUALS THE DISTANCE FROM THE ℄ OF UPRIGHT TO THE ℄ OF CLEARANCE BETWEEN SIGN GROUP.

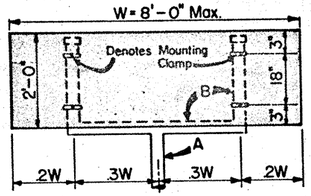
"S" = 1'-4½" for Q_1
"S" = 1'-7½" for Q_2

"S" = 1'-10½" for T_1
"S" = 2'-3" for T_2

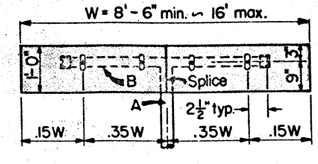


Type D-1 A = 2"φ B = 1½"φ

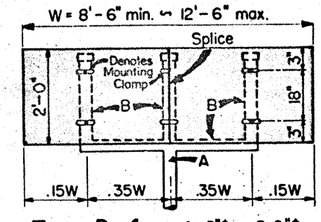
NOTE:
1. FOR IR6-1 SIGN, MOUNTING CLAMPS ARE SPACED 28" APART.
2. FOR W1-6 SIGN, MOUNTING CLAMPS ARE SPACED 30" APART.



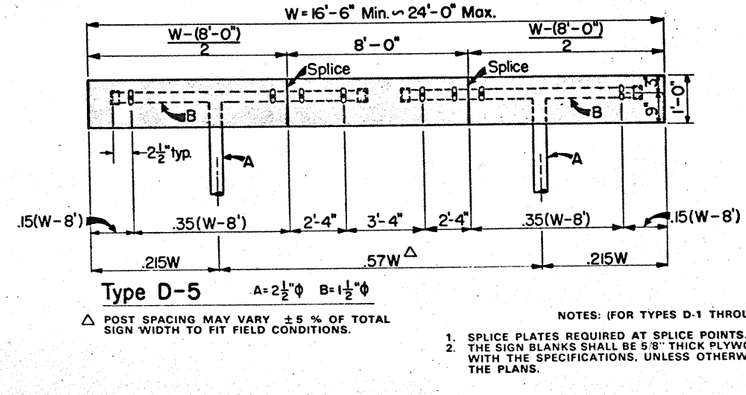
Type D-2 A = 2½"φ B = 1½"φ



Type D-3 A = 2½"φ B = 1½"φ

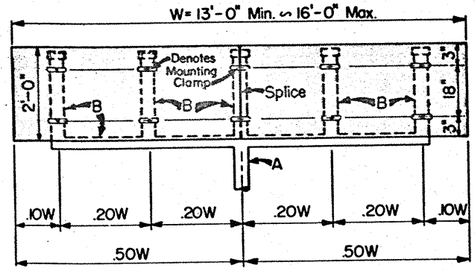


Type D-4 A = 3"φ B = 2"φ



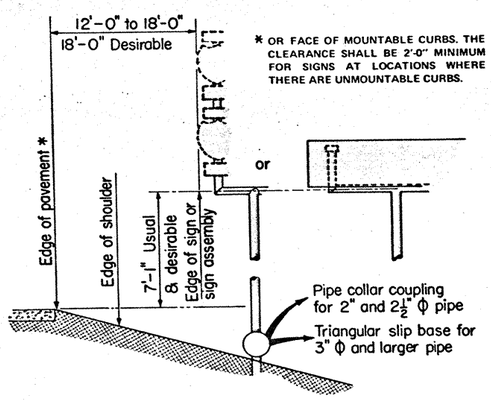
Type D-5 A = 2½"φ B = 1½"φ

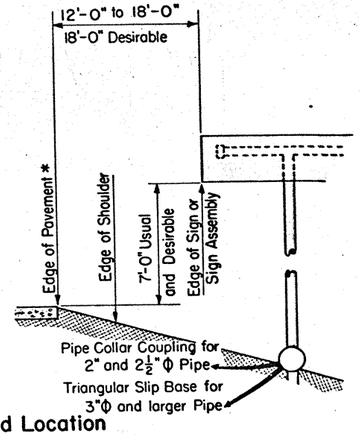
△ POST SPACING MAY VARY ±5 % OF TOTAL SIGN WIDTH TO FIT FIELD CONDITIONS.



Type D-6 A = 3"φ B = 2"φ

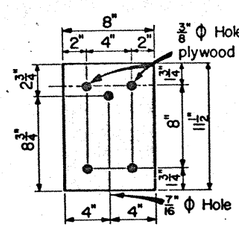
NOTES: (FOR TYPES D-1 THROUGH D-6)
1. SPLICE PLATES REQUIRED AT SPLICE POINTS.
2. THE SIGN BLANKS SHALL BE 5/8" THICK PLYWOOD (TYPE A) CONFORMING WITH THE SPECIFICATIONS, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.





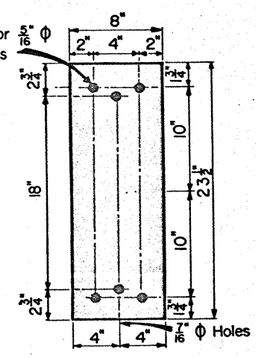
Typical Sign Installation and Location

GENERAL NOTES:
1. PIPE COLLAR COUPLING SHALL BE USED FOR ALL SIGNS SUPPORTED ON 2" AND 2½" PIPE POSTS.
2. TRIANGULAR SLIP BASE SHALL BE USED FOR SIGNS SUPPORTED ON 3" AND LARGER PIPE POSTS.
3. PIPE COLLAR COUPLING, TRIANGULAR SLIP BASE, AND FOUNDATION DETAILS ARE SHOWN ON SHEET SMD(1-3).
4. MOUNTING CLAMP, WELDED PIPE MOUNT, AND FRICTION CAP DETAIL ARE SHOWN ON SHEET SMD(1-2).



Splice Plates

SPLICE PLATES SHALL BE 1/8" STEEL PLATE (A.S.T.M.-A36) OR 0.187" ALUMINUM PLATE (A.S.T.M.-B-209 ALLOY 6061-T6, OR A.S.T.M. B-221 ALLOY 6061-T6). STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 442 OF STANDARD SPECIFICATIONS.



STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

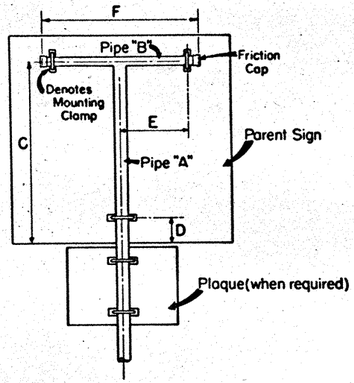
PIPE MOUNTING DETAILS FOR SMALL ROADSIDE SIGNS

SMD(I-1)

ORIGINAL DRAWING DATE: 2-76		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN:-- CH:-- DW:-- CK:--	REVISIONS	21		F35-1(30)102	74
		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
		Webb		18	3.2	10	I-35

12

Type F Mount

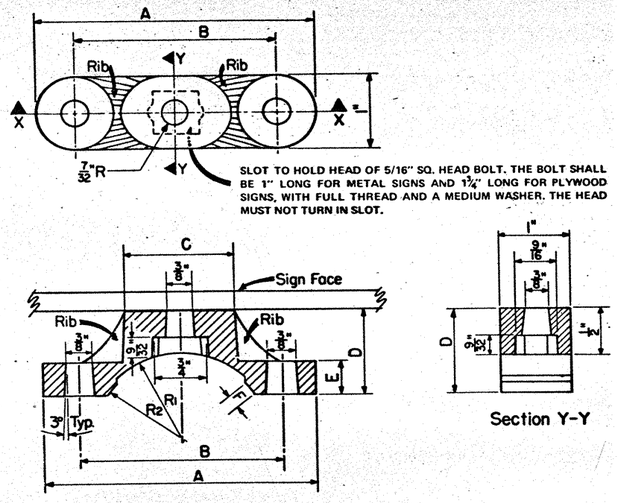


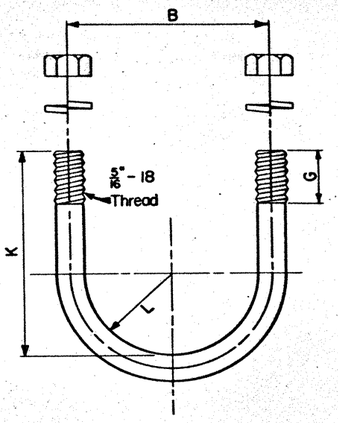
Type F Mount Dimensions

Type of Sign		Pipe "A"	Pipe "B"	C	D	E	F
Regulatory Signs	IR1-1	3"Φ	2"Φ	39"	9"	15"	35"
	IR1-2	3"Φ	2"Φ	43"	21"	11"	27"
	36"x48"	3"Φ	2"Φ	42"	6"	12"	29"
	48"x36"	3"Φ	2"Φ	30"	6"	15"	35"
	48"x48" ⚠1	3"Φ	2"Φ	42"	6"	15"	35"
	48"x60" ⚠2	3"Φ	2"Φ	54"	6"	15"	35"
Warning Signs	48"x48" ⚠1	3"Φ	2"Φ	47¾"	17¾"	15"	35"
	48"x60"	3"Φ	2"Φ	54"	6"	15"	35"

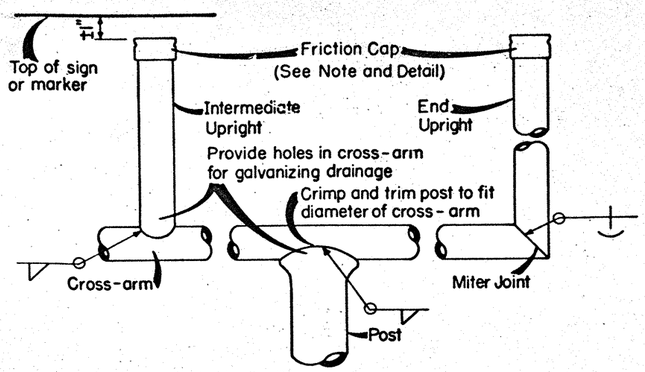
⚠1 INCLUDES PARENT SIGNS OF THIS SIZE WHICH HAVE SUPPLEMENTARY PLAQUE. WHEN IR5-10 IS MOUNTED WITH IR5-1, THE IR5-1 SHALL BE MOUNTED AS A 48" X 48" REGULATORY SIGN WITH THE IR5-10 MOUNTED AS A PLAQUE.

⚠2 IR2-2, IR2-3, AND IR2-4 ARE TO BE MOUNTED ONLY IN COMBINATION WITH IR2-1 ON A TYPE G MOUNT; ALSO IR2-2A IS TO BE MOUNTED ON A TYPE G MOUNT (SEE STANDARD SHEET SMD(2)). ALSO WHEN IR5-9 IS MOUNTED WITH AN IR5-1, A TYPE G MOUNT SHALL BE USED.

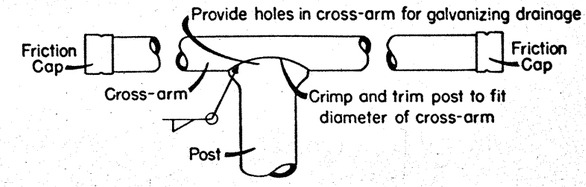




U-BOLT TO BE MADE IN ACCORDANCE WITH STANDARD MANUFACTURING PROCEDURE. 9/32" DIA. STOCK IS PERMISSIBLE. AMERICAN STANDARD REGULAR SEMI-FINISHED HEX. NUTS & SPRING LOCKWASHERS.



Fork Mount Support



Tee Mount Support

Pipe Clamp Casting

PIPE CLAMP CASTING SHALL BE ALUMINIM ALLOY A344-T4 OR 356-F.

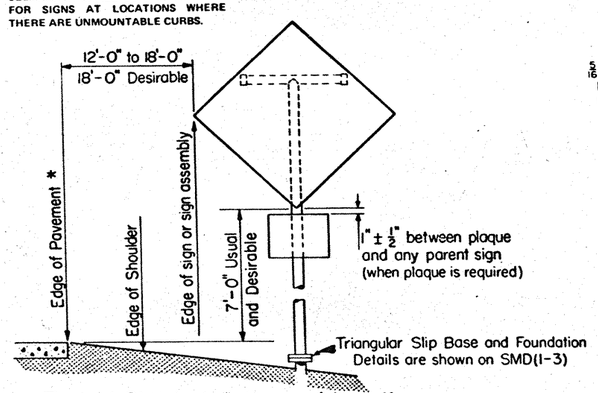
ALL SIGN MOUNTING CLAMP PARTS NOT MADE FROM ALUMINUM SHALL BE STAINLESS STEEL OR GALVANIZED STEEL IN CONFORMANCE WITH ITEM 442 OF THE STANDARD SPECIFICATIONS.

Dimensions for Mounting Clamp

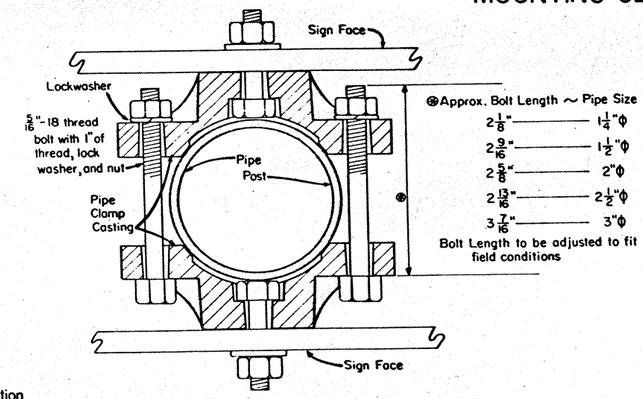
Standard Pipe Size	A	B	C	D	E	F	G	K	L	R1	R2
1¼"	3 5/64"	2 5/64"	¾"	15/16"	7/16"	3/16"	5/8"	2 9/64"	27/32"	57/64"	53/64"
1½"	3 9/32"	2 9/32"	1"	1 1/16"	7/16"	3/16"	5/8"	2 7/16"	63/64"	31/32"	15/16"
2"	3 3/4"	2 3/4"	1½"	1⅛"	½"	3/16"	1"	2 11/16"	1 7/32"	1¼"	1 3/16"
2½"	4¼"	3¼"	2"	1¼"	½"	¼"	1"	3 3/16"	1 15/32"	1½"	1 7/16"
3"	4 7/8"	3 7/8"	2½"	1 3/8"	5/8"	¼"	1"	3 13/16"	1 25/32"	1 13/16"	1¾"

MOUNTING CLAMP DETAILS

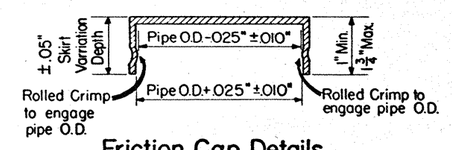
* OR FACE OF MOUNTABLE CURBS. THE CLEARANCE SHALL BE 2'-0" MINIMUM FOR SIGNS AT LOCATIONS WHERE THERE ARE UNMOUNTABLE CURBS.



Typical Sign Installation and Location For Signs Mounted on Type F Mounts



Typical Detail of Back To Back Mounting Of Signs



Friction Cap Details

NOTES:
FRICTION CAPS MAY BE MANUFACTURED FROM EITHER HOT ROLLED OR COLD ROLLED STEEL SHEETS. FOR ALL PIPE SIZES THE MINIMUM SHEET METAL THICKNESS SHALL BE 24 GAUGE.

THE RIM EDGES SHALL BE REASONABLY STRAIGHT AND SMOOTH. CAPS SHALL BE SIZED AND FORMED IN SUCH A MANNER AS TO PRODUCE A DRIVE-ON FRICTION FIT AND HAVE NO TENDENCY TO ROCK WHEN SEATED ON THE PIPE. THE DEPTH SHALL BE SUFFICIENT TO GIVE POSITIVE PROTECTION AGAINST ENTRANCE OF RAINWATER. THEY SHALL BE FREE OF SHARP CREASES OR INDENTATIONS AND SHOW NO EVIDENCE OF METAL FRACTURE.

CAPS SHALL HAVE AN ELECTRODEPOSITED COATING OF ZINC IN ACCORDANCE WITH THE REQUIREMENTS OF A.S.T.M. SPECIFICATION A164, TYPE GS.

WELDED PIPE MOUNT DETAILS

NOTE:

THE CONTRACTOR AT HIS OPTION MAY FURNISH STANDARD WEIGHT PIPE CONFORMING TO ASTM SPECIFICATION A-53B, A-501 OR ANY OTHER STANDARD WEIGHT STEEL PIPE, EITHER OF ELECTRIC RESISTANCE WELDED OR SEAMLESS TYPE, WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI AND A MINIMUM ELONGATION OF 15 PERCENT IN 2 INCHES; AND SHALL HAVE OUTSIDE DIAMETERS AND WALL THICKNESSES WHICH ARE EQUIVALENT TO OR BETTER THAN THOSE SPECIFIED HEREON.

ALL PIPES TO BE WELDED SHALL BE OF WELDABLE QUALITY.

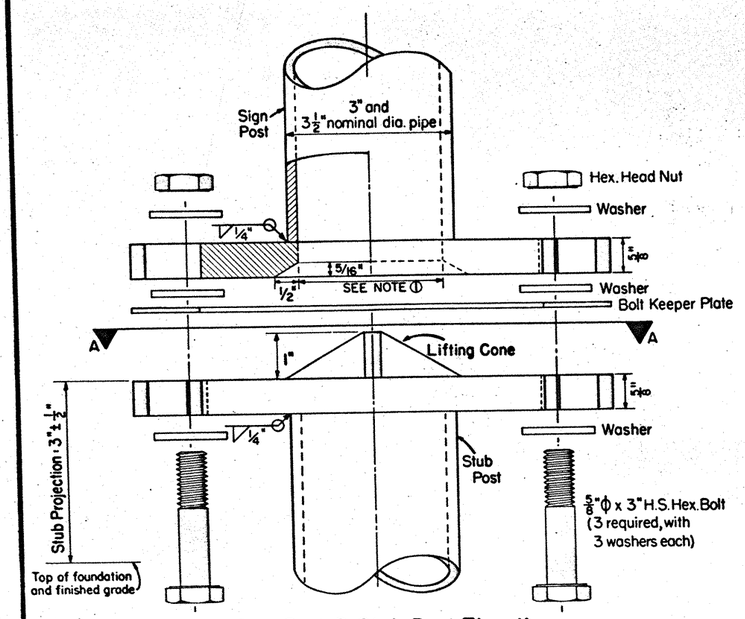
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

PIPE MOUNTING DETAILS FOR SMALL ROADSIDE SIGNS

SMD(I-2)

ORIGINAL DRAWING DATE – 5-74 BSF		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DR.:	REVISIONS	21		FAS-(R)-1202		75
CK.:	11-74 Pipe Note	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DR.:	3-75 Back to Back mount						
CK.:	4-75 Plyw'd bolt length	McH		5	3.3B	705-33	

13



Sign Post & Stub Post Elevation

NOTES:

① THE TOP PLATE OF THE TRIANGULAR SLIP BASE SHALL HAVE THE SAME EXTERIOR DIMENSIONS AS THE BOTTOM PLATE. THE LIFTING CONE SHALL BE WELDED TO THE BOTTOM PLATE ONLY. A HOLE EQUAL TO THE INSIDE DIAMETER OF THE SIGN POST SHALL BE CUT THROUGH THE CENTER OF THE TOP PLATE WITH THE HOLE EDGE BEVELED AS DETAILED.

② PLATES FOR THE BASE CONNECTION AND LIFTING CONE SHALL CONFORM WITH THE REQUIREMENTS OF A.S.T.M.-A36, A441 OR A572 GRADE 50.

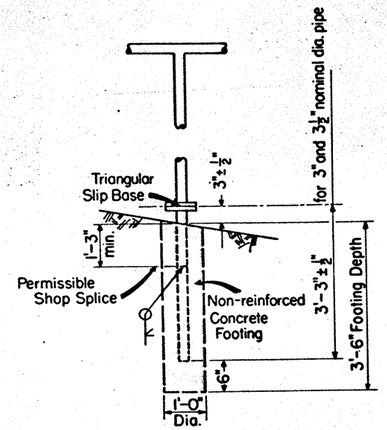
③ ALL STRUCTURAL STEEL, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER ITEM 442 OF THE STANDARD SPECIFICATIONS EXCEPT AS NOTED. GALVANIZING OF ALL POSTS SHALL BE PROJECTION ABOVE CONCRETE PLUS 6" MINIMUM.

④ ALL HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM-A325 (ASTM-A449 MAY BE SUBSTITUTED FOR ASTM-A325 PROVIDED PROPER BOLT HEAD, NUT AND OR WASHER CLEARANCES ARE MAINTAINED). ALL HIGH STRENGTH NUTS SHALL BE OF SUCH CAPACITY AS TO DEVELOP THE BOLT STRENGTH.

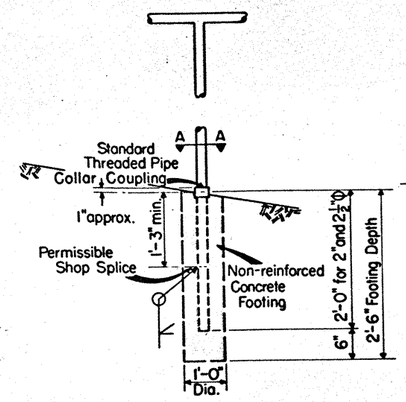
⑤ PAYMENT FOR THE TRIANGULAR SLIP BASE WILL BE INCLUDED IN PRICE BID PER LINEAR FOOT OF PIPE.

BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

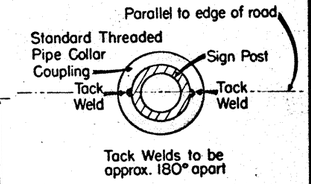
1. ASSEMBLE POST TO STUB WITH BOLTS AND WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES AS SHOWN.
2. SHIM AS REQUIRED TO PLUMB POST.
3. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH 12" TO 15" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS, THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN BOLTS IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE OF 450 INCH-POUNDS, DO NOT OVER TIGHTEN.
4. BURR THREADS AT JUNCTION WITH NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.



Triangular Slip Base Foundation Details

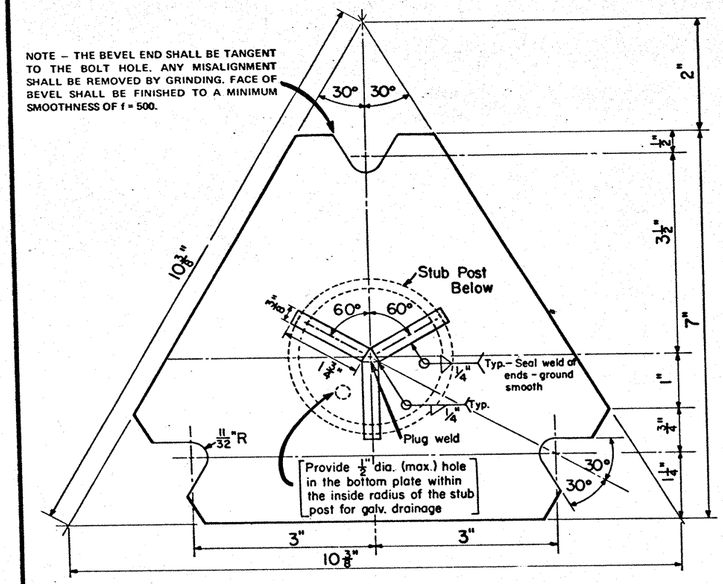


BREAKAWAY PIPE COLLAR COUPLING

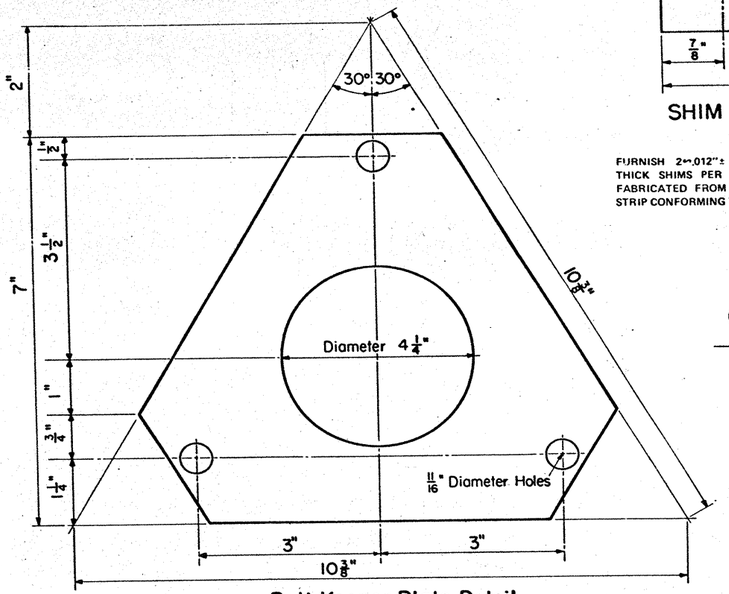


Section A-A

TRIANGULAR SLIP BASE

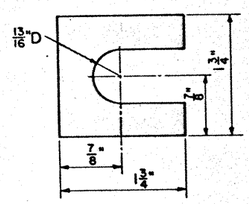


View A-A



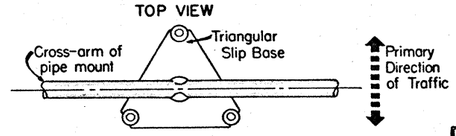
Bolt Keeper Plate Detail

Bolt Keeper Plate shall be 30 ga. galvanized sheet steel.



SHIM DETAIL

FURNISH 2⁽⁺⁾.012" ± THICK AND 2⁽⁺⁾.032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. –B36.



The cross-arm of the pipe mount should be parallel to one side of the triangular slip base, and approximately perpendicular to the direction of traffic in accordance with specification item 728.

ORIENTATION OF TRIANGULAR SLIP BASE

GENERAL NOTES:

DESIGN CONFORMS WITH A.A.S.H.T.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS.

MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF TEXAS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS AND SPECIAL SPECIFICATIONS.
PIPE COLLAR COUPLING SHALL BE USED FOR ALL SIGNS SUPPORTED ON 2" and 2½" DIAMETER PIPE POSTS.

TRIANGULAR SLIP BASE SHALL BE USED FOR SIGNS SUPPORTED ON 3" DIAMETER AND LARGER PIPE POSTS.

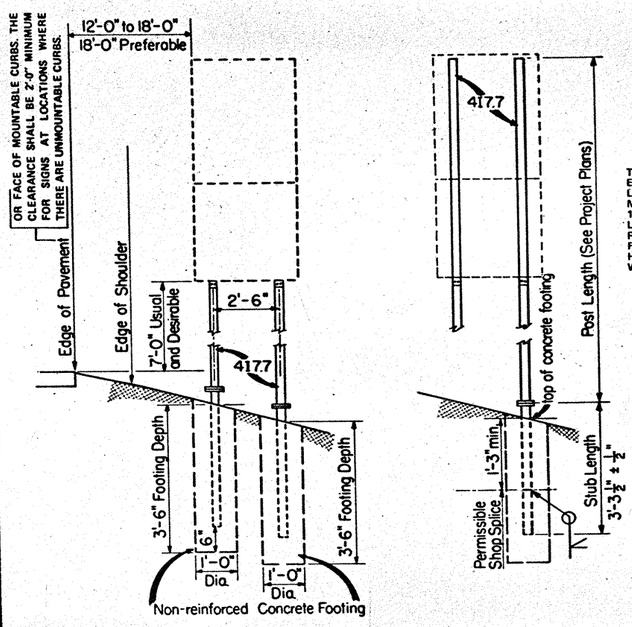
WHERE SOLID ROCK IS ENCOUNTERED, FOOTING SHALL BE PLAN DEPTH OR EXTEND TWO FEET MINIMUM INTO THE ROCK.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

PIPE MOUNTING DETAILS FOR SMALL ROADSIDE SIGNS 76

SMD(I-3)

ORIGINAL DRAWING DATE: 5-74		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DN.:- CK.:- DW.:- CK.:-	REVISIONS 6-75 = slip base modified 2-76 = A441 or A572 Steel	21		I 35-1(39)002		76
		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
		WEBB		15	39	1(39)	I-35
							14

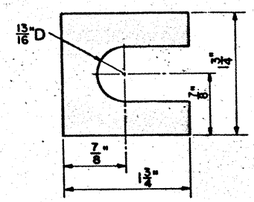


TYPE G MOUNT

THIS TYPE BEAM MOUNT TO BE USED:
(1) FOR SPEED LIMIT SIGN IR2-1 WHEN USED IN COMBINATION WITH IR2-2, IR2-3, AND IR2-4, OR FOR IR2-2A.
(2) FOR DO NOT ENTER SIGN IR5-1 WHEN USED WITH WRONG WAY SIGN IR5-9. IR5-9 IS MOUNTED ABOVE IR5-1.

Post Weight Data
And
Permissible Shop Splice

THE WEIGHT OF ONE 417.7 POST IS EQUAL TO 112.2 LBS. PLUS 7.7 LBS./FT X(POST LENGTH IN FEET MINUS 10 FT.) THE WEIGHT OF 112.2 LBS. INCLUDES 10' OF POST LENGTH. POST FOUNDATION STUB, RELATED CONNECTION PLATES, FRICTION FUSE PLATE, AND ALL HIGH STRENGTH BOLTS, NUTS, AND WASHERS.



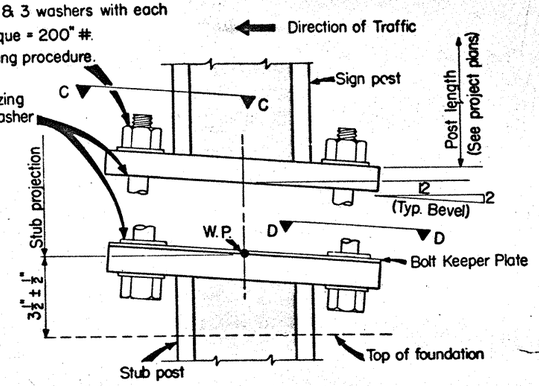
SHIM DETAIL

FURNISH 2 @ .012" ± THICK AND 2 @ .032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. -B36.

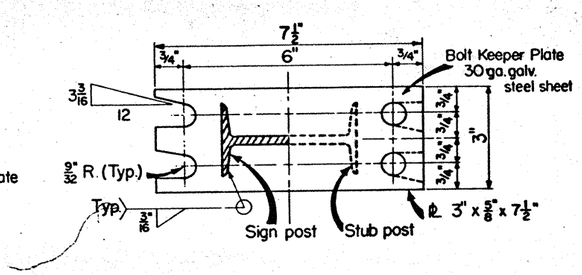
BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:
1. ASSEMBLE POST TO STUB WITH BOLTS AND WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. SHIM AS REQUIRED TO PLUMB POST.
3. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH 12" TO 15" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS, THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN BOLTS IN A SYSTEMATIC ORDER TO 200 ft. lbs. TORQUE. DO NOT OVERTIGHTEN.
4. BURR THREADS AT JUNCTION WITH NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

½" ϕ x 2½" H.S. bolt with hex. hd., hex. nut & 3 washers with each bolt. Torque = 200" #. See bolting procedure.

Remove all galvanizing runs or beads in washer area.

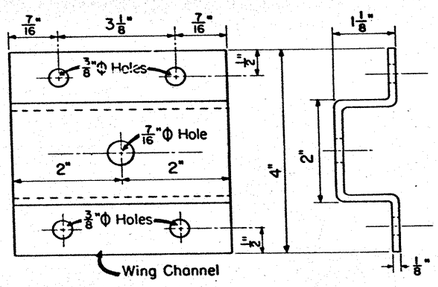


SIGN POST AND STUB POST ELEVATION FOR TYPE G MOUNT

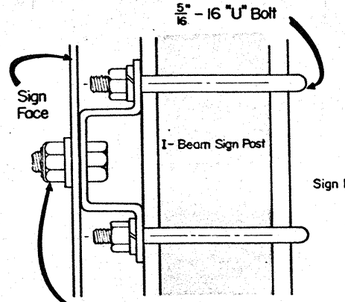


Section C-C Section D-D

NOTE: Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.

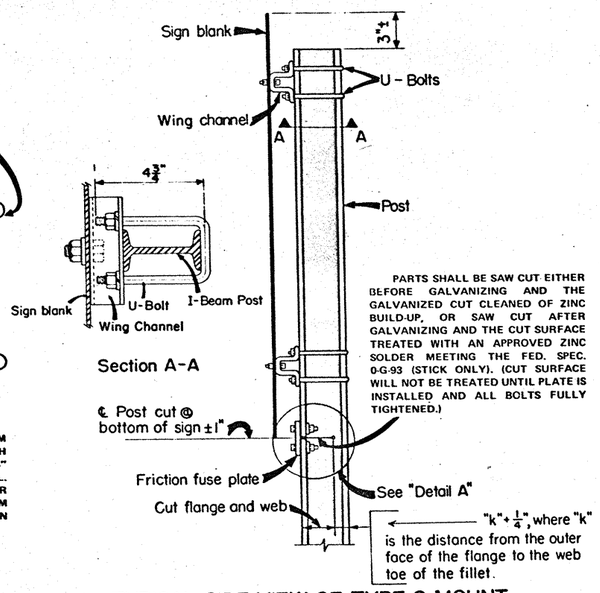


WING CHANNEL, 4" WIDTH x 1 1/8" DEPTH x 1/8" THICKNESS, SHALL BE ALUMINUM (ASTM B-221 6061-T6 OR B308 6061-T6), GALV. STEEL (ASTM A-36) OR STAINLESS STEEL (ASTM A-:67 TYPE 304, NO. 2B FINISH).



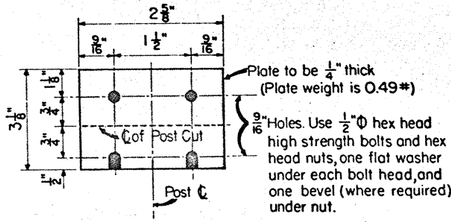
GALV. STEEL OR ALUMINUM SELF-LOCKING HEX. HEAD NUT WITH NON-METALIC INSERT. 3/8" - 16 x 3/4" HEX. HEAD BOLT FOR SHEET METAL. 3/8" - 16 x 1 1/4" HEX. HEAD BOLT FOR SHEET PLYWOOD. 3/8" MEDIUM WASHER GALV. STEEL SHALL BE AS IN ASTM A 164 TYPE GS.

WING CHANNEL CLAMP DETAIL
FOR HOLDING SIGNS TO TYPE G MOUNT



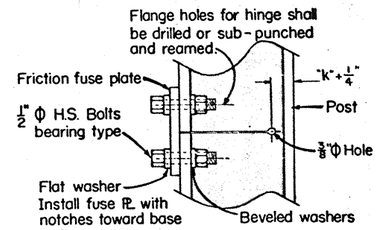
PARTS SHALL BE SAW CUT EITHER BEFORE GALVANIZING AND THE GALVANIZED CUT CLEANED OF ZINC BUILD-UP, OR SAW CUT AFTER GALVANIZING AND THE CUT SURFACE TREATED WITH AN APPROVED ZINC SOLDER MEETING THE FED. SPEC. O-G-93 (STICK ONLY). (CUT SURFACE WILL NOT BE TREATED UNTIL PLATE IS INSTALLED AND ALL BOLTS FULLY TIGHTENED.)

TYPICAL SIDE VIEW OF TYPE G MOUNT



Friction Fuse Plate Detail

NOTCHED STEEL FRICTION FUSE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM-A441. (ASTM-A572 GRADE 50 OR ASTM-A588 MAY BE SUBSTITUTED FOR A441 AT THE OPTION OF THE FABRICATOR). ALL HOLES SHALL BE DRILLED. ALL PLATE CUTS SHALL PREFERABLY BE SAW CUTS. HOWEVER; FLAME CUTTING WILL BE PERMITTED PROVIDED ALL EDGES ARE GROUND. METAL PROJECTING BEYOND THE PLANE OF THE PLATE FACE WILL NOT BE PERMITTED.



Detail "A" Hinge

FABRICATOR NOTE: IMPORTANT - ALL FRICTION FUSE BOLTS SHALL BE TIGHTENED IN THE SHOP FOLLOWING A METHOD APPROVED BY THE ENGINEER. TIGHTENING SHALL BE TO SUCH A DEGREE AS TO OBTAIN 12,050 LBS. OF MINIMUM RESIDUAL TENSION IN EACH 1/2" DIAMETER BOLT.

GENERAL NOTES:
DESIGN CONFORMS WITH A.A.S.H.T.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS.

MATERIALS AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF TEXAS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS AND SPECIAL SPECIFICATIONS.

ALL HIGH STRENGTH BOLTS, NUTS, AND WASHERS SHALL CONFORM TO ASTM-A325 (ASTM-A449 MAY BE SUBSTITUTED FOR ASTM-A325 PROVIDED PROPER BOLT HEAD, NUT AND/OR WASHER CLEARANCES ARE MAINTAINED).

ALL BOLTS OTHER THAN HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM-A307 CLASS A (ASTM-A394, A325 OR A449 MAY BE SUBSTITUTED FOR ASTM-A307 PROVIDED PROPER BOLT HEAD, NUT AND/OR WASHER CLEARANCES ARE MAINTAINED).

ALL STRUCTURAL STEEL, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER ITEM 442 OF THE STANDARD SPECIFICATION. STRUCTURAL STEEL TO BE GALVANIZED AFTER FABRICATON EXCEPT AS NOTED.

STRUCTURAL STEEL SHALL CONFORM WITH THE REQUIREMENTS OF ASTM SPECIFICATION A441.(ASTM-A572 GRADE 50 OR ASTM-A588 MAY BE SUBSTITUTED FOR A441 AT THE OPTION OF THE FABRICATOR).

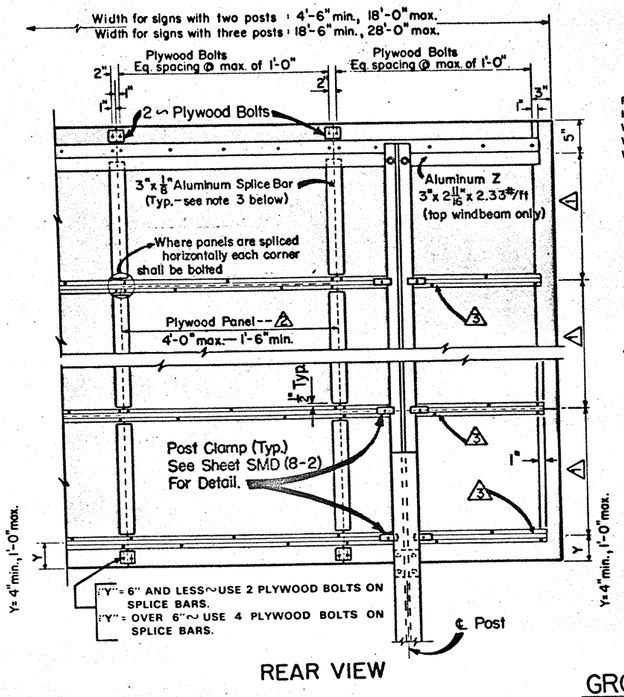
GALVANIZING OF ALL POSTS SHALL BE PROJECTION ABOVE CONCRETE PLUS 6" MINIMUM.

WHERE SOLID ROCK IS ENCOUNTERED, FOOTING SHALL BE PLAN DEPTH OR EXTEND TWO FEET MINIMUM INTO THE ROCK.

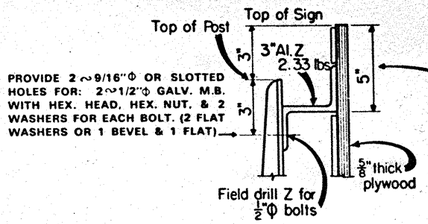
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

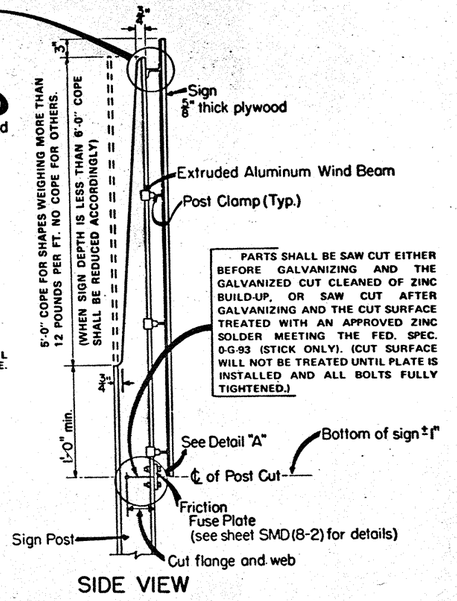
STRUCTURAL
MOUNTING DETAILS 77
FOR LARGE REGULATORY SIGNS
SMD(2)

ORIGINAL DRAWING DATE: 5-74		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DN.:-	REVISIONS	21		I 35-1(32)002		77
CK.:-	4-75: "no cut" depth note	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DN.:-	6-75: hinge hole	Ward		8	3	5	IH-35
CK.:-							



REAR VIEW





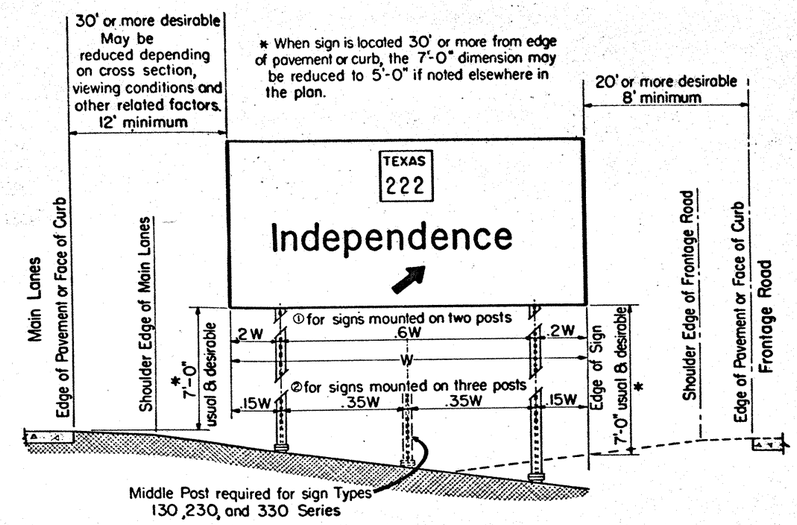
SIDE VIEW

⚠ APPROXIMATELY EQUAL SPACING ~ FABRICATOR MAY VARY SPACING FOR LEAST INTERFERENCE WITH MESSAGE AND TO UTILIZE WIND BEAM FOR HORIZONTAL SPLICE PROVIDED NO WIND BEAM SPACING EXCEEDS THE MAXIMUM SHOWN IN THE TABLE.

⚠ FOR SIGNS 4'-0" OR LESS IN DEPTH THE PLYWOOD PANEL MAY BE A MAXIMUM WIDTH OF 8'-0" WITHOUT A SPLICE.

⚠ EXTRUDED ALUMINUM WIND BEAMS. (SEE SHEET SMD(8-2)FOR DETAIL.) WINDBEAMS TO BE CONTINUOUS WITH NO SPLICES.

TYPICAL ASSEMBLY FOR GROUND MOUNTED GUIDE SIGNS



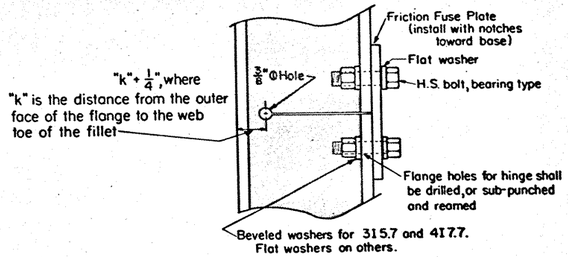
TYPICAL SIGN INSTALLATION AND LOCATION

① POST SPACINGS MAY BE VARIED A MAXIMUM OF PLUS 10% TO MINUS 10% OF TOTAL SIGN WIDTH TO FIT FIELD CONDITIONS.

② POST SPACINGS MAY BE VARIED A MAXIMUM OF PLUS 5% TO MINUS 5% OF TOTAL SIGN WIDTH TO FIT FIELD CONDITIONS.

NOTE:

1. A TOLERANCE OF PLUS OR MINUS 1/4 INCH WILL BE PERMITTED IN THE PLAN DIMENSIONS FOR FABRICATION OF EACH SINGLE INCREMENT SIGN PANEL WHEN NECESSARY FOR SQUARING. A TOLERANCE OF PLUS OR MINUS 1/4 INCH WILL BE PERMITTED FOR EACH INCREMENT OF A MULTI-INCREMENT SIGN PANEL WHERE NECESSARY TO SECURE SQUARE, TIGHT-FITTING JOINTS.
2. PLYWOOD BOLTS: 5/16" x 1 1/2" FLAT HEAD ELEVATOR TYPE STEEL BOLT WITH 3/4" MINIMUM THREAD LENGTH. THE HEAD SHALL HAVE A MINIMUM DIAMETER OF 3/4" AND SHALL HAVE A MINIMUM OF TWO FINS ON THE UNDERSIDE. EACH BOLT SHALL BE PROVIDED WITH ONE 5/16" STEEL HEX NUT, ONE 5/16" STEEL FLAT WASHER, AND ONE 5/16" STEEL LOCK WASHER. BOLTS, NUTS, AND WASHERS SHALL BE HOT DIPPED GALVANIZED AS PER ITEM 442 OF STANDARD SPECIFICATIONS.
3. SPLICE BARS SHALL BE SECURED WITH 5/8" LONG x NO. 10 ROUND HEAD, CADMIUM PLATED, BRASS WOOD SCREWS SPACED AT 6" MAXIMUM ALONG DOUBLE ROW SPACING WITH THE EXCEPTION AT EXTREME ENDS OF SPLICE BARS, ALONG OUTSIDE EDGE OF SIGN, WHERE PLYWOOD BOLTS SHALL BE USED AS SHOWN. A MAXIMUM OF ONE HORIZONTAL JOINT PER VERTICAL SECTION WILL BE PERMITTED USING A 1/8" GAP BETWEEN PANELS AND AN ALUMINUM WASHER BETWEEN THE SPLICE PLATE AND THE PLYWOOD.



DETAIL "A"-HINGE

FABRICATOR NOTE: IMPORTANT - ALL FRICTION FUSE BOLTS SHALL BE TIGHTENED IN THE SHOP FOLLOWING A METHOD APPROVED BY THE ENGINEER. TIGHTENING SHALL BE TO SUCH A DEGREE AS TO OBTAIN THE FOLLOWING MINIMUM RESIDUAL TENSION IN EACH BOLT:

BOLT SIZE	MIN. RESIDUAL BOLT TENSION
1/2"Φ	12050 LBS.
5/8"Φ	19200 LBS.
3/4"Φ	28400 LBS.

WIND BEAM TABLES

NOTE: WIND BEAM SPACINGS FOR SIGN WIDTHS OTHER THAN EVEN FEET, SELECT FROM NEXT LONGER EVEN FEET.

ZONE 1 (Types 100)

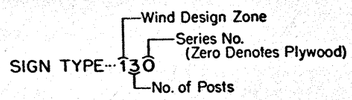
	Two Posts (120)							Three Posts (130)								
Sign Width (W)	4' thru 12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	24'	25'	26'	27'	28'
Max. Wind Beam Spacing ⚠	4'-0"	3'-8"	3'-4"	3'-0"	2'-8"	2'-4"	2'-0"	4'-0"	3'-9"	3'-6"	3'-3"	3'-0"	2'-9"	2'-6"	2'-3"	2'-0"

ZONE 2 (Types 200)

	Two Posts (220)			Three Posts (230)			
Sign Width (W)	4' thru 16'	17'	18'	19' thru 24'	25'	26'	27'	28'
Max. Wind Beam Spacing ⚠	4'-0"	3'-9"	3'-6"	4'-0"	3'-9"	3'-6"	3'-3"	3'-0"

ZONE 3 (Types 300)

	Two Posts (320)	Three Posts (330)
Sign Width (W)	4' thru 18'	19' thru 28'
Max. Wind Beam Spacing ⚠	4'-0"	4'-0"



CODE

GENERAL NOTES:

DESIGN CONFORMS WITH A.A.S.H.T.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS.

MATERIALS AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF TEXAS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS AND SPECIAL SPECIFICATIONS.

ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM-A441 (ASTM-A572 GRADE 50, OR ASTM-A588 MAY BE SUBSTITUTED FOR A441 AT THE OPTION OF THE FABRICATOR).

ALL SHEET AND PLATE ALUMINUM SHALL CONFORM TO ASTM-B209 ALLOY 6061-T6. ALL EXTRUDED ALUMINUM SHALL CONFORM TO ASTM-B221 ALLOY 6061-T6. CAST ALUMINUM POST CLAMPS SHALL CONFORM TO ASTM-B26 ALLOY SG70A-T6, ASTM-B108 ALLOY SG70A-T6, ASTM-B26 ALLOY ZC81A, OR ASTM-B108 ALLOY ZC81B.

ALL HIGH STRENGTH BOLTS, NUTS, AND WASHERS SHALL CONFORM TO ASTM-A325 (ASTM-A449 MAY BE SUBSTITUTED FOR ASTM-A325 PROVIDED PROPER BOLT HEAD, NUT AND/OR WASHER CLEARANCES ARE MAINTAINED).

ALL BOLTS OTHER THAN HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM-A307 CLASS A (ASTM-A394, A325 OR A449MAY BE SUBSTITUTED FOR ASTM-A307 PROVIDED PROPER BOLT HEAD, NUT AND/OR WASHER CLEARANCES ARE MAINTAINED).

ALL STRUCTURAL STEEL, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER ITEM 442 OF THE STANDARD SPECIFICATIONS EXCEPT AS NOTED. STRUCTURAL STEEL TO BE GALVANIZED AFTER FABRICATION EXCEPT AS NOTED.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

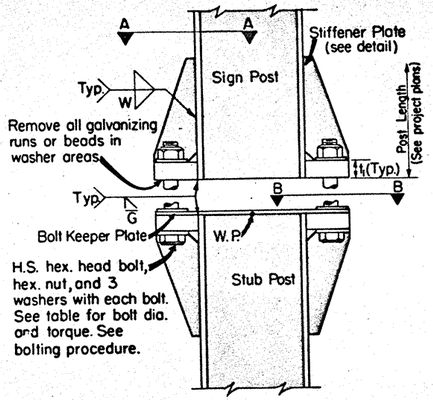
STRUCTURAL

MOUNTING DETAILS 78

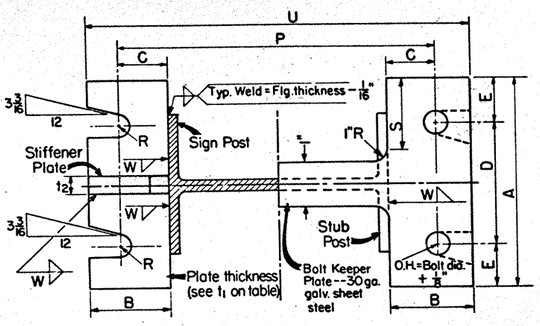
FOR ROADSIDE GUIDE SIGNS

SMD(8-1)

ORIGINAL DRAWING DATE: 5-74 esr		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN:- CK:- DW:- CK:-	REVISIONS 4-75 : remove light bracket 6-75 : hinge hole	21		I 35-(130) 002	75
		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
		Wise		18	3	4	1



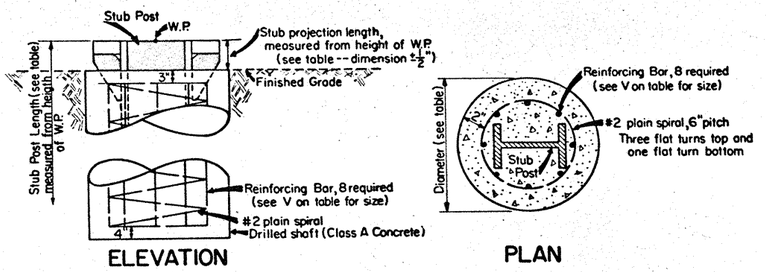
ELEVATION



SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE HAND FROM THAT SHOWN FOR INSTALLATIONS ON LEFT SHOULDER.

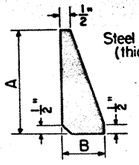
SECTION A-A SECTION B-B
(See Table for Dimensions)

SIGN POST AND STUB POST
(For WF and B Shapes)

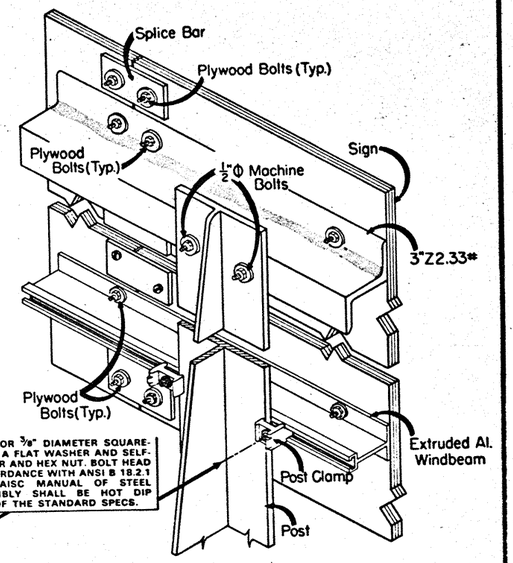


ELEVATION PLAN

FOUNDATION DETAIL



STIFFENER PLATE DETAIL
(See Table for Dimension)



SIGN COMPONENTS IN ASSEMBLY

BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

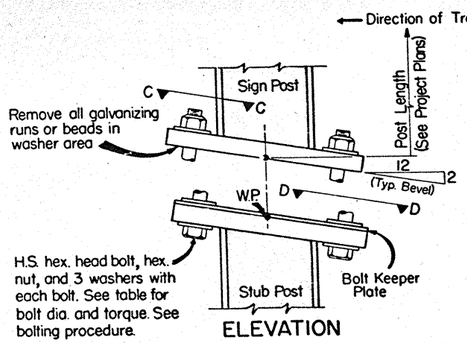
1. ASSEMBLE POST TO STUB WITH BOLTS AND WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. SHIM AS REQUIRED TO PLUMB POST.
3. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH 12" TO 15" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE. (SEE TABLE)
4. BURR THREADS AT JUNCTION WITH NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

Dimensions / Post Size	Base Connection Data Table: Bolt Size & Torque	A	B	C	D	E	t_1	t_2	W	R
6B8.5	5/8"Φ x 2 3/4" Torque = 450"#	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32
6B12										
6WF15.5										
8WF17										
8WF20	3/4"Φ x 3 1/2" Torque = 750"#	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4	5/16	13/32
10WF21										
10WF25										
12WF27										
315.7	7/8"Φ x 2 1/2" Torque = 200"#	See Detail Below								
417.7										

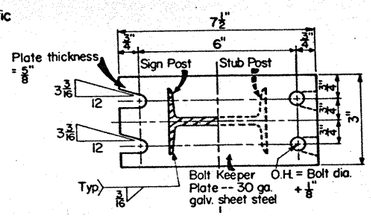
Dimensions / Post Size	Fuse Plate Data Table: F	G	H	J	K	L	N	d_1	t_3	Bolt Dia.	Wt. of Each Fuse Plate
6B8.5	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2"Φ	.94 lbs.
6B12	4 3/8"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"					2.58 lbs.
6WF15.5	4 3/8"	2 1/2"	1 1/4"	5 1/2"	2 3/4"	1 1/4"	5/8"	11/16"	3/8"	5/8"Φ	2.24 lbs.
8WF17											
8WF20	4 3/4"	2 1/2"	1 1/2"	5 1/2"	2 3/4"	1 1/4"	3/4"	13/16"	1/2"	3/4"Φ	2.95 lbs.
10WF21	5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"	13/16"	1/2"	3/4"Φ	3.88 lbs
10WF25											
12WF27	5 1/4"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	3/4"	13/16"	1/2"	3/4"Φ	4.44 lbs.
315.7	3 5/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"	9/16"	1/4"	1/2"Φ	0.49 lbs.
417.7	See Detail Below										

Dimensions / Post Size	Bolt Keeper Data: P	S	U	Foundation Data: Stub Length	Stub Projection	Dr. Shaft Diameter	Bar V Size
6B8.5	8 5/8"	1"	9 7/8"	2'-0"	3"	24"	#5
6B12	8 1/2"		10"	2'-0"	3"		#5
6WF15.5	8 1/2"		10"	2'-6"	3"		#6
8WF17	10 1/2"		12"	2'-6"	3"		#7
8WF20	10 7/8"	1 1/2"	12 5/8"	3'-0"	2 1/2"		#8
10WF21	12 3/8"		14 1/8"	3'-0"	2 1/2"		#9
10WF25	12 7/8"		14 5/8"	3'-0"	2 1/2"		#10
12WF27	14 3/4"		16 1/2"	3'-0"	2 1/2"		#11
315.7	See Detail Below			3'-3 1/2"	3 1/2"	12"	Non-reinforced *
417.7							

FOUNDATION DESIGN SHALL BE THE SAME AS THAT SHOWN FOR LARGE REGULATORY SIGN ON SHEET SMD (2). *



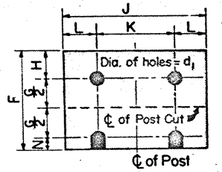
ELEVATION



SECTION C-C SECTION D-D

SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE HAND FROM THAT SHOWN FOR INSTALLATIONS ON LEFT SHOULDER.

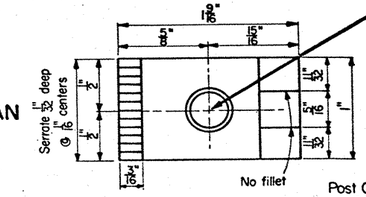
SIGN POST AND STUB POST
(For 417.7 and 315.7)



Use H.S. hex. head bolts, hex. head nut and bevel or flat washer (where req'd.) under nut. Plate thickness = t_3

FRICTION FUSE PLATE DETAIL
(See Table for Dimensions & Weight)

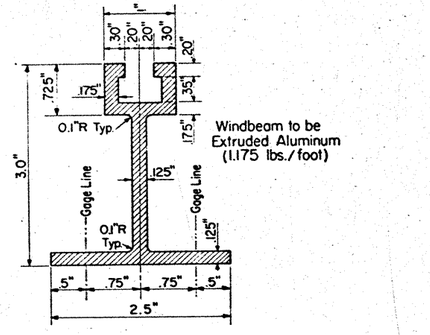
NOTCHED STEEL FRICTION FUSE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM-A441 (ASTM-A572 GRADE 50 OR ASTM-A588 MAY BE SUBSTITUTED FOR A441 AT THE OPTION OF THE FABRICATOR). ALL HOLES SHALL BE DRILLED. ALL PLATE CUTS SHALL PREFERABLY BE SAW CUTS. HOWEVER; FLAME CUTTING WILL BE PERMITTED PROVIDED ALL EDGES ARE GROUND. METAL PROJECTING BEYOND THE PLANE OF THE PLATE FACE WILL NOT BE PERMITTED.



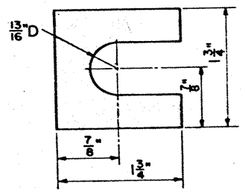
ELEVATION

Post Clamp to be Cast Aluminum (.173 lbs. each)

POST CLAMP DETAIL



WINDBEAM CROSS SECTION



SHIM DETAIL

FURNISH 2"-.012" ± THICK AND 2"-.032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. -B36.

NOTE: CENTERLINE OF HOLE FOR 3/8" DIAMETER SQUARE-HEAD BOLT x 2 1/4" LONG WITH A FLAT WASHER AND SELF-LOCKING NUT, OR LOCK WASHER AND HEX NUT. BOLT HEAD DIMENSIONS SHALL BE IN ACCORDANCE WITH ANSI B 18.2.1 AS REFERRED TO IN THE AISC MANUAL OF STEEL CONSTRUCTION. BOLT ASSEMBLY SHALL BE HOT DIP GALVANIZED AS IN ITEM 442 OF THE STANDARD SPECS.

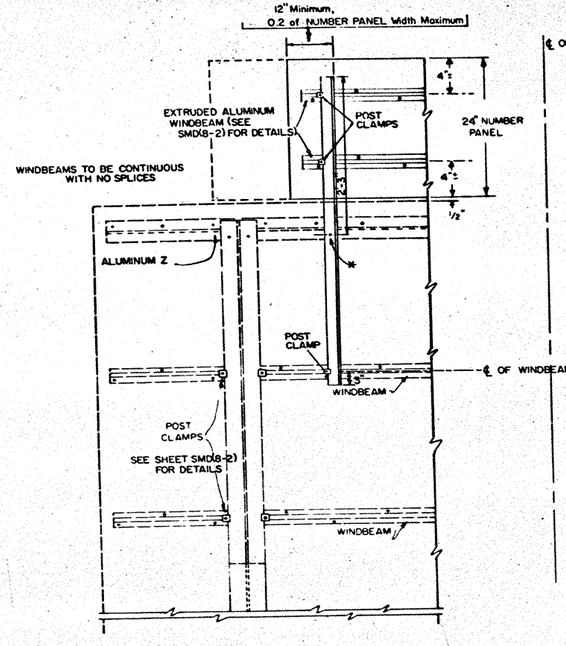
For General Notes pertaining to this sheet see the General Notes on Standard Sheet SMD(8-1).

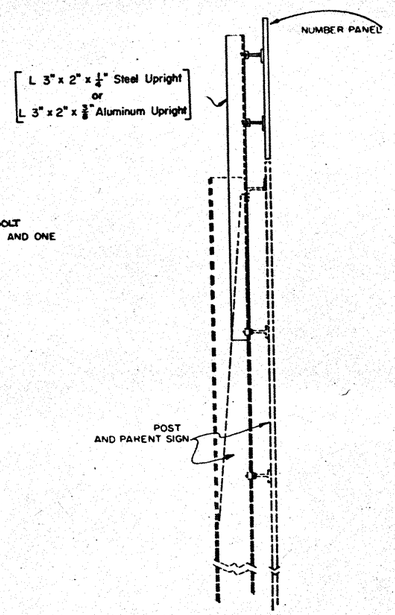
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

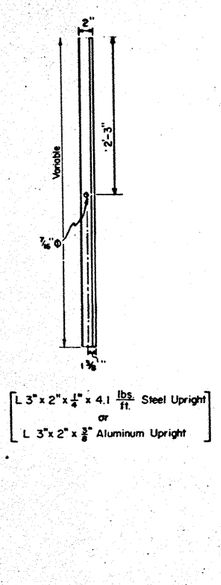
STRUCTURAL
MOUNTING DETAILS 79
FOR ROADSIDE GUIDE SIGNS
SMD(8-2)

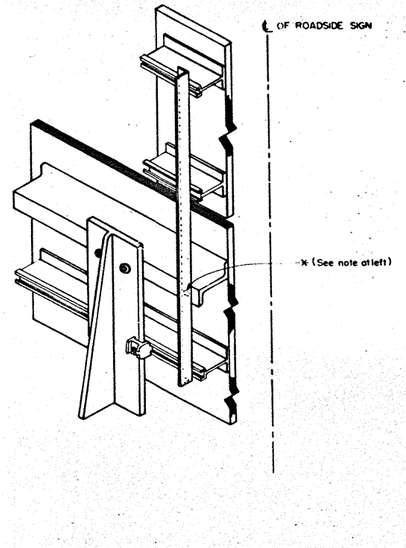
ORIGINAL DRAWING DATE: 5-74	65F	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DN:-- CK.:-- DW.:-- CK.:--	REVISIONS	21		I35-1(30)202		79
		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
		Webb		6	3	46	I-35

17





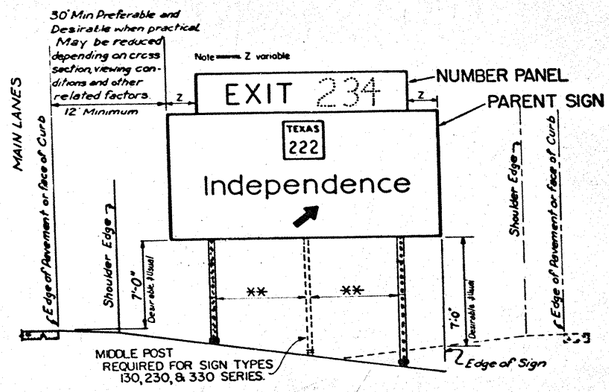




NOTES:

1. NUMBER PANEL TO BE CENTERED WITH PARENT SIGN, AND MOUNTED ON TWO (2) UPRIGHTS.
2. UPRIGHTS TO BE SYMMETRICAL ABOUT NUMBER PANEL ℄.
3. UPRIGHTS TO BE OF STRUCTURAL STEEL, ASTM-A36, AND HOT DIP GALVANIZED AFTER FABRICATION OR ALUMINUM 6061-T6.
4. BOLTS, NUTS, AND WASHERS TO BE OF STEEL ASTM-A307 AND HOT DIP GALVANIZED AS PER THD STANDARD SPECIFICATIONS.
5. WHEN SPLICE BARS ARE REQUIRED TO FABRICATE THE NUMBER PANEL, THE SPLICE BAR DETAIL AS SHOWN FOR THE PARENT SIGN ON SHEET SMD(8-1) IS TO BE USED. SPLICE BAR OR BARS ON NUMBER PANEL NEED NOT ALIGN WITH SPLICE BAR OR BARS ON PARENT SIGN.
6. POSTS, PARENT SIGN PANELS AND NUMBER PANELS SHALL COMPLY WITH NOTES ON SHEETS SMD(8-1) AND SMD(8-2).
7. SIGNS (SUCH AS EXIT NUMBER PANELS) ATTACHED ABOVE A PARENT SIGN SHALL BE MADE OF THE SAME TYPE OF MATERIAL AS THE PARENT SIGN.
8. UPRIGHTS AND OTHER CONNECTION HARDWARE REQUIRED TO FASTEN EXIT NUMBER PANEL TO PARENT SIGN SHALL BE SUBSIDIARY TO THE SIGN BLANK.

NUMBER PANEL MOUNTING DETAILS



TYPICAL SIGN INSTALLATION AND LOCATION

NOTE—** *Post spacing shall be calculated from width of Parent sign (See Sheet SMD(8-1))*

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

STRUCTURAL

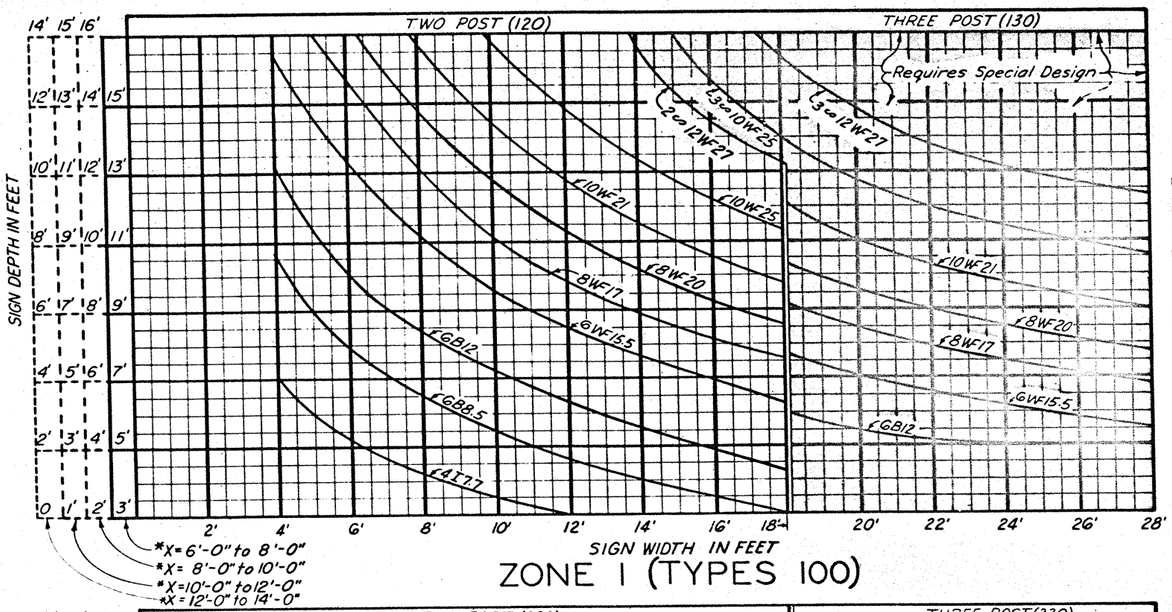
MOUNTING DETAILS 80

FOR ROADSIDE GUIDE SIGNS

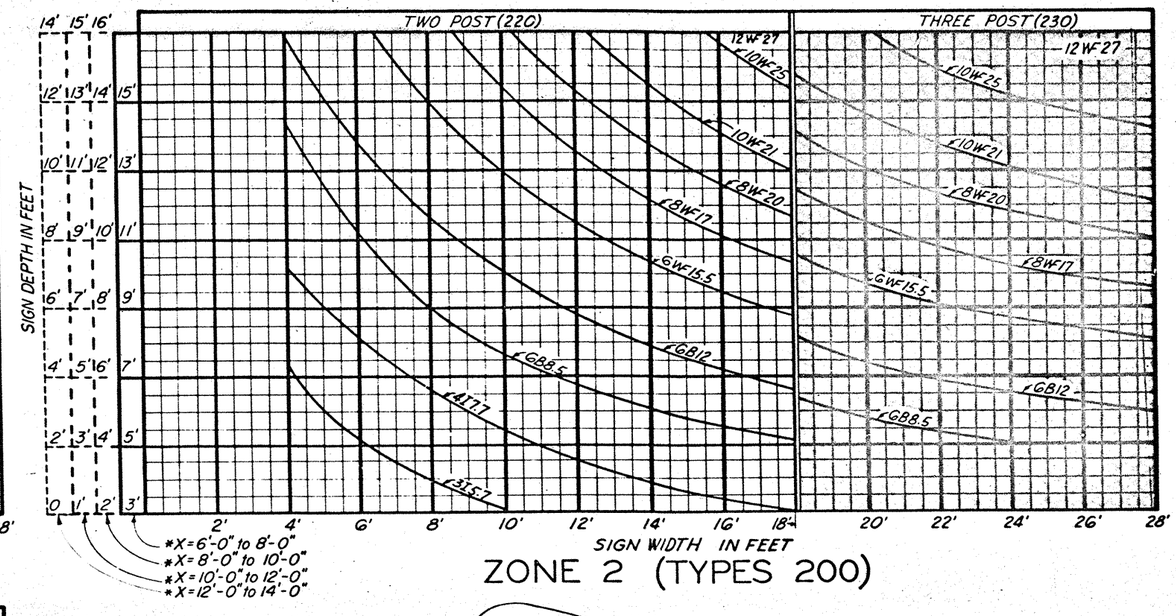
SMD(8-3)

ORIGINAL DRAWING DATE: 9-72 esr	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
REVISIONS: 10-73: notes 7 & 8; 2-76: Aluminum Upright	21		I35-1(36)0002	80
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
	LYNN	15	333	701	I-35

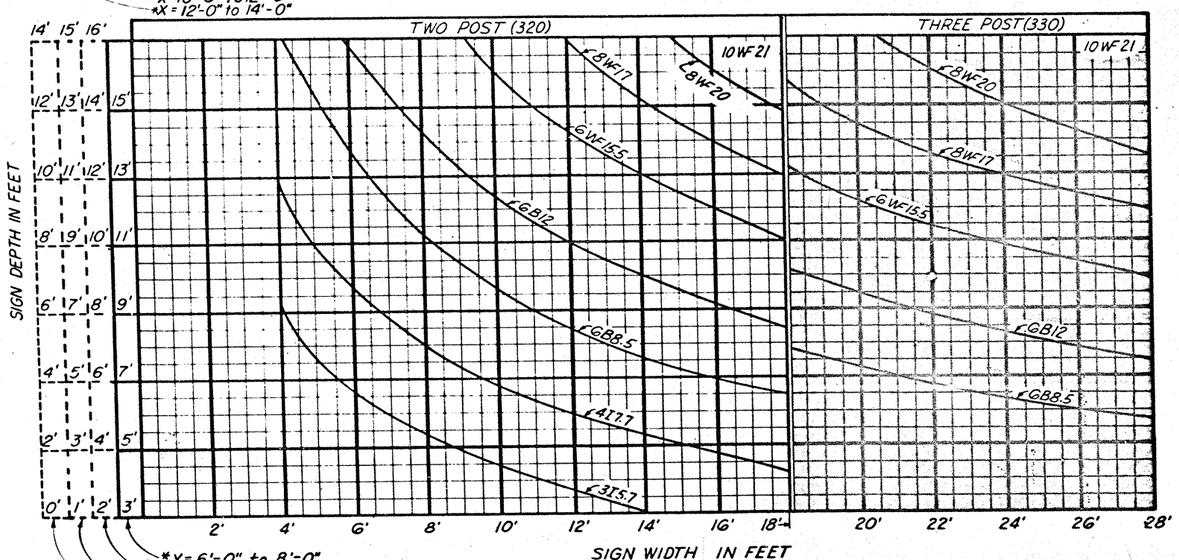
18A



ZONE 1 (TYPES 100)



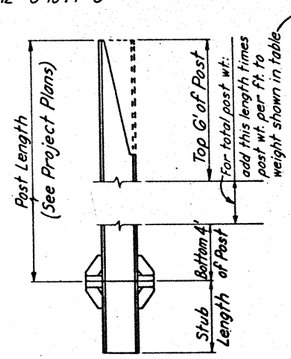
ZONE 2 (TYPES 200)



ZONE 3 (TYPES 300)

*NOTE: "X" equals the average height from the ground line to the bottom edge of the sign.

Shaded area denotes 3 post supports.



POST WEIGHT DATA			
POST SIZE	WEIGHT OF ONE POST (lbs)	WEIGHT OF TWO POSTS (lbs)	WEIGHT OF THREE POSTS (lbs)
6B8.5 #	116.7	233.4	350.1
6B12 #	160.3	320.6	480.9
6WF15.5 #	174.3	348.6	522.9
8WF17 #	188.8	377.6	566.4
8WF20 #	241.7	483.4	725.1
10WF21 #	253.0	506.0	759.0
10WF25 #	295.0	590.0	885.0
12WF27 #	316.7	633.4	950.1
3I5.7 #	85.9	171.8	257.7
4I7.7 #	112.2	224.4	336.6

*Last figures = post wt. per ft.

Weight Data is the weight of items shown for one, two, or three posts – (includes top 6' of post, bottom 4' of post, post foundation stub, related base connection plates and stiffners, Friction Fuse Plate and all high strength bolts, nuts and washers)

SIGN TYPE 130
- 1 = Wind Design Zone
- 3 = Series No. (Zero denotes plywood)
- 0 = No. of Posts

CODE

Notes:
1. Footings for 315.7 and 417.7 post sizes shall be non-reinforced, while footings for all other post sizes shall be reinforced.
2. All FI-1 Exit Signs with Exit Sign Number Panels shall be mounted on two 417.7 posts.
3. All FI-2 Exit Signs with Exit Sign Number Panels shall be mounted on two 315.7 posts.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

ROADSIDE GUIDE SIGN POST SELECTION WORKSHEET

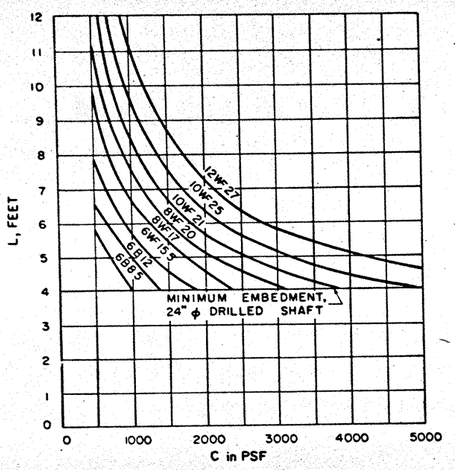
81

SMD(8WI)

ORIGINAL DRAWING DATE: 2-76	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN:-- REVISIONS	21		F55-1(8)002	81
CK:--	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
DW:--	Webb	15	[illegible]	[illegible]	[illegible]
CK:--					

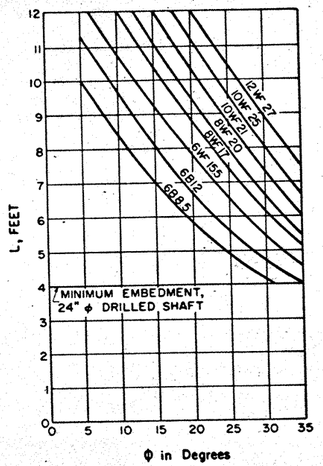
19A

I



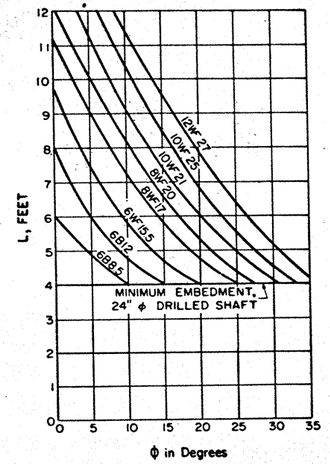
ϕ = 0 Degrees

II



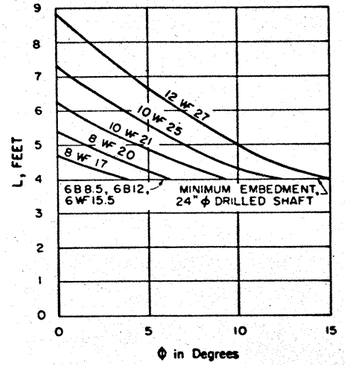
C = 0 PSF

III



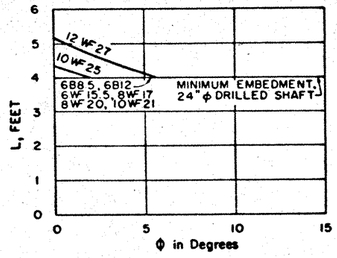
C = 500 PSF

IV



C = 2000 PSF

V



C = 4000

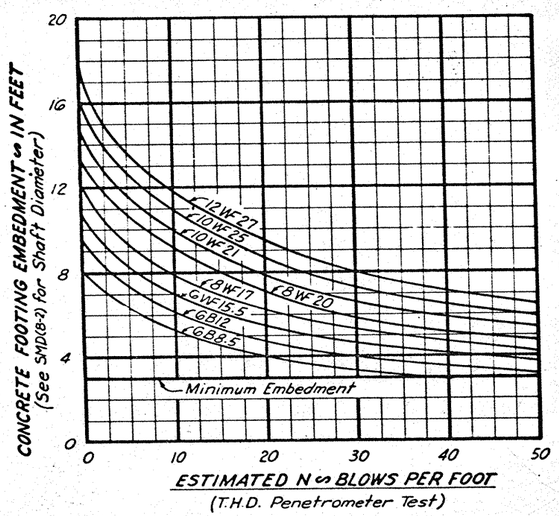
DRILLED CONCRETE FOOTING DEPTH CHART (COHFRIC DESIGN)

NOTE: THESE CHARTS MAY BE USED AS AN ALTERNATE TO THE CHART BELOW, PROVIDED THAT SOIL COHESION AND INTERNAL FRICTION (COHFRIC) DATA ARE AVAILABLE.

LEGEND:

L = Required embedment of concrete drilled shaft, in feet
C = Cohesive shear strength of soil, in psf
Ø = Angle of internal friction of soil, in degrees

For values of C and Ø which are intermediate to those on the charts, embedments may be determined by straight-line interpolation.



DRILLED CONCRETE FOOTING DEPTH CHART (THD PENETROMETER DESIGN)

NOTE: ESTIMATED N SHOULD BE BASED AT APPROXIMATELY THE UPPER ONE-THIRD POINT OF THE DRILLED CONCRETE FOOTING BELOW THE GROUND LINE

Note:

1. Curves shown on this sheet are applicable for reinforced concrete footings only.

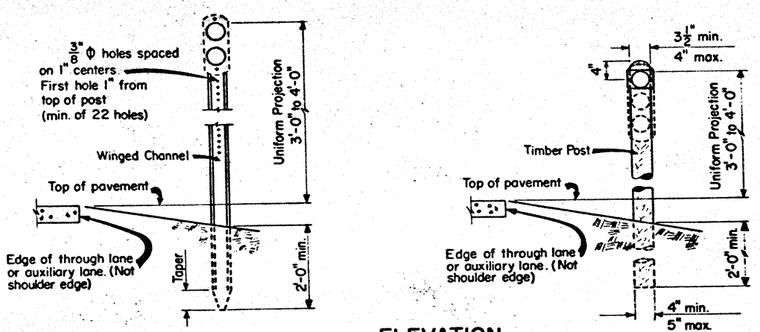
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

ROADSIDE GUIDE SIGN FOUNDATION WORKSHEET 82

SMD(8W2)

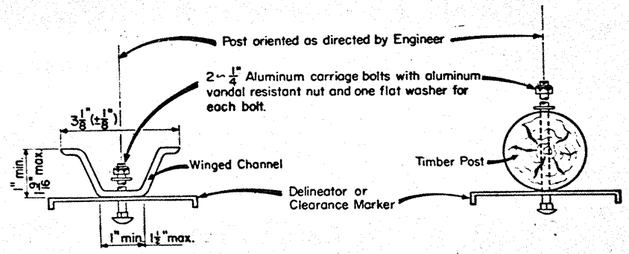
ORIGINAL DRAWING DATE: 7-72	8SF	REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN:-		5-74: 31 & 41 deleted	21		I 35-1(30)002	32
CK:-			COUNTY		CONTROL SECTION JOB	HIGHWAY
DW:-			WEB		15 [illegible]	[illegible]
CK:-						

198



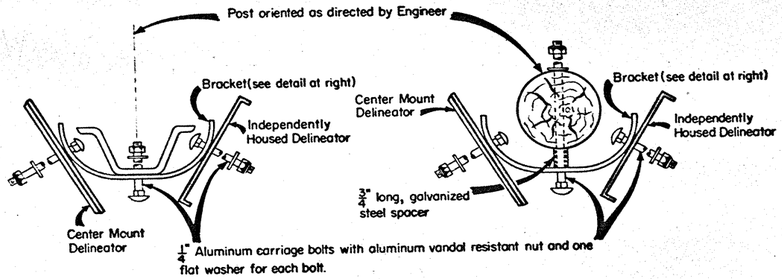
ELEVATION

Delineators—Types I, IB, II, & IIB
Clearance Marker—Type III-A



PLAN VIEW OF MONODIRECTIONAL MOUNTINGS

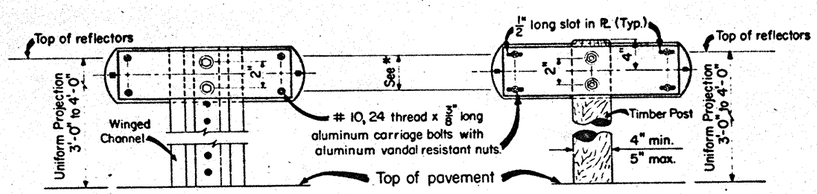
Delineators - Types I & II
Clearance Marker - Type III-A



PLAN VIEW OF BIDIRECTIONAL MOUNTINGS

Delineators—Types IB, & IIB
(DEPICTING INDEPENDENTLY HOUSED OR CENTER MOUNT UNITS)

DELINEATORS—TYPES I, IB, II, & IIB
AND CLEARANCE MARKER—TYPE III-A

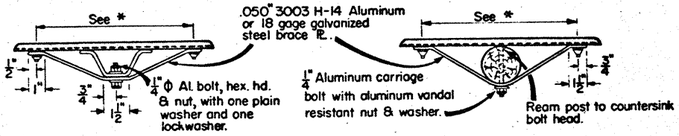


Winged channel shall be embedded a minimum of 2'-0".

REAR ELEVATION

Object Marker—Type IV-A

Post shall be embedded a minimum of 2'-0". The diameter of the post shall be 3 1/2 to 4 inches at the top and 4 to 5 inches at the bottom.

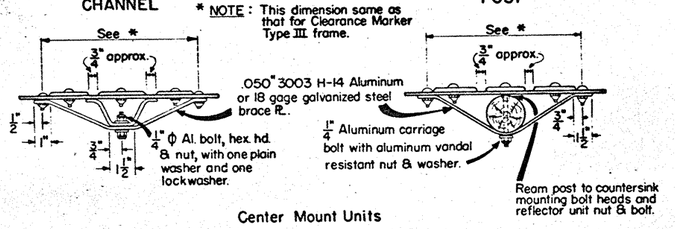


Independently Housed Units

ON WINGED CHANNEL

ON TIMBER POST

* NOTE: This dimension same as that for Clearance Marker Type III frame.

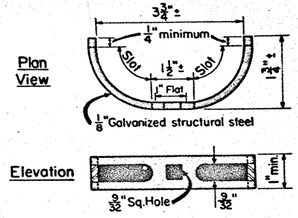


Center Mount Units

PLAN VIEW

Object Markers—Type IV-A

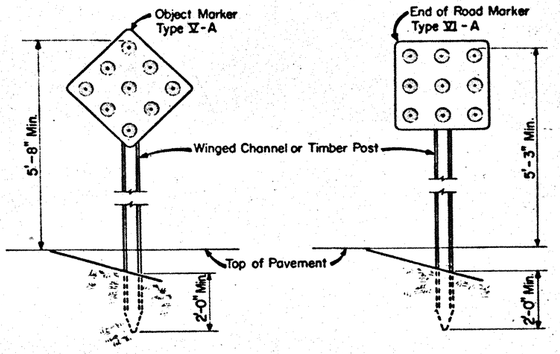
OBJECT MARKER—TYPE IV-A



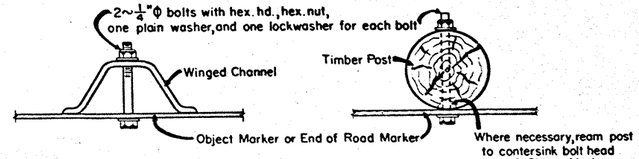
BIDIRECTIONAL BRACKET

For Delineators—Types IB & IIB Only

OBTAINABLE FROM THE TEXAS HIGHWAY DEPARTMENT

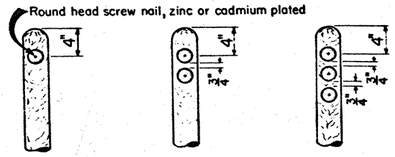


ELEVATION



PLAN VIEW

OBJECT MARKER—TYPE V-A
END OF ROAD MARKER—TYPE VI-A



CENTER MOUNT UNIT
TIMBER POST INSTALLATION

Delineators - Types I & II
Clearance Marker - Type III-A

GENERAL NOTES:

Location of Delineators - Types I & II, and Milepost Markers shall be uniformly placed not less than 2 feet or more than 6 feet from the edge of shoulder or the face of unmountable curb, or they shall be placed in line with the guard rail where guard rail is used.

Location of Clearance Markers - Type III-A, Object Markers - Types IV-A and V-A, End of Road Markers - Type VI-A, and Mileposts, to be at points designated on plan sheets.

Hardware shall be galvanized steel, stainless steel or aluminum; except as noted.

Posts for supporting reflector units shall be in accordance with the applicable specification items for delineator posts. Posts for Milepost Markers shall be in accordance with the applicable specification items for pipe posts.

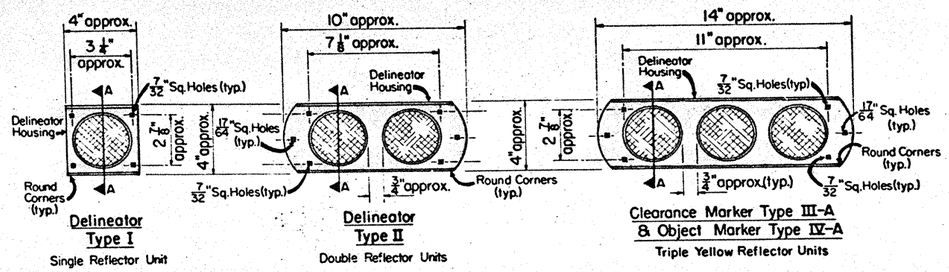
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

DELINEATORS, CLEARANCE AND OBJECT MARKERS, AND MILEPOSTS 83

D & M(1)

ORIGINAL DRAWING DATE: 5-74	8SF	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN.:- CK.:- DW.:- CK.:-	REVISIONS	21		F-55-1(63)208	83
		COUNTY		CONTROL SECTION JOB	HIGHWAY
		VARIOUS		15 ALL	VARIOUS

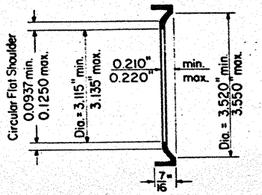
20A



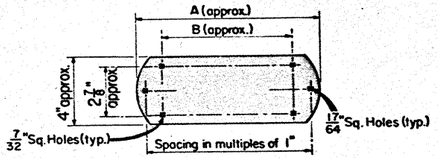
Delineator Type I
Single Reflector Unit

Delineator Type II
Double Reflector Units

Clearance Marker Type III-A & Object Marker Type IV-A
Triple Yellow Reflector Units



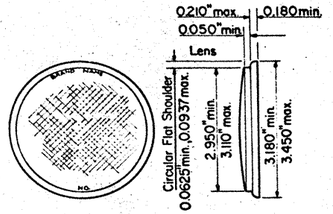
Section A-A
Reflector Unit Not Shown



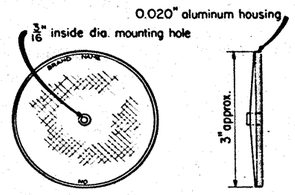
Delineator Back Plate

TYPE	A	B
I	6"	3 1/4"
II	10"	7 1/8"
III-A & IV-A	14"	11"

ACRYLIC PLASTIC REFLECTOR UNIT MARKERS
(Independently Housed)



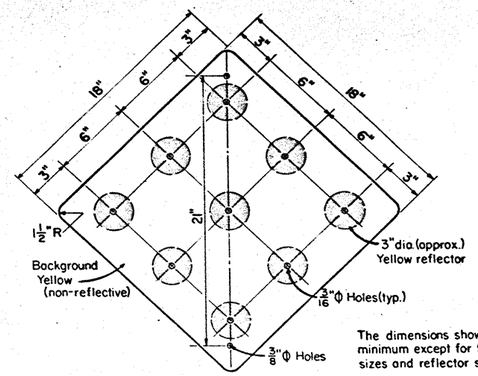
INDEPENDENTLY HOUSED REFLECTOR UNIT



CENTER MOUNT REFLECTOR UNIT

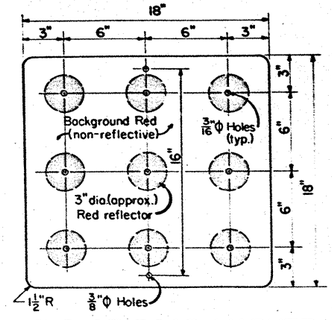
Spacing for Highway Delineators on Horizontal Curve

Degree of Curve	Radius on Curve	Spacing on Curve	Spacing in Advance of and Beyond Curves		
			First Space	Second Space	Third Space
	Feet	Feet	Feet	Feet	Feet
1	5730	225	300	300	300
2	2865	160			
3	1910	130	260		
4	1433	110	225		
5	1146	100	200		
6	955	90	185	275	
7	819	85	165	250	
8	716	75	155	230	
9	637	75	145	220	
10	573	70	135	205	
11	521	65	130	195	
12	478	60	125	185	



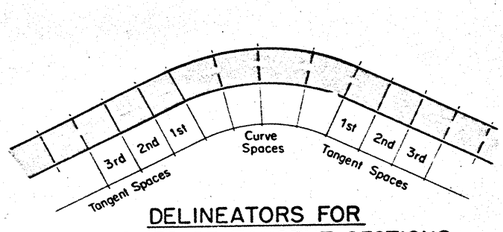
OBJECT MARKER TYPE V-A

The dimensions shown are minimum except for the hole sizes and reflector size



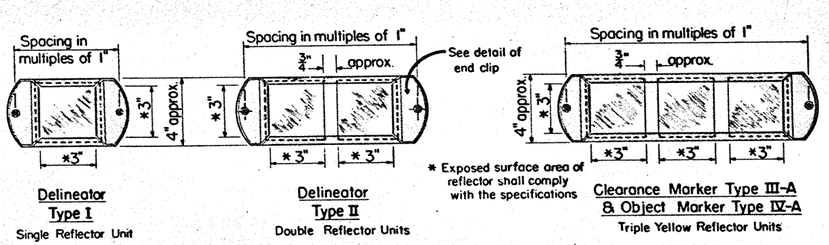
END OF ROAD MARKER TYPE VI-A

The Type V-A Object Marker and the Type VI-A End of Road Marker shall consist of center mount reflector units mounted on 0.080" thick sheet aluminum conforming with ASTM B209 Alloy 6061-T6, or 12 gage sheet steel conforming with ASTM A-415. Independently housed delineators are permissible for Type V-A and VI-A Markers.



DELINEATORS FOR CURVES OR TANGENT SECTIONS

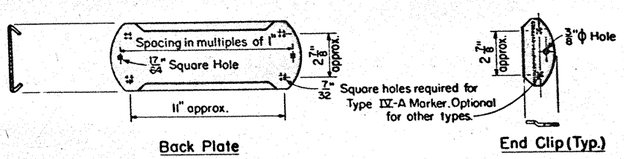
The delineator spacing, S, on the curve is found from the formula $S = 3\sqrt{R-50}$, where R is the radius of the curve in feet. The first spaces immediately in advance of and beyond the curve are 2.0 x S; the second spaces are 3.0 x S, and the third spaces are 6.0 x S but not to exceed 300 feet. Distance for spaces rounded to nearest 5 feet.



Delineator Type I
Single Reflector Unit

Delineator Type II
Double Reflector Units

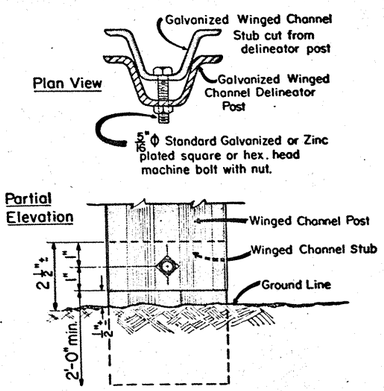
Clearance Marker Type III-A & Object Marker Type IV-A
Triple Yellow Reflector Units



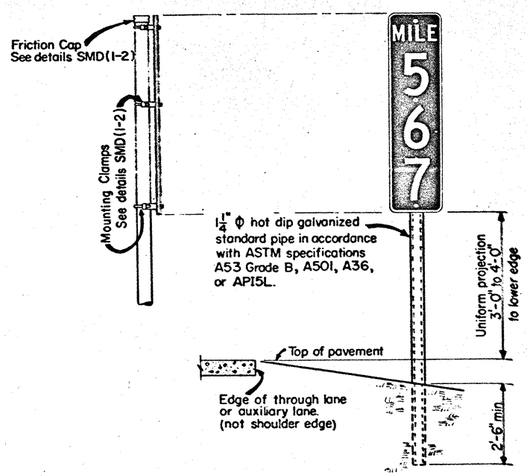
Back Plate

End Clip (Typ.)

ENCAPSULATED REFLECTIVE SHEETING MARKERS
Illustrative only -- see specifications for limitations



BREAK AWAY CHANNEL POST
(Where specified in the plans)



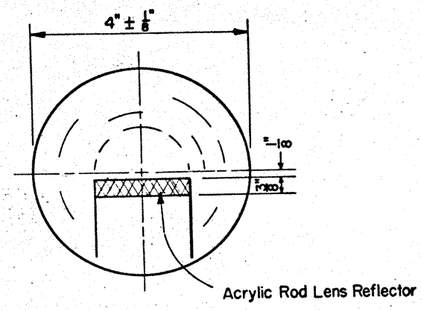
TYPICAL MILEPOST MARKER

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

DELINEATORS, CLEARANCE AND OBJECT MARKERS, AND MILEPOSTS 84

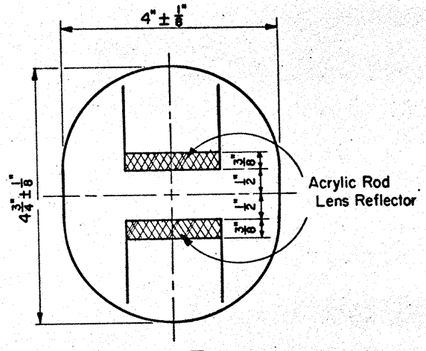
D & M(2)

ORIGINAL DRAWING DATE: 2-76	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
REVISIONS: 6-76 Delin. Color	21		I 35-1(30)003	84
DR.-	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
CK.-	Webb		5	33	42	1-35
DR.-						
CK.-						



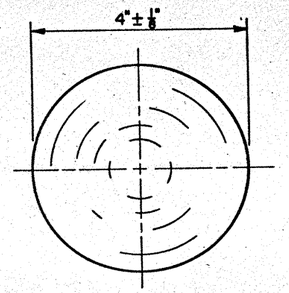
TYPE I

Top View

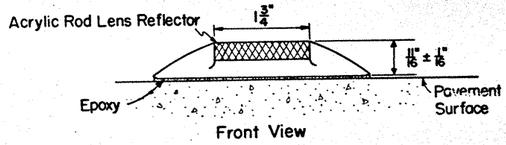


TYPE II

Top View

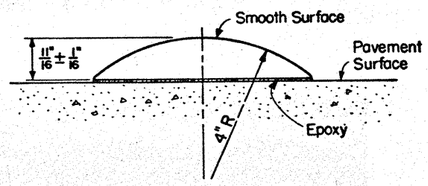


Top View

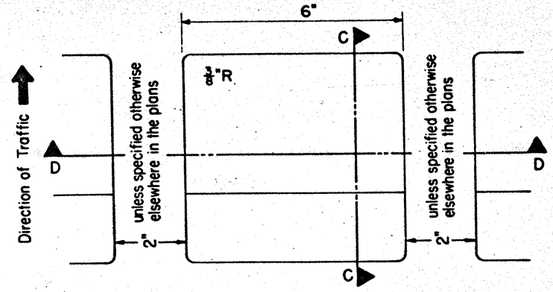


Front View

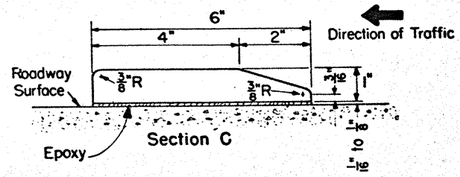
TRAFFIC BUTTONS
(REFLECTORIZED)
TYPES I & II

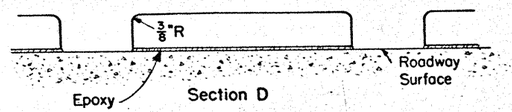


TRAFFIC BUTTONS
(NON-REFLECTORIZED)



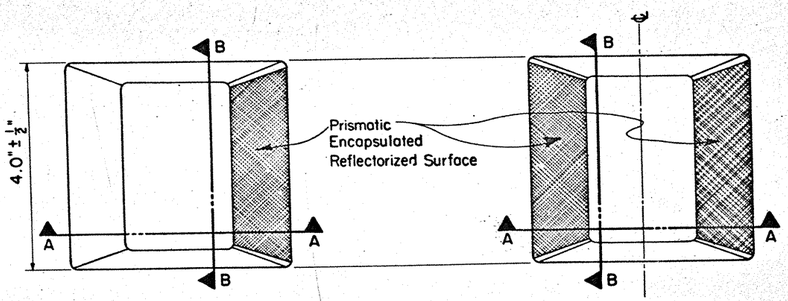
JIGGLE BAR IN PLACE
TOP VIEW





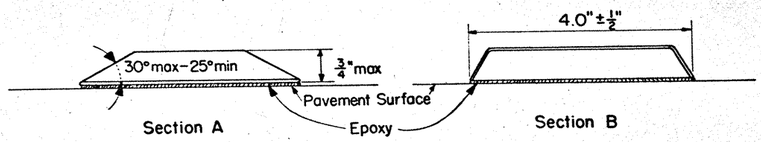
JIGGLE BAR TILES

"JIGGLE BARS" CONSIST OF A NUMBER OF JIGGLE BAR TILES PLACED IN A LINEAR CONFIGURATION.



TYPE I
Top View

TYPE II
Top View



PAVEMENT MARKERS
(REFLECTORIZED)
TYPES I & II

Minimum area of markers exposed to traffic shall be not less than 12.5 square inches.

GENERAL NOTES:

THE PAVEMENT UPON WHICH THE TRAFFIC BUTTONS, PAVEMENT MARKERS, AND JIGGLE BARS ARE TO BE PLACED SHALL BE GROUND, BUFFED, SANDBLASTED, OR OTHERWISE PREPARED AND APPROVED BY THE ENGINEER TO INSURE PROPER CLEANING OF THE PAVEMENT SURFACE. THEY SHALL BE BONDED TO THE ROADWAY SURFACE WITH EPOXY ADHESIVE CONFORMING WITH THE SPECIFICATIONS.

USUAL JIGGLE BAR SPACING IS 50' ON MEDIAN PAVED SHOULDERS, 100' ON OUTSIDE PAVED SHOULDERS AND SHALL BE MOUNTED PERPENDICULAR TO THE ROADWAY.

JIGGLE BARS SHALL ALSO BE PLACED AT SUCH OTHER LOCATIONS AS SHOWN ON THE PLAN AND PROFILE SHEETS OR WHERE DIRECTED BY THE ENGINEER.

MARKERS SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY. THEY ARE NOT INTENDED TO SPECIFY ANY PARTICULAR PRODUCT.

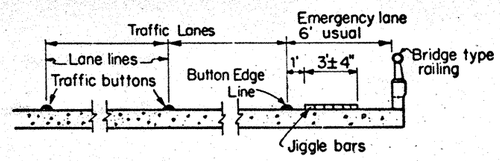
STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION

RAISED PAVEMENT MARKINGS
REFLECTIVE PAVEMENT MARKERS,
TRAFFIC BUTTONS,
& JIGGLE BARS

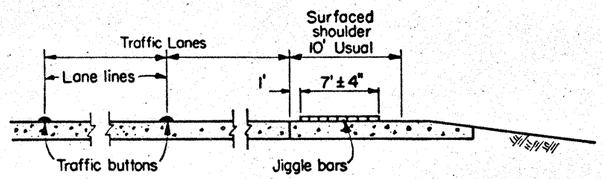
85

RPM(I)

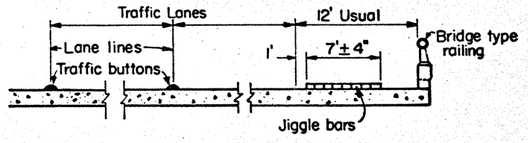
ORIGINAL DRAWING DATE: 5-74	85r	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT				SHEET
DN:--	REVISIONS	2/		I 55-(3)002				85
CK.:--		COUNTY		CONTROL	SECTION	JOB	HIGHWAY	
DW.:--		Webb		5	3	93	45-35	
CK.:--								21A



ON 6' EMERGENCY LANE



ON 10' SURFACED SHOULDER

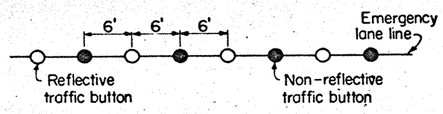


ON 12' SURFACED SHOULDER

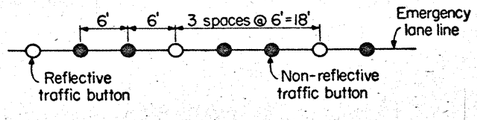
TYPICAL SECTIONS SHOWING TRAFFIC BUTTON & JIGGLE BAR LOCATIONS

(TRAFFIC BUTTON EDGE LINES NORMALLY USED ONLY WITH EMERGENCY LANES)

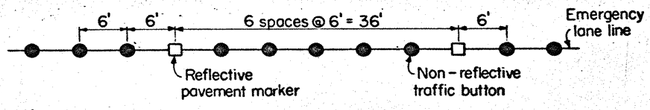
PATTERN "A"



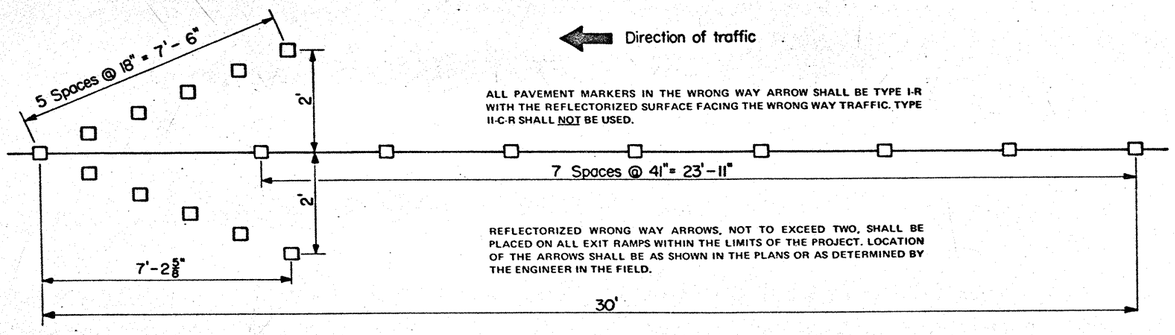
PATTERN "B"



PATTERN "C"



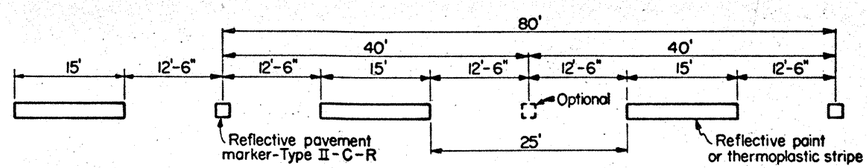
TRAFFIC BUTTONS FOR EMERGENCY LANE & SHOULDER EDGE LINES



ALL PAVEMENT MARKERS IN THE WRONG WAY ARROW SHALL BE TYPE I-R WITH THE REFLECTORIZED SURFACE FACING THE WRONG WAY TRAFFIC. TYPE II-C-R SHALL NOT BE USED.

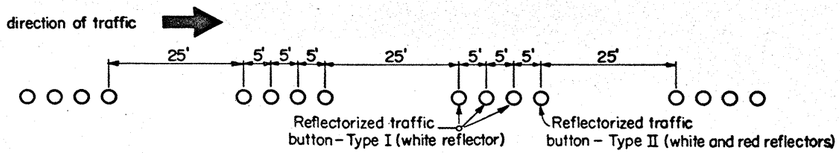
REFLECTORIZED WRONG WAY ARROWS, NOT TO EXCEED TWO, SHALL BE PLACED ON ALL EXIT RAMPS WITHIN THE LIMITS OF THE PROJECT. LOCATION OF THE ARROWS SHALL BE AS SHOWN IN THE PLANS OR AS DETERMINED BY THE ENGINEER IN THE FIELD.

WRONG WAY ARROW DETAIL



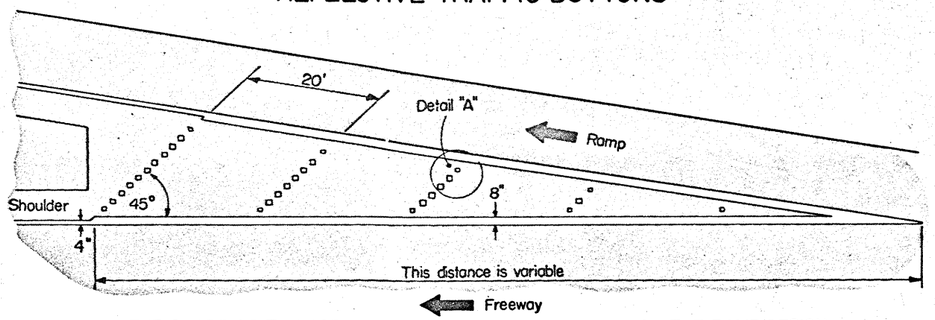
PAVEMENT MARKERS (REFLECTORIZED) TYPE II-C-R SHALL BE SPACED ON 80' CENTERS WITH THE CRYSTAL FACE TOWARD NORMAL TRAFFIC AND THE RED FACE TOWARD WRONG WAY TRAFFIC. THE MARKERS MAY ALSO BE SPACED ON EITHER 40' OR 160' CENTERS WHEN SHOWN ELSEWHERE IN THE PLANS.

REFLECTIVE PAVEMENT MARKERS ALONG PAINTED TRAFFIC LANE LINES



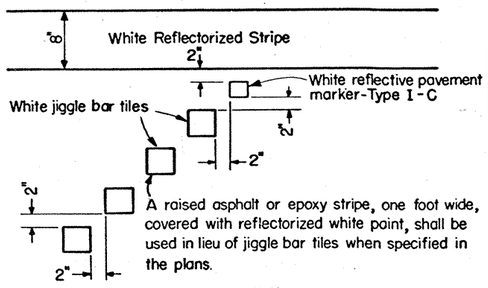
TRAFFIC BUTTONS (REFLECTORIZED) SHALL BE SPACED AS SHOWN WITH THE WHITE REFLECTIVE FACE TOWARD NORMAL TRAFFIC AND THE RED REFLECTIVE FACE TOWARD WRONG WAY TRAFFIC.

TRAFFIC LANE LINES FORMED WITH REFLECTIVE TRAFFIC BUTTONS



THE SHAPE OF THE GORE MARKING WILL VARY DEPENDING ON THE RAMP DESIGN AND WILL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

TYPICAL EXIT RAMP GORE MARKING



A raised asphalt or epoxy stripe, one foot wide, covered with reflectorized white paint, shall be used in lieu of jiggle bar tiles when specified in the plans.

DETAIL "A"

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

RAISED PAVEMENT MARKINGS

REFLECTIVE PAVEMENT MARKERS, TRAFFIC BUTTONS, & JIGGLE BARS

7300 / 01

86

RPM(2)

ORIGINAL DRAWING DATE: 5-74	6SF	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN:-	REVISIONS	21		FSS-(30)8019	86
CK.:-		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DW.:-		WILLACY		3	3	19	FM 88
CK.:-							

W-496-A

STATE OF TEXAS
STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
PROPOSED HIGHWAY IMPROVEMENT
STATE PROJECTS CSB 18-3-28,ETC.
NET LENGTH OF PROJECT = 688,312.65 FT.= 130.359 MI.

7536/137

FINAL PLANS

No Field Changes
No Supplemental Agreements
Let: 06-85
Comp: 10-85

Project No:	CSB 18-3-28, ETC.
Control:	18-3-28, ETC.
County:	WEBB, ETC.
Highway:	IH 35, ETC.
Type:	Seal Coat

INDEX OF PLAN SHEETS:

1	Title Sheet
2-2A	Location Maps
3-12	Estimate & Quantity
13-13B	Specification Data
14	SC(1)-82
15-21	BC(1) Thru (7)-82

SEE SHEETS 3 to 12 FOR PROJECT LIMITS, LENGTHS, EQUATIONS AND EXCEPTIONS.

Specifications adopted by the State Department of Highways and Public Transportation, September 1, 1982, shall govern on this project. Special Labor Provisions for State Projects (000---011).

TRAFFIC, DETOURS, BARRICADES, SEQUENCE OF WORK, ETC. See Item 7, Specification Item 502, & Special Provisions. Type III (C) Barricades with Signs G20-1, G20-2, R20-3, G20-6, & CW20-1D shall be erected at each end of each project under construction. Type III Barricades with Sign CW20-1D shall be placed at all roads and streets intersecting the sections of project where construction is underway. Additional Type II Barricades with Signs SCW13-1, CW21-2 and appropriate directional arrows will be used to direct traffic and protect the work in the immediate vicinity of operation.

Jack J Hammell
District Safety Committee

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION

CORRRECT: 4/19/85
DATE

Jack J Hammell
DISTRICT DESIGN ENGINEER

CORRECT: 4-19-85
DATE

S.G Cole
DIST. MAINTENANCE ENGINEER

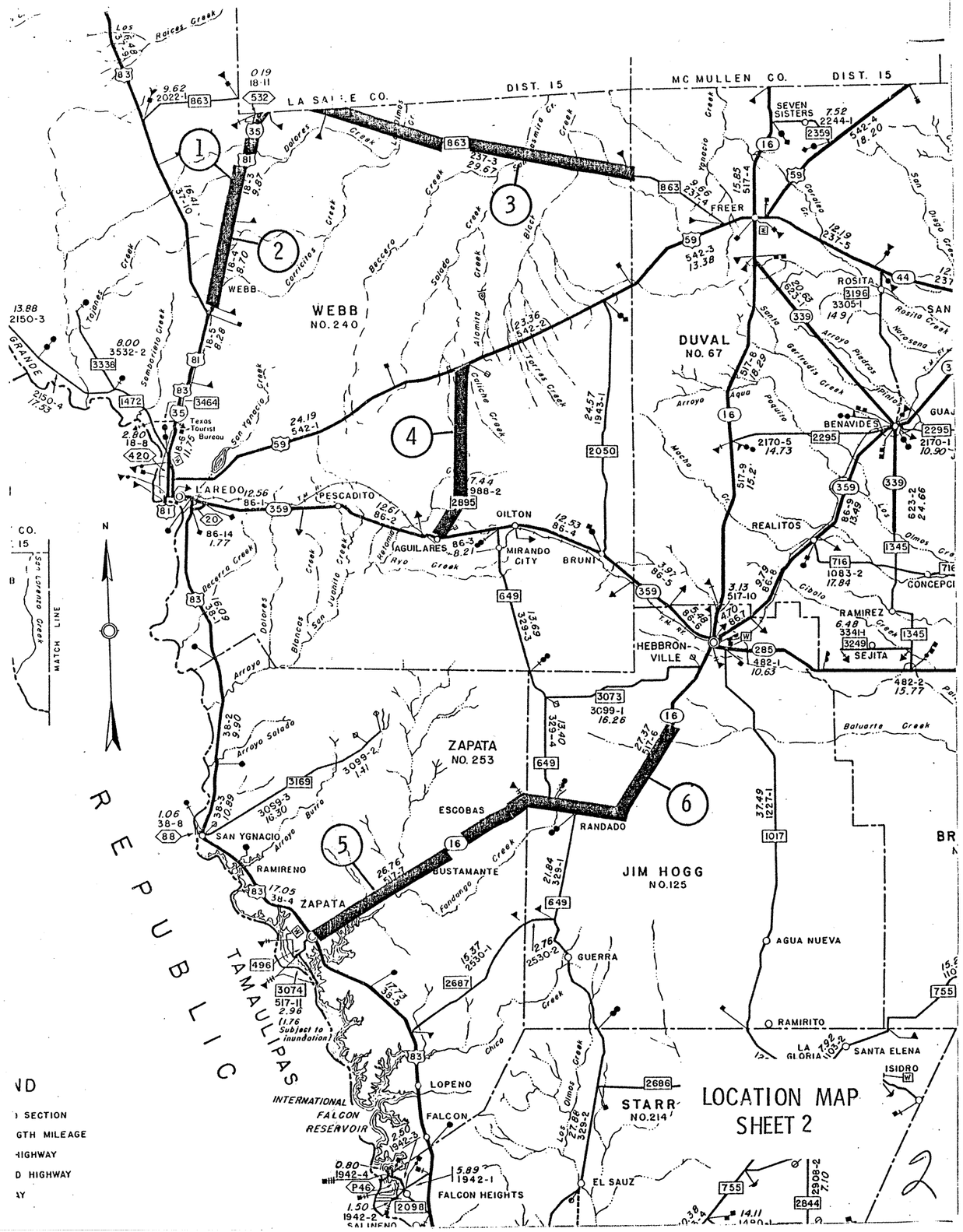
RECOMMENDED
FOR APPROVAL: 4/19/85
DATE

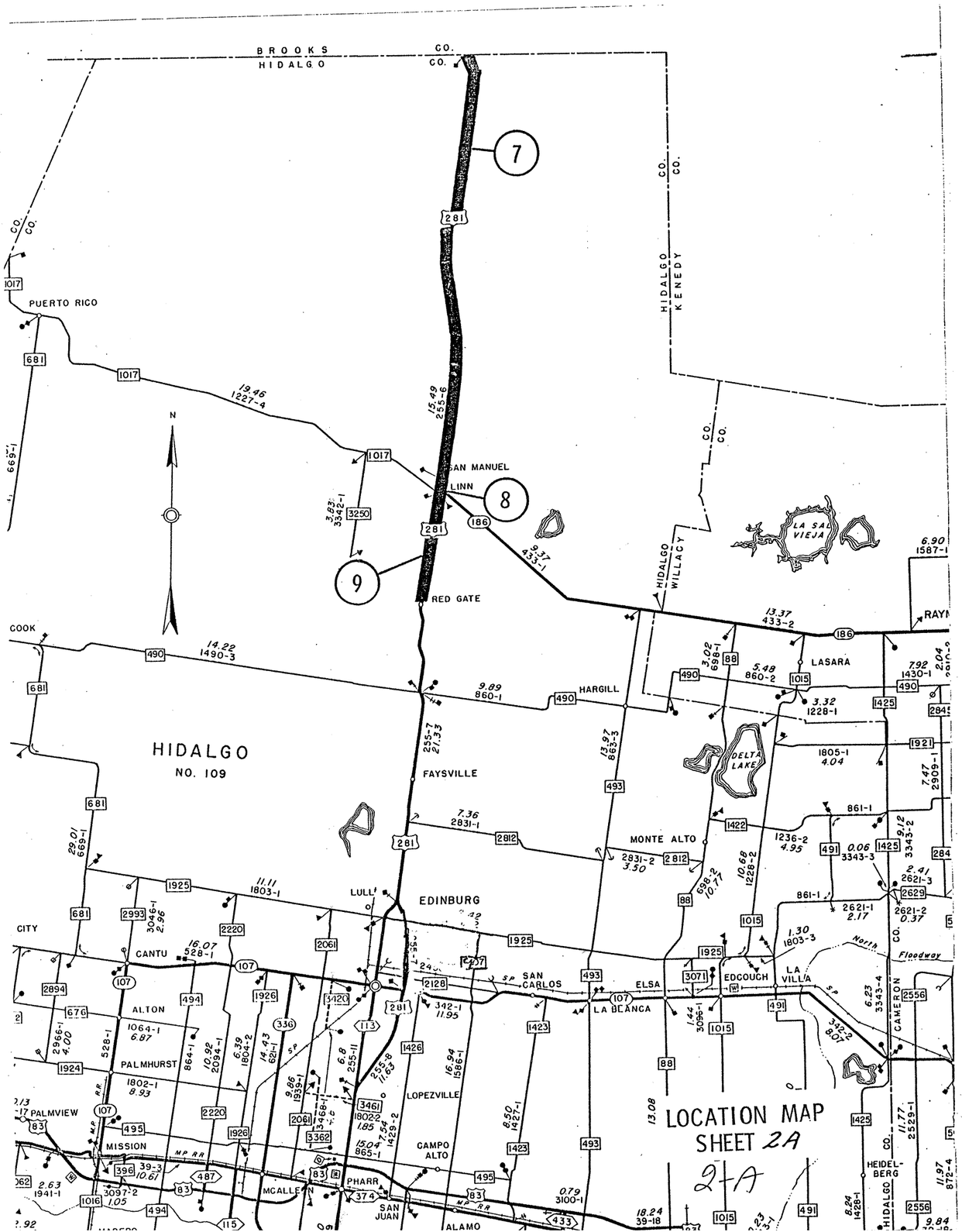
J.W. Hanna
~~ASST.~~ FOR DISTRICT ENGINEER

APPROVED
FOR LETTING:
Date

FOR CHIEF ENGINEER OF HIGHWAY DESIGN

Dist Office Copy
Routed
Hammell


LOCATION MAP
SHEET 2
WEBB
NO. 240
DUVAL
NO. 67
ZAPATA
NO. 253
JIM HOGG
NO. 125
STARR
NO. 214
LA SALLE CO.
MC MULLEN CO.
DIST. 15
LAREDO
NUEVO LAREDO
REPUBLIC
TAMAULIPAS
INTERNATIONAL
FALCON
RESERVOIR
FREER
SEVEN SISTERS
ROSITA
BENAVIDES
REALITOS
OILTON
PESCADITO
AGUILARES
MIRANDO CITY
BRUNI
HEBBRON-VILLE
RAMIREZ
SEJITA
CONCEPCION
RANDADO
ESCOBAS
BUSTAMANTE
SAN YGNACIO
RAMIRENO
AGUA NUEVA
GUERRA
RAMIRITO
LA GLORIA
SANTA ELENA
LOPENO
FALCON
FALCON HEIGHTS
EL SAUZ
Texas Tourist Bureau
Los Olmos Creek
Arroyo Salado
Arroyo Burro
Arroyo Pedros
Arroyo Pesqueria
Arroyo Aqua
Arroyo Macho
Arroyo Gertrudis Creek
Arroyo Colorado
Arroyo Delores
Arroyo Decarra Creek
Arroyo Blanco
Arroyo Tordos
Arroyo Corrientes
Arroyo Baccaro
Arroyo Soledad
Arroyo Alamito
Arroyo Tarres Creek
Arroyo Galicano Creek
Arroyo Fandango Creek
Arroyo Chico
Arroyo Olmos Creek
Arroyo Los Olmos
Arroyo Gibola
Arroyo Baluarte Creek
Arroyo Rosita Creek
Arroyo Norasena
Arroyo Santa Gertrudis
Arroyo Jarita
Arroyo Macho Creek
Arroyo Aqua Pesqueria
Arroyo Black Creek
Arroyo Jasmin Cr.
Arroyo Yturria Creek
Arroyo Cordes Cr.
Arroyo San Dusio Cr.
Arroyo Olmos Cr.
Arroyo Los Olmos Creek
Arroyo Galicano Creek
Arroyo Alamito Creek
Arroyo Soledad Creek
Arroyo Baccaro Creek
Arroyo Corrientes Creek
Arroyo Delores Creek
Arroyo Blanco Creek
Arroyo Tordos Creek
Arroyo Roaces Creek
Arroyo Los Olmos Creek
Arroyo Decarra Creek
Arroyo Chico Creek
Arroyo Fandango Creek
Arroyo Bustamante Creek
Arroyo Ramireno Creek
Arroyo San Ygnacio Creek
Arroyo Samborino Creek
Arroyo Yturria Creek
Arroyo Jasmin Cr.


BROOKS
HIDALGO
CO.
CO.
HIDALGO
KENEDY
CO.
CO.
PUERTO RICO
1017
681
669-1
19.46
1227-4
15.49
255-6
281
7
1017
3.22
3342-1
3250
9
SAN MANUEL
LINN
8
186
9.37
453-1
RED GATE
HIDALGO
WILLACY
LA SAL VIEJA
6.90
1587-1
RAYM
13.37
433-2
186
COOK
490
14.22
1490-3
681
9.89
860-1
490
HARGILL
HIDALGO
NO. 109
FAYSVILLE
255-7
27.33
13.97
863-3
493
3.02
698-1
88
5.48
860-2
1015
LASARA
7.92
1430-1
490
3.32
1228-1
1425
2845
DELTA
LAKE
1805-1
4.04
1921
7.47
2905-1
861-1
1422
MONTE ALTO
1236-2
4.95
491
0.06
3343-3
1425
9.12
3343-2
2845
2.41
2621-3
2629
861-1
2621-1
2.17
2621-2
0.37
1.30
1803-3
North
Floodway
CO.
CAMERON
2556
6.23
3343-4
7.36
2831-1
281
2812
2831-2
3.50
2812
698-2
10.77
10.68
1228-2
29.01
669-1
681
11.11
1803-1
1925
LULL
EDINBURG
2993
3046-1
2.96
2220
2061
CITY
CANTU
16.07
528-1
107
2894
676
ALTON
1064-1
6.87
494
1926
3420
2128
SP
SAN
CARLOS
493
ELSA
3071
EDCOUCH
LA
VILLA
2.13
2956-1
4.00
528-1
6.39
1804-2
14.43
621-1
336
113
6.8
255-11
2558
11.63
342-1
11.95
LA BLANCA
107
1.44
3096-1
1015
342-2
8.07
1924
PALMHURST
1802-1
8.93
864-1
10.92
2094-1
1426
16.94
1568-1
LOPEZVILLE
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6.50
1427-1
13.08
LOCATION MAP
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17 PALMVIEW
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495
MISSION
3466-1
9.86
1939-1
3461
1802-2
1.85
3362
15.04
865-1
1429-2
1.54
CAMPO
ALTO
1423
493
HEIDEL-
BERG
HIDALGO CO.
11.77
2529-1
11.97
872-4
396
39-3
10.67
487
PHARR
374
SAN
JUAN
ALAMO
0.79
3100-1
433
18.24
39-18
1015
491
8.24
1428-1
2556
9.84
062
2.63
1941-1
3097-2
1.05
1016
494
115
MCALLEN
83
MP RR
2.92

B A S I S O F E S T I M A T E

LOCATION: 1

CONTROL: 18-3-28
PROJECT: CSB 18-3-28

COUNTY: Webb
HIGHWAY: IH 35

LIMITS: From 0.591 Mi. S. of La Salle County Line

TO: 9.28 Mi. South

STATION LIMITS: 1499+10.18 TO 1990+00.0 = 48761.22 FT. 9.235 ✓ MI.

EXCEPTIONS: 1719+35.0 to 1720+65.0 = -130.0'
1856+73.5 to 1858+72.1 = -198.6'
TOTAL = -328.6'

EQUATIONS: None

PROP. SEAL COAT ON 2-24' Pav. Main Lanes

AREA	=	260060.	SY
AGGR (TY PB GR 3)(1 CY/75 SY)	=	3467.	CY
ROLLING (FLAT WHEEL)(1 HR/2500SY)	=	104	HR
ROLLING (LIGHT PNEUM)(1 HR/1800SY)	=	144	HR
SPRINKLING (10 MG/MI.)	=	92	MG

> For Contractors Info. only

ASPH (AC-10)
STA 1499+10.18 STA 1990+00.0 INSIDE LANE (0.41 GAL/SY) = 53310 GAL
STA 1499+10.18 STA 1990+00.0 OUTSIDE LANE (0.32 GAL/SY) = 41610 GAL

TOTAL = 94920 GAL

3

B A S I S O F E S T I M A T E

LOCATION: 2

CONTROL: 18-4-30
PROJECT: CSB 18-4-30

COUNTY: Webb
HIGHWAY: IH-35

LIMITS: From 9.87 Mi. S. of La Salle Co. Line

TO: S. 8.70 Mi.

STATION LIMITS: 1039+62.85 TO 1499+10.18 = 45,561.13 FT. 8.629 ✓ MI.

EXCEPTIONS: 1103+42.2 to 1104+68.4 = -126.2'
1132+13.0 to 1133+43.0 = -130.0'
1447+35.0 to 1448+65.0 = -130.0'
TOTAL = -386.2'

EQUATIONS: None

PROP. SEAL COAT ON 2-24' Paved Main Lanes

AREA = 242992. SY
AGGR (TY PB GR 3)(1 CY/75 SY) = 3,240. CY

ROLLING (FLAT WHEEL)(1 HR/2500SY) = 97. HR
ROLLING (LIGHT PNEUM)(1 HR/1800SY) = 135. HR
SPRINKLING (10 MG/MI.) = 86. MG

> For Contractors Info. Only

ASPH (AC-10)
STA 1039+62.85 STA 1499+10.18 INSIDE LANE (0.41 GAL/SY) = 49815. GAL
STA 1039+62.85 STA 1499+10.18 OUTSIDE LANE (0.32 GAL/SY) = 38880. GAL

TOTAL = 88695 GAL

4

B A S I S O F E S T I M A T E

LOCATION: 3

CONTROL: 237-3-20
PROJECT: CSB 237-3-20

COUNTY: Webb
HIGHWAY: FM 863

LIMITS: From La Salle Co. Line, Easterly

TO: Duval County Line

STATION LIMITS: 279+18.2 TO 1845+68 = 156,649.8 FT. 29.668 ✓ MI.

EXCEPTIONS: None

EQUATIONS: None

PROP. SEAL COAT ON 24' Pavement

AREA	=	417,733.	SY
AGGR (TY B GR 3)(1 CY/80 SY)	=	5,222.	CY
ROLLING (FLAT WHEEL)(1 HR/2500SY)	=	167.	HR
ROLLING (LIGHT PNEUM)(1 HR/1800SY)	=	232.	HR
SPRINKLING (10 MG/MI.)	=	297.	MG

> For Contractors Info Only

ASPH (AC-10)
STA 279+18.2 STA 1845+68 24' Pav. (0.51 GAL/SY) = 213045. GAL

TOTAL = 213045. GAL

 5

B A S I S O F E S T I M A T E

LOCATION: 4

CONTROL: 255-6-39
PROJECT: CSB 255-6-39

COUNTY: Hidalgo
HIGHWAY: U.S. 281

LIMITS: From 0.3 Mi. North of SH 186 North

TO: Brooks County Line

STATION LIMITS: 967+00 TO 1785+17.5 = 81789.15 FT. 15.490 MI.

EXCEPTIONS: NONE

EQUATIONS:

Sta. 979+01.9 (BK)	= Sta. 978+75.2 (FWD)	=	+ 26.7'
Sta. 1021+15.1 (BK)	= Sta. 1021+64.1 (FWD)	=	- 49.0'
Sta. 1033+93.95 (BK)	= Sta. 1034+00.0 (FWD)	=	- 6.05'
	TOTAL	=	- 28.35'

PROP. SEAL COAT ON Southbound 24' Pav. (Main Lane)

AREA	= 218,104.	SY
AGGR (TY PB GR 3)(1 CY/75 SY)	= 2,908.	CY
ROLLING (FLAT WHEEL)(1 HR/2500SY)	= 87.	HR
ROLLING (LIGHT PNEUM)(1 HR/1800SY)	= 121.	HR
SPRINKLING (10 MG/MI.)	= 155.	MG

For Contractors Info Only

ASPH (AC-10)

STA 967+00.0	STA 1040+90.0	INSIDE LANE	(0.33 GAL/SY) =	3239. GAL
STA 967+00.0	STA 1040+90.0	OUTSIDE LANE	(0.25 GAL/SY) =	2454. GAL
STA 1040+90.0	STA 1785+17.5	INSIDE LANE	(0.38 GAL/SY) =	37710. GAL
STA 1040+90.0	STA 1785+17.5	OUTSIDE LANE	(0.28 GAL/SY) =	27786. GAL
		TOTAL	=	71,189. GAL

6

B A S I S O F E S T I M A T E

LOCATION: 5

CONTROL: 255-7-80 COUNTY: Hidalgo
PROJECT: CSB 255-7-80 HIGHWAY: US 281

LIMITS: From SH 186 N. 0.3 Mi.

TO:

STATION LIMITS: 953+67.0 TO 967+00.0 = 1333.0 FT. 0.252 MI. ✓

EXCEPTIONS: None

EQUATIONS: None

PROP. SEAL COAT ON Southbound 24' Pav. (Main Lane)

AREA	=	3555.	SY
AGGR (TY PB GR 3)(1 CY/75 SY)	=	47.	CY
ROLLING (FLAT WHEEL)(1 HR/2500SY)	=	2.	HR
ROLLING (LIGHT PNEUM)(1 HR/1800SY)	=	3.	HR
SPRINKLING (10 MG/MI.)	=	3.	MG

> For Contractors Info only

ASPH (AC-10)

STA 953+67.0	STA 967+00.0	INSIDE LANE	(0.33 GAL/SY) =	590.	GAL
STA 953+67.0	STA 967+00.0	OUTSIDE LANE	(0.25 GAL/SY) =	440.	GAL
			TOTAL =	1,030.	GAL

7

BASIS OF ESTIMATE

LOCATION: 6

CONTROL: 255-7-82
PROJECT: CSB 255-7-82

COUNTY: Hidalgo
HIGHWAY: US 281

LIMITS: From SH 186 South

TO: Red Gate

STATION LIMITS: 702+00.0 TO 953+67.0 = 24,743.2 FT. 4.686 MI.

EXCEPTIONS: NONE

EQUATIONS:

719+87.5 (BK)	=	720+50.0 (FWD)	= - 62.5'
732+44.2 (BK)	=	735+00.0 (FWD)	= -255.8'
744+00.0 (BK)	=	745+00.0 (FWD)	= -100.0'
920+05.5 (BK)	=	920+11.4 (FWD)	= - 5.9'
945+00.4 (BK)	=	945+00.0 (FWD)	= + 0.4'
		TOTAL	= -423.8'

PROP. SEAL COAT ON Northbound 24' Pav. Main Lane

AREA	=	65,982.	SY
AGGR (TY PB GR 3)(1 CY/75 SY)	=	880.	CY

ROLLING (FLAT WHEEL)(1 HR/2500SY)	=	26.	HR
ROLLING (LIGHT PNEUM)(1 HR/1800SY)	=	37.	HR
SPRINKLING (10 MG/MI.)	=	47.	MG

> For Contractors Info only

ASPH (AC-10)

STA 702+00.0	STA 953+67.0	INSIDE LANE (0.33 GAL/SY)	= 10,890. GAL
STA 702+00.0	STA 953+67.0	OUTSIDE LANE (0.25 GAL/SY)	= 8,250. GAL
		TOTAL	= 19,140 GAL

8

B A S I S O F E S T I M A T E

LOCATION: 7

CONTROL: 517-6-16
PROJECT: CSB 517-6-16

COUNTY: Jim Hogg
HIGHWAY: SH 16

LIMITS: From Zapata County Line

TO: 6.1 Mi. SW of SH 285

STATION LIMITS: 1435+61.0 TO 2562+87.8 = 112262.75 FT. 21.261 ✓ MI.

EXCEPTIONS: None

EQUATIONS:
1831+18.25 (BK) = 1839+06.00 (FWD) = -787.75'
2234+83.46 (BK) = 2231+59.76 (FWD) = +323.7'

PROP. SEAL COAT ON 20' Pav. (1435+61.0 to 1802 00.)
26' Pav. (1802+00 to 2562+87.8)

AREA	=	299890.	SY
AGGR (TY PB GR 3)(1 CY/75 SY)	=	3999.	CY
ROLLING (FLAT WHEEL)(1 HR/2500SY)	=	120.	HR
ROLLING (LIGHT PNEUM)(1 HR/1800SY)	=	167.	HR
SPRINKLING (10 MG/MI.)	=	213.	MG

> For Contractors Info Only

ASPH (AC-10)

STA 1435+61	STA 1684+97	20' Pav.	(0.42 GAL/SY) = 23270.	GAL
STA 1684+97	STA 1802+00	20' Pav.	(0.39 GAL/SY) = 10140.	GAL
STA 1802+00	STA 2562+87.8	26' Pav.	(0.39 GAL/SY) = 85200.	GAL

TOTAL = 118610. GAL

B A S I S O F E S T I M A T E

LOCATION: 8

CONTROL: 517-7-24 COUNTY: Zapata
PROJECT: CSB 517-7-24 HIGHWAY: SH 16

LIMITS: From US 83, Northeast

TO: Jim Hogg County Line

STATION LIMITS: 179+01.7 TO 1435+61.4 = 125,280.4 FT. 23.727 ✓ MI.

EXCEPTIONS: None

EQUATIONS:

Sta. 333+97.6 (BK)	= Sta. 335+96.8 (FWD)	= -199.2'
Sta. 384+63.2 (BK)	= Sta. 385+00.0 (FWD)	= - 36.8'
Sta. 611+63.0 (BK)	= Sta. 613+00.0 (FWD)	= -137.0'
Sta. 1265+93.7 (BK)	= Sta. 1266+00.0 (FWD)	= - 6.3'
	TOTAL	= 379.3'

PROP. SEAL COAT ON 20' Pav.

AREA	=	278,401.	SY
AGGR (TY PB GR 3)(1 CY/75 SY)	=	3,712.	CY

ROLLING (FLAT WHEEL)(1 HR/2500SY)	=	111.	HR
ROLLING (LIGHT PNEUM)(1 HR/1800SY)	=	154.	HR
SPRINKLING (10 MG/MI.)	=	237.	MG

For Contractors Info Only

ASPH (AC-10)

STA 179+01.7	STA 231+81.7	20' Pav.	(0.34 GAL/SY)	= 3,990. GAL
STA 231+81.7	STA 1435+61.4	20' Pav.	(0.42 GAL/SY)	= 112,000. GAL
			TOTAL	= 115,990. GAL

10

B A S I S O F E S T I M A T E

LOCATION: 9

CONTROL: 2988-2-6
PROJECT: CSB 2988-2-6

COUNTY: Webb
HIGHWAY: FM 2895

LIMITS: From US 59 South

TO: SH 359

STATION LIMITS: 11+50 TO 930+82 = 91932. FT. 17.411 MI. ✓

EXCEPTIONS: None

EQUATIONS: None

PROP. SEAL COAT ON 20' Pav.

AREA	=	204293.	SY
AGGR (TY B GR 3)(1 CY/80 SY)	=	2554.	CY
ROLLING (FLAT WHEEL)(1 HR/2500SY)	=	82.	HR
ROLLING (LIGHT PNEUM)(1 HR/1800SY)	=	113.	HR
SPRINKLING (10 MG/MI.)	=	174.	MG

For Contractors Info Only

ASPH (AC-10)
STA 11+50.0 STA 930+82.0 20' Pav. (0.48 GAL/SY) = 98060. GAL

TOTAL = 98060. GAL

c 92 1234567

CUT HERE

ESTIMATE SUMMARY

CSB 18-3-28 WEBB		CSB 18-4-30 WEBB		CSB 237-3-20 WEBB		CSB 255-6-39 HIDALGO		CSB 255-7-80 HIDALGO		CSB 255-7-82 HIDALGO		CSB 517-6-16 JIM HOGG		CSB 517-7-24 ZAPATA		CSB 2388-2-6 WEBB	
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
92.000	0	86.000	0	297.000	0	135.000	0	3.000	0	47.000	0	213.000	0	237.000	0	174.000	0
				5222.000	4624.											2554.000	2280
3467.000	2868.	3240.000	2812.			2308.000	2564.	47.000	50.	880.000	768.	3598.000	3274	3712.000	3016		
94920.000	94225.	88695.000	89210	213045.000	173035.	71189.000	71155.	1030.000	1445.	18140.000	21785	118610.000	97882	113990.000	89863	88060.000	81575
				1.000	1.												
				3.000	3.												

ALT	ITEM-CODE			DESCRIPTION	UNIT	TOTAL EST.	TOTAL FINAL
	204	003		SPRINK (DUST CONTROL)	MG		
	316	008	001	AGGR (TY B, GR 3)	CY		
	316	014	001	AGGR (TY PB, GR 3)	CY		
	316	052	001	ASPH (AC-10)	GAL		
	500	001		MOBILIZATION	LS		
	502	001		BARCD.SIGN AND TRAF HANDLING	MO		

204	003		SPRINK (DUST CONTROL)	MG	1304.000	0
316	008	001	AGGR (TY B, GR 3)	CY	7776.000	6904.
316	014	001	AGGR (TY PB, GR 3)	CY	182253.000	153352.
316	052	001	ASPH (AC-10)	GAL	820679.000	725175.
500	001		MOBILIZATION	LS	1.000	1.
502	001		BARCD.SIGN AND TRAF HANDLING	MO	3.000	3.

ESTIMATE & QUANTITY SHEET 12

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
21	WEBB,ETC.	CSB 18-3-28,ETC.	12

GENERAL NOTES AND SPECIFICATION DATA--

GENERAL NOTES AND SPECIFICATION DATA

GENERAL

PAVEMENT MARKINGS FURNISHED AND INSTALLED BY STATE FORCES WILL BE IN ACCORDANCE WITH THE M.U.T.C.D.

CONSTRUCTION STATIONING, FOR SURVEYING AND BOOKKEEPING PURPOSES, WILL BE SIMPLIFED BY EQUATING CONSTRUCTION STATION 0+00 TO THE BEGINNING STATION NUMBER OF EACH PROJECT AND CONTINUING THE CONSTRUCTION STATIONING TO THE END OF THE PROJECT ON THE BASIS OF TRUE LENGTH, WHICH WILL BE EQUATED TO THE ENDING STATION NUMBER.

ITEM 4 SCOPE OF WORK

AGGREGATE STOCKPILES REMAINING ON STATE'S RIGHT OF WAY 30 DAYS AFTER PROJECTS "FINAL ACCEPTANCE" WILL BECOME PROPERTY OF THE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION. AGGREGATE STOCKPILES DEEMED UNDESIRABLE BY THE ENGINEER SHALL BE REMOVED IN ACCORDANCE WITH THE PERTINENT SPECIFICATIONS OF THIS PROJECT.

ITEM 7 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

UPON COMPLETION OF ALL WORK PROVIDED FOR IN THE CONTRACT FOR ANY INDIVIDUAL PROJECT, THE ENGINEER WILL MAKE AN INSPECTION, AND IF THE WORK IS FOUND TO BE SATISFACTORY THE CONTRACTOR WILL BE RELEASED FROM FURTHER MAINTENANCE ON THAT PROJECT. SUCH PARTIAL ACCEPTANCE WILL BE MADE IN WRITING AND SHALL IN NO WAY VOID OR ALTER ANY TERMS OF THE CONTRACT.

ITEM 302 AGGREGATE FOR SURFACE TREATMENTS

AGGREGATES FOR SURFACE TREATMENT SHALL HAVE THE FOLLOWING MINIMUM POLISH VALUES:

PROJECT	HIGHWAY	POLISH VALUE
CSB 237-3-20	FM 863	NONE REQUIRED
CSB 2988-2-6	FM 2895	NONE REQUIRED

THE AGGREGATE SHALL NOT CONTAIN MORE THAN 0.5% BY WEIGHT OF FINE DUST, CLAY-LIKE PARTICLES AND/OR SILT WHEN TESTED IN ACCORDANCE WITH TEST METHOD TEX-217-F PART II.

GENERAL NOTES AND SPECIFICATION DATA--

ITEM 304 AGGREGATE FOR SURFACE TREATMENTS (PRECOATED)

AGGREGATES FOR SURFACE TREATMENTS SHALL HAVE THE FOLLOWING MINIMUM POLISH VALUES:

PROJECT	HIGHWAY	POLISH VALUE
CSB 18-3-28	IH 35	30
CSB 18-4-30	IH 35	30
CSB 517-7-24	SH 16	28
CSB 517-6-16	SH 16	28
CSB 255-6-39	US 281	30
CSB 255-7-80	US 281	30
CSB 255-7-82	US 281	30

ITEM 316 SEAL COAT

PRIOR TO SHIPPING ASPHALT TO THE PROJECT THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH THE NAME OF THE SUPPLIER AS WELL AS SAMPLES OF THE ASPHALT HE PROPOSES TO USE SO THAT THE GRADE AND RATE OF APPLICATION OF ASPHALT MAY BE DETERMINED.

IN ADDITION TO CLEANING OF PAVED SURFACES TO BE SEALED BY BROOMING, AS REQUIRED BY ITEM 316, BLADING MAY ALSO BE NECESSARY TO CLEAN DIRT AND GRASS FROM EDGES OF PAVEMENT AND TURNOUT AREAS. THE COST OF THIS BLADING WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS OF THE PROJECT.

THE FINISHED SURFACE SHALL BE CLEARED OF ANY SURPLUS AGGREGATE BY THE CONTRACTOR BY SWEEPING OR OTHER APPROVED METHODS AFTER ALL ROLLING IS COMPLETED WHEN DIRECTED BY THE ENGINEER.

SANDSTONE AGGREGATES USED IN SEAL COAT, INCLUDING PRECOATED AGGREGATE, WILL BE SUBJECTED TO FOUR CYCLES OF THE SOUNDNESS TEST IN ACCORDANCE WITH TEST METHOD TEX-411-A. THE LOSS SHALL NOT BE GREATER THAN 30 PERCENT WHEN MAGNESIUM SULPHATE IS USED.

THE TYPE AND GRADE OF ASPHALT AND RATE OF APPLICATION SHALL BE AS DIRECTED BY THE ENGINEER. GENERALLY AN ASPHALT CEMENT WILL BE USED DURING THE WARM SEASON (USUALLY APRIL 15TH TO OCTOBER 1ST). GENERALLY AN EMULSIFIED ASPHALT WILL BE USED DURING THE COOLER SEASON (USUALLY OCTOBER 1ST TO APRIL 15TH). UNLESS OTHERWISE DIRECTED BY THE ENGINEER, THE EMULSIFIED ASPHALT SHALL BE HFRS-2.

GENERAL NOTES AND SPECIFICATION DATA--

ITEM 316 SEAL COAT, CONT'D

THE RATES OF APPLICATION AND THE ESTIMATED QUANTITIES OF AGGREGATE ARE BASED ON THE USUAL OR AVERAGE GRADATION OF KNOWN MATERIALS. PRIOR TO SHIPPING AGGREGATE TO THE PROJECT, THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH SAMPLES OF AGGREGATE HE PROPOSES TO USE SO THAT THE GRADATION MAY BE DETERMINED AND RATE OF APPLICATION CHANGED IF NECESSARY. SURFACE TREATMENTS WITH UNHEATED AGGREGATE SHALL NOT BE APPLIED WHEN THE AIR TEMPERATURE IS BELOW 70 DEG. F AND IS FALLING, BUT IT MAY BE APPLIED WHEN THE AIR TEMPERATURE IS ABOVE 60 DEG. F AND IS RISING. ASPHALTIC MATERIAL MAY BE PLACED BY PREHEATING AGGREGATE TO 280 DEG. F WHEN THE AIR TEMPERATURE IS 70 DEG. F AND FALLING OR WHEN THE AIR TEMPERATURE IS 50 DEG. F AND RISING.

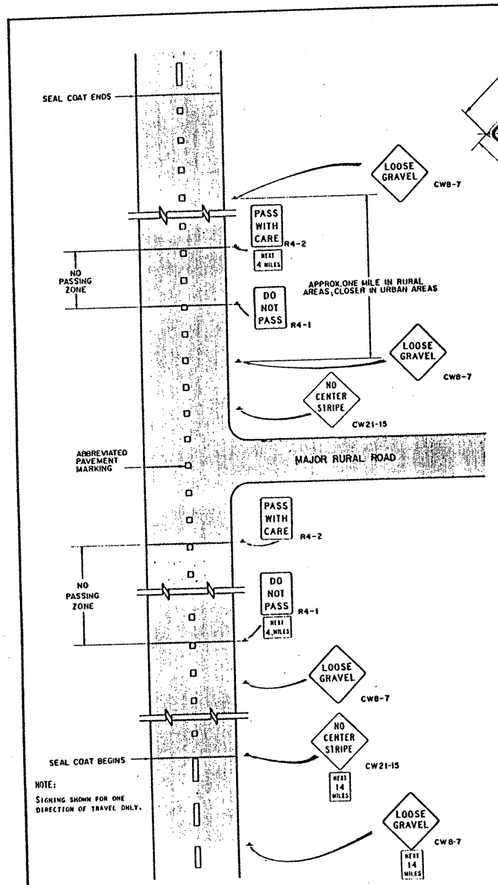
WHEN APPLYING SEAL COAT AT RAILROAD CROSSINGS, A STRIP OF PAPER SHALL BE PLACED OVER THE RAIL AND FLANGE AREAS ACROSS THE PAVEMENT.

ITEM 502 BARRICADES, SIGNS AND TRAFFIC HANDLING

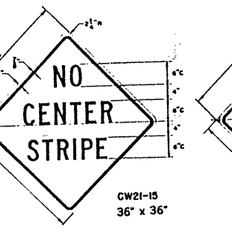
THE CONTRACTOR'S ATTENTION IS CALLED TO SIGNS IN THE "TRAFFIC CONTROL DETAILS FOR SEAL COAT OPERATIONS" WHICH IS INCLUDED IN THE PLANS FOR THESE PROJECTS. THESE SIGNS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR AND ARE TO REMAIN IN PLACE AFTER COMPLETION OF THE SEAL COAT OPERATION UNTIL STANDARD PAVEMENT MARKINGS ARE PLACED BUT NO LONGER THAN 3 DAYS. THESE SIGNS ARE IN addition TO THE SIGNS AND BARRICADES THAT MAY BE REQUIRED ON SHEETS BC (1-7)-82.

ITEM 506 TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL

THE SQUARE FOOTAGE REQUIREMENTS IN THIS SPECIFICATION ARE NOT APPLICABLE TO THIS PROJECT.

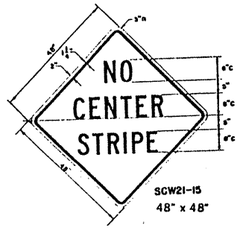


TYPICAL TRAFFIC CONTROL DETAILS FOR SEAL COAT PROJECTS



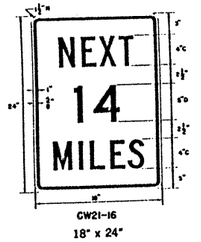
CW21-15
36" x 36"

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - ORANGE REFLECTIVE



SCW21-15
48" x 48"

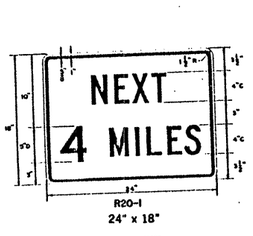
LETTERS - BLACK
BORDER - BLACK
BACKGROUND - ORANGE REFLECTIVE



CW21-16
18" x 24"

LETTERS - BLACK
NUMERALS - BLACK
BORDER - BLACK
BACKGROUND - ORANGE REFLECTIVE

FOR USE WITH CONSTRUCTION WARNING SIGNS ONLY



R20-1
24" x 18"

LETTERS - BLACK
NUMERALS - BLACK
BORDER - BLACK
BACKGROUND - WHITE REFLECTIVE

FOR USE WITH REGULATORY SIGNS ONLY

GENERAL NOTES

THE TRAFFIC CONTROL DEVICES DETAILED ON THIS SHEET WILL BE FURNISHED AND ERECTED AS DIRECTED BY THE ENGINEER ON SECTIONS OF HIGHWAY WHERE THE SEAL COAT OPERATION HAS COVERED OR OBLITERATED THE OLD MARKINGS. THESE TRAFFIC CONTROL DEVICES ARE TO BE USED TO SUPPLEMENT THOSE NORMALLY REQUIRED BY SHEETS BC(1)-(7).

NO-PASSING ZONE SIGNS

PRIOR TO THE BEGINNING OF CONSTRUCTION, ALL CURRENTLY STRIPED NO-PASSING ZONES SHOULD BE SIGNED WITH THE R4-1 DO NOT PASS AND R4-2 PASS WITH CARE SIGNS PLACED AT THE BEGINNING AND END OF EACH ZONE FOR EACH DIRECTION OF TRAVEL EXCEPT AS OTHERWISE PROVIDED HEREIN. SIGNS MARKING THESE INDIVIDUAL NO-PASSING ZONES NEED NOT BE COVERED PRIOR TO CONSTRUCTION SINCE SIGNS MAY SUPPLEMENT THE PAVEMENT MARKINGS.

AT THE DISCRETION OF THE ENGINEER, IN AREAS OF NUMEROUS NO-PASSING ZONES SEVERAL ZONES MAY BE COMBINED AND SIGNED AS A SINGLE ZONE. IF PASSING IS TO BE PROHIBITED OVER ONE OR MORE LENGTHY SECTIONS, A DO NOT PASS NEXT ( ) MILES SIGN MAY BE USED AT THE BEGINNING OF SUCH ZONES. IN AREAS WHEN THERE IS CONSIDERABLE DISTANCE BETWEEN NO-PASSING ZONES, THE END OF A NO-PASSING ZONE MAY BE SIGNED BY A PASS WITH CARE NEXT ( ) MILES SIGN DEPENDING ON TRAFFIC VOLUMES AND LENGTH OF SECTIONS. IT MAY BE DESIRABLE TO PROHIBIT PASSING THROUGHOUT THE PROJECT TO PREVENT DAMAGE TO WINDSHIELDS AND LIGHTS, THE DO NOT PASS NEXT ( ) MILES SIGN SUPPLEMENTED AS NECESSARY BY R4-1 SIGNS SHOULD BE USED FOR THIS PURPOSE WHERE SEVERAL EXISTING ZONES ARE TO BE COMBINED INTO ONE INDIVIDUAL NO-PASSING ZONE, THE SIGN AT THE BEGINNING OF THE ZONE SHOULD BE COVERED UNTIL THE SEALING OPERATION HAS PASSED THIS LOCATION SO AS NOT TO HAVE THE DO NOT PASS SIGN CONFLICT WITH EXISTING ZONES WHICH ARE STRIPED TO PERMIT PASSING. ALSO, UNLESS ONE DAY'S OPERATION COMPLETELY SEALS THE ENTIRE LENGTH OF SUCH COMBINED ZONES, CARE MUST BE TAKEN TO PLACE DO NOT PASS AND PASS WITH CARE SIGNS TO SIGN THE BEGINNING AND END OF NO-PASSING ZONES IN THE AREA WHERE THE SEAL COAT OPERATION ENDS FOR THE DAY.

THE R4-1 AND R4-2 SIGNS MAY BE MOUNTED ON TEMPORARY SUPPORTS A MINIMUM OF THREE (3) FEET ABOVE THE PAVEMENT EDGE. THESE SIGNS ARE TO REMAIN IN PLACE UNTIL STANDARD PAVEMENT MARKINGS ARE PLACED.

NO CENTER STRIPE SIGNS

AT THE TIME CONSTRUCTION ACTIVITY OBLITERATES THE CENTER STRIPE ON A ROADWAY WHERE THE CENTER STRIPE IS EXISTING (LOW VOLUME ROADS MAY NOT HAVE AN EXISTING CENTER STRIPE), SIGNS READING NO CENTER STRIPE SHOULD BE ERECTED AT EACH END OF THE WORK AREA AND JUST BEYOND MAJOR RURAL INTERSECTIONS AND OTHER LOCATIONS DEEMED NECESSARY BY THE ENGINEER. WHERE POSSIBLE, THE SIGNS ERECTED AT EACH END OF THE WORK AREA SHOULD BE LOCATED IN SUCH MANNER THAT DRIVERS CAN READ THE SIGN AND IMMEDIATELY SEE THE CHANGE FROM MARKED CENTER STRIPE TO NO CENTER STRIPE. THE NO CENTER STRIPE SIGN MAY BE SUPPLEMENTED WITH THE CW21-16 NEXT (X) MILES PLAQUE MOUNTED BELOW IT.

THE NO CENTER STRIPE SIGN MAY BE ERECTED ON A TEMPORARY SUPPORT A MINIMUM OF THREE (3) FEET ABOVE THE PAVEMENT EDGE. THESE SIGNS ARE TO REMAIN IN PLACE UNTIL STANDARD PAVEMENT MARKINGS ARE PLACED.

LOOSE GRAVEL SIGNS

WHEN CONSTRUCTION BEGINS, A CW8-7 LOOSE GRAVEL SIGN SHOULD BE ERECTED AT EACH END OF THE WORK AREA AND SUPPLEMENTED WITH THE CW8-7 LOOSE GRAVEL WARNING SIGN AT INTERVALS OF ABOUT ONE MILE IN RURAL AREAS AND CLOSER IN URBAN AREAS WHERE THAT CONDITION EXISTS. THE LOOSE GRAVEL SIGN MAY BE SUPPLEMENTED WITH THE CW21-16 NEXT (X) MILES PLAQUE MOUNTED BELOW IT.

THE CW8-7 LOOSE GRAVEL SIGNS AT EACH END OF THE WORK AREA AND THE CW8-7 LOOSE GRAVEL SIGNS ERECTED AT INTERVALS THROUGHOUT THE JOB MAY BE MOUNTED ON TEMPORARY SUPPORTS A MINIMUM OF THREE (3) FEET ABOVE THE PAVEMENT EDGE THEY SHOULD REMAIN IN PLACE UNTIL THE LOOSE GRAVEL CONDITION NO LONGER EXISTS.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

TRAFFIC CONTROL DETAILS for SEAL COAT OPERATIONS

SC(1)-82

ORIGINAL DRAWING DATE: 3-78		STATE PLANNING REGION	FEDERAL AID PROJECT	SHEET
BY:	REVISIONS	21	6 C66818-5-28	14
BY:		COUNTY	CONTROL SECTION JOB	HIGHWAY
BY:		Webb	7815 28	IH 35
BY:				NO.

14

CONSTRUCTION PAVEMENT MARKINGS

When required elsewhere in the plans, the Contractor will be responsible for maintaining pavement markings on all roadways that are open to traffic within the limits of the project. On projects involving roadway surfacing which will require pavement marking for control of traffic during construction, the markings may include both standard and abbreviated markings as defined below:

1. Standard Pavement Markings - Standard markings placed in conformance with the requirements of the Texas MUTCD. Such markings should be placed on all roadways open to traffic during construction, including new pavement, resurfacing, detours or other roadways where construction activities may have covered or obliterated existing markings. Standard markings should be placed as soon as possible and practical. When it is not practical or possible to place standard markings at the end of each day's work, abbreviated markings may be utilized for short periods until standard markings can be placed.

2. Abbreviated Pavement Markings - Abbreviated pavement markings are shorter in length than standard markings. The length and spacing of these markings shall be as specified elsewhere in the plans or specifications. Abbreviated pavement markings may be used to delineate lane continuity only until such time as standard markings can be placed. They are not intended to substitute for standard markings for periods greater than two (2) weeks. To separate traffic flows in opposing directions, the pavement markings shall be yellow. White pavement markings shall be used to delineate the separation of traffic flows in the same direction.

When abbreviated pavement markings are used, a DO NOT PASS sign shall be used to mark the beginning of the section where passing is to be prohibited and a PASS WITH CARE sign shall be used to mark the beginning of a section where passing is permitted.

REMOVAL OF PAVEMENT MARKINGS

Removal of Pavement Markings - includes centerline, barrier lines, lane lines, edge lines, and raised pavement markings.

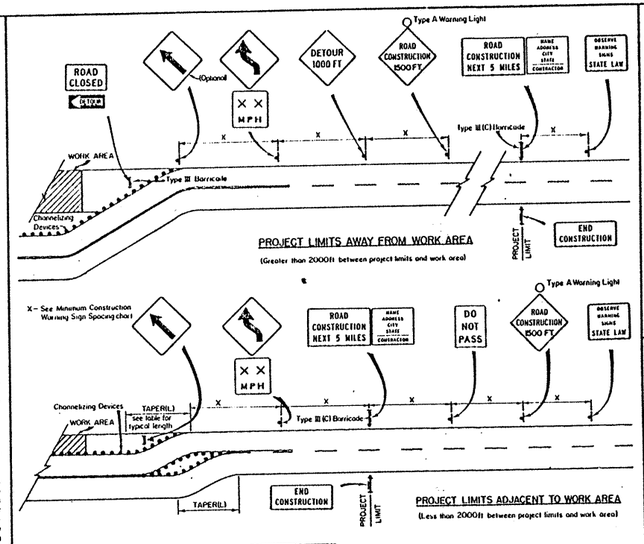
Immediately upon opening a detour to traffic, any pavement markings on the existing original roadway in the detour transition area that are no longer applicable and which may create confusion or direct a motorist toward or into the closed portion of the roadway, shall be removed or obliterated. In addition, when a detour is to be discontinued any pavement markings used to transition traffic into the detour which may create confusion or direct a motorist into the discontinued detour shall likewise be removed or obliterated. The above shall not apply to detours of a short time duration of a few hours where flagmen or sufficient channelizing devices are used to outline the detour route and the detour is not to be maintained overnight.

The removal of pavement markings shall be an integral part of establishing the detour. Detours shall be planned and scheduled well enough in advance to allow adequate time to complete all phases of the operation prior to darkness. If inclement weather or darkness becomes a factor, it will be the contractors decision to continue with the detour operation or retain the existing traveleway open to traffic when any or all of the requirements of the detour cannot be accomplished.

Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernible marking, by any method that does not materially damage the surface or texture of the pavement. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used. Sandblasting may be used but will not be required unless specifically shown in the plans. Over painting of the marking will not be permitted. Removal of raised pavement markings shall be as directed by the Engineer.

Where mechanical means of marking removal have been employed to completely remove the marking and its reflectivity, paint of a color matching the pavement surface or used crankcase oil may be employed if necessary as a means of covering contrasting pavement texture. Nighttime inspections are needed to verify the continued effectiveness of the change.

Pavement markings to be removed shall be as shown in the plans or as directed by the Engineer. Removal of pavement markings will be considered subsidiary to the item BARRICADES, SIGNS AND TRAFFIC HANDLING. Any sandblasting required by the plans for marking removal shall be measured and paid for as a bid item in the contract.



Project Limit
Traffic Control Devices

GENERAL NOTES

1. As detailed above and on sheet BC(2), the ROAD CONSTRUCTION NEXT X MILES, CONTRACTOR NAME and END CONSTRUCTION signs shall be erected on Type III(C) Barricades at or near the project limits and the OBSERVE WARNING SIGNS STATE LAW sign shall be erected in advance of the Type III(C) Barricades.
2. Appropriate standard traffic control devices shall be used within the project limits to adequately warn, advise, control and guide traffic around and/or through all areas of work activity, detours and other such hazardous locations.
3. As a general rule, additional traffic control devices in advance of the project limits should only be used in those cases where a work area, a detour, or a hazardous location is less than 2,000 feet inside of the project limits.
4. Duplicate construction warning signs should be erected on the median side of divided highways where median width will permit and traffic density justifies the signing.
5. Except for devices required by Note 1, traffic control devices should be in place only while work is actually in progress or a definite need exists such as for detours and hazards, otherwise, they should be removed or covered.
6. The traffic control devices used in the above illustrations are examples only. Field conditions should dictate the most appropriate traffic control devices to be used within a construction project.

SPECIAL NOTES

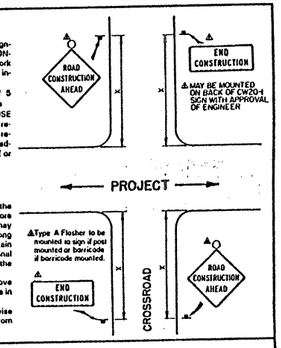
1. The ROAD CONSTRUCTION NEXT X MILES (← OR →) sign should be erected on the intersected highway as detailed above.
2. On the intersected highway, additional traffic control devices, such as a flagman and accompanying signs or other signs, should be used when work is being performed at or near the intersection.

CROSSROAD SIGNING AND BARRICADING

Except as noted below or elsewhere in the plans, the minimum signing on a crossroad approach should be one CW20-1 ROAD CONSTRUCTION AHEAD sign with a Type A Warning Light when work is actually in progress or a hazard exists in the vicinity of the intersection. Where speeds and volumes are relatively low the MCW 20 may be used, provided that a minimum letter size of 5 inches can be accommodated on this size with the appropriate legend. Additional signs such as FLAGMAN AHEAD, LOOSE GRAVEL, or other appropriate signs may be required, and when required, such signs will be considered part of the minimum requirements. When Type III Barricades are used on the project roadway, where practical, it is desirable that they be placed 30 feet or more from the crossroad:

EXCEPTIONS - TO BE NOTED ELSEWHERE IN THE PLANS

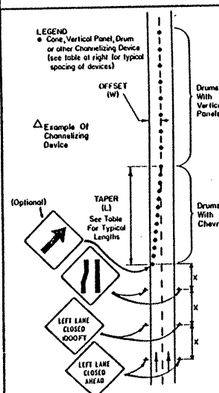
1. On higher volume crossroads or where major construction in the intersection area may require more than normal warning, more signing and barricading than the minimum specified above may be required. In some cases the Type III (C) Barricade plan along with the advance signing may be required during all or certain sequences of the work. However, unless the need for additional signs and/or barricades is noted elsewhere in the plans, the minimum requirements specified above will prevail.
2. On low volume crossroads the minimum signing required above may be omitted or modified if exceptions are noted elsewhere in the plans.
3. The G20-1c may be required on major crossroads to advise motorists of the length of construction in either direction from the intersection.



MINIMUM CONSTRUCTION WARNING SIGN SPACING

POSTED SPEED OR 85% SPEED	30 or less	35	40	45	50	55	MPH
X MINIMUM DISTANCE (FT.)	80	120	160	240	320	500	

⚠ For roads with a 55 MPH posted speed limit, advance warning signs should be placed approximately 1,500 feet in advance of the condition to which they are calling attention. Where a series of advance warning signs are used, the warning sign nearest the work site should be placed approximately 500 feet from the point of restriction with the additional signs at approximately 500-1000 foot intervals.



TYPICAL TRANSITION FOR SHORT DURATION LANE CLOSURE

For Long Duration Lane Closure, Pavement Markings In The Transition Area Shall Be Removed.

TYPICAL TRANSITION LENGTHS AND SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES

Posted Speed*	Formula	Minimum Desirable Taper Lengths** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
30	L=WS²/60	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'

*85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit.
**Taper lengths have been rounded off.
L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

BARRICADE AND CONSTRUCTION STANDARDS

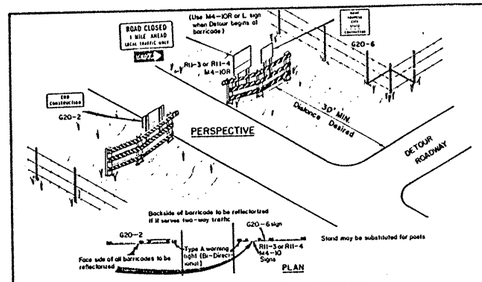
ADVANCE SIGNING
CROSSROAD SIGNING
PAVEMENT MARKINGS

BC(1)-82

ORIGINAL DRAWING DATED: '83	STATE	FEDERAL AID PROJECT		SHEET
REVISIONS				
1-85	15			
2-92	DISTRICT	COUNTY	SECTION	JOB	HIGHWAY

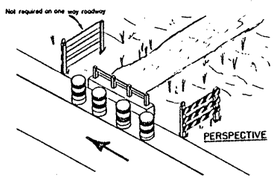
102

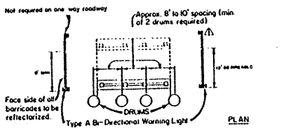
15



TYPE III (A) BARRICADE

1. The plan shown above is to be used when local traffic is permitted inside project or permitted to use the road beyond the intersection with the temporary route. Other signs and barricades (Type I, II or III) may be required inside the project limits based upon the contractor's sequence of work and other conditions.
2. Where conditions will permit, minimum length of barricade on each side of roadway should be 12 feet.
3. First barricade panel on each side of roadway should be approximately level. Additional panels, if needed, may follow contour of right-of-way.
4. Advance signing, including construction warning signs, and detour signing shall be as specified elsewhere in the plans.

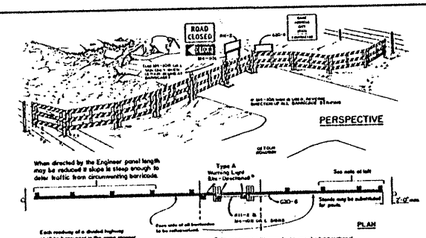




⚠ Extend barricade on side of approaching traffic if crown width makes it necessary.

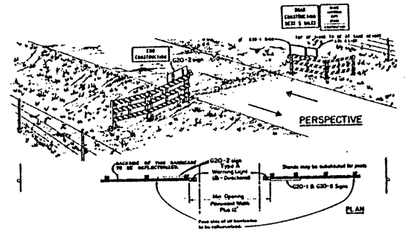
TYPE III (D) BARRICADE
FOR CULVERT WIDENING SITE WITHIN THE PROJECT LIMITS

NOTES:
1. Where positive redirectional capability is provided, drums and barricades may be omitted.
2. On streets or roads with posted speeds of 35 MPH or less, Type III Barricades may be used in lieu of barrels where necessary for pedestrian safety.

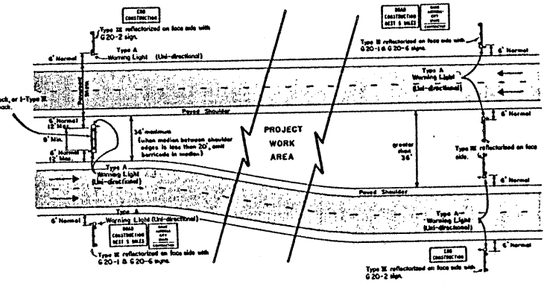


TYPE III(B) BARRICADE

1. The plan shown above is to be used when no local traffic is permitted inside the project. Contractor may locate his access gate anywhere in barricade except at center of roadway where R11-2 and M4-10 signs must be mounted on fixed barricade section.
2. Advance signing, including construction warning signs, and detour signing shall be as specified elsewhere in the plans.



TYPE III(C) BARRICADE FOR TWO WAY UNDIVIDED ROADWAY



TYPE III(C) BARRICADE FOR DIVIDED HIGHWAYS

NOTES FOR TYPE III (C) BARRICADES

1. The plans shown above are to be used when all traffic is maintained through the project. The signs shown apply to the first and last barricades of a project. Other signs and barricades (Types I, II or III) will be required inside the project limits based upon the contractor's sequence of work and other conditions.
2. Where conditions will permit, minimum length of barricade on each side of roadway should be 12 feet except as noted.
3. First barricade panel on each side of roadway should be approximate level. Additional panels, if needed, may follow contour of right-of-way.

GENERAL NOTES FOR TYPES I, II & III BARRICADES

Type I or II Barricades (see Sheet BC(3)) are for temporary use to control traffic within the limits of a project whenever it is necessary to confine traffic to a specific area because of some particular construction operation. Type I Barricades would normally be used on conventional roads or urban streets and arterials. As Type II Barricades have more reflective area, they are intended for use on expressway and freeways or other high speed roadways.

Type III(A) Barricades and accompanying signs are to be used at each end of construction projects closed to all but local traffic.

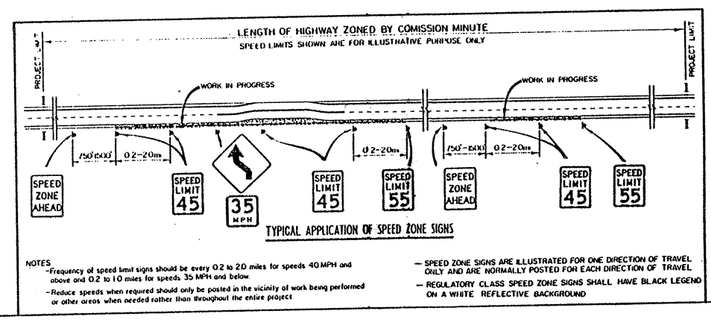
Type III(B) Barricades and accompanying signs are to be used at each end of construction projects closed to all traffic.

Type III(C) Barricades and accompanying signs are to be used at each end of construction projects where traffic is maintained through the project. Type III(C) Barricades may also be used where traffic from other highways, county roads or city streets is permitted to enter the project area. Typical signing for Type III(C) Barricades in shown on Sheet BC(1).

Type III(D) Barricades are to be used on culvert widening projects where traffic is routed over the structure. They shall be erected so as to provide the maximum roadway width for traffic and to allow sufficient space for construction operations behind the barricades.

Warning Lights placed on Type III(A), (B) or (C) barricades should be mounted at a minimum height of 36 inches to the bottom of the lens and may be attached to the barricade or mounted on a separate channelizing device. Barricades used at each end of the project shall be supplemented with warning lights as detailed on this sheet. For all other barricades, used at night, warning lights are to be used as detailed on Sheet BC(3).

For dimensions of barricade panels see Sheet BC(3).



TYPICAL APPLICATION OF SPEED ZONE SIGNS

NOTES
- Frequency of speed limit signs should be every 0.2 to 2.0 miles for speeds 40 MPH and above and 0.2 to 1.0 miles for speeds 35 MPH and below.
- Reduce speeds when required should only be posted in the vicinity of work being performed or other areas when needed rather than throughout the entire project
- SPEED ZONE SIGNS ARE ILLUSTRATED FOR ONE DIRECTION OF TRAVEL ONLY AND ARE NORMALLY POSTED FOR EACH DIRECTION OF TRAVEL.
- REGULATORY CLASS SPEED ZONE SIGNS SHALL HAVE BLACK LEGEND ON A WHITE REFLECTIVE BACKGROUND

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

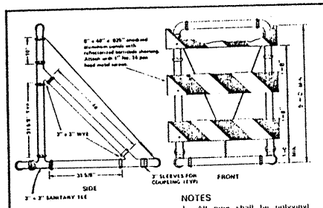
BARRICADE AND CONSTRUCTION STANDARDS

BARRICADES
SPEED ZONING

BC(2)-82

ORIGINAL DESIGNS DATED: 1-80	STATE PROJECT NUMBER	FEDERAL AID PROJECT	SHEET
REVISIONS	6		
	COUNTY	CONTROL SECTION	JOB
			103

16

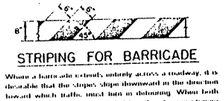


NOTES

1. All pipe shall be polyvinyl Chloride (PVC) pressure rated pipe SDR 21 or SDR 26 ASTM D2241.
2. Joint fittings may be PVC ASTM D2665 or Acrylonitrile Butadiene Styrene (ABS) ASTM D2661 (Drainage Waste and Vent)
3. All pipe and fittings shall be white
4. All joints shall be free to separate upon vehicle impact
5. Shaded conduit to be tied together with rope threaded into pipe interior Use 3-16" No 6 solid braided nylon or equivalent
6. A fixed trangible pavement connection is preferred Sand Bags may be substituted

OPTIONAL
TYPE III PVC BARRICADES
TYPICAL DESIGN DETAILS

May be used at the option of the Contractor



STRIPING FOR BARRICADE

Where a barricade entirely entirely across a roadway, it is desirable that the stripes slope downward in the direction toward which traffic must turn in obtaining. When both right and left turns are provided for, the chevron striping may slope downward in both directions from the center of the barricade

Striping should cover the full width of the rail Striping of rails, panels and gates for the right side of the roadway is shown above For the left side of the roadway, striping should slope downward to the right

For all types of barricades with rails less than 3' 0" long, stripes 4" wide shall be used.

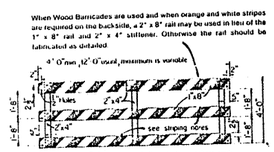
The 8" rail width is a nominal dimension for rails made of lumber.

Identification markings may be shown only on back side of barricade rails.

BARRICADE DETAILS

All lumber sizes are nominal dimensions
Fabrication Details ± 1/2"

When Wood Barricades are used and when orange and white stripes are required on the backside, a 2" x 8" rail may be used in lieu of the 1" x 8" rail and 2" x 4" stiffener. Otherwise the rail should be fabricated as detailed



PANEL FOR TYPE III BARRICADE

BARRICADE NOTES

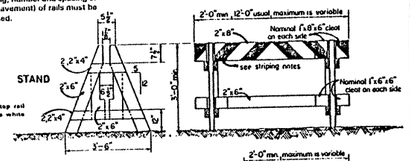
Channelizing devices other than barricades should normally be used for channelization purposes.

Barricades should normally be placed perpendicular to the traffic flow. Other channelizing devices, such as drums, vertical panels or portable barriers, should be used where needed to separate traffic from the work area. In all cases, the barricades should be so located as to most advantageously warn and direct traffic.

Barricades may be designed and constructed from wood, PVC pipe or any other suitable material in a manner approved by the Engineer. The construction details shown hereon are typical and are suggested details for wood and PVC pipe support systems for barricades. The details of rail width and striping, number and spacing of rails, minimum length and height (above pavement) of rails must be adhered to when alternate designs are used.

TYPE I BARRICADE

For Type I Barricades, both sides of the top rail shall have reflective orange and reflective white striping.



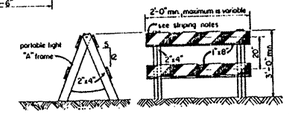
When signs are placed on barricades, a maximum number of 2 signs should be visable to the motorist.

Barricades are to be constructed in a first-class workmanship manner of clean sound material. All surfaces above ground, which are not striped, shall be white except the unpainted galvanized metal or aluminum components may be used. Components made of lumber shall be painted with a minimum of two coats of an approved brand of white paint to secure thorough coverage and a uniform white color.

The Contractor shall maintain each barricade in a clean and good condition.
Barricades shall be removed upon completion of the work and/or the elimination of the hazard on any section.

TYPE II BARRICADE

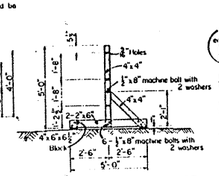
For Type II Barricades, all four (4) rail faces shall have reflective orange and reflective white striping.



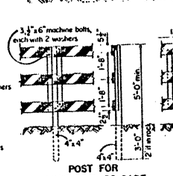
TYPE III BARRICADE

For Type III Barricades, the three (3) rails shall be reflective orange and reflective white stripes on one side of it is facing traffic, in one direction only, and on both sides if it serves traffic in two directions See Barricade Layouts on Sheet BC (2)

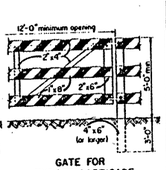
Use 1/4"x3 1/2" machine bolts with two washers each



STAND FOR TYPE III BARRICADE



POST FOR TYPE III BARRICADE



GATE FOR TYPE III BARRICADE

GENERAL NOTES

REFLECTORIZATION

The reflectorized white and reflectorized orange stripes for barricades, drums and vertical panels shall be constructed of retroreflective sheeting in conformance with project specifications and shall be maintained to meet the appearance, color, and reflectivity requirements of those specifications.

WARNING LIGHTS

Warning lights are portable lens directed, enclosed lights. The color of the light emitted shall be yellow. The lights should be mounted at a minimum height of 36 inches to the bottom of the lens.

Type A Low Intensity Flashing Warning Lights are commonly mounted on barricades, other channelization, devices or advance warning signs and are intended to warn the driver that he is approaching a hazardous area. Their use shall be as specified elsewhere in the plans, on Sheets BC(1) and BC(2), or as directed by the Engineer.

Type B High Intensity Flashing Warning Lights are normally used at or approaching extremely hazardous site conditions within the construction area. They may be mounted on barricades, signs or other supports. As these lights are effective in daylight as well as dark, they are designed to operate 24 hours per day. Their use should be specified elsewhere in the plans or as directed by the Engineer. Flashing warning lights shall not be used in a series.

Type C Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices used to delineate the edge of the traveled way on detour curves, lane changes, lane closures, shoulder drop-offs and other similar conditions or hazards. The series of Steady Burn Lights should have a Type B High Intensity Flashing Warning Light at the beginning and end of the series to mark the hazard. Where Steady Burn Lights are to be used for delineation, the Contractor may at his option, utilize delineators.

Contractors shall furnish a copy of a certification from the manufacturer of the lights that the warning lights meet the requirements of the ITE Standard For Flashing and Steady Burn Warning Lights as contained in the latest edition of the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways."

DELINEATORS

Delineators are normally used to indicate roadway alignment where improved nighttime visibility is needed but other roadway features are sufficient for daytime alignment. They should generally be used on high fills and horizontal and vertical curves where only nighttime delineation is needed. Delineators, when required for temporary use to control traffic through construction areas, will be considered subsidiary to the item BARRICADES, SIGNS AND TRAFFIC HANDLING. Delineators shall meet the material requirements of the project specifications. When used, delineators on the right side of the roadway facing traffic shall be white. The color of delineators used along the left edge of divided streets and highways and one-way roadways shall be yellow.

SPACING OF DELINEATORS

Spacing of Delineators on curves should be according to the Table below Spacing of delineators on tangent sections should normally be between 100 and 200 feet with the closer spacing for lower speeds and greater spacing for higher speeds.

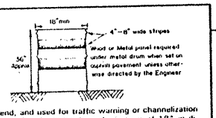
RADIUS OF CURVE (FEET)	60	150	200	250	300	400	500	600	700	800	900	1000
APPROX. SPACING ON CURVE (FEET)	20	30	35	40	50	55	65	70	75	80	85	90

CONES

Traffic cones and tubular markers shall be a minimum of 18 inches in height with a broadened base and may be made of various materials to withstand impact without damage to themselves or to vehicles. Larger sizes should be used on freeways and other roadways where speeds are relatively high or wherever more conspicuous guidance is needed. Orange shall be the predominant color on cones and tubular markers. They should be kept clean and bright for maximum target value. For nighttime use they shall be reflectorized or equipped with lighting devices for maximum visibility Reflectorized material shall have a smooth, sealed outer surface which will display the same approximate color day and night.

Reflectorization of tubular markers shall be a minimum of two three-inch bands placed a maximum of 2" from the top with a maximum of 6" between the bands. Reflectorization of cones shall be provided by a minimum 6" band placed a maximum of 3" from the top.

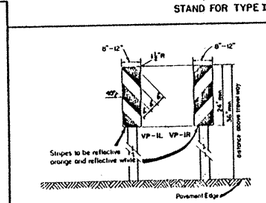
Cones or tubular markers are generally only suitable for temporary usage (up to 8 hours) with other channelization devices such as vertical panels or barricades preferred for longer term usage Care should be taken to insure that they remain in their proper location and in an upright position.



DRUMS

Drums, set on end, and used for traffic warning or channelization shall be approximately 36" in height and minimum of 18" in diameter. The contractor, at his option, may use drums made from steel barrels or black polyethylene plastic drum liners weighted appropriately and/or properly anchored. The markings on drums shall be horizontal, circumferential, reflectorized orange and reflectorized white stripes, 4 to 6 inches wide. The first reflectorized stripe should start within two (2) inches of the top of the drum. There shall be at least two orange and two white stripes on each drum. If there are non reflectorized spaces between the horizontal orange and white stripes, they shall be no more than 2 inches wide. Metal drums shall be painted black or orange before reflectorized stripes are added. All drums on a project will be the same color. When drums are placed in the roadway, appropriate warning signs should be used. During hours of darkness, a flashing warning light should be placed on drums used singly as a warning device. Steady burn electric lights or delineators should be placed on drums used in series for traffic channelization. Drums should not be weighted with sand, water or other material to the extent that it would make the drums dangerous to motorists.

CW1 8 CHEVRON signs, CW1 6A ARROW signs or VP 1 Vertical Panels mounted above drums may be used as supplements to drum delineation.

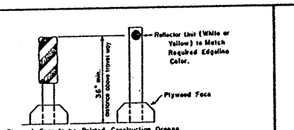


VERTICAL PANELS (VP)

Vertical Panels are normally used as channelizing devices to indicate tangent or nearly tangent roadway alignment where good target value of a device is needed in daytime as well as the nighttime. In addition, vertical panels should be used at the edge of shoulder drop offs and other areas such as lane transitions where positive day and night delineation may be required. Vertical panels should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes should always slope downward toward the traveled way.

CHANNELIZING DEVICES

The Type or Types of Channelizing Devices used are to be as specified by the Engineer.



TYPICAL PORTABLE VERTICAL PANEL OR DELINEATOR

Other similar supports may be used when approved or directed by the Engineer.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

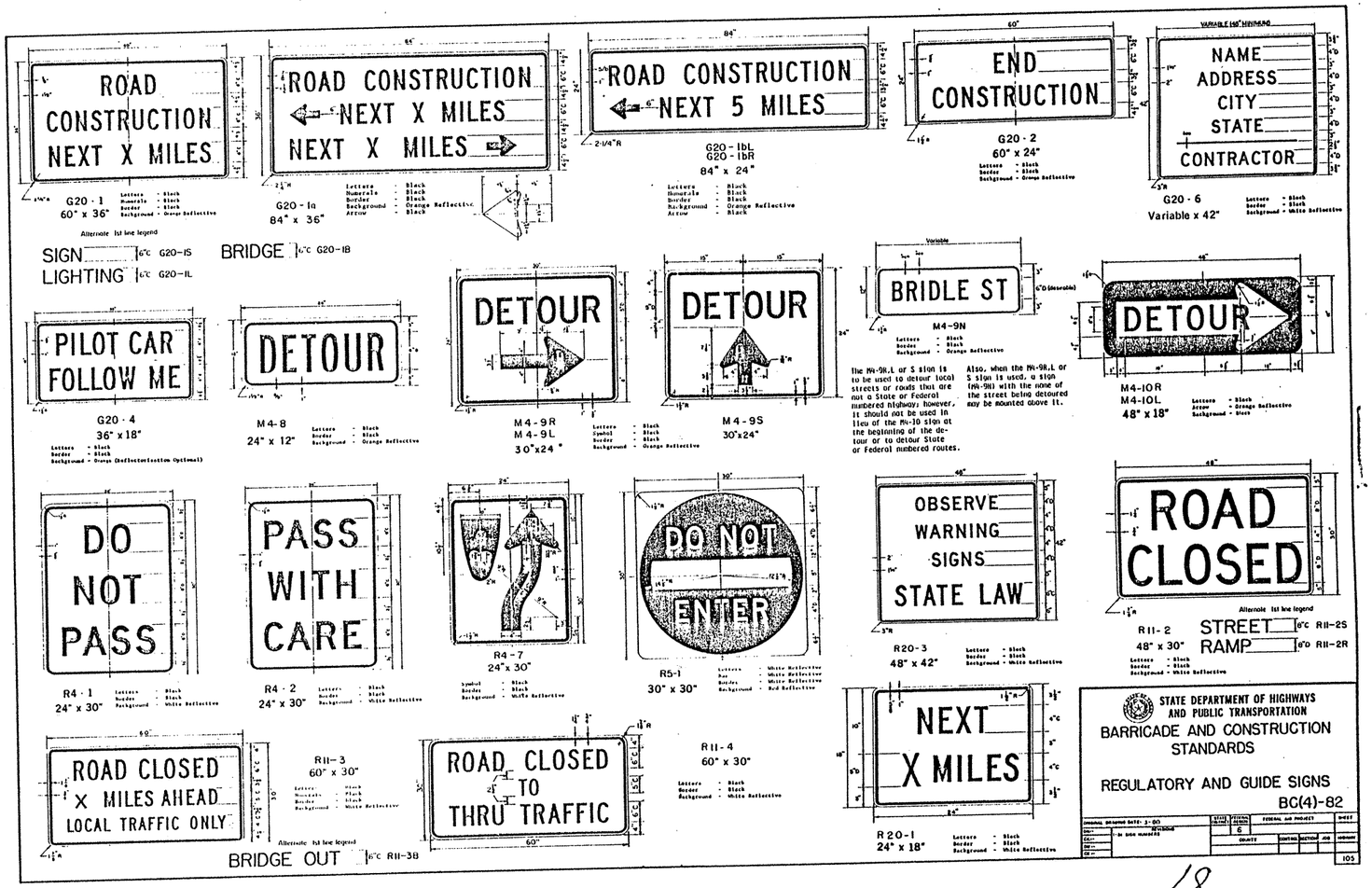
BARRICADE AND CONSTRUCTION STANDARDS

BARRICADE DETAILS
DELINEATORS & VERTICAL PANELS
DRUMS & CONES
REFLECTORIZATION
WARNING LIGHTS

BC(3)-82

ORIGINAL SHEET DATE: 3-80	STATE	FISCAL YEARS	FEDERAL AID PROJECT	SHEET
REVISED	6			
2-82	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
					104

17


ROAD CONSTRUCTION NEXT X MILES
G20 - 1
60" x 36"
ROAD CONSTRUCTION NEXT X MILES NEXT X MILES
G20 - 1a
84" x 36"
ROAD CONSTRUCTION NEXT 5 MILES
G20 - 1bL
G20 - 1bR
84" x 24"
END CONSTRUCTION
G20 - 2
60" x 24"
NAME
ADDRESS
CITY
STATE
CONTRACTOR
G20 - 6
Variable x 42"
SIGN 6"c G20-1S
LIGHTING 6"c G20-1L
BRIDGE 6"c G20-1B
PILOT CAR FOLLOW ME
G20 - 4
36" x 18"
DETOUR
M4-8
24" x 12"
DETOUR
M4-9R
M4-9L
30"x24"
DETOUR
M4-9S
30"x24"
BRIDLE ST
M4-9N
The M4-9R,L or S sign is to be used to detour local streets or roads that are not a State or Federal numbered highway; however, it should not be used in lieu of the M4-10 sign at the beginning of the detour or to detour State or Federal numbered routes.
Also, when the M4-9R,L or S sign is used, a sign (M4-9N) with the name of the street being detoured may be mounted above it.
DETOUR
M4-10R
M4-10L
48" x 18"
DO NOT PASS
R4 - 1
24" x 30"
PASS WITH CARE
R4 - 2
24" x 30"
R4 - 7
24"x 30"
DO NOT ENTER
R5-1
30" x 30"
OBSERVE WARNING SIGNS STATE LAW
R20-3
48" x 42"
ROAD CLOSED
R11-2
48" x 30"
STREET 6"c R11-2S
RAMP 6"o R11-2R
ROAD CLOSED X MILES AHEAD LOCAL TRAFFIC ONLY
R11-3
60" x 30"
ROAD CLOSED TO THRU TRAFFIC
R11-4
60" x 30"
BRIDGE OUT 6"c R11-3B
NEXT X MILES
R20-1
24" x 18"
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
BARRICADE AND CONSTRUCTION STANDARDS
REGULATORY AND GUIDE SIGNS
BC(4)-82
105

CONSTRUCTION SIGN NOTES

Construction signs shall be made from wood or metal. The designation of metal and wood as primary materials for signs shall not be interpreted to exclude other suitable rigid materials now or hereafter available

Wood for signs shall be waterproof resinbonded exterior grade plywood, Douglas Fir Plywood Association, or equal, of minimum 1/2 inch thickness. All wood signs made up of 2 or more pieces shall have one or more cleats, 1/2 inch by 6 inch plywood fastened to the back of the sign and extending fully across the sign. On plywood signs cleats shall be used as splice plates running the length of the joints. In localities where untreated wood rots rapidly, it is recommended that wood used for signs be treated either with chromated zinc chloride, Wolman salts, or pentachlorophenol

Aluminum sign blanks shall have a minimum thickness of 0.080". Steel sign blanks shall have a minimum thickness of 14 gauge

On secondary roads or city streets where speeds are low, smaller size construction warning signs may be used with the approval of the Engineer and if the sign size is in accordance with the "Typical Construction Warning Sign Size and Spacing Chart" shown on page 6B.2.2 of the Texas MUTCD

Reflectorized signs shall be constructed of retro-reflective sheeting and shall be maintained to meet the requirements for appearance, color and retro reflectivity of the project specifications. Signs shall comply with the general requirements specified in the "Standard Specifications for Construction of Highways, Streets and Bridges" in effect at the time of contract award.

All sign lettering shall be clear, open rounded type capital letters as approved by the National Committee on Uniform Traffic Control Devices and its sponsoring agencies, and as published by the Federal Highway Administration. Signs and lettering shall be of first class workmanship equivalent to that of the Department's standard signs.

Standard signs shall be used as required by Sheets BC(1) thru BC(7), the plans, or as directed by the Engineer to regulate, warn, and guide traffic. All sign erection and usage shall be in strict accordance with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways." The Contractor shall maintain each sign in a clean and good condition.

Signs shall be removed upon completion of the work.

Signs may be erected on portable, temporary, or fixed supports, for use on construction projects to warn or guide the traffic through and/or around the actual construction area. However, at the end of the workday if the signs do not warn or regulate traffic relative to night time roadway conditions or whenever the specific danger of which the particular sign warns has ceased to exist, the signs shall be either removed, turned away from the view of any traffic or covered. When signs are turned away from the view of any traffic the sign shall not be turned 90° to the direction of traffic and on two-way roadways or expressways or freeways with medians less than 12' (when the sign is installed in the median area) the sign shall not be turned 180° to the direction of traffic. When signs are covered the material used shall be opaque such as heavy mill black plastic. Burlap shall not be used to cover signs.

Signs erected on portable supports for use on construction projects normally mean signs which are used during the day to warn or guide traffic through and/or around the actual construction area, but at the end of the workday such signs are either removed or turned away from the view of traffic. Portable supports shall be as shown on this sheet or as approved by the Engineer. The bottom of the sign shall be a minimum of one (1) foot above the pavement edge. Signs required for nighttime usage should not normally be mounted on portable supports, except when approved by the Engineer.

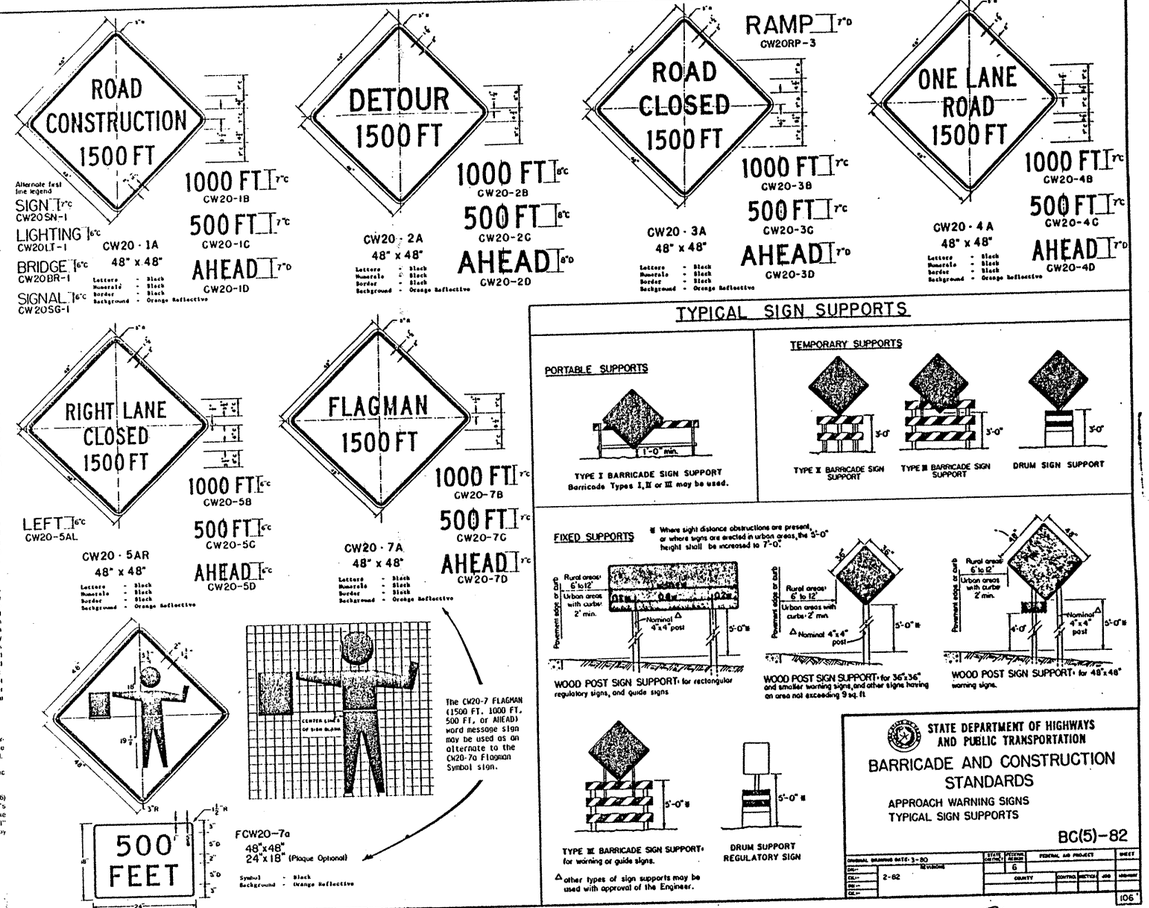
Signs erected on fixed supports for use on construction projects normally mean signs that are to remain in place for both day and night usage to regulate, warn and guide traffic in advance of and within the limits of the project including the crossroad approaches. However, under certain conditions, such as where a sign may be required for a few days duration and then is no longer needed or where a sign is moved from location to location every few days or where it is not practical or desirable to provide a fixed mounting, such signs may be erected on a temporary type of support. Temporary supports shall be as shown on this sheet or as approved by the Engineer. Signs erected on temporary supports should be at a minimum height of 5 feet. Signs erected on fixed supports should be at a minimum height of five (5) feet in rural areas, and seven (7) feet in urban areas and other rural locations where sight distance obstructions are present. Regardless of the type of support used, regulatory signs should not be erected at height less than the 5 or 7 foot minimum specified above unless a lower height is approved by the Engineer. Posts for fixed supports should be set in the ground without concrete footings.

Wood sign post supports shall be painted white.

Where portable or temporary supports require the use of weights to keep a sign or barricade from turning over, the use of some type of sandbag is recommended. The use of pieces of concrete, rocks, iron, steel or other solid objects will not be permitted.

All traffic control devices shall conform with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways."

Contractors may use either the sign designs shown on sheets BC(4), BC(5), BC(6) and BC(7) or those sign designs shown in the U.S. Department of Transportation's latest edition of "Standard Highway Signs," when the required sign is illustrated in the "Standard Highway Signs" book. All construction type signs provided for in "PART VI" of the Texas MUTCD, but not detailed in the plans, may be used when so directed by the Engineer.



TYPICAL SIGN SUPPORTS

PORTABLE SUPPORTS

TYPE I BARRICADE SIGN SUPPORT
Barricade Types I, II or III may be used.

TEMPORARY SUPPORTS

TYPE II BARRICADE SIGN SUPPORT

TYPE III BARRICADE SIGN SUPPORT

DRUM SIGN SUPPORT

FIXED SUPPORTS

※ Where sight distance obstructions are present, or where signs are erected in urban areas, the 5'-0" height shall be increased to 7'-0".

WOOD POST SIGN SUPPORT for rectangular regulatory signs, and guide signs

WOOD POST SIGN SUPPORT for 36"x36" and smaller warning signs, and other signs having an area not exceeding 9 sq. ft.

WOOD POST SIGN SUPPORT for 48"x48" warning signs.

TYPE ※ BARRICADE SIGN SUPPORT for warning or guide signs.

DRUM SUPPORT REGULATORY SIGN

△ other types of sign supports may be used with approval of the Engineer.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

BARRICADE AND CONSTRUCTION STANDARDS

APPROACH WARNING SIGNS
TYPICAL SIGN SUPPORTS

BC(5)-82

ORIGINAL DRAWING DATE: 1-80	STATE DISTRICT	FEDERAL AID PROJECT	SHEET
REVISIONS	6		
	COUNTY	CONTROL SECTION JOB	HIGHWAY
2-82			

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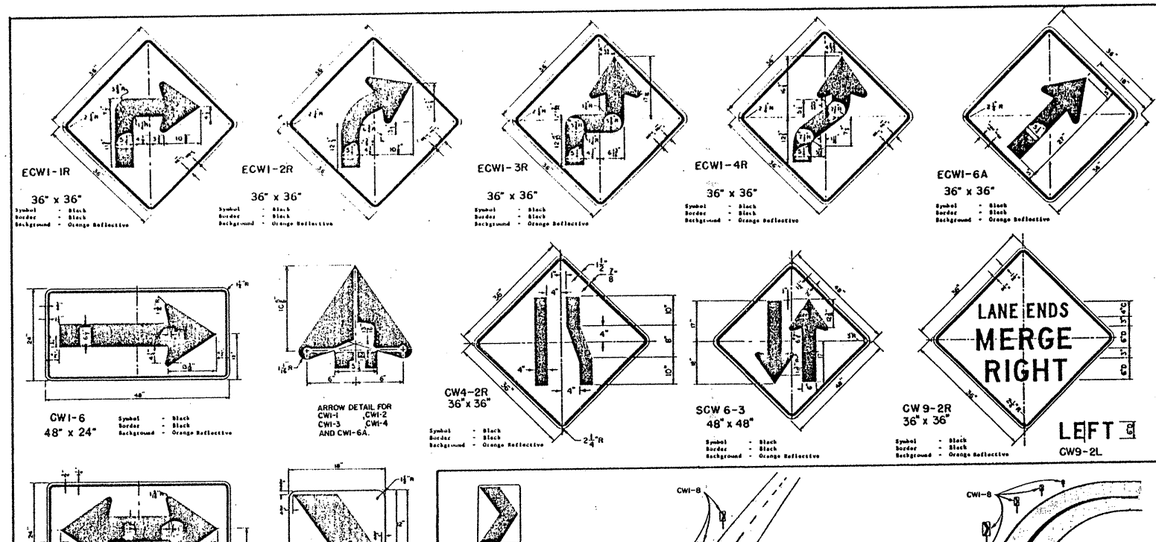
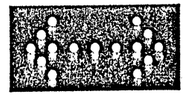
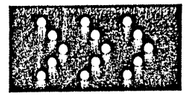




FLASHING ARROW PANEL



SEQUENCING ARROW PANEL

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANELS

The Advance Warning Flashing Arrow and Sequencing Arrow Panels are intended to supplement existing traffic control devices. They provide additional advance warning and directional information to assist in diverting and controlling traffic around construction or maintenance activities being conducted on or adjacent to the traveled way.

The Advance Warning Arrow Panel may be used for day or night closures, slow moving maintenance or construction activities on the traveled way, or extremely hazardous high density and speed conditions

Necessary signs, barricades or other traffic control devices should be used in conjunction with the Advance Warning Arrow Panel.

Arrow panels should have the capability of the following mode selections: Left Arrow, Right Arrow, Left and Right Arrow and caution The caution mode consists of four or more lamps, arranged in a pattern which will not indicate a direction.

Arrow panels shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 times per minute.

REQUIREMENTS

TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30" x 54"	13	¼ mile
C	48" x 96"	15	1 mile

The panels shall be mounted on a vehicle, trailer or other suitable support

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

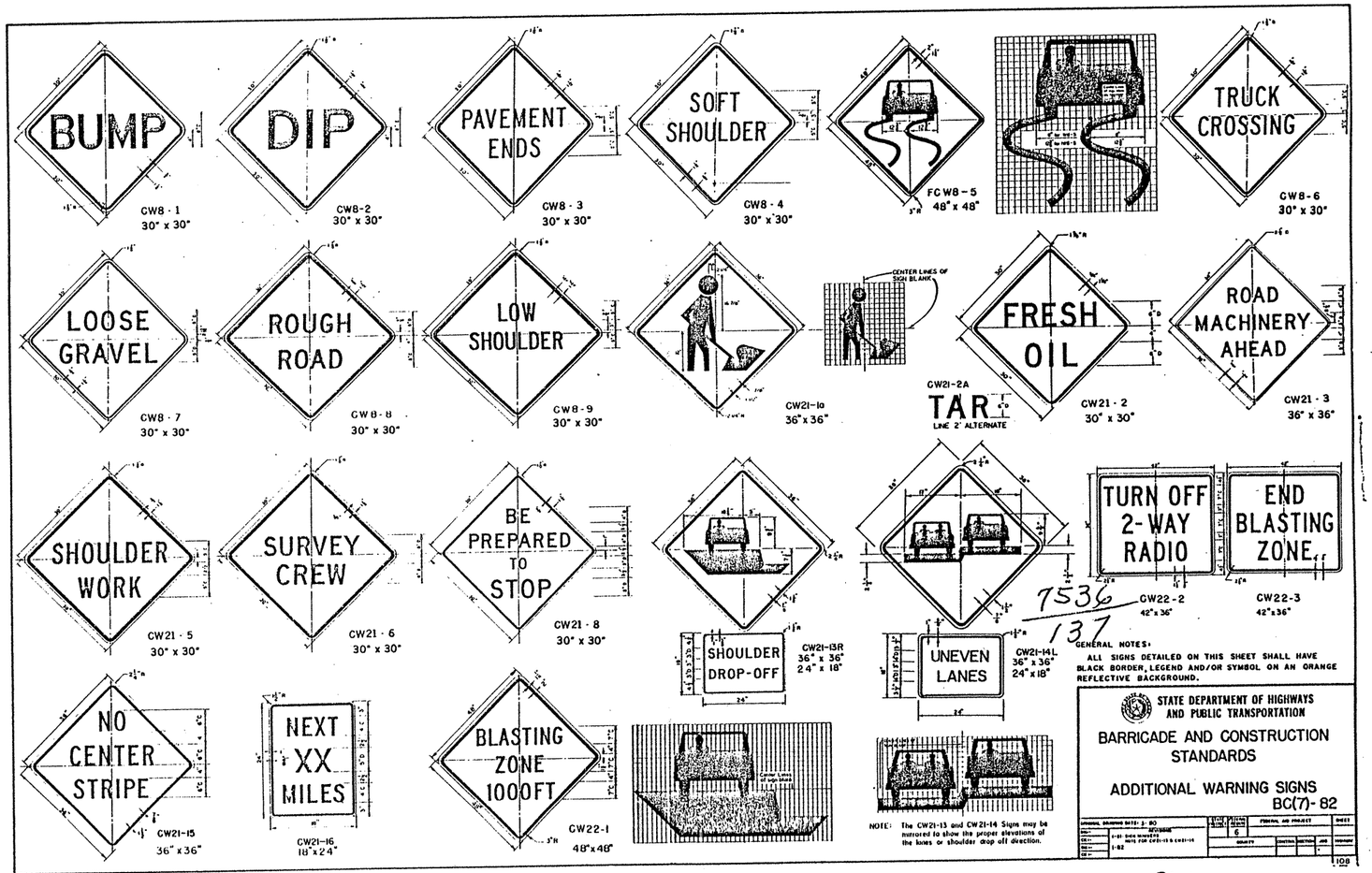
BARRICADE AND CONSTRUCTION STANDARDS

CONSTRUCTION WARNING SIGNS
ADVANCE WARNING ARROW PANELS

BC(6)-82

ORIGINAL DRAWING DATED 3-1-80		STATE DISTRICT	FISCAL YEAR	FEDERAL AID PROJECT	SHEET
DR.:	REVISION	6	6		
CK.:	FILE NAME NUMBERS I-82	COUNTY		CONTROL SECTION	JOB
SU.:					
QC.:					107

20



7536
137

GENERAL NOTES:
ALL SIGNS DETAILED ON THIS SHEET SHALL HAVE BLACK BORDER, LEGEND AND/OR SYMBOL ON AN ORANGE REFLECTIVE BACKGROUND.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

BARRICADE AND CONSTRUCTION STANDARDS

ADDITIONAL WARNING SIGNS
BC(7)-82

STATE	FISCAL YEAR	SHEET
6		
COUNTY	SECTION	JOB

108

21

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	IR 35-1(52)000				1
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB		HIGHWAY NO.
21	WEBB	18	3	31		IH 35

8045
01

ETC.

NK

STATE OF TEXAS

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

PLANS OF PROPOSED

STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT
IR 35-1(52)000
SCALE, AS NOTED

NET LENGTH OF PROJECT 200,374.3 FT, 37.949 MI.

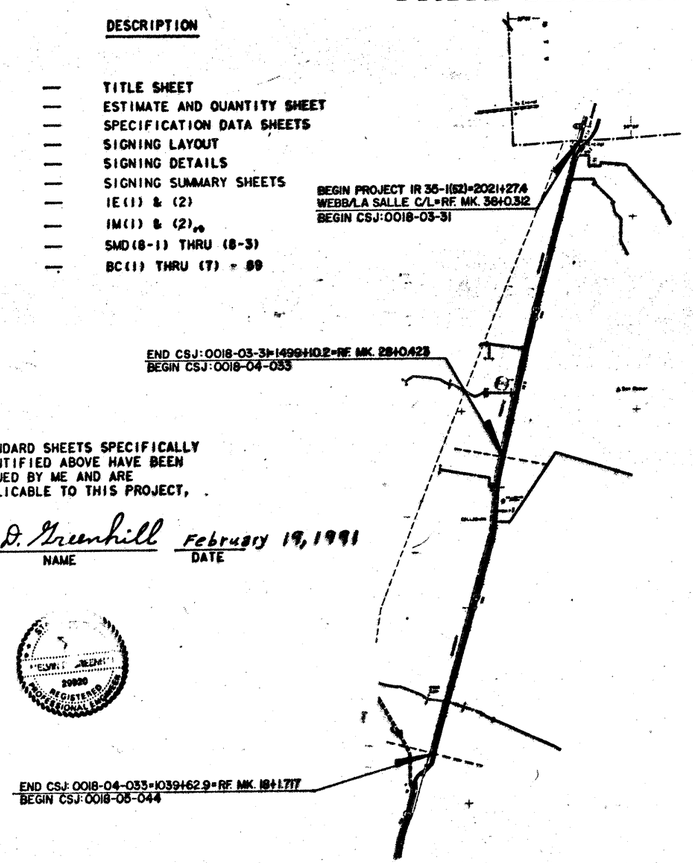
WEBB COUNTY
IH 35
REFURBISH GUIDE SIGNS

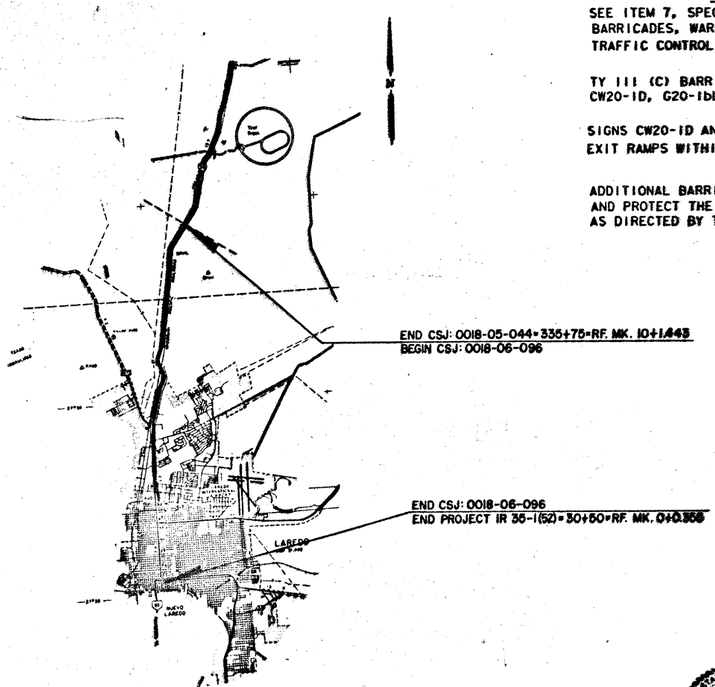
INDEX OF SHEETS

SHEET NO.		DESCRIPTION
1	—	TITLE SHEET
2	—	ESTIMATE AND QUANTITY SHEET
3	—	SPECIFICATION DATA SHEETS
4 - 5	—	SIGNING LAYOUT
6 - 11	—	SIGNING DETAILS
12 - 23	—	SIGNING SUMMARY SHEETS
24 - 25	—	IE(1) & (2)
26 - 27	—	IM(1) & (2)
28 - 30	—	SMD(8-1) THRU (8-3)
31 - 37	—	BC(1) THRU (7) + 89

STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT,

Melvin D. Greenhill — NAME
February 19, 1991 — DATE





PROJECT LENGTH:

CSJ 18-3-31	52,217.2 FT.	= 9.889 MI.
CSJ 18-4-33	45,947.3 FT.	= 8.702 MI.
CSJ 18-5-44	43,686.5 FT.	= 8.274 MI.
CSJ 18-6-96	58,523.3 FT.	= 11.084 MI.
TOTAL	200,374.3 FT.	= 37.949 MI.

TRAFFIC, DETOURS, BARRICADES, ETC.

SEE ITEM 7, SPECIFICATION ITEM 502, SPECIAL PROVISION " DETOURS, BARRICADES, WARNING SIGNS, SEQUENCE OF WORK, ETC.", AND SUGGESTED TRAFFIC CONTROL PLAN.

TY III (C) BARRICADES WITH SIGNS G20-1, G20-2, G20-6, R20-3, CW20-1A CW20-1D, G20-1DL AND G20-1DR SHALL BE ERECTED AT EACH END OF THE PROJECT.

SIGNS CW20-1D AND G20-2 SHALL BE ERECTED AT ALL ENTRANCE AND EXIT RAMPS WITHIN THE PROJECT.

ADDITIONAL BARRICADES AND SIGNS MAY BE USED TO DIRECT TRAFFIC AND PROTECT THE WORK IN THE IMMEDIATE VICINITY OF THE OPERATION AS DIRECTED BY THE ENGINEER,

THE CONSTRUCTION WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS AND CONTRACT UNDER MY RESPONSIBLE SUPERVISION.

Amadeo Saenz, Jr. P.E. — AMADEO SAENZ, JR., P.E.
3-20-92 — DATE

Date Let: 6-6-91
Work Begin: 10-15-91
Date Complete: 2-14-92

Field Changes:
No 1 Increase Quantity
Item 432 CL"B" Conc.
Riprap

EQUATIONS:

CSJ 18-5-44

STA. 519+59.2 BK, = STA. 520+10.9 FWD,	=	-51.7 FT,
STA. 754+50.3 BK, = STA. 1021+00 FWD,	=	-26,649.7 FT.
		-26,701.4 FT,

CSJ 18-6-96

STA. 210+41.3 BK, = STA. 210+44.3 FWD,	=	-3.0 FT,
STA. 280+44.0 BK, = STA. 0+67 FWD,	=	+27,977.0 FT,
STA. 56+93.0 BK, = STA. 57+03.5 FWD,	=	-10.5 FT,
STA. 160+28.1 BK, = STA. 159+93.3 FWD,	=	+34.8 FT,
		+27,998.3 FT,

NO EXCEPTIONS

CONVENTIONAL SIGNS

RIGHT OF WAY LINE
PROPERTY LINE
COUNTY LINE
CONTROL OF ACCESS LINE
SURVEY LINE
FENCE
POWER LINE
TELEPHONE OR TELEGRAPH
RAILROAD
BRIDGE OR CULVERT
CITY LIMITS

SPECIFICATIONS ADOPTED BY THE STATE DEPARTMENT OF HWYS & PUBLIC TRANS, SEPTEMBER 1, 1982 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, AUGUST 1989) AND ADDENDUM TO FHWA FORM FHWA 1273, REQUIRED CONTRACT PROVISIONS, FEDERAL-AID CONSTRUCTION CONTRACTS (FEBRUARY, 1991)

LAYOUT SCALE: 1 IN. = 10,560 FT.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

RECOMMEND FOR LETTING _____ 19__
DISTRICT ENGINEER

RECOMMEND FOR LETTING Feb 19 19 91
Melvin D. Greenhill
SUPV. TRAFFIC ENGINEER

RECOMMEND FOR LETTING Feb 19 19 91
Homer L. Glover, P.E.
DISTRICT DESIGN ENGINEER

APPROVED for Leading 3-25 19 90
Dewitt B. Jolaine
CHIEF ENGINEER OF MAINTENANCE AND OPERATIONS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR — DATE

8045 FINAL
CONTROL SHEETS 30
PLANS
SIGNS
SIGNAL
DESIGNED C.L. Gayol
DETAILED J.M. Tull
CHECKED C.L. Gayol
DATE 6-17-92
SHEET NO. 1 OF 4 SHEETS

WEBB IR 35-1(52)000
PROJ. NO.
COUNTY
GOVT. NO.
LETTING DATE
DATE ACCEPTED

ZFA3:E325TTTDLS83TTT.DGN E325TS, IBARM

ESTIMATE SUMMARY

CONTROL 18-3-31		CONTROL 18-4-33		CONTROL 18-5-44		CONTROL 18-6-96		MISC.	
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
		40.000	0.00	40.000	0.00	40.000	0.00		
23.000	11.00			15.000	15.00	148.500	172.50		
27.800	27.66	23.900	23.77	48.600	44.81	93.600	94.15	EXTRA SIGNS	24.53
4.000	4.00								
1425.000	1425.00	1249.000	1249.00	2446.250	2304.75	3652.000	3804.25		
38.360	38.36	7.150	7.15	28.600	28.60	151.600	171.10		
1905.000	742.00			841.000	841.00	10981.000	12995.00		
1.000	1.00								
2.000	1.00			1.000	1.00	10.000	12.00		
12.000	13.00	10.000	10.00	20.000	19.00	13.000	11.00		

ALT	ITEM-CODE ITEM NO	DESC CODE	SUP NO	DESCRIPTION	UNIT	TOTAL EST.	TOTAL FINAL
	204	002		SPRINK (EROSN CONT)	MG	160.000	0.00
	416	011	002	DRILL SHAFT (24 IN)(SIGN MTS)	LF	186.500	198.50
	432	008		RIPRAP (CONC)(CL B)	CY	193.900	214.92
	502	001	011	BARCD,SIGN AND TRAF HANDLING	MO	4.000	4.00
	634	002	001	PLYWOOD SIGNS (TYPE A) REMOVABLE COPY	SF	8772.250	8783.00
	636	001		ALUMINUM SIGNS (TYPE A)	SF	225.710	245.21
	648	001		RDSD TRAF SGN SUPPT (STRUCTURAL STEEL)	LB	13727.000	14578.00
	6641	001		MOBILIZATION	LS	1.000	1.00
	6057	001		REMOVING EXISTING ROADSIDE TRAF SIGNS	EA	13.000	14.00
	6059	001		REMOV EXIST SIGN PANELS	EA	55.000	55.00
				CONTRACTOR FORCE ACT OR AGR UNIT PRICE (PART)			
				TEMP EROSN, SEDMT & WTR-POL CONT	LS	1.000	

ESTIMATE & QUANTITY SHEET

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
21	WEBB	IR 35-(62)000	2

2

F.R. DIV.6	TEXAS	IR 35-1(52)000	SHEET 3
WEBB	COUNTY	HWY IH 35	CONT 0010-3-31,ETC

GENERAL NOTES AND SPECIFICATION DATA--

---ITEM 416 DRILLED SHAFT FOUNDATIONS---

THE CONTRACTOR SHALL PROBE BEFORE DRILLING FOUNDATIONS TO DETERMINE THE LOCATIONS OF ALL UNDERGROUND UTILITIES AND STRUCTURES.

---ITEMS 420-421 CONCRETE STRUCTURES AND CONCRETE FOR STRUCTURES---

THE ENGINEER WILL SAMPLE ALL CONCRETE AND MAKE AND TEST ALL TEST BEAMS AND CYLINDERS IN ACCORDANCE WITH TEST METHODS TEX-418-A AND TEX-420-A. THE CONTRACTOR SHALL FURNISH AND PROPERLY MAINTAIN ALL TEST MOLDS. THE TEST MOLDS SHALL MEET THE REQUIREMENTS OF TEST METHODS TEX-418-A AND TEX-420-A AND, IN THE OPINION OF THE ENGINEER, SHALL BE SATISFACTORY FOR USE AT THE TIME OF USE. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PERSONNEL TO REMOVE THE TEST SPECIMENS FROM THE MOLDS AND TO TRANSPORT THEM TO THE PROPER CURING LOCATION AT THE SCHEDULE DESIGNATED BY THE ENGINEER AND IN ACCORDANCE WITH THE GOVERNING SPECIFICATION. FOR ALL CONCRETE ITEMS, THE CONTRACTOR SHALL HAVE A WHEELBARROW OR OTHER CONTAINER ACCEPTABLE TO THE ENGINEER AVAILABLE TO USE IN THE SAMPLING OF THE CONCRETE. ALL LABOR AND EQUIPMENT FURNISHED BY THE CONTRACTOR WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS AND WILL NOT BE PAID FOR DIRECTLY.

---ITEM 427 SURFACE FINISHES FOR CONCRETE---

A GRADE III SURFACE FINISH WILL BE REQUIRED ON ALL CONCRETE STRUCTURES.

---ITEM 432 RIPRAP---

CONCRETE RIPRAP APRON USED AROUND LARGE SIGN LEGS SHALL BE 4" THICK. CONCRETE USED ON THIS RIPRAP SHALL BE CLASS "B" AND REINFORCING SHALL BE 6" X 6" - W3 X W3 (NO.6 GAUGE) WELDED WIRE FABRIC OR #3 BARS AT 18" C.C. UNLESS OTHERWISE SHOWN ON THE PLANS.

ALL EXCESS EXCAVATION RESULTING FROM THIS OPERATION SHALL BE SPREAD UNIFORMLY INSIDE THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER AND SHALL BE INCLUDED IN THE BID PRICE OF THIS ITEM.

F.R. DIV.6	TEXAS	IR 35-1(52)000	SHEET 3
WEBB	COUNTY	HWY IH 35	CONT 0010-3-31,ETC

GENERAL NOTES AND SPECIFICATION DATA--

---ITEM 437 CONCRETE ADMIXTURES---

HIGH RANGE WATER REDUCERS WILL BE USED ONLY TO MEET SPECIAL REQUIREMENTS AND WILL REQUIRE THE WRITTEN APPROVAL OF THE ENGINEER ON EACH SPECIFIC PROJECT. A SATISFACTORY WORK PLAN FOR CONTROL SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL AND AN EVALUATION OF THE CONCRETE CONTAINING THE ADMIXTURE WILL BE PERFORMED BY THE ENGINEER.

---ITEM 502 BARRICADES, SIGNS AND TRAFFIC HANDLING---

THE TRAFFIC CONTROL PLAN FOR THIS PROJECT SHALL BE AS DETAILED ON APPLICABLE BC (1) THRU (7)-89 STANDARDS, AND/OR AS PROVIDED FOR IN THE "1980 TEXAS MUTCD."

---ITEM 526 MEMBRANE CURING---

MEMBRANE CURING, TYPE 2 WILL BE REQUIRED.

---ITEMS 634 AND 636 PLYWOOD AND ALUMINUM SIGNS (TYPE A)---

ALL SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE "1980 TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."

ALL BRAND NEW SIGN INSTALLATIONS SHALL BE LOCATED IMMEDIATELY BEHIND THE EXISTING SIGNS THEY ARE REPLACING.

ANY DETAIL THAT CONFLICTS WITH THE STANDARD PLAN SHEETS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION UNLESS A NOTE IS PLACED ADJACENT TO THE DETAIL TO INDICATE AN INTENTIONAL DEVIATION FROM THE STANDARD PLAN SHEETS.

---ITEM 648 ROADSIDE TRAFFIC SIGN SUPPORTS (STRUCTURAL STEEL)---

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT THE LENGTHS OF THE POSTS FOR LARGE GROUND MOUNT SIGNS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY EXISTING FIELD CONDITIONS TO DETERMINE THE REQUIRED LENGTHS OF THESE POSTS PRIOR TO ORDERING THE MATERIALS TO CONFORM WITH SPECIFIED SIGN MOUNTING HEIGHTS SHOWN IN THE PLANS.

F.R. DIV.6	TEXAS	IR 35-1(52)000	SHEET 3
WEBB	COUNTY	HWY IH 35	CONT 0010-3-31,ETC

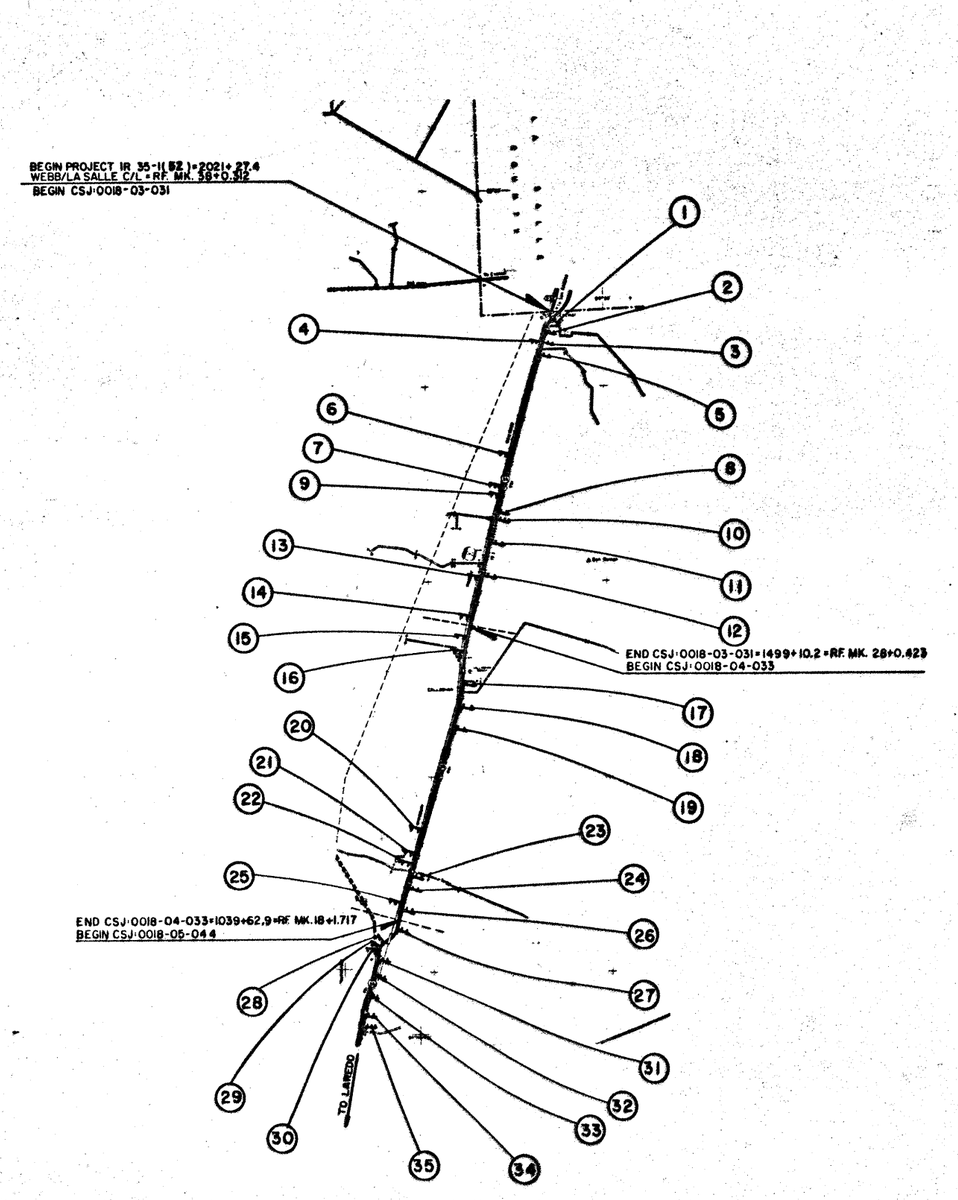
GENERAL NOTES AND SPECIFICATION DATA--

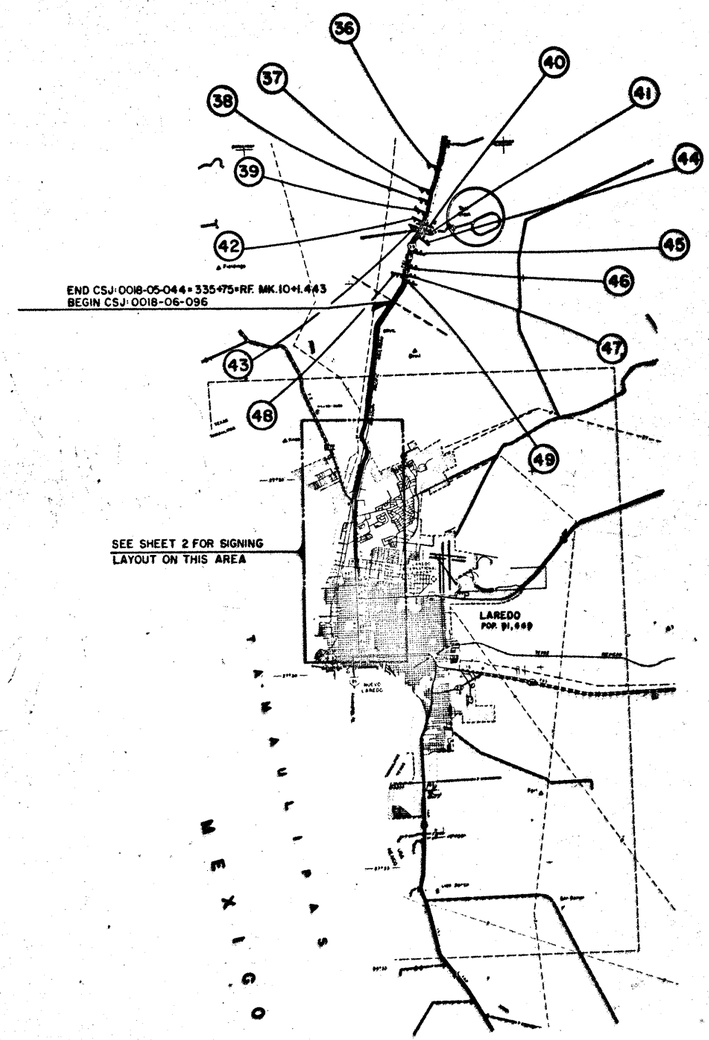
---ITEM 6057 REMOVING EXISTING ROADSIDE TRAFFIC SIGNS---

THE CONTRACTOR SHALL REMOVE AND COMPLETELY DISASSEMBLE THE ENTIRE SIGN INSTALLATION, IN THE PROCESS SEPARATING THE SIGN POST AT THE CONCRETE FOUNDATION. ALL REMOVED SIGN MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ALL MATERIAL REMOVED UNDER THIS ITEM MAY BE TEMPORARILY STOCKPILED BY THE CONTRACTOR WITHIN THE PROJECT LIMITS AS DIRECTED BY THE ENGINEER. THE MATERIAL SHALL BE DISPOSED OF BY HAULING IT OFF THE PROJECT SITE AND OUT OF SIGHT FROM STATE HIGHWAYS TO DISPOSAL SITES ARRANGED FOR BY THE CONTRACTOR AND SATISFACTORY TO THE ENGINEER. NO SIGNS SHALL BE REMOVED WITHOUT PRIOR APPROVAL OF THE ENGINEER.

---ITEM 6059 REMOVING EXISTING SIGN PANELS---

ALL MATERIAL REMOVED UNDER THIS ITEM SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND MAY BE STOCKPILED TEMPORARILY WITHIN THE PROJECT LIMITS AS DIRECTED BY THE ENGINEER. THE MATERIAL SHALL BE DISPOSED OF BY HAULING IT OFF THE PROJECT SITE AND OUT OF SIGHT FROM STATE HIGHWAYS TO DISPOSAL SITES ARRANGED FOR BY THE CONTRACTOR AND SATISFACTORY TO THE ENGINEER. NO SIGNS SHALL BE REMOVED WITHOUT PRIOR APPROVAL OF THE ENGINEER.





WEBB COUNTY
TEXAS

NOTE: REFER TO SIGNING SUMMARY SHEETS FOR DESCRIPTION OF WORK AT EACH SIGN LOCATION.

MELVIN D. GREENHILL
20020
REGISTERED PROFESSIONAL ENGINEER

Melvin D. Greenhill
February 18, 1991

SIGNING LAYOUT

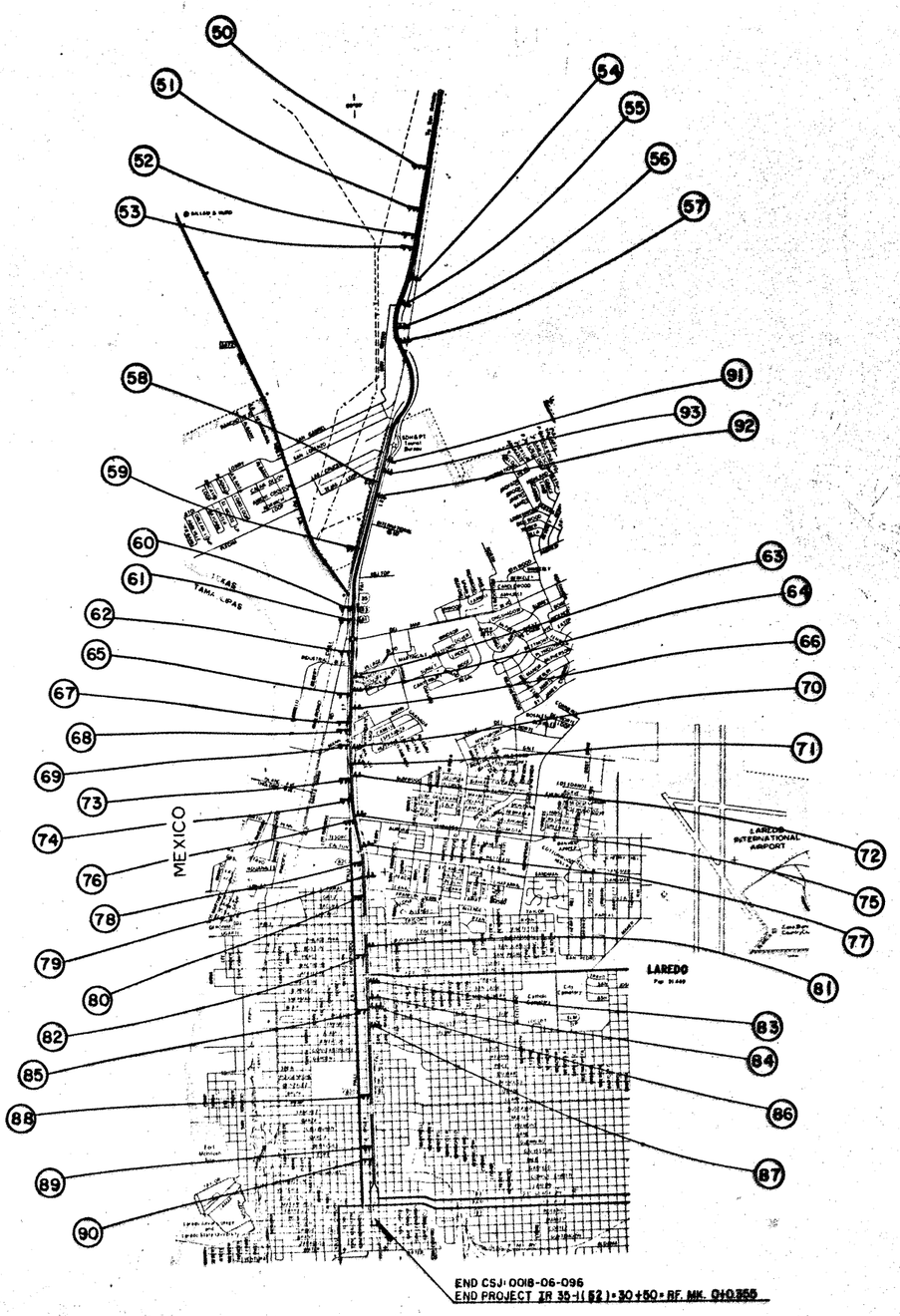
SHEET 1 OF 2

4

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	IR 35-1(52)000		4
STATE	STATE DIST. NO.	COUNTY	
TEXAS	21	WEBB	
CONT.	SECT.	JOB	HIGHWAY NO.
0018	03	031	IH 35

ETC.

ZFAI(325105)EXPSIN.DGN SAME.PRF



N

SCALE IN MILES

WEBB COUNTY TEXAS

NOTE: REFER TO SIGNING SUMMARY SHEETS FOR DESCRIPTION OF WORK AT EACH SIGN LOCATION.

MELVIN D. GREENHILL 29620 REGISTERED PROFESSIONAL ENGINEER

Melvin D. Greenhill
February 10, 1991

SIGNING LAYOUT

5

SHEET 2 OF 2

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	IR 35-1(52)000		5
STATE	STATE DIST. NO.	COUNTY	
TEXAS	21	WEBB	
CONT.	SECT.	JOB	HIGHWAY NO.
0018	03	031	IH 35

ETC.
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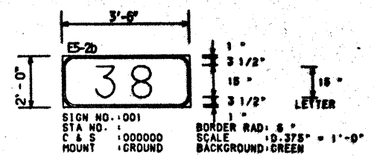

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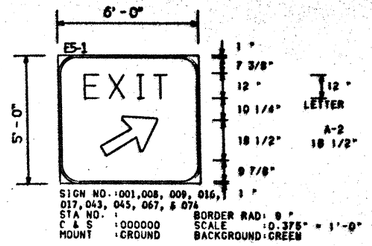

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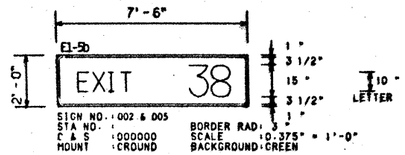

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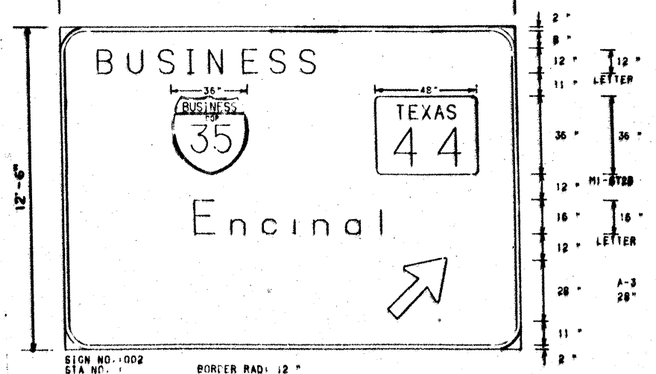

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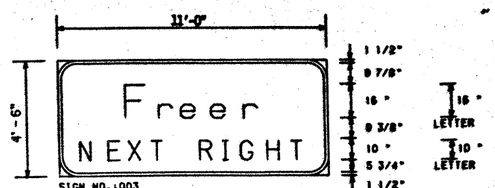

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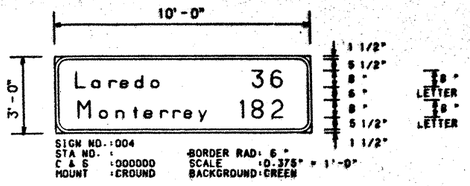

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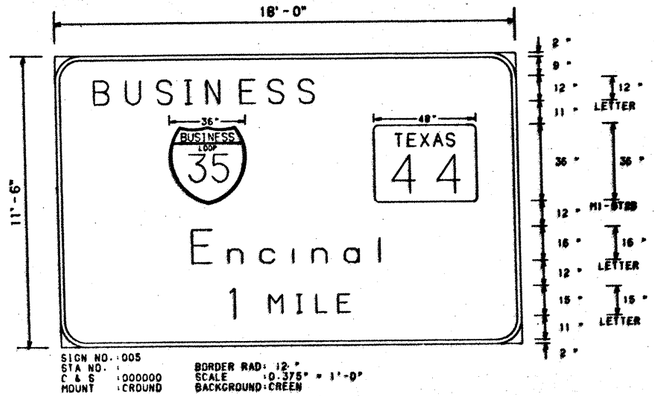

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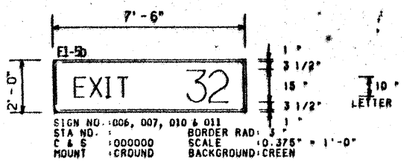

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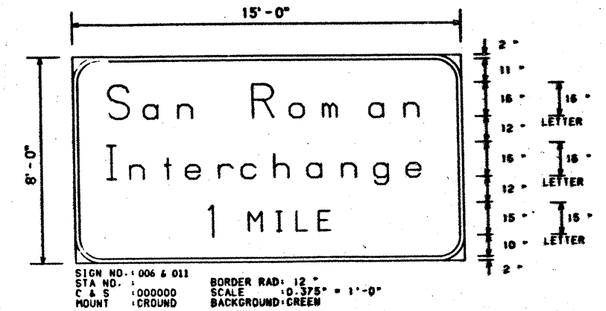

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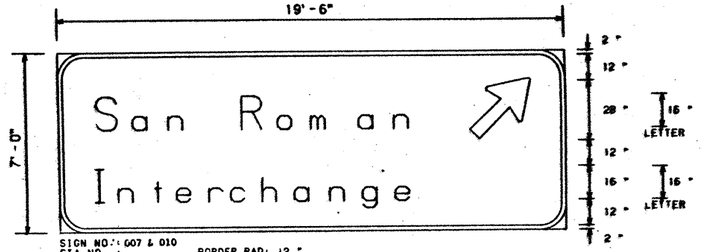

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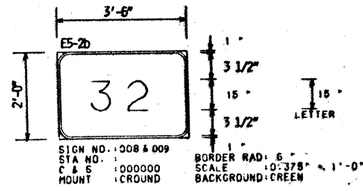

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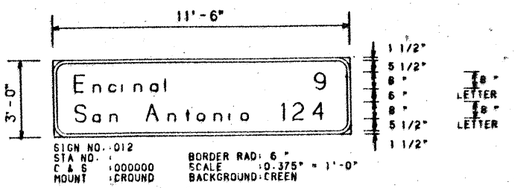

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SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN

Melvin D. Greenhill
February 10, 1991

6

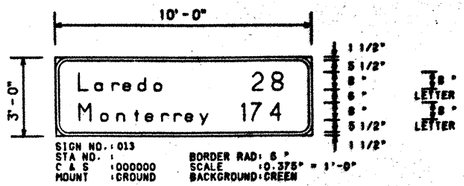
SHEET 1 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	IR 35-1(52)000		6
STATE	STATE DIST. NO.	COUNTY	
TEXAS	21	WEBB	
CONT.	SECT.	JOB	HIGHWAY NO.
0018	03	031	IH 35

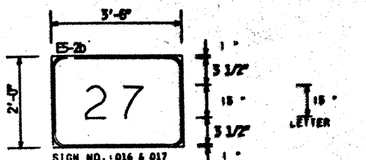
SIGNING DETAILS

ETC.

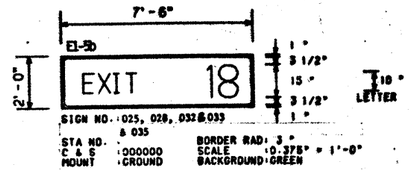
ZFAIL(325105)EXPSIN.DGN EXPSIN3.PRF



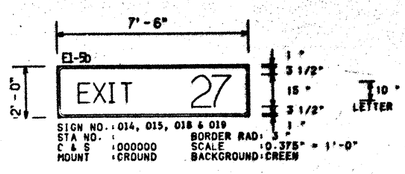
SIGN NO.: 013
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 6"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



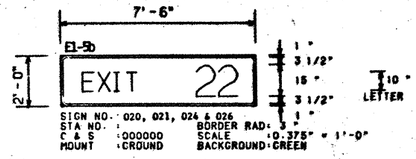
SIGN NO.: 016 & 017
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 6"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



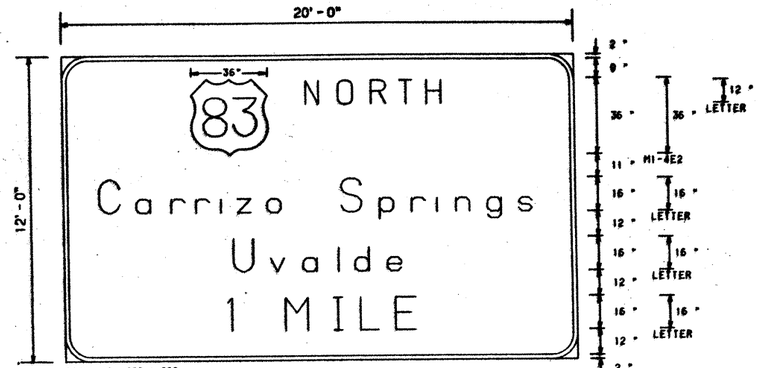
SIGN NO.: 025, 028, 032 & 035
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 3"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



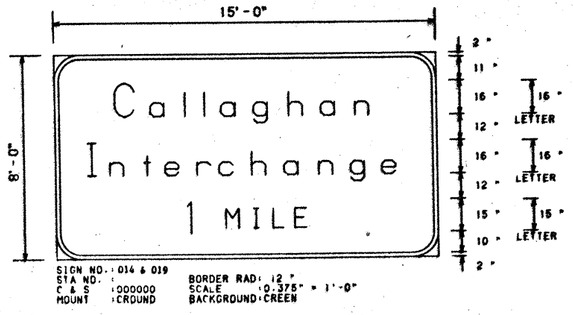
SIGN NO.: 014, 015, 018 & 019
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 3"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



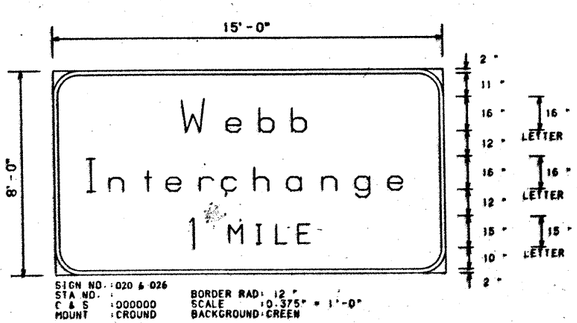
SIGN NO.: 020, 021, 024 & 026
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 3"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



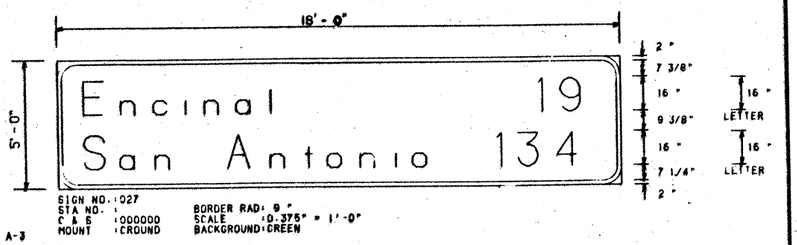
SIGN NO.: 025 & 033
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



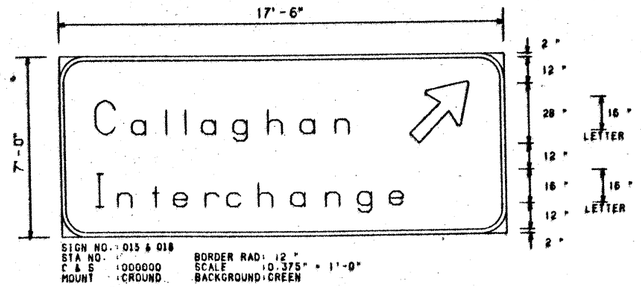
SIGN NO.: 014 & 019
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



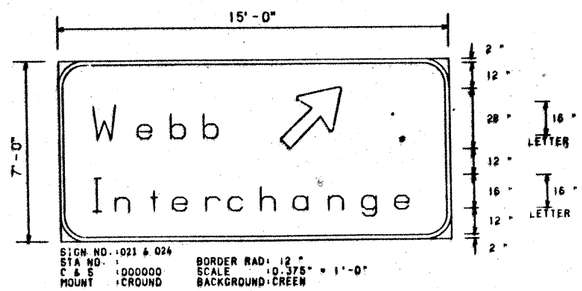
SIGN NO.: 020 & 026
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



SIGN NO.: 027
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 9"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



SIGN NO.: 015 & 018
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



SIGN NO.: 021 & 024
STA NO.:
C & S : 000000
MOUNT : GROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN

Melvin D. Greenhill
February 18, 1991

SIGNING DETAILS

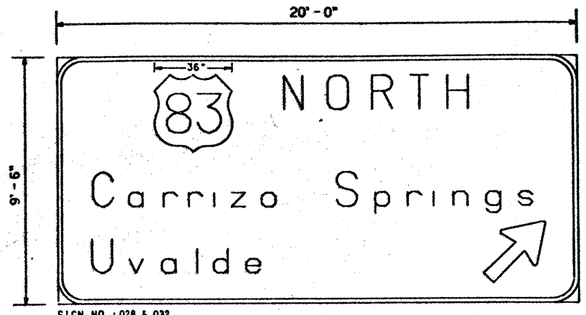
7

SHEET 2 OF 6

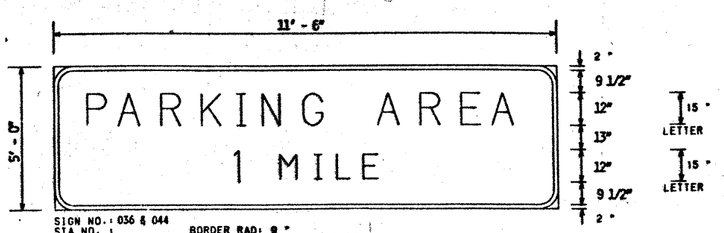
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	IR 35-1(58)000		7
STATE	STATE DIST. NO.	COUNTY	
TEXAS	21	WEBB	
CONT.	SECT.	JOB	HIGHWAY NO.
0018	03	031	IH 35

ETC.

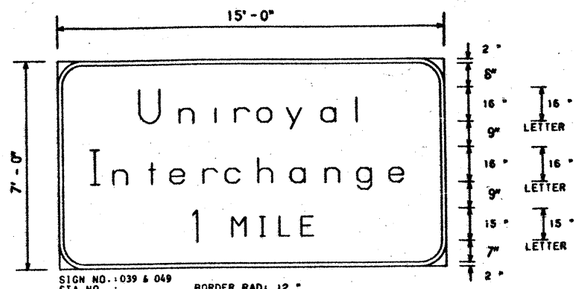
ZFAI: [325105]EXPSIN.DGN EXPSIN4.PRF



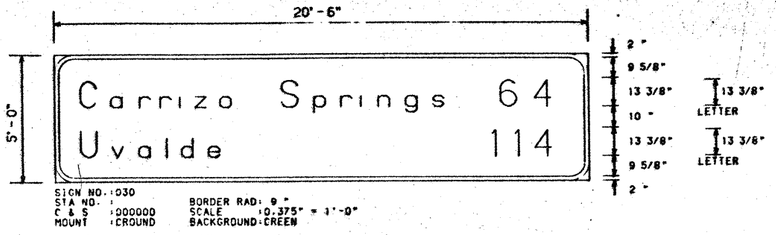
SIGN NO.: 028 & 032
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 12"
SCALE: 0.375" = 1'-0"
BACKGROUND: GREEN



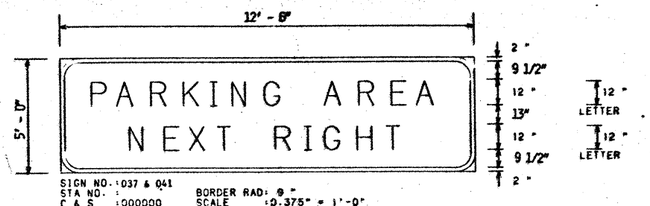
SIGN NO.: 036 & 044
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 9"
SCALE: 0.375" = 1'-0"
BACKGROUND: BLUE



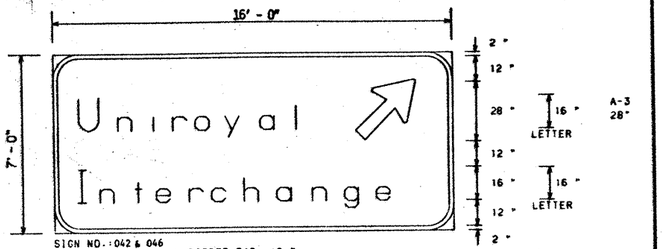
SIGN NO.: 039 & 049
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 12"
SCALE: 0.375" = 1'-0"
BACKGROUND: GREEN



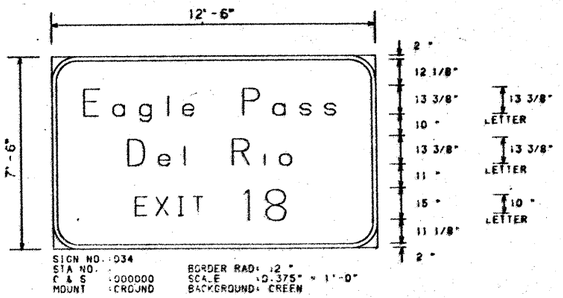
SIGN NO.: 030
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 9"
SCALE: 0.375" = 1'-0"
BACKGROUND: GREEN



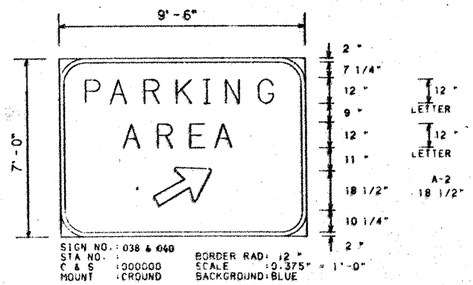
SIGN NO.: 037 & 041
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 9"
SCALE: 0.375" = 1'-0"
BACKGROUND: BLUE



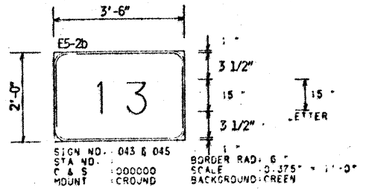
SIGN NO.: 042 & 046
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 12"
SCALE: 0.375" = 1'-0"
BACKGROUND: GREEN



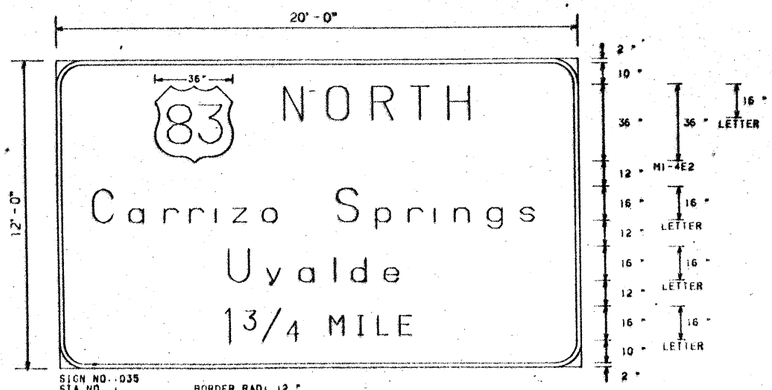
SIGN NO.: 034
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 12"
SCALE: 0.375" = 1'-0"
BACKGROUND: GREEN



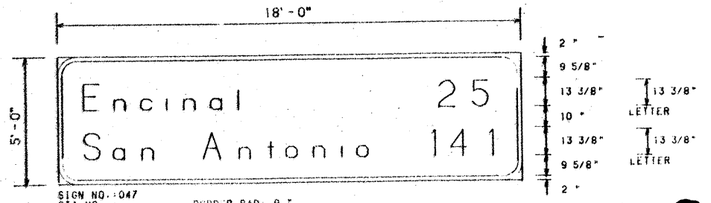
SIGN NO.: 038 & 040
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 12"
SCALE: 0.375" = 1'-0"
BACKGROUND: BLUE



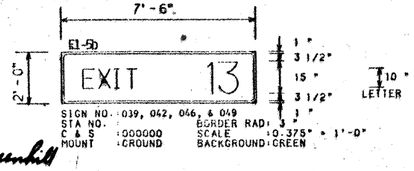
SIGN NO.: 043 & 045
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 6"
SCALE: 0.375" = 1'-0"
BACKGROUND: GREEN



SIGN NO.: 035
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 12"
SCALE: 0.375" = 1'-0"
BACKGROUND: GREEN



SIGN NO.: 047
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 9"
SCALE: 0.375" = 1'-0"
BACKGROUND: GREEN



SIGN NO.: 039, 042, 046, & 049
STA NO.: —
C & S: 000000
MOUNT: CROUND
BORDER RAD: 3"
SCALE: 0.375" = 1'-0"
BACKGROUND: GREEN

Melvin D. Grissom
March 14, 1991

SIGNING DETAILS

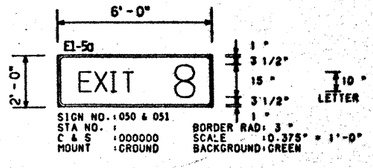
8

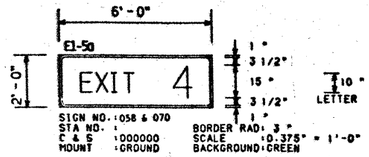
SHEET 3 OF 6

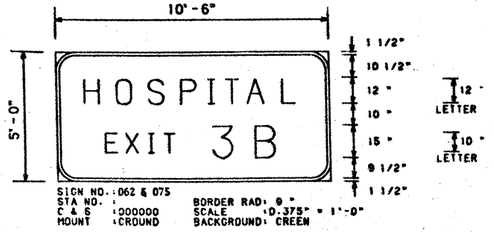
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	IR 35-1(52)000		8
STATE	STATE DIST. NO.	COUNTY	
TEXAS	21	WEBB	
CONT.	SECT.	JOB	HIGHWAY NO.
0018	03	031	IH 35

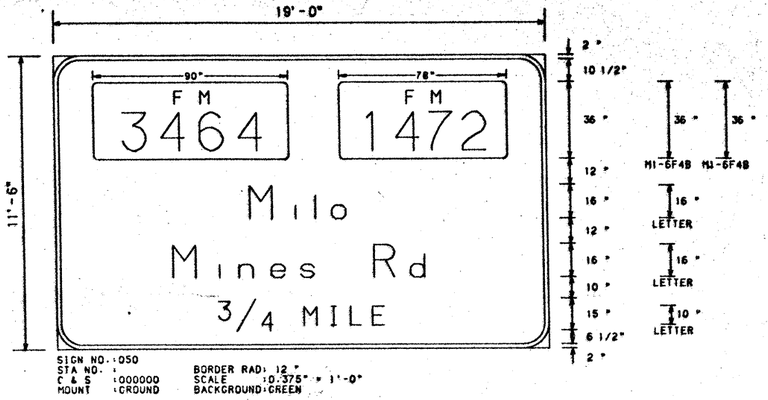
ETC.

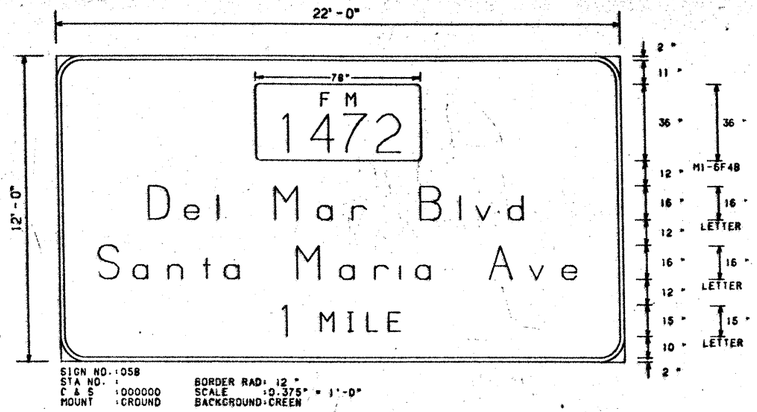
ZFAH(3,5)05EXPSIN.DGN EXPSIN3.PRF

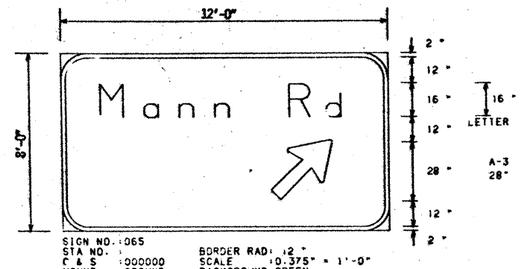


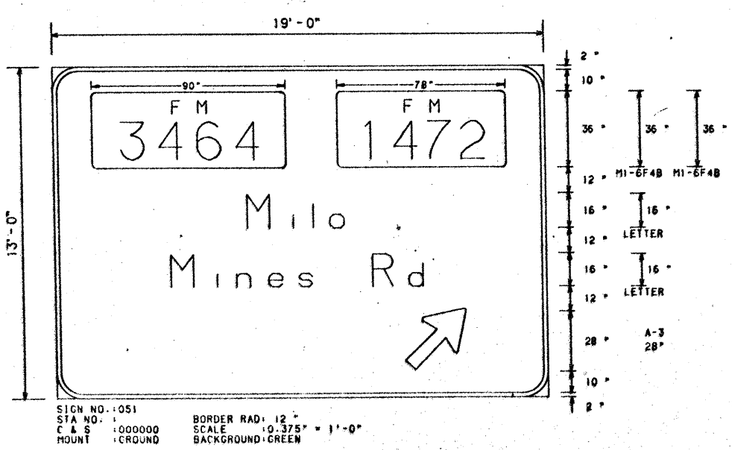


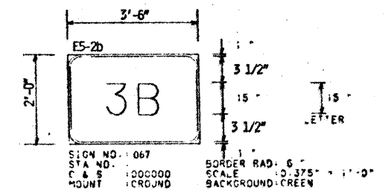


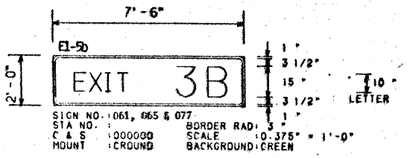


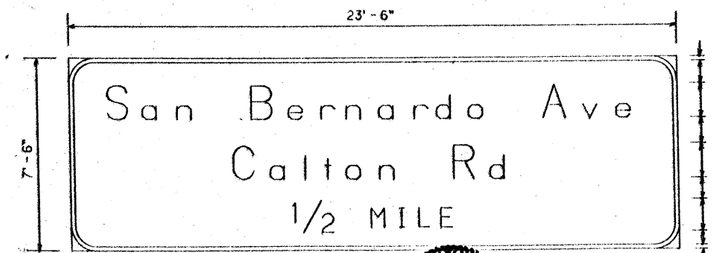


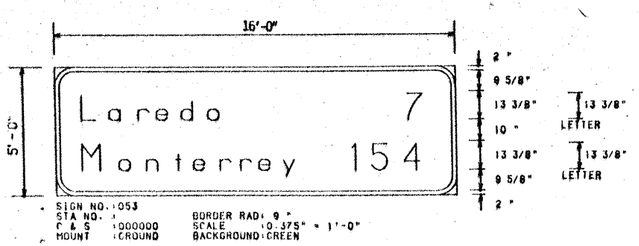


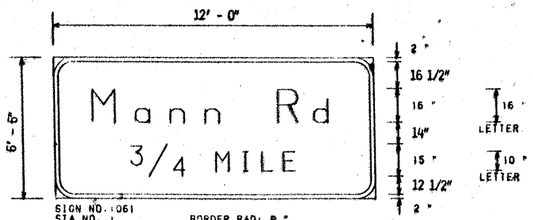












Melvin D. Grenhill
March 14, 1991

9

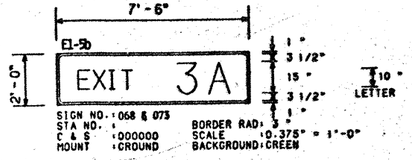
SHEET 4 OF 6

SIGNING DETAILS

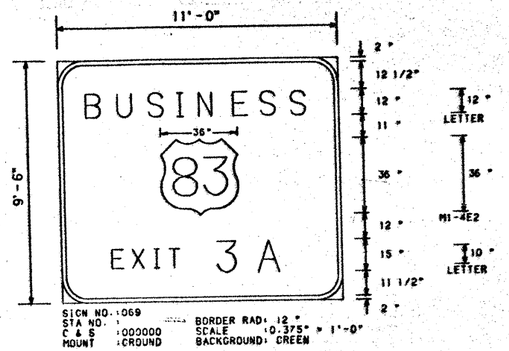
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	IR 35-1(52)000		9
STATE	STATE DIST. NO.	COUNTY	
TEXAS	21	WEBB	
CONT.	SECT.	JOB	HIGHWAY NO.
0018	03	031	IH 35

ETC.

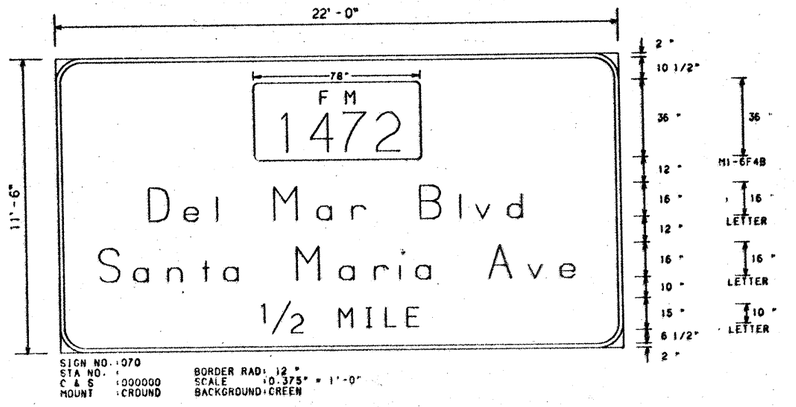
/FAIL1355105E/XPSIN.DGN EXPSIN2.PRF



SIGN NO.: 068 & 073
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 3"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN

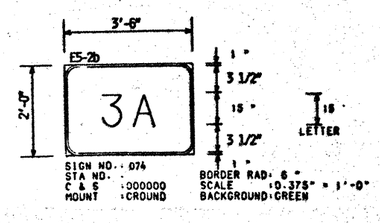


SIGN NO.: 069
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN

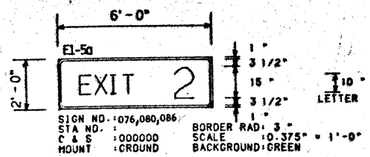


SIGN NO.: 070
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN

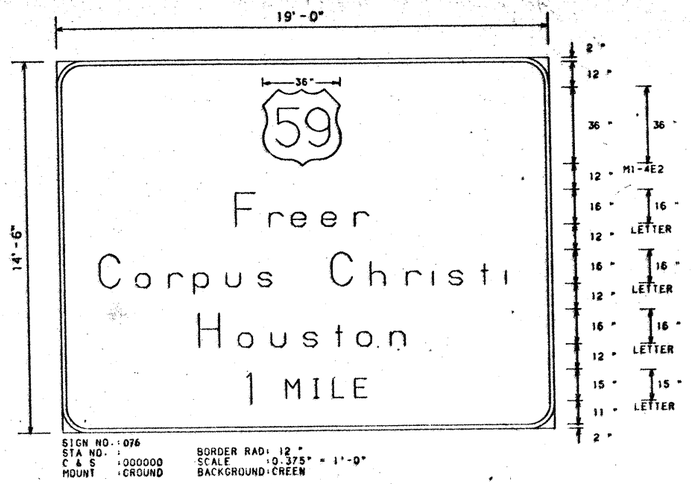
SIGN NO.: 073
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



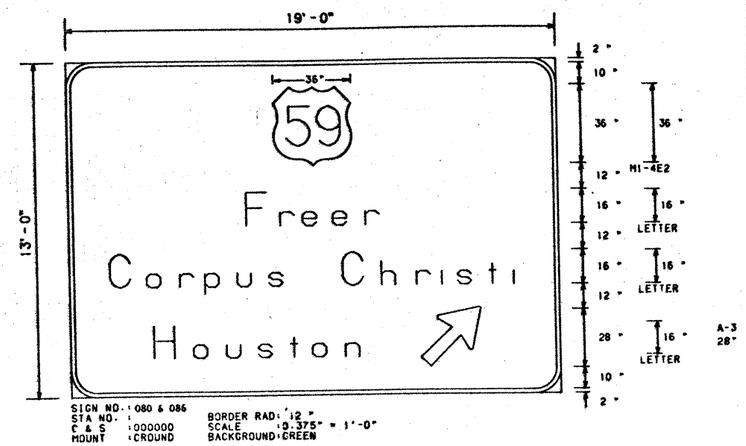
SIGN NO.: 074
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 6"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



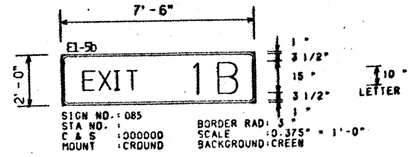
SIGN NO.: 076,080,086
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 3"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



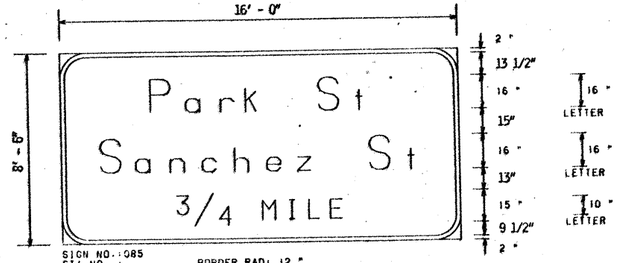
SIGN NO.: 076
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



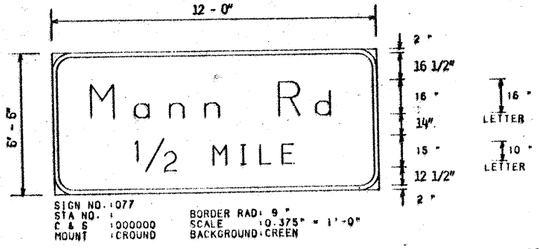
SIGN NO.: 080 & 086
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



SIGN NO.: 085
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 3"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



SIGN NO.: 085
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 12"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN



SIGN NO.: 077
STA NO.:
C & S : 000000
MOUNT : CROUND
BORDER RAD: 9"
SCALE : 0.375" = 1'-0"
BACKGROUND: GREEN

Melvin D. Trumbull
March 14, 1991

10

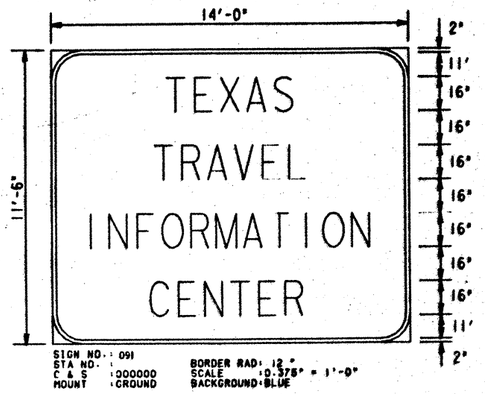
SHEET 5 OF 6

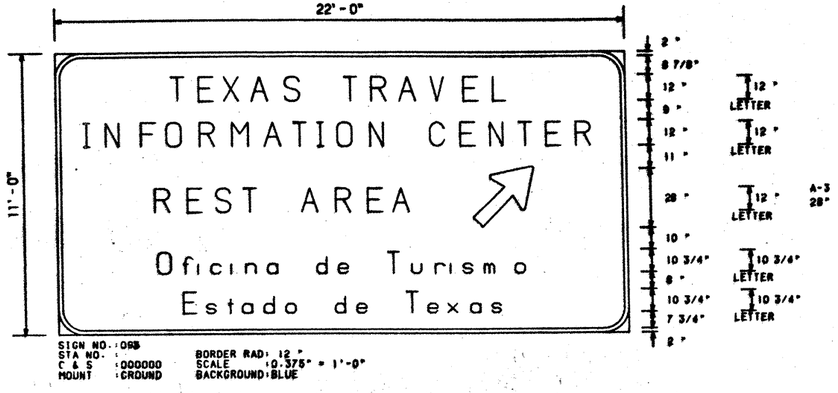
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	IR 35-1(52)000		10
STATE	STATE DIST. NO.	COUNTY	
TEXAS	21	WEBB	
CONT.	SECT.	JOB	HIGHWAY NO.
0018	03	031	IH 35

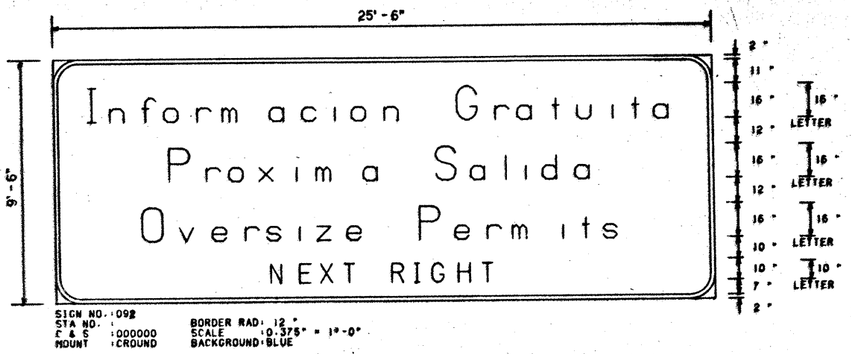
SIGNING DETAILS

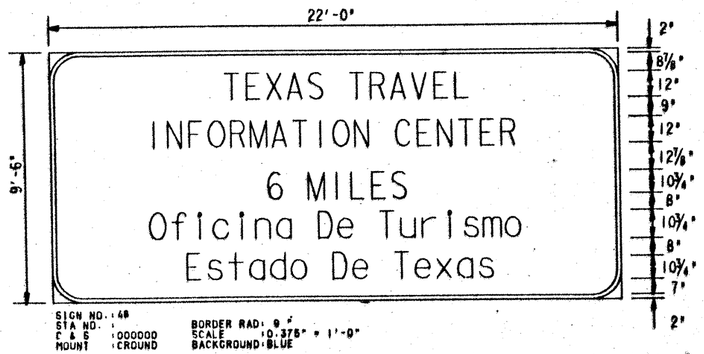
ETC.

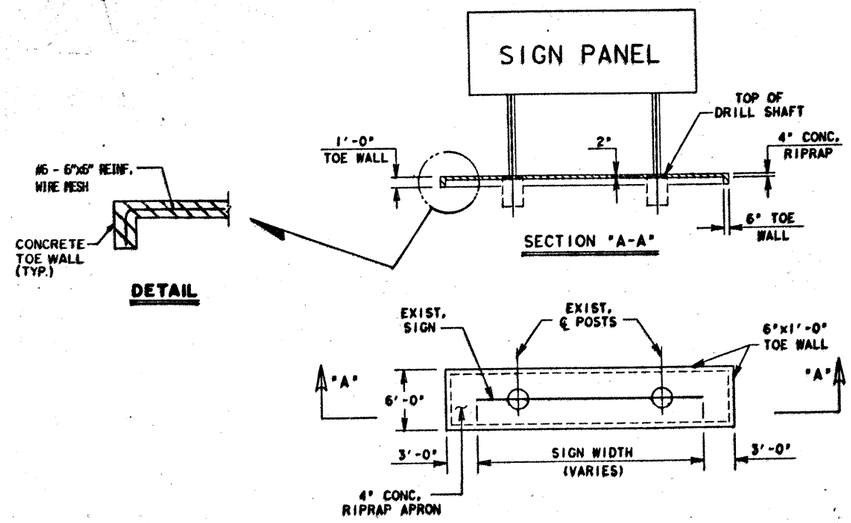
ZFATE325105M.XPSIN.DGN EXPSINL.PRF











NOTE:
CONCRETE FOR RIPRAP SHALL BE CLASS "B" AND SHALL BE REINFORCED AS SPECIFIED IN GENERAL NOTES FOR ITEM 432 "RIPRAP".

CONCRETE RIPRAP FOR
SIGN MULTIPLE POST GROUND MOUNTS
N.T.S.

STATE OF TEXAS · MELVIN D. GREENHILL · 7990 · REGISTERED PROFESSIONAL ENGINEER

Melvin D. Greenhill
February 18, 1991

SIGNING DETAILS

SHEET 6 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	IR 35-1(52)000		11
STATE	STATE DIST. NO.	COUNTY	
TEXAS	21	WEBB	
CONT.	SECT.	JOB	HIGHWAY NO.
0018	03	031	IH 35

ETC.

ZEALE - 105)EXPSIN.IGN SAME.PRF

SUMMARY OF LARGE SIGNS TO BE REMOVED

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	ITEM 6057 (EACH)	ITEM 6059 (EACH)	ITEM 6060 (EACH)	ITEM XXXX (EACH)	TYPE OF MOUNT	DIMENSION ⊖ FEET POST ①	DIMENSION ⊖ FEET POST ②	DIMENSION ⊖ FEET POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊕ LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS
				CSJ: 0018-03-031																
1	1		GREEN	38	3'-6"X2'-0"			[1												
				EXIT	6'-0"X5'-0"															
				↗																
				NB																
	2		GREEN	EXIT 38	7'-6"X2'-0"		X	[1												
				BUSINESS	12'-0"X12'-6"															
				81 44																
				ENCINAL																
				↗ NB																
	3		GREEN	FREER	11'-0"X4'-6"			1												
				NEXT RIGHT																
				NB																
	4		GREEN	LAREDO 36	10'-0"X3'-0"			1												
				MONTERREY 182																
				SB																
	5		GREEN	EXIT 38	7'-6"X2'-0"		[1													
				BUSINESS	12'-0"X11'-6"															
				81 44																
				ENCINAL																
				1 MILE NB																
	6		GREEN	EXIT 32	7'-6"X2'-0"			[1												
				SAN ROMAN	15'-0"X8'-0"															
				INTERCHANGE																
				1 MILE																
				SB																
	7		GREEN	EXIT 32	7'-6"X2'-0"			[1												
				SAN ROMAN ↗	19'-6"X7'-0"															
				INTERCHANGE																
				SB																
	8		GREEN	32	3'-6"X2'-0"			[1												
				EXIT	6'-0"X5'-0"															
				↗																
				NB																
	9		GREEN	32	3'-6"X2'-0"			[1												
				EXIT	6'-0"X5'-0"															
				↗																
				SB																
	10		GREEN	EXIT 32	7'-6"X2'-0"			[1												
				SAN ROMAN ↗	19'-6"X7'-0"															
				INTERCHANGE																
				NB																
	11		GREEN	EXIT 32	7'-6"X2'-0"			[1												
				SAN ROMAN	15'-0"X8'-0"															
				INTERCHANGE																
				1 MILE																
				NB																
	12		GREEN	ENCINAL 9	11'-6"X3'-0"			1												
				SAN ANTONIO 124																
				NB																
	13		GREEN	LAREDO 28	10'-0"X3'-0"			1												
				MONTERREY 174																
				SB																
	14		GREEN	EXIT 27	7'-6"X2'-0"			[1												
				CALLAGHAN	15'-0"X8'-0"															
				INTERCHANGE																
				1 MILE																
				SB																
				TOTAL CSJ: 0018-03-031			1	15												

(CONT.)

DESCRIPTION OF ITEMS

ITEM 6057 - REMOVAL OF ENTIRE INSTALLATION.

ITEM 6059 - REMOVAL OF SIGN PANEL ONLY.

SEE SPECIAL SPECIFICATIONS FOR FURTHER DETAIL.

SUMMARY OF LARGE SIGNS TO BE REMOVED (ITEMS 6057 & 6059)

STATE OF TEXAS MELVIN D. GRENBOLL 20080 REGISTERED PROFESSIONAL ENGINEER

Melvin D. Grenboll
February 10, 1991

12

SHEET 1 OF 6

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	IR 35-1(58)000	12

STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3	31	IH 35

ETC.

ZEAT\LS25105JE.DGN 5/MIL. 10:21A

SUMMARY OF LARGE SIGNS TO BE REMOVED

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	ITEM 6057 (EACH)	ITEM 6059 (EACH)	ITEM 6060 (EACH)	ITEM XXXX (EACH)	TYPE OF MOUNT	• X • DIMENSION ⊖ FEET POST ①	POST ②	POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊕ LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS
				CSJ: 0018-04-033																
	15		GREEN	EXIT 27 CALLAGHAN INTERCHANGE SB	7'-6"X2'-0" 17'-6"X7'-0"			[1]												
	16		GREEN	27 EXIT SB	3'-6"X2'-0" 6'-0"X5'-0"			[1]												
	17		GREEN	27 EXIT NB	3'6"X2'-0" 6'-0"X5'-0"			[1]												
	18		GREEN	EXIT 27 CALLAGHAN INTERCHANGE NB	7'-6"X2'-0" 17'-6"X7'-0"			[1]												
	19		GREEN	EXIT 27 CALLAGHAN INTERCHANGE 1 MILE NB	7'-6"X2'-0" 15'-0"X8'-0"			[1]												
	20		GREEN	EXIT 22 WEBB INTERCHANGE 1 MILE SB	7'-6"X2'-0" 15'-0"X8'-0"			[1]												
	21		GREEN	EXIT 22 WEBB INTERCHANGE SB	7'-6"X2'-0" 15'-0"X7'-0"			[1]												
	24		GREEN	EXIT 22 WEBB INTERCHANGE NB	7'-6"X2'-0' 15'0"X7'-0"			[1]												
	25		GREEN	EXIT 18 US 83 NORTH CARRIZO SPRINGS UVALDE 1 MILE SB	7'-6"X2'-0" 20'-0"X12'-0"			[1]												
	26		GREEN	EXIT 22 WEBB INTERCHANGE 1 MILE NB	7'-6"X2'-0" 15'-0"X8'-0"			[1]												
				TOTAL CSJ: 0018-04-033				10												
				CSJ: 0018-05-044																
	27		GREEN	ENCINAL 19 SAN ANTONIO 134 NB	18'-0"X5'-0"			1												
	28		GREEN	EXIT 18 US 83 NORTH CARRIZO SPRINGS UVALDE SB	7'-6"X2'-0" 20'-0"X9'-6"			[1]												
	30		GREEN	CARRIZO SPRINGS 64 UVALDE 114 BB	20'-6"X5'-0"			1												
	32		GREEN	EXIT 18 US 83 NORTH CARRIZO SPRINGS UVALDE NB (CONT.)	7'-6"X2'-0" 20'-0"X9'-6"			[1]												

DESCRIPTION OF ITEMS

ITEM 6057 - REMOVAL OF ENTIRE INSTALLATION,

ITEM 6059 - REMOVAL OF SIGN PANEL ONLY,

SEE SPECIAL SPECIFICATIONS FOR FURTHER DETAIL,

SUMMARY OF LARGE SIGNS TO BE REMOVED (ITEMS 6057 & 6059)

STATE OF TEXAS · EVAN D GREENHALL · 29920 · REGISTERED PROFESSIONAL ENGINEER

Melvin D. Trumbull
February 10, 1991

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	IR 35-1(68)1000				13
STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	JOB NO.	HIGHWAY NO.	
21	WEBB	18	3	31	IH 35	

ETC.

AD 76 Ø

SUMMARY OF LARGE SIGNS TO BE REMOVED

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	ITEM 6057 (EACH)	ITEM 6059 (EACH)	ITEM 6060 (EACH)	ITEM XXXX (EACH)	TYPE OF MOUNT	DIMENSION ⊖ FEET POST ①	DIMENSION ⊖ FEET POST ②	DIMENSION ⊖ FEET POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊖ LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS
				CSJ: 0018-05-044																
	33		GREEN	EXIT 18 US 83 NORTH CARRIZO SPRINGS UVALDE 1 MILE NB	7'-6"X2'-0" 20'-0"X12'-0"			1												
	34		GREEN	EXIT 18 EAGLE PASS DEL RIO NEXT RIGHT NB	7'-6"X2'-0" 12'-6"X6'-6"			1												
	35		GREEN	EXIT 18 US 83 NORTH CARRIZO SPRINGS 1¾ MILE NB	7'-6"X2'-0" 20'-0"X12'-0"			1												
	36		BLUE	PARKING AREA 1 MILE SB	11'-6"X5'-0"			1												
	37		BLUE	PARKING AREA NEXT RIGHT SB	12'-6"X5'-0"			1												
	38		BLUE	PARKING AREA SB	9'-6"X7'-0"			1												
	39		GREEN	EXIT 13 UNIROYAL INTERCHANGE 1 MILE SB	7'-6"X2'-0" 15'-0"X7'-0"			1												
	~~40~~		~~BLUE~~	~~PARKING AREA~~ NB	~~9'-6"X7'-0"~~			~~1~~	NON EXISTING											
	41		BLUE	PARKING AREA NEXT RIGHT NB	12'-6"X5'-0"			1												
	42		GREEN	EXIT 13 UNIROYAL INTERCHANGE SB	7'-6"X2'-0" 16'-0"X7'-0"			1												
	43		GREEN	13 EXIT SB	3'-6"X7'-0" 6'-0"X5'-0"			1												
	44		BLUE	PARKING AREA 1 MILE NB	11'-6"X5'-0"			1												
	45		GREEN	13 EXIT NB	3'-6"X2'-0" 6'-0"X5'-0"			1												
	46		GREEN	EXIT 13 UNIROYAL INTERCHANGE NB (CONT.)	7'-6"X2'-0" 16'-0"X7'-0"			1												

DESCRIPTION OF ITEMS

ITEM 6057 - REMOVAL OF ENTIRE INSTALLATION.

ITEM 6059 - REMOVAL OF SIGN PANEL ONLY.

SEE SPECIAL SPECIFICATIONS FOR FURTHER DETAIL.

SUMMARY OF LARGE SIGNS TO BE REMOVED (ITEMS 6057 & 6059)

EMIL E. GREENHILL 29920 REGISTERED PROFESSIONAL ENGINEER

Melvin D. Greenhill
February 18, 1991

SHEET 3 OF 5 14

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	IR 35-1(52)000				14
STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	3	31		IH 35

ETC.

AD-76-0

ZI ATE325105JE500.DGN 15SEP2. IPARM

SUMMARY OF LARGE SIGNS TO BE REMOVED

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	ITEM 6057 (EACH)	ITEM 6059 (EACH)	ITEM 6060 (EACH)	ITEM XXXX (EACH)	TYPE OF MOUNT	DIMENSION FEET • X • POST ①	POST ②	POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS
				CSJ: 0018-05-044																
	47		GREEN	ENCINAL 25	18'-0"X5'-0"			1												
				SAN ANTONIO 141																
				NB																
	48		BLUE	TEXAS TRAVEL	22'-0"X9'-6"		1													
				INFORMATION CENTER																
				6 MILES																
				OFICINA DE TURISMO																
				ESTADO DE TEXAS SB																
	49		GREEN	EXIT 13	7'-6"X2'-0"			[1]												
				UNIROYAL	15'-0"X7'-0"															
				INTERCHANGE																
				1 MILE NB																
				TOTAL CSJ: 0018-05-044			1	~~20~~ 19												
				CSJ: 0018-06-096																
	50		GREEN	EXIT 8	6'-0"X2'-0"		[1]													
				FM 3464 FM 1472	19'-0"X11'-6"															
				MILO																
				MINES RD																
				¼ MILE																
				SB																
	51		GREEN	EXIT 8	6'-0"X2'-0"		[1]													
				FM 3464 FM 1472	19'-0"X13'-0"															
				MILO																
				MINES RD																
				SB																
	53		GREEN	LAREDO 7	16'-0"X5'-0"			1												
				MONTERREY 154																
				SB																
	58		GREEN	EXIT 4	6'-0"X2'-0"		1	X												
				FM 1472	22'-0"X12'-0"															
SAME AS SIGN 58 EXCEPT for ½ MILE				DEL MAR BLVD																
				SANTA MARIA AVE																
				1 MILE																
	58A			½ MILE SB			1													
	61		GREEN	EXIT 3B	7'-6"X2'-0"			[1]												
				MANN RD	12'-0"X6'-6"															
				¼ MILE																
				SB																
	62		BLUE	EXIT 3B	7'-6"X2'-0"			[1]												
				HOSPITAL	10'-6"X4'-0"															
				NEXT RIGHT																
				SB																
	65		GREEN	EXIT 3B	7'-6"X2'-0"			[1]												
				MANN RD	12'-0"X8'-0"															
				SB																
	67		GREEN	3B	3'-6"X2'-0"			[1]												
				EXIT	6'-0"X5'-0"															
				SB																
	68		GREEN	SAN BERNARDO	17'-6"X7'-6"		1													
				CALTON RD																
				½ MILE																
				SB																
	69		GREEN	EXIT 3A	7'-6"X2'-0"		[1]													
				BUSINESS	11'-0"X8'-0"															
				US 83																
				NEXT RIGHT																
				SB																
	70		GREEN	EXIT 4	6'-0"X2'-0"			[1]												
				FM 1472	22'-0"X11'-6"															
				DEL MAR BLVD																
				SANTA MARIA AVE																
				½ MILE NB																

(CONT.)

DESCRIPTION OF ITEMS

ITEM 6057 - REMOVAL OF ENTIRE INSTALLATION.

ITEM 6059 - REMOVAL OF SIGN PANEL ONLY.

SEE SPECIAL SPECIFICATIONS FOR FURTHER DETAIL.

SUMMARY OF LARGE SIGNS TO BE REMOVED (ITEMS 6057 & 6059)

STATE OF TEXAS MELVIN D. GREENHALL 59439 REGISTERED PROFESSIONAL ENGINEER

Melvin D. Greenhill
February 18, 1991

SHEET 4 OF 5 15

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	IR 35-1(58)000				15
STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	JOB NO.		HIGHWAY NO.
21	WEBB	18	3	31		IH 35

ETC.

AD-76 Ø

ZIA15525105IE SHR_LOGIN1 SUM3_1PARM

SUMMARY OF LARGE SIGNS TO BE REMOVED

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	ITEM 6057 (EACH)	ITEM 6059 (EACH)	ITEM 6060 (EACH)	ITEM XXXX (EACH)	TYPE OF MOUNT	* X * DIMENSION ⊖ FEET POST ①	POST ②	POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊖ LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS
				CSJ: 0018-06-096																
	73		GREEN	EXIT 3A	7'-6"X2'-0"			[1]												
				SAN BERNARDO	23'-6"X7'-0"															
				CALTON RD ⊘																
				SB																
	74		GREEN	3A	3'-6"X2'-0"			[1]												
				EXIT	6'-0"X5'-0"															
				⊘																
				SB																
	75		BLUE	EXIT 3B	7'-6"X2'-0"			[1]												
				HOSPITAL	10'-6"X4'-0"															
				NEXT RIGHT																
				NB																
	76		GREEN	EXIT 2	6'-0"X2'-0"		[1]													
				US 59	19'-0"X14'-6"															
				FREER																
				CORPUS CHRISTI																
				HOUSTON																
				1 MILE																
				SB																
	77		GREEN	EXIT 3B	7'6"X2'-0"			[1]												
				MANN RD	12'-0"X6'-6"															
				1/2 MILE																
				NB																
	80		GREEN	EXIT 2	6'-0"X2'-0"		[1]													
				US 59	19'-0"X13'-0"															
				FREER																
				CORPUS CHRISTI																
				HOUSTON ⊘	SB															
	85		GREEN	EXIT 1B	7'-6"X2'-0"			[1]												
				PARK ST	16'-0"X8'-6"															
				SANCHEZ ST																
				1/4 MILE																
				SB																
	86		GREEN	EXIT 2	6'-0"X2'-0"		[1]													
				US 59	19'-0"X13'-0"															
				FREER																
				CORPUS CHRISTI																
				HOUSTON ⊘	NB															
	91		BLUE	TEXAS	14'-0"X11'-6"		1													
				TRAVEL																
				INFORMATION																
				CENTER																
				NB																
	92		BLUE	INFORMACION GRATUITA	25'-6"X9'-6"		1													
				PROXIMA SALIDA																
				OVERSIZE PERMIT																
				NEXT RIGHT																
				NB																
	93		BLUE	TEXAS TRAVEL	22'-0"X11'-0"		1													
				INFORMATION CENTER																
				REST AREA																
				OFICINA DE TURISMO																
				ESTADO DE TEXAS																
				NB																
				TOTAL CSJ: 0018-06-096			10	10 11												
				PROJECT TOTAL			19	54												

DESCRIPTION OF ITEMS

ITEM 6057 - REMOVAL OF ENTIRE INSTALLATION.

ITEM 6059 - REMOVAL OF SIGN PANEL ONLY.

SEE SPECIAL SPECIFICATIONS FOR FURTHER DETAIL.

SUMMARY OF LARGE SIGNS TO BE REMOVED (ITEMS 6057 & 6059)

MELVIN D. GREENHILL 20020 REGISTERED PROFESSIONAL ENGINEER

Melvin D. Greenhill
February 18, 1991

SHEET 5 OF 5 16

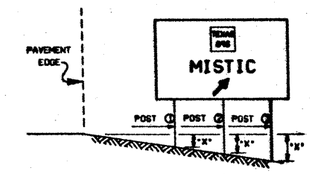
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	IR 35-1(52)000				16
STATE DIST. NO.	COUNTY		CONT. NO.	SEC NO.	JOB NO.	HIGHWAY NO.
21	WEBB		18	3	31	IH 35

ETC.

AD 70 2

SUMMARY OF LARGE SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	GROUND MOUNT SUBSTRATE (ITEM 634) PLYWOOD TYPE A SQUARE FEET	GROUND MOUNT SUBSTRATE (ITEM 636) ALUMINUM TYPE A SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 640) PLYWOOD TYPE O SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 642) ALUMINUM TYPE O SQUARE FEET	TYPE OF MOUNT	"X" DIMENSION ◒ FEET POST ①	POST ②	POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊛ LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS	(ITEM 416) DRILL SHAFT LINEAR FEET NON-REINF 12" Ø	REINF 24" Ø
				CSJ: 0018-03-031																			
1	1	E5-2b	GREEN	38	3'-6"X2'-0"	A	7.00				$20									1.3		
		E5-1		EXIT	6'-0"X5'-0"	A	30.00															
				NB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	2	E1-5b	GREEN	EXIT 38	7'-6"X2'-0"	A	15.00				$20	~~5.1~~	~~7.8~~		~~W8X21~~	~~24.6~~	~~26.5~~		~~163~~	2.5		~~12.8~~
		M1-2C2		BUSINESS	18'-0"X12'-6"	A	225.00								OMIT DRILL SHAFT							
		M1-6T2B		IH 35 SH 44				19.18														
				ENCINAL																		
				~~(PROP. NEW SIGN~~ NB																		
				INSTALLATION & CONC. RIPRAP APRON)																		
	3		GREEN	FREER	11'-0"X4'-6"	A	49.50				$20									1.8		
				NEXT RIGHT																		
				NB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	4		GREEN	LAREDO 36	10'-0"X3'-0"	A	30.00				$20									1.7		
				MONTERREY 182																		
				SB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	5	E1-5b	GREEN	EXIT 38	7'-6"X2'-0"	A	15.00				$20	1.1	0.7		W8X18	19.6	19.2		742	2.5		11.8
		M1-2C2		BUSINESS	18'-0"X11'-6"	A	207.00															
		M1-6T2B		IH 35 SH 44				19.18														
				ENCINAL																		
				1 MILE ~~(PROP. NEW SIGN~~ NB																		
				INSTALLATION & CONC. RIPRAP APRON)																		
	6	E1-5b	GREEN	EXIT 32	7'-6"X2'-0"	A	15.00				$20									2.2		
				SAN ROMAN	15'-0"X8'-0"	A	120.00															
				INTERCHANGE																		
				1 MILE SB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	7	E1-5b	GREEN	EXIT 32	7'-6"X2'-0"	A	15.00				$30									2.6		
				SAN ROMAN	19'-6"X7'-0"	A	136.50															
				INTERCHANGE																		
				SB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	8	E5-2b	GREEN	32	3'-6"X2'-0"	A	7.00				$20									1.3		
		E5-1		EXIT	6'-0"X5'-0"	A	30.00															
				NB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	9	E5-2b	GREEN	32	3'-6"X2'-0"	A	7.00				$20									1.3		
		E5-1		EXIT	6'-0"X5'-0"	A	30.00															
				SB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	10	E1-5b	GREEN	EXIT 32	7'-6"X2'-0"	A	15.00				$30									2.6		
				SAN ROMAN	19'-6"X7'-0"	A	136.50															
				INTERCHANGE																		
				NB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	11	E1-5b	GREEN	EXIT 32	7'-6"X2'-0"	A	15.00				$20									2.2		
				SAN ROMAN	15'-0"X8'-0"	A	120.00															
				INTERCHANGE																		
				1 MILE NB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	12		GREEN	ENCINAL 9	11'-6"X3'-0"	A	34.50				$20									1.9		
				SAN ANTONIO 124																		
				NB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	13		GREEN	LAREDO 28	10'-0"X3'-0"	A	30.00				$20									1.7		
				MONTERREY 174																		
				SB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	14	E1-5b	GREEN	EXIT 27	7'-6"X2'-0"	A	15.00				$20									2.2		
				CALLAGHAN	15'-0"X8'-0"	A	120.00															
				INTERCHANGE																		
				1 MILE SB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
				TOTAL CSJ: 0018-03-031 (CONT.)			1425.00	38.36											1905	~~27.0~~ 27.66		~~11.0~~ 29.8



◒ THE "X" DIMENSION IS THE ELEVATION DIFFERENCE AT THE POST BETWEEN THE GROUND AND EDGE OF PAVEMENT OR TOP OF CURB.

GENERAL NOTES:

SIGNS SHOWN ON THIS SHEET ARE GENERALLY THOSE WITH REMOVABLE LEGEND TEXTS, ALTHOUGH SCREENED OR STICK-ON LEGEND SIGNS MAY ALSO BE SHOWN (SEE SIGN TYPE).

LENGTHS OF THE POSTS FOR LARGE GROUND MOUNT SIGNS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS TO DETERMINE THE REQUIRED LENGTHS OF THESE POSTS PRIOR TO ORDERING MATERIALS TO CONFORM WITH SPECIFIED SIGN MOUNTING HEIGHTS SHOWN IN THE PLANS.

⊛ CONTRACTOR MAY USE SCREENED LEGEND OR 6" TYPE D STICK-ON LETTERS.

REFLECTIVE SHEETING WILL BE DESIGNATED AS:
TYPE A= ENGINEER GRADE
TYPE B= SUPER ENGINEER GRADE
TYPE C= HIGH SPECIFIED INTENSITY

SUMMARY OF LARGE SIGNS (ITEMS 416, 432, 634, 636 & 648)

MELVIN D. GREENHILL 69438 REGISTERED PUBLIC WORKS ENGINEER

Melvin D. Greenhill
February 18, 1991

SHEET 1 OF 7

17

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	IR 35-1(52)000			17
STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3	31	IH 35

ETC.

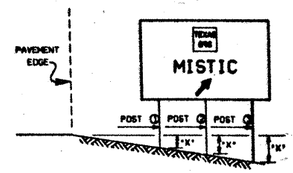
AD 76 0

PLATE 325105 ENGINEERING GRAPHICS, TEXAS

SUMMARY OF LARGE SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	GROUND MOUNT SUBSTRATE (ITEM 634) PLYWOOD TYPE A SQUARE FEET	GROUND MOUNT SUBSTRATE (ITEM 636) ALUMINUM TYPE A SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 640) PLYWOOD TYPE O SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 642) ALUMINUM TYPE O SQUARE FEET	TYPE OF MOUNT	"X" DIMENSION ⊖ FEET POST ①	POST ②	POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊛ LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS	(ITEM 416) DRILL SHAFT LINEAR FEET NON-REINF 12" Ø	REINF 24" Ø
				CSJ: 0018-04-033																		
	15	E1-5b	GREEN	EXIT 27	7'-6"X2'-0"	A	15.00				#20										2.5		
				CALLAGHAN	17'-6"X7'-0"	A	122.50																
				INTERCHANGE 🔑 SB																			
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																			
	16	E5-2b	GREEN	27	3'-6"X2'-0"	A	7.00				#20										1.3		
		E5-1		EXIT	6'-0"X5'-0"	A	30.00																
				🔑 SB																			
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																			
	17	E5-2b	GREEN	27	3'6"X2'-0"	A	7.00				#20										1.3		
		E5-1		EXIT	6'-0"X5'-0"	A	30.00																
				🔑 NB																			
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																			
	18	E1-5b	GREEN	EXIT 27	7'-6"X2'-0"	A	15.00				#20										2.5		
				CALLAGHAN	17'-6"X7'-0"	A	122.50																
				INTERCHANGE 🔑																			
				NB																			
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																			
	19	E1-5b	GREEN	EXIT 27	7'-6"X2'-0"	A	15.00				#20										2.2		
				CALLAGHAN	15'-0"X8'-0"	A	120.00																
				INTERCHANGE																			
				1 MILE NB																			
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																			
	20	E1-5b	GREEN	EXIT 22	7'-6"X2'-0"	A	15.00				#20										2.2		
				WEBB	15'-0"X8'-0"	A	120.00																
				INTERCHANGE																			
				1 MILE SB																			
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																			
	21	E1-5b	GREEN	EXIT 22	7'-6"X2'-0"	A	15.00				#20										2.2		
				WEBB	15'-0"X7'-0"	A	105.00																
				INTERCHANGE 🔑																			
				SB																			
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																			
	22	E5-2b	GREEN	22	3'-6"X2'-0"																1.3		
		E5-1		EXIT	6'-0"X5'-0"																		
				🔑																			
				(~~PROP.~~ CONC. RIPRAP APRON ONLY) SB																			
	23	E5-2b	GREEN	22	3'-6"X2'-0"																1.3		
		E5-1		EXIT	6'-0"X5'-0"																		
				🔑																			
				(~~PROP.~~ CONC. RIPRAP APRON ONLY) NB																			
	24	E1-5b	GREEN	EXIT 22	7'-6"X2'-0"	A	15.00				#20										2.2		
				WEBB	15'0"X7'-0"	A	105.00																
				INTERCHANGE 🔑																			
				NB																			
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																			
	25	E1-5b M1-4E2	GREEN	EXIT 18	7'-6"X2'-0"	A	15.00				#30										2.7		
				US 83 NORTH	20'-0"X12'-0"	A	240.00	7.15															
				CARRIZO SPRINGS																			
				UVALDE (~~PROP.~~ SIGN & CONC.																			
				1 MILE RIPRAP APRON) SB																			
	26	E1-5b	GREEN	EXIT 22	7'-6"X2'-0"	A	15.00				#20										2.2		
				WEBB	15'-0"X8'-0"	A	120.00																
				INTERCHANGE																			
				1 MILE NB																			
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																			
				TOTAL CSJ: 0018-04-033			1249.00	7.15													~~23.9~~ 23.7		
				CSJ: 0018-05-044																			
	27		GREEN	ENCINAL 19	18'-0"X6'-0"	A	90.00				#20										2.5		
				SAN ANTONIO 134																			
				NB																			
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																			

(CONT.)



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GENERAL NOTES:

SIGNS SHOWN ON THIS SHEET ARE GENERALLY THOSE WITH REMOVABLE LEGEND TEXTS, ALTHOUGH SCREENED OR STICK-ON LEGEND SIGNS MAY ALSO BE SHOWN (SEE SIGN TYPE).

LENGTHS OF THE POSTS FOR LARGE GROUND MOUNT SIGNS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS TO DETERMINE THE REQUIRED LENGTHS OF THESE POSTS PRIOR TO ORDERING MATERIALS TO CONFORM WITH SPECIFIED SIGN MOUNTING HEIGHTS SHOWN IN THE PLANS.

⊛ CONTRACTOR MAY USE SCREENED LEGEND OR 6" TYPE D STICK-ON LETTERS.

REFLECTIVE SHEETING WILL BE DESIGNATED AS:
TYPE A: ENGINEER GRADE
TYPE B: SUPER ENGINEER GRADE
TYPE C: HIGH SPECIFIED INTENSITY

SUMMARY OF LARGE SIGNS (ITEMS 416, 432, 634, 636 & 648)

Melvin D. Greenhill
February 18, 1991

SHEET 2 OF 7 18

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	IR 35-I(~~52~~)000	18

STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3	31	IH 35

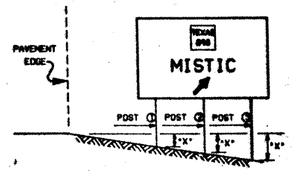
ETC.

ZFAX(C:\SIGNS\SIGN.DGN T=PLOT, IPARM

40 76 0

SUMMARY OF LARGE SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	GROUND MOUNT SUBSTRATE (ITEM 634) PLYWOOD TYPE A SQUARE FEET	GROUND MOUNT SUBSTRATE (ITEM 636) ALUMINUM TYPE A SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 640) PLYWOOD TYPE O SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 642) ALUMINUM TYPE O SQUARE FEET	TYPE OF MOUNT	* X * DIMENSION ⊖ FEET POST ①	POST ②	POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊕ LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS	(ITEM 416) DRILL SHAFT LINEAR FEET NON-REINF 12" Ø	REINF 24" Ø
				CSJ: 0018-05-044																		
	28	E1-5b	GREEN	EXIT 18	7'-6"X2'-0"	A	15.00				$30									2.7		
		M1-4E2		US 83 NORTH	20'-0"X9'-6"	A	190.00	7.15														
				CARRIZO SPRINGS																		
				UVALDE SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	29	E5-2b	GREEN	18	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				SB																		
				~~(PROP.~~ CONC. RIPRAP APRON ONLY)																		
	30		GREEN	CARRIZO SPRINGS 64	20'-6"X5'-0"	A	102.50				$30									2.7		
				UVALDE 114																		
				SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	31	E5-2b	GREEN	18	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				~~(PROP.~~ CONC. RIPRAP APRON ONLY) NB																		
	32	E1-5b	GREEN	EXIT 18	7'-6"X2'-0"	A	15.00				$30									2.7		
		M1-4E2		US 83 NORTH	20'-0"X9'-6"	A	190.00	7.15														
				CARRIZO SPRINGS																		
				UVALDE NB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	33	E1-5b	GREEN	EXIT 18	7'-6"X2'-0"	A	15.00				$30									2.7		
		M1-4E2		US 83 NORTH	20'-0"X12'-0"	A	240.00	7.15														
				CARRIZO SPRINGS																		
				UVALDE																		
				1 MILE NB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	~~34~~		~~GREEN~~	EAGLE PASS	12'-6"X7'-6"	A	~~99.75~~				$20									2.0		
				DEL RIO																		
				~~EXIT 18~~ NB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	35	E1-5b	GREEN	EXIT 18	7'-6"X2'-0"	A	15.00				$30									2.7		
		M1-4E2		US 83 NORTH	20'-0"X12'-0"	A	240.00	7.15														
				CARRIZO SPRINGS																		
				UVALDE																		
				1¾ MILE NB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	36		BLUE	PARKING AREA	~~16~~ 11'-6"X5'-0"	A	~~57.50~~ 82.50				$20									1.8		
				1 MILE SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	37		BLUE	PARKING AREA	~~16~~ 12'-6"X5'-0"	A	~~62.50~~ 82.50				$20									2.0		
				NEXT RIGHT																		
				SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	38		BLUE	PARKING	9'-6"X7'-0"	A	66.50				$20									1.7		
				AREA																		
				SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	39	E1-5b	GREEN	EXIT 13	7'-6"X2'-0"	A	15.00				$20									2.2		
				UNIROYAL	15'-0"X7'-0"	A	105.00															
				INTERCHANGE																		
				1 MILE SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	~~40~~		~~BLUE~~	~~PARKING~~	~~9'-6"X7'-0"~~	~~A~~	~~66.50~~				$20									1.7		
				~~AREA~~																		
				~~SB~~																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	~~41~~		~~BLUE~~	~~PARKING AREA~~	~~12'-6"X5'-0"~~	~~A~~	~~62.50~~				$20									2.0		
				~~NEXT RIGHT~~																		
				~~NB~~																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
				(CONT.)																		



⊖ THE "X" DIMENSION IS THE ELEVATION DIFFERENCE AT THE POST BETWEEN THE GROUND AND EDGE OF PAVEMENT OR TOP OF CURB.

GENERAL NOTES:

SIGNS SHOWN ON THIS SHEET ARE GENERALLY THOSE WITH REMOVABLE LEGEND TEXTS, ALTHOUGH SCREENED OR STICK-ON LEGEND SIGNS MAY ALSO BE SHOWN (SEE SIGN TYPE).

LENGTHS OF THE POSTS FOR LARGE GROUND MOUNT SIGNS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS TO DETERMINE THE REQUIRED LENGTHS OF THESE POSTS PRIOR TO ORDERING MATERIALS TO CONFORM WITH SPECIFIED SIGN MOUNTING HEIGHTS SHOWN IN THE PLANS.

⊛ CONTRACTOR MAY USE SCREENED LEGEND OR 6" TYPE D STICK-ON LETTERS.

REFLECTIVE SHEETING WILL BE DESIGNATED AS:
TYPE A: ENGINEER GRADE
TYPE B: SUPER ENGINEER GRADE
TYPE C: HIGH SPECIFIED INTENSITY

SUMMARY OF LARGE SIGNS (ITEMS 416, 432, 634, 636 & 648)

STATE OF TEXAS MELVIN D GREENHILL 29930 REGISTERED PROFESSIONAL ENGINEER

Melvin D. Greenhill
February 18, 1991

19

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	IR 35-1(52)000			19
STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3	31	IH 35

ETC,

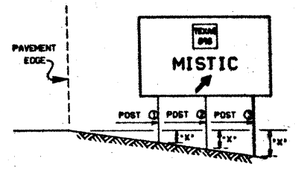
ZFAKT325\SUMSIGN.DGN 325IN2.IPARM

AD 76 Ø

SUMMARY OF LARGE SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	GROUND MOUNT SUBSTRATE (ITEM 634) PLYWOOD TYPE A SQUARE FEET	GROUND MOUNT SUBSTRATE (ITEM 636) ALUMINUM TYPE A SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 648) PLYWOOD TYPE O SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 642) ALUMINUM TYPE O SQUARE FEET	TYPE OF MOUNT	* X * DIMENSION ⊖ FEET POST ①	POST ②	POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊛ LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS	(ITEM 416) DRILL SHAFT LINEAR FEET NON-REINF 12" Ø	REINF 24" Ø
				CSJ: 0018-05-044																		
	42	E1-5b	GREEN	EXIT 13	7'-6"X2'-0"	A	15.00				$20									2.3		
				UNIROYAL	16'-0"X7'-0"	A	112.00															
				INTERCHANGE SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	43	E5-2b	GREEN	13	3'-6"X2'-0"	A	7.00				$20									1.3		
		E5-1		EXIT	6'-0"X5'-0"	A	30.00															
				SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	~~44~~		~~BLUE~~	~~PARKING AREA~~	~~11'-6"X6'-0"~~	~~A~~	~~57.50~~				~~$20~~									~~1.0~~		
				~~1 MILE NB~~																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	45	E5-2b	GREEN	13	3'-6"X2'-0"	A	7.00				$20									1.3		
		E5-1		EXIT	6'-0"X5'-0"	A	30.00															
				NB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	46	E1-5b	GREEN	EXIT 13	7'-6"X2'-0"	A	15.00				$20									2.3		
				UNIROYAL	16'-0"X7'-0"	A	112.00															
				INTERCHANGE																		
				NB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	47		GREEN	ENCINAL 25	18'-0"X5'-0"	A	90.00				$20									2.5		
				SAN ANTONIO 141 NB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	48		BLUE	TEXAS TRAVEL	22'-0"X9'-6"	A	209.00				$30	0.6	0.4	0.0	W6X15	17.1	16.9	18.5	841	2.9		15.0
				INFORMATION CENTER																		
				6 MILES																		
				OFICINA DE TURISMO																		
				ESTADO DE TEXAS																		
				~~(PROP.~~ NEW SIGN INSTALLATION & SB																		
				CONC. RIP RAP APRON)																		
	49	E1-5b	GREEN	EXIT 13	7'-6"X2'-0"	A	15.00				$20									2.2		
				UNIROYAL	15'-0"X7'-0"	A	105.00															
				INTERCHANGE																		
				1 MILE NB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
				TOTAL CSJ: 0018-05-044			~~2446.35~~ 2481.85	28.60											841	~~48.6~~ 44.81		15.0
				CSJ: 0018-06-096																		
	50	E1-5a	GREEN	EXIT 8	6'-0"X2'-0"	A	12.00				$30	1.5	1.1	0.0	W6X15	20.0	19.6	18.5	925	2.6		15.0
		M1-6F4B		FM 3464 FM 1472	19'-0"X11'-6"	A	218.50	42.00														
				MILO																		
				MINES RD																		
				¾ MILE ~~(PROP.~~ NEW SIGN SB																		
				INSTALLATION & CONC. RIPRAP APRON)																		
	51	E1-5a	GREEN	EXIT 8	6'-0"X2'-0"	A	12.00				$30	1.2	1.5	1.8	W8X18	21.2	21.5	21.8	1227	2.6		16.8
		M1-6F4B		FM 3464 FM 1472	19'-0"X13'-0"	A	247.00	42.00														
				MILO																		
				MINES RD																		
				~~(PROP.~~ NEW SIGN SB																		
				INSTALLATION & CONC. RIPRAP APRON)																		
	52	E5-2b	GREEN	8	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				~~(PROP.~~ CONC. RIPRAP APRON ONLY) SB																		
	53		GREEN	LAREDO 7	16'-0"X5'-0"	A	80.00				$20									2.3		
				MONTERREY 154																		
				SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	54	E5-2b	GREEN	8	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				~~(PROP.~~ CONC. RIPRAP APRON ONLY) NB																		
	55	E1-5a	GREEN	EXIT 8	6'-0"X2'-0"															1.8		
		M1-6F4B		FM 3464	11'-6"X8'-6"																	
				MILO																		
				~~(PROP.~~ CONC. RIPRAP APRON ONLY) NB																		

(CONT.)



⊖ THE "X" DIMENSION IS THE ELEVATION DIFFERENCE AT THE POST BETWEEN THE GROUND AND EDGE OF PAVEMENT OR TOP OF CURB.

GENERAL NOTES:

SIGNS SHOWN ON THIS SHEET ARE GENERALLY THOSE WITH REMOVABLE LEGEND TEXTS, ALTHOUGH SCREENED OR STICK-ON LEGEND SIGNS MAY ALSO BE SHOWN (SEE SIGN TYPE).

LENGTHS OF THE POSTS FOR LARGE GROUND MOUNT SIGNS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS TO DETERMINE THE REQUIRED LENGTHS OF THESE POSTS PRIOR TO ORDERING MATERIALS TO CONFORM WITH SPECIFIED SIGN MOUNTING HEIGHTS SHOWN IN THE PLANS.

⊛ CONTRACTOR MAY USE SCREENED LEGEND OR 6" TYPE D STICK-ON LETTERS.

REFLECTIVE SHEETING WILL BE DESIGNATED AS:
TYPE A: ENGINEER GRADE
TYPE B: SUPER ENGINEER GRADE
TYPE C: HIGH SPECIFIED INTENSITY
ETC.

SUMMARY OF LARGE SIGNS (ITEMS 416, 432, 634, 636 & 648)

Melvin D. Greenhill
February 18, 1991

SHEET 4 OF 7

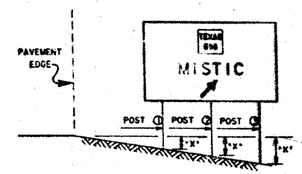
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	IR 35-1(6&)000				20
STATE DIST. NO.	COUNTY		CONT. NO.	SEC. NO.	JOB NO.	HIGHWAY NO.
21	WEBB		18	3	31	IH 35

AD 76 0

SUMMARY OF LARGE SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	GROUND MOUNT SUBSTRATE (ITEM 634) PLYWOOD TYPE A SQUARE FEET	GROUND MOUNT SUBSTRATE (ITEM 636) ALUMINUM TYPE A SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 640) PLYWOOD TYPE O SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 642) ALUMINUM TYPE O SQUARE FEET	TYPE OF MOUNT	"X" DIMENSION ◒ FEET POST ①	POST ②	POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊛ LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS	(ITEM 416) DRILL SHAFT LINEAR FEET NON-REINF 12" ∅	REINF 24" ∅
				CSJ: 0018-06-096																		
	56	E1-5a	GREEN	EXIT 8	6'-0"X2'-0"															1.8		
		MI-6F4B		FM 3464	10'-6"X9'-6"																	
				MILO																		
				¼ MILE																		
				~~(PROP.~~ CONC. RIPRAP APRON ONLY) NB																		
	57		GREEN	ENCINAL 31	18'-6"X5'-0"															2.5		
				SAN ANTONIO 146																		
				~~(PROP.~~ CONC. RIPRAP APRON ONLY) NB																		
	58	E1-5a	GREEN	EXIT 4	6'-0"X2'-0"	A	12.00				~~330~~									~~2.0~~		18
		MI-6F4B		FM 1472	~~22'-0"X12'-0"~~	A	~~264.00~~	19.50			320	0.8	0.6	–	WB=21	20.8	20.6		986	2.1		
				DEL MAR BLVD	14'-0"X18'-0"		182.00															
				SANTA MARIA AVE																		
				1 MILE SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		18
	59	E1-5a	GREEN	EXIT 4	6'-0"X2'-0"															2.9		
		MI-6F4B		FM 1472	22'-0"X11'-0"																	
				DEL MAR BLVD																		
				SANTA MARIA AVE SB																		
				~~(PROP.~~ CONC. RIPRAP APRON ONLY)																		
	60	E5-2b	GREEN	4	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				SB																		
				~~(PROP.~~ CONC. RIPRAP APRON ONLY)																		
	61	E1-5b	GREEN	EXIT 3B	7'-6"X2'-0"	A	15.00				320									1.9		
				MANN RD	12'-0"X6'-6"	A	78.00															
				¼ MILE																		
				SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	62		BLUE	HOSPITAL	10'-6"X5'-0"	A	52.50				320									1.8		
				EXIT 3B																		
				SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	63	E5-2b	GREEN	4	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				NB																		
				~~(PROP.~~ CONC. RIPRAP APRON ONLY)																		
	64	E1-5a	GREEN	EXIT 4	6'-0"X2'-0"															2.9		
		MI-6F4B		FM 1472	22'-0"X11'-0"																	
				DEL MAR BLVD																		
				SANTA MARIA AVE																		
				~~(PROP.~~ CONC. RIPRAP APRON ONLY) NB																		
	65	E1-5b	GREEN	EXIT 3B	7'-6"X2'-0"	A	15.00				320									1.9		
				MANN RD	12'-0"X8'-0"	A	96.00															
				SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	66		BLUE	TEXAS DEPT	14'-0"X8'-0"															2.1		
				OF PUBLIC SAFETY																		
				NEXT RIGHT																		
				~~(PROP.~~ CONC. RIPRAP APRON ONLY) NB																		
	67	E5-2b	GREEN	3B	3'-6"X2'-0"	A	7.00				320									1.3		
		E5-1		EXIT	6'-0"X5'-0"	A	30.00															
				SB																		
				~~(PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	68	E1-5b	GREEN	EXIT 3A	7'-6"X2'-0"	A	15.00				330	3.7	6.8	9.4	W6X15	18.2	21.3	23.9	1004	3.0		15.0
				SAN BERNARDO AVE.	23'-6"X7'-6"	A	176.25															
				CALTON RD																		
				½ MILE SB																		
				~~(PROP.~~ NEW SIGN INSTALLATION																		
				& CONC. RIPRAP APRON)																		
	69		GREEN	BUSINESS	11'-0"X9'-6"	A	104.50				320	1.9	4.6		W6X12	18.4	21.1		555	1.8		8.0
		MI-4E2		US 83				7.15														
				EXIT 3A																		
				~~(PROP.~~ NEW SIGN INSTALLATION																		
				& CONC. RIPRAP APRON) SB																		
	58A	MI-6F	GREEN	FM 1472	14'-0"x13'-0"		182.00	19.50			320	1.9	2.1	–	WB=21	21.3	22.1		1028	2.0		18.0
		4B		STA. MARIA AVENUE ½ MI.																		
		E1-5a		EXIT 4	6'-0"x2'-0"		12.00															

(CONT)



◒ THE "X" DIMENSION IS THE ELEVATION DIFFERENCE AT THE POST BETWEEN THE GROUND AND EDGE OF PAVEMENT OR TOP OF CURB.

GENERAL NOTES:

SIGNS SHOWN ON THIS SHEET ARE GENERALLY THOSE WITH REMOVABLE LEGEND TEXTS, ALTHOUGH SCREENED OR STICK-ON LEGEND SIGNS MAY ALSO BE SHOWN (SEE SIGN TYPE).

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⊛ CONTRACTOR MAY USE SCREENED LEGEND OR 6" TYPE D STICK-ON LETTERS.

REFLECTIVE SHEETING WILL BE DESIGNATED AS:
TYPE A= ENGINEER GRADE
TYPE B= SUPER ENGINEER GRADE
TYPE C= HIGH SPECIFIED INTENSITY

SUMMARY OF LARGE SIGNS (ITEMS 416, 432, 634, 636 & 648)

STATE OF TEXAS MELVIN D. GRUMBLES 3880

Melvin D. Grumbles
3-14-1991

SHEET 5 OF 7 21

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	IR 35-1(52)000	21

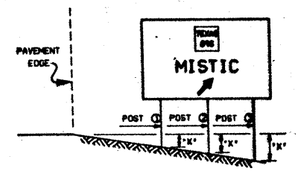
STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	1B	3	31	IH

ETC.

SUMMARY OF LARGE SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	GROUND MOUNT SUBSTRATE (ITEM 634) PLYWOOD TYPE A SQUARE FEET	GROUND MOUNT SUBSTRATE (ITEM 636) ALUMINUM TYPE A SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 648) PLYWOOD TYPE O SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 642) ALUMINUM TYPE O SQUARE FEET	TYPE OF MOUNT	"X" DIMENSION ◒ FEET POST ①	"X" DIMENSION ◒ FEET POST ②	"X" DIMENSION ◒ FEET POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊛ LINEAR FEET SIZE	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊛ LINEAR FEET POST ①	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊛ LINEAR FEET POST ②	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊛ LINEAR FEET POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊛ LINEAR FEET TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS	(ITEM 416) DRILL SHAFT LINEAR FEET NON-REINF 12" Ø	(ITEM 416) DRILL SHAFT LINEAR FEET REINF 24" Ø
				CSJ: 0018-06-096																		
	70	E1-5a	GREEN	EXIT 4	6'-0"X2'-0"	A	12.00				$30									2.9		
		M1-6F4B		FM 1472	22'-0"X11'-6"	A	253.00	19.50														
				DEL MAR BLVD																		
				SANTA MARIA AVE																		
				½ MILE NB																		
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	71	E5-2b	GREEN	3B	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				(~~PROP.~~ CONC. RIPRAP APRON ONLY) NB																		
	72	E1-5b	GREEN	EXIT 3B	7'-6"X2'-0"															1.9		
				MANN RD	12'-0"X8'-0"																	
				(~~PROP.~~ CONC. RIPRAP APRON ONLY) NB																		
	73	E1-5b	GREEN	EXIT 3A	7'-6"X2'-0"	A	15.00				$30									3.0		
				SAN BERNARDO AVE.	23'-6"X7'-0"	A	164.50															
				CALTON RD SB																		
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	74	E5-2b	GREEN	3A	3'-6"X2'-0"	A	7.00				$20									1.3		
		E5-1		EXIT	6'-0"X5'-0"	A	30.00															
				SB																		
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	75		~~BLUE~~	HOSPITAL	~~10'-6"X4'-0"~~ 8'	A	~~51.50~~				$20									1.0		
				~~EXIT 99~~	~~42.00~~																	
				NB																		
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	76	E1-5a	GREEN	EXIT 2	6'-0"X2'-0"	A	12.00				$30	3.9	5.2	6.0	W8X21	25.4	26.7	27.5	1806	2.6		18.0
		M1-4E2		US 59	19'-0"X14'-6"	A	275.50	7.15														
				FREER																		
				CORPUS CHRISTI																		
				HOUSTON SB																		
				I MILE (~~PROP.~~ NEW SIGN																		
				INSTALLATION & CONC. RIPRAP APRON)																		
	77	E1-5b	GREEN	EXIT 3B	7'6"X2'-0"	A	15.00				$20									1.9		
				MANN RD	12'-0"X6'-6"	A	78.00															
				½ MILE NB																		
				(~~PROP.~~ SIGN & CONC. RIPRAP APRON)																		
	78	E1-5a	GREEN	EXIT 2	6'-0"X2'-0															3.2		
				LAREDO INTERNATIONAL	25'-0"X7'-0"																	
				AIRPORT																		
				NEXT RIGHT																		
				(~~PROP.~~ CONC. RIPRAP APRON ONLY) SB																		
	79	E5-2b	GREEN	3A	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				(~~PROP.~~ CONC. RIPRAP APRON ONLY) NB																		
	80	E1-5a	GREEN	EXIT 2	6'-0"X2'-0"	A	12.00				$30	1.9	4.0	6.2	W8X18	21.9	24.0	26.2	1968	2.6		16.5
		M1-4E2		US 59	19'-0"X13'-0"	A	247.00	7.15														
				FREER																		
				CORPUS CHRISTI																		
				HOUSTON (~~PROP.~~ NEW SIGN SB																		
				INSTALLATION & CONC. RIPRAP APRON)																		
	81		GREEN	HILLSIDE RD	15'-0"X5'-0"															2.2		
				NEXT RIGHT																		
				(~~PROP.~~ CONC. RIPRAP APRON ONLY) NB																1.3		
	82	E5-2b	GREEN	2	3'-6"X2'-0"																	
		E5-1		EXIT	6'-0"X5'-0"																	
				(~~PROP.~~ CONC. RIPRAP APRON ONLY) SB																3.0		
	83	E1-5b	GREEN	EXIT 3A	7'-6"X2'-0"																	
				SAN BERNARDO AVE	23'-6"X7'-6"																	
				CALTON RD																		
				¾ MILE																		
				(~~PROP.~~ CONC. RIPRAP APRON ONLY) NB																		

(CONT.)



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⊛ CONTRACTOR MAY USE SCREENED LEGEND OR 6" TYPE D STICK-ON LETTERS.

REFLECTIVE SHEETING WILL BE DESIGNATED AS:
TYPE A= ENGINEER GRADE
TYPE B= SUPER ENGINEER GRADE
TYPE C= HIGH SPECIFIED INTENSITY

SUMMARY OF LARGE SIGNS (ITEMS 416, 432, 634, 636 & 648)

KELVIN D. GRUENHILL 80820 REGISTERED PROFESSIONAL ENGINEER

Kelvin D. Gruenhill
February 16, 1991

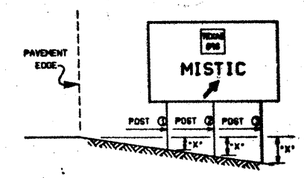
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	IR 35-1(62)000	22
STATE DIST. NO.	COUNTY	CONT. NO. / SEC. NO. / JOB NO.	HIGHWAY NO.
21	WEBB	18 3 31	IH 35

ETC.

ZIA:\1325105\ES\IN_SGN\1_SGNS_11.DGN

SUMMARY OF LARGE SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	REFLECT. SHEETING TYPE	GROUND MOUNT SUBSTRATE (ITEM 634) PLYWOOD TYPE A SQUARE FEET	GROUND MOUNT SUBSTRATE (ITEM 636) ALUMINUM TYPE A SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 640) PLYWOOD TYPE O SQUARE FEET	OVERHEAD SUBSTRATE (ITEM 642) ALUMINUM TYPE O SQUARE FEET	TYPE OF MOUNT	"X" DIMENSION ◒ FEET POST ①	POST ②	POST ③	(ITEM 648) GALVANIZED STRUCTURAL STEEL ⊛ LINEAR FEET SIZE	POST ①	POST ②	POST ③	TOTAL WEIGHT LBS.	(ITEM 432) CONC. RIPRAP APRON CUBIC YARDS	(ITEM 416) DRILL SHAFT LINEAR FEET NON-REINF 12" Ø	REINF 24" Ø
				CSJ: 0018-06-096																			
	84	E5-2b	GREEN	2	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				~~(PROP. CONC. RIPRAP APRON ONLY)~~ NB																			
	85	E1-5b	GREEN	EXIT 1B	7'-6"X2'-0"	A	15.00				$20									2.3		
				PARK ST	16'-0"X8'-6"	A	136.00															
				SANCHEZ ST																		
				¼ MILE SB																		
				~~(PROP. SIGN & CONC. RIPRAP APRON)~~																		
	86	E1-5a	GREEN	EXIT 2	6'-0"X2'-0"	A	12.00				$30	2.2	2.7	3.2	W8X18	22.2	22.7	23.2	1291	2.6		16.5
		M1-4E2		US 59	19'-0"X13'-0"	A	247.00	7.15														
				FREER																		
				CORPUS CHRISTI																		
				HOUSTON ~~(PROP. NEW SIGN NB~~																		
				INSTALLATION & CONC. RIPRAP APRON)																		
	87	E1-5a	GREEN	EXIT 2	6'-0"X2'-0"															3.2		
				LAREDO INTERNATIONAL	25'-0"X7'-0"																	
				AIRPORT																		
				NEXT RIGHT																		
				~~(PROP. CONC. RIPRAP APRON ONLY)~~ NB																		
	88	E5-2b	GREEN	1B	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				~~(PROP. CONC. RIPRAP APRON ONLY)~~ SB																		
	89	E5-2b	GREEN	1A	3'-6"X2'-0"															1.3		
		E5-1		EXIT	6'-0"X5'-0"																	
				~~(PROP. CONC. RIPRAP APRON ONLY)~~ SB																		
	90		GREEN	FREEWAY	10'-6"X10'-6"															1.0		
				ENDS																		
				¼ MILE																		
			BLUE	HOSPITAL																		
				LEFT LANE																		
				~~(PROP. CONC. RIPRAP APRON ONLY)~~ SB																		
	91		BLUE	TEXAS	~~14'-0~~ 16'-0"X11'-6"	A	~~161.00~~ 184.75				$20	0.3	0.1		W6X15	18.8	18.6		597	2.1		10.0
				TRAVEL																		
				INFORMATION																		
				CENTER ~~(PROP. NEW SIGN~~ NB																		
				INSTALLATION & CONC. RIPRAP APRON)																		
	92		BLUE	INFORMACION GRATUITA	25'-6"X9'-6"	A	242.25				$30	2.8	1.7	0.0	W8X18	19.3	18.2	16.5	1037	3.2		16.5
				PROXIMA SALIDA																		
				OVERSIZE PERMITS																		
				NEXT RIGHT ~~(PROP. NEW SIGN~~ NB																		
				INSTALLATION & CONC. RIPRAP APRON)																		
	93		BLUE	TEXAS TRAVEL	22'-0"X11'-0"	A	242.00				$30	2.1	2.6	3.0	W8X18	20.1	20.6	21.0	1176	2.9		16.5
				INFORMATION CENTER																		
				REST AREA																		
				OFICINA DE TURISMO NB																		
				ESTADO DE TEXAS ~~(PROP. NEW SIGN~~																		
				INSTALLATION & CONC. RIPRAP APRON)																		
				TOTAL CSJ: 0018-06-096			~~3652.00~~ 3804.25	151.60											10,981	~~43.5~~ 44.15		~~172.5~~ 148.5
				GRAND TOTAL IH 35			~~8778.25~~ 8783.00	225.71											~~13,727~~ 14,078	~~193.9~~ 214.98		~~198.5~~ 196.5
	94		GREEN	LAREDO COLOMBIA SOLIDARITY BRIDGE																1.75		
	95		GREEN	LAREDO COLOMBIA SOLIDARITY BRIDGE																1.75		
	96		GREEN	TEXAS LOOP MINES RD.																1.75		
	97		GREEN	INSPECTION STATION 5000'																1.88		
	98		GREEN	INSPECTION STATION 5000'																1.75		
	99		WHITE	ALL TRAFFIC MUST EXIT																1.90		
	100		WHITE	ALL TRAFFIC MUST EXIT																1.90		
	101		WHITE	ALL TRUCKS AND BUSES RIGHT LN.																1.80		
	102		WHITE	ALL TRUCKS AND BUSES RIGHT LN.																1.80		
	103		WHITE	MAX. SPEED LIMIT SIGNS																3.24		
	104		WHITE	MAX. SPEED LIMIT SIGN																2.05		
	105		WHITE	MAX. SPEED LIMIT SIGN																2.69		
																				214.98		



◒ THE "X" DIMENSION IS THE ELEVATION DIFFERENCE AT THE POST BETWEEN THE GROUND AND EDGE OF PAVEMENT OR TOP OF CURB.

GENERAL NOTES:

SIGNS SHOWN ON THIS SHEET ARE GENERALLY THOSE WITH REMOVABLE LEGEND TEXTS, ALTHOUGH SCREENED OR STICK-ON LEGEND SIGNS MAY ALSO BE SHOWN (SEE SIGN TYPE).

LENGTHS OF THE POSTS FOR LARGE GROUND MOUNT SIGNS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS TO DETERMINE THE REQUIRED LENGTHS OF THESE POSTS PRIOR TO ORDERING MATERIALS TO CONFORM WITH SPECIFIED SIGN MOUNTING HEIGHTS SHOWN IN THE PLANS.

⊛ CONTRACTOR MAY USE SCREENED LEGEND OR 6" TYPE D STICK-ON LETTERS.

REFLECTIVE SHEETING WILL BE DESIGNATED AS:
TYPE A= ENGINEER GRADE
TYPE B= SUPER ENGINEER GRADE
TYPE C= HIGH SPECIFIED INTENSITY

SUMMARY OF LARGE SIGNS (ITEMS 416, 432, 634, 636 & 648)

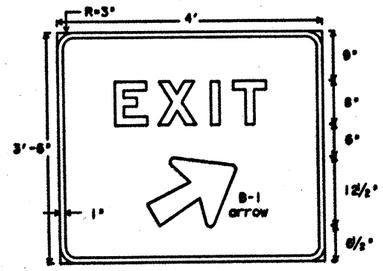
Kelvin D. Greenhill
February 15, 1991

SHEET 7 OF 7 23

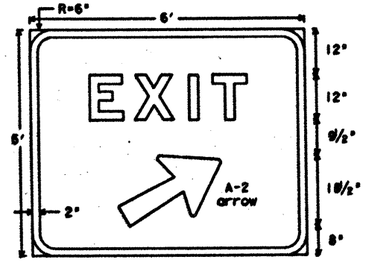
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	IR 35-1(62)000			23
STATE DIST. NO.	COUNTY	CONT. NO.	SEC. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	3	31	IH 35

ETC.

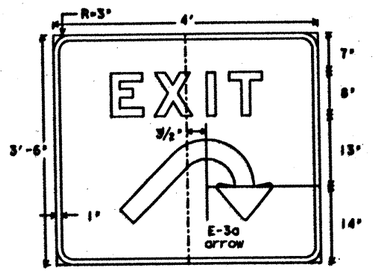
AD 70 0



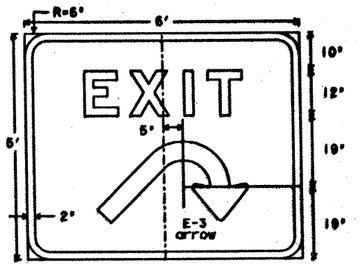
E5-1a
48" X 42"



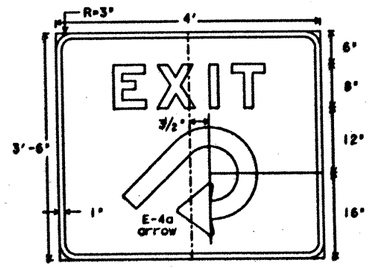
E5-1
72" X 60"



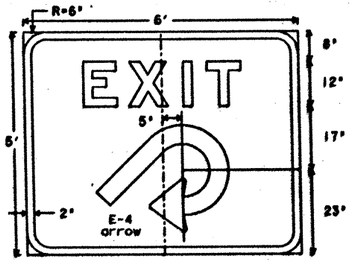
E5-3a
48" X 42"



E5-3
72" X 60"



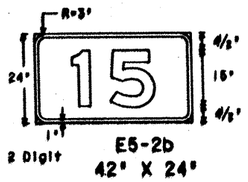
E5-4a
48" X 42"



E5-4
72" X 60"

Legend - White Reflective
Border - White Reflective
Background - Green Reflective

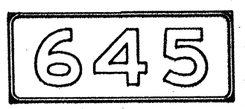
EXIT GORE SIGNS



1 & 2 Digit

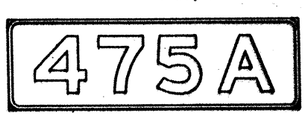
E5-2b
42" X 24"

Legend - White Reflective
Border - White Reflective
Background - Green (See General Notes)



E5-2c
60" X 24"

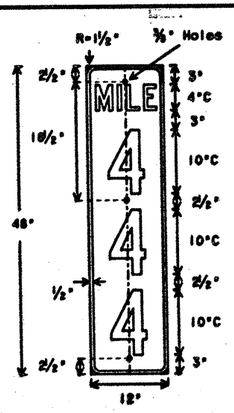
3 Digit



E5-2d
72" X 24"

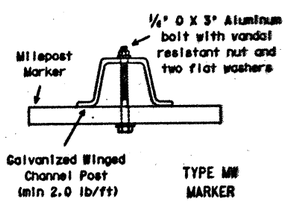
4 Digit

EXIT NUMBER PANELS



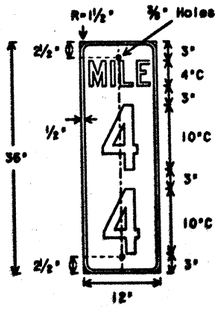
D10-6
12" X 48"

Legend - White Reflective
Border - White Reflective
Background - Green Reflective
(Legend & Border not Removable)

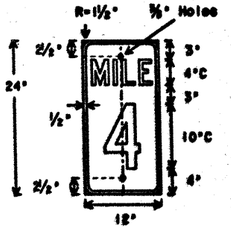


TYPE MW MARKER

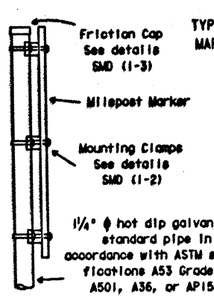
MILEPOST MARKER



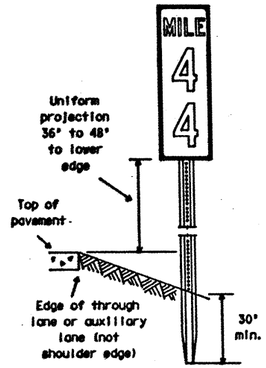
D10-5
12" X 36"



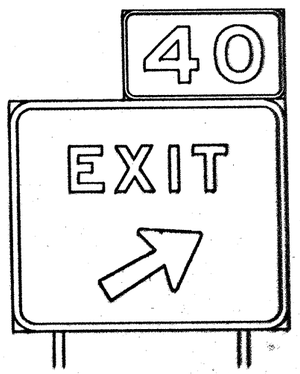
D10-4
12" X 24"

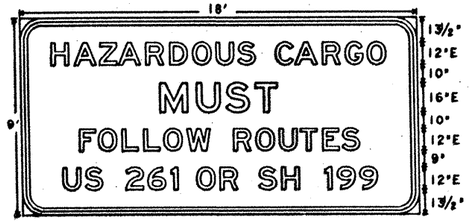


TYPE MP MARKER



EXIT GORE SIGN TYPICAL ASSEMBLY





R14-4
18' X 9'

Letters - Black
Border - Black
Background - White Reflective

SPECIFICATION REFERANCE TABLE		
MATERIALS AND TEXT SPECIFICATIONS (D-9)		
PLYWOOD SIGN BLANKS	D-9-7100	
ALUMINUM SIGN BLANKS	D-9-7110	
WINGED CHANNEL POSTS	D-9-7130	
REFLECTIVE SHEETING, TYPE A	D-9-8300	(ENGINEER GRADE)
REFLECTORIZED REMOVABLE LEGEND	D-9-8400	

GENERAL NOTES FOR GUIDE SIGNS:

THE ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

LEGEND AND BORDERS FOR GREEN AND BLUE BACKGROUND GUIDE SIGNS SHALL HAVE REFLECTORIZED REMOVABLE LEGEND WITH BORDERS CONFORMING WITH DEPARTMENT SPECIFICATION, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS. DIMENSIONS SHOWN FOR REMOVABLE BORDERS AND CORNER RADII ARE NOMINAL. REMOVABLE BORDERS MAY VARY IN WIDTH AS MUCH AS ONE-HALF INCH. CORNER RADII ABOVE THREE INCHES MAY VARY IN RADIUS PLUS OR MINUS ONE INCH. BORDERS AND CORNER RADII MUST BE OF MATCHING WIDTHS. THE SIGN AREA OUTSIDE THE CORNER RADIUS NEED NOT BE TRIMMED.

ROADSIDE MOUNTED GUIDE SIGNS SHALL BE MADE OF 5/8 INCH PLYWOOD (TYPE A) UNLESS OTHERWISE NOTED IN THE SIGN TABULATION. OVERHEAD GUIDE SIGN BLANKS SHALL BE MADE OF TYPE O ALUMINUM OR PLYWOOD AS SPECIFIED IN THE SIGN TABULATION. SIGNS AND PANELS ATTACHED ABOVE OR BELOW A PARENT SIGN SHALL BE MADE OF THE SAME MATERIAL AS THE PARENT SIGN.

MOUNTING DETAILS FOR ROADSIDE MOUNTED GUIDE SIGNS ARE SHOWN ON STANDARD PLAN SHEETS SMD SERIES. MOUNTING DETAILS FOR OVERHEAD SIGNS SHALL BE AS DETAILED ELSEWHERE IN PLANS OR THE SUPPLIER'S CHOICE SUBJECT TO APPROVAL BY THE ENGINEER.

GENERAL NOTES FOR SIGNS AND PANELS ON THIS SHEET:

SIGNS AND PANELS SHOWN ARE USUAL AND STANDARD SIZES. INDIVIDUAL PANEL SIZES MAY BE ADJUSTED DURING PLAN PREPARATION TO FIT ACTUAL PARENT SIGN SIZES WHERE NECESSARY. PANEL SIZES TO BE FURNISHED SHOULD BE AS DETAILED ELSEWHERE IN PLANS AND/OR AS SHOWN ON SIGN TABULATION. SIGNS AND PANELS ATTACHED ABOVE OR BELOW A PARENT SIGN SHALL BE MADE OF THE SAME MATERIAL AS THE PARENT SIGN. SEE STANDARD SHEET IM(2) FOR ARROW DIMENSION DETAILS.

LEGEND, BORDER AND BACKGROUND FOR D10 SIGNS SHALL BE REFLECTIVE MATERIAL. SIGN BLANKS SHALL BE ONE PIECE 0.080 INCH THICK SHEET ALUMINUM ALLOY CONFORMING WITH DEPARTMENT SPECIFICATION "ALUMINUM SIGNS (TYPE A)". D10 SIGNS ARE TO BE MOUNTED AS SHOWN.

LEGEND FOR R14-4 SHALL BE BLACK AND APPLIED BY SCREENING TO WHITE REFLECTIVE SHEETING CONFORMING WITH DEPARTMENT SPECIFICATION. SIGN BLANK SHALL BE 5/8 INCH THICK PLYWOOD (TYPE A) CONFORMING WITH DEPARTMENT SPECIFICATION, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.

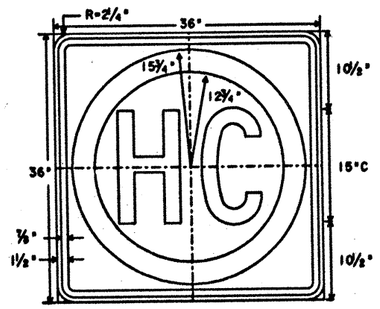
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

EXIT GORE AND MILEPOST SIGNS

24

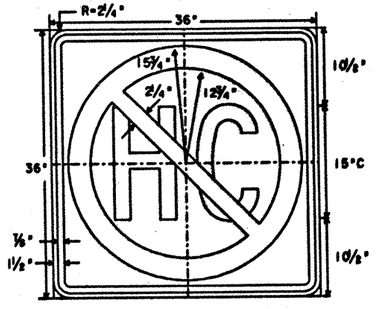
IE(1)

ORIGINAL DRAWING DATE: 7-90		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DR.: DN	REVISIONS	21	6	IR 35-1(52)000		24
CH.: LR		COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DR.:		WEBB		18	3	31	IH 35
CH.:						BK.	IA



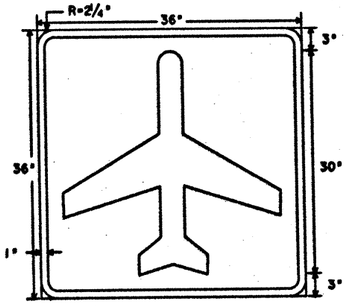
ER14-2
36" X 36"

Letters -Black
Border -Black
Ring - Green Reflective
Background - White Reflective



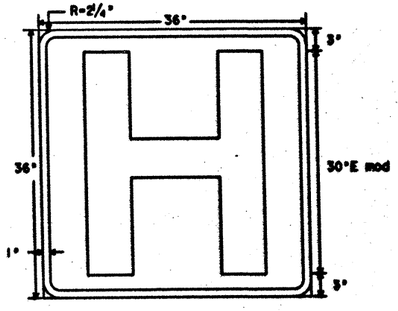
ER14-3
36" X 36"

Letters -Black
Border -Black
Ring/Slash - Red Reflective
Background - White Reflective



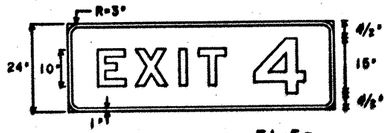
FI-5
36" X 36"

Symbol - White Reflective
Border - White Reflective
Background - Green Reflective



FD9-2
36" X 36"

Symbol - White Reflective
Border - White Reflective
Background - Blue Reflective

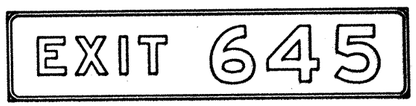


1 Digit

EI-5a
72" X 24"

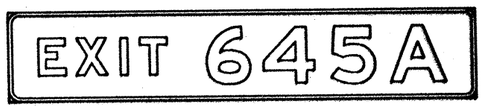
2 Digit

EI-5b
90" X 24"



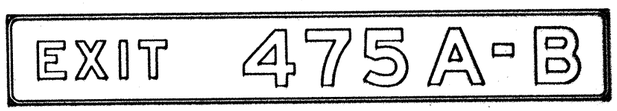
3 Digit

EI-5c
108" X 24"



4 Digit

EI-5d
126" X 24"



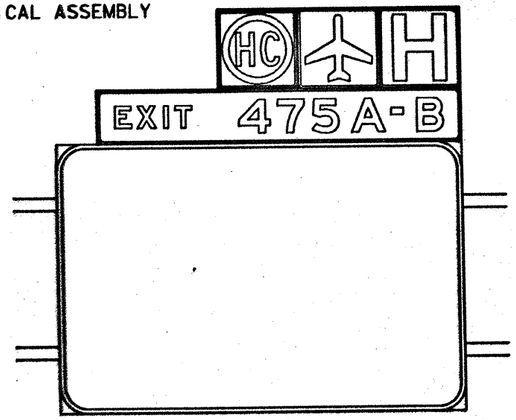
5 Digit

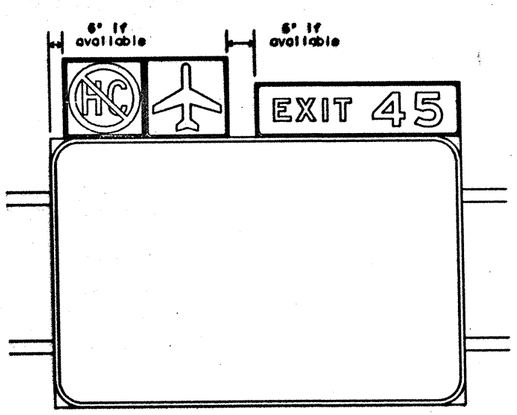
EI-5e
165" X 24"

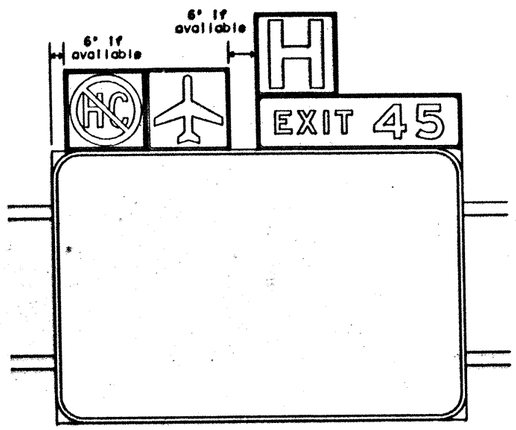
GUIDE SIGN NUMBER PANELS

Legend - White Reflective
Border - White Reflective
Background - Green (See General Notes)

OVERHEAD GUIDE SIGN
TYPICAL ASSEMBLY







SPECIFICATION REFERENCE TABLE

MATERIALS AND TEXT SPECIFICATIONS (D-9)	
PLYWOOD SIGN BLANKS	D-9-7100
ALUMINUM SIGN BLANKS	D-9-7110
REFLECTIVE SHEETING, TYPE A	D-9-8300 (ENGINEER GRADE)
REFLECTORIZED REMOVABLE LEGEND	D-9-8400

GENERAL NOTES FOR GUIDE SIGNS:

THE ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

LEGEND AND BORDERS FOR GREEN AND BLUE BACKGROUND GUIDE SIGNS SHALL HAVE REFLECTORIZED REMOVABLE LEGEND WITH BORDERS CONFORMING WITH DEPARTMENT SPECIFICATION, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS. DIMENSIONS SHOWN FOR REMOVABLE BORDERS AND CORNER RADII ARE NOMINAL. REMOVABLE BORDERS MAY VARY IN WIDTH AS MUCH AS ONE-HALF INCH. CORNER RADII ABOVE THREE INCHES MAY VARY IN RADIUS PLUS OR MINUS ONE INCH. BORDERS AND CORNER RADII MUST BE OF MATCHING WIDTHS. THE SIGN AREA OUTSIDE THE CORNER RADIUS NEED NOT BE TRIMMED.

ROADSIDE MOUNTED GUIDE SIGNS SHALL BE MADE OF 5/8 INCH PLYWOOD (TYPE A) UNLESS OTHERWISE NOTED IN THE SIGN TABULATION. OVERHEAD GUIDE SIGN BLANKS SHALL BE MADE OF TYPE O ALUMINUM OR PLYWOOD AS SPECIFIED IN THE SIGN TABULATION. SIGNS AND PANELS ATTACHED ABOVE OR BELOW A PARENT SIGN SHALL BE MADE OF THE SAME MATERIAL AS THE PARENT SIGN.

MOUNTING DETAILS FOR ROADSIDE MOUNTED GUIDE SIGNS ARE SHOWN ON STANDARD PLAN SHEETS SMD SERIES. MOUNTING DETAILS FOR OVERHEAD SIGNS SHALL BE AS DETAILED ELSEWHERE IN PLANS OR THE SUPPLIER'S CHOICE SUBJECT TO APPROVAL BY THE ENGINEER.

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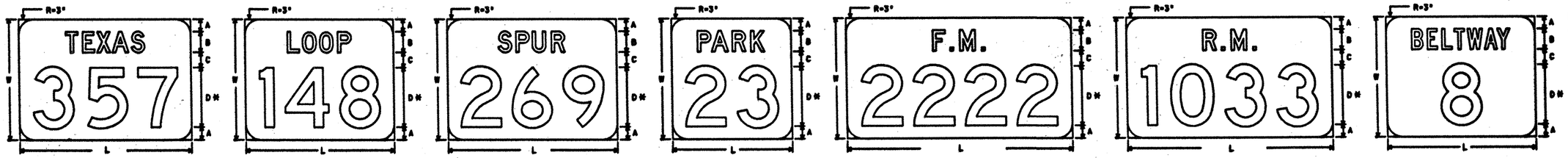
LEGEND FOR ER14-2 AND ER14-3 SHALL BE APPLIED TO REFLECTIVE SHEETING BY SCREENING. FI-5 AND FD9-2 SHALL HAVE COLORED TRANSPARANT INK APPLIED BY THE REVERSE SCREEN PROCESS. THE BACKGROUND SHALL BE WHITE REFLECTIVE SHEETING CONFORMING WITH DEPARTMENT SPECIFICATION.

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

GUIDE SIGN ATTACHMENTS SERVICES/EXIT PANELS 25

IE(2)

ORIGINAL DRAWING DATE: 7-90	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
REVISIONS	21	6	IR 35-1(52)000	25
DN: DN CK: LR DW: CK:	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
	WEBB	16	3	31	IH 35
				ETC.	1B



Sign Type	Digits	W
MI-6T4A	4	24
MI-6T4B	4	36
MI-6T4C	4	48
MI-6T3A	3	24
MI-6T3B	3	36
MI-6T3C	3	48
MI-6T2A	2	24
MI-6T2B	2	36
MI-6T2C	2	48
MI-6T1A	1	24
MI-6T1B	1	36
MI-6T1C	1	48

Sign Type	Digits	W
MI-6L4A	4	24
MI-6L4B	4	36
MI-6L4C	4	48
MI-6L3A	3	24
MI-6L3B	3	36
MI-6L3C	3	48
MI-6L2A	2	24
MI-6L2B	2	36
MI-6L2C	2	48
MI-6L1A	1	24
MI-6L1B	1	36
MI-6L1C	1	48

Sign Type	Digits	W
MI-6S4A	4	24
MI-6S4B	4	36
MI-6S4C	4	48
MI-6S3A	3	24
MI-6S3B	3	36
MI-6S3C	3	48
MI-6S2A	2	24
MI-6S2B	2	36
MI-6S2C	2	48
MI-6S1A	1	24
MI-6S1B	1	36
MI-6S1C	1	48

Sign Type	Digits	W
MI-6P4A	4	24
MI-6P4B	4	36
MI-6P4C	4	48
MI-6P3A	3	24
MI-6P3B	3	36
MI-6P3C	3	48
MI-6P2A	2	24
MI-6P2B	2	36
MI-6P2C	2	48
MI-6P1A	1	24
MI-6P1B	1	36
MI-6P1C	1	48

Sign Type	Digits	W
MI-6F4A	4	24
MI-6F4B	4	36
MI-6F4C	4	48
MI-6F3A	3	24
MI-6F3B	3	36
MI-6F3C	3	48
MI-6F2A	2	24
MI-6F2B	2	36
MI-6F2C	2	48
MI-6F1A	1	24
MI-6F1B	1	36
MI-6F1C	1	48

Vertical Spacing for State Route Markers

W	A	B	C	D
24	2½	4	3	12
36	4	6	4	18
48	5	8	6	24

Sign Type	Digits	W
MI-6R4A	4	24
MI-6R4B	4	36
MI-6R4C	4	48
MI-6R3A	3	24
MI-6R3B	3	36
MI-6R3C	3	48
MI-6R2A	2	24
MI-6R2B	2	36
MI-6R2C	2	48
MI-6R1A	1	24
MI-6R1B	1	36
MI-6R1C	1	48

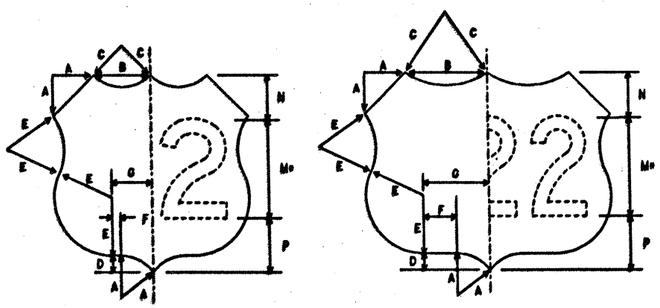
Sign Type	Digits	W
MI-6B4A	4	24
MI-6B4B	4	36
MI-6B4C	4	48
MI-6B3A	3	24
MI-6B3B	3	36
MI-6B3C	3	48
MI-6B2A	2	24
MI-6B2B	2	36
MI-6B2C	2	48
MI-6B1A	1	24
MI-6B1B	1	36
MI-6B1C	1	48

MI-6 STATE ROUTE MARKERS FOR GUIDE SIGN USE

Letters - Black
Numerals - Black
Background - White Reflective

* IN A FEW CASES NUMERALS CANNOT BE ACCOMMODATED WITNIN THE SPACE ABAILABLE. FOR THESE CASES, THE STANDARD SERIES D MAY BE REDUCED TO SERIES C, OR AS A SECOND CHOICE REDUCED TO THE NEXT SMALLER HEIGHT COMMONLY AVAILABLE.

L: VARIABLE WITH THE NUMBER OF DIGITS; HOWEVER, TOTAL MARKER LENGTH SHALL BE ADJUSTED TO NEAREST 1" MULTIPLE.



Numerals - Black
Background - White Reflective

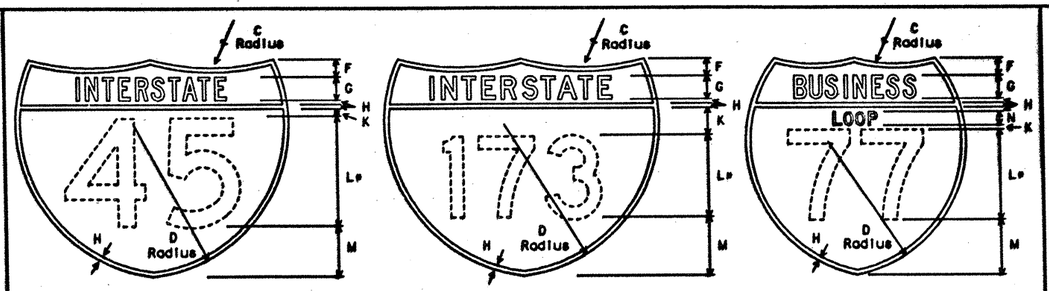
	SIZE	A	B	C	D	E	F	G	M*	N	P	AREA
MI-4D2	12" NUMERALS 2 DIGIT	24x24	5	7	5	2	7	1	5	12D	5½	6½	3.18
MI-4D3	12" NUMERALS 3 DIGIT	30x24	5	10	9	2	7	4	8	12D	5½	6½	4.05
MI-4E2	18" NUMERALS 2 DIGIT	36x36	7½	10½	7½	3	10½	1½	7½	18D	8¼	9¾	7.15
MI-4E3	18" NUMERALS 3 DIGIT	45x36	7½	15	13½	3	10½	6	12	18D	8¼	9¾	9.11
MI-4F2	24" NUMERALS 2 DIGIT	48x48	10	14	10	4	14	2	10	24D	11	13	12.70
MI-4F3	24" NUMERALS 3 DIGIT	60x48	10	20	18	4	14	8	16	24D	11	13	16.20

ALL LENGTHS SHOWN ARE IN INCHES, ALL AREAS ARE IN SQUARE FEET,

NOTES:

1. DIMENSIONS FOR THE U.S. ROUTE MARKER OUTLINES ARE SCALE DIMENSIONS AND MAY BE ADJUSTED SLIGHTLY WHERE NECESSARY FOR CLOSURE OF THE OUTLINES.
2. * IN A FEW CASES NUMERALS CANNOT BE ACCOMMODATED WITHIN THE SPACE AVAILABLE. FOR THESE CASES, THE STANDARD SERIES D MAY BE REDUCED TO SERIES C, OR AS A SECOND CHOICE REDUCE TO THE NEXT SMALLER HEIGHT COMMONLY AVAILABLE.

U.S. ROUTE MARKERS FOR GUIDE SIGN USE



MI-1C2 45" X 36"
MI-1D2 60" X 48"

Letters - White Reflective
Numerals - White Reflective
Border - White Reflective
Background (Upper Portion) - Red Reflective
Background (Lower Portion) - Blue Reflective

MI-1C3 48" X 48"
MI-1D3 60" X 48"

Letters - White Reflective
Numerals - White Reflective
Border - White Reflective
Background (Upper Portion) - Red Reflective
Background (Lower Portion) - Blue Reflective

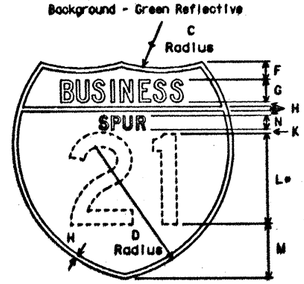
MI-2C2 36" X 36"
MI-2D2 48" X 48"

Letters - White Reflective
Numerals - White Reflective
Border - White Reflective
Background - Green Reflective

		SIZE	C	D	F	G	H	K	L*	M	N	AREA
INTERSTATE	MI-1C2	18" NUMERALS 2 DIGIT	45x36	36	25½	3	3¾C	¾	1½	18D	8¼	-	9.41
	MI-1D2	24" NUMERALS 2 DIGIT	60x48	48	34	4	5D	1	2	24D	11	-	16.74
	MI-1C3	18" NUMERALS 3 DIGIT	48x48	30	30	4	5C	1	4	18D	15	-	12.76
	MI-1D3	20" NUMERALS 3 DIGIT	60x48	48	34	4	5D	1	2½	20D	14½	-	16.74
BUSINESS SPUR LOOP	MI-2C2	15" NUMERALS 2 DIGIT	36x36	22½	22½	3	3¾C	¾	¾	15D	9	2¼D	7.18
	MI-2D2	20" NUMERALS 2 DIGIT	48x48	30	30	4	5C	1	1	20D	12	3D	12.76
	MI-3C2	15" NUMERALS 2 DIGIT	36x36	22½	22½	3	3¾C	¾	¾	15D	9	2¼D	7.18
	MI-3D2	20" NUMERALS 2 DIGIT	48x48	30	30	4	5C	1	1	20D	12	3D	12.76

ALL LENGTHS SHOWN ARE IN INCHES, ALL AREAS ARE IN SQUARE FEET,

* IN A FEW CASES NUMERALS CANNOT BE ACCOMMODATED WITNIN THE SPACE ABAILABLE, FOR THESE CASES, THE STANDARD SERIES D MAY BE REDUCED TO SERIES C, OR AS A SECOND CHOICE REDUCED TO THE NEXT SMALLER HEIGHT COMMONLY AVAILABLE.



MI-3C2 36" X 36"
MI-3D2 48" X 48"

Letters - White Reflective
Numerals - White Reflective
Border - White Reflective
Background - Green Reflective

INTERSTATE ROUTE MARKERS FOR GUIDE SIGN USE

SPECIFICATION REFERENCE TABLE
MATERIALS AND TEXT SPECIFICATIONS (D-9)

ALUMINUM SIGN BLANKS	D-9-7110
REFLECTIVE SHEETING, TYPE A (ENGINEER GRADE) (FOR U.S. AND STATE ROUTE MARKERS)	D-9-8300
REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY) (FOR INTERSTATE ROUTE MARKERS)	D-9-8300

GENERAL NOTES:

THE ALPHABETS AND LATERAL SPACING BETWEEN LETTERS AND NUMERALS SHALL CONFORM WITH THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", LATEST EDITION, AND ANY APPROVED CHANGES THERETO. LATERAL SPACING OF TEXT SHALL BE SUCH AS TO PROVIDE A BALANCED APPEARANCE.

LETTERS AND NUMERALS FOR U.S. AND STATE ROUTE MARKERS SHALL BE BLACK AND APPLIED BY SCREENING TO WHITE REFLECTIVE SHEETING CONFORMING TO DEPARTMENT SPECIFICATION.

INTERSTATE ROUTE MARKERS SHALL HAVE COLORED TRANSPARENT INK APPLIED BY THE REVERSE SCREEN PROCESS TO WHITE REFLECTIVE SHEETING CONFORMING TO DEPARTMENT SPECIFICATION.

SIGN BLANKS SHALL BE ONE PIECE 0.063 INCH THICK SHEET ALUMINUM ALLOY CONFORMING WITH DEPARTMENT SPECIFICATION "ALUMINUM SIGNS (TYPE A)".

SIGNS SHALL BE ATTACHED TO THE GUIDE SIGN AS DETAILED ON STANDARD SHEET IM(2).

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

INTERSTATE, U.S. & STATE ROUTE MARKERS FOR ATTACHMENT TO GUIDE SIGNS

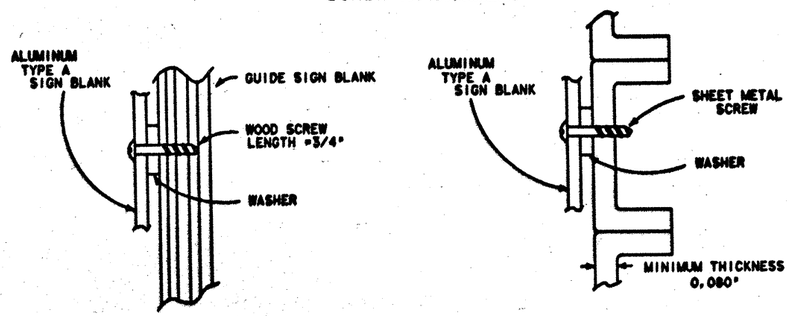
IM(1)

26

ORIGINAL DRAWING DATE: 7-72		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DR.: DN	REVISIONS	21	6	IR 35-1(52)000		26
CH.: LR	1-85 7-90	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DR.:		WEBB		18	3	31	IH 35
CH.:							ETC.	3A

TYPICAL ATTACHMENT OF ROUTE MARKERS AND "EXIT ONLY" PANELS TO GUIDE SIGNS

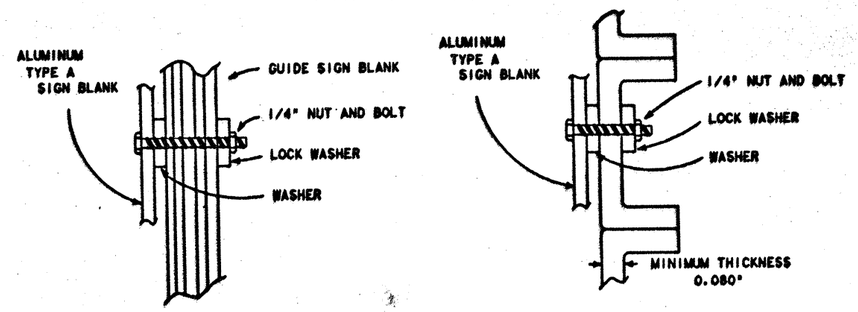
SCREW ATTACHMENT



PLYWOOD GUIDE SIGN
(5/8" PLYWOOD)

ALUMINUM GUIDE SIGNS
(EXTRUDED ALUMINUM PANELS)

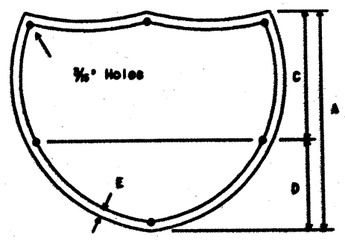
NUT/BOLT ATTACHMENT



PLYWOOD GUIDE SIGN
(5/8" PLYWOOD)

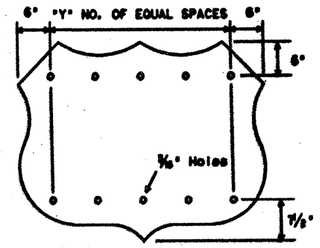
ALUMINUM GUIDE SIGNS
(EXTRUDED ALUMINUM PANELS)

SIGN BLANK PUNCHING DETAILS FOR ROUTE MARKERS WHEN ATTACHED TO GUIDE SIGN



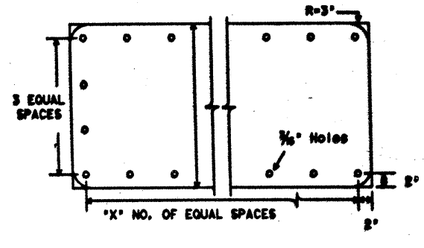
INTERSTATE ROUTE MARKERS

A	C	D	E
36	21	15	1 1/2
48	28	20	1 3/4



U.S. ROUTE MARKERS

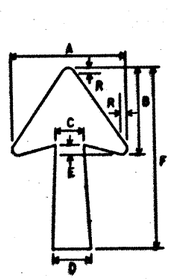
Sign Type	"Y"
MI-4D2	2
MI-4D3	3
MI-4E2	3
MI-4E3	4
MI-4F2	4
MI-4F3	5



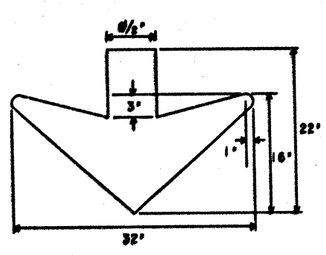
STATE ROUTE MARKERS

No. of Digits	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

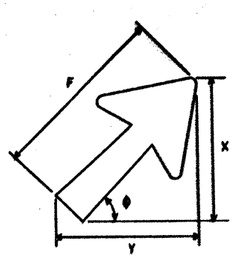
ARROW DIMENSION DETAILS



Type A or Type B



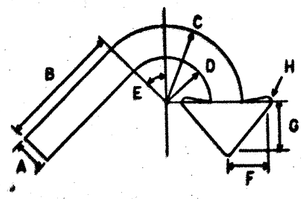
Type C



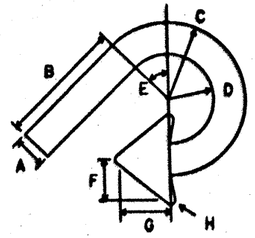
CODE	LETTER SIZE	ARROW DIMENSIONS IN INCHES							ϕ = 30°		ϕ = 45°		ϕ = 60°	
		A	B	C	D*	E	F*	R	X	Y	X	Y	X	Y
A-1	8" Caps	15 1/8	11 9/16	3 3/4	5	1 5/16	24 1/4	13/16	15 5/8	22 1/4	19 1/8	19 1/8	22 3/8	15 5/8
A-2	13 1/3" U.C., 10-12" Caps	18 1/4	14	4 1/2	6	1 1/2	29 1/4	3/4	18 1/2	27	23	23	27	19
A-3	16" U.C.	22 1/4	17	5 3/8	7 1/8	1 3/4	35 5/8	1	22 5/8	32 3/4	28	28	32 3/4	22 3/4
B-1	8-10" Caps	14 1/4	9 13/16	3 3/8	4 1/2	1 5/16	17 1/4	3/4	12 1/2	16 1/4	14	14	16 1/8	12 1/2
B-2	13 1/3" U.C., 12" Caps	17 1/2	11 3/4	4 3/8	5 5/8	1 1/2	20 1/4	7/8	15 1/2	19 1/8	16 5/8	16 5/8	19	15 1/2
B-3	16" U.C.	21 7/8	14 1/4	5	6 3/4	1 3/4	25	1	19 1/8	23 1/2	20 3/8	20 3/8	23 1/2	19 1/4

WHERE A REMOVABLE REFLECTORIZED ARROW IS REQUIRED ON A GUIDE SIGN WHICH HAS A DEPTH OF 2'-0" AND WHICH IS USUALLY ERECTED ON RAMPS AND CROSSROADS AT INTERCHANGES, THE ARROW SHALL BE A TYPE B-1.

* RECOMMENDED DIMENSIONS: TAPER SHOULD BE HELD CONSTANT FOR LONGER OR SHORTER SHAFT LENGTHS.



E3 and E3a



E4 and E4a

CODE	USED ON SIGN NO.	A	B	C	D	E	F	G	H
E-3 & E-4	E5-3 and E5-4	5	20	12	7	45°	6 1/2	8	3/4
E-3a & E-4a	E5-3a and E5-4a	3 1/2	14	8 1/2	5	45°	4 1/2	5 1/2	1/2

SPECIFICATION REFERENCE TABLE

MATERIALS AND TEXT SPECIFICATIONS (D-9)	
ALUMINUM SIGN BLANKS	D-9-7110
SIGN HARDWARE	D-9-7120
REFLECTORIZED REMOVABLE LEGEND	D-9-8400

GENERAL NOTES:

1. ROUTE MARKERS ATTACHED TO GUIDE SIGNS SHALL BE TYPE A ALUMINUM, AS REQUIRED BY THE PLANS. SKETCHES SHOWN ARE EXAMPLES ONLY.
2. SCREWS OR BOLTS, NUTS AND WASHERS SHALL BE EITHER STAINLESS STEEL OR ALUMINUM.
3. THE SCREWS FOR PLYWOOD SIGNS SHALL NOT PROTRUDE THROUGH THE BACK OF THE SIGN. ALL HOLES REQUIRED IN THE PUNCHING DETAIL OF THE BLANK SHALL HAVE SCREWS OR NUTS AND BOLTS.
4. SCREWS AND WASHERS SHALL BE USED UNLESS OTHERWISE NOTED IN THE PLANS.

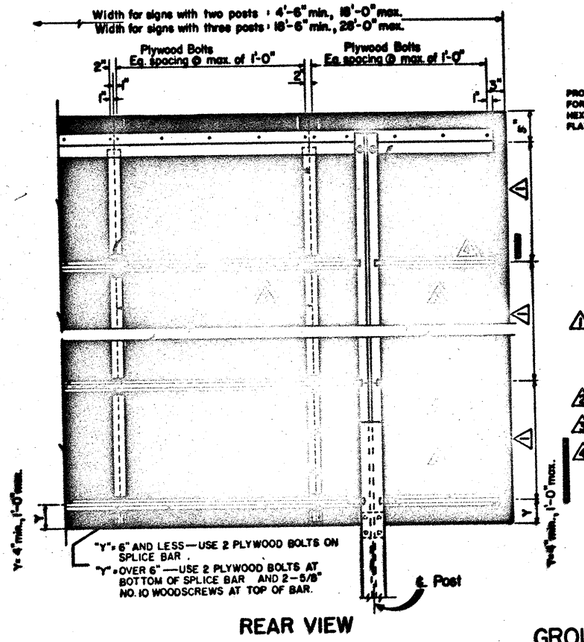
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

ARROW AND ROUTE MARKER ATTACHMENT DETAILS FOR GUIDE SIGNS

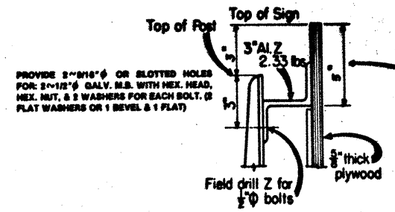
27

IM(2)

ORIGINAL DRAWING DATE: 7-90	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
DR.: DN	21	6	IR 35-1(52)000		27
DE.: LR	COUNTY		CONTROL	SECTION	JOB	SUBSHEET
DE.:	WEBB		18	3	31	IH 35
CK.:						ETC. 38



REAR VIEW



⚠1 APPROXIMATELY EQUAL SPACING FABRICATOR MAY VARY SPACING FOR LEAST INTERFERENCE WITH MESSAGE AND TO UTILIZE WIND BEAM FOR HORIZONTAL SPLICE PROVIDED NO WIND BEAM SPACING EXCEEDS THE MAXIMUM SHOWN IN THE TABLE. STAGGERED ARRANGEMENT OF HORIZONTAL SPLICES AS SHOWN IS PREFERRED. HOWEVER, A SINGLE HORIZONTAL JOINT ACROSS THE SIGN FACE IS PERMISSIBLE.

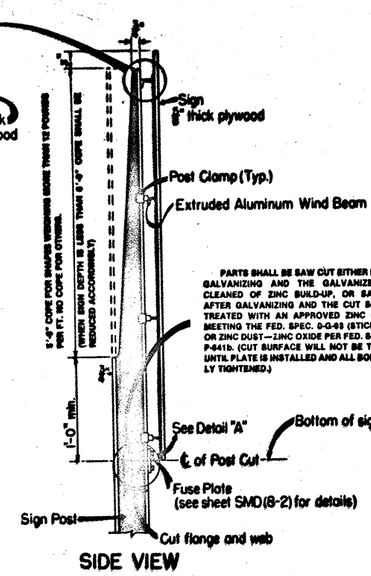
⚠2 FOR SIGNS 4'-0" OR LESS IN HEIGHT THE PLYWOOD PANEL MAY EXCEED 4'-0" IN WIDTH.

⚠3 EXTRUDED ALUMINUM WIND BEAMS (SEE SHEET SMD (8-2) FOR DETAIL) WIND BEAMS TO BE CONTINUOUS WITH NO SPLICES.

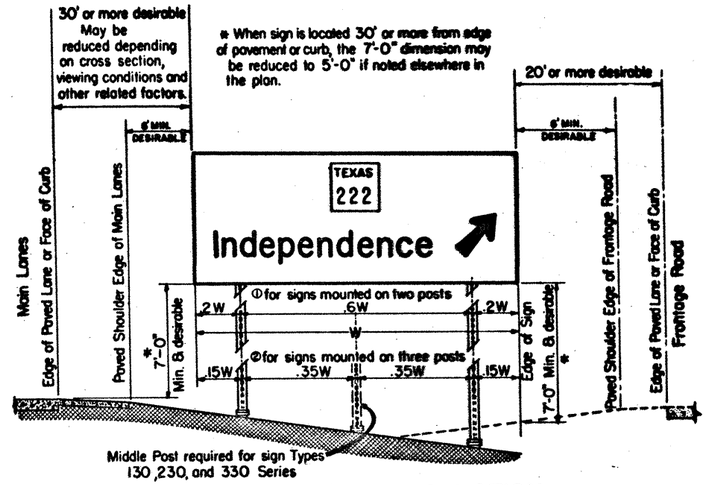
⚠4 ALUMINUM Z WILL BE PROVIDED UNLESS STATED OTHERWISE IN THE PLANS.

IF EXTRUDED ALUMINUM WIND BEAMS (SEE SHEET SMD (8-2) FOR DETAIL) ARE USED, THEY SHALL BE CONTINUOUS WITH NO SPLICES.

TYPICAL ASSEMBLY FOR GROUND MOUNTED GUIDE SIGNS



SIDE VIEW



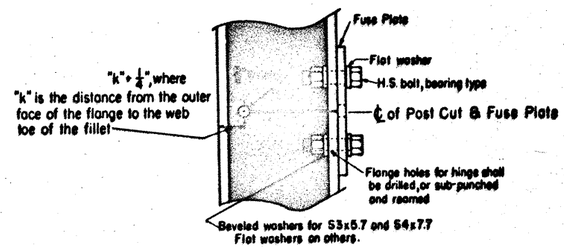
TYPICAL SIGN INSTALLATION AND LOCATION

LATERAL CLEARANCE NOTES:
LATERAL CLEARANCES OF SIGNS MOUNTED ON MEDIAN SIDE OF MAIN LANES ARE THE SAME AS SHOWN ABOVE WHERE SPACE WILL PERMIT.

WHERE A SIGN IS TO BE LOCATED BEHIND GUARDRAIL, AN ALLOWABLE MINIMUM CLEARANCE OF TWO FEET MAY BE USED, MEASURED FROM THE FACE OF THE GUARDRAIL TO THE NEAR EDGE OF THE SIGN.

POST SPACING NOTES:
1 POST SPACINGS MAY BE VARIED A MAXIMUM OF PLUS 10% TO MINUS 10% OF TOTAL SIGN WIDTH TO FIT FIELD CONDITIONS.
2 POST SPACINGS MAY BE VARIED A MAXIMUM OF PLUS 5% OF TOTAL SIGN WIDTH TO FIT FIELD CONDITIONS.

NOTE:
1. A TOLERANCE OF PLUS OR MINUS 1/4 INCH WILL BE PERMITTED IN THE PLAN DIMENSIONS FOR FABRICATION OF EACH SINGLE INCREMENT SIGN PANEL WHEN NECESSARY FOR SQUARING. A TOLERANCE OF PLUS OR MINUS 1/4 INCH WILL BE PERMITTED FOR EACH INCREMENT OF A MULTI-INCREMENT SIGN PANEL WHERE NECESSARY TO SECURE SQUARE, TIGHT-FITTING JOINTS.
2. PLYWOOD BOLTS 5/16"x1 1/2" FLAT HEAD ELEVATOR TYPE STEEL BOLT WITH 3/4" MINIMUM THREAD LENGTH. THE HEAD SHALL HAVE A MINIMUM DIAMETER OF 3/4" AND SHALL HAVE A MINIMUM OF TWO FINS ON THE UNDERSIDE. EACH BOLT SHALL BE PROVIDED WITH ONE 5/16" STEEL HEX NUT, ONE 5/16" STEEL FLAT WASHER, AND ONE 5/16" STEEL LOCK WASHER. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER ZINC SPECIFICATION OF ASTM B454.
3. SPLICE BARS SHALL BE SECURED WITH 5/8" LONG x NO. 10 ROUND HEAD, CADMIUM PLATED, BRASS WOOD SCREWS SPACED AT 6" MAXIMUM ALONG DOUBLE ROW SPACING WITH THE EXCEPTION AT EXTREME ENDS OF SPLICE BARS, ALONG OUTSIDE EDGE OF SIGN. WHERE PLYWOOD BOLTS SHALL BE USED AS SHOWN A MAXIMUM OF ONE HORIZONTAL JOINT PER VENTICAL SECTION WILL BE PERMITTED USING A 1/8" GAP BETWEEN PANELS.
4. SPLICES SHALL BE KEPT TO A MINIMUM. PANELS 4'x8' OR LARGER SHALL BE USED TO THE MAXIMUM EXTENT POSSIBLE IN THE FABRICATION OF ANY SIGN. SIGNS OR SIGN SECTIONS WHICH CANNOT BE FABRICATED FROM AT LEAST A 4'x8' PANEL SHALL BE OF ONE PIECE CONSTRUCTION.



DETAIL "A"-HINGE

WIND BEAM TABLES

NOTE: WIND BEAM SPACINGS FOR SIGN WIDTHS OTHER THAN EVEN FEET, SELECT FROM NEXT LONGER EVEN FEET.

ZONE 1 (Types 100)

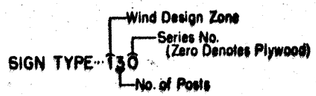
	Two Posts (120)							Three Posts (130)								
Sign Width (W)	4' thru 12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	24'	25'	26'	27'	28'
Max Wind Beam Spacing ⚠1	4'-0"	3'-8"	3'-4"	3'-0"	2'-8"	2'-4"	2'-0"	4'-0"	3'-9"	3'-6"	3'-3"	3'-0"	2'-9"	2'-6"	2'-3"	2'-0"

ZONE 2 (Types 200)

	Two Posts (220)			Three Posts (230)				
Sign Width (W)	4' thru 16'	17'	18'	19' thru 24'	25'	26'	27'	28'
Max Wind Beam Spacing ⚠1	4'-0"	3'-9"	3'-6"	4'-0"	3'-9"	3'-6"	3'-3"	3'-0"

ZONE 3 (Types 300)

	Two Posts (320)	Three Posts (330)
Sign Width (W)	4' thru 18'	19' thru 28'
Max Wind Beam Spacing ⚠1	4'-0"	4'-0"



CODE

GENERAL NOTES:
DESIGN CONFORMS WITH A.A.S.H.T.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS.
MATERIALS AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF THE DEPARTMENT'S MATERIAL SPECIFICATIONS.
STRUCTURAL STEEL SHALL CONFORM TO THE ITEM, "HIGH-STRENGTH STRUCTURAL STEEL FOR SIGN, SIGNAL, AND LUMINAIRE SUPPORT STRUCTURES."

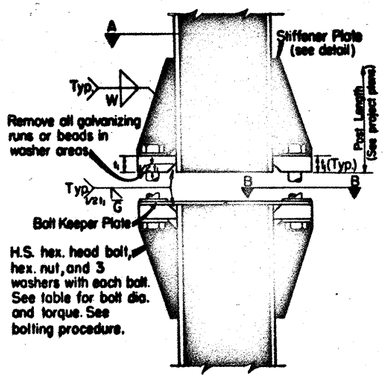
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

STRUCTURAL MOUNTING DETAILS FOR LARGE GUIDE SIGNS

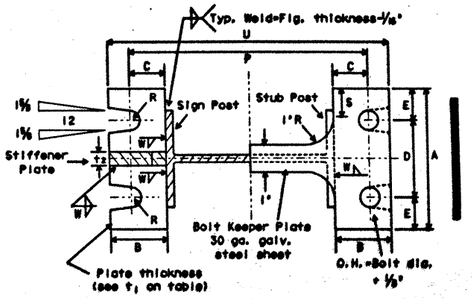
28

SMD (8-1)

ORIGINAL SHEETING DATE: 2-82	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
REVISIONS	21	6	R 35-1(52)000	28
7-83	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
7-85	WEBB	16	3	31	IH 35
8-87				ETC.	16

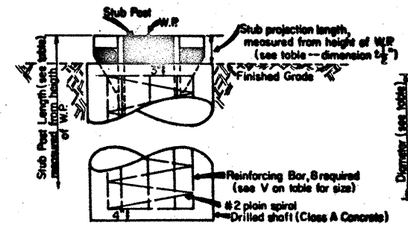


ELEVATION



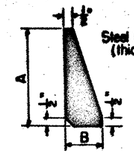
SECTION A-A SECTION B-B
(See Table for Dimensions)

SIGN POST AND STUB POST
(For W Shapes)

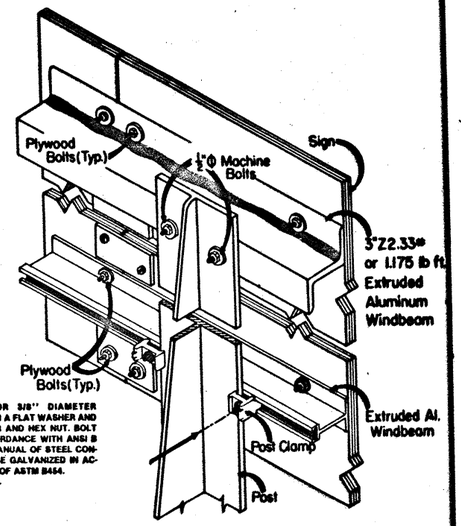


ELEVATION PLAN

FOUNDATION DETAIL



STIFFENER PLATE DETAIL
(See Table for Dimension)



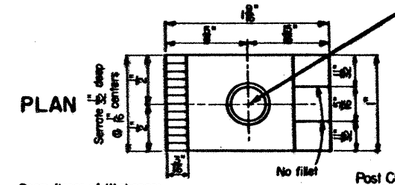
SIGN COMPONENTS IN ASSEMBLY

BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

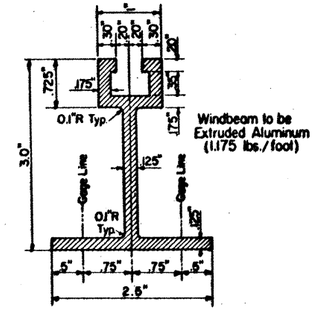
1. ASSEMBLE POST TO STUB WITH BOLTS AND WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. SHIM AS REQUIRED TO PLUMB POST.
3. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH 12" TO 18" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE. (SEE TABLE)
4. BURR THREADS AT JUNCTION WITH NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

Dimensions Post Size	Base Connection Data Table: Bolt Size & Torque	A	B	C	D	E	t_1	t_2	W	R	Fuse Plate Data Table: F (in.)	G (in.)	J (in.)	K (in.)	M (in.)	d_1 (in.)	d_2 (in.)	t_3 (in.)	Bolt Dia. (in.)	Wt. (ea.) (lbs.)	Bolt Length (in.)	Bolt Keeper Data: P	S	U	Foundation Data: Stub Length	Stub Projection	Dr. Shaft Diameter	Bar V Size
W6 × 9											4½	2	4	2½	1	⅞	⅝	¼	½	1.01	1¼	8½"		9½"	2'-0"	3"		#5
W6 × 12	⅝"Φ × 2¾"																					8½"		10"	2'-0"	3"		#5
W6 × 15	Torque =	6"	2"	1¾"	2¾"	1¾"	⅝"	½"	¼"	⅛"	5	2½	6	3½	1½	1⅛	1⅛	⅝	⅝	2.51	2¼	8½"	1"	10"	2'-6"	3"	24"	#6
W8 × 18	450"#										5	2½	6¼	2¾	1½	1⅛	1⅛	⅝	⅝	2.28	2¼	10⅜"		12¼"	2'-6"	3"		#7
W8 × 21											5½	2½	6¼	2¾	1½	1⅛	1	⅝	⅝	3.35	2¼	11"		12½"	3'-0"	2½"		#8
W10 × 22	⅞"Φ × 3½"																					12⅞"		14⅜"	3'-0"	2½"		#9
W10 × 26	Torque =	6"	2¾"	1⅝"	3½"	1¼"	1"	¾"	7/16"	1⅝"	6	3	6¾	3½	1⅝	1⅛	1⅛	½	¾	4.03	2¼	13½"	1½"	14⅞"	3'-0"	2½"		#10
W12 × 26	750"#										6	3	6½	3½	1⅝	1⅛	1⅛	½	¾	4.47	2¼	15"		16½"	3'-0"	2½"		#11
S3 × 5.7	⅞"Φ × 2½"	See Detail Below									3¾	1½	2¾	1½	⅝	9/16	⅝	½	½	0.80	1½	See Detail Below						
S4 × 7.7	Torque = 200"#																											

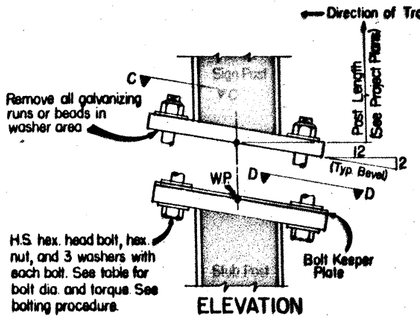
FOUNDATION DESIGN SHALL BE THE SAME AS THAT SHOWN FOR LARGE REGULATORY SIGN ON SHEET SMD(3).



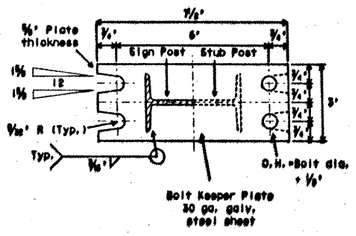
POST CLAMP DETAIL



WINDBEAM CROSS SECTION

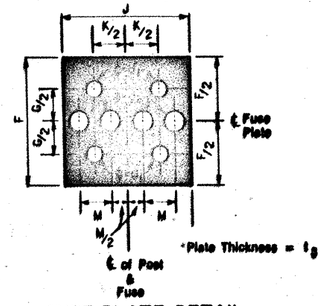


ELEVATION



SECTION C-C SECTION D-D

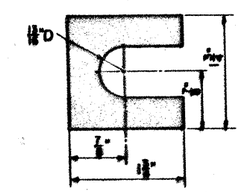
SIGN POST AND STUB POST
(For S4x7.7 and S3x5.7



FUSE PLATE DETAIL

USE H.S. HEX HEAD BOLTS, HEX HEAD NUT AND BEVEL OR FLAT WASHER (WHERE REQ'D) UNDER NUT. ALL HOLES SHALL BE DRILLED. ALL PLATE CUTS SHALL PREFERABLY BE SAW CUTS, HOWEVER, FLAME CUTTING WILL BE PERMITTED PROVIDED ALL EDGES ARE GROUND. METAL PROJECTING BEYOND THE PLANE OF THE PLATE FACE WILL NOT BE PERMITTED. STEEL FUSE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36. ASTM A441, ASTM 572 GRADE 50, OR ASTM A588 MAY BE SUBSTITUTED FOR A36 AT THE OPTION OF THE FABRICATOR. STEEL USED SHALL HAVE AN ULTIMATE TENSILE STRENGTH NOT TO EXCEED 80 KSI.

NOTE: CENTERLINE OF HOLE FOR 3/8" DIAMETER SQUAREHEAD BOLT x 2 1/4" LONG WITH A FLAT WASHER AND SELF-LOCKING NUT, OR LOCK WASHER AND HEX NUT. BOLT HEAD DIMENSIONS SHALL BE IN ACCORDANCE WITH ANSI B 18.2.1 AS REFERRED TO IN THE AISC MANUAL OF STEEL CONSTRUCTION. BOLT ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH ZINC SPECIFICATION OF ASTM B454.



SHIM DETAIL

FURNISH 2"±.012" THICK AND 2"±.032" THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. -B36.

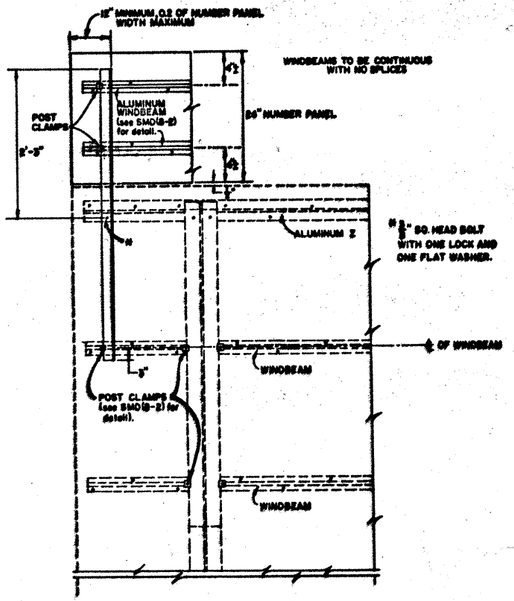
For General Notes pertaining to this sheet see the General Notes on Standard Sheet SMD(8-1).

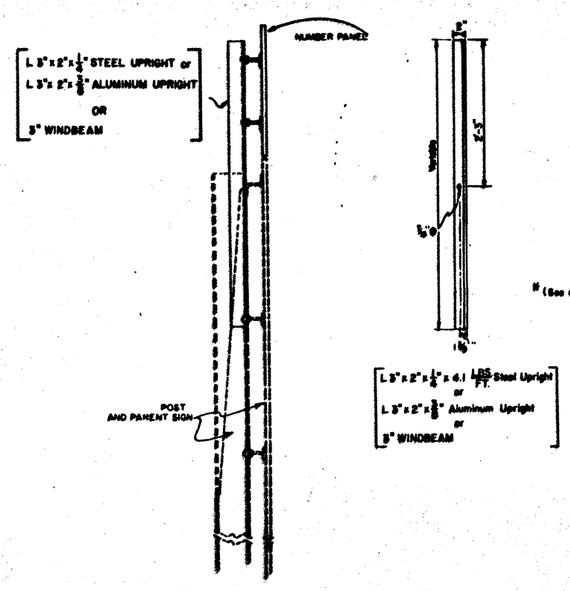
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

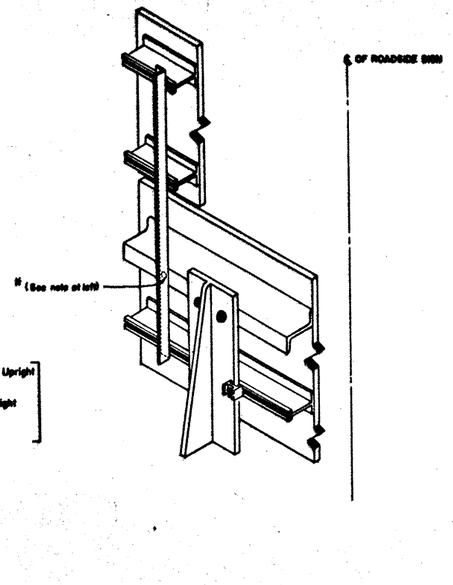
STRUCTURAL
MOUNTING DETAILS 29
FOR LARGE GUIDE SIGNS
SMD(8-2)

DRAWING DATE: 6-78	STATE DIST.	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
REVISIONS	21	6	IR 35-1(52)000	29
1-82	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
7-85 Fuse Plate	WEBB	16	3	31	IH35
8-86					ETC. 17

8045
01



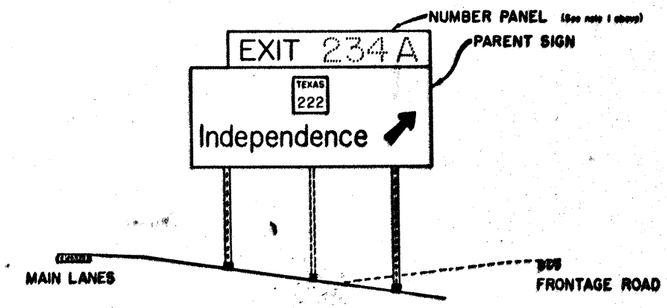




NUMBER PANEL MOUNTING DETAILS

NOTES:

1. NUMBER PANEL SHALL BE MOUNTED TO THE RIGHT HAND SIDE OF THE PARENT SIGN FOR RIGHT EXITS AND TO THE LEFT FOR LEFT HAND EXITS. THE NUMBER PANEL SHALL BE MOUNTED WITH TWO (2) UPRIGHTS SO THAT ITS RIGHT EDGE IS EVEN WITH THE RIGHT EDGE OF THE PARENT SIGN OR VICE-VERSA FOR LEFT HAND EXITS.
2. UPRIGHTS TO BE SYMMETRICAL ABOUT NUMBER PANEL ℄.
3. UPRIGHT TO BE OF STRUCTUAL STEEL, ASTM-A36, AND GALVANIZED AFTER FABRICATION OR ALUMINUM 6061-T6 OR 3" EXTRUDED ALUMINUM WINDBEAM AS DETAILED ON SMD (8-2).
4. ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER THE ZINC SPECIFICATION OF ASTM B454.
5. WHEN SPLICE BARS ARE REQUIRED TO FABRICATE THE NUMBER PANEL, THE SPLICE BAR DETAIL AS SHOWN FOR THE PARENT SIGN ON SHEET SMD(8-1) IS TO BE USED. SPLICE BAR OR BARS ON NUMBER PANEL NEED NOT ALIGN WITH SPLICE BAR OR BARS ON PARENT SIGN.
6. POSTS, PARENT SIGN PANELS AND NUMBER PANELS SHALL COMPLY WITH NOTES ON SHEETS SMD(8-1) AND SMD(8-2).
7. SIGNS (SUCH AS EXIT NUMBER PANELS) ATTACHED ABOVE A PARENT SIGN SHALL BE MADE OF THE SAME TYPE OF MATERIAL AS THE PARENT SIGN.
8. UPRIGHTS AND OTHER CONNECTION HARDWARE REQUIRED TO FASTEN EXIT NUMBER PANEL TO PARENT SIGN SHALL BE SUBSIDIARY TO THE SIGN BLANK.



TYPICAL SIGN INSTALLATION FOR A RIGHT EXIT

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

STRUCTURAL MOUNTING DETAILS FOR ROADSIDE GUIDE SIGNS 30

SMD (8-3)

ORIGINAL DRAWING DATE: 4-78	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
REVISIONS 8-82 8-87	21	6	IR 35-1(52)000	30
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
	WEBB	18	3	34	IH 35
				ETC.	18

TEXAS STATE HIGHWAY DEPARTMENT
PLANS OF PROPOSED IMPROVEMENT

MAINTENANCE PROJECT M-18-6,5,4,3 & 14,9,6,6.

WEBB COUNTY — HIGHWAY NO. U.S.81

~~NET LENGTH 162,425.4 FT. 30.760 MILES~~

ASPHALT LEVELING-UP COURSE

~~FROM 2.2 MI. NO. OF LAREDO TO LA SALLE COUNTY LINE~~

FROM 4.5 MI. NO. OF LAREDO TO 12.6 MI. SO. OF LASALLE CO. ~~LINE~~.

	DATE
PLANS PREPARED	March 1942
WORK ~~ORDER~~	MAR. 23 '42
WORK STARTED	March 1942
WORK COMPLETED	July 1942

FINAL SUMMARY

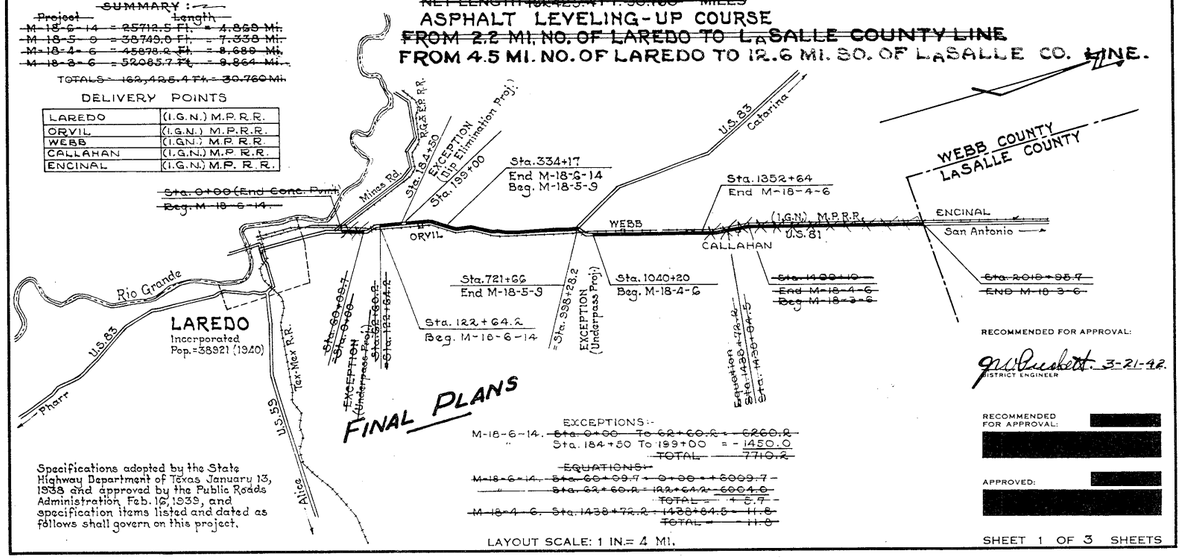
Project	Length.
M-18-6-14	= 19,702.8 Ft. = 3.731 Mi.
M-18-5-9	= 38,749.0 Ft. = 7.338 Mi.
M-18-4-6	= 31,244.0 Ft. = 5.917 Mi.
TOTAL	= 89,695.8 Ft. = 16.986 Mi.

~~SUMMARY :—~~

~~Project~~	~~Length~~
~~M-18-6-14~~	~~= 25718.5 Ft. = 4.868 Mi.~~
~~M-18-5-9~~	~~= 38749.0 Ft. = 7.338 Mi.~~
~~M-18-4-6~~	~~= 45878.2 Ft. = 8.690 Mi.~~
~~M-18-3-6~~	~~= 52085.7 Ft. = 9.864 Mi.~~
~~TOTALS = 162,425.4 Ft. = 30.760 Mi.~~	

DELIVERY POINTS

LAREDO	(I.G.N.) M.P.R.R.
ORVIL	(I.G.N.) M.P.R.R.
WEBB	(I.G.N.) M.P.R.R.
CALLAHAN	(I.G.N.) M.P.R.R.
ENCINAL	(I.G.N.) M.P.R.R.



EXCEPTIONS:-

M-18-6-14. ~~Sta. 0+00 To 62+60.6 = 6260.6~~
" Sta. 184+50 To 199+00 = 1450.0
~~TOTAL 7710.2~~

~~EQUATIONS:-~~

~~M-18-6-14. Sta. 60+99.7 = 0+00 = +6099.7 -~~
~~" Sta. 62+60.6 198+64.6 = 6604.6~~
~~TOTAL = +5.7 =~~
~~M-18-4-6. Sta. 1438+76.2 = 1438+64.5 = 11.8~~
~~TOTAL = = 11.8~~

LAYOUT SCALE: 1 IN.= 4 MI.

RECOMMENDED FOR APPROVAL:

~~[illegible]~~ 3-21-42.
DISTRICT ENGINEER

RECOMMENDED FOR APPROVAL:

[redacted]

APPROVED:

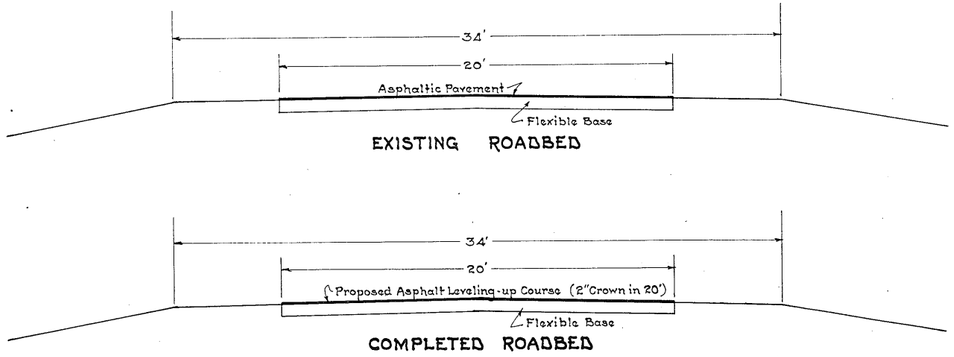
[redacted]

SHEET 1 OF 3 SHEETS

Specifications adopted by the State Highway Department of Texas January 13, 1938 and approved by the Public Roads Administration Feb. 16, 1938, and specification items listed and dated as follows shall govern on this project.

COUNTY	DIST. NO.	HWY. NO.	TOTAL SHEETS	SHEET NO.
CONTROL	SECTION		JOB	

W-419 21 617



TYPICAL CROSS SECTIONS

COUNTY	DIST. NO.	HWY. NO.	TOTAL SHEETS	SHEET NO.
WEBB	21	US.81	3	2
CONTROL 18	SECTION 6,5,4,3	JOB 14,9,6&6		

ESTIMATE SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITIES							
			M-18-6-14		M-18-5-9		M-18-4-6		M-18-3-6	
			EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
314&Sp.	Cold Mix L.R.A. Pavement (Type B)	Ton	2443.	2190.2	3681.	4015.1	4359.	3123.45	4770.	0.0

Basis of Estimate:—
Cold Mix L.R.A. Pavement :— 90 lbs. per sq. yd. = 501.6 Tons per mi. (20' wide)
Tack Coat (RC-2MA) :- 0.12 gal. per sq. yd. = 1408 gals. per mi. (20' wide)
(Tack Coat to be included in the unit price for Cold Mix L.R.A. Pavement.)

TOTAL QUANTITIES :-
Est. = 15,253 Tons
Final = 9,328.75 Tons

ESTIMATE AND QUANTITY SHEET

COUNTY	DIST. NO.	HWY. NO.	TOTAL SHEETS	SHEET NO.
WEBB	21	US-81	3	3
CONTROL 18	SECTION 6,5,4,3	JOB 14,9,6&6		

PLANS SHEET - TYPE 1 MINOR PROJECT PLANS

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(3)19	1
STATE DIST. NO.	COUNTY	STATE CONTROL NO.	HIGHWAY NO.
21	WEBB	18-4-11	I.H.-35
		18-5-13	

CLASS "AA" HIGHWAY
DESIGN SPEED: 70 M.P.H.

W-454

STATE OF TEXAS
STATE HIGHWAY DEPARTMENT

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT.
I-35-1 (3)19

SCALES: PLAN: 1 IN. = 100 FT.
PROFILE: 1 IN. HOR. = 100 FT., 1 IN. VERT. = 10 FT.
CROSS-SECTIONS: 1 IN. HOR. AND VERT. = 5 FT.
OTHERS AS NOTED.

NET LENGTH OF PROJECT = 11,909.9 FT. = 2.254 MI.

CONTROL 18-5-13 = 8,763.8 FT. = 1.659 Mi. — ROADWAY = 8,643.8 FT. = 1.637 Mi.
BRIDGES = 120.0 FT. = 0.022 Mi.
CONTROL 18-4-11 = 3,146.1 FT. = 0.595 Mi. — ALL ROADWAY

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	GENERAL LAYOUT & MASS DIAGRAM
3	TYPICAL CROSS SECTIONS
4-6	ESTIMATE AND QUANTITY
7-14	PLAN PROFILE
15	LAYOUT OF CLEARING & GRUBBING
16	ROADWAY DETAILS-M.P.RR. UNDERPASS
17-20	LAYOUTS OF PAVEMENT GRADES
21	DETOUR AND DRAINAGE LAYOUT
22	MEDIAN INLETS-DRAINAGE AREAS
23	UNDERPASS DRAINAGE LAYOUT
24	UNDERPASS PIPE UNDERDRAINS
25	LAYOUT OF STORM SEWER
26-27	BRIDGE LAYOUTS
28	LAYOUT OF RAILROAD UNDERPASS
29	SHOOFLY DETAILS
30	END TREATMENT DETAILS
31	CONCRETE CURB DETAILS
32-49	STRUCTURAL DETAILS AND STANDARDS

32	CH-11
33	CH-11-B 30°
34	CH-11-B 45°
35	SC-NA
36	FW-N
37	PW-N
38	SC-15°A
39	SC-45°A
40	PW-15°
41	FW-45°
42-44	INLET DETAILS
45	40'-0" C.S. & G.S., SPL
46	BENTS FOR 40'-0" C.S. & G.S., SPL.
47	STD. RAILING TYPE 11(MOD.)
48	RR-8 (MOD.)
49	GF-56

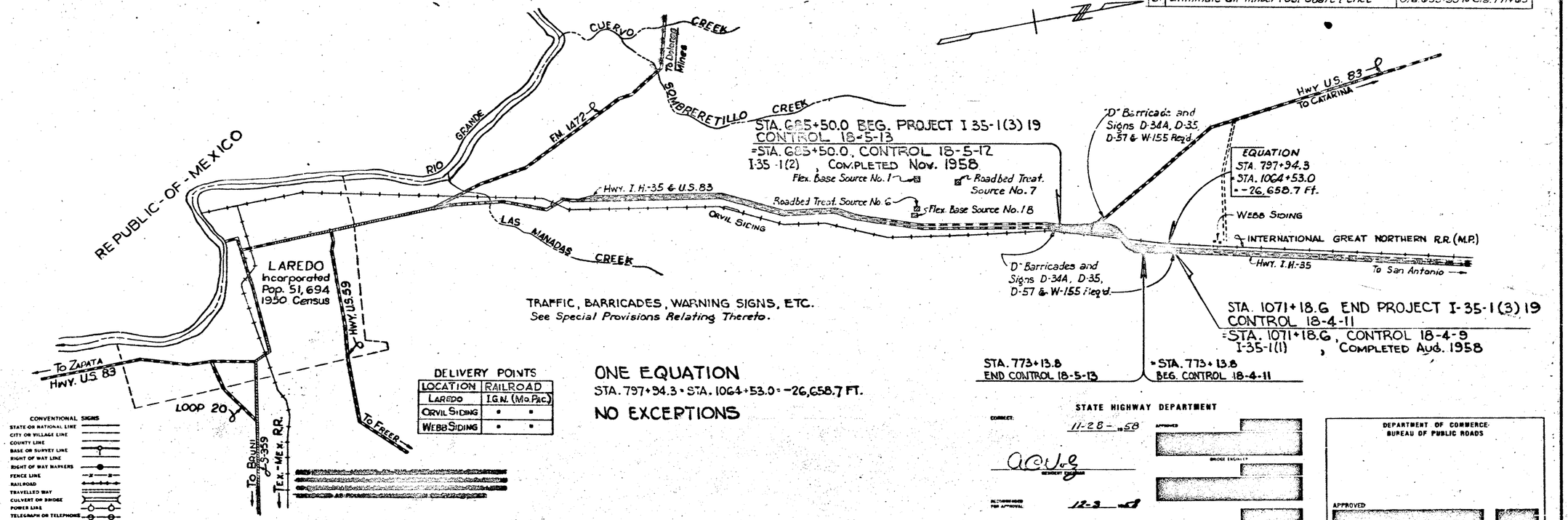
50-57- DETAILS OF RAILROAD UNDERPASS
58-64- CROSS-SECTIONS AT CULVERT SITES
65 - SWC-39
66 - M-47
67 - BW-54(1)
68 - BW-54(2)
} omitted

WEBB COUNTY
HIGHWAY I.H.-35
FROM: 0.3 Mi. SOUTH OF U.S.83 INTERSECTION
TO: 2.0 Mi. NORTH OF U.S.83 INTERSECTION

GRADING, STRUCTURES, FLEXIBLE BASE & ASPHALTIC CONCRETE PAVEMENT

SUMMARY OF FIELD CHANGES

No.	DESCRIPTION	LIMITS
1.	Change gradation of Aggregate Type A Grade 10, which is second course aggregate of the Two Course Surface Treatment paving on the Traffic Lane shoulders	Sta. 695+50 to Sta. 1071+18.6
2.	Add Entrance on West Frontage Road at Sta. 2312+50. Eliminate Hot Mix Asphaltic Concrete Pavement from other entrances on Frontage Roads	East Frontage Road: Sta. 698+76 & Sta. 720+00 West Frontage Road: Sta. 2312+50 & Sta. 2318+17
3.	Eliminate all Timber Post Guard Fence	Sta. 693+59 to Sta. 771+63



DELIVERY POINTS

LOCATION	RAILROAD	
LAREDO	I.G.N. (Mo.Pac.)	
ORVIL SIDING	•	•
WEBB SIDING	•	•

ONE EQUATION
STA. 797+94.3 = STA. 1064+53.0 = -26,658.7 FT.
NO EXCEPTIONS

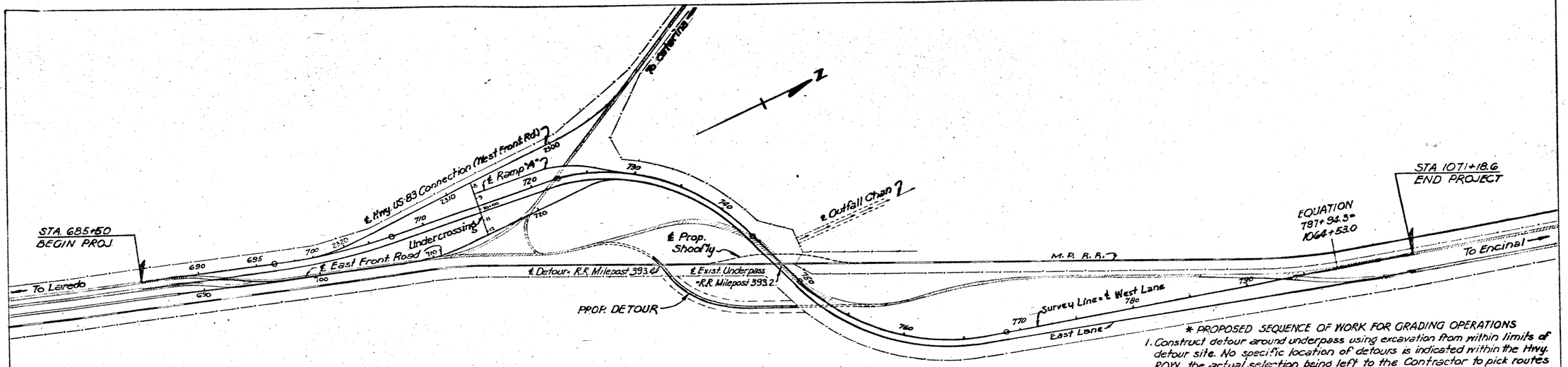
LAYOUT SCALE: 1 IN. = 5,280 FT.

CONVENTIONAL SIGNS
STATE OR NATIONAL LINE
CITY OR VILLAGE LINE
COUNTY LINE
BASE OR SURVEY LINE
RIGHT OF WAY LINE
RIGHT OF WAY MARKERS
FENCE LINE
RAILROAD
TRAVELLED WAY
CULVERT OR BRIDGE
POWER LINE
TELEGRAPH OR TELEPHONE
BITUMINOUS SURF. TREA.
CONCRETE ROAD

COUNTY WEBB
HWY. NO. I 35
DATE ACCEPTED FEB. 23 1960
PROJ. NO. I-35-1(3)19
LETTING DATE FEB. 13 1959

STATE HIGHWAY DEPARTMENT
CORRECT: 11-28-58
RECOMMENDED FOR APPROVAL: 12-3-58
APPROVED
BRIDGE ENGINEER
DISTRICT ENGINEER

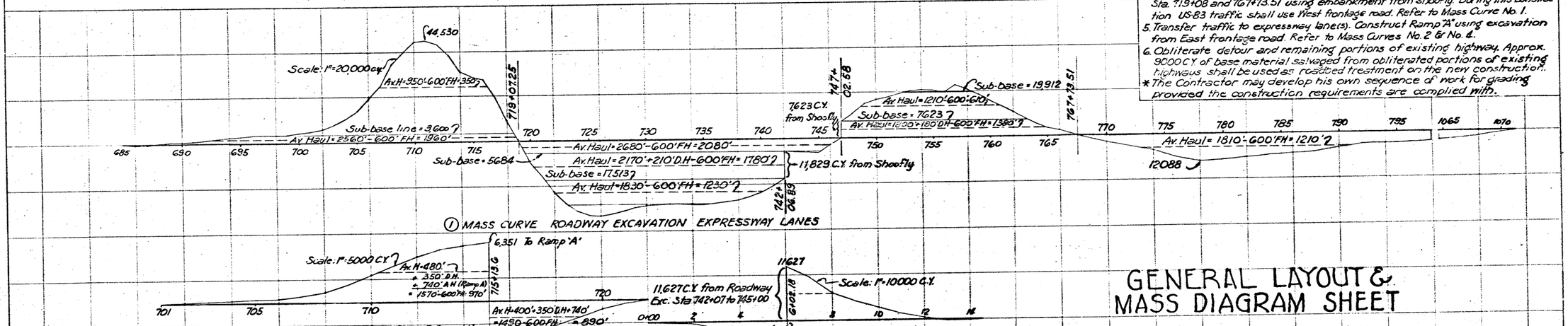
DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED
DIVISION ENGINEER — DATE



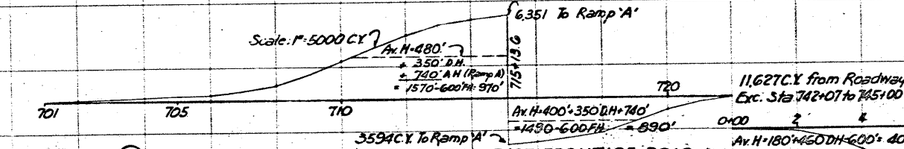
* PROPOSED SEQUENCE OF WORK FOR GRADING OPERATIONS

1. Construct detour around underpass using excavation from within limits of detour site. No specific location of detours is indicated within the Hwy. ROW, the actual selection being left to the Contractor to pick routes best suited to actual construction in progress. Two asphalt-surfaced lanes shall be available to traffic at all times throughout entire length of Proj. Approx. excavation quantities for detour (for estim. purposes) are 6000 C.Y.
2. Construct shoofly using excavation from channel left of Sta 747 and from roadway between Sta 742+07 and 745+00. Refer to Mass Curves No. 3 & No. 5.
3. Construct underpass & expressway lanes from: 685+00 to 719+08 & 767+73.51 to 1071+18.6. Complete West frontage road. During this construction traffic shall use existing facility except for detour around underpass, and, when necessary, around work at each end of project. Refer to Mass Curve No. 1.
4. After underpass is complete, finish construction of expressway lanes between Sta. 719+08 and 767+73.51 using embankment from shoofly. During this construction US-83 traffic shall use West frontage road. Refer to Mass Curve No. 1.
5. Transfer traffic to expressway lane(s). Construct Ramp "A" using excavation from East frontage road. Refer to Mass Curves No. 2 & No. 4.
6. Obliterate detour and remaining portions of existing highway. Approx. 9000 C.Y. of base material salvaged from obliterated portions of existing highways shall be used as roadbed treatment on the new construction.

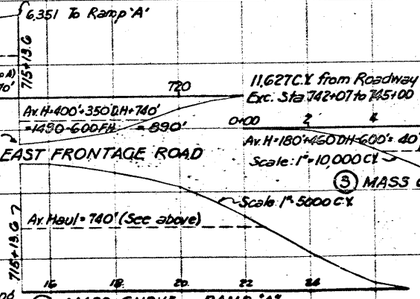
* The Contractor may develop his own sequence of work for grading provided the construction requirements are complied with.



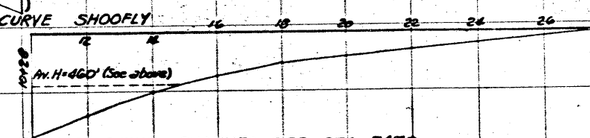
① MASS CURVE ROADWAY EXCAVATION EXPRESSWAY LANES



② MASS CURVE ROADWAY EXCAVATION EAST FRONTAGE ROAD



④ MASS CURVE RAMP "A"



⑤ MASS CURVE CHANNEL OPP. STA. 747+

* OVERHAUL

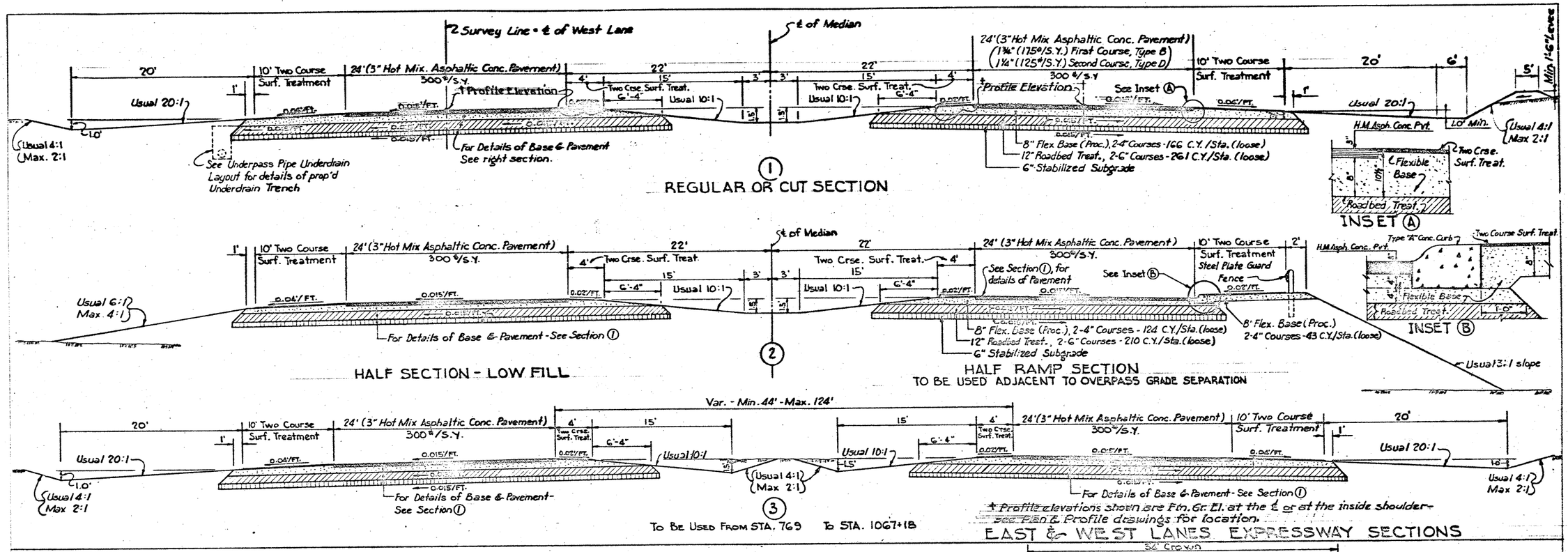
Exp. Lanes:	Sta 685+00 to 719+07.25	= 3600 × 1960 + 40930 × 350 ÷ 1320	= 16,198
" "	Sta 719+07.25 to 747+02.58	= 5684 + 2080 + 11823 + 1780 + 10471 + 1230 ÷ 1320	= 34,665
" "	Sta 747+02.58 to 767+73.51	= 7623 × 1380 + 12289 × 610 ÷ 1320	= 13,649
" "	Sta 767+73.51 to 1071+18.6	= 12088 × 1210 ÷ 1320	= 9,247
Shoofly:		= 7825 × 40 ÷ 1320	= 237
Ramp "A":		= 6351 × 970 + 3594 × 890 ÷ 1320	= 7,090
			TOTAL = 81,086 YD.

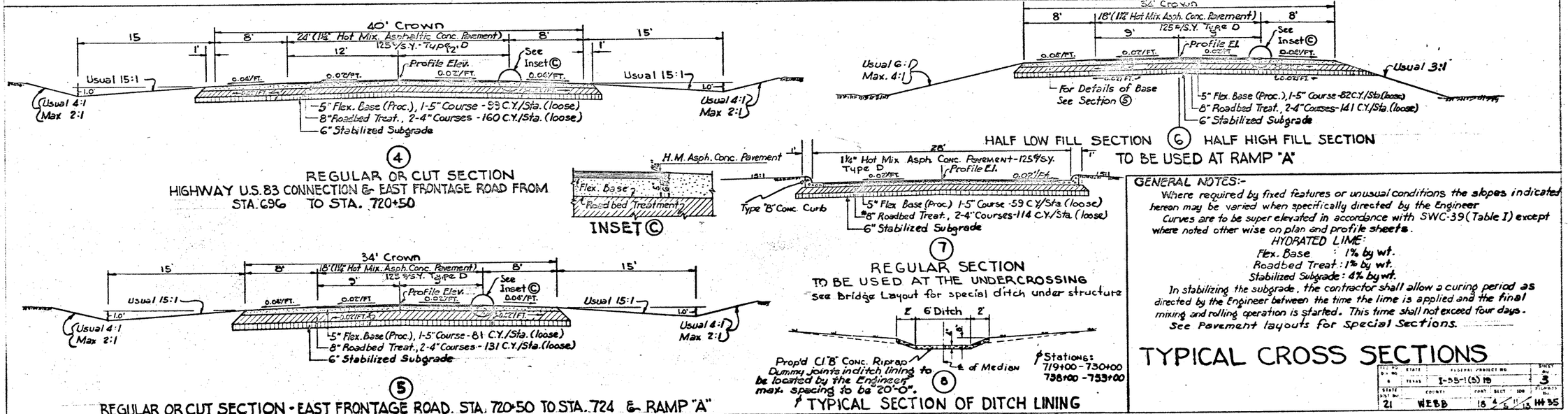
* The total overhaul based on this sequence is 81,086 YD. It is given for estimating purposes only since this item shall be subsidiary to the other bid items

GENERAL LAYOUT & MASS DIAGRAM SHEET

DRAWN	PROJ. NO. / DIV. NO.	STATE	FEDERAL AID PROJECT NO.		HIGHWAY NO.
CHECKED	6	TEXAS	I-35-1(3)19		IH-35
TRACED	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.
CHECKED	21	WEBB	18	4/5	2

SHEET OF SHEETS





GENERAL NOTES:-

Where required by fixed features or unusual conditions the slopes indicated hereon may be varied when specifically directed by the Engineer.

Curves are to be super elevated in accordance with SWC-39 (Table I) except where noted other wise on plan and profile sheets.

HYDRATED LIME:

Flex. Base : 1% by wt.

Roadbed Treat : 1% by wt.

Stabilized Subgrade : 4% by wt.

In stabilizing the subgrade, the contractor shall allow a curing period as directed by the Engineer between the time the lime is applied and the final mixing and rolling operation is started. This time shall not exceed four days.

See Pavement layouts for special Sections.

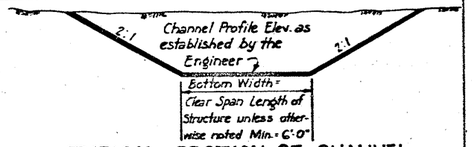
TYPICAL CROSS SECTIONS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(5) 19	3

STATE	COUNTY	FONT	SECT	JOB	HIGHWAY No.
21	WEBB	18	4	5	IH 35

SUMMARY OF LARGE STRUCTURES

BRIDGE NO.	LAYOUT SHEET NO.	STATION BEGIN	STATION END	DESCRIPTION	LENGTH FT.	UNCLASSIFIED STUCT. EXCAV. C.Y. EST.	UNCLASSIFIED STUCT. EXCAV. C.Y. FINAL	CLASS "A" CONCRETE C.Y. GIRDERS EST.	CLASS "A" CONCRETE C.Y. GIRDERS FINAL	CLASS "A" CONCRETE C.Y. BENTS EST.	CLASS "A" CONCRETE C.Y. BENTS FINAL	REINFORCING STEEL LBS. EST.	REINFORCING STEEL LBS. FINAL	24" DIA. DRILLED SHAFT L.F. EST.	24" DIA. DRILLED SHAFT L.F. FINAL	BELL FOOTING C.Y. EST.	BELL FOOTING C.Y. FINAL	STD. RAILING TYPE 11-MOD. L.F. EST.	STD. RAILING TYPE 11-MOD. L.F. FINAL	CL. "B" CONC. RIPRAP C.Y. EST.	CL. "B" CONC. RIPRAP C.Y. FINAL
CONTROL 18-5-13																					
74-N.B	27	714+40.0	715+60	3-40'-0" CONC. SLAB & GIRDER SPANS, SPL. & SPECIAL ABUTMENTS & BENTS	120.0'	24	24	242.4	242.40	44.2	50.56	53,790	53,834	270	269.58	5.2	5.2	240	240	127	106.86
75-S.B	26	714+40.0	715+60.0	3-40'-0" CONC. SLAB & GIRDER SPANS, SPL. & SPECIAL ABUTMENTS & BENTS	120.0'	24	24	242.4	242.40	44.2	50.62	53,790	53,844	270	269.13	5.2	5.2	240	240	183	169.82
TOTAL CONTROL 18-5-13						48	48	484.8	484.80	88.4	101.18	107,580	107,680	540	538.71	10.4	10.4	480	480	270	276.68



TYPICAL SECTION OF CHANNEL

SUMMARY OF UNDERPASS STRUCTURE

STRUCT. NO.	LAYOUT SHEET NO.	DESCRIPTION OF EXIST STRUCTURE	DESCRIPTION OF PROP'D STRUCTURE	UNCL. STRUCT. EXCAVATION C.Y. EST.	UNCL. STRUCT. EXCAVATION C.Y. FINAL	CLASS "A" CONCRETE C.Y. BENTS EST.	CLASS "A" CONCRETE C.Y. BENTS FINAL	CLASS "A" CONCRETE C.Y. SLABS EST.	CLASS "A" CONCRETE C.Y. SLABS FINAL	REINFORCING STEEL LBS. EST.	REINFORCING STEEL LBS. FINAL	DECK PLATES LBS. EST.	DECK PLATES LBS. FINAL	STRUCTURAL STEEL LBS. PLATE GIRDERS EST.	STRUCTURAL STEEL LBS. PLATE GIRDERS FINAL	STRUCTURAL STEEL LBS. I-BEAMS EST.	STRUCTURAL STEEL LBS. I-BEAMS FINAL	MEMBRANE WATERPROOF. TYPE 'A' S.Y. EST.	MEMBRANE WATERPROOF. TYPE 'A' S.Y. FINAL	DAMPPROOF. S.Y. EST.	DAMPPROOF. S.Y. FINAL	REMOVE & RELOCATE APPROACH SPANS EACH EST.	REMOVE & RELOCATE APPROACH SPANS EACH FINAL	REM. OLD STR. (CONC) EACH EST.	ALTER TO EXIST PIER LUMP SUM EST.	CL. "B" CONC. RIPRAP C.Y. EST.	CL. "B" CONC. RIPRAP C.Y. FINAL
39	28	45° Lt. Fwd. Skew, 1-66'-5⅜" Plate Girder, 2-20'-8" Conc. Slabs, 2-19'-10" Conc. Slabs, 2-Piers, 2-Bents & 2 Abutments	Remove Exist. South Abut. & Bent. Construct New Abut, New Bent, 2-New Piers New 70'-5⅜" Th. Rt. Gd. Span, New 29'-6" WF Beam Span & Remove & Re-erect 2-Appro. Spans.	475	352.22	342.4	342.92	13.8	13.44	15,864	15,864	21,046	23,340	169,600	159,596	25,790	27,546	128	140.19	171	162.81	2	2	2	1	56	60.16
TOTALS				475	352.22	342.4	342.92	13.8	13.44	15,864	15,864	21,046	23,340	169,600	159,596	25,790	27,546	128	140.19	171	162.81	2	2	2	1	56	60.16

SUMMARY OF SMALL STRUCTURES

PLAN & PROFILE SH. NO	STATION	DESCRIPTION	UNCL. STRUCT. EXCAVATION C.Y. EST.	UNCL. STRUCT. EXCAVATION C.Y. FINAL	CLASS "A" CONCRETE C.Y. EST.	CLASS "A" CONCRETE C.Y. FINAL	REINFORCING STEEL LBS. EST.	REINFORCING STEEL LBS. FINAL	REINF. CONC. PIPE CLASS III L.F. 18" DIA. EST.	REINF. CONC. PIPE CLASS III L.F. 18" DIA. FINAL	REINF. CONC. PIPE CLASS III L.F. 24" DIA. EST.	REINF. CONC. PIPE CLASS III L.F. 24" DIA. FINAL	CL. "B" CONC. RIPRAP C.Y. EST.	CL. "B" CONC. RIPRAP C.Y. FINAL	MANHOLE RINS & COVER EACH EXT. 24" DIA. TYPE 50 EST.	MANHOLE RINS & COVER EACH EXT. 24" DIA. TYPE 50 FINAL	MANHOLE RINS & COVER EACH 18" DIA. TYPE 22 EST.	MANHOLE RINS & COVER EACH 18" DIA. TYPE 22 FINAL
CONTROL 18-5-13																		
6	693+91.7	18"×23'7" Reinf. Conc. Pipe 45°Rt. Fwd. Skew With 1-CH-11-B30° (Lt.-694+35.4) & 1-Type "D" Inlet	145	145	1.8	1.46	256	231	237'	235.00			7.6	1.62	1			1
6	694+39.4	24"×188'Reinf. Conc. Pipe 60° Rt. Fwd. Skew with 1-CH-11-B30° Headwall (for 2-24" Pipes) & 1-Type "E" Inlet	128	127	3.2	3.33	320	320			188	188.00	0.8	1.80	1	1		
7	704+00	18"×63' Reinf. Conc. Pipe with 2-Type "B" Inlets	45	65	3.2	3.24	462	462	63	63.33			2.1	3.14			2*	2
6 & 7	Median 695 To 704	24"×55'-5" & 18"×29'8" Reinf. Conc. Pipe with 2-Type "C" Inlets	490	483	3.7	3.76	574	574	290	294.75	583	593.00	1.7	3.50	2	2		
7	710+35.5	18"×152' Reinf. Conc. Pipe [128'-4" Lt. Fwd. Skew & 1-CH-11-B45° Hdwll., 44' Normal with 1-Type "B" Inlet & 1-Type "E" Inlet]	85	85	3.9	3.96	552	552	152	152.00			0.8	1.71			1	1
7	150' Lt.-715+00	2-24"×48' Reinf. Conc. Pipes with CH-11-B Headwalls	40	40	2.5	2.46	259	259					0.4	9.41				
7	721+00	18"×174' Reinf. Conc. Pipe with 1-CH-11-B Headwall & 1-Type "B" Inlet	35	35	2.1	2.15	256	296	174	174.00			0.8	1.08		1	1	
7	52.21' Rt.-721+00	18" × 35' Reinf. Conc. Pipe with 1-CH-11-B Headwall & 1-Type "E" Inlet	1	1	2.2	2.18	355	325	35	32.00								
7	722+00	2-24"×55'2" Reinf. Conc. Pipes with CH-11-B Headwalls & 3-Type "C" Inlets	443	443	8.7	8.76	838	838			699	691.00	3.4	5.22	3	3		
7	725+00	24"×176' Reinf. Conc. Pipe with 1-CH-11-B Hdwll., 1-Type "C" Inlet and 1-Type "E" Inlet	51	51	4.2	4.31	554	554			176	176.00	0.6	1.11	1	1		
7	40' Lt.-726+00	18" ×45' Reinf. Conc. Pipe with 1-CH-11-B Headwall and 1-Type "B" Inlet	50	2	2.1	2.15	296	296	45	45.00			1.9	0			1	1
8	735+00	5'×2'×151' Conc. Box Culv. SC-NA & FW-N with 1-Type "D" Inlet Mod. and 1-Type "A" Inlet	274	276	50.9	57.75	8516	8049					13.5	13.55	1	1		
8	746+30	[4'×4'×104' Conc. Pipe 72'-30" Lt. Fwd. Skew & 1-CH-11-A (for 1-30" Pipe) & 112'-48" Lt. Fwd. Skew and 2-Type "D" Inlets]	172	166	5.8	6.98	645	643			184	182.17	3.4	3.43	2	2		
8	746+67	[5'×3'×234' Conc. Box Culv. [59' SC-NA & 1-FW-N Mod. and 175' SC-45°A & 1-FW-N]	350	338	65.7	66.56	7524	7399					12.5	26.26				
8	746+72	[24"×120' Reinf. Conc. Pipe With 1-FW-N Mod. (Lt.-746+67) and 1-Type "C" Inlet	111	108	3.0	3.00	259	247			120	119.47	12.5	0	1	1		
8	747+11	[7'×3'×180' Conc. Box Culv. [63' SC-NA & 1-FW-N and 151' Rt. Fwd. Skew, SC-15°A & 1-FW-15°]	581	581	91.7	91.92	13,570	13012										
8	Lt. 747+66 to Lt. 749+51	[30"×18'6" Reinf. Conc. Pipe with 1-CH-11-A Headwall & 1-Type "B" Inlet	172	172	2.7	2.71	314	314	186	184.00			7.5	1.81			1	1
8	747+75	[24"×124' Reinf. Conc. Pipe [ELS 30° Skew & 1-CH-11-A (for 1-30" Pipe) + 32.5' Normal with 2-Type "D" Inlets]	164	164	5.8	5.47	663	663			144	144.92	10.8	15.57	2	2		
9	756+50	10'×5'×132' Conc. Box Culv., 45° Lt. Fwd. Skew, SC-45°A & FW-45°	486	486	147.7	147.47	25,815	25,514					62.6	39.09				
9	761+00	18"×65' Reinf. Conc. Pipe with 1-Type "D" Inlet & 1-CH-11-B Hdwll.	7	7	2.1	2.15	256	296	63	68.17			0.9	1.71			1	1
9	765+00	10'×5'×126' Conc. Box Culv. SC-NA & FW-N with 1-Type "A" Inlet	372	372	100.4	100.44	11,382	11421					7.5	1.63				
9	770+00	18"×66' Reinf. Conc. Pipe with 1-Type "B" Inlet & 1-CH-11-B Hdwll.	21	21	2.1	2.16	296	296	66	67.92			1.5	1.71			1	1
12	U.S. 158 CONNECTION 2+85.9+50	5'×3'×55' Conc. Box Culv. -45° Lt. Fwd. Skew, SC-45° & FW-45°	97	160	32.0	31.93	6402	6396					15.0	12.46				
TOTAL C-18-5-13			4080	4023	553.5	585.96	85422	85504	1,517	1514.17	2,193	2,197.59	177.9	143.83	14	14	8	8
CONTROL 18-4-11																		
9	775+00	3-24"×52' Reinf. Conc. Pipes with CH-11-B Headwalls	60	24	3.3	3.30	506	506			156	157.26		5.12				
9	85.7 Rt.-775+00	3-24"×52' Reinf. Conc. Pipes with CH-11-B Headwalls	25	58	3.3	3.35	506	506			156	156.38		1.40				
TOTAL C-18-4-11			85	82	6.6	6.70	1012	1012			312	313.64		7.02				

✦ Deduct 5'-0" of Pipe for each Inlet.

SUMMARY OF STRUCTURES TO BE REMOVED

STATION	DESCRIPTION
17 Lt.-746+87	24"×29' V.C. Pipe with Conc. Headwalls
747+11	5'×2.5'×150.67' Conc. Box Culv., NC-7 Mod.
475' Lt.-772+20	10'×5'×42' Conc. Box Culv., C-7

REMOVING OLD CONCRETE

LOCATION	DESCRIPTION	SQ. YDS.
Rt.-740+15 To Lt.-751+15	Concrete Pavement (41.0' Wide)	4983
Lt.-747+54	Old Concrete Pavement	32
Rt.-748+20	Old Concrete Pavement	40
	TOTAL	5055

SUMMARY OF REMOVING OLD STRUCTURES AT UNDERPASS

LOCATION	DESCRIPTION
52.1 Ft. Rt.-746+93.7	Exist. Conc. Abutment
38.1 Ft. Rt.-747+45.8	Exist. Conc. Bent

ESTIMATE & QUANTITY SHEET

SHEET 1 OF 3 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(5) 19	4
STATE	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
SHEET NO. 11	WEBB	18	4	5	11	IH 35

BASIS OF ESTIMATE

DESCRIPTION	EMBANKMENT		ROADBED TREATMENT	FLEX. BASE	SUBGRADE STABILIZATION	SALVAGING & REPL. FLEX. BASE	DUST CONTROL
SPRINKLING	25 Gals./C.Y.		60 Gals./C.Y.	80 Gals./C.Y.	10 Gals./S.Y.	60 Gals./C.Y.	2000 Gals./Mi.
ROLLING (203 & SPL.)				1 Hr./200 C.Y.			
ROLLING (203 A & SPL.)	1 Hr./300 C.Y.		1 Hr./300 C.Y.		1 Hr./400 C.Y.	1 Hr./300 C.Y.	
ROLLING (203 B & SPL.)			0.05 Min./S.Y.	0.05 Min./S.Y.	0.05 Min./S.Y.	0.05 Min./S.Y.	
HEAVY PNEUMATIC ROLLING	1 Hr./600 C.Y.		1 Hr./400 C.Y.	1 Hr./400 C.Y.	1 Hr./400 C.Y.	1 Hr./400 C.Y.	
ROLLING (VIBRATING			0.06 Min./S.Y.	0.06 Min./S.Y.	0.06 Min./S.Y.	0.06 Min./S.Y.	
HYDRATED LIME			1% By Wt.	1% By Wt.	4% By Wt.	1% By Wt.	
EMULSIFIED ASPH. (EA-HVMS)				0.10 Gal./S.Y.			

* All Salvaged & Replaced Flexible Base shall be used in the first course of Roadbed Treatment.

BASIS OF ESTIMATE "PAVING"

ITEM	DESCRIPTION	
MAIN TRAFFIC LANES		
Tack Coat	0.06 Gal./S.Y.	
Asphalt (Type B)	5.0% by Weight	
Asphalt (Type D)	5.5% by Weight	
Aggregate (Type B)	166.25 # /S.Y.	
Aggregate (Type D)	118.125 # /S.Y.	
SHOULDERS FOR TRAFFIC LANES	1st COURSE	2nd COURSE
Asphalt (OA-135)	0.25 Gal./S.Y.	0.30 Gal./S.Y.
Aggregate (Type A)	Grade 1	Grade 10
Aggregate (Rate)	1 C.Y./70 S.Y.	1 C.Y./150 S.Y.
Rolling (203 & SPL.)	3 Hr./Mi.	4 Hr./Mi.
Rolling (203-B)		7 Hr./Mi.
F.M. U.S. 83 & CONNECTION LANES		
Tack Coat (RC-2)	0.06 Gal./S.Y.	
Asphalt (Type D)	5.5% By Weight	
Aggregate (Type D)	118.125 #/S.Y.	

NOTE: All Asphalt Pavement shall have a stability of not less than 40%

STEEL PLATE GUARD FENCE

STATION TO STATION	WEST LANE L.P.		EAST LANE FT.	
	LT.	RT.	LT.	RT.
713+78 - 714+36		62.5	62.5	
715+66 - 716+24		62.5	62.5	
709+86 - 714+36	450			
715+66 - 726+16	1050			
710+11 - 714+36				425
715+66 - 724+66				900
TOTAL = 3075 L.F.				

Eight "Terminal Sections" (GP-5G) Required

TIMBER POST GUARD FENCE

STATION TO STATION	WEST LANE		EAST LANE		EAST FRONTAGE ROAD		RAMP "A"		RELOCATED HWY. U.S. 83	
	LT.	RT.	LT.	RT.	LT.	RT.	LT.	RT.	LT.	RT.
693+55 - 710+04		24		24						
727+24 - 747+12	38		38							
747+06 - 771+63		45		45						
694+11 - 699+40						9				
704+73 - 713+59						19				
716+02 - 727+00							17			
2287+75 - 2302+26									25	
2317+93 - 2320+37									6	

TOTAL = 250 (Eliminated by Field Change No. 3)

ESTIMATE SUMMARY

BREAKDOWN BY CONTROLS I-35-1(3)19 C 18-5-13 ROADWAY EST.	C 18-5-13 ROADWAY FINAL	C 18-5-13 BRIDGES EST.	C 18-5-13 BRIDGES FINAL	C 18-4-11 ROADWAY EST.	C 18-4-11 ROADWAY FINAL	FINAL QUANTITIES	ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITIES
60.65	60.65			14.69	18.69	75.34	100	CLEARING & GRUBBING	ACRE	75.34
161227	161227.			16269	16269.	177496.	101 & SP.	UNCL. ROAD EXCAVATION	C.Y.	177496
15906	17413.			20	22.	17435.	103 & SP.	UNCL. CHANNEL EXCAVATION	C.Y.	15926
4092	4035.			85	82.	4117.	104	UNCL. STRUCTURAL EXCAVATION (CULVERTS)	C.Y.	4177
		48.	48.			48.	104	UNCL. STRUCTURAL EXCAVATION (BRIDGES)	C.Y.	48.
		475.	352.26			352.26	104	UNCL. STRUCTURAL EXCAVATION (UNDERPASS)	C.Y.	475.
12590	6137.65			2476	1124.80	7314.25	202	SPRINKLING	M.G.	15066.
214	104.00			62	23.75	129.75	203 & SP.	ROLLING	HR.	276.
734	915.50			170	83.50	998.00	203 A & SP.	ROLLING	HR.	964.
412	414.75			109	111.25	526.00	203 B	ROLLING	HR.	521.
				0						
602	660.25			100	68.25	728.50	SPECIAL	HEAVY PNEUMATIC ROLLING	HR.	702.
495	309.50			130	79.25	388.75	SPECIAL	ROLLING (VIBRATING ROLLER)	HR.	625.
2464	2437.83			668	648.00	3085.83	SPECIAL	HYDRATED LIME	TON	3132
125502	124409.			33714	34260.	160669.	SPECIAL	STABILIZED SUBGRADE	S.Y.	162026
7027	8670.			1973	2745.	11415.	207	SALVAGING & REPLACING FLEXIBLE BASE	C.Y.	9000.
51610	67550.			14440	13580.	61130.	210 & SP.	ROADBED TREATMENT (TYPE B)	C.Y.	66058.
38183	37650.			10466	10670.	48150	SPECIAL	FLEXIBLE BASE	C.Y.	48577.
1609275	1229245.			477015	460780.	1690045.	624 [illegible] 50	ADDITIONAL CTR. MILE HAUL	C.Y.	1,883279
15967	13750.			4304	4300.	18050	SPECIAL	EMULSIFIED ASPHALT (EA-HVMS)	GAL.	18301.
12920	16410.			5390	5965.	20575	305 & SP.	ASPHALT (OA-135)	GAL.	18310.
340	380.			140	182.	562.	405 & SP.	AGGREGATE (TYPE A, GRADE 1)	C.Y.	480.
160	188.			70	79.	267.	[illegible] SP.	AGGREGATE (TYPE A, GRADE 10)	C.Y.	230.
6701	1095.			2014	375.	1470.	317 & SP.	TACK COAT (RC-2)	GAL.	8715.
6400	414.21			133.	120.20	534.21	317 & SP.	ASPHALT	TON	573
4185	3,847.75			996.	1413.40	5,261.15	317 & SP.	AGGREGATE (TYPE B)	TON	5189
3769	4,615.29			1387	1018.40	5,633.69	317 & SP.	AGGREGATE (TYPE D)	TON	5156
556.5	558.70			6.6	6.70	565.40	405 & SP.	CLASS "A" CONCRETE (CULVERTS)	C.Y.	563.1
		484.8	484.80			484.80	403 & SP.	CLASS "A" CONCRETE - (GIRDERS)	C.Y.	484.8
		430.8	444.10			444.10	403 & SP.	CLASS "A" CONCRETE (BENTS)	C.Y.	430.8
		13.8	13.66			13.66	403 & SP.	CLASS "A" CONCRETE (SLABS)	C.Y.	13.8
85809	83973.	123,444	123,544	608.	608.	208125.	405 & SP.	REINFORCING STEEL	LB.	207861.
		169,600	159,598.			159,598.	SPECIAL	STRUCTURAL STEEL (PLATE GIRDERS)	LB.	169600.
		25,790	27,546.			27,546.	SPECIAL	STRUCTURAL STEEL (I-BEAMS)	LB.	25,790.
		1	1.			1.	SPECIAL	ALTERATIONS TO EXISTING PIER	LUMP SUM	1.
		21,046	23,340.			23,340	SPECIAL	DECK PLATES	LB.	21046.
		2	2.			2.	SPECIAL	REMOVING & RE-ERECTING APPROACH SPANS (CONC.)	EA.	2.
		128	140.19			140.19	SPECIAL	MEMBRANE WATERPROOFING (TYPE A)	S.Y.	128.
		171	162.81			162.81	SPECIAL	DAMPPROOFING	S.Y.	171.
246.	240.00					240.00	414	RELAYING CULVERT PIPE (OVER 18" DIAM.)	L.F.	246.
1425	1434.27					1434.27	SPECIAL	18" REINFORCED CONCRETE PIPE CLASS III	L.F.	1425.
2193	2,191.59			312	313.43	2,505.22	SPECIAL	24" REINFORCED CONCRETE PIPE CLASS III	L.F.	2505.
		10.4	10.40			10.40	416 & SP.	BELL FOOTINGS	C.Y.	10.4
		560.	538.71			538.71	416 & SP.	24" DIAM. DRILLED SHAFTS	L.F.	560
		480.	480.00			480.00	422 & SP.	RAILING (TYPE II MOD.)	L.F.	480.
172.9	443.17	326	336.82		7.02	807.01	423	CLASS "B" CONCRETE RIPRAP	C.Y.	498.9
		2	2.			2.	500	REMOVING OLD STRUCTURES (BENTS)	EA.	2.
3.	3.					3.	500	REMOVING OLD STRUCTURES (CULVERTS)	EA.	3.
2952.	2,942.20					2,942.20	505 & SP.	8" DIAM. PIPE UNDERDRAINS (TYPE A)	L.F.	2952.

ESTIMATE & QUANTITY SHEET

SHEET 2 OF 3 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(3)19	5
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 4 5 11 13	IH 35

FINAL SUMMARY OF GRADING

P & P SHEET NO.	STATION TO STATION	UNCL. RD. EXCAV. C.Y.	UNCL. CHAN. EXCAV. C.Y.	OBL. ABAN. ROAD STA.	RDW. MRKRS. TYPE 1 EA.	REM. & REP. RDW. MRKRS. EA.	STABILIZED SUBGRADE S.Y.
CONTROL 18-5-13							
7	683 + 50 - 701 + 00	7,300	291 ~~250~~	3.05	1		16,396
8	701 + 00 - 727 + 00	65,426	1639 ~~1,534~~	3.41 ~~18.80~~		4	23107
9	727 + 00 - 753 + 00	54,170	~~19,450 9,706~~	8.10 ~~16.35~~		7	27924
10	753 + 00 - 773 + 13.8	2,525	~~4841 5,220~~	18.04	2	5	21628
13	U.S. 83 CONNECTION (1)	2,970	354 ~~25~~	5.75	2 ~~0~~	2	12100
14	U.S. 83 CONNECTION (2)	578					3719
12	EAST FRONTAGE ROAD	10,731					21535
29	CONSTRUCTION OF SHOOFLY	75					
29	REMOVAL OF SHOOFLY	19,452					
	TOTAL CONTROL 18-5	161,227	~~17,618 14,996~~	~~30.35 56.02~~	5 ~~2~~	18	124,409
CONTROL 18-4-11							
10	773 + 13.8 - 779 + 00	452	22 ~~20~~	5.86			6296
11	779 + 00 - 1071 + 18.6	15,817		15.60	3		21904
	TOTAL CONTROL 18-4	16,269	22 ~~5~~	21.46	3	0	34,200
	TOTAL	177,496	~~17,618 14,996~~	~~30.35 56.02~~	8 ~~6~~	18	160,609

TABULATION OF HAUL FOR ROADBED TREATMENT

SOURCE NO.	OWNER	CONTROL 18-4-11 ROADBED TREAT. C.Y.	CONTROL 18-4-11 EST. AVE. ADD. QTR. MILE HAUL	CONTROL 18-4-11 ADDITIONAL QTR. MILE HAUL C.Y.	CONTROL 18-5-13 ROADBED TREAT. C.Y.	CONTROL 18-5-13 EST. AVE. ADD. QTR. MILE HAUL	CONTROL 18-5-13 ADDITIONAL QTR. MILE HAUL C.Y.
6	George Reuthinger				27,170	14.317	389,001
7	George Reuthinger	14,448	18.318	264,666	24,440	7.268	375,083
	TOTALS	14,448	—	264,666	51,610	—	764,084

TABULATION OF HAUL FOR FLEXIBLE BASE

SOURCE NO.	OWNER	CONTROL 18-4-11 FLEXIBLE BASE C.Y.	CONTROL 18-4-11 EST. AVE. ADD. QTR. MILE HAUL	CONTROL 18-4-11 ADDITIONAL QTR. MILE HAUL C.Y.	CONTROL 18-5-13 FLEXIBLE BASE C.Y.	CONTROL 18-5-13 EST. AVE. ADD. QTR. MILE HAUL	CONTROL 18-5-13 ADDITIONAL QTR. MILE HAUL C.Y.
1	George Reuthinger				19,118	16.995	324,915
18	George Reuthinger	10,444	20.044	209,338	19,015	16.843	320,276
	TOTALS	10,444	—	209,338	38,133	—	645,191

CONTROL 18-5
SUMMARY OF CL. "B" CONC. RIPRAP DITCH LINING

STATION - STATION	CLASS "B" CONCRETE C.Y. EST.	CLASS "B" CONCRETE C.Y. FINAL
719+00 - 730+00	137.0	134.68
738+00 - 753+00	185.7	184.66
TOTAL	322.7	319.34

SUMMARY OF SIDE DRAINS

PLAN & PROFILE SHEET NO.	STATION	DESCRIPTION	UNCL. STRUCTURAL EXCAVATION C.Y. EST.	UNCL. STRUCTURAL EXCAVATION C.Y. FINAL	CLASS "A" CONCRETE C.Y. EST.	CLASS "A" CONCRETE C.Y. FINAL	REINFORCING STEEL LBS. EST.	REINFORCING STEEL LBS. FINAL	REINF. CONC. PIPE-CL. III - 18" DIA. L.F. EST.	REINF. CONC. PIPE-CL. III - 18" DIA. L.F. FINAL
CONTROL 18-5-13										
6	35' Rt.-698+76 (East F. Rd.)	18" x 36" R.C. Pipe With CH-11-B Headwalls	4	4	1.0	1.00	129	129	36	36.90
11	35' Rt.-720+00 (East F. Rd.)	18" x 36" R.C. Pipe With CH-11-B Headwalls	4	4	1.0	1.00	129	129	36	36.60
13	35' Rt.-731+25 (U.S. 83 Conn.)	18" x 36" R.C. Pipe With CH-11-B Headwalls	4	4	1.0	1.00	129	129	36	44.60
		TOTALS	12	12	3.0	3.00	387	387	108	118.10

ESTIMATE SUMMARY CONTD.

BREAKDOWN BY CONTROLS I-35-1(3)15 C 18-5-13 ROADWAY EST.	C 18-5-13 ROADWAY FINAL	C 18-5-13 BRIDGES EST.	C 18-5-13 BRIDGES FINAL	C 18-5-13 UNDERPASS EST.	C 18-5-13 UNDERPASS FINAL	C 18-4-11 ROADWAY EST.	C 18-4-11 ROADWAY FINAL	FINAL QUANTITIES	ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITIES
3591	3574.33							3574.33	513	CONCRETE CURB & GUTTER (TYPE A)	L.F.	3591.
2694	2808.00							2808.00	513	CONCRETE CURB & GUTTER (TYPE B)	L.F.	2694.
3	5.					3.	3.	8.	514	R.O.W. MARKERS (TYPE 1)	EA.	6.
18	18.							18.	SPECIAL	REMOVING & REPLACING R.O.W. MARKERS	EA.	18.
3075	3075.00							3075.00	516 & SR	STEEL PLATE GUARD FENCE (TYPE 7, GAGE 12)	L.F.	3075.
290	0							0.	516 A	TIMBER POST GUARD FENCE	EA.	290
8	8.							8.	SPECIAL	18" RING & COVER	EA.	8.
14	14.							14.	SPECIAL	24" RING & COVER	EA.	14.
5000	3835					81.46	21.46	59.81	E17	OBLITERATING ABANDONED ROAD	STA.	77.48
5055	5055							5055.	518 & SP.	REMOVING OLD CONCRETE (PAVEMENT)	S.Y.	5055.

ROADBED TREAT.
SOURCE NO. 6
EST. AMT.
40,000 C.Y.
9' Face
1635' D.H.

FLEXIBLE BASE
SOURCE NO. 1
EST. AMT.
27,000 C.Y.
8' Face
5220 D.H.

ROADBED TREAT.
SOURCE NO. 7
EST. AMT.
45,000 C.Y.
7' Face
5003' D.H.

FLEXIBLE BASE
SOURCE NO. 18
EST. AMT. 30,000 C.Y.
9' Face
1102' D.H.

1635'
1033'
590'
5003'
1102'
℄ of East Lane
To Laredo
Sta. 528+60
Sta. 590+00

℄ Frontage Road
Hot Mix Asph. Conc. Pav't.
Provide Culvert only when indicated in plans
40'
39'
20'
12'

PLAN-TYPICAL ENTRANCE

Hot Mix Asph. Conc Pvt Eliminated from cross-hatched Area by Field Change No. 2

5' Hot Mix Asph. Conc. (1½") 12"
12.5% by Type D on Flx Base (Max)
2:1
10:1
8" Flex. Base (Proc.) on 2-4" Courses

TYPICAL ENTRANCE SECTION

STA. 685+50 BEG. PROJ. I-35-1(3)19
CONTROL 18-5-13
STA. 685+50 END PROJ. I-35-1(2)12, CONT. 18-5-12
Opp. STA. 685+18.8 Old Hwy. U.S. 81, CONT. 18-5
NRH-165-A, B, C, & D. COMPLETED 1934

Prop'd. Channel
Prop'd. Levee
F.L. 6929
To Laredo
Survey Line = ℄ West Lane
250' Taper
650
685
695
1000' Acceleration Lane
Exist. 2-7'x6'x12'
℄ East Lane
To San Antonio
N16°-06'E
Exist. Median Inlet
Obliterate Temp. connects Old Highway
Sta. 690+15
250' Taper
300' Dec. Lane
Sta. 693+60
Resurface Exist. Base on Old Highway
C. & G.N.-M.O. P&C R.R.
Exist. 10'x5'x34' Cl. Rdwy. Conc. Box, C-4
696+58.9
Prop'd R.O.W. Marker
WEST LANE - SURVEY LINE
CURVE DATA
P.I. = 701+82.8
Δ = 10°-27' Lt.
D = 1°-00'
T = 523.9'
L = 1045.0
C = 602
L_e = 200
700
Inlet # 104
Inlet # 103
50'
50'

Stabilized Subgrade:
West Lanes: Sta. 685+50 to 701+00: 1550' x 28.33 ÷ 9 = 8324 S.Y.
East Lanes: Sta. 685+50 to 693+11 = 761' x 28.33 ÷ 9 = 4087 "
693+11 to 695+50 = 239' x 38.83 ÷ 9 = 1031 "
695+50 to 701+00 = 550' - 48.33 ÷ 9 = 2954 "
16,396 S.Y.

Sta. 690+75 to 693+80

	80	243	365	361	335	365	513	637	626	556	443	443	361	382	670	900
	290	197	137	114	104	95	89	89	95	118	145	193	258	231	213	217

SHEET TOTALS

EST.	FINAL	UNIT	
+ 1		Ea	R.O.W. Markers (Type 1)
305	305	Sta	Obliterating abandoned road
	16,396	S.Y.	Stabilized Subgrade
7300	7300	C.Y.	Uncl. Road Excavation
250	291	C.Y.	Uncl. Channel Excavation
		C.Y.	Uncl. Borrow
2585		C.Y.	Embankment + Shrinkage

See Layout Sheet No. 15 for clearing & grubbing areas & quantities.

PROJECT NOTES
All obstructions within the R.O.W. shall be removed by others unless otherwise noted.
All elevations are based on U.S.C. & G.S.

B.M. - N.E. Corner of East Headwall of Structure Sta. 684+50 (Exist. Hwy.) Elev. 693.91

STA. 693+91.7
Prop'd 18"x 237' R.C. Pipe 45° Rt. Fwd. Skew with 1-Type "D" Inlet on Rt. & Common Headwall to Struct. @ Sta. 694+39.4 on Lt.
F.L. 692.90 Lt. & 695.00 Rt.

SIDE DRAIN
35' Rt. STA. 698+76 (EAST FRONT. ROAD)
18"x 36' R.C. Pipe with CH-11-B Headwalls

West Lane P.I. 693.54 No V.C.

Prop'd West Lane Profile (℄ Fin. Gr.)

West Lane P.I. = 691.00 400' V.C. E = 0.55

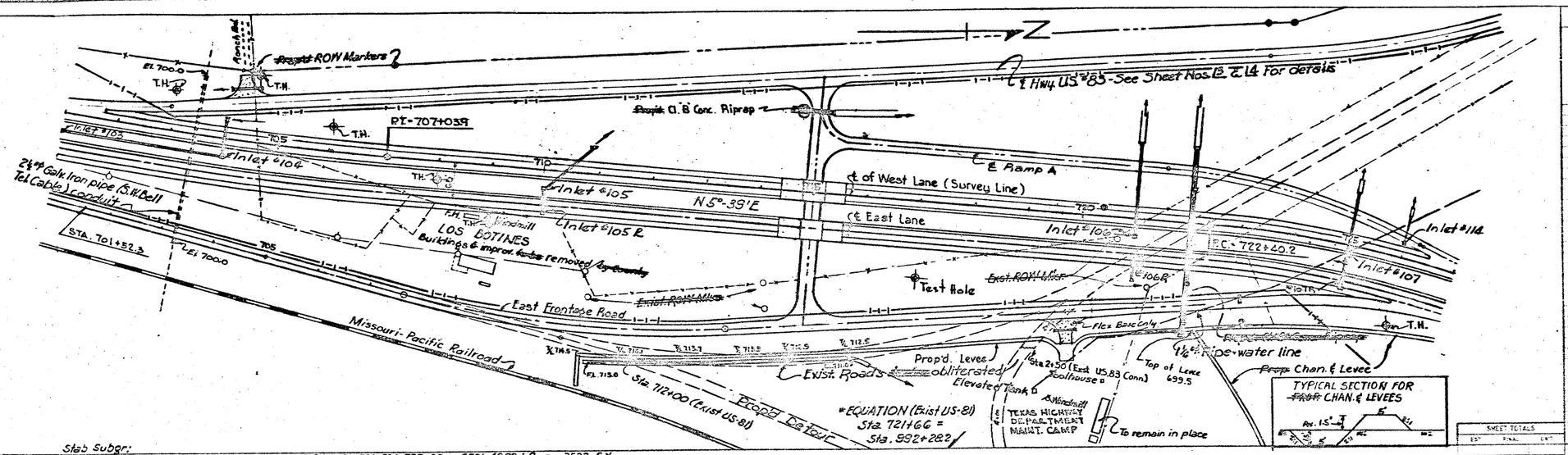
-0.1000%
+1.0071%

N.G. along ℄ West Lane

STA. 694+39.4
Prop'd. 24"x 188' R.C. Pipe 60° Rt. Fwd. Skew with 1-CH-11-B-30° (For 2-24" Pipes) With 1-Type C Inlet on ℄ Median
F.L. 692.90 Lt. & 694.30 Rt.

STORM SEWER
STA. 695+00 To STA. 701+00 (AT ℄ OF MEDIAN)
Prop'd. 24" x 596' R.C. Pipe
" 18" x 238' R.C. Pipe
With 2-Type "C" Inlets
See Layout for F.L. elevations

| | | |



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO) TO 1	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO) TO 1	GROWN WIDTH (FEET)	SLOPE (RATIO) TO 1	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO) TO 1	AVERAGE GROUND SLOPE PER 100	TYPICAL X SECT NO

Slab Subgr:
West Lanes: Sta. 701+00 to 701+70, Sta. 704+50 to 709+60, Sta. 726+22 to 727+00 = 658 × 48.33 ÷ 9 = 3533 S.Y.
West Lanes: Sta. 701+70 to 704+50, Sta. 709+60 to 714+40, Sta. 715+60 to 726+22 = 1822 × 38.83 ÷ 9 = 7861 "
East Lanes: Sta. 701+00 to 709+60, Sta. 726+00 to 727+00 = 960 × 48.33 ÷ 9 = 5155 "
Sta. 709+60 to 714+40, Sta. 715+60 to 726+00 = 1520 × 38.83 ÷ 9 = 6558 "
23107 S.Y.

* Sta. 2+50 to 5+91 (Exist US-83 Sta. 712+00 to 708+41 plus Sta. 0+50 to 4+10 (Exist US 83 connection)

1126	1572	2513	3610	4774	6834	9196	5442	3963	1171	2750	2951	3024	3689	3349	2118	1845	626	183	0 / 0 / 0	417	602	906 / 1261	23426	63426	C.Y.
	~~324~~ 0													~~54~~ 124					~~47~~ 126 ~~45~~ 125 597	444		℄ 23 ℄		+534	1439	C.Y.
																									C.Y.
145	92	83	75	75	75	75	75	77	998	4156	7919	10428	5555	4684	11,240	16699	9898	8745	7753	6606	5201	3747	2489	1128	545	63606	C.Y.
																					* 597	@ 444					Embankment + Shrinkage

4	4	Ea
1889	3.41	Sta

Rem. & Repl. ROW Markers
Obliterating abandoned road

23107 S.Y. Stabilized Subgrade
Uncl. Road Excavation
Uncl. Channel Excavation
Uncl. Borrow
Embankment + Shrinkage

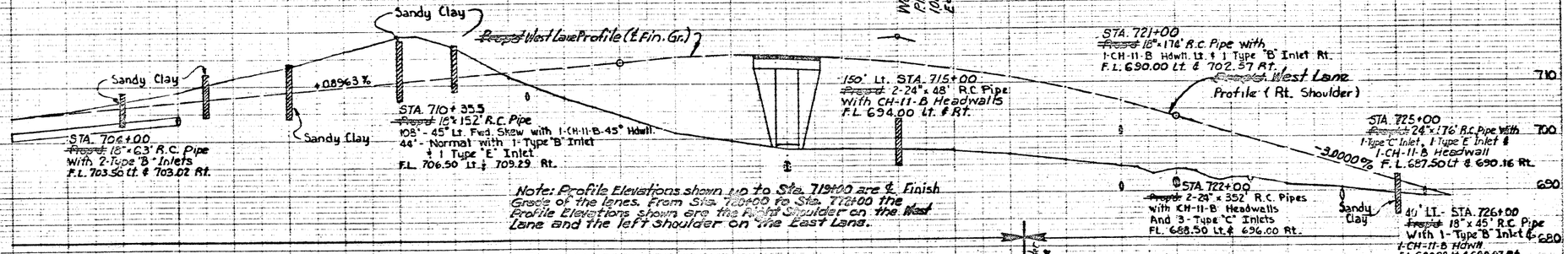
* 597 C.Y. of Embankment for Levee from Sta. 722+00 to Sta. 733+00 ~~to be~~ obtained from area adjacent to Levee.
@ 444 C.Y. of Embankment for Levee from Sta. 722+00 to 740' East ~~to be~~ obtained from area adjacent to Levee.

STA. 714+40.0 TO STA. 715+60.0
~~Prop'd~~ 3-40' Conc. Slab & Girder Spans

68' RT. - STA. 714+40.0 TO STA. 715+60.0
~~Prop'd~~ 3-40' Conc. Slab & Girder Spans

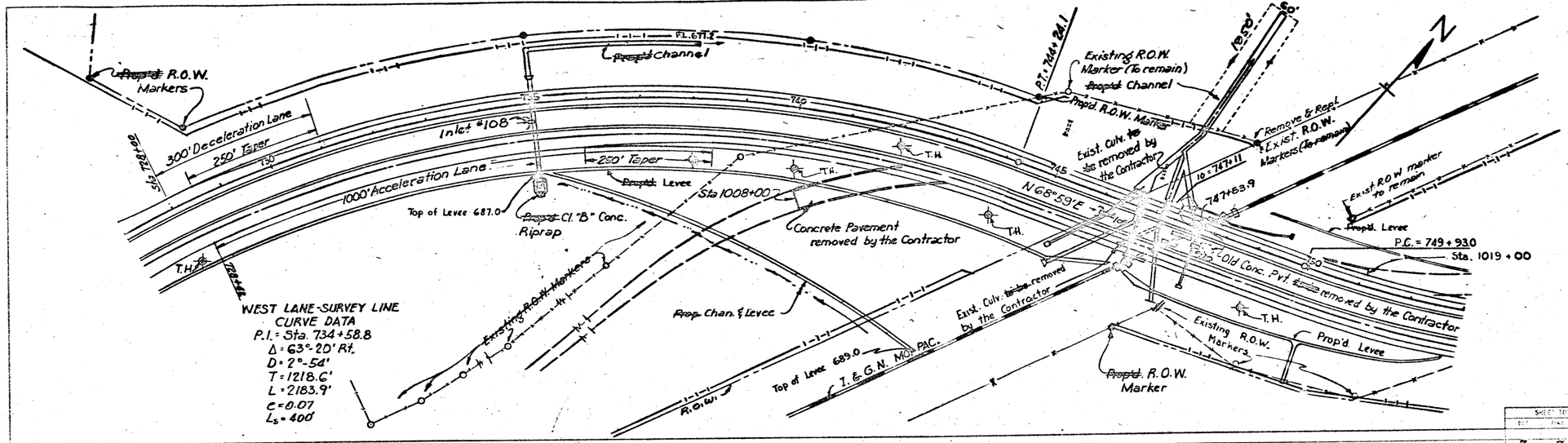
West Lane P.I. = 718.83, 1000 V.C., E = 4.87'

82.21' RT. - STA. 721+00
~~Prop'd~~ 18" × 33' R.C. Pipe with 1-Type "E" Inlet & 1-CH-11-B Headwall
F.L. 702.00 Lt. & 697.00 Rt.



Note: Profile Elevations shown up to Sta. 719+00 are ℄ Finish Grade of the lanes. From Sta. 720+00 to Sta. 727+00 the Profile Elevations shown are the Right Shoulder on the West Lane and the left Shoulder on the East Lane.

| | | | | | | | | | | | | | | | | | | |



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO

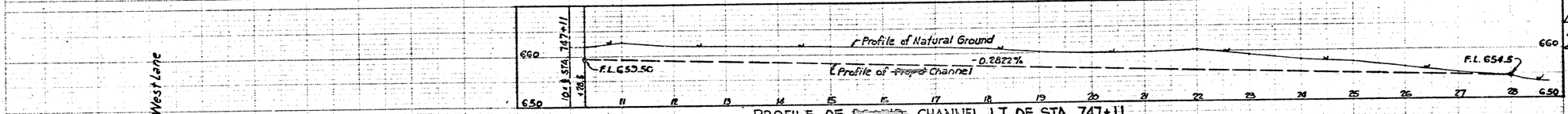
Sta 999+90.2 to 1008+00
~~Sta 837+62.2 to 1008+00 (Exist US-61)~~
(1100 - 6.2) × 4 (+ 36.2 × 18 ÷ 9

2600 × 28.33 ÷ 9 = 13962 S.Y. Each lane × 2 =

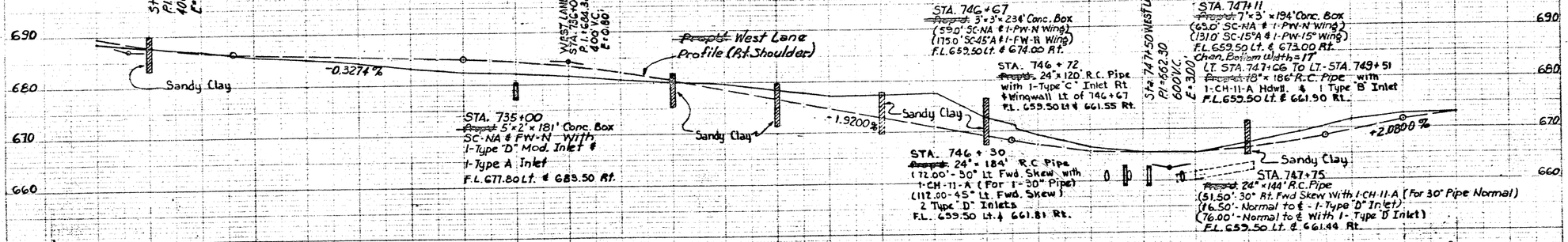
1478	1452	1189	894	794	622	533	~~633~~ 477	✓ 730 ~~351~~	456	985	1296	1746	2191	2722	3425	3931	4099	3868	3433	3359	3416 ~~9676~~	3910	2096	1931	1870	1567
332	193	234	390	533	648	760	898	734 * 456		600	487	327	200	222	284	230	137	171	361	295	84	134	388	485	491	343

7	7	Ea	Rem. & Repl. R.O.W. Markers
~~1038~~	810	Sta	Obliterating abandoned road
~~5055~~	6055	S.Y.	Removing old Concrete
	27924	S.Y.	Stabilized Subgrade
54170	54170	C.Y.	Uncl. Road Excavation
~~8759~~	10483	C.Y.	Uncl. Channel Excavation
		C.Y.	Uncl Borrow
	10417	C.Y.	Embankment + Shrinkage

* 456 C.Y. of Embankment for Levee from Sta. 735+00 to 760' East ~~of~~ obtained from area adjacent to Levee.



PROFILE OF ~~PROP'D~~ CHANNEL LT. OF STA. 747+11
SCALE: 1" = 100' HOR. & 1" = 10' VERT.

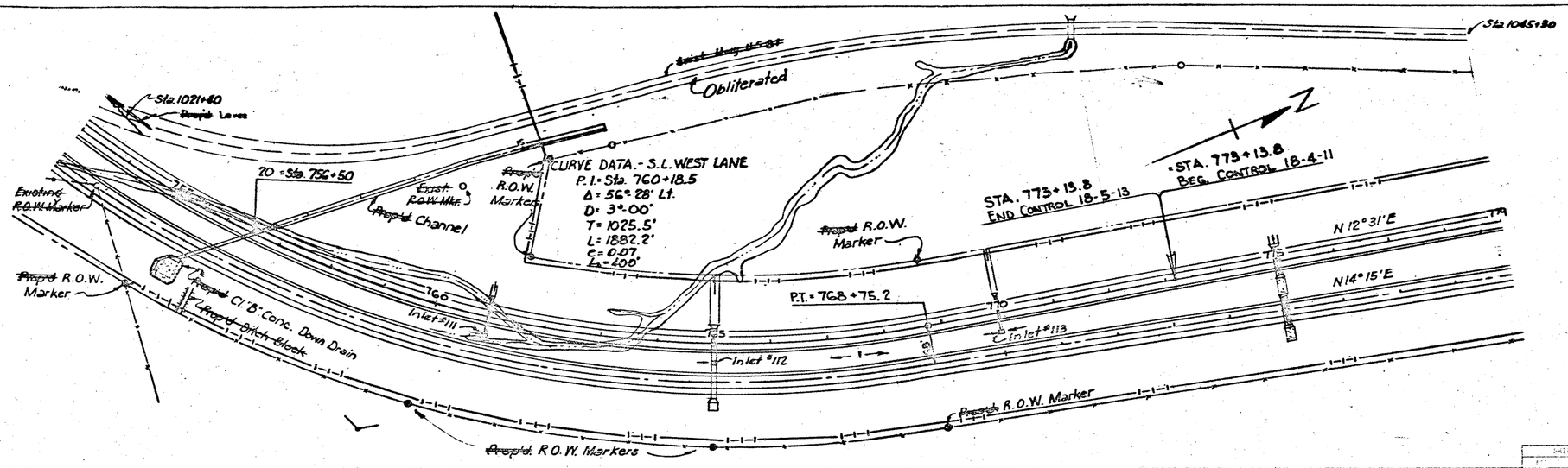


B.M. - Nail in small Mesquite tree 164' Lt. of Sta. 734+00 El. 680.88

Rt. Shoulder	Lt. Shoulder																							
West Lane	East Lane	690.42	688.72	687.64	687.11	686.72	686.32	685.92	685.52	684.87	684.88	683.83	682.83	680.83	678.98	677.12	675.27	673.41	671.56	669.71	667.85	666.00	666.18	666.12	666.27	668.07	670.04	672.12	673.88
		689.59	687.86	686.79	686.34	686.02	685.69	685.36	685.03	684.51	683.58	682.76	681.76	679.54	676.70	674.78	672.86	670.94	669.02	667.18	666.33	665.34	665.42	666.17	666.58	668.58	671.66	673.54	
		727	0	5	730	1	2	3	4	735	6	7	8	9	740	1	2	3	4	745	6	7	8	9	750	1	2	753	

PLAN - PROFILE - NEW STYLE

PROJECT NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	TRANS	F-35-1(3)19	9
	COUNTY	SECTION NO.	TOTAL SHEETS
21	WEBB	18 4/11/5/13	TM 55



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO.

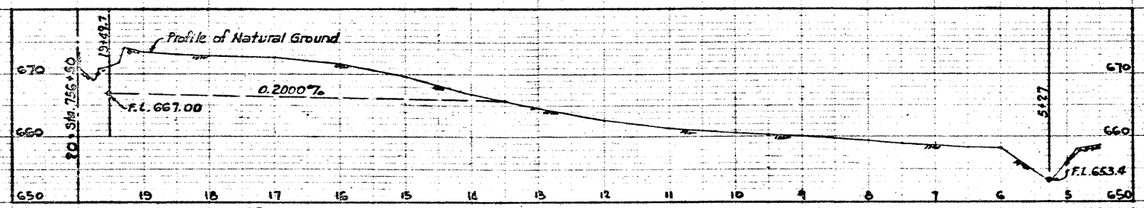
2	2	Ea	R.O.W. Markers (Type 1)
5	5	Ea	Remove & Repl. R.O.W. Markers
23.99	23.90	Sta.	Obliterating abandoned road
	27924	S.Y.	Stabilized Subgrade
	2977	C.Y.	Uncl. Road Excavation
6559	4868	C.Y.	Uncl. Channel Excavation
		C.Y.	Uncl. Borrow
40773		C.Y.	Embankment + Shrinkage

C 18-5-13:
Sta 753+00 to 773+13.8 = 2013.8 = 48.33÷9 = 1081.0 S.Y.
×2 = 2162.8 S.Y.

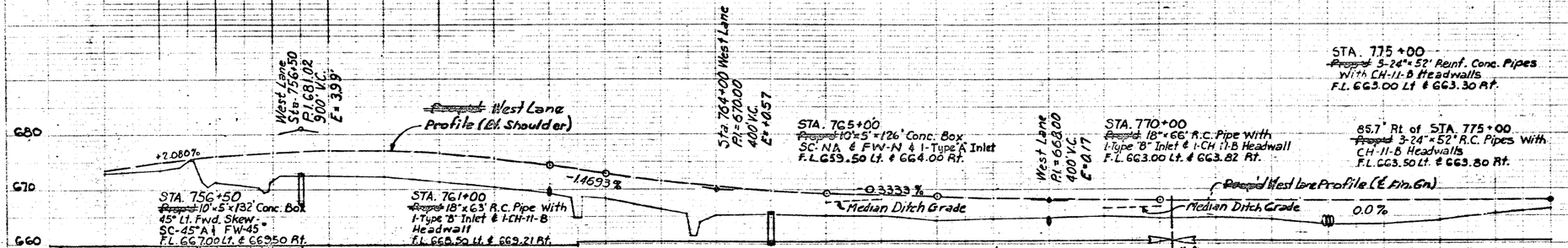
C 18-4-11
Sta 773+13.8 to 779+00 = 586.2 = 48.33÷9 = 3148 S.Y.
×2 = 6296

Sta 1021+40 to 1045+30

1028	703	515	204	13	0	0	0	0	0	2	6	4	0	0	0	0	0	0	0	0	2	146	304	2877	C.Y.
			6076 4467						10 14			238 357			13 8						20 22			6559	4868	C.Y.
547	955	1284	1761	2427	2610	2601	2619	2457	2740	2451	1850	1353	1445	1567	1409	1172	1002	977	1010	1014	1491	1746	1318	716	251	40773	C.Y.



PROFILE OF ~~Prop'd~~ CHANNEL LT. OF STA. 756+50
Scale: 1"=100' Hor. & 1"=10' Ver.



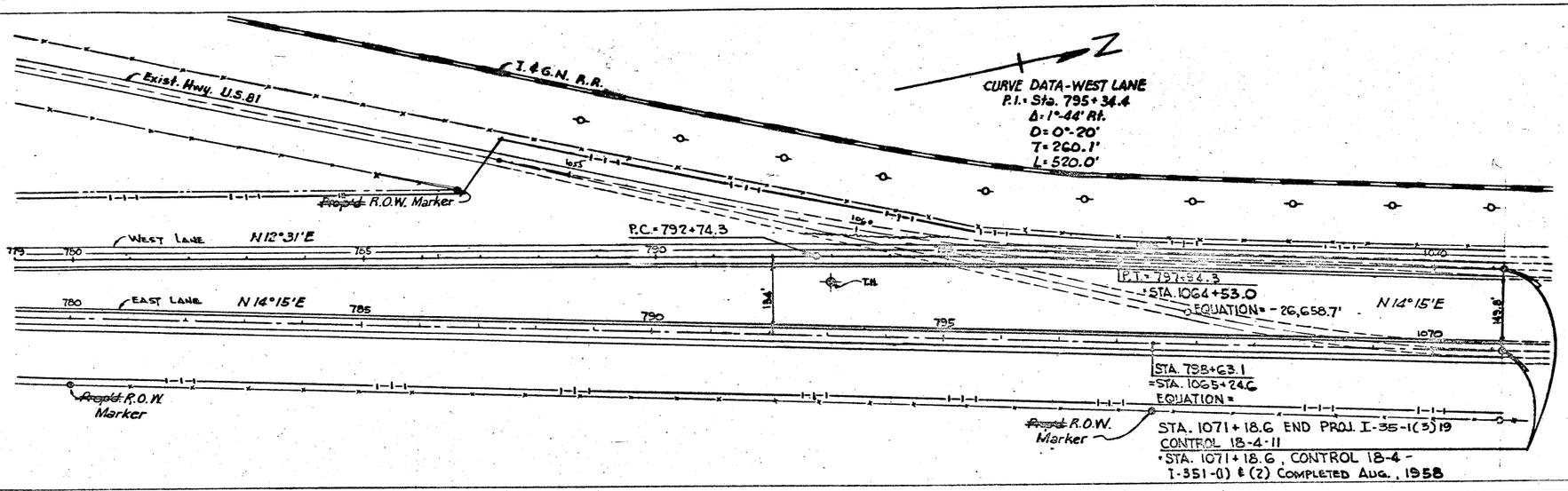
Rt Shoulder	673.88	675.23	676.18	676.72	676.86	676.57	676.50	676.81	677.38	677.91	678.34	678.61	678.61	678.57	678.69	678.81	678.96	679.00	679.00	679.00	679.00	679.00	679.00	679.00	679.00	679.00	679.00
West Lane	673.54	675.03	676.13	676.83	676.72	676.25	676.56	676.68	677.41	677.94	678.11	678.37	678.37	678.37	678.33	678.00	678.67	678.97	678.97	678.97	678.97	678.97	668.90	668.90	668.90	668.90	668.90
East Lane																							668.90	668.90	668.90	668.90	668.90
Center Line Fin. Gr.																							667.90	667.90	667.90	667.90	667.90
West Lane																							666.90	666.90	666.90	666.90	666.90
East Lane																							666.90	666.90	666.90	666.90	666.90
	755	4	755	6	7	0	9	760	1	2	3	4	765	6	7	8	9	770	1	2	3	4	775	6	7	8	779

PLAN - PROFILE - SECTIONS

B.M. - Nail in mesquite tree
245' Rt. of Sta. 758+90
El. 674.68

STATE	FEDERAL AID PROJECT NO.	SHEET NO.
TEXAS	735-1(8)19	10
COUNTY		

21 WLBB 15 4/11 5/13 in 35



CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100	TYPICAL X SECT.

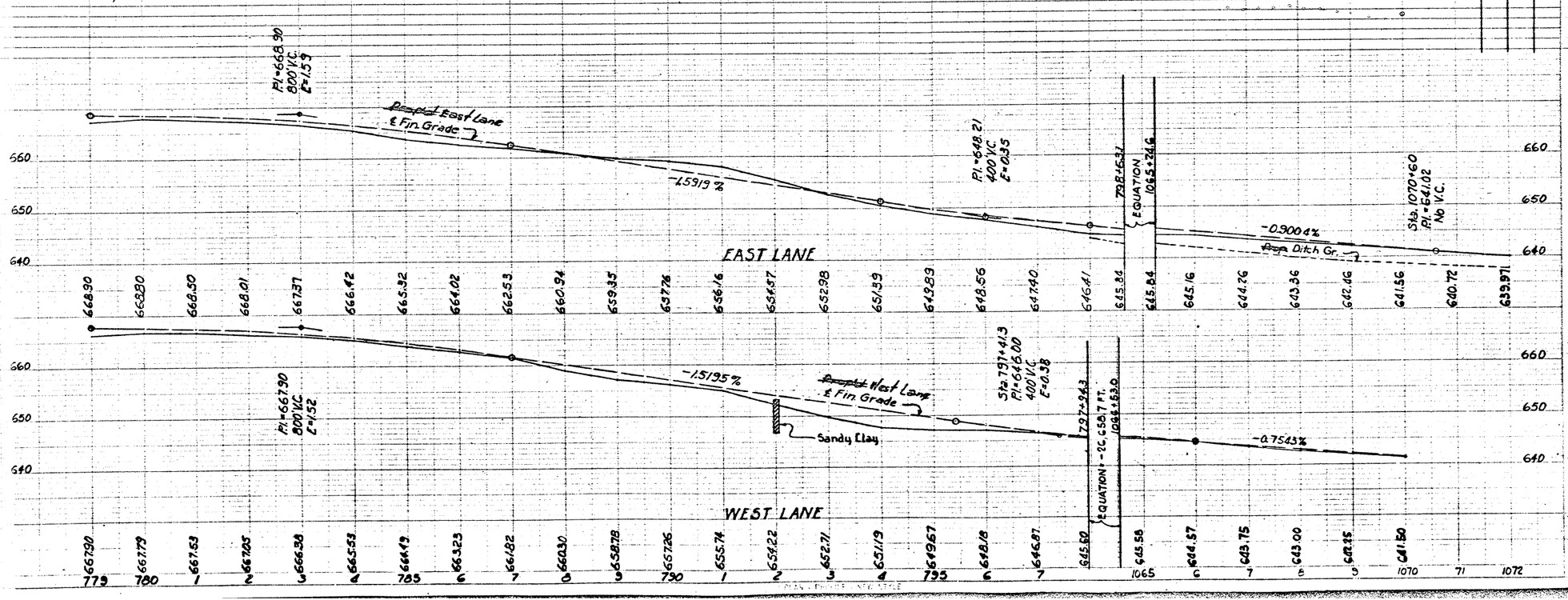
SHEET TOTALS

EST.	FINAL	UNIT	
~~3~~	3	Ea	R.O.W. Mkrs. (Ty. I)
~~15.69~~	15.60	Sta.	Obl. Aban. Road
	27964	S.Y.	Stab Subgr.
15817	15817	C.Y.	Uncl. Road Excav.
		C.Y.	Uncl. Channel Excav.
		C.Y.	Uncl. Borrow
-3982		C.Y.	Embankment & Adj.

West Lanes: Sta 779+00 to 1071+18.6 = 2859.9 × 48.33 ÷ 9 = 13747 S.Y.
East Lanes: Sta 779+00 to 1072+09 = 2647.5 × 48.33 ÷ 9 = 14217 "
27964 S.Y.

Sta 1045+30 to 1060+90

478	619	533	509	543	398	404	585	583	659	963	1109	982	544	217	311	407	483	435	587	509	598	765	861	885	638	212
117	95	114	118	104	117	106	80	83	106	126	143	214	357	369	200	92	89	126	173	145	166	165	135	92	75	75

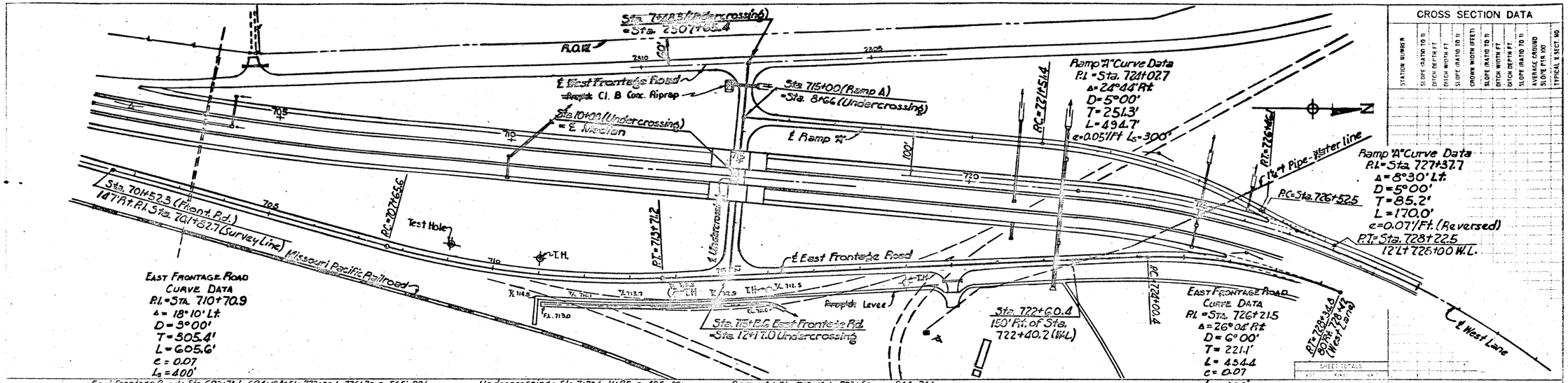


B.M. - Nail in mesquite tree
145' Rt. of ℄ East Lane
Sta. 779+80 - El. 667.91

B.M. - Nail in Telephone Pole
80' Lt. of ℄ West Lane
Sta. 797+30 - El. 644.06

STATE	FEDERAL AID PROJECT NO.	SHEET NO.
TEXAS	I-35-1(3)19	11
COUNTY	CONTROL SECTION JOB NO.	HIGHWAY NO.
21 WEBB	18 4/11 5/13	IH 35

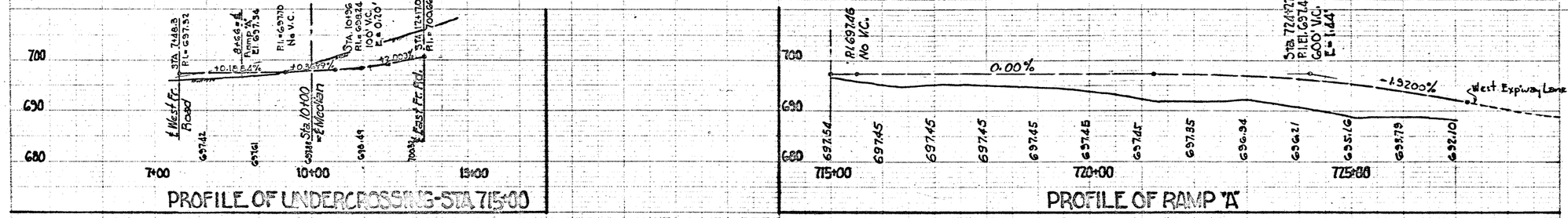
NEW ENGLISH STYLE

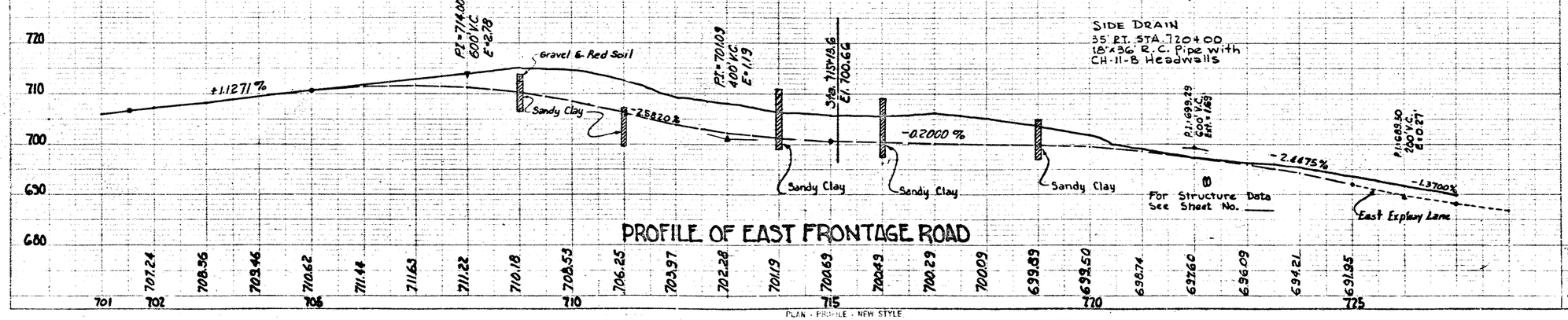


East Frontage Road: Sta 692+73 to 694+18.8 = 565'x29' = 1748 S.Y.
Sta 694+18 to 694+59 = 241'x35'
Sta 696+235 to 720+50 = 2426.5'x44'
Sta 720+50 to 722+00 = 150'x39.33Av.
Undercrossing: Sta 7+70 to 11+95 = 425'x32 = 1511 S.Y.
Radii: 10,000-7855 = 2145 s.f.
Ramp A: Sta 715+16 to 723+60 = 844.36'
Sta 723+60 to 726+75 = 315.29'
Radii = 1073 s.f. = 4510 S.Y.

98	132	128	128	137	224	390	830	994	1091	1039	759	469	290	247	433	609	885	907	594	352				21535	S.Y. Stabilized Subgrade
39	29	34	34	17	8	1	0	0	0	5	5	8	29	68	46	31	56	164	164	48				786	C.Y. Embk. + Shr.
														0	0	0	0	0	0	0	0	0	0		RAMP "A" Uncl Road Excav.
														88	308	412	551	672	924	1220	1390	1421	1377	1130	452	9945	Emb. + Shr.

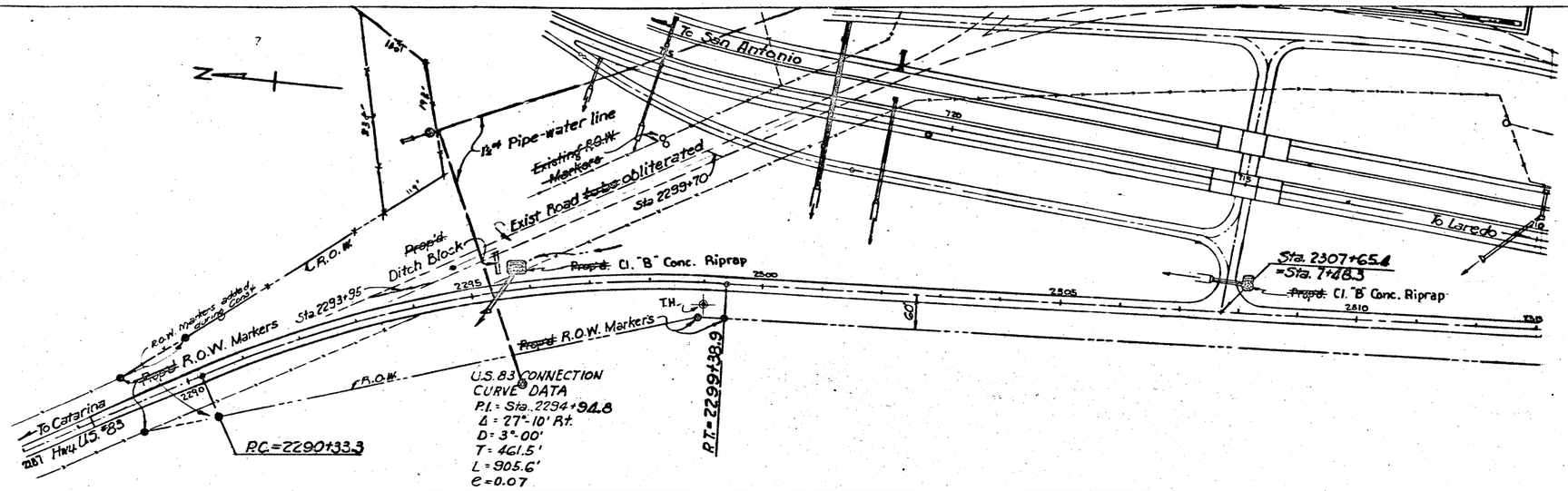
10731	C.Y. Uncl. Road Excav.	EAST FR RD.
	C.Y. Uncl. Channel Excav.	
	C.Y. Uncl. Borrow	





PLAN - PROFILE - NEW STYLE

STATE	FEDERAL AID PROJECT NO.	SHEET
KANS.	I-35-1(3)19	2
COUNTY	TOTAL SHEETS	NO.
21 WEBB	18	4 / 11 / 1H35 / 5 / 13

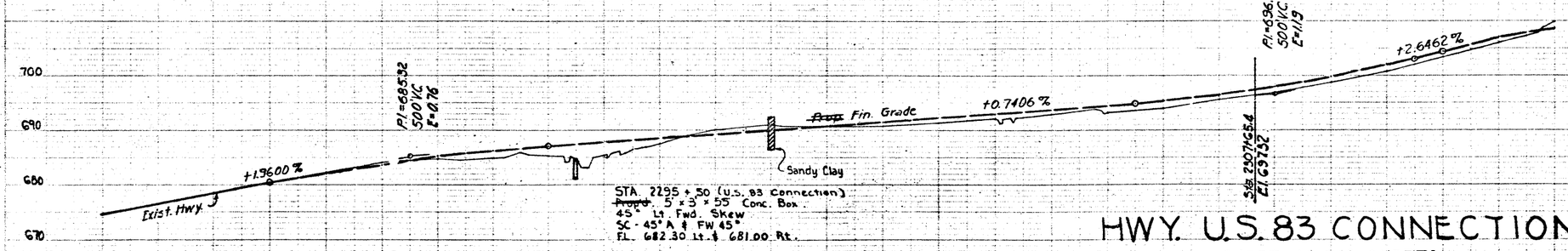


CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT.	DITCH WIDTH FT.	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH WIDTH FT.	DITCH DEPTH FT.	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100	TYPICAL X SECT. NO.
Sta 2293+95 to 2299+70											
Sta 2288+25 to 2313+00 = 2475 ÷ 44 = 9											

~~2~~ 2	Ea	R.O.W. Markers Type 1
~~2~~ 2	Ea	Remove & Repl. R.O.W. Markers
~~575~~ 575	Sta.	Obliterating abandoned road
12100	S.Y.	Stabilized Subgrade
~~2970~~ 2970	C.Y.	Uncl. Road Excavation
~~25~~ 354	C.Y.	Uncl. Channel Excavation
	C.Y.	Uncl. Borrow
~~2993~~	C.Y.	Embankment + Shrinkage

143	142	113	144	180	156	59	0	113	298	454	343	143	48	32	75	100	44	41	39	19	13	7	28	236	~~2970~~ 2970	C.Y.	Uncl. Road Excavation
							~~25~~ 354																		~~25~~ 354	C.Y.	Uncl. Channel Excavation
48	93	78	62	34	51	217	546	330	159	42	34	31	51	53	7	0	8	12	14	26	39	43	26	4	~~2993~~	C.Y.	Embankment + Shrinkage

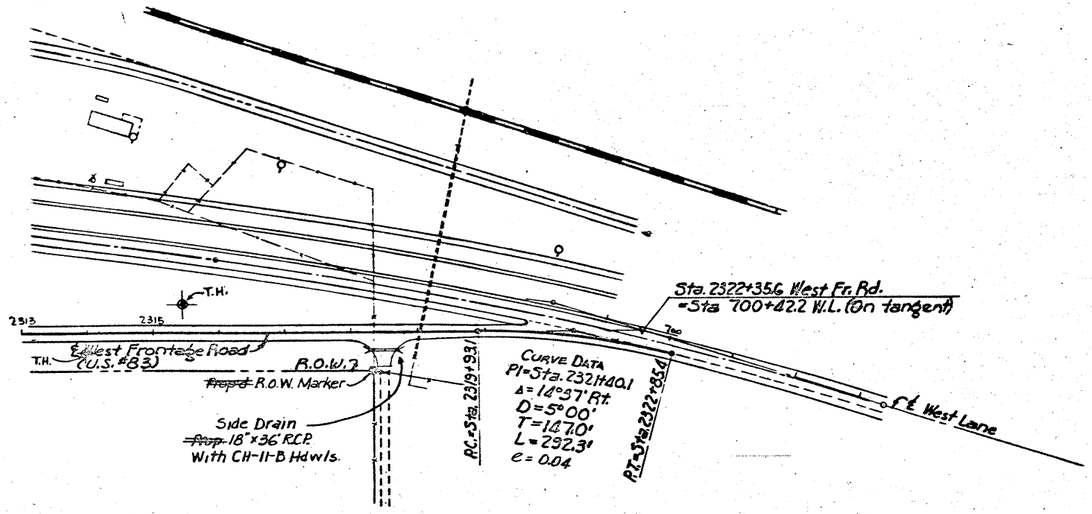


2287	0	676.50	678.46	2290	680.42	1	682.26	2	683.85	3	685.20	4	686.31	2295	687.17	6	687.91	7	688.65	8	689.39	9	690.13	2300	690.87	1	691.62	2	692.36	3	693.10	4	693.84	2305	694.58	6	695.37	7	696.19	8	697.39	9	698.88	2310	702.14	1	704.74	2	707.07	2313	708.79

HWY. U.S. 83 CONNECTION

SHEET 1 OF 2 SHEETS

STATE	FEDERAL AID PROJECT NO.	SHEET NO.
TEXAS	I-35-1(83)19	13
COUNTY		
21 WEBB	18 4/11/5/13	IH 35



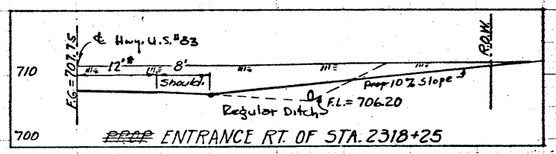
CROSS SECTION DATA

STATION NUMBER	SLOPE (RATIO TO 1)	DITCH DEPTH FT	DITCH WIDTH FT	SLOPE (RATIO TO 1)	CROWN WIDTH (FEET)	SLOPE (RATIO TO 1)	DITCH DEPTH FT	DITCH WIDTH FT	SLOPE (RATIO TO 1)	AVERAGE GROUND SLOPE PER 100'	TYPICAL X SECT. NO.

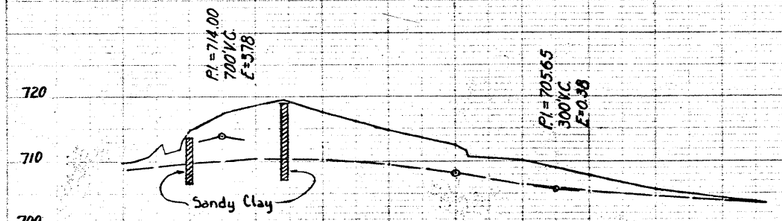
Sta 2313+00 to 2318+36 = 536 x 66
2318+36 to 2321+00 = 266 x 37.5 Amt
= 3719 SY

578
0

3719	S.Y.	Stabilized Subgrade
~~578~~ 578	C.Y.	Uncl. Road Excav.
	C.Y.	Uncl. Channel Excav.
	C.Y.	Uncl. Borrow
~~0~~	C.Y.	Embankment + Shrinkage



* Traffic Lane



SIDE DRAIN
35' RT. STA. 2318+25
18"x36" R.C. Pipe with
CH-11-B Headwalls

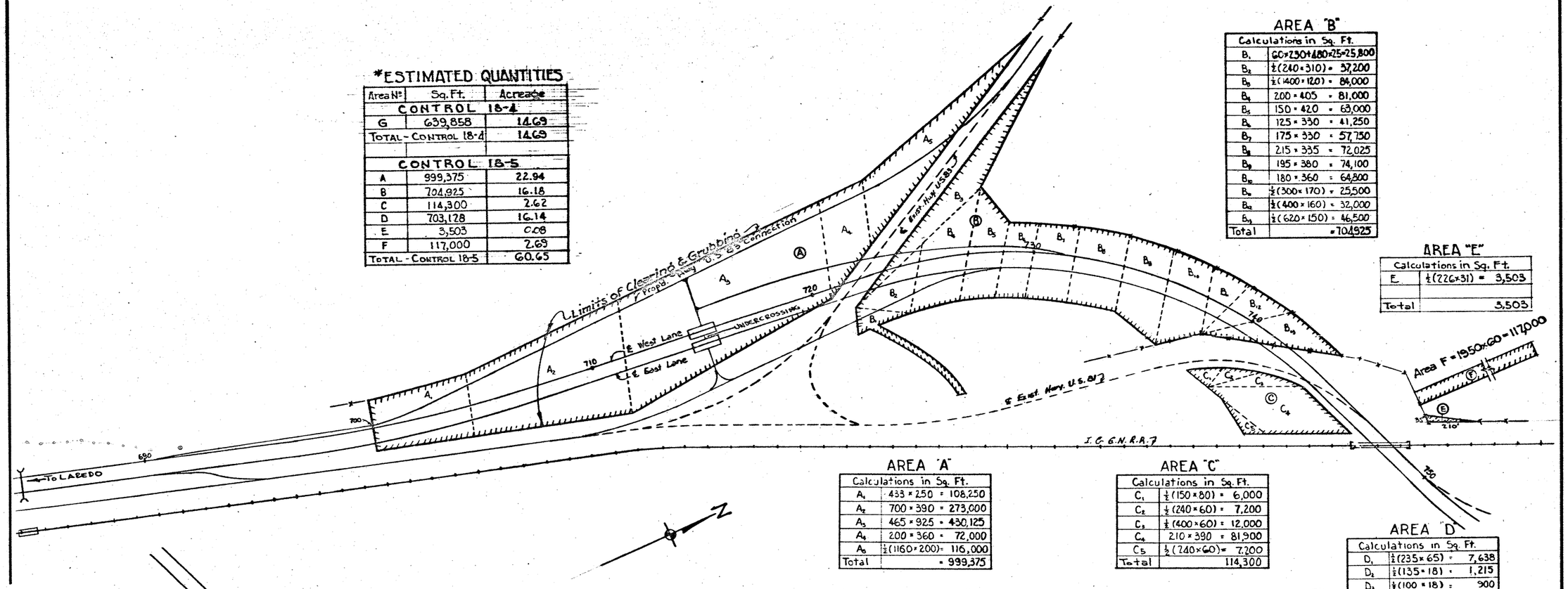
HWY. U.S. 83 CONNECTION

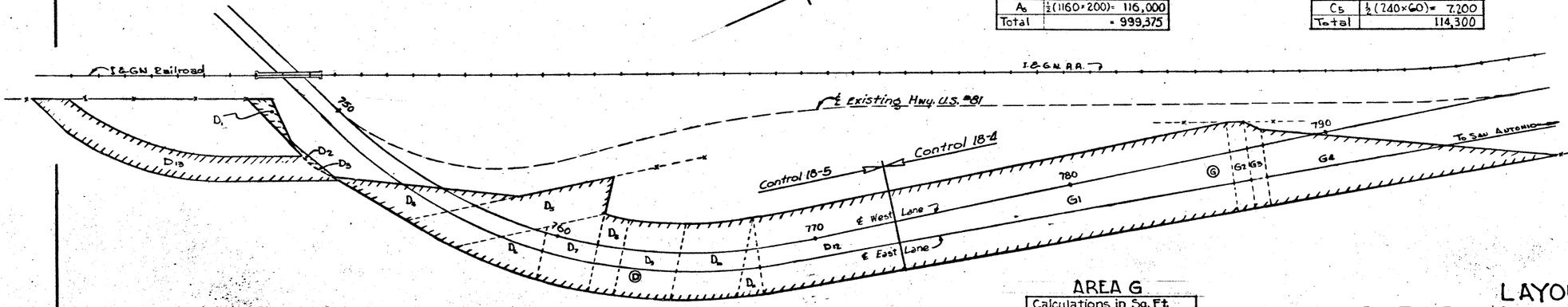
SHEET 2 OF 2 SHEETS

709.79	709.88	710.35	710.20	709.52	709.86	706.50	709.33	704.67	704.02
2313	A	2315	C	J	B	9	2320	1	2

PLAN - PROFILE - CROSS SECTION

STATE	FEDERAL AID PROJECT NO	SHEET NO
	I-35-1(3)19	14
COUNTY		
21 WEBB	18 4/11/13 5/13	TH 35





*ESTIMATED QUANTITIES

Area №	Sq. Ft.	Acreage
CONTROL 18-4		
G	639,858	14.69
TOTAL - CONTROL 18-4		14.69
CONTROL 18-5		
A	999,375	22.94
B	704,925	16.18
C	114,300	2.62
D	703,128	16.14
E	3,503	0.08
F	117,000	2.69
TOTAL - CONTROL 18-5		60.65

AREA "A"

Calculations in Sq. Ft.	
A_1	433 × 250 = 108,250
A_2	700 × 390 = 273,000
A_3	465 × 925 = 430,125
A_4	200 × 360 = 72,000
A_5	½(1160 × 200) = 116,000
Total	= 999,375

AREA "B"

Calculations in Sq. Ft.	
B_1	60 × 730 + 680 × 25 = 25,800
B_2	½(240 × 310) = 37,200
B_3	½(1400 × 120) = 84,000
B_4	200 × 405 = 81,000
B_5	150 × 420 = 63,000
B_6	125 × 330 = 41,250
B_7	175 × 330 = 57,750
B_8	215 × 335 = 72,025
B_9	195 × 380 = 74,100
B_{10}	180 × 360 = 64,800
B_{11}	½(300 × 170) = 25,500
B_{12}	½(400 × 160) = 32,000
B_{13}	½(620 × 150) = 46,500
Total	= 704,925

AREA "C"

Calculations in Sq. Ft.	
C_1	½(150 × 80) = 6,000
C_2	½(240 × 60) = 7,200
C_3	½(400 × 60) = 12,000
C_4	210 × 390 = 81,900
C_5	½(240 × 60) = 7,200
Total	114,300

AREA "E"

Calculations in Sq. Ft.	
E	½(226 × 31) = 3,503
Total	3,503

AREA "D"

Calculations in Sq. Ft.	
D_1	½(235 × 65) = 7,638
D_2	½(135 × 18) = 1,215
D_3	½(100 × 18) = 900
D_4	½(720 × 140) = 50,400
D_5	700 × 135 = 94,500
D_6	½(340 × 210) = 35,700
D_7	200 × 260 = 52,000
D_8	100 × 305 = 30,500
D_9	215 × 305 = 65,575
D_{10}	250 × 305 = 76,250
D_{11}	½(105 × 300) = 15,750
D_{12}	540 × 305 = 164,700
D_{13}	1,080 × 100 = 108,000
Total	703,128

AREA G

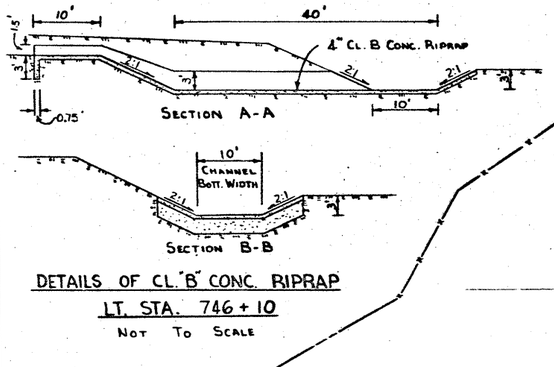
Calculations in Sq. Ft.	
G1	1,301 × 333 = 433,233
G2	345 × 65 = 22,425
G3	320 × 60 = 19,200
G4	½(1100 × 300) = 165,000
Total	639,858

* Only the areas listed in the table will be paid for as clearing & grubbing. Any other clearing & grubbing required will not be paid for directly but will be considered subsidiary to the Item of Clearing & Grubbing.

LAYOUT OF CLEARING & GRUBBING

Scale: 1" = 200'

FED. RD. DIST. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(5)19				15
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HWY. NO.
21	WEBB		18	4	5	IH35



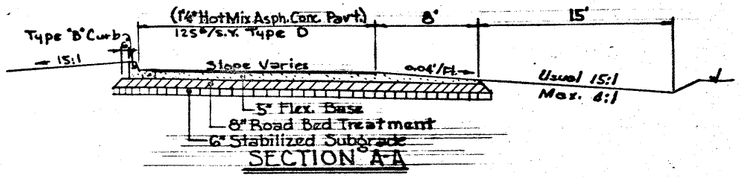
DETAILS OF CL. "B" CONC. RIPRAP
LT. STA. 746 + 10
NOT TO SCALE

Note: Proposed drainage system not shown.

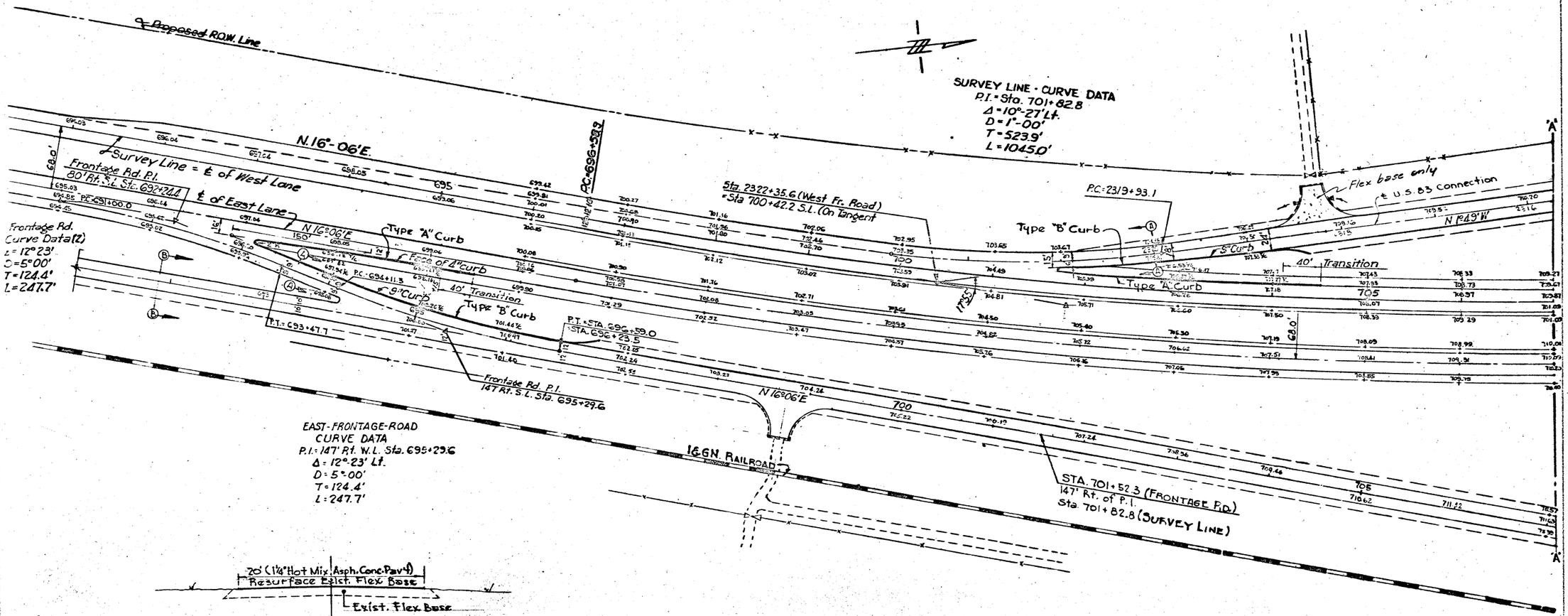
ROADWAY DETAILS
MISSOURI PACIFIC RAILROAD UNDERPASS
2.07 MILES SOUTH OF WEBB, TEXAS
SCALE 1" = 30'

FED. NO.	STATE	FEDERAL PROJECT No.	SHEET No.
DIV. NO.			
6	TEXAS	I-35-1(5)19	16

STATE DIST. No.	COUNTY	CONT.	SECT.	JOB	HIGHWAY No.
21	WEBB	16	4	5	IH-35



SECTION A-A



EAST-FRONTAGE-ROAD
CURVE DATA
P.I. = 147' Rt. W.L. Sta. 695+29.6
Δ = 12°-23' Lt.
D = 5°-00'
T = 124.4'
L = 247.7'

Frontage Rd. Curve Data (2)
Δ = 12°23'
D = 5°00'
T = 124.4'
L = 247.7'

SECTION B-B

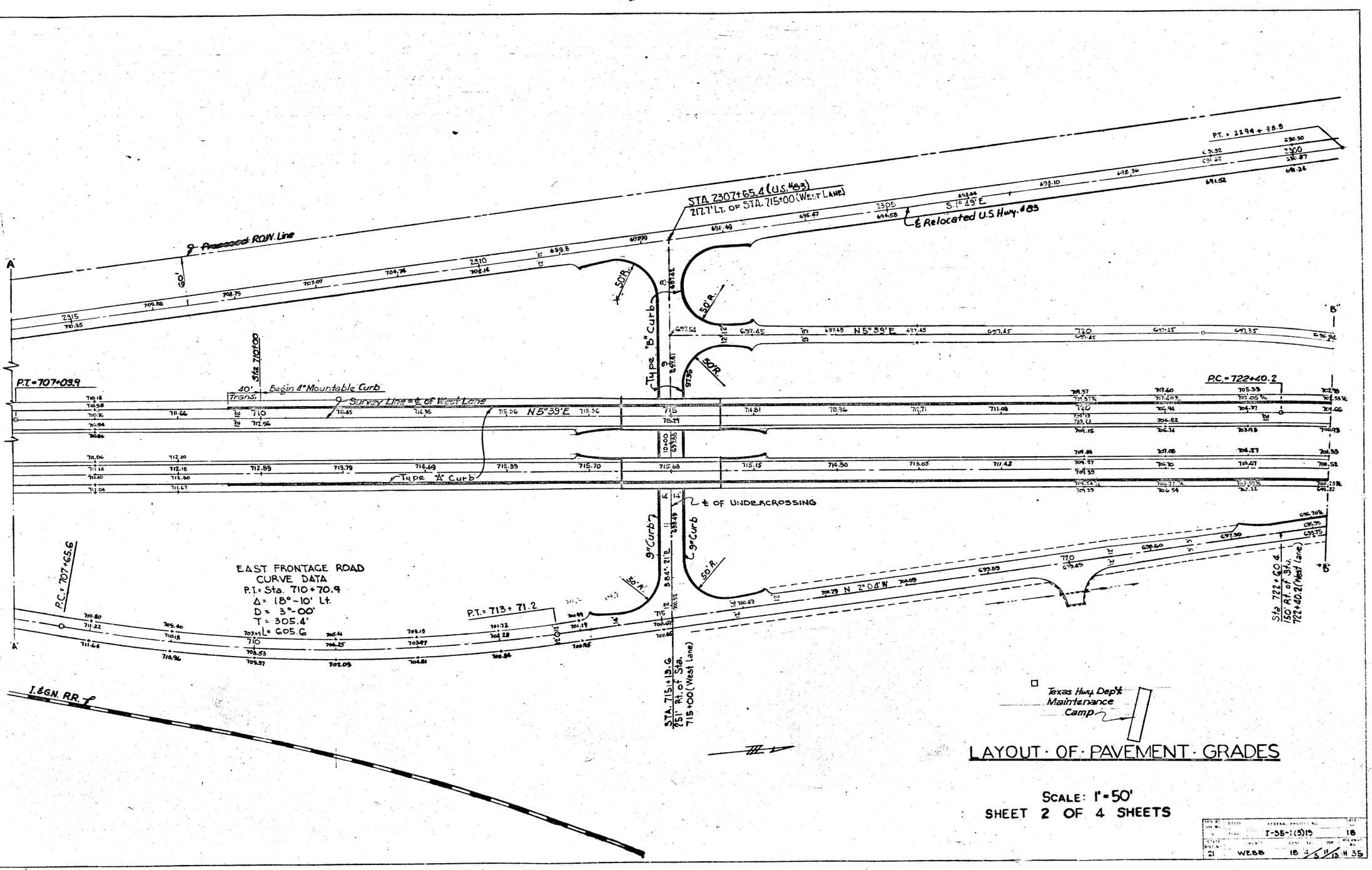
~~To be~~ used between Sta. 687+70 & Sta. 693+80 on old highway 9

NOTE:
Grades shown on layouts are proposed pavement finished grades.

•LAYOUT• OF •PAVEMENT• GRADES•

SCALE: 1"=50'
SHEET 1 OF 4 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	DIST. NO.
6	TEXAS	I-35-1(3)19	17
STATE DIST. NO.	COUNTY	SHEET NO.	TOTAL SHEETS
21	WEBB	18	35

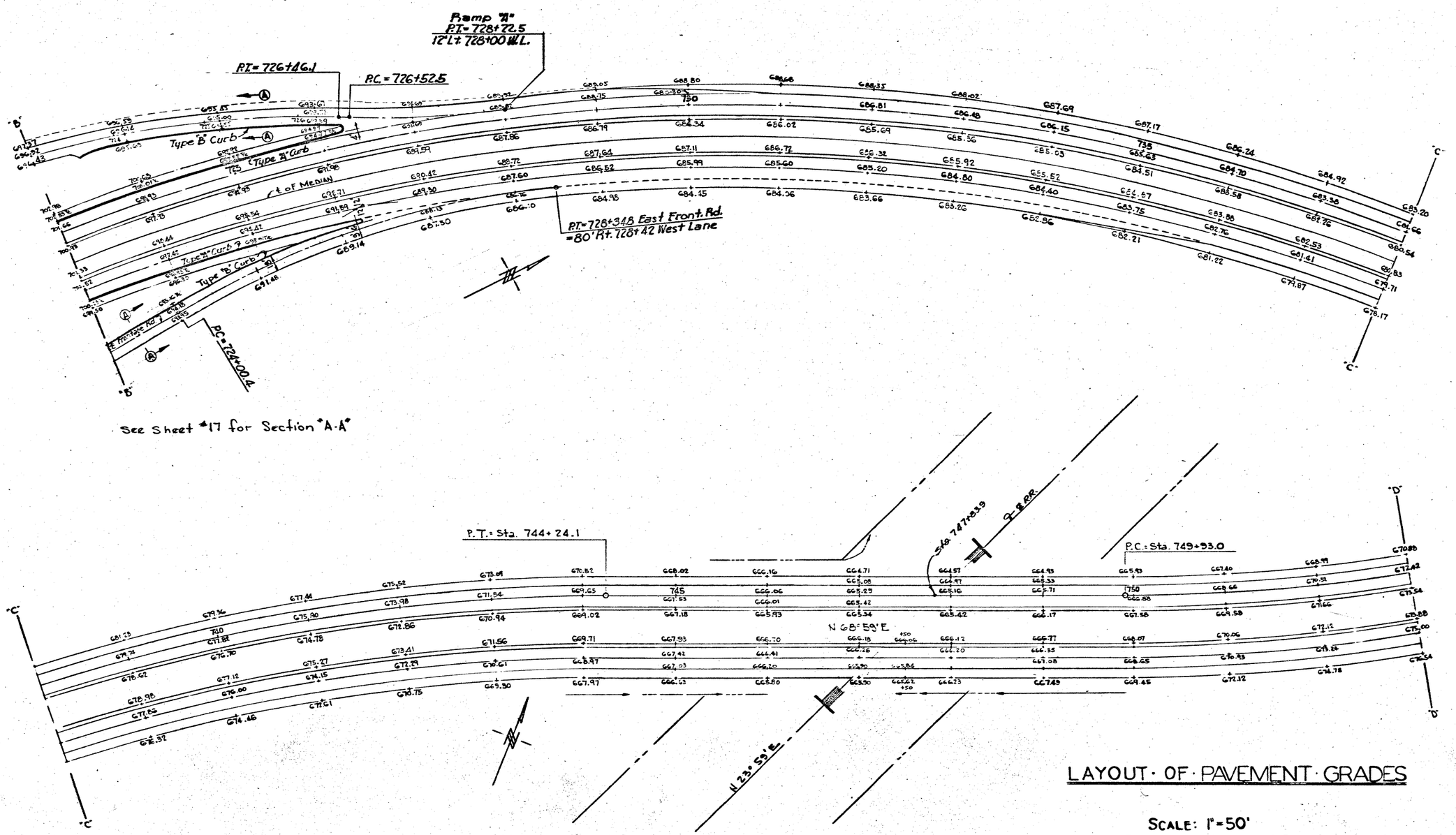


LAYOUT · OF · PAVEMENT · GRADES

SCALE: 1" = 50'

SHEET 2 OF 4 SHEETS

		FEDERAL PROJECT NO.	
		I-35-1(5)15	18
21	WEBB	18	15 H 35

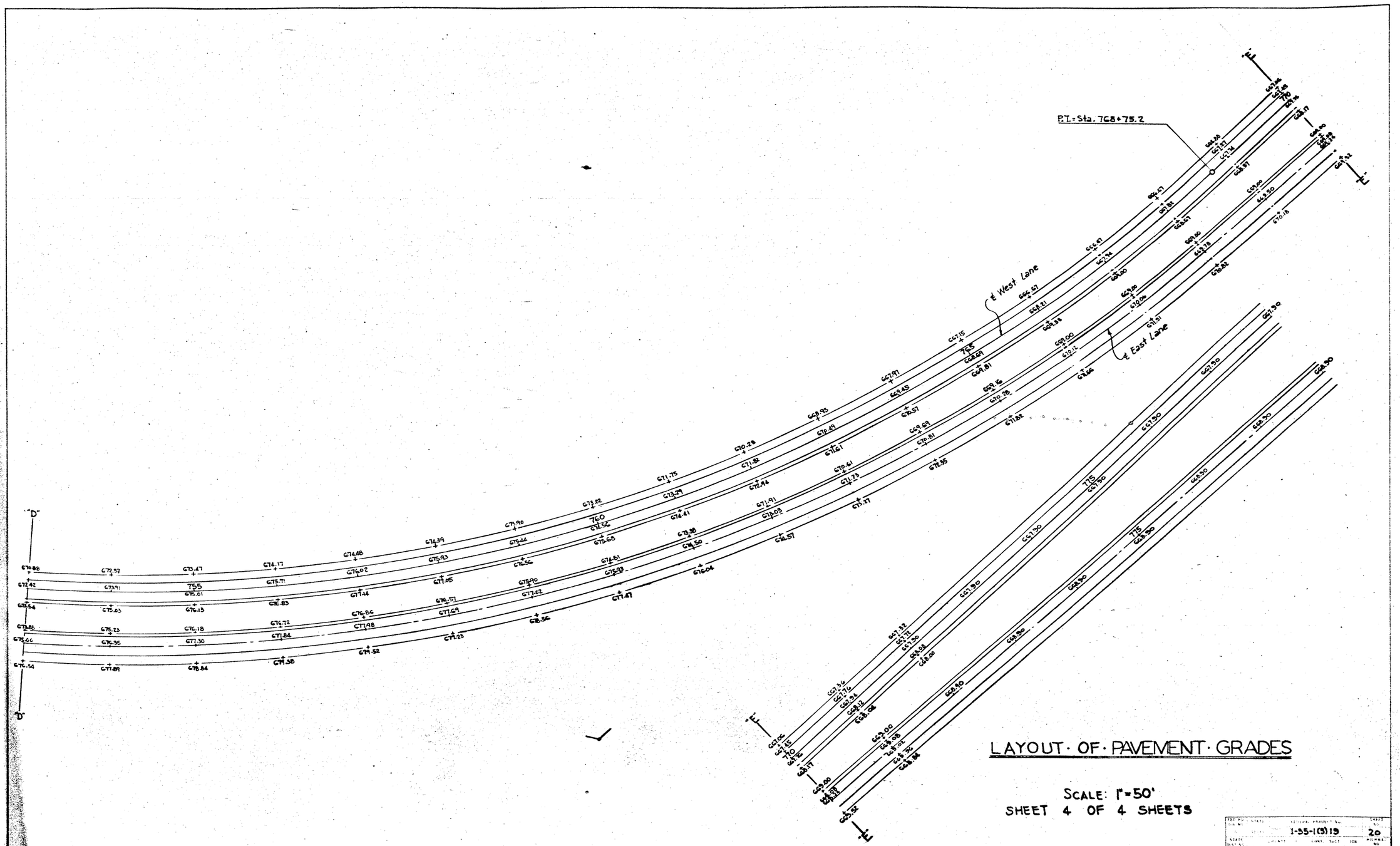


LAYOUT · OF · PAVEMENT · GRADES

SCALE: 1"=50'

SHEET 3 OF 4 SHEETS

		I-35-1(5)19	19
21	WEBB	18	I-H 35


P.T. = Sta. 768+75.2
℄ West Lane
℄ East Lane
"D"
"D"
"E"
"E"
"E"
"E"
760
765
770
775
780
785
790
795
800
805
810
815
820
825
830
835
840
845
850
855
860
865
870
875
880
885
890
895
900
905
910
915
920
925
930
935
940
945
950
955

HYDRAULIC - DATA

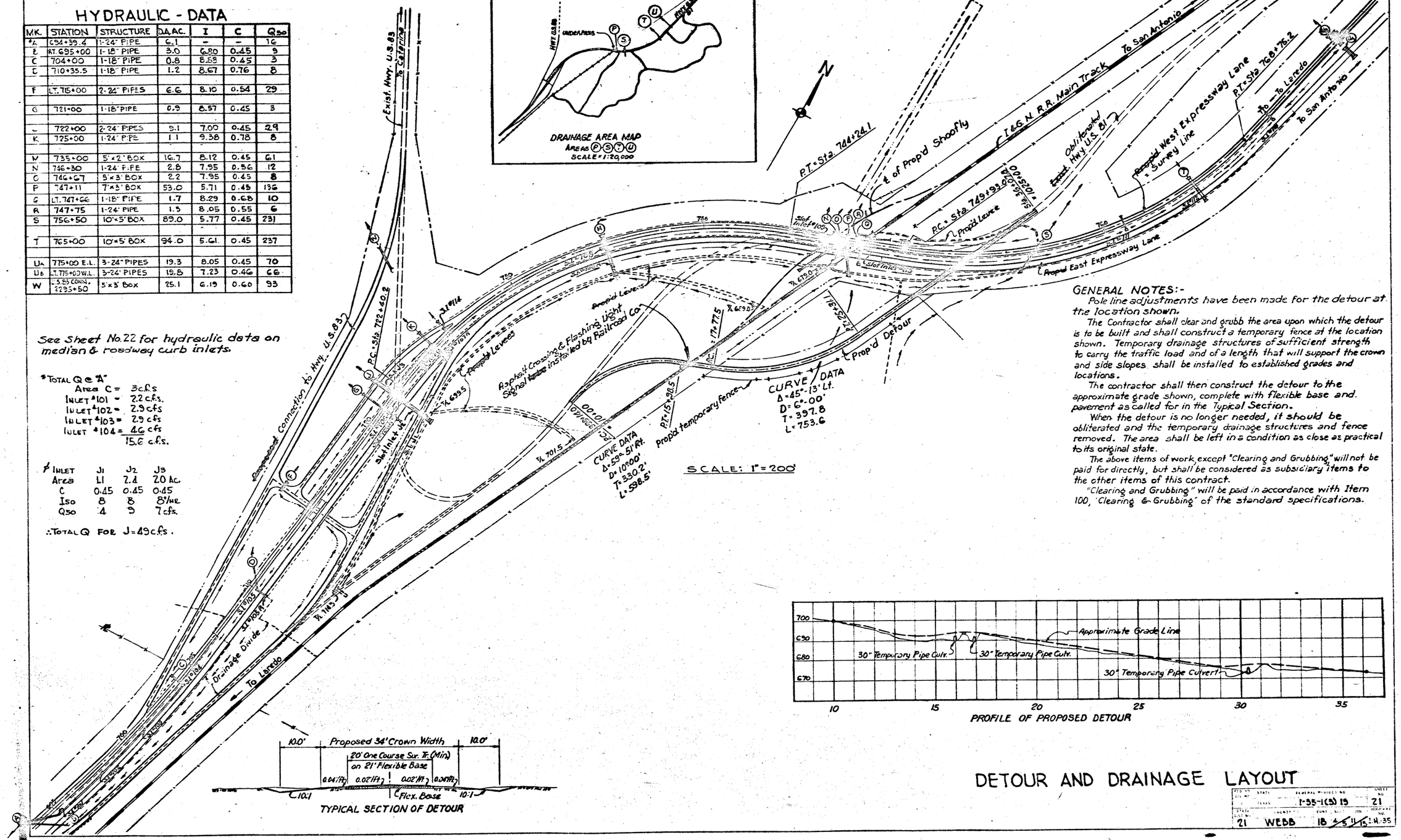
MK.	STATION	STRUCTURE	DA AC.	I	C	Q_{50}
*A	694+39.4	1-24" PIPE	6.1	-	-	16
B	AT 695+00	1-18" PIPE	3.0	6.80	0.45	9
C	704+00	1-18" PIPE	0.8	8.68	0.45	3
D	710+35.5	1-18" PIPE	1.2	8.67	0.76	8
F	LT. 715+00	2-24" PIPES	6.6	8.10	0.54	29
G	721+00	1-18" PIPE	0.9	8.57	0.45	3
J	722+00	2-24" PIPES	9.1	7.00	0.45	29
K	725+00	1-24" PIPE	1.1	9.38	0.78	8
M	735+00	5'x2' BOX	16.7	8.12	0.45	61
N	746+30	1-24" PIPE	2.8	7.95	0.56	12
O	746+67	9'x3' BOX	2.2	7.95	0.45	8
P	747+11	7'x3' BOX	53.0	5.71	0.45	136
Q	LT. 747+66	1-18" PIPE	1.7	8.29	0.68	10
R	747+75	1-24" PIPE	1.5	8.05	0.55	6
S	756+50	10'x5' BOX	89.0	5.77	0.45	231
T	765+00	10'x5' BOX	94.0	5.61	0.45	237
Ua	775+00 E.L.	3-24" PIPES	19.3	8.05	0.45	70
Ub	LT. 775+00 W.L.	3-24" PIPES	19.8	7.23	0.46	66
W	U.S. 83 CONN. 2295+50	5'x3' BOX	25.1	6.19	0.60	93

See Sheet No. 22 for hydraulic data on median & roadway curb inlets.

*TOTAL Q @ "A"
Area C = 3 c.f.s
INLET #101 = 2.2 c.f.s.
INLET #102 = 2.9 c.f.s
INLET #103 = 2.9 c.f.s
INLET #104 = 4.6 c.f.s
15.6 c.f.s.

# INLET	J1	J2	J3
Area	L1	2.1	2.0 Ac.
C	0.45	0.45	0.45
Iso	8	8	8"/HR
Q50	4	9	7 c.f.s.

∴TOTAL Q FOR J = 49 c.f.s.



GENERAL NOTES:-

Pole line adjustments have been made for the detour at the location shown.

The Contractor shall clear and grubb the area upon which the detour is to be built and shall construct a temporary fence at the location shown. Temporary drainage structures of sufficient strength to carry the traffic load and of a length that will support the crown and side slopes shall be installed to established grades and locations.

The contractor shall then construct the detour to the approximate grade shown, complete with flexible base and pavement as called for in the Typical Section.

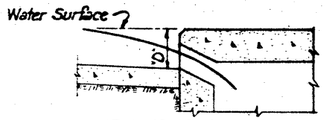
When the detour is no longer needed, it should be obliterated and the temporary drainage structures and fence removed. The area shall be left in a condition as close as practical to its original state.

The above items of work, except "Clearing and Grubbing" will not be paid for directly, but shall be considered as subsidiary items to the other items of this contract.

"Clearing and Grubbing" will be paid in accordance with Item 100, "Clearing & Grubbing" of the standard specifications.

DETOUR AND DRAINAGE LAYOUT

STATE	GENERAL PROJECT NO.	SHEET NO.
TEXAS	I-35-1(53) 19	21
STATE DIST. NO. 21	COUNTY WEBB	CONT. SECT. JOB 18 4 5 11 15
		HIGHWAY NO. I.H. 35

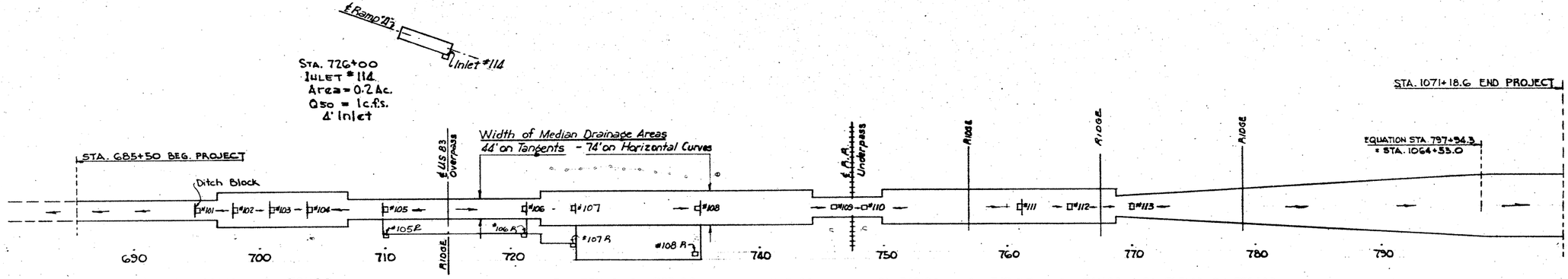


SECTION

INLET CAPACITY

D Inches	CAPACITY IN c.f.s. 5' Inlet	10' Inlet	13' Inlet
4	3.0	6.0	7.8
6	5.5	11.0	14.3
8	8.4	16.8	21.8

INLET CAPACITY



Sta. 685+00
INLET #101
Area = 0.40 Ac.
C = 0.70 } * Constant for
Iso = 8"/hr } all inlets
Qso = 2.2 c.f.s.
5' Inlet

Sta. 698+00
INLET #102
Area = 0.51 Ac.
Qso = 2.9 c.f.s.
5' Inlet

Sta. 701+00
INLET #103
Area = 0.51 Ac.
Qso = 2.9 c.f.s.
5' Inlet

Sta. 704+00
INLET #104
Area = 0.82 Ac.
Qso = 4.6 c.f.s.
5' Inlet

Sta. 710+00
INLET #105
Area = 0.44
Qso = 2.5 c.f.s.
5' Inlet
INLET #105R
Area = 0.39 Ac.
Qso = 2.2 c.f.s.
4' Inlet

Sta. 721+00
INLET #106
Area = 0.55 Ac.
Qso = 3.1 c.f.s.
5' Inlet
Inlet #106R
Area = 0.47 Ac.
Qso = 2.6 c.f.s.
4' Inlet

Sta. 725+00
INLET #107
Area = 0.58 Ac.
Qso = 3.2 c.f.s.
5' Inlet
INLET #107R
Area = 0.31 Ac.
Qso = 1.7 c.f.s.
4' Inlet

Sta. 735+00
INLET #108
Area = 1.70 Ac.
Qso = 9.5 c.f.s.
12' Inlet
INLET #108R
Area = 1.70 Ac.
Qso = 9.5 c.f.s
12' Inlet

Sta. 746+30
INLET #109
Area = 1.85 Ac.
Qso = 10.4 c.f.s.
12' Inlet

Sta. 747+75
INLET #110
Area = 1.50 Ac.
Qso = 8.4 c.f.s.
12' Inlet

Sta. 761+00
INLET #111
Area = 0.68 Ac.
Qso = 3.8 c.f.s.
5' Inlet

Sta. 765+00
INLET #112
Area = 1.10 Ac.
Qso = 6.2 c.f.s.
10' Inlet

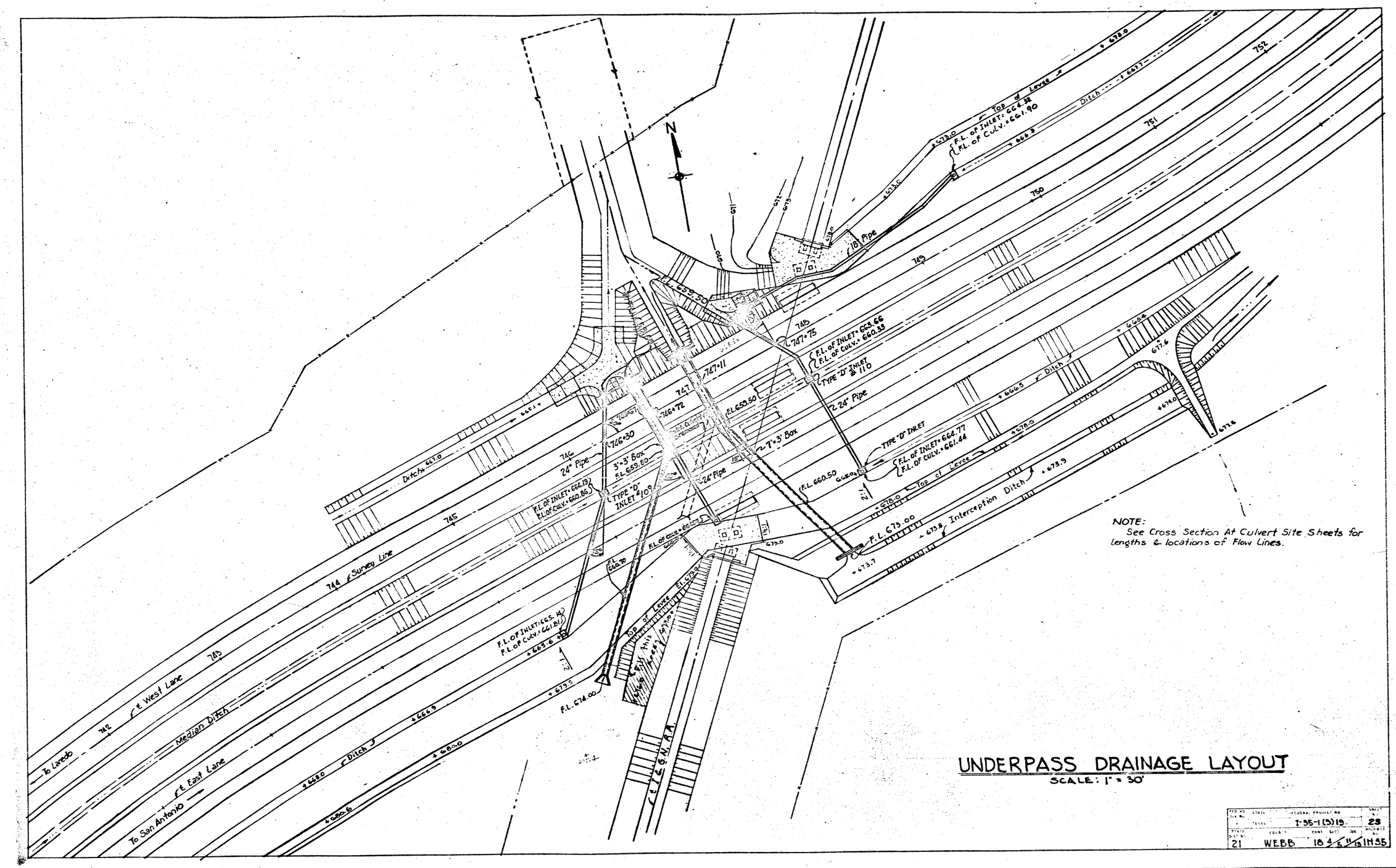
Sta. 770+00
INLET #113
Area = 1.61 Ac.
Qso = 9.0 c.f.s.
10' Inlet

* Based on 50 Year Frequency & 10 minute time of concentration.

DIAGRAMMATIC SKETCH OF MEDIAN INLETS, DRAINAGE AREAS & HYDRAULIC COMPUTATIONS

MEDIAN INLETS DRAINAGE AREAS

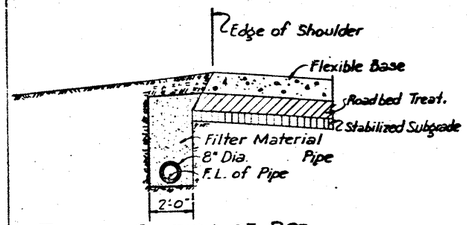
FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
		I-35-1(3)15	22
STATE DIST. NO.	COUNTY	CONT. SECT.	JOB NO.	HIGHWAY NO.
21	WEBB	18 4 5 1 15	IH-35



UNDERPASS DRAINAGE LAYOUT

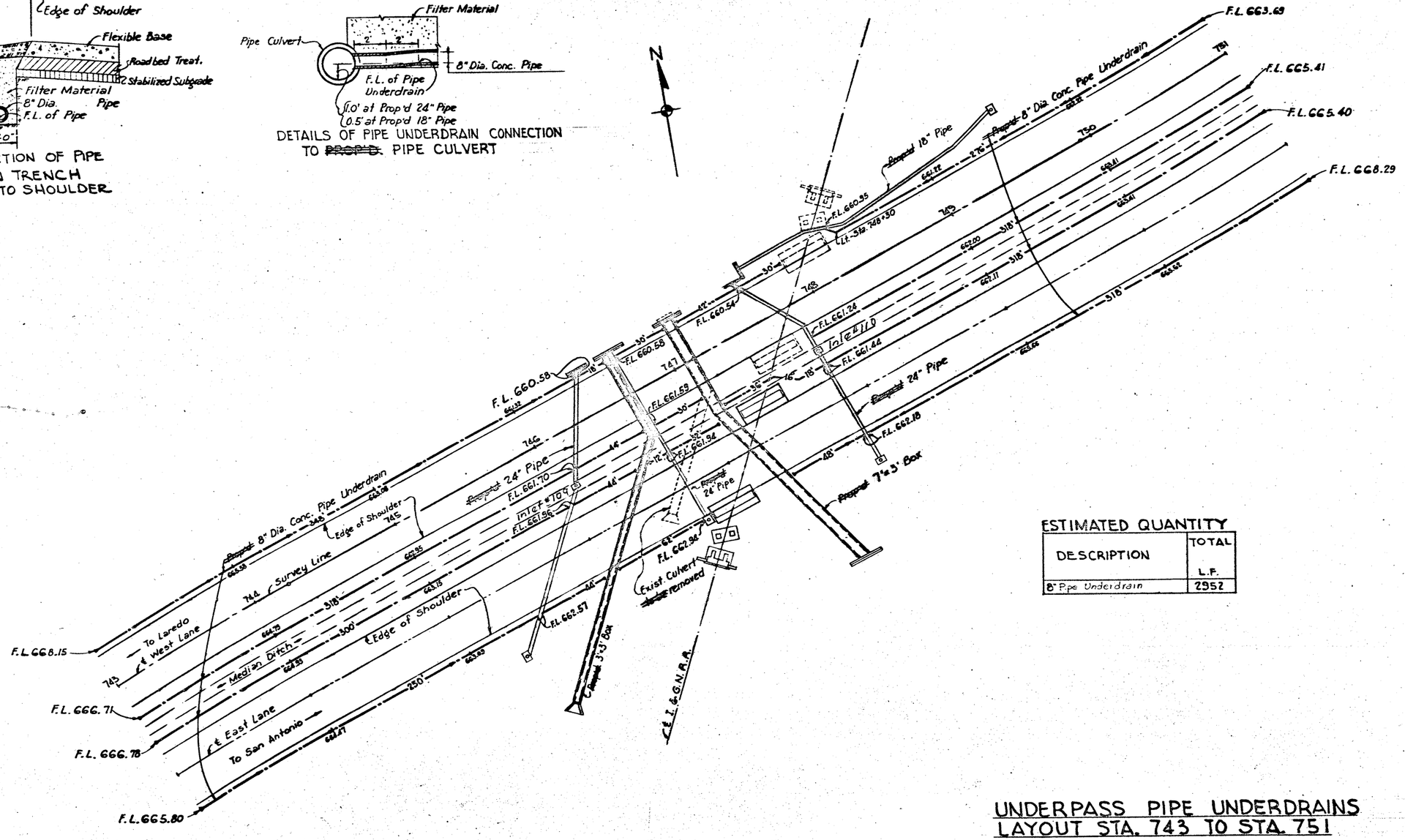
SCALE: 1" = 30'

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
	TEXAS	I-35-1(5)19	29
STATE DIST. NO.	COUNTY	CONT. SECT.	JOB	HIGHWAY NO.
21	WEBB	18 4/5 11 15		IH 35



TYPICAL SECTION OF PIPE UNDERDRAIN TRENCH PARALLEL TO SHOULDER

DETAILS OF PIPE UNDERDRAIN CONNECTION TO ~~PROP'D.~~ PIPE CULVERT



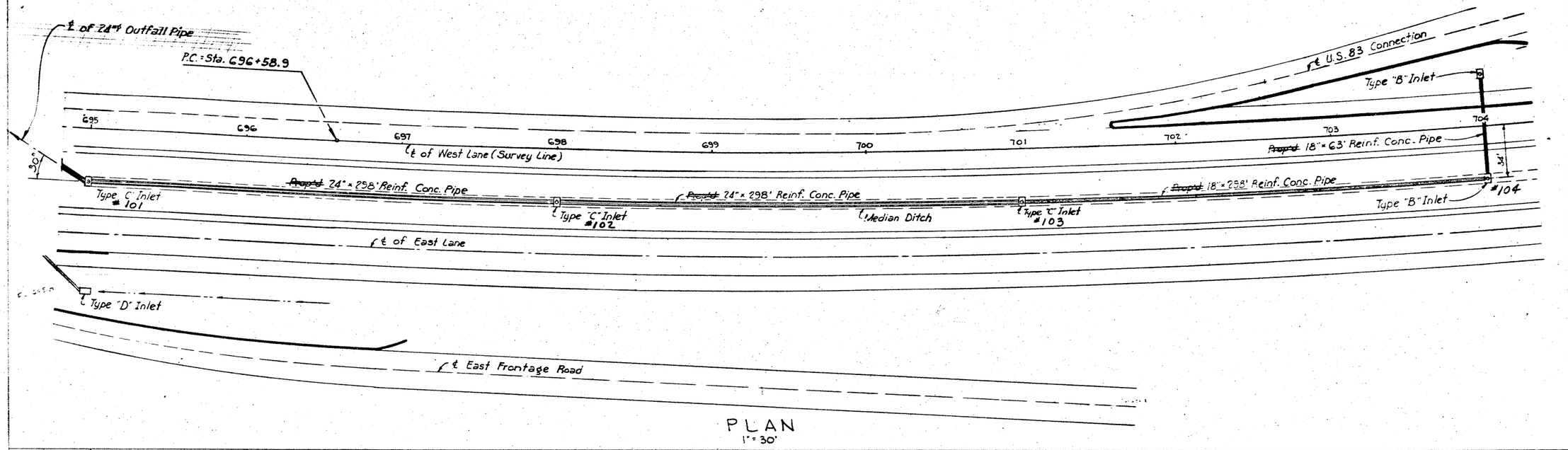
ESTIMATED QUANTITY

DESCRIPTION	TOTAL L.F.
8" Pipe Underdrain	2952

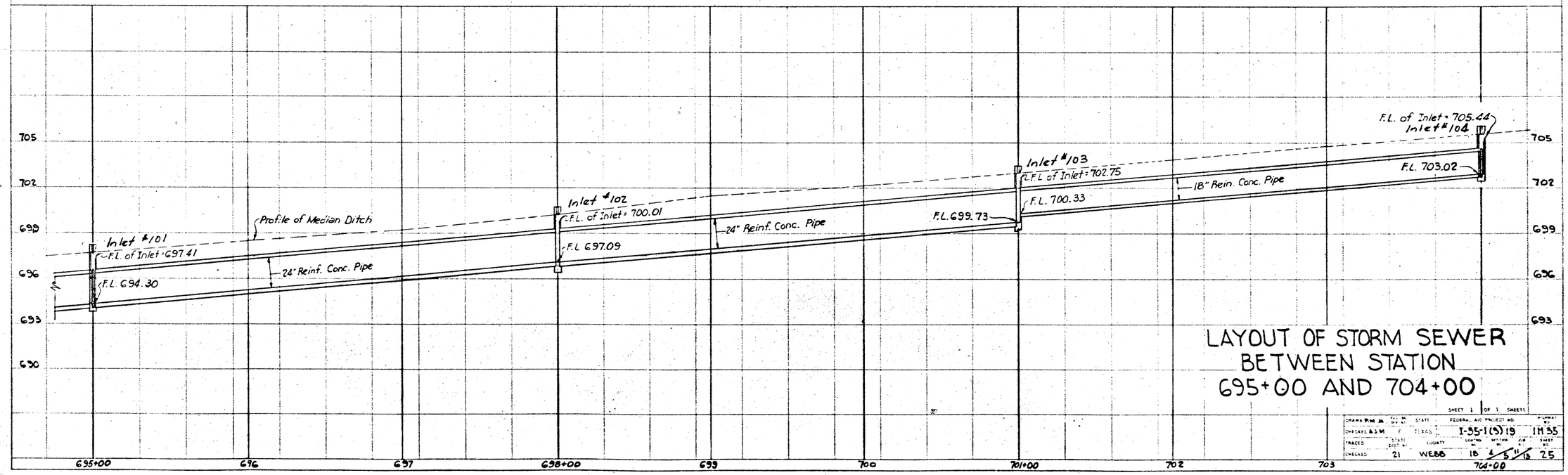
UNDERPASS PIPE UNDERDRAINS LAYOUT STA. 743 TO STA. 751

SCALE: 1" = 30'

STATE	FEDERAL PROJECT NO.	SHEET NO.
	I-35-1(8) 19	24
STATE DIST. NO. 21	COUNTY WEBB	CONT. SEC. JOB 18 4 59 19
		HIGHWAY NO. IH-35



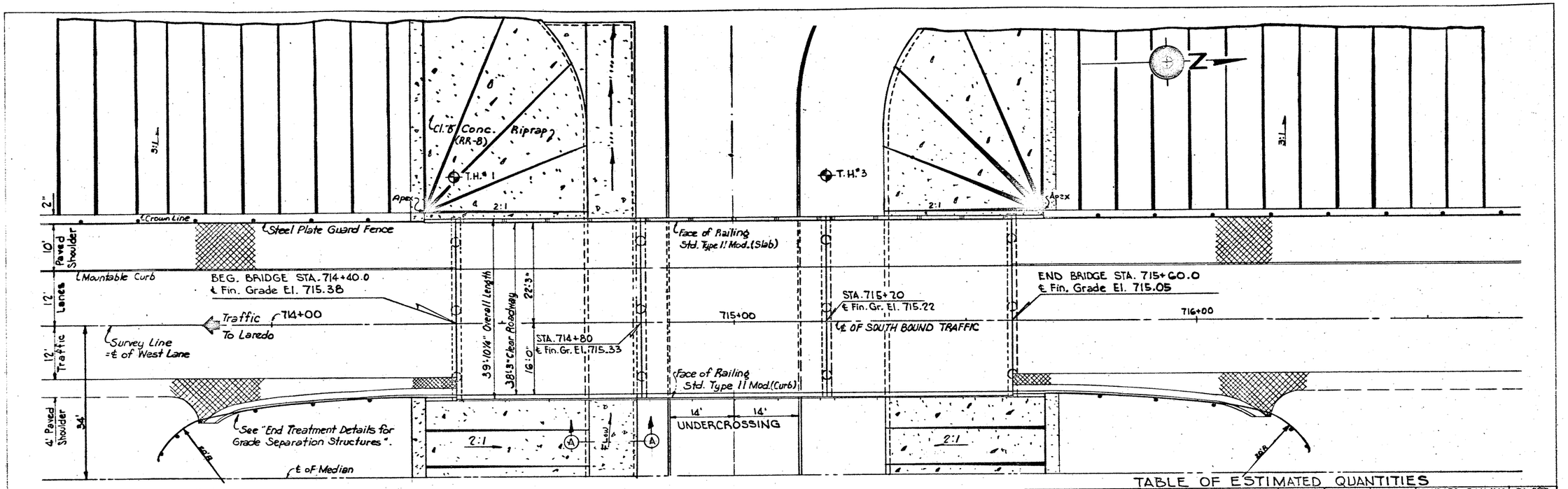
PLAN
1" = 30'



LAYOUT OF STORM SEWER BETWEEN STATION 695+00 AND 704+00

SHEET 1 OF 1 SHEETS

DRAWN: P.M.M.	DIST. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CHECKED: A.S.M.	F	TEXAS	I-35-1(5)19	IH 35
TRACED	STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
CHECKED	21	WEBB	18	4 5 13



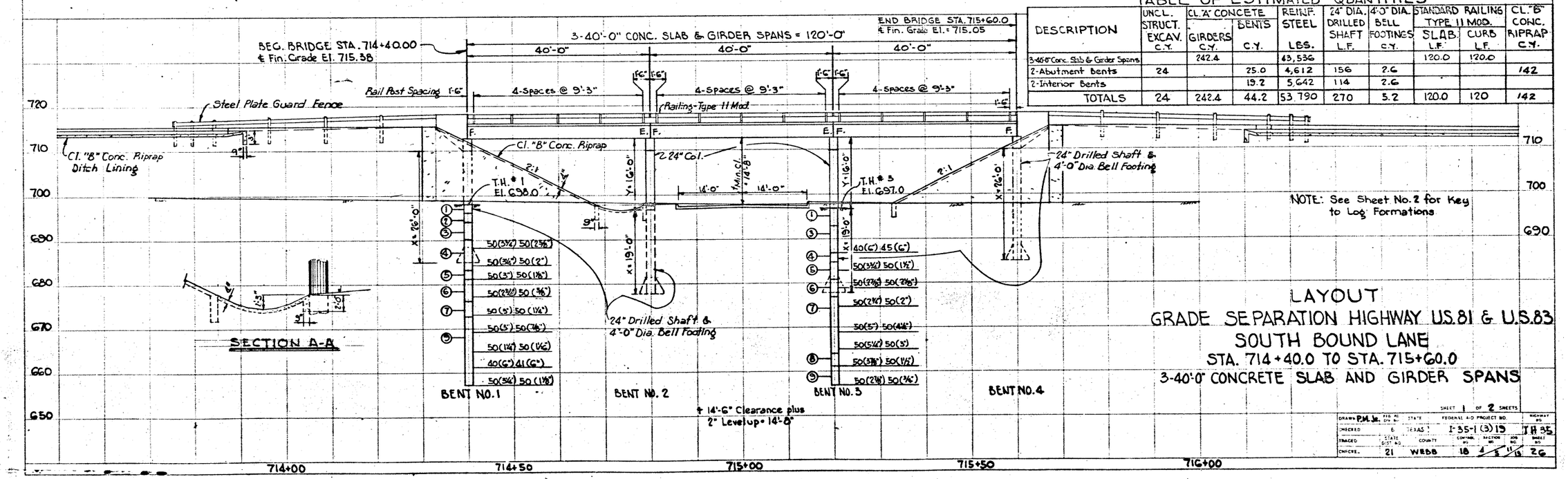


TABLE OF ESTIMATED QUANTITIES

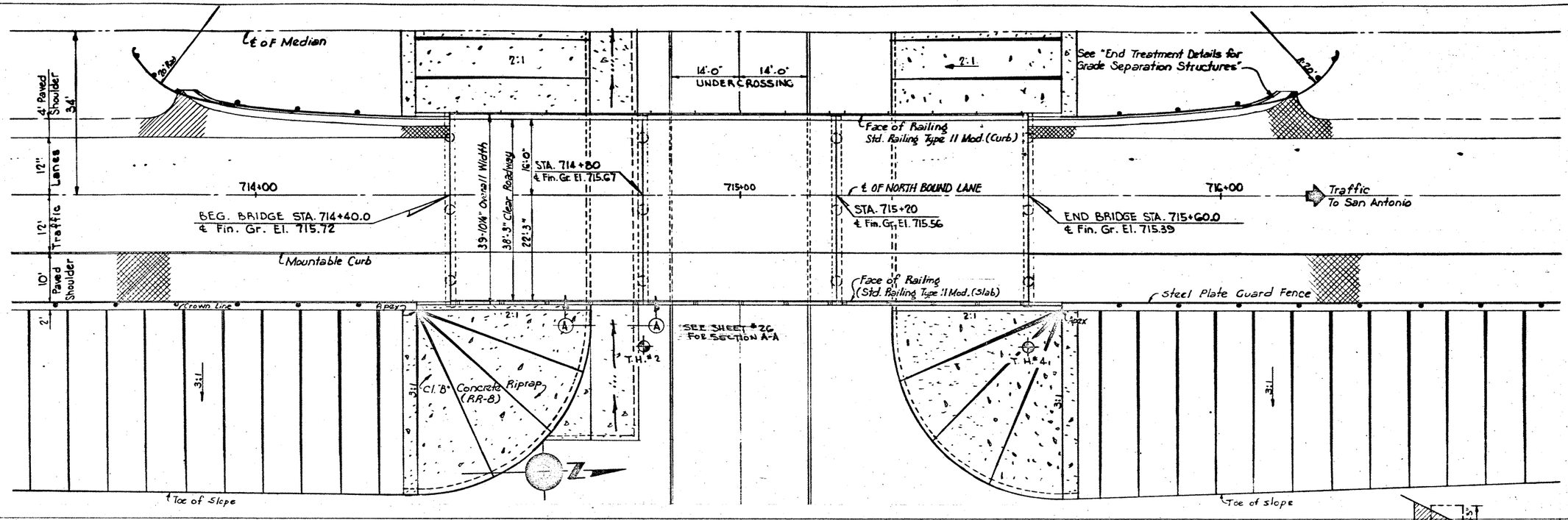
DESCRIPTION	UNCL. STRUCT. EXCAV. C.Y.	CL. "A" CONCETE GIRDERS C.Y.	CL. "A" CONCETE BENTS C.Y.	REINF. STEEL LBS.	24" DIA. DRILLED SHAFT L.F.	4'-0" DIA. BELL FOOTINGS C.Y.	STANDARD RAILING TYPE II MOD. SLAB L.F.	STANDARD RAILING TYPE II MOD. CURB L.F.	CL. "B" CONC. RIPRAP C.Y.
3-40'-0" Conc. Slab & Girder Spans		242.4		43,536			120.0	120.0	
2-Abutment Bents	24		25.0	4,612	156	2.6			142
2-Interior Bents			19.2	5,642	114	2.6			
TOTALS	24	242.4	44.2	53,790	270	5.2	120.0	120	142

NOTE: See Sheet No. 2 for Key to Log Formations

LAYOUT
GRADE SEPARATION HIGHWAY U.S. 81 & U.S. 83
SOUTH BOUND LANE
STA. 714+40.0 TO STA. 715+60.0
3-40'-0" CONCRETE SLAB AND GIRDER SPANS

SHEET 1 OF 2 SHEETS

DRAWN P.M.W.	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CHECKED	6	TEXAS	I-35-1(3)19	TH 85
TRACED	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED	21	WEBB	18	4	5	11	15	26



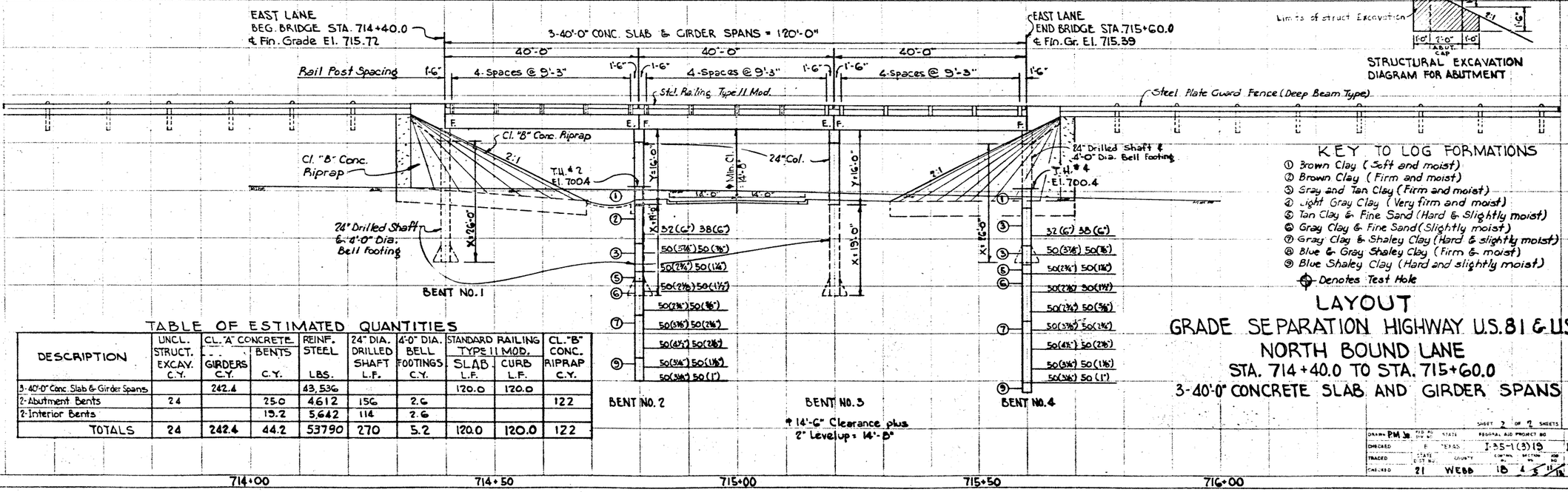


TABLE OF ESTIMATED QUANTITIES

DESCRIPTION	UNCL. STRUCT. EXCAV. C.Y.	CL. "A" CONCRETE GIRDERS C.Y.	CL. "A" CONCRETE BENTS C.Y.	REINF. STEEL LBS.	24" DIA. DRILLED SHAFT L.F.	4'-0" DIA. BELL FOOTINGS C.Y.	STANDARD RAILING TYPE II MOD. SLAB L.F.	STANDARD RAILING TYPE II MOD. CURB L.F.	CL. "B" CONC. RIPRAP C.Y.
3-40'-0" Conc. Slab & Girder Spans		242.4		43,536			120.0	120.0	
2-Abutment Bents	24		25.0	4612	156	2.6			122
2-Interior Bents			19.2	5,642	114	2.6			
TOTALS	24	242.4	44.2	53790	270	5.2	120.0	120.0	122

KEY TO LOG FORMATIONS

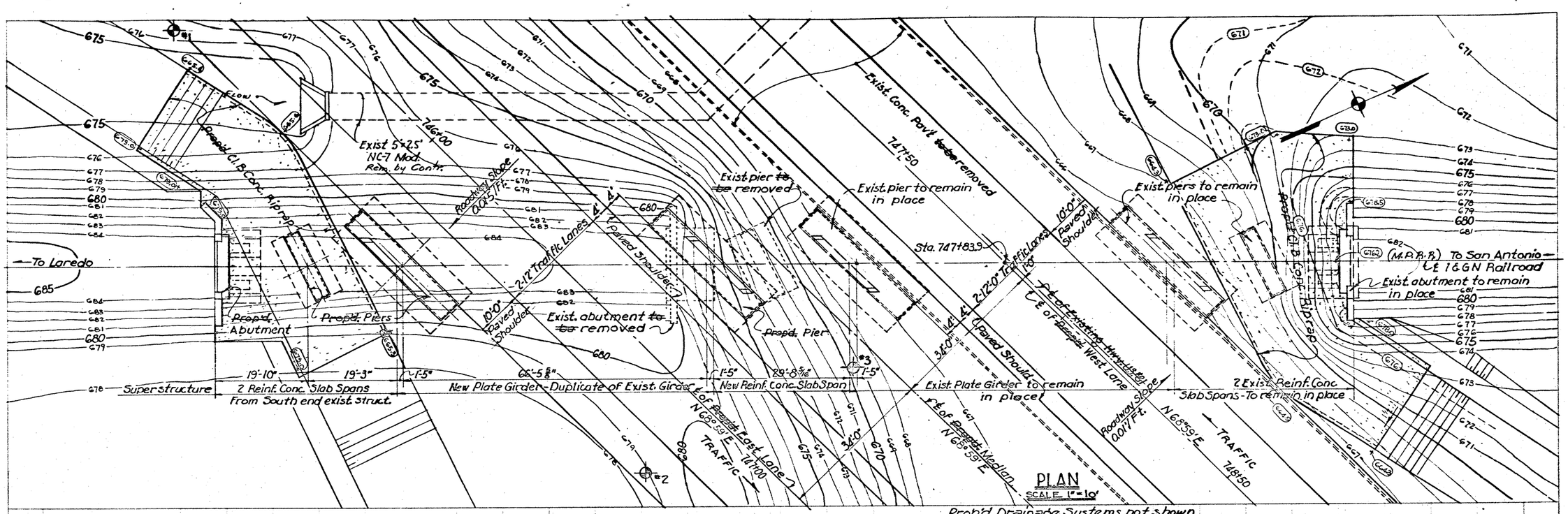
① Brown Clay (Soft and moist)
② Brown Clay (Firm and moist)
③ Gray and Tan Clay (Firm and moist)
④ Light Gray Clay (Very firm and moist)
⑤ Tan Clay & Fine Sand (Hard & Slightly moist)
⑥ Gray Clay & Fine Sand (Slightly moist)
⑦ Gray Clay & Shaley Clay (Hard & slightly moist)
⑧ Blue & Gray Shaley Clay (Firm & moist)
⑨ Blue Shaley Clay (Hard and slightly moist)

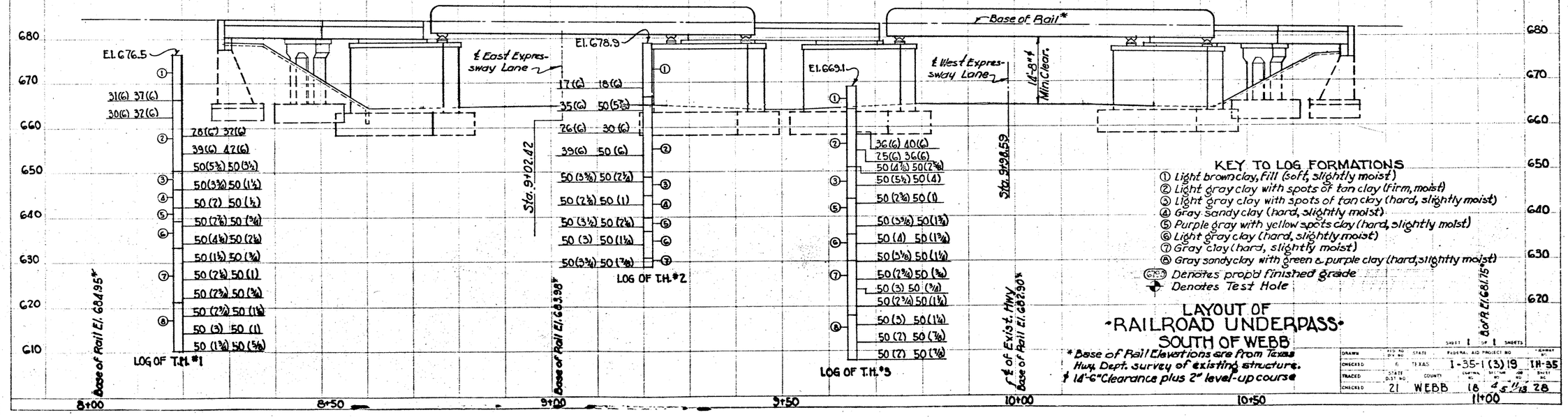
⊕ Denotes Test Hole

LAYOUT
GRADE SEPARATION HIGHWAY U.S. 81 & U.S. 83
NORTH BOUND LANE
STA. 714+40.0 TO STA. 715+60.0
3-40'-0" CONCRETE SLAB AND GIRDER SPANS

SHEET 2 OF 2 SHEETS

DRAWN PM 36	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CHECKED	6	TEXAS	I-35-1(3)19	IH 35
TRACED	STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	SHEET NO.
CHECKED	21	WEBB	18 4 5 11 / 18	27





KEY TO LOG FORMATIONS

① Light brown clay, Fill (soft, slightly moist)
② Light gray clay with spots of tan clay (firm, moist)
③ Light gray clay with spots of tan clay (hard, slightly moist)
④ Gray sandy clay (hard, slightly moist)
⑤ Purple gray with yellow spots clay (hard, slightly moist)
⑥ Light gray clay (hard, slightly moist)
⑦ Gray clay (hard, slightly moist)
⑧ Gray sandy clay with green & purple clay (hard, slightly moist)

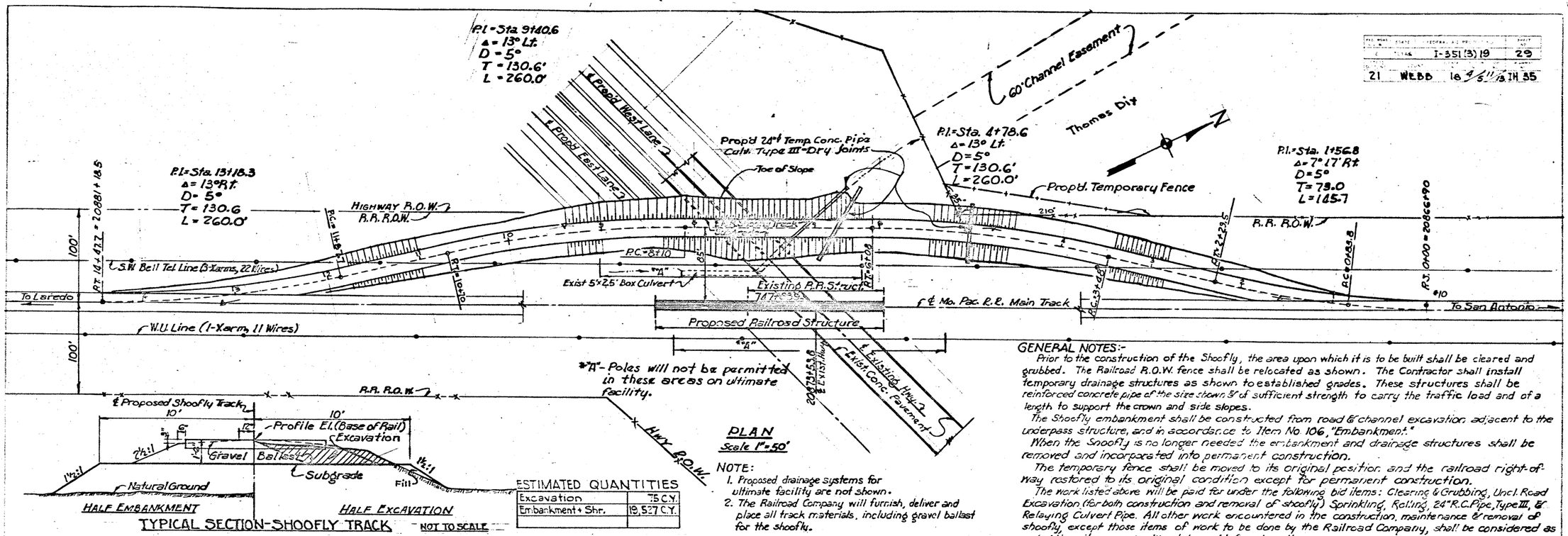
(675.0) Denotes propd finished grade
Denotes Test Hole

LAYOUT OF "RAILROAD UNDERPASS" SOUTH OF WEBB

* Base of Rail Elevations are from Texas Hwy. Dept. survey of existing structure.
# 14'-6" Clearance plus 2" level-up course

DRAWN	STATE	FEDERAL AID PROJECT NO.		SHEET 1 OF 1 SHEETS	
CHECKED	TEXAS	I-35-1(3)19		IH-35	
TRACED	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED	21	WEBB	18	4	5-11-13	28

		I-351(3)19	29
21	WEBB	16 9/16" S IH 35	



TYPICAL SECTION-SHOOFLY TRACK NOT TO SCALE

ESTIMATED QUANTITIES	
Excavation	75 C.Y.
Embankment + Shr.	19,527 C.Y.

NOTE:
1. Proposed drainage systems for ultimate facility are not shown.
2. The Railroad Company will furnish, deliver and place all track materials, including gravel ballast for the shoofly.

GENERAL NOTES:-

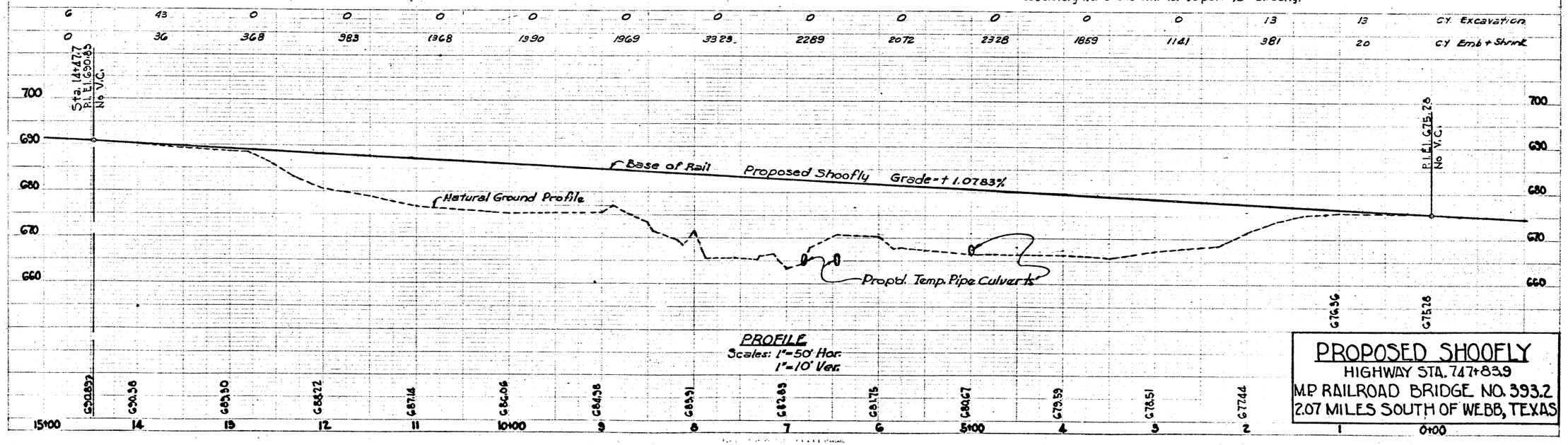
Prior to the construction of the Shoofly, the area upon which it is to be built shall be cleared and grubbed. The Railroad R.O.W. fence shall be relocated as shown. The Contractor shall install temporary drainage structures as shown to established grades. These structures shall be reinforced concrete pipe of the size shown & of sufficient strength to carry the traffic load and of a length to support the crown and side slopes.

The Shoofly embankment shall be constructed from road & channel excavation adjacent to the underpass structure, and in accordance to Item No. 106, "Embankment."

When the Shoofly is no longer needed the embankment and drainage structures shall be removed and incorporated into permanent construction.

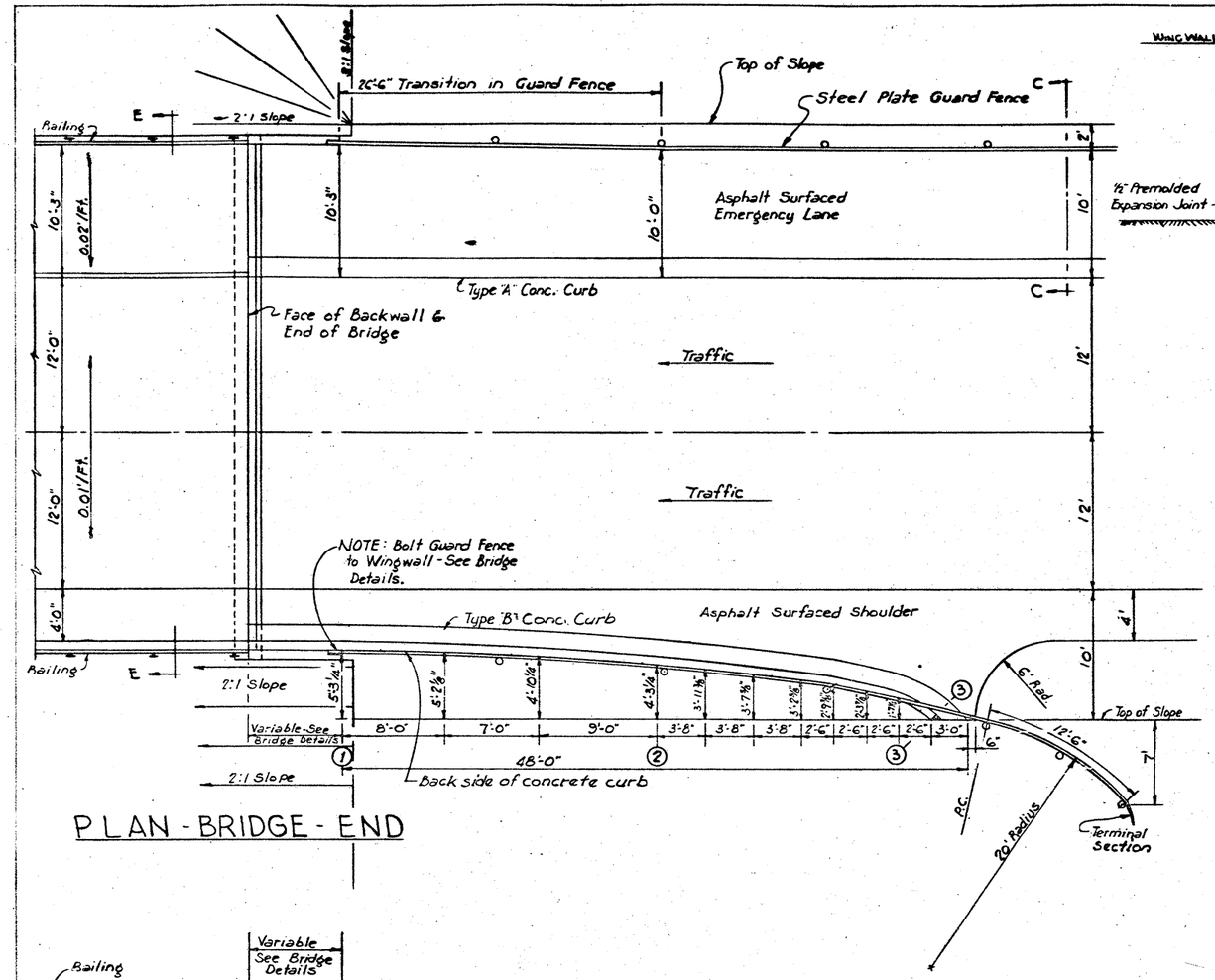
The temporary fence shall be moved to its original position and the railroad right-of-way restored to its original condition except for permanent construction.

The work listed above will be paid for under the following bid items: Clearing & Grubbing, Uncl. Road Excavation (for both construction and removal of shoofly) Sprinkling, Rolling, 24" R.C. Pipe, Type III, & Relaying Culvert Pipe. All other work encountered in the construction, maintenance & removal of shoofly, except those items of work to be done by the Railroad Company, shall be considered as subsidiary items and will not be paid for directly.

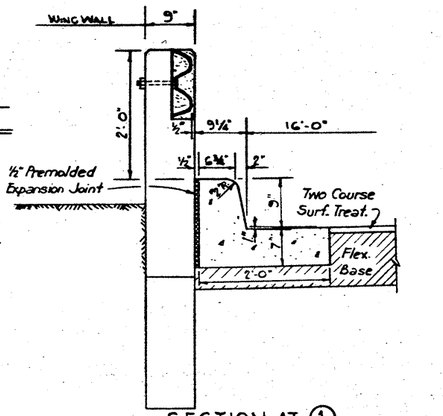


PROFILE
Scales: 1"=50' Hor.
1"=10' Ver.

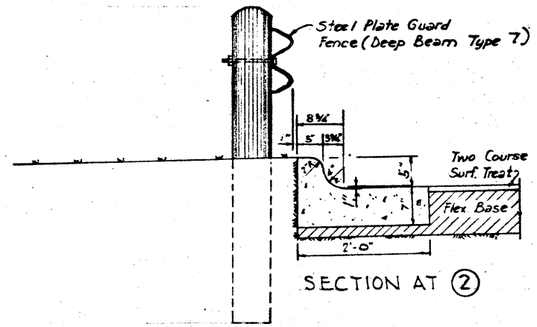
PROPOSED SHOOFLY
HIGHWAY STA. 747+83.9
M.P. RAILROAD BRIDGE NO. 393.2
2.07 MILES SOUTH OF WEBB, TEXAS



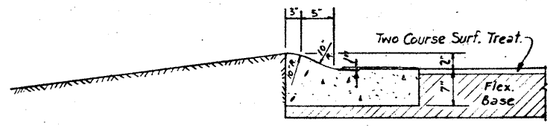
PLAN - BRIDGE - END



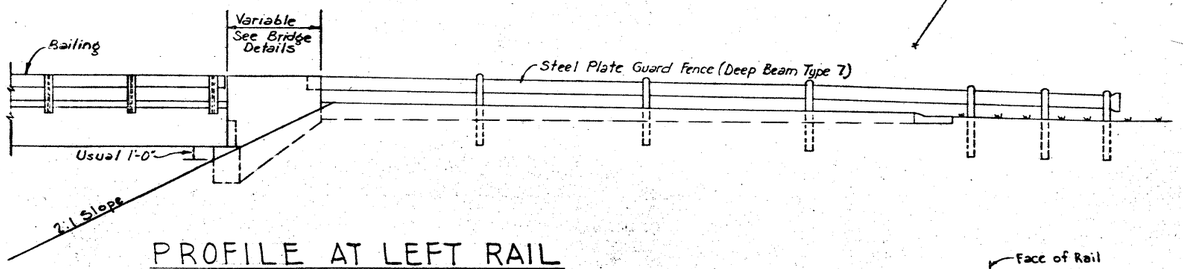
SECTION AT (1)
TYPE "B" CONC. CURB



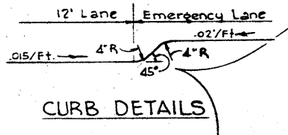
SECTION AT (2)



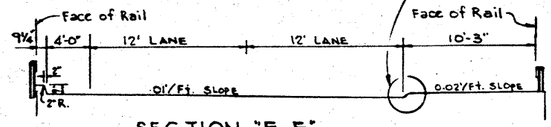
SECTION AT (3)-(3)



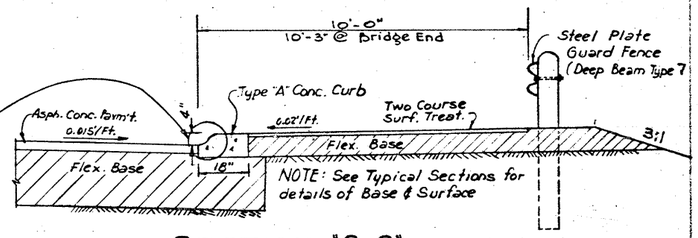
PROFILE AT LEFT RAIL



CURB DETAILS



SECTION "E-E"



SECTION "C-C"

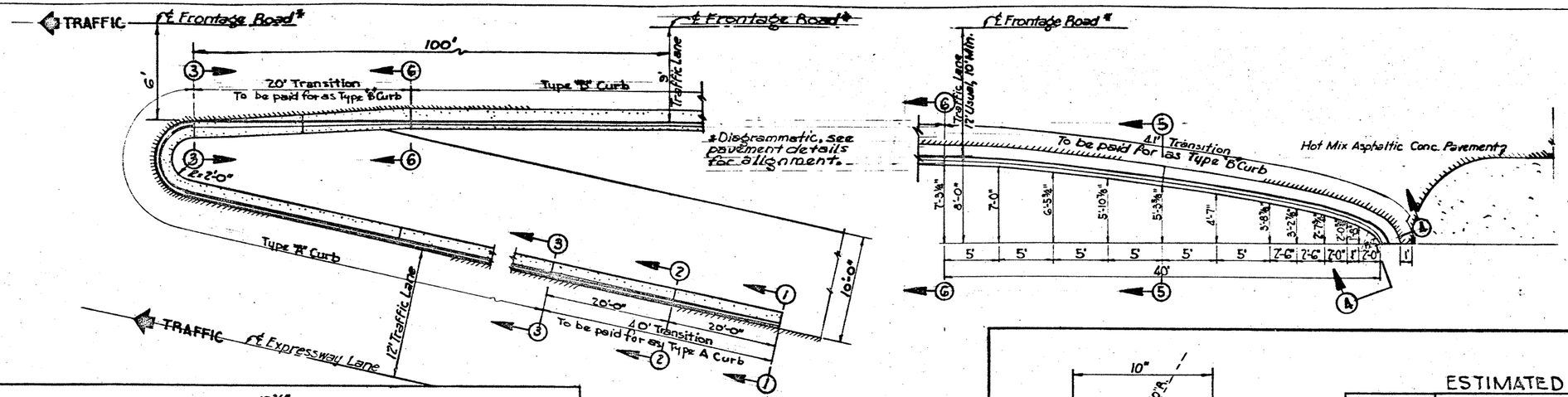
TEXAS HIGHWAY DEPARTMENT

END TREATMENT DETAILS FOR GRADE SEPARATION STRUCTURES

FOR

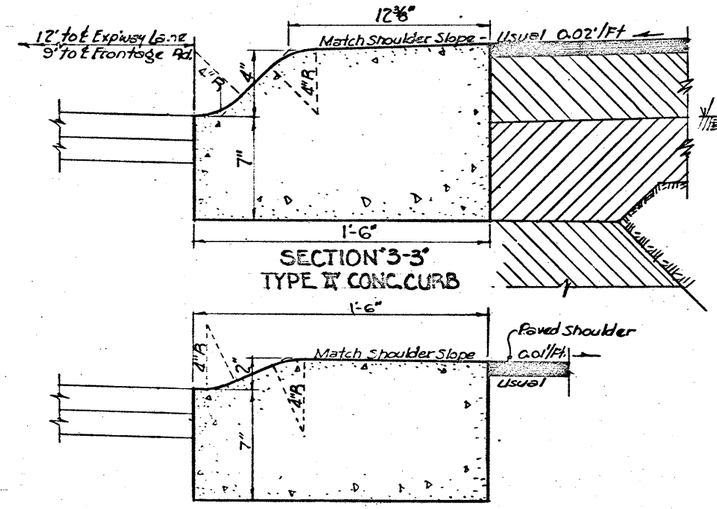
SQUARE END STRUCTURES WITH EMERGENCY LANE, 4 LANE DIVIDED PAVEMENT WITH WIDE UNCURBED MEDIAN ON APPROACHES

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
	TEXAS	I-35-1(5) 19	30
STATE PROJ. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 1 5 11 15	IH 35



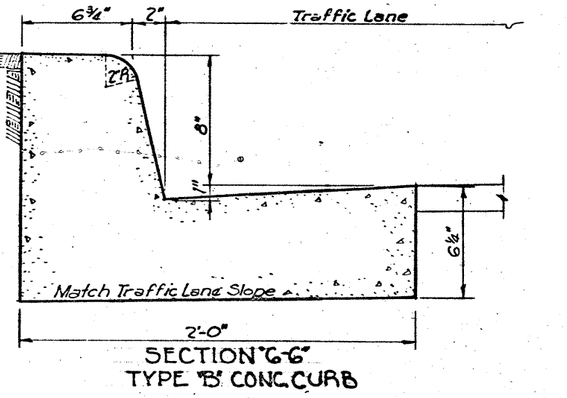
TYPICAL CURB LAYOUT

See Table For Limits

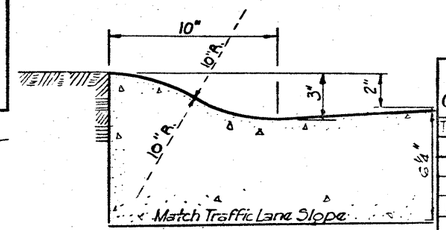


SECTION "3-3"
TYPE 'A' CONC. CURB

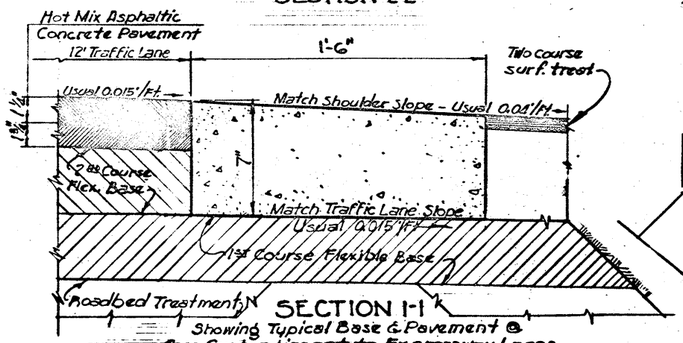
SECTION "2-2"



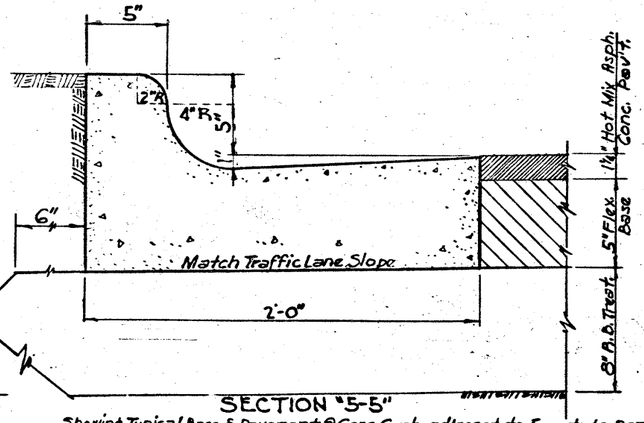
SECTION "6-6"
TYPE 'B' CONC. CURB



SECTION "4-4"



SECTION 1-1
Showing Typical Base & Pavement @ Conc. Curb adjacent to Expressway Lanes



SECTION "5-5"
Showing Typical Base & Pavement @ Conc. Curb adjacent to Frontage Roads

ESTIMATED CONCRETE CURB

FINAL QUANTITIES TYPE "A"	FINAL QUANTITIES TYPE "B"	STATION TO STATION	TYPE "A" CONC. CURB L.F. LT.	TYPE "A" CONC. CURB L.F. RT.	TYPE "B" CONC. CURB L.F. LT.	TYPE "B" CONC. CURB L.F. RT.
WEST EXPRESSWAY LANE						
273.17		701+70 - 704+50	280			
480.25		709+60 - 714+40	480			
1082.83		715+60 - 726+22	1068			
	53.03	713+87 - 714+40				53
	53.00	715+60 - 716+13				53
EAST EXPRESSWAY LANE						
245.42		693+13 - 695+50		243		
475.08		709+60 - 714+40		480		
	53.33	713+87 - 714+40			53	
1017.58		715+60 - 726+00		1040		
	53.17	715+60 - 716+13			53	
EAST FRONTAGE ROAD						
	386.17	693+11 - 697+01			390	
	387.58	722+10 - 726+22			412	
	1270.25	UNDERCROSSING			683	577
RAMP "A"						
	293.17	723+60 - 726+45				285
U.S. 83 CONNECTION						
	258.33	2318+34 - 2321+00			266	
3574.33	2808.00	TOTAL	3,591		2,825	

NOTE:
Dummy Joints in Concrete Curb to be located by the Engineer, Usual Spacing 10' Maximum 20'.
Concrete Curb to be measured for payment along back side of curb.

CONCRETE CURB DETAILS

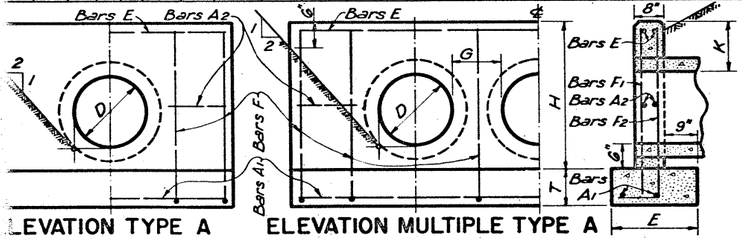
STATE	GENERAL PROJECT NO.	SHEET NO.
6	I-35-1(3)19	31
STATE	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	184	IH35

TABLE OF DIMENSIONS AND QUANTITIES FOR TWO TYPE A HEADWALLS

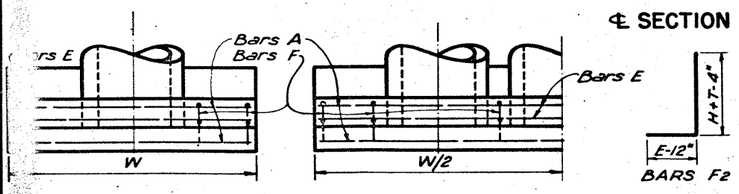
NO. OF PIPES	DIAM OF PIPES	TABLE OF DIMENSIONS G	K	T	E	H	W	REINF. STEEL FOR TWO HEADWALLS BARS A1 4-3/8"ϕ Lgth.	Wt.	No.	BARS A2 3/8"ϕ @ 18"± Lgth.	Wt.	BARS E 4-3/8"ϕ Lgth.	Wt.	No.	BARS F1 @ 12"± Size	Lgth.	Wt.	No.	BARS F2 @ 12"± Size	Lgth.	Wt.	TOTAL QUANTITIES STEEL LBS.	CONC. C.Y.
1	12"	~	12"	9"	1'-9"	2'-6"	7'-0"	6'-8"	10	8	2'-6"	8	6'-8"	28	12	1/2"ϕ	2'-11"	23	12	1/2"ϕ	3'-8"	29	98	1.48
2	"	10"	"	"	"	"	8'-10"	8'-6"	13	"	"	"	8'-6"	35	14	"	"	27	14	"	"	34	117	1.81
3	"	"	"	"	"	"	10'-8"	10'-4"	16	"	"	"	10'-4"	43	16	"	"	31	16	"	"	39	137	2.15
4	"	"	"	"	"	"	12'-6"	12'-2"	18	"	"	"	12'-2"	51	18	"	"	35	18	"	"	44	156	2.48
1	15"	~	12"	9"	1'-9"	2'-9"	8'-3"	7'-11"	12	8	3'-0"	9	7'-11"	33	12	1/2"ϕ	3'-2"	25	12	1/2"ϕ	3'-11"	31	110	1.82
2	"	1'-0"	"	"	"	"	10'-6"	10'-2"	15	"	"	"	10'-2"	42	14	"	"	30	14	"	"	37	133	2.24
3	"	"	"	"	"	"	12'-9"	12'-5"	19	"	"	"	12'-5"	52	16	"	"	34	16	"	"	42	156	2.66
4	"	"	"	"	"	"	15'-0"	14'-8"	22	"	"	"	14'-8"	61	18	"	"	38	18	"	"	47	177	3.09
1	18"	~	12"	9"	1'-9"	3'-0"	9'-6"	9'-2"	14	8	3'-6"	11	9'-2"	38	20	1/2"ϕ	3'-5"	46	20	1/2"ϕ	4'-2"	56	165	2.19
2	"	1'-2"	"	"	"	"	12'-2"	11'-10"	18	"	"	"	11'-10"	49	22	"	"	50	22	"	"	61	189	2.70
3	"	"	"	"	"	"	14'-10"	14'-6"	22	"	"	"	14'-6"	60	24	"	"	55	24	"	"	67	215	3.21
4	"	"	"	"	"	"	17'-6"	17'-2"	26	"	"	"	17'-2"	72	26	"	"	59	26	"	"	72	240	3.73
1	24"	~	12"	9"	2'-0"	3'-6"	12'-0"	11'-8"	18	8	4'-6"	14	11'-8"	49	24	1/2"ϕ	3'-11"	63	24	1/2"ϕ	4'-11"	79	223	3.17
2	"	1'-5"	"	"	"	"	15'-5"	15'-1"	23	"	"	"	15'-1"	63	26	"	"	68	26	"	"	85	253	3.89
3	"	"	"	"	"	"	18'-10"	18'-6"	28	"	"	"	18'-6"	77	28	"	"	73	28	"	"	92	284	4.62
4	"	"	"	"	"	"	22'-3"	21'-11"	33	"	"	"	21'-11"	91	30	"	"	79	30	"	"	99	316	5.35
1	30"	~	12"	9"	2'-3"	4'-0"	14'-6"	14'-2"	21	16	5'-6"	33	14'-2"	59	28	1/2"ϕ	4'-5"	83	28	1/2"ϕ	5'-8"	106	302	4.31
2	"	1'-8"	"	"	"	"	18'-8"	18'-4"	28	"	"	"	18'-4"	76	32	"	"	94	32	"	"	121	352	5.28
3	"	"	"	"	"	"	22'-10"	22'-6"	34	"	"	"	22'-6"	94	36	"	"	106	36	"	"	136	403	6.26
4	"	"	"	"	"	"	27'-0"	26'-8"	40	"	"	"	26'-8"	111	40	"	"	118	40	"	"	152	454	7.24
1	36"	~	12"	12"	2'-6"	4'-6"	17'-0"	16'-8"	25	16	6'-6"	39	16'-8"	70	32	1/2"ϕ	5'-2"	111	32	1/2"ϕ	6'-8"	143	388	6.40
2	"	1'-11"	"	"	"	"	21'-11"	21'-7"	32	"	"	"	21'-7"	90	36	"	"	124	36	"	"	160	445	7.89
3	"	"	"	"	"	"	26'-10"	26'-6"	40	"	"	"	26'-6"	111	40	"	"	138	40	"	"	176	506	9.37
4	"	"	"	"	"	"	31'-9"	31'-5"	47	"	"	"	31'-5"	131	44	"	"	152	44	"	"	196	565	10.85
1	42"	~	12"	12"	2'-9"	5'-0"	19'-6"	19'-2"	29	16	7'-6"	45	19'-2"	80	36	1/2"ϕ	5'-8"	136	36	1/2"ϕ	7'-5"	178	468	8.10
2	"	2'-2"	"	"	"	"	25'-2"	24'-10"	37	"	"	"	24'-10"	104	40	"	"	152	40	"	"	198	536	9.96
3	"	"	"	"	"	"	30'-10"	30'-6"	46	"	"	"	30'-6"	127	44	"	"	167	44	"	"	218	603	11.80
4	"	"	"	"	"	"	36'-6"	36'-2"	54	"	"	"	36'-2"	151	48	"	"	182	48	"	"	238	670	13.68
1	48"	~	15"	12"	3'-0"	5'-9"	23'-0"	22'-6"	34	24	8'-9"	79	22'-8"	95	40	5/8"ϕ	6'-5"	200	40	5/8"ϕ	8'-5"	351	827	10.74
2	"	2'-5"	"	"	"	"	29'-5"	29'-1"	44	"	"	"	29'-1"	121	44	"	"	295	44	"	"	356	925	13.08
3	"	"	"	"	"	"	35'-10"	35'-6"	53	"	"	"	35'-6"	148	48	"	"	321	48	"	"	422	1023	15.43
4	"	"	"	"	"	"	42'-3"	42'-6"	64	"	"	"	42'-11"	179	52	"	"	368	52	"	"	457	1127	17.77
1	54"	~	15"	12"	3'-3"	6'-3"	25'-6"	25'-2"	38	24	9'-9"	88	25'-2"	105	44	5/8"ϕ	6'-11"	318	44	5/8"ϕ	9'-2"	421	970	12.87
2	"	2'-10"	"	"	"	"	32'-10"	32'-6"	49	"	"	"	32'-6"	136	50	"	"	361	50	"	"	478	1112	15.77
3	"	"	"	"	"	"	40'-2"	39'-10"	60	"	"	"	39'-10"	166	56	"	"	406	56	"	"	536	1254	18.66
4	"	"	"	"	"	"	47'-6"	47'-2"	72	"	"	"	48'-2"	201	62	"	"	447	62	"	"	593	1401	21.55
1	60"	~	15"	12"	3'-6"	6'-9"	28'-0"	27'-8"	42	24	10'-9"	97	27'-8"	115	48	5/8"ϕ	7'-5"	371	48	5/8"ϕ	9'-11"	497	1122	15.20
2	"	3'-8"	"	"	"	"	36'-0"	35'-8"	54	"	"	"	35'-8"	149	54	"	"	418	54	"	"	559	1277	18.55
3	"	"	"	"	"	"	44'-0"	43'-8"	67	"	"	"	44'-8"	186	60	"	"	464	60	"	"	621	1435	21.89
4	"	"	"	"	"	"	52'-0"	52'-3"	79	"	"	"	52'-8"	220	66	"	"	511	66	"	"	683	1590	25.24
1	66"	~	15"	12"	3'-9"	7'-3"	30'-6"	30'-2"	45	32	11'-9"	141	30'-2"	126	52	5/8"ϕ	7'-11"	430	52	5/8"ϕ	10'-8"	579	1321	17.72
2	"	3'-1"	"	"	"	"	39'-1"	38'-9"	58	"	"	"	38'-9"	162	58	"	"	479	58	"	"	645	1485	21.49
3	"	"	"	"	"	"	47'-8"	47'-11"	72	"	"	"	48'-4"	202	64	"	"	529	64	"	"	712	1656	25.27
4	"	"	"	"	"	"	56'-3"	56'-6"	85	"	"	"	56'-11"	237	70	"	"	578	70	"	"	779	1820	29.05
1	72"	~	15"	12"	4'-0"	7'-9"	33'-0"	32'-8"	49	32	12'-9"	153	32'-8"	136	56	5/8"ϕ	8'-5"	492	56	5/8"ϕ	11'-5"	667	1497	20.42
2	"	3'-2"	"	"	"	"	42'-2"	42'-5"	64	"	"	"	42'-10"	179	62	"	"	544	62	"	"	738	1678	24.66
3	"	"	"	"	"	"	51'-4"	51'-7"	78	"	"	"	52'-0"	217	68	"	"	597	68	"	"	810	1855	28.89
4	"	"	"	"	"	"	60'-6"	60'-9"	91	"	"	"	61'-2"	255	74	"	"	650	74	"	"	881	2030	33.12

TABLE OF DIMENSIONS AND QUANTITIES FOR TWO TYPE B HEADWALLS

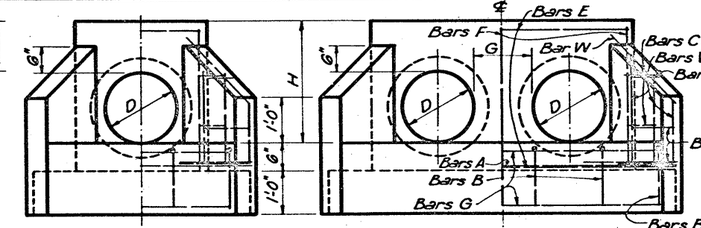
NO. OF PIPES	DIAM OF PIPES	TABLE OF DIMENSIONS G	K	X	H	Y	W	REINFORCING STEEL AND QUANTITIES FOR TWO HEADWALLS BARS A1-Ax 1/2"ϕ @ 12"± No.	Av. Lgth.	Wt.	BARS B 5/8"ϕ @ 18"± No.	Lgth.	Wt.	BARS B1-Bx 3/8"ϕ @ 18"± No.	Lgth.	Wt.	C=2'-0" 1/2"ϕ @ 12"± No.	Wt.	BARS D1-Dx 3/8"ϕ @ 12"± No.	Av. Lgth.	Wt.	BARS E 8-3/8"ϕ Lgth.	Wt.	BARS F No.	Size	Lgth.	Wt.	BARS G 4-3/8"ϕ Lgth.	Wt.	BARS S 12-1/2"ϕ Lgth.	Wt.	BARS V1-Vx 1/2"ϕ @ 12"± No.	Av. Lgth.	Wt.	BARS W 4-3/8"ϕ Lgth.	Wt.	TOTAL QUANTITIES STEEL LBS.	CONC. C.Y.
1	12"	~	12"	2'-4"	2'-0"	1'-0"	2'-4"	2	2'-8"	4	6	2'-6"	6	~	~	~	4	5	~	~	~	2'-0"	17	8	1/2"ϕ	2'-2"	12	2'-8"	4	8"	5	4	2'-11"	8	1'-8"	7	68	.52
2	"	10"	"	4'-2"	"	"	4'-2"	"	4'-6"	6	8	"	8	~	~	~	~	~	~	~	~	3'-10"	32	12	"	"	17	4'-6"	7	"	"	"	"	"	"	"	"	95	.82
3	"	"	"	6'-0"	"	"	6'-0"	"	6'-4"	8	10	"	9	~	~	~	~	~	~	~	~	5'-8"	47	16	"	"	23	6'-4"	10	"	"	"	"	"	"	"	"	122	1.11
4	"	"	"	7'-10"	"	"	7'-10"	"	8'-2"	11	12	"	11	~	~	~	~	~	~	~	~	7'-6"	63	20	"	"	29	8'-2"	12	"	"+	"	"	"	"	"	"	151	1.40
1	15"	~	12"	2'-7½"	2'-3"	1'-6"	3'-2½"	4	3'-0"	8	6	3'-0"	7	4	1'-10"	3	8	11	~	~	~	2'-3"	19	8	1/2"ϕ	2'-5"	13	3'-7"	5	1'-3"	10	8	3'-0"	16	2'-3"	9	101	.75
2	"	1'-0"	"	4'-10½"	"	"	5'-5½"	"	5'-3"	14	8	"	9	"	"	"	"	"	~	~	~	4'-6"	38	12	"	"	19	5'-10"	9	"	"	"	"	"	"	"	"	138	1.16
3	"	"	"	7'-1½"	"	"	7'-8½"	"	7'-6"	20	10	"	11	"	"	"	"	"	~	~	~	6'-9"	56	16	"	"	26	8'-1"	12	"	"	"	"	"	"	"	"	174	1.57
4	"	"	"	9'-4½"	"	"	9'-11½"	"	9'-9"	26	14	"	16	"	"	"	"	"	~	~	~	9'-0"	75	20	"	"	32	10'-4"	16	"	"	"	"	"	"	"	"	214	1.98
1	18"	~	12"	2'-11"	2'-6"	2'-0"	4'-0⅜"	4	3'-10"	10	6	3'-6"	8	4	1'-10"	3	8	11	4	1'-0"	2	2'-7"	22	8	1/2"ϕ	2'-8"	14	4'-5"	7	1'-10"	15	12	3'-2"	25	2'-11"	12	129	1.00
2	"	1'-2"	"	5'-7"	"	"	6'-8⅜"	"	6'-6"	17	8	"	11	"	"	"	"	"	"	"	"	5'-3"	44	12	"	"	21	7'-1"	11	"	"	"	"	"	"	"	"	172	1.55
3	"	"	"	8'-3"	"	"	9'-4⅜"	"	9'-2"	25	12	"	16	"	"	"	"	"	"	"	"	7'-11"	66	16	"	"	29	9'-9"	15	"	"	"	"	"	"	"	"	219	2.11
4	"	"	"	10'-11"	"	"	12'-0⅜"	"	11'-10"	32	16	"	21	"	"	"	"	"	"	"	"	10'-7"	88	20	"	"	36	12'-5"	19	"	"	"	"	"	"	"	"	264	2.65
1	24"	~	12"	3'-6"	3'-0"	3'-0"	5'-9¾"	6	5'-0"	20	6	4'-6"	10	4	1'-10"	3	8	11	4	1'-0"	2	3'-2"	26	8	1/2"ϕ	3'-2"	17	6'-2"	9	3'-0"	24	16	3'-5"	37	4'-2"	17	176	1.62
2	"	1'-5"	"	6'-11"	"	"	9'-2¾"	"	8'-5"	34	10	"	17	"	"	"	"	"	"	"	"	6'-7"	55	12	"	"	25	9'-7"	14	"	"	"	"	"	"	"	"	239	2.46
3	"	"	"	10'-4"	"	"	12'-7¾"	"	11'-10"	47	16	"	27	"	"	"	"	"	"	"	"	9'-10"	82	16	"	"	34	13'-0"	20	"	"	"	"	"	"	"	"	304	3.32
4	"	"	"	13'-9"	"	"	16'-0⅜"	"	15'-3"	61	20	"	34	"	"	"	"	"	"	"	"	13'-5"	112	20	"	"	42	16'-5"	25	"	"	"	"	"	"	"	"	368	4.18
1	30"	~	12"	4'-1"	3'-6"	4'-0"	7'-6⅜"	8	6'-2"	31	8	5'-6"	12	8	3'-1"	9	12	16	8	2'-2"	7	3'-9"	31	8	1/2"ϕ	3'-8"	20	7'-11"	12	4'-2"	33	20	3'-8"	49	5'-5"	23	245	2.34
2	"	1'-8"	"	8'-3"	"	"	11'-8⅝"	"	10'-4"	55	12	"	25	"	"	"	"	"	"	"	"	7'-11"	66	16	"	"	39	12'-1"	18	"	"	"	"	"	"	"	"	340	3.58
3	"	"	"	12'-5"	"	"	15'-10⅞"	"	14'-6"	77	18	"	37	"	"	"	"	"	"	"	"	12'-1"	101	24	"	"	59	16'-3"	24	"	"	"	"	"	"	"	"	435	4.80
4	"	"	"	16'-7"	"	"	20'-0⅝"	"	18'-8"	100	24	"	50	"	"	"	"	"	"	"	"	16'-3"	136	32	"	"	78	20'-5"	31	"	"	"	"	"	"	"	"	532	6.04
1	36"	~	12"	4'-8"	4'-0"	5'-0"	9'-3½"	10	7'-4"	49	8	6'-6"	20	8	3'-1"	9	12	16	8	2'-2"	7	4'-4"	36	8	1/2"ϕ	4'-2"	22	9'-8"	15	5'-4"	43	24	3'-11"	63	6'-8"	28	308	3.23
2	"	1'-11"	"	9'-7"	"	"	11'-6½"	"	12'-3"	82	14	"	34	"	"	"	"	"	"	"	"	9'-3"	77	16	"	"	45	14'-7"	22	"	"	"	"	"	"	"	"	426	4.89
3	"	"	"	14'-6"	"	"	19'-1½"	"	17'-2"	115	20	"	49	"	"	"	"	"	"	"	"	14'-2"	118	24	"	"	67	19'-6"	29	"	"	"	"	"	"	"	"	544	6.55
4	"	"	"	19'-5"	"	"	24'-0⅝"	"	22'-1"	147	28	"	68	"	"	"	"	"	"	"	"	19'-1"	159	32	"	"	89	24'-5"	37	"	"	"	"	"	"	"	"	666	8.22
1	42"	~	12"	5'-3"	4'-6"	6'-0"	11'-0⅛"	12	8'-6"	68	8	7'-6"	23	12	4'-5"	20	16	21	12	3'-3"	15	4'-11"	41	8	1/2"ϕ	4'-8"	25	11'-5"	17	6'-5"	51	28	4'-2"	78	7'-11"	33	392	4.23
2	"	2'-2"	"	10'-11"	"	"	16-8¼"	"	14'-2"	114	16	"	45	"	"	"	"	"	"	"	"	10'-7"	88	16	"	"	50	17'-1"	26	"	"	"	"	"	"	"	"	541	6.40
3	"	"	"	16'-7"	"	"	22'-4⅜"	"	19'-10"	159	24	"	68	"	"	"	"	"	"	"	"	16'-3"	136	24	"	"	75	22'-9"	34	"	"	"	"	"	"	"	"	690	8.56
4	"	"	"	22'-3"	"	"	26'-0½"	"	25'-6"	204	32	"	90	"	"	"	"	"	"	"	"	21'-11"	183	32	"	"	100	28'-5"	43	"	"	"	"	"	"	"	"	838	10.74
1	48"	~	15"	5'-10"	5'-3"	7'-0"	12'-9⅛"	14	9'-8"	90	10	8'-6"	32	12	4'-5"	20	16	21	12	3'-4"	15	5'-6"	46	8	5/8"ϕ	5'-5"	45	13'-2"	20	7'-7"	61	32	4'-5"	94	9'-3"	39	483	5.43
2	"	"	"	12'-3"	"	"	19-2⅜"	"	16'-1"	150	18	"	58	"	"	"	"	"	"	"	"	11'-11"	99	16	"	"	90	19'-7"	29	"	"	"	"	"	"	"	"	676	8.25
3	"	"	"	18'-8"	"	"	25'-1⅝"	"	22'-6"	210	26	"	83	"	"	"	"	"	"	"	"	18'-4"	153	24	"	"	136	26'-0"	39	"	"	"	"	"	"	"	"	871	11.07
4	"	"	"	25'-1"	"	"	32-0⅞"	"	28'-11"	270	36	"	115	"	"	"	"	"	"	"	"	24'-9"	207	32	"	"	181	32'-5"	49	"	"	"	"	"	"	"	"	1072	13.89
1	54"	~	15"	6'-5"	5'-9"	8'-0"	14'-6"	16	10'-10"	116	10	9'-6"	36	12	4'-5"	20	20	27	16	4'-5"	27	6'-1"	51	8	5/8"ϕ	5'-11"	49	14'-10"	22	8'-9"	70	40	4'-8"	125	10'-5"	43	586	6.71
2	"	2'-0"	"	13'-9"	"	"	21'-10"	"	18'-2"	194	20	"	71	"	"	"	"	"	"	"	"	13'-5"	112	20	"	"	123	22'-2"	33	"	"	"	"	"	"	"	"	845	10.28
3	"	"	"	21'-1"	"	"	29'-2"	"	25'-6"	273	30	"	107	"	"	"	"	"	"	"	"	20'-9"	173	32	"	"	198	29'-6"	44	"	"	"	"	"	"	"	"	1107	13.84
4	"	"	"	28'-1"	"	"	36'-6"	"	32'-10"	351	40	"	143	"	"	"	"	"	"	"	"	28'-1"	234	44	"	"	272	36'-10"	55	"	"	"	"	"	"	"	"	1367	17.42
1	60"	~	15"	7'-0"	6'-3"	9'-0"	16'-2⅞"	18	12'-0"	144	10	10'-6"	39	16	5'-9"	35	20	27	16	4'-5"	27	6'-8"	56	8	5/8"ϕ	6'-5"	54	16'-7"	25	9'-11"	80	44	4'-11"	145	11'-8"	49	681	8.11
2	"	3'-0"	"	15'-0"	"	"	24'-2⅞"	"	20'-0"	240	22	"	87	"	"	"	"	"	"	"	"	14'-8"	122	20	"	"	134	25'-7"	38	"	"	"	"	"	"	"	"	984	12.34
3	"	"	"	23'-0"	"	"	32'-2⅞"	"	28'-0"	337	32	"	126	"	"	"	"	"	"	"	"	22'-8"	189	32	"	"	214	32'-7"	49	"	"	"	"	"	"	"	"	1278	16.57
4	"	"	"	31'-0"	"	"	40'-2⅞"	"	36'-5"	438	44	"	174	"	"	"	"	"	"	"	"	30'-8"	256	44	"	"	295	41'-6"	62	"	"	"	"	"	"	"	"	1568	20.82
1	66"	~	15"	7'-7"	6'-9"	10'-0"	17'-11½"	20	13'-2"	176	12	11'-6"	52	16	5'-9"	35	24	32	20	5'-7"	42	7'-3"	60	8	5/8"ϕ	6'-11"	58	18'-4"	28	11'-1"	89	48	5'-2"	166	13'-0"	54	792	9.65
2	"	3'-1"	"	16'-2"	"	"	26'-6⅛"	"	21'-9"	291	24	"	104	"	"	"	"	"	"	"	"	15'-10"	132	20	"	"	144	26'-11"	40	"	"	"	"	"	"	"	"	1129	14.54
3	"	"	"	24'-9"	"	"	35'-1⅜"	"	30'-4"	405	34	"	147	"	"	"	"	"	"	"	"	24'-5"	204	32	"	"	231	35'-6"	53	"	"	"	"	"	"	"	"	1458	19.42
4	"	"	"	33'-4"	"	"	43'-9⅝"	"	39'-8"	530	46	"	199	"	"	"	"	"	"	"	"	33'-0"	275	44	"	"	318	45'-0"	68	"	"	"	"	"	"	"	"	1808	24.31
1	72"	~	15"	8'-2"	7'-3"	11'-0"	19'-5½"	22	14'-4"	211	12	12'-6"	56	16	5'-9"	35	24	32	20	5'-7"	42	7'-10"	65	8	5/8"ϕ	7'-5"	62	20'-1"	30	12'-3"	98	52	5'-5"	188	14'-3"	59	878	11.32
2	"	3'-2"	"	17'-4"	"	"	23'-6"	24	17'-10"	345	24	"	113	"	"	"	"	"	"	"	"	17'-0"	142	20	"	"	155	29'-3"	44	"	"	"	"	"	"	"	"	1253	16.91
3	"	"	"	26'-6"	"	"	32'-10"	32	24'-5"	482	32	"	179	"	"	"	"	"	"	"	"	26'-2"	218	32	"	"	248	38'-5"	58	"	"	"	"	"	"	"	"	1639	22.52
4	"	"	"	35'-8"	"	"	41'-2⅞"	40	31'-0"	632	50	"	235	"	"	"	"	"	"	"	"	35'-4"	295	44	"	"	341	48'-6"	73	"	"	"	"	"	"	"	"	2030	28.11



ELEVATION TYPE A — ELEVATION MULTIPLE TYPE A — ℄ SECTION



PLAN TYPE A — PLAN MULTIPLE TYPE A



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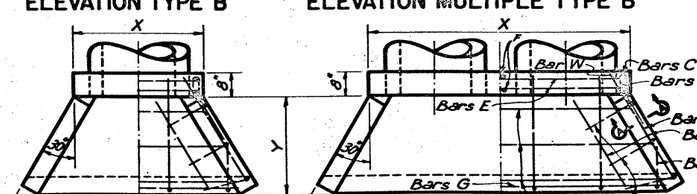

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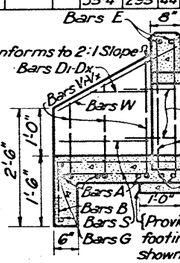
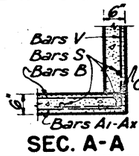


TYPICAL WING ELEVATION



SEC. A-A

$A_1 = W + 4\frac{1}{2}"$
$A_2 = W - 9\frac{5}{8}"$

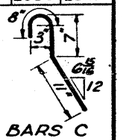
This dimension reduced 1'-1⅛" for each successive bar.

BARS A1-Ax

$B = Y + 4"$
$B_1 = 8"$

This dimension increased 2'-7" for each successive bar.

BARS B & B1-Bx



BARS C

GENERAL NOTES:-

All concrete shall be Class A. All exposed corners shall be chamfered ¾".

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete. Total Quantities include one 20 diameter lap for all bars over 40'-0" in length.

TEXAS HIGHWAY DEPARTMENT

CONCRETE HEADWALLS FOR PIPE CULVERTS

12 TO 72 INCHES IN DIAMETER

CH-11

DN THD	DRAWING	DATE
CK DN THD	Original	Feb. 1950
DW MDA		
CK DW KM		
TR OCK		
CK TR MDA		

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	— 35-1(5)19	32
STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	H-Bridge NO.
2	WISE	8 / 45 / 11⅛	IH 35

PROFILE — PLAN — NOTE BOOK — NO

TABLE OF DIMENSIONS

NO. OF PIPES	PIPE DIAM.	O	G	K	X	H	Y	W	S	L
1	12"	~	12"	3'-1 1/8"	2'-0"	1'-0"	2'-10 5/8"	1'-0"	11"
2	"	10"	"	5'-2 1/4"	"	"	5'-0"	"	"
3	"	"	"	7'-3 3/8"	"	"	7'-1 3/8"	"	"
4	"	"	"	9'-5 1/4"	"	"	9'-2 1/8"	"	"
1	15"	~	12"	3'-5 1/8"	2'-3"	1'-6"	3'-5 3/8"	1'-6"	1'-7 1/2"
2	"	1'-0"	"	6'-0 3/8"	"	"	6'-3 1/8"	"	"
3	"	"	"	8'-7 1/4"	"	"	8'-1 1/8"	"	"
4	"	"	"	11'-2 3/8"	"	"	11'-6 1/8"	"	"
1	18"	~	12"	3'-9 1/8"	2'-6"	2'-0"	4'-6 1/4"	2'-0"	2'-4"
2	"	1'-2"	"	6'-10 1/4"	"	"	7'-7 1/8"	"	"
3	"	"	"	9'-11 1/8"	"	"	10'-8 1/8"	"	"
4	"	"	"	13'-0"	"	"	13'-9 1/4"	"	"
1	24"	~	12"	4'-5 1/4"	3'-0"	3'-0"	6'-2 1/4"	3'-0"	3'-8 1/2"
2	"	1'-5"	"	8'-4 3/8"	"	"	10'-2 1/8"	"	"
3	"	"	"	12'-4"	"	"	14'-1 1/2"	"	"
4	"	"	"	16'-3 1/2"	"	"	18'-0 3/4"	"	"
1	30"	~	12"	5'-1 1/8"	3'-6"	4'-0"	7'-10 1/2"	4'-0"	5'-1 1/2"
2	"	1'-8"	"	9'-11 1/8"	"	"	12'-8 3/8"	"	"
3	"	"	"	14'-8 1/8"	"	"	17'-6 3/8"	"	"
4	"	"	"	19'-6 1/2"	"	"	22'-4 5/8"	"	"
1	36"	~	12"	5'-9 1/8"	4'-0"	5'-0"	9'-7"	5'-0"	6'-6 1/2"
2	"	1'-11"	"	11'-5 1/4"	"	"	15'-3 1/8"	"	"
3	"	"	"	17'-1 3/8"	"	"	20'-11 1/4"	"	"
4	"	"	"	22'-9 1/8"	"	"	26'-7 3/8"	"	"
1	42"	~	12"	6'-5 1/4"	4'-6"	6'-0"	11'-3"	6'-0"	7'-11 5/8"
2	"	2'-2"	"	13'-0"	"	"	17'-9 1/4"	"	"
3	"	"	"	19'-6 1/8"	"	"	24'-4 5/8"	"	"
4	"	"	"	26'-1 5/8"	"	"	30'-10 3/8"	"	"
1	48"	~	15"	7'-1 5/8"	5'-3"	7'-0"	12'-11 1/8"	7'-0"	9'-4 3/4"
2	"	2'-5"	"	14'-6 1/8"	"	"	20'-4"	"	"
3	"	"	"	21'-11 3/8"	"	"	27'-8 1/8"	"	"
4	"	"	"	29'-4 5/8"	"	"	35'-1 5/8"	"	"
1	54"	~	15"	7'-9 1/8"	5'-9"	8'-0"	14'-7 1/4"	8'-0"	10'-9 1/2"
2	"	2'-10"	"	16'-3 1/4"	"	"	23'-0 3/8"	"	"
3	"	"	"	24'-8 1/8"	"	"	31'-6 3/8"	"	"
4	"	"	"	33'-2 1/8"	"	"	40'-0"	"	"
1	60"	~	15"	8'-5 1/4"	6'-3"	9'-0"	16'-3 1/4"	9'-0"	12'-2 3/4"
2	"	3'-0"	"	17'-8 3/8"	"	"	25'-6 5/8"	"	"
3	"	"	"	26'-11 1/2"	"	"	34'-9"	"	"
4	"	"	"	36'-2 3/8"	"	"	43'-11 5/8"	"	"
1	66"	~	15"	9'-1 7/8"	6'-9"	10'-0"	17'-11 3/8"	10'-0"	13'-7 1/4"
2	"	3'-1"	"	19'-0 3/4"	"	"	27'-10 1/4"	"	"
3	"	"	"	28'-11 5/8"	"	"	37'-9 1/4"	"	"
4	"	"	"	38'-10 5/8"	"	"	47'-8 1/4"	"	"
1	72"	~	15"	9'-9 3/8"	7'-3"	11'-0"	19'-7 1/2"	11'-0"	15'-0 5/8"
2	"	3'-2"	"	20'-5"	"	"	30'-2 5/8"	"	"
3	"	"	"	31'-0"	"	"	40'-9 3/4"	"	"
4	"	"	"	41'-7"	"	"	51'-4 1/2"	"	"

BILL OF REINFORCING STEEL FOR TWO COMPLETE HEADWALLS

| NO. OF PIPES | BARS A1-Ax 1/2"ϕ @ 12" ± No. | Length | Wt. | BARS B 5/8"ϕ @ 18" ± No. | Length | Wt. | BARS B1-Bx 5/8"ϕ @ 18" No. | Length | Wt. | Cs-2'0" C1-2'0" 1/2"ϕ @ 12" ± No. | Wt. | No. | Wt. | BARS Ds1-Dsx 5/8"ϕ @ 12" ± No. | Length | Wt. | BARS DL1-DLx No. | Length | Wt. | BARS E 5/8"ϕ @ 12" ± Length | Wt. | No. | Size | BARS F Length | Wt. | BARS G 4~3/8"ϕ No. | Length | Wt. | BARS Ss 2~5/8"ϕ No. | Wt. | BARS SL 6~1/2"ϕ Length | Wt. | BARS Vs1-Vsx 1/2"ϕ @ 12" ± No. | Length | Wt. | BARS VL1-VLx 1/2"ϕ @ 12" ± No. | Length | Wt. | BARS Ws 2~5/8"ϕ Length | Wt. | BARS W1 2~5/8"ϕ Length | Wt. | * TOTAL QUANTITIES STEEL LBS. | CONC. C.Y. |
|---|---|---|---|---|---|---|---|---|---|---

TABLE OF DIMENSIONS

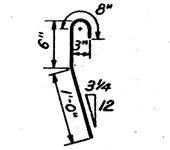
NO. OF PIPES	PIPE DIAM.	D	G	K	X	H	Y	W	S	L
1	12"	~	12"	4'-2⅝"	2'-0"	1'-0"	4'-2"	10⅞"	1'-1⅜"
2	"	10"	"	6'-9¾"	"	"	6'-9⅛"	"	"
3	"	"	"	9'-4⅞"	"	"	9'-4¼"	"	"
4	"	"	"	12'-0"	"	"	11'-11⅜"	"	"
1	15"	~	12"	4'-7⅝"	2'-3"	1'-6"	5'-3¾"	1'-5"	2'-1⅜"
2	"	1'-0"	"	7'-9¾"	"	"	8'-5⅛"	"	"
3	"	"	"	12'-0"	"	"	11'-8⅛"	"	"
4	"	"	"	14'-2⅛"	"	"	14'-10¼"	"	"
1	18"	~	12"	5'-0½"	2'-6"	2'-0"	6'-5½"	1'-11¼"	3'-1⅝"
2	"	1'-2"	"	8'-9¾"	"	"	10'-2¾"	"	"
3	"	"	"	12'-7"	"	"	14'-0"	"	"
4	"	"	"	16'-4¼"	"	"	17'-9¼"	"	"
1	24"	~	12"	5'-10⅜"	3'-0"	3'-0"	8'-8⅞"	2'-1⅝"	5'-1⅝"
2	"	1'-5"	"	10'-8⅜"	"	"	13'-6⅞"	"	"
3	"	"	"	15'-6⅜"	"	"	18'-4⅞"	"	"
4	"	"	"	20'-4⅜"	"	"	23'-2⅞"	"	"
1	30"	~	12"	6'-8⅜"	3'-6"	4'-0"	11'-0⅜"	4'-0⅛"	7'-1⅜"
2	"	1'-8"	"	12'-7"	"	"	16'-11⅛"	"	"
3	"	"	"	18'-5⅜"	"	"	22'-9¾"	"	"
4	"	"	"	24'-4⅜"	"	"	28'-8½"	"	"
1	36"	~	12"	7'-6¼"	4'-0"	5'-0"	13'-3⅞"	5'-0½"	9'-1⅝"
2	"	1'-11"	"	14'-5⅛"	"	"	20'-3¼"	"	"
3	"	"	"	21'-5⅛"	"	"	27'-2¾"	"	"
4	"	"	"	28'-4½"	"	"	34'-2⅛"	"	"
1	42"	~	12"	8'-4⅛"	4'-6"	6'-0"	15'-7⅜"	6'-0⅞"	11'-1⅜"
2	"	2'-2"	"	16'-4⅛"	"	"	23'-7⅛"	"	"
3	"	"	"	24'-4½"	"	"	31'-7⅜"	"	"
4	"	"	"	32'-4⅝"	"	"	39'-7⅛"	"	"
1	48"	~	15"	9'-2"	5'-3"	7'-0"	17'-10¾"	7'-1⅜"	13'-1⅝"
2	"	2'-5"	"	18'-2⅞"	"	"	26'-11¾"	"	"
3	"	"	"	27'-3¼"	"	"	36'-0⅝"	"	"
4	"	"	"	36'-4¼"	"	"	45'-1½"	"	"
1	54"	~	15"	9'-11⅞"	5'-9"	8'-0"	20'-2⅛"	8'-1¾"	15'-1⅝"
2	"	2'-10"	"	20'-4⅜"	"	"	30'-6¾"	"	"
3	"	"	"	30'-8⅞"	"	"	40'-11⅛"	"	"
4	"	"	"	41'-1¼"	"	"	51'-3⅝"	"	"
1	60"	~	15"	10'-9⅞"	6'-3"	9'-0"	22'-5¾"	9'-2¼"	17'-1⅜"
2	"	3'-0"	"	22'-1⅝"	"	"	33'-9½"	"	"
3	"	"	"	33'-5⅜"	"	"	45'-1¼"	"	"
4	"	"	"	44'-9⅛"	"	"	56'-5"	"	"
1	66"	~	15"	11'-7¾"	6'-9"	10'-0"	24'-9¼"	10'-2⅝"	19'-1⅜"
2	"	3'-1"	"	23'-9⅜"	"	"	36'-10⅞"	"	"
3	"	"	"	35'-11"	"	"	49'-0⅛"	"	"
4	"	"	"	48'-0⅜"	"	"	61'-2¼"	"	"
1	72	~	15"	12'-5⅝"	7'-3"	11'-0"	27'-0⅝"	11'-3"	21'-1⅝"
2	"	3'-2"	"	25'-5⅛"	"	"	40'-0¼"	"	"
3	"	"	"	38'-4⅝"	"	"	52'-11⅜"	"	"
4	"	"	"	51'-4⅛"	"	"	65'-11⅜"	"	"

BILL OF REINFORCING STEEL FOR TWO COMPLETE HEADWALLS

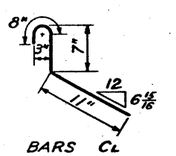
	BARS A1-Ax ½"ϕ @ 12" ±			BARS B ⅜"ϕ @ 18"±			BARS B1-Bx ⅜"ϕ @ 18"±			Cs = 2'-0" ½"ϕ @12½"		CL = 2'-0" ½"ϕ @12"		BARS Ds1-Dsx ⅜"ϕ @ 12"±			BARS Dl1-Dlx ⅜"ϕ @ 12"±			BARS E ⅝-⅝"ϕ		BARS F			BARS G 4-⅜"ϕ		BARS Ss 6-½"ϕ		BARS SL 6-½"ϕ		BARS Vs1-Vsx ½"ϕ @ 12"±		BARS Vl1-Vlx ½"ϕ @ 12"±		BARS Ws 2-⅝"ϕ		BARS WL 2-⅝"ϕ		* TOTAL QUANTITIES	
	No.	Av. Lgth.	Wt.	No.	Lgth.	Wt.	No.	Av. Lgth.	Wt.	No.	Wt.	No.	Wt.	No.	Av. Lgth.	Wt.	No.	Av. Lgth.	Wt.	No.	Lgth.	Wt.	No.	Size	Lgth.	Wt.	Lgth.	Wt.	Lgth.	Wt.	Lgth.	Wt.	No.	Av. Lgth.	Wt.	No.	Av. Lgth.	Wt.	Lgth.	Wt.	Lgth.	Wt.	STEEL LBS.	CONC. C.Y.
1	2	4'-7"	6	6	2'-7"	6	–	–	–	2	3	2	3	–	–	–	–	–	–	4'-0"	33	8	½"ϕ	2'-2"	12	4'-5"	7	0'-8"	3	1'-0"	4	2	2'-11"	4	2	2'-11"	4	1'-2"	2	2'-7"	5	92	.90
2	"	"	10	"	"	8	–	–	–	"	"	"	"	–	–	–	–	–	–	6'-7"	55	12	"	"	17	7'-0"	11	"	"	"	"	"	"	"	"	"	"	"	"	"	"	129	1.32
3	"	"	"	"	"	12	–	–	–	"	"	"	"	–	–	–	–	–	–	9'-2"	77	16	"	"	23	9'-7"	14	"	"	"	"	"	"	"	"	"	"	"	"	"	"	167	1.73
4	"	"	"	"	"	16	–	–	–	"	"	"	"	–	–	–	–	–	–	11'-9"	98	20	"	"	29	12'-2"	18	"	"	"	"	"	"	"	"	"	"	"	"	"	"	206	2.15
1	4	5'-0"	13	8	3'-1"	9	2	1'-8"	1	4	5	4	5	–	–	–	–	–	–	4'-5"	37	8	½"ϕ	2'-5"	13	5'-7"	8	1'-3"	5	2'-0"	8	4	3'-0"	8	4	3'-0"	8	1'-9"	4	3'-7"	7	131	1.23
2	"	"	"	"	"	12	"	"	"	"	"	"	"	–	–	–	–	–	–	7'-7"	63	12	"	"	19	8'-9"	13	"	"	"	"	"	"	"	"	"	"	"	"	"	"	182	1.81
3	"	"	"	"	"	16	"	"	"	"	"	"	"	–	–	–	–	–	–	11'-9"	98	16	"	"	26	11'-11"	18	"	"	"	"	"	"	"	"	"	"	"	"	"	"	243	2.40
4	"	"	"	"	"	20	"	"	"	"	"	"	"	–	–	–	–	–	–	13'-11"	116	20	"	"	32	15'-1"	23	"	"	"	"	"	"	"	"	"	"	"	"	"	"	284	2.98
1	4	6'-2"	16	8	3'-7"	11	2	1'-8"	1	4	5	4	5	2	11"	1	2	1'-8"	1	4'-9"	40	8	½"ϕ	2'-8"	14	6'-8"	10	1'-9"	7	3'-0"	12	6	3'-2"	13	8	3'-2"	17	2'-4"	5	4'-7"	10	168	1.60
2	"	"	"	"	"	16	"	"	"	"	"	"	"	"	"	"	"	"	"	8'-7"	72	12	"	"	21	10'-6"	16	"	"	"	"	"	"	"	"	"	"	"	"	"	"	229	2.38
3	"	"	"	"	"	18	"	"	"	"	"	"	"	"	"	"	"	"	"	12'-4"	103	16	"	"	29	14'-3"	21	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	291	3.16
4	"	"	"	"	"	22	"	"	"	"	"	"	"	"	"	"	"	"	"	16'-1"	134	20	"	"	36	18'-0"	27	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	351	3.93
1	4	7'-9"	31	8	4'-8"	14	4	2'-3"	3	4	5	4	5	2	1'-0"	1	2	1'-10"	1	5'-7"	47	8	½"ϕ	3'-2"	17	9'-0"	14	2'-9"	11	5'-0"	20	8	3'-5"	18	12	3'-5"	27	3'-6"	7	6'-8"	14	235	2.48
2	"	"	"	"	"	28	"	"	"	"	"	"	"	"	"	"	"	"	"	10'-5"	87	12	"	"	25	13'-10"	21	"	"	"	"	"	"	"	"	"	"	"	"	"	"	323	3.69
3	"	"	"	"	"	39	"	"	"	"	"	"	"	"	"	"	"	"	"	15'-3"	127	16	"	"	34	18'-8"	28	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	410	4.90
4	"	"	"	"	"	49	"	"	"	"	"	"	"	"	"	"	"	"	"	20'-1"	168	20	"	"	42	23'-6"	35	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	495	6.11
1	8	9'-3"	49	10	5'-8"	21	6	2'-9"	6	6	8	6	8	4	2'-0"	3	4	3'-7"	5	6'-5"	54	8	½"ϕ	3'-8"	20	11'-3"	17	3'-10"	15	7'-0"	28	10	3'-8"	25	16	3'-8"	39	4'-7"	10	8'-8"	18	326	3.54
2	"	"	"	"	"	38	"	"	"	"	"	"	"	"	"	"	"	"	"	12'-4"	103	16	"	"	39	17'-2"	26	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	452	5.27
3	"	"	"	"	"	55	"	"	"	"	"	"	"	"	"	"	"	"	"	18'-3"	152	24	"	"	59	23'-1"	35	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	579	7.00
4	"	"	"	"	"	78	"	"	"	"	"	"	"	"	"	"	"	"	"	24'-1"	201	32	"	"	78	28'-11"	43	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	699	8.74
1	10	10'-10"	72	10	6'-9"	25	8	3'-4"	10	6	8	6	8	4	2'-0"	3	4	3'-8"	6	7'-3"	60	8	½"ϕ	4'-2"	22	13'-7"	20	4'-10"	19	9'-0"	36	12	3'-11"	31	20	3'-11"	52	5'-9"	12	10'-8"	22	406	4.76
2	"	"	"	"	"	51	"	"	"	"	"	"	"	"	"	"	"	"	"	14'-3"	119	16	"	"	45	20'-6"	31	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	572	7.12
3	"	"	"	"	"	71	"	"	"	"	"	"	"	"	"	"	"	"	"	21'-2"	177	24	"	"	67	27'-6"	41	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	728	9.47
4	"	"	"	"	"	96	"	"	"	"	"	"	"	"	"	"	"	"	"	28'-1"	234	32	"	"	89	34'-5"	52	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	890	11.82
1	12	5'-5"	100	12	7'-9"	35	10	3'-10"	14	8	11	8	11	6	3'-0"	7	6	5'-8"	13	8'-1"	67	8	½"ϕ	4'-8"	25	15'-10"	24	5'-11"	24	11'-0"	44	14	4'-2"	39	24	4'-2"	67	6'-11"	14	12'-9"	27	522	6.17
2	"	"	"	"	"	164	22	"	64	"	"	"	"	"	"	"	"	"	"	16'-1"	134	16	"	"	50	23'-10"	36	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	719	9.23
3	"	"	"	"	"	228	32	"	93	"	"	"	"	"	"	"	"	"	"	24'-1"	201	24	"	"	75	31'-11"	48	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	916	12.30
4	"	"	"	"	"	293	42	"	122	"	"	"	"	"	"	"	"	"	"	32'-2"	268	32	"	"	100	39'-11"	60	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1114	15.37
1	14	13'-11"	130	12	8'-10"	40	12	4'-5"	20	8	11	8	11	6	3'-0"	7	6	5'-10"	13	8'-11"	74	8	⅝"ϕ	5'-5"	45	18'-2"	27	6'-11"	28	13'-0"	52	16	4'-5"	47	28	4'-5"	83	8'-0"	17	14'-11"	31	636	7.86
2	"	"	"	"	"	215	26	"	86	"	"	"	"	"	"	"	"	"	"	18'-0"	150	16	"	"	90	27'-3"	41	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	902	11.84
3	"	"	"	"	"	300	36	"	120	"	"	"	"	"	"	"	"	"	"	27'-1"	226	24	"	"	136	36'-4"	55	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1157	15.83
4	"	"	"	"	"	390	48	"	159	"	"	"	"	"	"	"	"	"	"	36'-2"	302	32	"	"	181	46'-0"	69	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1421	19.81
1	16	15'-6"	166	14	9'-10"	52	14	5'-0"	26	10	13	10	13	8	4'-0"	12	8	7'-8"	23	9'-9"	81	8	⅝"ϕ	5'-11"	49	20'-5"	31	8'-0"	32	15'-0"	60	18	4'-8"	56	32	4'-8"	100	9'-3"	19	16'-10"	35	768	9.62
2	"	"	"	"	"	277	28	"	103	"	"	"	"	"	"	"	"	"	"	20'-1"	168	20	"	"	123	30'-10"	46	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1106	14.67
3	"	"	"	"	"	388	40	"	148	"	"	"	"	"	"	"	"	"	"	30'-6"	254	32	"	"	198	41'-10"	63	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1440	19.72
4	"	"	"	"	"	508	54	"	200	"	"	"	"	"	"	"	"	"	"	41'-6"	346	44	"	"	272	52'-2"	78	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1793	24.77
1	18	17'-1"	205	14	10'-10"	57	16	5'-5"	33	10	13	10	13	8	4'-0"	12	8	7'-9"	23	10'-7"	88	8	⅝"ϕ	6'-5"	54	22'-9"	34	9'-0"	36	17'-0"	68	20	4'-11"	66	36	4'-11"	118	10'-5"	22	19'-1"	40	882	11.56
2	"	"	"	"	"	342	30	"	122	"	"	"	"	"	"	"	"	"	"	21'-11"	183	20	"	"	134	34'-0"	51	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1276	17.55
3	"	"	"	"	"	442	44	"	179	"	"	"	"	"	"	"	"	"	"	33'-2"	277	32	"	"	214	46'-0"	69	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1665	23.54
4	"	"	"	"	"	623	58	"	236	"	"	"	"	"	"	"	"	"	"	45'-6"	380	44	"	"	295	57'-3"	86	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2064	29.53
1	20	18'-8"	249	16	11'-11"	72	18	6'-1"	41	12	16	12	16	10	5'-1"	19	10	9'-9"	37	11'-5"	95	8	⅝"ϕ	6'-11"	58	25'-0"	38	10'-0"	40	19'-0"	76	22	5'-2"	76	40	5'-2"	138	11'-6"	24	21'-1"	44	1039	13.67
2	"	"	"	"	"	411	32	"	143	"	"	"	"	"	"	"	"	"	"	23'-6"	196	20	"	"	144	37'-2"	56	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1477	20.59
3	"	"	"	"	"	581	48	"	215	"	"	"	"	"	"	"	"	"	"	35'-8"	298	32	"	"	231	49'-1"	75	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1927	27.51
4	"	"	"	"	"	747	62	"	278	"	"	"	"	"	"	"	"	"	"	48'-10"	407	44	"	"	318	62'-1"	93	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2370	34.42
1	22	20'-2"	296	18	12'-1"	87	20	6'-7"	49	12	16	12	16	10	5'-1"	19	10	9'-9"	37	12'-3"	102	8	⅝"ϕ	7'-5"	62	27'-4"	41	11'-1"	44	21'-0"	84	24	5'-5"	87	44	5'-5"	159	12'-8"	26	23'-1"	48	1173	15.96
2	"	"	"	"	"	489	34	"	165	"	"	"	"	"	"	"	"	"	"	25'-2"	210	20	"	"	155	40'-11"	62	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1666	23.87
3	"	"	"	"	"	690	50	"	243	"	"	"	"	"	"	"	"	"	"	38'-2"	318	32	"	"	248	53'-10"	81	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2165	31.78
4	"	"	"	"	"	881	68	"	330	"	"	"	"	"	"	"	"	"	"	52'-2"	435	44	"	"	341	66'-10"	101	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2673	39.69

*These Total Quantities are for (2 Aprons, 2 Headwalls & 4 Wingwalls).

W + 5½"
BAR A1
Reduce this dimension by an increment of 1'-5½" for each successive bar.
B1 = 6"
B = 5 · 6¼"
BARS B & B1-Bx
Increase this dimension by an increment of 1'-1⅛" for each successive bar.

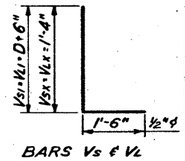


BARS Cs

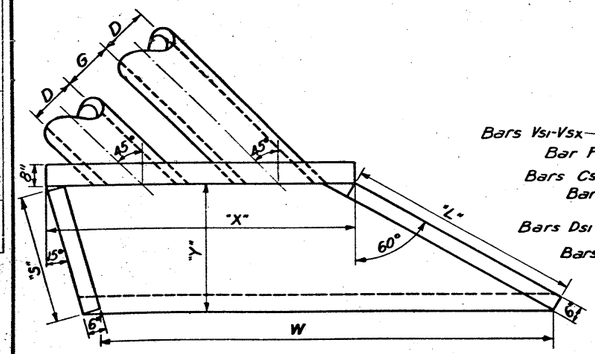


BARS CL

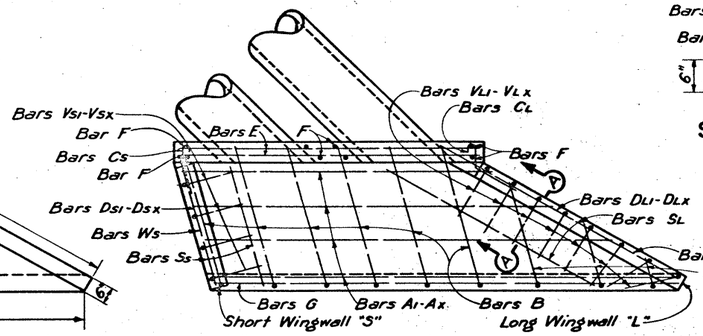
W + 1"
BARS G



BARS Vs & VL

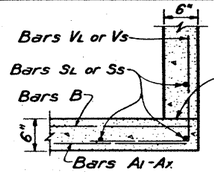


DIMENSIONS ONLY

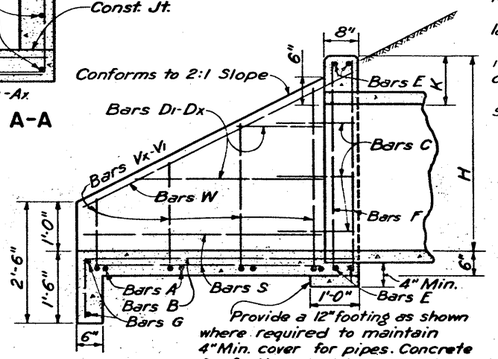


REINFORCING ONLY

PLANS



SECTION A-A



Provide a 12" footing as shown where required to maintain 4" Min. cover for pipes. Concrete for footing shall be added to Total Quantities shown.

TYPICAL WING ELEVATION

GENERAL NOTES:-
All Concrete shall be Class A.
Dimensions relating to reinforcing steel are to centers of bars.
Steel cover to be 2" from center of outside layer of steel to face of concrete.
Quantities of reinforcing steel shown hereon include one 20 diameter lap for all bars exceeding 40'-0" in length.
Subscripts "s" & "L" for bar markings designate short wingwall (s) and long wingwall (L).
Chamfer all exposed corners ¾".

TEXAS HIGHWAY DEPARTMENT

CONCRETE HEADWALLS FOR PIPE CULVERTS

12 TO 72 INCHES IN DIAMETER

CH-11-B-45°

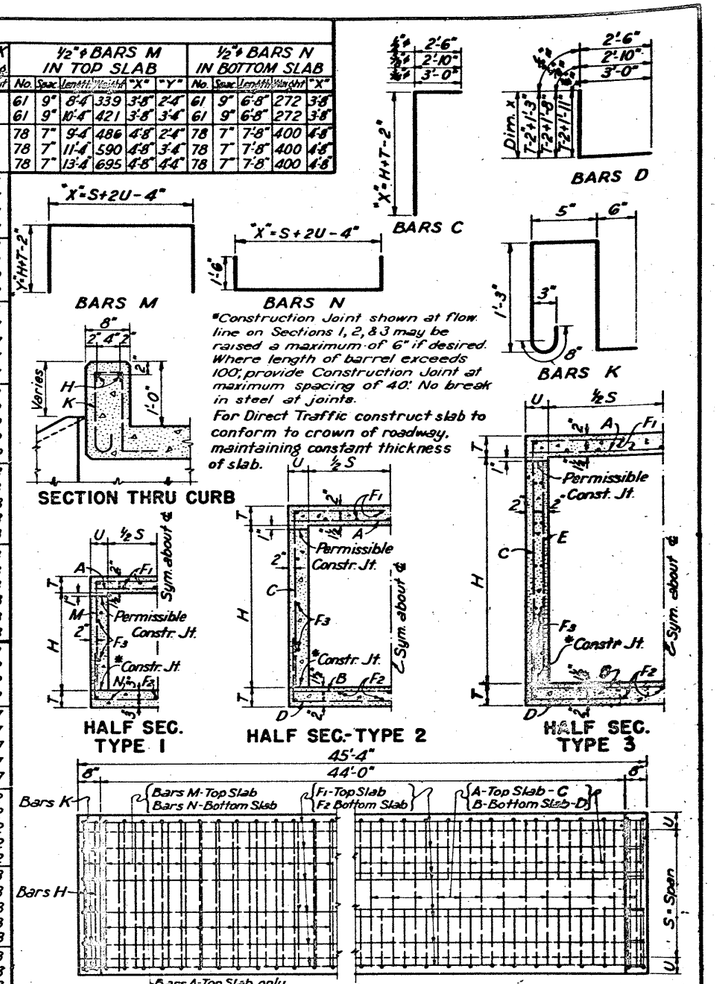
DN: THD	DRAWING	DATE	PER BOOK DIV. NO.	STATE	FEDERAL AID PROJECT NO.		SHEET NO.
CK. DN.: THD	Original	Feb. 1950	6	TEXAS	F 35-1(3)	19	37
DW.: MDA			STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.
CK. DW.: KM			21	WISE	18	5	13
TR.: AOB							HIGHWAY NO.
CK. TR.: MDA							FM 920

BILLS OF REINFORCING STEEL FOR 44'-0" CLEAR WIDTH

SC-NA / SC-NB / SC-NC

CULVERT SIZE S	H	TYPE SECTION	DIMENSIONS T	U	MAX. FILL	TOTAL QUANTITIES 44' CLEAR WIDTH Conc.	Reinf.	QUANTITIES PLF. OF BARREL Conc.	Reinf.
3	2	1	6"	6"	14'	10.27	1,271	0.222	26.92
	3	1	6"	6"	14'	11.95	1,353	0.259	28.70
4	2	1	6"	6"	12'	12.00	1,740	0.259	37.06
	3	1	6"	6"	12'	13.68	1,844	0.296	39.35
	4	1	6"	6"	12'	15.36	2,011	0.333	42.98
5	2	2	6"	6"	8'	13.73	2,103	0.296	44.87
	3	2	6"	6"	8'	15.41	2,194	0.333	46.87
	4	2	6"	6"	8'	17.09	2,346	0.370	50.21
	5	3	6"	7"	8'	20.45	2,968	0.444	63.66
6	3	2	6"	6"	8'	17.14	2,744	0.370	58.70
	4	2	6"	6"	8'	18.81	2,918	0.407	62.50
	5	3	6"	7"	8'	22.13	3,566	0.481	72.11
	6	3	6"	7"	8'	24.14	3,719	0.525	74.58
7	3	2	6½"	6"	6'	19.98	2,934	0.432	62.69
	4	2	6½"	6"	6'	21.66	3,100	0.469	66.32
	5	3	6½"	7"	6'	25.05	3,581	0.544	76.76
	6	3	6½"	7"	6'	27.01	3,713	0.587	79.65
	7	3	6½"	7"	6'	28.97	3,970	0.630	85.22
8	4	2	6½"	6"	6'	23.53	3,588	0.509	76.92
	5	3	6½"	7"	6'	26.92	4,248	0.584	90.94
	6	3	6½"	7"	6'	28.88	4,411	0.627	94.50
	7	3	6½"	7"	6'	30.84	4,698	0.670	100.74
	8	3	6½"	8"	6'	35.35	5,046	0.770	108.74
9	5	3	7"	7"	6'	30.21	5,060	0.655	108.99
	6	3	7"	7"	6'	32.17	5,235	0.699	112.83
	7	3	7"	7"	6'	34.13	5,534	0.742	119.33
	8	3	7"	8"	6'	38.66	5,985	0.842	128.47
	9	3	7"	8"	6'	40.90	6,277	0.891	134.81
10	5	3	7"	7"	6'	32.22	5,920	0.699	127.67
	6	3	7"	7"	6'	34.18	6,124	0.742	132.13
	7	3	7"	7"	6'	36.14	6,453	0.785	139.27
	8	3	7"	8"	6'	40.67	7,108	0.885	153.15
	9	3	7"	8"	6'	42.91	7,424	0.934	160.05
	10	3	7"	8"	6'	45.15	7,743	0.984	166.95
3	2	2	6"	6"	10'	17.14	2,830	0.370	60.70
	3	2	6"	6"	10'	18.81	3,013	0.407	64.72
	4	2	6"	6"	10'	20.49	3,196	0.444	68.74
	5	3	6"	7"	10'	22.13	3,670	0.481	78.95
	6	3	6"	7"	10'	24.14	3,971	0.525	85.65
4	2	2	6"	6"	10'	17.14	2,830	0.370	60.70
	3	2	6"	6"	10'	18.81	3,013	0.407	64.72
	4	2	6"	6"	10'	20.49	3,196	0.444	68.74
	5	3	6"	7"	10'	22.13	3,670	0.481	78.95
	6	3	6"	7"	10'	24.14	3,971	0.525	85.65
5	2	2	6"	6"	8'	13.73	2,103	0.296	44.87
	3	2	6"	6"	8'	15.41	2,194	0.333	46.87
	4	2	6"	6"	8'	17.09	2,346	0.370	50.21
	5	3	6"	7"	8'	20.45	2,968	0.444	63.66
6	3	2	6"	6"	8'	17.14	2,744	0.370	58.70
	4	2	6"	6"	8'	18.81	2,918	0.407	62.50
	5	3	6"	7"	8'	22.13	3,566	0.481	72.11
	6	3	6"	7"	8'	24.14	3,719	0.525	74.58
7	3	2	6½"	6"	6'	19.98	2,934	0.432	62.69
	4	2	6½"	6"	6'	21.66	3,100	0.469	66.32
	5	3	6½"	7"	6'	25.05	3,581	0.544	76.76
	6	3	6½"	7"	6'	27.01	3,713	0.587	79.65
	7	3	6½"	7"	6'	28.97	3,970	0.630	85.22
8	4	2	6½"	6"	6'	23.53	3,588	0.509	76.92
	5	3	6½"	7"	6'	26.92	4,248	0.584	90.94
	6	3	6½"	7"	6'	28.88	4,411	0.627	94.50
	7	3	6½"	7"	6'	30.84	4,698	0.670	100.74
	8	3	6½"	8"	6'	35.35	5,046	0.770	108.74
9	5	3	7"	7"	6'	30.21	5,060	0.655	108.99
	6	3	7"	7"	6'	32.17	5,235	0.699	112.83
	7	3	7"	7"	6'	34.13	5,534	0.742	119.33
	8	3	7"	8"	6'	38.66	5,985	0.842	128.47
	9	3	7"	8"	6'	40.90	6,277	0.891	134.81
10	5	3	7"	7"	6'	32.22	5,920	0.699	127.67
	6	3	7"	7"	6'	34.18	6,124	0.742	132.13
	7	3	7"	7"	6'	36.14	6,453	0.785	139.27
	8	3	7"	8"	6'	40.67	7,108	0.885	153.15
	9	3	7"	8"	6'	42.91	7,424	0.934	160.05
	10	3	7"	8"	6'	45.15	7,743	0.984	166.95
3	2	2	6½"	6"	8'	19.98	3,148	0.432	67.56
	3	2	6½"	6"	8'	21.66	3,123	0.469	66.94
	4	2	6½"	6"	8'	25.05	3,771	0.544	80.97
	5	3	6½"	7"	8'	27.01	4,127	0.587	88.61
	6	3	6½"	7"	8'	28.97	4,563	0.630	99.23
4	2	2	6½"	6"	8'	21.66	3,123	0.469	66.94
	3	2	6½"	6"	8'	23.53	3,588	0.509	76.92
	4	2	6½"	6"	8'	25.40	3,953	0.548	84.90
	5	3	6½"	7"	8'	28.80	4,412	0.612	94.74
	6	3	6½"	7"	8'	30.76	4,574	0.655	98.30
5	2	2	6½"	6"	8'	21.66	3,123	0.469	66.94
	3	2	6½"	6"	8'	23.53	3,588	0.509	76.92
	4	2	6½"	6"	8'	25.40	3,953	0.548	84.90
	5	3	6½"	7"	8'	28.80	4,412	0.612	94.74
	6	3	6½"	7"	8'	30.76	4,574	0.655	98.30
6	3	2	6½"	6"	8'	24.79	3,697	0.537	83.08
	4	2	6½"	6"	8'	26.66	3,870	0.574	87.10
	5	3	6½"	7"	8'	30.16	4,574	0.655	98.30
	6	3	6½"	7"	8'	32.12	5,013	0.699	107.95
	7	3	6½"	8"	8'	36.65	5,417	0.798	116.82
7	3	2	6½"	6"	8'	24.79	3,697	0.537	83.08
	4	2	6½"	6"	8'	26.66	3,870	0.574	87.10
	5	3	6½"	7"	8'	28.80	4,412	0.612	94.74
	6	3	6½"	7"	8'	30.76	4,574	0.655	98.30
	7	3	6½"	7"	8'	32.12	5,013	0.699	107.95
8	4	2	6½"	6"	8'	28.53	4,038	0.611	87.28
	5	3	6½"	7"	8'	30.92	4,702	0.655	100.94
	6	3	6½"	7"	8'	32.88	4,865	0.699	104.48
	7	3	6½"	7"	8'	34.84	5,162	0.742	110.98
	8	3	6½"	8"	8'	39.35	5,510	0.842	118.86
9	5	3	7"	7"	8'	34.21	5,524	0.742	118.99
	6	3	7"	7"	8'	36.17	5,699	0.786	122.83
	7	3	7"	7"	8'	38.13	5,998	0.829	129.33
	8	3	7"	8"	8'	42.66	6,449	0.929	138.47
	9	3	7"	8"	8'	44.90	6,741	0.978	144.81
10	5	3	7"	7"	8'	36.22	6,384	0.786	137.67
	6	3	7"	7"	8'	38.18	6,588	0.829	142.13
	7	3	7"	7"	8'	40.14	6,917	0.873	149.27
	8	3	7"	8"	8'	44.67	7,572	0.972	163.15
	9	3	7"	8"	8'	46.91	7,888	1.021	170.05
	10	3	7"	8"	8'	49.15	8,207	1.071	176.95
3	2	2	6½"	6"	10'	19.98	3,673	0.432	78.84
	3	2	6½"	6"	10'	21.66	3,857	0.469	83.12
	4	2	6½"	6"	10'	25.05	4,540	0.544	97.92
	5	3	6½"	7"	10'	27.01	4,723	0.587	101.94
	6	3	6½"	7"	10'	28.97	5,188	0.630	111.76
4	2	2	6½"	6"	10'	26.05	4,505	0.565	97.05
	3	3	7"	7"	10'	29.49	5,066	0.640	109.43
	4	3	7"	7"	10'	31.44	5,249	0.684	113.45
	5	3	7"	7"	10'	33.40	5,715	0.727	123.30
	6	3	7"	7"	10'	37.96	6,111	0.827	132.15
5	3	3	8"	7"	10'	33.06	6,043	0.718	130.39
	4	3	8"	7"	10'	35.02	6,259	0.761	135.18
	5	3	8"	7"	10'	36.97	6,776	0.805	146.43
	6	3	8"	8"	10'	41.55	7,036	0.905	152.12
	7	3	8"	8"	10'	43.79	7,630	0.955	165.09
6	3	2	6½"	6"	10'	24.14	3,971	0.525	85.65
	4	2	6½"	6"	10'	25.82	4,144	0.562	89.67
	5	3	6½"	7"	10'	27.78	4,627	0.605	99.31
	6	3	6½"	7"	10'	29.74	4,926	0.649	105.85
	7	3	6½"	7"	10'	31.70	5,225	0.692	112.39
7	3	2	6½"	6"	10'	24.79	3,697	0.537	83.08
	4	2	6½"	6"	10'	26.66	3,870	0.574	87.10
	5	3	6½"	7"	10'	28.80	4,412	0.612	94.74
	6	3	6½"	7"	10'	30.76	4,574	0.655	98.30
	7	3	6½"	7"	10'	32.72	5,013	0.699	107.95
8	4	2	6½"	6"	10'	28.53	4,038	0.611	87.28
	5	3	6½"	7"	10'	30.92	4,702	0.655	100.94
	6	3	6½"	7"	10'	32.88	4,865	0.699	104.48
	7	3	6½"	7"	10'	34.84	5,162	0.742	110.98
	8	3	6½"	8"	10'	39.35	5,510	0.842	118.86
9	5	3	7"	7"	10'	34.21	5,524	0.742	118.99
	6	3	7"	7"	10'	36.17	5,699	0.786	122.83
	7	3	7"	7"	10'	38.13	5,998	0.829	129.33
	8	3	7"	8"	10'	42.66	6,449	0.929	138.47
	9	3	7"	8"	10'	44.90	6,741	0.978	144.81
10	5	3	7"	7"	10'	36.22	6,384	0.786	137.67
	6	3	7"	7"	10'	38.18	6,588	0.829	142.13
	7	3	7"	7"	10'	40.14	6,917	0.873	149.27
	8	3	7"	8"	10'	44.67	7,572	0.972	163.15
	9	3	7"	8"	10'	46.91	7,888	1.021	170.05
	10	3	7"	8"	10'	49.15	8,207	1.071	176.95
3	2	2	6½"	6"	12'	19.98	3,673	0.432	78.84
	3	2	6½"	6"	12'	21.66	3,857	0.469	83.12
	4	2	6½"	6"	12'	25.05	4,540	0.544	97.92
	5	3	6½"	7"	12'	27.01	4,723	0.587	101.94
	6	3	6½"	7"	12'	28.97	5,188	0.630	111.76
4	2	2	7½"	6"	10'	26.05	4,505	0.565	97.05
	3	3	7½"	7"	10'	29.49	5,066	0.640	109.43
	4	3	7½"	7"	10'	31.44	5,249	0.684	113.45
	5	3	7½"	7"	10'	33.40	5,715	0.727	123.30
	6	3	7½"	8"	10'	37.96	6,111	0.827	132.15
5	3	3	8"	7"	10'	33.06	6,043	0.718	130.39
	4	3	8"	7"	10'	35.02	6,259	0.761	135.18
	5	3	8"	7"	10'	36.97	6,776	0.805	146.43
	6	3	8"	8"	10'	41.55	7,036	0.905	152.12
	7	3	8"	8"	10'	43.79	7,630	0.955	165.09
6	3	2	6½"	6"	12'	24.14	3,971	0.525	85.65
	4	2	6½"	6"	12'	25.82	4,144	0.562	89.67
	5	3	6½"	7"	12'	27.78	4,627	0.605	99.31
	6	3	6½"	7"	12'	29.74	4,926	0.649	105.85
	7	3	6½"	7"	12'	31.70	5,225	0.692	112.39
7	3	2	6½"	6"	12'	24.79	3,697	0.537	83.08
	4	2	6½"	6"	12'	26.66	3,870	0.574	87.10
	5	3	6½"	7"	12'	28.80	4,412	0.612	94.74
	6	3	6½"	7"	12'	30.76	4,574	0.655	98.30
	7	3	6½"	7"	12'	32.72	5,013	0.699	107.95
8	4	2	6½"	6"	12'	28.53	4,038	0.611	87.28
	5	3	6½"	7"	12'	30.92	4,702	0.655	100.94
	6	3	6½"	7"	12'	32.88	4,865	0.699	104.48
	7	3	6½"	7"	12'	34.84	5,162	0.742	110.98
	8	3	6½"	8"	12'	39.35	5,510	0.842	118.86
9	5	3	7"	7"	12'	34.21	5,524	0.742	118.99
	6	3	7"	7"	12'	36.17	5,699	0.786	122.83
	7	3	7"	7"	12'	38.13	5,998	0.829	129.33
	8	3	7"	8"	12'	42.66	6,449	0.929	138.47
	9	3	7"	8"	12'	44.90	6,741	0.978	144.81
10	5	3	7"	7"	12'	36.22	6,384	0.786	137.67
	6	3	7"	7"	12'	38.18	6,588	0.829	142.13
	7	3	7"	7"	12'	40.14	6,917	0.873	149.27
	8	3	7"	8"	12'	44.67	7,572	0.972	163.15
	9	3	7"	8"	12'	46.91	7,888	1.021	170.05
	10	3	7"	8"	12'	49.15	8,207	1.071	176.95

BARS A IN TOP SLAB No.	Size	Spac.	Length	Weight	BARS B IN BOTTOM SLAB No.	Size	Spac.	Length	Weight	BARS C WALLS AND TOP CORNER No.	Size	Spac.	Length	Weight	Dim. X	BARS D IN BOTTOM CORNERS No.	Size	Spac.	Length	Weight	Dim. Y	62½ϕ BARS E @ 18" C. to C. Length	Weight	BARS F Length - 46'-4" F1	Size	F2	Size	F3	Size	Total	Weight	BARS H 4-½"ϕ @ 12½ 3 11 16 No.	Length	Weight	BARS K No.	Size	Length	Weight	½"ϕ BARS M IN TOP SLAB No.	Size	Length	Weight	"X"	"Y"	½"ϕ BARS N IN BOTTOM SLAB No.	Size	Length	Weight	"X"
																								7	12½	3	3½	4	10"	14	433	3'-9"	10	10	26	61	9"	8'-8"	339	3'-8"	2'-4"	61	9"	6'-8"	272	3'-8"
																								7	12½	3	3½	4	14"	14	433	3'-9"	10	10	26	61	9"	10'-8"	421	3'-8"	3'-4"	61	9"	6'-8"	272	3'-8"
																								9	12½	4	18½	4	10"	17	526	4'-9"	13	12	31	78	7"	9'-4"	486	4'-8"	2'-4"	78	7"	7'-8"	400	4'-8"
																								9	12½	4	18½	4	14"	17	526	4'-9"	13	12	31	78	7"	11'-8"	590	4'-8"	3'-4"	78	7"	7'-8"	400	4'-8"
																								9	12½	4	18½	6	15"	19	588	4'-9"	13	12	31	78	7"	13'-8"	695	4'-8"	4'-4"	78	7"	7'-8"	400	4'-8"
																								9	12½	7	18½	4	10"	20	619	5'-9"	15	14	37												
																								9	12½	7	18½	4	14"	20	619	5'-9"	15	14	37												
																								9	12½	7	18½	6	15"	22	681	5'-9"	15	14	37												
																								9	12½	7	18½	16	13"	32	990	5'-11"	16	14	37												
																								10	12½	8	18½	4	14"	22	681	6'-9"	18	16	42												
																								10	12½	8	18½	6	15"	24	743	6'-9"	18	16	42												
																								10	12½	8	18½	16	13"	34	1,052	6'-11"	18	16	42												
																								10	12½	8	18½	16	16"	34	1,052	6'-11"	18	16	42												
																								11	12½	9	18½	4	14"	24	743	7'-9"	21	18	47												
																								11	12½	9	18½	6	15"	26	805	7'-9"	21	18	47												
																								11	12½	9	18½	16	14"	36	1114	7'-11"	21	18	47												
																								11	12½	9	18½	16	16"	36	1114	7'-11"	21	18	47												
																								11	12½	9	18½	16	16"	36	1114	7'-11"	21	18	47												
																								11	12½	9	18½	20	15"	40	1238	7'-11"	21	18	47												
																								12	12½	10	18½	6	14"	28	867	8'-9"	23	20	52												
																								12	12½	10	18½	16	14"	38	1176	8'-11"	24	20	52												
																								12	12½	10	18½	16	16"	38	1176	8'-11"	24	20	52												
																								12	12½	10	18½	20	15"	42	1300	8'-11"	24	20	52												
																								12	12½	10	18½	20	17"	42	1300	9'-1"	24	20	52												
																								13	12½	10	18½	16	14"	39	1207	9'-11"	27	22	58												
																								13	12½	10	18½	16	16"	39	1207	9'-11"	27	22	58												
																								13	12½	10	18½	20	15"	43	1331	9'-11"	27	22	58												
																								13	12½	10	18½	20	17"	43	1331	10'-1"	27	22	58												
																								13	12½	10	18½	24	16½"	47	1455	10'-1"	27	22	58												
																								14	12½	11	18½	16	14"	41	1269	10'-11"	29	24	63												
																								14	12½	11	18½	16	16"	41	1269	10'-11"	29	24	63												
																								14	12½	11	18½	20	15"	45	1393	10'-11"	29	24	63												
																								14	12½	11	18½	20	17"	45	1393	11'-1"	30	24	63												
																								14	12½	11	18½	24	16½"	49	1516	11'-1"	30	24	63												
																								14	12½	11	18½	28	16"	53	1640	11'-1"	30	24	63												
																								8	16½	8	18½	4	14"	20	619	6'-9"	18	16	42												
																								8	16½	8	18½	6	15"	22	681	6'-9"	18	16	42												
																								8	16½	8	18½	16	14"	32	990	6'-11"	18	16	42												
																								8	16½	8	18½	16	16"	32	990	6'-11"	18	16	42												
																								9	16½	9	18½	4	14"	22	681	7'-9"	21	18	47												
																								9	16½	9	18½	6	14"	24	743	7'-9"	21	18	47												
																								9	16½	9	18½	16	14"	34	1052	7'-11"	21	18	47												
																								9	16½	9	18½	16	16"	34	1052	7'-11"	21	18	47												
																								9	16½	9	18½	20	15"	38	1176	7'-11"	21	18	47												
																								10	16½	10	18½	6	14½"	26	805	8'-9"	23	20	52												
																								10	16½	10	18½	16	14"	36	1114	8'-11"	24	20	52												
																								10	16½	10	18½	16	16½"	36	1114	8'-11"	24	20	52												
																								10	16½	10	18½	20	16"	40	1238	8'-11"	24	20	52												
																								10	16½	10	18½	20	18"	40	1238	9'-1"	24	20	52												
																								11	16½	11	18½	16	14"	36	1114	9'-11"	27	22	58												
																								11	16½	11	18½	16	16"	36	1114	9'-11"	27	22	58												
																								11	16½	11	18½	20	16"	40	1238	9'-11"	27	22	58												
																								11	16½	11	18½	20	18"	40	1238	10'-1"	27	22	58												
																								11	16½	11	18½	24	17"	44	1362	10'-1"	27	22	58												
																								11	16½	11	18½	16	14"	36	1176	10'-11"	29	24	63												
																								11	16½	11	18½	16	16"	38	1176	10'-11"	29	24	63												
																								11	16½	11	18½	20	16"	42	1300	10'-11"	29	24	63												
																								11	16½	11	18½	20	18"	42	1300	11'-1"	30	24	63												
																								11	16½	11	18½	24	17"	46	1424	11'-1"	30	24	63												
																								11	16½	11	18½	28	16"	50	1547	11'-1"	30	24	63												

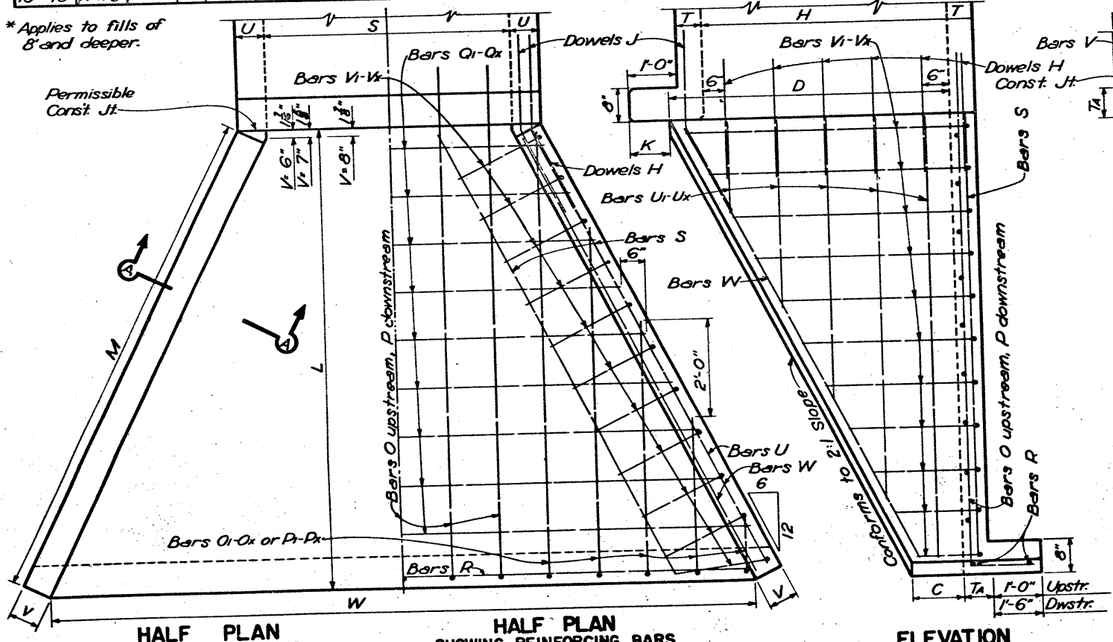

"X"=S+2U-4"
"X"=H+T-2"
BARS C
BARS D
"X"=S+2U-4"
1'-6"
BARS M
BARS N
BARS K
Varies
H
K
1'-0"
8"
4"
2"
3"
1'-3"
5"
6"
Dim. X
T+1½"
T+1½"
T+1½"
2'

CULVERT SIZE		TABLE OF DIMENSIONS							MAX. FILL 4'	MAX. FILL 6'	MAX. FILL 8'*	TOTAL QUANTITIES	
												Conc	Steel
S	H	L	M	V	W	C	D	T_A	K	K	K	Cu Yds.	Lbs.
3	2	3'-6⅜"	3'-8⅜"	6"	6'-5⅛"	1'-0"	2'-8"	6"	-	-	10"	1.73	241
3	3	5'-6⅜"	5'-11⅛"	6"	8'-5⅛"	1'-0"	3'-8"	6"	-	-	10"	3.03	371
4	2	3'-6⅜"	3'-8⅜"	6"	7'-5⅛"	1'-0"	2'-8"	6"	-	-	10"	1.93	256
4	3	5'-6⅜"	5'-11⅛"	6"	9'-5⅛"	1'-0"	3'-8"	6"	-	-	10"	3.29	390
4	4	7'-6⅜"	8'-2⅜"	6"	11'-5⅛"	1'-0"	4'-8"	6"	-	-	10"	4.98	558
5	2	3'-6⅜"	3'-8⅜"	6"	8'-5⅛"	1'-0"	2'-8"	6"	-	-	10"	2.12	271
5	3	5'-6⅜"	5'-11⅛"	6"	10'-5⅛"	1'-0"	3'-8"	6"	-	-	10"	3.56	410
5	4	7'-6⅜"	8'-2⅜"	6"	12'-5⅛"	1'-0"	4'-8"	6"	-	-	10"	5.32	583
5	5	8'-7⅛"	9'-3⅜"	7"	13'-5½"	1'-6"	5'-5"	6"	-	-	10"	7.17	728
6	3	5'-6⅜"	5'-11⅛"	6"	11'-5⅛"	1'-0"	3'-8"	6"	-	10"	10"	3.83	432
6	4	7'-6⅜"	8'-2⅜"	6"	13'-5⅛"	1'-0"	4'-8"	6"	-	10"	10"	5.66	610
6	5	8'-7⅛"	9'-3⅜"	7"	14'-5½"	1'-6"	5'-5"	6"	-	10"	10"	7.55	757
6	6	10'-7⅛"	11'-6⅜"	7"	16'-5½"	1'-6"	6'-8"	6"	-	10"	10"	10.13	972
7	3	5'-7⅜"	6'-0⅛"	6"	12'-6½"	1'-0"	3'-8½"	6½"	10"	10"	10"	4.36	465
7	4	7'-7⅜"	8'-3⅛"	6"	14'-6½"	1'-0"	4'-8½"	6½"	10"	10"	10"	6.37	642
7	5	8'-8⅛"	9'-4⅜"	7"	15'-6½"	1'-6"	5'-8½"	6½"	10"	10"	10"	8.37	792
7	6	10'-8⅛"	11'-7⅜"	7"	17'-6½"	1'-6"	6'-8½"	6½"	10"	10"	10"	11.15	1014
7	7	12'-8⅛"	13'-10⅛"	7"	19'-6½"	1'-6"	7'-8½"	6½"	10"	10"	10"	14.28	1372
8	4	7'-8⅝"	8'-4⅛"	6"	15'-7¼"	1'-0"	4'-9"	7"	9½"	10"	10½"	7.14	671
8	5	8'-9⅛"	9'-6"	7"	16'-7¼"	1'-6"	5'-9"	7"	9½"	10"	10½"	9.26	828
8	6	10'-9⅛"	11'-8⅛"	7"	18'-7¼"	1'-6"	6'-9"	7"	9½"	10"	10½"	12.25	1053
8	7	12'-9⅛"	13'-11⅝"	7"	20'-7½"	1'-6"	7'-9"	7"	9½"	10"	10½"	15.60	1385
8	8	13'-9⅝"	15'-1⅛"	8"	21'-7½"	2'-0"	8'-9"	7"	9½"	10"	10½"	19.25	1818
9	5	8'-10⅛"	9'-7⅛"	7"	17'-8½"	1'-6"	5'-9½"	7"	9½"	9½"	10"	9.82	858
9	6	10'-10⅛"	11'-10"	7"	19'-8½"	1'-6"	6'-9½"	7"	9½"	9½"	10"	12.91	1106
9	7	12'-10⅛"	14'-0⅜"	7"	21'-8½"	1'-6"	7'-9½"	7"	9½"	9½"	10"	16.36	1428
9	8	13'-10⅛"	15'-2⅛"	8"	22'-8½"	2'-0"	8'-9½"	7"	9½"	9½"	10"	20.09	1894
9	9	15'-10⅛"	17'-5⅛"	8"	24'-8½"	2'-0"	9'-9½"	7"	9½"	9½"	10"	24.47	2563
10	5	8'-11⅛"	9'-8⅛"	7"	18'-9½"	1'-6"	5'-10"	7½"	9"	10"	10½"	10.82	894
10	6	10'-11⅛"	11'-11⅛"	7"	20'-9½"	1'-6"	6'-10"	7½"	9"	10"	10½"	14.14	1149
10	7	12'-11⅛"	14'-1⅜"	7"	22'-9½"	1'-6"	7'-10"	7½"	9"	10"	10½"	17.84	1479
10	8	13'-11⅛"	15'-3⅛"	8"	23'-9½"	2'-0"	8'-10"	7½"	9"	10"	10½"	21.72	1849
10	9	15'-11⅛"	17'-6⅛"	8"	25'-9½"	2'-0"	9'-10"	7½"	9"	10"	10½"	26.35	2626
10	10	17'-11⅛"	19'-9"	8"	27'-9½"	2'-0"	10'-10"	7½"	9"	10"	10½"	31.41	3744

TABLE OF REINFORCING STEEL FOR 2 WINGS

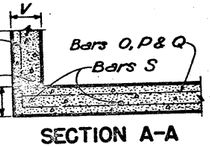
Bars H-$\frac{3}{4}$" ϕ 2'-6" Long @12		Bars J-$\frac{3}{4}$" ϕ 4'-0" Long		Bars O $\frac{5}{8}$"ϕ @ 12"			Bars Oi-Ox $\frac{5}{8}$"ϕ @ 12"			Bars P $\frac{5}{8}$"ϕ @ 12"			Bars Pi-Px $\frac{5}{8}$"ϕ @ 12"			Bars Q-Qx $\frac{5}{8}$"ϕ @12"			Bars R 4-$\frac{5}{8}$"ϕ.		Bars S 8-$\frac{5}{8}$"ϕ		Bars U $\frac{5}{8}$"ϕ			Bars Vi-Vx			8 Bars W			CULVERT SIZE	
No	Wt	No	Wt	No	Lgth.	Wt	No	Av Lgth	Wt	No	Lgth.	Wt	No	Av Lgth	Wt	No	Av Lgth	Wt	Lgth	Wt	Lgth	Wt	No	Av Lgth	Wt	No	Size	Spac	Av Lgth	Wt	Size	Lgth	Wt	S	H
12	20	8	48	3	5'-11"	12	4	3'-6"	9	3	6'-5"	13	4	4'-0"	11	6	5'-0"	20	6'-6"	17	3'-5"	18	8	3'-1"	16	16	½"ϕ	12"	3'-6"	37	½"ϕ	3'-9"	20	3	2
16	27	8	48	3	7'-11"	16	6	4'-6"	18	3	8'-5"	17	6	5'-0"	20	10	6'-0"	40	8'-6"	23	3'-5"	18	8	3'-1"	16	16	½"ϕ	12"	3'-6"	37	½"ϕ	3'-9"	20	3	3
16	27	8	48	4	7'-11"	21	6	4'-6"	18	4	8'-5"	22	6	5'-0"	20	10	6'-0"	24	7'-6"	20	3'-5"	18	8	3'-1"	16	16	½"ϕ	12"	3'-6"	37	½"ϕ	3'-9"	20	4	2
20	33	8	48	4	9'-11"	26	8	5'-6"	29	4	10'-5"	28	8	6'-0"	32	10	7'-0"	47	9'-6"	25	5'-8"	30	12	4'-4"	35	24	½"ϕ	12"	4'-0"	64	½"ϕ	6'-3"	33	4	3
20	33	8	48	4	9'-11"	26	8	5'-6"	29	4	10'-5"	28	8	6'-0"	32	10	7'-0"	47	9'-6"	25	5'-8"	30	12	4'-4"	35	24	½"ϕ	12"	4'-6"	108	½"ϕ	8'-7"	46	4	4
24	40	8	48	5	9'-11"	33	8	5'-6"	29	5	10'-5"	28	8	6'-0"	32	10	7'-0"	53	10'-6"	28	3'-5"	18	8	3'-1"	16	16	½"ϕ	12"	3'-6"	37	½"ϕ	3'-9"	20	5	2
24	40	8	48	5	10'-11"	36	8	6'-6"	35	5	11'-5"	38	8	7'-0"	37	16	9'-6"	102	13'-6"	36	9'-0"	48	20	6'-6"	87	40	½"ϕ	12"	4'-6"	108	½"ϕ	8'-7"	46	5	3
28	47	8	48	6	7'-11"	32	8	4'-6"	18	6	8'-5"	34	6	5'-0"	20	10	9'-0"	60	11'-6"	31	5'-8"	30	12	4'-4"	35	24	½"ϕ	12"	4'-0"	64	½"ϕ	6'-3"	33	5	4
28	47	8	48	6	9'-11"	39	8	5'-6"	24	6	10'-5"	42	8	6'-0"	32	14	9'-0"	84	12'-6"	33	7'-10"	42	16	5'-7"	60	36	½"ϕ	12"	4'-6"	108	½"ϕ	8'-7"	46	5	4
32	52	8	48	6	10'-11"	43	8	5'-6"	29	6	11'-5"	46	8	6'-0"	32	14	9'-0"	94	13'-6"	36	7'-10"	42	16	5'-7"	60	36	½"ϕ	12"	4'-6"	108	½"ϕ	8'-7"	46	5	5
36	59	8	48	6	12'-11"	52	8	6'-6"	35	6	13'-5"	54	8	7'-0"	37	16	9'-6"	102	13'-6"	36	9'-0"	48	20	6'-6"	87	40	½"ϕ	12"	4'-6"	108	½"ϕ	8'-7"	46	6	4
36	59	8	48	7	8'-0"	37	8	5'-7"	30	7	8'-6"	40	6	5'-1"	20	10	10'-0"	67	12'-7"	34	5'-8"	30	12	4'-4"	35	28	½"ϕ	12"	4'-7"	110	½"ϕ	8'-9"	47	6	5
40	66	8	48	7	10'-0"	47	8	5'-7"	30	7	10'-6"	49	8	6'-1"	33	14	11'-0"	103	14'-7"	39	8'-0"	43	16	5'-7"	60	36	½"ϕ	12"	4'-7"	110	½"ϕ	8'-9"	47	6	6
40	66	8	48	7	11'-0"	51	8	6'-7"	35	7	11'-6"	54	8	7'-1"	38	16	11'-6"	123	15'-7"	42	9'-1"	49	20	6'-6"	87	40	½"ϕ	12"	5'-4"	142	⅝"ϕ	9'-11"	83	6	7
44	73	8	48	7	11'-0"	51	8	6'-7"	35	7	11'-6"	63	10	8'-1"	54	20	12'-6"	167	17'-7"	47	11'-4"	61	24	7'-9"	124	48	½"ϕ	12"	5'-4"	142	⅝"ϕ	9'-11"	83	7	7
48	79	8	48	7	13'-0"	61	10	7'-7"	51	7	13'-6"	63	10	8'-1"	54	20	13'-6"	216	19'-7"	52	13'-7"	73	28	8'-11"	167	84	½"ϕ	8"	6'-4"	355	⅝"ϕ	14'-11"	124	7	7
52	86	8	48	8	15'-0"	70	12	8'-7"	69	7	15'-6"	72	12	9'-1"	73	24	13'-0"	112	15'-8"	42	8'-1"	43	16	5'-7"	60	36	½"ϕ	12"	4'-5"	112	⅝"ϕ	10'-1"	84	8	4
52	86	8	48	8	10'-1"	54	8	5'-8"	30	8	10'-7"	57	8	6'-2"	33	14	12'-0"	112	15'-8"	42	8'-1"	43	16	5'-7"	60	36	½"ϕ	12"	5'-5"	145	⅝"ϕ	10'-1"	84	8	5
56	92	8	48	8	11'-1"	59	8	6'-8"	36	8	11'-7"	62	8	7'-2"	38	16	12'-6"	134	16'-8"	45	9'-2"	49	20	6'-7"	88	40	½"ϕ	12"	5'-5"	145	⅝"ϕ	12'-6"	104	8	6
60	99	8	48	8	13'-1"	70	10	7'-8"	51	8	13'-7"	73	10	8'-2"	55	20	13'-6"	180	18'-8"	50	11'-5"	61	24	7'-9"	124	48	½"ϕ	12"	5'-11"	190	⅝"ϕ	12'-6"	104	8	7
64	106	8	48	8	15'-1"	81	12	8'-8"	69	8	15'-7"	83	12	9'-2"	73	24	14'-6"	232	20'-8"	55	13'-8"	73	28	8'-11"	167	76	½"ϕ	9"	6'-5"	326	⅝"ϕ	15'-0"	125	8	8
68	112	8	48	8	16'-2"	86	12	9'-9"	78	8	16'-8"	89	12	10'-3"	82	26	15'-0"	261	21'-8"	58	14'-9"	79	32	9'-9"	205	120	½"ϕ	6"	7'-2"	575	¾"ϕ	16'-2"	194	8	8
72	119	8	48	9	11'-2"	67	8	6'-9"	36	9	11'-8"	70	8	7'-3"	39	16	13'-6"	144	17'-9"	47	9'-3"	49	20	6'-7"	88	40	½"ϕ	12"	5'-5"	145	⅝"ϕ	10'-2"	85	9	5
72	119	8	48	9	13'-2"	79	10	7'-9"	52	9	13'-8"	82	10	8'-3"	55	20	14'-6"	194	19'-9"	53	11'-6"	61	24	7'-9"	124	52	½"ϕ	12"	5'-11"	206	⅝"ϕ	12'-7"	105	9	6
76	126	8	48	9	15'-2"	91	12	8'-9"	70	9	15'-8"	94	12	9'-3"	74	24	15'-6"	248	21'-9"	58	13'-9"	73	28	8'-11"	167	76	½"ϕ	9"	6'-5"	326	⅝"ϕ	15'-1"	126	9	7
80	132	8	48	9	16'-3"	98	14	8'-10"	83	9	16'-9"	101	14	9'-4"	87	26	16'-0"	278	22'-9"	61	14'-10"	79	32	9'-10"	210	124	½"ϕ	6"	7'-2"	594	¾"ϕ	16'-3"	195	9	8
84	139	8	48	9	18'-3"	113	16	9'-10"	105	9	18'-9"	113	16	10'-4"	110	30	17'-0"	341	24'-9"	66	17'-1"	91	36	11'-0"	265	120	⅝"ϕ	7"	8'-2"	1022	¾"ϕ	18'-9"	225	9	9
88	146	8	48	10	19'-3"	130	18	10'-10"	120	10	19'-9"	130	18	11'-4"	126	30	18'-0"	361	25'-10"	69	17'-2"	92	36	11'-0"	265	120	⅝"ϕ	7"	8'-2"	1022	¾"ϕ	18'-9"	225	10	5
92	152	8	48	10	20'-4"	136	18	10'-11"	131	10	20'-10"	139	18	11'-5"	137	34	19'-0"	432	27'-10"	74	19'-5"	104	40	12'-2"	325	136	⅝"ϕ	7"	9'-3"	1390	¾"ϕ	21'-3"	255	10	6
96	159	8	48	10	21'-4"	142	20	11'-11"	146	10	21'-10"	146	20	12'-5"	154	34	19'-0"	432	27'-10"	74	19'-5"	104	40	12'-2"	325	136	⅝"ϕ	7"	9'-3"	1390	¾"ϕ	21'-3"	255	10	7
100	166	8	48	10	22'-4"	148	20	12'-11"	158	10	22'-10"	153	20	13'-5"	166	34	19'-0"	432	27'-10"	74	19'-5"	104	40	12'-2"	325	136	⅝"ϕ	7"	9'-3"	1390	¾"ϕ	21'-3"	255	10	8
104	172	8	48	10	23'-4"	154	20	13'-11"	170	10	23'-10"	160	20	14'-5"	178	34	19'-0"	432	27'-10"	74	19'-5"	104	40	12'-2"	325	136	⅝"ϕ	7"	9'-3"	1390	¾"ϕ	21'-3"	255	10	9
108	179	8	48	10	24'-4"	160	20	14'-11"	182	10	24'-10"	167	20	15'-5"	190	34	19'-0"	432	27'-10"	74	19'-5"	104	40	12'-2"	325	136	⅝"ϕ	7"	9'-3"	1390	¾"ϕ	21'-3"	255	10	10

* Applies to fills of 8' and deeper.



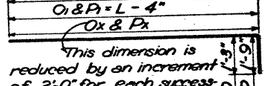
HALF PLAN SHOWING DIMENSIONS

HALF PLAN SHOWING REINFORCING BARS

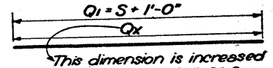


SECTION A-A

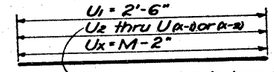
ELEVATION PARALLEL TO BARREL

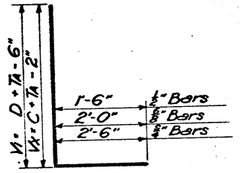


BARS O & P

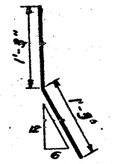


BARS Q

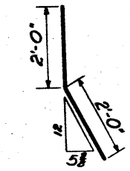




BARS V



DOWELS H



DOWELS J

GENERAL NOTES:
All concrete shall be Class A.
Dimensions relating to reinforcing steel are to centers of bars.
Steel cover to be 2" from center of outside layer of steel to face of concrete.
Chamfer exposed corners ¾" except as otherwise noted.

TEXAS HIGHWAY DEPARTMENT

FLARED WINGS - NORMAL FOR SINGLE BOX CULVERTS

SIZES 3x2 to 10x10

FWN

Dn.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
Ck. Dn.	Original	April 1, 1948	6	TEXAS	I 35-1(3) 9	27
Dw.			STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
Ck. Dw.			2	WEBB	18 / 5 / 13	4, 83
Tr.						
Ck. Tr.						

PLAN — DETECTED, PLOTTED, CHECKED, ALIGNMENT CHECKED, NOTE BOOK, GRADES CHECKED, BY, NO., STRUCTURE NO. AT PRESENT CH. NO.

PROFILE — DETECTED, PLOTTED, CHECKED, NOTE BOOK, GRADES CHECKED, BY, NO., STRUCTURE NO. AT PRESENT CH. NO.

DATE

CULVERT SIZE S H	SLAB DEPTH T"	MAX FILL FT	WING HEIGHT Z"	WING LENGTH L"	TOTAL QUANT. 4 WINGWALLS CONC. CY	REINF. LB.
3 x 2	6"	14'	3'-6"	5'-3"	4.10	360
3 x 3	6"	14'	4'-6"	6'-9"	6.11	526
4 x 2	6"	12'	3'-6"	5'-3"	4.21	366
4 x 3	6"	12'	4'-6"	6'-9"	6.23	532
4 x 4	6"	12'	5'-6"	8'-3"	8.75	915
5 x 2	6"	8'	3'-6"	5'-3"	4.33	371
5 x 3	6"	8'	4'-6"	6'-9"	6.34	537
5 x 4	6"	8'	5'-6"	8'-3"	8.87	921
5 x 5	6"	8'	6'-6"	9'-9"	11.86	1436
6 x 3	6"	8'	4'-6"	6'-9"	6.46	543
6 x 4	6"	8'	5'-6"	8'-3"	8.90	927
6 x 5	6"	8'	6'-6"	9'-9"	11.99	1443
6 x 6	6"	8'	7'-6"	11'-3"	15.56	2070
7 x 3	6 1/2"	8'	4'-6 1/2"	6'-10"	6.68	549
7 x 4	6 1/2"	8'	5'-6 1/2"	8'-4"	9.24	934
7 x 5	6 1/2"	8'	6'-6 1/2"	9'-10"	12.27	1450
7 x 6	6 1/2"	8'	7'-6 1/2"	11'-4"	15.89	2078
7 x 7	6 1/2"	8'	8'-6 1/2"	12'-10"	21.55	2924
8 x 4	6 1/2"	4'	5'-6 1/2"	8'-4"	9.36	940
8 x 5	6 1/2"	4'	6'-6 1/2"	9'-10"	12.40	1457
8 x 6	6 1/2"	4'	7'-6 1/2"	11'-4"	16.03	2086
8 x 7	6 1/2"	4'	8'-6 1/2"	12'-10"	21.70	2933
8 x 8	6 1/2"	4'	9'-6 1/2"	14'-4"	28.49	4575
8 x 4	7"	6'	5'-7"	8'-4"	9.41	940
8 x 5	7"	6'	6'-7"	9'-10"	12.46	1457
8 x 6	7"	6'	7'-7"	11'-4"	16.11	2086
8 x 7	7"	6'	8'-7"	12'-10"	21.79	2933
8 x 8	7"	6'	9'-7"	14'-4"	28.60	4575
8 x 4	7 1/2"	8'	5'-7 1/2"	8'-5"	9.54	940
8 x 5	7 1/2"	8'	6'-7 1/2"	9'-11"	12.61	1457
8 x 6	7 1/2"	8'	7'-7 1/2"	11'-5"	16.30	2086
8 x 7	7 1/2"	8'	8'-7 1/2"	12'-11"	22.02	2933
8 x 8	7 1/2"	8'	9'-7 1/2"	14'-5"	28.88	4575
9 x 5	7"	6'	6'-7"	9'-10"	12.59	1464
9 x 6	7"	6'	7'-7"	11'-4"	16.26	2094
9 x 7	7"	6'	8'-7"	12'-10"	21.95	2942
9 x 8	7"	6'	9'-7"	14'-4"	28.78	4585
9 x 9	7"	6'	10'-7"	15'-10"	37.26	6072
9 x 5	8"	8'	6'-8"	10'-0"	12.90	1464
9 x 6	8"	8'	7'-8"	11'-6"	17.35	2094
9 x 7	8"	8'	8'-8"	13'-0"	23.11	2942
9 x 8	8"	8'	9'-8"	14'-6"	30.73	4585
9 x 9	8"	8'	10'-8"	16'-0"	38.93	6072
10 x 5	7"	4'	6'-7"	9'-10"	12.72	1471
10 x 6	7"	4'	7'-7"	11'-4"	16.41	2102
10 x 7	7"	4'	8'-7"	12'-10"	22.11	2951
10 x 8	7"	4'	9'-7"	14'-4"	28.96	4594
10 x 9	7"	4'	10'-7"	15'-10"	37.45	6083
10 x 10	7"	4'	11'-7"	17'-4"	48.02	7768
10 x 5	8"	6'	6'-8"	10'-0"	13.04	1471
10 x 6	8"	6'	7'-8"	11'-6"	17.51	2102
10 x 7	8"	6'	8'-8"	13'-0"	23.28	2951
10 x 8	8"	6'	9'-8"	14'-6"	30.91	4594
10 x 9	8"	6'	10'-8"	16'-0"	39.14	6083
10 x 10	8"	6'	11'-8"	17'-6"	48.80	7768
10 x 5	8 1/2"	8'	6'-8 1/2"	10'-1"	13.20	1471
10 x 6	8 1/2"	8'	7'-8 1/2"	11'-7"	17.71	2102
10 x 7	8 1/2"	8'	8'-8 1/2"	13'-1"	23.52	2951
10 x 8	8 1/2"	8'	9'-8 1/2"	14'-7"	31.20	4594
10 x 9	8 1/2"	8'	10'-8 1/2"	16'-1"	39.50	6083
10 x 10	8 1/2"	8'	11'-8 1/2"	17'-7"	49.18	7768

TABLE OF DIMENSIONS

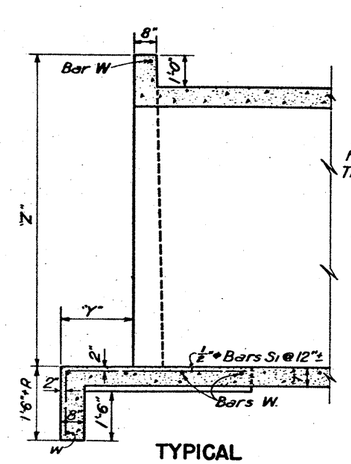
WING SIZE Z"	WING SIZE L"	R"	W"	V"	D"	Y"
3'-6"	5'-3"	6 1/2"	2'-6"	8"	10"	1'-0"
4'-6"	6'-9"	7"	2'-10"	8"	1'-2"	1'-0"
5'-6"	8'-3"	7"	3'-2"	8"	1'-7"	1'-2"
6'-6"	9'-9"	7"	3'-5"	8"	1'-7"	1'-2"
7'-6"	11'-3"	7"	3'-9"	8"	2'-0"	1'-4"
8'-6 1/2"	12'-10"	7"	4'-0"	8"	2'-0"	1'-4"
9'-6 1/2"	14'-4"	7"	4'-3"	8"	2'-3"	1'-5"
10'-7"	15'-10"	7"	4'-6"	8"	2'-3"	1'-5"
11'-7"	17'-4"	7"	4'-9"	8"	2'-6"	1'-6"

TABLE OF REINFORCING STEEL FOR 4 WING WALLS

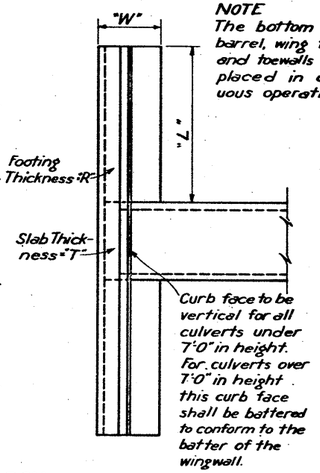
WING SIZE Z"	WING SIZE L"	BARS R NO	BARS R SIZE	BARS R SPAC	BARS R LENGTH	BARS R WEIGHT	BARS S1 NO	BARS S1 SIZE	BARS S1 SPAC	BARS S1 LENGTH	BARS S1 WEIGHT	1/2"ϕ BARS T1 @18"± NO	1/2"ϕ BARS T1 @18"± LENGTH	1/2"ϕ BARS T1 @18"± WEIGHT	1/2"ϕ BARS T2 @12"± NO	1/2"ϕ BARS T2 @12"± LENGTH	1/2"ϕ BARS T2 @12"± WEIGHT	BARS U NO	BARS U SIZE	BARS U SPAC	BARS U LENGTH	BARS U WEIGHT	8 1/2"ϕ BARS P SPAC	8 1/2"ϕ BARS P LENGTH	8 1/2"ϕ BARS P WEIGHT	1/2"ϕ BARS W @12"± NO	1/2"ϕ BARS W @12"± LENGTH	1/2"ϕ BARS W @12"± WEIGHT	TOTAL WEIGHT
3'-6"	5'-3"	24	1/2"ϕ	12"	5'-1"	81.	24	1/2"ϕ	12"	3'-11"	63	4	6'-2"	16	8	5'-0"	27	12	1/2"ϕ	12"	2'-10"	23	15"	2'-6"	13	20	8'-9"	117	340
4'-6"	6'-9"	32	1/2"ϕ	11"	6'-1"	130	32	1/2"ϕ	11"	4'-3"	91	8	7'-8"	41	8	6'-6"	35	20	1/2"ϕ	8"	2'-10"	38	15"	3'-6"	19	20	11'-3"	150	504
5'-6"	8'-3"	60	1/2"ϕ	7"	7'-3"	291	60	1/2"ϕ	7"	4'-10"	194	12	9'-2"	74	8	8'-0	43	24	1/2"ϕ	8"	2'-10"	45	15"	4'-6"	24	24	13'-3"	212	883
6'-6"	9'-9"	56	5/8"ϕ	8 1/2"	8'-5"	492	60	5/8"ϕ	8"	5'-5"	339	12	10'-8"	86	12	9'-6"	76	40	1/2"ϕ	6"	2'-10"	76	15"	5'-6"	29	28	15'-9"	295	1393
7'-6"	11'-3"	80	5/8"ϕ	7"	9'-10"	820	80	5/8"ϕ	7"	6'-1"	507	16	12'-2"	130	12	11'-0"	88	32	5/8"ϕ	9"	3'-4"	111	18"	6'-6"	35	28	17'-3"	323	2014
8'-6 1/2"	12'-10"	112	5/8"ϕ	5 1/2"	11'-4"	1,324	104	5/8"ϕ	6"	6'-7"	714	16	13'-9"	147	12	12'-7"	101	36	5/8"ϕ	9"	3'-4"	125	18"	7'-6"	40	32	18'-11"	404	2855
9'-6 1/2"	14'-4"	108	3/4"ϕ	6 1/2"	12'-9"	2,068	116	3/4"ϕ	6"	7'-4"	1277	20	15'-3"	204	16	14'-1"	150	44	3/4"ϕ	9"	3'-10"	253	21"	8'-6"	45	36	20'-6"	493	4490
10'-7"	15'-10"	140	3/4"ϕ	5 1/2"	14'-4"	3,013	140	3/4"ϕ	5"	7'-11"	1665	24	16'-9"	269	16	15'-7"	167	48	3/4"ϕ	9"	3'-10"	276	21"	9'-6"	51	36	22'-0"	529	5970
11'-7"	17'-4"	168	3/4"ϕ	5"	15'-9"	3 974	168	3/4"ϕ	5"	8'-7"	2165	28	18'-3"	341	16	17'-1"	183	52	3/4"ϕ	9"	3'-10"	292	21"	10'-6"	56	40	23'-6"	628	7646

BILL OF 1/2"ϕ BARS S2 @12"± FOR 2 CULVERT APRONS

"Z"	SPAN	NO	LGTH	WEIGHT	"Z"	SPAN	NO	LGTH	WEIGHT
3'-6"	3'-0"	8	3'-10"	20	6'-6"	9'-0"	20	5'-4"	71
	4'-0"	10	3'-10"	26		10'-0"	22	5'-4"	78
	5'-0"	12	3'-10"	31	7'-6"	6'-0"	14	6'-0"	56
4'-6"	3'-0"	8	4'-2"	22		7'-0"	16	6'-0"	64
	4'-0"	10	4'-2"	28		8'-0"	18	6'-0"	72
	5'-0"	12	4'-2"	33		9'-0"	20	6'-0"	80
	6'-0"	14	4'-2"	39		10'-0"	22	6'-0"	88
	7'-0"	16	4'-2"	45	8'-6 1/2"	7'-0"	16	6'-6"	69
5'-6"	4'-0"	10	4'-9"	32		8'-0"	18	6'-6"	78
	5'-0"	12	4'-9"	38		9'-0"	20	6'-6"	87
	6'-0"	14	4'-9"	44		10'-0"	22	6'-6"	96
	7'-0"	16	4'-9"	51	9'-6 1/2"	8'-0"	18	7'-1"	85
	8'-0	18	4'-9"	57		9'-0"	20	7'-1"	95
6'-6"	5'-0"	12	5'-4"	43		10'-0"	22	7'-1"	104
	6'-0"	14	5'-4"	50	10'-7"	9'-0"	20	7'-8"	102
	7'-0"	16	5'-4"	57		10'-0"	22	7'-8"	113
	8'-0"	18	5'-4"	64	11'-7"	10'-0"	22	8'-4"	122

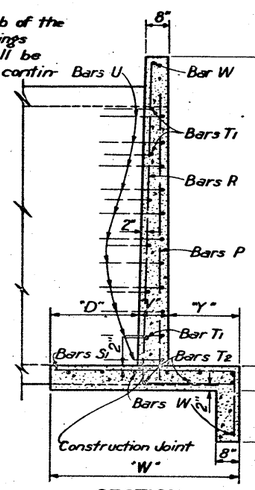


TYPICAL LONGITUDINAL SECTION THRU BOX SHOWING DETAIL OF APRON

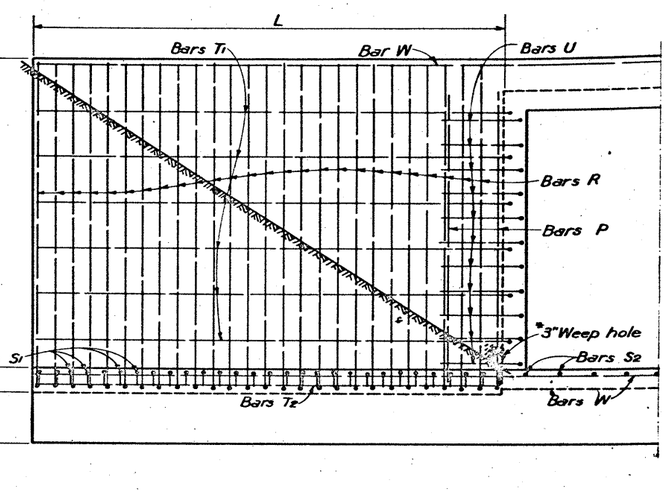


PLAN VIEW OF WING WALL

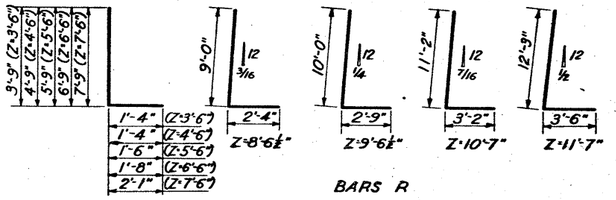
NOTE
The bottom slab of the barrel, wing footings and toewalls shall be placed in one continuous operation.



SECTION

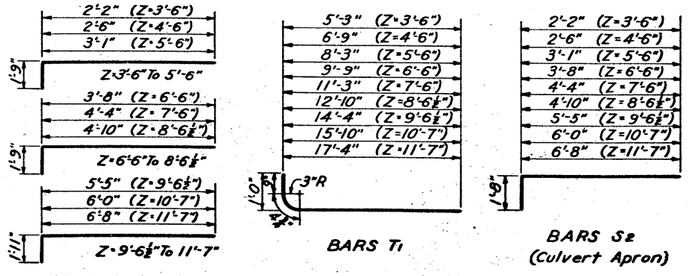


HALF ELEVATION



BARS R

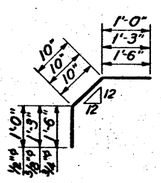
Z-3'-6" To 7'-6"



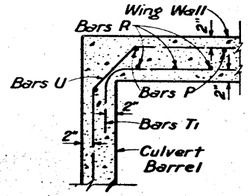
BARS S1

BARS T1

BARS S2 (Culvert Apron)



BARS U



ARRANGEMENT OF WING WALL REINF. AT CULVERT WALL

DETAIL OF WING WALL

GENERAL NOTES:
All concrete shall be Class A. Chamfer all exposed corners 3/4" unless specified otherwise.
All dimensions relating to reinforcing steel are to centers of bars.

HALF ELEVATION

*Place one weep hole per wing at approximate earth line as shown. Fill around inlet of drains with broken stone or coarse gravel to permit free passage of water. Weep holes required for Z-6'-6" and greater.

TEXAS HIGHWAY DEPARTMENT

PARALLEL WINGS-NORMAL

FOR SINGLE BOX CULVERTS
3 x 2 TO 10 x 10

PW-N

Dr. C.J.S.E.W.H.	Checked	Date	PER CENT OVER 100	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
Cs. Dr. W.H.	Original	June 1948		TEXAS	I-35-1(3) 9	
Dr. A.B.L.				STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.	HIGHWAY NO.
Cs. Dr. W.H.				-	WEBB	18	5	-	2
Te. A.C.B.									
Cs. Te. W.H.									

BILLS OF REINFORCING STEEL FOR 44'-0" CLEAR ROADWAY WIDTH

CULVERT SIZE S	H	TYPE SECTION	DIMENSIONS T	U	MAX. FILL	TOTAL QUANTITIES 44'CLEAR WIDTH Conc.	Reinf.	QUANT. F.L.F. OF RDWY. BARREL Conc.	Reinf.
SC-15° A	3 x 2	1	6"	6"	14'	10.63	1297	0.230	27.49
	3	1	6"	6"	14'	12.37	1379	0.268	29.27
	4 x 2	1	6"	6"	12'	12.42	1785	0.268	38.06
	3	1	6"	6"	12'	14.16	1889	0.307	40.35
	4	1	6"	6"	12'	15.90	2057	0.345	44.03
	5 x 2	2	6"	6"	8'	14.21	2143	0.307	45.74
	3	2	6"	6"	8'	15.95	2234	0.345	47.75
	4	2	6"	6"	8'	17.69	2388	0.383	51.14
	5	3	6"	7"	8'	21.17	3021	0.460	64.84
	6 x 2	2	6"	6"	8'	17.74	2840	0.383	60.81
	3	2	6"	6"	8'	19.48	3020	0.422	64.74
	4	2	6"	6"	8'	22.96	3583	0.498	74.69
	5	3	6"	7"	8'	24.99	3841	0.543	77.24
	7 x 2	2	6½"	6"	6'	19.82	2994	0.447	64.04
	3	2	6½"	6"	6'	21.56	3162	0.486	67.71
	4	2	6½"	7"	6'	25.94	3655	0.563	78.41
	5	3	6½"	7"	6'	27.96	3787	0.607	81.30
	6	3	6½"	7"	6'	29.99	4048	0.652	86.96
	8 x 2	2	6½"	6"	6'	24.36	3655	0.527	78.42
	3	2	6½"	7"	6'	27.87	4327	0.604	92.95
	4	3	6½"	7"	6'	29.90	4490	0.649	96.51
	5	3	6½"	7"	6'	31.93	4781	0.694	102.84
	6	3	6½"	8"	6'	36.59	5142	0.797	110.55
	9 x 2	3	7"	7"	6'	31.28	5163	0.678	111.26
	3	3	7"	7"	6'	33.31	5338	0.723	115.10
	4	3	7"	7"	6'	35.33	5641	0.768	121.70
	5	3	7"	8"	6'	40.03	6093	0.871	130.83
	6	3	7"	8"	6'	42.34	6389	0.922	137.28
	10 x 2	3	7"	7"	6'	33.36	6037	0.723	130.13
	3	3	7"	7"	6'	35.39	6241	0.768	134.60
	4	3	7"	7"	6'	37.41	6575	0.813	141.83
	5	3	7"	8"	6'	42.10	7267	0.916	155.83
	6	3	7"	8"	6'	44.42	7588	0.967	162.82
	7	3	7"	8"	6'	46.74	7911	1.018	169.81
SC-15° B	3 x 2	2	6"	6"	10'	17.74	2887	0.383	61.97
	3	2	6"	6"	10'	19.48	3072	0.422	66.03
	4	3	6"	7"	10'	22.96	3741	0.498	80.51
	5	3	6"	7"	10'	24.99	4042	0.543	87.81
	7 x 2	2	6½"	6"	8'	19.82	3205	0.447	68.86
	3	2	6½"	6"	8'	21.56	3182	0.486	68.29
	4	3	6½"	7"	8'	25.93	3843	0.563	82.22
	5	3	6½"	7"	8'	27.96	4201	0.607	89.92
	6	3	6½"	7"	8'	29.99	4636	0.652	99.98
	8 x 2	2	7"	6"	8'	25.66	3937	0.556	84.63
	3	3	7"	7"	8'	29.20	4494	0.634	96.54
	4	3	7"	7"	8'	31.23	4656	0.678	100.11
	5	3	7"	7"	8'	33.25	5099	0.723	109.85
	6	3	7"	8"	8'	37.95	5516	0.827	119.02
	9 x 2	3	7"	7"	8'	31.28	5660	0.678	122.17
	3	3	7"	7"	8'	33.31	5864	0.723	126.64
	4	3	7"	7"	8'	35.33	6197	0.768	133.87
	5	3	7"	8"	8'	40.03	6637	0.871	143.54
	6	3	7"	8"	8'	42.34	6981	0.922	151.05
	10 x 2	3	7"	8"	8'	36.59	6297	0.795	135.68
	3	3	8"	7"	8'	38.62	6681	0.839	144.25
	4	3	8"	7"	8'	40.65	7026	0.884	151.76
	5	3	8"	8"	8'	45.39	7521	0.988	162.60
	6	3	8"	8"	8'	47.70	7880	1.040	170.43
	10	3	8"	8"	8'	50.02	8748	1.090	189.70
SC-15° C	3 x 2	2	6½"	6"	10'	19.82	3736	0.447	80.24
	3	2	6½"	6"	10'	21.56	3926	0.486	84.65
	4	3	6½"	7"	10'	25.94	4620	0.563	99.70
	5	3	6½"	7"	10'	27.96	4803	0.607	103.72
	6	3	6½"	7"	10'	29.99	5272	0.652	113.63
	8 x 2	2	7½"	6"	10'	26.97	4583	0.585	98.77
	3	3	7½"	7"	10'	30.53	5156	0.663	111.40
	4	3	7½"	7"	10'	32.55	5339	0.708	115.42
	5	3	7½"	7"	10'	34.58	5809	0.753	125.37
	6	3	7½"	8"	10'	39.30	6222	0.856	134.58
	9 x 2	3	8"	7"	10'	34.22	6159	0.743	132.98
	3	3	8"	7"	10'	36.25	6375	0.788	137.72
	4	3	8"	7"	10'	38.28	6904	0.833	149.26
	5	3	8"	8"	10'	43.02	7163	0.937	154.92
	6	3	8"	8"	10'	45.34	7761	0.988	167.99
	10 x 2	3	8½"	7"	10'	38.21	7276	0.830	157.82
	3	3	8½"	7"	10'	40.24	7706	0.875	167.24
	4	3	8½"	7"	10'	42.27	8080	0.920	175.40
	5	3	8½"	8"	10'	47.03	8371	1.025	181.82
	6	3	8½"	8"	10'	49.35	9014	1.076	195.37
	10	3	8½"	8"	10'	51.66	9859	1.127	214.95

CULVERT SIZE S	H	BARS A IN TOP SLAB No.	Size	Spac.	Length	Weight	BARS B IN BOTTOM SLAB No.	Size	Spac.	Length	Weight	BARS C WALLS AND TOP CORNER No.	Size	Spac.	Length	Weight	Dim. X	BARS D IN BOTTOM CORNERS No.	Size	Spac.	Length	Weight	Dim. X	62½°ϕ BARS E @18" C. to C. Length	Weight	½"ϕ BARS F LENGTH = 47'-11" Fi	Spa.	Fz	Spa.	F3	Spa.	Total	Weight	BARS H 4-½"ϕ Length	Weight	⅝ϕ BARS K @13'-11" Lg. No.	Wt.	½"ϕ BARS M IN TOP SLAB No.	Spa.	Length	Weight	"X"	"Y"	½"ϕ BARS N IN BOTTOM SLAB No.	Spa.	Length	Weight	"X"
SC-15° A	3 x 2																									7	12"±	3	20½"	4	10"	14	448	3'-9"	10	10	26	61	9"	8'-5"	343	3'-9"	2'-4"	61	9"	6'-9"	275	3'-9"	
	3																									7	12"±	3	20½"	4	14"	14	448	3'-9"	10	10	26	61	9"	10'-5"	425	3'-9"	3'-4"	61	9"	6'-9"	275	3'-9"	
	4 x 2																									9	12"±	4	18"±	4	10"	17	544	4'-10"	13	12	31	78	7"	9'-6"	495	4'-10"	2'-4"	78	7"	7'-10"	408	4'-10"	
	3																									9	12"±	4	18"±	4	14"	17	544	4'-10"	13	12	31	78	7"	11'-6"	599	4'-10"	3'-4"	78	7"	7'-10"	408	4'-10"	
	4																									9	12"±	4	18"±	6	15"	19	608	4'-10"	13	12	31	78	7"	13'-6"	703	4'-10"	4'-4"	78	7"	7'-10"	408	4'-10"	
	5 x 2	2	½"ϕ	9½"	5'-10"	226	136	½"ϕ	8"	4'-10"	439	2'-4"	136	½"ϕ	8"	4'-4"	371	1'-7"								9	12"±	7	18"±	4	10"	20	640	5'-10"	16	14	37														
	3	2	½"ϕ	9½"	5'-10"	226	136	½"ϕ	8"	5'-10"	530	3'-4"	136	½"ϕ	8"	4'-4"	371	1'-7"								9	12"±	7	18"±	4	14"	20	640	5'-10"	16	14	37														
	4	2	½"ϕ	9½"	5'-10"	226	136	½"ϕ	8"	6'-10"	620	4'-4"	136	½"ϕ	8"	4'-4"	371	1'-7"								9	12"±	7	18"±	6	15"	22	704	5'-10"	16	14	37														
	5	3	½"ϕ	9½"	6'-0"	232	136	½"ϕ	8"	7'-10"	711	5'-4"	136	½"ϕ	8"	4'-4"	371	1'-7"	4'-11"	204	9	12"±	7	18"±	16	13"	32	1024	5'-0"	16	14	37														
	6 x 2	2	½"ϕ	7"	6'-11"	360	174	½"ϕ	6½"	5'-10"	678	3'-4"	174	½"ϕ	6½"	4'-4"	475	1'-7"								10	12"±	8	18"±	4	14"	22	704	6'-11"	18	16	42														
	3	2	½"ϕ	7"	6'-11"	360	174	½"ϕ	6½"	6'-10"	794	4'-4"	174	½"ϕ	6½"	4'-4"	475	1'-7"								10	12"±	8	18"±	6	15"	24	768	6'-11"	18	16	42														
	4	3	½"ϕ	7"	7'-1"	576	78	½"ϕ	7"	7'-10"	910	5'-4"	174	½"ϕ	6½"	4'-4"	475	1'-7"	4'-11"	204	10	12"±	8	18"±	16	13"	34	1088	7'-1"	19	16	42														
	5	3	½"ϕ	7"	7'-1"	576	78	½"ϕ	7"	7'-4"	1027	6'-4"	174	½"ϕ	6½"	4'-4"	475	1'-7"	5'-11"	245	10	12"±	8	18"±	16	16"	34	1088	7'-1"	19	16	42														
	7 x 2	2	½"ϕ	7"	7'-11"	644	91	½"ϕ	6"	7'-11"	481	156	½"ϕ	7"	5'-10"	608	3'-4"	156	½"ϕ	7"	4'-4"	425	1'-7"			11	12"±	9	18"±	4	14"	24	768	7'-11"	21	18	47														
	3	2	½"ϕ	7"	7'-11"	644	91	½"ϕ	6"	7'-11"	481	156	½"ϕ	7"	6'-10"	712	4'-4"	156	½"ϕ	7"	4'-4"	425	1'-7"			11	12"±	9	18"±	6	15"	26	832	7'-11"	21	18	47														
	4	3	½"ϕ	7"	8'-1"	658	91	½"ϕ	6"	8'-1"	491	136	½"ϕ	8"	7'-10"	711	5'-4"	136	½"ϕ	8"	4'-4"	371	1'-7"	4'-11"	204	11	12"±	9	18"±	16	14"	36	1152	8'-1"	21	18	47														
	5	3	½"ϕ	7"	8'-1"	658	91	½"ϕ	6"	8'-1"	491	136	½"ϕ	8"	8'-10"	802	6'-4"	136	½"ϕ	8"	4'-4"	371	1'-7"	5'-11"	245	11	12"±	9	18"±	16	16"	36	1152	8'-1"	21	18	47														
	6	3	½"ϕ	7"	8'-1"	658	91	½"ϕ	6"	8'-1"	491	136	½"ϕ	8"	9'-10"	893	7'-4"	136	½"ϕ	8"	4'-4"	371	1'-7"	6'-11"	287	11	12"±	9	18"±	20	15"	40	1280	8'-1"	21	18	47														
	8 x 2	2	½"ϕ	6"	8'-11"	632	182	½"ϕ	6"	6'-10"	830	4'-4"	182	½"ϕ	6"	4'-4"	496	1'-7"								12	12"±	10	18"±	6	14"	28	896	8'-11"	24	20	52														
	3	2	½"ϕ	6"	8'-11"	632	182	½"ϕ	6"	7'-10"	952	5'-4"	182	½"ϕ	6"	4'-4"	496	1'-7"	4'-11"	204	12	12"±	10	18"±	16	14"	38	1216	9'-1"	24	20	52														
	4	3	½"ϕ	7"	9'-1"	739	68	½"ϕ	8"	9'-1"	644	182	½"ϕ	6"	8'-10"	1074	6'-4"	182	½"ϕ	6"	4'-4"	496	1'-7"	5'-11"	245	12	12"±	10	18"±	16	16"	38	1216	9'-1"	24	20	52														
	5	3	½"ϕ	7"	9'-1"	739	68	½"ϕ	8"	9'-1"	644	182	½"ϕ	8"	9'-10"	1195	7'-4"	182	½"ϕ	6"	4'-4"	496	1'-7"	6'-11"	287	12	12"±	10	18"±	20	15"	42	1344	9'-1"	24	20	52														
	6	3	½"ϕ	7"	9'-4"	759	68	½"ϕ	8"	9'-4"	662	198	½"ϕ	5½"	10'-10"	1432	8'-4"	198	½"ϕ	5½"	4'-4"	540	1'-7"	7'-11"	328	12	12"±	10	18"±	20	17"	42	1344	9'-3"	25	20	52														
	9 x 2	3	½"ϕ	7"	8'-11"	891	128	½"ϕ	6½"	10'-2"	977	84	½"ϕ	6½"	10'-2"	977	84	½"ϕ	6½"	10'-2"	977	84	½"ϕ	6½"	10'-2"	977	84	½"ϕ	6½"	10'-2"	977	84	½"ϕ	6½"	10'-2"	977	84	½"ϕ	6½"	10'-2"	977	84	½"ϕ	6½"	10'-2"	977	84	½"ϕ	6½"	10'-2"	
	3	3	½"ϕ	8"	8'-11"	1101	128	½"ϕ	6½"	10'-2"	891	128	½"ϕ	8½"	8'-3"	1101	5'-5"	128	½"ϕ	8½"	4'-11"	657	2'-1"	4'-11"	204	13	12"±	10	18"±	16	14"	41	1248	10'-2"	27	22	58														
	4	3	½"ϕ	8"	9'-3"	1235	128	½"ϕ	8½"	10'-2"	977	84	½"ϕ	6½"	9'-3"	1235	6'-5"	128	½"ϕ	8½"	4'-11"	657	2'-1"	5'-11"	245	13	12"±	10	18"±	16	15"	39	1248	10'-2"	27	22	58														
	5	3	½"ϕ	8"	10'-2"	1368	128	½"ϕ	8½"	10'-3"	1368	7'-5"	128	½"ϕ	8½"	4'-11"	657	2'-1"	6'-11"	287	13	12"±	10	18"±	20	15"	43	1376	10'-2"	27	22	58														
	6	3	½"ϕ	8"	10'-2"	1432	128	½"ϕ	8½"	11'-3"	1432	8'-5"	122	½"ϕ	9"	11'-3"	1432	8'-5"	122	½"ϕ	9"	5'-4"	977	2'-4"	7'-11"	328	13	12"±	10	18"±	20	17"	43	1376	10'-4"	28	22	58														
	9	3	½"ϕ	9"	10'-4"	947	61	½"ϕ	9"	10'-4"	947	122	½"ϕ	9"	12'-3"	1559	9'-5"	122	½"ϕ	9"	5'-4"	977	2'-4"	8'-11"	369	13	12"±	10	18"±	24	16½"	47	1504	10'-4"	28	22	58														
	10 x 2	3	½"ϕ	8"	11'-2"	1141	68	½"ϕ	8"	11'-2"	1141	156	⅝"ϕ	7"	8'-3"	1342	5'-5"	156	⅝"ϕ	7"	4'-11"	801	2'-1"	4'-11"	204	14	12"±	11	18"±	16	14"	41	1315	11'-2"	30	24	63														
	3	3	½"ϕ	8"	11'-2"	1141	68	½"ϕ	8"	11'-2"	1141	156	⅝"ϕ	7"	9'-3"	1505	6'-5"	156	⅝"ϕ	7"	4'-11"	801	2'-1"	5'-11"	245	14	12"±	11	18"±	16	15"	45	1444	11'-2"	30	24	63														
	4	3	½"ϕ	8"	11'-2"	1141	68	½"ϕ	8"	11'-2"	1141	156	⅝"ϕ	7"	10'-3"	1668	7'-5"	156	⅝"ϕ	7"	4'-11"	801	2'-1"	6'-11"	287	14	12"±	11	18"±	20	15"	45	1444	11'-2"	30	24	63														
	5	3	½"ϕ	8"	11'-2"	1141	68	½"ϕ	8"	11'-3"	1713	8'-5"	146	¾"ϕ	7½"	5'-4"	1169	2'-4"	7'-11"	328	14	12"±	11	18"±	20	17"	45	1444	11'-4"	30	24	63														
	6	3	½"ϕ	8"	11'-2"	1141	68	½"ϕ	8"	12'-3"	1855	9'-5"	146	¾"ϕ	7½"	5'-4"	1169	2'-4"	8'-11"	369	14	12"±	11	18"±	24	18½"	49	1572	11'-4"	30	24	63														
	10 x 2	3	½"ϕ	8"	11'-4"	1260	73	½"ϕ	7½"	11'-4"	1260	146	¾"ϕ	7½"	13'-3"	2018	10'-5"	146	¾"ϕ	7½"	5'-4"	1169	2'-4"	9'-11"	411	14	12"±	11	18"±	28	16"	53	1700	11'-4"	30	24	63														
	3	3	½"ϕ	8"	11'-2"	1141	68	½"ϕ	8"	11'-2"	1141	156	⅝"ϕ	7"	8'-3"	1342	5'-5"	156	⅝"ϕ	7"	4'-11"	801	2'-1"	4'-11"	204	14	12"±	11	18"±	16	14"	41	1315	11'-2"	30	24	63														
	4	3	½"ϕ	8"	11'-2"	1141	68	½"ϕ	8"	11'-2"	1141	156	⅝"ϕ	7"	9'-3"	1505	6'-5"	156	⅝"ϕ	7"	4'-11"	801	2'-1"	5'-11"	245	14	12"±	11	18"±	16

SC-45° A

BILLS OF REINFORCING STEEL FOR 44'-0" ROADWAY WIDTH

| CULVERT SIZE S | H | TYPE SECTION | DIMENSIONS T | U | MAX. FILL | TOTAL QUANTITIES 44'ROADWIDTH Conc. | Reinf. | QUANTITIES PER ROADWAY BARREL Conc. | Reinf. | BARS A IN TOP SLAB No. | Size | Spa. | Length | Weight | BARS A1-Ax 2 EACH No. | Length A1 | Length Ax | Av. Length | Weight | BARS B IN BOTTOM SLAB No. | Size | Spa. | Length | Weight | BARS B1-Bx 2 EACH No. | Length B1 | Length Bx | Av. Length | Weight | BARS C WALLS AND TOP CORNER No. | Size | Spa. | Length | Weight | Dim. "X" | 2-BARS C1 WALL & CURB Length | Weight | BARS D IN BOTTOM CORNERS No. | Size | Spa. | Length | Weight | Dim. "X" | BARS E @ 18" C. to C. No. | Length | Weight | BARS F LENGTH = 65'-1" Fl. | Spa. | Fz | Spa. | F3 | Spa. | Total | Weight | BARS H 8-#6 Length | Weight | BARS K @ 12"x31"x16" No. | Weight |
|---|---|---

	CULVERT SIZE S	H	FILL FT.	TABLE OF DIMENSIONS SLAB T	WING Z	L	R	W	V	D	Y	* TOTAL QUANT. CONC. C.Y.	REINF. LB.
SC-15°A, SC15°B & SC-15°C	3	2	14'	6"	3'-6"	5'-5"	6½"	2'-6"	8"	10"	1'-0"	4.23	349
	3	3	14'	6"	4'-6"	7'-0"	7"	2'-10"	8"	1'-2"	1'-0"	6.34	508
	4	2	12'	6"	3'-6"	5'-5"	6½"	2'-6"	8"	10"	1'-0"	4.35	354
	4	3	12'	6"	4'-6"	7'-0"	7"	2'-10"	8"	1'-2"	1'-0"	6.46	513
	4	4	12'	6"	5'-6"	8'-6"	7"	3'-5"	8"	1'-7"	1'-2"	9.02	895
	5	2	8'	6"	3'-6"	5'-5"	7"	2'-6"	8"	10"	1'-0"	4.56	359
	5	3	8'	6"	4'-6"	7'-0"	7"	2'-10"	8"	1'-2"	1'-0"	6.58	519
	5	4	8'	6"	5'-6"	8'-6"	7"	3'-5"	8"	1'-7"	1'-2"	9.14	902
	5	5	8'	6"	6'-6"	10'-1"	7"	4'-0"	8"	2'-0"	1'-4"	12.27	1527
	6	3	8'	6"	4'-6"	7'-0"	7"	2'-10"	8"	1'-2"	1'-0"	6.70	525
	6	4	8'	6"	5'-6"	8'-6"	7"	3'-5"	8"	1'-7"	1'-2"	9.27	908
	6	5	8'	6"	6'-6"	10'-1"	7"	4'-0"	8"	2'-0"	1'-4"	12.40	1535
	6	6	8'	6"	7'-6"	11'-8"	7"	4'-8"	8"	2'-3"	1'-9"	16.14	2061
	7	3	8'	6½"	4'-6½"	7'-1"	7"	2'-10"	8"	1'-2"	1'-0"	6.92	530
	7	4	8'	6½"	5'-6½"	8'-7"	7"	3'-5"	8"	1'-7"	1'-2"	9.52	915
	7	5	8'	6½"	6'-6½"	10'-2"	7"	4'-0"	8"	2'-0"	1'-4"	12.69	1542
	7	6	8'	6½"	7'-6½"	11'-9"	7"	4'-8"	8"	2'-3"	1'-9"	16.47	2069
	7	7	8'	6½"	8'-6½"	13'-3"	8"	5'-2"	9½"	2'-6½"	1'-10"	22.25	3092
SC-15°A	8	4	4'	6½"	5'-6½"	8'-7"	7"	3'-5"	8"	1'-7"	1'-2"	9.65	921
	8	5	4'	6½"	6'-6½"	10'-2"	7"	4'-0"	8"	2'-0"	1'-4"	12.82	1549
	8	6	4'	6½"	7'-6½"	11'-9"	7"	4'-8"	8"	2'-3"	1'-9"	16.62	2077
	8	7	4'	6½"	8'-6½"	13'-3"	8"	5'-2"	9½"	2'-6½"	1'-10"	22.41	3101
	8	8	4'	6½"	9'-6½"	14'-10"	9"	5'-9"	10½"	2'-8½"	2'-2"	29.49	4933
SC-15°B	8	4	6'	7"	5'-7"	8'-8"	7"	3'-5"	8"	1'-7"	1'-2"	9.78	921
	8	5	6'	7"	6'-7"	10'-3"	7"	4'-0"	8"	2'-0"	1'-4"	12.98	1549
	8	6	6'	7"	7'-7"	11'-9"	7"	4'-8"	8"	2'-3"	1'-9"	16.70	2077
	8	7	6'	7"	8'-7"	13'-4"	8"	5'-2"	9½"	2'-6½"	1'-10"	22.64	3101
	8	8	6'	7"	9'-7"	14'-11"	9"	5'-9"	10½"	2'-8½"	2'-2"	29.76	4933
SC-15°C	8	4	8'	7½"	5'-7½"	8'-9"	7"	3'-5"	8"	1'-7"	1'-2"	9.92	921
	8	5	8'	7½"	6'-7½"	10'-3"	7"	4'-0"	8"	2'-0"	1'-4"	13.04	1549
	8	6	8'	7½"	7'-7½"	11'-10"	7"	4'-8"	8"	2'-3"	1'-9"	16.89	2077
	8	7	8'	7½"	8'-7½"	13'-5"	8"	5'-2"	9½"	2'-6½"	1'-10"	22.86	3101
	8	8	8'	7½"	9'-7½"	14'-11"	9"	5'-9"	10½"	2'-8½"	2'-2"	29.88	4933
SC-15°A† SC-15°B	9	5	6'	7"	6'-7"	10'-3"	7"	4'-0"	8"	2'-0"	1'-4"	13.11	1556
	9	6	6'	7"	7'-7"	11'-9"	7"	4'-8"	8"	2'-3"	1'-9"	16.86	2085
	9	7	6'	7"	8'-7"	13'-4"	8"	5'-2"	9½"	2'-6½"	1'-10"	22.80	3110
	9	8	6'	7"	9'-7"	14'-11"	9"	5'-9"	10½"	2'-8½"	2'-2"	29.95	4943
	9	9	6'	7"	10'-7"	16'-5"	9½"	6'-4"	12½"	2'-10½"	2'-5"	38.63	6224
SC-15°C	9	5	8'	8"	6'-8"	10'-4"	7"	4'-0"	8"	2'-0"	1'-4"	13.29	1556
	9	6	8'	8"	7'-8"	11'-11"	7½"	4'-9"	8½"	2'-3½"	1'-9"	17.08	2085
	9	7	8'	8"	8'-8"	13'-5"	8½"	5'-4"	9½"	2'-7½"	1'-11"	23.86	3110
	9	8	8'	8"	9'-8"	15'-0"	9½"	6'-0"	11"	2'-11"	2'-2"	31.79	4943
	9	9	8'	8"	10'-8"	16'-7"	10"	6'-6"	12½"	2'-11½"	2'-6"	40.35	6224
SC-15°A†	10	5	4'	7"	6'-7"	10'-3"	7"	4'-0"	8"	2'-0"	1'-4"	13.25	1564
	10	6	4'	7"	7'-7"	11'-9"	7"	4'-8"	8"	2'-3"	1'-9"	17.01	2093
	10	7	4'	7"	8'-7"	13'-4"	8"	5'-2"	9½"	2'-6½"	1'-10"	22.96	3119
	10	8	4'	7"	9'-7"	14'-11"	9"	5'-9"	10½"	2'-8½"	2'-2"	30.13	4952
	10	9	4'	7"	10'-7"	16'-5"	9½"	6'-4"	12½"	2'-10½"	2'-5"	38.83	6234
	10	10	4'	7"	11'-7"	18'-0"	11"	7'-0"	13½"	3'-2½"	2'-8"	49.86	7964
SC-15°B	10	5	6'	8"	6'-8"	10'-4"	7"	4'-0"	8"	2'-0"	1'-4"	13.48	1564
	10	6	6'	8"	7'-8"	11'-11"	7½"	4'-9"	8½"	2'-3½"	1'-9"	18.14	2093
	10	7	6'	8"	8'-8"	13'-5"	8½"	5'-4"	9½"	2'-7½"	1'-11"	24.03	3119
	10	8	6'	8"	9'-8"	15'-0"	9½"	6'-0"	11"	2'-11"	2'-2"	31.98	4952
	10	9	6'	8"	10'-8"	16'-7"	10"	6'-6"	12½"	2'-11½"	2'-6"	40.56	6234
	10	10	6'	8"	11'-8"	18'-1"	11"	7'-0"	13½"	3'-2½"	2'-8"	50.43	7964
SC-15°C	10	5	8'	8½"	6'-8½"	10'-5"	7"	4'-0"	8"	2'-0"	1'-4"	13.64	1564
	10	6	8'	8½"	7'-8½"	12'-0"	7½"	4'-9"	8½"	2'-3½"	1'-9"	18.35	2093
	10	7	8'	8½"	8'-8½"	13'-6"	8½"	5'-4"	9½"	2'-7½"	1'-11"	24.27	3119
	10	8	8'	8½"	9'-8½"	15'-1"	9½"	6'-0"	11"	2'-11"	2'-2"	32.28	4952
	10	9	8'	8½"	10'-8½"	16'-8"	10"	6'-6"	12½"	2'-11½"	2'-6"	40.91	6234
	10	10	8'	8½"	11'-8½"	18'-2"	11"	7'-0"	13½"	3'-2½"	2'-8"	50.82	7964

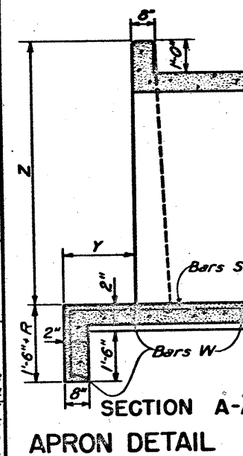
* These Total Quantities are for 4 Wing Walls and 2 Aprons.

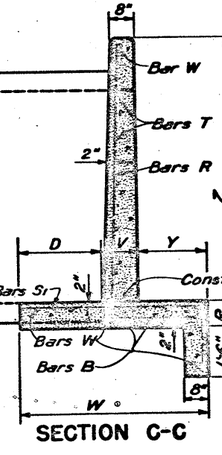
TABLE OF REINFORCING STEEL FOR 4 WINGWALLS

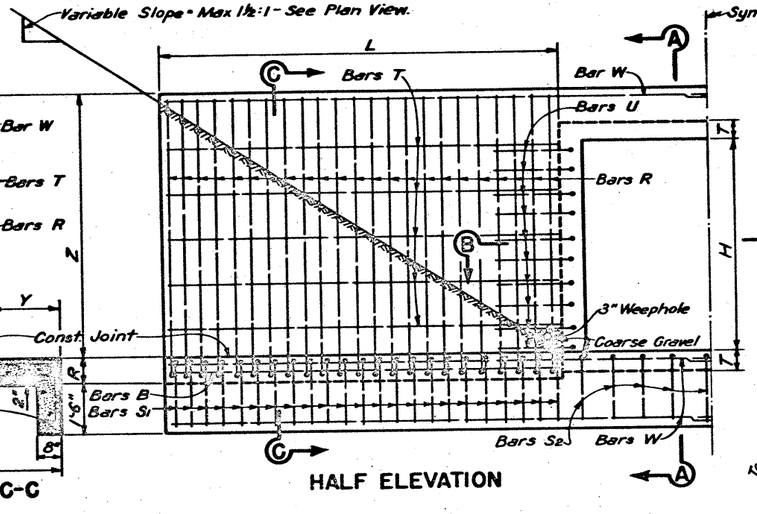
WING SIZE H	L	BARS B @ 12"± NO.	LGTH.	WT.	BARS R NO.	SIZE	SPAC.	LGTH.	WT.	BARS S1 NO.	SIZE	SPAC.	LGTH.	WT.	½"φ BARS T1 @ 18"± NO.	LGTH.	WT.	½"φ BARS T2 @ 18"± NO.	LGTH.	WT.	BARS U1 @ 9"± NO.	SIZE	LGTH.	WT.	BARS U2 @ 9"± NO.	SIZE	LGTH.	WT.	½"φ BARS W @ 12"± NO.	LGTH.	WT.	TOTAL WEIGHT
2'-0"	5'-5"	8	5'-0"	27	24	½"φ	12"	5'-1"	81	24	½"φ	12"	3'-11"	63	2	5'-0"	7	2	5'-2"	7	6	½"φ	3'-3"	13	6	½"φ	3'-1"	12	20	8'-10"	118	328
3'-0"	7'-0"	8	6'-7"	35	32	½"φ	11"	6'-1"	130	32	½"φ	11"	4'-3"	91	4	6'-7"	18	4	6'-9"	18	8	½"φ	3'-3"	17	8	½"φ	3'-1"	16	20	12'-0"	160	485
4'-0"	8'-6"	8	8'-1"	43	60	½"φ	7"	7'-3"	291	60	½"φ	7"	4'-10"	194	6	8'-1"	32	6	8'-3"	33	12	½"φ	3'-3"	26	12	½"φ	3'-1"	25	24	13'-8"	219	863
5'-0"	10'-1"	12	9'-8"	78	64	⅝"φ	8"	8'-5"	562	64	⅝"φ	8"	5'-5"	362	8	9'-8"	52	8	9'-10"	53	16	½"φ	3'-3"	35	16	½"φ	3'-1"	33	28	16'-6"	309	1484
6'-0"	11'-8"	12	11'-3"	90	80	⅝"φ	7"	9'-10"	820	80	⅝"φ	7"	6'-1"	507	8	11'-3"	60	8	11'-5"	61	16	⅝"φ	3'-1"	65	16	⅝"φ	3'-9"	63	28	18'-1"	338	2004
7'-0"	13'-3"	12	12'-10"	103	116	⅝"φ	5½"	11'-4"	1371	116	⅝"φ	5½"	6'-7"	796	10	12'-10"	86	10	13'-0"	87	20	⅝"φ	3'-11"	82	20	⅝"φ	3'-9"	78	32	19'-7"	419	3022
8'-0"	14'-10"	16	14'-5"	154	120	¾"φ	6"	12'-9"	2298	120	¾"φ	6"	7'-4"	1321	12	14'-5"	116	12	14'-7"	117	24	¾"φ	4'-9"	171	24	¾"φ	4'-5"	159	36	21'-3"	511	4847
9'-0"	16'-5"	16	16'-0"	171	144	¾"φ	5½"	14'-2"	3099	144	¾"φ	5½"	7'-11"	1713	12	16'-0"	128	12	16'-2"	130	24	¾"φ	4'-9"	171	24	¾"φ	4'-5"	159	36	22'-10"	549	6120
10'-0"	18'-0"	16	17'-7"	188	172	¾"φ	5"	15'-9"	4069	172	¾"φ	5"	8'-7"	2217	14	17'-7"	164	14	17'-9"	166	28	¾"φ	4'-9"	200	28	¾"φ	4'-5"	186	40	24'-4"	650	7840

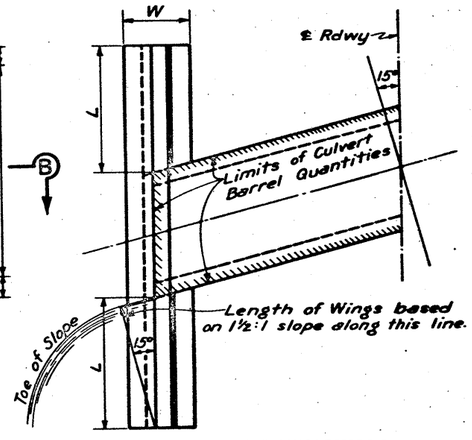
BILL OF ½"φ BARS S2 @ 12"± FOR 2 CULVERT APRONS

H	SPAN	NO.	LGTH.	WT.	H	SPAN	NO.	LGTH.	WT.
2'-0"	3'-0"	8	3'-11"	21	5'-0"	9'-0"	20	5'-5"	72
	4'-0"	10	3'-11"	26		10'-0"	22	5'-5"	80
	5'-0"	12	3'-11"	31	6'-0"	6'-0"	14	6'-1"	57
3'-0"	3'-0"	8	4'-3"	23		7'-0"	16	6'-1"	65
	4'-0"	10	4'-3"	28		8'-0"	18	6'-1"	73
	5'-0"	12	4'-3"	34		9'-0"	20	6'-1"	81
	6'-0"	14	4'-3"	40		10'-0"	22	6'-1"	89
	7'-0"	16	4'-3"	45	7'-0"	7'-0"	16	6'-7"	70
4'-0"	4'-0"	10	4'-10"	32		8'-0"	18	6'-7"	79
	5'-0"	12	4'-10"	39		9'-0"	20	6'-7"	88
	6'-0"	14	4'-10"	45		10'-0"	22	6'-7"	97
	7'-0"	16	4'-10"	52	8'-0"	8'-0"	18	7'-2"	86
	8'-0"	18	4'-10"	58		9'-0"	20	7'-2"	96
5'-0"	5'-0"	12	5'-5"	43		10'-0"	22	7'-2"	105
	6'-0"	14	5'-5"	51	9'-0"	9'-0"	20	7'-9"	104
	7'-0"	16	5'-5"	58		10'-0"	22	7'-9"	114
	8'-0"	18	5'-5"	65	10'-0"	10'-0"	22	8'-5"	124

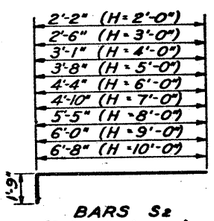


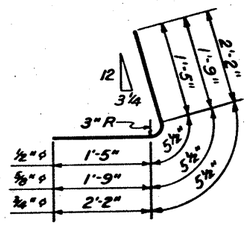


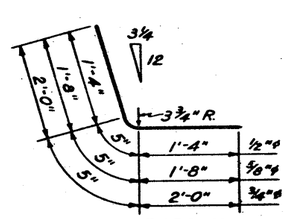


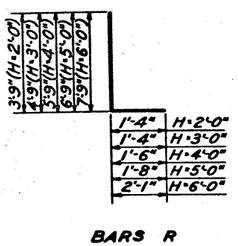


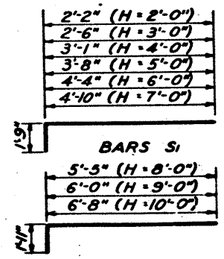
DETAIL OF WINGWALL

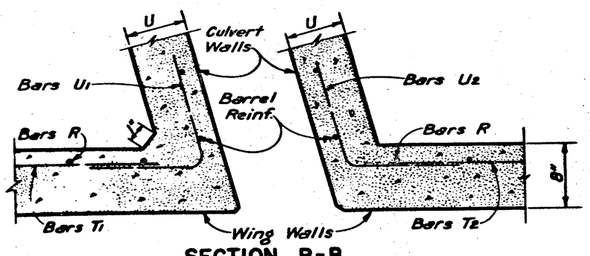


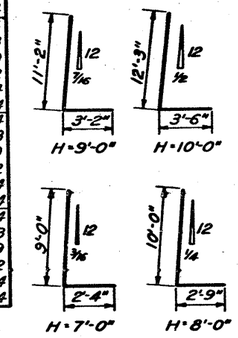












GENERAL NOTES:

All Concrete shall be Class A. Chamfer all exposed corners ¾".

All dimensions relating to reinforcing steel are to centers of bars.

Provide weepholes for H=5'-0" and greater.

The bottom slab of the barrel, wing footings and toe walls shall be placed in one continuous operation.

Wings shall be constructed monolithic with the barrel. If construction joints are used near the top of the barrel walls these joints shall continue through the wings.

TEXAS HIGHWAY DEPARTMENT

PARALLEL WINGS - 15° SKEW

FOR SINGLE BOX CULVERTS

SIZES 3'x2' TO 10'x10'

PW-15°

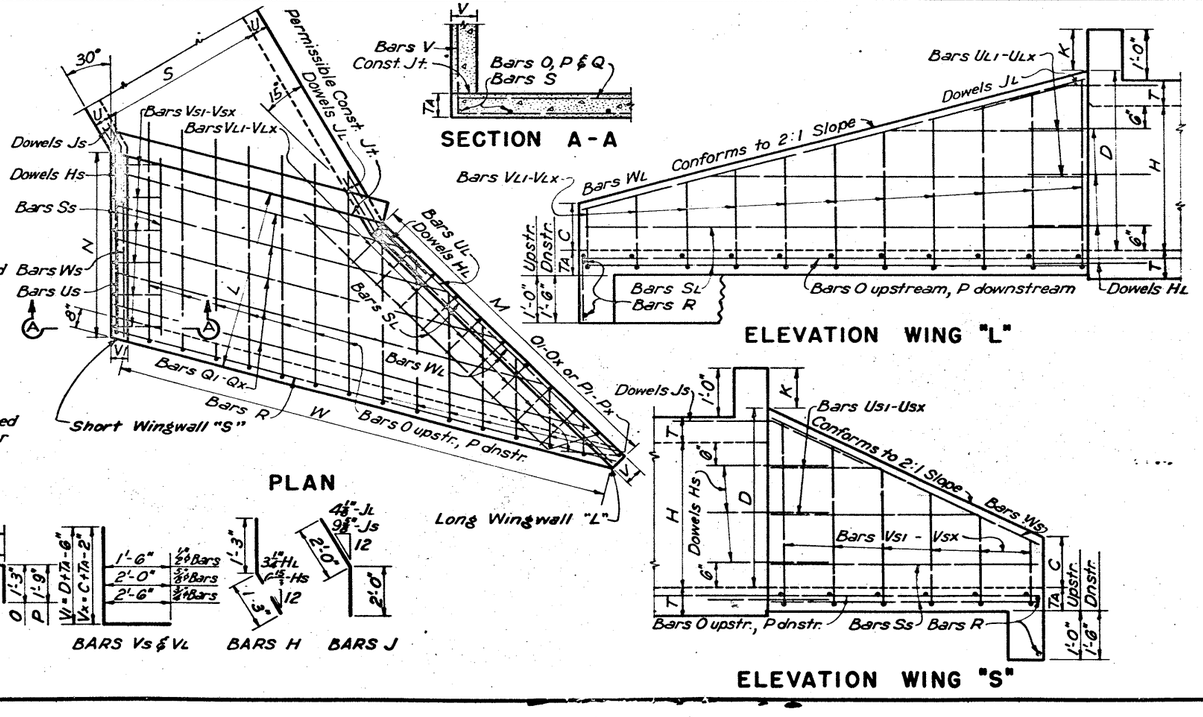
Dn: CFS & W.H.	Drawing ORIGINAL	Date DEC. 1949	Fed. Road Div. No. 6	State TEXAS	Federal and Project No. F-355-1-13	Sheet No. 10
Ck. Dn: W.H.						
Dw: M.D.A.						
Ck. Dw: K.M.						
Tr: A.D.B.						
Ck. Tr: M.D.A.			State Dist. No. 21	County ELLIS	Highway No. 18	Sheet No. 5
					Subdivision No. 13	Job No. 355

CULVERT SIZE		TABLE OF DIMENSIONS								TYPE			TOTAL QUANT. 2 WINGS	
										A	B	C		
S	H	L	M	N	V	W	C	D	Ta	K	K	K	Conc. Cu.Yd.	Steel Lbs.
3 x	2	3'-6⅜"	6'-5⅛"	3'-8⅜"	6"	9'-4⅜"	1'-0"	2'-8"	6"	–	–	10"	2.41	302
	3	5'-6⅜"	10'-3⅛"	5'-9⅜"	6"	12'-3⅜"	1'-0"	3'-8"	6"	–	–	10"	4.22	488
4 x	2	3'-6⅜"	6'-3⅛"	3'-8⅜"	6"	10'-0¼"	1'-0"	2'-8"	6"	–	–	10"	2.68	334
	3	5'-6⅜"	10'-3⅛"	5'-9⅜"	6"	13'-0⅜"	1'-0"	3'-8"	6"	–	–	10"	4.60	511
	4	7'-6⅜"	14'-3⅛"	7'-10"	6"	16'-7½"	1'-0"	4'-8"	6"	–	–	10"	6.96	730
5 x	2	3'-6⅜"	6'-3⅛"	3'-8⅜"	6"	12'-2¾"	1'-0"	2'-8"	6"	–	–	10"	2.96	352
	3	5'-6⅜"	10'-3⅛"	5'-9⅜"	6"	15'-1⅛"	1'-0"	3'-8"	6"	–	–	10"	4.98	536
	4	7'-6⅜"	14'-3⅛"	7'-10"	6"	18'-0⅝"	1'-0"	4'-8"	6"	–	–	10"	7.42	761
	5	8'-7⅞"	16'-2⅝"	8'-10⅜"	7"	19'-0⅝"	1'-6"	5'-8"	6"	–	–	10"	10.00	974
6 x	3	5'-6¾"	10'-3⅛"	5'-9⅜"	6"	16'-6¾"	1'-0"	3'-8"	6"	–	10"	10"	5.36	573
	4	7'-6¾"	14'-3⅛"	7'-10"	6"	19'-5½"	1'-0"	4'-8"	6"	–	10"	10"	7.93	805
	5	8'-7⅛"	16'-2⅝"	8'-10⅜"	7"	20'-11⅝"	1'-0"	5'-8"	6"	–	10"	10"	10.53	1024
	6	10'-7⅛"	20'-2⅝"	10'-11⅞"	7"	23'-10⅝"	1'-6"	6'-8"	6"	–	10"	10"	14.07	1335
7 x	3	5'-7⅞"	10'-5⅛"	5'-10⅝"	6"	18'-0⅜"	1'-0"	3'-5½"	6½"	10"	10"	10"	6.11	612
	4	7'-7⅞"	14'-5⅛"	7'-11"	6"	20'-11⅜"	1'-0"	4'-8½"	6½"	10"	10"	10"	8.93	861
	5	8'-8⅛"	16'-4⅝"	8'-11⅞"	7"	22'-5⅝"	1'-6"	5'-8½"	6½"	10"	10"	10"	11.70	1069
	6	10'-8⅛"	20'-4⅝"	11'-0⅜"	7"	25'-4⅜"	1'-6"	6'-8½"	6½"	10"	10"	10"	15.58	1379
	7	12'-8⅜"	24'-4⅞"	13'-1½"	7"	28'-4⅜"	1'-6"	7'-8½"	6½"	10"	10"	10"	19.96	1875
8 x	4	7'-8⅜"	14'-7⅛"	8'-0"	6"	22'-6⅜"	1'-0"	4'-9"	7"	9½"	10"	10½"	10.03	898
	5	8'-9⅛"	16'-6⅝"	9'-0⅜"	7"	24'-0⅛"	1'-6"	5'-9"	7"	9½"	10"	10½"	12.96	1127
	6	10'-9⅛"	20'-6⅝"	11'-1⅝"	7"	26'-11⅝"	1'-6"	6'-9"	7"	9½"	10"	10½"	17.14	1432
	7	12'-9⅜"	24'-6⅞"	13'-2½"	7"	29'-10⅝"	1'-6"	7'-9"	7"	9½"	10"	10½"	21.84	1883
	8	13'-9⅝"	26'-5⅜"	14'-3⅜"	8"	31'-4⅜"	2'-0"	8'-9"	7"	9½"	10"	10½"	26.88	2521
9 x	5	8'-10⅛"	16'-8⅝"	9'-1⅛"	7"	25'-6⅛"	1'-6"	5'-9½"	7"	9½"	9½"	10"	13.75	1183
	6	10'-10⅛"	20'-8⅝"	11'-2⅜"	7"	28'-5⅛"	1'-6"	6'-9½"	7"	9½"	9½"	10"	18.07	1497
	7	12'-10⅜"	24'-8⅞"	13'-3½"	7"	31'-5"	1'-6"	7'-9½"	7"	9½"	9½"	10"	22.92	1958
	8	13'-10⅝"	26'-7⅜"	14'-4⅜"	8"	32'-11"	2'-0"	8'-9½"	7"	9½"	9½"	10"	28.05	2579
	9	15'-10⅝"	30'-7⅜"	16'-5⅜"	8"	35'-10⅝"	2'-0"	9'-9½"	7"	9½"	9½"	10"	34.18	3497
10 x	5	8'-11⅛"	16'-10⅝"	9'-2⅛"	7"	27'-1⅜"	1'-6"	5'-10"	7½"	9"	10"	10½"	15.16	1238
	6	10'-11⅛"	20'-10⅝"	11'-3⅛"	7"	30'-0⅛"	1'-6"	6'-10"	7½"	9"	10"	10½"	19.83	1564
	7	12'-11⅜"	24'-10⅞"	13'-4⅜"	7"	32'-11⅝"	1'-6"	7'-10"	7½"	9"	10"	10½"	25.02	2018
	8	13'-11⅝"	26'-9⅜"	14'-5⅜"	8"	34'-5⅜"	2'-0"	8'-10"	7½"	9"	10"	10½"	30.37	2541
	9	15'-11⅝"	30'-9⅜"	16'-6⅜"	8"	37'-4⅜"	2'-0"	9'-10"	7½"	9"	10"	10½"	36.87	3577
	10	17'-11⅞"	34'-9⅝"	18'-7⅛"	8"	40'-3⅜"	2'-0"	10'-10"	7½"	9"	10"	10½"	43.95	5121

TABLE OF REINFORCING STEEL FOR 2 WINGS

CULVERT SIZE		Bars H-#4 2-6 Long	Bars J #6 x 4'-0"	Bars O #4 @ 12" ±			Bars O1-Ox #4 @ 12" ±			Bars P #4 @ 12" ±			Bars P1-Px #4 @ 12" ±			Bars Q1-Qx #4 @ 12" ±			Bars R 4-#4		Bars Ss #4		Bars Sl #4		Bars Us #4		Bars Ul #4		Bars Vs-1 – Vs-x					Bars VL-1 – VL-x				
S	H	No	Wt.	No	Lgth.	Wt.	No	Av Lgth	Wt.	No	Lgth.	Wt.	No	Lgth.	Wt.	No	Lgth. Q1	Lgth. Qx	Wt.	No	Lgth.	Wt.	No	Lgth.	Wt.	No	Lgth.	Wt.	No	Lgth.	Wt.	No	Size	Spa	Av Lgth	Wt.	No	Size	Spa	Av Lgth	Wt.
3 x	2	12	20	5	6'-0"	20	3	*3'-0"	6	5	6'-6"	22	3	3'-6"	7	6	8'-11"	6'-0"	7'-5"	30	9'-6"	25	6	3'-5"	14	6	6'-0"	24	2	2'-0"	3	2	4'-0"	5	8	#4	12"	3'-6"	19	14	#4	12"	3'-6"	33
	3	16	27	7	8'-1"	27	7	4'-5"	21	5	8'-7"	29	4	4'-1"	23	10	11'-10"	6'-0"	8'-11"	60	12'-5"	33	6	5'-6"	22	6	10'-0"	40	4	3'-0"	8	4	6'-0"	16	12	#4	12"	4'-0"	32	22	#4	12"	4'-0"	59
4 x	2	12	20	7	6'-0"	28	4	3'-4"	9	7	6'-6"	30	4	3'-10"	10	6	10'-4"	7'-5"	8'-10"	35	11'-1"	30	6	3'-5"	14	6	6'-0"	24	2	2'-0"	3	2	4'-0"	5	8	#4	12"	3'-6"	19	14	#4	12"	3'-6"	33
	3	16	27	8	8'-1"	32	7	4'-5"	21	7	8'-7"	34	7	4'-11"	23	10	13'-3"	7'-5"	10'-4"	69	14'-0"	37	6	5'-6"	22	6	10'-0"	40	4	3'-0"	8	4	6'-0"	16	12	#4	12"	4'-0"	32	22	#4	12"	4'-0"	59
	4	16	27	10	8'-1"	41	6	5'-6"	37	7	8'-7"	43	10	6'-0"	40	14	16'-2"	7'-5"	11'-9"	110	16'-11"	45	6	7'-7"	30	6	14'-0"	56	6	4'-0"	16	6	8'-0"	32	16	#4	12"	4'-6"	48	30	#4	12"	4'-6"	90
5 x	2	16	27	8	6'-0"	32	4	3'-4"	9	8	6'-6"	35	4	3'-10"	10	6	11'-9"	8'-10"	10'-3"	41	12'-6"	33	6	5'-5"	14	6	6'-0"	24	2	2'-0"	3	2	4'-0"	5	8	#4	12"	3'-6"	19	14	#4	12"	3'-6"	33
	3	16	27	8	8'-1"	38	7	4'-5"	21	7	8'-7"	40	7	4'-11"	23	10	14'-8"	8'-10"	11'-9"	78	15'-5"	41	6	5'-6"	22	6	10'-0"	40	4	3'-0"	8	4	6'-0"	16	12	#4	12"	4'-0"	32	22	#4	12"	4'-0"	59
	4	16	27	9	10'-2"	48	10	5'-6"	37	7	10'-8"	50	10	6'-0"	40	14	17'-7"	8'-10"	13'-2"	123	18'-3"	49	6	7'-7"	30	6	14'-0"	56	6	4'-0"	16	6	8'-0"	32	16	#4	12"	4'-6"	48	30	#4	12"	4'-6"	90
	5	16	27	8	11'-3"	60	11	5'-11"	43	8	11'-9"	63	11	6'-5"	47	16	19'-4"	9'-1"	14'-2"	151	19'-10"	53	6	8'-8"	35	6	15'-11"	64	8	5'-0"	27	8	10'-0"	53	18	#4	12"	5'-3"	63	34	#4	12"	5'-3"	119
6 x	3	16	27	8	8'-1"	49	7	4'-5"	21	9	8'-7"	52	7	4'-11"	23	10	16'-1"	10'-3"	13'-2"	88	16'-8"	45	6	5'-6"	22	6	10'-0"	40	4	3'-0"	8	4	6'-0"	16	12	#4	12"	4'-0"	32	22	#4	12"	4'-0"	59
	4	16	27	9	10'-2"	61	10	5'-6"	37	9	10'-8"	64	10	6'-0"	40	14	19'-0"	10'-3"	14'-7"	136	19'-9"	53	6	7'-7"	30	6	14'-0"	56	6	4'-0"	16	6	8'-0"	32	16	#4	12"	4'-6"	48	30	#4	12"	4'-6"	90
	5	16	27	8	11'-3"	75	11	5'-11"	43	10	11'-9"	78	11	6'-5"	47	16	20'-9"	10'-6"	15'-7"	167	21'-3"	57	6	8'-8"	35	6	15'-11"	64	8	5'-0"	27	8	10'-0"	53	18	#4	12"	5'-3"	63	34	#4	12"	5'-3"	119
	6	16	27	9	13'-4"	89	14	7'-0"	65	10	13'-10"	92	14	7'-6"	70	20	23'-8"	10'-6"	17'-11"	228	24'-5"	65	6	10'-9"	43	6	19'-11"	80	10	6'-0"	40	10	12'-0"	80	24	#4	12"	5'-9"	92	42	#4	12"	5'-9"	161
7 x	3	16	27	8	8'-2"	60	7	4'-5"	21	11	8'-8"	64	7	4'-11"	23	10	17'-7"	11'-9"	14'-8"	98	18'-3"	49	6	5'-7"	22	6	10'-2"	41	4	3'-0"	8	4	6'-0"	16	12	#4	12"	4'-0"	32	22	#4	12"	4'-0"	59
	4	16	27	9	13'-5"	75	10	5'-6"	37	11	10'-9"	79	10	6'-0"	40	14	20'-7"	11'-9"	16'-2"	151	21'-2"	57	6	7'-8"	31	6	14'-2"	57	6	4'-0"	16	6	8'-0"	32	18	#4	12"	4'-6"	54	30	#4	12"	4'-6"	90
	5	16	27	8	11'-4"	83	11	5'-11"	43	11	11'-10"	87	11	6'-5"	47	16	22'-3"	12'-0"	17'-1"	183	22'-9"	61	6	8'-9"	35	6	16'-1"	64	8	5'-0"	27	8	10'-0"	53	20	#4	12"	5'-3"	70	34	#4	12"	5'-3"	119
	6	16	27	9	13'-5"	99	14	7'-0"	65	11	13'-11"	102	14	7'-6"	70	20	25'-3"	12'-0"	18'-7"	248	25'-8"	69	6	10'-10"	43	6	20'-1"	80	10	6'-0"	40	10	12'-0"	80	24	#4	12"	5'-9"	92	42	#4	12"	5'-9"	161
	7	16	27	9	13'-5"	114	17	8'-1"	92	11	16'-0"	118	17	8'-7"	97	24	28'-2"	12'-0"	20'-1"	322	28'-7"	76	6	12'-10"	51	6	24'-1"	97	12	7'-0"	56	12	14'-0"	112	40	#4	8"	6'-3"	167	74	#4	8"	6'-3"	309
8 x	4	16	27	8	10'-4"	83	10	5'-6"	37	12	10'-10"	87	10	6'-0"	40	14	22'-0"	13'-3"	17'-7"	164	22'-8"	61	6	7'-9"	31	6	14'-4"	57	6	4'-0"	16	6	8'-0"	32	18	#4	12"	4'-7"	55	30	#4	12"	4'-7"	92
	5	16	27	9	13'-7"	92	12	6'-3"	50	12	11'-11"	96	12	6'-9"	54	16	23'-10"	13'-7"	18'-8"	200	24'-4"	65	6	8'-10"	35	6	16'-3"	65	8	5'-0"	27	8	10'-0"	53	20	#4	12"	5'-4"	71	34	#4	12"	5'-4"	121
	6	16	27	9	13'-7"	127	14	7'-0"	65	14	14'-1"	132	14	7'-6"	70	20	28'-3"	15'-1"	21'-8"	269	28'-9"	77	6	11'-0"	44	6	20'-5"	82	10	6'-0"	40	10	12'-0"	80	24	#4	12"	5'-10"	94	42	#4	12"	5'-10"	164
	7	16	27	9	13'-7"	147	17	8'-1"	92	14	16'-2"	151	17	8'-7"	97	24	31'-3"	15'-1"	23'-2"	371	31'-8"	85	6	13'-0"	52	6	24'-5"	98	12	7'-0"	56	12	14'-0"	112	36	#4	9"	6'-4"	152	66	#4	9"	6'-4"	279
	8	16	27	9	13'-7"	157	19	8'-9"	111	14	17'-3"	161	19	9'-3"	117	26	33'-0"	15'-5"	24'-2"	420	33'-3"	89	8	14'-1"	75	8	26'-4"	141	12	7'-0"	56	12	14'-0"	112	58	#4	6"	7'-1"	274	106	#4	6"	7'-1"	502
	9	16	27	9	13'-7"	175	22	9'-11"	146	14	19'-3"	180	22	10'-5"	153	30	35'-11"	15'-5"	25'-8"	514	36'-2"	97	8	16'-2"	86	8	30'-4"	162	14	8'-0"	75	14	16'-0"	150	56	#5	7"	8'-1"	472	104	#5	7"	8'-1"	877
9 x	5	16	27	8	11'-7"	116	13	6'-7"	57	15	12'-1"	121	13	7'-1"	62	16	26'-11"	16'-8"	21'-9"	232	27'-4"	73	6	9'-0"	36	6	16'-7"	66	8	5'-0"	27	8	10'-0"	53	20	#4	12"	5'-5"	72	34	#4	12"	5'-5"	123
	6	16	27	9	13'-8"	137	15	7'-4"	73	15	14'-2"	142	15	7'-10"	78	20	29'-10"	16'-8"	23'-3"	311	30'-4"	81	6	11'-1"	44	6	20'-7"	82	10	6'-0"	40	10	12'-0"	80	24	#4	12"	5'-11"	95	42	#4	12"	5'-11"	166
	7	16	27	9	13'-9"	158	17	8'-1"	92	15	16'-3"	163	17	8'-7"	97	24	32'-9"	16'-8"	24'-8"	395	33'-3"	89	6	13'-2"	53	6	24'-7"	99	12	7'-0"	56	12	14'-0"	112	36	#4	9"	6'-5"	54	66	#4	9"	6'-5"	283
	8	16	27	9	13'-9"	169	19	8'-9"	111	15	17'-4"	774	19	9'-3"	117	26	34'-6"	16'-11"	25'-8"	446	34'-10"	93	8	14'-3"	76	8	26'-6"	142	12	7'-0"	56	12	14'-0"	112	56	#4	7"	7'-2"	239	92	#4	7"	7'-2"	440
	9	16	27	9	13'-10"	189	22	9'-11"	146	15	19'-4"	194	22	10'-5"	153	30	37'-5"	16'-11"	27'-2"	544	37'-9"	101	8	16'-3"	87	8	30'-6"	163	14	8'-0"	75	14	16'-0"	150	56	#5	7"	8'-2"	477	104	#5	7"	8'-2"	886
	10	16	27	9	20'-11"	210	25	11'-0"	184	15	21'-5"	215	25	11'-6"	192	34	40'-4"	16'-11"	28'-7"	649	41'-11"	112	8	18'-4"	98	8	34'-6"	184	16	9'-0"	96	16	18'-0"	192	64	#6	7"	9'-2"	881	120	#6	7"	9'-2"	1652

CULVERT SIZE		4-Bars Ws			4-Bars Wl		
S	H	Size	Lgth.	Wt.	Size	Lgth.	Wt.
3 x	2	#4	3'-9"	10	#4	6'-1"	16
	3	#4	6'-0"	16	#4	10'-3"	27
4 x	2	#4	3'-9"	10	#4	6'-1"	16
	3	#4	6'-0"	16	#4	10'-3"	27
	4	#4	8'-3"	22	#4	14'-5"	39
5 x	2	#4	3'-9"	10	#4	6'-1"	16
	3	#4	6'-0"	16	#4	10'-3"	27
	4	#4	8'-3"	22	#4	14'-5"	39
	5	#5	9'-6"	40	#5	6'-4"	68
6 x	3	#4	6'-0"	16	#4	10'-3"	27
	4	#4	8'-3"	22	#4	14'-5"	39
	5	#5	9'-6"	40	#5	16'-4"	68
	6	#5	11'-9"	49	#5	20'-6"	86
7 x	3	#4	6'-1"	16	#4	10'-5"	28
	4	#4	8'-5"	22	#4	14'-7"	39
	5	#5	9'-7"	40	#5	16'-6"	69
	6	#5	11'-10"	49	#5	20'-8"	86
	7	#5	14'-2"	59	#5	24'-10"	104
8 x	4	#4	8'-6"	23	#4	14'-9"	39
	5	#5	9'-8"	40	#5	16'-8"	70
	6	#5	11'-11"	50	#5	20'-10"	87
	7	#5	14'-3"	60	#5	25'-0"	104
	8	#6	15'-5"	93	#6	27'-0"	162
9 x	5	#5	9'-9"	41	#5	16'-11"	71
	6	#5	12'-1"	50	#5	21'-0"	88
	7	#5	14'-4"	60	#5	25'-2"	105
	8	#6	15'-6"	93	#6	27'-2"	163
	9	#6	17'-10"	107	#6	31'-3"	188
10 x	5	#5	9'-10"	41	#5	17'-1"	71
	6	#5	12'-2"	51	#5	21'-2"	89
	7	#5	14'-5"	60	#5	25'-4"	106
	8	#6	15'-7"	94	#6	27'-4"	164
	9	#6	17'-11"	108	#6	31'-5"	189
	10	#6	20'-2"	121	#6	35'-7"	214



GENERAL NOTES:-

All concrete shall be Class A.

Dimensions relating to reinforcing steel are to centers of bars.

Steel cover to be 2" from center of outside layer of steel to face of concrete.

Chamfer exposed corners ¾" except as otherwise noted.

Quantities of reinforcing steel include one 30 diameter lap for all bars exceeding 40'in length.

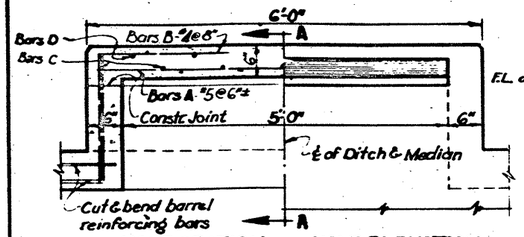
TEXAS HIGHWAY DEPARTMENT

FLARED WINGS - 45° SKEW

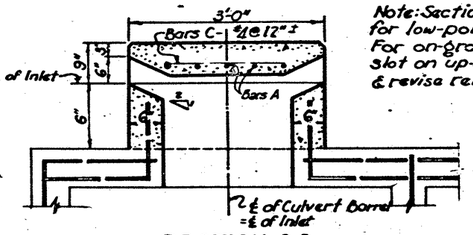
FOR SINGLE BOX CULVERTS SIZES 3'X 2' TO 10' X 10'

FW-45°

DN	RMM	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK DN	WH			6	TEXAS	– 35 - (3) 19	41
DR	H.L.G.	Revised 7-8-57		STATE DIST. NO.	COUNTY	CONTROL SECTION NO.	JOB NO.
CK DR	R.M.			2	WEBB	8 5 13	1H.35
TR	D.C.K.						
CK TR	M.D.A.						

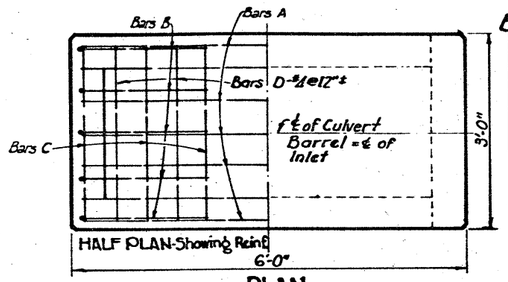


HALF SECTION HALF ELEVATION



SECTION A-A

Note: Section A-A shows slots for low-point structures. For on-grade struct's provide slot on up-stream side only & revise reinf. steel as req'd.



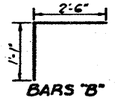
PLAN

BILL OF REINFORCING STEEL

MARK	A	B	C	D
NUMBER	5	10	7	4
SIZE	#5	#4	#4	#4
SPACING	6"±	8"	12"±	12"
LENGTH	5'-8"	3'-7"	2'-0"	2'-8"
WEIGHT	30	24	9	7

QUANTITIES-ONE INLET	
CL. "A" CONC. C.Y.	REINFORCING STEEL LBS.
0.3	70

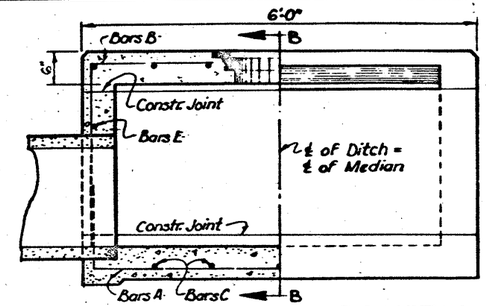
LOCATION OF PROP'D. INLETS
℄ of Median Sta. 765+00



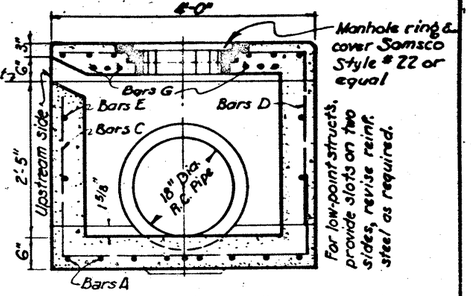
BARS "B"

SLOT INLETS-TYPE "A"

TO BE USED ON BOX CULVERTS
SCALE 1"=1'-0"



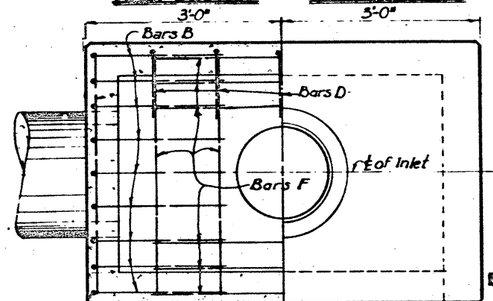
HALF SECTION HALF ELEVATION



SECTION B-B

Showing slot for on-grade structures

For low-point structs. provide slots on two sides, revise reinf. steel as required.

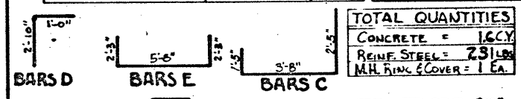


PLAN

BILL OF REINFORCING STEEL

MARK	NO.	SIZE	SPACING	LENGTH	WEIGHT
A	9	4	6"±	8'-6"	51
B	18	4	6"±	4'-8"	56
C	5	4	12"±	7'-6"	25#
D	5	4	12"±	3'-10"	13#
E	4	4	12"±	10'-7"	27
F	10	4	~	3'-8"	24#
G	6	5	6"±	5'-8"	35
			TOTAL		231

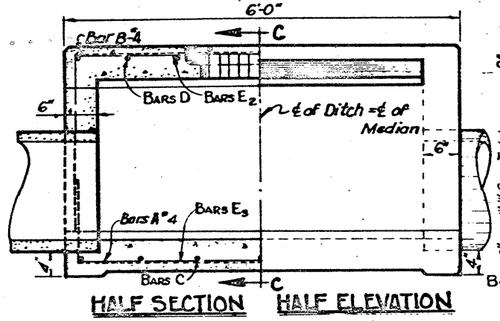
LOCATION OF INLETS
34' Rt. - 704+00
34.33' Lt. - 704+00
34' Rt. - 710+00
34' Rt. - 721+00
29.5' Lt. - 726+00
45' Lt. - 749+51
34' Rt. - 761+00
34' Rt. - 770+00



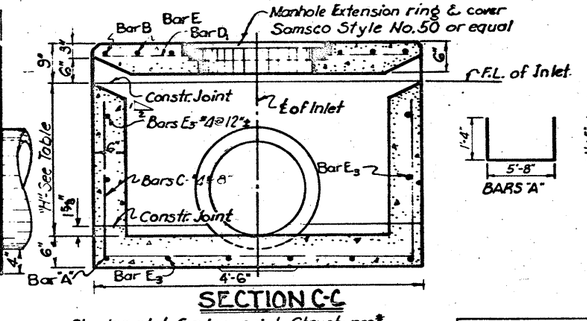
TOTAL QUANTITIES	
CONCRETE =	1.6 C.Y.
REINF. STEEL =	231 LBS.
M.H. RING & COVER =	1 EA.

SLOT INLETS-TYPE "B"

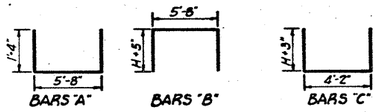
TO BE USED ON SIDE DRAINS & SKEWED PIPE CULVERTS



HALF SECTION HALF ELEVATION



SECTION C-C

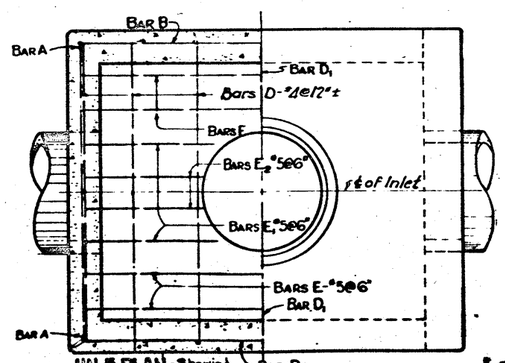


Showing slot for low-point Structures*

LOCATION OF PROPD INLETS	QUANTITIES-ONE INLET CL."A" CONC. C.Y.	QUANTITIES-ONE INLET REINF. STEEL LBS.	"H"	BARS "A" #4 NO.	BARS "A" #4 L'GHT.	BARS "A" #4 WT.	BARS "B" #4 NO.	BARS "B" #4 L'GHT.	BARS "B" #4 WT.	BARS "C" #4@8" NO.	BARS "C" #4@8" L'GHT.	BARS "C" #4@8" WT.	BARS "D" #4@12"± NO.	BARS "D" #4@12"± L'GHT.	BARS "D" #4@12"± WT.	BARS "D'" #4 NO.	BARS "D'" #4 L'GHT.	BARS "D'" #4 WT.
℄ of Median - Sta. 695+00.25	1.8	189	3.11	2	8'-4"	11	2	12'-9"	17	9	11'-0"	66	6	4'-2"	17	2	1'-1"	1
℄ of Median - Sta. 698+00	1.8	186	2.92	2	8'-4"	11	2	12'-8"	16	9	10'-6"	63	6	4'-2"	17	2	1'-1"	1
℄ of Median - Sta. 701+00	1.9	188	3.62	2	8'-4"	11	2	12'-7"	17	9	10'-5"	64	6	4'-2"	17	2	1'-1"	1
65.5' LT. - Sta. 722+00	1.8	186	2.92	2	8'-4"	11	2	12'-8"	16	9	10'-6"	63	6	4'-2"	17	2	1'-1"	1
117.5' RT. - Sta. 722+00	2.3	213	4.28	2	8'-4"	11	2	15'-1"	20	9	13'-3"	80	6	4'-2"	17	2	1'-1"	1
190.5' RT. - Sta. 722+00	2.1	200	3.92	2	8'-4"	11	2	14'-8"	19	9	12'-6"	75	6	4'-2"	17	2	1'-1"	1
℄ of Median - Sta. 725+00	1.9	199	3.28	2	8'-4"	11	2	13'-1"	17	9	11'-3"	68	6	4'-2"	17	2	1'-1"	1
@ 93.0' LT. - Sta. 746+72	2.1	206	3.28	2	8'-4"	11	2	13'-1"	18	9	12'-6"	75	6	4'-2"	17	2	1'-1"	1

*NOTE: OMIT SLOTS

LOCATION OF PROPD INLETS	BARS "E" #3 NO.	BARS "E" #3 L'GHT.	BARS "E" #3 WT.	BARS "E1" #3 NO.	BARS "E1" #3 L'GHT.	BARS "E1" #3 WT.	BARS "E2" #5@6" NO.	BARS "E2" #5@6" L'GHT.	BARS "E2" #5@6" WT.	BARS "E3" #4@12"± NO.	BARS "E3" #4@12"± L'GHT.	BARS "E3" #4@12"± WT.
℄ of Median - Sta. 695+00.25	4	5'-6"	24	4	2'-0"	8	4	1'-6"	7	10	5'-8"	38
℄ of Median - Sta. 698+00	4	5'-8"	24	4	2'-0"	8	4	1'-8"	7	10	5'-8"	38
℄ of Median - Sta. 701+00	4	5'-8"	24	4	2'-0"	8	4	1'-8"	7	10	5'-8"	38
65.5' LT. - Sta. 722+00	4	5'-8"	24	4	2'-0"	8	4	1'-8"	7	10	5'-8"	38
117.5' RT. - Sta. 722+00	4	5'-8"	24	4	2'-0"	8	4	1'-8"	7	12	5'-8"	45
190.5' RT. - Sta. 722+00	4	5'-8"	24	4	2'-0"	8	4	1'-8"	7	10	5'-8"	38
℄ of Median - Sta. 725+00	4	5'-8"	24	4	2'-0"	8	4	1'-8"	7	12	5'-8"	45
93.0' LT. - Sta. 746+72	4	5'-8"	24	4	2'-0"	8	4	1'-8"	7	12	5'-8"	45

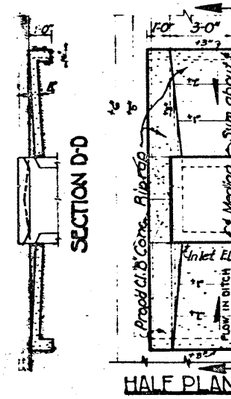


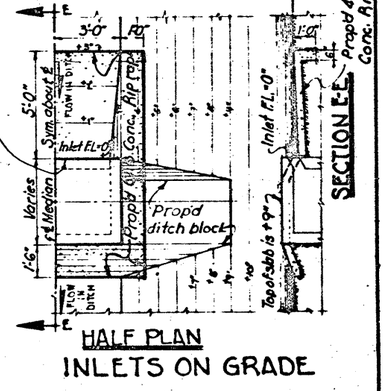
PLAN

SLOT INLETS-TYPE "C"

TO BE USED ON PIPE CULVERTS
SCALE 1"=1'-0"

* For on-grade structures provide slot only on up-stream side, revise reinf. steel as required.





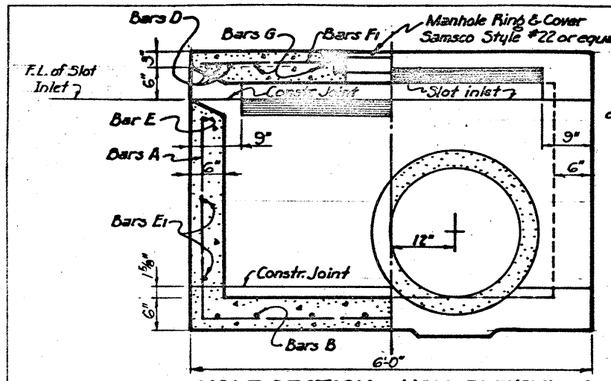
CONCRETE RIPRAP FOR INLETS TYPE A, B & C

INLET DETAILS

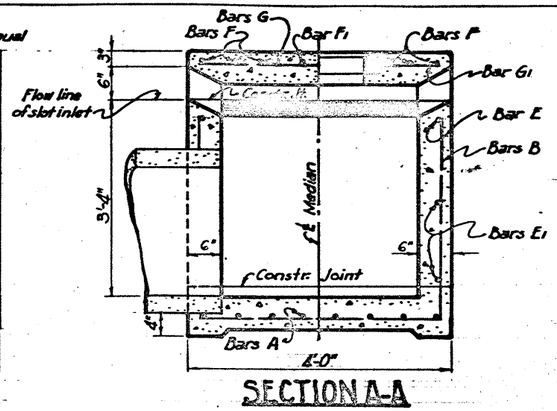
SHEET 1 OF 3

FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-55-1(5) 19	42
STATE DIST. NO. 21	COUNTY WEBB	CONT. 18 4 5	SUB. 11

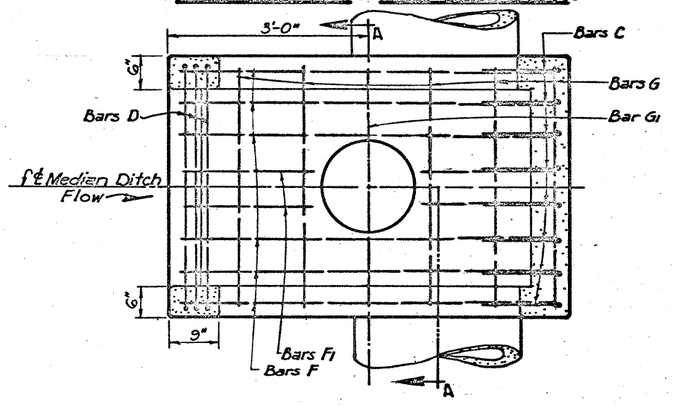
HIGHWAY NO. IH 35



HALF SECTION HALF ELEVATION

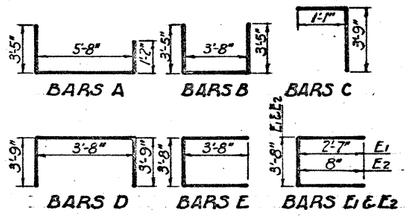


SECTION A-A



PLAN

Showing Reinforcement in Top Slab



BILL OF REINFORCING STEEL

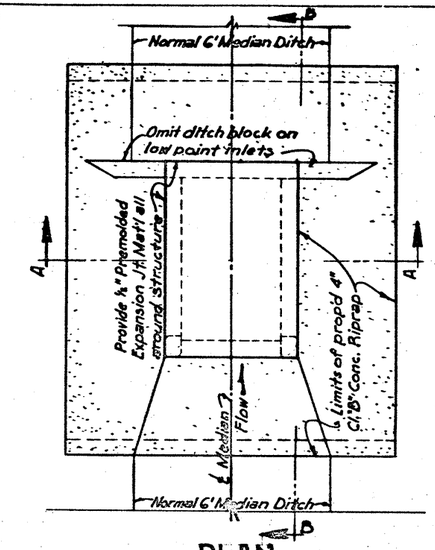
Mark	Number	Size	Spacing	Length	Weight
A	8	#4	5½"	10'-5"	55
B	5	#4	10"±	10'-6"	35
C	8	#5	5½"	4'-10"	40
D	3	#5	~	11'-2"	35
E	2	#4	~	11'-0"	15
E1	2	#4	~	8'-10"	12
E2	2	#4	~	5'-0"	7
F	6	#5	5½"	5'-8"	35
F1	4	#5	5½"	2'-0"	8
G	5	#4	12"±	3'-8"	12
G1	2	#4	12"±	1'-2"	2
				Total Wt.	256#

LOCATION OF PROP'D INLETS
110' Rt. - Sta. 695+00
114' Rt. - Sta. 745+28.4
℄ of Median - Sta. 746+10.4
℄ of Median - Sta. 747+84.3
113' Rt. - Sta. 747+84.3

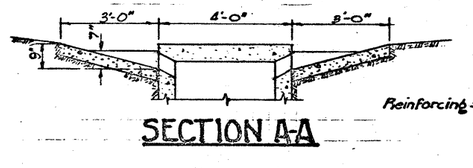
TOTAL QUANTITIES

Cl. "A" Concrete	= 1.80 C.Y.
Reinforcing Steel	= 256 Lbs.
M.H. Ring & Cover	= 1 Each

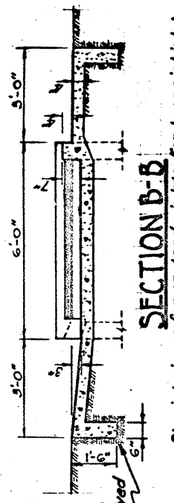
SLOT INLETS-TYPE "D"



PLAN



SECTION A-A

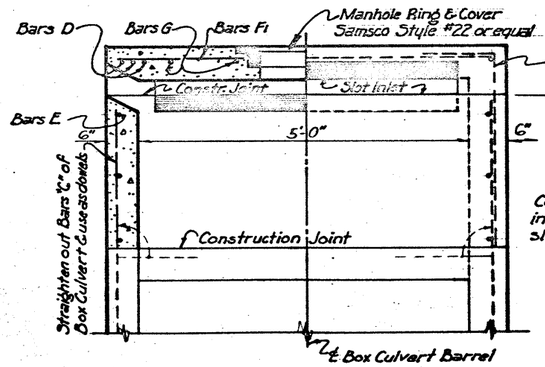


Showing riprap for on-grade inlets - For low point inlets place end with slot inlet facing the ditch with the most cu. ft. & slope downstream on both ends.

Omit toe wall when median ditch is paved above structure

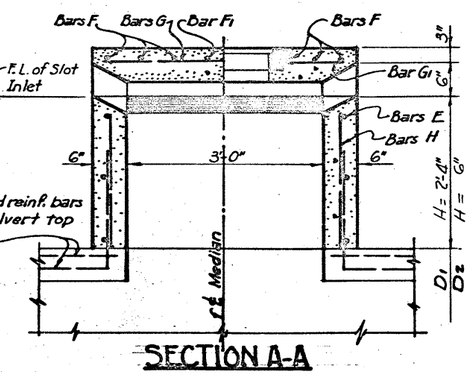
Reinforcing steel not shown.

CONCRETE RIPRAP-TYPE "D" INLETS



HALF SECTION HALF ELEVATION

See Plan View of Type "D" Inlet for reinforcement in top slab.

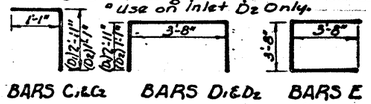


SECTION A-A

BILL OF REINFORCING STEEL

Mark	Number	Size	Spacing	Length	Weight
C†	8	#5	5½"	4'-0"	33
D†	3	#5	~	9'-6"	30
E	6	#4	~	11'-0"	44
F*	6	#5	5½"	5'-8"	~
F1	4	#5	5½"	2'-0"	8
G	5	#4	12"±	3'-8"	12
G1	2	#4	12"±	1'-2"	2
H°	10	#4	10"±	2'-1"	14
			Total	D1 =	143#
°C2	8	#5	5½"	2'-2"	18
°D2	3	#5	~	5'-10"	18
			Total	D2 =	102#

†Use on Inlet D1 only.
*Use Bars "F" from gap in top slab of box culvert.
°Use on Inlet D2 only.



INLET:	D1	D2
Cl. "A" Concrete	0.83 C.Y.	0.41
Reinforcing Steel	143 Lbs.	102 Lbs.
M.H. Ring & Cover	1 Each	1 Each

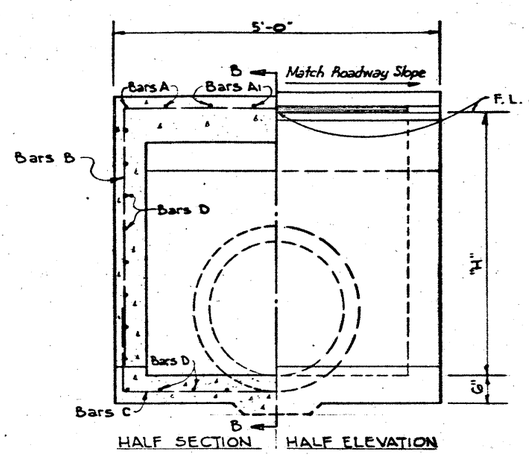
SLOT INLETS-TYPE "D" MOD.

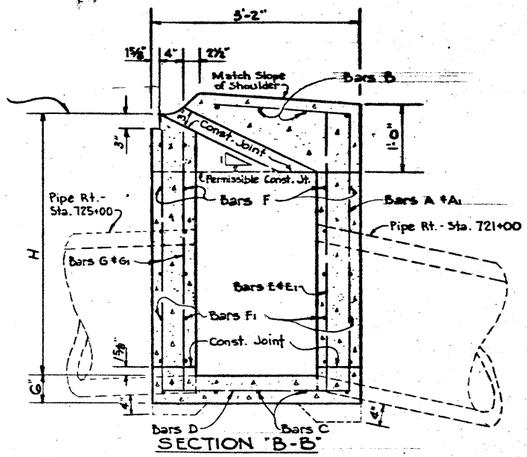
INLET D1 AT ℄ MEDIAN; INLET D2 113' RT. OF SURVEY LINE STA. 735+00

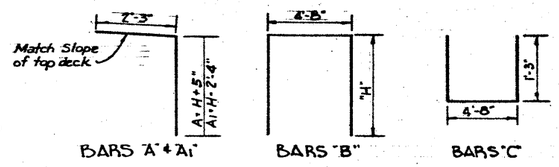
INLET DETAILS

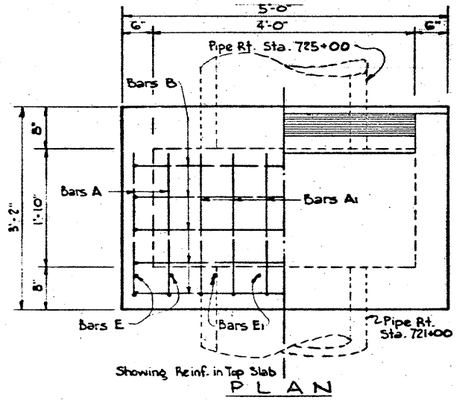
SHEET 2 OF 3

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(13)15	43
STATE DIST. NO.	COUNTY	CONT. SECT.	JOB NO.
21	WEBB	18	15









BILL OF REINFORCING STEEL

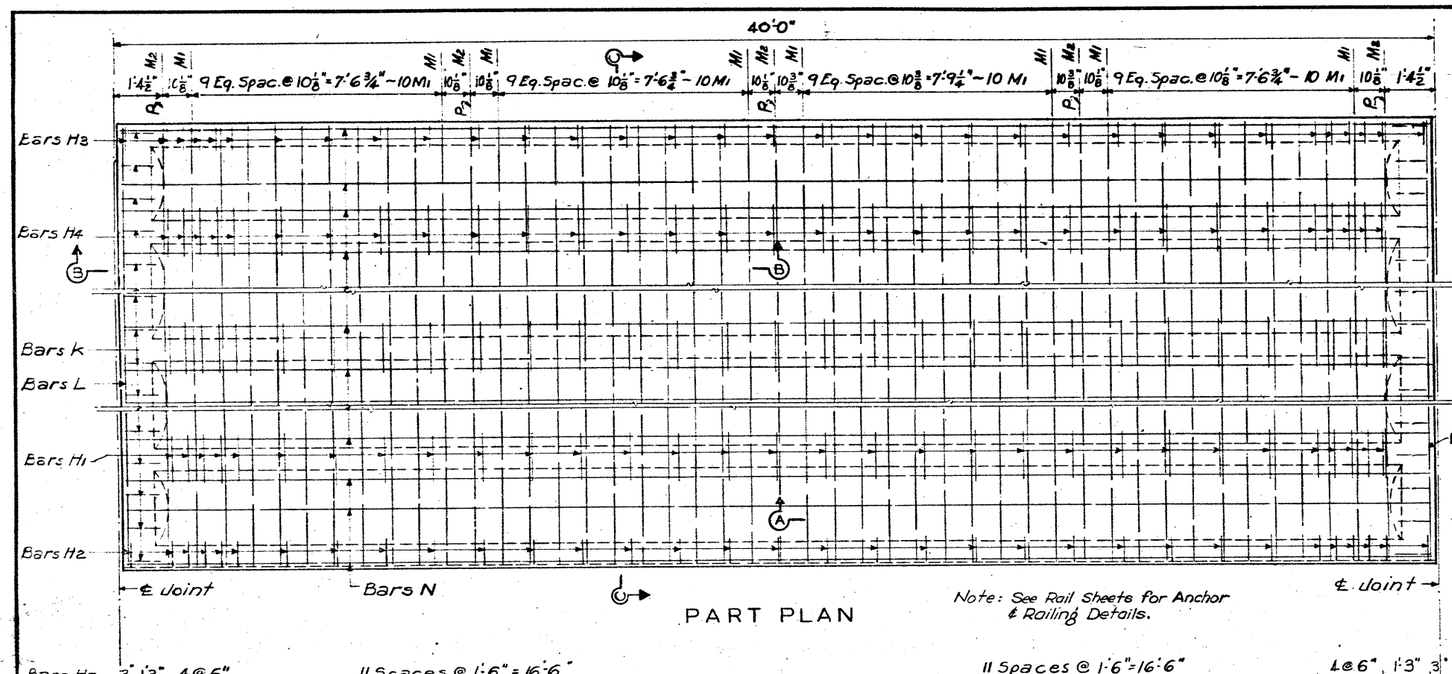
LOCATION OF PROP'D INLET	QUANTITIES CLASS "A" CONC. C.Y.	QUANTITIES REINF. STEEL LBS.	"H"	BARS "A" #5 @ 6" NO.	BARS "A" #5 @ 6" L'GHT.	BARS "A" #5 @ 6" WT.	BARS "A1" #5 @ 6" NO.	BARS "A1" #5 @ 6" L'GHT.	BARS "A1" #5 @ 6" WT.	BARS "B" #5 @ 6" NO.	BARS "B" #5 @ 6" L'GHT.	BARS "B" #5 @ 6" WT.	BARS "C" #4 @ 8" ± NO.	BARS "C" #4 @ 8" ± L'GHT.	BARS "C" #4 @ 8" ± WT.	BARS "D" #4 @ 6" NO.	BARS "D" #4 @ 6" L'GHT.	BARS "D" #4 @ 6" WT.	BARS "E" #4 @ 8" NO.	BARS "E" #4 @ 8" L'GHT.	BARS "E" #4 @ 8" WT.	BARS "E1" #4 @ 8" NO.	BARS "E1" #4 @ 8" L'GHT.	BARS "E1" #4 @ 8" WT.	BARS "F" #4 @ 8" NO.	BARS "F" #4 @ 8" L'GHT.	BARS "F" #4 @ 8" WT.	BARS "F1" #4 @ 8" NO.	BARS "F1" #4 @ 8" L'GHT.	BARS "F1" #4 @ 8" WT.	BARS "G" #4 @ 8" NO.	BARS "G" #4 @ 8" L'GHT.	BARS "G" #4 @ 8" WT.	BARS "G1" #4 @ 8" NO.	BARS "G1" #4 @ 8" L'GHT.	BARS "G1" #4 @ 8" WT.
81.4' RT. STA. 710+00	1.5	267	3.42'	4	6'-8"	28	6	1'-8	10	5	12'-8"	66	5	7'-2"	24	26	2'-10"	49	8	4'-5"	17	4	1'-6	4	14	2'-10"	26	8	1'-0"	5	16	4'-0"	43	—	—	—
82.2' RT. STA. 721+00	1.7	270	4.08'	10	6'-1"	63	—	—	—	5	11'-6"	60	5	7'-2"	24	24	2'-10"	45	8	3'-7"	19	—	—	—	16	2'-10"	30	6	1'-0"	4	8	3'-8"	20	8	0'-11"	5
81.3' RT - STA. 725+00	1.5	267	3.42'	4	6'-8"	28	6	1'-8"	10	5	12'-8"	66	5	7'-2"	24	26	2'-10"	49	4	4'-5	12	4	1'-6"	4	14	2'-10"	26	8	1'-0"	5"	16	4'-0"	43	—	—	—

SLOT INLETS-TYPE "E"

INLET DETAILS

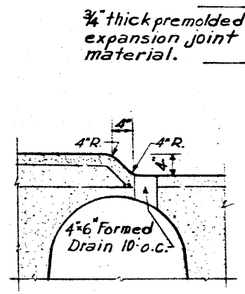
SHEET 5 OF 3

PROJECT NO.	STATE	FEDERAL PROJECT NO.	SHEET
	Iowa	I-35-1(3)15	44
21	WEBB	18 14 6 11 15	IH 35

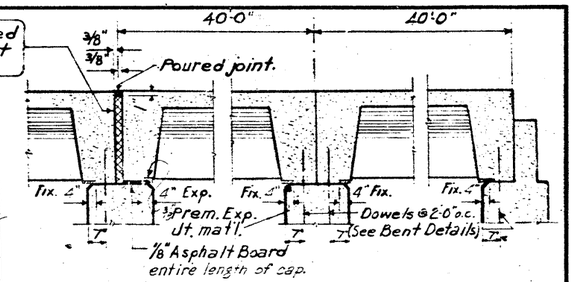


PART PLAN

Note: See Rail Sheets for Anchor & Railing Details.

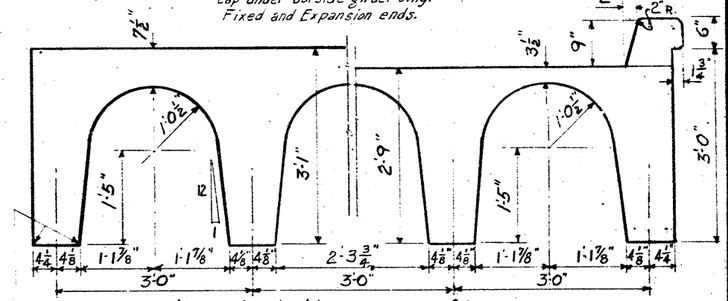


DRAIN DETAILS
(Locate drains at ¼ points of end spans.)



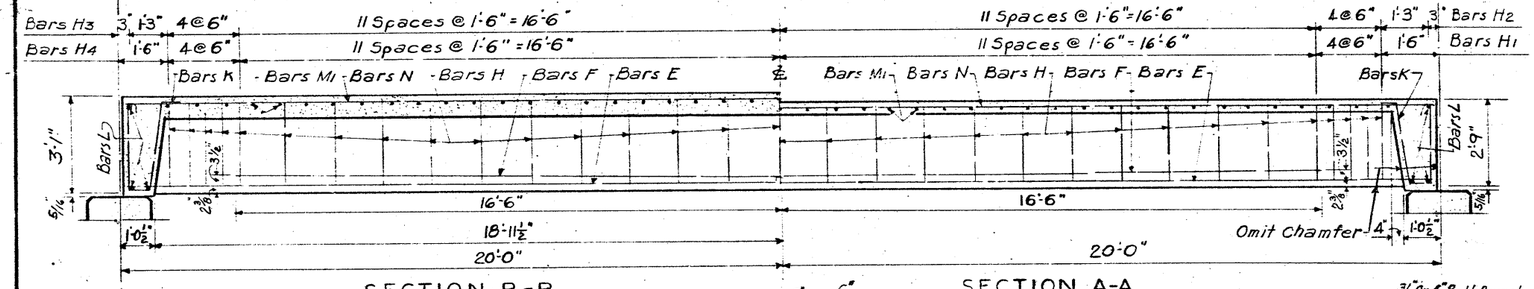
EXP. JT. FIXED JT. END OF BR.

4"x⅜" Exp. Jt. Matl. across end of cap under outside girder only. Fixed and Expansion ends.



DO not chamfer bottom corners of beams

ARCH BEAM DIMENSIONS

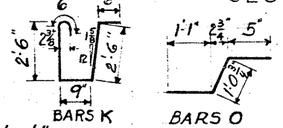


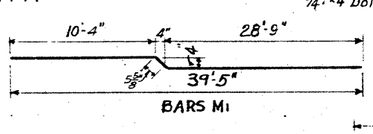
SECTION B-B

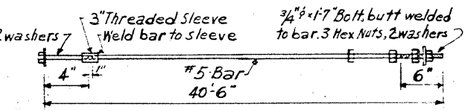
SECTION A-A

BILL OF REINFORCING STEEL

Bar	No.	Size	Spac.	Length	Weight
E	28	#11	—	39'-6"	5876
F	28	#10	—	33'-0"	3976
H1	279	#3	shown	6'-1"	638
H2	33	#3	shown	7'-4"	91
H3	33	#3	shown	6'-8"	83
H4	93	#3	shown	6'-9"	236
K	80	#3	12"	6'-8"	201
L	6	#5	—	39'-5	247
M1	40	#5	shown	39'-8"	1655
M2	5	#5	shown	40'-6"	223
N	42	#4	—	39'-8"	1113
O	41	#5	12"±	2'-7"	110
P	5	#5	—	12'-1"	63
Total wt				lbs	14512

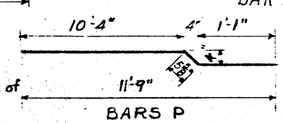






BAR M2

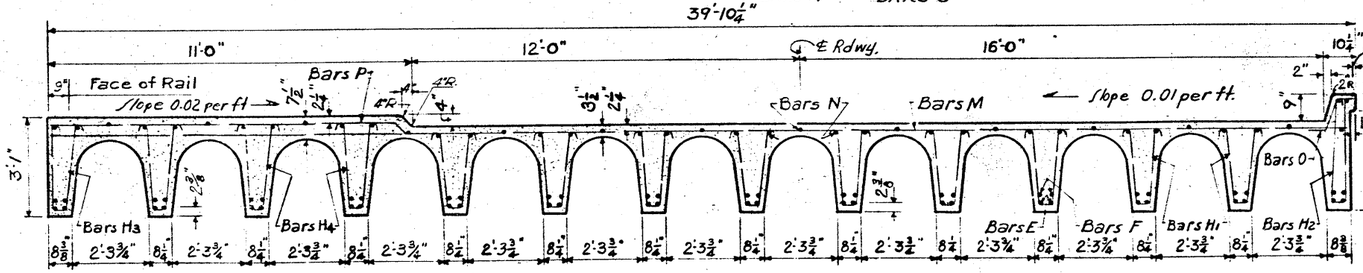
NOTE: The ¾"ø x 1'-7" bolt shall be galvanized in accordance with A.S.T.M. Spec. 153-47T before welded to reinf. bar.



BARS P

ESTIMATED QUANTITIES

Class A Concrete	Cu. Yds.	80.8
Reinforcing Steel	lbs	14512
Railing Type II (Mod)	Lin. Ft.	80



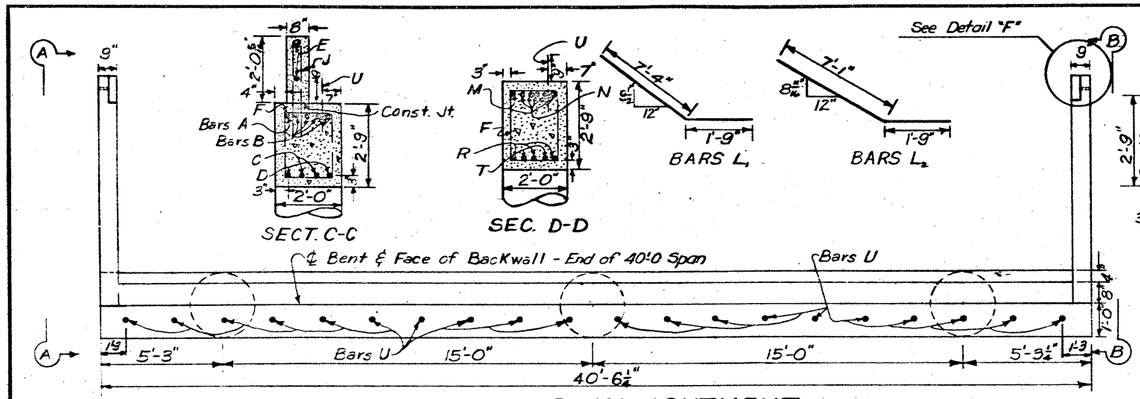
SECTION C-C

GENERAL NOTES:
Design H20-S16 Loading in accordance with A.A.S.H.O. 1957 Standard Specifications.
Design complies with PPM 20-4
All concrete shall be class A. Chamfer all exposed corners ¾" except as noted.
Vertical chamfer the ends of the outside girder at all interior bents.
Dimensions relating to reinforcing steel are to centers of bars.
Design stress for reinforcing steel = 20,000 p.s.i.

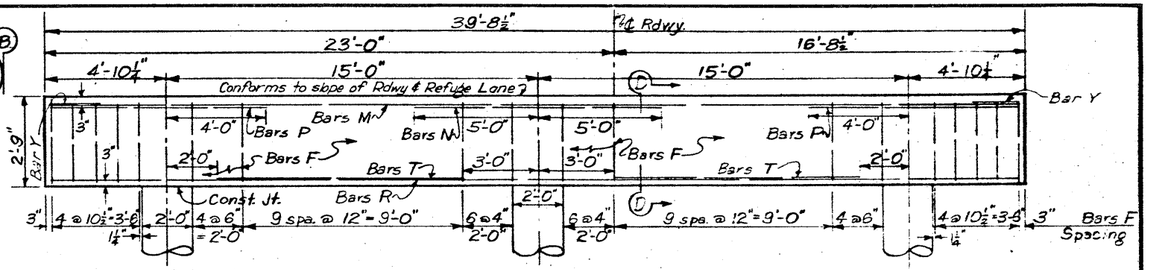
TEXAS HIGHWAY DEPARTMENT

40'-0" CONCRETE SLAB AND GIRDER SPAN
28'-0" ROADWAY
GRADE SEPARATION US. 81 & U.S. 83

Des.	Drawing	Date	Fed. Road Div. No.	State	Federal Aid Project No.	Sheet No.
Ck. Des.	Original	Dec 12 '56	6	Texas	I-35-1(3), 19	45
Det.			State Dist. No.	County	Control No. / Section No. / Job No.	Highway No.
Ck. Det.			21	Webb	16 / 5 / 3	I 35
Ta.						
Ck. Ta.						



PLAN ABUTMENT



ELEVATION INTERIOR BENT

VARIABLE REINF. STEEL 3 COL. INT. BENT
24 - #7 Bars W 3 - #2 Bars Z

"Y"	Length	Wt.	Length	Wt.	Total
		Lbs.		Lbs.	Lbs.
12	11'-6"	564	100'-7"	50	614
13	12'-6"	613	110'-6"	55	668
14	13'-6"	662	120'-5"	60	722
15	14'-6"	711	130'-3"	66	777
16	15'-6"	760	140'-10"	71	831
17	16'-6"	809	150'-11"	76	885
18	17'-6"	858	161'-0"	81	939

BILL OF CONSTANT REINF. STEEL FOR INTERIOR BENT CAP

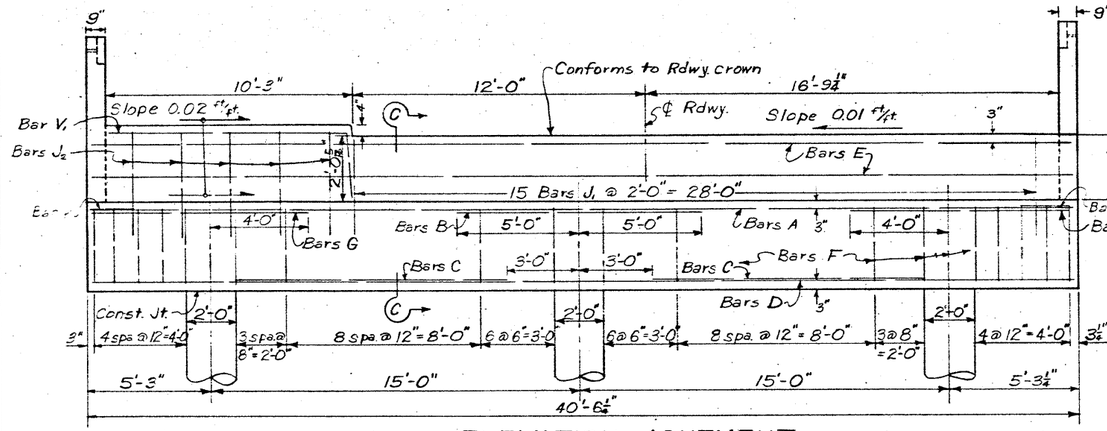
Bar	No.	Size	Spa.	Length	Weight
M	2	#11	~	39'-5"	419
N	4	#11	~	10'-0"	213
P	6	#9	~	8'-7"	175
R	3	#10	~	39'-5"	509
T	4	#10	~	10'-0"	172
U	20	#5	2'-0"	1'-6"	31
F	48	#5	Shown	9'-2"	459
Y	2	#6	~	4'-0"	12
				Total Lbs.	1990

REINFORCING STEEL - ABUTMENT

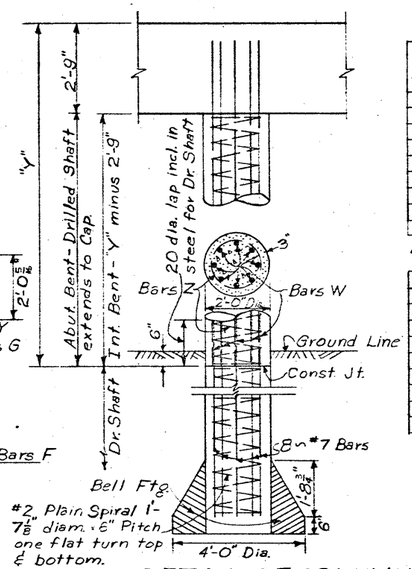
Bar	No.	Size	Spa.	Length	Weight
A	2	#11	~	40'-3"	428
B	3	#10	~	10'-0"	129
C	4	#10	~	11'-0"	139
D	2	#10	~	40'-3"	346
E	2	#5	12"	40'-0"	83
F	46	#5	Shown	9'-2"	440
G	4	#9	~	3'-0"	122
H_1	12	#5	12"	5'-9"	84
H_2	4			6'-8"	29
H_3	2			5'-7"	12
H_4	2			3'-4"	7
H_5	2			2'-0"	4
H_6	2			4'-6"	9
H_7	2			3'-0"	6
H_8	2		12"	1'-6"	3
J_1	15		2'-0"	5'-10"	91
J_2	5		2'-0"	6'-6"	34
L	2		~	9'-1"	19
L_2	2		~	8'-10"	18
K_1	2		~	14'-5"	30
K_{2-7}	6		13"	Av. 11'-1"	69
K_{8-12}	6		13"	Av. 10'-9"	67
U	20		2'-0"	1'-6"	31
V_1	1		~	11'-6"	12
H_9	4	#5	~	7'-10"	33
Y	2	#6	~	4'-0"	12
					2306

ESTIMATED QUANTITIES ABUT.

Class "A" Concrete	C.Y.	125
Reinforcing Steel	Lbs.	2306
Bell Footings.	C.Y.	1.3

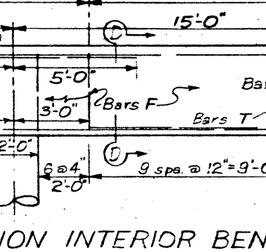


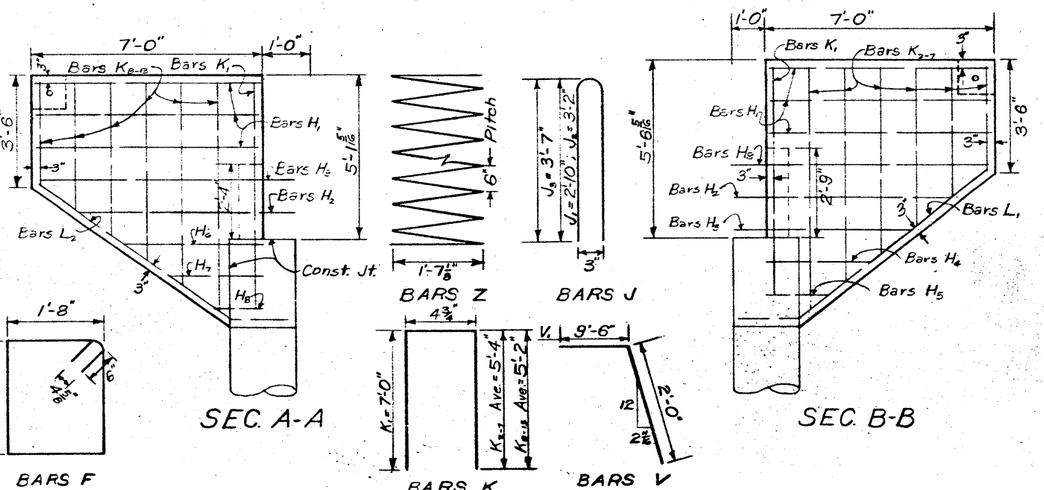
ELEVATION ABUTMENT



DETAIL OF COLUMNS & DRILLED SHAFTS

NOTE: Portions of circular columns above ground shall be formed with metal forms or with laminated fiber tubes with inside surfaces lined with plastic and coated with wax. These tubes to be Sonotubes as manufactured by Sonoco Products Company or approved equal.





BARS Y

TOTAL* ESTIMATED QUANT. ONE INTERIOR BENT

"Y"	Class "A" Conc. C.Y.	Reinf. Steel Lbs.
12	9.2	2204
13	9.3	2658
14	9.4	2712
15	9.5	2767
16	9.6	2821
17	9.8	2875
18	9.9	2929

*Bell Footings for One Interior Bent = 1.3 C.Y.

GENERAL NOTES:
Design H20-S16-44 Loading in accordance with A.A.S.H.O. 1953 Standard Specifications.
Supplement No. 1 All concrete shall be Class A. Chamfer all exposed corners ¾". Dimensions relating to reinforcing steel are to center of bars. Design Stress for reinforcing steel = 20,000 p.s.i. Structural grade reinforcing steel will not be permitted.
Footing Pressures are as follows: Abutment Bent, 4'-0" dia. Bells, = 5.1 T/ft². Interior Bent, 4'-0" dia. Bells, = 6.5 T/ft². Design complies with PPM 20-4.

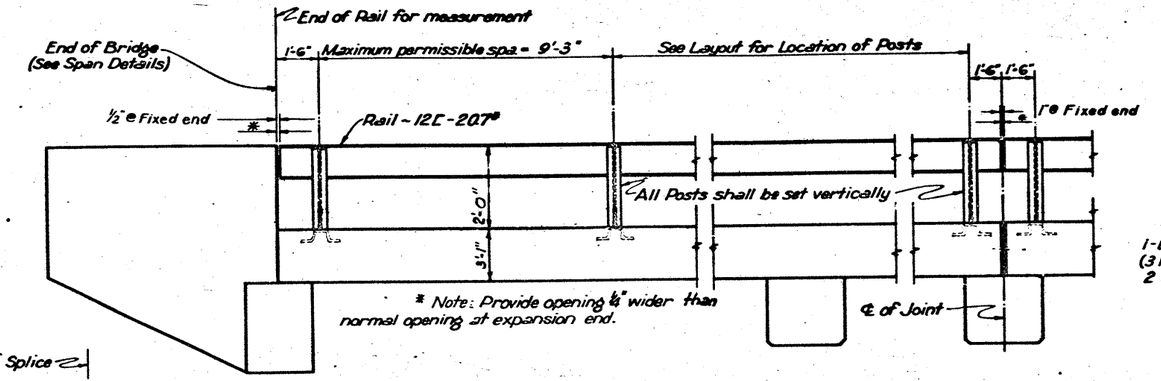
TEXAS HIGHWAY DEPARTMENT

BENTS FOR 40'-0" CONCRETE SLAB AND GIRDER SPAN

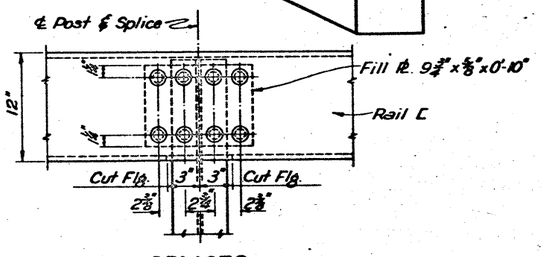
28'-0" ROADWAY

GRADE SEPARATION US 81 & US 83

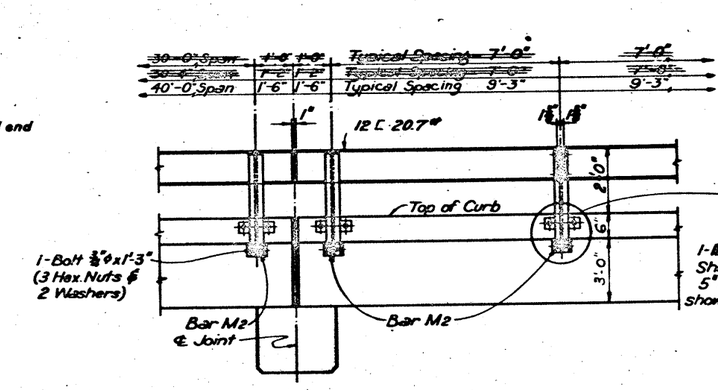
Des. T.H.	Drawing ORIGINAL	Date DEC. 1956	Fed. Proj. Sys. No.	State	Federal Aid Project No.	Sheet No.
Ck. Des.			6	TEXAS	I 35-1(3)19	46
Det. R.D.			State Dist. No.	County	Control No. / Section No. / Job No.	Highway No.
Ck. Det. M.J.			21	WEBB	18 / 5 / 13	I 35
Tr. -						
Ck. Tr. -						



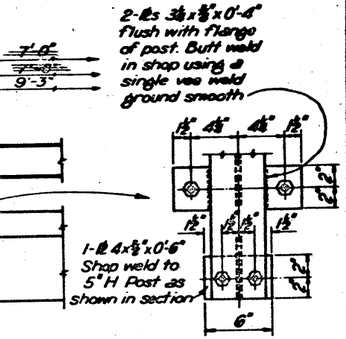
ELEVATION - OUTSIDE FACE
POST SLAB - RAILING

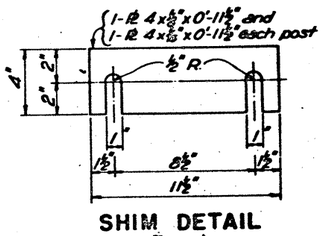


SPLICES

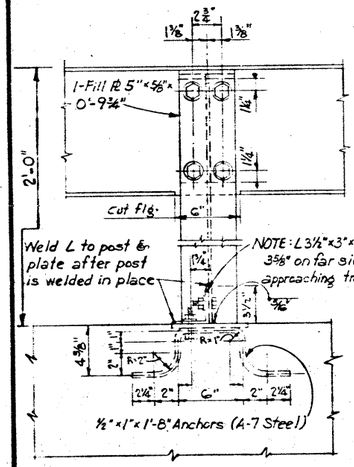


ELEVATION - OUTSIDE FACE -
CURB - RAILING - 40'-0" CONC. SLAB GIRDER SPANS

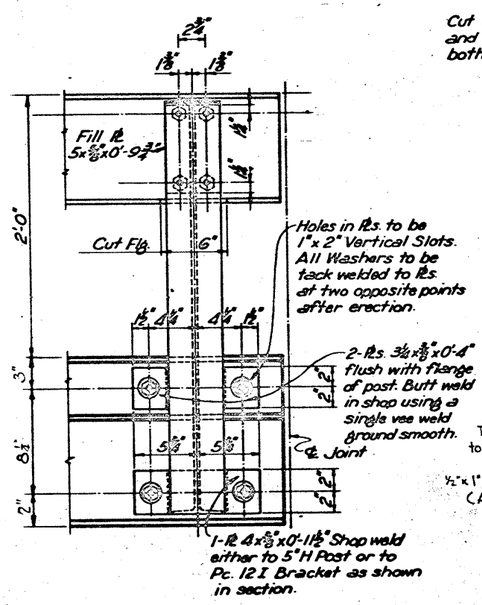




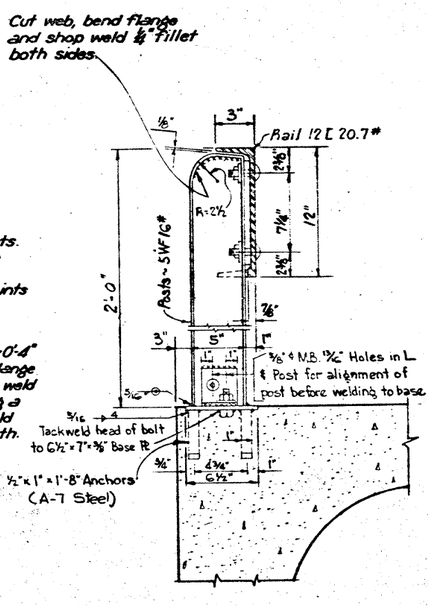
SHIM DETAIL



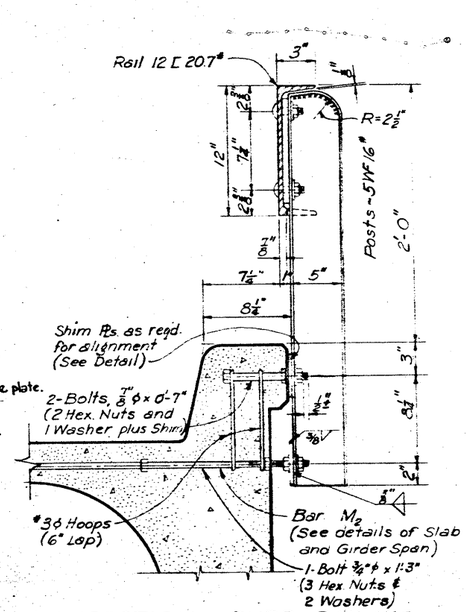
OUTSIDE - ELEVATION
POST - SLAB
RAILING



OUTSIDE ELEVATION
CURB - RAILING



SECTION - POST
SLAB RAILING



SECTION - CURB - RAILING

GENERAL NOTES:

Rail sections may be of two panel lengths or continuous for a number of panel lengths not to exceed 50'-0" length.

All anchorage provisions, including bolts, nuts, washers, shim plates and ø 3 hoops around bolts, are considered parts of the railing.

The lower anchor bolts for posts at the acute angle ends of skewed spans shall be bent as required to provide a maximum penetration of bolts into slab, and to provide a minimum cover of 1½" for the bolt.

At posts where railing channel is spliced provide ⅛" opening between ends of channel, tighten ⅞" ø bolts and then back off ½ turn and burr threads.

Rail Post anchor bolts, nuts and washers shall, after shop fabrication, be cadmium coated by the Udylite Process in accordance with A.S.T.M. Spec. A 165 or Galvanized in accordance with A.S.T.M. Spec. 153

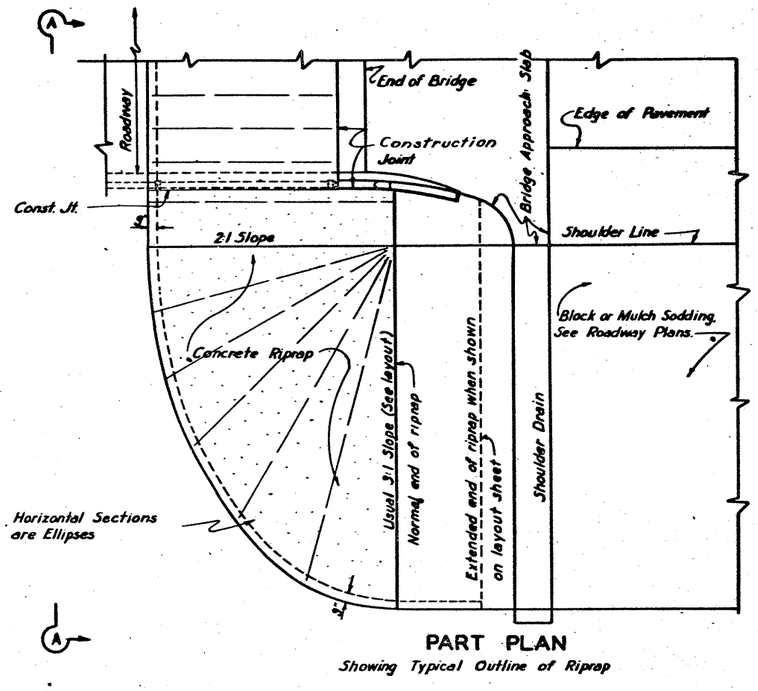
All Posts shall be set vertically.

If the metal railing is properly cleaned by sand-blasting or pickling the shop coat of Paint may be applied by spray.

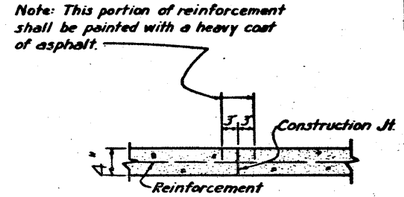
TEXAS HIGHWAY DEPARTMENT

STANDARD RAILING TYPE II (MOD.) (1954)

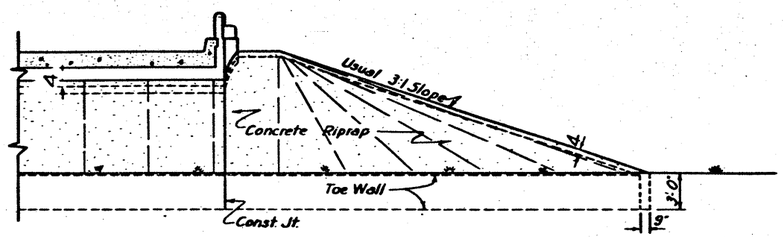
Des. - THD	Drawn - ORIGINAL	Date - JUNE 1954	Fed. Aid Proj. No.	State	Federal Aid Project No.	Sheet No.
Co. Engr. - THD			6	TEXAS	F-35-1(3)19	47
Des. - HJD	Rev. Section for C&G - M.H.W. Rev. 7-13-56 Widened 24'-0" Roadway		State Dist. No.	County	Sheets Shown on This Dwg.	Sheets in Set
Co. Engr. - JCA	Rev. 10-13-56 for 40'-0" C&G		21	WEBB	18	4-5 4-6 IH 85
Ck. - CCK						
Co. Ck. - HJD						



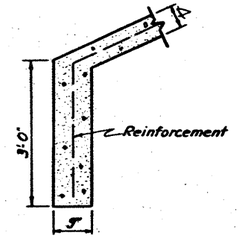
PART PLAN
Showing Typical Outline of Riprap



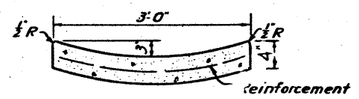
TYPICAL SECTION THROUGH CONSTRUCTION JOINT



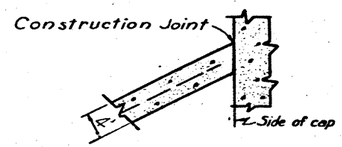
SECTION A-A
End View of Riprap



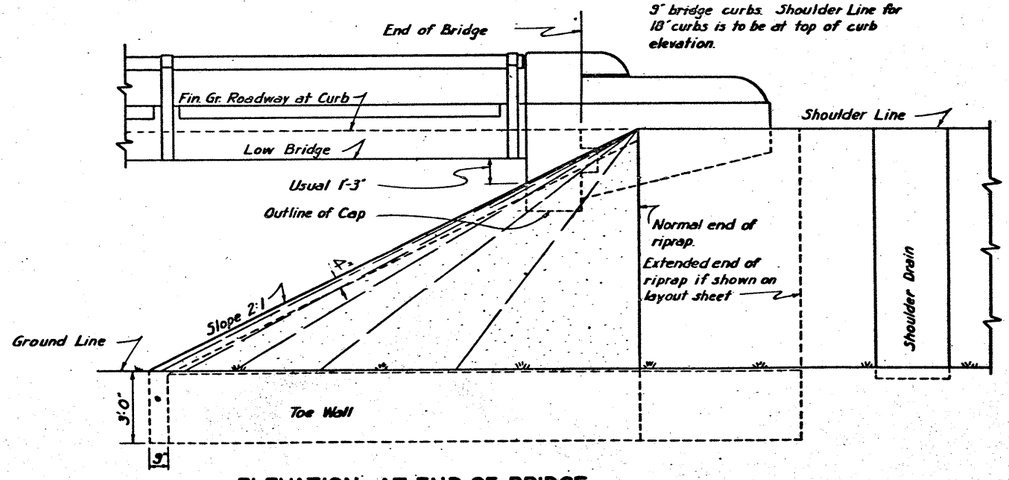
TYPICAL SECTION THROUGH TOE WALL



TYPICAL SECTION THROUGH SHOULDER DRAIN
Quantities for Shoulder Drains to be included in riprap quantities.



TYPICAL SECTION THROUGH RIPRAP AT CAP



ELEVATION AT END OF BRIDGE
Showing Details of Riprap Slopes

GENERAL NOTES

Concrete shall be Class B unless otherwise provided on the layout.

Reinforcements shall be in accordance with specifications.

Construction joints shall be as shown or ordered by the Engineer.

Riprap shall be constructed in accordance with lines and dimensions given on this sheet unless shown otherwise on Bridge Layout Sheet.

TEXAS HIGHWAY DEPARTMENT

CONCRETE RIPRAP

FOR EMBANKMENT SLOPES AT BRIDGE ENDS

RR 8 (MOD)

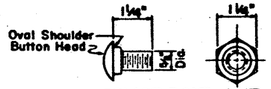
(1944)

Des. T.H.D.	Orbit Exp. Joint Rev. 8-1-47.	FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
Det. J.S.H.		6	TEXAS	I-35-1(3)	19		48
Ck. M.F.M.		STATE DIST. NO.	COUNTY	SECTION NO.	SHEET NO.	JOB NO.	HIGHWAY NO.
Tr. R.M.F.		21	WEBB	18	5	13	IH 35
Ck. J.E.N.							
April 1944							

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO. — ALIGNMENT CHECKED, ALL OF MAP CHECKED

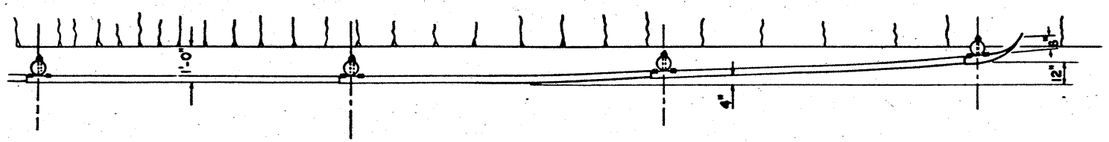
PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO. — GRADES CHECKED, STRUCTURE NOTATIONS CHECKED

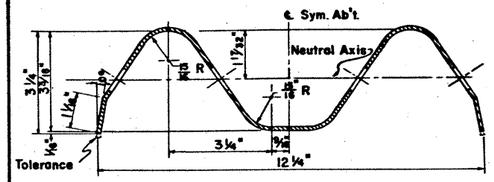
BRIDGE DIVISION



SPLICE BOLT NUT

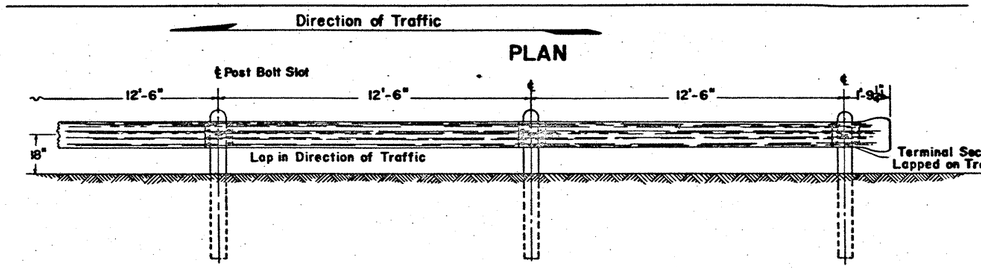
POST BOLT: Similar except length



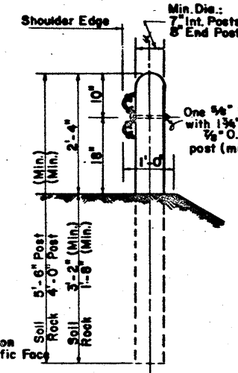


SECTION THRU RAIL ELEMENT

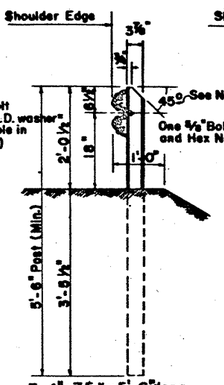
NOTE: All dimensions subject to manufacturing tolerances.



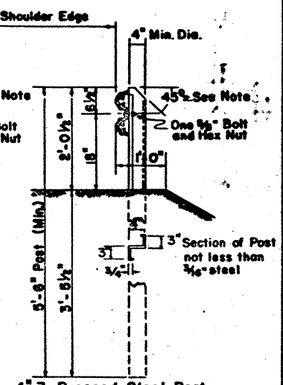
PLAN



WOOD POST

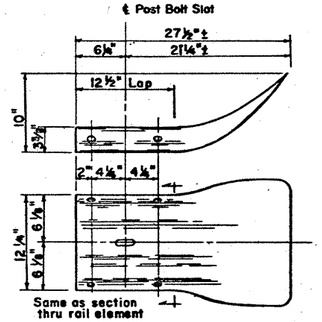


I-4"x 7.5#x 5'-6" long

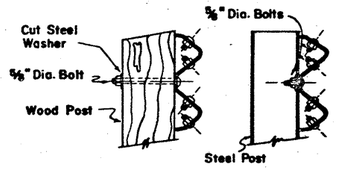


4" L Pressed Steel Post 5'-6" long

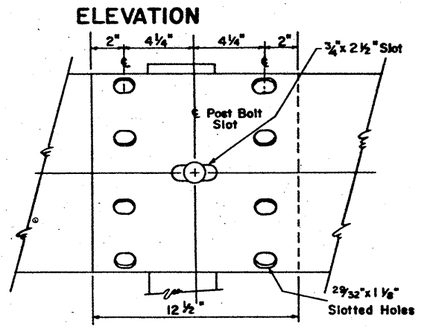
STEEL POSTS



TERMINAL SECTION



ARRANGEMENT AT POSTS



ELEVATION

RAIL SPLICE

TYPE - 7
DEEP BEAM GUARD FENCE

SPACING FOR HIGHWAY DELINEATORS ON HORIZONTAL CURVES
TEXAS HIGHWAY DEPARTMENT STANDARD

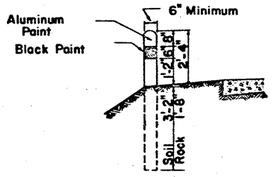
Degree of Curve	Spacing On Curve	Spacing in Advance of and Beyond Curve		
		First space	Second space	Third space
1	93'-9"	100'	100'	100'
2	62'-6"	100'	100'	100'
3	50'	87'-6"	100'	100'
4-5	43'-9"	81'-3"	100'	100'
6-7	37'-6"	68'-9"	100'	100'
8-9-10	31'-3"	56'-3"	93'-9"	100'
11-19 incl.	25'	43'-9"	75'	100'
20-30 incl.	18'-9"	31'-3"	56'-3"	100'

The spacing on the curve is found from the formula $S = 1.2\sqrt{R+18}$ adjusted to the nearest multiple of 6'-3" where R is the radius of the curve in feet. The spacing to the first delineator in advance of and beyond the curve is 1.8S, to the next delineator 3S, and to the next 6S, but not to exceed 100 feet.

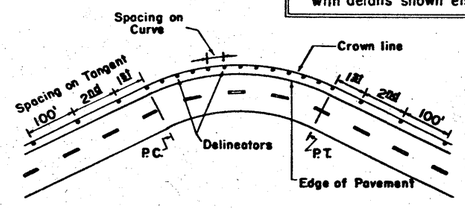
SPACING FOR HIGHWAY DELINEATORS ON VERTICAL CURVES
TEXAS HIGHWAY DEPARTMENT STANDARD

Algebraic Difference in Percent of Grade	Delineator Spacing When Length of Vertical Curve is - - -												
	100'	200'	300'	400'	500'	600'	800'	1000'	1200'	1400'	1600'	1800'	2000'
0.5	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'
1.0	75'	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'
1.5	56'-3"	87'-6"	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'
2.0	43'-9"	75'	93'-9"	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'
2.5	37'-6"	62'-6"	81'-3"	100'	100'	100'	100'	100'	100'	100'	100'	100'	100'
3.0	31'-3"	56'-3"	75'	87'-6"	100'	100'	100'	100'	100'	100'	100'	100'	100'
4.0	25'	43'-9"	62'-6"	75'	87'-6"	93'-9"	100'	100'	100'	100'	100'	100'	100'
5.0	25'	37'-6"	50'	62'-6"	75'	81'-3"	100'	100'	100'	100'	100'	100'	100'
6.0	25'	31'-3"	43'-9"	56'-3"	68'-9"	75'	87'-6"	100'	100'	100'	100'	100'	100'
7.0	25'	31'-3"	43'-9"	50'	56'-3"	68'-9"	81'-3"	93'-9"	100'	100'	100'	100'	100'
9.5	25'	25'	31'-3"	43'-9"	50'	56'-3"	68'-9"	75'	87'-6"	93'-9"	100'	100'	100'
12.0	25'	25'	25'	31'-3"	43'-9"	43'-9"	56'-3"	68'-9"	75'	81'-3"	87'-6"	93'-9"	100'
14.5	25'	25'	25'	31'-3"	37'-6"	37'-6"	50'	56'-3"	68'-9"	75'	81'-3"	87'-6"	87'-6"
17.0	25'	25'	25'	25'	31'-3"	37'-6"	43'-9"	50'	56'-3"	62'-6"	68'-9"	75'	81'-3"
19.5	25'	25'	25'	25'	25'	31'-3"	37'-6"	50'	56'-3"	62'-6"	62'-6"	68'-9"	75'
24.0	25'	25'	25'	25'	25'	25'	31'-3"	43'-9"	43'-9"	50'	56'-3"	62'-6"	68'-9"

The spacing, S, on the vertical curve (to a maximum of 100 feet) is found from the formula: $S = 94\sqrt{\frac{L}{G}} - 20$, adjusted to the nearest multiple of 6'-3", where L is the length of curve in hundreds of feet and G is the algebraic difference in percent of grade. The spacing to the first delineator in advance of and beyond the curve shall be 1.8S, to the next delineator 3S and to the next 6S, but not to exceed 100 feet.



DETAIL OF DELINEATOR POSTS



DELINEATORS FOR CURVES OR TANGENT SECTIONS

TIMBER POST GUARD FENCE

GENERAL NOTES

See Specifications for Material requirements and Construction methods.

TYPE 7 GUARD FENCE: Detail drawings and samples of plates and fittings must be submitted to and approved by the Texas Highway Department. Special fabrication will not be required in installations having a curvature of greater than 150' radius; those having a curvature of less than 150' radius will have a beam fabricated to fit the designated curve. With the exception of those terminating at bridges, each length of guard fence shall flare out from the roadway center-line as detailed. The ones terminating at bridges shall be constructed according to detail plans. Bolts used in attaching rail to post shall be of sufficient length to extend through the full thickness of the nut and no more than 3/4" beyond it. Square steel plate washers, of not less than 1¾" on a side, will be permitted in lieu of the round washer shown. Square top steel posts may be used in lieu of beveled posts.

TIMBER POST GUARD FENCE: Installations on fills will be spaced in multiples of 6'-3" and in accordance with details shown elsewhere.

TEXAS HIGHWAY DEPARTMENT

STEEL PLATE GUARD FENCE
DEEP BEAM TYPE
AND
TIMBER POST GUARD FENCE

GF-56

REVISED DATE	DESCRIPTION	BY	APPROVED
8-7-56	Heading under General Notes	RLH	

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	Texas	I-35-1(3) 19	49
STATE DIST. NO.	COUNTY	Combination	Section	Sheet	Adjustment
21	WEBB	18	5	11-13	IH 35

Bridge
Present 38'-5½" c to c Approach Slabs
(Shifted from So. Approach of pres. bridge

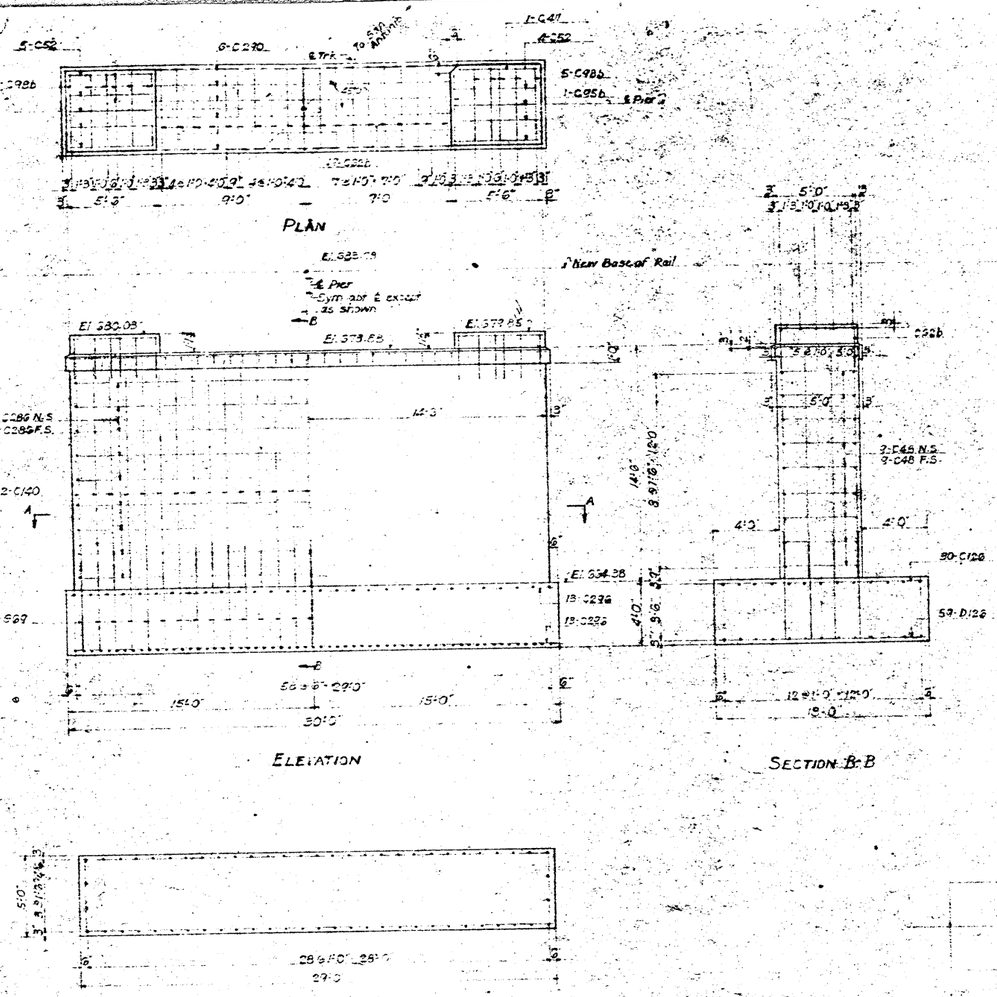
New 70'-5½" c to c Thru Plate Girder Span
(Metal Ballasted Deck)

New 29'-6" c to c 2 Ply WF Beam Span
(Concrete Ballasted Deck)

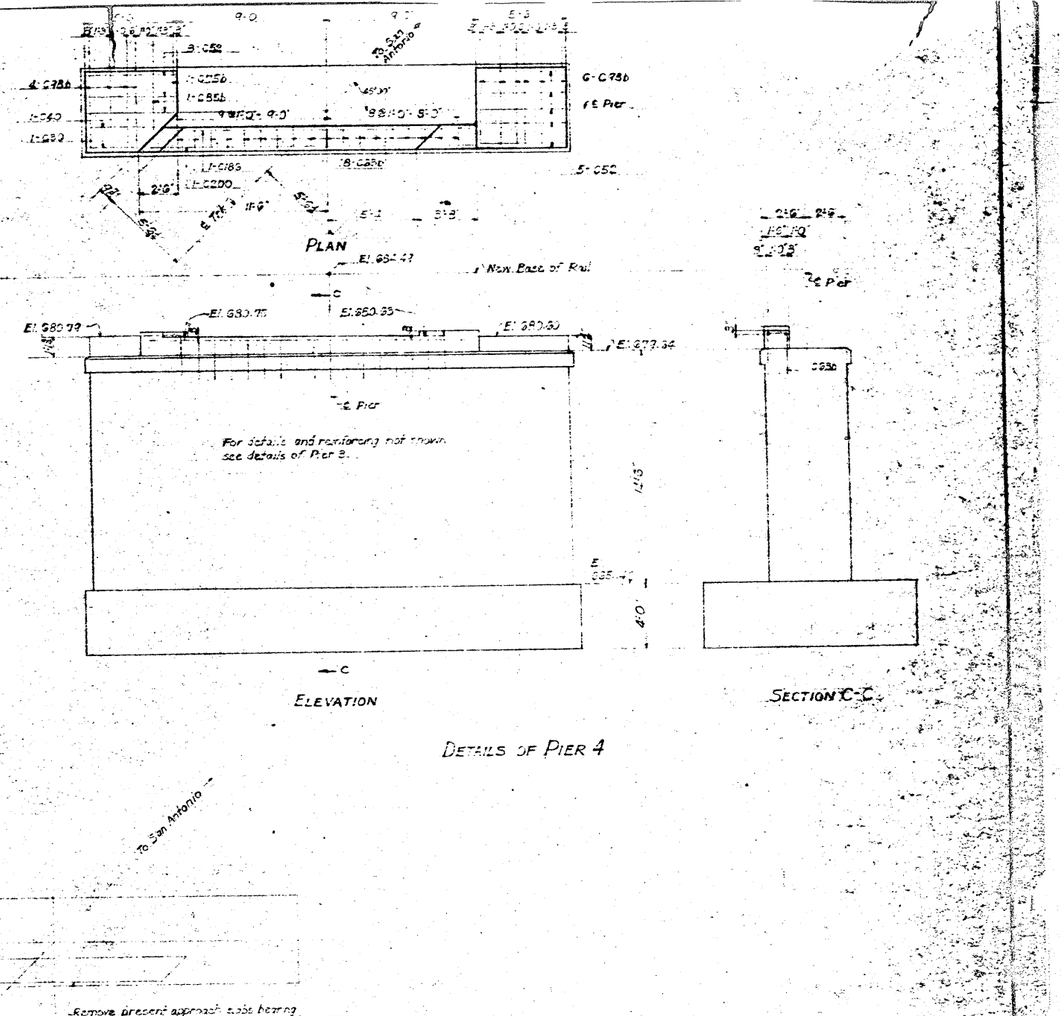
Present 70'-5⅝" c to c Thru Plate Girder Span
(Metal Ballasted Deck)

Present 38'-5⅛" c to c Approach Spans

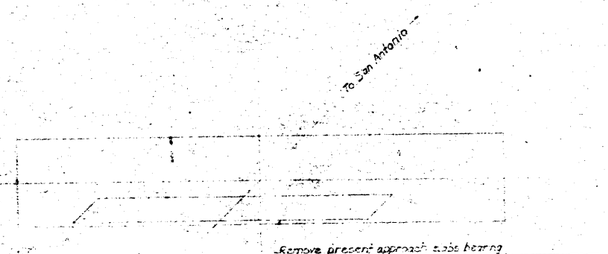
El 654.42 · El 655.73 · El 654.42 · El 654.42 · El 652.73 · El 652.73 · El 652.73



DETAILS OF PIER 3



DETAILS OF PIER 4



PRESENT PIER 2

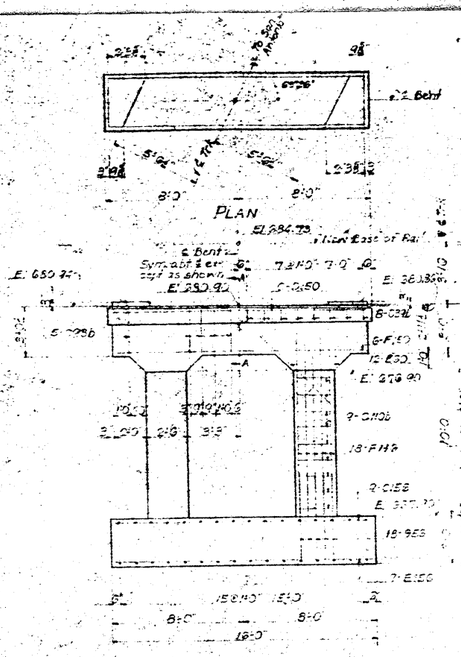
For General Notes and Symbols see sheet No. 1
For Bill of Bars see sheet No. 3
Reinforcing Steel to conform to T.H.D. Std Specifications & pertinent Special Provisions.

STATE	FEDERAL PROJECT NO.			SHEET
	I 35-1(3) 19			51
COUNTY	CONT.	SECT.	JOB	NO.
21 WEBB	18	5	13	14.39

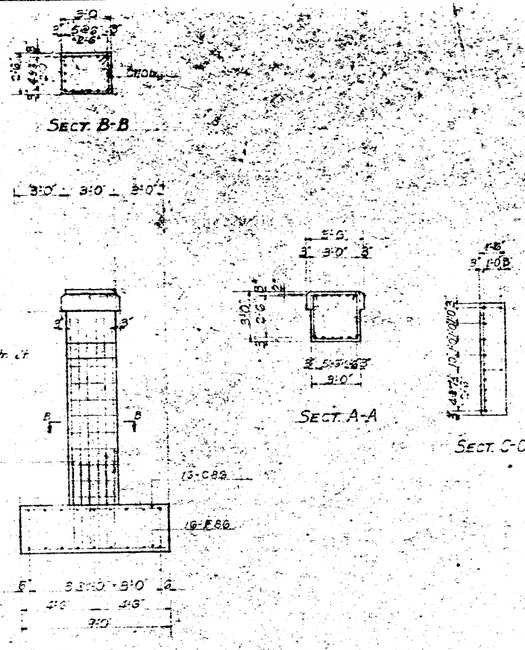
2/4

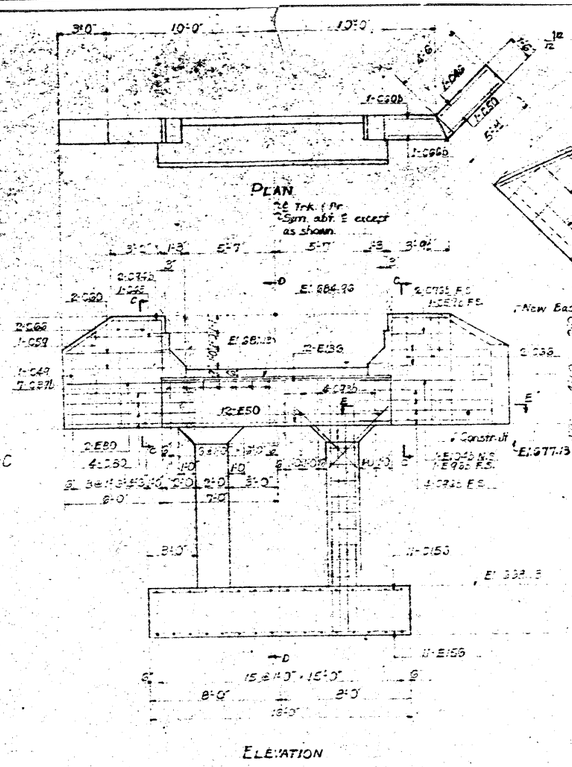
393.20

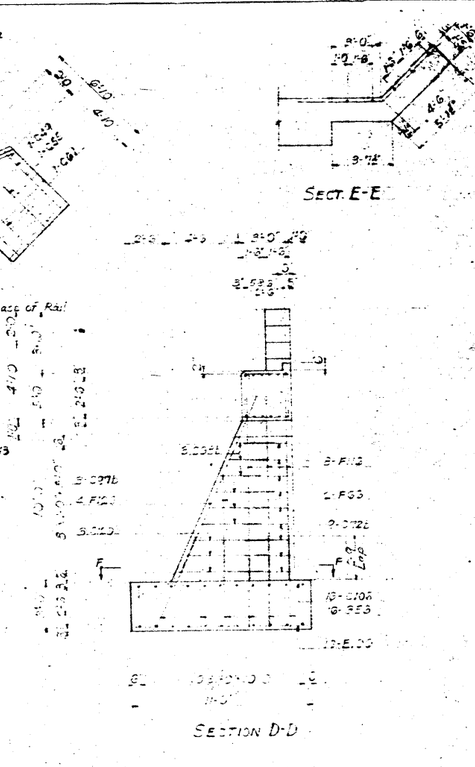
MISSOURI PACIFIC R.R. CO
SAN ANTONIO DIVISION
DETAILS OF PIERS 3 AND 4
BRIDGE NO. 393.2
OVER U.S. HIGHWAY NO. 81



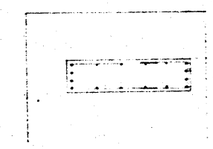
DETAILS OF BENT 2







DETAILS OF SOUTH ABUTMENT



For Bar List and Concrete Quantities See Sheet No. 1

BILL OF BARS

No.	Mark	Size	Length	Weight
32	E58	#8	5'0"	270
6	F123	"	12'6"	135
16	F118	"	11'3"	377
6	F88	"	8'9"	88
12	E158	#8	15'6"	558
12	E113	"	9'10"	249
16	E103	"	10'0"	351
	E1042	"	10'4"	13
	E96	"	9'8"	4
1	E83	"	8'5"	22
24	E60	"	5'0"	80
11	E109	#6	10'9"	114
6	C1030	"	12'10"	48
3	C113	"	12'10"	116
6	C77b	"	9'7"	65
4	C78b	"	9'6"	25
2	C94b	"	9'4"	12
5	C93b	"	7'3"	29
4	C90	"	8'0"	21
2	C76b	"	7'5"	10
18	C120	"	7'2"	65
1	C83	"	6'5"	7
1	C85	"	6'5"	4
8	C96b	"	6'8"	27
1	C89	"	6'1"	4
1	C80b	"	5'0"	3
1	C82	"	5'5"	3
1	C40	"	5'0"	3
3	C49	"	5'4"	8
1	C46	"	5'2"	3
14	C93b	"	5'0"	35

South Abutment

No.	Mark	Size	Length	Weight
32	E83	#6	8'9"	210
57	D128	#5	12'6"	739
58	C228	#4	29'8"	512
3	C270	"	27'0"	113
18	C283	"	28'6"	342
62	C103	"	6'0"	372
30	C46	"	8'0"	240
1	C75L	"	9'8"	9
1	C95b	"	9'5"	9
19	C82	"	5'5"	78
9	C82	"	5'5"	51
1	C41	"	5'0"	5
16	C28	"	5'8"	56
62	E97	#5	5'7"	216
59	D128	#5	12'6"	739
58	C228	#4	29'8"	512
3	C270	"	27'0"	113
18	C283	"	28'6"	342
62	C103	"	6'0"	372
30	C46	"	8'0"	240
1	C75L	"	9'8"	9
1	C95b	"	9'5"	9
19	C82	"	5'5"	78
9	C82	"	5'5"	51
1	C41	"	5'0"	5
16	C28	"	5'8"	56

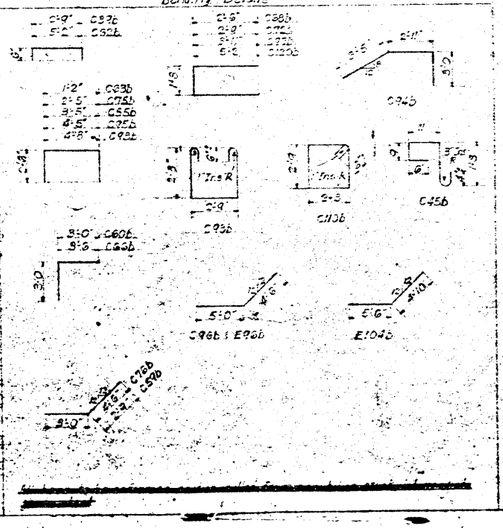
Foot 4

Foot 2

Foot 3

No.	Mark	Size	Length	Weight
36	E56	#8	5'8"	328
6	F150	"	15'0"	184
30	F118	"	11'3"	849
16	F82	"	8'6"	275
9	E153	"	15'6"	209
24	E60	"	5'0"	240
3	H150	"	15'0"	94
9	C56	#4	15'9"	95
18	C130	"	11'0"	132
10	C73L	"	7'8"	60
16	C89	"	9'6"	91
16	C99L	"	5'7"	40
57	D1210	#5	12'10"	1060
5	D170	"	17'0"	55
1	C224	#4	22'4"	215
3	C283	"	28'10"	38
2	C283	"	28'6"	38
8	C284	"	28'6"	151
57	D1210	"	12'10"	676
3	D170	"	17'0"	29
58	C45b	"	4'5"	171

Bending Details

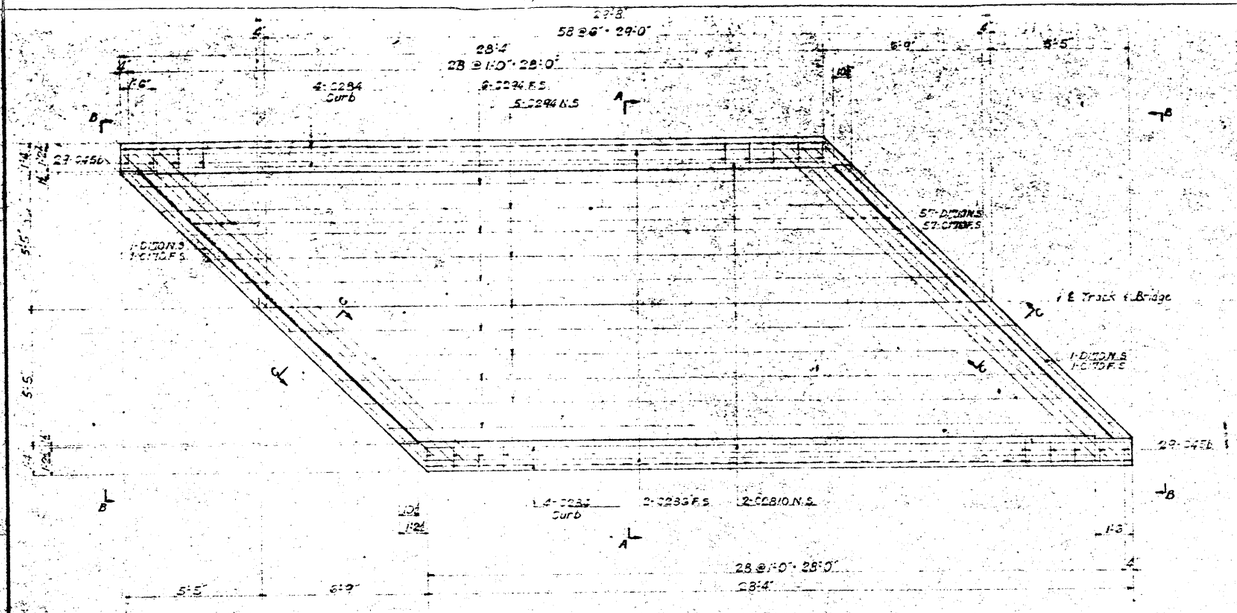


FED. RD.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(3) 19				52
DIST.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.	
21	WEBB	18	5	13	IH 35	

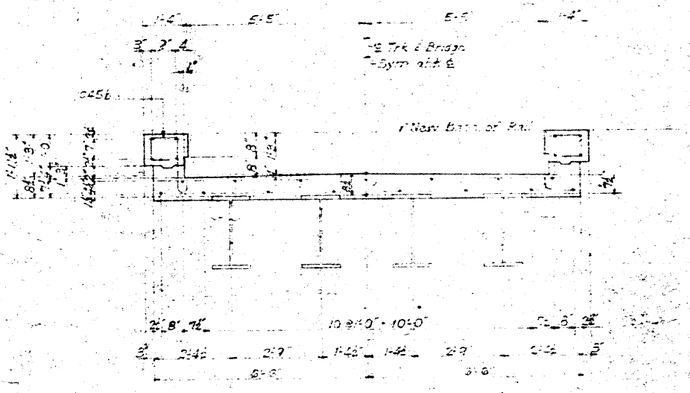
9/4

393.20

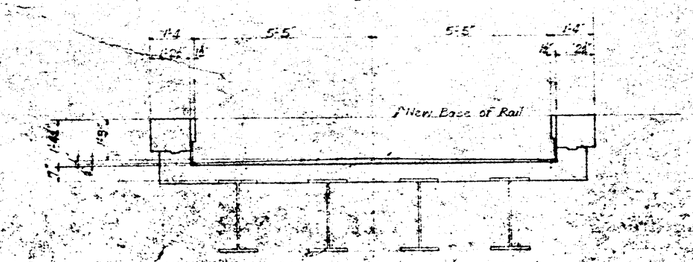
MISSOURI PACIFIC R.R. CO.
SAN ANTONIO DIVISION
DETAILS OF BENT 2 & SO. ABUTMENT
BRIDGE NO. 393.2
OVER U.S. HIGHWAY NO. 81



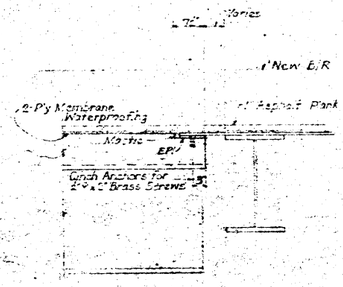
PLAN
3/8"=1'-0"



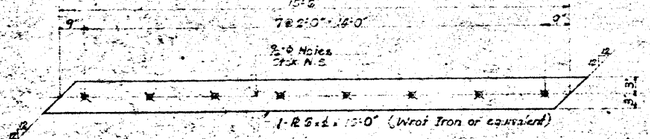
SECTION A-A
1"=1'-0"



END VIEW B-B
1"=1'-0"



SECTION C-C
3"=1'-0"



EXPANSION PLATE EPI
2-Regd Est Wt. 91.2#

Exp R. Hardware
16-Flat Head Brass Mach. Screws 1-4x2"
16-Two Unit Threaded Cinch Anchors-1#
Est Wt. - 7#

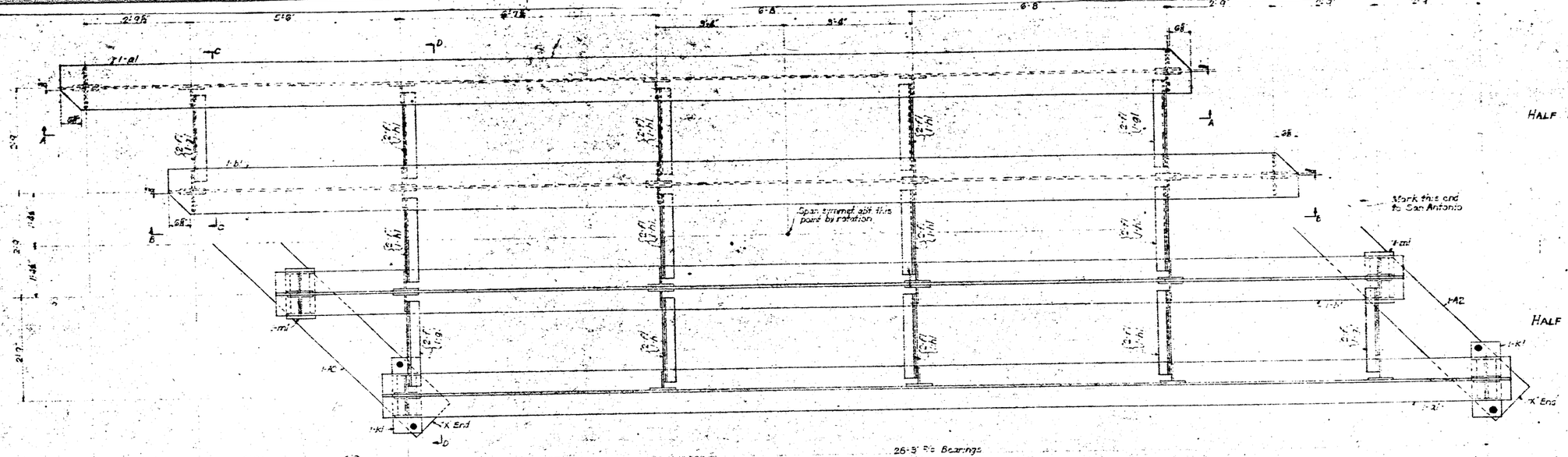
For General Notes and Quantities see sheet No 1
For Est. of Bars see sheet No 3

STATE	FEDERAL PROJECT NO.				SHEET NO.
TEXAS	T 35-1(8)19				55
COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
WEBB		18	5	13	IH 35

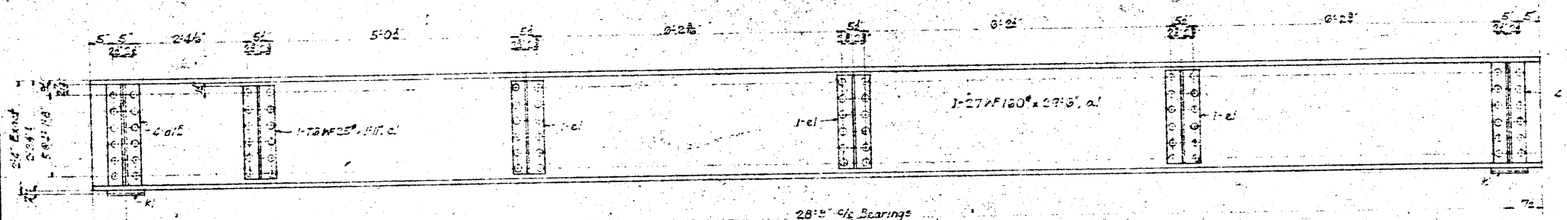
4/4

393:20

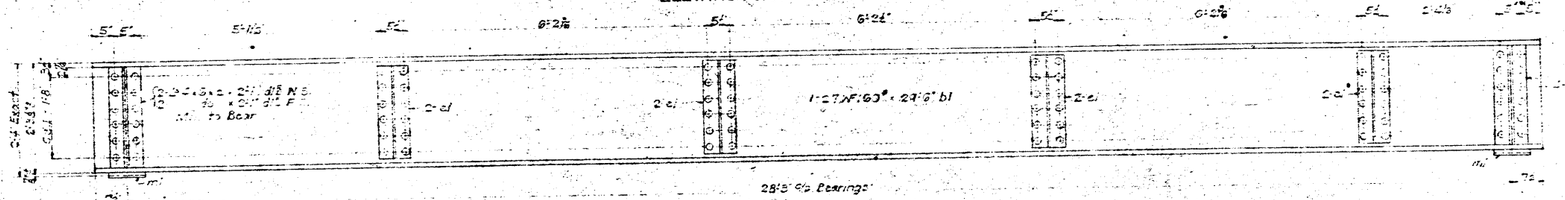
MISSOURI PACIFIC R.R. CO.
SAN ANTONIO DIVISION
DECK SLAB FOR 29'6" BEAM SPAN
BRIDGE No. 393.2
OVER U.S. HIGHWAY NO. 81



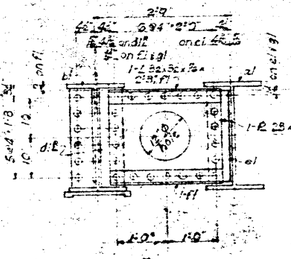
BEAM SPAN A1



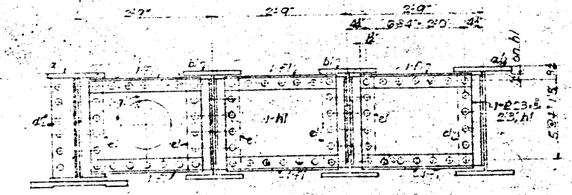
ELEVATION A-A



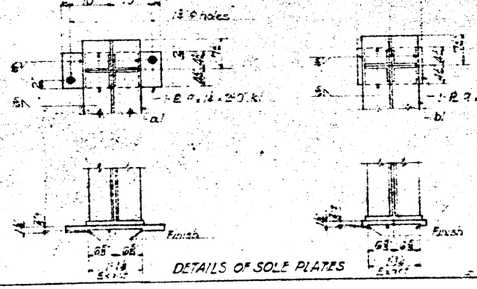
ELEVATION B-B



SECTION C-C



SECTION D-D



DETAILS OF SOLE PLATES

General Notes

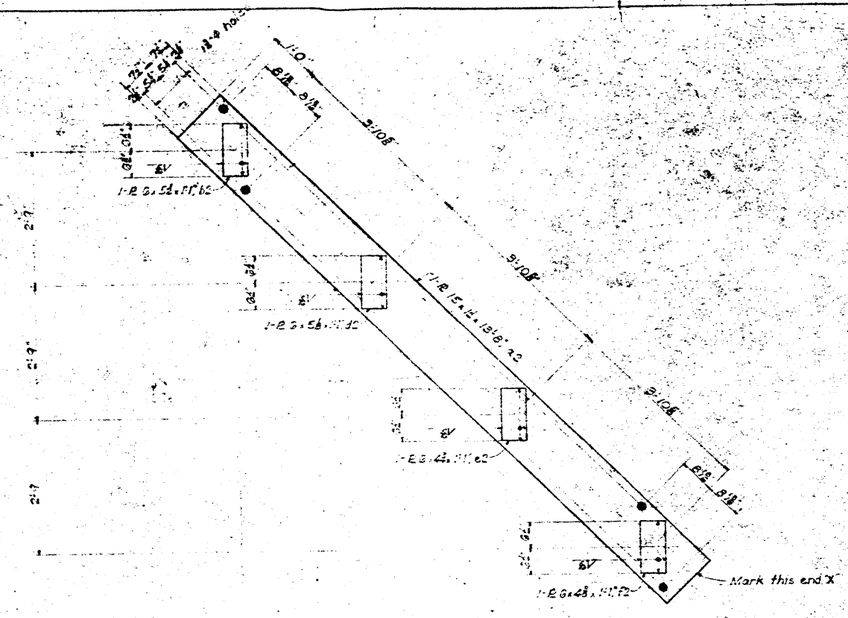
Material ... A.S.T.M. A7 Structural Steel
Specifications ... A.R.E.A. 1958
Live Load ... E72
Erection ... Diesel Locomotive
Paint ... Red
Paint Note ... Red unless otherwise noted
Welding ... Electric Arc
Paint Shop ... Shop coat of primer to be applied to conform with requirements of Federal Spec. TT-P-86a, Type I except no paint on surfaces to be metallized. Top and edges of top flanges and top surfaces of diaphragms to be shop painted with 3.0 oz. Zinc-Iron-Silicate Paint.
Marking ... Shop coat of No. 708 Aluminum Paint Finish Coat.
Remarks ... Existing Plate Girder to be cleaned and given one coat of No. 708 Aluminum Paint Finish Coat.

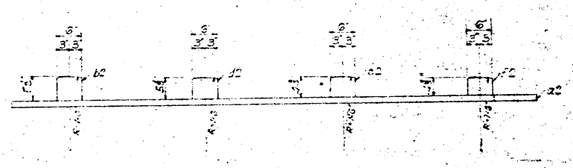
FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(3)19				54
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB		
21	WEBB	18	5	3	1HBG	

4/2

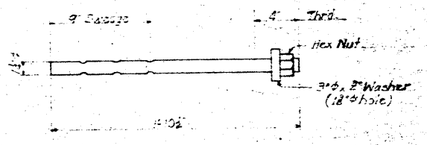
379.20'

MISSOURI PACIFIC R.R. CO.
SAN ANTONIO DIVISION
DETAILS OF 27'-6" BEAM SPAN
BRIDGE No. 393.2

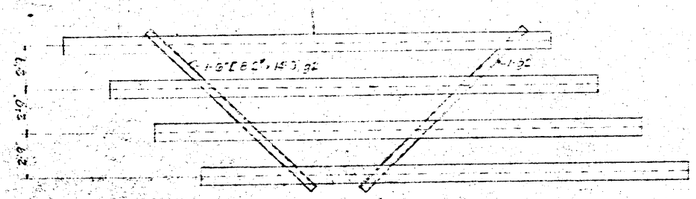




MASONRY PLATE A2



ANCHOR BOLT B2



Span shall be shop riveted and shipped as a unit. It shall be temporarily braced for shipping and erection by welding 2"-3 g2 to bottom flanges as shown. Each L to be tack welded to each edge of each flange w/m. 3/16" fillet welds. E shall be removed after erection.

BILL OF MATERIAL

Shipping Piece No.	Mark	Shop List No.	Mark	Description	Length	Remarks	Weight
		2	a1	27#F160°	29'-6		
		2	b1	15	29'-6		
		50	d1E	24 x 5/16	2'-1	Mk. to bear	
		24	c1	7# W F 26°	29'-6		
1	A1	28	f1	PL 52 x 30 x 7/8	2'-5		23424
		4	g1	Rs 15 x 8	29'-6	12"ϕ hole	
		10	h1	7#	29'-6		
		4	k1	Rs 9 x 14	29'-6		
		4	m1	7#	19'-4		
		2	g2	L 3 x 3 x 5/16	14'-0	Not measured for length	
		2	a2	Rs 15 x 12	19'-3	Straighten	
		1	b2	Rs 9 x 52	11'-11	Finish to 8°F.	
2	A2	2	d2	Rs 9 x 58	11'-11	do	2985
		1	e2	Rs 9 x 43	11'-11	do	
		2	f2	Rs 9 x 28	11'-11	do	
		8		3/4" Sheppd Bolts	1'-2"	Hex Nut	97
8	B2	8		3"ϕ x 3/8" Washers		13/16" hole	

Total Est Wt. = 26433#

For General Notes see sheet No. 1

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1	(5)	19		55
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB		HIGHWAY NO.
21	WEBB	19	5	13	H35	

393.20

MISSOURI PACIFIC R.R. Co.
SAN ANTONIO DIVISION
DETAILS OF 29'-6" BEAM SPAN
BRIDGE No. 393.2
OVER U.S. HIGHWAY No. 81

70'-5⅝" c to c Girder

43'-4½"

27'-1½"

Bf

Span Symmetrical about this point by rotation

All interior floor beams 16WF58#

End Bent Bs

Knee Braces

20'-0" c to c Bearings
70'-5⅝" c to c Girder

DETAIL A
Typical flr beveled connection

Rivets

Bent Bs

24WF130

Bf

70'-5⅝" c to c Girder
Cov PL 8"x⅞" = 58'-5⅝"
Cov PL 8"x½" = 58'-0⅝"
Fl = 5'-8"

Cov PL 18"x1⅜" = 35"

Rivet Spacing

Web to beam

Web PL 72"x⅜" PL

End stiffeners PL 24"x⅜" Fl. 8'-8" crimped except knee braces weld to Fill

Cov PL 18"x1" Fl.

2-PL 8"x18" Fl.

Cov PL 18"x1⅜"

SECTION A-A

Pc. 98" WF 100#

15" WF 63#

Bent Bs

24WF130#

SECTION D-D

SECTION E-E

PLAN

TYPICAL END FLOOR BEAM CONNECTION

A.R.E.A. Clearance Line

Base of Rail

Bent Bs

Knee Brace

15" WF 58#

Low Steel

HALF SECTION B-B

Bs 8"x8"x⅞"

TYPICAL INTERIOR FLOOR BEAM CONNECTIONS

3 - Stay Plate

SECTION C-C

Design Notes

Material ..... A.S.T.M. A7 Structural Steel except as noted.

Specifications ..... A.R.E.A. 1958

Rivets ..... ⅞" unless noted (High Strength bolts accept-able for field connections)

Floor Bolts ..... ⅝" " " "

Welding ..... Electric Arc

Paint (Shop) ..... One shop coat of red lead and linseed oil to conform with requirements of Federal Spec. TT-P-86a, Type I except deck material no paint.

Paint (Field) ..... Two coats of No. 708 Aluminum Paint Finish. Cont. Existing Parts. Steel to be cleaned and given one coat of No. 708 Aluminum Paint Finish Coat.

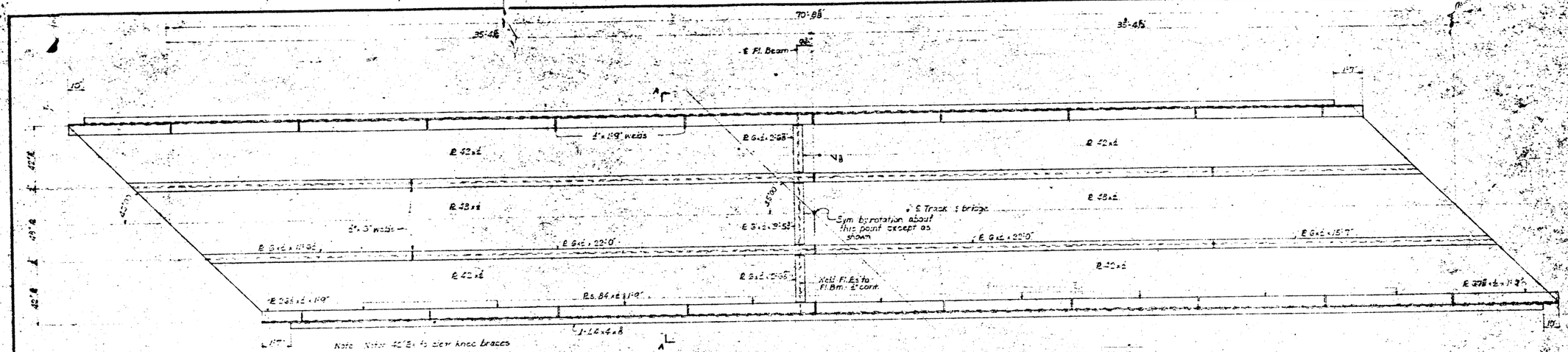
Welding Deck Plates ..... The deck plates are to be joined together and fastened to the structural members by welding as shown. The finished structure must be free from distortion and from unusual stresses due to weld shrinkage. It is anticipated that the passing of each bead in all groove welds will be necessary. The contractor shall plan, submit and obtain approval of a welding procedure before field welding is begun.

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(3)19				56
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.	
21	WEBB	3	5	13	114 35	

1/2

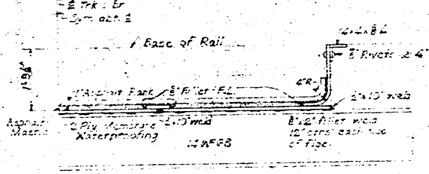
393.20

MISSOURI PACIFIC R.R. CO.
SAN ANTONIO DIVISION
DETAILS OF 70'-5⅝" PL. GIRD. SPANS

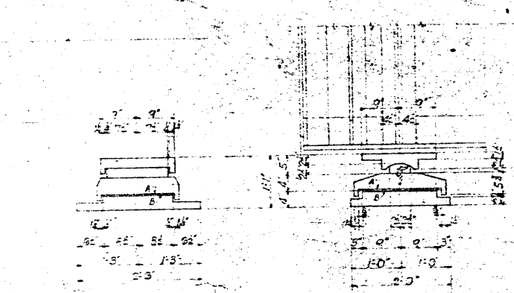


PLAN OF DECK

Deck plates preferably to be wrought iron Cor-Ten, Mayari R or Sheffield High Strength Steel acceptable.

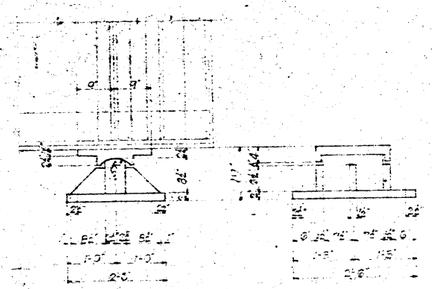


HALF SECTION A-A

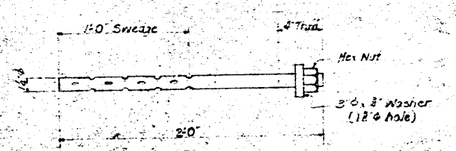


A- Stainless Steel B 176 8 x 1'-2" annealed and tempered to 200 brinnell Min. Fasten to cap shoe with 4-stck. brass machine screws.
B- Phosphor Bronze B. A.S.T.M. B100-52 Alloy 7'-1 x 1'-0. Fasten to cap B with 4-stck. brass machine screws.
Polish sliding surfaces of both plates.

EXPANSION SHOE
2 req'd



FIXED SHOE
2 req'd



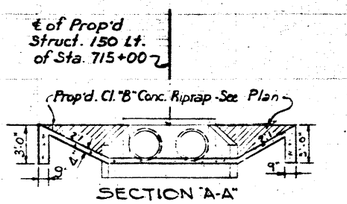
ANCHOR BOLT
16 Req'd

For general notes, see sheet No. 1

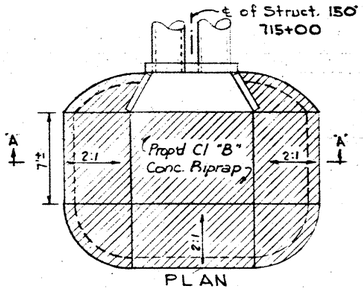
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I 35-1(3)			57
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGH. NO.
21	WEBB	18	5	13	+35

393.20

MISSOURI PACIFIC R.R. Co.
SAN ANTONIO DIVISION
DETAILS OF 70'-8⅝" Tr. PL. GIRD. SPAN

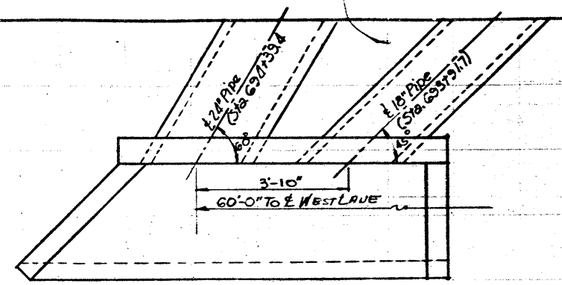


SECTION "A-A"

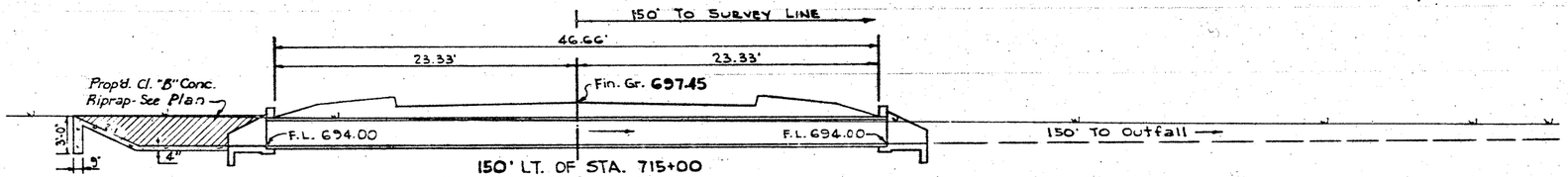


PLAN

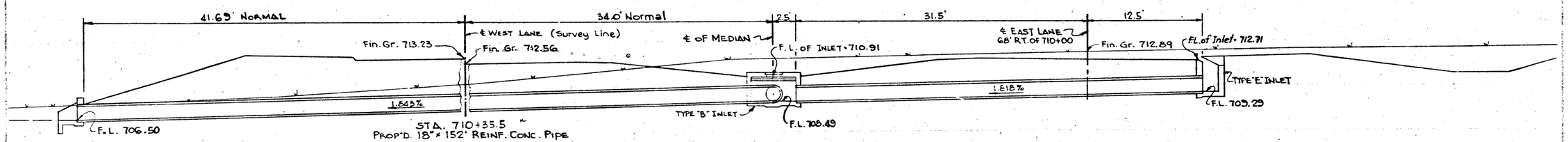
PLAN VIEW OF PROP'D. CL. "B" CONC. RIPRAP LT. OF STA. 715+00



DETAIL OF COMMON HEADWALL FOR CULVERTS @ STA. 693+91.7 & STA. 694+39.4

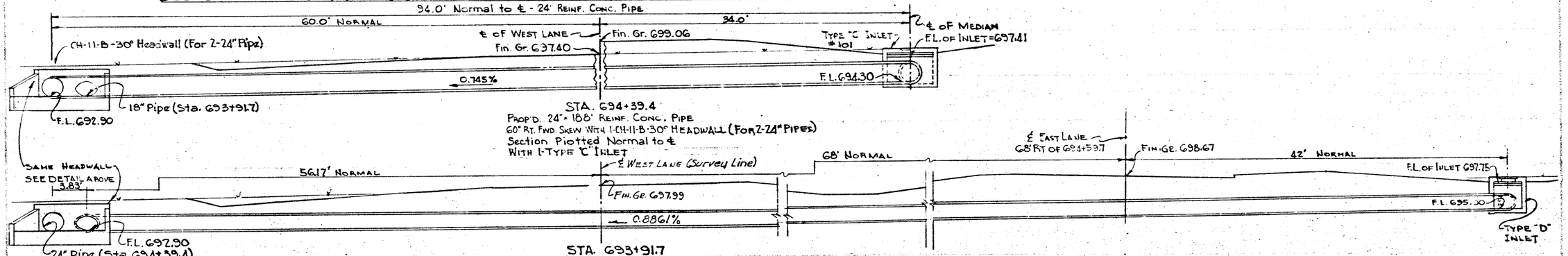


150' LT. OF STA. 715+00
PROPD 2-24" × 48' REINF. CONC. PIPE WITH CH-11-B HEADWALLS



STA. 710+35.5
PROP'D. 18" × 152' REINF. CONC. PIPE
108'-45° LT. FWD. SKEW WITH 1-CH-11-B-45° HEADWALL
44'-NORMAL WITH 1-TYPE "B" INLET & 1-TYPE "E" INLET
Section at skew plotted Normal to ℄

SEE SHEET NO. 6 OF 7 (CROSS SECTION AT CULVERT SITES) FOR STRUCTURE AT STA. 704+00



STA. 694+39.4
PROP'D. 24" × 188' REINF. CONC. PIPE
60° RT. FWD. SKEW WITH 1-CH-11-B-30° HEADWALL (FOR 2-24" PIPES)
Section Plotted Normal to ℄
WITH 1-TYPE "C" INLET

STA. 693+91.7
PROP'D 18" × 237' REINF. CONC. PIPE
45° RT. FWD. SKEW WITH 1-TYPE "D" INLET
Section Plotted Normal to ℄

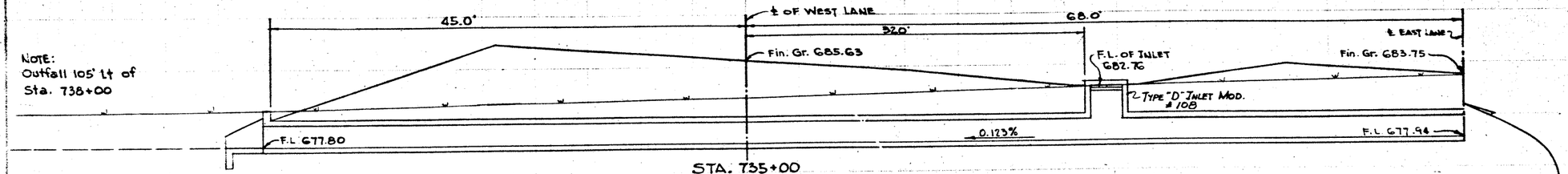
CROSS SECTION AT CULVERT SITES

SHEET 1 OF 7 SHEETS

I-35-1(3)13 58

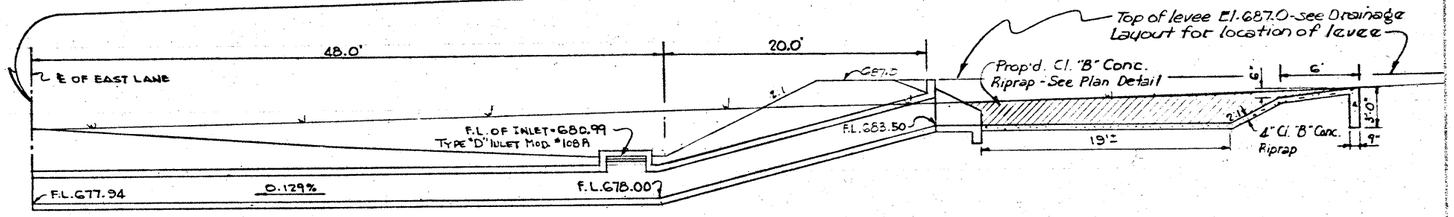
21 WEBB 18 4 5 11 13 I.M.-35

NOTE:
Outfall 105' Lt of
Sta. 738+00



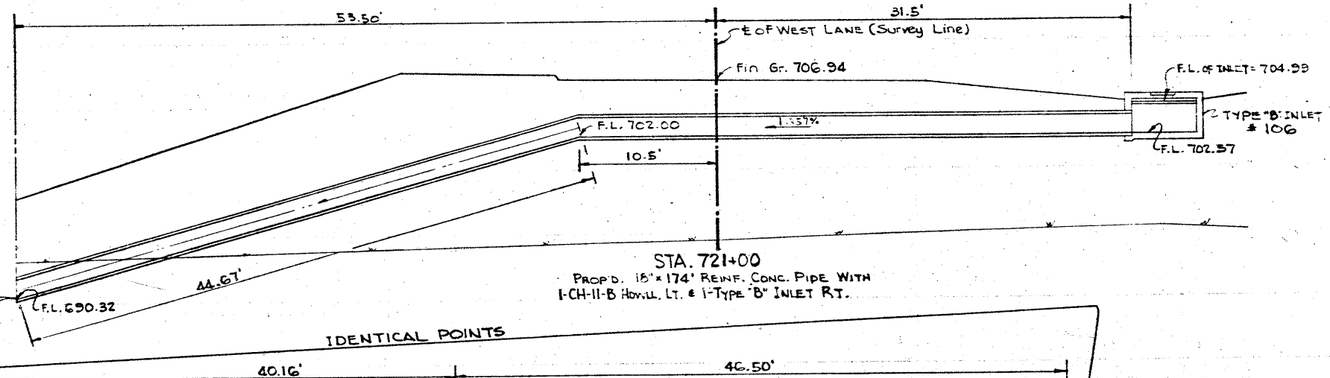
STA. 735+00
PROP'D 5'x2' x 181' CONC. BOX CULVERT
SC-NA & FW-N WITH
1-TYPE "D" MOD. INLET & 1-TYPE "A" INLET

IDENTICAL POINTS



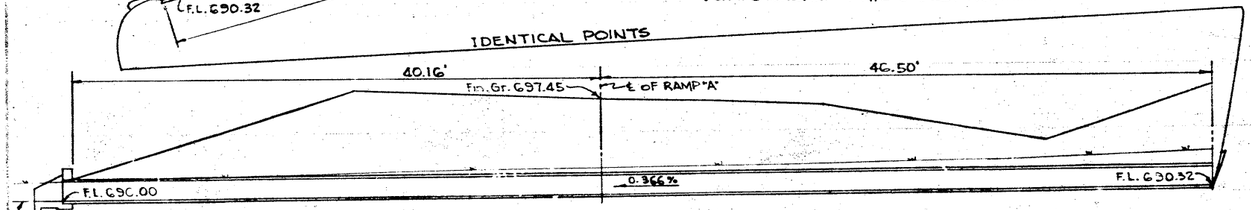
SEE SHEET 6 OF 7 (CROSS SECTION AT CULVERT SITES) FOR STRUCTURE AT STA. 725+00 & 40' LT. OF STA. 726+00

SEE SHEET 7 OF 7 (CROSS SECTION AT CULVERT SITES) FOR STRUCTURE AT STA. 722+00

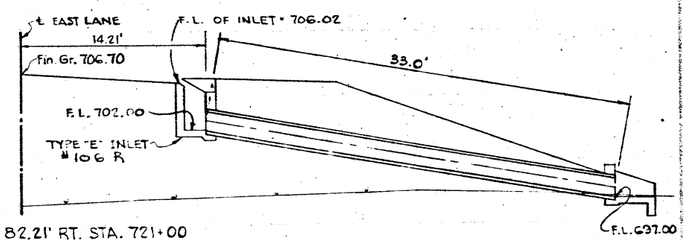


STA. 721+00
PROP'D. 18"x174' REINF. CONC. PIPE WITH
1-CH-11-B HDWLL. LT. & 1-TYPE "B" INLET RT.

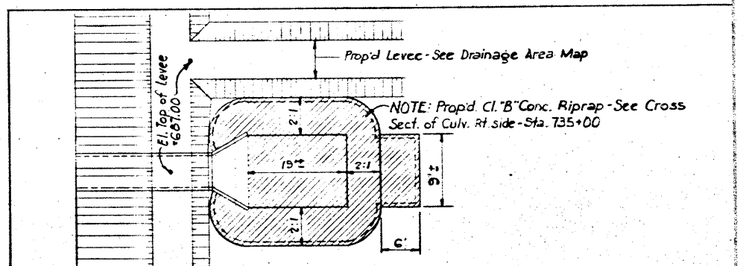
IDENTICAL POINTS



NOTE: Outfall 205' Lt. of
℄ of West Lane



82.21' RT. STA. 721+00
PROP'D. 18"x33' REINF. CONC. PIPE WITH
1-TYPE "E" INLET & 1-CH-11-B HEADWALL



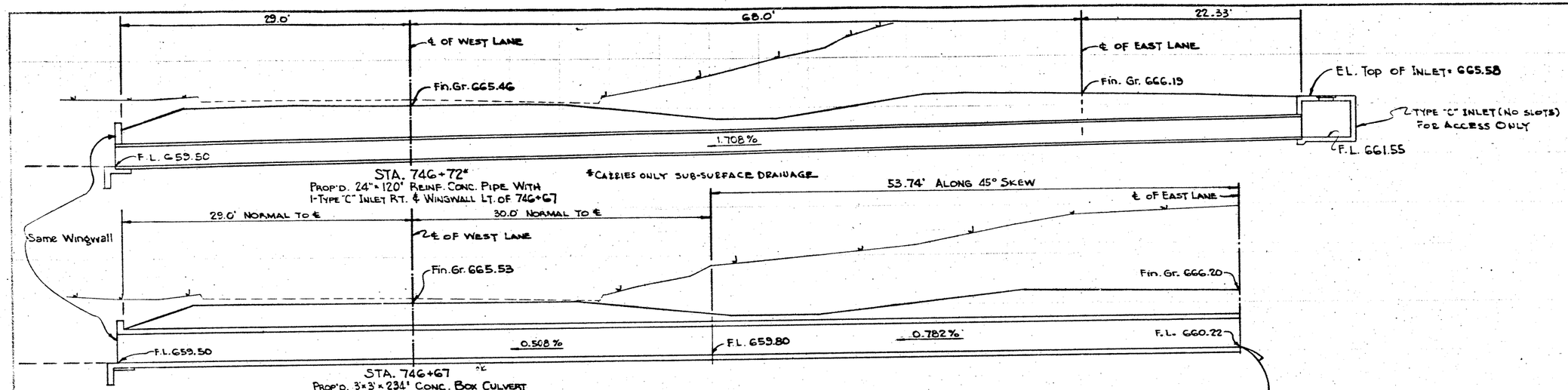
PLAN DETAIL OF PROP'D CL. "B" CONC. RIPRAP RT. OF STA. 735+00
1" = 10'

CROSS SECTION AT CULVERT SITES

SHEET 2 OF 7 SHEETS

I-35-1(9)15 59

21 WEBB 18 & 5 11 T.H.35



* NOTE: Dimensions are the same as called for in "PW-N" Standard for 3'x3' conc. box. See standard "PW-N" for other dimensions and reinforcing, other than shown.

LIST OF MODIFICATIONS

1. Increased "L" dimension by 4'-4" at Pipe Connection.
2. Increased length of Bars "T1", "T2", & "W" by 4'-4".
3. Shorten 1-Bar "T1" & 3-Bars "R" by 3'-0" for Prop'd. 24" dia. pipe.
4. Add 5-Bars "R" and 5-Bars "S".

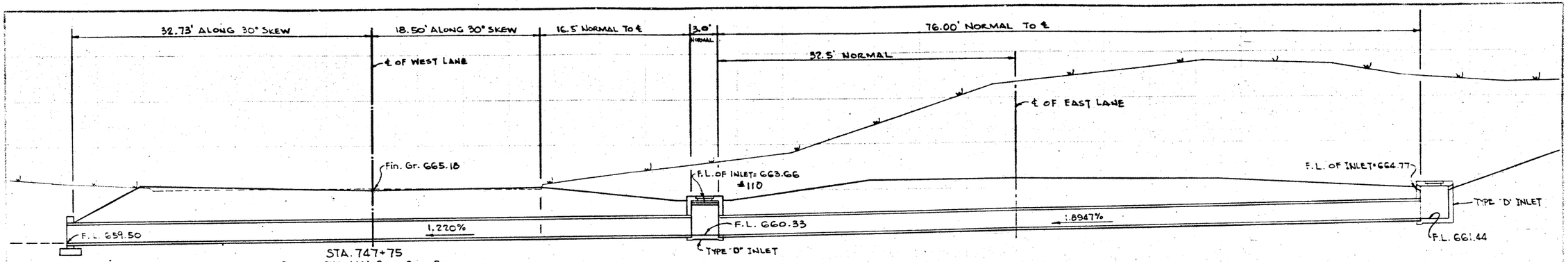
DETAILS OF MODIFICATIONS OF PW-N STANDARD WINGWALL LEFT OF STATION 746+67

CROSS SECTION AT CULVERT SITES

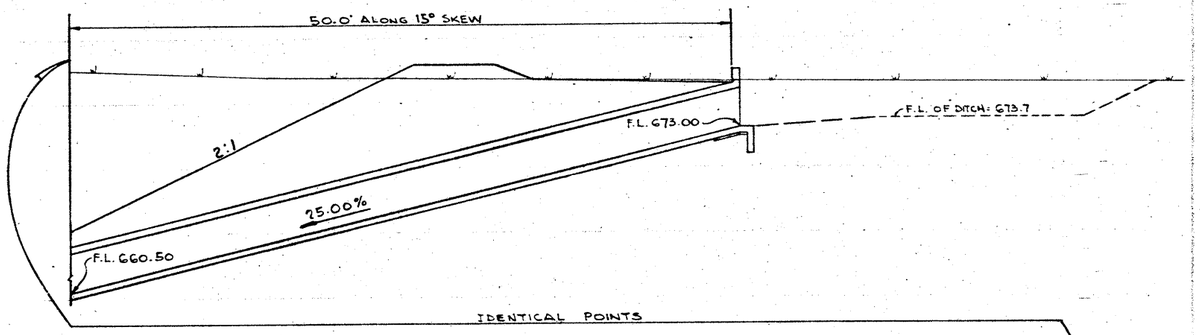
SHEET 3 OF 7 SHEETS

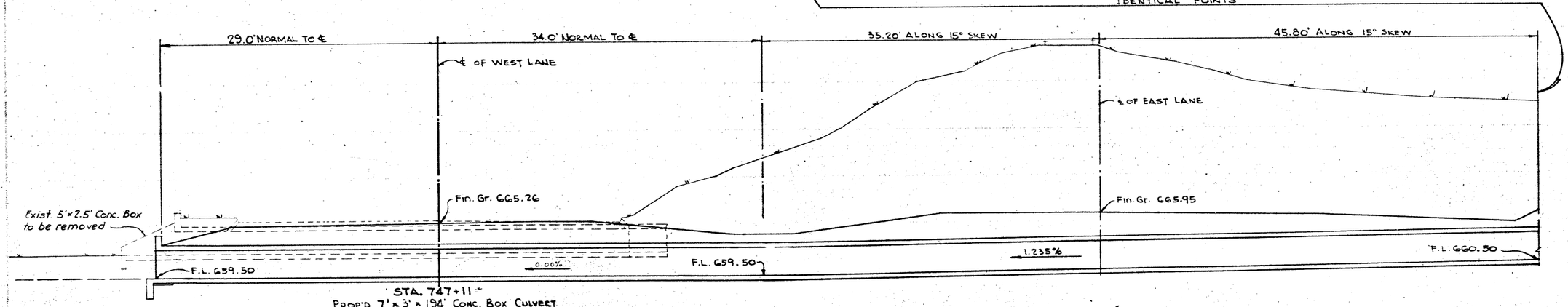
I-35-1(5)19 60

21 WEBB IB 4 5 11 15 I.H.35



STA. 747+75
Prop'd 24"x 144' Reinf. Conc. Pipe
(51.50' - 30° Rt. Fwd. Skew With 1-CH-11-A (For 1-30° Pipe)
(16.50' - Normal To ℄ - 1-Type "D" Inlet)
(76.00' - Normal To ℄ With 1-Type "D" Inlet)
Section Plotted Along ℄ of Structure





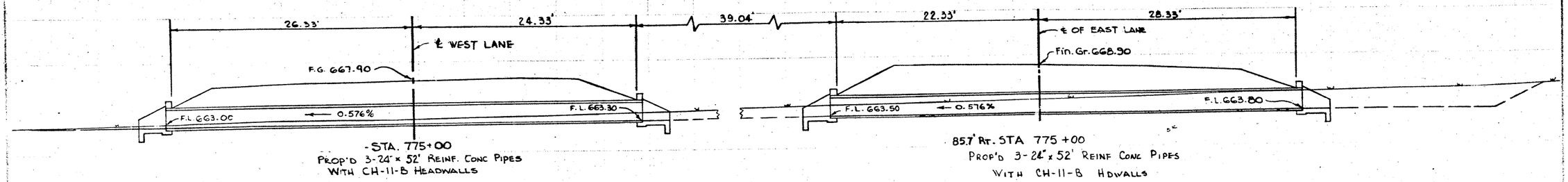
STA. 747+11
Prop'd 7' x 3' x 194' Conc. Box Culvert
(63.0' SC-NA & 1-PW-N Wing)
(131.0' SC15°A & 1-PW-15° Wing)
Section Plotted Along ℄ of Structure

CROSS SECTION AT CULVERT SITES

SHEET 4 OF 7 SHEETS

I-35W(3)19 61

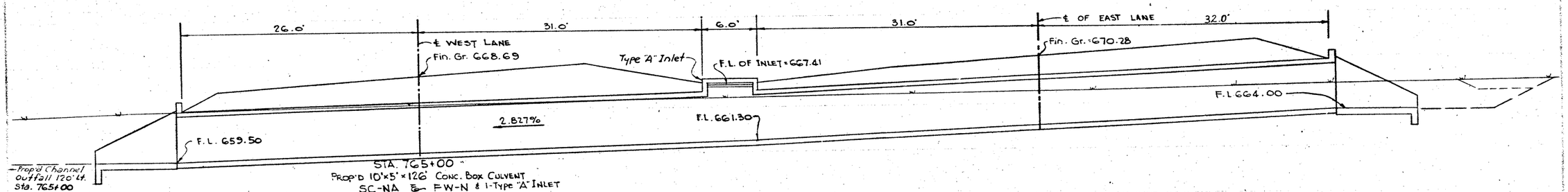
21 WEBB 18 4 5 11 13 TH 35



STA. 775+00
PROP'D 3-24" x 52' REINF. CONC PIPES
WITH CH-11-B HEADWALLS

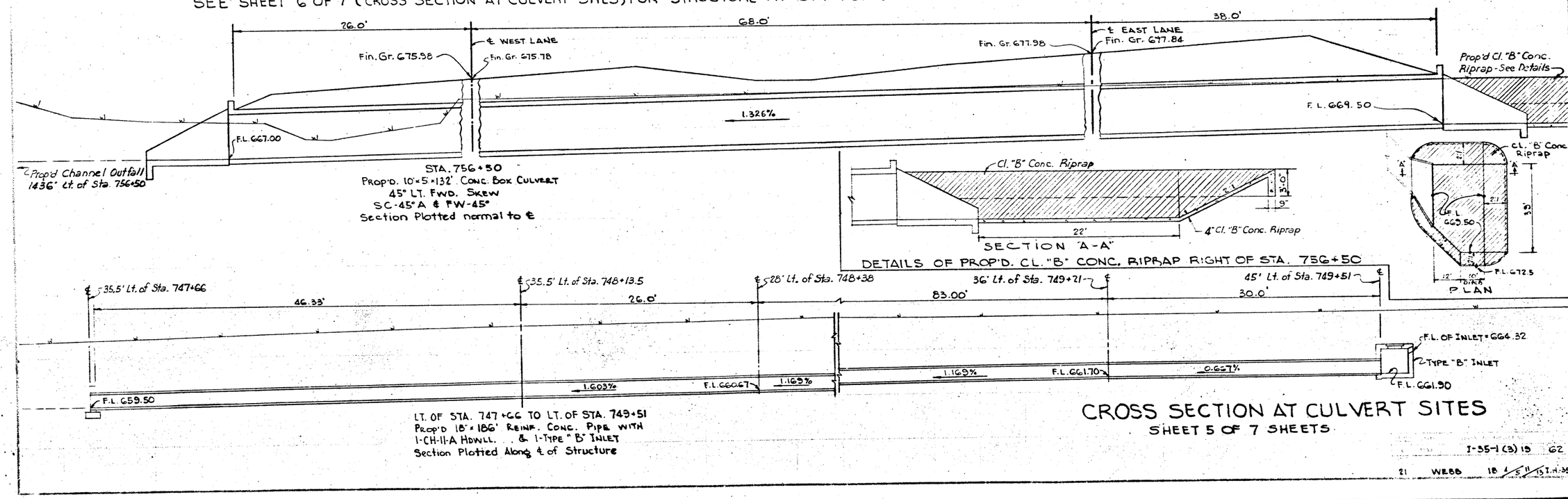
85.7' RT. STA 775+00
PROP'D 3-24" x 52' REINF CONC PIPES
WITH CH-11-B HDWALLS

SEE SHEET 6 OF 7 (CROSS SECTION AT CULVERT SITES) FOR STRUCTURE AT STA. 770+00



STA. 765+00
PROP'D 10'x5'x126' CONC. BOX CULVENT
SC-NA & FW-N & 1-TYPE "A" INLET

SEE SHEET 6 OF 7 (CROSS SECTION AT CULVERT SITES) FOR STRUCTURE AT STA. 761+00



STA. 756+50
PROP'D. 10'x5'x132' CONC. BOX CULVERT
45° LT. FWD. SKEW
SC-45°A & FW-45°
Section Plotted normal to ℄

SECTION "A-A"

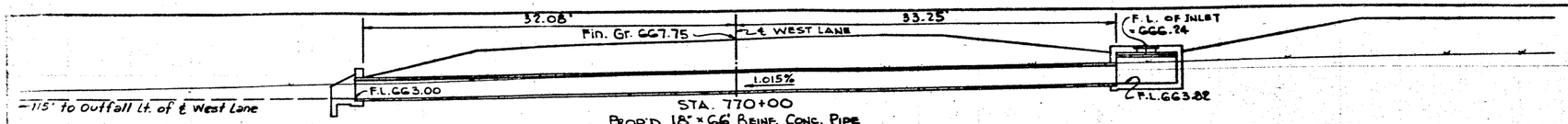
PLAN

DETAILS OF PROP'D. CL. "B" CONC. RIPRAP RIGHT OF STA. 756+50

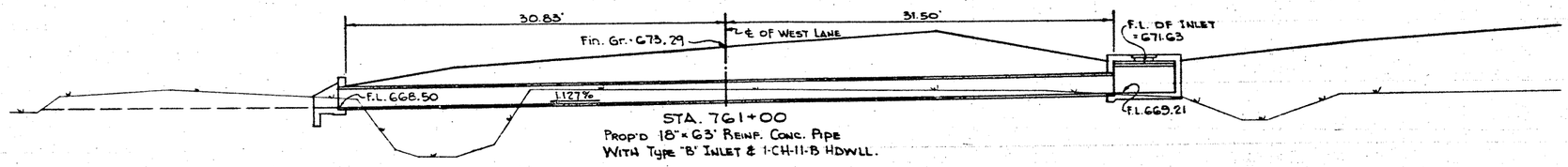
LT. OF STA. 747+66 TO LT. OF STA. 749+51
PROP'D 18"x18G' REINF. CONC. PIPE WITH
1-CH-11-A HDWLL. & 1-TYPE "B" INLET
Section Plotted Along ℄ of Structure

CROSS SECTION AT CULVERT SITES

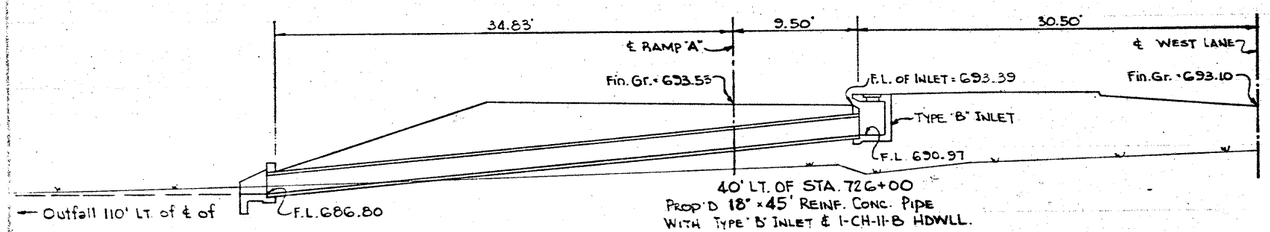
SHEET 5 OF 7 SHEETS



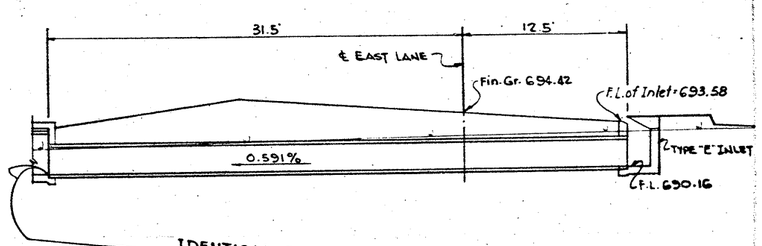
STA. 770+00
PROP'D 18" × 66' REINF. CONC. PIPE
WITH TYPE "B" INLET & 1-CH-11-B HDWLL.

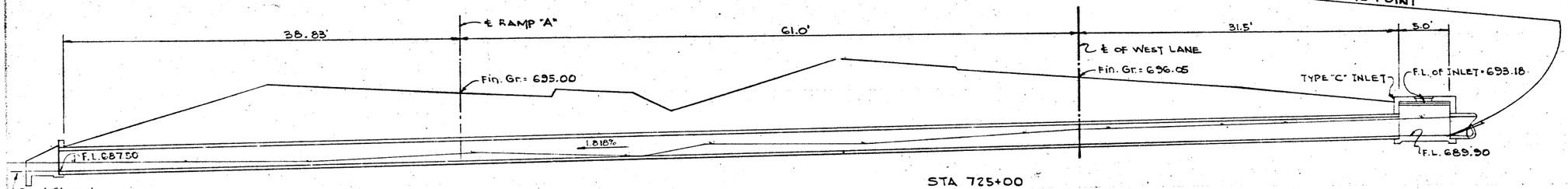


STA. 761+00
PROP'D 18" × 63' REINF. CONC. PIPE
WITH TYPE "B" INLET & 1-CH-11-B HDWLL.

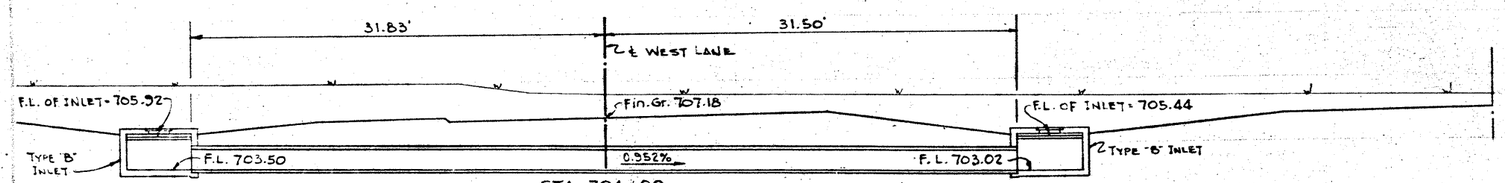


40' LT. OF STA. 726+00
PROP'D 18" × 45' REINF. CONC. PIPE
WITH TYPE "B" INLET & 1-CH-11-B HDWLL.





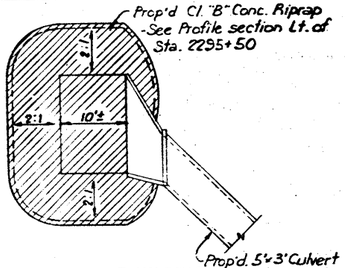
STA 725+00
PROP'D 24"x 176' REINF. CONC. PIPE
WITH 1-TYPE "C" INLET, 1-TYPE "E" INLET
& 1-CH-11-B HEADWALL



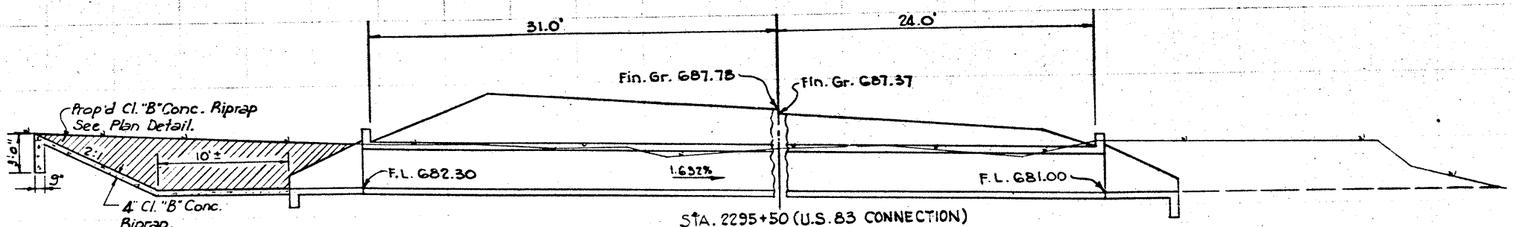
STA. 704+00
PROP'D 18" × 63' REINF. CONC. PIPE
WITH 2- TYPE "B" INLETS

CROSS SECTION AT CULVERT SITES

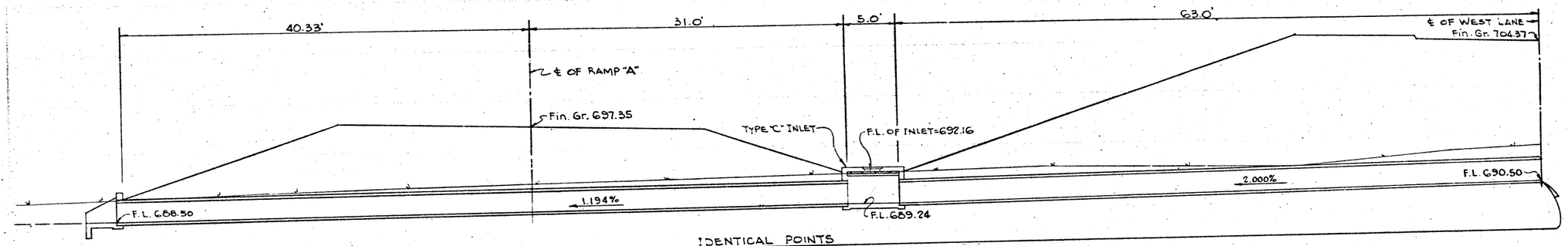
SHEET 6 OF 7 SHEETS



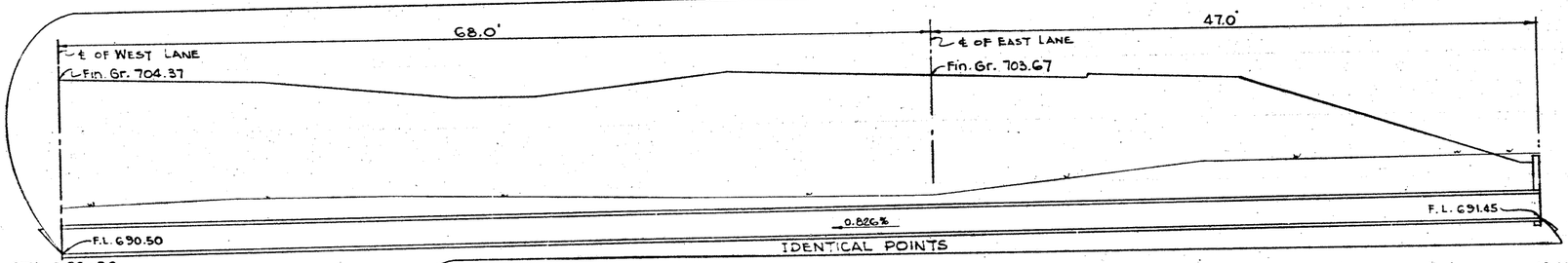
PLAN DETAIL OF PROP'D
CL. "B" CONC. RIPRAP - LT. - STA. 2295+50



STA. 2295+50 (U.S. 83 CONNECTION)
PROP'D. 5'×3'×55' CONC. BOX CULVERT
45° LT. FWD. SKEW
SC-45°A & FW-45°
Section Plotted Normal to ℄

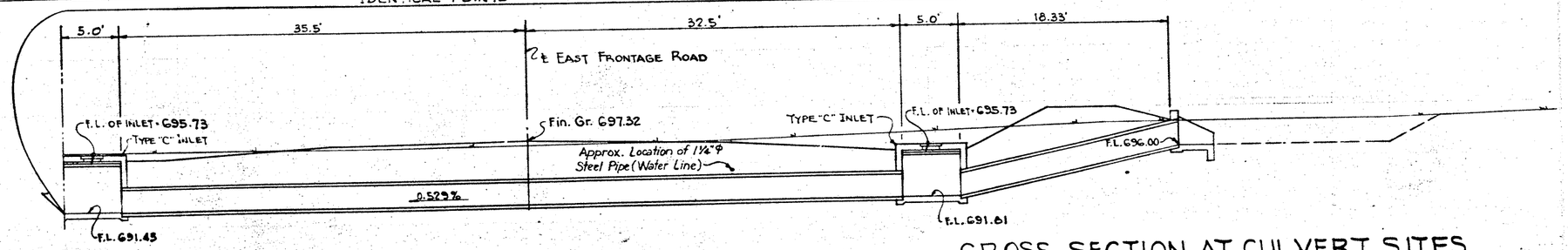


IDENTICAL POINTS



IDENTICAL POINTS

STA. 722+00
PROP'D. 2-24"×352' REINF. CONC. PIPES
WITH CH-11-B HEADWALLS AND
3-TYPE "C" INLETS



CROSS SECTION AT CULVERT SITES

SHEET 7 OF 7 SHEETS

I-35-1(8)19 64

21 WEBB 18 4 5 11 13 IH-35

FED. HWAY SAF. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(8)002	1

STATE DIST. NO.	COUNTY	STATE CONTROL NO.	SUBSHEET NO.
21	WEBB	18-6-28	
		18-5-14	IH-35
		18-4-12	

W-452

STATE OF TEXAS
STATE HIGHWAY DEPARTMENT

PLAN OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT 1-35-1(8)002

NET LENGTH OF PROJECT = 48,053.8 FT. = 9.101 MI. =
CONTROL 18-6-28 = 22,613.5 FT = 4.283 MI. { Urban 13,019.0 FT. = 2.466 MI.
CONTROL 18-5-14 = 19,627.8 FT = 3.717 MI. { Rural 9,594.5 FT. = 1.817 MI.
CONTROL 18-4-12 = 5,812.5 FT. = 1.101 MI.

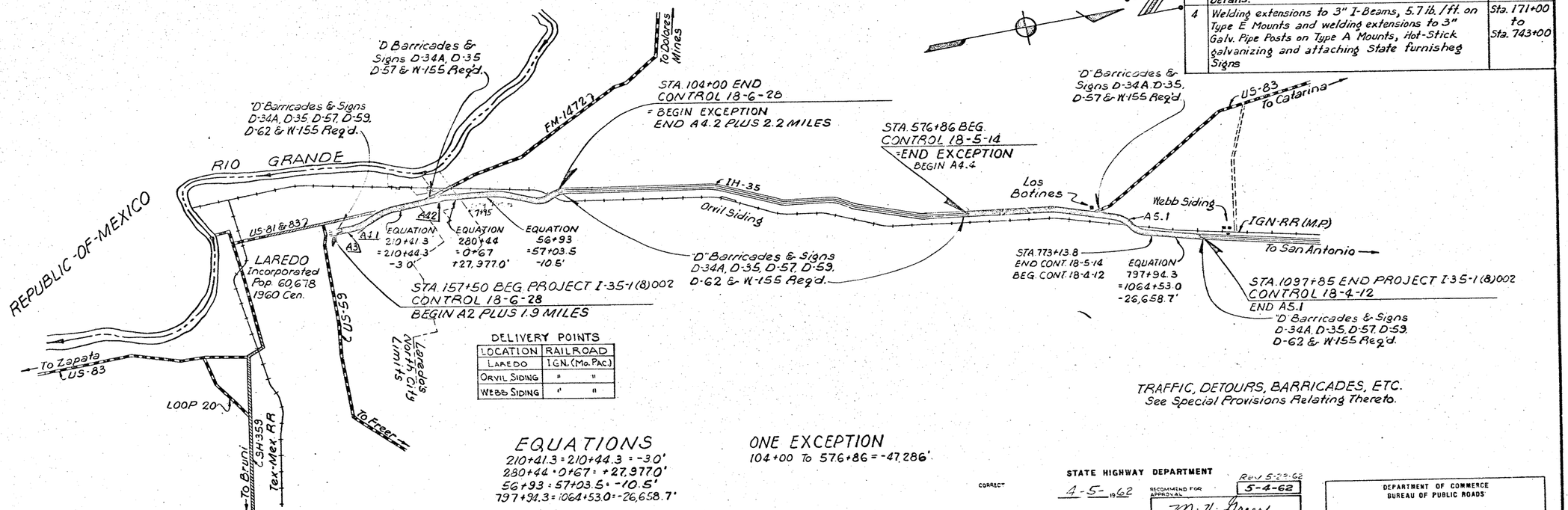
WEBB COUNTY
INTERSTATE HIGHWAY 35
SIGNING & DELINEATION
FROM: FARIAS STREET IN LAREDO
TO: 2.2 MILES NORTH OF HWY. U.S.83

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
A	SPECIFICATION DATA SHEET
2-3	TYPICAL CROSS SECTIONS
4	ESTIMATE & QUANTITY SHEET
5 & 5A-11 & 11A	SIGN TABULATION SHEETS-(ESTIMATE & FINAL)
12-28	PLAN & PROFILE SHEETS
29-35	GUIDE SIGNS & ISG (1), (2), (3), (4) & (5)A
36	WARNING SIGNS & SPECIAL MOUNTS
37	REGULATORY SIGNS ISR (1)
38	SIGN BLANK PUNCHING DETAILS ISB (1)
39	STANDARD INTERSTATE SIGNS ISMW (1)
40-45	STD. ROADSIDE SIGN MOUNTING DETAILS SMD-1, 2, 3, 4, 5B & G
46-47	BARRICADES & WARNING SIGNS BW-G1-(1) & (2)
48	CONSTRUCTION IDENTIFICATION SIGNS CIS-G1
FC-2A-FC-2B	FIELD CHANGE NO. 2

SUMMARY OF FIELD CHANGES

NO.	DESCRIPTION	LIMITS
1	Shorten all Pipe Post Mounts 1'-0" - Shorten I-Beam Post Mounts Type E, 1'-0" - Shorten outside I-Beam Post Mount, 1'-0" on Types F-1, F-2 & G and shorten inside post to same length as outside.	Sta. 157+50 to Sta. 1097+85
2	All guard posts used as Delineators and Hazard markers to be replaced on the entire project.	157+50 to 1097+85
3	Modify Muffler Clamp for holding signs to Type A Mount and modify 48"x48" Sign Blank Punching Details.	Sta. 171+93 to Sta. 716+65
4	Welding extensions to 3" I-Beams, 5.7 lb./ft. on Type E Mounts and welding extensions to 3" Galv. Pipe Posts on Type A Mounts, Hot-Stick galvanizing and attaching State furnished Signs	Sta. 171+00 to Sta. 743+00



DELIVERY POINTS

LOCATION	RAILROAD
LAREDO	I.G.N. (Mo. Pac.)
ORVIL SIDING	" "
WEBB SIDING	" "

TRAFFIC, DETOURS, BARRICADES, ETC.
See Special Provisions Relating Thereto.

EQUATIONS

210+41.3 = 210+44.3 = -3.0'
280+44 + 0+67 = +27,377.0'
56+93 = 57+03.5 = -10.5'
797+94.3 = 1064+53.0 = -26,658.7'

ONE EXCEPTION

104+00 To 576+86 = -47,286'

NOTE: Specifications adopted by the Texas Highway Department January 2, 1962, and specification items listed and dated as follows shall govern on this project: Required contract provisions for Federal Aid Projects approved October 25, 1960.

LAYOUT SCALE: 1 IN. = 5,280 FT.

STATE HIGHWAY DEPARTMENT — Rev 5-22-62

CORRECT 4-5-1962 — RECOMMEND FOR APPROVAL 5-4-62
M. V. Greer, ENGINEER OF TRAFFIC
RESIDENT ENGINEER
RECOMMENDED FOR APPROVAL 4-7-1962
DISTRICT ENGINEER
APPROVED May 11, 1962
CHIEF ENGINEER OF HIGHWAY DESIGN

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED
DIVISION ENGINEER — DATE

COUNTY Webb — PROJ. NO. I-35-1(8)002
HWY. NO. IH-35 — LETTING DATE June 13, 1962
DATE ACCEPTED July 9, 1963

FOR FINAL PLANS

8½ x 11	4
11 x 18	

LARRY FRIEDMANN 17
840 17

4 11118 & 4E
14 12 x 3

IE 678

ITEM 7:

PROTECTION OF TRAFFIC:-

Erection of Interstate Signs shall be scheduled to interfere as little as possible with vehicle traffic on the expressway. The following requirement must be observed: Portable W-155 signs shall be displayed on the median and shoulder 700' in advance of any work being performed. Signs shall be removed from view at all times when work is not in progress. * (See Add'l Note Below)

DAMAGE TO UTILITIES:-

The Contractor will be held fully responsible for damage of any kind caused by his operations to any utility or structure, and shall make such damage good at his own expense.

SCOPE OF WORK:-

It is the intent of these plans to provide for a complete system of Interstate signs, installed at the locations indicated in these plans. All work, material, and services not expressly called for in the specifications or not shown in the plans, which may be necessary for complete and proper construction shall be performed, furnished, and installed.

Upon completion of the work and before acceptance and final payment is made, the Contractor shall clean, remove rubbish from the site of the work, restore in an acceptable manner all property, both public and private which has been damaged during the prosecution of the work, and leave the site of work in a neat and presentable condition throughout.

No extra compensation will be allowed for fulfilling the requirements stated above.

NOTE:-All signs shall be erected according to the station number shown on the plan & profile sheets except that the Engineer may shift a sign in order to secure a more desirable location. The Engineer will stake all sign locations, and no changes in these locations shall be made without prior approval of the Engineer.

ITEM 716:

Dimensions for corner radii above 3" may vary plus or minus 1".
Dimensions for border width may vary as much as plus ½".
Borders and corner radii must be of matching widths.

ITEM 722:

Type D-A mount (See Sheet No. 36 for details) shall be constructed in accordance with Item 722 - "Roadside Traffic Sign Mounts Types A, B, C & D.

ITEM 724:-

See Sheet No. 36 for special clamp detail for holding two signs on one Type F-2 Mount. Mounting Detail of GAS-FOOD-LODGING Sign shall be as shown for Type 4A on Standard Plan Sheet SMD-4 or SMD-58.

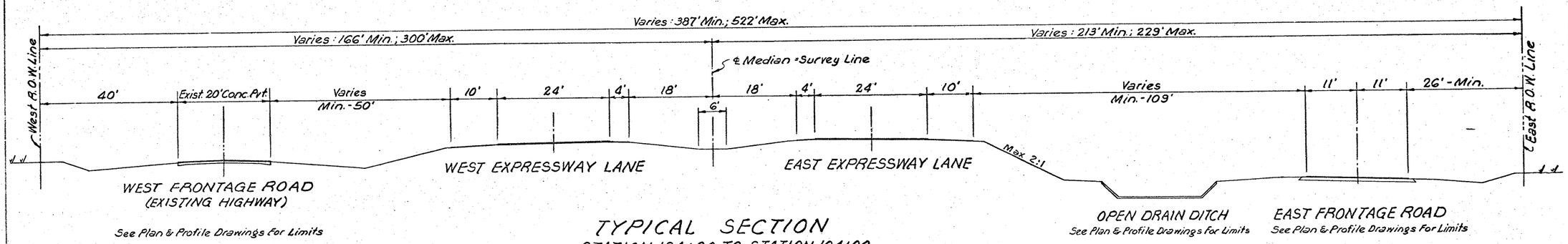
* NOTE:-Signs IW-6, IW-7 & IW-113 and any other Standard Regulatory and Warning Signs not shown on Standard Sheets ISR(1) and ISMW(1) shall conform to the T.H.D. Traffic Manual for control devices for streets and highways. Flagman and appropriate signs shall be used for the full time that construction requires Public travel at reduced speeds and where construction equipment occupies a travel lane or adjacent shoulder.

ALTERNATE NO.1

Aluminum Signs Type E can be used as an alternate for some Plywood Signs as indicated in the Sign Tabulation Sheets. Length of posts shown for these signs have been figured on the basis of Plywood Type A or Type B being the sign blank material according to Standard Plan Sheet SMD-4. Should contract be awarded on basis of Aluminum Signs Type E, that is 2½" honeycomb aluminum sign blanks, the Contractor must order post lengths according to Standard Plan Sheet SMD-58.

SPECIFICATION DATA

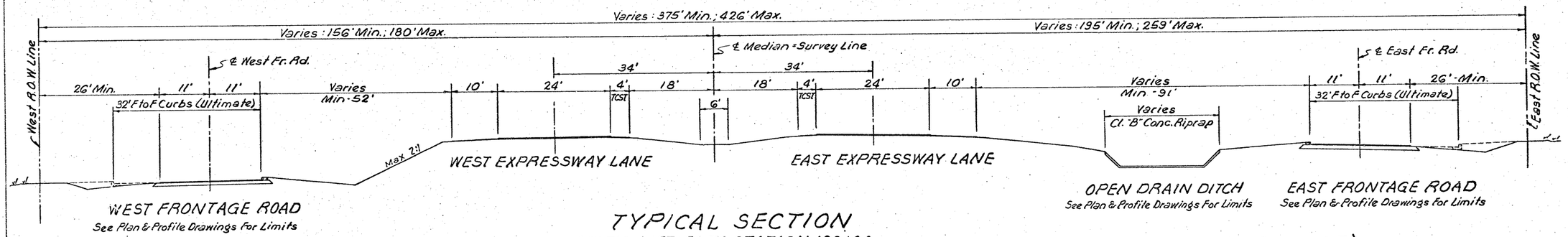
STATE	FEDERAL PROJECT	SHEET NO.
TEXAS	735-1(4)002	1A
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 654 36½	IH-35



HALF SECTION (REGULAR)

TYPICAL SECTION
STATION 184+00 TO STATION 104+00

HALF SECTION (HIGH FILL)



HALF SECTION (HIGH FILL)

TYPICAL SECTION
STATION 157+50 TO STATION 183+00

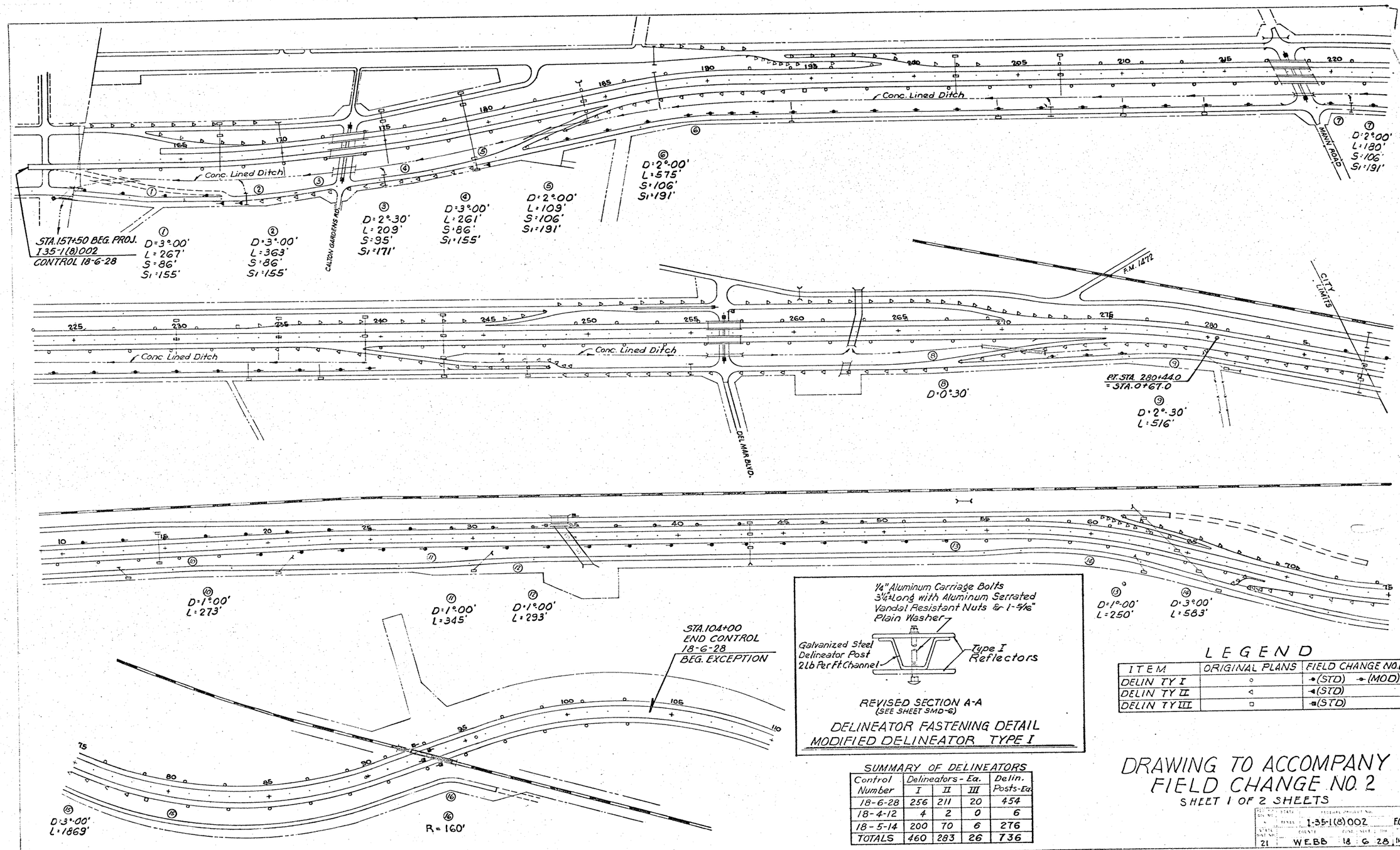
HALF SECTION (REGULAR)

CONTROL 18-6-28

TYPICAL CROSS SECTIONS

SHEET 1 OF 2 SHEETS

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(8)002	2
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 6 28	IH35



1/4" Aluminum Carriage Bolts 3 1/4" Long with Aluminum Serrated Vandal Resistant Nuts & 1-5/16" Plain Washer

Galvanized Steel Delineator Post 2 lb Per Ft. Channel

Type I Reflectors

REVISED SECTION A-A
(SEE SHEET SMD-6)

DELINEATOR FASTENING DETAIL
MODIFIED DELINEATOR TYPE I

LEGEND

ITEM	ORIGINAL PLANS	FIELD CHANGE NO.1
DELIN TY I	○	● (STD) ⊸ (MOD)
DELIN TY II	◁	◀ (STD)
DELIN TY III	□	■ (STD)

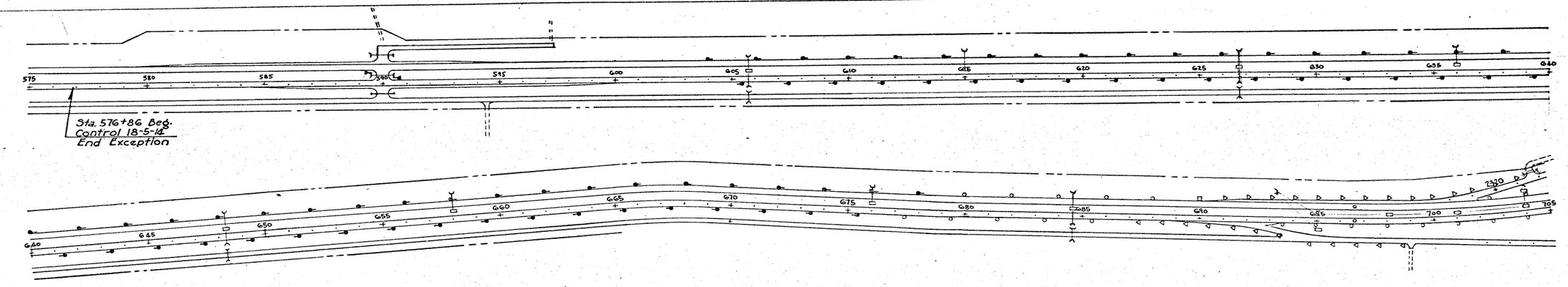
SUMMARY OF DELINEATORS

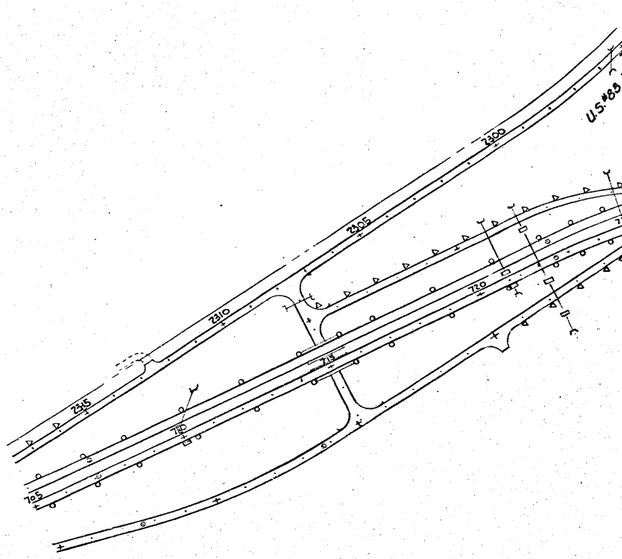
Control Number	Delineators - Ea. I	II	III	Delin. Posts-Ea.
18-6-28	256	211	20	454
18-4-12	4	2	0	6
18-5-14	200	70	6	276
TOTALS	460	283	26	736

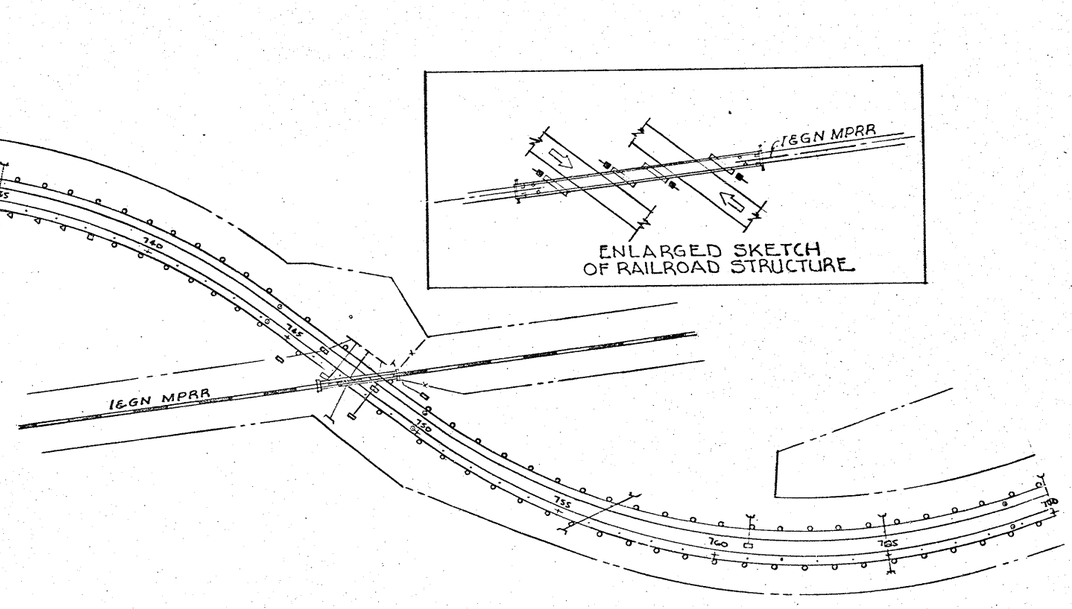
DRAWING TO ACCOMPANY FIELD CHANGE NO. 2

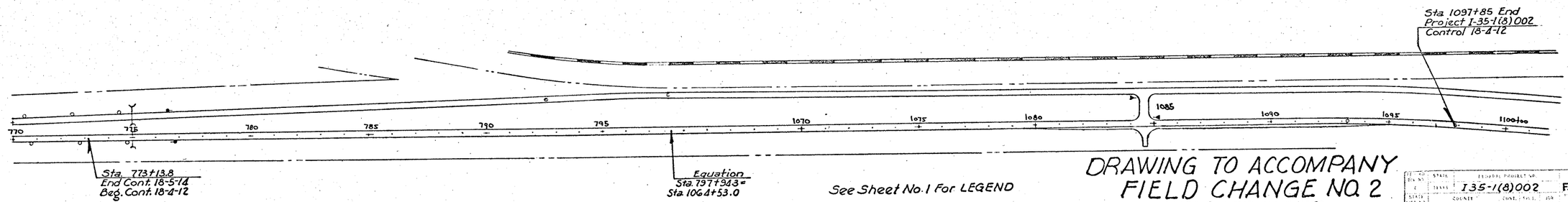
SHEET 1 OF 2 SHEETS

STATE	FEDERAL PROJECT NO.	SHEET
NEW MEX.	I-35-1(8)002	FC.2-A
STATE PROJECT NO.	COUNTY	FUNC. SHEET NO.
21	WEBB	18 G 28 14-35







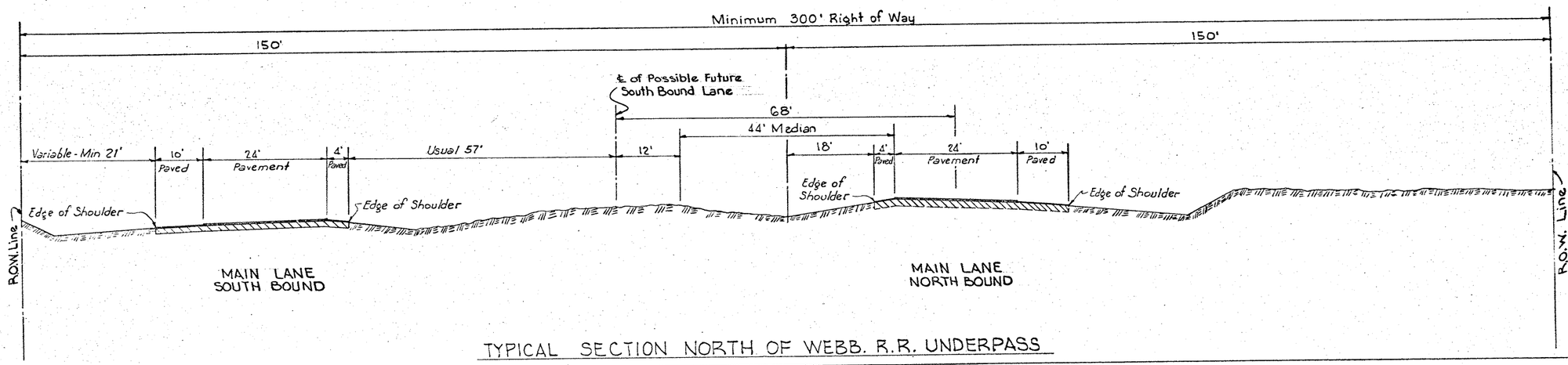


See Sheet No. 1 For LEGEND

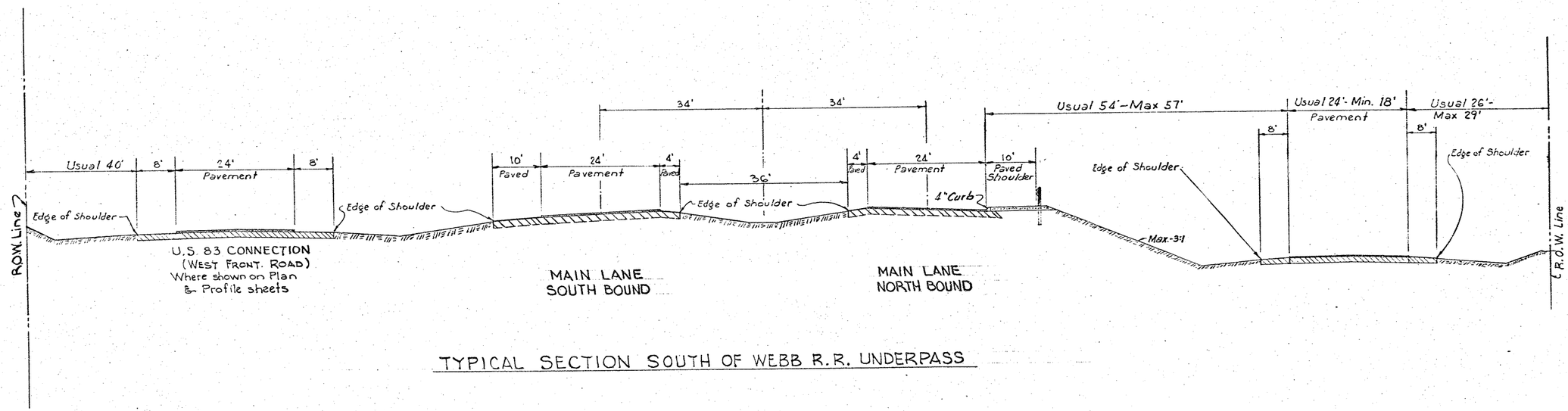
DRAWING TO ACCOMPANY FIELD CHANGE NO. 2

SHEET 2 OF 2 SHEETS

STATE	FEDERAL PROJECT NO.	SHEET NO.
DIV. NO.		
STATE	I 35-1(8)002	FC.23
STATE DIST. NO.	COUNTY	CONT. NO.
21	WEBB	18 5 1/4 IN-35



TYPICAL SECTION NORTH OF WEBB. R.R. UNDERPASS



TYPICAL SECTION SOUTH OF WEBB R.R. UNDERPASS

CONTROLS 18-5&4-14&12

TYPICAL CROSS SECTIONS

SHEET 2 OF 2 SHEETS

		I-35-1(213)002	3
21	WEBB	18 4 5 12 14	I.H.-35

ESTIMATE SUMMARY

BREAKDOWN BY CONTROLS PROJECT I 35-1(8)002 18-6-28 RURAL EST	RURAL FINAL	URBAN EST	URBAN FINAL	18-4-12 EST	18-4-12 FINAL	18-5-14 EST	18-5-14 FINAL	ALT	ITEM CODE ITEM NO	DESC NO	SP NO	DESCRIPTION	UNIT	TOTALS EST	TOTALS FINAL
1307.25	1303.25	2332.89	2252.89	336.53	336.53	2102.74	2102.74	1	700	003	001	PLY SIGN TY A AND OR TY B	SF	6079.41	5995.41
26.07	26.07	112.13	112.13			55.45	55.45		702	001	001	AL SIGN TY A	SF	193.65	193.65
41.40	41.40	49.70	49.70	8.09	8.09	27.46	27.46		707	001		AL SIGN TY F	SF	126.65	126.65
4	4	2	2						716	001		8 IN REFL CAP CUT LTR-NUM	EA	6	6
34	32	40	37	8	8	29	28		716	002		10 IN REFL CAP CUT LTR-NUM	EA	111	105
9	9	5	5	8	8	16	16		716	003		15 IN REFL CAP CUT LTR-NUM	EA	38	38
14	14	28	28	3	3	12	12		716	009		16 IN REFL UC CUT LTR	EA	57	57
		52	52			59	59		716	012		6 IN REFL LC CUT LTR	EA	111	111
14	14					38	38		716	013		10 IN REFL LC CUT LTR	EA	52	52
42	42	89	89	17	17	68	68		716	014		12 IN REFL LC CUT LTR	EA	216	216
		5	5			7	7		716	017		8 x 12 IN REFL CUT ARR	EA	12	12
2	2	6	6			4	4		716	018		12.75 x 36 IN REFL CUT ARR TY 1A-1	EA	12	12
33.66	69.66	201.17	235.83			182	181.49		716	020		1 IN REFL CUT BORDER	LF	416.83	486.98
76	58	66	48			144	144		716	022		2 IN REFL CUT BORDER	LF	286	250
172	172	322	322	60	60	242	242		716	024		3 IN REFL CUT BORDER	LF	796	796
8	12	32	36			16	16		716	025		1 IN REFL CUT COR 3 IN RADII	EA	56	64
12	8	16	12			20	20		716	034		2 IN REFL CUT COR 9 IN RADII	EA	48	40
12	12	20	20	4	4	16	16		716	029		3 IN REFL CUT COR 12 IN RADII	EA	52	52
4	4	20	20			22	22		716	032		12 IN REFL CAP CUT LTR-NUM	EA	46	46
		19	19			29	29		716	033		8 IN REFL UC CUT LTR-NUM	EA	48	48
8	8					19	19		716	035		13.3 IN REFL UC CUT LTR-NUM	EA	27	27
		24	24						716	036		6 IN REFL CAP CUT LTR-NUM	EA	24	24
						2	2		716	037		35 X 30 IN REFL CUT OTLN US RT MARK	EA	2	2
				1	1	2	2		716	038		42 X 36 IN REFL CUT OTLN US RT MARK	EA	3	3
		7.5	6.33			19.5	17.83		722	001	001	2 IN GALV PIPE POST	LF	27.	24.16
52.50	54.17	639.33	643.33	46.5	43.5	287.33	271.67		722	002	001	3 IN GALV PIPE POST	LF	1025.66	1012.67
		13.25	12.25			29.25	27.25		722	003	001	4 IN GALV PIPE POST	LF	42.50	39.50
		7.0	5.75			7.0	5.75		722	004	001	2.5 IN GALV PIPE POST	LF	14.	11.50
11550	11424	22857	21,721	3,307	3,381	20,462	19,787	1	724	001		GALV STR STL POST	LB	58,206	56,313
117.50	117.50	413.5	354.50	53.0	53.0	252.0	252.0		728	001		NON RC FTG 12 IN DIA DRILL	LF	836.	777
24.0	22.50	17.5	17.5			35.0	35.0		728	002		NON RC FTG 18 IN DIA DRILL	LF	76.5	75.
31	31	63	72			84.0	84.0		728	003		R C FTG 24 IN DIA DRILL	LF	178.	187
34	34	81	81	17.0	17.0	68.0	68.0		728	004		R C FTG 30 IN DIA DRILL	LF	200.	200
49	85	97	168	2	4	126	197		730	001	001	DELIN TY I	EA	274	454
35	35	173	175	0	2	68	70		730	002	001	DELIN TY II	EA	276	282
1	7	3	13			2	6		730	003	001	DELIN TY III	EA	6	26
85	127	273	322	2	6	196	273		732	001		DELIN AND M.POST MARK POST (SA)	EA	556	728
		ALTERNATE NO. 1A													
394.00		632.14		63.53		460.74			700	003	001	PLY SIGN TY A AND OR TY B	SF	1,550.41	
627.25		1,986.75		273.00		1,642.00			705	001	001	AL SIGN TY E	SF	1,529.	
9021		25,482		3413		20,728			724	001		GALV STR STL POST	LB	58,644	

ESTIMATE & QUANTITY SHEET

Rev 5-25-62

STATE	FEDERAL PROJECT NO	SHEET NO.
TEXAS	I-35-1(8)002	4
STATE DIST NO	COUNTY	CONT SECT JOB	HIGHWAY NO.
21	WEBB	18 6 5 4	81 IH 35

TEXT
▼ See Sheet No. 11 for Route Marker Data
■ Removable Copy
● Direct Screened
●● Reversed Screened

ALT.	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT	SIGN BACKGROUND COLOR	SIZE	SIGN BLANKS: SIGN BLANK MATERIAL: SHEET ALUM TYPE A	PLYWOOD: TYPE "A"	PLYWOOD: TYPE "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH: 8"	13.5"	16"	LETTERS & NUMERALS: LOWER CASE EACH: 6"	10"	12"	LETTERS & NUMERALS: CAPITALS & NUMERALS EACH: 10"	12"	15"	WHITE ARROWS EACH: 8"x12"	1A-1	WHITE BORDER RADII EACH: 1": R-3"	2": R-9"	3": R-12"	WHITE BORDER L.F.: 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F.: 2'D	2½D	3'D	4'D	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH: No.1	No.2	No.3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS LF: 12'D	18'D	REINFORCED DRILLED CONCRETE FOOTINGS LF: 24'D	30'D	CAPITAL LETTERS: 6"	"U"=URBAN "R"=RURAL
			Main Lane ~ Southbound		CONTROL 18-6-28																																						
	13	4	193+20	IR-17A	● TWO WAY TRAFFIC	White	48" x 48"			16.00																		A	17'-0"							5.5				U
	13	5	193+80	IR-48	● YIELD RIGHT OF WAY	Yellow	60"			10.00																		F-1					3'I-5.7"	16'-6	16'-7	189	10					U
	13	6	198+00	IR-2A	● EXIT 30 MPH	Yellow	48" x 60"			20.00																		F-2					3'I-5.7"	17'-7	17'-9	201	10					U
	13	7	198+60	IG-1	■ EXIT ↗	Green	6'-0" x 5'-0"			30.00								4			1			4		16		4					5x5x16"	12'-0	12'-6	623			9			U
1	13	8	203+80	IG-11	■ San Bernardo Ave; Calton Rd ↗	Green	25'-0" x 10'-0"			250.00		5			19						1			4			62	5					10x8x45°	16'-6	19'-0	2,251				15		U
1				IG-9	■ San Bernardo Ave; Calton Rd EXIT ⅝ MILE	Green	25'-0" x 8'-6"			212.50		5			19	12							4			59																	
1	14	1	225+00	IG-7	■ GAS-FOOD, LODGING	Blue	13'-6" x 2'-6"		41.25							15						4			18			5					10x6x45°	15'-4	22'-10	2,505				15		U
	15	5	253+20	IW-60	● MERGING TRAFFIC	Yellow	48" x 48"			16.00																		F-2					3'I-5.7"	16'-7	16'-9	190	10					U
	15	12	257+30	M-2F	● FM-1472	White	18" x 18"	2.25																				A	15'-6"							5.5				U
				M-9R	●➡	White	13" x 10"	0.90																																		
	15	14	255+50	IR-17	● TWO WAY TRAFFIC AHEAD	White	48" x 60"			20.00																		F-2					3'I-5.7"	17'-4	17'-6	199	10					U
	15	15	259+20	IG-26	■ ⬅ Del Mar Blvd; Santa Maria Ave ➡	Green	15'-6" x 4'-0"			54.00	6			17				2			4			47			4A					5'-5"x16"	10'-3	10'-8	566			9			U
	15	16	269+50	IR-2A	● EXIT 45 MPH	Yellow	48" x 60"			20.00																		F-2					3'I-5.7"	17'-7	17'-9	201	10					U
1	16	1	270+00	IG-1	■ EXIT ↗	Green	6'-0" x 5'-0"			30.00								4			1			4		16		4					5x5x16"	12'-0	12'-6	623			9			U
1	16	2	275+26	IG-11	▼■ FM 1472, Del Mar Blvd; Santa Maria Ave ↗	Green	23'-6" x 14'-6"			340.75		6			17						1			4			68	5					10x10x54°	18'-8	20'-8	3029				17		U
	16	13	7+00	IR-50	● KEEP OFF MEDIAN	White	48" x 60"			20.00																		F-2					3'I-5.7"	18'-7	18'-7	212	10					U
1	16	10	7+50	IG-21	■ Laredo; CITY LIMITS	Green	6'-6" x 3'-0"			19.50	1		5								4			17			4A					5'-5"x16"	9'-11	10'-9	562			9		10	U
1	16	15	17+00	IG-9	▼■ FM 1472, Del Mar Blvd, Santa Maria Ave; EXIT ½ MILE	Green	23'-6" x 13'-0"			305.50		6			17	11								4			65	5					10x10x54°	18'-10	20'-9	3042				17		R
	17	2	20+20	IR-50	● KEEP OFF MEDIAN	White	48" x 60"			20.00																		F-2					3'I-5.7"	18'-7	18'-7	212	10					R
	17	5	33+00	IR-50	● KEEP OFF MEDIAN	White	48" x 60"			20.00																		F-2					3'I-5.7"	18'-7	18'-7	212	10					R
1	17	6	48+27	IG-9	▼■ FM 1472, Del Mar Blvd, Santa Maria Ave; EXIT 1 MILE	Green	23'-6" x 13'-0"			305.50		6			17	8		1						4			65	5					10x10x54°	21'-1	22'-2	3251				17		R
1				IG-7	■ GAS-FOOD, LODGING	Blue	13'-6" x 2'-6"		41.25							15						4			18			F-2					3'I-5.7"	18'-7	18'-7	212	10					R
	18	2	53+90	IR-50	● KEEP OFF MEDIAN	White	48" x 60"			20.00																		A	17'-0"							5.5				R
	18	10	60+70	IR-17A	● TWO WAY TRAFFIC	White	48" x 48"			16.00																		F-1					3'I-5.7"	16'-6	16'-7	189	10					R
	18	4	61+50	IR-48	● YIELD RIGHT OF WAY	Yellow	60"			10.00																		F-2					3'I-5.7"	17'-7	17'-9	201	10					R
	18	5	65+60	IR-2A	● EXIT 30 MPH	Yellow	48" x 60"			20.00																		F-2					5x5x16"	12'-0	12'-6	623			9			R
1	18	6	66+00	IG-1	■ EXIT ↗	Green	6'-0" x 5'-0"			30.00								4			1			4		16		4					8x6½x28°	13'-8	14'-5"	1154				12		R
1	18	7	71+00	IG-10	■ Frontage Rd ↗	Green	17'-0" x 8'-0"			136.00		2			8						1			4			42	4					3'I-5.7"	18'-7	18'-7	212	10					R
	18	9	71+00	IR-50	● KEEP OFF MEDIAN	White	48" x 60"			20.00																		F-2					3'I-5.7"	18'-7	18'-7	212	10					R
	19	3	85+90	IR-50	● KEEP OFF MEDIAN	White	48" x 60"			20.00																																	
																											F-2					3'I-5.7"	18'-7	18'-7	212	10					R
	19	7	104+00	IR-50	● KEEP OFF MEDIAN	White	48" x 60"			20.00																																	
			Main Lane ~ Northbound																																							
1	12	1	169+00	IG-9	▼■ FM 1472, Del Mar Blvd, Santa Maria Ave, EXIT 1⅞ MILES	Green	23'-6" x 13'-0"			305.50		6			17	13		1						4			65	5					10x10x54°	19'-4	20'-7	3384				17		U
	12	16	177+00	IW-60	● MERGING TRAFFIC	Yellow	48" x 48"			16.00																		F-2					3'I-5.7"	16'-7	16'-9	190	10					U
	13	8	199+50	IM-22N	●● NORTH	Blue	30" x 15"	3.13																				E					3'I-5.7"	17'-4		99	5.5					U
				IM-1C	●● INTERSTATE-TEXAS-35	Red-Blue	36"	7.18																																	
	13	10	209+50	IR-2	● SPEED LIMIT 60	White	48" x 60"			20.00																		G					4'I-7.7"	22'-7	22'-9	349		12				U
				IR-3	●● NIGHT 55	Black	48" x 48"			16.00																															
1	14	2	234+00	IG-11	▼■ FM 1472, Del Mar Blvd; Santa Maria Ave ↗	Green	23'-6" x 14'-6"			340.75		6			17			1						4			68	5					10x10x54°	17'-10	18'-10	2885				17		U
1	14	3	239+00	IG-1	■ EXIT ↗	Green	6'-0" x 5'-0"			30.00							4				1			4		16		4					5x5x16"	12'-0	12'-6	623			9			U
	14	4	240+05	IR-2A	● EXIT 30 MPH	Yellow	48" x 60"			20.00																		F-2					3'I-5.7"	17'-7	17'-9	201	10					U
	15	1	248+00	IR-48	● YIELD RIGHT OF WAY	Yellow	60"			10.00																		F-1					3'I-5.7"	16'-6	16'-7	189	10					U
	15	3	248+60	IR-17A	● TWO WAY TRAFFIC	White	48" x 48"			16.00																		A	17'-0"							5.5				U
	15	31	267+00	IW-60	● MERGING TRAFFIC	Yellow	48" x 48"			16.00																		F-2					3'I-5.7"	18'-7	18'-7	212	10					U
	16	12	7+00	IR-50	● KEEP OFF MEDIAN	White	48" x 60"			20.00																		*					5'-5"x16"	9'-11	10'-9	562			9		10	U
1	16	11	8+30	IG-21	■ Laredo. CITY LIMITS	Green	6'-6" x 3'-0"			19.50	1		5								4			17			4A													
	16	14	12+86	IM-22N	●● NORTH	Blue	30" x 15"	3.13																				E					3'I-5.7"	17'-4		99	5.5					R
				IM-1C	●● INTERSTATE-TEXAS-35	Red-Blue	36"	7.18																																	

ESTIMATE - SIGN TABULATION

SHEET 1 OF 7 SHEETS

DIST.	STATE	FEDERAL PROJECT NO.
5	TEXAS	I-35-1(8)002
STATE PROJECT NO.		
21	WEBB	18 G 28 IH-35

Rev 5-23-62

ALTERNATE NO 1

Aluminum Signs Type E can be used as an alternate for these Plywood Signs. Length of posts shown for these signs have been figured on the basis of plywood Type A or Type B being the sign blank material according to Standard Plan Sheet SMD-4. Should contract be awarded on basis of Aluminum Signs Type E, that is 2½" honeycomb aluminum sign blanks, the Contractor must order post lengths according to Standard Plan Sheet SMD-5B.

ALT.	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT (▼ See Sheet No.11 for Route Marker Data; ■ Removable Copy; ● Direct Screened; ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	SIGN BLANK MATERIAL: PLYWOOD TYPE "A"	SIGN BLANK MATERIAL: PLYWOOD TYPE "A" or "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.3"	16"	LETTERS & NUMERALS: LOWER CASE EACH 6"	10"	12"	LETTERS & NUMERALS: CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	14-1	WHITE BORDER RADII EACH R-3"	R-9"	R-12"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	CAPITAL LETTERS 6"	"U"=URBAN "R"=RURAL
					Main Lane ~ Southbound CONTROL 18-6-28																																							
	13	4	193+20	IR-17A	● TWO WAY TRAFFIC	White	48"x48"			16.00																		A		1'-6"					5.5						U
	13	5	194+00	IR-48	● YIELD RIGHT OF WAY	Yellow	60"			10.00																		F-1			3'1-5.7"	15'-7	15'-7	178	10					U
	13	6	198+00	IR-2A	● EXIT 30 MPH	Yellow	48"x60"			20.00																		F-2			3'1-5.7"	16'-9	16'-9	191	10					U
1	13	7	198+40	IG-1	■ EXIT	Green	6'-0"x5'-0"			30.00							4			1			4			16		4			5'x5'x16"	10'-11	11'-1	583			9			U
1	13	9	203+80	IG-11	■ San Bernardo Ave; Calton Rd	Green	25'-0"x10'-0"			250.00		5			19			1			4			62		5			10"x8"x45"	18'-6"	19'-0"	2251			15			U
1 1	14	1	225+00	IG-9 IG-7	■ San Bernardo Ave; Calton Rd EXIT 6/10 MILE ■ GAS-FOOD, LODGING	Green Blue	25'-0"x8'-6" 6'-6"x2'-6"		41.25	212.50		5			19	11 14			4			4	36		59		5			10"x8"x45"	17'-6"	22'-10	2468			15			U
	15	5	253+20	IW-60	● MERGING TRAFFIC	Yellow	48"x48"			16.00																		F-2			3'1-5.7"	15'-9	15'-9	180	10					U
	15	12	257+30	M-2F M-9R	● FM-1472 ●➡	White White	18"x18" 13"x10"	2.25 0.90																			A		14'-6"					5.5						U
	15	14	255+50	IR-17	● TWO WAY TRAFFIC AHEAD	White	48"x60"			20.00																		F-2			3'1-5.7"	16'-6"	16'-6"	188	10					U
	15	15	259+20	IG-26	■ ⬅ Del Mar Blvd; Santa Maria Ave ➡	Green	13'-6"x4'-0"			54.00	6			17						2			4			46.33		4A			5'x5'x16"	10'-9	11'-5"	586			9			U
	15	16	269+50	IR-2A	● EXIT 45 MPH	Yellow	48"x60"			20.00																		F-2			3'1-5.7"	16'-9	16'-9	191	10					U
1	16	1	270+00	IG-1	■ EXIT	Green	6'-0"x5'-0"			30.00							4			1			4			16		4			5'x5'x16"	11'-0	11'-2"	596			9			U
1	16	2	275+26	IG-11	▼■ FM-1472, Del Mar Blvd; Santa Maria Ave	Green	23'-6"x14'-6"			340.75		6			17			1			4			68		5			10"x10"x54"	19'-7	21'-6"	3124				17		U
	16	13	7+00	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F-2			3'1-5.7"	17'-7	17'-7	200	10					U
1	16	10	7+50	IG-21	■ Laredo, CITY LIMITS	Green	6'-6"x3'-0"			13.50	1		5						4			17			65		4A			5'x5'x16"	9'-11	10'-2	553			9		10	R
1	16	15	17+00	IG-9	▼■ FM-1472, Del Mar Blvd, Santa Maria Ave; EXIT ½ MILE	Green	23'-6"x13'-0"			305.50		6			17	10					4			65		5			10"x10"x54"	16'-10	20'-9	3042				17		R
	17	2	20+20	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F-2			3'1-5.7"	17'-7	17'-7	200	10					R
	17	5	33+50	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F-2			3'1-5.7"	17'-7	17'-7	200	10					R
1 1	17	6	48+27	IG-9 IG-7	▼■ FM-1472, Del Mar Blvd, Santa Maria Ave; EXIT 1 MILE ■ GAS-FOOD, LODGING	Green Blue	23'-6"x13'-0" 6'-6"x2'-6"		41.25	305.50		6			17	8 14		1			4	36		65		5			10"x10"x54"	21'-4"	22'-2"	3251				17		R
	18	2	53+90	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F-2			3'1-5.7"	17'-7	17'-7	200	10					R
	18	10	60+70	IR-17A	● TWO WAY TRAFFIC	White	48"x48"			16.00																		A		16'-0"					5.5						R
	18	4	61+50	IR-48	● YIELD RIGHT OF WAY	Yellow	60"			10.00																		F-1			3'1-5.7"	15'-7	15'-7	178	10					R
	18	5	65+30	IR-2A	● EXIT 30 MPH	Yellow	48"x60"			20.00																		F-2			3'1-5.7"	16'-9	16'-9	191	10					R
1	18	6	65+63	IG-1	■ EXIT	Green	6'-0"x5'-0"			30.00							4			1			4			16		4			5'x5'x16"	11'-3	11'-11	602			9			R
1	18	7	71+00	IG-10	■ Frontage Rd	Green	11'-0"x8'-0"			136.00		2			6			1			4			42		4			6"x6½"x28"	13'-8"	14'-5"	1154			12			R
	18	9	71+00	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F-2			3'1-5.7"	17'-7	17'-7	200	10					R
	19	3	86+15	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F-2			3'1-5.7"	17'-7	17'-7	200	10					R
	19	7	93+00	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F-2			3'1-5.7"	17'-7	17'-7	200	10					R
					Main Lane ~ Northbound																																							
1	12	1	169+00	IG-9	▼■ FM-1472, Del Mar Blvd, Santa Maria Ave, EXIT 1½ MILES	Green	23'-6"x13'-0"			305.50		6			17	12		1			4			65		5			10"x10"x54"	17'-5	25'-2	3222				17		U
	12	16	177+00	IW-60	● MERGING TRAFFIC	Yellow	48"x48"			16.00																		F-2			3'1-5.7"	15'-9	15'-9	180	10					U
	13	8	199+50	IM-22N IM-1C	●● NORTH ●● INTERSTATE-TEXAS-35	Blue Red-Blue	30"x15" 36"	3.13 7.18																			E			3'1-5.7"	20'-4"		116	5.5					U
	13	10	209+50	IR-2 IR-3	● SPEED LIMIT 60 ●● NIGHT 55	White Black	48"x60" 48"x48"			20.00 16.00																		G			4'1-7.7"	21'-9	21'-9	335		12				U
1	14	2	234+00	IG-11	▼■ FM-1472, Del Mar Blvd; Santa Maria Ave	Green	23'-6"x14'-6"			340.75		6			17.			1			4			68		5			10"x10"x54"	19'-10	20'-10	3101				17		U
1	14	3	239+14	IG-1	■ EXIT	Green	6'-0"x5'-0"			30.00							4			1			4			16		4			5'x5'x16"	10'-9	10'-11	573			9			U
	14	4	240+05	IR-2A	● EXIT 30 MPH	Yellow	48"x60"			20.00																		F-2			3'1-5.7"	16'-9	16'-9	191	10					U
	15	1	247+84	IR-48	● YIELD RIGHT OF WAY	Yellow	60"			10.00																		F-1			3'1-5.7"	15'-7	15'-7	178	10					U
	15	3	248+60	IR-17A	● TWO WAY TRAFFIC	White	48"x48"			16.00																		A		16'-0"					5.5						U
	15	31	267+00	IW-60	● MERGING TRAFFIC	Yellow	48"x48"			16.00																		F-2			3'1-5.7"	15'-9	15'-9	180	10					U
	16	12	7+00	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		*													U
1	16	11	8+30	IG-21	■ Laredo, CITY LIMITS	Green	6'-6"x3'-0"			19.50	1		5						4			17					4A			5'x5'x16"	9'-11	9'-11	549			9		10	U
	16	14	12+86	IM-22N IM-1C	●● NORTH ●● INTERSTATE-TEXAS-35	Blue Red-Blue	30"x15" 36"	3.13 7.18																			E			3'1-5.7"	20'-4"		116	5.5					R

ALTERNATE NO 1

Aluminum Signs Type E can be used as an alternate for these Plywood Signs. Length of posts shown for these signs have been figured on the basis of plywood Type A or Type B being the sign blank material according to Standard Plan Sheet SMD-4. Should contract be awarded on basis of Aluminum Signs Type E, that is 2½" honeycomb aluminum sign blanks, the Contractor must order post lengths according to Standard Plan Sheet SMD-5B.

FINAL SIGN TABULATION

SHEET 1 OF 7 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.
6	TEXAS	I-35-1(8)002

STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB
21	WEBB	18	G	28

ALT.	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	PLYWOOD: TYPE "A"	PLYWOOD: TYPE "A" OR "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.5"	16"	LOWER CASE EACH 6"	10"	12"	CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	JA-1	WHITE BORDER RADII EACH R-5"	R-9"	R-12"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	No.2	No.3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	CAPITAL LETTERS G	"U" = URBAN - "R" = RURAL
					Main Lane ~ Northbound (Cont'd.)																																						
	17	1	20+20	IR-50	• KEEP OFF MEDIAN	White	48"×60"			20.00																	*															R
	17	3	22+86	IR-2 IR-3	• SPEED LIMIT 60 •• NIGHT 55	White Black	48"×60" 48"×48"			20.00 16.00																	G				4"I-7.7"	22'-7"	22'-5"		349		12				R
	17	4	33+00	IR-50	• KEEP OFF MEDIAN	White	48"×60"			20.00																	*															R
	18	1	53+90	IR-50	• KEEP OFF MEDIAN	White	48"×60"			20.00																	*															R
	18	3	60+85	IW-60	• MERGING TRAFFIC	Yellow	48"×48"			16.00																	F2				3"I-5.7"	16'-7"	16'-9"		190	10					R
	18	8	71+00	IR-50	• KEEP OFF MEDIAN	White	48"×60"			20.00																	*															R
	19	1	84+00	IM-22N IM-1C	•• NORTH •• INTERSTATE-TEXAS-35	Blue Red-Blue	30"×15" 36"	3.13 7.18																			E				3'I-5.7"	17'-4"			93	5.5					R
	19	2	85+90	IR-50	• KEEP OFF MEDIAN	White	48"×60"			20.00																	*															R
	19	5	94+00	IR-2 IR-3	• SPEED LIMIT 60 •• NIGHT 55	White Black	48"×60" 48"×48"			20.00 16.00																	G				4"I-7.7"	22'-7"	22'-5"		349		12				R
	19	6	104+00	IR-50	• KEEP OFF MEDIAN	White	48"×60"			20.00																	*															R
1	19	8	104+00	IG-18	■ Encinal 31; San Antonio 146	Green	19'0"×5'-0"			95.00		8			14								4			42		4					6×6×20	12'-1"	12'-8"		732			10			R
					West Frontage Road																																					
	13	2	183+80	IM-21S IM-1B IM-9L	•• SOUTH •• INTERSTATE-TEXAS-35 •• ⇐	Blue Red-Blue Blue	18"×9" 24" 18"×9"	1.13 3.19 1.13																			A		17'-6"							5.5					U
	13	3	193+20	IR-15	• DO NOT ENTER	White	48"×48"			16.00																	A		17'-0"							5.5					U
	15	4	249+25	IM-21S IM-1B IM-10L	•• SOUTH •• INTERSTATE-TEXAS-35 •• ↖	Blue Red-Blue Blue	18"×9" 24" 18"×9"	1.13 3.19 1.13																			A		17'-6"							5.5					U
	15	8	256+30	IR-14	• KEEP RIGHT ⇒	White	48"×60"			20.00																	F2				3"I-5.7"	17'-4"	17'-6"		199	10					U
	15	20	257+13	IR-15	• DO NOT ENTER	White	48"×48"			16.00																	A		17'-0"							5.5					U
	15	21	257+13	IR-15	• DO NOT ENTER	White	48"×48"			16.00																	A		17'-0"							5.5					U
	15	10	257+30	IM-21S IM-1B IM-9L IM-21N IM-1B IM-9L	•• SOUTH •• INTERSTATE-TEXAS-35 •• ⇐ •• NORTH •• INTERSTATE-TEXAS-35 •• ⇐	Blue Red-Blue Blue Blue Red-Blue Blue	18"×9" 24" 18"×9" 18"×9" 24" 18"×9"	1.13 3.19 1.13 1.13 3.19 1.13																			A		20'-2"							5.5					U
	15	13	260+20	D-1A D-1A	• ⇐ LAREDO 4 • ⇐ SAN ANTONIO 143	White White	10'×11½" 10'×11½"			9.58 9.58																	D-4	7'-6"	7'-0"		13'-3"						5.5			U
	16	8	272+70	M-2F M-9L	• FM-1472 • ⇐	White White	18"×18" 13"×10"	2.25 0.90																			A		15'-6"							5.5					U
	16	6	274+15	IR-48	• YIELD RIGHT OF WAY	Yellow	60"			10.00																	F-1				3'I-5.7"	16'-6"	16'-7"		189	10					U
	16	7	10+70	M-2F M-9R	• FM-1472 • ⇒	White White	18"×18" 13"×10"	2.25 0.90																			A		15'-6"							5.5					U
	15	4A	252+40	IR-17A	• TWO WAY TRAFFIC	White	48"×48"			16.00																	A		17'-6"							5.5					U
	15	13A	264+00	IM-3 IM-1B	•• Jct •• INTERSTATE-TEXAS-35	Blue Red-Blue	18"×9" 24"	1.13 3.19																			A		16'-2"							5.5					U
	18	4A	61+10	IR-15	• DO NOT ENTER	White	48"×60"			20.00																	A		18'-0"							5.5					R
					East Frontage Rd																																					
	12	3	168+60	IR-17	• TWO WAY TRAFFIC AHEAD	White	48"×60"			20.00																	F2				3'I-5.7"	17'-6"	17'-9"		201	10					U
	12	5	171+93	IR-15	• DO NOT ENTER	White	48"×48"			16.00																	A		17'-0"							5.5					U
	12	6	171+70	IR-1A	•• STOP	Red	30"		5.18																	A		15'-6"							5.5					U
	12	15	173+60	IR-1A	•• STOP	Red	30"		5.18																	A		15'-6"							5.5					U
	13	1	180+80	IM-21N IM-1B IM-10L	•• NORTH •• INTERSTATE-TEXAS-35 •• ↖	Blue Red-Blue Blue	18"×9" 24" 18"×9"	1.13 3.19 1.13																			A		17'-6"							5.5					U
	15	2	248+60	IR-15	• DO NOT ENTER	White	48"×48"			16.00																	A		17'-0"							5.5					U
	15	27	255+87	M-2F M-9L	• FM-1472 • ⇐	White White	18"×18" 13"×10"	2.25 0.90																			A		15'-6"							5.5					U
	12	2	168+60	IR-17	• TWO WAY TRAFFIC AHEAD	White	48"×60"			20.00																	F2				3'I-5.7"	17'-2"	17'-4"		197	10					U
1	15	2A	254+50	IG-26	■ ⇐ Santa Maria Ave; Del Mar Blvd. ⇒	Green	13'-6"×4'-0"			54.00	6			17			2			4		47			4A				5'×5'×16"	11'-1"	10'-1"		570	9					U

ALTERNATE 1
See Sheet 1 of 7 (Sign Tabulation) for note on alternate

*NOTE:- These are double signs, the mount is listed under the other sign.

ESTMATE SIGN TABULATION

SHEET 2 OF 7 SHEETS

Rev 5-23-62

FED. ROAD DIV. NO.	STATE	PROJECT NO.	SHEET NO.
	TEXAS	I-35-1(8)002	6
STATE DIST. NO.	COUNTY	CONT. SECT.	JOB
21	WEBB	18 6	28 IH-35

ALT.	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy ● Direct Screened ●● Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	PLYWOOD: TYPE "A"	PLYWOOD: TYPE "A" or "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.5"	16"	LOWER CASE EACH 6"	10"	12"	CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	14-1	WHITE BORDER RADII EACH 1" R-3"	2" R-9"	3" R-12"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	No.2	No.3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	CAPITAL LETTERS 6"	"U"=URBAN - "R"=RURAL
					Main Lane ~ Northbound (Cont'd)																																							
	17	1	20+20	IR-50	●KEEP OFF MEDIAN	White	48"×60"			20.00																		*																	R
	17	3	22+86	IR-2	●SPEED LIMIT 60	White	48"×60"			20.00																		G				4"I-7.7#	21'-9"	21'-9"		335		12					R
				IR-3	●●NIGHT 55	Black	48"×48"			16.00																																
	17	4	33+50	IR-50	●KEEP OFF MEDIAN	White	48"×60"			20.00																		*																	R
	18	1	53+90	IR-50	●KEEP OFF MEDIAN	White	48"×60"			20.00																		*																	R
	18	3	60+85	IW-60	●MERGING TRAFFIC	Yellow	48"×48"			16.00																		F2				5"I-5.7#	15'-9"	15'-9"		180	10						R
	18	8	71+00	IR-50	●KEEP OFF MEDIAN	White	48"×60"			20.00																		*																	R
	19	1	84+00	IM-22N	●●NORTH	Blue	30"×15"	3.13																				E				5"I-5.7#	20'-4"			116	5.5						R
				IM-1C	●●INTERSTATE-TEXAS-35	Red-Blue	36"	7.18																																			
	19	2	86+15	IR-50	●KEEP OFF MEDIAN	White	48"×60"			20.00																		*																	R
	19	5	96+00	IR-2	●SPEED LIMIT 60	White	48"×60"			20.00																		G				4"I-7.7#	20'-9"	21'-9"		327		10.5					R
				IR-3	●●NIGHT 55	Black	48"×48"			16.00																																
	19	6	98+00	IR-50	●KEEP OFF MEDIAN	White	48"×60"			20.00																		*																	R
1	19	8	104+00	IG-18	■Encinal 31; San Antonio 146	Green	180"×54"-0"			95.00		8			14									4			42		4				6×6×20	12'-1"	12'-8"		732			10			R
					West Frontage Road																																						
	13	2	183+80	IM-21S	●●SOUTH	Blue	18"×9"	1.13																				A		21'-2"						5.5					U
				IM-1B	●●INTERSTATE-TEXAS-35	Red-Blue	24"	3.19																																		
				IM-9L	●●←	Blue	18"×9"	1.13																																		
	13	3	193+20	IR-15	●DO NOT ENTER	White	48"×48"			16.00																		A		16'-0"						5.5					U
	15	4	246+70	IM-21S	●●SOUTH	Blue	18"×9"	1.13																				A		21'-2"						5.5					U
				IM-1B	●●INTERSTATE-TEXAS-35	Red-Blue	24"	3.19																																		
				IM-10L	●●↖	Blue	18"×9"	1.13																																		
	15	8	256+21	IR-14	●KEEP RIGHT ➡	White	48"×60"			20.00																		F2				3"I-5.7#	16'-6"	16'-6"		188	10						U
	15	20	257+13	IR-15	●DO NOT ENTER	White	48"×48"			12.00																		A		16'-0"						5.5					U
	15	21	257+13	IR-15	●DO NOT ENTER	White	48"×48"			16.00																		A		16'-0"						5.5					U
	15	10	257+30	IM-21S	●●SOUTH	Blue	18"×9"	1.13																				A		19'-2"						5.5					U
				IM-1B	●●INTERSTATE-TEXAS-35	Red-Blue	24"	3.19																																		
				IM-9L	●●←	Blue	18"×9"	1.13																																		
				IM-21N	●●NORTH	Blue	18"×9"	1.13																																		
				IM-1B	●●INTERSTATE-TEXAS-35	Red-Blue	24"	3.19																																		
				IM-9L	●●←	Blue	18"×9"	1.13																																		
	15	13	260+20	D-1A	●←LAREDO 4	White	10"×11½"			9.58																		D-4	6'-4"	5'-9"		12'3"					5.5				U
				D-1A	●←SAN ANTONIO 149	White	10"×11½"			9.58																																
	16	8	272+70	M-2F	●FM-1472	White	18"×18"	2.25																				A		14'-6"						5.5					U
				M-9L	●←	White	13"×10"	0.90																																		
	16	6	274+15	IR-48	●YIELD RIGHT OF WAY	Yellow	60"			10.00																		F-1				3"I-5.7#	15'-7"	15'-7"		178	10						U
	16	7	10+70	M-2F	●FM-1472	White	18"×18"	2.25																				A		14'-6"						5.5					U
				M-9R	●➡	White	13"×10"	0.90																																		
	15	4A	252+40	IR-17A	●TWO WAY TRAFFIC	White	48"×48"			16.00																		A		16'-6"						5.5					U
	15	13A	264+00	IM-3	●● Jct	Blue	18"×9"	1.13																				A		15'-2"						5.5					U
				IM-1B	●●INTERSTATE-TEXAS-35	Red-Blue	24"	3.19																																		
	18	4A	61+10	IR-15	●DO NOT ENTER	White	48"×48"			16.00																		A		17'-0"						5.5					R
					East Frontage Rd																																						
	12	3	168+60	IR-17	●TWO WAY TRAFFIC AHEAD	White	48"×60"			20.00																		F2				3"I-5.7#	16'-9"	16'-9"		191	10						U
	12	5	171+96	IR-15	●DO NOT ENTER	White	48"×48"			16.00																		A		16'-0"						5.5					U
	12	6	171+96	IR-1A	●●STOP	Red	30"		5.18																			A		14'-6"						5.5					U
	12	15	173+62	IR-1A	●●STOP	Red	30"		5.18																			A		14'-6"						5.5					U
	13	1	181+74	IM-21N	●●NORTH	Blue	18"×9"	1.13																				A		21'-2"						5.5					U
				IM-1B	●●INTERSTATE-TEXAS-35	Red-Blue	24"	3.19																																		
				IM-10L	●●↖	Blue	18"×9"	1.13																																		
	15	2	248+60	IR-15	●DO NOT ENTER	White	48"×48"			16.00																		A		16'-0"						5.5					U
	15	27	255+87	M-2F	●FM-1472	White	18"×18"	2.25																				A		14'-6"						5.5					U
				M-9L	●←	White	13"×10"	0.90																																		
	12	2	168+60	IR-17	●TWO WAY TRAFFIC AHEAD	White	48"×60"			20.00																		F2				3"I-5.7#	16'-4"	16'-4"		186	10						U
1	15	2A	254+50	IG-26	●←Santa Maria Ave; Del Mar Blvd➡	Green	13'-6"×4'-0"			54.00	6				17				2			4		46.33			4A				5"×5"×16#	10'-4"	10'-6"		565			9				U

ALTERNATE 1
See Sheet 1 of 7 (Sign Tabulation) for note on alternate

*NOTE:- These are double signs, the mount is listed under the other sign.

FINAL SIGN TABULATION

SHEET 2 OF 7 SHEETS

FED. NO. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I-35-1(8)002			GA
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	6	28	IH-35

ALT	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	PLYWOOD: TYPE "A"	PLYWOOD: TYPE "A" OR "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.5"	16"	LOWER CASE EACH 6"	10"	12"	CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	TA-1	WHITE BORDER RADII EACH 1": R=3"	2": R=9"	3": R=12"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	No.2	No.3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	CAPITAL LETTERS 6"	"U"=URBAN-"R"=RURAL
					East Frontage Road (Cont'd.)																																								
	15	26	257+40	IR-1A	•• STOP	Red	30"		5.18																			A		15'-6"							5.5							U
	15	32	267+50	IM-21N IM-1B IM-10L	••NORTH ••INTERSTATE-TEXAS-35 •• ↖	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																				A		17'-6"							5.5							U
	13	6A	68+00	IM-21N IM-1B IM-10L	••NORTH ••INTERSTATE-TEXAS-35 •• ↖	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																				A		17'-6"							5.5							R
					Calton Road																																								
	12	8	8+10	IR-1A	•• STOP	Red	30"		5.18																			A		15'-6"							5.5							U
																																													U
	12	10	9+08	IR-1A	•• STOP	Red	30"		5.18																			A		15'-6"							5.5							U
	12	11	9+22	IR-14	○ KEEP RIGHT →	White	48"x60"			20.00	VOID																	F2					3'1-5.7"	17.0	17.0	194	10						U
	12	7	9+24	IM-21N IM-1B IM-7L	••NORTH ••INTERSTATE-TEXAS-35 •• ↰	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																				A		20'-4"							5.5							U
	12	14	11+30	IM-21N IM-1B IM-9R	••NORTH ••INTERSTATE-TEXAS-35 •• →	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																				A		20'-4"							5.5							U
	12	12	11+34	IR-14	○ KEEP RIGHT →	White	48"x60"			20.00	VOID																	F2					3'1-5.7"	17.0	17.0	194	10						U
	12	4	12+32	IM-21N IM-1B IM-9L	••NORTH ••INTERSTATE-TEXAS-35 •• ←	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																				A		17'-6"							5.5							U
	12	13	12+50	IR-1A	•• STOP	Red	30"		5.18																			A		15'-6"							5.5							U
					Del Mar Blvd																																								
	15	9	7+27	M-2F M-9R	• FM-1472 • →	White White	18"x18" 13"x10"	2.25 0.90																				A		15'-6"							5.5							U
	15	17	7+83	IR-1A	•• STOP	Red	30"		5.18																			A		15'-6"							5.5							U
	15	6A	7+90	IM-21S IM-1B IM-9R	••SOUTH ••INTERSTATE-TEXAS-35 •• →	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																				A		17'-6"							5.5							U
	15	18	8+10	IR-1A	•• STOP	Red	30"		5.18																			A		15'-6"							5.5							U
	15	11	8+30	IM-21S IM-1B IM-9L	••SOUTH ••INTERSTATE-TEXAS-35 •• ←	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																				A		17'-6"							5.5							U
	15	19	8+74	IR-1A	•• STOP	Red	30"		5.18																			A		15'-6"							5.5							U
	15	6	9+15	IM-21N IM-1B IM-7L	••NORTH ••INTERSTATE-TEXAS-35 •• ↰	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																				A		17'-6"							5.5							U
	15	22	9+18	IR-14	○ KEEP RIGHT →	White	48"x60"			20.00	VOID																	F2					3'1-5.7"	17.0	17.0	194	10						U
	15	24	11+22	IR-1A	•• STOP	Red	30"		5.18																			A		15'-6"							5.5							U
	15	23	11+28	IR-14	○ KEEP RIGHT →	White	48"x60"			20.00	VOID																	F2					3'1-5.7"	17.0	17.0	194	10						U
	15	30	11+44	IM-21N IM-1B IM-9R IM-21S IM-1B IM-7L	••NORTH ••INTERSTATE-TEXAS-35 •• → ••SOUTH ••INTERSTATE-TEXAS-35 •• ↰	Blue Red-Blue Blue Blue Red-Blue Blue	18"x9" 24" 18"x9" 18"x9" 24" 18"x9"	1.13 3.19 1.13 1.13 3.19 1.13																				A		20'-4"							5.5							U

ESTIMATE - SIGN TABULATION

SHEET 3 OF 7 SHEETS

Rev 5-23-62

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(18)002	7
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	G	28	IH-35

ALT	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	SIGN BLANK MATERIAL: PLYWOOD TYPE "A"	SIGN BLANK MATERIAL: PLYWOOD TYPE "A" or "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.5"	16"	LETTERS & NUMERALS: LOWER CASE EACH 6"	10"	12"	LETTERS & NUMERALS: CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	IA-1	WHITE BORDER RADII EACH R-3"	R-9"	R-12"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2'D	2½D	3'D	4'D	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No1	No2	No3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12'D	18'D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24'D	30'D	CAPITAL LETTERS 6"	"U"=URBAN-"R"=RURAL
East Frontage Road (Cont'd)																																																
	15	26	257+40	IR-1A	•• STOP	Red	30"		5.18																					A			14'-6"								5.5					U
	15	32	268+40	IM-21N IM-1B IM-10L	••NORTH ••INTERSTATE-TEXAS-35 •• ↖	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																					A			21'-2"								5.5					U
	18	6A	68+00	IM-21N IM-1B IM-10L	••NORTH ••INTERSTATE-TEXAS-35 •• ↖	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																					A			21'-2"								5.5					R
Calton Road																																															
	12	8	8+35	IR-1A	•• STOP	Red	30"		5.18																					A			14'-6"								5.5					U
																																															U
	12	10	9+08	IR-1A	•• STOP	Red	30"		5.18																					A			14'-6"								5.5					U
	12	7	9+24	IM-21N IM-1B IM-7L	••NORTH ••INTERSTATE-TEXAS-35 •• ↰	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																					A			19'-4"								5.5					U
	12	14	11+27	IM-21N IM-1B IM-9R	••NORTH ••INTERSTATE-TEXAS-35 •• →	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																					A			19'-4"								5.5					U
	12	4	12+32	IM-21N IM-1B IM-9L	••NORTH ••INTERSTATE-TEXAS-35 •• ←	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																					A			21'-2"								5.5					U
	12	13	12+16	IR-1A	•• STOP	Red	30"		5.18																					A			14'-6"								5.5					U
Del Mar Blvd																																															
	15	9	7+27	M-2F M-9R	•FM-1472 • →	White White	18"x18" 13"x10"	2.25 0.90																					A			14'-6"								5.5					U
	15	17	7+83	IR-1A	•• STOP	Red	30"		5.18																					A			14'-6"								5.5					U
	15	6A	8+25	IM-21S IM-1B IM-9R	••SOUTH ••INTERSTATE-TEXAS-35 •• →	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																					A			21'-2"								5.5					U
	15	18	8+30	IR-1A	•• STOP	Red	30"		5.18																					A			14'-6"								5.5					U
	15	11	8+30	IM-21S IM-1B IM-9L	••SOUTH ••INTERSTATE-TEXAS-35 •• ←	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																					A			21'-2"								5.5					U
	15	19	9+07	IR-1A	•• STOP	Red	30"		5.18																					A			14'-6"								5.5					U
	15	6	9+30	IM-21N IM-1B IM-7L	••NORTH ••INTERSTATE-TEXAS-35 •• ↰	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																					A			21'-2"								5.5					U
	15	24	11+34	IR-1A	•• STOP	Red	30"		5.18																					A			14'-6"								5.5					U
	15	30	11+44	IM-21N IM-1B IM-9R IM-21S IM-1B IM-7L	••NORTH ••INTERSTATE-TEXAS-35 •• → ••SOUTH ••INTERSTATE-TEXAS-35 •• ↰	Blue Red-Blue Blue Blue Red-Blue Blue	18"x9" 24" 18"x9" 18"x9" 24" 18"x9"	1.13 3.19 1.13 1.13 3.19 1.13																					A			19'-4"								5.5					U

FINAL SIGN TABULATION

SHEET 3 OF 7 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(8)002				7A
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	6	28	IH-35

ALT.	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy ● Direct Screened ●● Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	PLYWOOD: TYPE "A"	PLYWOOD: TYPE "A" or "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.3"	16"	LOWER CASE EACH 6"	10"	12"	CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	IA-1		WHITE BORDER RADII EACH R-3" 1"	R-9" 2"	R-12" 3"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2'-0"	2½-0"	3'-0"	4'-0"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	No.2	No.3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12'-0"	18'-0"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24'-0"	30'-0"	CAPITAL LETTERS 6"	"U" SUBBAN-"R"-RURAL
Del Mar Blvd (Cont'd)																																																
	15	28	12+00	IM-21N IM-1B IM-9L	●● NORTH ●● INTERSTATE-TEXAS-35 ●● ⇦	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																					A			17'-6"								5.5								U
1	15	29	12+00	IG-25	■ ⇦ San Antonio 149	Green	13'-6"x2'-0"			27.00	5			8						1			4			29			4A					5"x5"x16'	9'-0"	9'-0"		520			9				U
	15	25	12+38	IR-1A	●● STOP	Red	30"		5.18																			A			15'-6"								5.5							U
								✓	✓																																							
Sub-Total ~ CONTROL 18-6-28						—	—	138.20	139.48	3500.00	19	8	42	52	14	131	74	16	2	5	8		20	28	32	157	142	494	—	7.5	7.0	69.83	13.25	—	—	—	344.37	531.00	41.5	91.00	115.00	20	

3420.66

ALTERNATE 1
See Sheet 1 of 7 (Sign Tabulation) for note on alternate.

ESTIMATE-
SIGN TABULATION
SHEET 4 OF 7 SHEETS

Rev 5-23-62

FED. AID DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(8)002	8
STATE DIST. NO.	COUNTY	CONT.	SECT	JOB	HIGHWAY NO.
21	WEBB	18	6	28	IH-35

ALT.	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ▫ Removable Copy ● Direct Screened ●● Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	SIGN BLANK MATERIAL: PLYWOOD TYPE "A"	SIGN BLANK MATERIAL: PLYWOOD TYPE "A" or "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.5"	16"	LETTERS & NUMERALS: LOWER CASE EACH 6"	10"	12"	LETTERS & NUMERALS: CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	1A-1	WHITE BORDER RADII EACH R-3"	R-9"	R-12"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	No.2	No.3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	CAPITAL LETTERS 6"	"U"-URBAN - "R"-RURAL
Del Mar Blvd (Cont'd)																																													
	15	28	12+00	IM-21N IM-1B IM-9L	●● NORTH ●● INTERSTATE-TEXAS-35 ●● ⇦	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																					A			21'-2"										5.5					U
1	15	29	12+00	IG-25	▫ ⇦ San Antonio 149	Green	13'6"x2'-0"			27.00	5			8						1		4			29			4A					5"x5"x16'	8'-6"	8'-6"		504			9		U
	15	25	12+38	IR-1A	●● STOP	Red	30"		5.18																			A			14'-6"							5.5				U
								✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓					✓	✓	✓	✓	✓	✓	✓	
Sub-Total ~ CONTROL 18-6-28						—	—	138.20	139.48	3416.00	19	8	42	52	14	131	69	16	2	5	8	28	20	32	227.66	106	494	—	6.33	5.75	697.5	12.25					33,145	472.0	40.0	103.0	115.00	20	

ALTERNATE 1
See Sheet 1 of 7 (Sign Tabulation) for note on alternate.

FINAL SIGN TABULATION
SHEET 4 OF 7 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO				SHEET NO.
6	TEXAS	I-35-1(8)002				8A
STATE DIST. NO.	COUNTY		CONT.	SECT	JOB	HIGHWAY NO.
21	WEBB		18	6	28	IH-35

ALT.	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT (▼ See Sheet No. 11 for Route Marker Data; ■ Removable Copy; ● Direct Screened; ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	SIGN BLANK MATERIAL: PLYWOOD TYPE 'A'	SIGN BLANK MATERIAL: PLYWOOD TYPE 'A' or 'B'	LETTERS & NUMERALS: UPPER CASE OR NUMERALS EACH 8"	13.5"	16"	LOWER CASE EACH 6"	10"	12"	CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	1A-1	WHITE BORDER RADII EACH R-3"	R-9"	R-12"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2'-0"	2½-0"	3'-0"	4'-0"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	LENGTH No. 2	TOTAL WEIGHT	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12'-0"	18'-0"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24'-0"	30'-0"	6" CAPITAL LETTERS
			CONTROL 18-4-12																																								
			Main Lane - Southbound																																								
1	26	2	779+50	IG-9	▼■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1 MILE	Green	21'-0"x13'-0"			273.00		5			17	8		6					4			60	4				10x10x49#	18'-6"	19'-6"	2,789				17
	26	1	1097+85	IW-7	● ┤	Yellow	48"x48"			16.00																		F2				3"I-5.7#	11'-10"	12'-0"	136	10			
			Main Lane - Northbound																																								
	27	1	1071+00	IW-6	● ┼	Yellow	48"x48"			16.00																		F2				3"I-5.7#	11'-10"	12'-0"	136	10			
			Crossover																																								
	27	2	1085+20	IR-16L	●● ONE WAY	Black	48"x16"			5.33																		E				3"I-5.7#	14'-5"		82	5.5			
	27	3	1084+06	IR-16L	●● ONE WAY	Black	48"x16"			5.33																		E				3"I-5.7#	14'-5"		82	5.5			
	27	4	1084+00	IR-16R	●● ONE WAY	Black	48"x16"			5.33																		E				3"I-5.7#	14'-5"		82	5.5			
	27	5	1084+30	IR-1A	●● STOP	Red	30"x30"		5.18																			A			15'-6"					5.5			
	27	6	1085+02	IR-1A	●● STOP	Red	30"x30"		5.18																			A			15'-6"					5.5			
	27	7	1085+00	IR-1A	●● STOP	Red	30"x30"		5.18																			A			15'-6"					5.5			
			Sub-Total - Control 18-4-12						15.54	320.99		3			17	8		6					4			60					46'-6"				3,307#	53.0			17'
			CONTROL 18-5-14																																								
			Main Lane - Southbound																																								
	21	2	603+26	IW-6	● ┼	Yellow	48"x48"			16																		F2				3"I-5.7#	11'-10"	12'-0"	136	10			
1	23	1	662+80	IG-18	■ Laredo 17, Monterrey 163	Green	16'-6"x5'-0"			82.50		7			13								4			37	4				6"x6"x20#	12'-0"	13'-0"	862			10	
	23	2	672+80	IR-2 IR-3	● SPEED LIMIT-60 ●● NIGHT-55	White Black	48"x60" 48"x48"			20.00 16.00																		G				4"I-7.7#	22'-7"	22'-5"	349		12		
	23	3	683+00	IM-22S IM-1C	●● SOUTH ●● INTERSTATE-TEXAS-35	Blue Red-Blue	30"x15" 36"	3.13 7.18																				E				3"I-5.7#	17'-4"		99	5.5			
	24	5	704+50	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F2				3"I-5.7#	18'-7"	18'-7"	212	10			
	24	7	709+70	IW-60	● MERGING TRAFFIC	Yellow	48"x48"			16.00																		F2				3"I-5.7#	16'-9"	16'-9"	190	10			
	24	8	710+25	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F2				3"I-5.7#	18'-7"	18'-7"	212	10			
	25	1	725+70	IR-2A	● EXIT-30 MPH	Yellow	48"x60"			20.00																		F2				3"I-5.7#	17'-7"	17'-9"	201	10			
1	25	2	726+10	IG-1	■ EXIT ➶	Green	6'-0"x5'-0"			30.00							4			1			4			16	4				5"x5"x16#	12'-0"	12'-6"	623			9	
1	25	3	731+00	IG-11	▼■ 83 NORTH, Carrizo Springs, Uvalde ➶	Green	21'-0"x13'-6"			283.50		3			17			5			1			4			61	4				10"x10"x49#	18'-9"	20'-9"	2,863				17
			Main Lane - Northbound																																								
	20	1	576+86	IW-6	● ┼	Yellow	48"x48"			16.00																		F2				3"I-5.7#	11'-10"	12'-0"	136	10			
1	21	1	600+95	IG-9	▼■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1¾ MILES	Green	21'-0"x13'-0"			273.00		3			17	12		6					4			60	4				10"x10"x49#	18'-6"	19'-6"	2,789				17
1	21	3	608+95	IG-10	■ Eagle Pass, Del Rio, NEXT RIGHT	Green	13'-0"x6'-6"			84.50		4			11		9						4			33	4				6"x6"x20#	13'-3"	13'-9"	902			10	
1	22	1	635+20	IG-9	▼■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1 MILE	Green	21'-0"x13'-0"			273.00		3			17	8		6					4			60	4				10"x10"x49#	18'-6"	19'-6"	2,789				17
1	23	4	688+00	IG-11	▼■ 83 NORTH, Carrizo Springs, Uvalde ➶	Green	21'-0"x13'-6"			283.50		3			17			5			1			4			61	4				10"x10"x49#	18'-9"	19'-3"	2,789				17
	23	6	693+00	IR-2A	● EXIT-30 MPH	Yellow	48"x60"			20.00																		F2				3"I-5.7#	17'-7"	17'-9"	201	10			
1	24	1	693+35	IG-1	■ EXIT ➶	Green	6'-0"x5'-0"			30.00							4			1			4			16	4				5"x5"x16#	12'-0"	12'-6"	623			9	
	24	6	704+50	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		*												
	24	9	710+25	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		*												
	24	30	718+00	IW-60	● MERGING TRAFFIC	Yellow	48"x48"			16.00																		F2				3"I-5.7#	16'-10"	17'-5"	197	10			
	25	4	743+00	IM-22N IM-1C	●● NORTH ●● INTERSTATE-TEXAS-35	Blue Red-Blue	30"x15" 36"	3.13 7.18																				E				3"I-5.7#	17'-4"		99	5.5			
	25	5	753+20	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F2				3"I-5.7#	18'-7"	18'-7"	212	10			
	25	6	753+10	IR-2 IR-3	● SPEED LIMIT-60 ●● NIGHT-55	White Black	48"x60" 48"x48"			20.00 16.00																		G				4"I-7.7#	22'-7"	22'-5"	349		12		
1	26	1	763+50	IG-18	■ Encinal 19, San Antonio 134	Green	19'-0"x5'-0"			95.00		8			14								4			42	4				6"x6"x20#	12'-0"	17'-6"	778			10	

ALTERNATE 1
See Sheet 1 of 7 (Sign Tabulation) for note on alternate.

*NOTE:- These are double signs, the mount is listed under the other sign.

ESTIMATE
SIGN TABULATION
SHEET 5 OF 7 SHEETS

Rev 5-23-62

STATE	FEDERAL PROJECT NO.	SHEET NO.
TEXAS	I-35-1(8)002	9
STATE DIST. NO.	COUNTY	CONT. SECT. JOB HIGHWAY NO.
21	WEBB	18 6 5 14 IH-35

TEXT
▼ See Sheet No. 11 for Route Marker Data
■ Removable Copy
● Direct Screened
●● Reversed Screened

ALT.	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT	SIGN BLANKS: SIGN BACKGROUND COLOR	SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	PLYWOOD TYPE 'A'	PLYWOOD TYPE 'A' OR 'B'	LETTERS & NUMERALS: UPPER CASE OR NUMERALS EACH 8"	13.5"	16"	LOWER CASE EACH 6"	10"	12"	CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	1A-1	WHITE BORDER RADII EACH R-3" 1"	R-9" 2"	R-12" 3"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	CAPITAL LETTERS
					CONTROL 18-4-12																																				
					Main Lane - Southbound																																				
1	26	2	779+50	IG-9	▼■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1 MILE	Green	21'-0"x13'-0"			273.00			3			17	8		6					4			60	4				10"x10"x45#	15'-6"	19'-6"	2789					17	
	28	1	1097+85	IW-7	● ⊣	Yellow	48"x48"			16.00																		F2					3'I-5.7#	16'-0"	16'-0"	182	10				
					Main Lane - Northbound																																				
	27	1	1071+00	IW-6	● ⊣	Yellow	48"x48"			16.00																		F2					3'I-5.7#	16'-0"	16'-0"	182	10				
					Crossover																																				
	27	2	1085+20	IR-1GL	●● ONE WAY	Black	48"x16"			5.33																		E					3'I-5.7#	13'-5"		76	5.5				
	27	3	1084+06	IR-1GL	●● ONE WAY	Black	48"x16"			5.33																		E					3'I-5.7#	13'-5"		76	5.5				
	27	4	1084+00	IR-1GR	●● ONE WAY	Black	48"x16"			5.33																		E					3'I-5.7#	13'-5"		76	5.5				
	27	5	1084+30	IR-1A	●● STOP	Red	30"x30"		5.18																		A			14'-6"						5.5				
	27	6	1085+02	IR-1A	●● STOP	Red	30"x30"		5.18																		A			14'-6"						5.5				
	27	7	1085+00	IR-1A	●● STOP	Red	30"x30"		5.18																		A			14'-6"						5.5				
					Sub-Total - Control 18-4-12				15.54	320.99			3			17	8		6					4			60				43.5						3381#	53.0			17	
					CONTROL 18-5-14																																				
					Main Lane - Southbound																																				
	21	2	603+26	IW-6	● ⊣	Yellow	48"x48"			16																		F2					3'I-5.7#	16'-0"	16'-0"	182	10				
1	23	1	662+80	IG-18	■ Laredo 17, Monterrey 163	Green	16'-6"x5'-0"			82.50		7			13								4			37		4					6"x6"x20#	12'-0"	13'-0"	862			10		
	23	2	672+80	IR-2 IR-3	● SPEED LIMIT-60 ●● NIGHT-55	White Black	48"x60" 48"x48"			20.00 16.00																		G					4"I-7.7#	21'-9"	21'-9"	335		12			
	23	3	683+00	IM-22S IM-1C	●● SOUTH ●● INTERSTATE-TEXAS-35	Blue Red-Blue	30"x15" 36"	3.13 7.18																				E					3'I-5.7#	20'-4"		116	5.5				
	24	5	703+75	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F2					3'I-5.7#	17'-7"	17'-7"	200	10				
	24	7	709+70	IW-60	● MERGING TRAFFIC	Yellow	48"x48"			16.00																		F2					3'I-5.7#	15'-9"	15'-9"	180	10				
	24	8	709+75	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F2					3'I-5.7#	17'-7"	17'-7"	200	10				
	25	1	725+70	IR-2A	● EXIT-30 MPH	Yellow	48"x60"			20.00																		F2					3'I-5.7#	16'-9"	16'-9"	191	10				
1	25	2	726+10	IG-1	■ EXIT	Green	6'-0"x5'-0"			30.00								4			1			4			16		4					5"x5"x16#	10'-9"	10'-10"	576			9		
1	25	3	731+00	IG-11	▼■ 83 NORTH, Carrizo Springs, Uvalde	Green	21'-0"x13'-6"			283.50			3			17		5			1			4			61	4					10"x10"x45#	17'-5"	18'-8"	2675					17
					Main Lane - Northbound																																				
	20	1	576+86	IW-6	● ⊣	Yellow	48"x48"			16.00																		F2					3'I-5.7#	16'-0"	16'-0"	182	10				
1	21	1	600+95	IG-9	▼■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1¾ MILES	Green	21'-0"x13'-0"			273.00			3			17	11		6					4			60	4					10"x10"x45#	17'-11"	17'-7"	2666					17
1	21	3	608+95	IG-10	■ Eagle Pass, Del Rio, NEXT RIGHT	Green	13'-0"x6'-6"			84.50		4			11			9					4			33		4					6"x6"x20#	12'-8"	12'-11"	874			10		
1	22	1	635+20	IG-9	▼■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1 MILE	Green	21'-0"x13'-0"			273.00			3			17	8		6					4			60	4					10"x10"x45#	18'-6"	13'-6"	2789					17
1	23	4	688+00	IG-11	▼■ 83 NORTH, Carrizo Springs, Uvalde	Green	21'-0"x13'-6"			283.50			3			17		5			1			4			61	4					10"x10"x45#	15'-4"	15'-5"	2728					17
	23	6	693+00	IR-2A	● EXIT-30 MPH	Yellow	48"x60"			20.00																		F2					3'I-5.7#	16'-9"	16'-9"	191	10				
1	24	1	693+29	IG-1	■ EXIT	Green	6'-0"x5'-0"			30.00								4			1			4			16		4					5"x5"x16#	10'-10"	10'-9"	576			9		
	24	6	703+75	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		*												
	24	9	709+75	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		*												
	24	30	718+00	IW-60	● MERGING TRAFFIC	Yellow	48"x48"			16.00																		F2					3'I-5.7#	16'-8"	16'-8"	190	10				
	25	4	743+00	IM-22N IM-1C	●● NORTH ●● INTERSTATE-TEXAS-35	Blue Red-Blue	30"x15" 36"	3.13 7.18																				E					3'I-5.7#	18'-4"		93	5.5				
	25	5	753+20	IR-50	● KEEP OFF MEDIAN	White	48"x60"			20.00																		F2					3'I-5.7#	17'-7"	17'-7"	100	10				
	25	6	753+70	IR-2 IR-3	● SPEED LIMIT-60 ●● NIGHT-55	White Black	48"x60" 48"x48"			20.00 16.00																		G					4"I-7.7#	21'-9"	21'-9"	335		12			
1	26	1	763+50	IG-18	■ Encinal 19, San Antonio 134	Green	19'-0"x5'-0"			95.00		8			14								4			42		4					6"x6"x20#	10'-8"	12'-6"	701			10		

ALTERNATE 1
See Sheet 1 of 7 (Sign Tabulation) for note on alternate.

*NOTE:- These are double signs, the mount is listed under the other sign.

FINAL SIGN TABULATION
SHEET 5 OF 7 SHEETS

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(8)002	9A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB
21	WEBB	18	8	1??

ALT.	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	PLYWOOD TYPE "A"	PLYWOOD TYPE "A" OR "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.5"	16"	LOWER CASE EACH 6"	10"	12"	CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	IA-1	WHITE BORDER RADII EACH R=3"	R=9"	R=12"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2'D	2½D	3'D	4'D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No 1	No 2	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12'D	18'D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24'D	30'D	CAPITAL LETTERS 6"
US-83 Interchange CONTROL 18-5-14 CONT.																																											
	24	17	2301+85	IM-3 IM-1B	•• Jct •• INTERSTATE-TEXAS-35	Blue Red-Blue	18"x 9" 24"	1.13 3.19																					A			15'-10"					5.5				
	24	15	2304+65	D-1A D-1A	⇑ LAREDO 18 ⇐ SAN ANTONIO 135	White White	10'-0"x11½" 10'-0"x11½"			9.58 9.58																			D-4	7'-6"	7'-0"		13'-3"						5.5			
	24	12	2307+85	IM-21S IM-1B IM-11 IM-21N IM-1B IM-9L M-21S M-1A M-11	•• SOUTH •• INTERSTATE-TEXAS-35 •• ⇑ •• NORTH •• INTERSTATE-TEXAS-35 •• ⇐ • SOUTH • TEXAS-US-83 • ⇑	Blue Red-Blue Blue Blue Red-Blue Blue White White White	18"x 9" 24" 18"x 9" 18"x 9" 24" 18"x 9" 20"x 8" 20" 13"x 10"	1.13 3.19 1.13 1.13 3.19 1.13 1.12 2.08 0.90																			C	12'-0"			16'-0"						5.5			
	24	11	2308+95	IR-17A	• TWO WAY TRAFFIC	White	48"x48"			16.00																			A			17'-0"					5.5			
1	24	13	2307+65	IG-25	■ Carrizo Springs 64 ➡, Uvalde 114 ➡	Green	15'-0"x4'-0"			60.00	8			17				2			4			51			4A					5x5x16#	11'-0"	11'-4"	588			9			
	24	14	2307+36	M-21N M-1A M-9R	• NORTH • TEXAS-US-83 • ➡	White White White	20"x 8" 20" 13"x 10"	1.12 2.08 0.90																					A		16'-6"						5.5			
	24	18	2308+15	IR-1A	•• STOP	Red	30"		5.18																			A	15'-6"							5.5			
	24	25	11+70	IR-1A	•• STOP	Red	30"		5.18																			A	15'-6"							5.5			
1	24	26	715+13	IG-25	■ ⇐ San Antonio 135	Green	13'-6"x2'-0"			27.00	5			8				1			4			29			4A					5x5x16#	9'-0"	9'-5"	295			9			
	24	27	715+19	IM-21N IM-1B IM-9L	•• NORTH •• INTERSTATE-TEXAS-35 •• ⇐	Blue Red-Blue Blue	18"x 9" 24" 18"x 9"	1.13 3.19 1.13																					A		17'-6"						5.5			
East Frontage Road																																											
	24	2	693+75	IR-1S	• DO NOT ENTER	White	48"x48"			16																			A		17'-0"						5.5			
	24	3	696+00	IR-48	• YIELD RIGHT OF WAY	Yellow	60"			10																			F-1					3'1-5.7#	16'-6"	16'-7"	189	10				
	24	4	696+50	IR-17A	• TWO WAY TRAFFIC	White	48"x48"			16																			A		17'-0"						5.5			
1	24	24	711+00	IG-25	■ ⇐ Carrizo Springs 64, ⇐ Uvalde 114	Green	15'-0"x4'-0"			60.00	8			17				2			4			51			4A					5x5x16#	11'-0"	11'-4"	588			9			
	24	28	715+25	M-1A M-9L	• TEXAS-US-83 • ⇐	White White	20" 13"x 10"	2.08 0.90																					A		15'-6"						5.5			
	24	29	716+65	IR-17A	• TWO WAY TRAFFIC	White	48"x48"			16																			A		17'-0"						5.5			
	23	5	693+00	IR-48	YIELD RIGHT OF WAY	Yellow	60"			10																			F-1					3'1-5.7#	16'-6"	16'-7"	189	10				
Ramp "A"																																											
	24	23	720+70	IW-11B	• STOP AHEAD	Yellow	48"x48"			16																			F-2					3'1-5.7#	11'-10"	12'-0"	136	10				
1	24	22	718+00	IG-25	■ Carrizo Springs 64 ⇒, Uvalde 114 ➡	Green	15'-0"x4'-0"			60.00	8			17				2			4			51			4A					5x5x16#	11'-0"	11'-4"	588			9			
	24	19	715+70	IR-1A	•• STOP	Red	30"		5.18																			A	15'-6"							5.5			
	24	20	8+30	R-1S	• DO NOT ENTER	White	24"x24"			4																			A	15'0"							5.5			
	24	21	9+00	R-1S	• DO NOT ENTER	White	24"x24"			4																			A	15'0"							5.5			
	24	10	8+50	M-1A M-9R	• TEXAS-US-83 • ➡	White White	20" 13"x 10"	2.08 0.90																					A		15'-6"						5.5			

ALTERNATE 1
See Sheet 1 of 7 (Sign Tabulation) for note on alternate.

ESTIMATE - SIGN TABULATION

SHEET 6 OF 7 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(8)002	10
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	5	14	IH-35

Rev 5-23-62

ALT.	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy ● Direct Screened ●● Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	SIGN BLANK MATERIAL: PLYWOOD TYPE 'A'	SIGN BLANK MATERIAL: PLYWOOD TYPE 'A' or 'B'	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.5"	16"	LETTERS & NUMERALS: LOWER CASE EACH 6"	10"	12"	LETTERS & NUMERALS: CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	IA-1	WHITE BORDER RADII EACH R:3" 1"	2"	R:9" 2"	R:12" 3"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2'D	2½'D	3'D	4'D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12'D	18'D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24'D	30'D	CAPITAL LETTERS 6"
					US-83 Interchange CONTROL 18-5-14 CONT.																																								
	24	17	2301+85	IM-3 IM-1B	●● Jct ●● INTERSTATE-TEXAS-35	Blue Red-Blue	18"x9" 24"	1.13 3.19																						A			14'-10"					5.5					
	24	15	2304+65	D-1A D-1A	⇧ LAREDO 18 ⇦ SAN ANTONIO 135	White White	10'-0"x11½" 10'-0"x11½"			9.58 9.58																				D-4	6'-4"	5'-9"		12'-3"						5.5				
	24	12	2307+85	IM-21S IM-1B IM-11 IM-21N IM-1B IM-9L M-21S M-1A M-11	●● SOUTH ●● INTERSTATE-TEXAS-35 ●● ⇧ ●● NORTH ●● INTERSTATE-TEXAS-35 ●● ⇦ ● SOUTH ● TEXAS-US-83 ● ⇧	Blue Red-Blue Blue Blue Red-Blue Blue White White White	18"x9" 24" 18"x9" 18"x9" 24" 18"x9" 20"x8" 20" 13"x10"	1.13 3.19 1.13 1.13 3.19 1.13 1.12 2.08 0.90																						C	11'-6"			15'-0"						5.5				
	24	11	2308+95	IR-17A	● TWO WAY TRAFFIC	White	48"x48"			16.00																				A			16'-0"					5.5				
1	24	13	2307+65	IG-25	■ Carrizo Springs 64⇒, Uvalde 114⇒	Green	15'-0"x4'-0"			60.00	8			17						2			4			50.83			4A					5x5x16"	11'-0"	11'-4"	588			9			
	24	14	2307+36	M-21N M-1A M-9R	● NORTH ● TEXAS-US-83 ● ⇒	White White White	20"x8" 20" 13"x10"	1.12 2.08 0.90																						A			15'-6"					5.5				
	24	18	2308+15	IR-1A	●● STOP	Red	30"		5.18																					A			14'-6"					5.5				
	24	25	11+70	IR-1A	●● STOP	Red	30"		5.18																					A			14'-6"					5.5				
1	24	26	715+13	IG-25	■ ⇦ San Antonio 135	Green	13'-6"x2'-0"			27.00	5			8						1			4			29			4A					5x5x16"	8'-6"	8'-6"	272			9			
	24	27	715+19	IM-21N IM-1B IM-9L	●● NORTH ●● INTERSTATE-TEXAS-35 ●● ⇦	Blue Red-Blue Blue	18"x9" 24" 18"x9"	1.13 3.19 1.13																						A			18'-10"					5.5				
					East Frontage Road																																								
	24	2	693+75	IR-15	● DO NOT ENTER	White	48"x48"			16																				A			16'-0"					5.5				
	24	3	696+00	IR-48	● YIELD RIGHT OF WAY	Yellow	60"			10																				F-1				3"I-5.7"	15'-7"	15'-7"	178	10					
	24	4	696+50	IR-17A	● TWO WAY TRAFFIC	White	48"x48"			16																				A			16'-0"					5.5				
1	24	24	711+00	IG-25	■ ⇦ Carrizo Springs 64, ⇦ Uvalde 114	Green	15'-0"x4'-0"			60.00	8			17						2			4			50.83			4A					5x5x16"	10'-3"	10'-7"	564			9			
	24	28	715+25	M-1A M-9L	● TEXAS-US-83 ● ⇦	White White	20" 13"x10"	2.08 0.90																						A			14'-6"					5.5				
	24	29	716+65	IR-17A	● TWO WAY TRAFFIC	White	48"x48"			16																				A			16'-0"					5.5				
	23	5	693+00	IR-48	YIELD RIGHT OF WAY	Yellow	60"			10																				F-1				3"I-5.7"	15'-7"	15'-7"	178	10					
					Ramp "A"																																								
	24	23	720+70	IW-11B	● STOP AHEAD	Yellow	48"x48"			16																				F2				3"I-5.7"	16'-0"	16'-0"	182	10					
1	24	22	718+00	IG-25	■ Carrizo Springs 64⇒, Uvalde 114⇒	Green	15'-0"x4'-0"			60.00	8			17						2			4			50.83			4A					5x5x16"	10'-7"	11'-2"	579			9			
	24	19	715+70	IR-1A	●● STOP	Red	30"		5.18																					A			14'-6"					5.5				
	24	20	8+30	R-15	● DO NOT ENTER	White	24"x24"			4																				A			14'-0"					5.5				
	24	21	9+00	R-15	● DO NOT ENTER	White	24"x24"			4																				A			14'-0"					5.5				
	24	10	8+50	M-1A M-9R	● TEXAS-US-83 ● ⇒	White White	20" 13"x10"	2.08 0.90																						A			14'-6"					5.5				

ALTERNATE 1
See Sheet 1 of 7 (Sign Tabulation) for note on alternate.

FINAL SIGN TABULATION
SHEET 6 OF 7 SHEETS

FED. RD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(8)002	10A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	5	14	IH-35

ALT	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ▪ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	PLYWOOD TYPE "A"	PLYWOOD TYPE "A" or "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.5"	16"	LOWER CASE EACH 6"	10"	12"	CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	IA-1	WHITE BORDER RADII EACH R-5" 1"	R-9" 2"	R-12" 3"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2"D	2½D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No 1	LENGTH No 2	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	CAPITAL LETTERS 6"
			CONTROL 18-5-14																																								
			Crossover																																								
	20	2	589+42	IR-1GR	•• ONE WAY	Black	48"x16"			5.33																		E				3"I-5.7#	14-5		82	5.5						
	20	3	589+52	IR-1GL	•• ONE WAY	Black	48"x16"			5.33																		E				3"I-5.7#	14-5		82	5.5						
	20	4	589+62	IR-1A	•• STOP	Red	30"x30"		5.18																		A		15-6							5.5						
	20	5	589+64	IR-1A	•• STOP	Red	30"x30"		5.18																		A		15-6							5.5						
	20	6	590+30	IR-1A	•• STOP	Red	30"x30"		5.18																		A		15-6							5.5						
	20	7	590+35	IR-1GL	•• ONE WAY	Black	48"x16"			5.33																		E				3"I-5.7#	14-5		82	5.5						
	20	8	590+40	IR-1A	•• STOP	Red	30"x30"		5.18																		A		15-6							5.5						
	20	9	590+50	IR-1GR	•• ONE WAY	Black	48"x16"			5.33																		E				3"I-5.7#	14-5		82	5.5						
	Sub-Total- Control 18-5-14 Cont.							55.45	36.26	206.48	29	19	12	59	38	68	29	18	12	7	4			16	20	16	182	144	242		13.5	7.0	28733	29.25				20,462	252.0	35.0	84	68	
	TOTALS							193.65	191.28	588.83	48	27	57	111	52	216	111	34	20	12	12			36	48	52	339	286	796		27.0	14.0	1025.6	42.50				55 206	836.0	76.5	178.0	200.0	20

SUMMARY OF DELINEATORS

CONTROL 18-6-28				
Plan & Profile Sheet No.	Delineators-Each I	II	III	Delin. Posts-Ea.
12	16	29	0	45
13	24	39	1	64
14	24	13	1	38
15	27	67	0	94
16	11	25	1	37
18	20	35	1	56
19	24	0	0	24
TOTALS	146	208	4	358

CONTROL 18-4-12				
Plan & Profile Sheet No.	Delineators-Each I	II	III	Delin. Posts-Ea
26	2	0	0	2
TOTALS	2	0	0	2

CONTROL 18-5-14				
Plan & Profile Sheet No.	Delineators-Each I	II	III	Delin. Posts-Ea
23	10	9	1	20
24	36	37	0	73
25	48	22	1	71
26	32	0	0	32
TOTALS	126	68	2	196

NOTE:- All Delineator Posts are 8' long.
Where no spacing is indicated for delineators the following will govern
Amber delineators (Ty. II & Ty. III) = 100'
White delineators (Ty. I) = 200'

SUMMARY OF ROUTE MARKERS FOR GREEN GUIDE SIGNS

CONTROL	SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN BLANK ALUM TYPE "F" SIZE	AREA	3" RADII 1" WIDE BLACK	1" BORDER BLACK	BLACK OUTLINE FOR U.S. RT. MKR	BLACK & LETTERS NUMERALS 6"	8"	12"	15"	
18-6-28	16	2	IM-2F1F	FM 1472	58"x36"	14.50	4	13.67		2		4		U
"	16	15	IM-2F2F	FM 1472	71"x42"	20.70	4	16.83			2		4	R
"	17	6	IM-2F2F	FM 1472	71"x42"	20.70	4	16.83			2		4	R
"	12	1	IM-2F2F	FM 1472	71"x42"	20.70	4	16.83			2		4	U
"	14	2	IM-2F1F	FM 1472	58"x36"	14.50	4	13.67		2		4		U
Sub-total						91.10	20	77.83		4	6	8	12	
18-4-12	26	2	IM-1A3F	US 83	36"	8.09			1-42"x36"				2	
18-5-14	25	3	IM-1A1F	US 83	30"	5.64			1-35"x30"			2		
"	21	1	IM-1A3F	US 83	36"	8.09			1-42"x36"				2	
"	22	1	IM-1A3F	US 83	36"	8.09			1-42"x36"				2	
"	23	4	IM-1A1F	US 83	30"	5.64			1-35"x30"			2		
Sub-total						27.46						4	4	
Total						126.65	20	77.83		4	6	12	18	

ESTIMATE- SIGN TABULATION

SHEET 7 OF 7 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(8)602	11
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	5	14	IH-35

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ALT	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ▪ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIZE	SIGN BLANK MATERIAL: SHEET ALUM TYPE A	PLYWOOD TYPE "A"	PLYWOOD TYPE "A" or "B"	LETTERS & NUMERALS: UPPER CASE & NUMERALS EACH 8"	13.5"	16"	LOWER CASE EACH 6"	10"	12"	CAPITALS & NUMERALS EACH 10"	12"	15"	WHITE ARROWS EACH 8"x12"	IA-1	WHITE BORDER RADII EACH R-3" 1"	R-3" 2"	R-12" 4"	WHITE BORDER L.F. 1"	2"	3"	TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No 1	LENGTH No 2	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	CAPITAL LETTERS 6"
			CONTROL 18-5-14																																								
			Crossover																																								
	20	2	589+42	IR-1GR	•• ONE WAY	Black	48"x16"			5.33																	E				3"I-5.7#	13'-5"		76	5.5							
	20	3	589+52	IR-1GL	•• ONE WAY	Black	48"x16"			5.33																	E				3"I-5.7#	13'-5"		76	5.5							
	20	4	589+62	IR-1A	•• STOP	Red	30"x30"		5.18																		A		14'-6"						5.5							
	20	5	589+64	IR-1A	•• STOP	Red	30"x30"		5.18																		A		14'-6"						5.5							
	20	6	590+30	IR-1A	•• STOP	Red	30"x30"		5.18																		A		14'-6"						5.5							
	20	7	590+35	IR-1GL	•• ONE WAY	Black	48"x16"			5.33																	E				3"I-5.7#	13'-5"		76	5.5							
	20	8	590+40	IR-1A	•• STOP	Red	30"x30"		5.18																		A		14'-6"						5.5							
	20	9	590+50	IR-1GR	•• ONE WAY	Black	48"x16"			5.33																	E				3"I-5.7#	13'-5"		76	5.5							
	Sub-Total - Control 18-5-14 Cont.							55.45	36.26	206.48	29	19	12	59	38	68	28	18	12	7	4			16	20	16	181.49	144	242		17.93	5.75	27.67	27.25				19.787	252.0	35.0	84	68	
	TOTALS							193.65	191.28	580.43	48	27	57	111	52	216	105	34	20	12	12			44	40	52	409.15	250	796		24.16	11.50	102.67	39.50				56.313	777.0	75.0	187.0	200.0	20

FINAL SUMMARY OF DELINEATORS

CONTROL 18-6-28						
Plan & Profile Sheet No.	Delineators - Each I-Std.	I-Mod.	II	II Mod.	III	Delin. Posts-Ea.
12	18	0	31	0	3	52
13	24	32	40	1	1	81
14	26	28	11	0	3	54
15	27	0	67	0	5	99
16	19	6	25	0	1	48
17	30	0	0	0	2	32
18	20	0	35	0	1	56
19	23	0	0	0	4	27
TOTALS	187	66	209	1	20	449

CONTROL 18-4-12				
Plan & Profile Sheet No.	Delineators - Each I	II	III	Delin. Posts-Ea.
26	4	0	0	4
27	0	2	0	2
TOTALS	4	2	0	6

CONTROL 18-5-14				
Plan & Profile Sheet No.	Delineators - Each I	II	III	Delin. Posts-Ea.
20	0	2	0	2
21	25	0	0	25
22	32	0	0	32
23	27	9	1	37
24	35	37	0	72
25	46	22	5	73
26	32	0	0	32
TOTALS	197	70	6	273

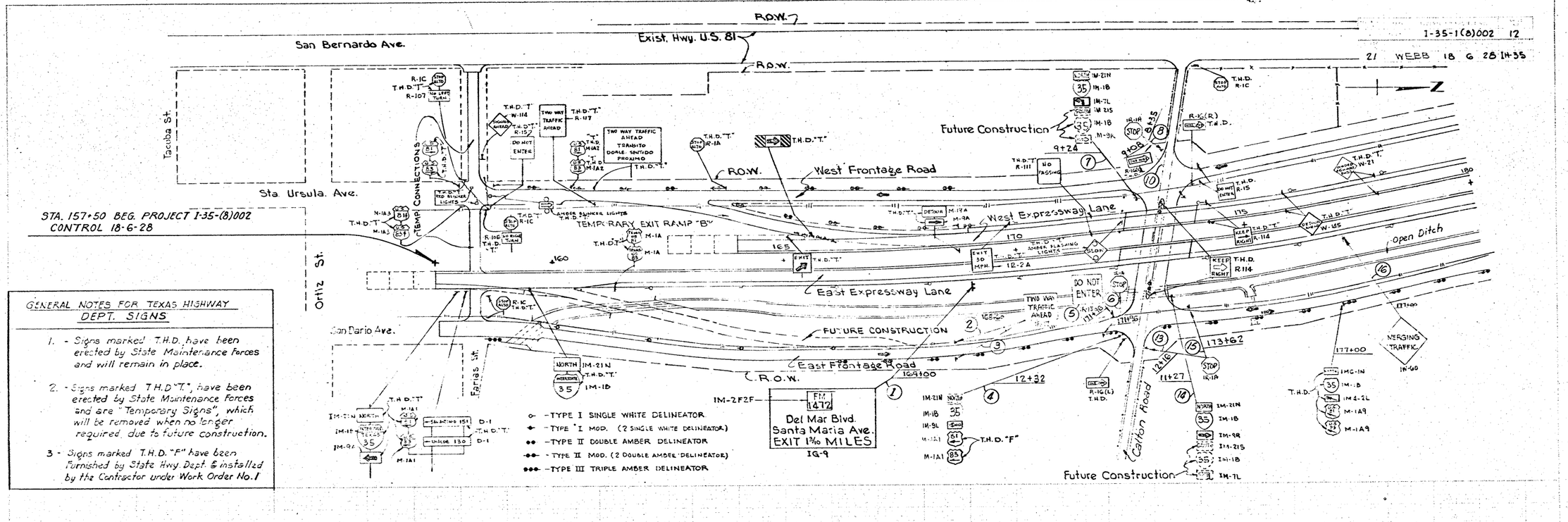
FINAL SUMMARY OF ROUTE MARKERS FOR GREEN GUIDE SIGNS

CONTROL	SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN BLANK ALUM TYPE F SIZE	SIGN BLANK ALUM TYPE F AREA	3" RADII 1" WIDE BLACK	1" BORDER BLACK	BLACK OUTLINE FOR U.S. RT. MKR	BLACK & LETTERS NUMERALS 6"	8"	12"	15"
18-6-28	16	2	IM-2F1F	FM 1472	58"x36"	14.50	4	13.67		2		4	
"	16	15	IM-2F2F	FM 1472	71"x42"	20.70	4	16.83			2		4
"	17	6	IM-2F2F	FM 1472	71"x42"	20.70	4	16.83			2		4
"	12	1	IM-2F2F	FM 1472	71"x42"	20.70	4	16.83			2		4
"	14	2	IM-2F1F	FM 1472	58"x36"	14.50	4	13.67		2		4	
Sub-total						91.10	20	77.83		4	6	8	12
18-4-12	26	2	IM-1A3F	US 83	36"	8.09			1-42"x36"				2
18-5-14	25	3	IM-1A1F	US 83	30"	5.64			1-35"x30"			2	
"	21	1	IM-1A3F	US 83	36"	8.09			1-42"x36"				2
"	22	1	IM-1A3F	US 83	36"	8.09			1-42"x36"				2
"	23	4	IM-1A1F	US 83	30"	5.64			1-35"x30"			2	
Sub-total						27.46						4	4
Total						126.65	20	77.83		4	6	12	18

FINAL SIGN TABULATION

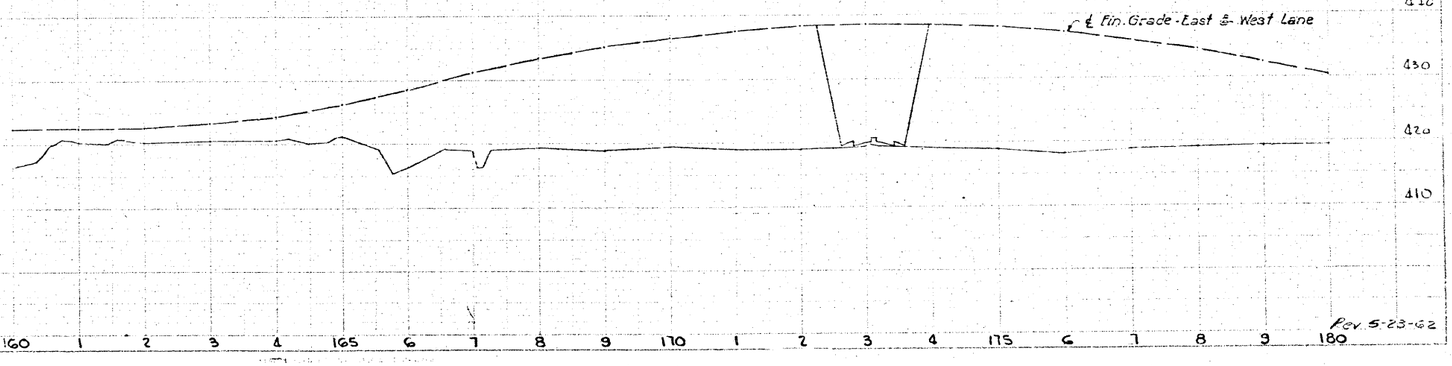
SHEET 7 OF 7 SHEETS

FED. RD. DIST. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(8)602	11A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	5	14	IH-35



GENERAL NOTES FOR TEXAS HIGHWAY DEPT. SIGNS

1. - Signs marked T.H.D. have been erected by State Maintenance Forces and will remain in place.
2. - Signs marked T.H.D."T", have been erected by State Maintenance Forces and are "Temporary Signs", which will be removed when no longer required due to future construction.
3 - Signs marked T.H.D. "F" have been furnished by State Hwy. Dept. & installed by the Contractor under Work Order No. 1



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	I-35-1(8)002	13
21	WEBB 18 G 28 IH-35	

SANDS MOTEL

HOLIDAY INN

SOUTH IM-21S
35 IM-1B
IM-9L
M-1A1
T.H.D. "F"
M-1A1

2 185+80

DO NOT ENTER IR-1S

TWO WAY TRAFFIC IR-17A

193+20

193+20

YIELD RIGHT OF WAY IR-4B

5 194+00

R.O.W.

T.H.D.
TWO WAY TRAFFIC AHEAD
TRANSITO DOBLE SENTIDO PROXIMO

EXIT 30 MPH IR-2A

6 198+00

EXIT IG-1

7 198+50

San Bernardo Ave.
Calton Road
IG-11

9 203+80

Exist. Hwy. US. 81 (West Frontage Road)

West Expressway Lane

East Expressway Lane

East Frontage Road

R.O.W.

T.H.D. R-1G(E)

ONE WAY

DO NOT ENTER R-1S T.H.D.

PAVEMENT NARROWS T.H.D.

T.H.D.

DO NOT CROSS MEDIAN T.H.D.

SPEED ZONE AHEAD T.H.D. R-10A

T.H.D. "F" R-10Z

SPEED LIMIT 30 R-10Z

180+74

1 NORTH IM-21N
35 IM-1B
IM-10L
M-1A1
T.H.D. "F"
M-1A1

T.H.D. R-1GB

YIELD RIGHT OF WAY

T.H.D. R-1AB

Hillside Road

T.H.D. IR-1A

STOP

8 199+50

NORTH IM-22N
35 IM-1C
U.S. 81 M-1A1
T.H.D. "F"
U.S. 83 M-1A1

209+50 10

SPEED LIMIT 60 IR-2
NIGHT 55 IR-3

180 185 190 195 200 205 210

PROFILE

440
430
420
410

℄ Fin. Grade - East & West Lane

I-35-1(8)002 14

21 W203 18 G 28 IN-35

N

San Bernardo Ave.
Calton Road
EXIT ⅝ MILE
IG-9

GAS-FOOD-LODGING IG-7

T.H.D. R-11A KEEP RIGHT

Main

T.H.D. 1R-1A STOP

W-6 T.H.D.

T.H.D. W-6

1 225+00

Exist. Hwy. U.S. 81 (West Frontage Road)

WINN COUNTY

West Expressway Lane

East Expressway Lane

East Frontage Road

open ditch

1R-1A T.H.D. STOP

1R-1A THD STOP

210 215 220 225 230 235 240

EQUATION
210+41.3
= 210+44.3
= -3.0'

W-6 T.H.D.

KEEP RIGHT R-11A T.H.D.

STOP 1R-1A T.H.D.

W-6 T.H.D.

Road

2 234+00

FM 1472
Del Mar Blvd.
Santa Maria Ave.
IG-11

IM-2 FIF

81 T.H.D. M-1A
83 T.H.D. N-1A
239+14

3 EXIT
IG-1

240+05

4 EXIT 30 MPH
R-2A

440
430
420
410

℄ Fin. Grade - East & West Lane

210 1 2 3 4 215 6 7 8 9 220 1 2 3 4 225 6 7 8 9 230 1 2 3 4 235 6 7 8 9 240

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I-35-1(8)002 15

21 WEBB 18 6 28 IM-35

Santa Maria Avenue - 20' Conc. Pavement

Exist. Hwy. U.S 81 (West Frontage Road)

West Expressway Lane

East Expressway Lane

East Frontage Road

R.O.W.

Main Lane M.P.R.R.

FM 1472

Del Mar Blvd.

Santa Maria Ave

HIGH WAY INTERSECTION 1000 FT. T.H.D. W-G2

YIELD T.H.D. R-148

NO PASSING T.H.D. R-111

NO PASSING T.H.D. R-111

T.H.D. "F"

TWO WAY TRAFFIC IR-17

MERGING TRAFFIC W-GO

KEEP RIGHT IR-18

STOP IR-1A

DO NOT ENTER IR-15

TWO WAY TRAFFIC IR-17A

YIELD RIGHT OF WAY IR-48

KEEP RIGHT T.H.D. R-114

30 MPH ENTER IR-15

EXIT 45 MPH IR-2A

LAREDO 4 D-1A

SAN ANTONIO 149 D-1A

San Antonio 149 IG-25

LAREDO SPACETRACK SENSOR 8

CARRIZO SPRINGS 77

MUNICIPAL AIRPORT 3 D-1

LAREDO SENSOR SITE 8 T.H.D. D-1

FARM ROAD 1472 M-2F

M-9R

M-9L

M-1A1

M-1A2

M-1A3

M-2F-1

M-1A9

M-10L

M-2IN

M-1B

IM-2IN

IM-1B

IM-7L

IM-9R

IM-9L

IM-215

IM-35

IM-10L

IM-1A9

IM-1A1

IM-1A2

IM-1A3

IM-2F-1

IM-2F

IM-3

IM-1B

IN-GO

M2F-1 T.H.D.

T.H.D. R-148

T.H.D. M-1A1

T.H.D. M-1A2

T.H.D. M-1A3

T.H.D. M2F-1

T.H.D. M2F

T.H.D. D-1

T.H.D. D-1A

T.H.D. R-114

T.H.D. IN-GO

T.H.D. IN-1B

T.H.D. IN4-2L

T.H.D. R-148

T.H.D. "F"

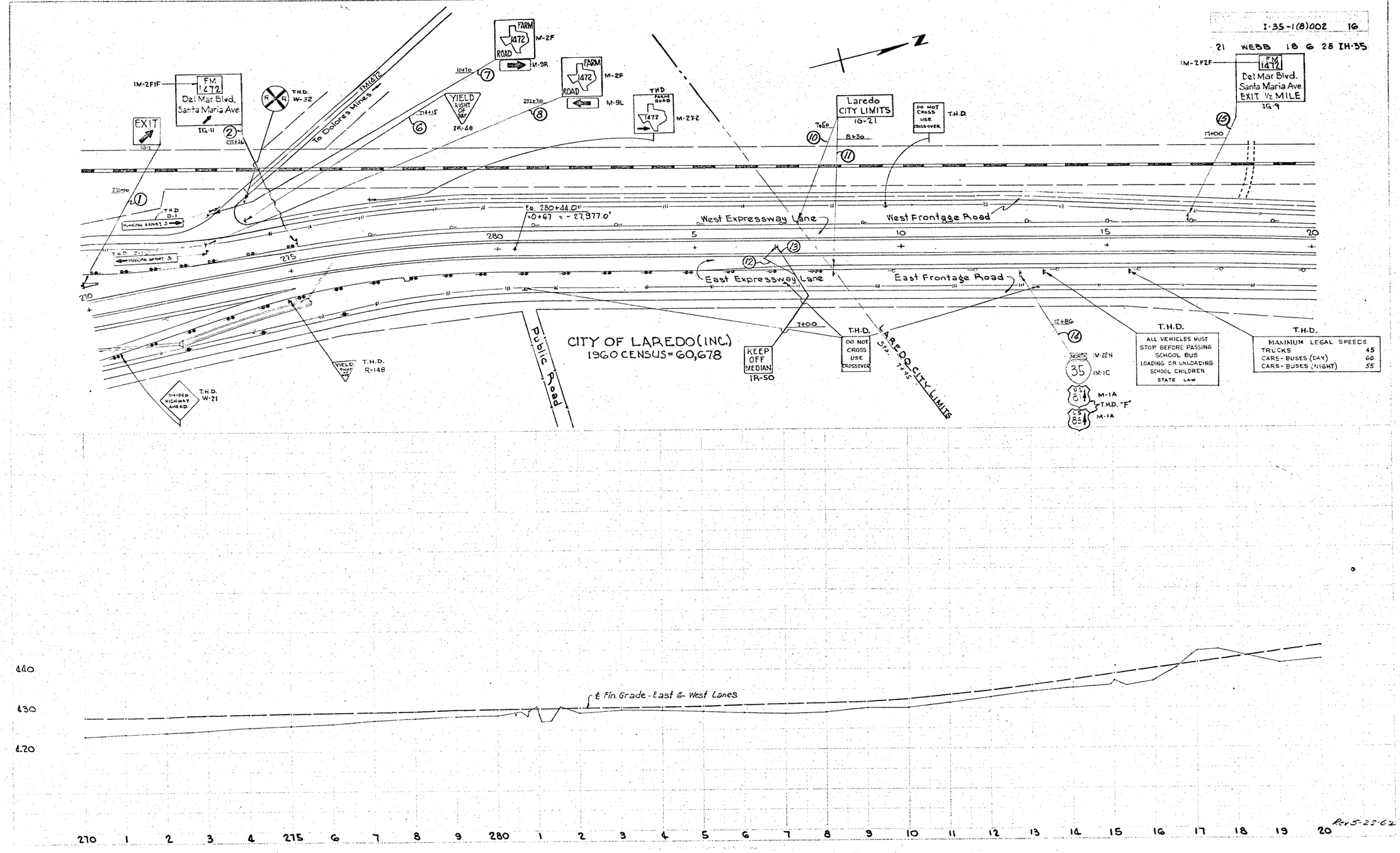
240 245 250 255 260 265 270

440 430 420 410

℄ Fin. Grade - East & West Lanes

I-35-1(8)002 16

21 WEBB 18 G 28 IH-35



Rev 5-23-62

I-35-1(8)002 17

21 NEBB 18 G 28 IH-35

N

FM 1472 — IM-2 FZF
Del Mar Blvd.
Santa Maria Ave. IG-9
EXIT 1 MILE
GAS-FOOD-LODGING IG-7

⑥ 28+27

Exist. Hwy. US-81 (West Frontage Road)

West Expressway Lane

East Expressway Lane

East Frontage Road

20 25 30 35 40 45 50

① ② ③ ④ ⑤

20+20

22+86

33+50

SPEED LIMIT GO NIGHT 55 IR-2 IR-3

KEEP OFF MEDIAN IR-50

KEEP OFF MEDIAN IR-50

ENCINAL 33
SAN ANTONIO 148
T.H.D. D-4

DO NOT CROSS USE CROSSOVER T.H.D.

DO NOT CROSS USE CROSSOVER T.H.D.

450
440
430
420
410

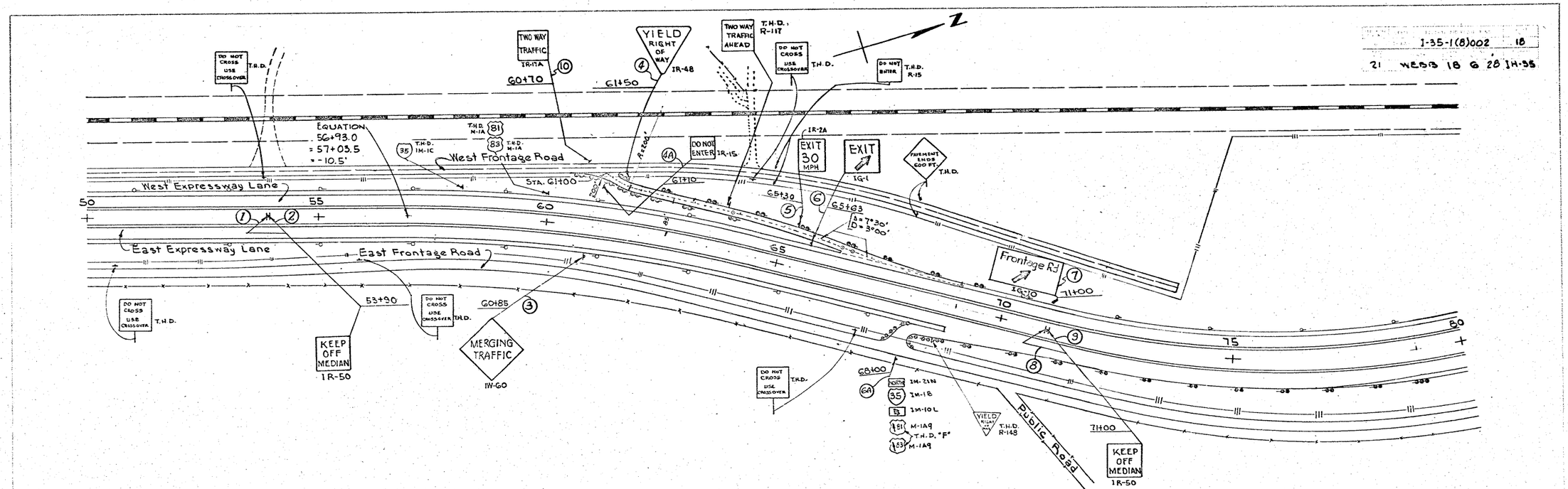
℄ Fin. Grade - East & West Lanes

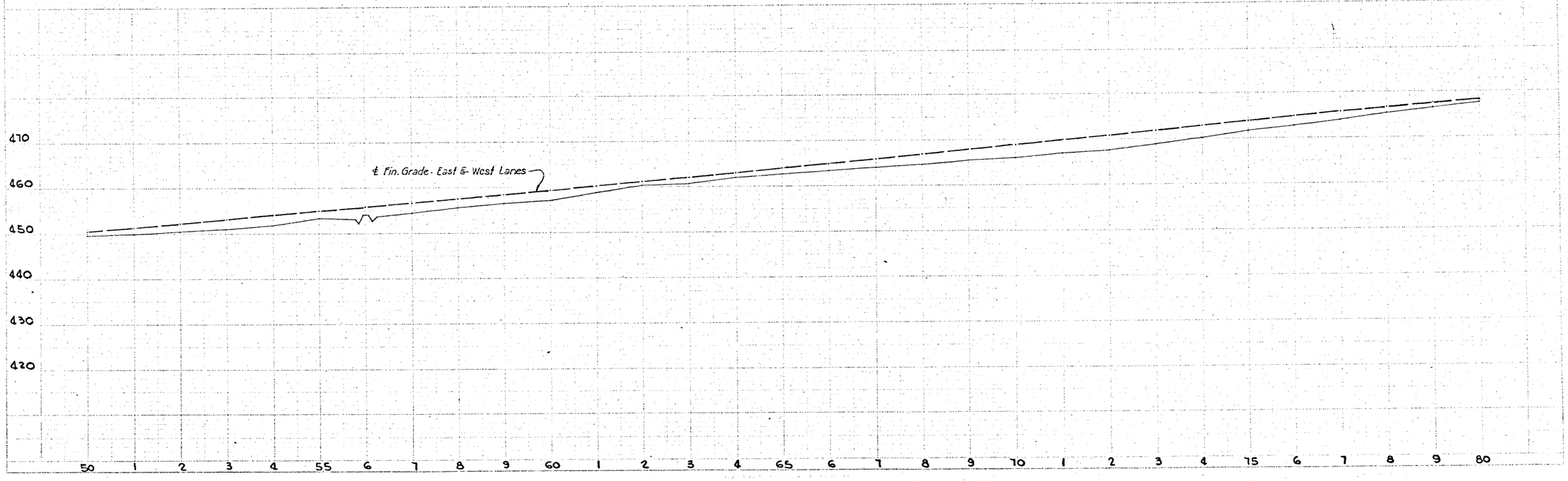
20 1 2 3 4 25 6 7 8 9 30 1 2 3 4 35 6 7 8 9 40 1 2 3 4 45 6 7 8 9 50

Rev 5-23-62

1-35-1(8)002 18

21 WEBB 18 & 28 IH-35





I-35-1(8)002 19

21 WEBB 18 6 28 IH-35

KEEP OFF MEDIAN IR-50

86+15

KEEP OF MEDIAN IR-50

98+00

STA. 104+00 END CONTROL 18-6-28

BEGIN EXCEPTION

CLEARANCE 16 FT. 10 IN. T.H.D.

T.H.D. DO NOT CROSS USE CROSSOVER

84+00

CLEARANCE 16 FT. 10 IN. THD

NORTH IM-22N

35 IM-IC

81 M-IA

T.H.D. "F"

83 M-IA

Ranch Road

96+00

SPEED LIMIT GO IR-2

NIGHT 55 IR-3

West Expressway Lane

East Expressway Lane

104+00

Encinal 31

San Antonio 146

IG-18

490

480

470

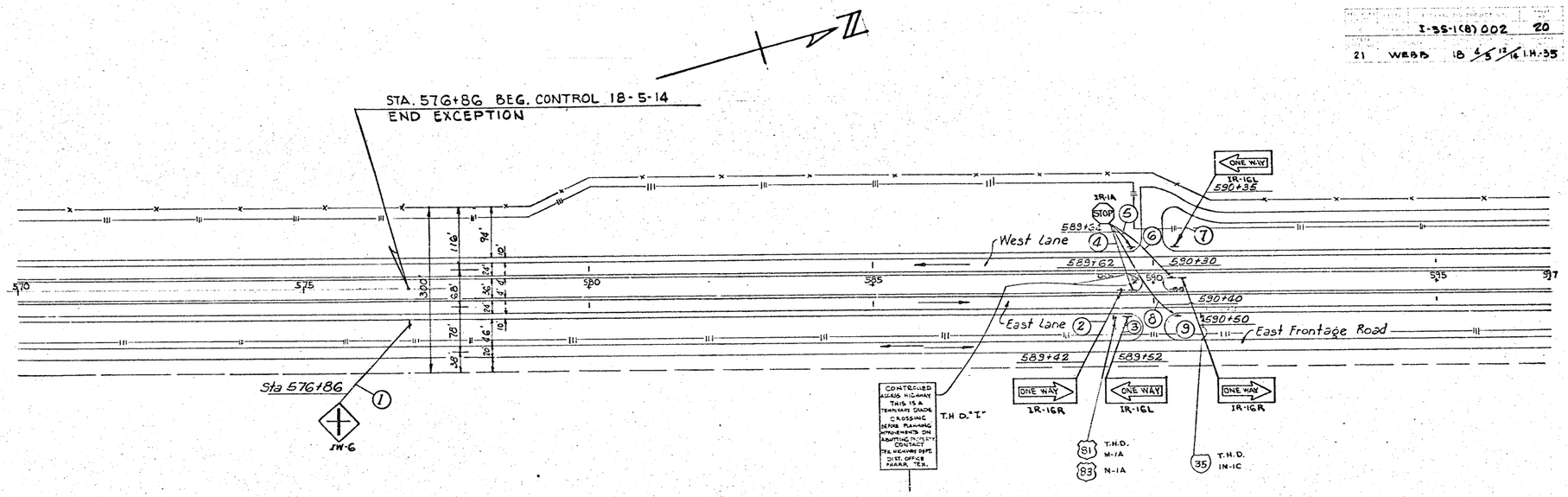
460

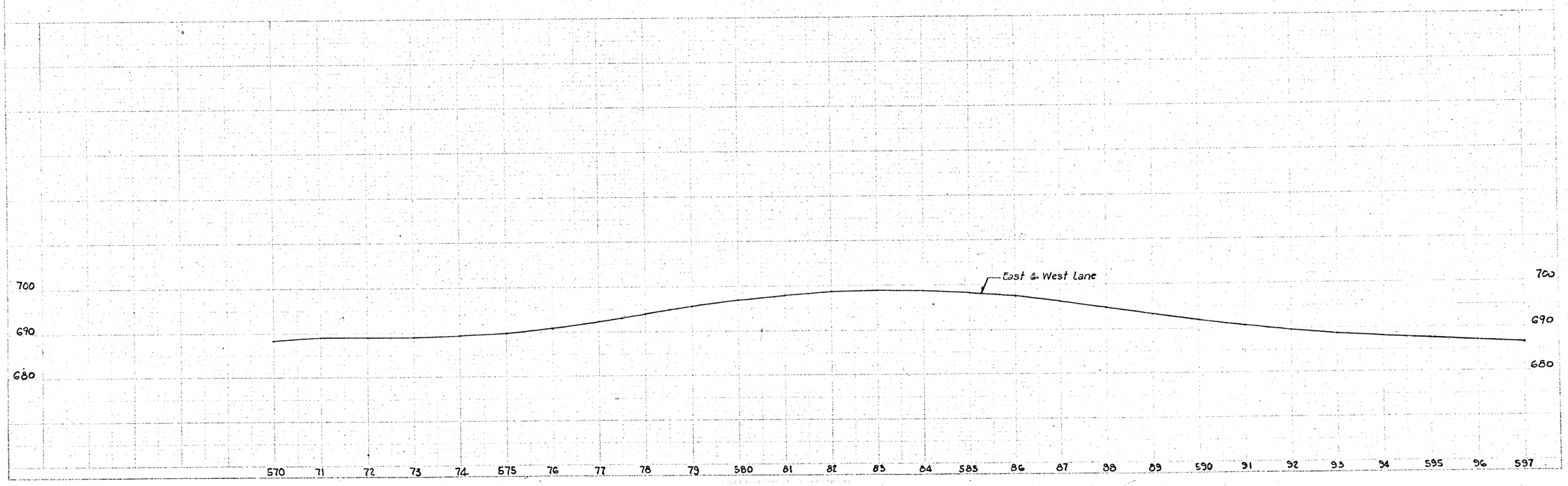
℄ Fin. Grade - East & West Lanes

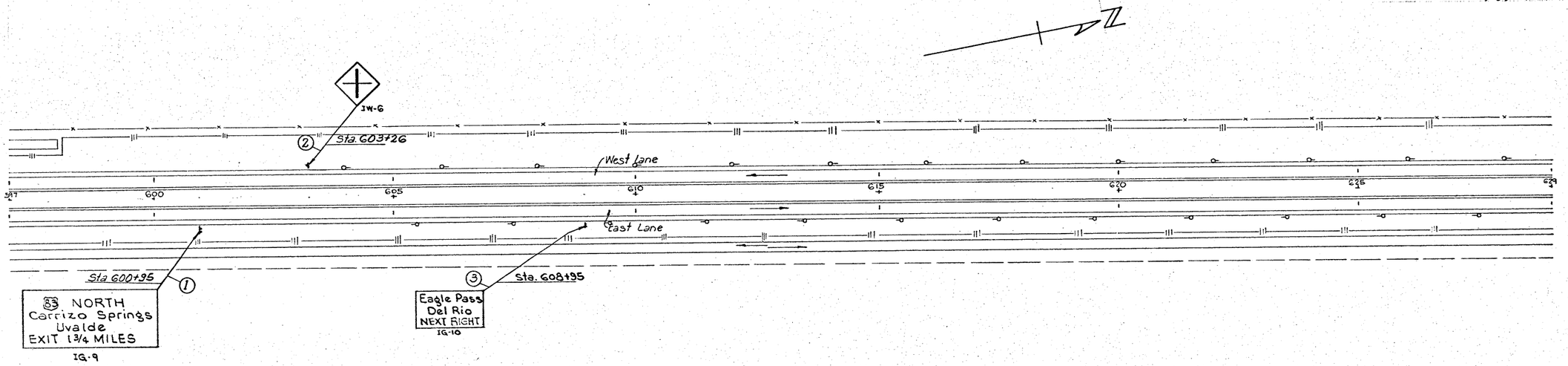
80 1 2 3 4 85 6 7 8 9 90 1 2 3 4 95 6 7 8 9 100 1 2 3 4 105 6 7 8 9 110

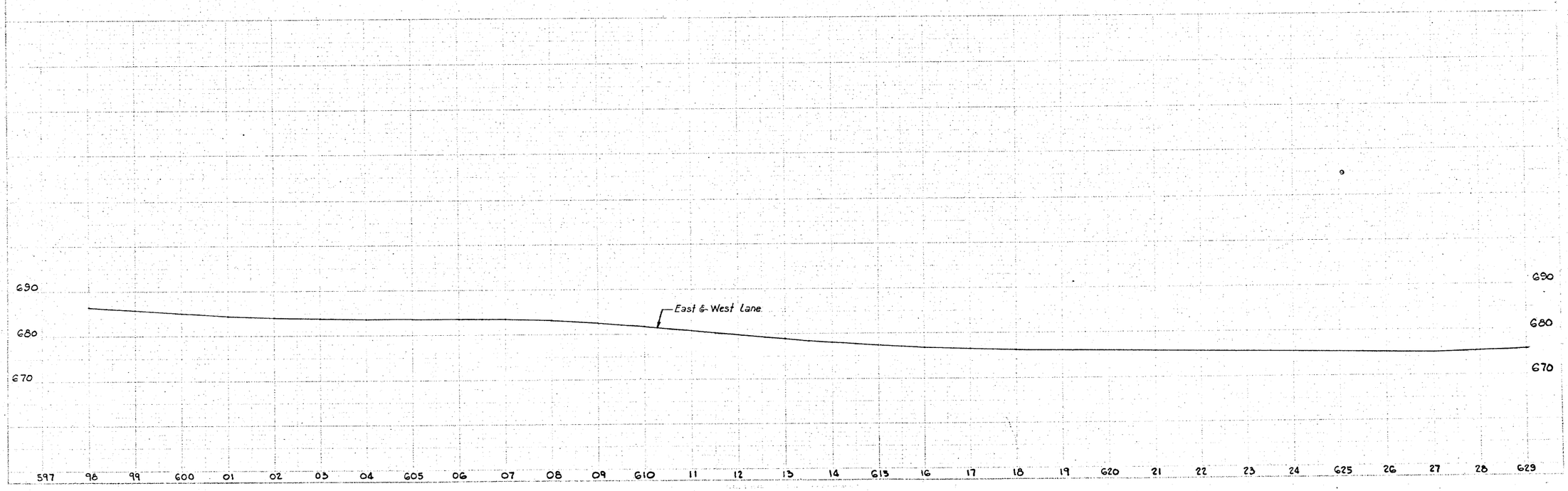
I-35-1(8)002 20

21 WEBB 18 4 5 12 16 I.H.-35



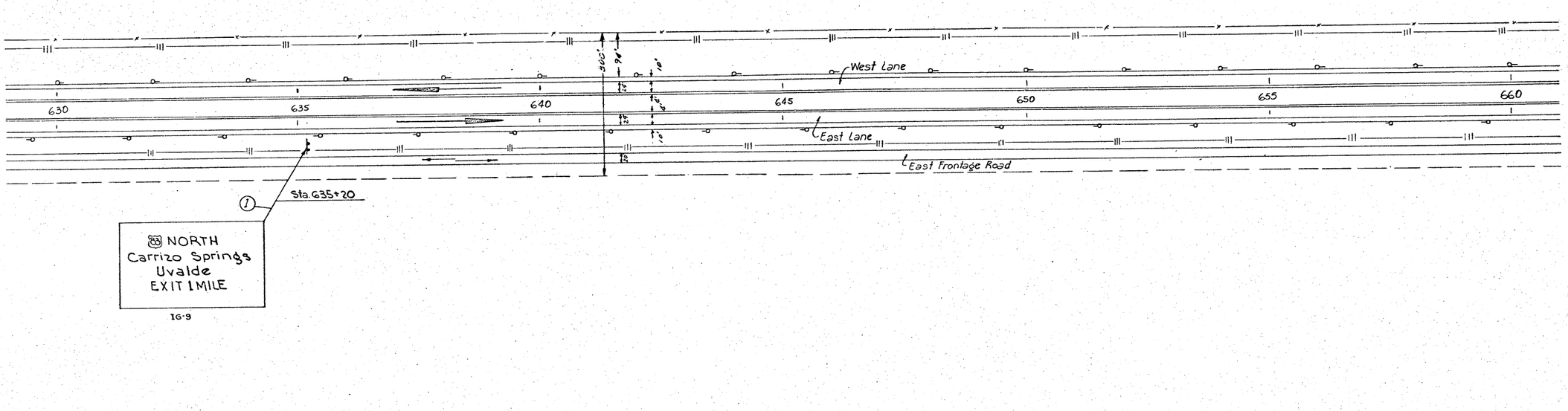


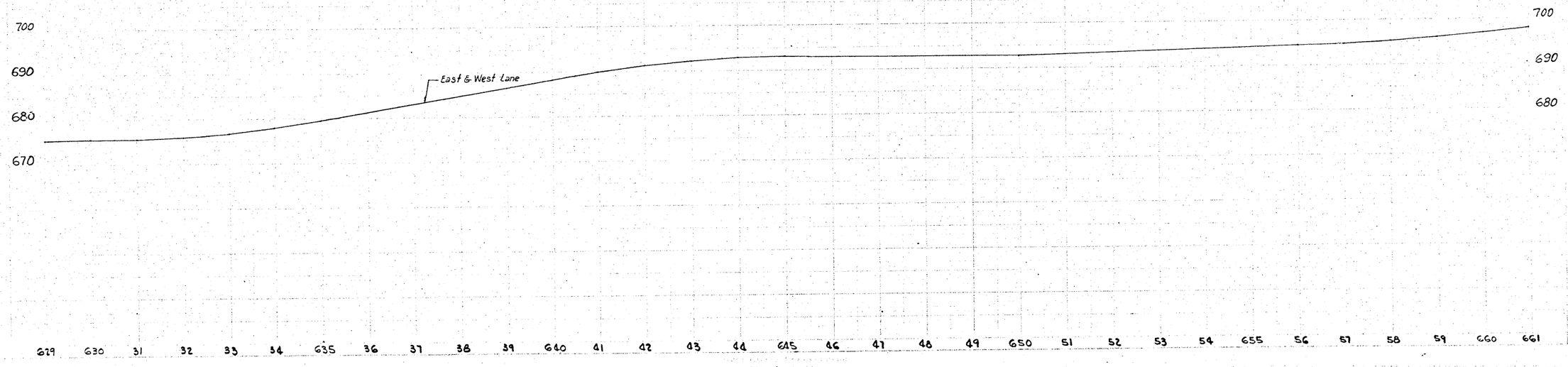

N
JW-6
2
Sta. 603+26
West Lane
East Lane
597
600
605
610
615
620
625
629
Sta 600+95
1
83 NORTH
Carrizo Springs
Uvalde
EXIT 1 3/4 MILES
IG-9
3
Sta. 608+95
Eagle Pass
Del Rio
NEXT RIGHT
IG-10


690
680
670
East & West Lane
690
680
670
597
98
99
600
01
02
03
04
605
06
07
08
09
610
11
12
13
14
615
16
17
18
19
620
21
22
23
24
625
26
27
28
629

I-35-1(8)002 22

21 WEBB 18 4/5 2/16 I.H.-35





I-35-1(8)002 23

21 WEBB 18 5/5/16 I.H.-35

Laredo 17
Monterrey 163
IG-18

Sta. 662+80

IR-2 SPEED LIMIT 60 NIGHT 55
IR-3

Sta. 672+80

IM-22-S SOUTH
IM-1C 35
US 81 T.H.D. "F" MIA
US 83 T.H.D. "F" MIA

Sta. 683+00

IR-2A EXIT 30 MPH

Sta 693+00

83 NORTH
Carrizo Springs
Uvalde
IG-11

Sta. 688+00

YIELD RIGHT OF WAY IR-4B

STA. 693+00

West Lane

East Lane

East Frontage Road

665 670 675 680 685 690

300'

24' 2% 2% 24'

10'

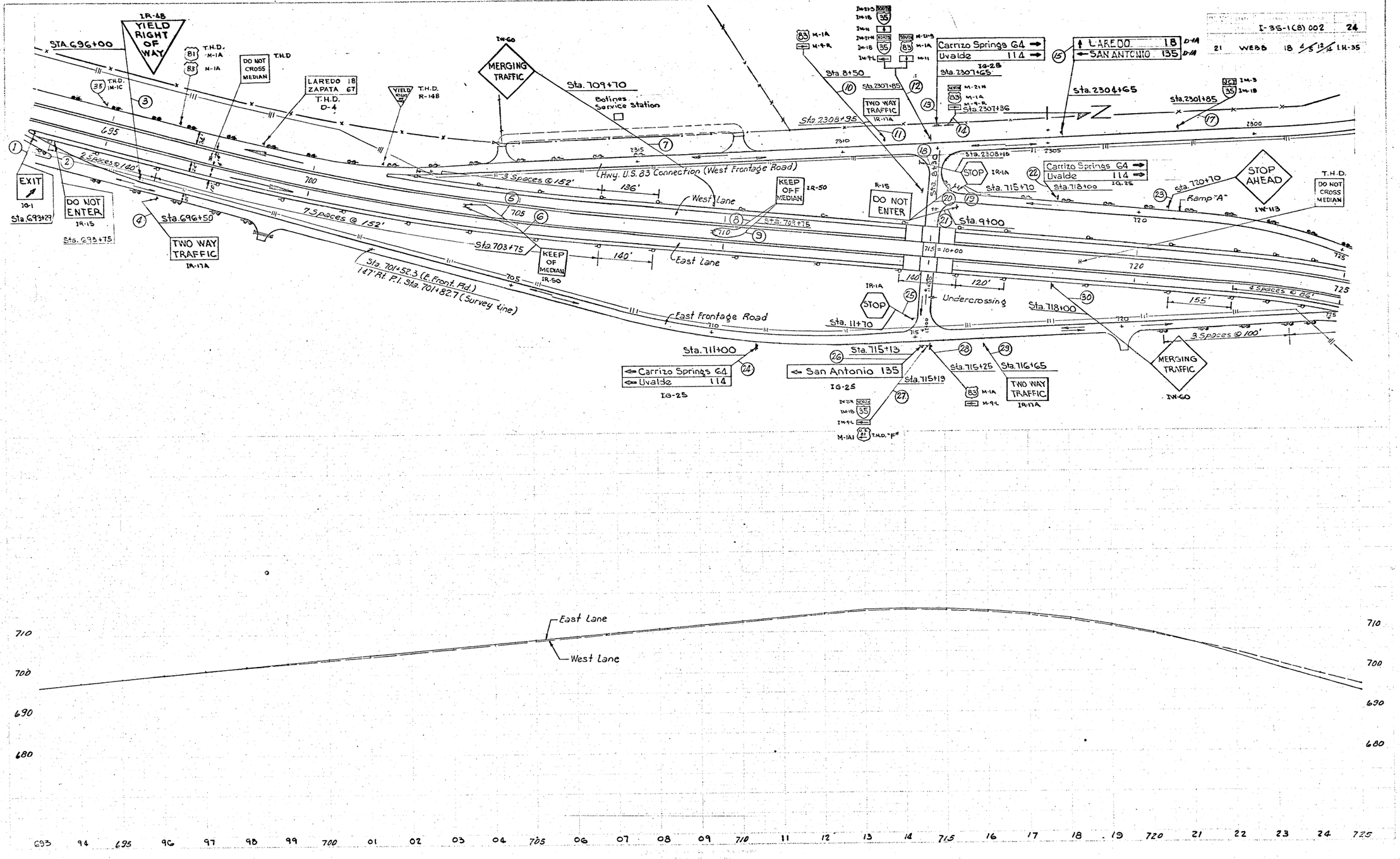
East & West Lane

700
690
680

661 62 63 64 665 66 67 68 69 670 71 72 73 74 675 76 77 78 79 680 81 82 83 84 685 86 87 88 89 690 91 92 693

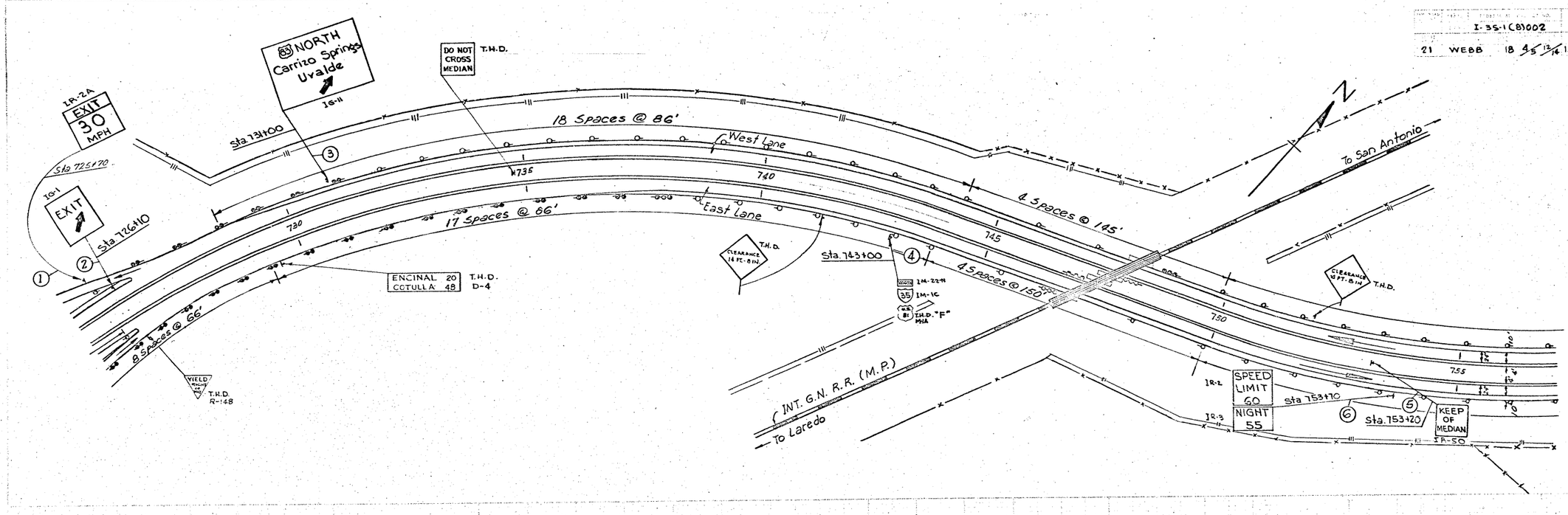
I-35-1(8) 002 24

21 WEBB 18 4 5 12 14 I.H.-35



I-35-1(8)002 25

21 WEBB 18 4/5 13/14 I.H.35



NORTH
Carrizo Springs
Uvalde
EXIT 1 MILE

I-35-1(8)002 26
21 WEBB 18 4/5 12/14 I.H.-35

Sta. 779+50

STA. 773+13.8
END CONTROL 18-5-14

STA. 773+13.8
BEG. CONTROL 18-4-12

DO NOT CROSS MEDIAN T.H.D.

CLEARANCE 16 FT-8 IN. T.H.D. W-24

22 Spaces @ 88'

West Lane

158'

760

765

770

775

780

785

158'

22 Spaces @ 88'

Sta 763+50

East Lane

DO NOT CROSS MEDIAN T.H.D.

Encinal 19
San Antonio 134
IG-18

680
670
660

East Lane
West Lane

680
670
660

757 58 59 760 61 62 63 64 765 66 67 68 69 770 71 72 73 74 775 76 77 78 79 780 81 82 83 84 785 86 87 88 789

I-35-1(8)002 27

21 WEBB 18 5/5/13/14 I.H.35

N

LAREDO 20
MONTERREY 170
T.H.D. D-4

790 795 1070 1075 1080

T.H.D. DO NOT CROSS MEDIAN

STA. 797+94.3
STA. 1064+53.0
EQUATION = -26,658.7'

West Lane

East Lane

Sta 1071+00

1

IWE

INTERSTATE TEXAS 35 T.H.D. IM-1B

U S 81 T.H.D. M1A

ONE WAY IR-1GL

ONE WAY IR-1GR

2 1085+20

3 1084+06

4 1084+52

5 1085 1084+30

6 1085+02

7 1085+00

IR-1A

CONTROLLED ACCESS HIGHWAY THIS IS A TEMPORARY CROSS CROSSING BEFORE PLANNING IMPROVEMENTS ON ABUTTING PROPERTY CONTACT TEX. HIGHWAY DEPT. DIST. OFFICE PHARR, TEX.

T.H.D. "T"

670 660 650 640 630

650 640 630 620

East Lane
West Lane

797+94.3
EQUATION = -26,658.7 Ft.
1064+53.0

789+63.1
EQUATION = -26,661.5 Ft.
1085+26.6

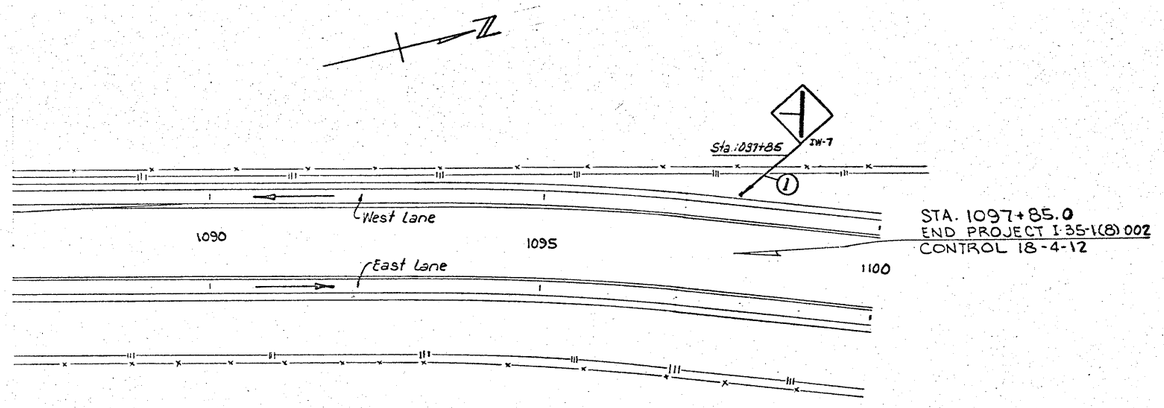
East & West Lane

West Lane
East Lane

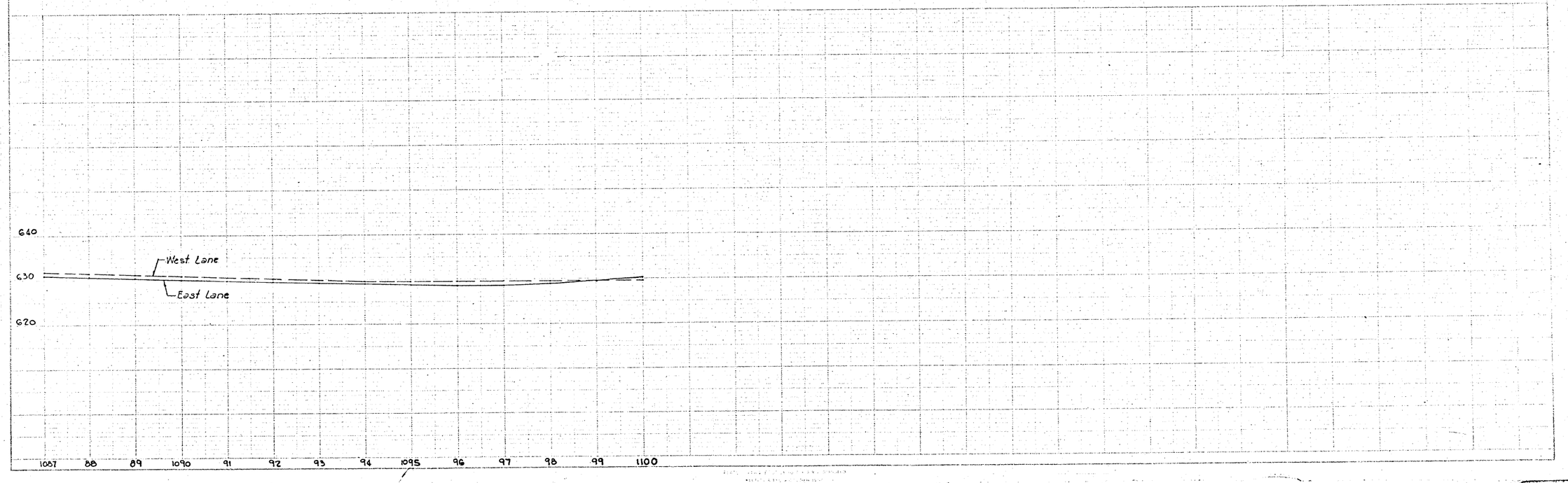
789 790 91 92 93 94 795 96 97 1065 66 67 68 69 1070 71 72 73 74 1075 76 77 78 79 1080 81 82 83 84 1085 86 1087

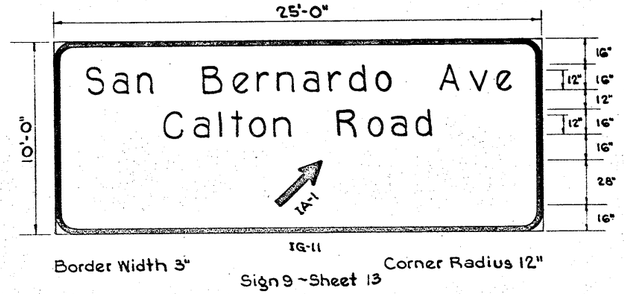
I-35-1(8)002 28

21 WEBB 18 4/5 13/14 I.H.-35



STA. 1097+85.0
END PROJECT I-35-1(8) 002
CONTROL 18-4-12

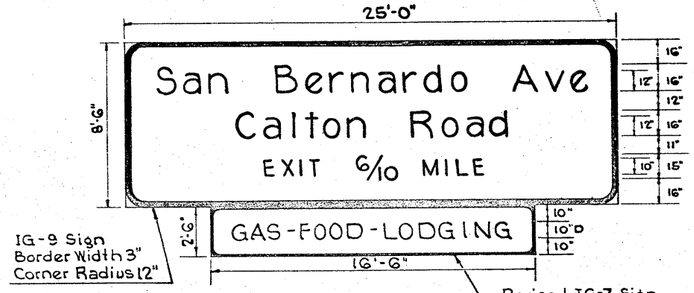




IG-11

Border Width 3" Corner Radius 12"

Sign 9 ~ Sheet 13

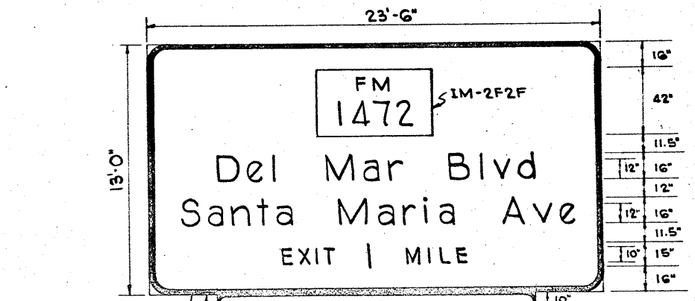


IG-9 Sign
Border Width 3"
Corner Radius 12"

Revised IG-7 Sign

Sign 1 ~ Sheet 14

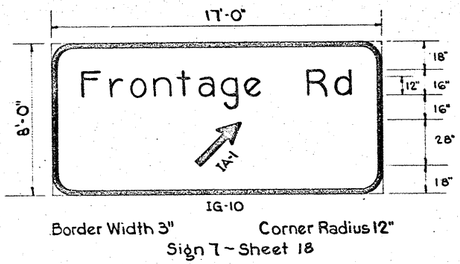
See Sign 6 ~ Sheet 17 For Details of Revised IG-7 Sign



IG-9 Sign
Border Width 3"
Corner Radius 12"

Revised IG-7 Sign
See Sheet ISG(1) For General Notes
Border Width 1"
Corner Radius 3"

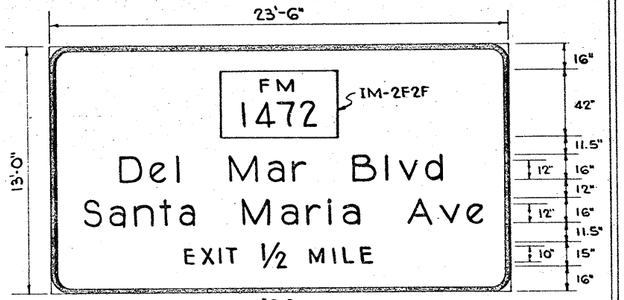
Sign 6 ~ Sheet 17



IG-10

Border Width 3" Corner Radius 12"

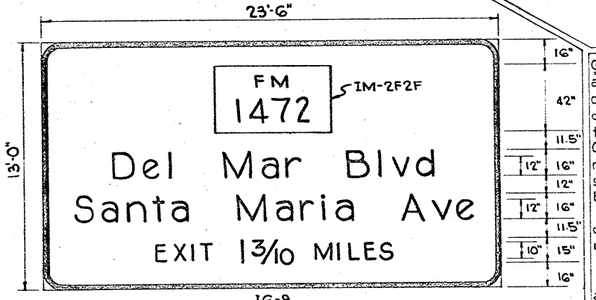
Sign 7 ~ Sheet 18



IG-9

Border Width 3" Corner Radius 12"

Sign 15 ~ Sheet 16



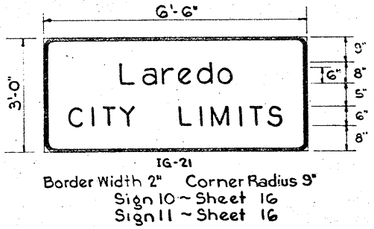
IG-9

Border Width 3" Corner Radius 12"

Sign 1 ~ Sheet 12

Main Lane ~ Southbound

Main Lane ~ Northbound

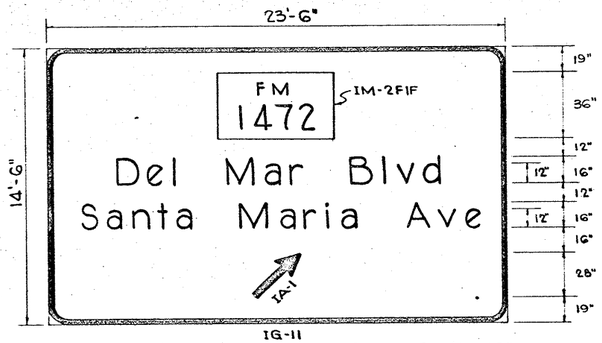


IG-21

Border Width 2" Corner Radius 9"

Sign 10 ~ Sheet 16

Sign 11 ~ Sheet 16

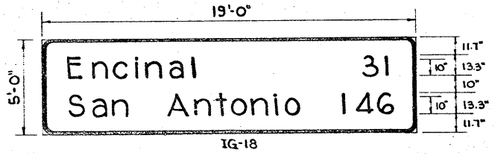


IG-11

Border Width 3" Corner Radius 12"

Sign 2 ~ Sheet 14

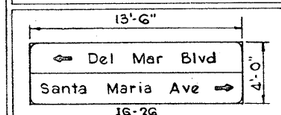
Sign 2 ~ Sheet 16



IG-18

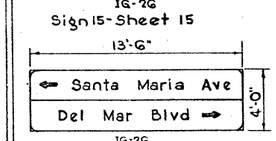
Border Width 2" Corner Radius 9"

Sign 8 ~ Sheet 19



IG-26

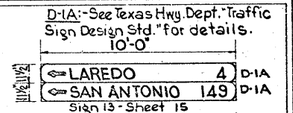
Sign 15 ~ Sheet 15



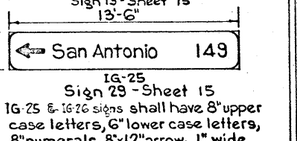
IG-26

Sign 24 ~ Sheet 15

D-1A:-See Texas Hwy. Dept. "Traffic Sign Design Std." for details.



Sign 13 ~ Sheet 15



IG-25

Sign 29 ~ Sheet 15

IG-25 & IG-26 signs shall have 8" upper case letters, 6" lower case letters, 8" numerals, 8"x12" arrow, 1" wide border, & 3" corner radii.

Main Lanes ~ Southbound & Northbound

Frontage Roads & Undercrossings

GENERAL NOTES FOR IG-26 IG-9, IG-10, IG-11, IG-18, IG-21, IG-25:- The alphabets & lateral spacing between letters & words shall conform with the U.S. Bureau of Public Roads standard rounded capital letter alphabets with any applicable modifications stated in the American Association of State Highway Officials Manual for Signing & Pavement Marking of the National System of Interstate & Defense Highways-1958, and/or subsequent revisions thereto. Lateral spacing of text shall be such as to provide a balanced appearance.

All removable copy letters, numerals, arrows, symbols, & borders used on signs for this contract shall be of the same manufacture.

The sign area outside the corner radius need not be trimmed.

For all these Guide Signs, the letters, borders, numerals, & arrows shall be reflectorized removable copy conforming with the Specifications, & the background shall be of Interstate Green Reflective Material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint & beads of the type called for in the Specifications.

The sign blanks for all signs listed above shall be 5/8" thick plywood according to Standard Sheet SMD-4 & conforming with the Specifications. When reflective sheeting is used for background reflectorization, the plywood shall be Type "A", high density. When paint & beads are used for background reflectorization, the plywood shall be Type "B", medium density.

GUIDE SIGNS

			1-35-1(8)002			29
DIST.	COUNTY		SHEET NO.			SHEETS
21	WEBB		18	G	28	IH-35

Rev 5-23-62

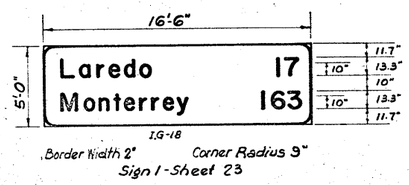
GENERAL NOTES FOR IG-9, IG-10, IG-11, IG-12, IG-25:- The alphabets & lateral spacing between letters & words shall conform with the U.S. Bureau of Public Roads standard rounded capital letter alphabets with any applicable modifications stated in the American Association of State Highway Officials Manual for Signing & Pavement Marking of the National System of Interstate & Defense Highways-1958, and/or subsequent revisions thereto. Lateral spacing of text shall be such as to provide a balanced appearance.

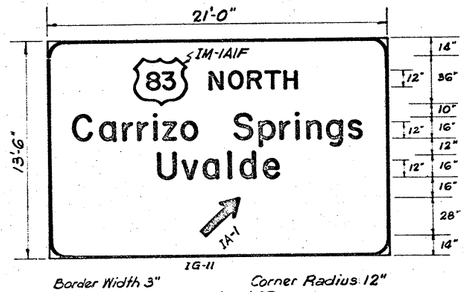
All removable copy letters, numerals, arrows, symbols, & borders used on signs for this contract shall be of the same manufacture.

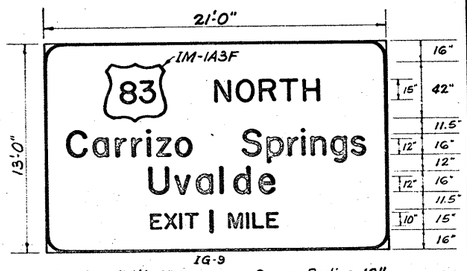
The sign area outside the corner radius need not be trimmed.

For all these Guide Signs, the letters, borders, numerals, & arrows shall be reflectorized removable copy conforming with the Specifications, & the background shall be of Interstate Green Reflective Material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint & beads of the type called for in the Specifications.

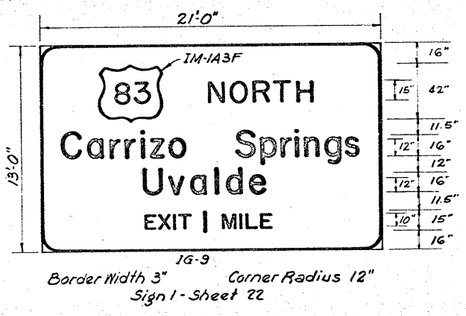
The sign blanks for all signs shown on this sheet shall be ¾" thick plywood according to Standard Sheet SMD-4 & conforming with the Specifications. When reflective sheeting is used for background reflectorization, the plywood shall be Type "A", high density. When paint & beads are used for background reflectorization, the plywood shall be Type "B", medium density.

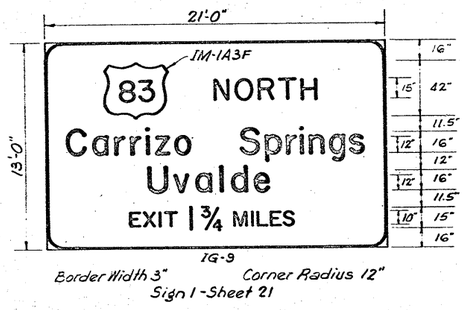


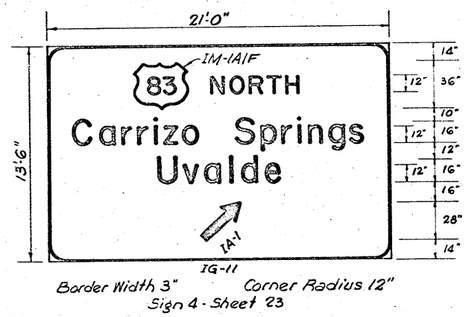


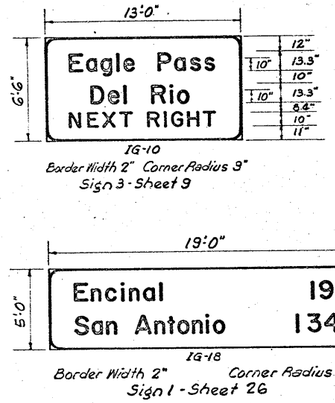


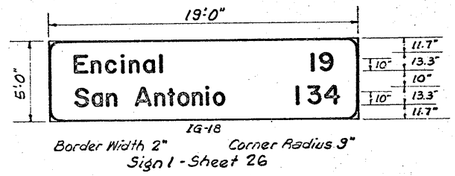
Main Lane - Southbound



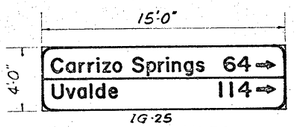


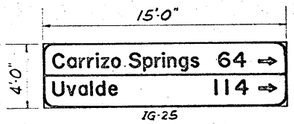


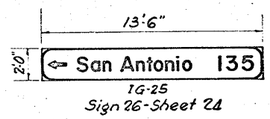


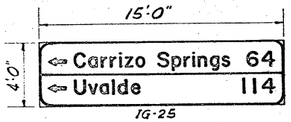


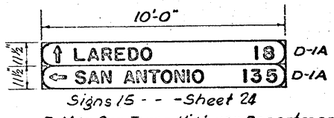
Main Lane - Northbound











All IG-25 Signs shall have 8" upper case letters, 6" lower case letters, 8" numerals, 8"x12" arrows, 1" wide borders & 3" corner radii.

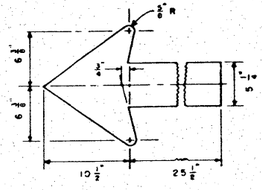
D-1A:- See Texas Highway Department "Traffic Sign Design Standards" for details.

Frontage Roads & Undercrossings

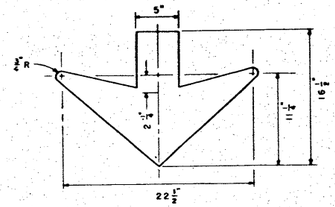
GUIDE SIGNS

		I-35-1(8)002		30
	21	WEBB	18	IH-35

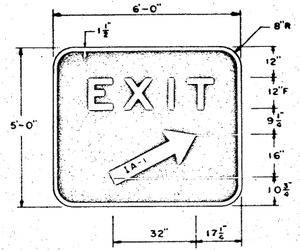
Rev 5-23-62



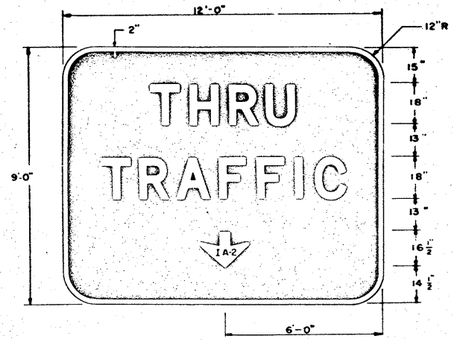
IA-1
36" x 12 1/2"



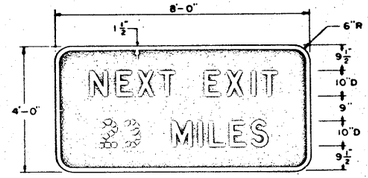
IA-2
22 1/2" x 16 1/2"



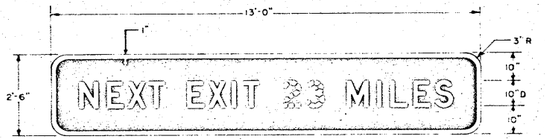
IG-1
6'-0" x 5'-0"



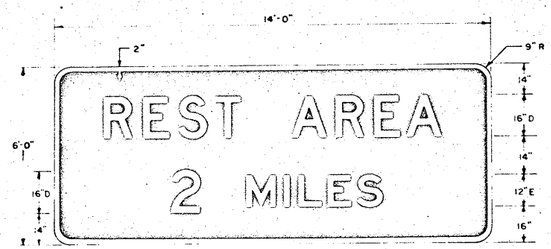
IG-2
12'-0" x 9'-0"



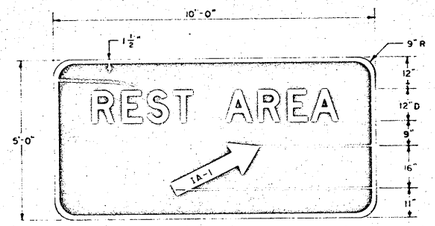
IG-3
8'-0" x 4'-0"



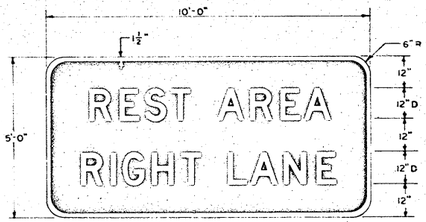
IG-3A
13'-0" x [illegible]



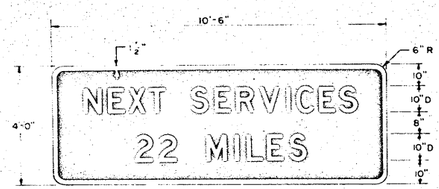
IG-4
14'-0" x 6'-0"



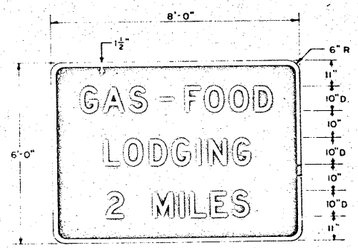
IG-5
10'-0" x 5'-0"



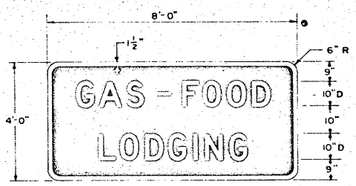
IG-5A
10'-0" x 5'-0"



IG-8
10'-6" x 4'-0"



IG-6
8'-0" x 6'-0"



IG-7
8'-0" x 4'-0"

GENERAL NOTES

The alphabets and lateral spacing between letters and words shall conform with the U.S. Bureau of Public Roads standard rounded gothic letters as shown, with modifications as stated in the American Association of State Highway Officials Manual for Signs and Pavement Markings of the National System of Interstate and Defense Highways, and as supplemented herein. Lateral spacing of text shall be such as to give visual balance and appearance.

For IA-1, IA-2, IA-3, and IA-3A signs, the letters, arrows, numerals, and all as shown hereon shall be reflectorized with the specified sheeting. For IG signs which are independently illuminated, the legend and border on Interstate green reflective material of either flat or high intensity sheeting, reduced lens reflective sheeting of paint and cutout film as specified in the plans. For signs which are independently illuminated, the legend and border on Interstate green porcelain enamel shall be as shown hereon and shall be Interstate green porcelain enamel conforming with the specifications.

For IG-1, IG-2, IG-3, IG-3A, and IG-4 signs, the letters, arrows, numerals, and all as shown hereon shall be reflectorized with the specified sheeting, and the background shall be flat surface reflective sheeting paint as Interstate B, E, or G.

All of the sign letters, numerals, arrows, and borders used on signs of this contract shall be the same as the plans.

For signs that are not reflectorized or are independently illuminated shall be constructed of aluminum alloy panels as specified in the contract. Should the contractor elect to use extruded aluminum alloy panels, the aluminum alloy shall conform with A.S.T.M. Specification B-221, alloy 6S-T6. Should the contractor elect to use sheet aluminum panels, the aluminum alloy shall conform with A.S.T.M. Specification B209 alloy designation 6S-T6. The aluminum alloy shall be a minimum of 0.09 inch thick for the face panels of extruded panels, and 0.08 inch thick for sheet panels, where possible. For sign faces for all signs shown on this sheet which are not independently illuminated shall be 0.04 inch thick, flat sheet aluminum alloy Standard Sheet SMD-4 and shall conform with the specifications. When reflective sheeting is used for the non-illuminated portions, the plywood shall be Type A, High Density. When paint and cutouts are used for the non-illuminated portions, the plywood shall be Type B, Medium Density.

The sign area outside the corner radius need not be painted.

TEXAS HIGHWAY DEPARTMENT

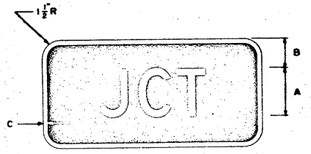
STANDARD INTERSTATE SIGNS

GUIDE

SHEET 1 of 6

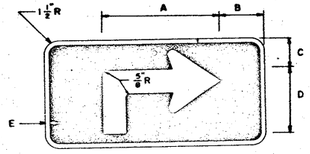
ISG(1)

			FED. AID DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
REVISED	2/23/59	LAF	6	TEXAS		
REVISED	2/1/60	GLT				
REVISED	3/16/61	CH	STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
REVISED	2/62					



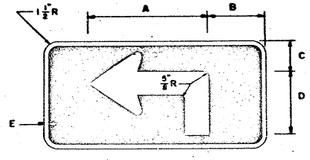
IM-3
18"X 9"
A = 4"D
B = $2\frac{1}{2}$"
C = $\frac{3}{8}$"

IM-3B
24"X12"
A = 6"C
B = 3"
C = $\frac{1}{2}$"



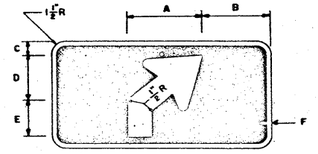
IM-7-R
18"X 9"
A = $9\frac{3}{4}$"
B = $4\frac{3}{8}$"
C = $2\frac{1}{2}$"
D = $5\frac{1}{8}$"
E = $\frac{3}{8}$"

IM-7B-R
24"X12"
A = 13"
B = $6\frac{1}{4}$"
C = $3\frac{3}{8}$"
D = 7"
E = $\frac{1}{2}$"



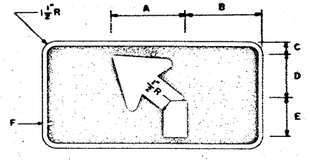
IM-7-L
18"X 9"
A = $9\frac{3}{4}$"
B = $4\frac{3}{8}$"
C = $2\frac{1}{2}$"
D = $5\frac{1}{8}$"
E = $\frac{3}{8}$"

IM-7B-L
24"X12"
A = 13"
B = $6\frac{1}{4}$"
C = $3\frac{3}{8}$"
D = 7"
E = $\frac{1}{2}$"



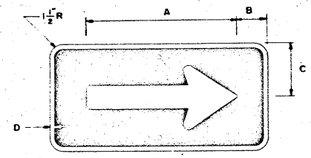
IM-8-R
18"X 9"
A = 6"
B = $6\frac{1}{4}$"
C = $1\frac{1}{4}$"
D = $3\frac{1}{2}$"
E = $2\frac{1}{8}$"
F = $\frac{3}{8}$"

IM-8B-R
24"X12"
A = 8"
B = $8\frac{1}{4}$"
C = $1\frac{5}{8}$"
D = $5\frac{1}{2}$"
E = $3\frac{1}{8}$"
F = $\frac{1}{2}$"



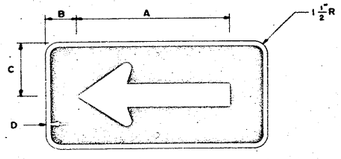
IM-8-L
18"X 9"
A = 6"
B = $5\frac{3}{4}$"
C = $1\frac{1}{4}$"
D = $3\frac{1}{2}$"
E = $2\frac{1}{8}$"
F = $\frac{3}{8}$"

IM-8B-L
24"X12"
A = 8"
B = $7\frac{3}{8}$"
C = $1\frac{5}{8}$"
D = $5\frac{1}{2}$"
E = $3\frac{1}{8}$"
F = $\frac{1}{2}$"



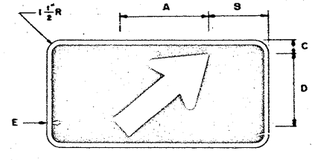
IM-9-R
18"X 9"
A = $12\frac{1}{2}$"
B = $2\frac{1}{2}$"
C = $4\frac{1}{2}$"
D = $\frac{3}{8}$"

IM-9B-R
24"X12"
A = $16\frac{3}{4}$"
B = $3\frac{3}{8}$"
C = 6"
D = $\frac{1}{2}$"



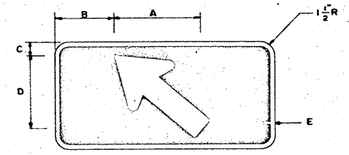
IM-9-L
18"X 9"
A = $12\frac{3}{4}$"
B = $2\frac{3}{8}$"
C = $4\frac{1}{2}$"
D = $\frac{3}{8}$"

IM-9B-L
24"X12"
A = $16\frac{3}{4}$"
B = $3\frac{3}{8}$"
C = 6"
D = $\frac{1}{2}$"



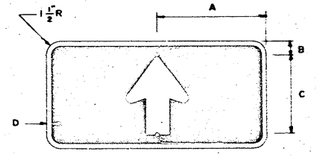
IM-10-R
18"X 9"
A = $7\frac{3}{16}$"
B = $4\frac{1}{8}$"
C = $1\frac{7}{16}$"
D = $6\frac{1}{4}$"
E = $\frac{3}{8}$"

IM-10B-R
24"X12"
A = $9\frac{5}{8}$"
B = $6\frac{1}{2}$"
C = $1\frac{15}{16}$"
D = $8\frac{5}{16}$"
E = $\frac{1}{2}$"



IM-10-L
18"X 9"
A = $7\frac{3}{16}$"
B = $4\frac{1}{8}$"
C = $1\frac{7}{16}$"
D = $6\frac{1}{4}$"
E = $\frac{3}{8}$"

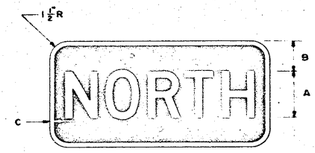
IM-10B-L
24"X12"
A = $9\frac{5}{8}$"
B = $6\frac{1}{2}$"
C = $1\frac{15}{16}$"
D = $8\frac{5}{16}$"
E = $\frac{1}{2}$"



IM-11
18"X 9"
A = 9"
B = $11\frac{7}{8}$"
C = $6\frac{1}{8}$"
D = $\frac{3}{8}$"

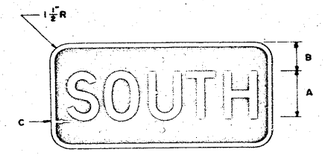
IM-11B
24"X12"
A = 12"
B = $15\frac{7}{8}$"
C = 9"
D = $\frac{1}{2}$"

JUNCTION AND DIRECTIONAL MARKERS



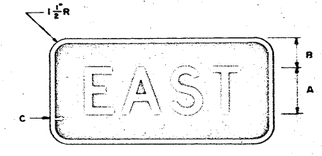
IM-21-N
18"X 9"
A = 4"D
B = $2\frac{1}{2}$"
C = $\frac{3}{8}$"

IM-22-N
30"X15"
A = 7"C
B = 4"
C = $\frac{1}{2}$"



IM-21-S
18"X 9"
A = 4"D
B = $2\frac{1}{2}$"
C = $\frac{3}{8}$"

IM-22-S
30"X15"
A = 7"C
B = 4"
C = $\frac{1}{2}$"

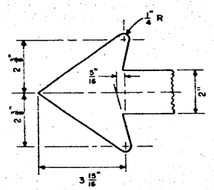


IM-21-E
18"X 9"
A = 4"D
B = $2\frac{1}{2}$"
C = $\frac{3}{8}$"

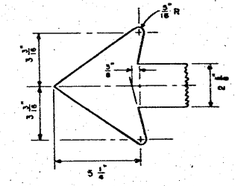
IM-22-E
30"X15"
A = 7"C
B = 4"
C = $\frac{1}{2}$"

IM-21-W
18"X 9"
A = 4"D
B = $2\frac{1}{2}$"
C = $\frac{3}{8}$"

IM-22-W
30"X15"
A = 7"C
B = 4"
C = $\frac{1}{2}$"



18"x9"
FOR 18"x9" BLANK



24"x12"
FOR 24"x12" BLANK

ARROW DETAILS

CARDINAL DIRECTION MARKERS

GENERAL NOTES:

Alphabets and lateral spacing between letters shall conform with the U.S. Bureau of Public Roads standard rounded capital letter alphabets. Lateral spacing of text shall be such as to provide a balanced appearance.

The letters, arrows, and borders shall be white reflective, and the background shall be Interstate Blue reflectorized with blue transparent ink on a white reflectorized flat surface. Letters, arrows, and borders shall be reverse screened.

The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with A.S.T.M. Specification B 209, alloy GS11A-T6.

For sign blank punching details, see sheet on "Sign Blank Punching Details."

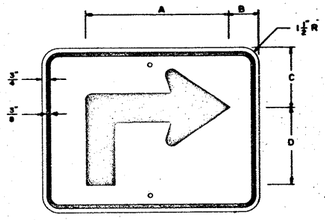
TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

SHEET 2 of 6

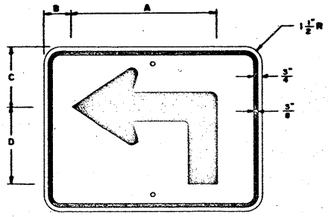
ISG(2)

REVISED			FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
			6	TEXAS	I 35-1(2)000	3C
			STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
			21	ALLEN	13 2 F	I 35



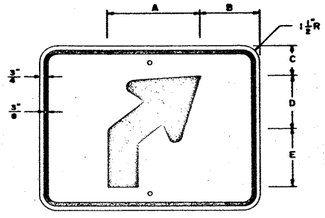
M-7-R
13"X10"
A=8⅝" B=1¾"
C=3⅜" D=4¾"

M-107-R
19½"X15"
A=12 15/16" B=2⅝"
C=5 7/16" D=7⅛"



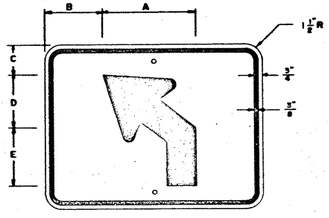
M-7-L
13"X10"
A=8⅝" B=1¾"
C=3⅜" D=4¾"

M-107-L
19½"X15"
A=12 15/16" B=2⅝"
C=5 7/16" D=7⅛"



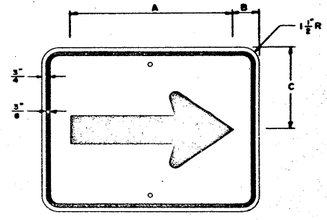
M-8-R
13"X10"
A=5½" B=3½"
C=1 13/16" D=3 9/16"

M-108-R
19½"X15"
A=8¼" B=5¼"
C=2¾" D=4¾"



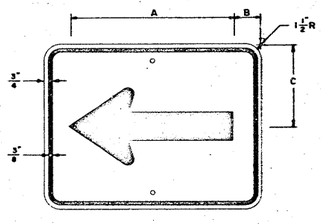
M-8-L
13"X10"
A=5½" B=3½"
C=1 13/16" D=3 9/16"

M-108-L
19½"X15"
A=8¼" B=5¼"
C=2¾" D=4¾"



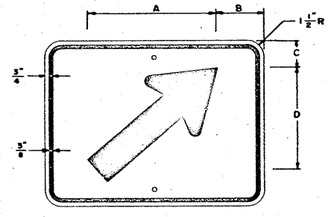
M-9-R
13"X10"
A=9¼" B=1½"
C=5"

M-109-R
19½"X15"
A=14 5/8" B=2⅜"
C=7½"



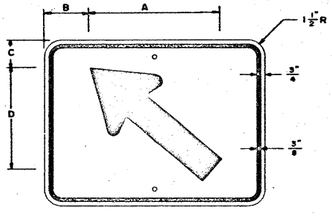
M-9-L
13"X10"
A=9¼" B=1½"
C=5"

M-109-L
19½"X15"
A=14 5/8" B=2⅜"
C=7½"



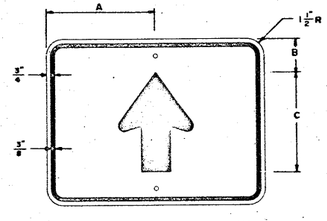
M-10-R
13"X10"
A=7⅜" B=2⅜"
C=1⅝" D=6⅛"

M-110-R
19½"X15"
A=11⅜" B=4½"
C=2 7/16" D=10 5/16"



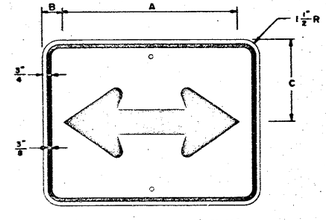
M-10-L
13"X10"
A=7⅜" B=2⅜"
C=1⅝" D=6⅛"

M-110-L
19½"X15"
A=11⅜" B=4½"
C=2 7/16" D=10 5/16"



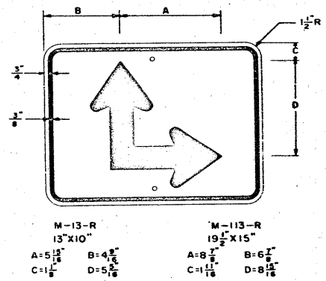
M-11
13"X10"
A=6½" B=2"
C=6"

M-111
19½"X15"
A=9¼" B=3"
C=9"



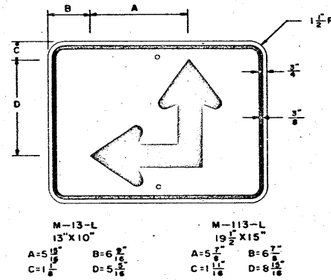
M-12
13"X10"
A=10½" B=1¼"
C=5"

M-112
19½"X15"
A=15¾" B=1⅞"
C=7½"



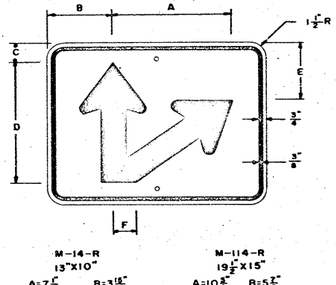
M-13-R
13"X10"
A=5 13/16" B=4 5/16"
C=1⅝" D=5 7/16"

M-113-R
19½"X15"
A=8⅞" B=6½"
C=1 11/16" D=8 15/16"



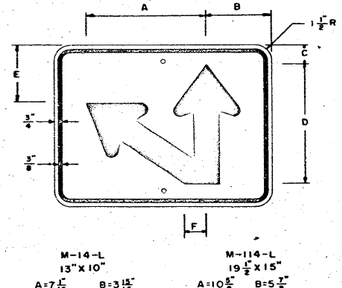
M-13-L
13"X10"
A=5 13/16" B=6 9/16"
C=1⅝" D=5 7/16"

M-113-L
19½"X15"
A=5⅞" B=6⅞"
C=1 11/16" D=8 15/16"



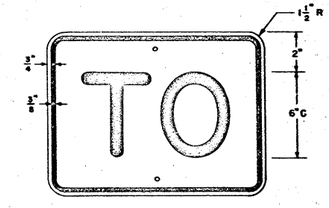
M-14-R
13"X10"
A=7 7/16" B=3 15/16"
C=1¼" D=7⅜"
E=3⅜" F=2 1/16"

M-114-R
19½"X15"
A=10⅜" B=5⅞"
C=1⅞" D=11 1/16"
E=5 7/16" F=3⅛"

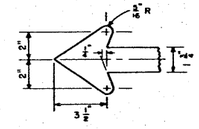


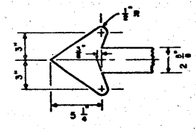
M-14-L
13"X10"
A=7 7/16" B=3 15/16"
C=1¼" D=7⅜"
E=3⅜" F=2 1/16"

M-114-L
19½"X15"
A=10⅜" B=5⅞"
C=1⅞" D=11 1/16"
E=5 7/16" F=3⅛"



IM-22
13"X10"





ARROW DETAILS

GENERAL NOTES FOR DIRECTIONAL MARKERS

The arrows and borders shall be black, and the background shall be a white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint and beads conforming with the specifications.

Arrows and borders shall be applied directly to the surface of the reflective material by the silk screen process using Black Stencil Paint conforming with the requirements of Federal Specification TT-P-98.

The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with A.S.T.M. Specification B 209, alloy GS 11A-T6.

For sign blank punching details, see sheet on "Sign Blank Punching Details."

TEXAS HIGHWAY DEPARTMENT

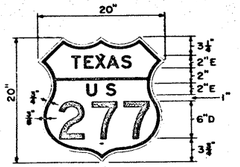
STANDARD INTERSTATE SIGNS

DIRECTIONAL MARKERS

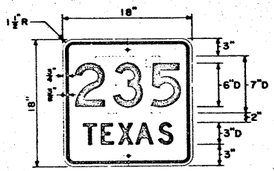
SHEET 3 of 6

ISG(3)

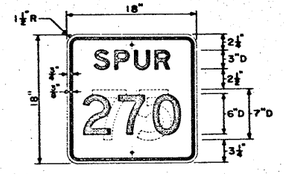
REVISED	2/23/59	LAF	FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
	11/10/60	CH	6	TEXAS	I-35-1(102)			33
	2/62	CH	STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
			14	NONE		13	344		IH



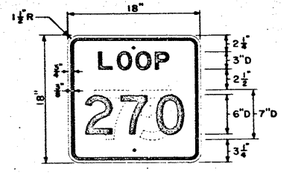
M-1A



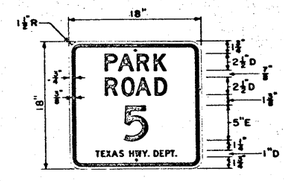
M-2T



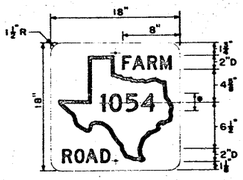
M-2S



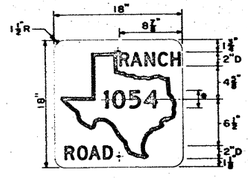
M-2L



M-2P



M-2F



M-2R

ROUTE NUMBER	LETTER HEIGHT	LETTER SERIES
* ONE DIGIT	5"	D
TWO DIGITS	4"	D
THREE DIGITS	3 1/2"	D
FOUR DIGITS	2 1/2"	D

STANDARD STATE HIGHWAY ROUTE MARKERS

GENERAL NOTES FOR STATE HIGHWAY ROUTE MARKERS

For the M-2F and M-2R Route Markers a print of the Texas State outline shall be obtained from the TEXAS HIGHWAY DEPARTMENT to be used for making a stencil.

For the M-1A, M-2T, M-2S, M-2L, M-2P, M-2F, and M-2R Route Markers, the letters, numerals, and border shall be black and the background shall be a white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint and beads conforming with the specifications. The letters, numerals, and border shall be applied direct to the surface of the reflective material by the silk screen process, using Black Stencil Paint conforming with the requirements of Federal Specification TT-P-98. The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with A.S.T.M. Specification B 209, alloy GS 11A-T6.

For sign blank punching details, see sheet on "Sign Blank Punching Details."

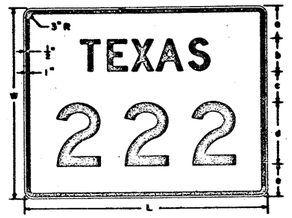
TEXAS HIGHWAY DEPARTMENT

STANDARD STATE HIGHWAY ROUTE MARKERS

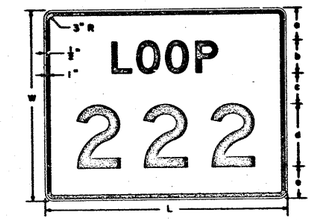
SHEET 4 of 6

ISG(4)

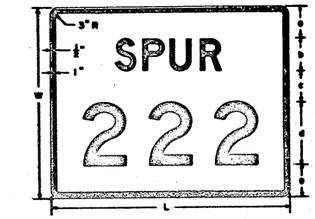
REVISED	2/62	CH	FED RD DIV NO	STATE	FEDERAL PROJECT NO.			SHEET NO.
			6	TEXAS	I 35-1 (3) 202			31
			STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
			20	LAND		18	452		IH 35



Sign Type	Digits	W	a	b	c	d	e
IM-2T1F	4	36	6	6	6	12	6
IM-2T2F	4	42	6	8	6-1/2	15	6-1/2
IM-2T3F	4	48	7	8	8	18	7
IM-2T4F	3	36	6	6	6	12	6
IM-2T5F	3	42	6	8	6-1/2	15	6-1/2
IM-2T6F	3	48	7	8	8	18	7
IM-2T7F	2	36	6	6	6	12	6
IM-2T8F	2	42	6	8	6-1/2	15	6-1/2
IM-2T9F	2	48	7	8	8	18	7
IM-2T10F	1	36	6	6	6	12	6
IM-2T11F	1	42	6	8	6-1/2	15	6-1/2
IM-2T12F	1	48	7	8	8	18	7

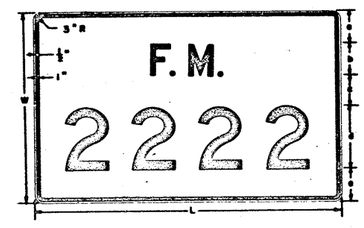


Sign Type	Digits	W	a	b	c	d	e
IM-2L1F	4	36	6	6	6	12	6
IM-2L2F	4	42	6	8	6-1/2	15	6-1/2
IM-2L3F	4	48	7	8	8	18	7
IM-2L4F	3	36	6	6	6	12	6
IM-2L5F	3	42	6	8	6-1/2	15	6-1/2
IM-2L6F	3	48	7	8	8	18	7
IM-2L7F	2	36	6	6	6	12	6
IM-2L8F	2	42	6	8	6-1/2	15	6-1/2
IM-2L9F	2	48	7	8	8	18	7
IM-2L10F	1	36	6	6	6	12	6
IM-2L11F	1	42	6	8	6-1/2	15	6-1/2
IM-2L12F	1	48	7	8	8	18	7

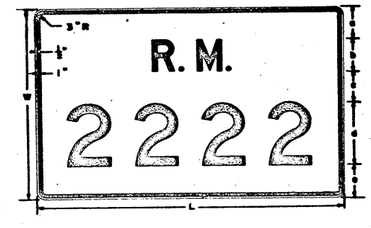


Sign Type	Digits	W	a	b	c	d	e
IM-2S1F	4	36	6	6	6	12	6
IM-2S2F	4	42	6	8	6-1/2	15	6-1/2
IM-2S3F	4	48	7	8	8	18	7
IM-2S4F	3	36	6	6	6	12	6
IM-2S5F	3	42	6	8	6-1/2	15	6-1/2
IM-2S6F	3	48	7	8	8	18	7
IM-2S7F	2	36	6	6	6	12	6
IM-2S8F	2	42	6	8	6-1/2	15	6-1/2
IM-2S9F	2	48	7	8	8	18	7
IM-2S10F	1	36	6	6	6	12	6
IM-2S11F	1	42	6	8	6-1/2	15	6-1/2
IM-2S12F	1	48	7	8	8	18	7

Sign Type	Digits	W	a	b	c	d	e
IM-2P1F	4	36	6	6	6	12	6
IM-2P2F	4	42	6	8	6-1/2	15	6-1/2
IM-2P3F	4	48	7	8	8	18	7
IM-2P4F	3	36	6	6	6	12	6
IM-2P5F	3	42	6	8	6-1/2	15	6-1/2
IM-2P6F	3	48	7	8	8	18	7
IM-2P7F	2	36	6	6	6	12	6
IM-2P8F	2	42	6	8	6-1/2	15	6-1/2
IM-2P9F	2	48	7	8	8	18	7
IM-2P10F	1	36	6	6	6	12	6
IM-2P11F	1	42	6	8	6-1/2	15	6-1/2
IM-2P12F	1	48	7	8	8	18	7

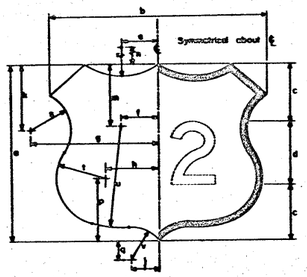


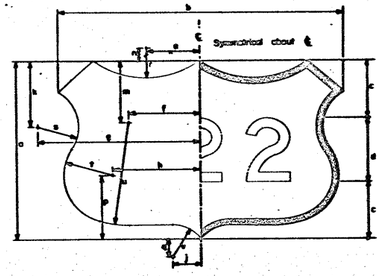
Sign Type	Digits	W	a	b	c	d	e
IM-2F1F	4	36	6	6	6	12	6
IM-2F2F	4	42	6	8	6-1/2	15	6-1/2
IM-2F3F	4	48	7	8	8	18	7
IM-2F4F	3	36	6	6	6	12	6
IM-2F5F	3	42	6	8	6-1/2	15	6-1/2
IM-2F6F	3	48	7	8	8	18	7
IM-2F7F	2	36	6	6	6	12	6
IM-2F8F	2	42	6	8	6-1/2	15	6-1/2
IM-2F9F	2	48	7	8	8	18	7
IM-2F10F	1	36	6	6	6	12	6
IM-2F11F	1	42	6	8	6-1/2	15	6-1/2
IM-2F12F	1	48	7	8	8	18	7



Sign Type	Digits	W	a	b	c	d	e
IM-2R1F	4	36	6	6	6	12	6
IM-2R2F	4	42	6	8	6-1/2	15	6-1/2
IM-2R3F	4	48	7	8	8	18	7
IM-2R4F	3	36	6	6	6	12	6
IM-2R5F	3	42	6	8	6-1/2	15	6-1/2
IM-2R6F	3	48	7	8	8	18	7
IM-2R7F	2	36	6	6	6	12	6
IM-2R8F	2	42	6	8	6-1/2	15	6-1/2
IM-2R9F	2	48	7	8	8	18	7
IM-2R10F	1	36	6	6	6	12	6
IM-2R11F	1	42	6	8	6-1/2	15	6-1/2
IM-2F12F	1	48	7	8	8	18	7

STATE ROUTE MARKERS

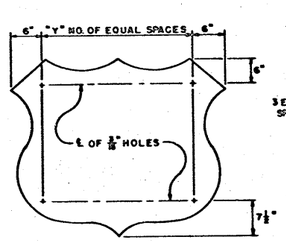




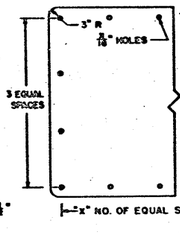
	12" NUMERALS		15" NUMERALS		18" NUMERALS	
	30" BLANK		36" BLANK		42" BLANK	
	2 DIGIT	3 DIGIT	2 DIGIT	3 DIGIT	2 DIGIT	3 DIGIT
	IM-1A1F	IM-1A2F	IM-1A3F	IM-1A4F	IM-1A5F	IM-1A6F
a	30	30	36	36	42	42
b	35	45	42	54	49	63
c	9	9	10-1/2	10-1/2	12	12
d	12	12	15	15	18	18
e	5-15/16	8-9/16	7-1/8	10-1/4	8-5/16	11-15/16
f	5-1/2	10-1/2	6-9/16	12-9/16	7-5/8	14-5/8
g	20-13/16	25-13/16	24-15/16	30-15/16	29-1/8	36-1/8
h	8-3/4	13-3/4	10-1/2	16-1/2	12-1/4	19-1/4
j	4-9/16	4-9/16	5-1/2	5-1/2	6-3/8	6-3/8
k	11	11	13-3/16	13-3/16	15-3/8	15-3/8
m	10-5/16	10-5/16	12-3/8	12-3/8	14-1/2	14-1/2
n	8-3/16	12-5/16	9-13/16	14-13/16	11-7/16	17-1/4
p	10-13/16	10-13/16	13	13	15-2/16	15-3/16
q	3-5/16	3-5/16	4	4	4-11/16	4-11/16
r	10-3/16	15	12-3/16	18	14-1/4	21
s	6-5/8	6-5/8	7-15/16	7-15/16	9-5/16	9-5/16
t	7-15/16	7-15/16	9-9/16	9-9/16	11-1/8	11-1/8
u	17-3/8	17-3/8	20-7/8	20-7/8	24-3/8	24-3/8
v	5-5/8	5-5/8	6-3/4	6-3/4	7-7/8	7-7/8

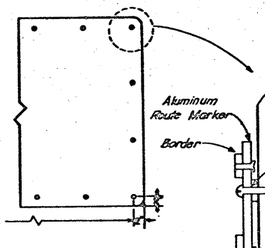
Dimensions for the U.S. Route Marker outlines shown on this sheet are scale dimensions and may be adjusted slightly where necessary for closure of outlines.

U.S. ROUTE MARKERS



Sign Type	"Y"
IM-1A1F	2
IM-1A2F	3
IM-1A3F	3
IM-1A4F	4
IM-1A5F	3
IM-1A6F	5





TYPICAL ATTACHMENT OF ROUTE MARKER TO SIGN BLANK

Sign Type	"X"	Sign Type	"X"	Sign Type	"X"
IM-2T1F	4	IM-2L1F	4	IM-2R1F	4
IM-2T2F	5	IM-2L2F	5	IM-2R2F	5
IM-2T3F	6	IM-2L3F	6	IM-2R3F	6
IM-2T4F	3	IM-2L4F	3	IM-2R4F	3
IM-2T5F	4	IM-2L5F	4	IM-2R5F	4
IM-2T6F	5	IM-2L6F	4	IM-2R6F	5
IM-2T7F	3	IM-2L7F	2	IM-2R7F	2
IM-2T8F	3	IM-2L8F	3	IM-2R8F	3
IM-2T9F	3	IM-2L9F	3	IM-2R9F	3
IM-2T10F	3	IM-2L10F	2	IM-2R10F	2
IM-2T11F	3	IM-2L11F	3	IM-2R11F	2
IM-2T12F	3	IM-2L12F	3	IM-2R12F	3
IM-2S1F	4	IM-2P1F	4	IM-2F1F	4
IM-2S2F	5	IM-2P2F	5	IM-2F2F	5
IM-2S3F	6	IM-2P3F	6	IM-2F3F	6
IM-2S4F	3	IM-2P4F	3	IM-2F4F	3
IM-2S5F	4	IM-2P5F	4	IM-2F5F	4
IM-2S6F	5	IM-2P6F	5	IM-2F6F	5
IM-2S7F	2	IM-2P7F	2	IM-2F7F	2
IM-2S8F	3	IM-2P8F	3	IM-2F8F	3
IM-2S9F	3	IM-2P9F	3	IM-2F9F	3
IM-2S10F	2	IM-2P10F	2	IM-2F10F	2
IM-2S11F	3	IM-2P11F	3	IM-2F11F	2
IM-2S12F	3	IM-2P12F	3	IM-2F12F	3

SIGN BLANK PUNCHING DETAILS

GENERAL NOTES FOR U. S. AND STATE ROUTE MARKERS

FOR ATTACHMENT TO GUIDE SIGNS

The alphabets and lateral spacing between letters and numerals shall conform with the U. S. Bureau of Public Roads standard rounded capital letter alphabets and any applicable modifications stated in the AASHO Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways - 1961 edition, and/or subsequent revisions thereto. Lateral spacing of text shall be such as to provide a balanced appearance.

The face of all U. S. and State Route Markers shall be white porcelain enamel conforming with Item 707, "Aluminum Signs Type F." The letters, numerals, borders, corner radii and the outline for the U. S. Route Marker will be removable reflectorized cutout copy. The aluminum frames which house the white reflector buttons of the removable reflectorized cutout copy shall be finished in black baked enamel or black porcelain enamel conforming with Item 716, "Removable Reflectorized Cutout Letters, Numbers, Corner Radii for Sign Borders, Borders and Reflectorized Outlines for U. S. and State Route Markers."

The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with A.S.T.M. Specification B209 alloy GS11A, and Item 707, "Aluminum Signs Type F."

The sign blank shall be attached to the guide sign by screws, rivets, or other common fasteners of stainless steel, galvanized steel, or aluminum subject to the condition that dissimilar metals shall be so selected or insulated as to prevent corrosion.

For sign blank punching details, see "Sign Blank Punching Details" of this sheet.

The U. S. and State Route Markers shown on this sheet shall be used only when attached to Green Guide Signs.

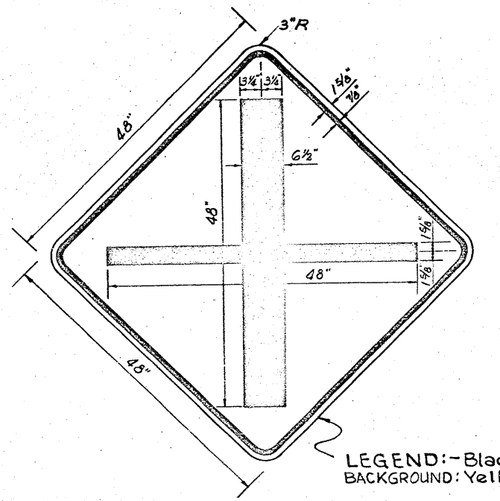
TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

U.S. AND STATE ROUTE MARKERS FOR ATTACHMENT TO GUIDE SIGNS

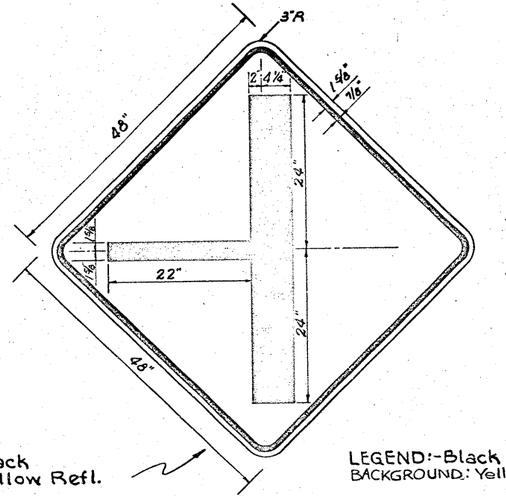
ISG(5) A

DIST.	COUNTY	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CONT.	CM	5-62	6	TEXAS	I 35-1(8)CC	35
SUB.			STATE	COUNTY	SECTION NO.	JOB NO.	HIGHWAY NO.
TRANS.			21	Webb	12	1	16	IH35

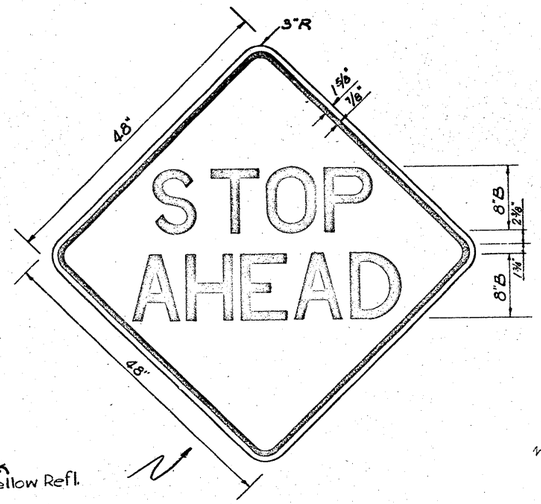


LEGEND:-Black
BACKGROUND: Yellow Refl.

IW-6
48"x48"
Sign 1-Sheet 8
Sign 1-Sheet 15

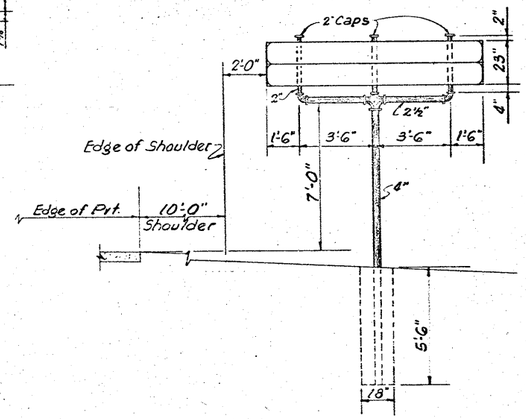


IW-7
48"x48"
Sign 1-Sheet 16



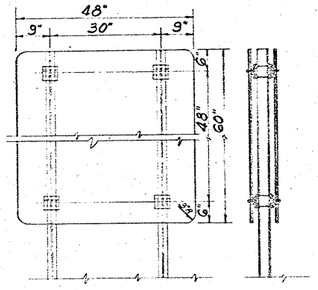
LEGEND:-Black
BACKGROUND: Yellow Refl.

IW-113
48"x48"
Sign 23-Sheet 12

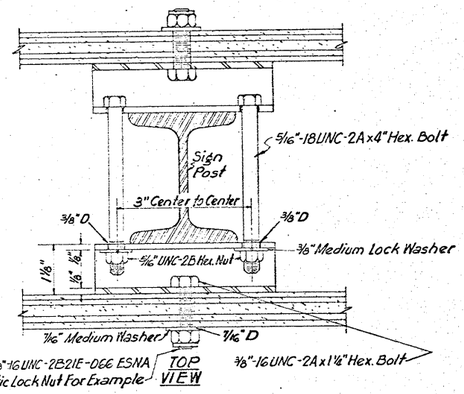


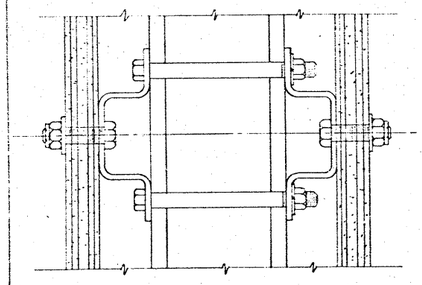
TYPE D-4 MOUNT
FOR D-1A SIGNS

Sign 15-Sheet 12

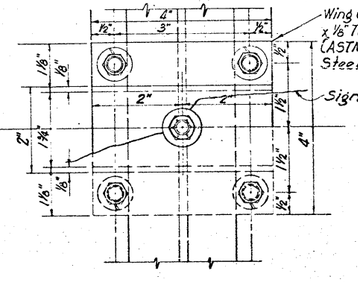


TYPE F2 MOUNT FOR TWO
48"x60" SIGNS





SIDE VIEW

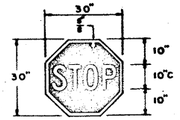


CLAMP DETAIL FOR HOLDING
TWO SIGNS TO MOUNT TYPE F2

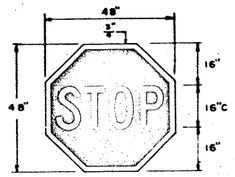
NOTE:-All sign mounting clamp parts not made from aluminum shall be stainless steel or shall be galvanized in conformance with Item 442 of the Std. Spec.

WARNING SIGNS & SPECIAL MOUNTS

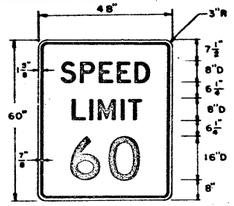
	1-35-1(8)002	33
21	WEBB	18 STATE TEXAS IH-35



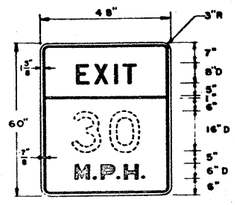
IR-1A*
30"x30"



IR-1B*
48"x48"

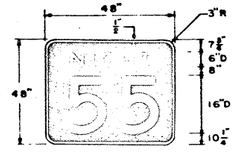


IR-2
48"x60"



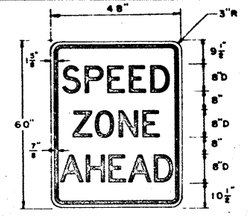
IR-2A
48"x60"

LETTERS, BORDERS, NUMERALS— BLACK
BACKGROUND— INTERSTATE YELLOW
REFLECTIVE MATERIAL

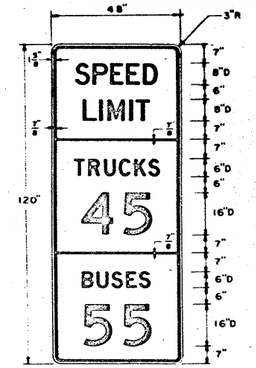


IR-3
48"x48"

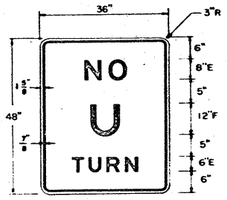
LETTERS, NUMERALS, BORDERS—
WHITE REFLECTIVE MATERIAL
BACKGROUND— BLACK
(REVERSE SCREENED)



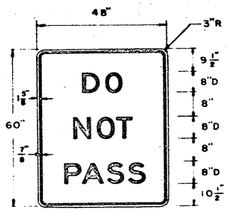
IR-4
48"x60"



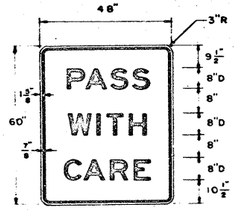
IR-2D
48"x120"



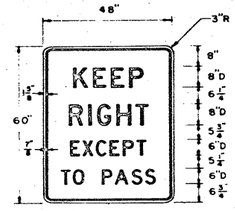
IR-8
36"x48"



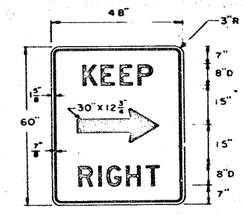
IR-11
48"x60"



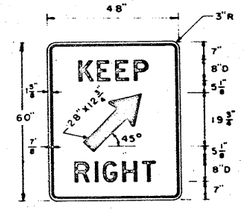
IR-12
48"x60"



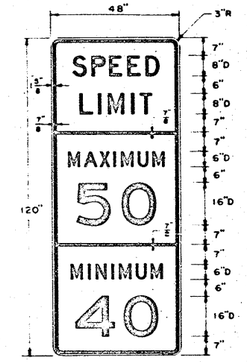
IR-13
48"x60"



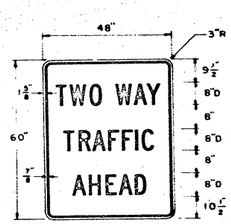
IR-14
48"x60"



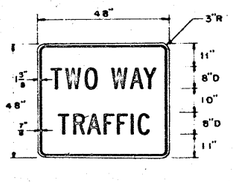
IR-14A
48"x60"



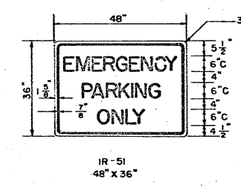
IR-2C
48"x120"



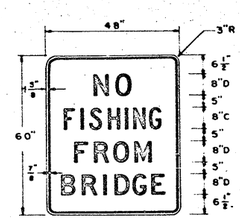
IR-17
48"x60"



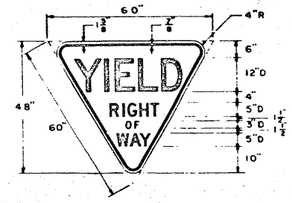
IR-17A
48"x48"



IR-51
48"x36"

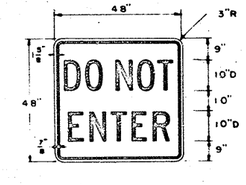


IR-41
48"x60"

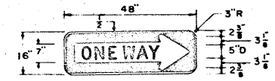


IR-48
60"x48"

LETTERS, BORDERS—BLACK
BACKGROUND— INTERSTATE YELLOW
REFLECTIVE MATERIAL



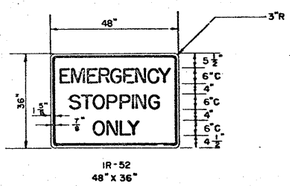
IR-15
48"x48"



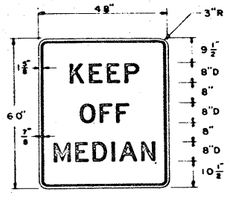
IR-16R
48"x16"

IR-16L
48"x16"

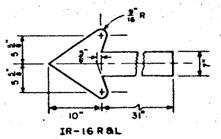
ARROW, BORDERS—WHITE REFLECTIVE
MATERIAL
LETTERS, BACKGROUND—BLACK
(REVERSE SCREENED)



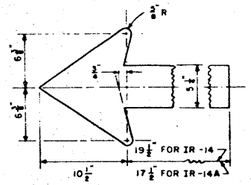
IR-52
48"x36"



IR-50
48"x60"



IR-16 R&L



IR-14 & IR-14A

ARROW DETAILS

GENERAL NOTES FOR REGULATORY SIGNS

Alphabets and lateral spacing between letters and words shall conform with U. S. Bureau of Public Roads standard rounded capital letter alphabets. Lateral spacing of text shall be such as to provide a balanced appearance.

Unless otherwise noted under specific signs, all letters, numerals, arrows, and borders shall be black, and the background shall be a white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting, or paint and beads, conforming with the specifications. Reflective sheeting for STOP signs shall have a flat surface.

Unless otherwise stated all letters, numerals, arrows and borders shall be applied direct to the surface of the reflective material by the silk screen process using Black Stencil Paint conforming with the requirements of Federal Specification TT-P-98.

The sign blanks shall be one piece, 5/8 inch thick plywood conforming with the specifications. When reflective sheeting is used for background reflectorization, the plywood shall be Type A, High Density. When paint and beads are used for background reflectorization, the plywood shall be Type B, Medium Density.

For sign blank punching details, see sheet on "Sign Blank Punching Details."

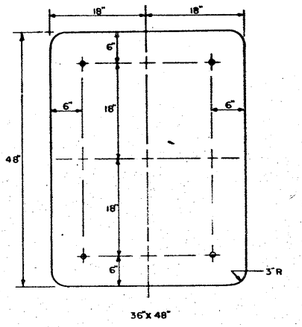
TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

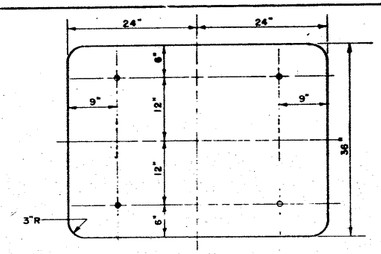
REGULATORY

ISR(I)

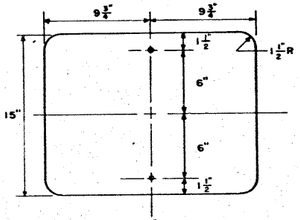
REVISED	3/23/59	LAF	FED RD DIV NO	STATE	FEDERAL PROJECT NO				SHEET NO
	11/10/60	CH	6	TEXAS	I 25-1(8)002				317
	2/28/61	GLT	STATE DIST NO	COUNTY		CONT.	SECT	JOB	PLUNKETT NO
			21	VARIOUS		18	40R		1143



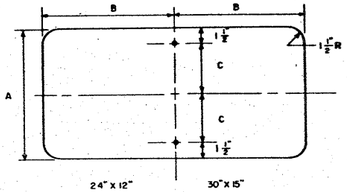
36"x 48"



48"x 36"

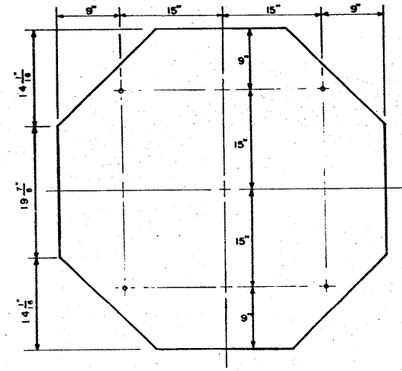


19½"x15"

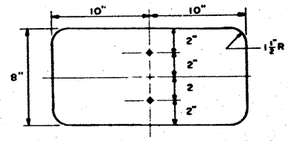


24" x 12"
A=12"
B=12"
C=4½"

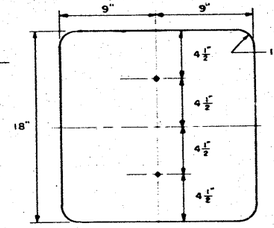
30"x 15"
A=15"
B=15"
C=6"



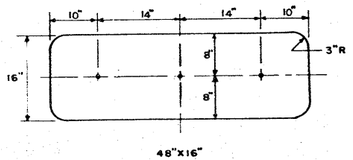
48"x 48"



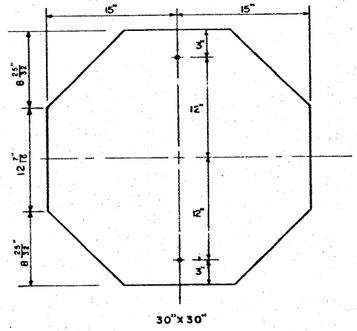
20"x8"



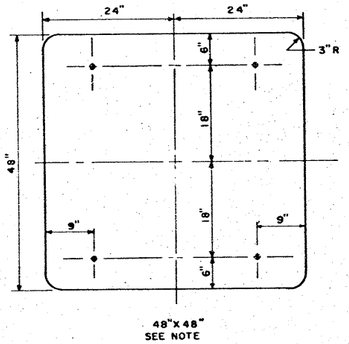
18"x18"



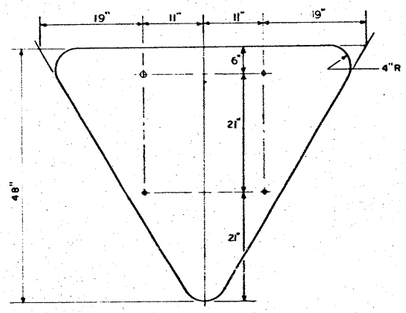
48"x16"



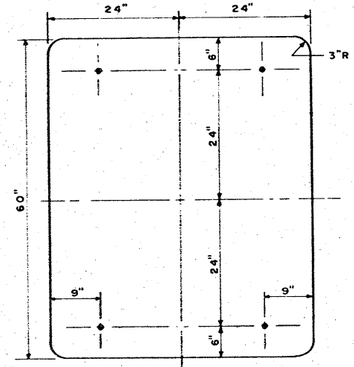
30"x30"



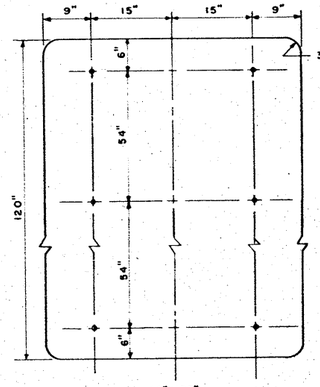
48"x48"
SEE NOTE



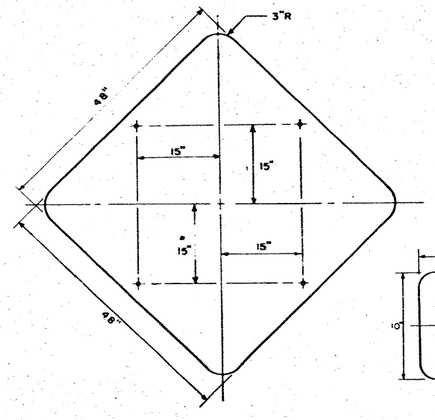
60"x48"



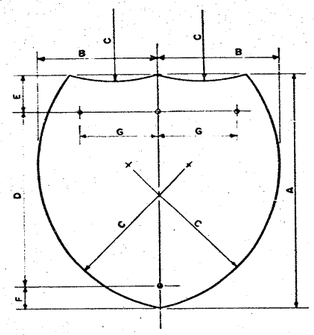
48"x60"
SEE NOTE



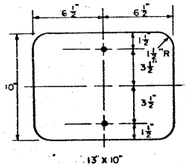
48"x120"



48"x48"

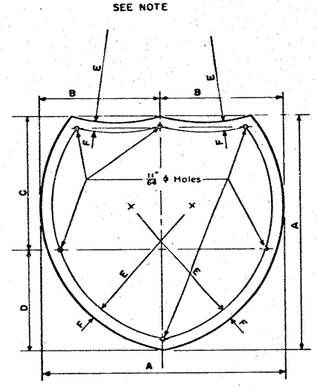


A	B	C	D	E	F	G
18"	9"	11 1/4"	12"	4"	2"	
24"	12"	15"	16"	5 5/8"	2 5/8"	
36"	18"	22 1/2"	24"	8"	4"	14"
36"	21"	26 1/4"	24"	8"	4"	14"
24"	14"	17 1/2"	16"	5 5/8"	2 5/8"	

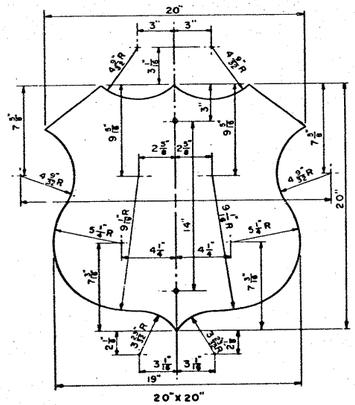


13"x10"

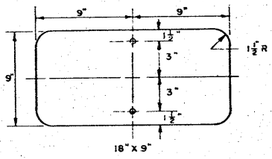
NOTE:
EXCEPT AS OTHERWISE NOTED ALL HOLES SHALL BE 7/16" DIAMETER.



A	B	C	D	E	F
36"	18"	21"	15"	22½"	1½"
48"	24"	28"	20"	30"	1¾"



20"x20"



18"x9"

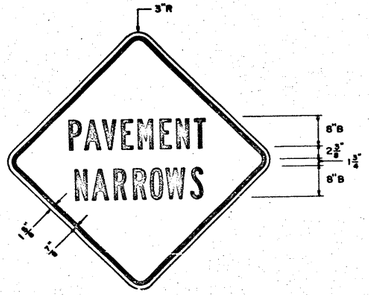
TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

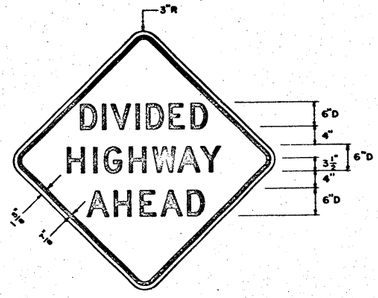
SIGN BLANK PUNCHING DETAILS

ISB(I)

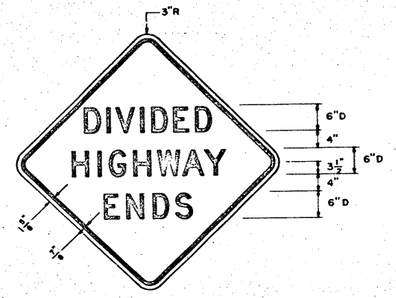
REVISED	2/28/61	GLT	FED RD DIV NO.	STATE	FEDERAL PROJECT NO	SHEET NO.
	8/18/61	CH	6	TEXAS	I 35 (5) 00 2	38
	2/26/62	CH	STATE DIST NO.	COUNTY	CNT. SECT. JOB	HIGHWAY NO.
			21	Various	Various	I 35



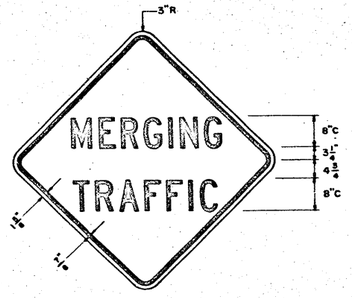
IW-19
48"x48"



IW-20
48"x48"



IW-21
48"x48"



IW-60
48"x48"

WARNING

GENERAL NOTES FOR WARNING SIGNS

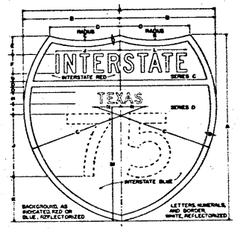
The alphabets and lateral spacing between letters shall conform with the U. S. Bureau of Public Roads standard rounded capital letter alphabets. Lateral spacing of text shall be such as to provide a balanced appearance.

The letters and border shall be black, and the background shall be an Interstate yellow reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint and beads conforming with the specifications.

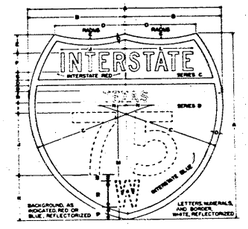
Letters and borders shall be applied direct to the surface of the reflective material by the silk screen process, using Black Stencil Paint conforming with the requirements of Federal Specification TT-P-98.

The sign blanks shall be one piece, 5/8 inch thick plywood conforming with the specifications. When reflective sheeting is used for background reflectorization, the plywood shall be Type A, High Density. When paint and beads are used for background reflectorization, the plywood shall be Type B, Medium Density.

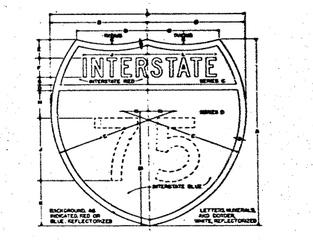
For sign blank punching details, see sheet on "Sign Blank Punching Details."



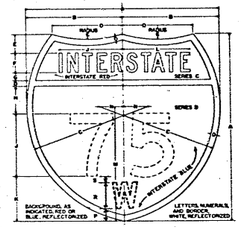
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
IM-A	18	9	1½	⅜	1⅝	⅛	⅜	⅛	1½	6	4½	6½	10½	2½	4½
IM-B	24	12	15	½	2⅛	2½	1	1½	1⅞	8	5½	8½	14½	3	8½
IM-C	36	18	22½	1⅛	3⅛	3½	1½	2¼	2¾	12	8⅛	12½	21⅝	4½	13½
IM-D	48	24	30	1½	4⅛	5	2	3	3¾	16	11	16½	29½	6	17½



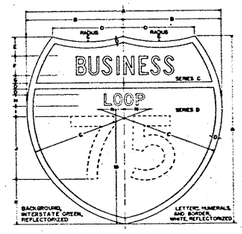
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S
IM-E	18	9	1½	⅜	1⅝	⅛	⅜	⅛	1½	6	4½	6½	10½	2½	4½	1⅝	2	⅜
IM-F	24	12	15	½	2⅛	2½	1	1½	1⅞	8	5½	8½	14½	3	8½	1⅞	3½	½
IM-G	36	18	22½	1⅛	3⅛	3½	1½	2¼	2¾	12	8⅛	12½	21⅝	4½	13½	2⅝	5	1⅛
IM-H	48	24	30	1½	4⅛	5	2	3	3¾	16	11	16½	29½	6	17½	3½	7	1½



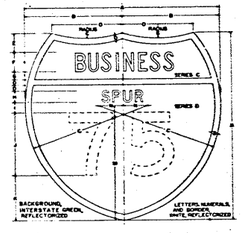
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
IM-J	36	18	22½	1⅛	3⅛	3½	1½	2¼	2¾	12	8⅛	12½	21⅝	4½	13½
IM-K	48	24	30	1½	4⅛	5	2	3	3¾	16	11	16½	29½	6	17½



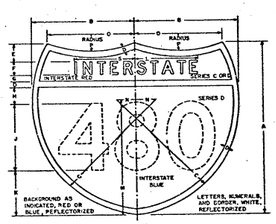
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S
IM-L	24	12	15	½	2⅛	2½	1	1½	1⅞	8	5½	8½	14½	3	8½			
IM-M	36	18	22½	1⅛	3⅛	3½	1½	2¼	2¾	12	8⅛	12½	21⅝	4½	13½			
IM-N	48	24	30	1½	4⅛	5	2	3	3¾	16	11	16½	29½	6	17½			



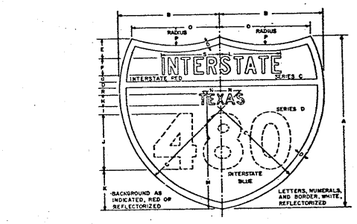
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S
IM-P	24	12	15	½	2⅛	2½	1	1½	1⅞	8	5½	8½	14½	3	8½			
IM-R	36	18	22½	1⅛	3⅛	3½	1½	2¼	2¾	12	8⅛	12½	21⅝	4½	13½			
IM-S	48	24	30	1½	4⅛	5	2	3	3¾	16	11½	16½	29½	6	17½			



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S
IM-T	24	16	18	2⅜	2⅝	2½	1	1½	1⅞	8	5½	8½		4½		17½	2⅝	3
IM-U	36	21	20	2⅜	1⅛	3⅛	3½	1½	2¼	12	8⅛	12½		4½		26½	1⅝	3



	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
IM-W	36	18	22½	1⅛	3⅛	3C	1½	5½	12	18	8⅛		4½		23½	9½
IM-X	36	22½	25	1⅛	3	3D	1½	5½	18	30	8⅛	18	8½		24½	11½
IM-Y	48	24	30	1½	4⅝	4C	1½	6⅞	16	16	11		6		30	12½



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S
IM-Z	24	16	18	2⅜	2⅝	2½	1	1½	1⅞	8	5½	8½		4½		17½	2⅝	3
IM-12	36	21	20	2⅜	1⅛	3⅛	3½	1½	2¼	12	8⅛	12½		4½		26½	1⅝	3

GENERAL NOTES FOR INTERSTATE ROUTE MARKERS

The alphabets and lateral spacing between letters and numerals shall conform with the U. S. Bureau of Public Roads standard rounded capital letter alphabets.

Colors of letters, numerals, border and background shall be as shown on the Route Marker design details. Reflective material shall be flat surface reflective sheeting. Letters, numerals, and border shall be reverse screened.

The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with A.S.T.M. Specification B 209, alloy GS11A-T6.

For sign blank punching details, see sheet on "Sign Blank Punching Details."

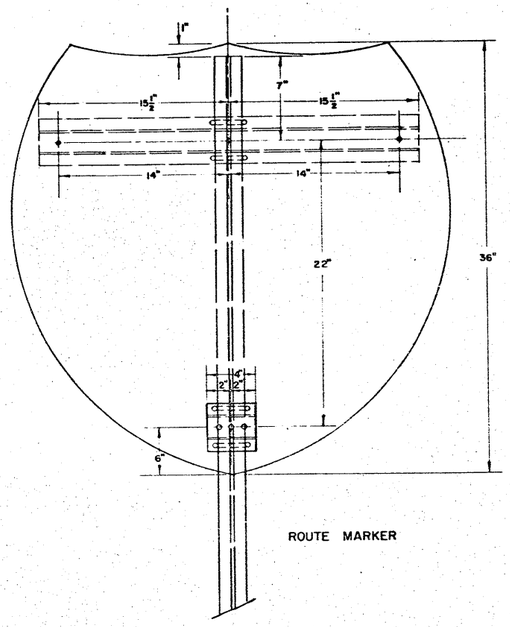
INTERSTATE ROUTE MARKERS

TEXAS HIGHWAY DEPARTMENT

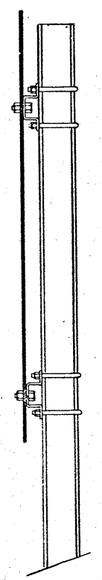
STANDARD INTERSTATE SIGNS

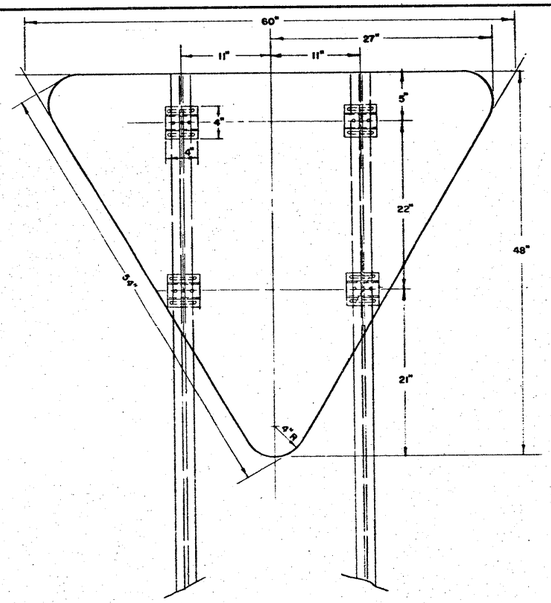
ISMW(1)

REVISED	2/23/59	LAF	FED RD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
	11/10/60	CH	6	TEXAS	I25-1(13)002	209
	3/16/61	GLT	STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
			21	NUEC	5-4-5	IH35

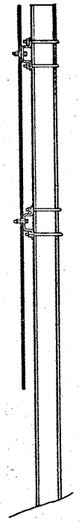


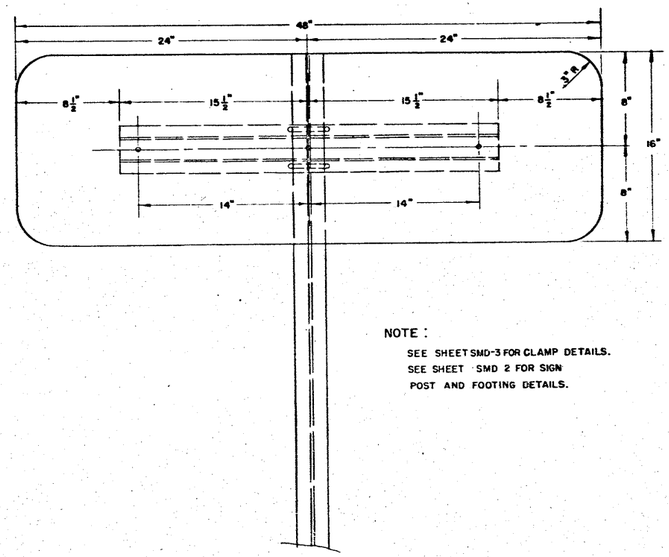
ROUTE MARKER





YIELD RIGHT OF WAY



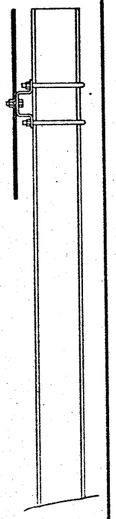


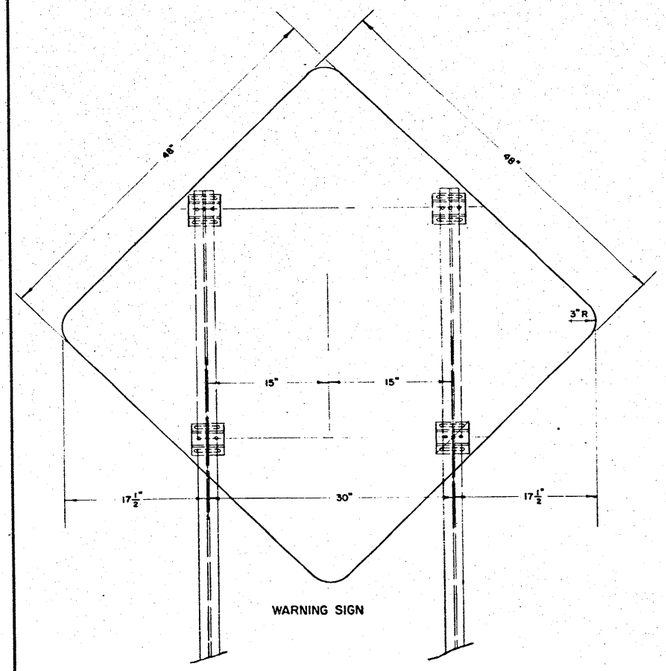
NOTE :

SEE SHEET SMD-3 FOR CLAMP DETAILS.

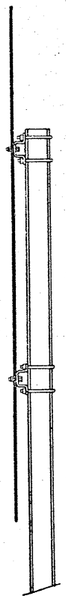
SEE SHEET SMD 2 FOR SIGN POST AND FOOTING DETAILS.

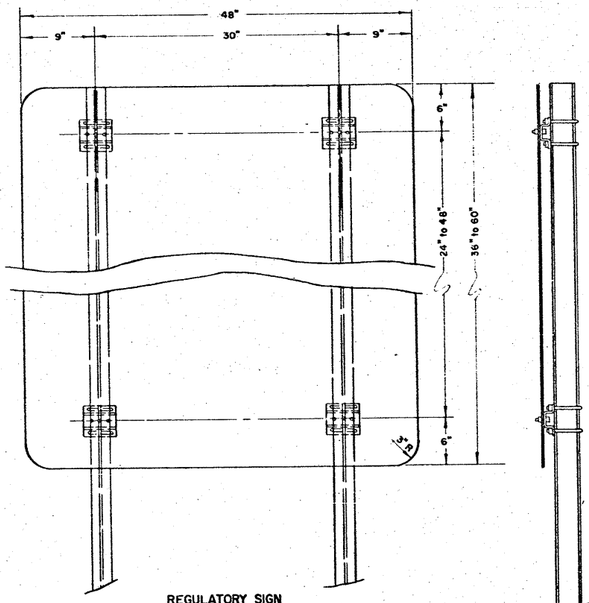
IR-16 ONE WAY SIGN





WARNING SIGN





REGULATORY SIGN

TEXAS HIGHWAY DEPARTMENT

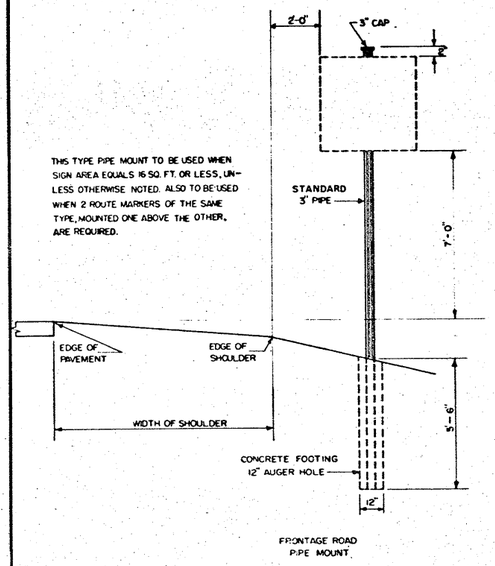
INTERSTATE

STANDARD ROADSIDE SIGN MOUNTING DETAILS SMD-1

ROUTE MARKERS, WARNING, AND REGULATORY SIGNS

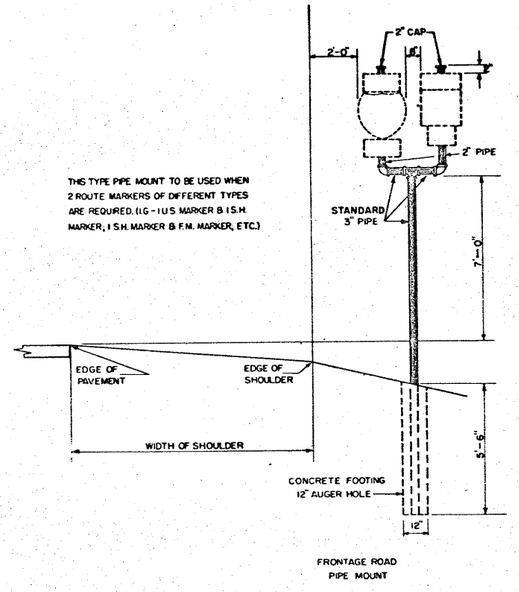
REVISED	5/62 JG			FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
				6	TEXAS	I35-1(8)002			43
				STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
				21	WEBB		13	4274		I-35

SHEET 1 OF 8



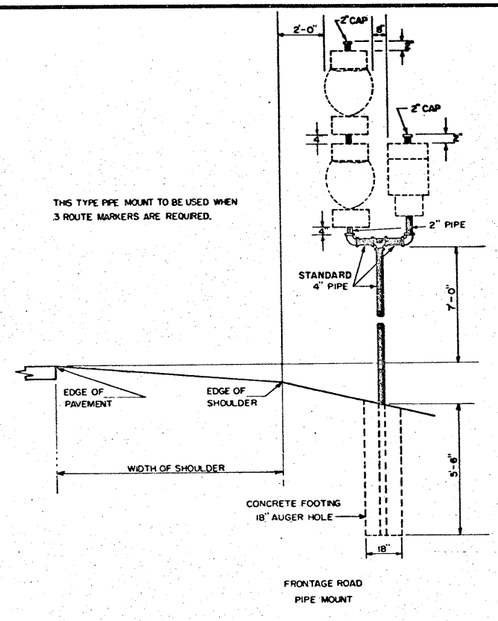
FRONTAGE ROAD PIPE MOUNT

TYPE A



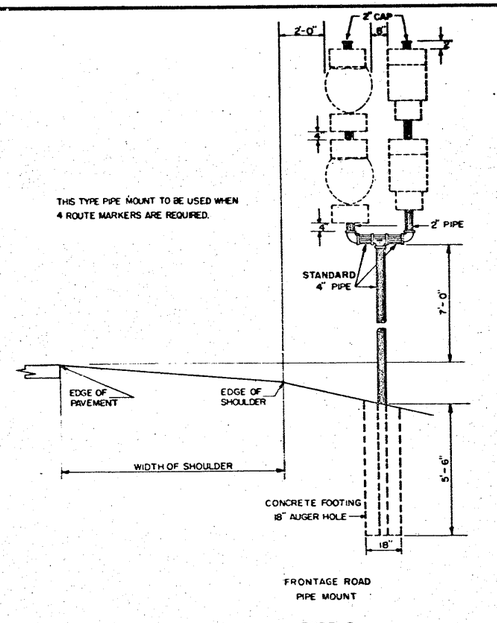
FRONTAGE ROAD PIPE MOUNT

TYPE B



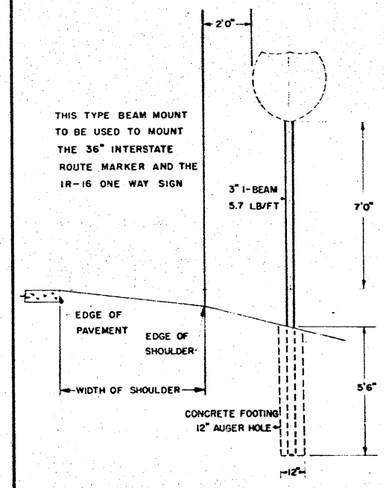
FRONTAGE ROAD PIPE MOUNT

TYPE C



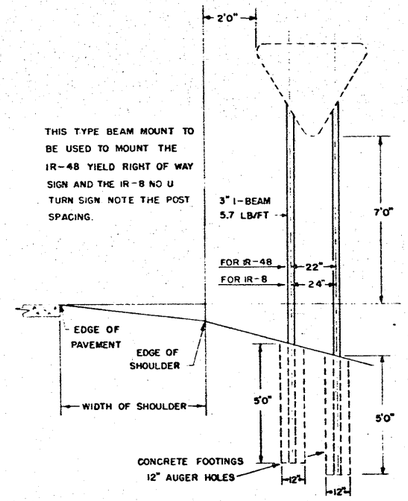
FRONTAGE ROAD PIPE MOUNT

TYPE D



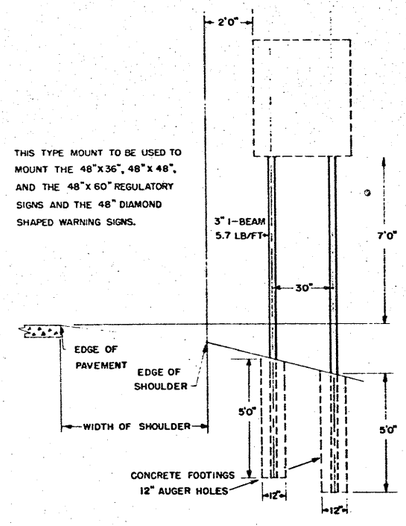
MAIN LANE BEAM MOUNT

TYPE E



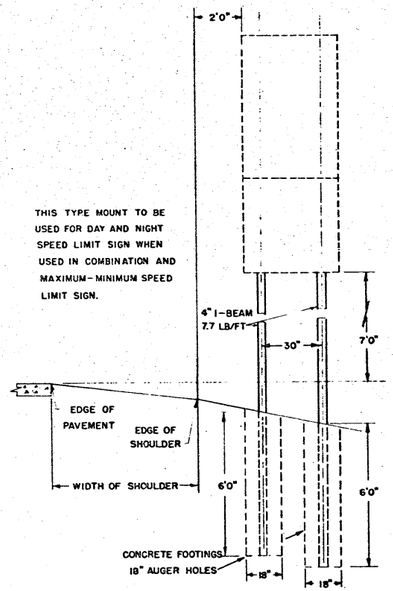
MAIN LANE BEAM MOUNT

TYPE F-1



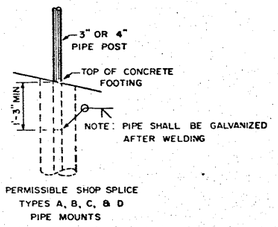
MAIN LANE BEAM MOUNT

TYPE F-2



MAIN LANE BEAM MOUNT

TYPE G



PERMISSIBLE SHOP SPLICE TYPES A, B, C, & D PIPE MOUNTS

GENERAL NOTES:

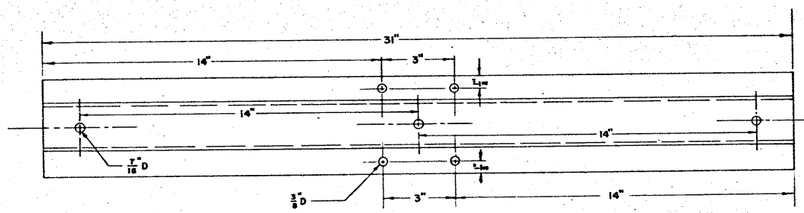
SEE STANDARD PLAN SHEETS SMD-1 AND SMD-3 FOR SIGN FASTENING DETAILS.

WHERE SOLID ROCK IS ENCOUNTERED, FOOTING SHALL EXTEND TWO FEET INTO THE ROCK.

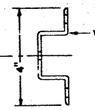
TEXAS HIGHWAY DEPARTMENT
INTERSTATE
STANDARD ROADSIDE SIGN MOUNTING DETAILS
ROUTE MARKERS, WARNING, AND REGULATORY SIGNS
SMD-2

REVISED	11/10/60	CH	FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
10/61 N.	2/28/61	GLT	6	TEXAS	I 35-1(8) 002				4
2/62 CH	9/25/62	CH	STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
	9/28/61	WLD	21	Ward		8	002		I 35

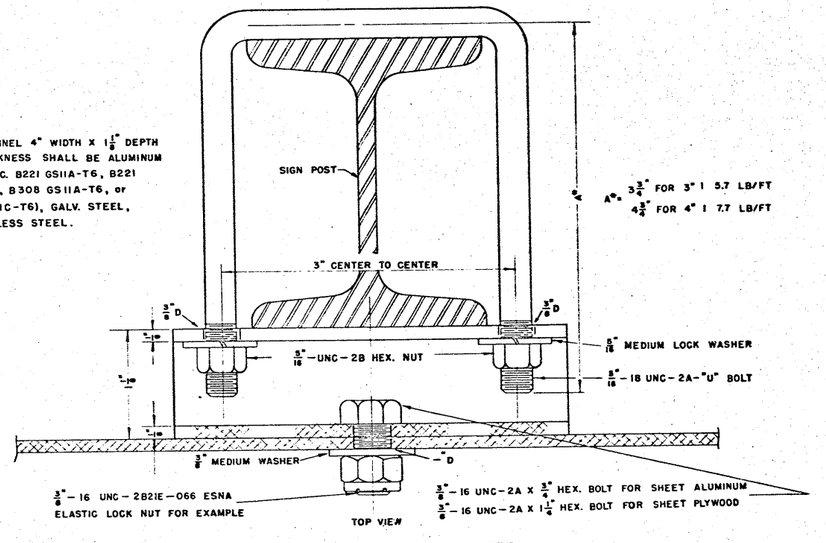
SHEET 2 OF 8



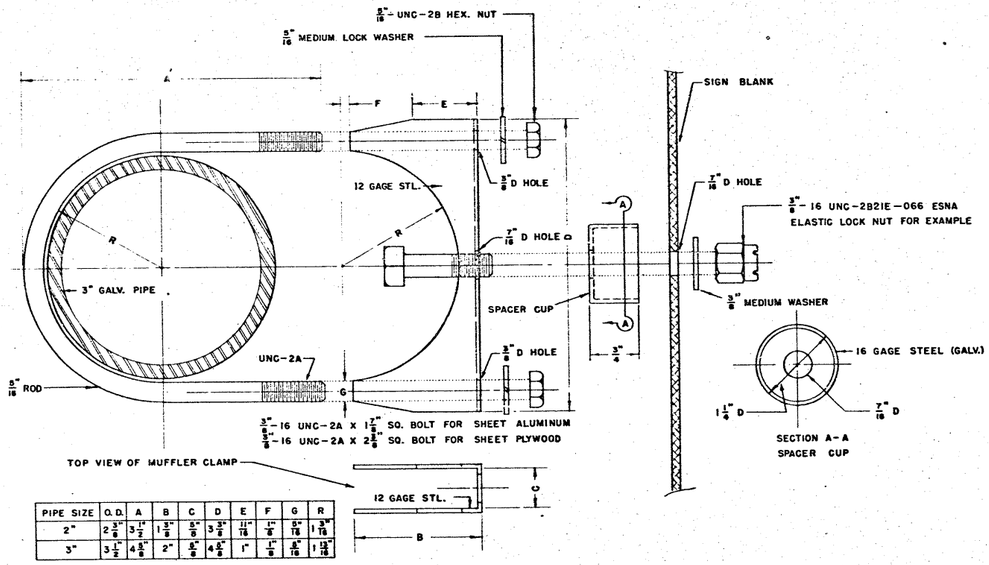
CHANNEL FOR MOUNTING 36" INTERSTATE ROUTE MARKER AND IR-16 ONE-WAY SIGN



WING CHANNEL 4" WIDTH X 1 5/8" DEPTH X 1/8" THICKNESS SHALL BE ALUMINUM (ASTM SPEC. B221 GS11A-T6, B221 GS11C-T6, B308 GS11A-T6, or B308 GS11C-T6), GALV. STEEL, OR STAINLESS STEEL.

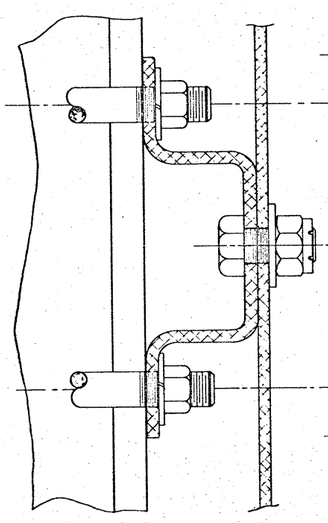


TOP VIEW

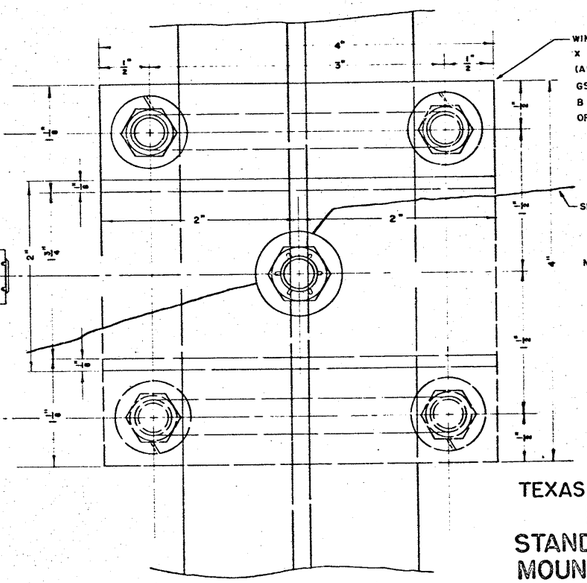


PIPE SIZE	O.D.	A	B	C	D	E	F	G	R
2"	2 3/8	3 1/2	1 3/8	5/8	3 5/8	11/16	1/8	5/16	1 3/16
3"	3 1/2	4 5/8	2"	5/8	4 5/8	1"	1/8	5/16	1 13/16

MUFFLER CLAMP FOR HOLDING SIGNS TO MOUNT TYPES A, B, C, AND D



SIDE VIEW



NOTE: SEE SHEET SMD-1 FOR MOUNTING DETAILS. ALL SIGN MOUNTING CLAMP PARTS NOT MADE FROM ALUMINUM SHALL BE STAINLESS STEEL OR SHALL BE GALVANIZED IN CONFORMANCE WITH ITEM 442 OF THE STD. SPEC.

CLAMP DETAIL FOR HOLDING SIGNS TO MOUNT TYPES E, F-1, F-2, G.

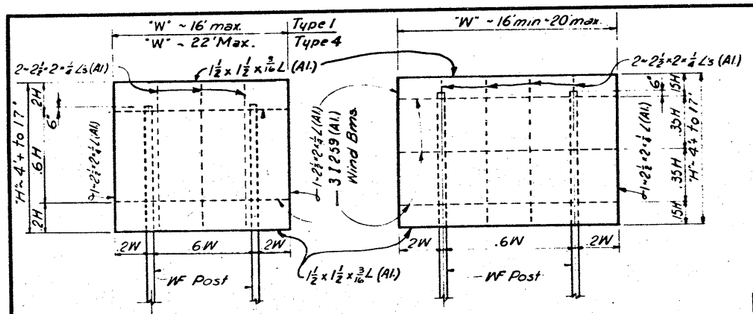
TEXAS HIGHWAY DEPARTMENT
INTERSTATE
STANDARD ROADSIDE SIGN MOUNTING-CLAMP DETAILS

ROUTE MARKERS, WARNING, AND REGULATORY SIGNS

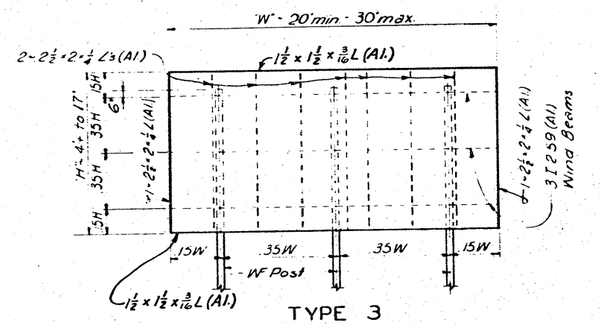
SMD-3

REVISED	4/62	JG	FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
REV			6	TEXAS	I 35-1(83)00?				10
			STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
			2	WISE		5	4??	?	I 35

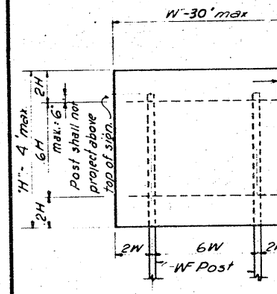
SHEET 3 OF 8



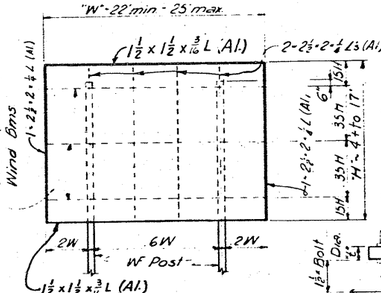
TYPES 1 & 4 TYPE 2



TYPE 3

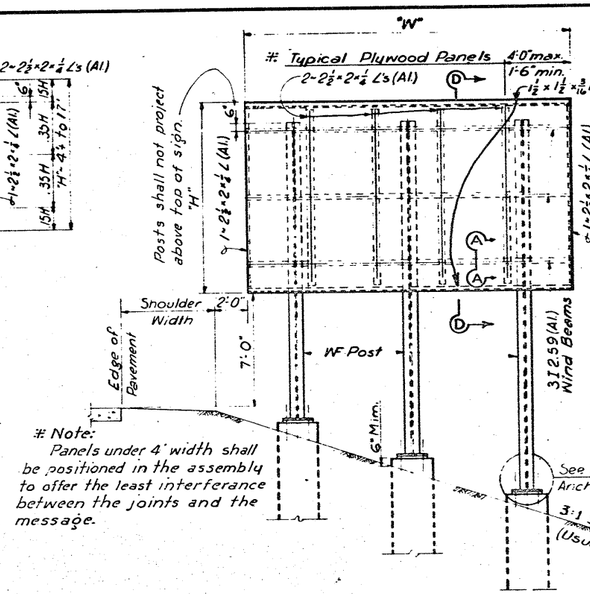


TYPES 1A & 4A



TYPE 5

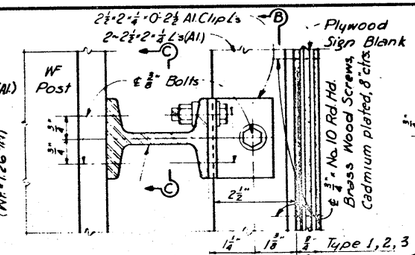
TYPE 6



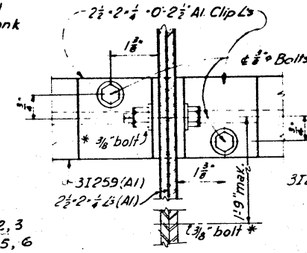
Note:
Panels under 4' width shall be positioned in the assembly to offer the least interferance between the joints and the message.

TYP. SIGN INSTALLATION & LOCATION

Types 3 & 6 as shown
Types 2 & 5 similar except 2 posts.
Types 1 & 4 similar except 2 posts & 2 wind bms.
Types 1A & 4A similar except 2 posts, 2: 3" Z wind bms. and no angles required.

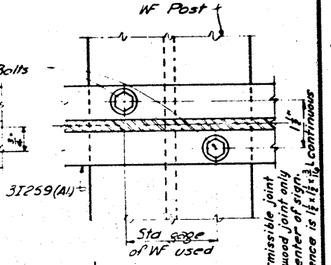


SECTION A-A
TYPES 1, 2, 3, 4, 5 & 6

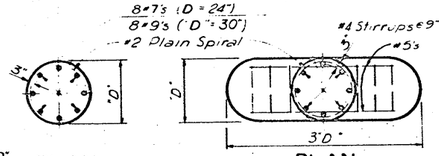


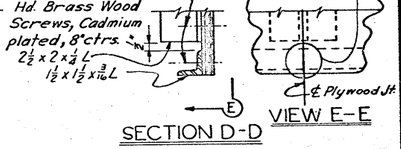
SECTION B-B

* ⅜" bolts through outstanding legs of Ls spaced 1½" from top and bottom of sign and at such intermediate points that the maximum distance between any two adjacent bolts does not exceed 1'-9".

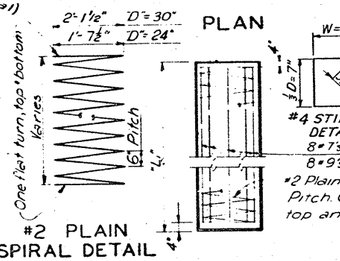


SECTION C-C

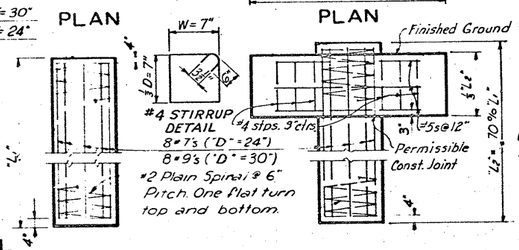




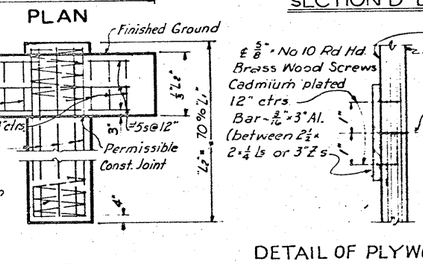
SECTION D-D VIEW E-E



#2 PLAIN SPIRAL DETAIL

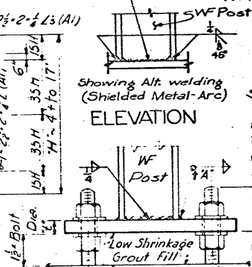


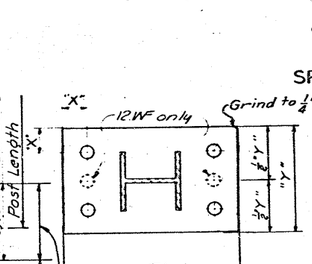
ELEVATION



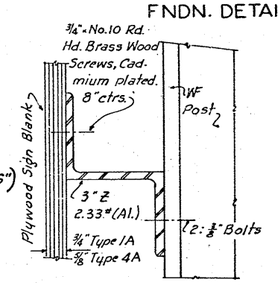
ELEVATION

DETAIL OF PLYWOOD SPLICE
HORIZONTAL ONLY ON TYPES 1, 2, 3, 4, 5, 6
VERTICAL ONLY ON TYPES 1A & 4A





FNDN. DETAILS



SECTION A-A
TYPES 1A & 4A

ALT. FNDN. DETAILS

BASE PL & ANCHOR BOLT DETAILS

Post Size	Base Plate Width "Y"	Base Plate Length "Z"	Base Plate Thick "t"	"X"	†Weld Size "A"	Anchor Bolts No.	Anchor Bolts Size	Anchor Bolts Length
5-5WF16	10"	1'-2"	1 1/4"	2 1/2"	3/8"	4	1 1/4"ø	3'-6"
6-6WF20	10"	1'-3"	1 1/4"	2 1/2"	3/8"	4	1 1/4"ø	3'-6"
8-6½WF24	10"	1'-5"	1 1/4"	2 1/4"	7/16"	4	1 1/4"ø	3'-6"
8-6½WF28	10"	1'-6"	1 1/2"	2 1/4"	1/2"	4	1 1/2"ø	4'-0"
8-8WF31	12"	1'-6"	1 1/2"	2 1/4"	7/16"	4	1 1/2"ø	4'-0"
8-8WF35	12"	1'-7"	1 3/4"	2 1/2"	5/16"	4	1 3/4"ø	4'-6"
10-8WF39	12"	1'-9"	1 3/4"	2 1/2"	9/16"	4	1 3/4"ø	4'-6"
10-8WF45	12"	1'-10"	2 1/4"	2 1/2"	11/16"	4	1 3/4"ø	4'-6"
10-10WF49	14"	1'-10"	2 1/4"	2 1/2"	5/8"	4	2"ø	5'-6"
10-10WF54	14"	1'-10"	2 1/4"	2 1/2"	3/4"	4	2"ø	5'-6"
12-12WF65	16"	2'-0"	2 1/2"	2 1/2"	11/16"	6	2"ø	5'-6"
12-12WF72	16"	2'-0"	2 1/2"	2 1/2"	13/16"	6	2"ø	5'-6"

NOTE: A tolerance of plus or minus 1/4 inch will be permitted in the plan dimensions for fabrication of each single increment sign panel when necessary for squaring. A tolerance of plus or minus 1/4 inch will be permitted for each increment of a multi-increment sign panel when necessary to secure square, tight fitting joints.

GENERAL NOTES

Design: Conforms with BPR criteria for Overhead and Ground Signs for Highways and Standard Specifications for Highway Bridges.

All aluminum frames, stiffeners, wind beams, and joint backing strips shall conform with the requirements of ASTM Specification B 308 alloy GS 11A-T6 or ASTM Specification B 235 alloy GS 11A-T6.

All erection bolts shall be either stainless steel, galvanized steel or aluminum machine bolts with hex. heads and nuts. Each bolt is to be provided with 2 flat or beveled washers, as required, and 1 lock washer.

*Anchor bolts, nuts, washers, base plates and WF post shall be galvanized as per Item 442 of Standard Specifications. Base plates and WF post shall be galvanized after shop fabrication.

All field alterations of WF post lengths, either shortening or extending, shall be made at the tops of post. Surfaces where the galvanizing has been destroyed shall be metalized.

All erection holes in aluminum shapes shall be field drilled.

Top anchor bolt nuts shall be tightened and threads burred.

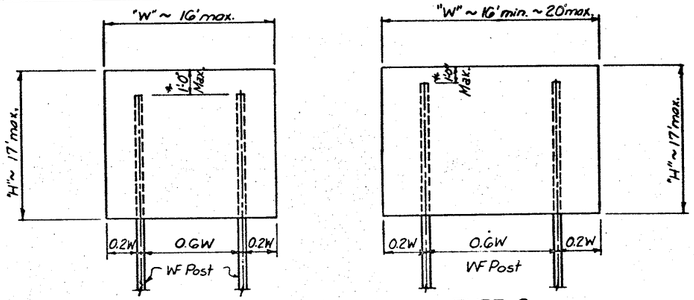
All WF posts shall be Structural Steel, ASTM-A7.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE
STANDARD ROADSIDE PLYWOOD GUIDE SIGNS

SMD-4

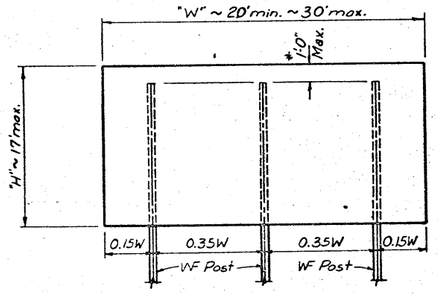
Dn. DLH	Drawing	Date	Fed. Road Div. No.	State	Federal Aid Project No.	Sheet No.
Ck. Dn. BPR	ORIGINAL	OCT 1960	6	TEXAS	I-35-1(9)602	4.3
Dn. DLH	Revised 3/16/61 GLT					
Ck. Dn.	Rev. 9/21/61 Rev. 2/62		State Dist. No.	County	Control No. / Section No. / Job No.	Highway No.
Tr.	Rev. 10/61 Rev. 8/62					
Ck. Tr.	Rev. 1-62 Rev. 8/62		21	NUECES	18 / 02-	IH 35

SHEET 4 OF 8

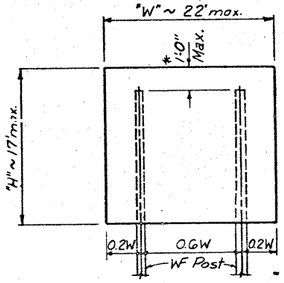


TYPE 1 OR TYPE 1A

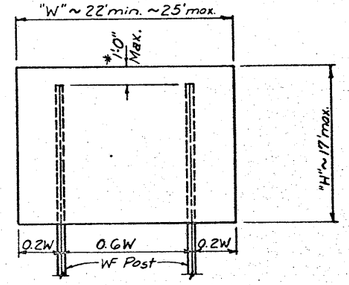
TYPE 2



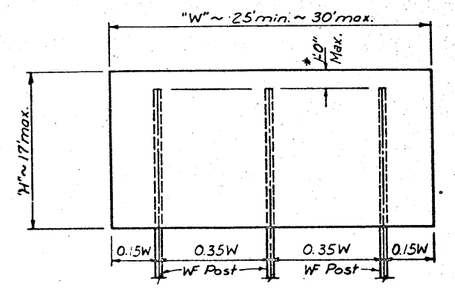
TYPE 3



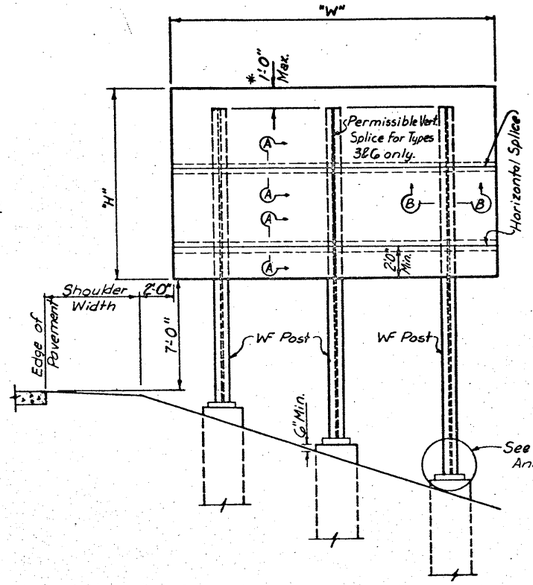
TYPE 4 OR TYPE 4A



TYPE 5

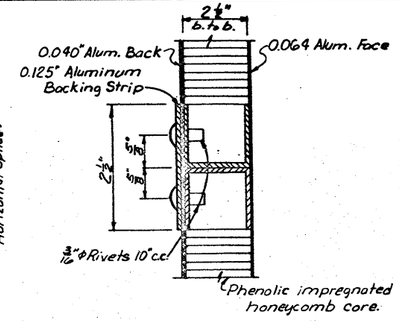


TYPE 6

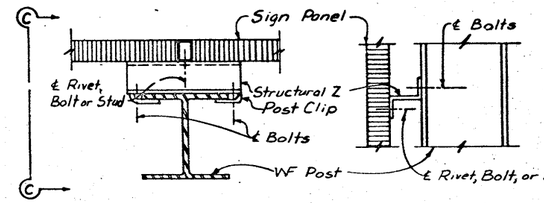


TYPICAL SIGN INSTALLATION & LOCATION

* Projection of the sign panel above the top of the post shall not exceed "H/4" or 1:0" ; whichever is smaller.



SECTION A-A



SECTION B-B SECTION C-C

GENERAL NOTES:

Design of supports complies with the requirements of Specifications for the Design and Construction of Structural Supports for Highway Signs and Standard Specifications for Highway Bridges.

Sign panels and connections shall comply with the requirements for loadings and allowable stresses as set forth in the above specifications.

All connection bolts and clamps for attachment of signs shall be either stainless steel, galvanized steel or aluminum.

Method of attaching signs to posts is supplier's choice subject to the approval of the Engineer.

WF Posts and base plates shall be structural steel conforming to the requirements of ASTM Designation A 7. Anchor bolts shall be structural steel conforming to the requirements of ASTM Designation A 307.

Materials, fabrication, and erection of steel posts and anchor bolts shall be in accordance with Items 441 & 442 of Std. Spec.

Anchor bolts, nuts, washers, base plates and WF posts, shall be galvanized after fabrication as per Item 442 of Standard Specifications.

Any field alterations of WF post lengths, either shortening or extending, shall be made at the tops of the posts.

Surfaces where the galvanizing has been destroyed shall be metalized.

Top anchor bolt nuts shall be tightened and threads burred.

Connection of Sign Panel is by back only. Rivets, Bolts, or Studs shall not appear on sign face.

NOTE:
These signs are designed for use on roadside mounted signs or overhead signs which are not to be illuminated.

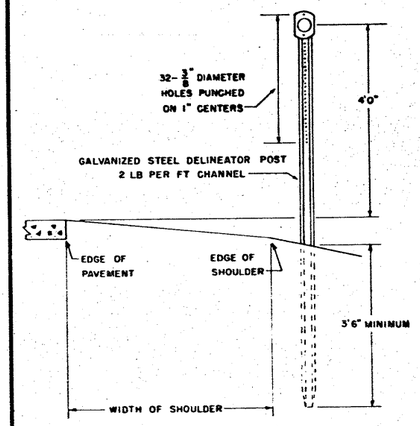
TEXAS HIGHWAY DEPARTMENT

INTERSTATE STANDARD ALUMINUM ROADSIDE GUIDE SIGNS

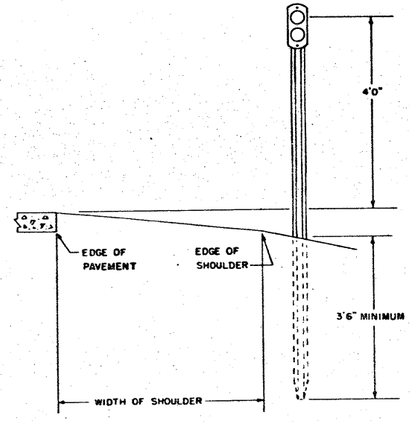
SMD-5B

DN. - D.L.H.	DESIGNED	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK. BY - R.R.W.	ORIGINAL	OCT. 1961	6	TEXAS	I 35-1(19)302	7
DR. - D.M.B.	Rev. 1/62		STATE DIST. NO.	COUNTY	SECTION NO.	JOB NO.	HIGHWAY NO.
CK. BY - D.L.H.			14	Lee	8	1	I-35
TR. -						
CK. TRAF.						

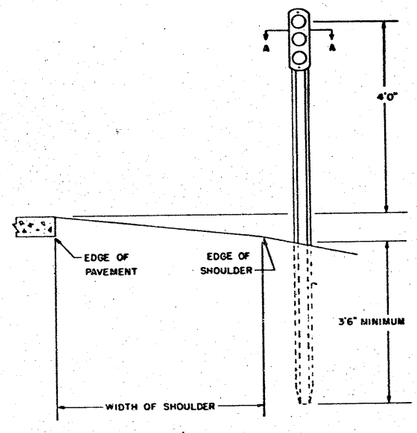
SHEET 7 OF 8



TYPE 1
SINGLE WHITE REFLECTOR

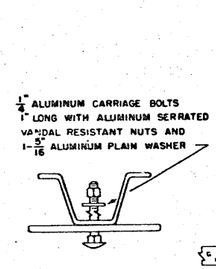


TYPE 2
DOUBLE AMBER REFLECTOR

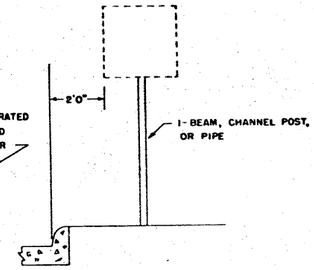


TYPE 3
TRIPLE AMBER REFLECTOR

DELINEATOR MOUNTS



SECTION A-A
DELINEATOR FASTENING DETAIL



CURB MOUNTING DETAIL
FOR DELINEATORS, MILEPOSTS, AND ROADSIDE SIGNS

DELINEATORS AND MILEPOST NOTES

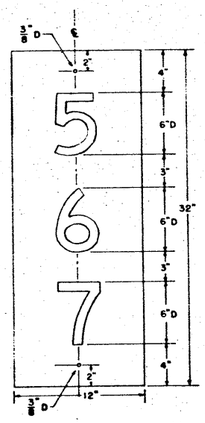
The numerals shall be 6" Series D white reflective, and the background shall be Interstate Green reflectorized with green transparent ink on a white flat surface reflective sheeting, using the reverse screen process. The milepost marker blanks shall be 5/8" thick, Type A, High Density plywood.

MILEPOST MARKER DETAILS

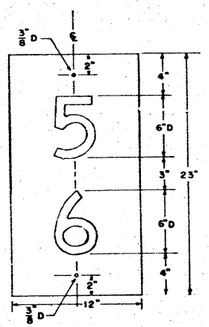
Delineators and mileposts shall be placed facing on-coming traffic two feet outside the shoulder edge or two feet from the inside face of curbed sections. Delineator posts shall be driven using an approved driving cap. Posts shall be driven prior to installation of the reflective units or milepost blanks. Delineators and mileposts shall be installed outside guard rail posts when guard rail is installed along the highway. All fasteners shall be either galvanized steel, stainless steel or aluminum.

GENERAL NOTES

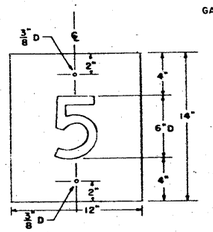
If rock is encountered at a depth less than 3'6" below the ground surface, a six inch or larger diameter hole shall be drilled for the channel or pipe posts, and the post shall be set in Portland cement grout. If rock is encountered at a depth of 1'6" or more below the ground surface, the hole shall be drilled to a depth of 3'6". If rock is encountered at a depth less than 1'6" below the ground surface, the holes shall be drilled a minimum of 2'0" into the rock.



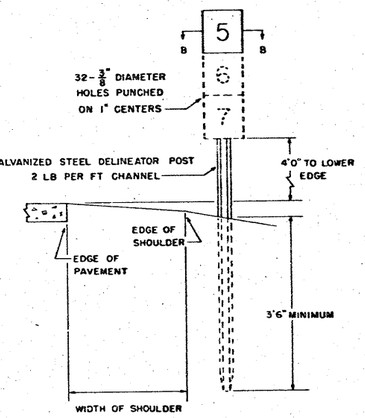
TYPE 3



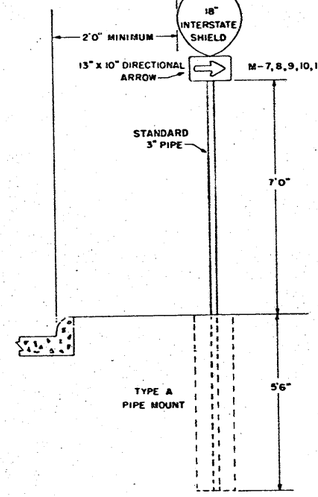
TYPE 2



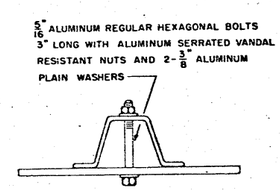
TYPE 1



MILEPOST MARKER DETAILS



TRAIL BLAZER DETAILS



SECTION B-B
MILEPOST BLANK AND POST DETAIL

TEXAS HIGHWAY DEPARTMENT
INTERSTATE
STANDARD ROADSIDE SIGN MOUNTING DETAILS
MILEPOST MARKERS, DELINEATORS, AND TRAIL BLAZER ASSEMBLY
SMD-6

REVISED	11/10/60	CH	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
	5/1/61	CH	6	TEXAS	I 35-1(3)002	43
	10/61	CH	STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
			21	WEBB	17 / 48	IH 35

SHEET 8 OF 8

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	1

STATE DIST. NO.	COUNTY	STATE CONTROL NO.	HIGHWAY NO.
21	WEBB	18-6-43 18-5-18 18-4-16	IH-35

W-480

IPE 886

509802

CONTRACT NUMBER	COUNTY	ORDERED BY
1353 351	Webb	Walter Harding
DATE LETTED	DATE OPENED	
6-11-68	10-4-16, 17	

FINAL	AT CLOSE	FINAL SHEETS	BRS.	LTR'S	BRTS.	SPANS	
	3	81	4				0

2
5268

STATE OF TEXAS
STATE HIGHWAY DEPARTMENT

PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT.
I-35-1(19)000

SCALES: PLAN: 1 IN. = 100 FT.
PROFILE: 1 IN. HOR. = 100 FT., 1 IN. VERT. = 10 FT.
CROSS-SECTIONS: 1 IN. HOR. AND VERT. = 5 FT.
OTHERS AS NOTED.

NET LENGTH OF PROJECT = 57,252.7 FT. = 10.843 MI.

CONTROL 18-6-43 = 34,221.4 FT. = 6.481 MI. — Urban = 24,626.9 FT. = 4.664 MI.
CONTROL 18-5-18 = 17,218.8 FT. = 3.261 MI. — Rural = 9,594.5 FT. = 1.817 MI.
CONTROL 18-4-16 = 5,812.5 FT. = 1.101 MI.

WEBB COUNTY
INTERSTATE HIGHWAY 35

MODIFY EXISTING ROADSIDE TRAFFIC SIGNS WITH BREAK-AWAY SUPPORTS

FROM: VICTORIA STREET IN LAREDO
TO: 2.2 MILES NORTH OF HWY. U.S. 83

FINAL PLANS

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	SPECIFICATION DATA SHEET
3-4	TYPICAL CROSS SECTIONS
5	ESTIMATE & QUANTITY SHEET
6-19	SIGN TABULATION
20-44	PLAN & PROFILE SHEETS
45-47	GUIDE SIGNS
48	WARNING SIGNS & SPECIAL MOUNTS

STANDARDS FROM ORIGINAL CONTRACTS

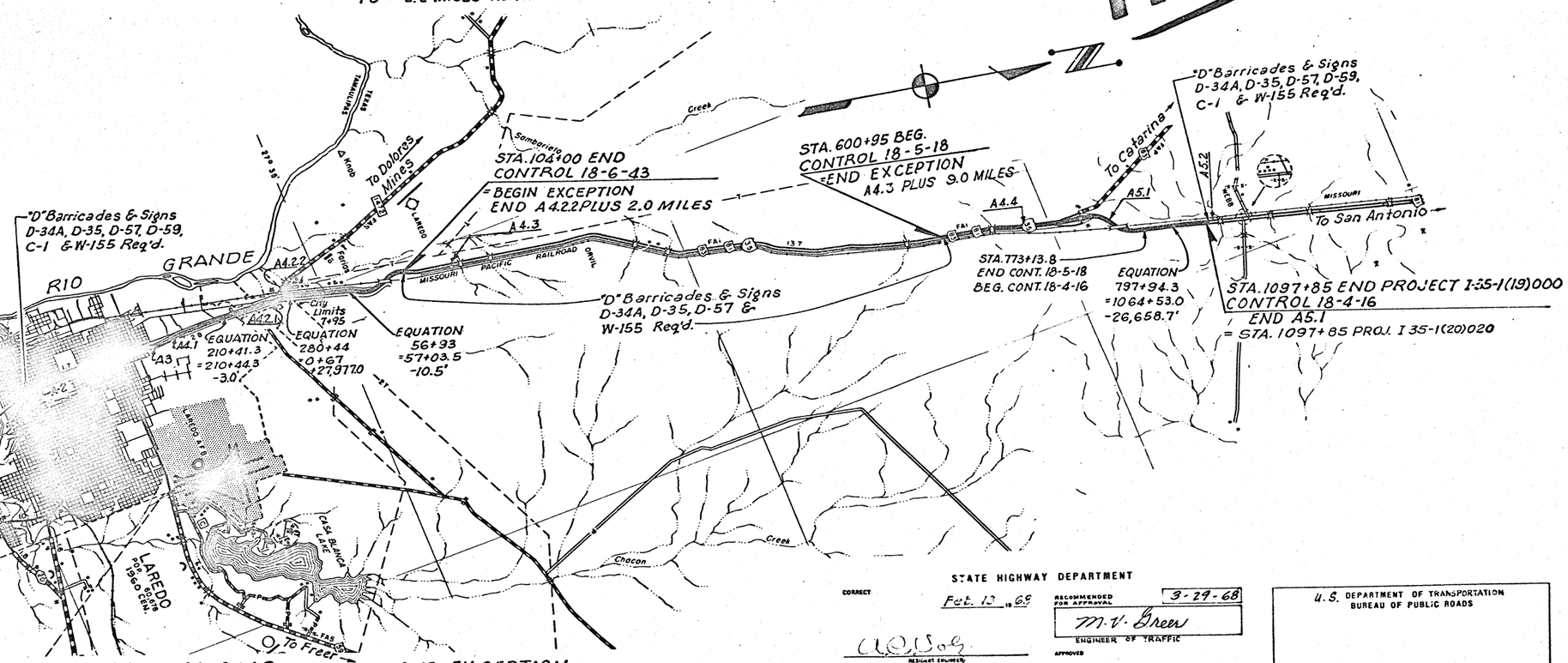
49-50	1962 CONTRACT MOUNTING DETAILS, SMD-2 & SMD-4
51-52	1963 CONTRACT MOUNTING DETAILS, SMD-2 & SMD-4 (MOD)

CURRENT STANDARDS

53-56	SIGN STANDARDS, ISG(3), ISG(4), ISR(1) & ISB(1)
57-61	ROADSIDE MOUNT STANDARDS, SMD-1, SMD-3, SMD-11A & SMD-12
62-66	MODIFY EXISTING SIGNS WITH BREAKAWAY POSTS
67	TB & PM-66 TRAFFIC BUTTONS & PAVEMENT MARKERS
68-69	BW-67-(1) & (2)
70	CIS-67

62-63	PLYWOOD GUIDE SIGNS
64	WARNING & REGULATORY
65-66	WARNING, REGULATORY & SMALL GUIDE SIGNS

SPECIFICATIONS ADOPTED BY THE STATE HIGHWAY DEPARTMENT OF TEXAS, JANUARY 2, 1962, AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONTRACTS INTERSTATE HIGHWAYS (FORM PR-1273, DECEMBER, 1965).



EQUATIONS
210+41.3 = 210+44.3 = -3.0'
280+44 = 0+67 = +27,977.0'
56+93 = 57+03.5 = -10.5'
797+94.3 = 1064+53.0 = -26,658.7'

ONE EXCEPTION
104+00 To 600+95 = -49,818'

LAYOUT SCALE: 1 IN. = 5,280 FT.

CONVENTIONAL SIGNS
- STATE OR NATIONAL LINE
- CITY OR VILLAGE LINE
- COUNTY LINE
- BASE OR SURVEY LINE
- RIGHT OF WAY LINE
- RIGHT OF WAY MARKERS
- FENCE LINE
- RAILROAD
- TRAVELLED WAY
- CULVERT OR BRIDGE
- POWER LINE
- TELEGRAPH OR TELEPHONE

COUNTY Webb PROJ. NO. I 35-1(19)
HWY. NO. IH 35 LETTING DATE May 68
DATE ACCEPTED Dec. 19 68

STATE HIGHWAY DEPARTMENT

CORRECT
Feb. 13 19 69
RESIDENT ENGINEER

RECOMMENDED FOR APPROVAL 3-29-68
M. V. Green
ENGINEER OF TRAFFIC

APPROVED

RECOMMENDED FOR APPROVAL
19
DISTRICT ENGINEER

APPROVED April 8, 1968
R. L. Lewis
CHIEF ENGINEER OF HIGHWAY DESIGN

U.S. DEPARTMENT OF TRANSPORTATION
BUREAU OF PUBLIC ROADS

APPROVED
DIVISION ENGINEER — DATE

SPECIFICATION DATA
SHEET

FED. RD DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS					
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21						

GENERAL NOTES AND SPECIFICATION DATA:

GENERAL:
This project shall be kept open to traffic at all times. All operations shall be conducted in such a manner as to insure safety of public travel at all times. Operations shall be so conducted as to avoid spilling or dropping on the pavement, dirt or other materials that might endanger public travel. Any such materials so dropped or spilled shall be immediately cleaned or picked up from the pavement or paved shoulders. All equipment and vehicles used on this job shall travel in the direction of general traffic at all times and crossing of Main Lanes over medians by equipment will not be permitted.

Erection of Interstate signs shall be scheduled to interfere as little as possible with vehicle traffic on the expressway. The following requirement must be observed: Portable W-155 signs shall be displayed on the median and shoulder 700' in advance of any work being performed. Signs shall be removed from view at all times when work is not in progress. Flagmen and appropriate signs shall be used for the full time that construction requires Public Travel at a reduced speed and where construction equipment occupies a travel lane or adjacent shoulder.

The Contractor shall use lights to mark the footing nearest the pavement edge of through Traffic Lanes that are open to Traffic for Each Traffic-Sign Support, and Footings at other locations as directed by the Engineer. The lights, which may be flares or the Flashing Electric Type, shall be used between Sunset and Sunrise for the period of time from the Beginning of construction of the Footing through the Attachment of the sign(s) to the Support.

SALVAGED MATERIAL: The salvaged posts and signs shall become the property of the Contractor, unless otherwise shown on the plans, and he shall remove them from the Right of Way.

SCOPE OF WORK: It is the intent of these plans to provide for a complete system of Interstate signs installed at the locations indicated in these plans. All work, material, and services not expressly called for in the specifications or not shown in the plans, which may be necessary for complete and proper construction shall be performed, furnished, and installed.

Upon completion of the work and before acceptance and final payment is made, the Contractor shall clean, remove rubbish from the site of the work, restore in an acceptable manner all property, both public and private which has been damaged during the prosecution of the work, and leave the site of work in a neat and presentable condition throughout. No extra compensation will be allowed for fulfilling the requirements stated above.

All signs shall be erected according to the station number shown on the Plan and Profile sheets except that the Engineer may shift a sign in order to secure a more desirable location. The Engineer will stake all sign locations, and no changes in these locations shall be made without prior approval of the Engineer.

ITEM 7411: Class C Concrete will be required for use on this item.

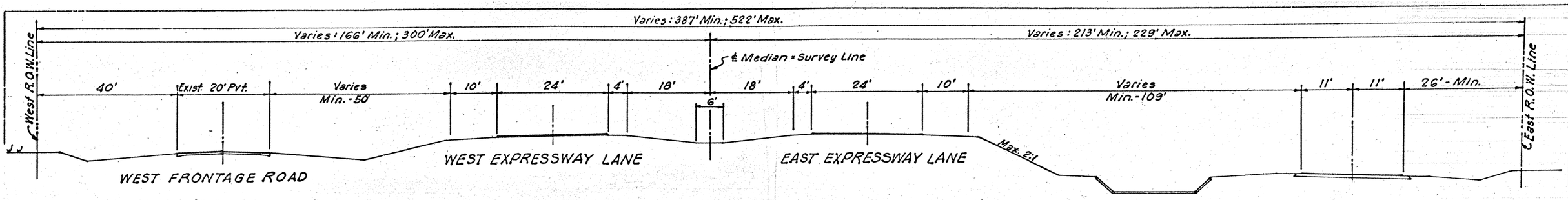
GENERAL: It is the intent of the plans to erect all major signs 30' and minor signs 18' from the edge of pavement. In places where these minimum distances cannot be obtained because of the frontage road, clearances will be maintained as close to these minimums as practical and still kept a minimum distance of 8' from the edge of the frontage road.

Signs shown on the plans to be removed by the Contractor shall be unbolted and removed together with supports and foundations to a minimum of one foot below the ground. All material and debris shall become the property of the Contractor and shall be disposed of by him at Sites out of sight of the highway. No direct payment will be made for this removal, but shall be considered subsidiary work to the various bid items of this Contract.

SPECIFICATION DATA
SHEET A

2

FED. RD DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(19)000				2
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	6-5-4	13-8-4	IH35

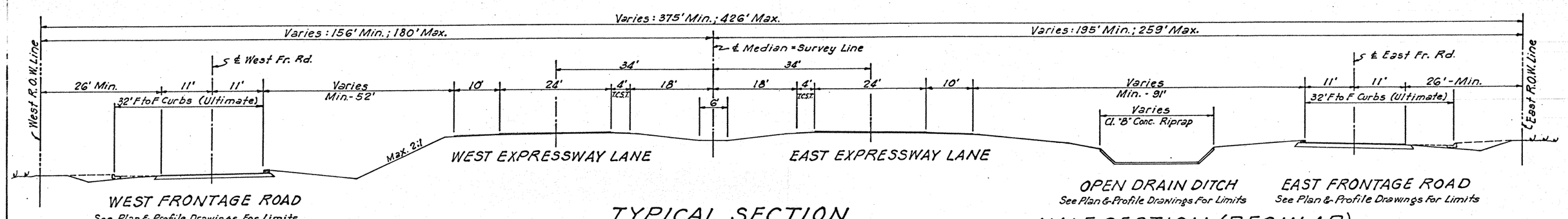


HALF SECTION (REGULAR)

TYPICAL SECTION

STATION 184+00 TO STATION 104+00

HALF SECTION (HIGH FILL)

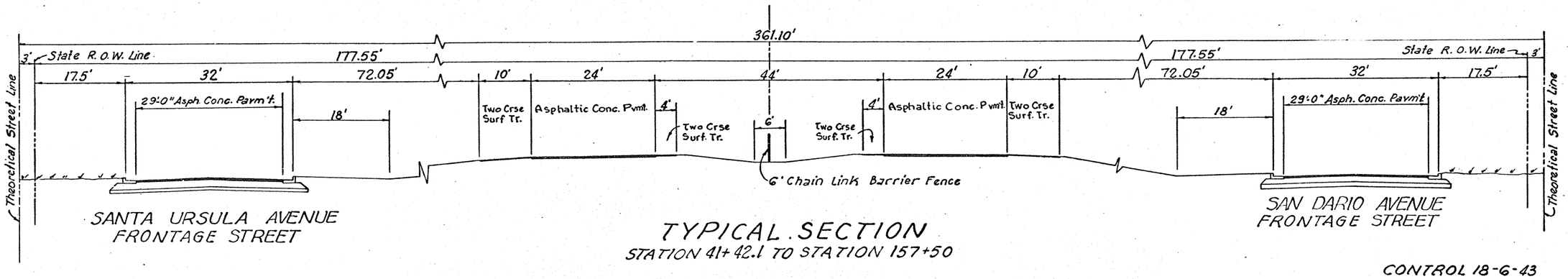


HALF SECTION (HIGH FILL)

TYPICAL SECTION

STATION 157+50 TO STATION 183+00

HALF SECTION (REGULAR)



TYPICAL SECTION

STATION 41+42.1 TO STATION 157+50

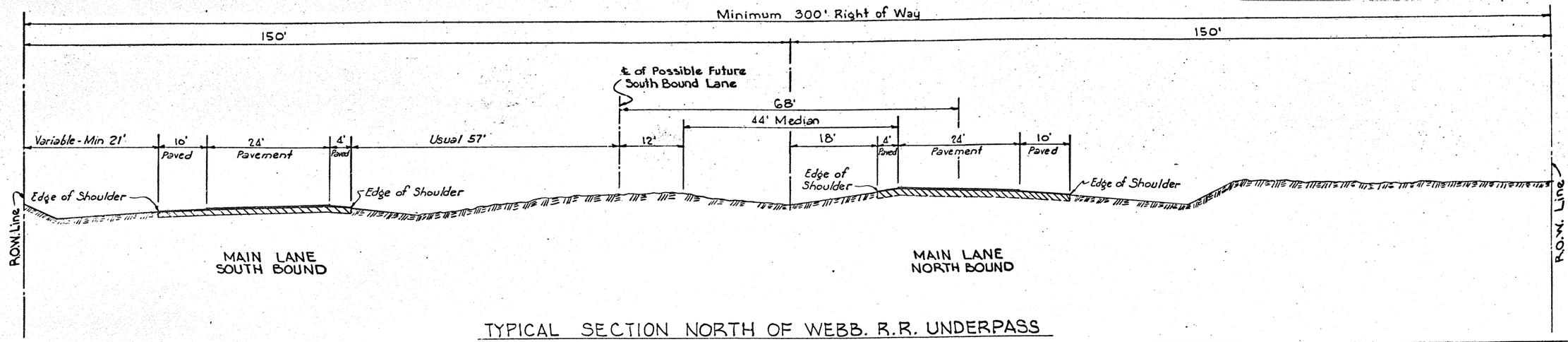
CONTROL 18-6-43

TYPICAL CROSS SECTIONS

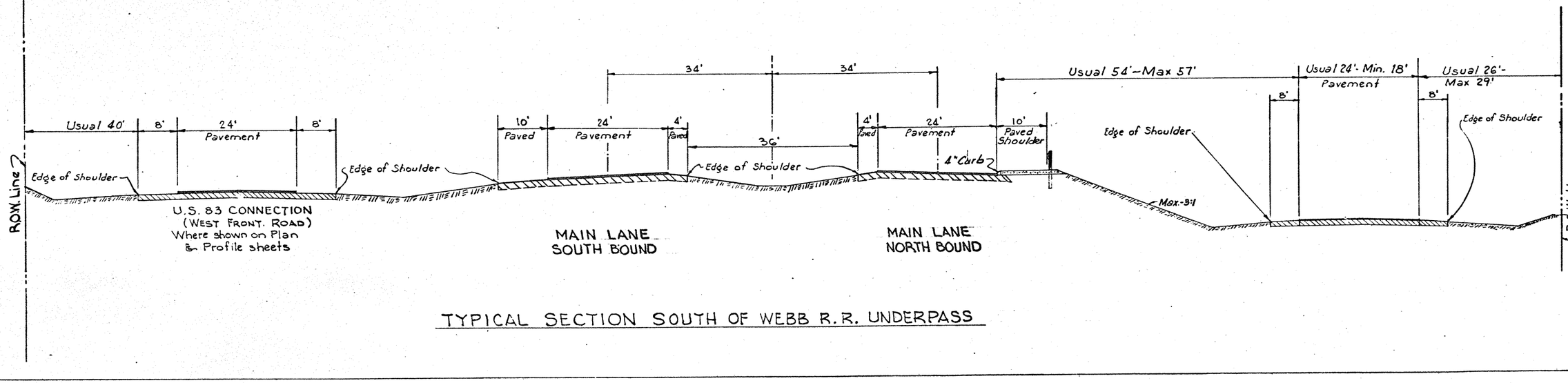
SHEET 1 OF 2 SHEETS

3

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(19)000				3
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB		HIGHWAY NO.
21	WEBB	18	6	43		IH 35



TYPICAL SECTION NORTH OF WEBB. R.R. UNDERPASS



TYPICAL SECTION SOUTH OF WEBB R.R. UNDERPASS

CONTROLS 18-5&4 - 18&16

TYPICAL CROSS SECTIONS 4

SHEET 2 OF 2 SHEETS

FED. RD. DIV. NO. 6	STATE TEXAS	FEDERAL PROJECT NO I-35-1(19)000				SHEET NO 4
STATE DIST. NO. 21	COUNTY WEBB		CONT. 18	SECT 5/4	JOB 18/16	HIGHWAY NO I.H.-35

ESTIMATE SUMMARY

BREAKDOWN BY CONTROLS — PROJECT I-35-1(19)000								ALTERNATE	ITEM-CODE			DESCRIPTION	UNIT	TOTAL	
CONTROL 18-6-43 URBAN		CONTROL 18-6-43 RURAL		CONTROL 18-4-16 RURAL		CONTROL 18-5-18 RURAL									
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		ITEM NO.	DESC. CODE	SP. NO.			EST.	FINAL
469.31	-469.31	103.33	-103.33			218.66	218.66		7005	002		PLY SIGN TY A AND OR TY B	SF	791.30	791.30
9.00	9.00	30.13	30.13			6.40	6.58		7022	001		AL SIGN TY A	SF	45.53	45.71
						10.67	11.75		7221	002		2 IN GALV PIPE POST	LF	10.67	11.75
82.83	82.83	11.83	11.83			23.67	23.67		7221	003		2.5 IN GALV PIPE POST	LF	118.33	118.33
4418.	4402.	934.	936.			1756.	1757.		7202	001		GALV S R STL POST	LB	7108.	7095.
402.5	376.5	59.5	59.5	35.0	35.0	144.5	144.5		7411	001		NON-REINF DRILL SHAFT 12 IN DIA	LF	641.5	615.50
100.0	98.75	43.5	43.5			20.0	20.0		7411	002		NON-REINF DRILL SHAFT 18 IN DIA	LF	163.5	162.25
24.0	24.0	8.0	8.0			32.0	32.0		7411	100		REINF DRILL SHAFT 18 IN DIA	LF	64.0	64.0
147.0	147.0	66.0	66.0	24.0	24.0	121.0	121.0		7411	101		REINF DRILL SHAFT 24 IN DIA	LF	358.0	358.0
204.00	204.00	43.00	43.00			38.17	38.33		7420	004		GALV PIPE POST (2 IN)	LF	285.17	285.33
51.17	51.17			76.08	76.08	52.75	52.75		7420	005		GALV PIPE POST (2.5 IN)	LF	180.00	180.00
						19.42	19.42		7420	001		GALV PIPE POST (3 IN)	LF	19.42	19.42
123.50	122.75	38.50	39.00			24.00	24.58		7420	010		GALV PIPE POST (4 IN)	LF	186.00	186.33
16631	16609	5230	5234	1822	1825	9047	9038		7420	002		GALV STR STL POST	LB	32730	32701.
342	342.	57	57.			95	95.		1596	006		*PAV MARK SINGLE REFL (Ty I-R)	EA	494	494.
												WORK TO BE DONE BY STATE FORCES			
		0.5	0.5			0.5	0.5					REMOVE EXIST. TRAFFIC SIGNS	LS	1	1.
ALTERNATE NO. 1A															
9.00		30.13				6.40			7011	001		STL SIGN TY A	SF	45.53	

* Pavement Markers at all Exit Ramps except at Sta. 194+00 ± and Sta. 257+00 ± where these markers have already been installed.

ESTIMATE & QUANTITY SHEET

5

STATE	FEDERAL PROJECT NO.	SHEET NO.
TEXAS	I-35-1(19)000	5
DIST. 21	COUNTY WEBB	CONT. SECT. JOB 18 6543 11 36
		HIGHWAY IH-35

7-2

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT (■ Removable Copy, ● Direct Screened, ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No. 1	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No. 2	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: NEW TOP ELEVATION No. 1	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: NEW TOP ELEVATION No. 2	PROPOSED STRUCTURE: NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No. 1	PROPOSED STRUCTURE: NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No. 2	PROPOSED STRUCTURE: NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No. 3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	LENGTH No. 2	LENGTH No. 3	TOT. WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	LENGTH No. 2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS - L.F. 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS - L.F. 24"D	30"D
MAIN LANE - SOUTH BOUND CONTROL 18-6-43																																																	
3 of 25	21	78+15	OSB	■ FREEWAY ENDS 9/10 MILE	GREEN	19'-6"x6'-6"																								OSB				COMMERCIAL DESIGN									
4 of 25	6	93+00	IG-11	■ Park St. - Sanchez St.	GREEN	16'-0"x10'-0"																								4				8x8x31#	15'-7	16'-1	1337			17.0												
4 of 25	7	80+00	IR-2	● SPEED LIMIT 45	WHITE	48" x 60"	426.57					418.70	418.62		F-2					315.7	12'-4"	12'-5"		198	7.0				SP*			17'-3"					5.5												
3 of 25	23	64+50	IR-16R	●● ONE WAY	BLACK	48"x16"									A	11'-10"								3.5					NEW SIGN																		
5 of 25	2	103+00	R1 Mrkrs	INTERSTATE TEXAS 35, etc.	VARIOUS	36", etc.																							C	12'-7"		15'-10"						5.5												
9 of 25	9	154+05	IR-2 IR-2F	● MAXIMUM SPEED 60 ● MINIMUM SPEED 40	WHITE WHITE	48"x60" 48"x60"	427.92					420.30	420.22		G					417.7	17'-1"	17'-2"		349		9.0			SP*			44'-6" ⊙					11.0												
7 of 25	32	136+50	IR-16R	●● ONE WAY	BLACK	48"x16"									A	11'-10"								3.5					NEW SIGN																		
7 of 25	23	128+75	IG-9	■ Park St. Sanchez St. EXIT 9/10 MILE	GREEN	16'-0"x8'-6"	427.86	420.88	419.68			416.94	415.11		320					6B 15.5	18'-11"	20'-9"		654				14	4				8x6½x28	14'-5	15'-8	1168			14.0												
8 of 25	1	139+50	IG-11	■ (59) Laredo AFB - Houston	GREEN	16'-6"x14'-6"																							4				10x8x45#	18'-2	19'-1"	2375				19.0												
	7	168+00	IW-60	● MERGING TRAFFIC	YELLOW	48"x48"																							F-2				3"I 5.7#	16'-2	17'-5	191	7.0												
11 of 25	12	187+80	IG- 9	■ (59) Laredo AFB - Houston - EXIT 1 MILE	GREEN	16'-6"x14'-0"	431.25	424.37	422.77			420.62	418.54		320					8WF 20	24'-2	26'-3"		1091				16	4				10x8x45#	18'-5	20'-0	2319				19.0												
4 of 25	11	86+50	IR-16R	●● ONE WAY	BLACK	48" x 16"									A	11'-10"								3.5					NEW SIGN																		
MAIN LANE - NORTH BOUND																																															
3 of 25	1	67+39	IG-9	■ (59) Laredo AFB - Houston - EXIT 9/10 MILE	GREEN	16'-6"x14'-0"																							4				10x8x45#	19'-0	19'-9	2334				19.0												
3 of 25	18	76+00	IW-60	● MERGING TRAFFIC	YELLOW	48"x48"																							F-2				3"I 5.7#	13'-9	13'-9	157	7.0												
5 of 25	1	95+00	IM6-2N IM-CC M6-1N IM1-1 M6-1N IM1-1	●● NORTH ●● INTERSTATE - TEXAS - 35 ● NORTH ● TEXAS - U.S. 81 ● NORTH ● TEXAS - U.S. - 83	BLUE RED-BLUE WHITE WHITE WHITE WHITE	30"x15" 36" 21"x 9" 24" 21"x 9" 24"																							C	12'-7"		15'-4"						5.5												
																													4				10x8x45#	19'-4"	19'-11"	2357				19.0												
5 of 25	3	108+50	IG-11	■ (59) Laredo AFB - Houston	GREEN	16'-6"x14'-6"																																													
4 of 25	8	88+23	IR-2 & IR-2F	● MAX. SPEED 60 & MIN. SPEED 40	WHITE	2-48"x60"	424.09					416.22	416.05		G					417.7	17'-4"	17'-6"		353		9.0			SP*			44'-6"					11.0												
6 of 25	11	123+00	IG-9	■ San Bernardo Ave. Calton Road EXIT 3/4 Mi.	GREEN	24'-0"x8'-6"																							5				10x8x39#	15'-4	19'-6	1880				18.0												
7 of 25	20	127+50	IW-60	● MERGING TRAFFIC	YELLOW	48"x48"																							F-2				3"I 5.7#	15'-7	16'-5	182	7.0												
8 of 25	2	150+00	IM6-2N IM-CC M6-1N IM1-1 M6-1N IM1-1	●● NORTH ●● INTERSTATE - TEXAS - 35 ● NORTH ● TEXAS - U.S. - 81 ● NORTH ● TEXAS - U.S. - 83	BLUE RED-BLUE WHITE WHITE WHITE WHITE	30"x15" 36" 21"x 9" 24" 21"x 9" 24"																							C	12'-7"		15'-4"						5.5												
9 of 25	1	155+75	IG-11	■ San Bernardo Ave - Calton Road	GREEN	24'-0"x10'-0"	428.25					420.08	419.75	419.42	330					EWF 17	17'-8"	18'-0	18'-4	974				21	5				10x8x45#	16'-0	16'-9	2076				18.0												
9 of 25	4	163+00	IR-2 IR-2F	● SPEED LIMIT 60 ● MINIMUM SPEED 40	WHITE WHITE	48"x60" 48"x60"																							G				4I 7.7#	21'-0	21'-0	323		9.0												
6 of 25	14	113+10	IR-16R	●● ONE WAY	BLACK	48"x16"									A	11'-10"								3.5					NEW SIGN																		
9 of 25	10	159+00	IR-16R	●● ONE WAY	BLACK	48"x16"									A	11'-10"								3.5					NEW SIGN																		
SANTA URSULA AVE.																																															
1 of 25	1	40+81	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																							A		10'-8"						3.5												
1 of 25	3	41+42	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																							A		10'-8"						3.5												
1 of 25	2	41+42	R-16L	●● ONE WAY	BLACK	36"x12"																							A		10'-8"						3.5												
1 of 25	8	42+82	M6-1S M1-2 M6-1S M1-2	● SOUTH ●● TEXAS - U.S. - 81 ● SOUTH ●● TEXAS - U.S. 83	WHITE BLACK WHITE BLACK	21"x 9" 24"x24" 21"x 9" 24"x24"																							B	6'-6"		12'-6"						4.5												
1 of 25	10	44+11	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																							A		10'-8"						3.5												
1 of 25	12	44+80	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																							A		10'-8"						3.5												
1 of 25	11	44+80	R-16L	●● ONE WAY	BLACK	36"x12"																							A		10'-8"						3.5												
1 of 25	21	47+93	R-16R	●● ONE WAY	BLACK	36"x12"																							A		10'-8"						3.5												

URBAN

* Special Mount
⊙ Two pipe posts

SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

ESTIMATE SIGN TABULATION

SHEET 1 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(19)000				6
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	6	43	IH 35

6

7-2

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT ■ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No. 1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No. 2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No. 1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No. 2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No. 1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No. 2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No. 3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No. 1	LENGTH No. 2	LENGTH No. 3	TOT. WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No. 1	LENGTH No. 2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS - L.F. 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS - L.F. 24"D	30"D
MAIN LANE – SOUTH BOUND																																													
															CONTROL 18-6-43																																
3 of 25	21	78+15	OSB	■ FREEWAY ENDS ¾ MILE	GREEN	19'-6"x6'-6"																								OSB				COMMERCIAL DESIGN								
4 of 25	6	93+00	IG-11	■ Park St. - Sanchez St.	GREEN	16'-0"x10'-0"																								4				8x8x31#	15'-7"	16'-1"	1337			17.0		
4 of 25	7	80+00	IR-2	• SPEED LIMIT 45	WHITE	48" x 60"	426.57					418.70	418.62		F-2				315.7	12'-4"	12'-5"		198	7.0					SP*			17'-3"						5.5			
3 of 25	23	64+50	IR-1GR	•• ONE WAY	BLACK	48"x16"									A	11'-10"								3.5					C	12'-7"		15'-10"		NEW SIGN				5.5			
5 of 25	2	103+00	R1 Mrkrs	INTERSTATE TEXAS 35, etc.	VARIOUS	36", etc.																																						
9 of 25	9	154+05	IR-2 IR-2F	• MAXIMUM SPEED 60 • MINIMUM SPEED 40	WHITE WHITE	48"x60" 48"x60"	427.92					420.30	420.22		G				417.7	17'-1"	17'-2"		349		9.0				SP*			48'-6"⊙						11.0			
7 of 25	32	136+50	IR-1GR	•• ONE WAY	BLACK	48"x16"									A	11'-10"								3.5										NEW SIGN							
7 of 25	23	128+75	IG-9	■ Park St. Sanchez St. EXIT ¾ MILE	GREEN	16'-0"x8'-6"	427.86	420.88	419.66			416.94	415.11		320				6B15.5	17'-6"	19'-9"		616				14		4					8x6½x28#	14'-5"	15'-8"	1168			14.0		
8 of 25	1	139+50	IG-11	■ (59) Laredo AFB - Houston	GREEN	16'-6"x14'-6"																								4				10x8x45#	19'-1"	20'-7"	2375				19.0	
	7	168+00	IW-60	• MERGING TRAFFIC	YELLOW	48"x48"																								F-2				3"I 5.7#	16'-2"	17'-5"	191	7.0				
11 of 25	12	187+80	IG-9	■ (59) Laredo AFB - Houston - EXIT 1 MILE	GREEN	16'-6"x14'-0"	431.25	424.37	422.77			420.62	418.54		320				8WF20	24'-2"	26'-3"		1091				16		4					10x8x45#	18'-5"	20'-0"	2319				19.0	
4 of 25	11	86+50	IR-1GR	•• ONE WAY	BLACK	48"x16"									A	11'-10"								3.5										NEW SIGN							
MAIN LANE – NORTH BOUND																																												
3 of 25	1	67+39	IG-9	■ (59) Laredo AFB - Houston - EXIT ¾ MILE	GREEN	16'-6"x14'-0"																								4				10x8x45#	19'-0"	19'-9"	2334				19.0	
3 of 25	18	76+00	IW-60	• MERGING TRAFFIC	YELLOW	48"x48"																								F-2				3"I 5.7#	13'-9"	13'-9"	157	7.0				
5 of 25	1	95+00	IM6-2N IM-CC M6-1N IM1-1 M6-1N IM1-1	•• NORTH •• INTERSTATE - TEXAS - 35 • NORTH • TEXAS - U.S. 81 • NORTH • TEXAS - U.S. - 83	BLUE RED-BLUE WHITE WHITE WHITE WHITE	30"x15" 36" 21"x 9" 24" 21"x 9" 24"																						C	12'-7"		15'-4"						5.5			
5 of 25	3	108+50	IG-11	■ (59) Laredo AFB - Houston	GREEN	16'-6"x14'-6"																								4				10x8x45#	19'-4"	19'-11"	2357				19.0	
4 of 25	8	88+23	IR-2&IR-2F	• MAX. SPEED 60 & MIN. SPEED 40	WHITE	2-48"x60"	424.09					416.22	416.05		G				417.7	17'-4"	17'-6"		353		9.0				SP*			24'-6"						11.0			
6 of 25	11	123+00	IG-9	■ San Bernardo Ave. Calton Road EXIT ¾ Mi.	GREEN	24'-0"x8'-6"																								5				10x8x39#	15'-4"	19'-6"	1880				18.0	
7 of 25	20	127+50	IW-60	• MERGING TRAFFIC	YELLOW	48"x48"																								F-2				3"I 5.7#	15'-7"	16'-5"	182	7.0				
8 of 25	2	150+00	IM6-2N IM-CC M6-1N IM1-1 M6-1N IM1-1	•• NORTH •• INTERSTATE - TEXAS - 35 • NORTH • TEXAS - U.S. - 81 • NORTH • TEXAS - U.S. - 83	BLUE RED-BLUE WHITE WHITE WHITE WHITE	30"x15" 36" 21"x 9" 24" 21"x 9" 24"																						C	12'-7"		15'-4"						5.5			
9 of 25	1	155+75	IG-11	■ San Bernardo Ave - Calton Road	GREEN	24'-0"x10'-0"	428.25					420.08	419.75	419.42	330				8WF17	17'-8"	18'-0"	18'-4"	974				21		5					10x8x45#	16'-0"	16'-9"	2076				18.0	
9 of 25	4	163+00	IR-2 IR-2F	• SPEED LIMIT 60 • MINIMUM SPEED 40	WHITE WHITE	48"x60" 48"x60"																								G				4"I 7.7#	21'-0"	21'-0"	323		9.0			
6 of 25	14	113+10	IR-1GR	•• ONE WAY	BLACK	48"x16"									A	11'-10"								3.5										NEW SIGN							
9 of 25	10	159+00	IR-1GR	•• ONE WAY	BLACK	48"x16"									A	11'-10"								3.5										NEW SIGN							
SANTA URSULA AVE.																																												
1 of 25	1	40+81	R-1GR R-1GL	•• ONE WAY •• ONE WAY	BLACK BLACK	36"x12" 36"x12"																								A		10'-8"						3.5			
1 of 25	3	41+42	R-1GR R-1GL	•• ONE WAY •• ONE WAY	BLACK BLACK	36"x12" 36"x12"																								A		10'-8"						3.5			
1 of 25	2	41+42	R-1GL	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
1 of 25	8	42+82	M6-1S M1-2 M6-1S M1-2	• SOUTH •• TEXAS - U.S. - 81 • SOUTH •• TEXAS - U.S. 83	WHITE BLACK WHITE BLACK	21"x 9" 24"x24" 21"x 9" 24"x24"																								B	6'-6"	12'-6"						4.5			
1 of 25	10	44+11	R-1GR R-1GL	•• ONE WAY •• ONE WAY	BLACK BLACK	36"x12" 36"x12"																								A		10'-8"						3.5			
1 of 25	12	44+80	R-1GR R-1GL	•• ONE WAY •• ONE WAY	BLACK BLACK	36"x12" 36"x12"																								A		10'-8"						3.5			
1 of 25	11	44+80	R-1GL	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
1 of 25	21	47+93	R-1GR	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			

URBAN

* Special Mount
⊙ Two pipe posts

SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

FINAL SIGN TABULATION

SHEET 1 OF 14 SHEETS

6-A

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(19)000				6A
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	6	43	IH35

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT (■ Removable Copy, ● Direct Screened, ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT. WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12" D	18" D	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18" D	24" D	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2" D	2½" D	3" D	4" D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12" D	18" D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24" D	30" D
				SANTA URSULA CONTROL 18-6-43																																						
1 of 25	17	46+17	M6-1S M1-A M6-1S M1-A	● SOUTH ●● TEXAS-US-81 ● SOUTH ●● TEXAS-US-83	WHITE BLACK WHITE BLACK	21"x9" 24"x24" 21"x9" 24"x24"																								B	6'-6"		12'6"					4.5			
1 of 25	18	47+00	W11-4	● SIGNALS AHEAD	YELLOW	30"x30"																								A		13'-3"						3.5			
2 of 25	1	49+52	M6-1S M1-2 M6-1S M1-2	● SOUTH ●● TEXAS-US-81 ● SOUTH ●● TEXAS-US-83	WHITE BLACK WHITE BLACK	21"x9" 24"x24" 21"x9" 24"x24"																								B	6'-6"		12'6"					4.5			
2 of 25	1A	50+15	W3-2	● RAILROAD ADVANCE WARNING	YELLOW	30"																								A		12'-8"						3.5			
2 of 25	2	50+98	R-1-1A R-1-6R R-1-6L	●● STOP ●● ONE WAY ●● ONE WAY	RED BLACK BLACK	30" 36"x12" 36"x12"																								B	6'-0"		13'4"					4.5			
2 of 25	3	8+33	R-1-6L	●● ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
2 of 25	4	8+85	R-1-1A R-1-6R R-1-6L	●● STOP ●● ONE WAY ●● ONE WAY	RED BLACK BLACK	30" 36"x12" 36"x12"																								B	6'-0"		13'4"					4.5			
2 of 25	5	52+88	M6-1S M1-2 M6-1S M1-2	● SOUTH ●● TEXAS-US-81 ● SOUTH ●● TEXAS-US-83	WHITE BLACK WHITE BLACK	21"x9" 24"x24" 21"x9" 24"x24"																								B	6'-6"		12'6"					4.5			
2 of 25	10	54+35	R-1-1A R-1-6R	●● STOP ●● ONE WAY	RED BLACK	30" 36"x12"																								B	6'-0"		13'4"					4.5			
2 of 25	11	54+56	R-1-6R	●● ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
2 of 25	12	55+15	I-R-2	● SPEED LIMIT 30	WHITE	48"x60"	421.74					414.70	414.70		F-2				31 5.7	11'-6"	11'-6"		188	7.0					F-2				3"I 5.7#	15'-0"	15'-0"	171	7.0				
2 of 25	13	55+15	I-R-2	● SPEED LIMIT 30	WHITE	48"x60"	421.74					414.70	414.70		F-2				31 5.7	11'-6"	11'-6"		188	7.0					F-2				3"I 5.7#	15'-0"	15'-0"	171	7.0				
2 of 25	14	56+15	R-1-6L	●● ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
2 of 25	20	57+65	I-R-1A R-1-6R	●● STOP ●● ONE WAY	RED BLACK	30" 36"x12"																								B	6'-0"		13'4"					4.5			
2 of 25	21	57+90	R-1-6R	●● ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
2 of 25	22	57+28	I-R-1A	●● STOP WITH BLINDER	RED	30"	421.64					414.48			A		12'-7"						3.5					A		12'-2"						3.5			
2 of 25	23	57+28	I-R-1A	●● STOP	RED	30"																								A		12'-2"						3.5			
3 of 25	6	8+34	R-1-6R R-1-6L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																								A		10'-8"						3.5			
3 of 25	7	8+34	R-1-6L	●● ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
3 of 25	8	8+74	R-1-6R R-1-6L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																								A		10'-8"						3.5			
3 of 25	9	8+34	R-1-6R R-1-6L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																								A		10'-8"						3.6			
3 of 25	10	8+92	R-1-4	● KEEP RIGHT ⇒	WHITE	18"x24"	423.96					416.96			A-2		12'-0"						3.5					A		11'-8"						3.5			
3 of 25	12	8+34	R-1-6L	●● ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
3 of 25	11	8+74	R-1-6R R-1-6L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																								A		10'-8"						3.5			
3 of 25	19	77+53	W11-4	● SIGNALS AHEAD	YELLOW	30"x30"																								A		13'-3"						3.5			
3 of 25	20	78+05	I-R-1A R-1-6R	●● STOP ●● ONE WAY	RED BLACK	30" 36"x12"																								B	6'-0"		13'4"					4.5			
3 of 25	22	78+28	R-1-6R	●● ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			

URBAN

SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

ESTIMATE SIGN TABULATION

SHEET 2 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	I-35-1(19)000			7
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT (■ Removable Copy, ● Direct Screened, ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION: No. 1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION: No. 2	EXISTING FOUNDATIONS: NEW TOP ELEVATION: No. 1	EXISTING FOUNDATIONS: NEW TOP ELEVATION: No. 2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION: No. 1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION: No. 2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION: No. 3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F.: 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH: No. 1	LENGTH: No. 2	LENGTH: No. 3	TOT. WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F.: 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F.: 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F.: 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH: No. 1	LENGTH: No. 2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS - L.F.: 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS - L.F.: 24"D	30"D
				SANTA URSULA CONTROL 18-6-43																																											
1 of 25	17	46+17	M6-1S M1-A M6-1S M1-A	● SOUTH ●● TEXAS-US-81 ● SOUTH ●● TEXAS-US-83	WHITE BLACK WHITE BLACK	21"x9" 24"x24" 21"x9" 24"x24"																											B	6'-6"		12'-6"					4.5			
1 of 25	18	47+00	W11-4	● SIGNALS AHEAD	YELLOW	30"x30"																									A		13'-3"						3.5			
2 of 25	1	49+52	M6-1S M1-2 M6-1S M1-2	● SOUTH ●● TEXAS-US-81 ● SOUTH ●● TEXAS-US-83	WHITE BLACK WHITE BLACK	21"x9" 24"x24" 21"x9" 24"x24"																											B	6'-6"		12'-6"					4.5			
2 of 25	1A	50+15	W3-2	● RAILROAD ADVANCE WARNING	YELLOW	30"																									A		12'-2"						3.5			
2 of 25	2	50+98	IR-1A R-16R R-16L	●● STOP ●● ONE WAY ●● ONE WAY	RED BLACK BLACK	30" 36"x12" 36"x12"																									B	6'-0"		13'-4"					4.5			
2 of 25	3	8+33	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10'-8"						3.5			
2 of 25	4	8+85	IR-1A R-16R R-16L	●● STOP ●● ONE WAY ●● ONE WAY	RED BLACK BLACK	30" 36"x12" 36"x12"																									B	6'-0"		13'-4"					4.5			
2 of 25	5	52+88	M6-1S M1-2 M6-1S M1-2	● SOUTH ●● TEXAS-US-81 ● SOUTH ●● TEXAS-US-83	WHITE BLACK WHITE BLACK	21"x9" 24"x24" 21"x9" 24"x24"																											B	6'-6"		12'-6"					4.5			
2 of 25	10	54+35	IR-1A R-16R	●● STOP ●● ONE WAY	RED BLACK	30" 36"x12"																									B	6'-0"		13'-4"					4.5			
2 of 25	11	54+56	R-16R	●● ONE WAY	BLACK	36"x12"																									A		10'-8"						3.5			
2 of 25	12	55+15	IR-2	● SPEED LIMIT 30	WHITE	48"x60"	421.74					414.70	414.70		F-2					31 5.7	11'-6"	11'-6"		188	7.0					F-2				3" 5.7#	15'-0"	15'-0"	171	7.0			
2 of 25	13	55+15	IR-2	● SPEED LIMIT 30	WHITE	48"x60"	421.74					414.70	414.70		F-2					31 5.7	11'-6"	11'-6"		188	7.0					F-2				3" 5.7#	15'-0"	15'-0"	171	7.0			
2 of 25	14	56+15	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10'-8"						3.5			
2 of 25	20	57+65	IR-1A R-16R	●● STOP ●● ONE WAY	RED BLACK	30" 36"x12"																									B	6'-0"		13'-4"					4.5			
2 of 25	21	57+90	R-16R	●● ONE WAY	BLACK	36"x12"																									A		10'-8"						3.5			
2 of 25	22	57+28	IR-1A	●● STOP WITH BLINDER	RED	30"	421.64					414.48			A	12'-7"									3.5					A		12'-2"						3.5			
2 of 25	23	57+28	IR-1A	●● STOP	RED	30"																									A		12'-2"						3.5			
3 of 25	6	8+34	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																									A		10'-8"						3.5			
3 of 25	7	8+34	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10'-8"						3.5			
3 of 25	8	8+74	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																									A		10'-8"						3.5			
3 of 25	9	8+34	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																									A		10'-8"						3.5			
3 of 25	10	8+92	R-1-4	● KEEP RIGHT ➡	WHITE	18"x24"	423.96					416.98			A-2	12'-0"															A		11'-8"						3.5			
3 of 25	12	8+34	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10'-8"						3.5			
3 of 25	11	8+74	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																									A		10'-8"						3.5			
3 of 25	19	77+53	W11-4	● SIGNALS AHEAD	YELLOW	30"x30"																									A		13'-3"						3.5			
3 of 25	20	78+05	IR-1A R-16R	●● STOP ●● ONE WAY	RED BLACK	30" 36"x12"																									B	6'-0"		13'-4"					4.5			
3 of 25	22	78+28	R-16R	●● ONE WAY	BLACK	36"x12"																									A		10'-8"						3.5			

URBAN

7A

SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

FINAL SIGN TABULATION

SHEET 2 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(19)000				7A
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	6	43	~~IH-35~~

7-6

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT (■ Removable Copy, ● Direct Screened, ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT. WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS — L.F. 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS — L.F. 24"D	30"D
SANTA URSULA AVE — CONTROL 18-6-43																																													
4 of 25	2	80+20	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10-8						3.5			
6 of 25	6	121+40	IR-1A	●● STOP	RED	30"																									B	6'-0"		13'-4"					4.5			
			R-16R	●● ONE WAY	BLACK	36"x12"																																						
6 of 25	7	121+63	R-16R	●● ONE WAY	BLACK	36"x12"																									A		10-8						3.5			
7 of 25	1	124+30	M6-1N	● NORTH	WHITE	21"x9"																									C	13'-4"			13'-6"					5.5		
			M1-2	●● TEXAS-U.S.-59	BLACK	24"x24"																																					
			M4-1L	● ⇐	WHITE	21"x15"																																					
			M6-1S	● SOUTH	WHITE	21"x9"																																					
			M1-2	●● TEXAS-U.S.-81	BLACK	24"x24"																																					
			M4-3	● ⇑	WHITE	21"x15																																					
			M6-1S	● SOUTH	WHITE	21"x9"																																					
			M1-2	●● TEXAS-U.S.-83	BLACK	24"x24"																																					
			M4-3	● ⇑	WHITE	21"x15"																																					
7 of 25	2	8+12	R-16R	●● ONE WAY	BLACK	36"x12"																									A		10-8						3.5			
			R-16L	●● ONE WAY	BLACK	36"x12"																																					
7 of 25	5	9+05	IR-14	● KEEP RIGHT ⇒	WHITE	48"x60"	421.45					414.41	414.41		F-2					31 5.7	11'-6"	11'-6"		188	7.0				F-2					31-5.7#	15'-0"	15'-0"	171	7.0			
7 of 25	6	8+87	R-16R	●● ONE WAY	BLACK	36"x12"																									A		10-8						3.5			
			R-16L	●● ONE WAY	BLACK	36"x12"																																					
7 of 25	3	8+12	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10-8						3.5			
7 of 25	4	8+12	IM6-1S	●● SOUTH	BLUE	21"x9"																									C	13'-4"			13'-6"					5.5		
			IM-88	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																					
			IM4-1L	●● ⇐	BLUE	21"x15"																																					
			M6-1S	● SOUTH	WHITE	21"x9"																																					
			M1-2	●● TEXAS-U.S-81	BLACK	24"x24"																																					
			M4-1L	● ⇐	WHITE	21"x15"																																					
			M6-1S	● SOUTH	WHITE	21"x9"																																					
			M1-2	●● TEXAS-U.S-83	BLACK	24"x24"																																					
			M4-1L	● ⇐	WHITE	21"x15"																																					
7 of 25	16	126+90	IG-25	●● ⇐Laredo AFB 2 - ⇐ Houston 309	GREEN	13'-0"x4'-0"																									4A				5x5x16#	10'-2"	10'-2"	521			10.0	
7 of 25	17	127+55	W-11A	● SIGNALS AHEAD	YELLOW	30"x30"																									A		13'-9"						3.5			
7 of 25	18	128+06	IR-1A	●● STOP	RED	30"																									B	6'-0"		13'-4"					4.5			
			R-16R	●● ONE WAY	BLACK	36"x12"																																					
7 of 25	19	128+30	R-16R	●● ONE WAY	BLACK	36"x12"																									A		10-8						3.5			
7 of 25	24	130+20	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10-8						3.5			
7 of 25	27	131+64	R-16R	●● ONE WAY	BLACK	36"x12"																									A		10-8						3.5			
8 of 25	18	147+03	W-32	● RAILROAD ADVANCE WARNING	YELLOW	30"																									A		12'-2"						3.5			
10 of 25	1	9+24	IM6-1S	●● SOUTH	BLUE	21"x9																									EXISTING MOUNT											
			IM-88	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																					
			IM4-1R	●● ⇒ 8' etc.	BLUE	21"x15																																					
10 of 25	2	8+52	R-16R	●● ONE WAY	BLACK	36"x 12"																									A		10-8						3.5			
			R-16L	●● ONE WAY	BLACK	36"x12"																																					
10 of 25	3	8+35	IM6-1S	●● SOUTH	BLUE	21"x 9"																									A		13'-8"						3.5			
			IM-88	●● INTERSTATE-TEXAS-35	RED-BLUE	24																																					
			IM4-1L	●● ⇐	BLUE	21"x15"																																					
10 of 25	4	8+71	R-16R	●● ONE WAY	BLACK	36" x 12"																									A		10-8						3.5			
			R-16L	●● ONE WAY	BLACK	36" x 12"																																					
10 of 25	5	174+20	IR-1S	● DO NOT ENTER	WHITE	48"x48"																									F-2				3"1 5.7	14'-0"	14'-0"	160	7.0			

URBAN

8

SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

ESTIMATE SIGN TABULATION
SHEET 3 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT No.				SHEET NO.
6	TEXAS	I-35-1(19)000				8
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	6	43	IH35

PLANS PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT (■ Removable Copy, • Direct Screened, •• Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	GALVANIZED PIPE POSTS L.F. 2½"	GALVANIZED PIPE POSTS L.F. 3"	GALVANIZED PIPE POSTS L.F. 4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.3	GALVANIZED STRUCTURAL STEEL POSTS TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS — L.F. 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS — L.F. 24"D	30"D
SANTA URSULA AVE															CONTROL 18-6-43																														
4 of 25	2	80+20	R-16L	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
6 of 25	6	121+40	IR-1A	•• STOP	RED	30"																								B	6'-0"		13'-4"					4.5			
			R-16R	•• ONE WAY	BLACK	36"x12"																																					
6 of 25	7	121+63	R-16R	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
7 of 25	1	124+30	M6-1N	• NORTH	WHITE	21"x9"																								C	13'-4"		13'-6"					5.5			
			M1-2	•• TEXAS-U.S.-59	BLACK	24"x24"																																				
			M4-1L	• ←	WHITE	21"x15"																																				
			M6-1S	• SOUTH	WHITE	21"x9"																																				
			M1-2	•• TEXAS-U.S.-81	BLACK	24"x24"																																				
			M4-3	• ↑	WHITE	21"x15																																				
			M6-1S	• SOUTH	WHITE	21"x9"																																				
			M1-2	•• TEXAS-U.S.-83	BLACK	24"x24"																																				
			M4-3	• ↑	WHITE	21"x15"																																				
7 of 25	2	8+12	R-16R	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
			R-16L	•• ONE WAY	BLACK	36"x12"																																				
7 of 25	5	9+05	IR-14	• KEEP RIGHT ➡	WHITE	48"x60"	821.45					814.41	814.41		F-2					315.7	11'-6"	11'-6"		188					F-2					31 5.7"	15'-0"	15'-0"	171	7.0			
7 of 25	6	8+87	R-16R	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
			R-16L	•• ONE WAY	BLACK	36"x12"																																				
7 of 25	3	8+12	R-16L	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
7 of 25	4	8+12	IM6-1S	•• SOUTH	BLUE	21"x9"																								C	13'-4"		13'-6"					5.5			
			IM-8B	•• INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-1L	•• ←	BLUE	21"x15"																																				
			M6-1S	• SOUTH	WHITE	21"x9"																																				
			M1-2	•• TEXAS-US-81	BLACK	24"x24"																																				
			M4-1L	• ←	WHITE	21"x15"																																				
			M6-1S	• SOUTH	WHITE	21"x9"																																				
			M1-2	•• TEXAS-US-83	BLACK	24"x24"																																				
			M4-1L	• ←	WHITE	21"x15"																																				
7 of 25	16	126+90	1G-25	•• ←Laredo AFB 2 - ←Houston 309	GREEN	13'-0"x4'-0"																								4A					5x5x16#	10'-2"	10'-2"	521			10.0		
7 of 25	17	127+55	W-11A	• SIGNALS AHEAD	YELLOW	30"x30"																								A		13'-3"						3.5			
7 of 25	18	128+06	IR-1A	•• STOP	RED	30"																								B	6'-0"		13'-1"					4.5			
			R-16R	•• ONE WAY	BLACK	36"x12"																																				
7 of 25	19	128+30	R-16R	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
7 of 25	24	130+20	R-16L	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
7 of 25	27	131+64	R-16R	•• ONE WAY	BLACK	36"x12"																								A		10'-8"						3.5			
8 of 25	18	147+03	W-32	• RAILROAD ADVANCE WARNING	YELLOW	30"																								A		12'-2"						3.5			
10 of 25	1	9+24	IM6-1S	•• SOUTH	BLUE	21"x9																								EXISTING MOUNT												
			IM-8B	•• INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-1R	•• ➡ & etc.	BLUE	21"x15																																				
10 of 25	2	8+52	R-16R	•• ONE WAY	BLACK	36"x 12"																								A		10'-8"						3.5			
			R-16L	•• ONE WAY	BLACK	36"x12"																																				
10 of 25	3	8+35	IM6-1S	•• SOUTH	BLUE	21"x 9"																								A		13'-8"						3.5			
			IM-8B	•• INTERSTATE-TEXAS-35	RED-BLUE	24																																				
			IM4-1L	•• ←	BLUE	21"x15"																																				
10 of 25	4	3+71	R-16R	•• ONE WAY	BLACK	36" x 12"																								A		10'-8"						3.5			
			R-16L	•• ONE WAY	BLACK	36" x 12"																																				
10 of 25	5	174+20	IR-15	• DO NOT ENTER	WHITE	48"x48"																								F-2					3"I 5.7	14'-0"	14'-0"	160	7.0			

URBAN

8-A

SEE ~~SMD 1-63~~, SMD-2-63, ~~SMD 3-63~~, SMD-4(MOD)-63 ~~& SMD 58-63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

FINAL SIGN TABULATION
SHEET 3 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT No.				SHEET NO.
6	TEXAS	I-35-1(19)000				8A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.	
21	WEBB	15	6	23	IH35	

	PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT (■ Removable Copy, ● Direct Screened, ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No. 1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No. 2	NEW FOUNDATIONS: NEW TOP ELEVATION No. 1	NEW FOUNDATIONS: NEW TOP ELEVATION No. 2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No. 1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No. 2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No. 3	NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F.: 2"	2½"	3"	4"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	LENGTH No. 2	LENGTH No. 3	TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F.: 12"	18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F.: 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F.: 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No. 1	LENGTH No. 2	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS - L.F.: 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS - L.F.: 24"D	30"D
				SAN DARIO AVE.												CONTROL 18-6-43																														
	1 of 25	5	40+84	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																									A		10'-8"							3.5			
	1 of 25	6	40+84	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10'-8"							3.5			
	1 of 25	7	41+44	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																									A		10'-8"							3.5			
	1 of 25	9	42+82	M7-1 IM6-1N IM-AA M4-3 M6-1N M1-2 M6-1N M1-2	● TO ●● NORTH ●● INTERSTATE - TEXAS 35 ● ↑ ● NORTH ●● TEXAS - US - 81 ● NORTH ●● TEXAS - US - 83	WHITE BLUE RED-BLUE WHITE WHITE BLACK WHITE BLACK	18"x12" 21"x 9" 21"x 18" 21"x 15" 21"x 9" 24"x 24" 21"x 9" 24"x 24"																									C	11'-4"			13'-6"						5.5			
	1 of 25	13	44+19	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																									A		10'-8"							3.5			
	1 of 25	14	44+19	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10'-8"							3.5			
	1 of 25	15	44+30	R-16L R-16R	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																									A		10'-8"							3.5			
	1 of 25	15A	45+55	W-32	● RAILROAD ADVANCE WARNING	YELLOW	30"																									A		12'-2"							3.5			
	1 of 25	16	46+17	M7-1 IM6-1N IM-AA M4-3 M6-1N M1-2 M6-1N M1-2	● TO ●● NORTH ●● INTERSTATE - TEXAS - 35 ● ↑ ● NORTH ●● TEXAS - US - 81 ● NORTH ●● TEXAS - US - 83	WHITE BLUE RED-BLUE WHITE WHITE BLACK WHITE BLACK	18"x12" 21"x 9" 21"x 18" 21"x 15" 21"x 9" 24"x 24" 21"x 9" 24"x 24"																									C	11'-4"			13'-6"						5.5			
	1 of 25	19	47+90	R-16R	●● ONE WAY	BLACK	36"x12"																									A		10'-8"							3.5			
	1 of 25	20	48+07	IR-1A R-16R	●● STOP ●● ONE WAY	RED BLACK	30" 36"x12"																									B	6'-0"		13'-4"						4.5			
	2 of 25	6	49+52	M7-1 IM6-1N IM-AA M4-3 M6-1N M1-2 M6-1N M1-2	● TO ●● NORTH ●● INTERSTATE - TEXAS - 35 ● ↑ ● NORTH ●● TEXAS - US - 81 ● NORTH ●● TEXAS - US - 83	WHITE BLUE RED-BLUE WHITE WHITE BLACK WHITE BLACK	18"x12" 21"x 9" 21"x 18" 21"x 15" 21"x 9" 24"x 24" 21"x 9" 24"x 24"																									C	11'-4"			13'-6"						5.5			
	2 of 25	7	11+14	IR-1A R-16R R-16L	●● STOP ●● ONE WAY ●● ONE WAY	RED BLACK BLACK	30" 36"x12" 36"x12"																									B	6'-0"		13'-4"						4.5			
	2 of 25	8	11+66	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10'-8"							3.5			
	2 of 25	9	51+40	IR-1A R-16R R-16L	●● STOP ●● ONE WAY ●● ONE WAY	RED BLACK BLACK	30" 36"x12" 36"x12"																									B	6'-0"		13'-4"						4.5			
	2 of 25	16	54+55	R-16R	●● ONE WAY	BLACK	36"x12"	420.83				413.43			A-2	10'-11"				3.5											A		10'-8"							3.5			
	2 of 25	17	54+77	IR-1A R-16R	●● STOP ●● ONE WAY	RED BLACK	30" 36"x12"																									B	6'-0"		13'-4"						4.5			
	3 of 25	2	63+80	W11-4	● SIGNALS AHEAD	YELLOW	30"x30"																									A		13'-3"							3.5			
	3 of 25	3	11+22	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																									A		10'-8"							3.5			
	3 of 25	4	11+66	R-16L	●● ONE WAY	BLACK	36"x12"																									A		10'-8"							3.5			
	3 of 25	5	11+66	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																									A		10'-8"							3.5			

URBAN

9

SEE ~~SMD 1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~&~~ ~~SMD-5B-63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

ESTIMATE SIGN TABULATION
SHEET 4 OF 14 SHEETS

FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
G	TEXAS	I-35-1(19)000	9

STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT (■ Reroyable Copy, ● Direct Screened, ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	PROPOSED STRUCTURE: NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	PROPOSED STRUCTURE: NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	PROPOSED STRUCTURE: NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT. WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D
		SAN DARIO AVE.														CONTROL 18-6-43																														
1 of 25	5	40+84	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																							A		10'-8"							3.5			
1 of 25	6	40+84	R-16L	●● ONEWAY	BLACK	36"x12"																							A		10'-8"							3.5			
1 of 25	7	41+44	R-16R R-16L	●● ONEWAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																							A		10'-8"							3.5			
1 of 25	9	42+82	M7-1 IM6-IN IM-AA M4-3 M6-IN M1-2 M6-IN M1-2	● TO ●● NORTH ●● INTERSTATE - TEXAS 35 ● ↑ ● NORTH ●● TEXAS - US-81 ● NORTH ●● TEXAS - US-83	WHITE BLUE RED-BLUE WHITE WHITE BLACK WHITE BLACK	18"x12" 21"x 9" 21"x 18" 21"x 15" 21"x 9" 24"x 24" 21"x 9" 24"x 24"																							C	11'-4"			13'-6"					5.5			
1 of 25	13	44+19	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																							A		10'-8"							3.5			
1 of 25	14	44+19	R-16L	●● ONE WAY	BLACK	36"x12"																							A		10'-8"							3.5			
1 of 25	15	44+30	R-16L R-16R	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																							A		10'-8"							3.5			
1 of 25	15A	45+55	W-32	● RAILROAD ADVANCE WARNING	YELLOW	30"																							A		12'-2"							3.5			
1 of 25	16	46+17	M7-1 IM6-IN IM-AA M4-3 M6-IN M1-2 M6-IN M1-2	● TO ●● NORTH ●● INTERSTATE - TEXAS - 35 ● ↑ ● NORTH ●● TEXAS - US - 81 ● NORTH ●● TEXAS - US - 83	WHITE BLUE RED-BLUE WHITE WHITE BLACK WHITE BLACK	18"x12" 21"x 9" 21"x 18" 21"x 15" 21"x 9" 24"x 24" 21"x 9" 24"x 24"																							C	11'-4"			13'-6"					5.5			
1 of 25	19	47+90	R-1ER	●● ONE WAY	BLACK	36"x12"																							A		10'-8"							3.5			
1 of 25	20	48+07	IR-1A R-16R	●● STOP ●● ONE WAY	RED BLACK	30" 36"x12"																							B	6'-0"		13'-4"					4.5			
2 of 25	6	49+52	M7-1 IM6-IN IM-AA M4-3 M6-IN M1-2 M6-IN M1-2	● TO ●● NORTH ●● INTERSTATE - TEXAS - 35 ● ↑ ● NORTH ●● TEXAS - US-81 ● NORTH ●● TEXAS - US-83	WHITE BLUE RED-BLUE WHITE WHITE BLACK WHITE BLACK	18"x 12" 21"x 9" 21"x 18" 21"x 15" 21"x 9" 24"x 24" 21"x 9" 24"x 24"																							C	11'-4"			13'-6"					5.5			
2 of 25	7	11+14	IR-1A R-16R R-16L	●● STOP ●● ONE WAY ●● ONE WAY	RED BLACK BLACK	30" 36"x12" 36"x12"																							B	6'-0"		13'-2"					4.5			
2 of 25	8	11+66	R-16L	●● ONE WAY	BLACK	36"x12"																							A		10'-8"							3.5			
2 of 25	9	51+40	IR-1A R-16R R-16L	●● STOP ●● ONE WAY ●● ONE WAY	RED BLACK BLACK	30" 36"x12" 36"x12"																							B	6'-0"		13'-4"					4.5			
2 of 25	16	54+55	R-16R	●● ONE WAY	BLACK	36"x12"	420.03				413.43			A-2	10'-11"				3.5									A		10'-8"							3.5			
2 of 25	17	54+77	IR-1A R-16R	●● STOP ●● ONE WAY	RED BLACK	30" 36"x12"																							B	6'-0"		13'-4"					4.5			
3 of 25	2	63+80	W11-4	● SIGNALS AHEAD	YELLOW	30"x30"																							A		13'-3"							3.5			
3 of 25	3	11+22	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																							A		10'-8"							3.5			
3 of 25	1	11+66	R-16L	●● ONEWAY	BLACK	36"x12"																							A		10'-8"							3.5			
3 of 25	5	11+66	R-16R R-16L	●● ONE WAY ●● ONE WAY	BLACK BLACK	36"x12" 36"x12"																							A		10'-8"							3.5			

URBAN

9-A

SEE ~~SMD 1-63~~, SMD-2-63, ~~SMD 3-63~~, SMD-4(MOD)-63 ~~& SMD 5B 63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

FINAL SIGN TABULATION
SHEET 4 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	9A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT (■ Removable Copy, ● Direct Screened, ●● Reverse Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT. WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS - L.F. 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS - L.F. 24"D	30"D
SAN DARIO AVE CONT'D.															CONTROL 18-6-43																												
3 of 25	12A	11+22	R-16R	●● ONE WAY	BLACK	36" × 12"																									A		10'8"					3.5			
			R-16L	●● ONE WAY	BLACK	36" × 12"																																				
3 of 25	13	11+66	R-16L	●● ONE WAY	BLACK	36" × 12"																									A		10'8"					3.5			
3 of 25	14	74+28	IM6-1N	●● NORTH	BLUE	21" × 9"																									C	13'4"		13'6"				5.5			
			IM-BB	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-1L	●● ⬅	BLUE	21" × 15"																																				
			M6-1N	● NORTH	WHITE	21" × 9"																																				
			M1-2	●● TEXAS-US-81	BLACK	24" × 24"																																				
			M4-1L	● ⬅	WHITE	21" × 15"																																				
			M6-1N	● NORTH	WHITE	21" × 9"																																				
			M1-2	●● TEXAS-US-83	BLACK	24" × 24"																																				
			M4-1L	● ⬅	WHITE	21" × 15"																																				
3 of 25	15	11+05	R-14	● KEEP RIGHT ➡	WHITE	18" × 24"	424.24					417.24			A-2	12'-0"									3.5				A		11'8"					3.5			
3 of 25	16	11+66	R-16R	●● ONE WAY	BLACK	36" × 12"																									A		10'8"					3.5			
			R-16L	●● ONE WAY	BLACK	36" × 12"																																				
3 of 25	17	75+29	IM6-1N	●● NORTH	BLUE	21" × 9"																									C	13'4"		13'6"				5.5			
			IM-BB	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-1R	●● ➡	BLUE	21" × 15"																																				
			M6-1N	● NORTH	WHITE	21" × 9"																																				
			M1-2	●● TEXAS-US-81	BLACK	24" × 24"																																				
			M4-1R	● ➡	WHITE	21" × 15"																																				
			M6-1N	● NORTH	WHITE	21" × 9"																																				
			M1-2	●● TEXAS-US-83	BLACK	24" × 24"																																				
			M4-1R	● ➡	WHITE	21" × 15"																																				
6 of 25	5	119+80	R-16L	●● ONE WAY	BLACK	36" × 12"																									A		10'8"					3.5			
6 of 25	8	121+61	R-16R	●● ONE WAY	BLACK	36" × 12"																									A		10'8"					3.5			
6 of 25	9	121+85	IR-1A	●● STOP	RED	30"																									B	6'0"		13'4"				4.5			
			R-16R	●● ONE WAY	BLACK	36" × 12"																																				
6 of 25	10	122+67	W11-4	● SIGNALS AHEAD	YELLOW	30" × 30"																									A		13'5"					3.5			
6 of 25	12	123+50	JG-25	■ Laredo AFB 2 ➡ - Houston 309 ➡	GREEN	13'-0" × 4'-0"																									4A				5×5×16#	10'-2"	10'-2"	521			10.0		
7 of 25	7	11+30	R-16R	●● ONE WAY	BLACK	36" × 12"																									A		10'8"					3.5			
			R-16L	●● ONE WAY	BLACK	36" × 12"																																				
7 of 25	8	11+75	R-16L	●● ONE WAY	BLACK	36" × 12"																									A		10'8"					3.5			
7 of 25	9	11+85	M6-1N	● NORTH	WHITE	21" × 9"																									A		13'8"					3.5			
			M1-2	●● TEXAS-US-59	BLACK	24" × 24"																																				
			M4-3	● ⬆	WHITE	21" × 15"																																				
7 of 25	10	10+95	IR-14	● KEEP RIGHT ➡	WHITE	48" × 60"	421.78					414.74	414.74		F-2			31 5.7	11'-6"	11'-6"		188	7.0			F2				3'1 5.7#	15'-0"	15'-0"	171	7.0					
7 of 25	11	11+15	IM6-1N	●● NORTH	BLUE	21" × 9"																									C	13'4"		13'6"				5.5			
			IM-BB	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-1R	●● ➡	BLUE	21" × 15"																																				
			M6-1N	● NORTH	WHITE	21" × 9"																																				
			M1-2	●● TEXAS-US-81	BLACK	24" × 24"																																				
			M4-1R	● ➡	WHITE	21" × 15"																																				
			M6-1N	● NORTH	WHITE	21" × 9"																																				
			M1-2	●● TEXAS-US-83	BLACK	24" × 24"																																				
			M4-1R	● ➡	WHITE	21" × 15"																																				
7 of 25	12	11+15	IG-25	■ San Antonio 150 ➡	GREEN	13'6" × 20'																									4A				5×5×16#	8'3"	8'3"	464			10.0		

URBAN

SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

ESTIMATE SIGN TABULATION
SHEET 5 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				STUDY NO.
6	TEXAS	I-35-1(19)000				10
STATE DIST. NO.	COUNTY		COUNT	SECT	JOB	HIGHWAY NO.
21	WEBB		18	6	43	IH-35

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT ■ Removable Copy ● Direct Screened ●● Reverse Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION: No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION: No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION: No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION: No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION: No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION: No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION: No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F.: 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH: No.1	LENGTH: No.2	LENGTH: No.3	TOT. WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F.: 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F.: 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F.: 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH: No.1	LENGTH: No.2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS - L.F.: 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS - L.F.: 24"D	30"D
				SAN DARIO AVE CONT'D.											CONTROL 18-6-43																												
3 of 25	12A	11+22	R-16R	●● ONE WAY	BLACK	36" x 12"																								A		10'8"						3.5			
			R-16L	●● ONE WAY	BLACK	36" x 12"																																				
3 of 25	13	11+66	R-16L	●● ONE WAY	BLACK	36" x 12"																								A		10'8"						3.5			
			IM6-1N	●● NORTH	BLUE	21" x 9"																																				
			IM-6B	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-1L	●● ⬅	BLUE	21" x 15"																																				
			M6-1N	● NORTH	WHITE	21" x 9"																																				
3 of 25	14	74+28	M1-2	●● TEXAS-US-81	BLACK	24" x 24"																								C	13'-5"		13'6"					5.5			
			M4-1L	● ⬅	WHITE	21" x 15"																																				
			M6-1N	● NORTH	WHITE	21" x 9"																																				
			M1-2	●● TEXAS-US-83	BLACK	24" x 24"																																				
			M4-1L	● ⬅	WHITE	21" x 15"																																				
3 of 25	15	11+05	R-14	● KEEP RIGHT ➡	WHITE	18" x 24"	424.24					417.24			A-2	12'-0"													A		11'8						3.5			
			R-16R	●● ONE WAY	BLACK	36" x 12"																								A		10'8"						3.5			
3 of 25	16	11+66	R-16L	●● ONE WAY	BLACK	36" x 12"																																				
			IM6-1N	●● NORTH	BLUE	21" x 9"																																				
			IM-8B	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-1R	●● ➡	BLUE	21" x 15"																																				
			M6-1N	● NORTH	WHITE	21" x 9"																																				
3 of 25	17	75+29	M1-2	●● TEXAS-US-81	BLACK	24" x 24"																								C	13'-4"		13'6"					5.5			
			M4-1R	● ➡	WHITE	21" x 15"																																				
			M6-1N	● NORTH	WHITE	21" x 9"																																				
			M1-2	●● TEXAS-US-83	BLACK	24" x 24"																																				
			M4-1R	● ➡	WHITE	21" x 15"																																				
6 of 25	5	119+80	R-16L	●● ONE WAY	BLACK	36" x 12"																								A		10'8"						3.5			
6 of 25	8	121+61	R-16R	●● ONE WAY	BLACK	36" x 12"																								A		10'8"						3.5			
6 of 25	9	121+85	IR-1A	●● STOP	RED	30"																								B	6'0"		13'4"					4.5			
			R-16R	●● ONE WAY	BLACK	36" x 12"																								A		13'5"						3.5			
6 of 25	10	122+67	W11-4	● SIGNALS AHEAD	YELLOW	30" x 30"																								4A				5"x5"x16'#	10'-2"	10'-2"	521				10.0		
6 of 25	12	123+50	JG-25	■ Laredo AFB 2 ➡ - Houston 309 ➡	GREEN	13'-0"x4'-0"																																				
			R-16R	●● ONE WAY	BLACK	36" x 12"																								A		10'8"						3.5			
7 of 25	7	11+30	R-16L	●● ONE WAY	BLACK	36" x 12"																								A		10'8"						3.5			
7 of 25	8	11+75	R-16L	●● ONE WAY	BLACK	36" x 12"																																				
			M6-1N	● NORTH	WHITE	21" x 9"																																				
7 of 25	9	11+85	M1-2	●● TEXAS-US-59	BLACK	24" x 24"																								A		13'8"						3.5			
			M4-3	● ⬆	WHITE	21" x 15"																																				
7 of 25	10	10+95	IR-14	● KEEP RIGHT ➡	WHITE	48" x 60"	421.78					414.74	414.74		F-2				31 5.7	11'-6"	11'-6"		188						F2				3"I 5.7#	15'-0	15'-0	171	7.0			
			IM6-1N	●● NORTH	BLUE	21" x 9"																																				
			IM-8B	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-1R	●● ➡	BLUE	21" x 15"																																				
			M6-1N	● NORTH	WHITE	21" x 9"																																				
7 of 25	11	11+15	M1-2	●● TEXAS-US-81	BLACK	24" x 24"																								C	13'4"		13'6"					5.5			
			M4-1R	● ➡	WHITE	21" x 15"																																				
			M6-1N	● NORTH	WHITE	21" x 9"																																				
			M1-2	●● TEXAS-US-83	BLACK	24" x 24"																																				
			M4-1R	● ➡	WHITE	21" x 15"																																				
7 of 25	12	11+15	IG-25	■ San Antonio 150 ➡	GREEN	13'6" x 20'																								4A				5"x5"x16'#	8'3"	8'3"	464				10.0		

URBAN

10-A

SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

FINAL SIGN TABULATION

SHEET 5 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.		FUNC. NO.
6	TEXAS	I-35-1(19)000		10A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT ■ Removable Copy • Direct Screened •• Reverse Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	GALVANIZED PIPE POSTS L.F. 2½"	GALVANIZED PIPE POSTS L.F. 3"	GALVANIZED PIPE POSTS L.F. 4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.3	GALVANIZED STRUCTURAL STEEL POSTS TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS - L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS - L.F. 24"D	30"D
				SAN DARIO AVE CONT'D.											CONTROL 18-6-43																									
	7 of 25	13	11+75	R-16R ONE WAY	BLACK	36"×12"																							A		10'8"						3.5			
				R-16L •• ONE WAY	BLACK	36"×12"																																			
				IM2-1 •• JCT	BLUE	21"×15"																																			
				IM-BB •• INTERSTATE-TEXAS-35	RED-BLUE	24"																																			
	7 of 25	14	125+43	M-3A • JUNCTION	WHITE	20"×8"																							C	10'6"		13'6"					5.5			
				M1-2 •• TEXAS-US-81	BLACK	24"×24"																																			
				M-3A • JUNCTION	WHITE	20"×8"																																			
				M1-2 •• TEXAS-US-83	BLACK	24"×24"																																			
				M6-IN • NORTH	WHITE	21"×9"																																			
				M1-2 •• TEXAS-US-59	BLACK	24"×24"																																			
				M4-1R • →	WHITE	21"×15"																																			
				M6-IN • NORTH	WHITE	21"×9"																																			
	7 of 25	15	125+78	M1-2 •• TEXAS-US-81	BLACK	24"×24"																							C	13'4"		13'6"					5.5			
				M4-3 • ↑	WHITE	21"×15"																																			
				M6-IN • NORTH	WHITE	21"×9"																																			
				M1-2 •• TEXAS-US-83	BLACK	24"×24"																																			
				M4-3 • ↑	WHITE	21"×15"																																			
	7 of 25	21	128+29	R-16R •• ONE WAY	BLACK	36"×12"																							A		10'-8"						3.5			
	9 of 25	8	167+20	R-16L •• ONE WAY	BLACK	36"×12"																							A		10'-8"						3.5			
	7 of 25	22	128+53	IR-1A •• STOP	RED	30"																							B	6'-0"		13'-4"					4.5			
				R-16R •• ONE WAY	BLACK	36"×12"																																			
	8 of 25	1A	142+57	W-32 • RAILROAD ADVANCE WARNING	YELLOW	30"																							A		12'-2"						3.5			
				IM6-1S •• SOUTH	BLUE	21"×9"																																			
	10 of 25	6	11+34	IM-BB •• INTERSTATE-TEXAS-35	RED-BLUE	24"																							EXISTING MOUNT												
				IM3-1L •• ← & Etc.	BLUE	21"×15"																																			
				WEST RAMPS																																					
	7 of 25	30	131+40	IR-1S • DO NOT ENTER	WHITE	48"×48"										F-2					3I 5.7	10'-9"	10'-9"		180	7.0				NEW SIGN										
	7 of 25	31	131+40	IR-1S • DO NOT ENTER	WHITE	48"×48"										F-2					3I 5.7	10'-9"	10'-9"		180	7.0				NEW SIGN										
	2 of 25	18	57+55	IW-6O • MERGING TRAFFIC	YELLOW	48"×48"	422.53					415.47	415.22			F-2					3I 5.7	11'-0"	11'-3"		184	7.0			F-2				3"I 5.7#	13'-9"	13'-9"	157	7.0			
	2 of 25	19	57+55	IW-6O • MERGING TRAFFIC	YELLOW	48"×48"	421.77					414.71	414.71			F-2					3I 5.7	11'-0"	11'-0"		183	7.0			F-2				3"I 5.7#	13'-9"	13'-9"	157	7.0			
	2 of 25	27	58+40	IR-1S • DO NOT ENTER	WHITE	48"×48"										F-2					3I 5.7	10'-9"	10'-9"		180	7.0				NEW SIGN										
	2 of 25	25	62+90	IR-2A • EXIT 30 MPH	YELLOW	48"×60"	423.28					415.57	415.40			F-2					3I 5.7	12'-2"	12'-4"		197	7.0			F-2				3"I 5.7#	14'-3"	14'-3"	162	7.0			
	2 of 25	26	62+90	IR-2A • EXIT 30 MPH	YELLOW	48"×60"	423.81					416.35	416.27			F-2					3I 5.7	11'-11	12'-0"		194	7.0			F-2				3I 5.7#	14'-6"	14'-6"	165	7.0			
	4 of 25	3	80+94	IR-4S • YIELD	YELLOW	60"×48"	422.78					415.66	415.58			F-1					3I 5.7	10'-7	10'-8"		178	7.0			F-1				3"I 5.7#	14'-0"	14'-0"	160	7.0			
	4 of 25	4	84+00	IR-2A • EXIT 30 MPH	YELLOW	48"×60"	424.39					416.77	416.44			F-2					3I 5.7	12'-1	12'-5"		197	7.0			F-2				3"I 5.7#	15'-0"	15'-0"	171	7.0			
	4 of 25	5	84+65	IG-1 ■ EXIT ↗	GREEN	6'-0"×5'-0"	424.96	418.50	418.48	417.60	417.80					320					3I 5.7	11'-6"	11'-6"		169				4				5×5×16#	11'-3"	11'-3"	560			10.0	
	2 of 25	28	58+40	IR-1S • DO NOT ENTER	WHITE	48"×48"										F-2					3I 5.7	10'-9"	10'-9"		180	7.0				NEW SIGN										
				IM6-1S •• SOUTH	BLUE	21"×9"																																			
				IM-BB •• INTERSTATE-TEXAS-35	RED-BLUE	24"																																			
				IM4-2L •• ↖	BLUE	21"×15"																																			
				M6-1S • SOUTH	WHITE	21"×9"																																			
	6 of 25	4	118+73	M1-2 •• TEXAS-US-81	BLACK	24"×24"	421.09					413.51				C-1	15'-7"			12'-3"				5.5				C	13'-4"		13'6"					5.5			
				M4-2L • ↖	WHITE	21"×15"																																			
				M6-1S • SOUTH	WHITE	21"×9"																																			
				M1-2 •• TEXAS-US-83	BLACK	24"×24"																																			
				M4-2L • ↖	WHITE	21"×15"																																			
	7 of 25	26	131+60	IR-4S • YIELD	YELLOW	60"×48"	421.56					416.35	414.18			F-1					3I 5.7	10'-8	10'-10"		180	7.0			F-1				3"I 5.7#	14'-0"	14'-0"	160	7.0			
	7 of 25	28	133+25	IR-2A • EXIT 30 MPH	YELLOW	48"×60"	424.45					416.83	416.50			F-2					3I 5.7	12'-1"	12'-5"		197	7.0			F-2				3"I 5.7#	15'-0"	15'-0"	171	7.0			
	7 of 25	29	134+70	IG-1 ■ EXIT ↗	GREEN	6'-0"×5'-0"	426.17	419.72	419.72	419.02	419.02					320					3I 5.7	11'-6"	11'-6"		169				4				5×5×16#	11'-3"	11'-3"	560			10.0	

URBAN

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SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

ESTIMATE SIGN TABULATION

SHEET 6 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	11

STATE DIST. NO.	COUNTY	CONT	SECT	JOB	HIGHWAY NO.
21	WEBB	18	6	43	CH-35

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT ■ Removable Copy • Direct Screened •• Reverse Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT. WT.	PROPOSED STRUCTURE: LOW-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS - L.F. 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS - L.F. 24"D	30"D
				SAN DARIO AVE CONT'D.											CONTROL 18-6-43																															
	7 of 25	13	11+75	R-16R R-16L •• ONE WAY	BLACK BLACK	36"×12" 36"×12"																											A		10'-8"						3.5			
	7 of 25	14	125+43	IM2-1 IM-8B M-3A MI-2 M-3A MI-2 •• TEXAS-US-81 • JUNCTION •• TEXAS-US-83	BLUE RED-BLUE WHITE BLACK WHITE BLACK	21"×15" 24" 20"×8" 24"×24" 20"×8" 24"×24"																										C	10'6"		13'6"					5.5			
	7 of 25	15	125+78	M6-1N MI-2 M4-1R M6-1N MI-2 M4-3 M6-1N MI-2 M4-3 •• TEXAS-US-81 •• TEXAS-US-83 • NORTH • SOUTH • ➡ • ⬆	WHITE BLACK WHITE WHITE BLACK WHITE WHITE BLACK WHITE	21"×9" 24"×24" 21"×15" 21"×9" 24"×24" 21"×15" 21"×9" 24"×24" 21"×15"																										C	13'-4"		13'6"					5.5			
	7 of 25	21	128+29	R-16R	•• ONE WAY	BLACK	36"×12"																										A		10'-8"						3.5			
	9 of 25	8	167+20	R-16L	•• ONE WAY	BLACK	36"×12																										A		10'-8"						3.5			
	7 of 25	22	128+53	IR-1A R-16R	•• STOP •• ONE WAY	RED BLACK	30" 36"×12"																										B	6'-0"	13'-4"						4.5			
	8 of 25	1A	137+57	W-32	• RAILROAD ADVANCE WARNING	YELLOW	30"																										A		12'-2"						3.5			
	10 of 25	6	11+34	IM6-1S IM-8B IM3-1L	•• SOUTH •• INTERSTATE - TEXAS - 35 •• ⬅ & Etc.	BLUE RED-BLUE BLUE	21"×9" 24" 21"×15"																										EXISTING MOUNT										
				WEST RAMPS																																										
	7 of 25	30	131+40	IR-15	• DO NOT ENTER	WHITE	48"×48"									F-2				31 5.7	10'-9"	10'-9"		180	7.0						NEW SIGN													
	7 of 25	31	131+40	IR-15	• DO NOT ENTER	WHITE	48"×48"									F-2				31 5.7	10'-9"	10'-9"		180	7.0						NEW SIGN													
	2 of 25	18	57+55	IW-6D	• MERGING TRAFFIC	YELLOW	48"×48"	422.53				415.47	415.22		F-2				31 5.7	11'-0"	11'-3"		184	7.0			F-2				3"I 5.7#	13'-9"	13'-9"	157	7.0							
	2 of 25	19	57+55	IW-60	• MERGING TRAFFIC	YELLOW	48"×48"	421.77				414.71	414.71		F-2				31 5.7	11'-0"	11'-0"		183	7.0			F-2				3"I 5.7#	13'-9"	13'-9"	157	7.0							
	2 of 25	27	58+40	IR-15	• DO NOT ENTER	WHITE	48"×48"									F-2				31 5.7	10'-9"	10'-9"		180	7.0						NEW SIGN													
	2 of 25	25	62+90	IR-2A	• EXIT 30 MPH	YELLOW	48"×60"	423.28				415.51	415.40		F-2				31 5.7	12'-5"	12'-7"		200	7.0			F-2				3"I 5.7#	14'-3"	14'-3"	162	7.0							
	2 of 25	26	62+90	IR-2A	• EXIT 30 MPH	YELLOW	48"×60"	423.81				416.35	416.27		F-2				31 5.7	11'-11	12'-0"		194	7.0			F-2				31 5.7#	14'-6"	14'-6"	165	7.0							
	4 of 25	3	80+94	IR-48	• YIELD	YELLOW	60"×48"	422.78				415.66	415.56		F-1				31 5.7	10'-7"	10'-8"		178	7.0			F-1				3"I 5.7#	14'-0"	14'-0"	160	7.0							
	4 of 25	4	84+00	IR-2A	• EXIT 30 MPH	YELLOW	48"×60"	424.39				416.77	416.64		F-2				31 5.7	12'-1	12'-5"		197	7.0			F-2				3"I 5.7#	15'-0"	15'-0"	171	7.0							
	4 of 25	5	84+65	IG-1	■ EXIT ⬈	GREEN	6'-0"×5'-0"	424.96	418.50	418.48	417.80	417.80			320				31 5.7	11'-6"	11'-6"		169				4				5×5×16#	11'-3"	11'-3"	560			10.0					
	2 of 25	28	58+40	IR-15	• DO NOT ENTER	WHITE	48"×48"								F-2				31 5.7	10'-9"	10'-9"		186	7.0						NEW SIGN													
	6 of 25	4	118+73	IM6-1S IM-8B IM4-2L M6-1S MI-2 M4-2L M6-1S MI-2 M4-2L •• TEXAS-US-81 •• TEXAS-US-83 •• SOUTH • INTERSTATE-TEXAS-35 • ⬉ • SOUTH • ⬉	BLUE RED-BLUE BLUE WHITE BLACK WHITE WHITE BLACK WHITE	21"×9" 24" 21"×15" 21"×9" 24"×24" 21"×15" 21"×9" 24"×24" 21"×15"	421.09				413.51			C-1	15:7		11'-6"								4.25		C	13'-4"		13'6"					5.5			
	7 of 25	26	131+60	IR-48	• YIELD	YELLOW	60"×48"	421.56				414.35	414.18		F-1				31 5.7	10'-8	10'-10		180	7.0			F-1				3"I 5.7#	14'-0"	14'-0"	160	7.0							
	7 of 25	28	133+25	IR-2A	• EXIT 30 MPH	YELLOW	48"×60"	424.45				416.83	416.60		F-2				31 5.7	12'-1"	12'-5"		197	7.0			F-2				3"I 5.7#	15'-0"	15'-0"	171	7.0							
	7 of 25	29	134+70	IG-1	■ EXIT ⬈	GREEN	6'-0"×5'-0"	426.17	419.72	419.76	419.02	419.02			320				31 5.7	11'-6"	11'-6"		169				4				5×5×16#	11'-3"	11'-3"	560			10.0					

URBAN

11-A

SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

FINAL SIGN TABULATION
SHEET 6 OF 14 SHEETS

FED. RD. DIST. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	11A

STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT ■ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	GALVANIZED PIPE POSTS L.F. 2½"	GALVANIZED PIPE POSTS L.F. 3"	GALVANIZED PIPE POSTS L.F. 4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.3	GALVANIZED STRUCTURAL STEEL POSTS TOT WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"D	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2½"D	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 3"D	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS — L.F. 12"D	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS — L.F. 18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS — L.F. 24"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS — L.F. 30"D
WEST RAMPS CONT'D. CONTROL 18-6-43																																										
			IM6-1S	•• SOUTH	BLUE	21"×9"																																				
			IM-8B	•• INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-2L	•• ↖	BLUE	21"×15"																																				
			M6-1S	• SOUTH	WHITE	21"×9"																																				
9 of 25	5	164+20	M1-2	•• TEXAS US 81	BLACK	24"×24"	427.61					420.20			C-1	15'-7"		12'-1"									5.5				C	13'-4"		13'-6"					5.5			
			M4-2L	• ↖	WHITE	21"×15"																																				
			M6-1S	• SOUTH	WHITE	21"×9"																																				
			M1-2	•• TEXAS US 83	BLACK	24"×24"																																				
			M4-2L	• ↖	WHITE	21"×15"																																				
4 of 25	9	81+85	IR-15	• DO NOT ENTER	WHITE	48"×48"									F-2						315.7	10'-9"	10'-9"		180	7.0					NEW SIGN											
4 of 25	10	81+85	IR-15	• DO NOT ENTER	WHITE	48"×48"									F-2						315.7	10'-9"	10'-9"		180	7.0					NEW SIGN											
				EAST RAMPS																																						
			IM6-1N	•• NORTH	BLUE	21"×9"																																				
			IM-8B	•• INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-2L	•• ↖	BLUE	21"×15"																																				
			M6-1N	• NORTH	WHITE	21"×9"																																				
2 of 25	15	54+29	M1-2	•• TEXAS US 81	BLACK	24"×24"	421.49					414.08			C-1	15'-7"		12'-1"									5.5				C	13'-4"		13'-6"					5.5			
			M4-2L	• ↖	WHITE	21"×15"																																				
			M6-1N	• NORTH	WHITE	21"×9"																																				
			M1-2	•• TEXAS US 83	BLACK	24"×24"																																				
			M4-2L	• ↖	WHITE	21"×15"																																				
2 of 25	24	61+06	IR-2	• SPEED LIMIT 60	WHITE	48"×60"	423.16					415.20	415.20		G						417.7	17'-5"	17'-5"		354		9.0			G					4"I 7.7#	21'-0"	21'-0"	323		9.0		
			IF-2F	• MINIMUM SPEED 40	WHITE	48"×60"																																				
			IM6-1N	•• NORTH	BLUE	21"×9"																																				
			IM-8B	•• INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-2L	•• ↖	BLUE	21"×15"																																				
			M6-1N	• NORTH	WHITE	21"×9"																																				
4 of 25	1	79+45	M1-2	•• TEXAS US 81	BLACK	24"×24"	422.49					415.08			C-1	15'-7"		12'-1"									5.5				C	13'-4"		13'-6"					5.5			
			M4-2L	• ↖	WHITE	21"×15"																																				
			M6-1N	• NORTH	WHITE	21"×9"																																				
			M1-2	•• TEXAS US 83	BLACK	24"×24"																										C	13'-4"		13'-6"								
			M4-2L	• ↖	WHITE	21"×15"																																				
6 of 25	1	115+00	IG-1	■ EXIT ↗	GREEN	6'-0"×5'-0"	423.58	417.22	417.22	416.35	416.27				320						315.7	11'-7"	11'-8"		171					4					5×5×16#	11'-3"	11'-3"	560			10.0	
6 of 25	2	115+70	IR-2A	• EXIT 30 MPH	YELLOW	48"×60"	422.63					415.34	414.92		F-2						315.7	11'-9"	12'-2"		194	7.0				F-2					3"I 5.7#	15'-0"	15'-0"	171	7.0			
6 of 25	3	118+30	IR-48	• YIELD	YELLOW	60"×48"	420.60					413.39	413.22		F-1						315.7	10'-8"	10'-10"		180	7.0				F-1					3"I 5.7#	14'-0"	14'-0"	160	7.0			
6 of 25	15	118+50	IR-15	• DO NOT ENTER	WHITE	48"×48"									F-2						315.7	10'-9"	10'-9"		180	7.0					NEW SIGN											
6 of 25	16	118+50	IR-15	• DO NOT ENTER	WHITE	48"×48"									F-2						315.7	10'-9"	10'-9"		180	7.0					NEW SIGN											
9 of 25	11	165+65	IR-15	• DO NOT ENTER	WHITE	48"×48"									F-2						315.7	10'-9"	10'-9"		180	7.0					NEW SIGN											
9 of 25	12	165+65	IR-15	• DO NOT ENTER	WHITE	48"×48"									F-2						315.7	10'-9"	10'-9"		180	7.0					NEW SIGN											
			IM6-1N	•• NORTH	BLUE	21"×9"																																				
			IM-8B	•• INTERSTATE-TEXAS-35	RED-BLUE	24"																																				
			IM4-2L	•• ↖	BLUE	21"×15"																																				
			M6-1N	• NORTH	WHITE	21"×9"																																				
7 of 25	25	130+50	M1-2	•• TEXAS US 81	BLACK	24"×24"	423.05					415.56			C-1	15'-7"		12'-2"									5.5				C	13'-4"		13'-6"					5.5			
			M4-2L	• ↖	WHITE	21"×15"																																				
			M6-1N	• NORTH	WHITE	21"×9"																																				
			M1-2	•• TEXAS US 83	BLACK	24"×24"																																				
			M4-2L	• ↖	WHITE	21"×15"																																				
9 of 25	2	160+70	IG-1	■ EXIT ↗	GREEN	6'-0"×5'-0"	429.41	422.86	422.85	422.26	422.18				320						315.7	11'-6"	11'-7"		170					4					5×5×16	11'-3"	11'-3"	560			10.0	
9 of 25	3	161+00	IR-2A	• EXIT 30 MPH	YELLOW	48"×60"	419.42					412.30	412.13		F-2						315.7	11'-7"	11'-9"		190	7.0				F-2					3"I 5.7#	15'-0"	15'-0"	171	7.0			
9 of 25	6	165+45	IR-48	• YIELD	YELLOW	60"×48"	426.15					418.94	419.02		F-1						315.7	10'-8"	10'-7"		178	7.0				F-1					3"I 5.7#	13'-1"	12'-1"	149	7.0			

URBAN

SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

ESTIMATE SIGN TABULATION

SHEET 7 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	12
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	17	6	43	IH-35

12

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT ■ Removable Copy ● Direct Screened ●● Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D
				WEST RAMPS CONT'D.											CONTROL 18-6-43																																	
			IM6-1S	●● SOUTH	BLUE	21"x9"																																										
			IM-8B	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																										
			IM4-2L	●● ↖	BLUE	21"x15"																																										
			M6-1S	● SOUTH	WHITE	21"x9"																																										
9 of 25	5	164+20	MI-2	●● TEXAS US 81	BLACK	24"x24"	427.61					420.20			C-1	15'-7"			12'-1"								5.5				C	13'-4"			13'-6"				5.5								
			M4-2L	● ↖	WHITE	21"x15"																																										
			M6-1S	● SOUTH	WHITE	21"x9"																																										
			MI-2	●● TEXAS US 83	BLACK	24"x24"																																									
			M4-2L	●● ↖	WHITE	21"x15"																																										
4 of 25	9	81+85	IR-1S	● DO NOT ENTER	WHITE	48"x48"									F-2							31 5.7	10'-9"	10'-9"		180	7.0												NEW SIGN								
4 of 25	10	81+85	IR-1S	● DO NOT ENTER	WHITE	48"x48"									F-2							31 5.7	10'-9"	10'-9"		180	7.0												NEW SIGN								
				EAST RAMPS																																											
			IM6-1N	●● NORTH	BLUE	21"x9"																																										
			IM-8B	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																										
			IM4-2L	●● ↖	BLUE	21"x15"																																										
			M6-1N	● NORTH	WHITE	21"x9"																																										
2 of 25	15	54+29	MI-2	●● TEXAS US 81	BLACK	24"x24"	421.49					414.08			C-1	15'-7"			12'-1"								5.5				C	13'-4"			13'-6"				5.5								
			M4-2L	● ↖	WHITE	21"x15"																																										
			M6-1N	● NORTH	WHITE	21"x9"																																										
			MI-2	●● TEXAS US 83	BLACK	24"x24"																																									
			M4-2L	● ↖	WHITE	21"x15"																																										
2 of 25	24	61+06	IR-2	● SPEED LIMIT 60	WHITE	48"x60"	423.16					415.20	415.20		G							41 7.7	11'-5"	11'-5"		354		9.0			G					4"I 7.7#	21'-0"	21'-0"	323		9.0						
			IR-2F	● MINIMUM SPEED 40	WHITE	48"x60																																									
			IM6-1N	●● NORTH	BLUE	21"x9"																																										
			IM-8B	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																										
			IM4-2L	●● ↖	BLUE	21"x15"																																										
			M6-1N	● NORTH	WHITE	21"x9"																																										
4 of 25	1	79+45	MI-2	●● TEXAS US 81	BLACK	24"x24"	422.49					415.08			C-1	15'-7"			12'-1"								5.5				C	13'-4"			13'-6"				5.5								
			M4-2L	● ↖	WHITE	21"x15"																																										
			M6-1N	● NORTH	WHITE	21"x9"																										C	13'-4"			13'-6"												
			MI-2	●● TEXAS US 83	BLACK	24"x24"																										F-2	13'-4"															
			M4-2L	● ↖	WHITE	21"x15"																																										
6 of 25	1	115+00	IG-1	■ EXIT ↗	GREEN	6'-0"x5'-3"	423.58	417.22	417.22	416.35	416.27				320							31 5.7	11'-7"	11'-8"		171					4					5x5x16#	11'-3"	11'-3"	560			10.0						
6 of 25	2	115+70	IR-2A	● EXIT 30 MPH	YELLOW	48"x60"	422.63					415.34	414.42		F-2							31 5.7	11'-9"	12'-2"		194	7.0				F-2					3"I 5.7#	15'-0"	15'-0"	171	7.0						
6 of 25	3	118+30	IR-4B	● YIELD	YELLOW	60"x48"	420.60					413.39	413.22		F-1							31 5.7	10'-8"	10'-10"		180	7.0				F-1					3"I 5.7#	14'-0"	14'-0"	160	7.0						
6 of 25	15	1.5+50	IR-1S	● DO NOT ENTER	WHITE	48"x48"									F-2							3I 5.7	10'-9"	10'-9"		180	7.0												NEW SIGN								
6 of 25	16	1.5+50	IR-1S	● DO NOT ENTER	WHITE	48"x48"									F-2							31 5.7	10'-9"	10'-9"		180	7.0												NEW SIGN								
9 of 25	11	165+25	IR-1S	● DO NOT ENTER	WHITE	48"x48"									F-2							31 5.7	12'-9"	12'-9"		180	7.0												NEW SIGN								
9 of 25	12	165+25	IR-1S	● DO NOT ENTER	WHITE	48"x48"									F-2							31 5.7	12'-9"	12'-9"		180	7.0												NEW SIGN								
			IM6-1N	●● NORTH	BLUE	21"x9"																																										
			IM-8B	●● INTERSTATE-TEXAS-35	RED-BLUE	24"																																										
			IM4-2L	●● ↖	BLUE	21"x15"																																										
			M6-1N	● NORTH	WHITE	21"x9"																																										
7 of 25	25	130+50	MI-2	●● TEXAS US 81	BLACK	24"x24"	423.05					415.56			C-1	15'-7"			12'-2"								5.5				C	13'-4"			13'-6"				5.5								
			M4-2L	● ↖	WHITE	21"x15"																																										
			M6-1N	● NORTH	WHITE	21"x9"																																										
			MI-2	●● TEXAS US 83	BLACK	24"x24"																																									
			M4-2L	● ↖	WHITE	21"x15"																																										
9 of 25	2	160+70	IG-1	■ EXIT ↗	GREEN	6'-0"x5'-0"	429.41	422.86	422.85	422.26	422.18				320							31 5.7	11'-6"	11'-7"		170					4					5x5x16#	11'-3"	11'-3"	560			10.0						
9 of 25	3	161+00	IR-2A	● EXIT 30 MPH	YELLOW	48"x60"	419.42					412.30	412.13		F-2							31 5.7	11'-7"	11'-9"		190	7.0				F-2					3"I 5.7#	15'-0"	15'-0"	171	7.0						
9 of 25	6	165+45	IR-4B	● YIELD	YELLOW	60"x42"	426.15					418.94	419.02		F-1							31 5.7	10'-8"	10'-7"		178	7.0				F-1					3I 5.7#	13'-1"	13'-1"	149	7.0						

URBAN

SEE ~~SMD-1-63~~, SMD-2-63, ~~SMD-3-63~~, SMD-4(MOD)-63 ~~& SMD-5B-63~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET

FINAL SIGN TABULATION

SHEET 7 OF 14 SHEETS

12-A

FED. AID PROJ. NO.	STATE	PROGRAM PROJECT NO.	SHEET NO.
C	TEXAS	I-35-1(19)000	12A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	19	6	43	IH-35

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT (■ Removable Copy ● Direct Screened ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	GALVANIZED PIPE POSTS L.F. 2½"	GALVANIZED PIPE POSTS L.F. 3"	GALVANIZED PIPE POSTS L.F. 4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.3	GALVANIZED STRUCTURAL STEEL POSTS TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 2"D	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 2½"D	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 3"D	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.3	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS 12"D	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS 18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS 24"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS 30"D	CAPITAL LETTERS 6"	"U"=URBAN-"R"=RURAL
				Main Lane ~ Southbound CONTROL 18-6-43																																				
11 of 25	14	194+76	IR-15	●DO NOT ENTER	White	48"×48"	427.77					420.98	421.31		F-2					3I 5.7	10'-3"	9'-11"		172	7.0				SP*			16'-3"					5.5				U
11 of 25	5	192+31	IR-48	●~~YIELD RIGHT OF WAY~~ YIELD	Yellow	48"×60"	427.88					420.76	420.06		F-1					3I 5.7	10'-7	10'-8"		178	7.0				F-1				5'I-5.7*	15'-7"	15'-7"		178	10				U
11 of 25	6	198+00	IR-2A	●EXIT 30 MPH	Yellow	48"×60"	429.75					422.38	422.21		F-2					3I 5.7	11'-10"	12'-0"		193	7.0				F-2				5'I-5.7*	16'-9"	16'-9"		191	10				U
11 of 25	7	198+40	IG-1	■EXIT	Green	6'-0"×5'-0"	430.79	424.19	424.09	423.56	423.39				320					3I 5.7	11'-7"	11'-9"		171					4				5'×5'×16*	10'-11"	11'-1"		583			9		U
11 of 25	9	203+80	IG-11	■San Bernardo Ave; Calton Rd	Green	25'-0"×10'-0"	431.68					422.18	420.76	420.01	330					8WF 17	19'-0"	20'-5"	21'-2"	1086				21	5				10'×8'×45*	16'-6"	19'-0"		2251				15	U
12 of 25	1	225+00	IG-9 IG-7	■San Bernardo Ave; Calton Rd. EXIT ⅘ MILE ■GAS-FOOD-LODGING	Green Blue	25'-0"×8'-6" 16'-6"×2'-6"	439.89					430.31	429.90	429.65	330					8WF 17	20'-1"	23'-5"	25'-9"	1234				21	5				10'×8'×45*	17'-6"	22'-10"		2468				15	U
12 of 25	6	239+42	IR-2&IR-2F	●MAX. SPEED 60 & MIN. SPEED 40	White	2-48"×60"	434.16					426.54	426.37		G					4I 7.7	17'-1"	17'-3"		350		9.0			SP*			44'-6"								11'-0"		U
13 of 25	12	257+30	M-2F M-9R	●FM-1472 ●➡	White White	18"×18" 13"×10"	429.34					421.75			A-2	12'-11"									3.5			A			14'-6"					5.5				U
13 of 25	14	255+50	IR-17	●TWO WAY TRAFFIC AHEAD	White	48"×60"																						F-2				5'I-5.7*	16'-6"	16'-6"		188	10				U
13 of 25	15	259+20	IG-26	■←Del Mar Blvd; Santa Maria Ave➡	Green	13'-6"×4'-0"	429.28					421.24	420.82		320					4I 7.7	11'-6"	11'-11"		224			8		4A				5'×5'×16*	10'-9"	11'-5"		586			9		U
13 of 25	16	269+50	IR-2A	●EXIT 45 MPH	Yellow	48"×60"	434.33					426.01	425.56		F-2					3I 5.7	12'-7"	13'-3"		204	7.0				F-2				3'I-5.7*	16'-9"	16'-9"		191	10				U
14 of 25	1	270+00	IG-1	■EXIT	Green	6'-0"×5'-0"	435.56	428.89	428.69	428.24	428.16				320					3I 5.7	11'-6"	11'-9"		172					4				5'×5'×16*	11'-0"	11'-2"		586			9		U
14 of 25	2	275+26	IG-11	■FM-1472, Del Mar Blvd; Santa Maria Ave	Green	23'-6"×14'-6"	437.40					429.11	427.76	426.64	330					10WF-21	22'-6"	23'-10"	25'-0"	1623				27	5				10'×10'×54*	19'-7"	21'-6"		3124				17	U
14 of 25	16	2+00	IR-2&IR-2F	●MAX. SPEED 60 & MIN. SPEED 40	White	2-48"×60"	438.65					430.09	429.19		G					4I 7.7	17'-8"	17'-11"		359		9.0			SP*				3'I-5.7*	17'-7"	17'-7"			10				R
14 of 25	10	7+50	IG-21	■Laredo; CITY LIMITS	Green	6'-6"×3'-0"	438.05					430.[illegible]	[illegible]		320					3I 5.7	11'-10"	12'-4"		176			8		4A				5'×5'×16*	9'-11"	10'-2"		553			9		10	U
14 of 25	15	17+00	IG-9	■FM-1472, Del Mar Blvd, Santa Maria Ave; EXIT ½ MILE	Green	23'-6"×13'-0"	448.09					439.[illegible]	436.71	432.71	330					8WF 20	20'-9"	21'-11"	22'-11"	1437				24	5				10'×10'×54*	18'-10"	20'-9"		3042				17	R
11 of 25	14A	194+76	IR-15	●DO NOT ENTER	White	48"×48"									F-2					3I 5.7	10'-9"	10'-9"		180	7.0						NEW SIGN									U
14 of 25	18	271+80	IR-16R	●●ONE WAY	Black	48"×16"									A	11'-10"									3.5						NEW SIGN									U
15 of 25	6	48+27	IG-9 IG-7	■FM-1472, Del Mar Blvd, Santa Maria Ave; EXIT 1 MILE ■GAS-FOOD-LODGING	Green Blue	23'-6"×13'-0" 16'-6"×2'-6"	455.62					447.91	447.33	447.00	330					10WF 21	22'-9"	23'-6"	25'-8"	1594				27	5				10'×10'×54*	21'-4"	22'-2"		3251				17	R
16 of 25	10	60+70	IR-17A	●TWO WAY TRAFFIC	White	48"×48"																						A		16'-0"						5.5				R
16 of 25	4	61+50	IR-48	●~~YIELD RIGHT OF WAY~~ YIELD	Yellow	48"×60"	465.83					458.29	458.29		F-1					3I 5.7	11'-0"	11'-0"		153	7.0				F-1				5'I-5.7*	15'-7"	15'-7"		178	10				R
16 of 25	5	65+30	IR-2A	●EXIT 30 MPH	Yellow	48"×60"																						F-2				3'I-5.7*	11'-11"	12'-0"		194	7.0				R
16 of 25	6	65+63	IG-1	■EXIT	Green	6'-0"×5'-0"																						320				3I 5.7	12'-0"	12'-5"		177			9		R
16 of 25	7	71+00	IG-10	■Frontage Rd	Green	17'-0"×8'-0"																						320				GBI5.5	15'-9"	16'-0"		531			14		R
16 of 25	13	67+90	IR-16R	●●ONE WAY	Black	48"×16"									A	11'-10"									3.5						NEW SIGN									R
16 of 25	8	57+67	IM-1C	●●INTERSTATE-TEXAS-35 & ETC.	Red Blue	36"& Etc.	465.50					457.00			C-1	14'-4"		13'-2"							5.5			A			16'-0"					5.5				U
11 of 25	13	194+00	IR-1B	●● STOP - (WITH BLINDER)	Red	48"	428.13					420.63			A		14'-6"								3.5			A			13'-3"									R
17 of 25	9A	96+97	IW12-2A	● CLEARANCE, 16FT 9 IN	Yellow	48"×48"	475.60					468.45	468.28		F-2					3I 5.7	11'-1"	11'-3"		185	7.0				NEW SIGN												R
17 of 25	9	96+97	SP	CLEARANCE, 16FT 10 IN	Yellow	36"×36"	*To be Removed by SHD Maintenance Forces*																										I-5.7*	17'-7"	17'-7"		620					R
11 of 25	15	200+21	IR-16R	●● ONEWAY	Black	48"×16"	431.53					424.20			A		11'-7"								3.5			SP*	14'-1"								5.5				U
				Main Lane ~ Northbound																																				
9 of 25		169+00	IG-9	■FM-1472, Del Mar Blvd, Santa Maria Ave, EXIT 1⅜ MILES	Green	23'-6"×13'-0"																																				U
12 of 25	7	237+30	IR-16R	●●ONE WAY	Black	48"×16"									A	11'-10"									3.5						NEW SIGN									U
11 of 25	8	199+50	IM-22N IM-1C	●●NORTH ●●INTERSTATE-TEXAS-35 & Etc.	Blue Red-Blue	30"×15" 36"& Etc.	431.58					422.83			C-1	14'-4"		13'-5"							5.5			E					3'I-5.7*	20'-4"			116	5.5				U
11 of 25	10	209+50	IR-2 IR-2F	●MAXIMUM SPEED 60 ●MINIMUM SPEED 40	White Black	48"×60" 48"×60"	434.35					426.23	425.81		G					4I 7.7	17'-7"	18'-0"		359		9.0			G				4'I-7.7*	21'-9"	21'-9"		335		12			U
12 of 25	2	234+00	IG-11	■FM-1472, Del Mar Blvd; Santa Maria Ave	Green	23'-6"×14'-6"	433.84					424.66	424.30	423.38	330					10WF 21	23'-0"	23'-7"	24'-0"	1611				27	5				10'×10'×54*	19'-10"	20'-10"		3101				17	U
12 of 25	3	239+14	IG-1	■EXIT	Green	6'-0"×5'-0"	434.76	428.26	428.15	427.61	427.53				320					3I 5.7	11'-6"	11'-7"		170					4				5'×5'×16*	10'-9"	10'-11"		578			9		U
12 of 25	4	240+05	IR-2A	●EXIT 30 MPH	Yellow	48"×60"	433.84					426.63	426.38		F-2					3I 5.7	11'-8"	11'-11"		192	7.0				F-2				3'I-5.7*	16'-9"	16'-9"		191	10				U
13 of 25	1	246+70	IR-48	●~~YIELD RIGHT OF WAY~~ YIELD	Yellow	48"×60"	432.62					425.56	425.56		F-1					3I 5.7	10'-6"	10'-7"		177	7.0				F-1				3'I-5.7*	15'-7"	15'-7"		178	10				U
13 of 25	3	248+60	IR-17A	●TWO WAY TRAFFIC	White	48"×48"																						A		16'-0"						5.5				U
13 of 25	31	267+00	IW-60	●MERGING TRAFFIC	Yellow	48"×48"																						F-2				3'I-5.7*	15'-9"	15'-9"		180	10				U
12 of 25	5	236+16	ETC.	ROUTE MARKERS	Etc.	Etc.																						A		16'-0"						5.5				U
14 of 25	11	8+30	IG-21	●Laredo; CITY LIMITS	Green	6'-6"×3'-0"	438.40					429.69	430.02		320					3I 5.7	11'-2"	10'-10"		163			8		4A				5'×5'×16*	9'-11"	9'-11"		549			9	10	R
14 of 25	14	20+00	IM-22N IM-1C	●●NORTH ●●INTERSTATE-TEXAS-35 & Etc.	Blue Red-Blue	30"×15" 36"& Etc.	442.86					434.36			C-1	14'-4"		13'-2"							5.5			E					3'I-5.7*	20'-4"			116	5.5				R U

SEE ~~SMD-1-62~~, SMD-2-62, ~~SMD-3-62~~, SMD-4-62, ~~SMD-5B-62~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

*Special Mount
⊙Two pipe posts

ESTIMATE SIGN TABULATION

SHEET 8 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	13
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	G	43	IH-35

13

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT (■ Removable Copy ● Direct Screened ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING TOP ELEVATION No.2	NEW TOP ELEVATION No.1	NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	No.2	No.3	NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	No.2	No.3	TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2D	2½D	3D	4D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	No.2	No.3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS LF 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS LF 24"D	30"D	CAPITAL LETTERS 6"	"U"=URBAN-"R"=RURAL
Main Lane ~ Southbound CONTROL 18-G-43																																														
11 of 25	14	194+76	IR-15	● DO NOT ENTER	White	48"×48"	427.77					420.98	421.31		F-2					31 5.7	10'-3"	9'-11"		172	7.0				SP*			16'-6"							5.5				U
11 of 25	5	192+31	IR-48	● ~~YIELD RIGHT OF WAY~~ YIELD	Yellow	48"×60"	427.88					420.76	420.68		F-1					31 5.7	10'-7	10'-8		178	7.0				F-1						5"-5.7"	15'-7	15'-7		178	10				U
11 of 25	6	198+00	IR-2A	● EXIT 30 MPH	Yellow	48"×60"	429.75					422.38	422.21		F-2					31 5.7	11'-0	12'-0"		193	7.0				F-2						3"-5.7"	16'-9"	16'-9"		191	10				U
11 of 25	7	198+40	IG-1	■ EXIT	Green	6'-0"×5'-0"	430.79	424.19	424.09	423.56	423.39				320					31 5.7	11'-7	11'-9"		171					4						5"×5"×16"	10'-11	11'-1"		583			9		U
11 of 25	9	203+80	IG-11	■ San Bernardo Ave; Calton Rd	Green	25'-0"×10'-0"	431.68					422.18	420.76	420.01	330					8WF 17	19'-0	20'-5	21'-2	1086				21	5						10"×8"×45"	16'-2	19'-0"		2251				15	U
12 of 25	1	225+00	IG-9 IG-7	■ San Bernardo Ave, Calton Rd EXIT ½ MILE ■ GAS-FOOD-LODGING	Green Blue	25'-0"×8'-6" 16'-6"×2'-6"	439.89					430.31	426.98	424.65	330					8WF 17	20'-1"	23'-5	25'-9"	1234				21	5						10"×8"×45"	17'-6"	22'-10		2468				15	U
12 of 25	6	239+42	IR-2&IR-2F	● MAX. SPEED 60 & MIN. SPEED 40	White	2-48"×60"	434.16					426.54	426.37		G					41 7.7	17'-1	17'-3"		350		9.0			SP*			46'-6"							11'-0"				U
13 of 25	12	257+30	M-2F M-9R	● FM-1472 ● ➡	White White	18"×18" 13"×10"	429.34					421.75			A-2	12'-11"									3.5			A			14'-6"							5.5				U
13 of 25	14	255+50	IR-17	● TWO WAY TRAFFIC AHEAD	White	48"×60"																						F-2						3"-5.7"	16'-6"	16'-6"		188	10				U
13 of 25	15	259+20	IG-26	■ ⬅ Del Mar Blvd; Santa Maria Ave ➡	Green	13'-6"×4'-0"	429.28					421.24	420.82		320					41 7.7	11'-6	11'-11		224			8		4A						5"×5"×16"	10'-9"	11'-5"		596		9			U
13 of 25	16	269+50	IR-2A	● EXIT 45 MPH	Yellow	48"×60"	434.33					426.21	425.56		F-2					31 5.7	12'-7"	13'-3"		204	7.0				F-2						3"-5.7"	16'-9"	16'-9"		191	10				U
14 of 25	1	270+00	IG-1	■ EXIT	Green	6'-0"×5'-0"	435.56	428.89	428.69	428.24	428.16				320					31 5.7	11'-8"	11'-9"		172					4						5"×5"×16"	11'-0"	11'-2"		596		9			U
14 of 25	2	275+26	IG-11	■ FM 1472, Del Mar Blvd; Santa Maria Ave	Green	23'-6"×14'-6"	437.40					429.11	427.76	426.64	330					10WF-21	22'-4	23'-10	25'-0	1623				21	5						10"×10"×54"	19'-7	21'-6"		3124				17	U
14 of 25	16	2+00	IR-2&IR-2F	● MAX. SPEED 60 & MIN. SPEED 40	White	2-48"×60"	438.65					430.44	430.19		G					41 7.7	17'-8	17'-11		359		9.0			SP*						2"-5.7"	17'-7	17'-7			10				R
14 of 25	10	7+50	IG-21	■ Laredo, CITY LIMITS	Green	6'-6"×3'-0"	438.05					428.68	428.18		320					31 5.7	11'-10"	12'-4"		176			8		4A						5"×5"×16"	9'-11"	10'-2"		553		9		10	U
14 of 25	15	17+00	IG-9	■ FM 1472, Del Mar Blvd, Santa Maria Ave, EXIT ½ MILE	Green	23'-6"×13'-0"	448.09					439.38	438.71	437.71	330					8WF 20	20'-9"	21'-11"	22'-11	1437				24	5						10"×10"×54"	18'-10	20'-9"		3042				17	R
11 of 25	14A	194+76	IR-15	● DO NOT ENTER	White	48"×48"									F-2					31 5.7	11'-9	11'-9"		161	7.0					NEW SIGN													U
14 of 25	18	271+80	IR-16R	●● ONE WAY	Black	48"×16"									A		11'-10"							3.5					NEW SIGN													U
15 of 25	6	48+27	IG-9 IG-7	■ FM 1472, Del Mar Blvd, Santa Maria Ave, EXIT 1 MILE ■ GAS-FOOD-LODGING	Green Blue	23'-6"×13'-0" 16'-6"×2'-6"	455.62					447.91	447.33	447.00	330					10WF 21	22'-9	23'-4	23'-8	1594				27	5						10"×10"×54"	21'-4"	22'-2"		3251				17	R
16 of 25	10	60+70	IR-17A	● TWO WAY TRAFFIC	White	48"×48"																						A			16'-0"							5.5				R
16 of 25	4	61+50	IR-48	● ~~YIELD RIGHT OF WAY~~ YIELD	Yellow	48"×60"	465.80					458.29	458.29		F-1					31 5.7	11'-0	11'-0		183	7.0				F-1						5"-5.7"	15'-7	15'-7		178	10				R
16 of 25	5	65+30	IR-2A	● EXIT 30 MPH	Yellow	48"×60"																						F-2						3"-5.7"	11'-11"	12'-0"		194	7.0				R
16 of 25	6	65+63	IG-1	■ EXIT	Green	6'-0"×5'-0"																						320						3I 5.7	12'-0"	12'-5"		177			9		R
16 of 25	7	71+00	IG-10	■ Frontage Rd	Green	11'-0"×8'-0"																						320						GB15.5	15'-9	16'-0"		531			14		R
16 of 25	13	21+16	IR-16R	●● ONE WAY	Black	48"×16"									A		11'-10"							3.5					NEW SIGN													R
16 of 25	8	57+67	IM-1C	●● INTERSTATE-TEXAS-35 & ETC.	Red Blue	36"& Etc.	465.50					457.00			C-1	14'-0"		13'-8"							5.5			A			16'-0"							5.5				R
11 of 25	13	194+00	IR-1B	●● STOP - (WITH BLINDER)	Red	48	428.13					420.63			A		14'-6"							3.5			A			13'-3"											U
17 of 25	3A	96+97	IW12-2A	● CLEARANCE, 16FT 9 IN	Yellow	48"×48"	475.60					468.45	468.28		F-2					31 5.7	11'-1"	11'-3"		185	7.0					NEW SIGN													R
17 of 25	9	96+97	SP	CLEARANCE, 16FT 10 IN	Yellow	36" × 36"	To be Removed by SHD Maintenance Forces																											- I-5.7"	17'-7"	17'-7"							R
11 of 25	15	200+21	IR-16R	●● ONEWAY	Black	48"×16"	431.53					424.20			A		11'-7"							3.5			SP*	14'-6"											5.5				U
Main Lane ~ Northbound																																													
9 of 25		169+00	IG-9	■ FM-1472, Del Mar Blvd, Santa Maria Ave, EXIT 1½ MILES	Green	23'-6"×13'-0"																														10"×10"×54"	17'-9	25'-2"		3222				17	U
12 of 25	7	237+30	IR-16R	●● ONE WAY	Black	48"×16"									A		11'-10"							3.5					NEW SIGN													U
11 of 25	8	199+50	IM-22N IM-1C	●● NORTH ●● INTERSTATE-TEXAS-35 & Etc.	Blue Red-Blue	30"×15" 36"& Etc.	431.58					422.83			C-1	16'-4"		13'-5"							5.5			E							3I-5.7"	20'-4"			116	5.5				U
11 of 25	10	209+50	IR-2 IR-2F	● MAXIMUM SPEED 60 ● MINIMUM SPEED 40	White Black	48"×60" 48"×60"	434.35					426.23	425.81		G					41 7.7	17'-7	18'-0		359		9.0			G						4"-7.7"	21'-9	21'-9		333		12			U
12 of 25	2	234+00	IG-11	■ FM-1472, Del Mar Blvd, Santa Maria Ave	Green	23'-6"×14'-6"	433.84					424.88	424.30	423.38	330					10WF 21	23'-0	23'-7	24'-0	1611				27	5						10"×10"×54"	18'-10	20'-10		3101				17	U
12 of 25	3	239+14	IG-1	■ EXIT	Green	6'-0" × 5'-0"	434.76	428.26	428.15	427.61	427.53				320					31 5.7	11'-6	11'-7		170					4						5"×5"×16"	10'-9"	10'-11		573		9			U
12 of 25	4	240+05	IR-2A	● EXIT 30 MPH	Yellow	48" ×60"	433.84					426.63	426.38		F-2					31 5.7	11'-8	11'-11		192	7.0				F-2						3"-5.7"	16'-9	16'-9		191	10				U
13 of 25	1	246+70	IR-48	● ~~YIELD RIGHT OF WAY~~ YIELD	Yellow	48" ×60"	432.62					425.58	425.50		F-1					31 5.7	10'-6	10'-7		177	7.0				F-1						3"-5.7"	15'-7	15'-7		178	10				U
13 of 25	3A	248+60	IR-17A	● TWO WAY TRAFFIC	White	48"×48"																						A			16'-0"							5.5				U
13 of 25	3I	267+00	IW-60	● MERGING TRAFFIC	Yellow	48"×48"																						F-2						5"-5.7"	15'-9	15'-9"		180	10				U
12 of 25	5	236+16	ETC.	ROUTE MARKERS	Etc.	Etc.																						A			16'-0"							5.5				U
14 of 25	11	8+30	IG-21	■ Laredo. CITY LIMITS	Green	6'-6"×3'-0"	438.40					429.69	430.02		320					31 5.7	11'-2"	10'-10"		163			8		4A						5"×5"×16"	9'-11"	9'-11"		549		9		10	R
14 of 25	14	29+99	IM-22N IM-1C	●● NORTH ●● INTERSTATE-TEXAS-35 & Etc.	Blue Red-Blue	30"×15" 36"& Etc.	442.86					434.36			C-1	16'-4"		13'-2"							5.5			E							3I-5.7"	20'-4"			116	5.5				R
																																												U

13-A

SEE ~~SMD-1-62~~, SMD-2-62, ~~SMD-3-62~~, SMD-4-62, ~~SMD-5B-62~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

*Special Mount
⊙Two pipe posts

FINAL SIGN TABULATION

SHEET 8 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(119)000	13A
STATE DIST. NO.	COUNTY	CONT.	SECT.		HIGHWAY NO.
21	WEBB	18	G	43	IH-35

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy ● Direct Screened ●● Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	NEW FOUNDATIONS: NEW TOP ELEVATION No.1	NEW FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	GALVANIZED PIPE POSTS L.F. 2½"	GALVANIZED PIPE POSTS L.F. 3"	GALVANIZED PIPE POSTS L.F. 4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.3	GALVANIZED STRUCTURAL STEEL POSTS TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 2"D	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 2½"D	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 3"D	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.3	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 30"D	CAPITAL LETTERS 6"	"U"=URBAN - "R"=RURAL
Main Lane ~ Northbound (Cont'd)																																											
															CONTROL 18-6-43																														
14 of 25	17	14+00	IR-2 IR-3	● SPEED LIMIT 70 ●● NIGHT 65	White Black	48"×60" 48"×48"	439.10					431.31	431.23		G					41 7.7	16'-3"	16'-4"		336		9.0			G					4"I-7.7#	21'-9"	21'-9"		335		12				R
17 25	4A	88+18	IW12-2A	● CLEARANCE 16FT 10 IN	Yellow	48" × 48"	472.53					465.18	465.11		F-2					31 5.7	11'-4"	11'-5"		187	7.0					NEW SIGN												R
16 of 25	3	60+85	IW-60	● MERGING TRAFFIC	Yellow	48"×48"	422.05					413.51	413.43		F-2					31 5.7	12'-6"	12'-7"		200	7.0				F2					3"I-5.7#	15'-9"	15'-9"		180	10					R
17 of 25	1	83+00	IM-22N IM-1C & Etc.	●● NORTH ●● INTERSTATE-TEXAS-35 & Etc.	Blue Red-Blue	30"×15" 36"	435.79					428.29			C-1	14'-4"			12'-2"							5.5			E					3"I-5.7#	20'-4"			116	5.5					R
17 of 25	5	96+00	IR-2 IR-3	● SPEED LIMIT 70 ●● NIGHT 65	White Black	48"×60" 48"×48"	472.97					464.89	463.68		G					41 7.7	16'-7"	16'-9"		342		9.0			G					4"I-7.7#	20'-9"	21'-3"		327		10.5				R
13 of 25	35A	268+93	IR-48	● YIELD	Yellow	60"	428.08					420.06	420.54		F-1					31 5.7	11'-1"	11'-0"		183	7.0					NEW	SIGN											U
17 of 25	8	104+00	IG-18	■ Encinal 31; San Antonio 146.	Green	19'0"×5'-0"	481.64					472.81	472.64	472.47	330					6B 8.5	15'-4	15'-6"	13'-8	439				15	4					6×6×20	12'-1"	12'-8"		732			10			R
17 of 25	4	88+18	SP	CLEARANCE 16FT 10IN	Yellow	36"	To be Removed by SHD Maintenance Forces																					SP*					3I-5.7#	15'-9"	15'-9"			10					R
13 of 25	35	268+95	R-148	● YIELD RIGHT OF WAY	Yellow	42"	To be Removed by SHD Maintenance Forces																					SP*			14'-6"								5.5					U
West Frontage Road																																										
11 of 25	2	183+80	IM-21S IM-1B	●● SOUTH ●● INTERSTATE-TEXAS-35	Blue Red-Blue	18"×9" 24"									F-2					31 5.7	11'-9"	11'-9"		191	7.0				A			21'-2"								5.5					U
11 of 25	3A	193+80	IR-15R	● DO NOT ENTER - RAMP	White	48"×16"									F-2					31 5.7	11'-9"	11'-9"		191	7.0				A	NEW	SIGN									5.5				U
11 of 25	3	193+27	IR-15R	● DO NOT ENTER - RAMP	White	48"×60"	427.62					420.41	420.24		F-2					31 5.7	11'-8"	11'-10"		191	7.0				A	NEW	SIGN									5.5				U
13 of 25	4	246+70	IM-21S IM-1B IM-10L	●● SOUTH ●● INTERSTATE-TEXAS-35 ●● ↖ & Etc.	Blue Red-Blue Blue	18"×9" 24" & Etc. 18"×9"	433.97					426.19			C-1	15'-1"			12'-6"							5.5			A			21'-2"								5.5				U
13 of 25	8	256+21	IR-14	● KEEP RIGHT ➡	White	48"×60"																						F2					3"I-5.7#	16'-6"	16'-6"		188	10					U
13 of 25	39	25 +	IR-15	● DO NOT ENTER	White	48"×48"	429.31					421.77	421.69		F-2					31 5.7	11'-0"	11'-1"		183	7.0				A			16'-0"								5.5				U
13 of 25	39A	258+25	IR-15	● DO NOT ENTER	White	48"×48"	429.96					423.00	423.00		F-2					31 5.7	10'-5"	10'-5"		176	7.0				A			16'-0"								5.5				U
13 of 25	20	257+13	IR-15R	● DO NOT ENTER RAMP	White	48"×60"									F-2					31 5.7	11'-9"	11'-9"		191	7.0					NEW	SIGN													U
13 of 25	21	257+13	IR-15R	DO NOT ENTER RAMP	White	48"×60"									F-2					31 5.7	11'-9"	11'-9"		191	7.0					NEW	SIGN													U
16 of 25	11	61+10	IR-15R	● DO NOT ENTER RAMP	White	48"×60"									F-2					31 5.7	11'-9"	11'-9"		191	7.0					NEW	SIGN													R
16 of 25	11A	61+30	IR-15R	● DO NOT ENTER RAMP	White	48"×60"									F-2					31 5.7	11'-9"	11'-9"		191	7.0					NEW	SIGN													R
16 of 25	12A	62+50	IR-15	● DO NOT ENTER	White	48"×48"									F-2					31 5.7	10'-9"	10'-9"		180	7.0					NEW	SIGN													R
13 of 25	13	260+20	D-1A D-1A	● ⇐ LAREDO 4 ● ⇐ SAN ANTONIO 149	White White	10'×11½" 10'×11½"																						D-4	6'-4"	5'-9"		12'-3"							5.5					U
14 of 25	8	272+70	M-2F M-9L	● FM-1472 ● ⇐	White White	18"×18" 13"×10"																						A			14'-6"								5.5				U
14 of 25	6	274+15	IR-48	● YIELD	Yellow	60"																						F-1					3"I-5.7#	15'-7"	15'-7"		178	10					U
14 of 25	7	10+70	M-2F M-9R	● FM-1472 ● ⇒	White White	18"×18" 13"×10"																						A			14'-6"								5.5				U
13 of 25	4A	252+40	IR-17A	● TWO WAY TRAFFIC	White	48"×48"																						A			16'-6"								5.5				U
13 of 25	13A	264+00	IM-3 IM-1B	●● Jct ●● INTERSTATE-TEXAS-35	Blue Red-Blue	18"×9" 24"																						A			15'-2"								5.5				U
16 of 25	12	62+50	IR-15	● DO NOT ENTER	White	48"×48"	465.35					458.24	458.17		F-2					31 5.7	10'-8"	10'-8"		177	7.0				A			17'-0"								5.5				R
East Frontage Rd																																										
9 of 25		168+60	IR-17	● TWO WAY TRAFFIC AHEAD	White	48"×60"																						F2					3"I-5.7#	16'-9"	16'-9"		191	10					U
10 of 25		171+95	IR-15	● DO NOT ENTER	White	48"×48"																						A			16'-0"								5.5				U
11 of 25	11	181+93	R-148	● YIELD RIGHT OF WAY	Yellow	42"	To be Removed by SHD Maintenance Forces																					SP*			15'-7"								5.5				U
10 of 25		173+60	IR-1A	●● STOP	Red	30"																						A			14'-6"								5.5				U
11 of 25	1	181+74	IM-21N IM-1B IM-10L	●● NORTH ●● INTERSTATE-TEXAS-35 ●● ↖ & Etc.	Blue Red-Blue Blue	18"×9" 24" 18"×9"	429.59					421.88			C-1	15'-1"			12'-7"							5.5			A			21'-2"								5.5				U
13 of 25	2	247+00	IR-15	● DO NOT ENTER	White	48"×48"	432.99					425.95	425.87		F-2					31 5.7	10'-6"	10'-7"		177	7.0				A			16'-0"								5.5				U
13 of 25	2A	247+00	IR-15	● DO NOT ENTER	White	48"×48"									F-2					31 5.7	10'-9"	10'-9"		180	7.0					NEW	SIGN													U
13 of 25	38	248+00	IR-15R	● DO NOT ENTER - RAMP	White	48"×60"									F-2					31 5.7	11'-9"	11'-9"		191	7.0					NEW	SIGN													U
13 of 25	38A	248+60	IR-15R	● DO NOT ENTER - RAMP	White	48"×60"									F-2					31 5.7	11'-9"	11'-9"		191	7.0					NEW	SIGN													U
13 of 25	2A	254+50	IG-26	● ⇐ Santa Maria Ave; Del Mar Blvd ➡	Green	13'-6"×4'-0"																						4A					5"×5"×16#	10'-4"	10'-6"		565			9			U

SEE ~~SMD-1-62~~, SMD-2-62, ~~SMD-3-62~~, SMD-4-62, ~~SMD-5B-62~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

*Special Mount ESTIMATE SIGN TABULATION

SHEET 9 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-(19)000	14
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	19	G	43	IH-35

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	NEW FOUNDATIONS: NEW TOP ELEVATION No.1	NEW FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	GALVANIZED PIPE POSTS L.F. 2½"	GALVANIZED PIPE POSTS L.F. 3"	GALVANIZED PIPE POSTS L.F. 4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.3	GALVANIZED STRUCTURAL STEEL POSTS TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 2 D	2½ D	3 D	4 D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 30"	6" CAPITAL LETTERS	"U"=URBAN - "R"=RURAL
Main Lane ~ Northbound (Cont'd)															CONTROL 18-6-43																														
14 of 25	17	14+00	IR-2 IR-3	• SPEED LIMIT 70 •• NIGHT 65	White Black	48" x 60" 48" x 48"	439.10					431.31	431.23		G					4I 7.7	16'-3"	16'-4"		336		9.0			G				4"I-7.7#	21'-9"	21'-9"		335		12				R
17 25	4A	88+18	IW12-2A	• CLEARANCE 16FT 10 IN	Yellow	48" x 48"	472.59					465.18	465.11		F-2					3I 5.7	11'-4"	11'-5"		187	7.0					NEW SIGN												R
16 of 25	3	60+85	IW-6O	• MERGING TRAFFIC	Yellow	48" x 48"	422.05					413.51	413.43		F-2					3I 5.7	12'-6"	12'-7"		200	7.0				F2				3"I-5.7#	15'-9"	15'-9"		180	10					A
17 of 25	1	83+00	IM-22N IM-1C & Etc.	•• NORTH •• INTERSTATE-TEXAS-35 & Etc.	Blue Red-Blue	30" x 15" 36"	435.79					428.29			C-1	14'-4"			12'-2"							5.5			E				3"I-5.7#	20'-4"			116	5.5					A
17 of 25	5	96+00	IR-2 IR-3	• SPEED LIMIT 70 •• NIGHT 65	White Black	48" x 60" 48" x 48"	472.97					464.85	464.68		G					4I 7.7	16'-7"	16'-9"		342		9.0			G				4"I-7.7#	20'-9"	21'-9"		327		10.5				R
13 of 25	35A	268+93	IR-48	• YIELD	Yellow	60"	428.08					420.46	420.54		F-1					3I 5.7	11'-1"	11'-0"		183	7.0					NEW SIGN												U
17 of 25	8	104+00	IG-18	■ Encinal 3I; San Antonio 146.	Green	19'-0" x 5'-0"	481.64					472.81	472.64	472.47	330					6B 8.5	13'-4	13'-6"	13'-8"	439				15	4				6"x6"x20	12'-1"	12'-8"		732			10			R
17 of 25	4	88+18	SP	CLEARANCE 16FT 10IN	Yellow	36"	To be Removed by SHD Maintenance Forces																					SP*				3I-5.7#	15'-9"	15'-9"			10					R
13 of 25	35	268+95	R-148	• YIELD RIGHT OF WAY	Yellow	42"	To be Removed by SHD Maintenance Forces																					SP*			14'-6						5.5					U
West Frontage Road																																												
11 of 25	2	183+80	IM-21S IM-1B	•• SOUTH •• INTERSTATE-TEXAS-35	Blue Red-Blue	18" x 9" 24"																						A			21'-2"						5.5					U
11 of 25	3A	193+80	IR-15R	• DO NOT ENTER - RAMP	White	48" x 60"									F-2					3I 5.7	11'-9"	11'-9"		191	7.0				A	NEW SIGN												U
11 of 25	3	193+27	IR-15R	• DO NOT ENTER - RAMP	White	48" x 60"	427.62					420.61	420.24		F-2					3I 5.7	11'-8"	11'-9"		191	7.0				A	NEW SIGN									5.5				U
13 of 25	4	246+70	IM-21S IM-1B IM-10L	•• SOUTH •• INTERSTATE-TEXAS-35 •• ↖ & Etc.	Blue Red-Blue Blue	18" x 9" 24" & Etc. 18" x 9"	433.97					426.14			C-1	15'-1"			12'-6"							5.5			A			21'-2"						5.5					U
13 of 25	8	256+21	IR-14	• KEEP RIGHT ➡	White	48" x 60"																						F2				3"I-5.7#	16'-6"	16'-6"		188	10					U
13 of 25	39	25 +	IR-15	• DO NOT ENTER	White	48" x 48"	429.31					421.77	421.69		F-2					3I 5.7	11'-5"	11'-7"		188	7.0				A			16'-0"						5.5					U
13 of 25	39A	258+25	IR-15	• DO NOT ENTER	White	48" x 48"	429.96					423.00	423.00		F-2					3I 5.7	10'-5	10'-5"		176	7.0				A			16'-0"						5.5					U
13 of 25	20	257+13	IR-15R	• DO NOT ENTER RAMP	White	48" x 60"									F-2					3I 5.7	12'-3"	12'-3"		197	7.0					NEW SIGN												U
13 of 25	21	257+13	IR-15R	DO NOT ENTER RAMP	White	48" x 60"									F-2					3I 5.7	11'-9"	11'-9"		191	7.0					NEW SIGN												U
16 of 25	11	61+10	IR-15R	• DO NOT ENTER RAMP	White	48" x 60"									F-2					3I 5.7	11'-9"	11'-9"		191	7.0					NEW SIGN												R
16 of 25	11A	61+30	IR-15R	• DO NOT ENTER RAMP	White	48" x 60"									F-2					3I 5.7	11'-9"	11'-9"		191	7.0					NEW SIGN												R
16 of 25	12A	62+50	IR-15	• DO NOT ENTER	White	48" x 48"									F-2					3I 5.7	11'-0"	10'-10"		182	7.0					NEW SIGN												R
13 of 25	13	260+20	D-1A D-1A	• ← LAREDO 4 • ← SAN ANTONIO 143	White White	10' x 11½" 10' x 11½"																						D-4	6'-4"	5'-9"	12'-3"						5.5					U
14 of 25	8	272+70	M-2F M-9L	• FM-1472 • ←	White White	18" x 18" 13" x 10"																						A			14'-6"						5.5					U
14 of 25	6	274+15	IR-48	• YIELD	Yellow	60"																						F-1				3"I-5.7#	15'-7"	15'-7"		178	10					U
14 of 25	7	10+70	M-2F M-9R	• FM-1472 • ➡	White White	18" x 18" 13" x 10"																						A			14'-6"						5.5					U
13 of 25	4A	252+40	IR-17A	• TWO WAY TRAFFIC	White	48" x 48"																						A			16'-6"						5.5					U
13 of 25	13A	264+00	IM-3 IM-1B	•• Jct •• INTERSTATE-TEXAS-35	Blue Red-Blue	18" x 9" 24"																						A			15'-2"						5.5					U
16 of 25	12	62+50	IR-15	• DO NOT ENTER	White	48" x 48"	465.35					458.21	458.07		F-2					3I 5.7	11'-0"	10'-8"		181	7.0				A			17'-0"						5.5					R
East Frontage Rd																																												
9 of 25		168+60	IR-17	• TWO WAY TRAFFIC AHEAD	White	48" x 60"																						F2				3"I-5.7#	16'-9"	16'-9"		191	10					U
10 of 25		171+95	IR-15	• DO NOT ENTER	White	48" x 48"																						A			16'-0"						5.5					U
11 of 25	11	181+93	R-148	• YIELD RIGHT OF WAY	Yellow	42"	To be Removed by SHD Maintenance Forces																					SP*			15'-7						5.5					U
10 of 25		173+60	IR-1A	•• STOP	Red	30"																						A			14'-6						5.5					U
11 of 25	1	181+74	IM-21N IM-1B IM-10L	•• NORTH •• INTERSTATE-TEXAS-35 •• ↖ & Etc.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"	429.59					421.68			C-1	15'-1"			12'-7"							5.5			A			21'-2"						5.5					U
13 of 25	2	247+00	IR-15	• DO NOT ENTER	White	48" x 48"	432.99					425.05	425.87		F-2					3I 5.7	10'-8"	11'-0"		180	7.0				A			16'-0"						5.5					U
13 of 25	2A	247+00	IR-15	• DO NOT ENTER	White	48" x 48"									F-2					3I 5.7	10'-9"	10'-9"		180	7.0					NEW SIGN												U
13 of 25	38	248+00	IR-15R	• DO NOT ENTER - RAMP	White	48" x 60"									F-2					3I 5.7	11'-9"	11'-9"		191	7.0					NEW SIGN												U
13 of 25	38A	248+60	IR-15R	• DO NOT ENTER - RAMP	White	48" x 60"									F-2					3I 5.7	11'-9"	11'-9"		191	7.0					NEW SIGN												U
13 of 25	2A	254+50	IG-26	• ← Santa Maria Ave; Del Mar Blvd ➡	Green	13'-6" x 4'-0"																						4A				5"x5"x16#	10'-4"	10'-6"		565		9				U

SEE ~~SMD-1-62~~, SMD-2-62, ~~SMD-3-62~~, SMD-4-62, ~~SMD-5B-62~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

*Special Mount

FINAL SIGN TABULATION

SHEET 9 OF 14 SHEETS

14-A

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.		
6	TEXAS	I-35-(191)000		14A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB
21	WEBB	18	6	43

HIGHWAY NO. IH-35

1-13

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT (■ Removable Copy, • Direct Screened, •• Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST LF 2"D	2½"D	3"D	4"D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS 12"D	18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS 24"D	30"D	CAPITAL LETTERS 6"	"U"-URBAN-"R"-RURAL
East Frontage Road (Cont'd.)															CONTROL 18-6-43																													
13 of 25	26	257+40	IR-1A	•• STOP	Red	30"																									A			14'-6"					5.5				U
13 of 25	32	268+40	IM-21N IM-1B IM-10L	•• NORTH •• INTERSTATE-TEXAS-35 •• ↘ & ETC.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"	427.86					420.20			C-1	15'-1"			12'-4"							5.5				A			21'-2"					5.5				U
16 of 25	GA	68+00	IM-21N IM-1B IM-10L	•• NORTH •• INTERSTATE-TEXAS-35 •• ↘	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																								A			21'-2"					5.5				R
11 of 25	16	181+91	IR-48	• YIELD	Yellow	60"	429.30					421.93	421.85		F-1					315.7	10'-10"	10'-11"		181	7.0						NEW SIGN										U
Calton Road																																													
10 of 25		8+31	IR-1A	•• STOP	Red	30"																									A			14'-6"					5.5				U
10 of 25		9+06	IR-1A	•• STOP	Red	30"																									A			14'-6"					5.5				U
10 of 25	1	9+24	IM-21N IM-1B IM-7L IM6-1S IM-BB IM4-1R	•• NORTH •• INTERSTATE-TEXAS-35 •• ↰ SOUTH INTERSTATE-TEXAS-35 →	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			19'-4"					5.5				U
10 of 25	16	11+34	IM-21N IM-1B IM-9R IM6-1S IM-BB IM3-1L	•• NORTH •• INTERSTATE-TEXAS-35 •• → SOUTH INTERSTATE-TEXAS-35 ↰	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			19'-4"					5.5				U
10 of 25		12+36	IM-21N IM-1B IM-9L	•• NORTH •• INTERSTATE-TEXAS-35 •• ← & Etc.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			21'-2"					5.5				U
10 of 25	13	12+45	IR-1A	•• STOP	Red	30"																									A			14'-6"					5.5				U
10 of 25	7	9+28	IR-14	• KEEP RIGHT →	White	48" x 60"	427.21					420.28	420.28		F-2					315.7	11'-5"	11'-5"		187	7.0						NEW SIGN										U
10 of 25	8	11+43	IR-14	• KEEP RIGHT →	White	48" x 60"	427.72					420.68	420.68		F-2					315.7	11'-6"	11'-6"		188	7.0						NEW SIGN										U
Del Mar Blvd																																												
13 of 25	9	7+27	M-2F M-9R	• FM-1472 • →	White White	18" x 18" 13" x 10"																									A			14'-6"					5.5				U
13 of 25	17	7+83	IR-1A	•• STOP	Red	30"																									A			14'-6"					5.5				U
13 of 25	GA	8+25	IM-21S IM-1B IM-9R	•• SOUTH •• INTERSTATE-TEXAS-35 •• → & Etc.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			21'-2"					5.5				U
13 of 25	18	8+30	IR-1A	•• STOP	Red	30"																									A			14'-6"					5.5				U
13 of 25	11	8+30	IM-21S IM-1B IM-9L	•• SOUTH •• INTERSTATE-TEXAS-35 •• ← & Etc.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			21'-2"					5.5				U
13 of 25	19	8+98	IR-1A	•• STOP	Red	30"	430.00					423.00			A	12'-6"									3.5						A			14'-6"					5.5				U
13 of 25	6	9+30	IM-21N IM-1B IM-7L	•• NORTH •• INTERSTATE-TEXAS-35 •• ↰ & Etc.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9																									A			21'-2"					5.5				U
13 of 25	36	9+10	IR-14	• KEEP RIGHT →	White	48" x 60"	430.63					423.67	423.67		F-2					315.7	11'-5"	11'-5"		187	7.0						NEW SIGN										U
13 of 25	24	11+22	IR-1A	•• STOP	Red	30"																									A			14'-6"					5.5				U
13 of 25	37	11+20	IR-14	• KEEP RIGHT →	White	48" x 60"	430.78					423.91	423.91		F-2					315.7	11'-4"	11'-4"		186	7.0						NEW SIGN										U
13 of 25	30	11+44	IM-21N IM-1B IM-9R IM-21S IM-1B IM-7L	•• NORTH •• INTERSTATE-TEXAS-35 •• → •• SOUTH •• INTERSTATE-TEXAS-35 •• ↰	Blue Red-Blue Blue Blue Red-Blue Blue	18" x 9" 24" 18" x 9" 18" x 9" 24" 18" x 9"																									A			19'-4"					5.5				U

SEE ~~SMD 1-62~~, SMD-2-62, ~~SMD 3-62~~, SMD-4-62, ~~SMD 5B 62~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

ESTIMATE SIGN TABULATION
SHEET 10 OF 14 SHEETS

15

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(119)000	15

STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

1-13

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING TOP ELEVATION No.2	NEW TOP ELEVATION No.1	NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	No.2	No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	No.2	No.3	TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2"D	2½"D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH No.1	No.2	No.3	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	CAPITAL LETTERS 6"	"U"-URBAN-"R"-RURAL
East Frontage Road (Cont'd)																																														
															CONTROL 18-6-43																																	
13 of 25	26	257+40	IR-1A	•• STOP	Red	30"																									A			14'-6"												U
13 of 25	32	268+40	IM-2IN IM-1B IM-10L	•• •• •• & ETC.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"	427.86					420.20			C-1	15'-1"			12'-4"							5.5				A			21'-2"											U
16 of 25	6A	68+00	IM-2IN IM-1B IM-10L	•• •• ••	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			21'-2"											R
11 of 25	16	181+91	IR-48	• YIELD	Yellow	60"	429.30					421.93	421.85		F-1								3I5.7	10'-10"	10'-11"		18I	7.0					NEW SIGN											U
Calton Road																																													
10 of 25		8+31	IR-1A	•• STOP	Red	30"																									A			14'-6"											U
10 of 25		9+06	IR-1A	•• STOP	Red	30"																									A			14'-6"											U
10 of 25	1	9+24	IM-2IN IM-1B IM-7L IM6-1S IM-8B IM4-1R	•• •• •• SOUTH INTERSTATE-TEXAS-35 ➡	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			19'-4"											U
10 of 25	16	11+34	IM-2IN IM-1B IM-9R IM6-1S IM-8B IM3-1L	•• •• •• SOUTH INTERSTATE-TEXAS-35 ⬅	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			19'-4"											U
10 of 25		12+36	IM-2IN IM-1B IM-9L	•• •• •• ⬅ & Etc.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			21'-2"											U
10 of 25	13	12+45	IR-1A	•• STOP	Red	30"																									A			14'-6"											U
10 of 25	7	9+28	IR-14	• KEEP RIGHT ➡	White	48" x 60"	427.21					420.28	420.28		F-2								3I 5.7	11'-5"	11'-5"		187	7.0					NEW SIGN											U
10 of 25	8	11+43	IR-14	• KEEP RIGHT ➡	White	48" x 60"	427.72					420.68	420.68		F-2								3I 5.7	11'-6"	11'-6"		177	4.5					NEW SIGN											U
Del Mar Blvd																																												
13 of 25	9	7+27	M-2F M-9R	• FM-1472 • ➡	White White	18" x 18" 13" x 10"																									A			14'-6"											U
13 of 25	17	7+83	IR-1A	•• STOP	Red	30"																									A			14'-6"											U
13 of 25	6A	8+25	IM-2IS IM-1B IM-9R	•• •• •• ➡ & Etc.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			21'-2"											U
13 of 25	18	8+30	IR-1A	•• STOP	Red	30"																									A			14'-6"											U
13 of 25	11	8+30	IM-2IS IM-1B IM-9L	•• •• •• ⬅ & Etc.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			21'-2"											U
13 of 25	19	8+98	IR-1A	•• STOP	Red	30"	430.00					423.00			A	12'-6"											3.5					A			14'-6"											U
13 of 25	6	9+30	IM-2IN IM-1B IM-7L	•• •• •• ↰ & Etc.	Blue Red-Blue Blue	18" x 9" 24" 18" x 9"																									A			21'-2"											U
13 of 25	36	9+10	IR-14	• KEEP RIGHT ➡	White	48" x 60"	430.63					423.67	423.67		F-2								3I5.7	11'-5"	11'-5"		187	7.0					NEW SIGN											U
13 of 25	24	11+22	IR-1A	•• STOP	Red	30"																									A			14'-6"											U
13 of 25	37	11+20	IR-14	• KEEP RIGHT ➡	White	48" x 60"	430.78					423.91	423.91		F-2								3I5.7	11'-4"	11'-4"		175	4.5					NEW SIGN											U
13 of 25	30	11+44	IM-2IN IM-1B IM-9R IM-2IS IM-1B IM-7L	•• •• •• •• •• •• ↰	Blue Red-Blue Blue Blue Red-Blue Blue	18" x 9" 24" 18" x 9" 18" x 9" 24" 18" x 9"																									A			19'-4"											U

SEE ~~SMD-1-62~~, SMD-2-62, ~~SMD-3-62~~, SMD-4-62, ~~SMD-5B-62~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

FINAL SIGN TABULATION
SHEET 10 OF 14 SHEETS

15A

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(119)000	15A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy ● Direct Screened ●● Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT. WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"Ø	18"Ø	PROPOSED STRUCTURE: REINFORCED DRILLED CONCRETE L.F. 18"Ø	24"Ø	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 2"Ø	2½"Ø	3"Ø	4"Ø	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS 12"Ø	18"Ø	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"Ø	30"Ø	EXISTING STRUCTURE: CAPITAL LETTERS 6"	"U" URBAN - "R" RURAL
Del Mar Blvd (Cont'd) CONTROL 18-6-43																																														
13 of 25	28	12+00	IM-21N IM-1B IM-9L	●● NORTH ●● INTERSTATE-TEXAS-35 ●● ⇐ & Etc.	Blue Red-Blue Blue	18"x9" 24" 18"x9"																															A			21'-2"													5.5				U
13 of 25	29	12+00	IG-25	■ ⇐ San Antonio 149	Green	13'-6"x2'-0"																															4A				5'x5'x16#	8'-6"	8'-6"		504		9				U
13 of 25	25	12+38	IR-1A	●● STOP*	Red	30"																															A			14'-6"						5.5				U
13 of 25	33	8+81	VARIOUS	ROUTE MARKERS	—	VARIOUS	430.33					423.00			D	18'-8"			12'-0"							5.5				A			14'-6"						5.5				U
13 of 25	34	8+90	VARIOUS	DIRECTIONAL MARKERS	—	3(10'-0"x1'-0")	429.95					423.00	423.00		320					31 5.7	9'-7	9'-7		147				SP*			14'-6"						5.5				U
SUB-TOTAL CONTROL 18-6-43																247'-0	185'-10	0	162'-0				2721.3	40.2.0	143.5	32.0	213.0																	

SEE ~~SMD-1-62~~, SMD-2-62, ~~SMD-3-62~~, SMD-1-62, & ~~SMD-5B-62~~
FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

* Special Mount

ESTIMATE SIGN TABULATION
SHEET 11 OF 14 SHEETS 16

FED RD DIV. NO	STATE	FEDERAL PROJECT NO				VALLEY CO.
6	TEXAS	I-35-1(119)000				16
STATE DIST. NO	COUNTY	CONT.	SECT	JOB		HIGHWAY NO.
21	WEBB	18	6	43		IH-35

I-15

	PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT ■ Removable Copy ● Direct Screened ●● Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION: No.1	No.2	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: NEW TOP ELEVATION: No.1	No.2	PROPOSED STRUCTURE: NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION: No.1	No.2	No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	PROPOSED STRUCTURE: GALVANIZED PIPE POSTS L.F.: 2"	2½"	3"	4"	PROPOSED STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH: No.1	No.2	No.3	TOT. WT.	PROPOSED STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F.: 12"	18"	PROPOSED STRUCTURE: REINFORCED DRILLED CC: 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F.: 2'D	2½D	3'D	4'D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS: SIZE	LENGTH: No1	No2	No3	TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F.: 12'D	18'D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS L.F.: 24'D	30'D	6" CAPITAL LETTERS	'U'=URBAN-'R'=RURAL
	Del Mar Blvd (Cont'd)																CONTROL 18-6-43																															
	13 of 25	28	12+00	IM-21N IM-1B IM-9L	●● NORTH ●● INTERSTATE-TEXAS-35 ●● ⇐ & Etc.	Blue Red-Blue Blue	18"x9" 24" 18"x9"																		

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT (■ Removable Copy, • Direct Screened, •• Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	NEW FOUNDATIONS: NEW TOP ELEVATION No.1	NEW FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	REINFORCED DRILLED CONCRETE FOOTINGS 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING GALVANIZED PIPE POSTS L.F. 2"D	2½"D	3"D	4"D	EXISTING GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	EXISTING NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	EXISTING REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	CAPITAL LETTERS 6"
CONTROL 18-4-16																																											
Main Lane - Southbound																																											
23 of 25	2	779+60	IG-9	■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1 MILE	Green	21'-0"x13'-0"	674.80					665.67	665.62	665.03	330					8WF 2.0	21'-8"	21'-11"	22'-3"	1442			24	4				10"x10"x45#	18'-6"	19'-6"	2789				17	
25 of 25	1	1097+85	IW-7	• ⊣	Yellow	48"x48"	635.73					628.25	628.25		F-2					3I 5.7	11'-5	11'-5		187	7.0			F-2				5"I-5.7#	16'-0"	16'-0"	182	10				
Main Lane - Northbound																																											
24 of 25	1	1071+00	IW-6	• ⊢	Yellow	48"x48"	647.46					639.57	639.40		F-2					3I 5.7	11'-10"	12'-0"		193	7.0			F-2				5"I-5.7#	16'-0"	16'-0"	182	10				
Crossover																																											
24 of 25	2	1085+20	IR-1GL	•• ONE WAY	Black	48"x16"	639.06					631.59			A	11'-11"									3.5			E				5"I-5.7#	13'-5"		76	5.5				
24 of 25	3	1084+06	IR-1GL	•• ONE WAY	Black	48"x16"	638.73					630.90			A	12'-1"									3.5			E				5"I-5.7#	13'-5"		76	5.5				
24 of 25	4	1085+10	IR-1GR	•• ONE WAY	Black	48"x16"	639.51					632.18			A	11'-7"									3.5			E				5"I-5.7#	13'-5"		76	5.5				
24 of 25	5	1084+30	IR-1A	•• STOP	Red	30"x30"	639.05					631.39			A	13'-1"									3.5			A	14'-6"							5.5				
24 of 25	6	1085+02	IR-1A	•• STOP	Red	30"x30"	639.52					631.19			A	13'-9"									3.5			A	14'-6"							5.5				
24 of 25	7	1085+00	IR-1A	•• STOP	Red	30"x30"	638.54					630.29			A	13'-8"									3.5			A	14'-6"							5.5				
Sub-Total ~ Control 18-4-16																76'-1"				1822	35.0		24.0				43.5						3.381#	53.0			17	
CONTROL 18-5-18																																											
Main Lane - Southbound																																											
20 of 25	1	659+90	IG-18	■ Laredo 17, Monterrey 163	Green	16'-6"x5'-0"																																					
20 of 25	2	669+90	IR-2 IR-3	• SPEED LIMIT-70 •• NIGHT-65	White Black	48"x60" 48"x48"																																					
20 of 25	3	679+90	IM-22S IM-1C	•• SOUTH •• INTERSTATE-TEXAS-35	Blue Red-Blue	30"x15" 36"																														5"I-5.7#	20'-4"		116	5.5				
22 of 25	8A	753+22	IW12-2A	• CLEARANCE 14 FT 8 IN	Yellow	48"x48"	679.06					670.33	670.17		F-2					3I 5.7	12'-8"	12'-10"		203	7.0							NEW SIGN										
21 of 25	7	709+70	IW-60	• MERGING TRAFFIC	Yellow	48"x48"																														5"I-5.7#	15'-9"	15'-9"	180	10				
22 of 25	9	728+00	IR-1GR	•• ONE WAY	Black	48"x16"									A	11'-10"									3.5							NEW SIGN										
22 of 25	1	725+70	IR-2A	• EXIT-30 MPH	Yellow	48"x60"	701.26					694.05	693.55		F-2					3I 5.7	11'-8"	12'-2"		193	7.0			F-2				5"I-5.7#	16'-9"	16'-9"	191	10				
22 of 25	2	726+10	IG-1	■ EXIT ↗	Green	6'-0"x5'-0"	700.87	694.48	694.38	693.80	693.65				320					3I 5.7	11'-5"	11'-7"		169				4				5"x5"x16#	10'-9"	10'-10"	576			9		
22 of 25	3	731+00	IG-11	■ 83 NORTH, Carrizo Springs, Uvalde ↗	Green	21'-0"x13'-6"	694.31					686.18	685.51	684.84	330					8WF 20	21'-2"	21'-10"	22'-6"	1435			24.0					10"x10"x49#	17'-5"	18'-5"	2675				17	
22 of 25	8	753+22	SP	CLEARANCE 14FT 8IN	Yellow	36"x36"	*To be Removed by SHD Maintenance Forces*																					SP*				3"I-5.7#	17'-7"	17'-7"		10				
Main Lane - Northbound																																										
18 of 25	1	600+95	IG-9	■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1¾ MILES	Green	21'-0"x13'-0"	691.80					683.92	684.09	685.51	330					8WF 2.0	20'-5"	20'-3"	18'-10"	1315			24					10"x10"x49#	17'-11"	17'-7"	2666				17	
18 of 25	3	608+95	IG-10	■ Eagle Pass, Del Rio, NEXT RIGHT	Green	13'-0"x6'-6"	689.92					681.55	681.48		320					GB 8.5	14'-5"	14'-6"		309			10	4				6"x6"x20#	12'-8"	12'-11"	874			10		
19 of 25	1	635+20	IG-9	■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1 MILE	Green	21'-0"x13'-0"	687.49					678.70	678.65	678.78	330					8WF 2.0	21'-4"	21'-7"	21'-3"	1408			24	4				10"x10"x49#	18'-6"	19'-6"	2789				17	
20 of 25	4	688+00	IG-11	■ 83 NORTH, Carrizo Springs, Uvalde ↗	Green	21'-0"x13'-6"	699.62					691.58	691.50	692.08	330					8WF 2.0	21'-1"	21'-2"	20'-7"	1382			24	4				10"x10"x49#	18'-4"	18'-5"	2728				17	
20 of 25	6	693+00	IR-2A	• EXIT-30 MPH	Yellow	48"x60"	703.39					696.27	696.52		F-2					3I 5.7	11'-7"	11'-4"		188	7.0			F-2				5"I-5.7#	16'-9"	16'-9"	191	10				
21 of 25	1	693+29	IG-1	■ EXIT ↗	Green	6'-0"x5'-0"	704.62	698.14	698.21	697.47	697.30				320					3I 5.7	11'-6"	11'-8"		170				4				5"x5"x16#	10'-10"	10'-9"	576			9		
20 of 25	7	691+70	IR-1GR	•• ONE WAY	Black	48"x16"									A	11'-10"									3.5							NEW SIGN										
21 of 25	30	718+00	IW-60	• MERGING TRAFFIC	Yellow	48"x48"																														5"I-5.7#	16'-8"	16'-8"	190	10				
22 of 25	4	746+25	IM-22N IM-1C	•• NORTH •• INTERSTATE-TEXAS-35 & Etc.	Blue Red-Blue	30"x15" 36"	676.93					668.84			A1			19'-5"							4.5			E				5"I-5.7#	18'-4"		93	5.5				
22 of 25	6	753+10	IR-2 IR-3	• SPEED LIMIT-70 •• NIGHT-65	White Black	48"x60" 48"x48"	684.30					677.43	677.35		G					4I 7.7	15'-4"	15'-5"		322		9.0		G				4"I-7.7#	21'-9"	21'-9"	335		12			
23 of 25	1	763+50	IG-18	■ Encinal 19, San Antonio 134	Green	19'-0"x5'-0"	679.86					669.94	669.11	668.28	330					6B 8.5	14'-5"	15'-3"	16'-1"	484			15	4				6"x6"x20#	10'-8"	12'-6"	701			10		
22 of 25	7	741+18	SP	CLEARANCE 14 FT 8IN	Yellow	36"x36"	*To be Removed by SHD Maintenance Forces*																					SP*				3"I-5.7#	17'-7"	17'-7"		10				
22 of 25	7A	741+18	IW12-2A	• CLEARANCE 14 FT 8 IN	Yellow	48"x48"	680.62					671.13	671.41		F-2					3I 5.7	12'-10"	13'-2"		205	7.0							NEW SIGN										

RURAL

*Special Mount

SEE ~~SMD-1-62~~, SMD-2-62, ~~SMD-3-62~~, SMD-4-62, ~~& SMD-58-62~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

ESTIMATE SIGN TABULATION

SHEET 12 OF 14 SHEETS

FED. AID PROJ. NO.	STATE	FEDERAL FUNDING ACT	SHEET NO.
0	TEXAS	I-35-1(19)000	17
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	ZAVALA	18	4	16	IH-35

17

1-17

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT (■ Removable Copy, • Direct Screened, •• Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING TOP ELEVATION No.2	PROPOSED STRUCTURE: NEW FOUNDATIONS: NEW TOP ELEVATION No.1	NEW TOP ELEVATION No.2	ELEVATION OF TOP OF FOUNDATION No.1	ELEVATION OF TOP OF FOUNDATION No.2	ELEVATION OF TOP OF FOUNDATION No.3	NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	REINFORCED DRILLED CONCRETE FOOTINGS 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"D	2½D	3"D	4"D	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"D	18"D	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"D	30"D	6" CAPITAL LETTERS
CONTROL 18-4-16																																										
Main Lane - Southbound																																										
23 of 25	2	779+50	IG-9	■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1 MILE	Green	21'-0"x13'-0"	674.80					665.67	665.42	665.03	330					8WF 2.0	21'-8"	21'-11"	22'-3"	1442				24	4				10"x10"x45#	13'-6"	19'-6"	2789				17
25 of 25	1	1097+85	IW-7	• ⊣	Yellow	48"x48"	635.73					628.25	628.25		F-2					3I 5.7	11'-7"	11'-9"		490	7.0				F-2				3"I-5.7#	16'-0"	16'-0"	182	10			
Main Lane - Northbound																																										
24 of 25	1	1071+00	IW-6	• ⊣	Yellow	48"x48"	647.46					639.57	639.40		F-2					3I 5.7	11'-10"	12'-0"		193	7.0				F-2				3"I-5.7#	16'-0"	16'-0"	182	10			
Crossover																																										
24 of 25	2	1085+20	IR-1GL	•• ONE WAY	Black	48"x16"	639.06					631.39			A	11'-11"								3.5				E				3"I-5.7#	13'-5"		76	5.5			
24 of 25	3	1084+06	IR-1GL	•• ONE WAY	Black	48"x16"	638.73					630.90			A	12'-1"								3.5				E				3"I-5.7#	13'-5"		76	5.5			
24 of 25	4	1085+10	IR-1GR	•• ONE WAY	Black	48"x16"	639.51					632.18			A	11'-7"								3.5				E				3"I-5.7#	13'-5"		76	5.5			
24 of 25	5	1084+30	IR-1A	•• STOP	Red	30"x30"	639.05					631.39			A	13'-1"								3.5				A		14'-6"						5.5			
24 of 25	6	1085+02	IR-1A	•• STOP	Red	30"x30"	639.52					631.19			A	13'-9"								3.5				A		14'-6"						5.5			
24 of 25	7	1085+00	IR-1A	•• STOP	Red	30"x30"	638.54					630.29			A	15'-8"								3.5				A		14'-6"						5.5			
Sub-Total ~ Control 18-4-16																76'-1"							1825	35.0		24.0			43.5				3381#	53.0			17
CONTROL 18-5-18																																										
Main Lane - Southbound																																										
20 of 25	1	659+90	IG-18	■ Laredo 17, Monterrey 163	Green	16'-6"x5'-0"																													6"x6"x20#	12'-0"	13'-0"	862			10	
20 of 25	2	669+90	IR-2 IR-3	• SPEED LIMIT-70 •• NIGHT-65	White Black	48"x60" 48"x48"																											4"I-7.7#	21'-9"	21'-9"	335		12		
20 of 25	3	679+90	IM-22S IM-1C	•• SOUTH •• INTERSTATE-TEXAS-35	Blue Red-Blue	30"x15" 36"																											3"I-5.7#	20'-4"		116	5.5			
22 of 25	8A	753+22	IW12-2A	• CLEARANCE 14 FT 8 IN	Yellow	48"x48"	679.06					670.33	670.17		F-2					3I 5.7	12'-8"	12'-10"		203	7.0							NEW SIGN									
21 of 25	7	709+70	IW-6G	• MERGING TRAFFIC	Yellow	48"x48"																											3"I-5.7#	15'-9"	15'-9"	180	10			
22 of 25	9	728+00	IR-1GR	•• ONE WAY	Black	48"x16"									A	11'-10"								3.5							NEW SIGN									
22 of 25	1	725+70	IR-2A	• EXIT-30 MPH	Yellow	48"x60"	701.26					694.05	693.55		F-2					3I 5.7	11'-8"	12'-2"		193	7.0				F-2				3"I-5.7#	16'-9"	16'-9"	191	10			
22 of 25	2	726+10	IG-1	■ EXIT ↗	Green	6'-0"x5'-0"	700.87	694.48	694.38	693.80	693.63				320					3I 5.7	11'-5"	11'-7"		169					4				5"x5"x16#	10'-9"	10'-10"	576			9	
22 of 25	3	731+00	IG-11	■ 83 NORTH, Carrizo Springs Uvalde ↗	Green	21'-0"x13'-6"	694.31					686.18	685.51	684.84	330					8WF 2.0	21'-2"	21'-10"	22'-6"	1435				24.0					10"x10"x45#	17'-5"	18'-3"	2675				17
22 of 25	8	753+22	SP	CLEARANCE 14FT 8IN	Yellow	36"x36"	*To be Removed by SHD Maintenance Forces*																						SP*				3"I-5.7#	17'-7"	17'-7"		10			
Main Lane - Northbound																																										
18 of 25	1	600+95	IG-9	■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1¾ MILES	Green	21'-0"x13'-0"	691.80					683.92	684.09	685.51	330					8WF 2.0	20'-5"	20'-3"	18'-10"	1315				24					10"x10"x45#	17'-11"	17'-7"	2666				17
18 of 25	3	608+95	IG-10	■ Eagle Pass, Del Rio, NEXT RIGHT	Green	13'-0"x6'-6"	689.92					681.55	681.48		320					6B8.5	14'-5"	14'-6"		309				10	4				6"x6"x20#	12'-8"	12'-11"	874			10	
19 of 25	1	635+20	IG-9	■ 83 NORTH, Carrizo Springs, Uvalde, EXIT 1 MILE	Green	21'-0"x13'-0"	687.49					678.70	678.65	678.78	330					8WF 2.0	21'-4"	21'-1"	21'-3"	1408				24	4				10"x10"x45#	18'-6"	19'-6"	2789				17
20 of 25	4	688+00	IG-11	■ 83 NORTH, Carrizo Springs, Uvalde ↗	Green	21'-0"x13'-6"	699.62					691.58	691.50	692.08	330					8WF 2.0	20'-8"	20'-10"	20'-7"	1367				24	4				10"x10"x45#	18'-4"	18'-5"	2728				17
20 of 25	6	693+00	IR-2A	• EXIT-30 MPH	Yellow	48"x60"	703.39					696.27	696.52		F-2					3I 5.7	11'-1"	11'-4"		188	7.0				F-2				3"I-5.7#	16'-9"	16'-9"	191	10			
21 of 25	1	693+29	IG-1	■ EXIT ↗	Green	6'-0"x5'-0"	704.62	698.14	698.21	697.47	697.30				320					3I 5.7	11'-6"	11'-8"		170					4				5"x5"x16#	10'-10"	10'-9"	576			9	
20 of 25	7	691+70	IR-1GR	•• ONE WAY	Black	48"x16"									A	11'-10"								3.5							NEW SIGN									
21 of 25	30	718+00	IW-6G	• MERGING TRAFFIC	Yellow	48"x48"																											3"I-5.7#	16'-8"	16'-8"	190	10			
22 of 25	4	746+25	IM-22N IM-1C	•• NORTH •• INTERSTATE-TEXAS-35 & Etc.	Blue Red-Blue	30"x15" 36"	676.93					668.84			A1			19'-5"						4.5				E				3"I-5.7#	18'-4"		93	5.5			
22 of 25	6	753+10	IR-2 IR-3	• SPEED LIMIT-70 •• NIGHT-65	White Black	48"x60" 48"x48"	684.30					677.43	677.35		G					4I 7.7	15'-4"	15'-5"		322		9.0			G				4"I-7.7#	21'-9"	21'-9"	335		12		
23 of 25	1	763+50	IG-18	■ Encinal 19, San Antonio 134	Green	19'-0"x5'-0"	679.86					669.9	669.11	668.28	330					6B8.5	14'-5"	15'-9"	16'-3"	490				15	4				6"x6"x20#	10'-8"	12'-6"	701			10	
22 of 25	7	741+18	SP	CLEARANCE 14 FT 8IN	Yellow	36"x36"	*To be Removed by SHD Maintenance Forces*																						SP*				3"I-5.7#	17'-7"	17'-7"		10			
22 of 25	7A	741+18	IW12-2A	• CLEARANCE 14 FT 8 IN	Yellow	48"x48"	680.62					671.13	671.41		F-2					3I 5.7	12'-10"	13'-2"		205	7.0							NEW SIGN									

RURAL

*Special Mount

SEE ~~SMD-1-62~~, SMD-2-62, ~~SMD-3-62~~, SMD-4-62, & ~~SMD-5B-62~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

FINAL SIGN TABULATION

SHEET 12 OF 14 SHEETS

17-A

FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	17A
STATE DIST. NO.	COUNTY	DIST.	SECT.	JOB	HIGHWAY NO.
21	[illegible]	18	4	16	IH-35

1-19

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT (■ Removable Copy, ● Direct Screened, ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	2½"	3"	4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	LENGTH No.3	TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	24"	EXISTING STRUCTURE: TYPE OF MOUNT	GALVANIZED PIPE POST L.F. 2'-0"	2½'-0"	3'-0"	4'-0"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	LENGTH No.1	LENGTH No.2	TOTAL WEIGHT	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12'-0"	18'-0"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24'-0"	30'-0"	CAPITAL LETTERS 6"
US-83 Interchange CONTROL 18-5-18 CONT.																																															
21 of 25	17	2301+58	IM-3 IM-1B	●● Jct ●● INTERSTATE-TEXAS-35	Blue Red-Blue	18"x 9" 24"	698.90					691.12			A		13'-6"							3.5				A			14'-10"											5.5				
21 of 25	15	2304+07	D-1A D-1A	⇧ LAREDO 18 ⇦SAN ANTONIO 135	White White	10'-0"x11½" 10'-0"x11½"																						D-4	6'-4"	5'-9"		12'-3"										5.5			
21 of 25	15A	2304+07	IG-25	⇧ LAREDO 18 ●● ⇦SAN ANTONIO 135	Green	13'-6"x4'-0"	700.80					692.80	692.36		320					417.7	11'-6"	11'-11"		224			8			NEW SIGN															
21 of 25	12	2307+43	IM-21S IM-1B IM-11 IM-2IN IM-1B IM-9L M-21S MI-2 M-11	●● SOUTH ●● INTERSTATE-TEXAS-35 ●● ⇧ ●● NORTH ●● INTERSTATE-TEXAS-35 ●● ⇦ ● SOUTH ●● TEXAS-US-83 ● ⇧	Blue Red-Blue Blue Blue Red-Blue Blue White Black White	18"x 9" 24" 18"x 9" 18"x 9" 24" 18"x 9" 20"x 8" 24" 13"x10"	704.28					696.30			C	14'-5"		13'-0"					5.5				C	11'-6"		15'-0"											5.5			
21 of 25	11	2309+02	IR-17A	● TWO WAY TRAFFIC	White	48"x48"	706.70					698.70	698.50		F-2					315.7	11'-6"	11'-8"		189	7.0				A		16'-0"										5.5			
21 of 25	13	2307+65	IG-25	■ Carrizo Springs 64⇨, Uvalde 114⇨	Green	15'-0"x4'-0"																						4A				5x5x16#	11'-0"	11'-4"	588					9			
21 of 25	14	2307+36	M-2IN M-1A M-9R	● NORTH ● TEXAS-US-83 ● ⇨	White White White	20"x 8" 20" 13"x10"																						A			15'-6"							5.5				
21 of 25	18	2308+15	IR-1A	●● STOP	Red	30"																						A			14'-6"							5.5				
21 of 25	25	11+70	IR-1A	●● STOP	Red	30"																						A			14'-6"							5.5				
21 of 25	26	715+13	IG-25	■ ⇦San Antonio 135	Green	13'-6"x2'-0"	708.00					701.10	701.10		320					315.7	8'-4"	8'-4"		133			8		4A				5x5x16#	8'-6"	8'-6"	272					9			
21 of 25	27	715+19	IM-2IN IM-1B IM-9L M6-IN MI-2 M4-IL	●● NORTH ●● INTERSTATE-TEXAS-35 ●● ⇦ ● NORTH ●● TEXAS-US-81 ● ⇦	Blue Red-Blue Blue White Black White	18"x 9" 24" 18"x 9" 21"x 9" 24" 21"x15"	708.10					701.10			C	11'-3"		11'-0"					5.5				SP																	
East Frontage Road																																														
21 of 25	2	693+75	IR-15	● DO NOT ENTER	White	48"x48"																						A			16'-0"							5.5				
21 of 25	3	696+00	IR-48	● ~~YIELD RIGHT OF WAY~~ YIELD.	Yellow	60"	708.43					700.64	700.47		F-1					315.7	11'-3"	11'-5"		186	7.0				F-1				3"I-5.7#	15'-7"	15'-7"	178					10			
21 of 25	4	696+50	IR-17A	● TWO WAY TRAFFIC	White	48"x48"	709.13					701.70	701.60		F-2					315.7	10'-11"	11'-0"		182	7.0				A			16'-0"							5.5				
21 of 25	24	711+00	IG-25	■ ⇦Carrizo Springs 64, ⇦Uvalde 114	Green	15'-0"x4'-0"	714.50					707.40	709.20		320					417.7	10'-7"	8'-9"		193			8		4A				5x5x16#	10'-3"	10'-7"	564					9			
21 of 25	31	693+70	IR-15R	● DO NOT ENTER RAMP	White	48"x60"									F-2					315.7	11'-9"	11'-9"		191	7.0					NEW SIGN															
21 of 25	31A	694+50	IR-15R	● DO NOT ENTER RAMP	White	48"x60"									F-2					315.7	11'-9"	11'-9"		191	7.0					NEW SIGN															
21 of 25	29	716+65	IR-17A	● TWO WAY TRAFFIC	White	48"x48"	707.15					700.18	700.28		F-2					315.7	10'-5"	10'-5"		176	7.0				A			16'-0"							5.5				
20 of 25	5	693+00	IR-48	YIELD	Yellow	60"																						F-1				3"I-5.7#	15'-7"	15'-7"	178	10							
Ramp "A"																																													
21 of 25	23	720+70	IW-113	● STOP AHEAD	Yellow	48"x48"	704.48					695.92	695.59		F-2					315.7	12'-6"	12'-10"		202	7.0				F2				3"I-5.7#	16'-0"	16'-0"	182	10							
21 of 25	22	718+00	IG-25	■ Carrizo Springs 64⇨, Uvalde 114⇨	Green	15'-0"x4'-0"	704.42					696.38	695.55		320					417.7	11'-5"	12'-4"		227			8		4A				5x5x16#	10'-7"	11'-2"	579					9			
21 of 25	19	715+70	IR-1A	●● STOP	Red	30"	705.04					697.71			A		12'-9"							3.5				A			14'-6"							5.5				
21 of 25	32	717+00	IR-15R	● DO NOT ENTER	White	48"x48"									F-2					315.7	10'-9"	10'-9"		180	7.0					NEW SIGN															
21 of 25	32A	717+00	IR-15R	● DO NOT ENTER	White	48"x48"									F-2					315.7	10'-9"	10'-9"		180	7.0					NEW SIGN															
21 of 25	10	8+50	MI-2 M-9R	●● TEXAS-US-83 ● ⇨	Black White	24" 13"x10"	705.09					698.00			A-2	12'-6"								3.5				A			14'-6"							5.5				
21 of 25	20	8+30	IR-15R	● DO NOT ENTER-RAMP	White	48"x60"									F-2					315.7	11'-9"	11'-9"		191	7.0					NEW SIGN															
21 of 25	21	9+00	IR-15R	● DO NOT ENTER-RAMP	White	48"x60"									F-2					315.7	11'-9"	11'-9"		191	7.0					NEW SIGN															
East Frontage Road (Cont'd.)																																													
21 of 25	33	712+89	IR-17A	● TWO WAY TRAFFIC	White	48"x48"	708.70					701.00	701.05		F-2					315.7	11'-2"	11'-1"		184	7.0				A			16'-0"							5.5				
21 of 25	34	712+57	MI-2,M3-IL	●● TEXAS-US-83 ●⇦	Black	24", etc.	710.90					703.76			A		13'-4"							3.5				A			14'-6"							5.5				
21 of 25	28	715+25	MI-2,M4-IL	●● TEXAS-US-83 ●⇦	Black	24", etc.	708.00					701.00			A		13'-2"							3.5				A			14'-6"							5.5				
21 of 25	35	717+92		● TEXAS US-81	White	18"																																								
21 of 25	35A	717+97	MI-A	● TEXAS US-81	White	20"	706.90					700.70			A-2	10'-8"								3.5					NEW SIGN															
Sub-Total - CONTROL 18-5-18																4.8-10"	76'-5"	19'-5"	24'-0"		10803	144.5	20.0	32.0	121.0																					
TOTALS																285'-10"	298'-4"	19'-5"	186'-0"		40312	683.5	163.5	64.0	358.0																					

RURAL

SEE ~~SMD-1-62~~, SMD-2-62, ~~SMD-3-62~~, SMD-4-62, & ~~SMD-58-62~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

ESTIMATE SIGN TABULATION

SHEET 13 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	18
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	5	18	IH-35

18

1-19

PLAN & PROFILE SHEET NO	SIGN NO	STATION	SIGN TYPE	TEXT (■ Removable Copy, ● Direct Screened, ●● Reversed Screened)	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	PROPOSED STRUCTURE: ELEVATION OF BOTTOM OF SIGN	PROPOSED STRUCTURE: EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.1	EXISTING FOUNDATIONS: EXISTING TOP ELEVATION No.2	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.1	EXISTING FOUNDATIONS: NEW TOP ELEVATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.1	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.2	NEW FOUNDATIONS: ELEVATION OF TOP OF FOUNDATION No.3	PROPOSED STRUCTURE: NEW TYPE OF MOUNT	GALVANIZED PIPE POSTS L.F. 2"	GALVANIZED PIPE POSTS L.F. 2½"	GALVANIZED PIPE POSTS L.F. 3"	GALVANIZED PIPE POSTS L.F. 4"	GALVANIZED STRUCTURAL STEEL POSTS SIZE	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.3	GALVANIZED STRUCTURAL STEEL POSTS TOT. WT.	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 12"	NON-REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 18"	REINFORCED DRILLED CONCRETE FOOTINGS L.F. 24"	EXISTING STRUCTURE: TYPE OF MOUNT	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 2'D	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 2½D	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 3D	EXISTING STRUCTURE: GALVANIZED PIPE POST L.F. 4'D	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS SIZE	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.1	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS LENGTH No.2	EXISTING STRUCTURE: GALVANIZED STRUCTURAL STEEL POSTS TOTAL WEIGHT	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS 12"D	EXISTING STRUCTURE: NON-REINFORCED DRILLED CONCRETE FOOTINGS 18"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS 24"D	EXISTING STRUCTURE: REINFORCED DRILLED CONCRETE FOOTINGS 30"D	CAPITAL LETTERS 6"
US-83 Interchange CONTROL 18-5-18 CONT.																																											
21 of 25	17	2301+58	IM-3	●● Jct	Blue	18"x9"	698.90					691.12			A		13'-6"						3.5			A			14'-10"						5.5							
			IM-1B	●● INTERSTATE-TEXAS-35	Red-Blue	24"																																					
21 of 25	15	2304+07	D-1A	⇧ LAREDO 18	White	10'-0"x11½"																				D-4	6'-4"	5'-9"		12'-3"						5.5						
			D-1	⇦ SAN ANTONIO 135	White	10'-0"x11½"																																					
21 of 25	15A	2304+07	IG-25	⇧ LAREDO 18 ⇦ SAN ANTONIO 135	Green	13'-6"x4'-0"	700.80					692.80	692.36		320				41 7.7	11'-6"	11'-11"	224			8			NEW SIGN															
21 of 25	12	2307+43	IM-21S	●● SOUTH	Blue	18 x 9	704.28					692.30			C	14'-1"		13'-0"				5.5			C	11'-6"			15'-0"						5.5						
			IM-1B	●● INTERSTATE-TEXAS-35	Red-Blue	24"																																					
			IM-11	●● ⇧	Blue	18"x9"																																					
			IM-21N	●● NORTH	Blue	18"x9"																																					
			IM-9L	●● ⇦	Blue	18"x9"																																					
			M-21S	● SOUTH	White	20"x8"																																					
			MI-2	●● TEXAS-US-83	Black	24"																																					
			M-11	● ⇧	White	13"x10"																																					
21 of 25	11	2309+02	IR-17A	● TWO WAY TRAFFIC	White	48"x60"	706.70					698.70	698.50		F-2				31 5.7	11'-6"	11'-8"	189	7.0			A			16'-0"						5.5						
21 of 25	13	2307+65	IG-25	■ Carrizo Springs 64⇨, Uvalde 114⇨	Green	15'-0"x4'-0"																				4A					5x5x16#	11'-0"	11'-4"	588				9			
21 of 25	14	2307+36	M-21N	● NORTH	White	20"x8"																				A			15'-6"						5.5						
			M-1A	● TEXAS-US-83	White	20"																																					
			M-9R	● ⇨	White	13"x10"																																					
21 of 25	18	2308+15	IR-1A	●● STOP	Red	30"																				A			14'-6"						5.5						
21 of 25	25	11+70	IR-1A	●● STOP	Red	30"																				A			14'-6"						5.5						
21 of 25	26	715+13	IG-25	■ ⇦ San Antonio 135	Green	13'-6"x2'-0"	708.00					701.10	701.10		320				31 5.7	8'-4"	8'-4"	133			8	4A					5x5x16#	8'-6"	8'-6"	272				9			
21 of 25	27	715+19	IM-21N	●● NORTH	Blue	18"x9"	708.10					701.10			C	11'-3"		11'-7"				5.5			SP															
			IM-1B	●● INTERSTATE-TEXAS-35	Red-Blue	24"																																					
			IM-9L	●● ⇦	Blue	18"x9"																																					
			MG-1N	● NORTH	White	21"x9"																																					
			MI-2	●● TEXAS-US-81	Black	24"																																					
			M4-1L	● ⇦	White	21"x15"																																					
East Frontage Road																																											
21 of 25	2	693+75	IR-15	● DO NOT ENTER	White	48"x48"																				A			16'-0"						5.5						
21 of 25	3	696+00	IR-48	● ~~YIELD RIGHT OF WAY~~ YIELD	Yellow	60"	708.43					700.64	700.47		F-1				31 5.7	11'-3"	11'-5"	186	7.0			F-1					3'I-5.7#	15'-7"	15'-7"	178	10						
21 of 25	4	696+50	IR-17A	● TWO WAY TRAFFIC	White	48"x60"	709.13					701.70	701.60		F-2				31 5.7	10'-11"	11'-0"	182	7.0			A			16'-0"						5.5						
21 of 25	24	711+00	IG-25	■ ⇦Carrizo Springs 64, ⇦Uvalde 114	Green	15'-0"x4'-0"	714.50					707.40	709.20		320				41 7.7	10'-7"	8'-9"	193			8	4A					5x5x16#	10'-5"	10'-7"	564				9			
21 of 25	31	693+70	IR-15R	● DO NOT ENTER RAMP	White	48"x60"									F-2				31 5.7	12'-8"	11'-10"	193	7.0					NEW SIGN													
21 of 25	31A	694+50	IR-15R	● DO NOT ENTER RAMP	White	48"x60"									F-2				31 5.7	12'-1"	12'-4"	196	7.0					NEW SIGN													
21 of 25	29	716+65	IR-17A	● TWO WAY TRAFFIC	White	48"x60"	707.15					700.18	700.28		F-2				31 5.7	10'-5"	10'-6"	176	7.0			A			16'-0"						5.5						
20 of 25	5	693+00	IR-48	YIELD	Yellow	60"																				F-1					3'I-5.7#	15'-7"	15'-7"	178	10						
Ramp "A"																																											
21 of 25	23	720+70	IW-11B	● STOP AHEAD	Yellow	48"x48"	704.48					695.92	695.59		F-2				31 5.7	12'-6"	12'-10"	202	7.0			F2					3'I-5.7#	16'-0"	16'-0"	182	10						
21 of 25	22	718+00	IG-25	■ Carrizo Springs 64⇨, Uvalde 114⇨	Green	15'-0"x4'-0"	704.42					696.38	695.55		320				41 7.7	11'-5"	12'-6"	227			8	4A					5x5x16#	10'-7"	11'-2"	579				9			
21 of 25	19	715+70	IR-1A	●● STOP	Red	30"	705.94					697.71			A		12'-9"						3.5			A			14'-6"						5.5						
21 of 25	32	717+00	IR-15R	● DO NOT ENTER	White	48"x48"									F-2				31 5.7	9'-7"	9'-6"	165	7.0					NEW SIGN													
21 of 25	32A	717+00	IR-15R	● DO NOT ENTER	White	48"x48"									F-2				31 5.7	11'-5"	11'-8"	189	7.0					NEW SIGN													
21 of 25	10	8+50	MI-2	●● TEXAS-US-83	Black	24"	705.09					698.00			A-2	13'-0"							3.5			A			14'-6"						5.5						
			M-9R	● ⇨	White	13"x10"																																					
21 of 25	20	8+30	IR-15R	● DO NOT ENTER-RAMP	White	48"x60"									F-2				31 5.7	11'-9"	11'-9"	191	7.0					NEW SIGN													
21 of 25	21	9+00	IR-15R	● DO NOT ENTER-RAMP	White	48"x60"									F-2				31 5.7	11'-9"	11'-9"	191	7.0					NEW SIGN													
East Frontage Road (Cont'd.)																																											
21 of 25	33	712+89	IR-17A	● TWO WAY TRAFFIC	White	48"x60"	708.70					701.00	701.05		F-2				31 5.7	11'-2"	11'-1"	184	7.0			A			16'-0"						5.5						
21 of 25	34	712+57	MI-2, M3-1L	●● TEXAS-US-83 ● ⇦	Black	24", etc.	710.90					703.76			A		13'-4"						3.5			A			14'-6"						5.5						
21 of 25	28	715+25	MI-2, M4-1L	●● TEXAS-US-83 ● ⇦	Black	24", etc.	708.00					701.90			A		13'-2"						3.5			A			14'-6"						5.5						
21 of 25	35	717+92		● TEXAS US-81	White	18"																																					
21 of 25	35A	717+97	MI-A	● TEXAS US-81	White	20"	706.90					700.70			A-2	11'-9"							3.5					NEW SIGN													
Sub-Total - CONTROL 18-5-18																50-1	76-5	19'-5"	24'-7"			10795	144.5	20.0	32.0	12.0														
TOTALS																297-1	298-8	19'-5"	186-4			39796	615.5	162.25	64.0	358.0														

RURAL

SEE ~~SMD-1-62~~, SMD-2-62, ~~SMD-3-62~~, SMD-4-62, & ~~SMD-5B-62~~ FOR DETAILS OF EXISTING MOUNTS OF STRUCTURES ON THIS SHEET.

FINAL SIGN TABULATION
SHEET 13 OF 14 SHEETS

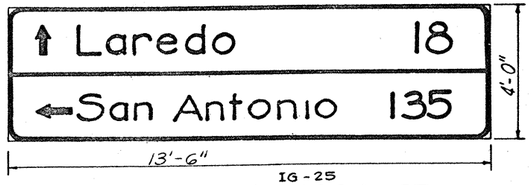
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(119)000	18A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	5	18	IH-35

SUMMARY OF NEW SIGNS REQUIRED

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT ▪ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM. TYPE A SQ.FT.	SIGN BLANK MATERIAL: PLYWOOD TYPE A or B SQ.FT.	"U"=URBAN - "R"=RURAL
CONTROL 18-6-43									
10 of 25	7	9+28	IR-14	• KEEP RIGHT ➡	White	48"×60"		20.0	U
10 of 25	8	11+43	IR-14	• KEEP RIGHT ➡	White	48"×60"		20.0	U
2 of 25	27	58+40	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
2 of 25	28	58+40	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
3 of 25	23	64+50	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
4 of 25	9	81+85	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
4 of 25	10	81+85	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
4 of 25	11	86+50	IR-16R	• ONE WAY	Black	48"×16"		5.33	U
11 of 25	3	193+27	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
11 of 25	8	199+50	M6-1N	• NORTH	White	21"×9"	1.31		U
			IM1-1	• TEXAS US 81	White	24"	3.19		
			M6-1N	• NORTH	White	21"×9"	1.31		
			IM1-1	• TEXAS US 83	White	24"	3.19		
11 of 25	16	181+91	IR-48	• YIELD	Yellow	60"		10.0	U
6 of 25	14	113+10	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
6 of 25	15	118+50	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
6 of 25	16	118+50	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
7 of 25	30	131+40	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
13 of 25	1	246+70	IR-48	• YIELD	Yellow	60"		10.0	U
13 of 25	35A	268+93	IR-48	• YIELD	Yellow	60"		10.0	U
13 of 25	36	9+10	IR-14	• KEEP RIGHT ➡	White	48"×60"		20.0	U
13 of 25	37	11+20	IR-14	• KEEP RIGHT ➡	White	48"×60"		20.0	U
14 of 25	14	20+00	M6-1N	• NORTH	White	21"×9"	1.31		R
			IM1-1	• TEXAS US 81	White	24"	3.19		
			M6-1N	• NORTH	White	21"×9"	1.31		
			IM1-1	• TEXAS US 83	White	24"	3.19		
16 of 25	8	57+67	IM6-2S	•• SOUTH	Blue	30"×15"	3.13		R
			M6-1S	• SOUTH	White	21"×9"	1.31		
			IM1-1	• TEXAS US 81	White	24"	3.19		
			M6-1S	• SOUTH	White	21"×9"	1.31		
			IM1-1	• TEXAS US 83	White	24"	3.19		
16 of 25	4	61+50	IR-48	• YIELD	Yellow	60"		10.0	R
17 of 25	1	84+00	M6-1N	• NORTH	White	21"×9"	1.31		R
			IM1-1	• TEXAS US 81	White	24"	3.19		
			M6-1N	• NORTH	White	21"×9"	1.31		
			IM1-1	• TEXAS	White	24"	3.19		
11 of 25	5	192+31	IR-48	• YIELD	Yellow	60"		10.0	U
CONTROL 18-5-18									
22 of 25	4	746+25	M6-1N	• NORTH	White	21×9"	1.31		R
			IM1-1	• US 81	White	24"	3.01		
20 of 25	7	691+70	IR-16R	•• ONE WAY	Black	48"×16"		5.33	R
21 of 25	31	693+70	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
21 of 25	31A	694+50	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
21 of 25	20	8+30	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
21 of 25	21	9+00	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
21 of 25	32	717+00	IR-15	• DO NOT ENTER	White	48"×48"		16.0	R
21 of 25	32A	717+00	IR-15	• DO NOT ENTER	White	48"×48"		16.0	R
22 of 25	9	728+00	IR-16R	•• ONE WAY	Black	48"×16"		5.33	R
21 of 25	3	696+00	IR-48	• YIELD	Yellow	60"		10.00	R

SUMMARY OF NEW SIGNS REQUIRED

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT ▪ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM. TYPE A SQ.FT.	SIGN BLANK MATERIAL: PLYWOOD TYPE A or B SQ.FT.	"U"=URBAN - "R"=RURAL
CONTROL 18-6-43 (Cont'd.)									
7 of 25	31	131+40	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
7 of 25	32	136+50	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
9 of 25	10	159+00	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
9 of 25	11	165+65	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
9 of 25	12	165+65	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
11 of 25	3A	193+80	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
11 of 25	14A	194+76	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
12 of 25	7	237+30	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
13 of 25	2A	247+00	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
13 of 25	38	248+00	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
13 of 25	38A	248+60	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
13 of 25	20	257+13	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
13 of 25	21	257+13	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
14 of 25	18	271+80	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
16 of 25	11	61+10	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
16 of 25	11A	61+30	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
16 of 25	12A	62+50	IR-15	• DO NOT ENTER	White	48"×48"		16.0	R
16 of 25	13	67+90	IR-16R	•• ONE WAY	Black	48"×16"		5.33	R
17 of 25	4A	88+18	IW12-2A	• CLEARANCE 16FT 10IN	Yellow	48"×48"		16.0	R
17 of 25	9A	96+97	IW12-2A	• CLEARANCE 16FT 9IN	Yellow	48"×48"		16.0	R
CONTROL 18-6-43 TOTAL							39.13	572.64	
CONTROL 18-5-18 (Cont'd.)									
21 of 25	15A	2304+07	IG-25	▪ ⬆ LAREDO 18 ⬅ SAN ANTONIO 135	Green	13'-6"×4'-0"		54.00	R
21 of 25	35A	717+97	MI-A	• TEXAS US 81	White	20"	2.08		R
22 of 25	7A	741+18	IW12-2A	• CLEARANCE 14 FT 8 IN	Yellow	48"×48"		16.00	R
22 of 25	8A	753+22	IW12-2A	• CLEARANCE 14 FT 8 IN	Yellow	48"×48"		16.00	R
CONTROL 18-5-18 TOTAL							6.40	218.66	
TOTALS							45.53	851.30	



IG-25
Sta. 2304+07
8" Upper Case Letters, 6" Lower Case Letters, 8" Numerals, 8"×12" Arrows, 1" Border Width & 3" Corner Radii.

ESTIMATE **SIGN TABULATION**
SHEET 14 OF 14 SHEETS 19

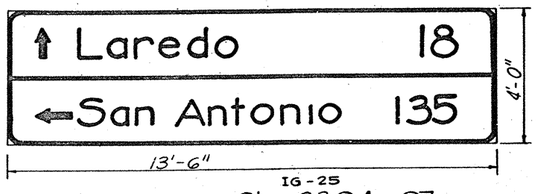
I-35-1(19)000 19
21 WEBB 18 6/5 43/8 IH-35

SUMMARY OF NEW SIGNS REQUIRED

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT ▪ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM. TYPE A SQ.FT.	SIGN BLANK MATERIAL: PLYWOOD TYPE A or B SQ.FT.	"U"=URBAN - "R"=RURAL
CONTROL 18-6-43									
10 of 25	7	9+28	IR-14	• KEEP RIGHT ➡	White	48"×60"		20.0	U
10 of 25	8	11+43	IR-14	• KEEP RIGHT ➡	White	48"×60"		20.0	U
2 of 25	27	58+40	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
2 of 25	28	58+40	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
3 of 25	23	64+50	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
4 of 25	9	81+85	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
4 of 25	10	81+85	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
4 of 25	11	86+50	IR-16R	• ONE WAY	Black	48"×16"		5.33	U
11 of 25	3	193+27	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
11 of 25	8	199+50	M6-IN	• NORTH	White	21"×9"	1.31		U
			IM1-1	• TEXAS US 81	White	24"	3.19		
			M6-IN	• NORTH	White	21"×9"	1.31		
			IM1-1	• TEXAS US 83	White	24"	3.19		
11 of 25	16	181+91	IR-48	• YIELD	Yellow	60"		10.0	U
6 of 25	14	113+10	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
6 of 25	15	118+50	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
6 of 25	16	118+50	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
7 of 25	30	131+40	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
13 of 25	1	246+70	IR-48	• YIELD	Yellow	60"		10.0	U
13 of 25	35A	268+93	IR-48	• YIELD	Yellow	60"		10.0	U
13 of 25	36	9+10	IR-14	• KEEP RIGHT ➡	White	48"×60"		20.0	U
13 of 25	37	11+20	IR-14	• KEEP RIGHT ➡	White	48"×60"		20.0	U
14 of 25	14	20+00	M6-IN	• NORTH	White	21"×9"	1.31		R
			IM1-1	• TEXAS US 81	White	24"	3.19		
			M6-IN	• NORTH	White	21"×9"	1.31		
			IM1-1	• TEXAS US 83	White	24"	3.19		
16 of 25	8	57+67	IM6-2S	•• SOUTH	Blue	30"×15"	3.13		R
			M6-1S	• SOUTH	White	21"×9"	1.31		
			IM1-1	• TEXAS US 81	White	24"	3.19		
			M6-1S	• SOUTH	White	21"×9"	1.31		
			IM1-1	• TEXAS US 83	White	24"	3.19		
16 of 25	4	61+50	IR-48	• YIELD	Yellow	60"		10.0	R
17 of 25	1	84+00	M6-IN	• NORTH	White	21"×9"	1.31		R
			IM1-1	• TEXAS US 81	White	24"	3.19		
			M6-IN	• NORTH	White	21"×9"	1.31		
			IM1-1	• TEXAS	White	24"	3.19		
11 of 25	5	192+31	IR-48	• YIELD	Yellow	60"		10.0	U
CONTROL 18-5-18									
22 of 25	4	746+25	M6-IN	• NORTH	White	21"×9"	1.31		R
			IM1-1	• U S 81	White	24"	3.19		
20 of 25	7	691+70	IR-16R	•• ONE WAY	Black	48"×16"		5.33	R
21 of 25	31	693+70	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
21 of 25	31A	694+50	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
21 of 25	20	8+30	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
21 of 25	21	9+00	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
21 of 25	32	717+00	IR-15	• DO NOT ENTER	White	48"×48"		16.0	R
21 of 25	32A	717+00	IR-15	• DO NOT ENTER	White	48"×48"		16.0	R
22 of 25	9	728+00	IR-16R	•• ONE WAY	Black	48"×16"		5.33	R
21 of 25	3	696+00	IR-48	• YIELD	Yellow	60"		10.00	R

SUMMARY OF NEW SIGNS REQUIRED

PLAN & PROFILE SHEET NO.	SIGN NO.	STATION	SIGN TYPE	TEXT ▪ Removable Copy • Direct Screened •• Reversed Screened	SIGN BLANKS: SIGN BACKGROUND COLOR	SIGN BLANKS: SIZE	SIGN BLANK MATERIAL: SHEET ALUM. TYPE A SQ.FT.	SIGN BLANK MATERIAL: PLYWOOD TYPE A or B SQ.FT.	"U"=URBAN - "R"=RURAL
CONTROL 18-6-43 (Cont'd.)									
7 of 25	31	131+40	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
7 of 25	32	136+50	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
9 of 25	10	159+00	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
9 of 25	11	165+65	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
9 of 25	12	165+65	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
11 of 25	3A	193+80	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
11 of 25	14A	194+76	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
12 of 25	7	237+30	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
13 of 25	2A	247+00	IR-15	• DO NOT ENTER	White	48"×48"		16.0	U
13 of 25	38	248+00	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
13 of 25	38A	248+60	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
13 of 25	20	257+13	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
13 of 25	21	257+13	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	U
14 of 25	18	271+80	IR-16R	•• ONE WAY	Black	48"×16"		5.33	U
16 of 25	11	61+10	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
16 of 25	11A	61+30	IR-15R	• DO NOT ENTER-RAMP	White	48"×60"		20.0	R
16 of 25	12A	62+50	IR-15	• DO NOT ENTER	White	48"×48"		16.0	R
16 of 25	13	67+90	IR-16R	•• ONE WAY	Black	48"×16"		5.33	R
17 of 25	4A	88+18	IW12-2A	• CLEARANCE 16FT 10IN	Yellow	48"×48"		16.0	R
17 of 25	9A	96+97	IW12-2A	• CLEARANCE 16FT 9IN	Yellow	48"×48"		16.0	R
CONTROL 18-6-43 TOTAL							39.13	572.64	
CONTROL 18-5-18 (Cont'd.)									
21 of 25	15A	2304+07	IG-25	▪ ⬆ LAREDO 18 ⬅ SAN ANTONIO 135	Green	13'-6"×4'-0"		54.00	R
21 of 25	35A	717+97	M1-A	• TEXAS US 81	White	20"	2.08		R
22 of 25	7A	741+18	IW12-2A	• CLEARANCE 14 FT 8 IN	Yellow	48"×48"		16.00	R
22 of 25	8A	753+22	IW12-2A	• CLEARANCE 14 FT 8 IN	Yellow	48"×48"		16.00	R
CONTROL 18-5-18 TOTAL							6.58	218.66	
TOTALS							45.71	791.30	



IG-25
Sta. 2304+07
8" Upper Case Letters, 6" Lower Case Letters, 8" Numerals, 8"×12" Arrows, 1" Border Width & 3" Corner Radii.

19A

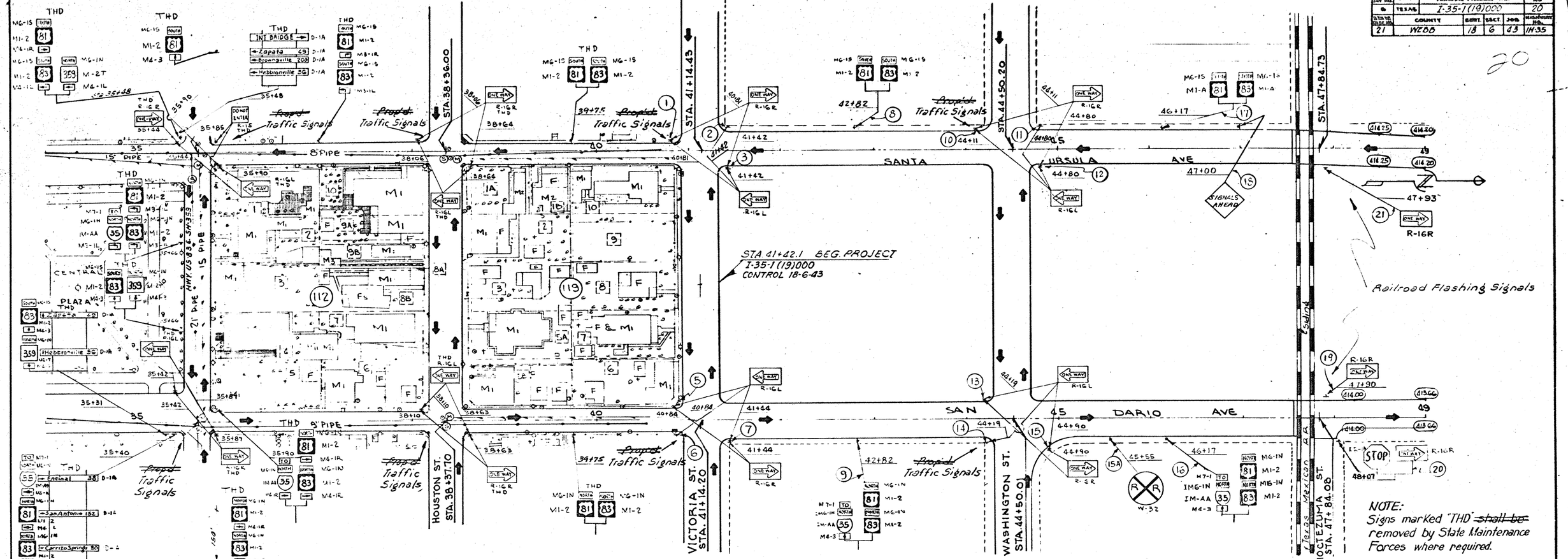
FINAL SIGN TABULATION
SHEET 14 OF 14 SHEETS

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(191)000	19A
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6/5	43/a	IH-35

7-15

PROJECT NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	20
STATE DIST. NO.	COUNTY	SHEET	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

20



7-16

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(19)000				21
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB		HIGHWAY NO.
21	WEBB	18	6	63		IH-35

21

SANTA URSULA

SAN DARIO

60 AVE.

C. of A. Line

EXIT 30 MPH IR-2A

SPEED LIMIT 60 MINIMUM SPEED 40 IR-2F

SPEED LIMIT 30 R-2

DO NOT ENTER IR-1S

ONE WAY R-16R

ONE WAY R-16L

ONE WAY R-16R THD

ONE WAY R-16L THD

STOP IR-1A

STOP IR-1A (WITH BLINDER)

MERGING TRAFFIC IW-6D

W-32

M1-2 M6-1S M6-2L M7-1

MG-1S MG-1N MG-2N MG-3N

STA. 51+20.15

STA. 54+55.50

STA. 57+30.06

STA. 61+23.50

SCOTT ST. STA. 51+19.85

COKE ST. STA. 54+54.95

BENAVIDES ST. STA. 57+89.50

GARCIA ST. STA. 61+22.83

EAST EXPRESSWAY LANE CURVE DATA
P.I. = 141.76' Rt.-Sta. 52+44
Δ = 10°-00' Lt.
D = 6°-00'
T = 83.6'
L = 166.7'

WEST EXPRESSWAY CURVE DATA
P.I. = 34' Lt.-Sta.
Δ = 6°-00' Lt. 64+40.0
D = 2°-00'
T = 150.1'
L = 299.9'

EAST EXPRESSWAY-CURVE DATA
P.I. = 34' Rt.-Sta. 58+55.1
Δ = 10°-00' Rt.
D = 2°-00'
T = 250.7'
L = 500.0'

℄ OF MEDIAN

Finish ℄ Finished Grade

+0.2000%

WEST EXPRESSWAY LANE

EAST EXPRESSWAY LANE

SCOTT STREET CROSSING

Sta. 51+20.0

SIGNING AND DELINEATION

SHEET 2 OF 25 SHEETS

FED RD DIV NO	STATE	FEDERAL PROJECT NO				SHEET NO
6	TEXAS	I-35-1(19)000				22
STATE DIST NO	COUNTY	CONT	SECT	JOB		HIGHWAY NO
21	WEBB	18	6	43		IH35

22

Fixed Illumination

FREEWAY ENDS 4/10 MILE OSB

SIGNAL AHEAD

BRUNI ST. STA. 78+28.10

STA. 64+57.07 PI Δ=0°-07'-00"Lt.

STA. 71+24.94

STA. 74+76.64

SANTA URSULA AVE

Proposed Traffic Signals

Sta 70+51.19 Beg. Struct.

℄ of A. Line

Sta. 75+52.44 End Struct.

℄ Metal Beam Guard Fence

℄ Median - Survey Line

℄ of LANE FIN. GRADE

Toe of Slope

MERGING TRAFFIC

SAN DARIO AVE

CALLAGHAN ST. STA. 64+56.18 PI Δ=0°-03'-00" RT.

GARZA ST. STA. 67+50.63

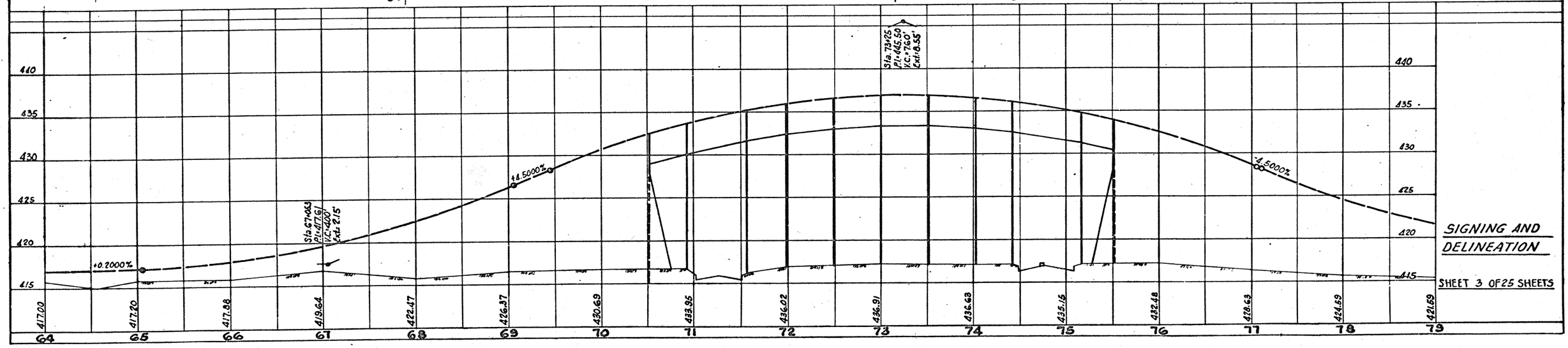
SANCHEZ ST. STA. 71+23.30

PARK ST. STA. 74+75.78

Laredo AFB Houston EXIT 9/10 MILE IG-9

FEDERAL HOUSING AUTHORITY

ENTRANCE RAMP "G" CURVE DATA
P.I.= 137.1' Rt. Sta. 78+00
Δ = 10°-00' LT.
D= 3°00'
T= 167.1'
L = 333.3'



SIGNING AND DELINEATION

SHEET 3 OF 25 SHEETS

7.13

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	23

STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

23

IR-2 SPEED LIMIT 45

IR-48 YIELD

DO NOT ENTER IR-15

IR-2A EXIT 30 MPH

IG-1 EXIT

Park St. Sanchez St. IG-11

STA. 81+61.64
P.I. Δ = 0°10'00"Rt.

STA. 84+94.82

STA. 88+28.2

STA. 91+61.60

THD R-16R ONE WAY

THD R-1A STOP

R-16L ONE WAY

80+20 80+94 81+36 81+62 81+85 84+00 84+71 86+95 88+05 88+28 91+40 91+62 93+00

79 80 85 90 94

N 0°09'08" W

SANTA URSULA AVE.

P.I. Sta. 81+60.97
Δ = 0°04'51" Lt.

6" Curb & Gutter

50' Transition from 4" Curb to 6" Curb

6" Curb

℄ of A. Line

EXIT RAMP "H" CURVE DATA
P.I. 37' Lt. Sta. 89+10
Δ = 4°30' Lt.
D = 2°00'
T = 112.6'
L = 225.0'

IR-16R ONE WAY

Metal Beam Guard Fence

86+50

℄ Median = Survey Line

ENTRANCE RAMP "G" CURVE DATA
P.I. 49' Rt. Sta. 82+99.4
Δ = 10°00' Rt.
D = 3°00'
T = 167.1'
L = 333.3'

℄ of A. Line

88+23

SAN DARIO AVE.

79+45 81+60 81+85 84+94 85+15 88+27 88+52 91+61 91+84

FEDERAL HOUSING AUTHORITY

MAIN M4-2L M1-2 M4-2L

GONZALEZ ST. STA. 81+60.30 P.I. Δ = 0°10'00"Rt.

POGGENPOHL ST. STA. 84+93.70

SHEA ST. STA. 88+27.1

GARDEN ST. STA. 91+60.50

MAXIMUM SPEED 60 IR-2

MINIMUM SPEED 40 IR-2F

ONE WAY R-16R THD

STOP R-1A THD

ONE WAY R-1GR THD

ENTRANCE RAMP "G"

EXIT RAMP "H"

Sta. 79+10
P.I. 418.20
400' V.C.
Ext. 2.15'

-0.2000%

Sta. 93+30
P.I. 416.36
310' V.C.
Ext. 1.63'

SIGNING AND DELINEATION

SHEET 4 OF 25 SHEETS

7-19

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	24

STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

24

IM6-2S IM-CC (35) (83) IM6-1S IM1-1

IM6-2S (35) IM6-1S IM1-1

IM6-2S (35) (81) IM6-1S IM1-1

IM6-2S (35) (83) IM6-1S IM1-1

THD R-1A STOP

THD R-1GR ONE WAY

THD R-1GL ONE WAY

STA. 94+95.0

STA. 98+28.43 P.I. Δ=0°07'40"LT.

STA. 101+61.77

STA. 104+95.05

STA. 108+28.34

94+73 96+95 8+34 98+06 8+74 101+38 101+62 103+00 104+70 104+95 108+04 108+28

SANTA URSULA AVE.

Sta. 97+44.65 Beg. Struct.

Sta. 99+11.15 End Struct.

℄ of A-Line

℄ Metal Beam Guard Fence

℄ "Median" Survey Line

C. of A. Line

95+00 94+94 95+17 11+16 11+27 11+66 98+55 101+61 101+84 104+94 108+17 108+27 108+50

SAN DARIO AVE

CONSTANTINOPLE ST. STA. 94+93.90

JEFFERSON ST. STA. 98+27.30 P.I. Δ=0°07'40"LT.

ALAMO ST. STA. 101+60.58

FRANKFORT ST. STA. 104+93.68

JACKSON ST. STA. 108+27.20

59 Laredo AFB Houston

IG-11

Sta 98+25 P.I. 436.16 V.C. 6.80' Ext. 6.39'

Sta. 103+30 P.I. 415.43 V.C. 3.20' Ext. 1.68'

+4.000%

-4.1050%

+0.1000%

(Proposed) ℄ Fin. Grade East & West Expressway Lanes

Natural Ground ℄ of Median

435 430 425 420 415 410

419.65 423.15 426.37 428.40 429.25 428.89 427.36 424.62 420.83 417.77 416.03 415.60 415.70 415.80 415.90 416.00

94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109

SIGNING AND DELINEATION

SHEET 5 OF 25 SHEETS

7-19

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	24

STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

24

IM6-25 SOUTH (35) IM-CC
MG-IS
IMI-I
SOUTH (81) (83)

THD R-16R ONE WAY
THD R-16L ONE WAY
THD R-1A STOP
R-16R THD
R-16L THD
R-1A THD

STA. 94+95.0
STA. 98+28.43
P.I. Δ = 0°07'40" Lt.
STA. 101+61.77
STA. 104+95.05
STA. 108+28.34

94+73 94+95 8+36 98+06 8+24 8+74 101+38 101+62 103+00 104+70 104+95 108+04 108+28

SANTA URSULA AVE.

Sta. 97+44.65
Beg. Struct.

Sta. 99+11.15
End Struct.

℄ of A-Line

℄ Metal Beam Guard Fence ℄

℄ Median Survey Line

℄ of A. Line

95+00 94+94 11+16 11+27 11+66 98+55 101+61 101+84 104+94 108+17 108+27 108+50

SAN DARIO AVE

CONSTANTINOPLE ST. STA. 94+93.90

JEFFERSON ST. STA. 98+27.30 P.I. Δ = 0°07'40" Lt.

ALAMO ST. STA. 101+60.58

FRANKFORT ST. STA. 104+93.68

JACKSON ST. STA. 108+27.20

59 Laredo AFB Houston

IG-11

IM6-2N IM-CC (35) (83) IM6-IN IMI-1 (81) IMI-1

Sta. 98+25
P.I. 436.16
V.C. 680'
Ext. 6.89'

Sta. 103+30
P.I. 415.43
V.C. 320'
Ext. 1.68'

+4.000%

-4.1050%

+0.1000%

~~Proposed~~ ℄ Fin. Grade East & West Expressway Lanes

Natural Ground ℄ of Median

SIGNING AND DELINEATION

SHEET 5 OF 25 SHEETS

7-20

FED. RD. DIV. NO.	STATE	PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(119)000	25

STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

25

SANTA URSULA AVE.

SAN DARIO AVE.

C. of A. Line

C. Median = Survey Line

Metal Beam Guard Fence

ENTRANCE RAMP "F" CURVE DATA
P.I. 49' LT. Sta. 115+30.6
Δ = 10°00' LT. T = 167.1'
D = 3°00' L = 333.3'

ENTRANCE RAMP "F" CURVE DATA
P.I. 137.1' LT. - Sta. 120+30
Δ = 10°00 RT. T = 167.1'
D = 3°00' L = 333.3'

EXIT RAMP "E" CURVE DATA
P.I. 37' RT. Sta. 110+71.0
Δ = 5°20' RT. T = 133.4'
D = 2°00' L = 266.6'

BLAIR ST. STA. 111+60.50

SHERMAN ST. STA. 114+23.70 P.I. Δ = 0°01'00" RT.

BURNSIDE ST. STA. 118+27.53

MADISON ST. STA. 121+61.36

STA. 111+61.63

STA. 114+94.90 P.I. Δ = 0°01'00" RT.

STA. 118+28.75

STA. 121+62.60

Laredo AFB 2 ⇨
Houston 309 ⇨
IG-26

San Bernardo Ave.
Calton Rd.
EXIT ½ MILE
IG-9

EXIT RAMP "E"

Prop't & Fin. Grade

ENTRANCE RAMP "F"

Prop't & Fin. Grade

Prop't & Fin. Grade East & West Expressway Lanes

+0.1000%

+4.2000%

Sta. 119+00
P.I. 417.00
VC-320'
Ext. 1.64'

Natural Ground @℄ of Median

SIGNING AND DELINEATION

SHEET 6 OF 25 SHEETS

7.21

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(119)000	26

STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

26

Laredo AFB 2
Houston 309
IG-25

Park St.
Sanchez St.
EXIT 9/10 MILE
IG-9

DO NOT ENTER
IR-1B

EXIT 30 MPH
IR-2A

EXIT 27
IG-1

SANTA URSULA AVENUE

SAN DARIO AVENUE

Traffic Signals

Sta. 126+03.80
End Struct.

C. of A. Line

Metal Beam Guard Fence

℄ Median = Survey Line

℄ RAMP "C"

℄ RAMP "D"

ENTRANCE RAMP "C" CURVE DATA
P.I. 137.1' RT. Sta. 129+00.3
Δ = 10°00' LT. T = 100.3'
D = 5°00' L = 200.0'

ENTRANCE RAMP "C" CURVE DATA
P.I. 49' RT. Sta. 133+99.7
Δ = 10°00' RT. T = 100.3'
D = 5°00' L = 200.0'

EXIT RAMP "D" CURVE DATA
P.I. 37' LT. Sta. 139+10
Δ = 5°20' LT. T = 133.4'
D = 2°00' L = 266.7'

STA. 124+02.80
BEG. STRUCTURE

LAFAYETTE ST.
STA. 124+95.19
HWY US-59

BALTIMORE ST.
STA. 128+29.02

PIERCE ST.
STA. 131+62.82

BOSTON ST.
STA. 134+95.75

PHILADELPHIA ST.
STA. 138+28.68

San Antonio 150

Sta. 125+00
P.I. = 442.20
V.C. = 740'
Ext. = 7.76'

-4.1895%

+0.2000%

Sta. 130+70
P.I. = 418.32
V.C. = 320'
Ext. = 1.76'

Sta. 138+15
P.I. = 419.81
V.C. = 400'
Ext. = 2.40'

℄ Fin. Grade East & West Expressway Lanes

ENTRANCE RAMP "C"

EXIT RAMP "D"

SIGNING AND DELINEATION

SHEET 7 OF 25 SHEETS

7.22

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	27
DISTRICT	COUNTY	CONT. / SECT. / JOB	HIGHWAY NO.
21	WEBB	18 / 6 / 43	IH-35

27

59
Laredo AFB
Houston
IG-11

STA. 141+63.28
STA. 144+96.34
STA. 148+29.67
STA. 151+63.06

Railroad Flashing Signals

SANTA URSULA AVENUE

SAN DARIO AVENUE

℄ Median - Survey Line

C. of A. Line

Sta. 140+93.63
beg. Struct.

STA. 148+97.28
END STRUCT.

Metal Beam Guard Fence

UGARTE ST.
STA. 141+61.61

PACE ST.
STA. 144+94.56

CHICAGO ST.
STA. 148+27.89

TACUBA ST.
STA. 151+61.22

IM6-2N MG-IN
IM-CC IMI-1

Sta. 145+00
P.I. 454.06
V.C. 840'
Ext. 10.50'

+5.000%

-5.000%

~~Proposed~~ ℄ Fin. Grade West Expressway East ℄ Lanes

Sta. 151+69.51
P.I. 420.58
V.C. 480'
Ext. 3.12'

B.M. - Top of Conc. Monument - Pace St. & San Dario Ave.
EL. 417.62

SIGNING AND DELINEATION

SHEET 8 OF 25 SHEETS

7-23

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(19)000				28
STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB		HIGHWAY NO.
21	WEBB	18	6	43		IH-35

28

MAXIMUM SPEED 60
MINIMUM SPEED 40

THD R-1GR ONE WAY
THD R-1A STOP
THD R-1GR ONE WAY

STA. 154+96.33
STA. 158+28.66

154+05 154+72 156+96 158+07 158+30

SANTA URSULA AVENUE

STA. 157+45.0
℄ of A Line

9 10

IR-1GR ONE WAY 159+00

℄ RAMP "B"

℄ MEDIAN SURVEY LINE

ENTRANCE RAMP "B" CURVE DATA
P.I. 49.0' Lt. Sta. 159+50
Δ = 8°00' Lt.
D = 2°00'
T = 200.3'
L = 400.0'

5 M6-1S M1-2 M4-2L M6-1S M1-2 M4-2L 164+20

ENTRANCE RAMP "B" CURVE DATA
P.I. 140.3' Lt. Sta. 166+04.6
Δ = 8°00' Rt.
D = 2°00'
T = 200.3'
L = 400.0'

7 MERGING TRAFFIC IM-6G 168+00

(Metal Bm. Grd. Fence)

Proposed ℄ Fin. Grade

155 160 165

(Metal Beam Guard Fence)

1 C. of A Line

STA. 157+50.0 END EAST FRONTAGE ROAD

Proposed Gutter Grades

SAN DARIO AVENUE

2 EXIT IG-1 160+70

3 EXIT 30 MPH IR-2A 161+00

4 SPEED LIMIT 60 MINIMUM SPEED 40 IR-2 IR-2F 163+00

℄ RAMP "A"

6 YIELD IR-48 165+45

11 IR-15 DO NOT ENTER 165+65

12 8

R-1GL ONE WAY 167+20

TWO WAY TRAFFIC AHEAD IR-17 168+60

Fm. 1472
Del Mar Blvd.
Santa Maria Ave.
EXIT 1¼ MILES 169+00

154+95 ONE WAY R-1GR THD

ORTIZ ST STA. 154+94.55

155+19 STOP R-1A THD ONE WAY R-1GR THD

155+75 San Bernardo Ave Calton Rd. IG-11

FARIAS ST STA. 158+27.88

EAST FRONTAGE ROAD CURVE DATA
P.I. 144.1' Rt. Sta. 159+19.6
Δ = 8°00' Rt.
D = 5°00'
T = 80.1'
L = 159.9'

EXIT RAMP "A" CURVE DATA
P.I. 37' Rt. Sta. 159+17.0
Δ = 14°20' Rt.
D = 5°00'
T = 180.1
L = 358.3'

RAMP "A" CURVE DATA
P.I. 163.2 Rt. Sta. 164+11.0
Δ = 9°16' Lt.
D = 4°00
T = 116.1'
L = 231.7'

Sta. 160+32
P.I. 421.87
No V.C.

-0.5221%

Sta. 164+40
P.I. 419.74
No V.C.

420 415
421.62 421.76 421.85 421.51 420.99 420.47 419.95 419.55 419.27 419.06 419.14
158 159 160 161 162 163 164 165 166 167 168

ENTRANCE RAMP "B"

B.M. - Top of South end - West Hdwll. Struct. on Sta 121+54.2 Hwy. US 81 - El. 417.91

Sta. 157+50

Proposed ℄ Fin. Grade East & West Expressway Lanes

+0.2015%

Sta. 164+00
P.I. 423.06
400' V.C.
Ext. 1.27'

425 420 415 410 430 425 420 415 410
421.04 421.25 421.45 421.65 421.75 421.85 422.05 422.25 422.45 422.66 423.18 424.33
154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169

SIGNING AND DELINEATION

SHEET 9 OF 25 SHEETS

7-2y

FED.RD. DIV.NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(19)000				29
STATE DIST.NO.	COUNTY	CONT.	SECT.	JOB		HIGHWAY NO.
21	WEBB	18	6	43		IH-35

29

SURVEY LINE CURVE DATA
PI = Sta. 175+47.4
Δ = 5°-36' Lt
D = 2°-00'
T = 140.1'
L = 280.0'
Max. e = 0.02'/Ft.
Rotated Abt. ℄

EQ. 177+40.0
177+63.0

West Frontage Road

R.O.W.

To San Bernardo
Colton Road

Toe of slope

Paved

Metal Bm. Grd Fence?

Sta. 172+27.15
Beg. Struct.

Sta. 173+82.03
End Struct.

PT = 171+06.1

PC = 174+07.3

PT = 176+87.3

Toe of slope

Conc. lined open ditch

Exist. 10" Cast Iron Water Line

Exist. 8" Cast Iron Water Line

Exist. Signs put up by Maint. Forces

RAMP "C" CURVE DATA
P.I = 178' RT.-STA. 180+17.0
Δ = 12°-39' LT.
D = 5°-00'
T = 127.1'
L = 253.0'

℄ Fin. Grade East & West Expressway Lanes

SIGNING AND DELINEATION

SHEET 10 OF 25 SHEETS

1-23

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	30

STATE DIST. NO.	COUNTY	SECTION NO.	JOB NO.	PART NO.	HIGHWAY NO.
21	WEBB	18	6	43	IH-35

30

PLAN — SURVEYED / PLOTTED / NOTE BOOK / NO. — DRAWN / TRACED / CHECKED / QUANTITIES CHECKED / DETAILS CHECKED / CORRECTIONS MADE (LAST REVISION) — DATE / BY

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / NO. — DRAWN / TRACED / CHECKED / QUANTITIES CHECKED / DETAILS CHECKED / CORRECTIONS MADE (LAST REVISION) — DATE / BY

Contractor ~~to replace~~ replaced existing sign blank with current standard sign

SANDS MOTEL

HOLIDAY INN

SOUTH 35 IM-21S, IM-1B, IM-9L

2 153+80

59 Laredo AFB Houston EXIT 1 MILE IG-9

DO NOT ENTER RAMP IR-15R

TWO WAY TRAFFIC IR-17A

(WITH BLINDER) IR-18 STOP

DO NOT ENTER IR-15

EXIT 30 M.P.H. IR-2A

EXIT IG-1

San Bernardo Ave. Calton Road IG-11

YIELD IR-4B

187+80 192+31 193+20 193+27 193+80 194+00 194+76 198+00 198+40 205+80

12 5 3A 4 3 13 14 14A 6 2 9

R.O.W.

Exist. Hwy. US.81 (West Frontage Road)

West Expressway Lane

East Expressway Lane

East Frontage Road

R.O.W.

T.H.D. R-1G(R)

DO NOT ENTER R-1S T.H.D.

ONE WAY

PAVEMENT NARROWS T.H.D.

100 FT. T.H.D. CROSS WIND

~~To be~~ removed by SHD Maint. forces

West Frontage Road

180 185 190 195 200 205 210

181+74 181+91 181+93

1 IM-2IN NORTH 35 81 M1-2 M4-2L 83 M6-IN M1-2 M4-2L

IM-1B IM-10 L

THD 81 THD 83

6 IR-48

~~To be~~ removed by SHD Maint. Forces

11 YIELD AHEAD THD R-14B

Hillside Road

STOP T.H.D. IR-1A

NOTE:
Signs marked "THD" ~~shall be~~ removed by State Maintenance Forces where required.

200+21 15 ONE WAY IR-16R

8 199+50 IM-22N NORTH 35 81 M6-IN M1-1 83 M6-IN M1-1

IM-1C

Contractor ~~furnished~~ to furnish new signs (4)

THD 81 THD 83

~~To be~~ removed by the Contractor and delivered to SHD Maint.

10 209+50 MAXIMUM SPEED 60 IR-2 MINIMUM SPEED 40 IR-2F

SHEET 11 OF 25 SHEETS

440 430 420 410

℄ Fin. Grade - East & West Lane

180 1 2 3 4 185 6 7 8 9 190 1 2 3 4 195 6 7 8 9 200 1 2 3 4 205 6 7 8 9 210

PLATE 1 PLAN PROFILE O.P.R. & R.F. STANDARD
REUFFEL & ESSER CO., NEW YORK

I-25

		FEDERAL AID PROJECT NO.				SHEET NO.
	TEXAS	I-35-1(119)000				31
21	WEBB	18	6	63	IH-35	

31

San Bernardo Ave.
Calton Road
EXIT ½ MILE
IG-9

GAS-FOOD-LODGING IG-7

T.H.D. R-114 KEEP RIGHT

Mann

T.H.D. IR-1A Stop

W-6 T.H.D.

T.H.D. W-6

225+00

Exist. Hwy. U.S. 81 (West Frontage Road)

West Expressway Lane

East Expressway Lane

East Frontage Road

open Ditch

IR-1A T.H.D. Stop

W-6 T.H.D.

KEEP RIGHT R-114 T.H.D.

Road

EQUATION
210+41.3
= 210+44.3
= = 3.0'

210 215 220 225 230 235 237+30 240

WINN COUNTY

IR-16R ONEWAY

MAXIMUM SPEED 60 IR-2

MINIMUM SPEED 40 IR-2F

239+42

240+05

EXIT 30 MPH IR-2A

234+00

FM 1472
Del Mar Blvd.
Santa Maria Ave.
IM-2F1F
IG-11

81 T.H.D. M-1A
83 T.H.D. N-1A
239+14

EXIT IG-1

236+16

T.H.D. IM-1C

35

~~Exits~~ removed by SHD Maint. Forces

SHEET 12 OF 25 SHEETS

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
DRAWN
CHECKED
QUANTITIES CHECKED
STRUCTURAL INFORMATION CHECKED

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
NO.
DRAWN
CHECKED
QUANTITIES CHECKED
STRUCTURAL INFORMATION CHECKED

440
430
420
410

℄ Fin. Grade - East & West Lane

210 1 2 3 4 215 6 7 8 9 220 1 2 3 4 5 6 7 8 9 230 1 2 3 4 235 6 7 8 9 240

PLATE 3 - PLAN - PROFILE O.P.R.&.R.E. STANDARD
REUPPEL & ESSER CO., NEW YORK

1-25

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I 35-1(19)000	32

STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	6	43	IM-35

32

Santa Maria Avenue - 20
c. Pavement

Exist. Hwy. U.S. 81 (West Frontage Road)

West Expressway Lane

East Expressway Lane

East Frontage Road

Contractor ~~to replace~~ replaced existing sign at location 1 with current standard sign

Breakaway Mount installed under Project LSI 35-1(1)006

Texas Tourist Bureau REST AREA EXIT 13/10 MILE
OFICINA DE TURISMO ESTADO DE TEXAS

R.O.W.

Del Mar Blvd.

Metal Beam Guard Fence

FM 1472

LAREDO 4 D-1A
SAN ANTONIO 149 D-1A

SAN ANTONIO 149
IG-25

CARRIZO SPRINGS 77

EXIT 45 MPH IR-2A

To be removed by SHD Maint.

SHEET 13 OF 25 SHEETS

PLAN — SURVEYED ____ BY ____ DATE ____ PLOTTED ____ CHECKED ____ NOTE BOOK ____ ALIGNMENT CHECKED ____ NO. ____ BY ____ OF WAY CHECKED ____

PROFILE — SURVEYED ____ PLOTTED ____ CHECKED ____ NOTE BOOK ____ AS NOTED ____ NO. ____ STRUCTURE NOTES NO. CHKD ____

End Grade - East & West Lanes

PLATE 3 - PLAN PROFILE O.P.R. & R.E. STANDARD
KEUFFEL & ESSER CO. NEW YORK

1-26

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I 35-1(19)000	33
STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
21	WEBB	18 / 6 / 43	IH-35

33

PLAN — SURVEYED / PLOTTED / NOTE BOOK / ALIGNMENT CHECKED / RT. OF WAY CHECKED / NO. / DATE / BY

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / GRADES CHECKED / BASIS OF VERT. DATUM / STRUCTURE NOTE NO. CHECKED / NO. / DATE / BY

IM-2F1F
FM 1472 Del Mar Blvd. Santa Maria Ave.
IG-11
EXIT
IG-1
T.H.D. W-32
To Dolores Mines
FM 1472
FARM ROAD 1472 M-2F M-9R
FARM ROAD 1472 M-2F M-9L
YIELD IR-48
1472 M1-4F M3-1R
MAXIMUM SPEED 60 IR-2
MINIMUM SPEED 40 IR-2F
Laredo CITY LIMITS IG-21
DO NOT CROSS USE CROSSOVER T.H.D.
IM-2F2F
FM 1472 Del Mar Blvd. Santa Maria Ave. EXIT ½ MILE IG-9
MUNICIPAL AIRPORT 3
T.H.D D-1A
T.H.D D-1A3
Ex. 280+44.0' = -0+67 = 279.77.0'
West Expressway Lane
East Expressway Lane
West Frontage Road
East Frontage Road
Public Road
CITY OF LAREDO (INC.)
1960 CENSUS = 60,678
NOTE: Signs marked "THD" ~~shall be~~ removed by State Maintenance Forces where required.
~~To be~~ removed by Contractor
KEEP OFF MEDIAN IR-50
DO NOT CROSS USE CROSSOVER T.H.D.
LAREDO CITY LIMITS Sta. 7+45
ONEWAY IR-16R
SPEED LIMIT 70 NIGHT 65 IR-2 IR-3
IM-22N IM-1C M-1A
NORTH 35 81 83
M6-1N IM1-1 M6-1N IM1-1
ALL VEHICLES MUST STOP BEFORE PASSING SCHOOL BUS LOADING OR UNLOADING SCHOOL CHILDREN STATE LAW
Contractor ~~to furnish~~ furnished new signs (4)
T.H.D.
MAXIMUM LEGAL SPEEDS
TRUCKS
CARS-BUSES (DAY) 70
CARS-BUSES (NIGHT) 65
THD ~~To be~~ removed by the Contractor and delivered THD to SHD Maint. Forces
SHEET 14 OF 25 SHEETS

E Fin. Grade - East & West Lanes

PLATE 1 – PLAN-PROFILE C. P. & B. & R. C. STANDARD
KEUFFEL & ESSER CO., NEW YORK.

1-27

STATE	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.
TEXAS		I 35-1(18)000	34
21	WEBB	18 6 43	IM-35

34

N

FM 1472
Del Mar Blvd.
Santa Maria Ave.
EXIT 1 MILE
IG-9

IM-2F2F

GAS-FOOD-LODGING IG-7

18+27

DO NOT CROSS USE CROSSOVER T.H.D.

Exist. Hwy. US-81 (West Frontage Road)

West Expressway Lane

East Expressway Lane

East Frontage Road

Exit Ramp

20 25 30 35 40 45 50

① ② ④ ⑤ ⑥

20+20

~~To be~~ removed by Contractor

KEEP OFF MEDIAN
IR-50

22+00

HemisFair Information
NEXT RIGHT
IG-13

Breakaway Mount installed under Project LSI 35-1(1)006

33+50

KEEP OFF MEDIAN
IR-50

~~To be~~ removed by Contractor

DO NOT CROSS USE CROSSOVER T.H.D.

40+00

Texas Tourist Bureau
REST AREA
OFICINA DE TURISMO ESTADO DE TEXAS
IG-11A

46+80

IG-1
EXIT

48+50

IR-2A
EXIT 30 MPH

Breakaway Mounts installed under Project LSI 35-1(1)006

SHEET 15 OF 25 SHEETS

PLAN
NOTE BOOK
NO

PROFILE
NOTE BOOK
NO

450
440
430
420
410

℄ Fin. Grade - East & West Lanes

20 1 2 3 4 25 6 7 8 9 30 1 2 3 4 35 6 7 8 9 40 1 2 3 4 45 6 7 8 9 50

PLATE 3 PLAN-PROFILE O.P.R. & M.E. STANDARD
HEUFFEL & ESSER CO., NEW YORK

1-28

		I 35-1(19)000				35
21	WEBB	18	6	63	IH-35	

35

furnished
Contractor ~~to furnish~~ new signs (5)

replaced
Contractor ~~to replace~~ existing sign with current standard sign

DO NOT CROSS USE CROSSOVER T.H.D.
IMG-2S SOUTH 81 IMI-1
IM-1C 35
MG-1S
83 IMI-1
MG-1S
TWO WAY TRAFFIC IR-17A
10
G0+70
YIELD
IR-4B
G1+50
DO NOT CROSS USE CROSSOVER T.H.D.
DO NOT ENTER T.H.D. R-1S
EQUATION 5G+93.0 = 57+03.5
10.5
8
57+67
T.H.D. M-1A 81
83 T.H.D. M-1A
West Frontage Road
STA. G1+00
DO NOT ENTER IR-1SR RAMP
G1+10
IR-2A
EXIT 30 MPH
EXIT
IG-1
PAVEMENT ENDS 600 FT. T.H.D.
IR-1GR ONE WAY
13
G7+90
Breakaway Mounts installed under Project LSI 35-1(1)006
Texas Tourist Bureau
IG-11
West Expressway Lane
East Expressway Lane
50
55
60
65
70
75
80
1
2
11
12
12A
G5+30
G5+63
Δ = 7°30'
D = 3°00'
Information Bureau Driveway
53+90
DO NOT CROSS USE CROSSOVER T.H.D.
TH. OFFICE BUILDING
KEEP OFF MEDIAN IR-50
~~To be~~ removed by Contr.
Rest Area Driveway
East Frontage Road
DO NOT CROSS USE CROSSOVER T.H.D.
59+00
MG-1N
81 M-1A M4-2L
IM-2N
MG-1N
IM-1B 35 83 M-1A
IM-10L M4-2L
3
60+85
MERGING TRAFFIC
IW-60
G2+50
DO NOT ENTER IR-1S
DO NOT CROSS USE CROSSOVER T.H.D.
9
8
Public Road
71+00
KEEP OFF MEDIAN IR-50
~~To be~~ removed by Contractor

SHEET IG OF 25 SHEETS

PLAN
PROJECT SECTION
PLATE NO. ITEM NO.
NOTE BOOK
NO

PROFILE
PROJECT SECTION
PLATE NO. ITEM NO.
NOTE BOOK
NO

470
460
450
440
430
420
℄ Fin. Grade - East & West Lanes
50 1 2 3 4 55 6 7 8 9 60 1 2 3 4 65 6 7 8 9 70 1 2 3 4 75 6 7 8 9 80

PLATE I PLAN PROFILE O.P.R. & R.E. STANDARD
REUFFEL & ESSER CO. NEW YORK

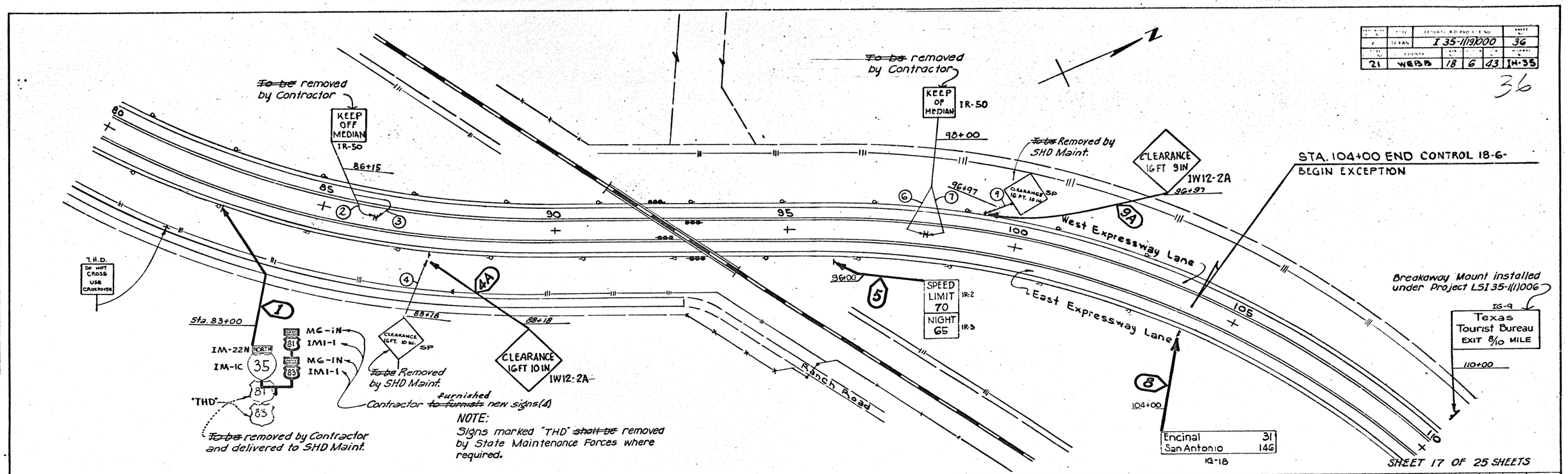
1-29

		FEDERAL AID PROJECT NO.				SHEET NO.
6	TEXAS	I 35-1(19)000				36
DIST.	COUNTY		SEC.	JOB		HIGHWAY NO.
21	WEBB	18	6	43		IH-35

36

PLAN — LOCATED IN OFFICE OF DIST. ENGINEER AUSTIN, TEXAS — NOTE BOOK — NO

PROFILE — LOCATED IN OFFICE OF DIST. ENGINEER AUSTIN, TEXAS — NOTE BOOK — NO



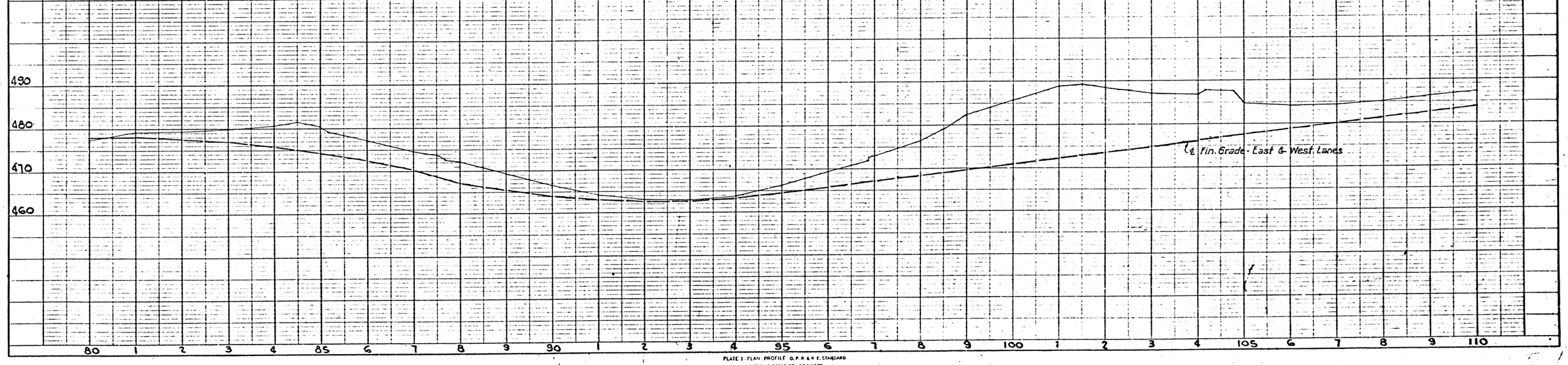


PLATE 1 - PLAN PROFILE O.P.R. & R.E. STANDARD
REUFFEL & ESSER CO., NEW YORK

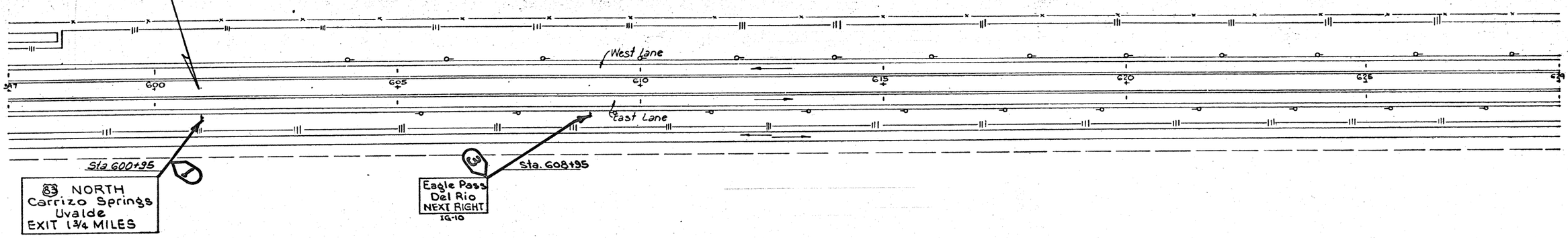
1-31

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	37

DIST.	COUNTY	SEC.	JOB	HIGHWAY NO.
21	WEBB	18	5	18 I.H.-35

37

STA. 600+95 BEG. CONTROL 18-5-18
END EXCEPTION



PLAN

PROFILE

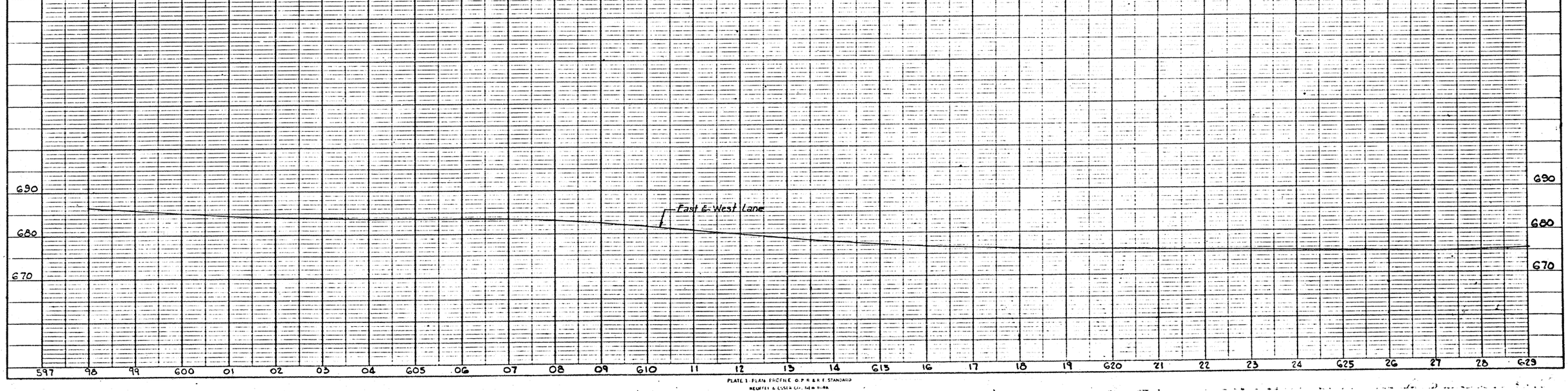


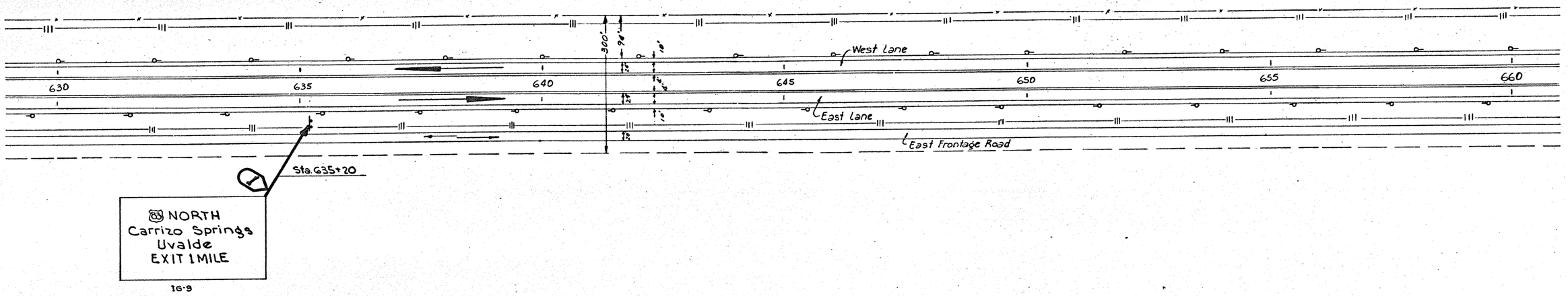
PLATE 1 - PLAN PROFILE O.P.R.R.R.E. STANDARD
REUFFEL & ESSER CO. NEW YORK

SHEET 18 OF 25 SHEETS

1-32

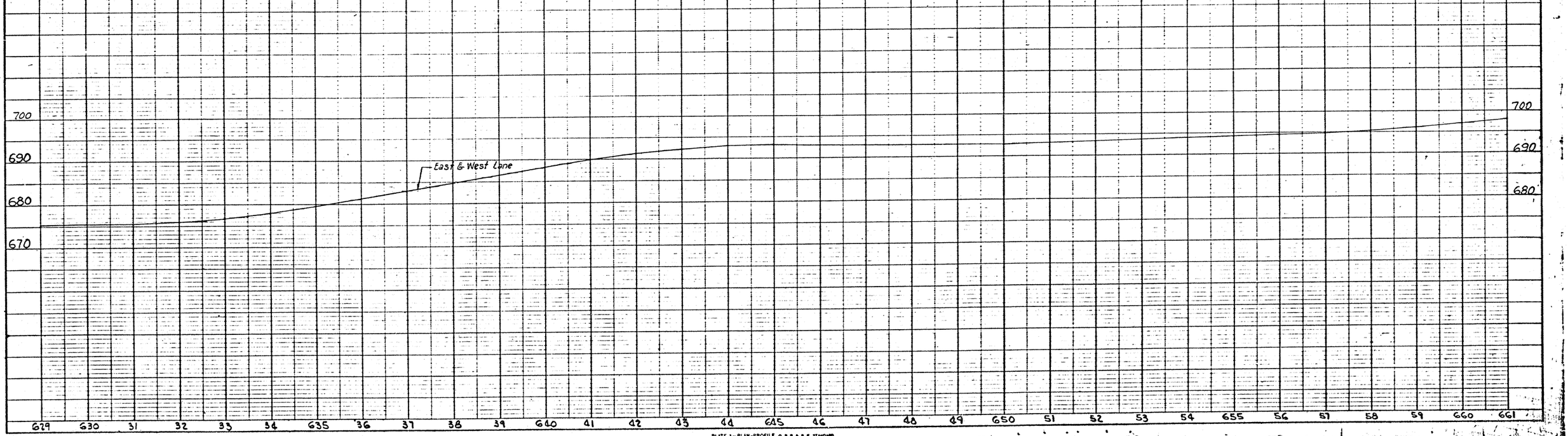
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	F-35-1(119)000	38
DIST.	COUNTY		
21	WEBB	18 5 18	H-35

38



PLAN
SURVEYED
PLOTTED
NOTE BOOK
ALIGNMENT SHOWN
PT. OF BAY SHOWN
NO

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
GRADES CHECKED
ALIGNMENT SHOWN
NO
STRUCTURE NOTATIONS CHKD



SHEET 19 OF 25 SHEETS

PLATE 1—PLAN-PROFILE O. P. R. & R. E. STANDARD
HEUFELD & ESSER CO., NEW YORK

1-33

STATE	FEDERAL AID PROJECT NO.	SHEET NO.
TEXAS	I-35-1(19)000	39

DIST. NO.	COUNTY	SEC. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18 5	18	I.H. 35

39

Laredo 17
Monterrey 163
IG-18

Sta. G53+30

(1)*

West Lane

665

670

675

680

685

690

East Lane

East Frontage Road

IR-2
IR-3

SPEED LIMIT 70 NIGHT 65

Sta. G69+90

*(2)

300'

22'
2'
10'
22'

SOUTH 35
Santa 81
83

*(3) G79+90

ONE WAY
IR-16R

IR-2A
EXIT 30 MPH

(7)

Sta G93+00

Sta. G91+70

(6)

Sta. G88+00

83 NORTH
Carrizo Springs
Uvalde
IG-11

(4)

(5)

YIELD
IR-4B

STA. G93+00

*NOTE:
Break-away mounts installed on this signs under Proj. 135-1(20)020, etc.

SHEET 20 OF 25 SHEETS

PLAN
NOTE BOOK
NO.
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
DATE
BY

PROFILE
NOTE BOOK
NO.
GRADES CHECKED
STRUCTURE NOTES CHECKED
DATE
BY

700
690
680

East & West Lane

700
690
680

G61 62 63 64 665 66 67 68 69 670 71 72 73 74 675 76 77 78 79 680 81 82 83 84 685 86 87 88 89 690 91 92 693

PLATE 1 - PLAN-PROFILE U. P. R. R. STANDARD
KEUFFEL & ESSER CO. NEW YORK

STATE	FEDERAL AID PROJECT NO.	SHEET NO.
TEXAS	I-35-1(19)000	40

DIST. NO.	COUNTY	SEC. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5	18 IH-35

40

1-34

DO NOT ENTER RAMP IR-15R
IR-6B YIELD
Sta. 696+00
Sta. 694+50
Sta. 693+70
EXIT I0-1 Sta. 693+29
DO NOT ENTER IR-15
Sta. 693+75
To be removed by Contractor
TWO WAY TRAFFIC IR-17A
Sta. 696+50
2 Spaces @ 140'
695
700
75 Spaces @ 152'
Sta. 703+75
Sta. 701+52.3 (E Front. Rd.)
147' P.I. Sta. 701+82.7 (Survey Line)
Breakaway base installed on sign under Project I35-1(20)020, etc.
T.H.D
DO NOT CROSS MEDIAN
To be removed by SHD Maint. Forces
Contractor to replace existing sign with current standard sign.
MERGING TRAFFIC IW-60
Sta. 709+70
Bolines Service Station
Hwy. U.S. 83 Connection (West Frontage Road)
3 Spaces @ 152'
136'
West Lane
KEEP OF MEDIAN IR-50
To be Removed by Contractor
Sta. 709+75
140'
East Lane
To be removed by Contractor
East Frontage Road
Sta. 711+00
Carrizo Springs 64
Uvalde 114
IG-25
M1-2 M4-R
Sta. 8+50
Sta. 2307+65
Carrizo Springs 64
Uvalde 114
IG-25
LAREDO 18
SAN ANTONIO 135
IG-25
LAREDO 18 D-1A
SAN ANTONIO 135 D-1A
THD To be removed by State Forces
Sta. 2307+43
TWO WAY TRAFFIC IR-17A
Sta. 2309+02
Sta. 2307+36
Sta. 2304+07
Sta. 2304+08
Sta. 2301+58
Sta. 2308+16
STOP IR-1A
Sta. 715+10
Carrizo Springs 64
Uvalde 114
IG-25
Sta. 718+00
Sta. 720+10
STOP AHEAD IW-113
Ramp "A"
T.H.D. DO NOT CROSS MEDIAN
To be removed by SHD Maint. Forces
DO NOT ENTER RAMP IR-15R
Sta. 9+00
Sta. 717+00
DO NOT ENTER IR-15
Metal Beam Guard Fence
Undercrossing
120'
140'
155'
4 Spaces @ 86'
3 Spaces @ 100'
Sta. 718+00
TWO WAY TRAFFIC IR-17A
712+89
STOP IR-1A
Sta. 11+70
Sta. 715+13
Sta. 715+25
Sta. 716+65
TWO WAY TRAFFIC IR-17A
717+97
717+92
To be removed by State Forces
MERGING TRAFFIC IW-60
San Antonio 135
IG-25
712+57
Sta. 715+19
M3-1L
M4-1L
M1-A
THD
SHEET 21 OF 25 SHEETS

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
ALIGNMENT CHECKED
RT. OF WAY CHECKED
BY
DATE

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
GRADES CHECKED
(F M S NOTED)
NO.
STRUCTURE BOOT NO. CHKD.
BY
DATE

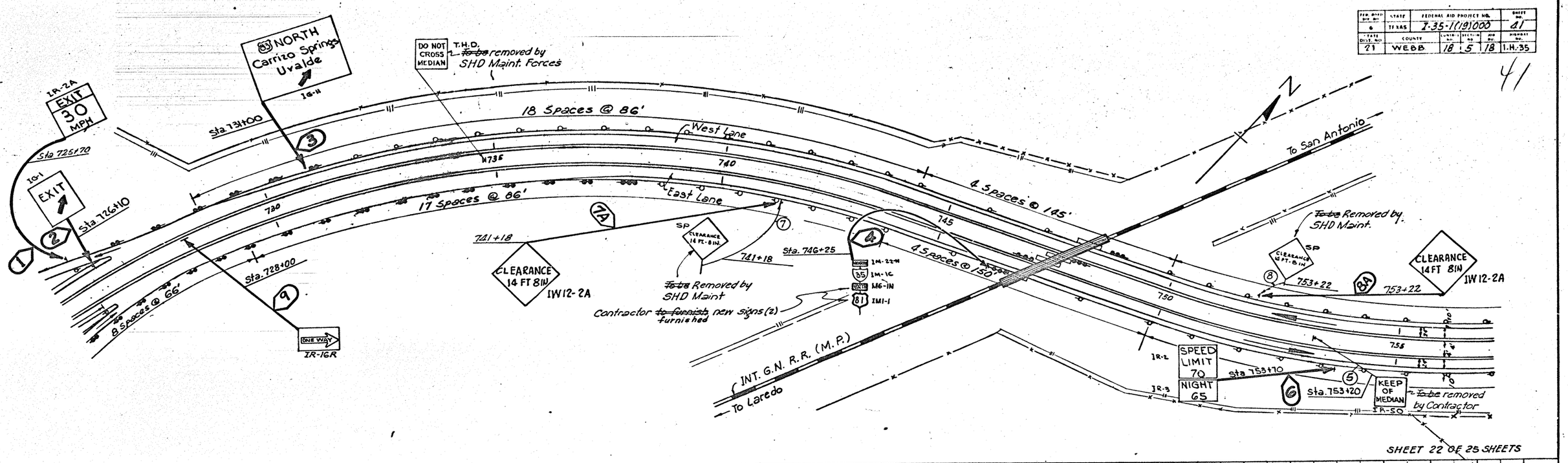
East Lane
West Lane
710
700
690
680
693 94 695 96 97 98 99 700 01 02 03 04 705 06 07 08 09 710 11 12 13 14 715 16 17 18 19 720 21 22 23 725

PLATE 1 - PLAN-PROFILE O. P. R. & R. E. STANDARD
REUTTER & ESSER CO., NEW YORK

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(191)000	41

TRANS. DIST. NO.	COUNTY	HWY. NO.	SECT. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	5	18	I.H. 35

41



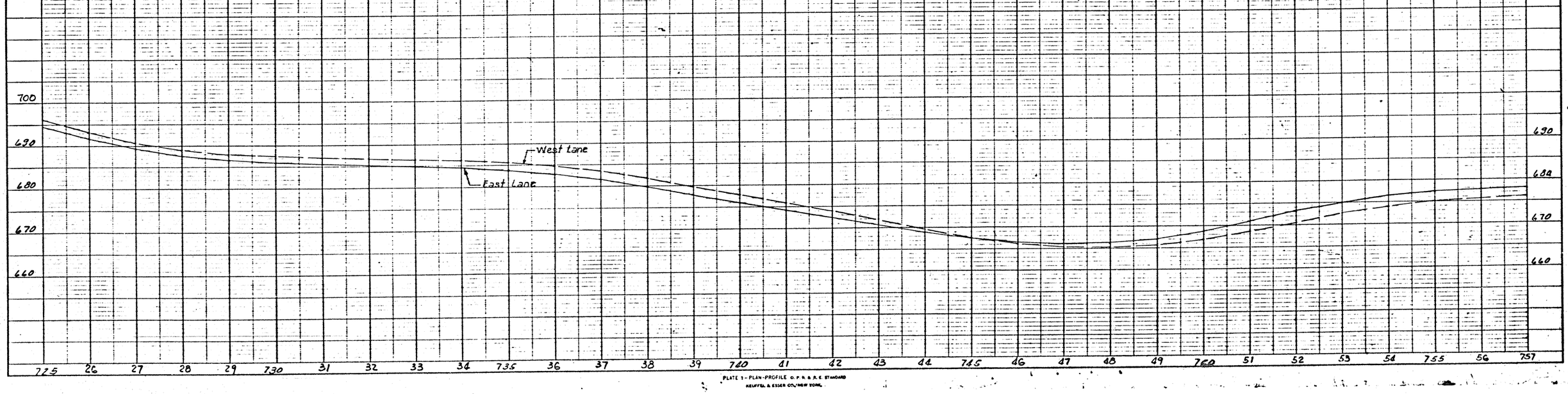


PLATE 1 - PLAN-PROFILE O. P. R. & R. E. STANDARD
REUFFEL & ESSER CO. NEW YORK

1-36

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	42
STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
21	WEBB	18 / 5A / 19/6	I.H.-35

42

NORTH
Carrizo Springs
Uvalde
EXIT 1 MILE

sta. 779+50

2

DO NOT CROSS MEDIAN T.H.D.

~~To be~~ removed by SHD Maint. Forces

STA. 773+13.8
END CONTROL 18-5-18

STA. 773+13.8
BEG. CONTROL 18-4-16

22 Spaces @ 88°

West Lane

760

765

770

775

780

785

158'

158'

22 Spaces @ 88°

Sta. 763+50

East Lane

1

Encinal 19
San Antonio 134
IG-18

~~To be~~ removed by SHD Maint Forces

DO NOT CROSS MEDIAN T.H.D.

IG-9

SHEET 23 OF 25 SHEETS

PLAN — SURVEYED, PLOTTED, GRADES CHECKED, NOTE BOOK, STR. OF MAY CHECKED, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, NOTE BOOK, STRUCTURE NO'S (MAY CHECK), NO., BY, DATE

680
670
660

East Lane
West Lane

600
670
660

757 58 59 760 61 62 63 64 765 66 67 68 69 770 71 72 73 74 775 76 77 78 79 780 81 82 83 84 785 86 87 88 789

PLATE 1—PLAN-PROFILE G. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO. (NEW YORK)

1-37

			1-35-1(19)000	43	
21	WEBB	18	4	16	H-35

43

790 ~~To be~~ removed by THD SHD Maint. forces

DO NOT CROSS MEDIAN

795

STA. 797+94.3
STA. 1064+53.0
EQUATION = -26,658.7'

1070

West Lane

1075

1080

East Lane

Sta 1071+00

NORTH 35

NORTH 81

Break-Away Mount installed in Proj. 135-1(20)020, etc.

ONE WAY IR-1GL

ONE WAY IR-1GR

1085+10

1085+02

1085

1084+93

STOP IR-1A

1085+00

1084+06

CONTROLLED ACCESS HIGHWAY THIS IS A TEMPORARY GRADE CROSSING BEFORE PLANNING IMPROVEMENTS ON ABUTTING PROPERTY CONTACT TEX. HIGHWAY DEPT. DIST. OFFICE PHARR, TEX.

T.H.D. "T"

SHEET 24 OF 25 SHEETS

PLAN
LOCATED
PLOTTED
GRADES CHECKED
ALIGNMENT CHECKED
NOTE BOOK
NO

PROFILE
LOCATED
PLOTTED
GRADES CHECKED
ALIGNMENT CHECKED
NOTE BOOK
NO

670
660
650
640
630

789+63.1
EQUATION 1+00 = 1065+24.6
1065+24.6 Ahead = 1064+53.0 Back
EQUATION 1+00 = 1064+53.0 Ahead = 797+94.3 Back

East Lane
West Lane
East & West Lane
West Lane
East Lane

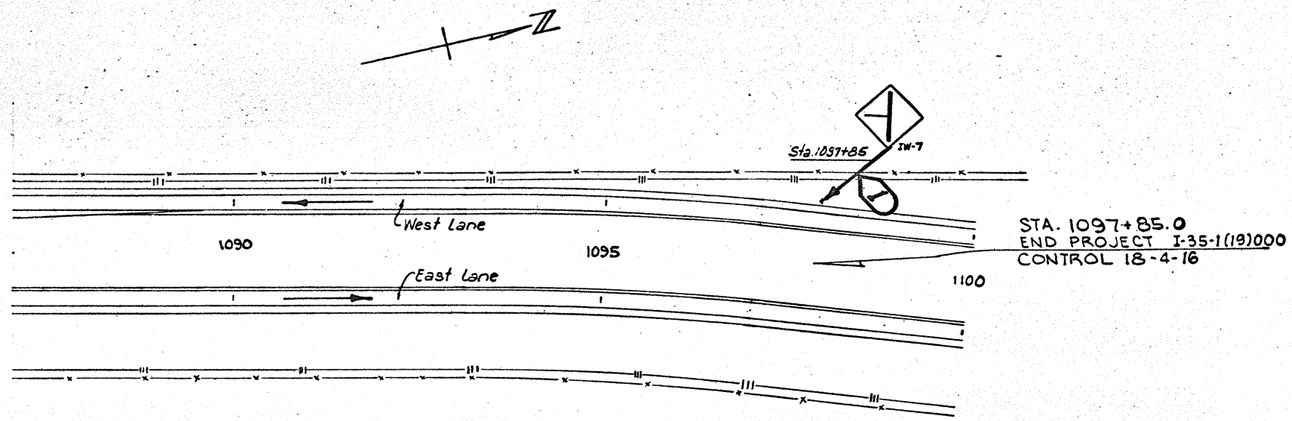
650
640
630
620

789 790 91 92 93 94 795 96 97 1065 66 67 68 69 1070 71 72 73 74 1075 76 77 78 79 1080 81 82 83 84 1085 86 1087

PLATE 1 PLAN & PROFILE O.P.R. & M.S. STANDARD

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	44
STATE DIST. NO.	COUNTY	CITY NO.	SEC. NO.	JOB NO.	HIGHWAY NO.
21	WEBB	18	4	16	I.H.-35

44



STA. 1097+85.0
END PROJECT I-35-1(19)000
CONTROL 18-4-16

SHEET 25 OF 25 SHEETS

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
BY
DEPT.
RIGHT CHECKED
RT OF WAY CHECKED

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
NO.
BY
DEPT.
GRADES CHECKED
AREAS PLOTTED
STRUCTURE NOTAT NS CH KD

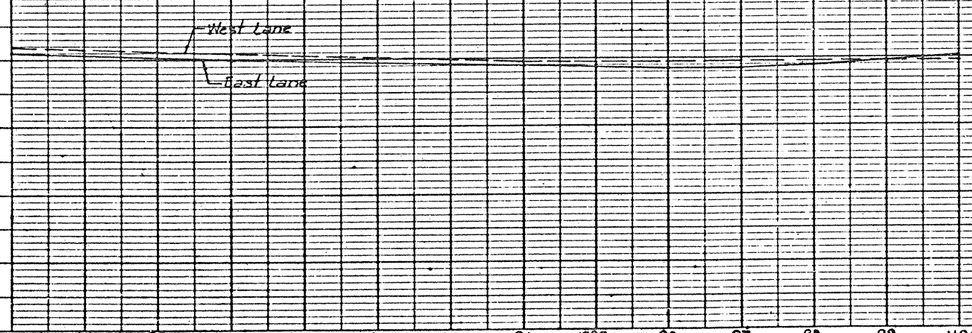
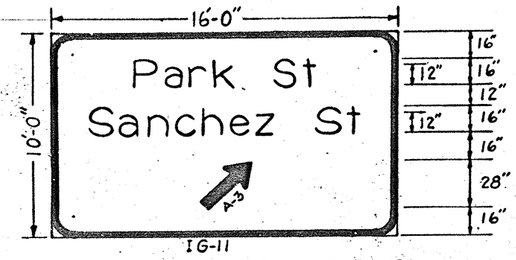


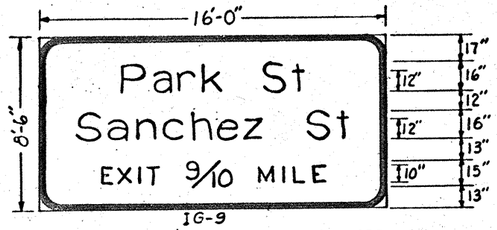
PLATE I - PLAN-PROFILE O.P.R.&B.E. STANDARD
KEUFFEL & ESSER CO., NEW YORK

7-26



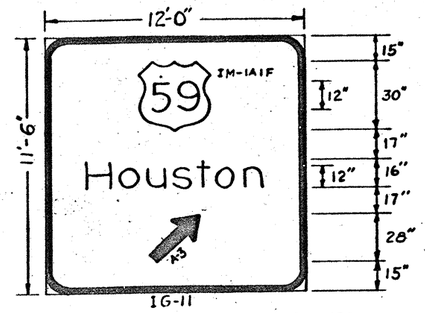
Border Width 3" Corner Radius 12"

Sheet 4 of 25 - Sign 6



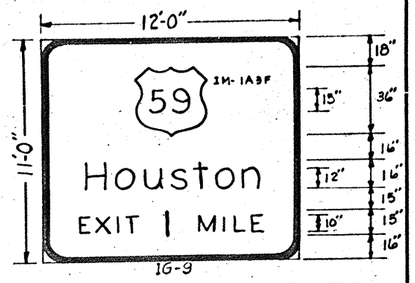
Border Width 3" Corner Radius 12"

Sheet 7 of 25 - Sign 23



Border Width 3" Corner Radius 12"

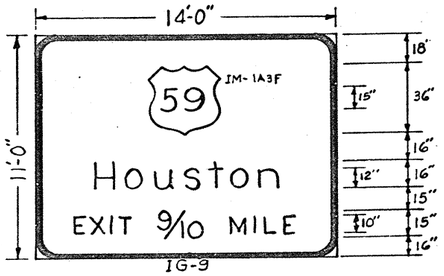
Sheet 8 of 25 - Sign 1



Border Width 3" Corner Radius 12"

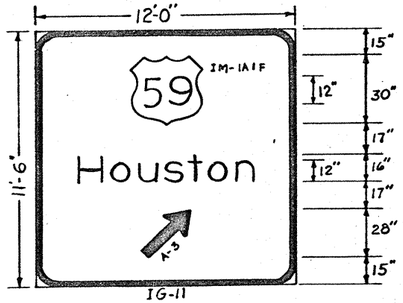
Sheet 11 of 25 - Sign 12

MAIN LANES - SOUTHBOUND



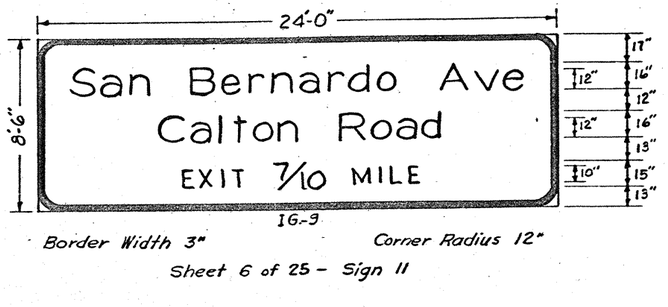
Border Width 3" Corner Radius 12"

Sheet 3 of 25 - Sign 1



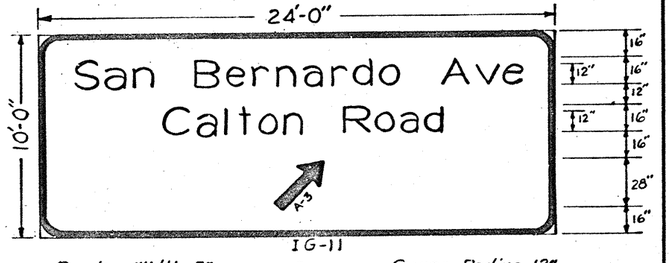
Border Width 3" Corner Radius 12"

Sheet 5 of 25 - Sign 3



Border Width 3" Corner Radius 12"

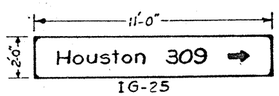
Sheet 6 of 25 - Sign 11



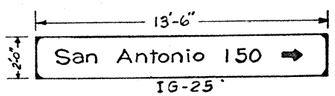
Border Width 3" Corner Radius 12"

Sheet 9 of 25 - Sign 1

MAIN LANES - NORTHBOUND



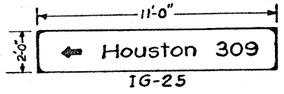
Sheet 6 of 25 - Sign 12



Sheet 7 of 25 - Sign 12

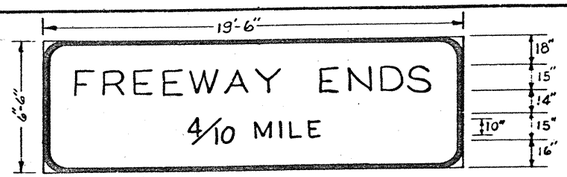
All IG-25 Signs shall have 8" upper case letters, 6" lower case letters, 8" numerals, B-1 Arrows, 1" wide borders and 3" corner radii.

SAN DARIO AVE.



Sheet 7 of 25 - Sign 16

SANTA URSULA AVE.



Border Width 3" Corner Radius 12"

FIXED ILLUMINATION

Sheet 3 of 25 - Sign 21

The sign blank for this overhead sign shall be 1" Honeycomb aluminum panels, extruded aluminum or multi-increment aluminum panels as specified in the contract award. The background shall be Interstate Green porcelain enamel conforming with the specifications.

GENERAL NOTES FOR IG-1, IG-9, IG-11 & IG-25 :-

The alphabets and lateral spacing between letters and words shall conform with the U.S. Bureau of Public Roads standard rounded capital letter alphabets with any applicable modifications stated in the American Association of State Highway Officials Manual for Signing & Pavement Marking of the National System of Interstate and Defense Highways - 1961, and/or subsequent revisions thereto. Lateral spacing of text shall be such as to provide a balanced appearance.

All removable copy letters, numerals, arrows, symbols and borders used on signs for this contract shall be of the same manufacture.

The sign area outside the corner radius need not be trimmed.

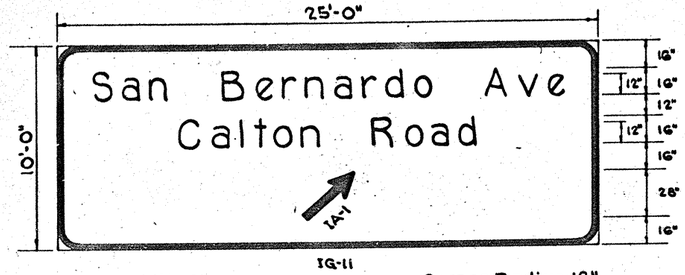
For all these Guide Signs, the letters, borders, numerals & arrows shall be reflectorized removable copy conforming with the Specifications, and the background shall be of Interstate Green Reflective Material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint and beads of the type called for in the Specifications.

The sign blanks for all signs listed above, except as noted, shall be 3/4" plywood according to Standard Sheet SMD-4 and conforming with the Specifications. When reflective sheeting is used for background reflectorization, the plywood shall be Type "A", high density. When paint & beads are used for background reflectorization, the plywood shall be Type "B", medium density.

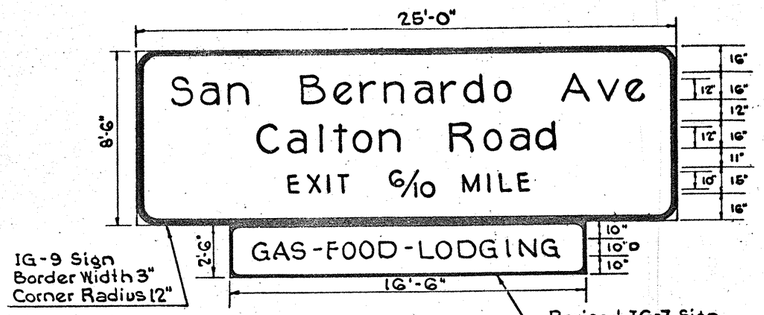
45

GUIDE SIGNS

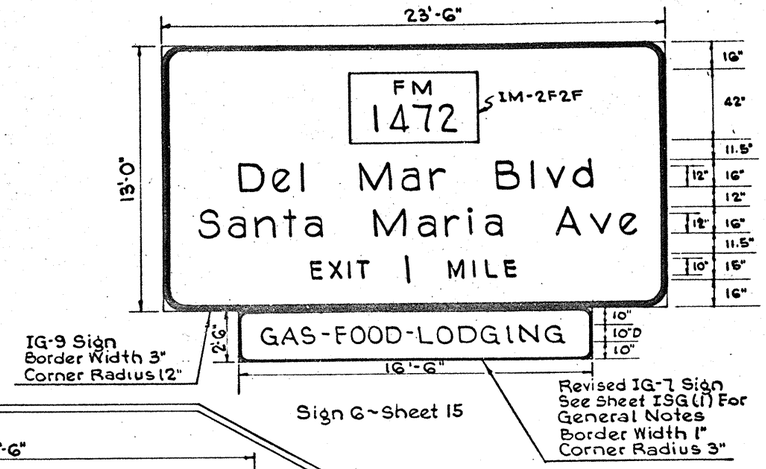
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	I-35-1(19)000				45
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
21	WEBB		18	6	43	IH-35



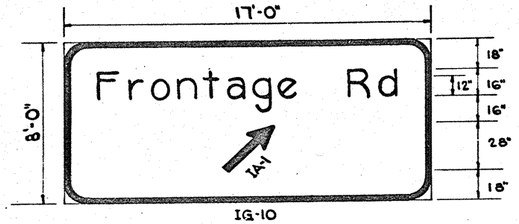
Border Width 3" Corner Radius 12"
Sign 9 ~ Sheet 11



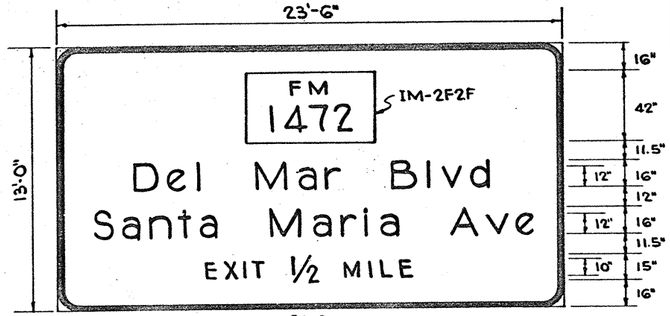
Sign 1 ~ Sheet 12
See Sign 6 ~ Sheet 15 For Details of Revised IG-7 Sign



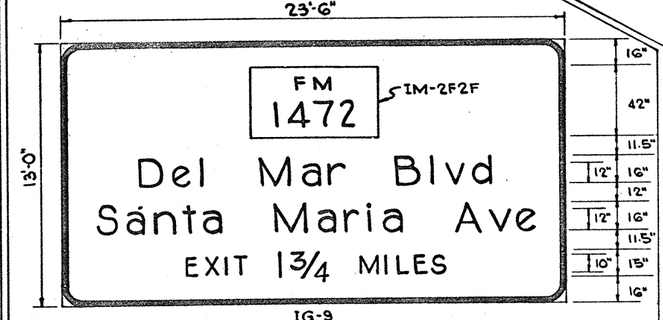
Sign 6 ~ Sheet 15



Border Width 3" Corner Radius 12"
Sign 7 ~ Sheet 16

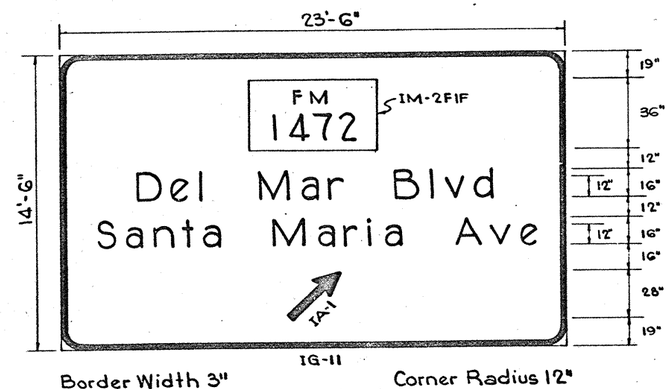


Border Width 3" Corner Radius 12"
Sign 15 ~ Sheet 14

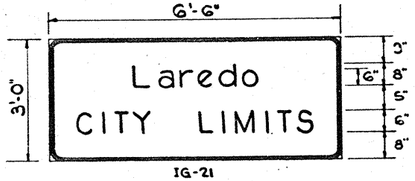


Border Width 3" Corner Radius 12"
Sheet 10

Main Lane ~ Southbound

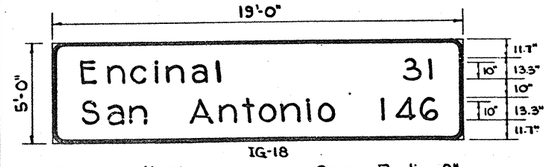


Border Width 3" Corner Radius 12"
Sign 2 ~ Sheet 12
Sign 2 ~ Sheet 14



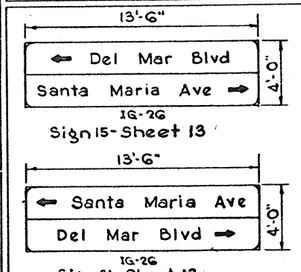
Border Width 2" Corner Radius 9"
Sign 10 ~ Sheet 14
Sign 11 ~ Sheet 14

Main Lanes ~ Southbound & Northbound



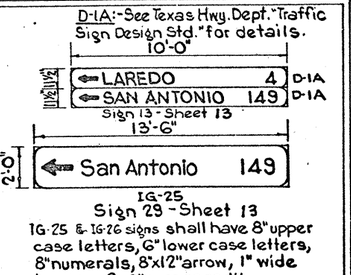
Border Width 2" Corner Radius 9"
Sign 8 ~ Sheet 17

Main Lane ~ Northbound



Sign 15 ~ Sheet 13
Sign 24 ~ Sheet 13

D-1A:- See Texas Hwy. Dept. "Traffic Sign Design Std." for details.



Sign 13 ~ Sheet 13
Sign 29 ~ Sheet 13

IG-25 & IG-26 signs shall have 8" upper case letters, 6" lower case letters, 8" numerals, 8"x12" arrow, 1" wide border, & 3" corner radii.

Frontage Roads & Undercrossings

GENERAL NOTES FOR IG-26, IG-9, IG-10, IG-11, IG-18, IG-21, IG-25:- The alphabets & lateral spacing between letters & words shall conform with the U.S. Bureau of Public Roads standard rounded capital letter alphabets with any applicable modifications stated in the American Association of State Highway Officials Manual for Signing & Pavement Marking of the National System of Interstate & Defense Highways-1958, and/or subsequent revisions thereto. Lateral spacing of text shall be such as to provide a balanced appearance.

All removable copy letters, numerals, arrows, symbols, & borders used on signs for this contract shall be of the same manufacture.

The sign area outside the corner radius need not be trimmed.

For all these Guide Signs, the letters, borders, numerals, & arrows shall be reflectorized removable copy conforming with the Specifications, & the background shall be of Interstate Green Reflective Material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint & beads of the type called for in the Specifications.

The sign blanks for all signs listed above shall be 5/8" thick plywood according to Standard Sheet SMD-4 & conforming with the Specifications. When reflective sheeting is used for background reflectorization, the plywood shall be Type "A", high density. When paint & beads are used for background reflectorization, the plywood shall be Type "B", medium density.

GUIDE SIGNS 46

FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	46
STATE DIST. NO.	COUNTY	CONT. SECT.	JOB	HIGHWAY NO.
21	WEBB	18 6	43	IH-35

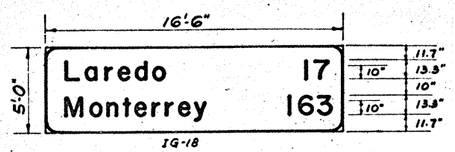
GENERAL NOTES FOR IG-9, IG-10, IG-11, IG-12, IG-25:- The alphabets & lateral spacing between letters & words shall conform with the U.S. Bureau of Public Roads standard rounded capital letter alphabets with any applicable modifications stated in the American Association of State Highway Officials Manual for Signing & Pavement Marking of the National System of Interstate & Defense Highways-1958, and/or subsequent revisions thereto. Lateral spacing of text shall be such as to provide a balanced appearance.

All removable copy letters, numerals, arrows, symbols, & borders used on signs for this contract shall be of the same manufacture.

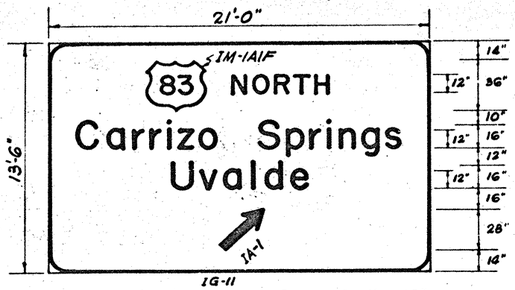
The sign area outside the corner radius need not be trimmed.

For all these Guide Signs, the letters, borders, numerals, & arrows shall be reflectorized removable copy conforming with the Specifications, & the background shall be of Interstate Green Reflective Material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint & beads of the type called for in the Specifications.

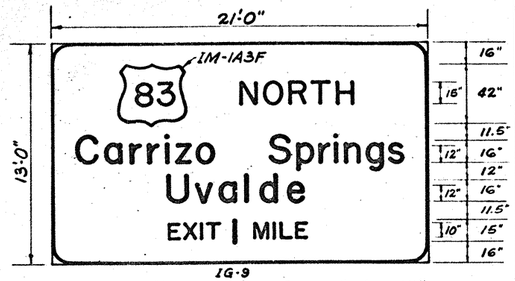
The sign blanks for all signs shown on this sheet shall be ¾" thick plywood according to Standard Sheet SMD-4 & conforming with the Specifications. When reflective sheeting is used for background reflectorization, the plywood shall be type 'A' high density. When paint & beads are used for background reflectorization, the plywood shall be type 'B' medium density.



IG-18
Border Width 2" Corner Radius 3"
Sign 1 - Sheet 20

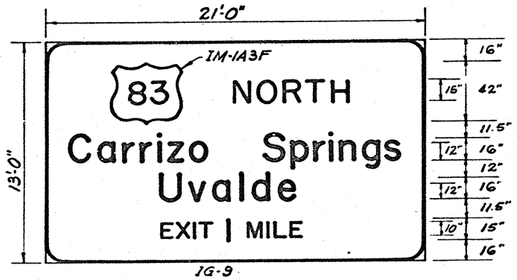


IG-11
Border Width 3" Corner Radius 12"
Sign 3 - Sheet 22

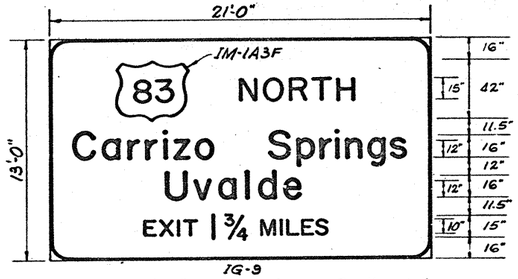


IG-9
Border Width 3" Corner Radius 12"
Sign 2 - Sheet 23

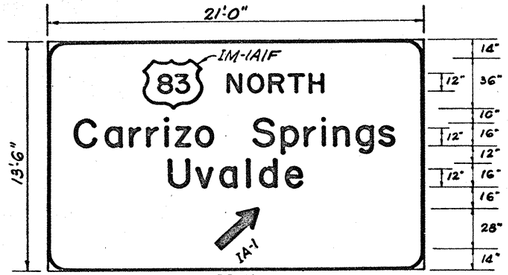
Main Lane - Southbound



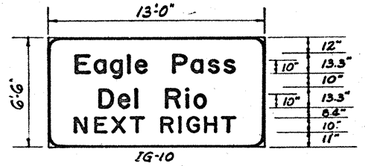
IG-9
Border Width 3" Corner Radius 12"
Sign 1 - Sheet 19



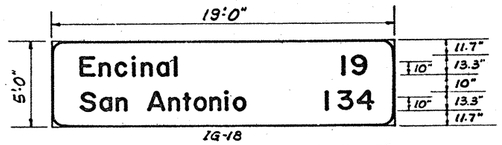
IG-9
Border Width 3" Corner Radius 12"
Sign 1 - Sheet 18



IG-11
Border Width 3" Corner Radius 12"
Sign 4 - Sheet 20

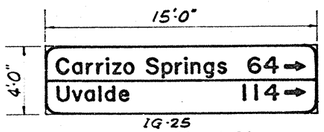


IG-10
Border Width 2" Corner Radius 3"
Sign 3 - Sheet 18

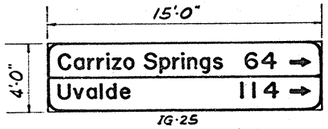


IG-18
Border Width 2" Corner Radius 3"
Sign 1 - Sheet 23

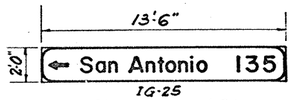
Main Lane - Northbound



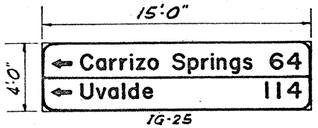
IG-25
Sign 13 - Sheet 21



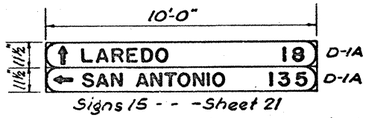
IG-25
Sign 22 - Sheet 21



IG-25
Sign 26 - Sheet 21



IG-25
Sign 24 - Sheet 21



Signs 15 - - -Sheet 21

D-1A:- See Texas Highway Department "Traffic Sign Design Standards" for details.

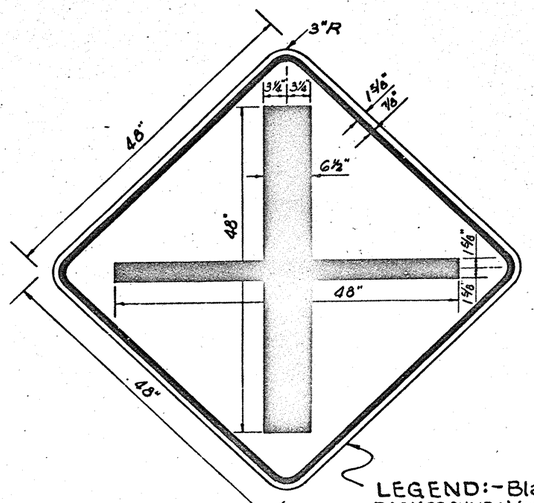
All IG-25 Signs shall have 8" upper case letters, 6" lower case letters, 8" numerals, 8"x12" arrows, 1" wide borders & 3" corner radii.

Frontage Roads & Undercrossings

GUIDE SIGNS 47

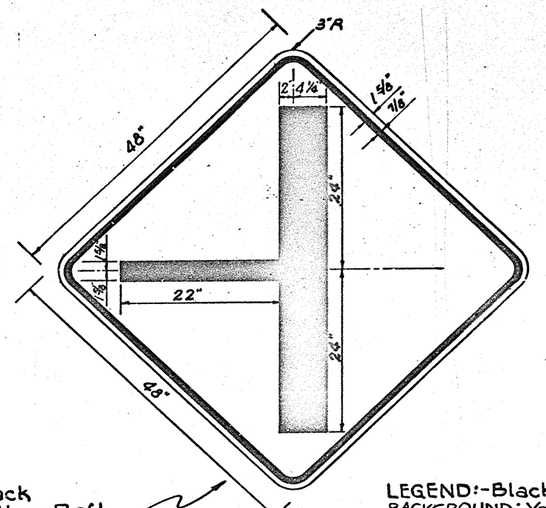
FED. NO. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	47
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 5 4 18 16	IH-35

1-46



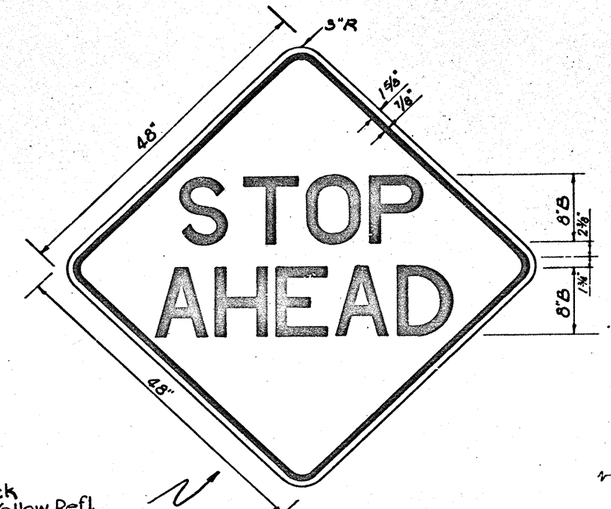
LEGEND:-Black
BACKGROUND: Yellow Refl.

IW-6
48"x48"

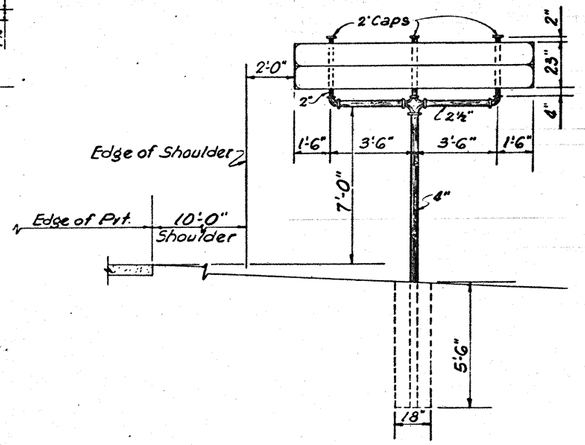


LEGEND:-Black
BACKGROUND: Yellow Refl.

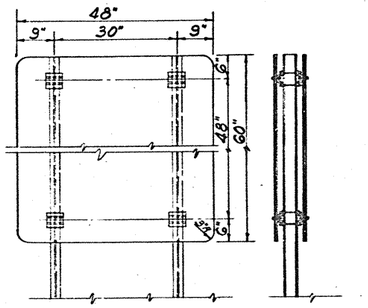
IW-7
48"x48"



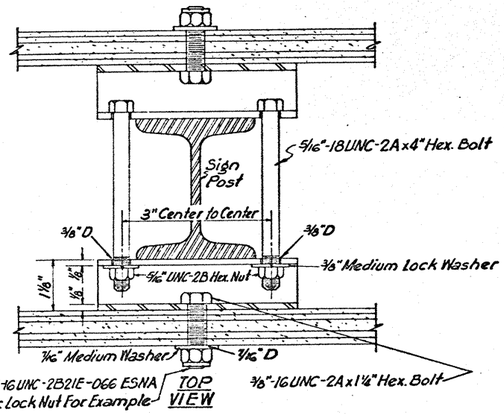
IW-113
48"x48"

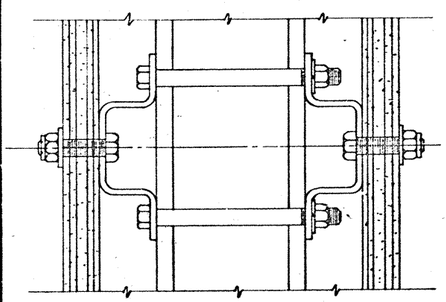


TYPE D-4 MOUNT
FOR D-1A SIGNS

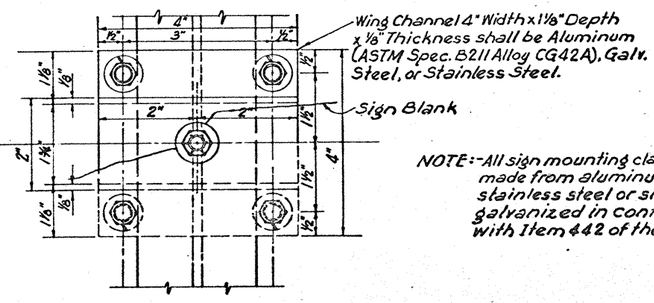


TYPE F2 MOUNT FOR TWO
48"x60" SIGNS



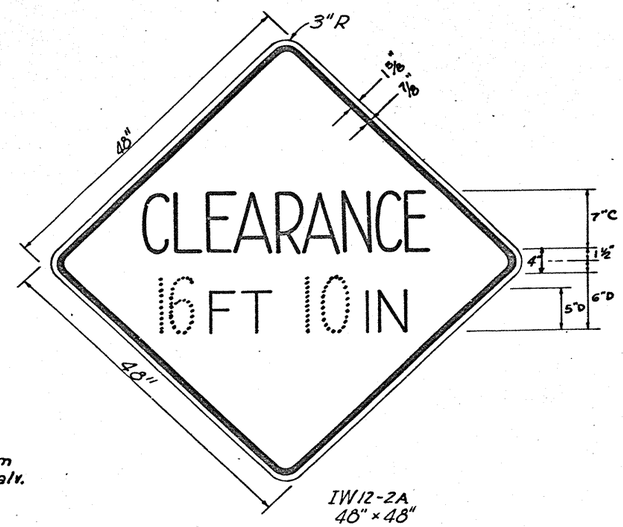


SIDE VIEW



CLAMP DETAIL FOR HOLDING
TWO SIGNS TO MOUNT TYPE F2

NOTE:-All sign mounting clamp parts not made from aluminum shall be stainless steel or shall be galvanized in conformance with Item 442 of the Std. Spec.



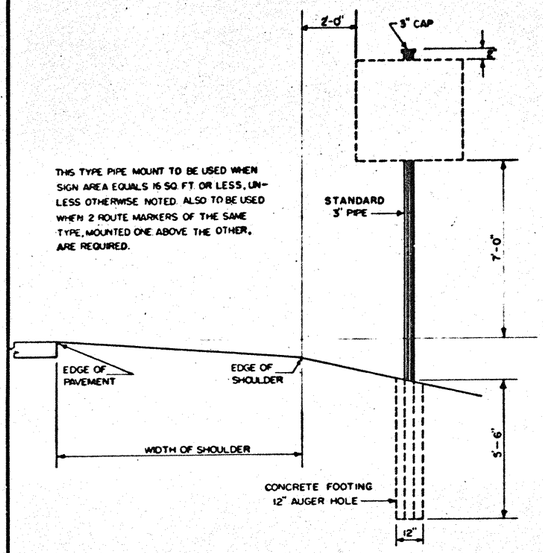
IW12-2A
48"x48"

WARNING SIGNS & SPECIAL MOUNTS

48

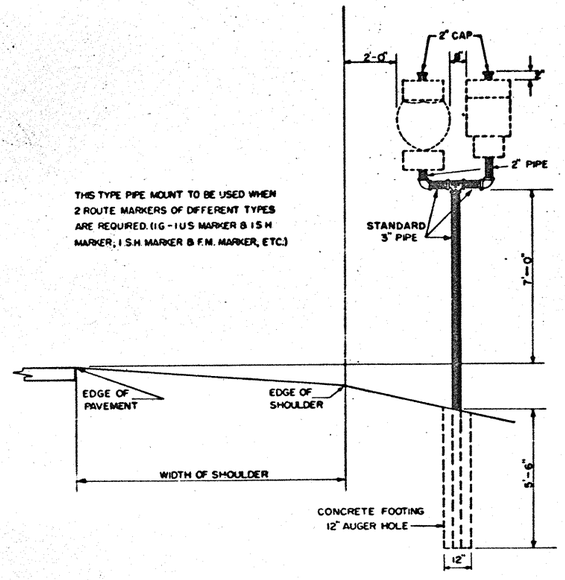
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(19)000	48
STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
21	WEBB	18 6,540,434,61	

1-51



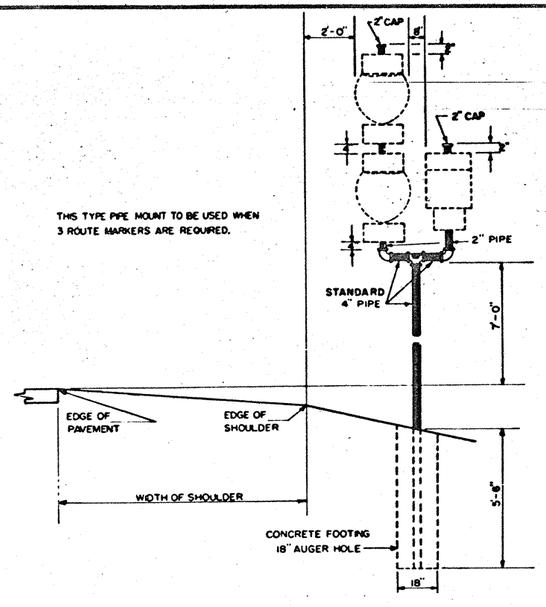
FRONTAGE ROAD PIPE MOUNT

TYPE A



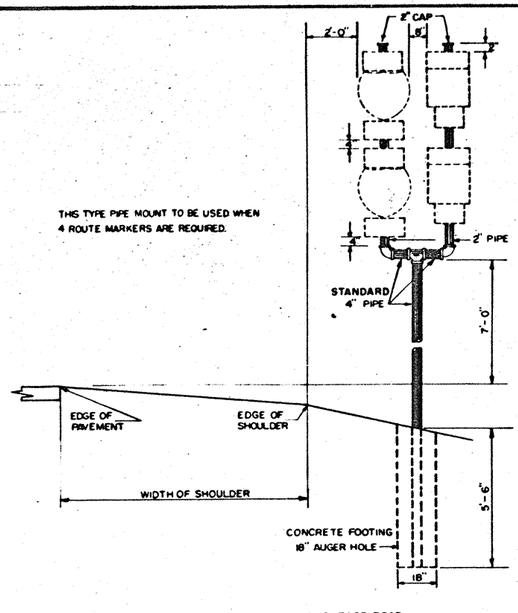
FRONTAGE ROAD PIPE MOUNT

TYPE B



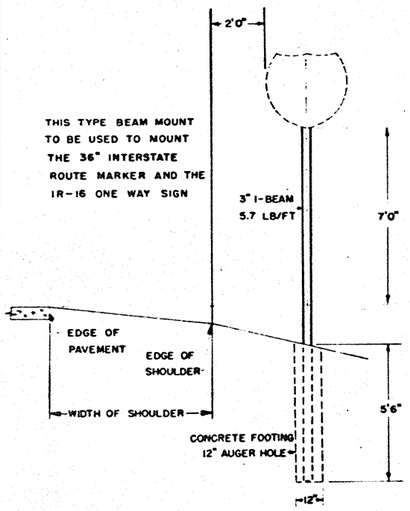
FRONTAGE ROAD PIPE MOUNT

TYPE C



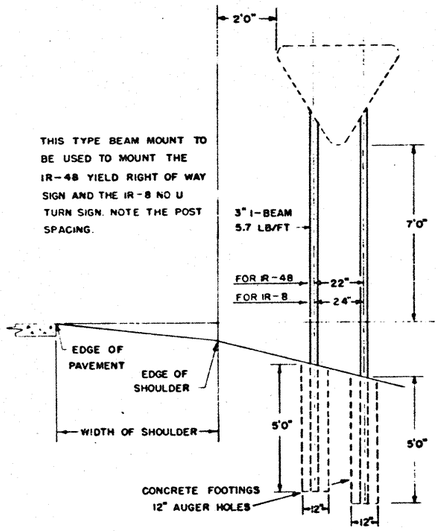
FRONTAGE ROAD PIPE MOUNT

TYPE D



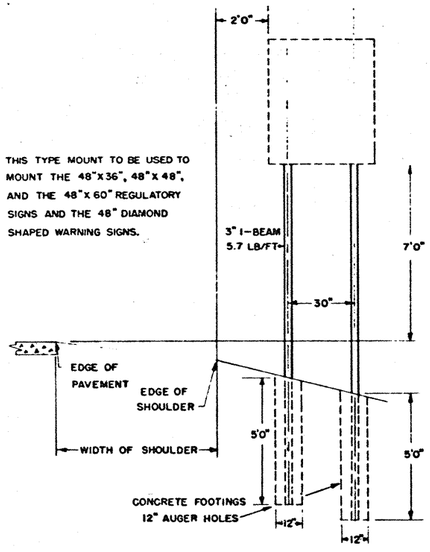
MAIN LANE BEAM MOUNT

TYPE E



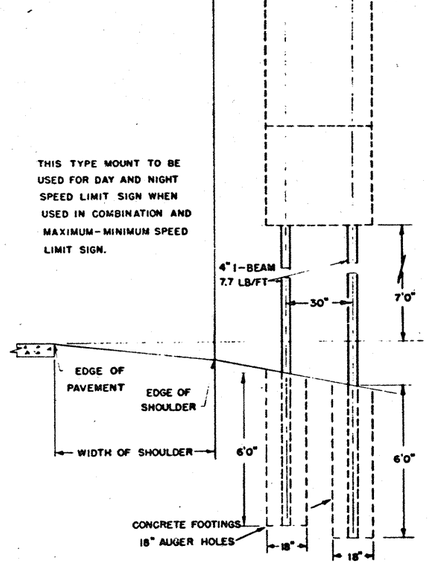
MAIN LANE BEAM MOUNT

TYPE F-1



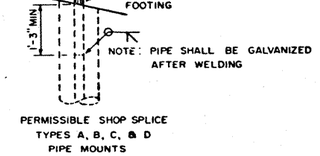
MAIN LANE BEAM MOUNT

TYPE F-2



MAIN LANE BEAM MOUNT

TYPE G



PERMISSIBLE SHOP SPLICE TYPES A, B, C, & D PIPE MOUNTS

GENERAL NOTES:

SEE STANDARD PLAN SHEETS SMD-1 AND SMD-3 FOR SIGN FASTENING DETAILS.

WHERE SOLID ROCK IS ENCOUNTERED, FOOTING SHALL EXTEND TWO FEET INTO THE ROCK.

FOR CONTRACTOR'S INFORMATION ONLY

TEXAS HIGHWAY DEPARTMENT

INTERSTATE STANDARD ROADSIDE SIGN MOUNTING DETAILS

ROUTE MARKERS, WARNING, AND REGULATORY SIGNS

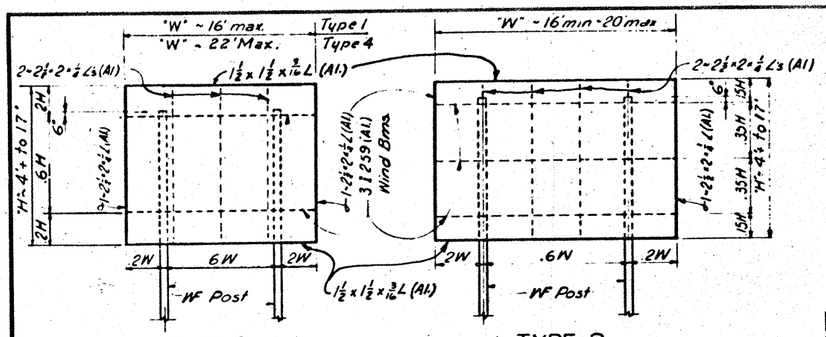
SMD-2-62

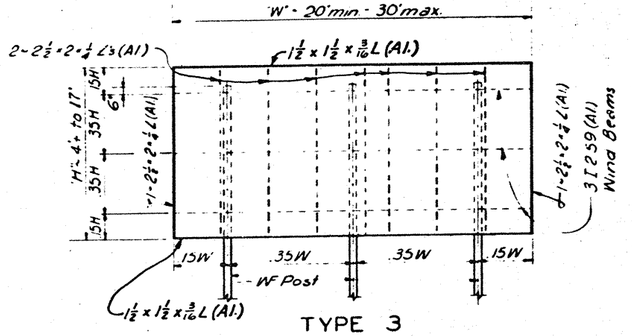
49

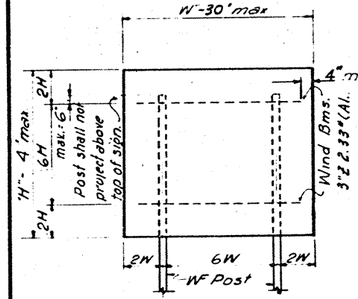
REVISED	11/10/60	CH	FED. AID DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
10/21 M.	2/28/61	GLT	6	TEXAS	I 35-1(19)000				49
2/62 CH	9/25/61	CH	STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
	9/28/61	WLD	21	Webb		18	4016		I-35

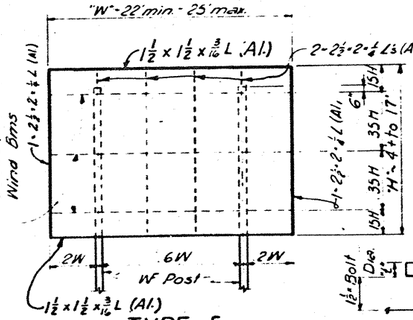
~~SHEET 2 OF 5~~

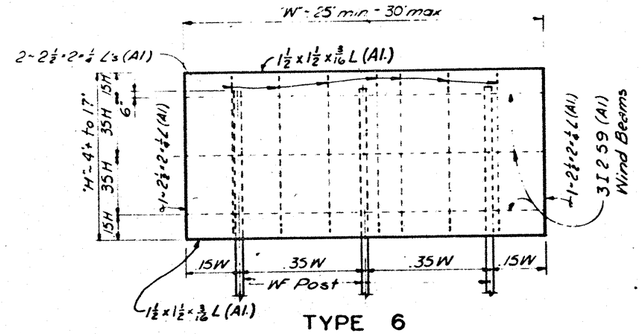
1-53

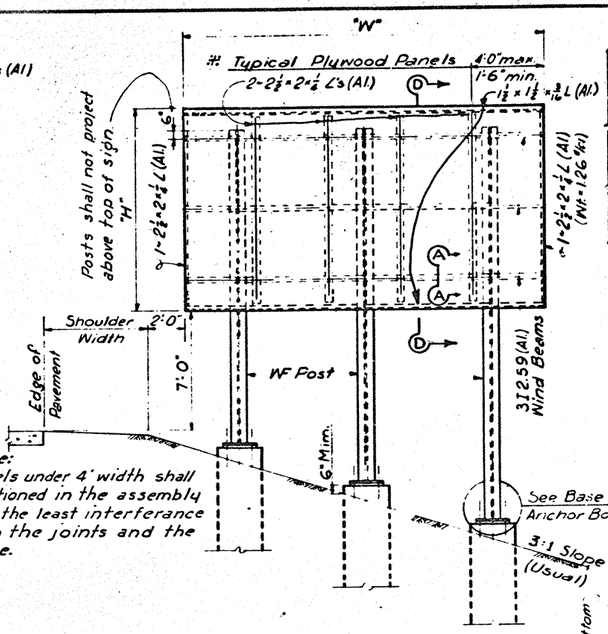








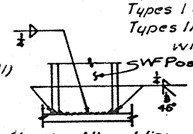




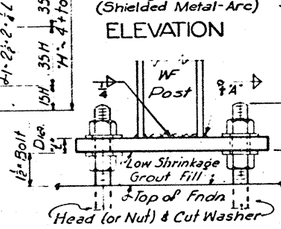
Note:
Panels under 4' width shall be positioned in the assembly to offer the least interferance between the joints and the message.

TYP. SIGN INSTALLATION & LOCATION

Types 3 & 6 as shown
Types 2 & 5 similar except 2 posts.
Types 1 & 4 similar except 2 posts & 2 wind bms.
Types 1A & 4A similar except 2 posts, 2: 3"x2" wind bms. and no angles required.

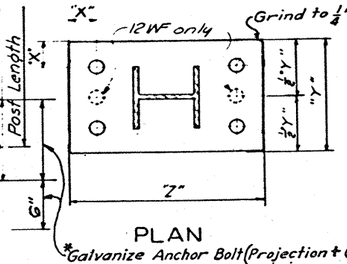


ELEVATION



ELEVATION

† See Alternate Welding

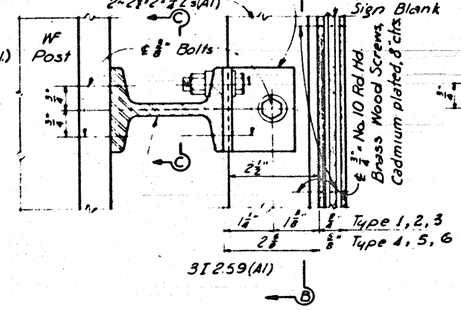


PLAN

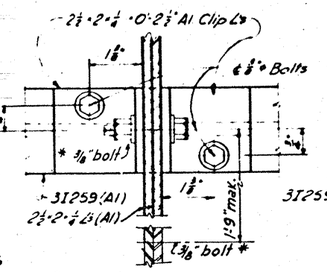
*Galvanize Anchor Bolt (Projection + 6") minimum

BASE Pl & ANCHOR BOLT DETAILS

Post Size	Base Plate Width "Y"	Base Plate Length "Z"	Base Plate Thick "t"	"X"	†Weld Size "A"	Anchor Bolts No.	Anchor Bolts Size	Anchor Bolts Length
5-5WF16	10"	1'-2"	1¼"	2¼"	⅜"	4	1¼"ø	3'-6"
6-6WF20	10"	1'-3"	1¼"	2¼"	⅜"	4	1¼"ø	3'-6"
8-6½WF24	10"	1'-5"	1¼"	2¼"	7/16"	4	1¼"ø	3'-6"
8-6½WF28	10"	1'-6"	1½"	2¼"	½"	4	1½"ø	4'-0"
8-8WF31	12"	1'-6"	1½"	2¼"	9/16"	4	1½"ø	4'-0"
8-8WF35	12"	1'-7"	1¾"	2½"	9/16"	4	1¾"ø	4'-6"
10-8WF39	12"	1'-9"	1¾"	2½"	9/16"	4	1¾"ø	4'-6"
10-8WF45	12"	1'-10"	2¼"	2½"	11/16"	4	1¾"ø	4'-6"
10-10WF49	14"	1'-10"	2¼"	2½"	⅝"	4	2"ø	5'-6"
10-10WF54	14"	1'-10"	2¼"	2½"	⅝"	4	2"ø	5'-6"
12-12WF65	16"	2'-0"	2½"	2½"	11/16"	6	2"ø	5'-6"
12-12WF72	16"	2'-0"	2½"	2½"	13/16"	6	2"ø	5'-6"

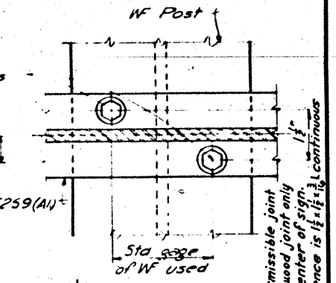


SECTION A-A
TYPES 1, 2, 3, 4, 5 & 6

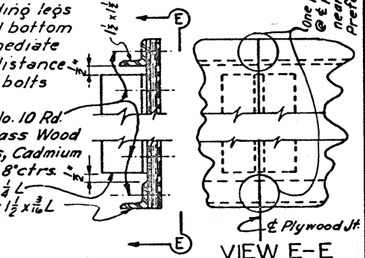


SECTION B-B

* ⅜" bolts through outstanding legs of Ls spaced 1½" from top and bottom of sign and at such intermediate points that the maximum distance between any two adjacent bolts does not exceed 1'-9".

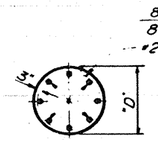


SECTION C-C

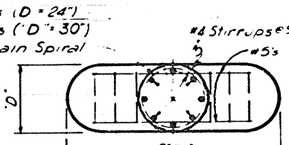


SECTION D-D

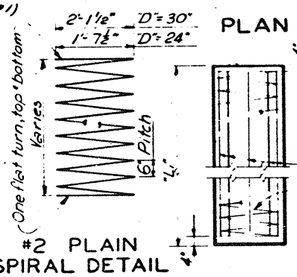
VIEW E-E



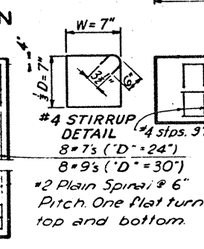
PLAN



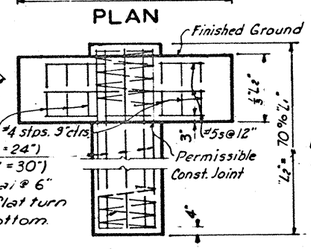
PLAN



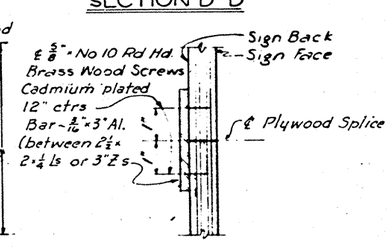
#2 PLAIN SPIRAL DETAIL



ELEVATION

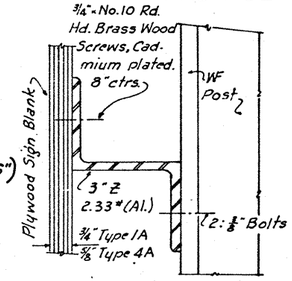


ELEVATION



DETAIL OF PLYWOOD SPLICE
HORIZONTAL ONLY ON TYPES 1, 2, 3, 4, 5, 6
VERTICAL ONLY ON TYPES 1A & 4A

FNDN. DETAILS



SECTION A-A
TYPES 1A & 4A

ALT. FNDN. DETAILS

NOTE: A tolerance of plus or minus 1/4 inch will be permitted in the plan dimensions for fabrication of each single increment sign panel when necessary for squaring. A tolerance of plus or minus 1/4 inch will be permitted for each increment of a multi-increment sign panel when necessary to secure square, tight fitting joints.

GENERAL NOTES

Design: Conforms with BPR criteria for Overhead and Ground Signs for Highways and Standard Specifications for Highway Bridges.

All aluminum frames, stiffeners, wind beams, and joint backing strips shall conform with the requirements of ASTM Specification B 108 alloy GS 11A-T6 or ASTM Specification B 235 alloy GS 11A-T6.

All erection bolts shall be either stainless steel, galvanized steel or aluminum machine bolts with hex. heads and nuts. Each bolt is to be provided with 2 flat or beveled washers, as required, and 1 lock washer.

*Anchor bolts, nuts, washers, base plates and WF post shall be galvanized as per Item 442 of Standard Specifications. Base plates and WF post shall be galvanized after shop fabrication.

All field alterations of WF post lengths, either shortening or extending, shall be made at the tops of post. Surfaces where the galvanizing has been destroyed shall be metalized.

All erection holes in aluminum shapes shall be field drilled.

Top anchor bolt nuts shall be tightened and threads burred.

All WF posts shall be Structural Steel, ASTM-A7.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE STANDARD ROADSIDE PLYWOOD GUIDE SIGNS
SMD-4-62

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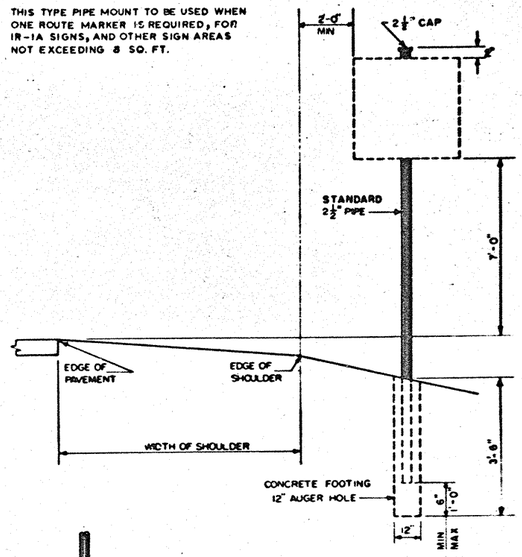
FOR CONTRACTOR'S INFORMATION ONLY

DN. - DLM	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK. DN. - BPW	ORIGINAL	OCT 1960	6	TEXAS	I-35-1(39)000	50
DW. - DLM	Revised 3/16/61 GLT					
CK. DW. -	Rev. 9/27/61 Rev. 2/62		STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	HIGHWAY NO.
TR. -	Rev. 10/61 Rev. 3/62					
CK. TR. -	Rev. 1/62 Rev. 6/62		21	WEBB	18 / 407	IH35

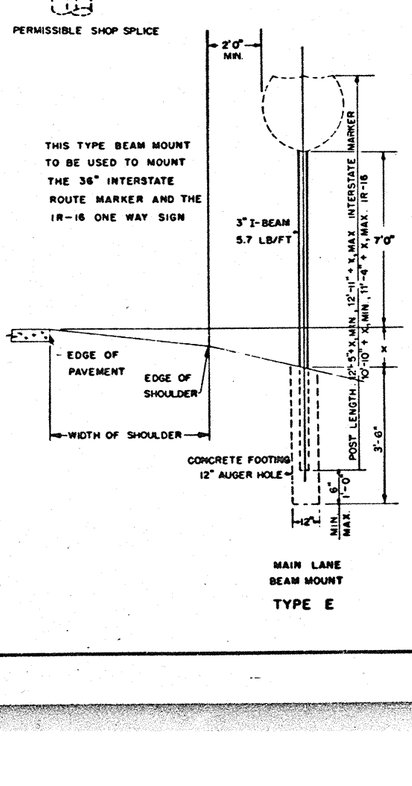
SHEET 4 OF 5

THIS TYPE PIPE MOUNT TO BE USED WHEN ONE ROUTE MARKER IS REQUIRED, FOR IR-1A SIGNS, AND OTHER SIGN AREAS NOT EXCEEDING 8 SQ. FT.



FRONTAGE ROAD PIPE MOUNT

TYPE A

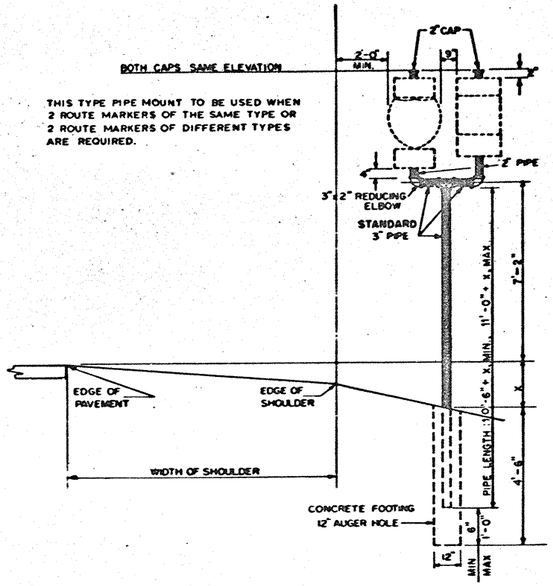


THIS TYPE BEAM MOUNT TO BE USED TO MOUNT THE 36" INTERSTATE ROUTE MARKER AND THE IR-16 ONE WAY SIGN

MAIN LANE BEAM MOUNT

TYPE E

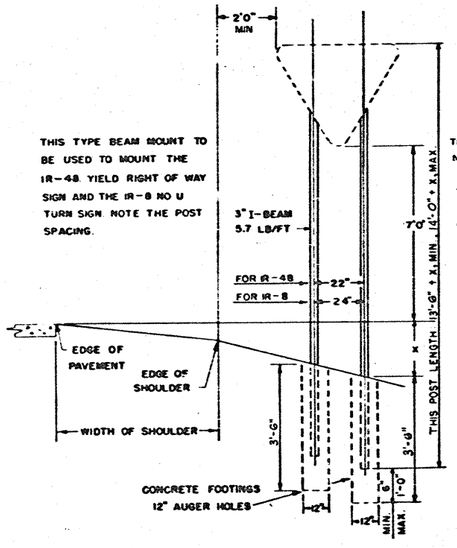
THIS TYPE PIPE MOUNT TO BE USED WHEN 2 ROUTE MARKERS OF THE SAME TYPE OR 2 ROUTE MARKERS OF DIFFERENT TYPES ARE REQUIRED.



FRONTAGE ROAD PIPE MOUNT

TYPE B

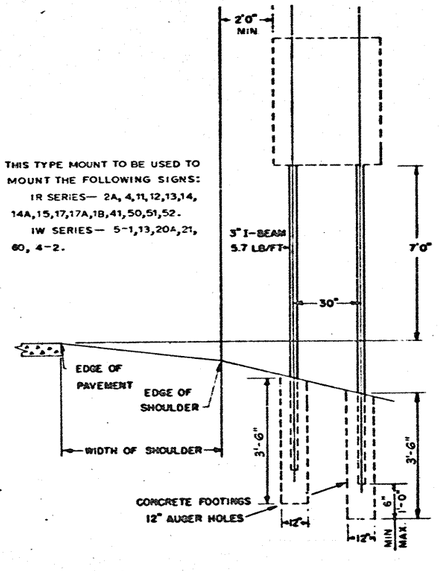
THIS TYPE BEAM MOUNT TO BE USED TO MOUNT THE IR-4B YIELD RIGHT OF WAY SIGN AND THE IR-8 NO U TURN SIGN. NOTE THE POST SPACING.



MAIN LANE BEAM MOUNT

TYPE F-1

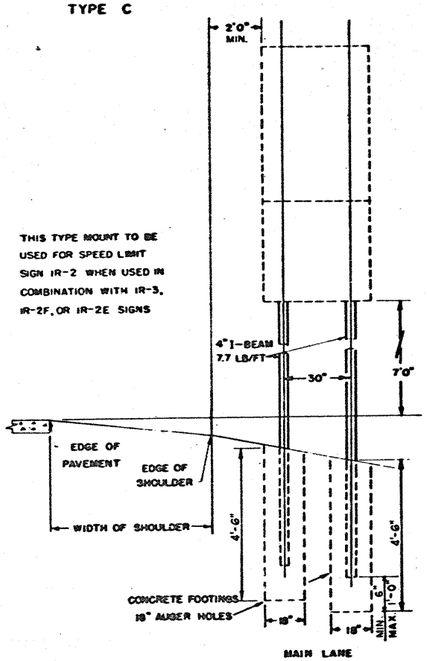
THIS TYPE MOUNT TO BE USED TO MOUNT THE FOLLOWING SIGNS:
IR SERIES— 2A, 4, 11, 12, 13, 14, 14A, 15, 17, 17A, 18, 41, 50, 51, 52.
IW SERIES— 5-1, 13, 20A, 21, 60, 4-2.



MAIN LANE BEAM MOUNT

TYPE F-2

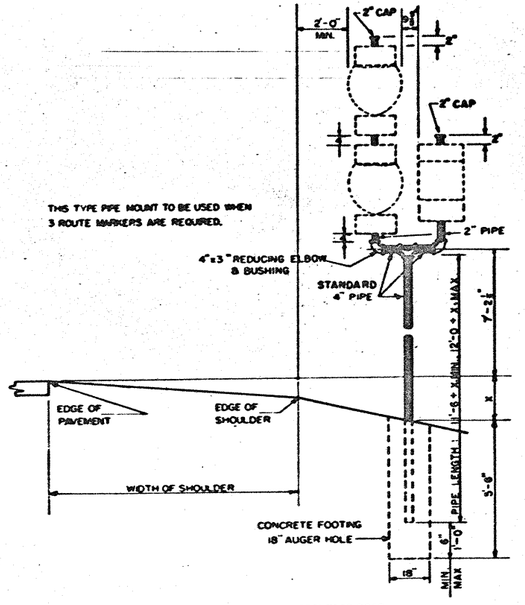
THIS TYPE MOUNT TO BE USED FOR SPEED LIMIT SIGN IR-2 WHEN USED IN COMBINATION WITH IR-3, IR-2F, OR IR-2E SIGNS



MAIN LANE BEAM MOUNT

TYPE G

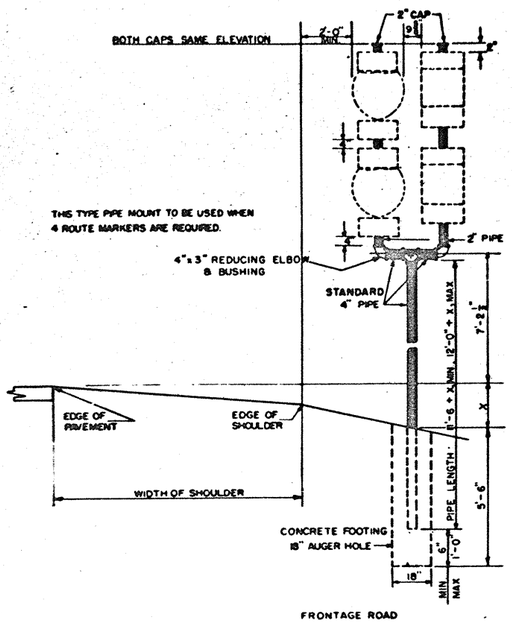
THIS TYPE PIPE MOUNT TO BE USED WHEN 3 ROUTE MARKERS ARE REQUIRED.



FRONTAGE ROAD PIPE MOUNT

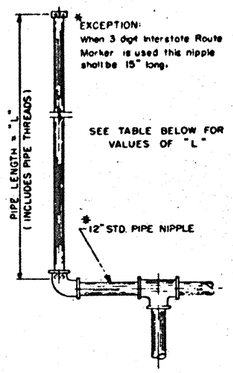
TYPE C

THIS TYPE PIPE MOUNT TO BE USED WHEN 4 ROUTE MARKERS ARE REQUIRED.



FRONTAGE ROAD PIPE MOUNT

TYPE D



P = 21" x 9" Cardinal Direction Marker
Q = 24" Interstate, U.S. or State Route Mkr.
R = 21" x 15" Directional Arrow

MARKER COMBINATIONS	"L"
2P + 2Q + 2R + 10"	8'-10"
P + 2Q + 2R + 10"	8'-1"
2Q + 2R + 10"	7'-4"
Q + R + 6"	3'-9"
P + Q + R + 6"	4'-6"

When 3 digit Interstate Route Markers are used, 1" should be added to "L" in table above for each 3" digit marker used.

GENERAL NOTES

See Standard Plan Sheets SMD-1 and SMD-3 for sign fastening details.

Where solid rock is encountered, footing shall extend two feet into the rock.

Pipe shall be standard weight, welded or seamless, and conform with the requirements of A.S.T.M. Specification A53.

Fittings shall conform with the requirements of A.S.T.M. Specification A197.

Structural steel shall conform with requirements of A.S.T.M. Specification A 7.

All footings for Types A, B, C, D, E, F-1, F-2 and G shall be non-reinforced.

Galvanizing of all posts shall be projection above concrete plus b minimum.

FOR CONTRACTOR'S INFORMATION ONLY

TEXAS HIGHWAY DEPARTMENT

INTERSTATE STANDARD ROADSIDE SIGN MOUNTING DETAILS

ROUTE MARKERS, WARNING, AND REGULATORY SIGNS

SMD-2-63

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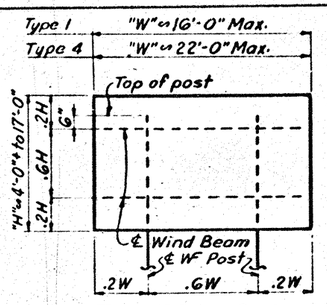
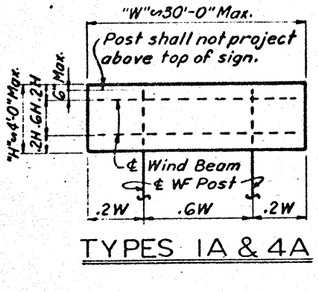
REVISED	6/6/62	SER	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
	7/62	BD	6	TEXAS	I 35-1(19)000				51
Rev. Pipe Lgth. & Fillet Dets. Standard for 30" to 42"	2/63	J.K.	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		HIGHWAY NO.
	5/63	C.H.	21	VAN ZANDT	15	2	03		I.H. 35

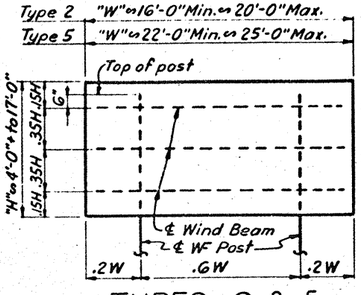
7-41



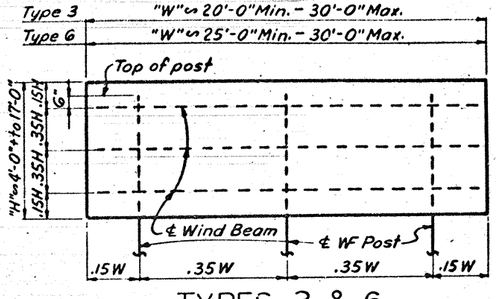
TYPES 1 & 4



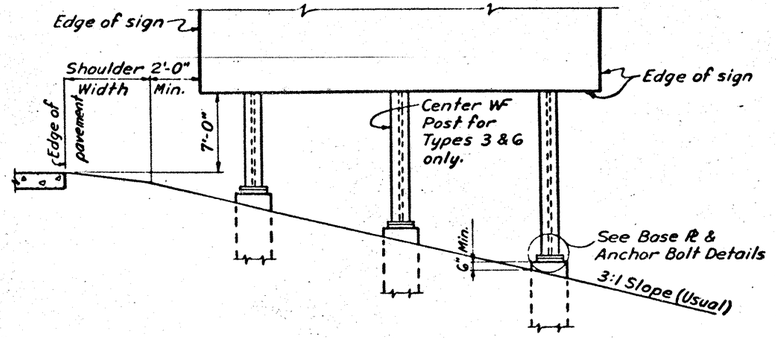
TYPES 1A & 4A



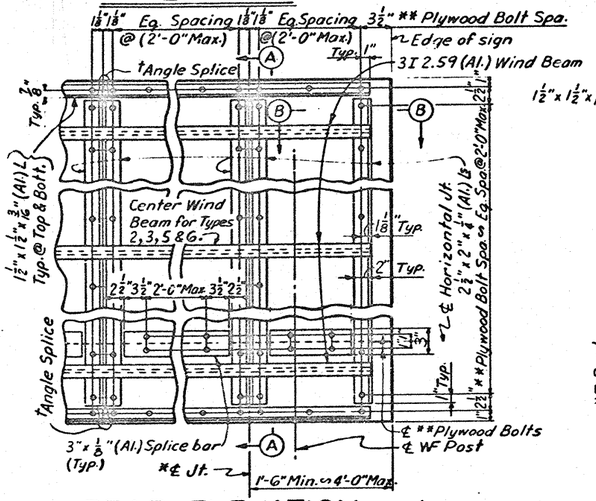
TYPES 2 & 5



TYPES 3 & 6



TYP. SIGN INSTALLATION AND LOCATION



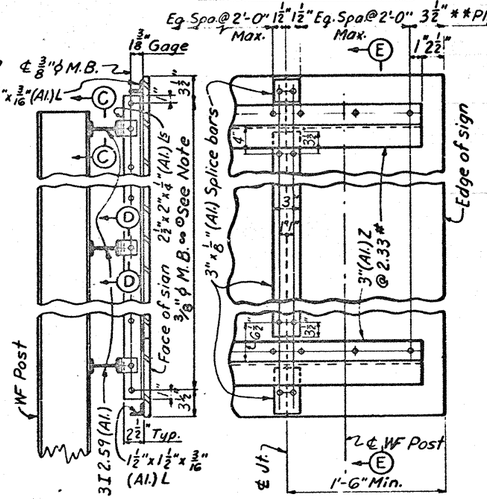
REAR ELEVATION

(Showing Typical Assembly for Types I thru G)

*NOTE: Plywood panels under 4' width shall be positioned in the assembly to offer the least interference between the joints and the message.

†Angle Splice ↔ One permissible joint at ℄ plywood joint only near center of sign. Preference is 1½" x 1½" x ⅜" continuous angle.

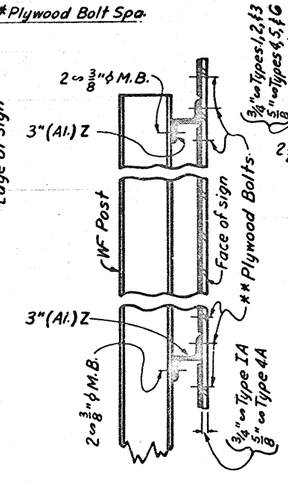
○ ⅜" ϕ M.B. with maximum spacing between 2 adjacent bolts not exceeding 1'-9".



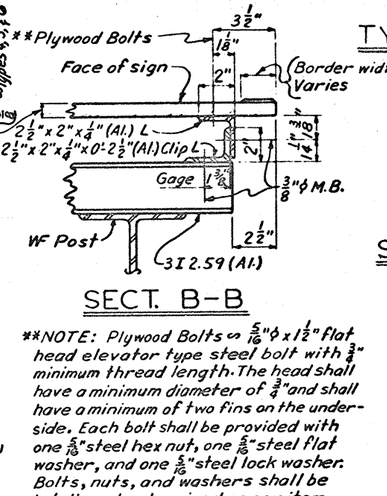
SECT. A-A

REAR ELEVATION

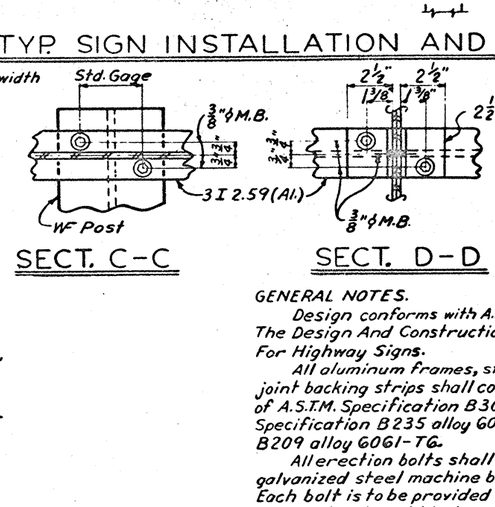
(Showing Typical Assembly For Types IA & 4A)



SECT. E-E



SECT. B-B



SECT. C-C SECT. D-D

**NOTE: Plywood Bolts ↔ 5/16" ϕ x 1½" flat head elevator type steel bolt with ¾" minimum thread length. The head shall have a minimum diameter of ¾" and shall have a minimum of two fins on the underside. Each bolt shall be provided with one 5/16" steel hex nut, one 5/16" steel flat washer, and one 5/16" steel lock washer. Bolts, nuts, and washers shall be hot dipped galvanized as per item 442 of Standard Specifications.

GENERAL NOTES.

Design conforms with A.A.S.H.O. Specifications For The Design And Construction Of Structural Supports For Highway Signs.

All aluminum frames, stiffeners, wind beams, and joint backing strips shall conform with the requirements of A.S.T.M. Specification B308 alloy 6061-T6 or A.S.T.M. Specification B235 alloy 6061-T6 or A.S.T.M. Specification B209 alloy 6061-T6.

All erection bolts shall be either stainless steel or galvanized steel machine bolts with hex. heads and nuts. Each bolt is to be provided with 2 flat or beveled washers as required and 1 lock washer.

*Anchor bolts, nuts, washers, base plates and WF post shall be galvanized as per Item 442 of Standard Specifications. Base plates and WF posts shall be galvanized after shop fabrication.

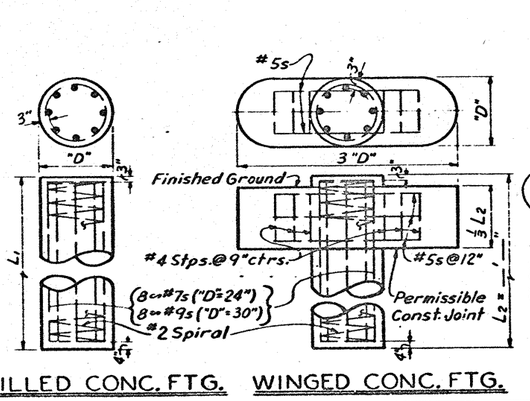
All field alterations of WF post lengths, either shortening or extending, shall be made at the tops of post. Surfaces where the galvanizing has been destroyed shall be metalized.

All field erection holes in aluminum shapes shall be field drilled.

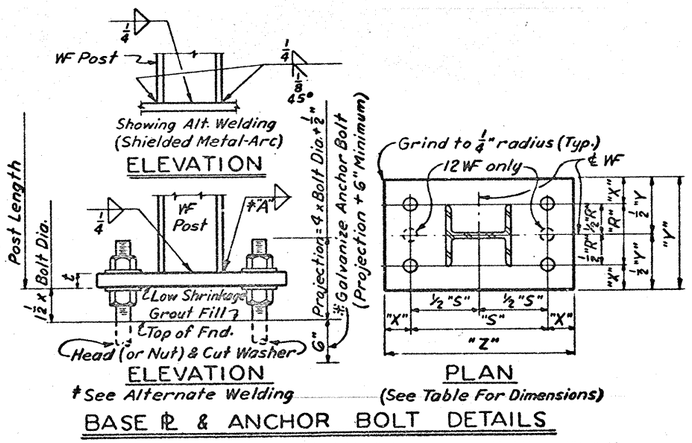
Top anchor bolt nuts shall be tightened and threads burred.

All WF posts shall be Structural Steel, A.S.T.M.-A7.

NOTE: A tolerance of plus or minus ¼ inch will be permitted in the plan dimensions for fabrication of each single increment sign panel when necessary for squaring. A tolerance of plus or minus ¼ inch will be permitted for each increment of a multi-increment sign panel when necessary to secure square, tight fitting joints.



DRILLED CONC. FTG. WINGED CONC. FTG.



BASE Pl & ANCHOR BOLT DETAILS

BASE Pl AND ANCHOR BOLT TABLE										
POST SIZE	BASE PLATE						Weld Size "A"	Anchor Bolts		
	Width "Y"	"R"	L'gth "Z"	"S"	Thick "t"	"X"		No.	Size ϕ	L'gth
5x5WF16	10"	5½"	1'-2"	9½"	1¼"	2½"	⅜"	4	1¼"	2'-6"
6x6WF20	10"	5½"	1'-3"	10½"	1⅛"	2½"	⅜"	4	1¼"	2'-6"
8x6½WF24	10"	5½"	1'-5"	1'-0½"	1⅛"	2½"	5/16"	4	1¼"	2'-6"
8x6½WF20	10"	5½"	1'-6"	1'-1½"	1½"	2½"	½"	4	1½"	3'-0"
8x8WF31	12"	7½"	1'-6"	1'-1½"	1½"	2½"	5/16"	4	1½"	3'-0"
8x8WF35	12"	7"	1'-7"	1'-2"	1¾"	2½"	5/16"	4	1¾"	3'-6"
10x8WF39	12"	7"	1'-9"	1'-4"	1¾"	2½"	5/16"	4	1¾"	3'-6"
10x8WF65	12"	7"	1'-10"	1'-5"	2½"	2½"	11/16"	4	1¾"	3'-6"
10x10WF89	14"	9"	1'-10"	1'-5"	2½"	2½"	5/8"	4	2"	4'-0"
10x10WF54	14"	9"	1'-10"	1'-5"	2½"	2½"	¾"	4	2"	4'-0"
12x12WF65	16"	11"	2'-0"	1'-7"	2½"	2½"	11/16"	6	2"	4'-0"
12x12WF72	16"	11"	2'-0"	1'-7"	2½"	2½"	13/16"	6	2"	4'-0"

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

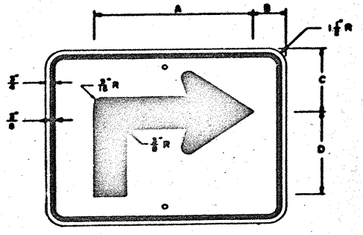
STANDARD ROADSIDE PLYWOOD GUIDE SIGNS

SMD-4(MOD)-63

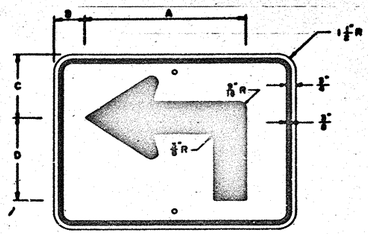
FOR CONTRACTOR'S INFORMATION ONLY

SHEET 4 OF 5

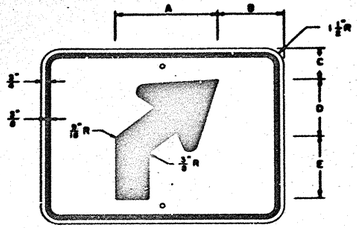
Dn. D.L.H.	Drawing	Date	Fed. Road Dist. No.	State	Federal Aid Project No.	Sheet No.
Ck. Dn. B.R.W.	ORIGINAL	5 MAR., 1963	6	TEXAS	I 35-1(19)X(6)	52
Dn. - J.R.C.			State Dist. No.	County	Control No. / Section No. / Job No.	Highway No.
Ck. Dn. - D.B.D.			21	Ww-LB	16 / 6 / 43	I.H.35
Tr. -						
Ck. Tr. -						



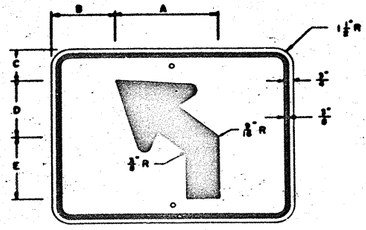
M3-1R
21"X15"
A=12 11/16" B=3 3/8"
C=5 7/16" D=7 1/8"



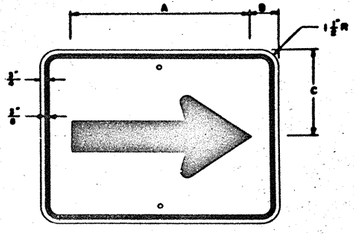
M3-1L
21"X15"
A=12 15/16" B=3 3/8"
C=5 7/16" D=7 1/8"



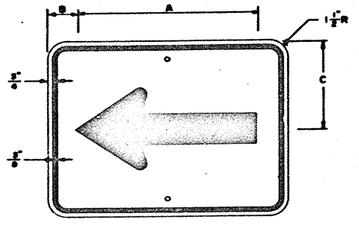
M3-2R
21"X15"
A=8 1/4" B=6"
C=2 3/4" D=4 3/8"
E=5 7/16"



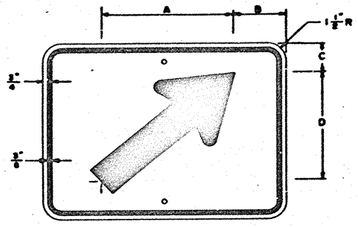
M3-2L
21"X15"
A=8 1/4" B=6"
C=2 3/4" D=4 3/8"
E=5 7/16"



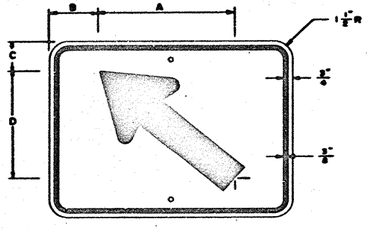
M4-1R
21"X15"
A=14 3/8" B=3"
C=7 1/8"



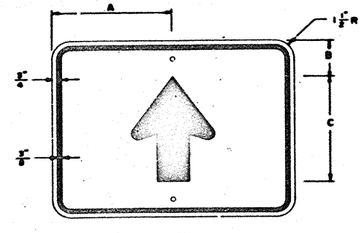
M4-1L
21"X15"
A=14 3/8" B=3"
C=7 1/8"



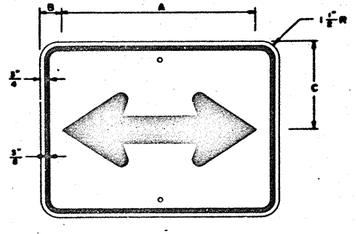
M4-2R
21"X15"
A=10 11/16" B=4 3/8"
C=2 7/16" D=9 1/8"



M4-2L
21"X15"
A=10 11/16" B=4 3/8"
C=2 7/16" D=9 1/8"



M4-3
21"X15"
A=10 1/2" B=2 3/8"
C=9 1/2"

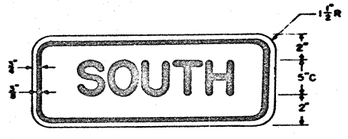


M4-4
21"X15"
A=15" B=3"
C=7 1/8"

DIRECTIONAL ARROW MARKERS

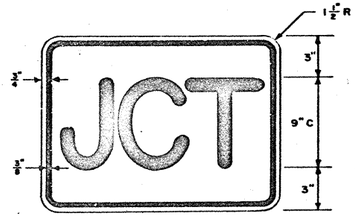
M6-1N
21" X 9"

M6-1E
21" X 9"



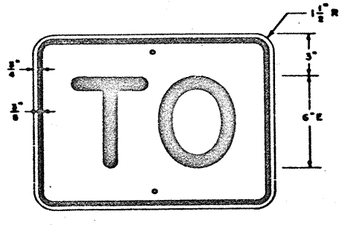
M6-1S
21" X 9"

M6-1W
21" X 9"



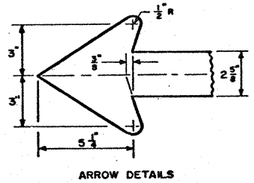
M2-1
21" X 15"

CARDINAL DIRECTION MARKERS



M7-1
18" X 12"

M5-5
21" X 9"



ARROW DETAILS

GENERAL NOTES FOR DIRECTIONAL ARROW MARKERS AND CARDINAL DIRECTION MARKERS

Alphabets and lateral spacing between letters shall conform with the U. S. Bureau of Public Roads standard roadside capital letter alphabets. Lateral spacing of text shall be such as to provide a balanced appearance.

The letters, arrows, and borders shall be black, and the background shall be a white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting or paint and beads conforming with the specifications.

The letters, arrows, and border shall be applied directly to the surface of the reflective material by the silk screen process.

The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with the Item , "Aluminum Signs Type A," or one piece 12 gauge sheet steel conforming with the Item, "Sheet Steel Signs Type A."

For sign blank punching details, see sheet on "Sign Blank Punching Details."

TEXAS HIGHWAY DEPARTMENT

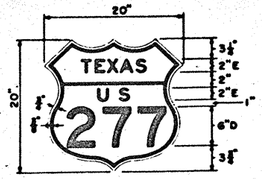
STANDARD INTERSTATE SIGNS

53

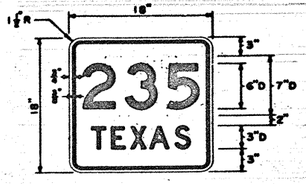
SHEET 3 of 6 ISG(3)

REVISED	7/62 JG	7/64 CH	FED. AID DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
	8/62 CH		6	TEXAS	I 35-1(19)000				53
	8/63 CH		STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
	12/63 BD		21	Webb		18	6	43	14,35

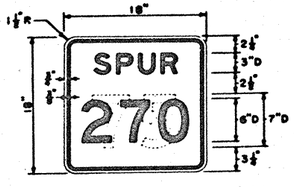
3



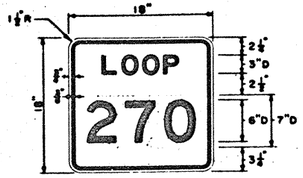
M1-1A



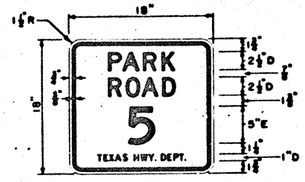
M1-3T



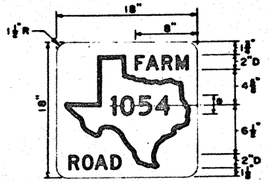
M1-3S



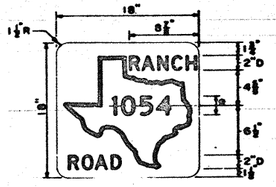
M1-3L



M1-3P



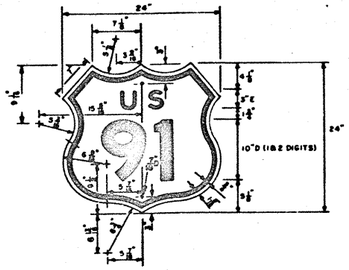
M1-3F



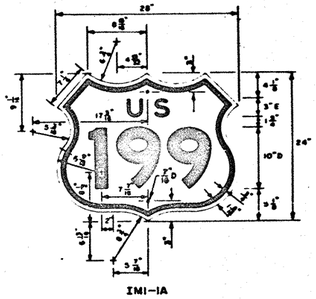
M1-3R

* No. of Digits			
1	2	3	4
5"D	4"D	3-1/2"D	2-1/2"D

The M1 Series Route Markers shown on the sheet (20"x20" & 18"x18" blanks) are to be used only as Confirming Route Markers except that they will not be used as such on the Main Lanes of Controlled Access Facilities.

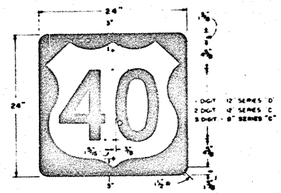


IM1-1

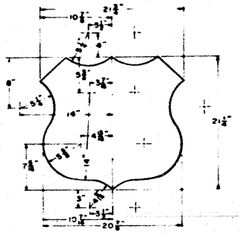


IM1-1A

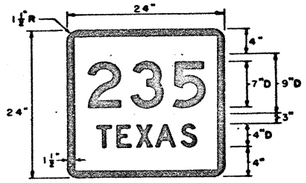
The IM1-1 and IM1-1A Route Markers are to be used only as Confirming Route Markers on the Main Lanes of Controlled Access Facilities.



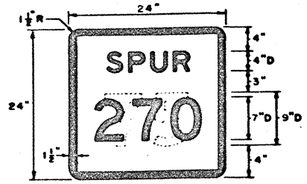
M1-2



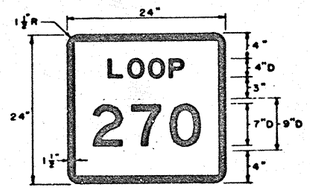
DETAIL OF SHIELD SYMBOL



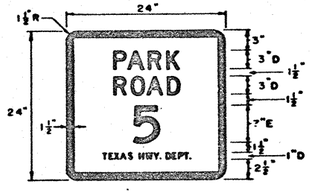
M1-4T



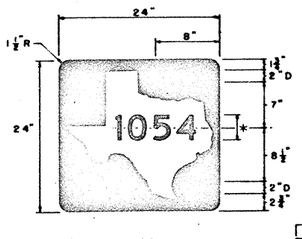
M1-4S



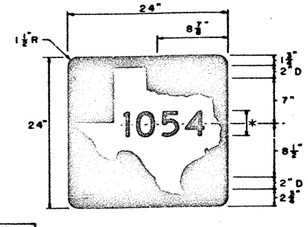
M1-4L



M1-4P



M1-4F



M1-4R

* No. of Digits			
1	2	3	4
6"D	6"D	5"D	4"D

The M1 Series Route Markers shown on this sheet (24"x24" blanks) are to be used in Route Turn Assemblies, Advance Turn Assemblies, Directional Assemblies and Junction Assemblies. The M1-4L and M1-4T Route Markers shall also be used as Confirming Markers on the Main Lanes of Controlled Access Facilities when applicable.

STANDARD U. S. AND STATE HIGHWAY ROUTE MARKERS

GENERAL NOTES FOR U. S. AND STATE HIGHWAY ROUTE MARKERS

For the M1-3F, M1-3R, M1-4F, and M1-4R Route Markers a print of the Texas State outline shall be obtained from the TEXAS HIGHWAY DEPARTMENT to be used for making a stencil.

For all Route Markers on this sheet, except M1-2, M1-4F, and M1-4R, letters, numerals, and border shall be black and the background shall be a white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting, or paint and beads conforming with the specifications. The letters, numerals, and border shall be applied direct to the surface of the reflective material by the silk screen process.

For the M1-2, M1-4F, and M1-4R Route Markers, the U.S. and State outline shall be white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting, or paint and beads conforming with the specifications. The numerals and background shall be black and applied by the reverse screen process.

The sign blanks shall be one piece sheet aluminum alloy 0.125 inch thick conforming with the Item, "Aluminum Signs Type A," or one piece 12 gauge sheet steel conforming with the Item, "Sheet Steel Signs Type A."

For sign blank punching details see sheet on "Sign Blank Punching Details."

TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

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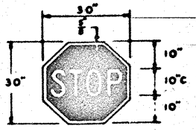
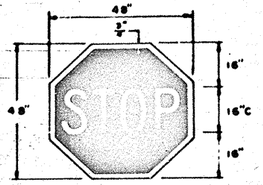
SHEET 4 of 6 ISG(4)

REVISED	7/62 JG		FED. AID PROJ. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
	10-63 WLD		6	TEXAS	I 35-1(19)000				54
	7/64 CH		STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
			21	WEBB		18	6	43	IH 35

4

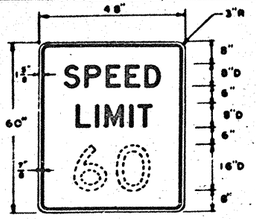


IR-1A*
30"x30"



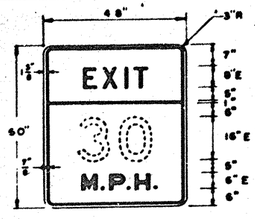
IR-1B*
48"x48"

*LETTERS, BORDERS—WHITE REFLECTIVE SHEETING
BACKGROUND—FLAT SURFACE WHITE REFLECTIVE SHEETING, REVERSE SCREENED WITH STOP SIGN RED TRANSPARENT INK.



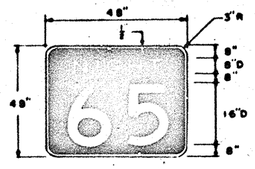
IR-2
48"x60"

WHEN USED IN CONJUNCTION WITH AN IR-3 SIGN, ONLY THAT PART OF THE WHITE BACKGROUND BEARING THE WORDS "SPEED LIMIT" SHALL BE REFLECTORIZED.



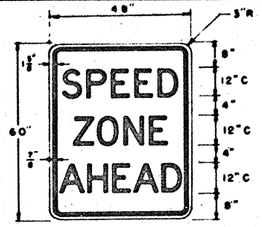
IR-2A
48"x60"

LETTERS, BORDERS, NUMERALS—BLACK BACKGROUND—INTERSTATE YELLOW REFLECTIVE MATERIAL

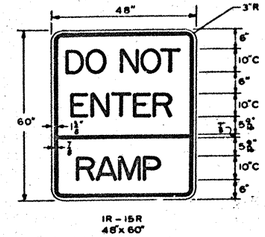


IR-3
48"x48"

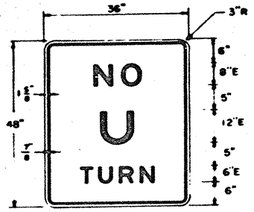
LETTERS, NUMERALS, BORDERS—WHITE REFLECTIVE MATERIAL BACKGROUND—BLACK (REVERSE SCREENED)



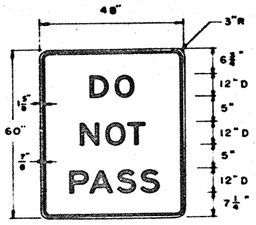
IR-4
48"x60"



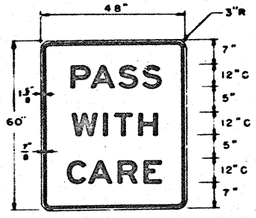
IR-15R
48"x60"



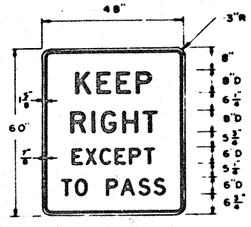
IR-8
36"x48"



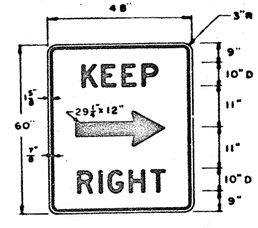
IR-11
48"x60"



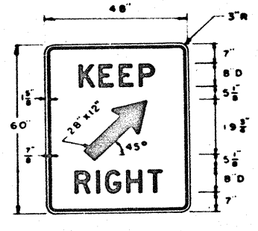
IR-12
48"x60"



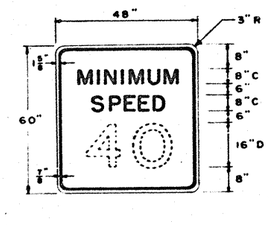
IR-13
48"x60"



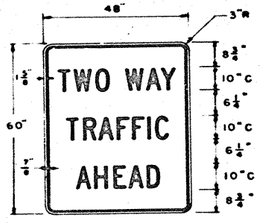
IR-14
48"x60"



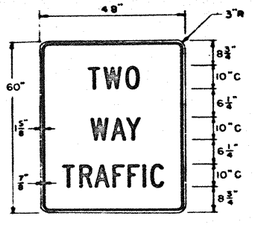
IR-14A
48"x60"



IR-2F
48"x60"

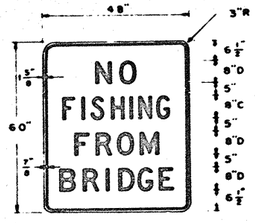


IR-17
48"x60"

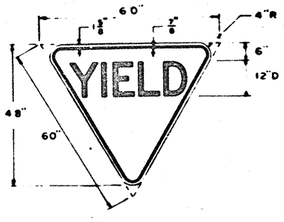


IR-17A
48"x60"

IR-51
48"x36"

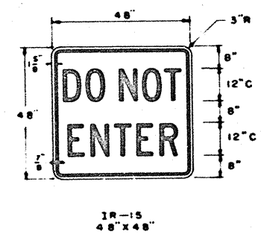


IR-41
48"x60"

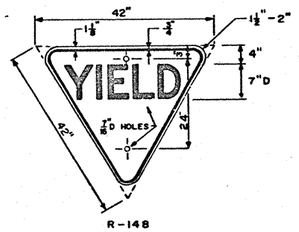


IR-48
60"x48"

LETTERS, BORDERS—BLACK
BACKGROUND—INTERSTATE YELLOW REFLECTIVE MATERIAL

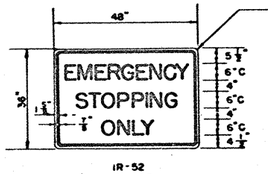


IR-15
48"x48"

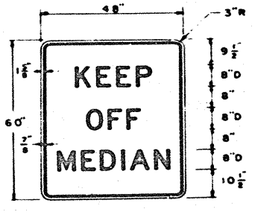


R-148
42"

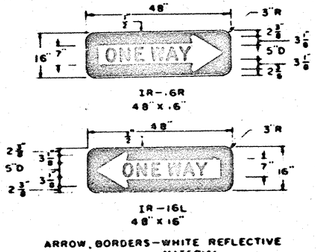
BORDERS, LETTERS—BLACK
BACKGROUND—INTERSTATE YELLOW REFLECTIVE MATERIAL



IR-52
48"x36"



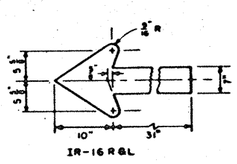
IR-50
48"x60"



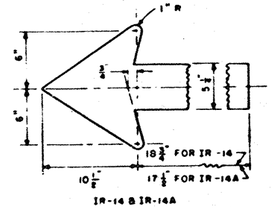
IR-6R
48"x16"

IR-16L
48"x16"

ARROW, BORDERS—WHITE REFLECTIVE MATERIAL
LETTERS, BACKGROUND—BLACK (REVERSE SCREENED)



IR-16 R&L



IR-16 & IR-16A

ARROW DETAILS

GENERAL NOTES FOR REGULATORY SIGNS

Alphabets and lateral spacing between letters and words shall conform with U. S. Bureau of Public Roads standard rounded capital letter alphabets. Lateral spacing of text shall be such as to provide a balanced appearance.

Unless otherwise noted under specific signs, all letters, numerals, arrows, and borders shall be black, and the background shall be a white reflective material of either flat surface reflective sheeting, exposed lens reflective sheeting, or paint and beads, conforming with the specifications. Reflective sheeting for STOP signs shall have a flat surface.

Unless otherwise stated all letters, numerals, arrows and borders shall be applied direct to the surface of the reflective material by the silk screen process.

The sign blanks shall be one piece, 5/8 inch thick plywood conforming with the specifications. When reflective sheeting is used for background reflectorization, the plywood shall be Type A, High Density. When paint and beads are used for background reflectorization, the plywood shall be Type B, Medium Density.

For sign blank punching details, see sheet on "Sign Blank Punching Details."

TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

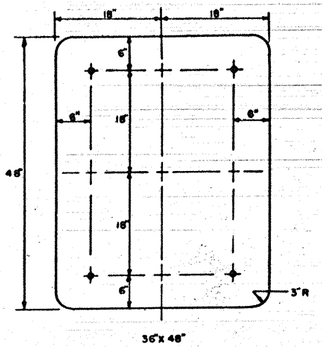
REGULATORY

55

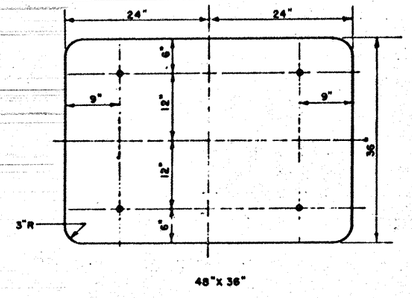
ISR(I)

REVISED	6/62 JG	2/64 BD	FED. RD DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
	7/62 JG	9/64 CH	6	TEXAS	I-35-1(19)000				55
	8/63 CH	3/30WFA	STATE DIST. NO.	COUNTY		CONT	SECT	JOB	HIGHWAY NO.
	1/64 CH		21	Webb		12	4	16	IH35

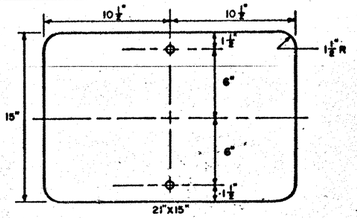
6



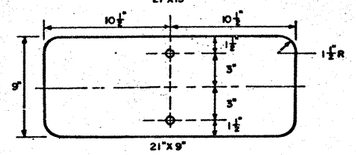
36"x 48"



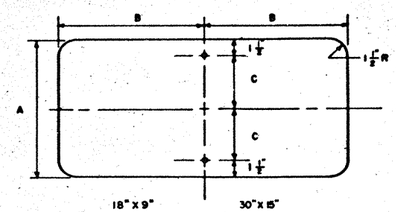
48"x 36"



21"x15"

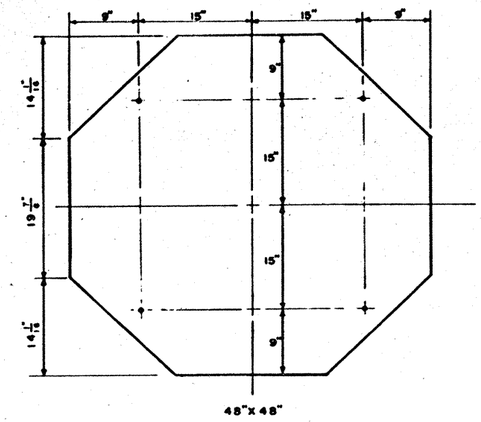


21"x9"

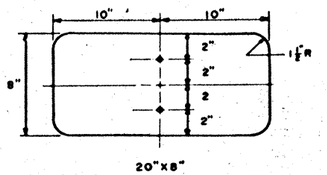


18"x9"
A= 9"
B= 9"
C= 3"

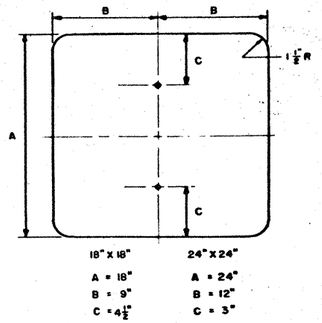
30"x15"
A=15"
B=15"
C= 6"



48"x 48"

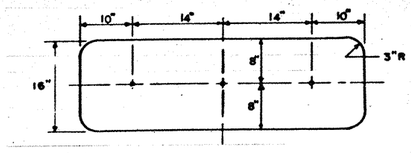


20"x8"

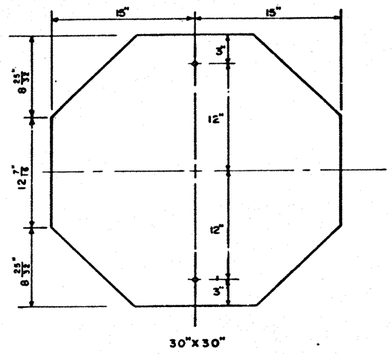


18"x 18"
A = 18"
B = 9"
C = 4½"

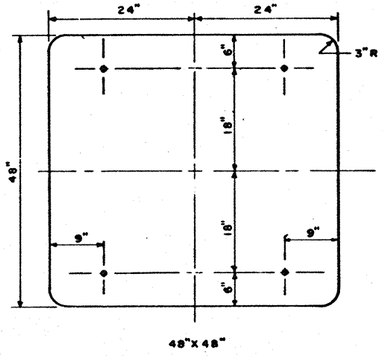
24"x 24"
A = 24"
B = 12"
C = 3"



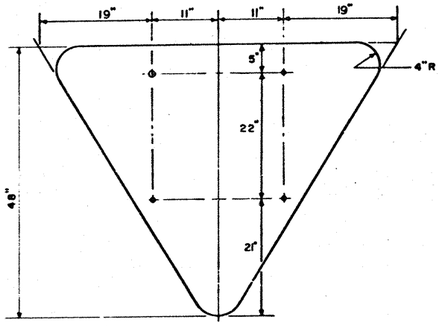
48"x16"



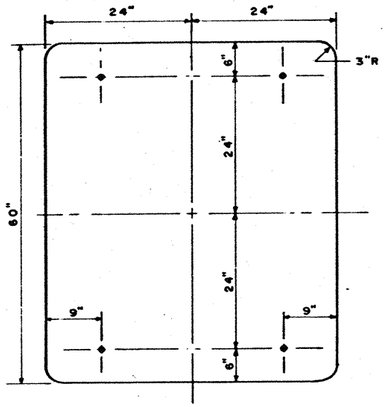
30"x30"



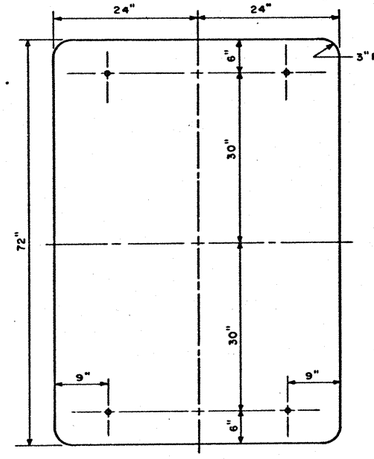
48"x48"



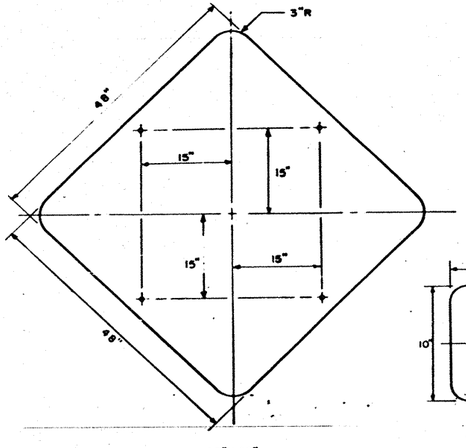
60"x48"



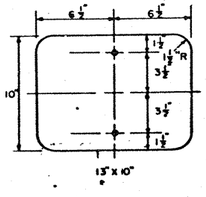
48"x60"



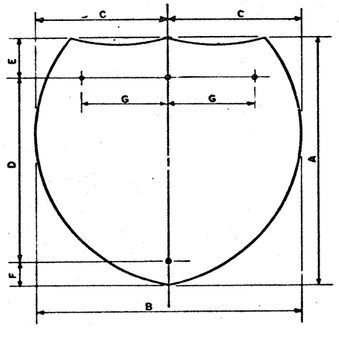
48"x72"



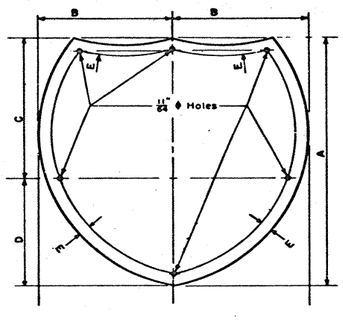
48"x48"



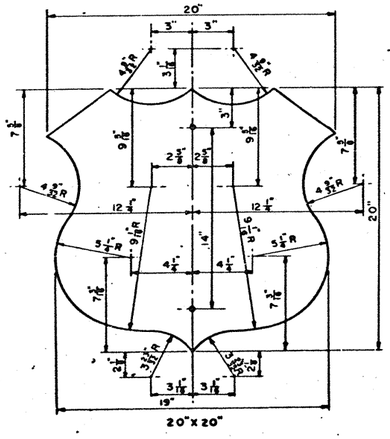
13"x10"



A	B	C	D	E	F	G
18"	21"	10½"	11"	4"	3"	
24"	24"	12"	14½"	5½"	4"	
25"	30"	15"	15½"	5½"	4"	
36"	36"	18"	22"	8"	6"	14"
36"	42"	21"	22"	8"	6"	14"



A	B	C	D	E
36"	18"	21"	15"	1½"
48"	24"	28"	20"	1¾"
51"	29"	28"	23"	1¾"



20"x 20"

NOTE:
EXCEPT AS OTHERWISE NOTED ALL HOLES SHALL BE 7/16 DIAMETER.

TEXAS HIGHWAY DEPARTMENT

STANDARD INTERSTATE SIGNS

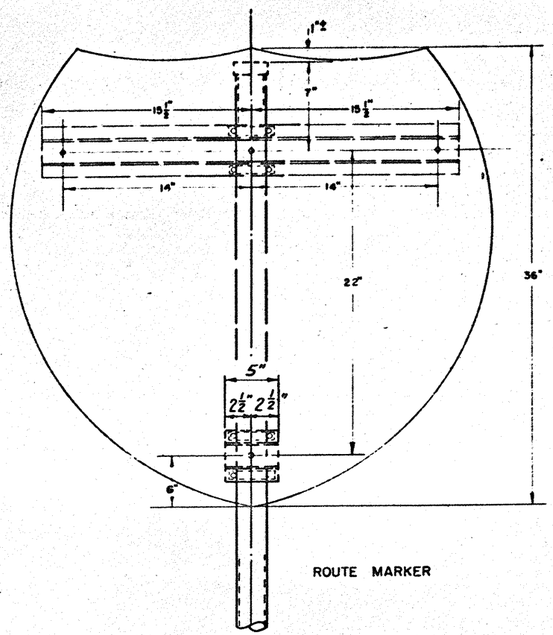
SIGN BLANK PUNCHING DETAILS

ISB(I)

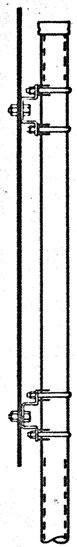
56

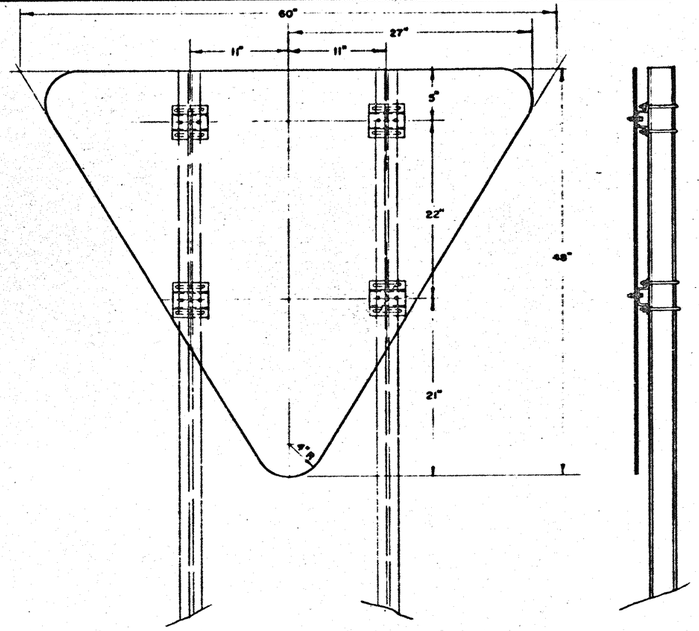
REVISED	8/63	CH	FED. AID DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.
			6	TEXAS	I 35-1(19)000	56
			STATE DIST. NO.	COUNTY	CONT. SECT. JOB	HIGHWAY NO.
			21	Webb	18 6 93	I.H.35

7

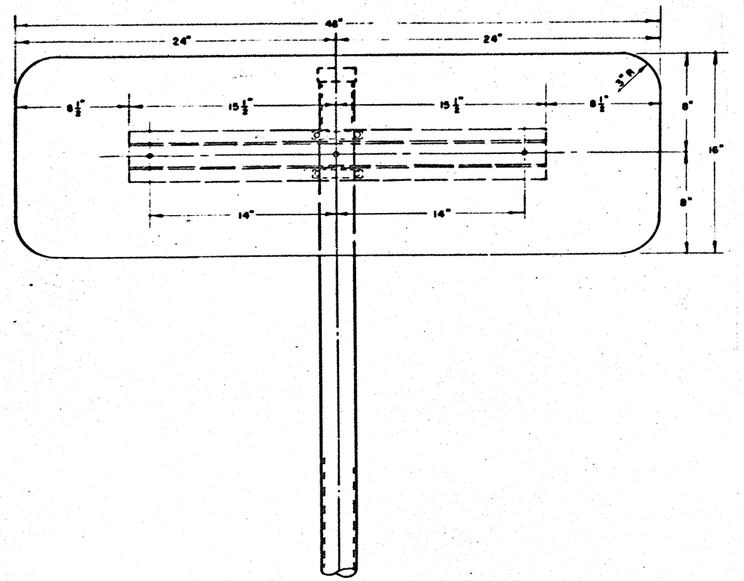


ROUTE MARKER

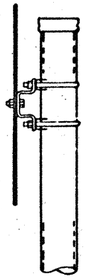


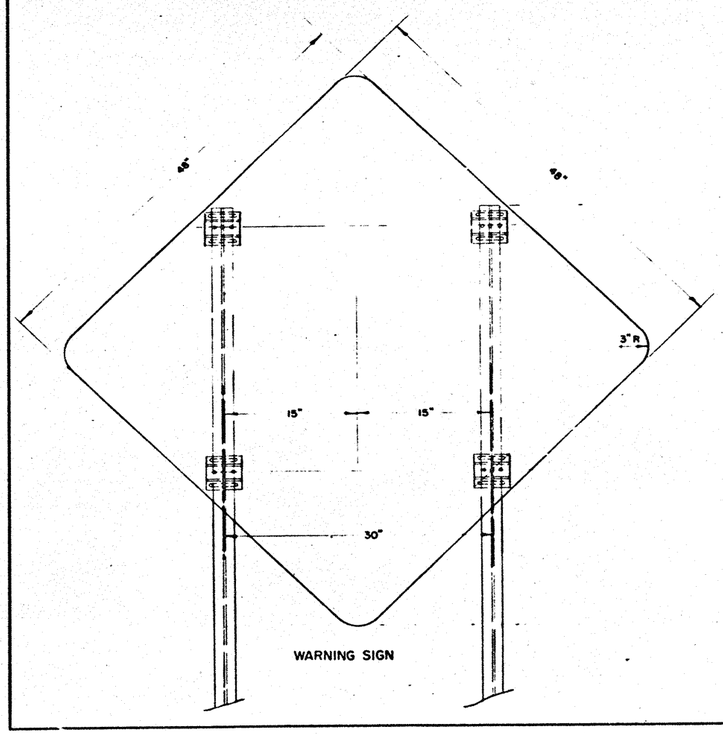


YIELD SIGN

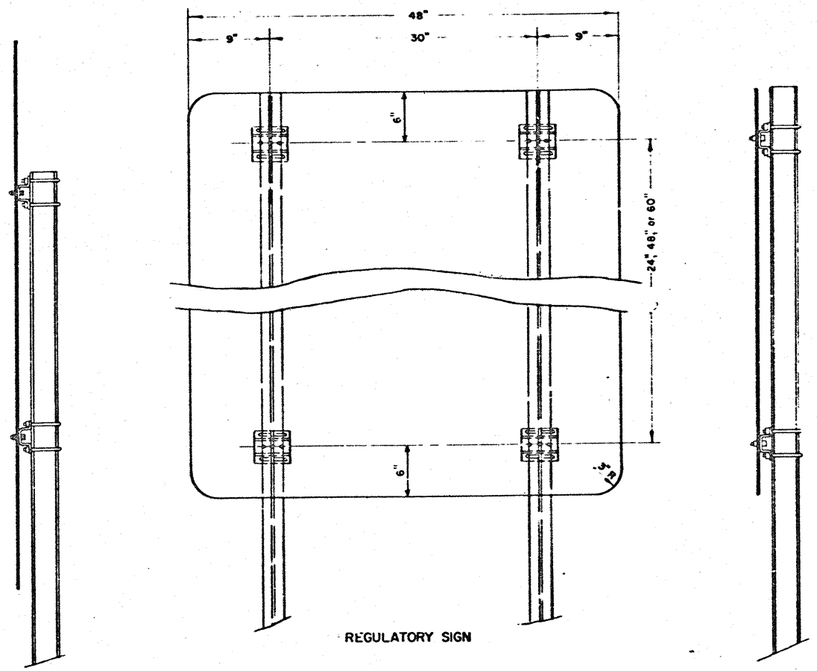


IR-16 ONE WAY SIGN





WARNING SIGN



REGULATORY SIGN

NOTE:

SEE SHEET SMD-3 FOR CLAMP DETAILS.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE
STANDARD ROADSIDE SIGN MOUNTING DETAILS
SMD-1

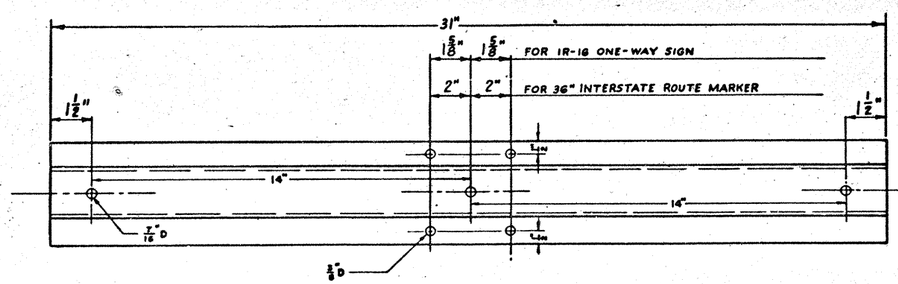
ROUTE MARKERS, WARNING, AND REGULATORY SIGNS

REVISED	6/62 JG	7/65 TK	FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
	7/67 BD		6	TEXAS	I-35-1(19)000				57
	8/68 CM		STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
	2/69 JR		21	Webb		18	4	16	IH-35

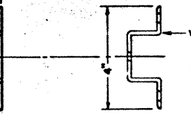
SHEET 1 OF 8

57

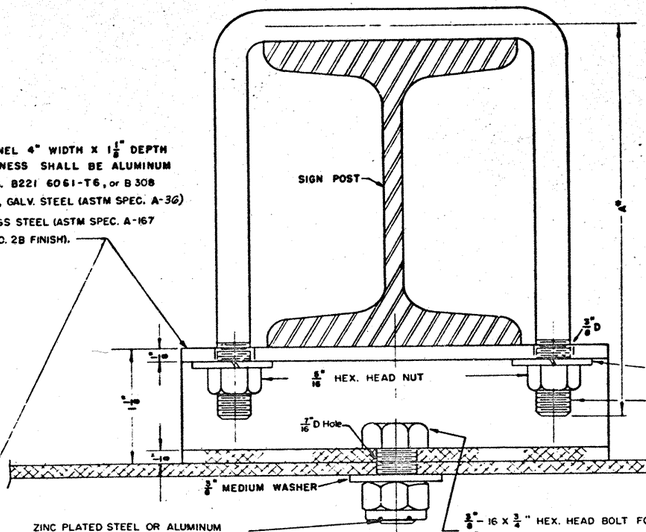
9

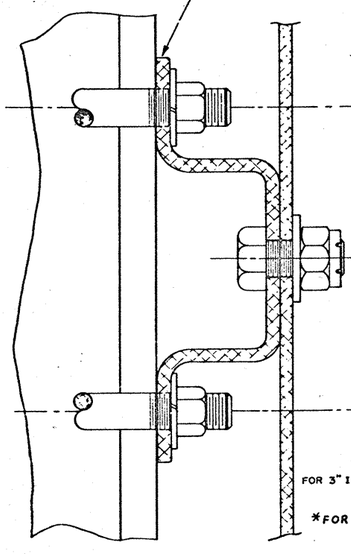


CHANNEL FOR MOUNTING 36" INTERSTATE ROUTE MARKER AND 1R-16 ONE-WAY SIGN

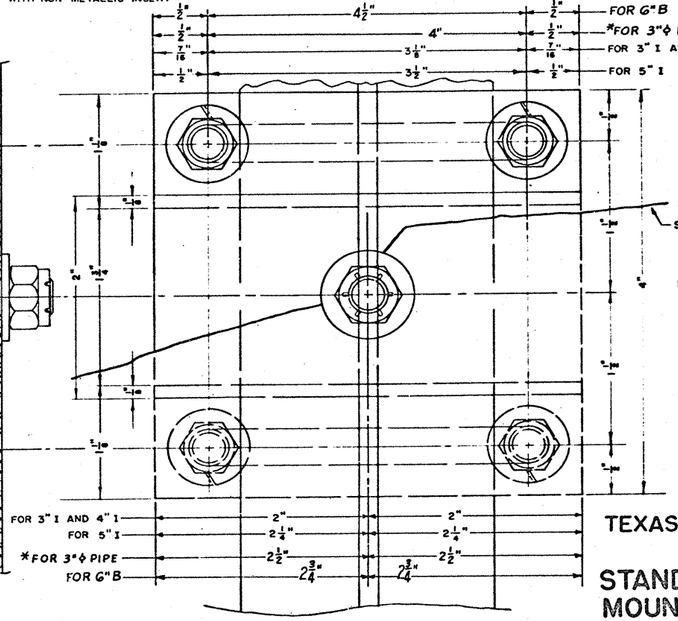


WING CHANNEL 4" WIDTH X 1 1/8" DEPTH X 1/8" THICKNESS SHALL BE ALUMINUM (ASTM SPEC. B221 6061-T6, or B 308 6061-T6), GALV. STEEL (ASTM SPEC. A-36) OR STAINLESS STEEL (ASTM SPEC. A-167 TYPE 304 NO. 2B FINISH).





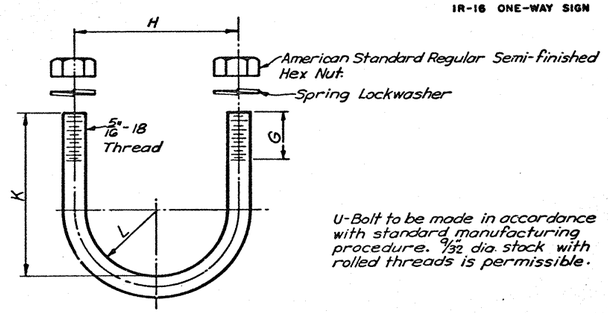
SIDE VIEW



CLAMP DETAIL FOR HOLDING SIGNS TO MOUNT TYPES F-1, F-2, 6, & H

*CLAMP DETAIL FOR PIPE MOUNT TYPE A-1 IS SIMILAR EXCEPT THE PIPE MUFFLER CLAMP SHALL BE USED IN LIEU OF THE I BEAM U-BOLT.

NOTE: SEE SHEET SMD-1 FOR MOUNTING DETAILS. ALL SIGN MOUNTING CLAMP PARTS NOT MADE FROM ALUMINUM SHALL BE STAINLESS STEEL OR SHALL BE GALVANIZED IN CONFORMANCE WITH ITEM 442 OF THE STD. SPEC.



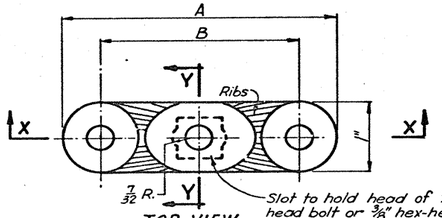
U-BOLT
(For 1½", 2", 2½" & 3" Std. Pipe)

Pipe Size	O.D.	A	B	C	D	E	F	G	H	K	L	R1	R2
1½"	1 15/16"	3 9/32"	2 9/32"	1"	1 1/16"	7/16"	3/16"	5/8"	2 9/32"	2 7/16"	63/64"	31/32"	15/16"
2"	2 3/8"	3 3/4"	2 3/4"	1½"	1 1/8"	½"	3/16"	1"	2 3/4"	2 11/16"	1 7/32"	1 1/4"	1 3/16"
2½"		4 1/4"	3 1/4"	2"	1 1/4"	½"	1/4"	1"	3 1/4"	3 3/16"	1 15/32"	1½"	1 7/16"
3"		4 7/8"	3 7/8"	2½"	1 3/8"	5/8"	1/4"	1"	3 7/8"	3 13/16"	1 25/32"	1 13/16"	1 3/4"

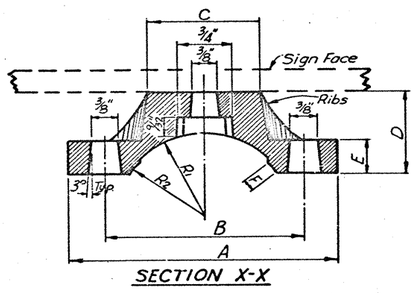
U-Bolt to be made in accordance with standard manufacturing procedure. 9/32 dia. stock with rolled threads is permissible.

NOTE:
Pipe Clamp Castings shall be Aluminum and in accordance with A.S.T.M. B26, Alloy SG70A-TG, or A.S.T.M. B108, Alloy SG70A-TG, or A.S.T.M. B26, Alloy ZC81A, or A.S.T.M. B108, Alloy ZC81B.

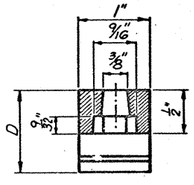
U-Bolts and other Bolts, Nuts and Washers shall be Galvanized Steel and in accordance with A.S.T.M. A307-GOT, Grade G5 and A.S.T.M. A153-G1.



TOP VIEW



SECTION X-X



SECTION Y-Y

PIPE CLAMP CASTING
(For 1½", 2", 2½" & 3" Std. Pipe)

TEXAS HIGHWAY DEPARTMENT
INTERSTATE
STANDARD ROADSIDE SIGN MOUNTING-CLAMP DETAILS
ROUTE MARKERS, WARNING, AND REGULATORY SIGNS
SMD-3

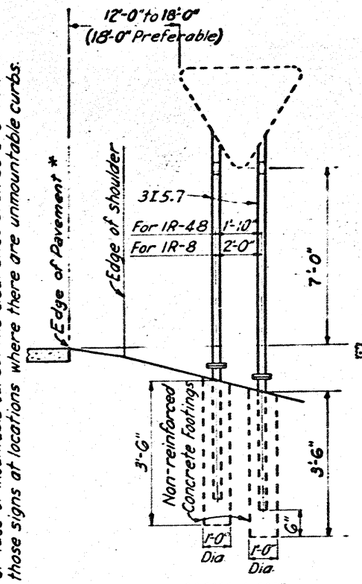
58

REVISED			FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
Clamp Dim (Table) 11/67 SR			6	TEXAS	I 35-1(19)000			58
			STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
			21	Webb	18	6	93	I.H.35

SHEET 3 OF 8

10

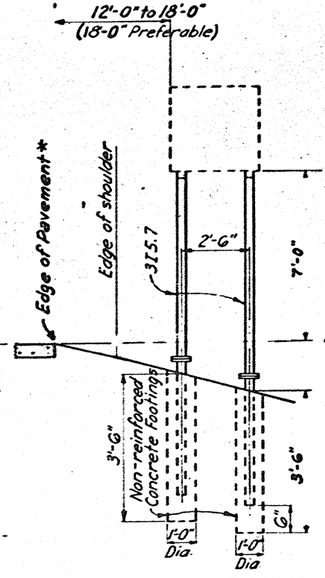
* Or face of mountable curbs. The clearance shall be 2'-0" min for those signs at locations where there are unmountable curbs.



MAIN LANE BEAM MOUNT

TYPE F-1

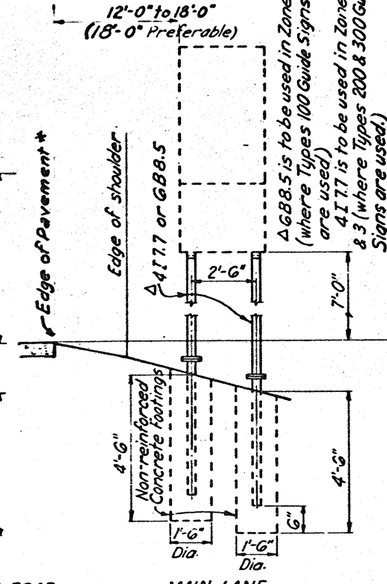
This type beam mount to be used to mount the IR-48 Yield Right of Way sign and the IR-8 No U Turn sign. Note the post spacing.



MAIN LANE & FRONTAGE ROAD BEAM MOUNT

TYPE F-2

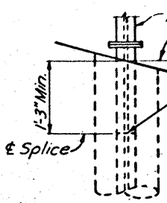
This type beam mount to be used to mount the following signs: IR series - 2A, 4, 11, 12, 13, 14, 14A, 15, 17, 17A, 18, 41, 50, 51 & 52. & 1W series - 5-1, 13, 20A, 21, 60, & 4-2, & IR-15R



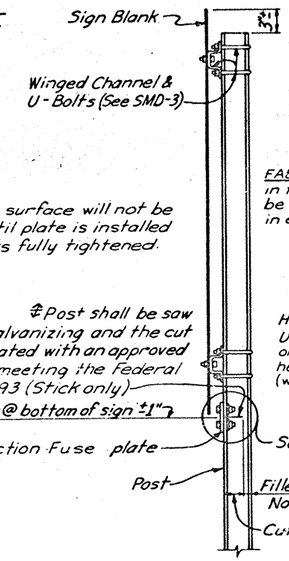
MAIN LANE BEAM MOUNT

TYPE G

This type beam mount to be used for Speed Limit sign IR-2 when used in combination with IR-3 & IR-2F.



PERMISSIBLE SHOP SPLICE

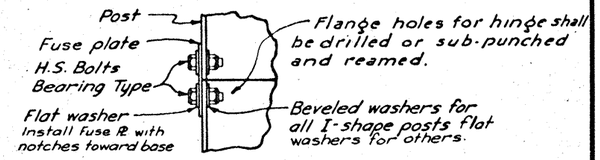


TYPICAL SIDE VIEW

‡ Note: Cut surface will not be treated until plate is installed and all bolts fully tightened.

‡ Post shall be saw cut after galvanizing and the cut surface treated with an approved zinc solder meeting the Federal Spec. O-G-93 (Stick only)

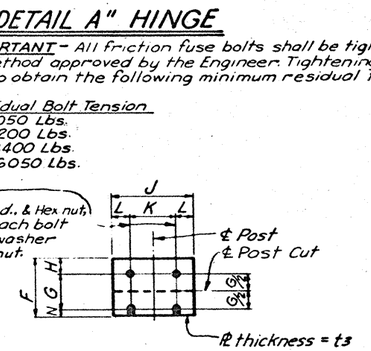
℄ Post cut @ bottom of sign ±1"



"DETAIL A" HINGE

FABRICATOR NOTE : IMPORTANT - All friction fuse bolts shall be tightened in the shop following a method approved by the Engineer. Tightening shall be to such a degree as to obtain the following minimum residual tension in each bolt:

Bolt Size	Min. Residual Bolt Tension
½" ϕ	12050 Lbs.
5/8" ϕ	19200 Lbs.
¾" ϕ	28400 Lbs.
7/8" ϕ	39050 Lbs.

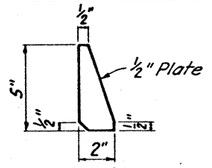


FUSE PLATE DETAIL

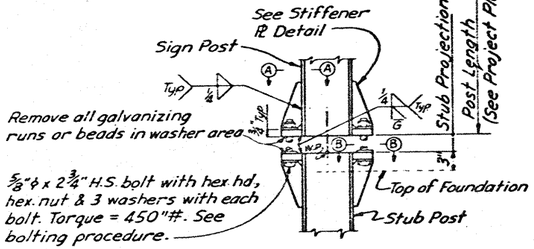
(See Table for Dimensions and Weight)

FUSE PLATE DATA TABLE

Post Size \ Dimension	F	G	H	J	K	L	N		d1	t3	Bolt Dia.	Wt. of Each Fuse ℞
GB8.5	3⅝"	2"	1⅛"	4"	2¼"	⅞"	½"		9/16"	¼"	½"ϕ	1.09#
315.7	3⅛"	1½"	1⅛"	2⅝"	1½"	9/16"	½"		9/16"	¼"	½"ϕ	0.64#
417.7	3⅛"	1½"	1⅛"	2⅝"	1½"	9/16"	½"		9/16"	¼"	½"ϕ	0.64#

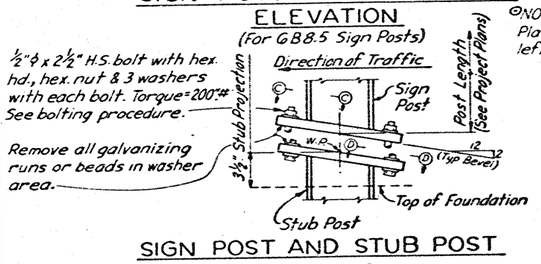


STIFFENER ℞ DETAIL



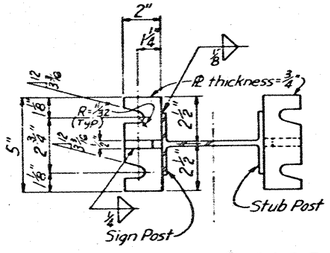
SIGN POST AND STUB POST ELEVATION

(For GB8.5 Sign Posts)



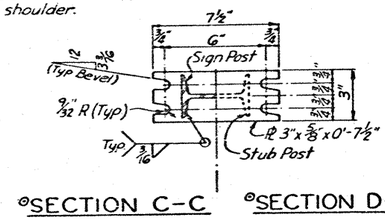
SIGN POST AND STUB POST ELEVATION

(For 315.7 and 417.7 Only)



⊙SECTION A-A

⊙SECTION B-B



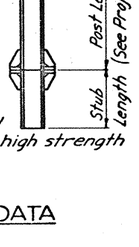
⊙NOTE: Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.

⊙SECTION C-C

⊙SECTION D-D

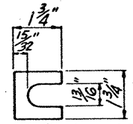
POST WEIGHT DATA	
Post Size‡	Weight
GB8.5	135.7 #
315.7	85.9#
417.7	119.9#

‡ Last figures = post wt. per ft.



Weight Data is the weight of items shown for one post - (includes 10' of post length, post foundation stub, related base connection plates and stiffeners, Friction Fuse ℞ and all high strength bolts, nuts and washers.)

POST WEIGHT DATA



Furnish 2 ∾ .012"± thick and 2 ∾ .032"± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M. - B36.

SHIM DETAIL

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. Assemble post to stub with bolts and WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. Shim as required to plumb post
3. Tighten all bolts the maximum possible with 12" to 15" wrench to bed washers and shims and to clean bolt threads then loosen each bolt in turn and retighten bolts in a systematic order to the prescribed torque. (See Table)
4. Burr threads at junction with nut using a center punch to prevent nut loosening.

GENERAL NOTES:

Design conforms with AASHO Specifications for the design and Construction of Structural Supports for Highway Signs.

Materials and Fabrication shall conform to the requirements of Texas Highway Department Standard Specifications and Special Specifications.

All high strength bolts, nuts, and washers shall conform to ASTM-A325.

Notched steel fuse plates shall conform to the requirements of ASTM-A441. All holes shall be drilled. All plate cuts shall preferably be saw cuts, however; flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.

Tighten the high strength bolts in the base connection only to the torque shown, DO NOT OVERTIGHTEN.

All bolts other than high strength bolts shall conform to ASTM-A307, Class A.

All structural steel, bolts, nuts, and washers shall be galvanized as per Item 442 of the Standard Specifications. Struct steel to be galv. after fabrication except as noted.

See Standard Plan Sheets SMD-1 and SMD-3 for sign fastening details.

Where solid rock is encountered, footing shall be plan depth or extend two feet minimum into the rock.

Structural steel shall conform with the requirements of ASTM Specification A441.

Galvanizing of all posts shall be projection above concrete plus 6" minimum.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

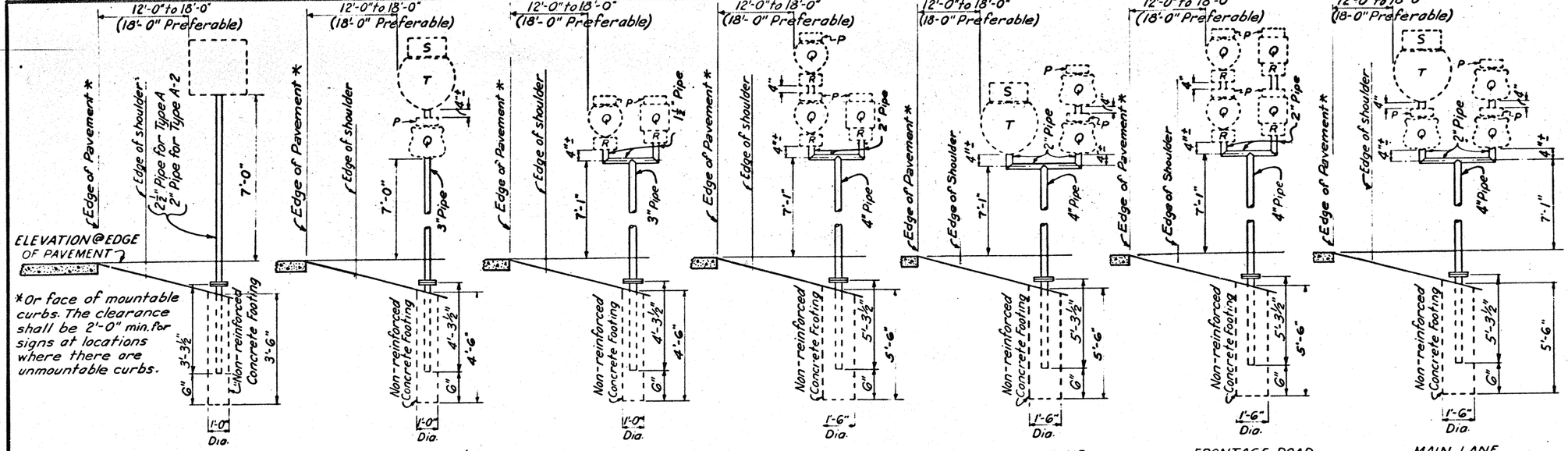
STANDARD ROADSIDE SIGNS BREAK-AWAY TYPE POSTS WARNING AND REGULATORY SIGNS

SMD - 11A

59

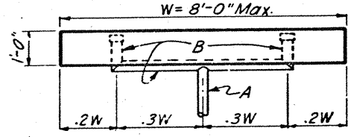
ORIGINAL DRAWING DATE June, 1965	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT			SHEET
DR. - D.L.M. 2/66 - Flange Holes	21	6	I-35-1(19)000			59
CK. - F.D.K. 11/65 - Bolting Procedure	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DW. - J.K. 11/66 - Fuse	Webb		13	#	16	11-35
CK. - D.L.M. 5/66 - Lateral Clearance & Vert. Clearance Tables						16

ORIGINAL



FRONTAGE ROAD PIPE MOUNTS
TYPES A & A-2

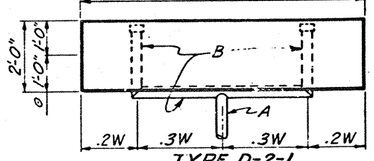
TYPE A - This type pipe mount to be used when one Route Marker is required, for IR-1A, IR-1G signs and other sign areas not exceeding 8 square feet.
TYPE A-2 - This type pipe mount to be used for any sign or combination of signs not exceeding a total of 4 square feet in area.



TYPE D-1-1
TYPE D-1-2
TYPE D-1-3

MAIN LANE & FRONTAGE ROAD PIPE MOUNT
TYPE A-1

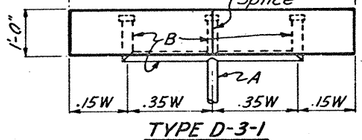
This type pipe mount to be used for a 36" Interstate Route Marker with a 24" Route Marker on Main Lanes or as a specified optional substitute for Type B.



TYPE D-2-1
TYPE D-2-2
TYPE D-2-3

FRONTAGE ROAD PIPE MOUNT
TYPE B

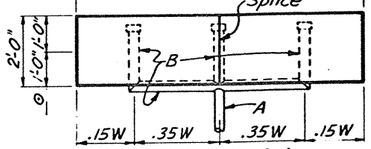
This type pipe mount to be used when 2 Route Markers of the same type or 2 Route Markers of different types are required.



TYPE D-3-1
TYPE D-3-2
TYPE D-3-3

FRONTAGE ROAD PIPE MOUNT
TYPE C

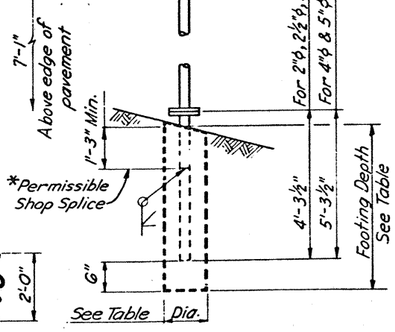
This type pipe mount to be used when 3 Route Markers are required.



TYPE D-4-1
TYPE D-4-2
TYPE D-4-3

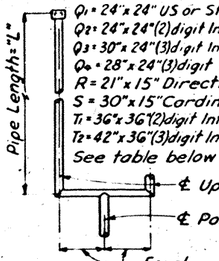
MAIN LANE PIPE MOUNT
TYPE C-1

This type pipe mount to be used for a 36" Interstate Route Marker with two 24" Route Markers.



FRONTAGE ROAD PIPE MOUNT
TYPE D

This type pipe mount to be used when 4 Route Markers are required.



MARKER COMBINATIONS	"L"
2P + 2Q + 2R + 7"	8'-7"
P + 2Q + 2R + 7"	7'-10"
2Q + 2R + 7"	7'-1"
Q + R + 3"	3'-6"
S + T + 3"	4'-6"
P + Q + R + 3"	4'-3"
P + Q + S + T + 7"	7'-7"

DIMENSION "S"

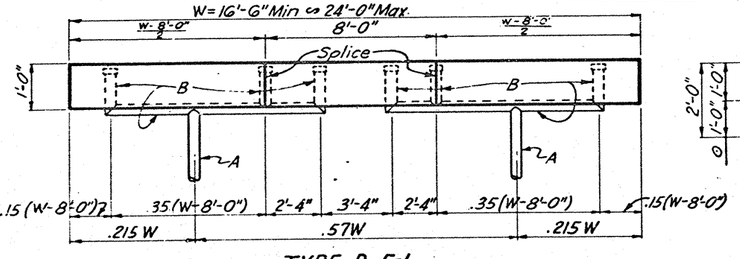
"S" = 1'-4½" for Q_1 or Q_2
"S" = 1'-7½" for Q_3
"S" = 1'-6½" for Q_4
"S" = 1'-10½" for T_1
"S" = 2'-1½" for T_2

Dimension "S" equals the distance from the ℄ of Upright to the ℄ of clearance between sign group.

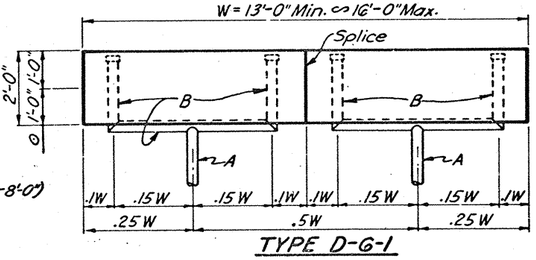
MAIN LANE PIPE MOUNT
TYPE D-1

This type pipe mount to be used for a 36" Interstate Route Marker with three 24" Route Marers.

TYPE OF MOUNT	PIPE A	PIPE B	FOUNDATION	
			Footing Dia.	Footing Depth
D-1-1	3"ϕ	2"ϕ	1'-0"	4'-6"
D-1-2	2½"ϕ	1½"ϕ	1'-0"	4'-6"
D-1-3	2"ϕ	1½"ϕ	1'-0"	4'-6"
D-2-1	4"ϕ	3"ϕ	1'-6"	5'-6'
D-2-2	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-2-3	3"ϕ	2"ϕ	1'-6"	4'-6"
D-3-1	4"ϕ	3"ϕ	1'-6"	5'-6'
D-3-2	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-3-3	3"ϕ	2"ϕ	1'-6"	4'-6"
D-4-1	5"ϕ	3"ϕ	1'-6"	5'-2"
D-4-2	4"ϕ	3"ϕ	1'-6"	5'-6"
D-4-3	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-5-1	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-5-2	3"ϕ	2"ϕ	1'-6"	4'-6"
D-5-3	2½"ϕ	1½"ϕ	1'-6"	4'-6"
D-6-1	4"ϕ	3"ϕ	1'-6"	5'-6"
D-6-2	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-6-3	3"ϕ	2"ϕ	1'-6"	4'-6"

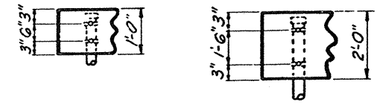


TYPE D-5-1
TYPE D-5-2
TYPE D-5-3



TYPE D-G-1
TYPE D-G-2
TYPE D-G-3

NOTE: (For Types D-1-1, 2 & 3 thru D-G-1, 2 & 3)
The last number in Type designation denotes zone for which structure is to be used.
Plywood shall be ⅜" thick.
⊙ Double destination DI-A signs for mount types D-2-1, D-2-2, D-2-3, D-4-1, D-4-2, D-4-3, D-G-1, D-G-2 & D-G-3 shall be combined on a single panel without a horizontal joint.



MUFFLER CLAMP LOCATION
(For clamp detail see sheet SMD-3)

FOUNDATION DETAIL
(Non-reinforced)
FOR TYPES D-1-1 THRU D-G-3

*This splice detail permissible on all pipe mounts.

NOTE:
DI-A signs with a vertical dimension of 11½" in compliance with the Texas Highway Department Manual on Traffic Sign Design Standards may be used in lieu of DI-A signs having a vertical dimension of 12" as shown on the plans, where a sign manufacturer has screens already made for the 11½" vertical dimension but not for the 12" vertical dimension. Measurement for payment, however, shall be made on the basis of the dimensions for the signs as actually erected.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

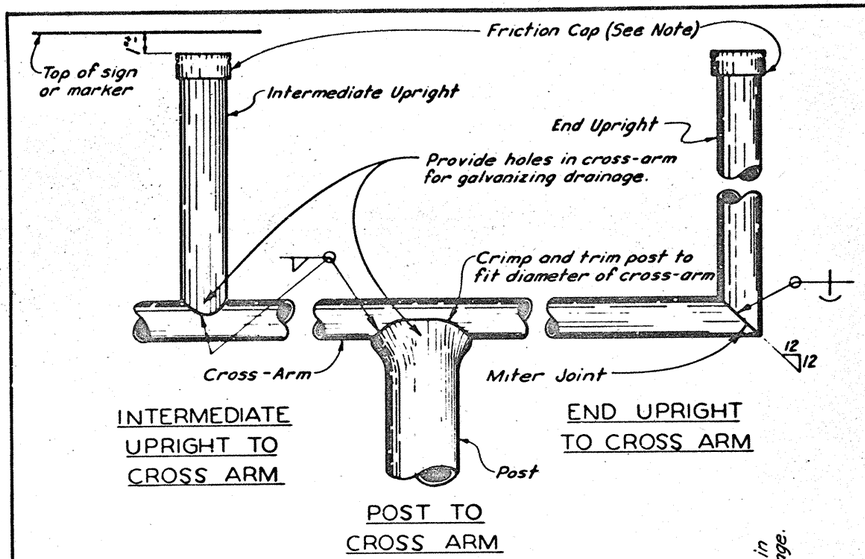
STANDARD ROADSIDE SIGNS WARNING, REGULATORY AND SMALL GUIDE SIGNS BREAK-AWAY TYPE POSTS
SMD-12

Sheet 1 of 2

ORIGINAL DRAWING DATE June, 1965	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DR. - B.D.	21	6	I 35-1(179)000	60
CK. - C.H.	COUNTY		CONTROL	SECT. NO.	JOB	HIGHWAY
DW. - J.K.	Webb		12	6	43	I.H. 35
CK. - D.B.A.						

REVISIONS
5/66 Lateral Clearance to 24"
5/66 Clearance to Pav. Edge

17



INTERMEDIATE UPRIGHT TO CROSS ARM

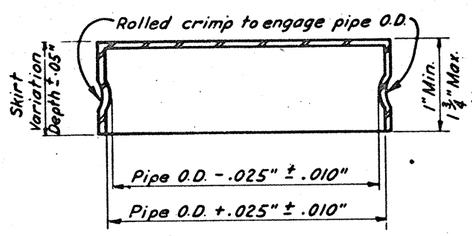
END UPRIGHT TO CROSS ARM

POST TO CROSS ARM

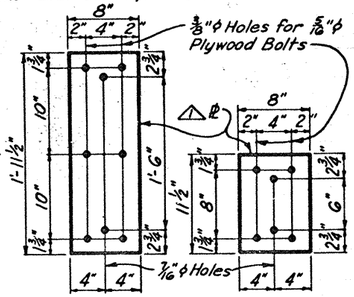
WELDED PIPE MOUNT DETAILS

NOTE:
The Contractor, at his option may furnish Standard Weight pipe conforming to A.S.T.M. Specification A-53, A-36, or Standard Weight pipe conforming to API5L, Grade B. Pipe made from materials conforming to the API5L Specifications shall meet all requirements of those specifications except that the Official API Monogram identification is not required.
Combinations of pipe material meeting different specifications may be used in the same project.
The pipe may be welded or seamless.
Hydrostatic tests are not required.

NOTES:
FRICTION CAPS— Caps may be manufactured from either hot rolled or cold rolled steel sheets. For pipe sizes 3½" and smaller the minimum sheet metal thickness shall be 24 gauge.
The rim edges shall be reasonably straight and smooth.
Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.
Caps shall have an electrodeposited coating of zinc in accordance with the requirements of A.S.T.M. Specification A164, Type G S.



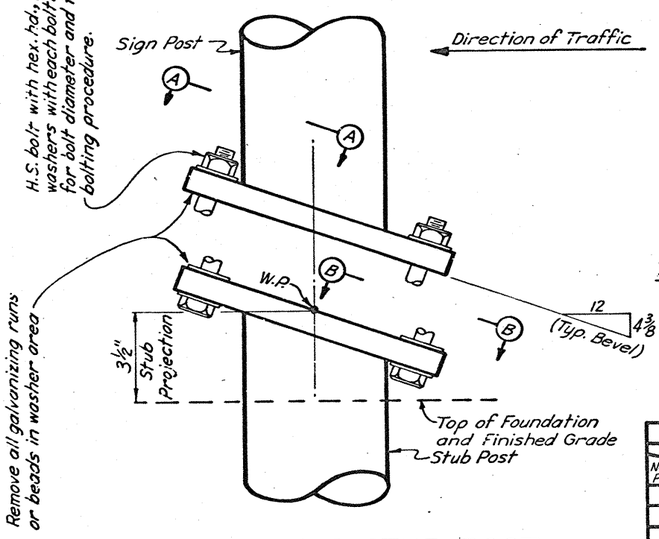
FRICTION CAP DETAIL



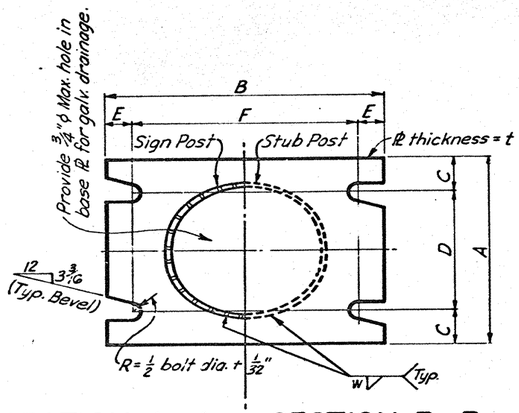
⚠ May be ⅛"(A.S.T.M-A36) steel ℓ or 0.187" aluminum plate.

SPLICE ℓs

GENERAL NOTES:
Design conforms with A.A.S.H.O. Specifications For The Design And Construction Of Structural Supports For Highway Signs.
Material and fabrication shall conform to the requirements of Texas Highway Department Standard Specifications.
Aluminum splice plates shall conform with the requirements of A.S.T.M.-B-209 alloy 6061-TG, or A.S.T.M.-B.-221 alloy 6061-TG.
All structural steel, bolts, nuts and washers shall be galvanized as per Item 442 of the Standard Specifications except as noted. Galvanizing of all posts shall be projection above concrete plus 6" minimum.
All high strength bolts and washers shall conform to A.S.T.M.-A325. All high strength nuts shall be of such capacity as to develope the bolt strength.
Tighten the high strength bolts in the base connection only to the torque shown, DO NOT OVERTIGHTEN.
All bolts other than high strength bolts shall conform to A.S.T.M.-A307, Class A.
See Standard Plan Sheets SMD-1 and SMD-3 for sign fastening details.
Where solid rock is encountered, footing shall be plan depth or extend two feet minimum into the rock.



SIGN POST AND STUB POST ELEVATION



SECTION A-A SECTION B-B

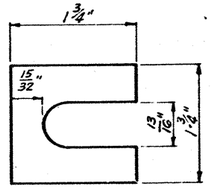
(See Table for Dimensions)
Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.

*BASE CONNECTION DATA TABLE

Nom. Pipe Size \ Dimension	Bolt Size & Torque	A	B	C	D	E	F	t	W
2"ϕ	½"ϕx 2" Torque=200'#	4½"	6¼"	1"	2½"	¾"	4¾"	½"	¼"
2½"ϕ		4½"	6¼"	1"	2½"	¾"	4¾"	½"	5/16"
3"ϕ	½"ϕx 2½" Torque=200'#	4½"	7"	1"	2½"	¾"	5½"	¾"	5/16"
3½"ϕ		5½"	7¾"	1"	3½"	¾"	6¼"	¾"	⅜"
4"ϕ		5½"	7¾"	1"	3½"	¾"	6¼"	¾"	⅜"
5"ϕ	⅝"ϕx 2¾" Torque=450'#	6½"	9¾"	1¼"	4"	⅛"	8"	1"	7/16"

*Plates for base connection shall conform with the requirements of A.S.T.M. A36. Payment will be included in price bid per linear foot of pipe.

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:
1. Assemble post to stub with bolts and WITH ONE FLAT WASHER BETWEEN PLATES.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with 12" to 15" wrench to bed washers and shims and to clean bolt threads then loosen.
4. Retighten bolts in a systematic order to the prescribed torque. (See Table)
5. Loosen each bolt and retighten to presribed torque in the same order as initial retightening.
6. Burr threads at junction with nut using a center punch to prevent nut loosening.



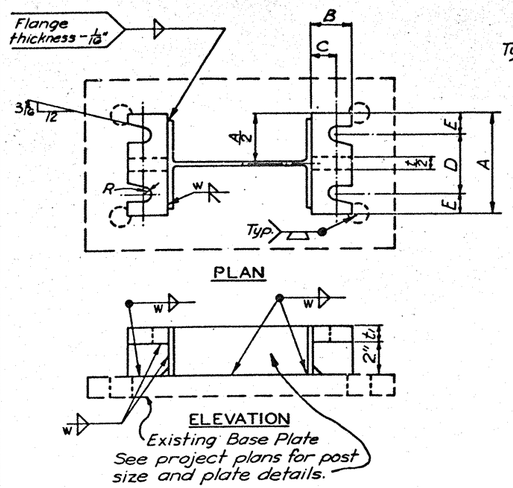
Furnish 2 ea .012"± thick and 2 ea .032"± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M.-B36.

SHIM DETAIL

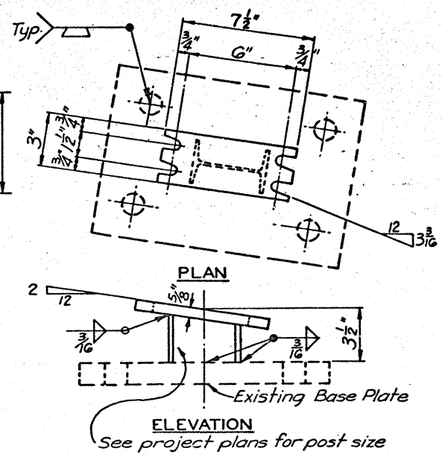
TEXAS HIGHWAY DEPARTMENT
INTERSTATE
STANDARD ROADSIDE SIGNS
WARNING, REGULATORY AND SMALL GUIDE SIGNS
BREAK-AWAY TYPE POSTS
SMD-12

Sheet 2 of 2

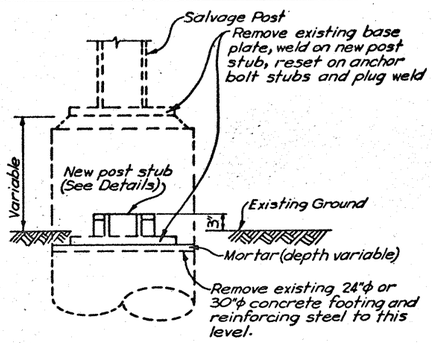
Des. : DLH	Drawing	Date	Rec. Road Sys. No.	State	Federal Aid Project No.	Sheet No.
Co. Dwg.: DBD	ORIGINAL	JUNE 1965	6	TEXAS	IS-1(19)000	61
Dw. : JH	1. as Mod. Oct. '71 Memo					
Co. Chk.: DLH	6/67 - Add A.S.T.M. A-36		State Dist. No.	County	Control No. / Section No. / Job No.	Highway No.
Ta. :			21	Webb	18 / 6 / 43	I.H. 35
Co. Ta. :						12



OPTION 1
(Where replacement posts are larger than 4" I-Beams)

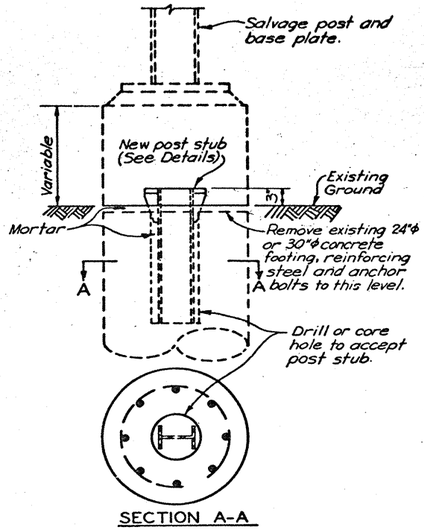


OPTION 1
(Where replacement posts are 3" or 4" I-Beams)

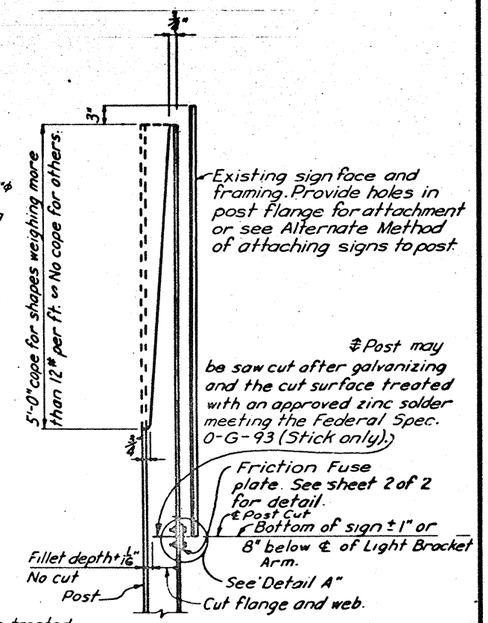


***OPTION 1**

* for replacement of existing posts that have base plates and anchor bolts.

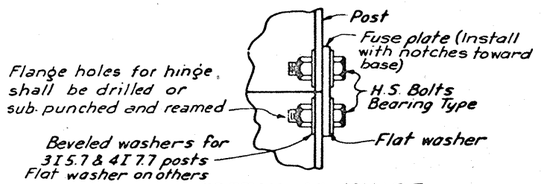


***OPTION 2**



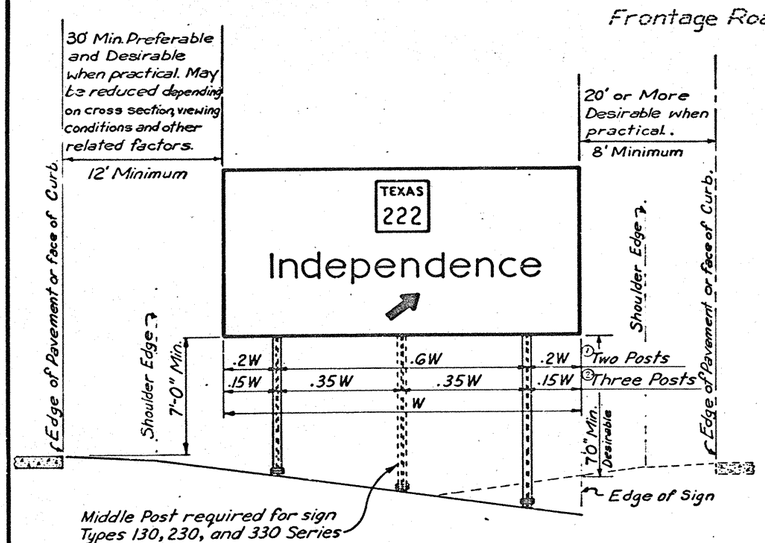
‡ Note : Cut surface will not be treated until plate is installed and all bolts fully tightened.

SIDE VIEW



"DETAIL A" HINGE
(See Fabricator Note)

NEW POST ATTACHMENT TO EXISTING FOUNDATIONS



TYPICAL SIGN INSTALLATION AND LOCATION

① Post spacings may be varied a maximum of plus 10% to minus 10% of total sign width to fit field conditions.

② Post spacings may be varied a maximum of plus 5% to minus 5% of total sign width to fit field conditions.

GENERAL NOTES:

Design conforms with AASHO Specifications for the design and Construction of Structural Supports for Highway Signs.

Materials and Fabrication shall conform to the requirements of Texas Highway Department Standard Specifications and Special Specifications.

All Structural Steel shall conform to ASTM-A441. Flange holes for fuse bolts shall be drilled.

Notched steel fuse plates shall conform to the requirements of ASTM-A441. All holes shall be drilled. All plate cuts shall preferably be saw cuts, however; flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.

All high strength bolts, nuts, and washers shall conform to ASTM-A325.

Tighten the high strength bolts in the base connection only to the torque shown in the table. DO NOT OVERTIGHTEN.

All bolts other than high strength bolts shall conform to ASTM-A307, Class A.

All structural steel, bolts, nuts, and washers shall be galvanized as per Item 442 of the Standard Specifications except as noted. Structural Steel to be galvanized after fabrication except as noted.

FABRICATOR NOTE : **IMPORTANT** – All friction fuse bolts shall be tightened in the shop following a method approved by the Engineer. Tightening shall be to such a degree as to obtain the following minimum residual tension in each bolt:

Bolt Size	Min. Residual Bolt Tension
½"ϕ	12050 Lbs.
5/8"ϕ	19200 Lbs.
¾"ϕ	28400 Lbs.
7/8"ϕ	36050 Lbs.

SIGN TYPE 130 — 1 = Wind Design Zone; 3 = Series No. (Zero denotes plywood); 0 = No. Of Posts

CODE

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

MODIFY EXISTING PLYWOOD GUIDE SIGNS WITH BREAK-AWAY POSTS

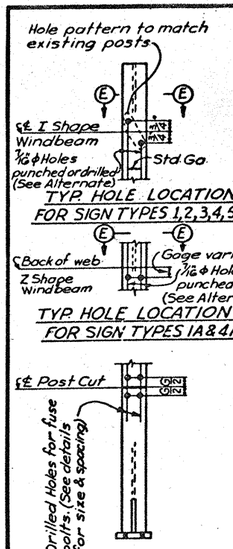
62

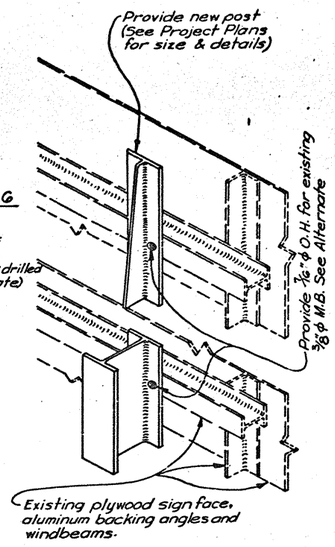
Sheet 1 of 2

ORIGINAL DRAWING DATE Aug., 1966	STATE DISTRICT	FEDERAL ROUTE	FEDERAL AID PROJECT		SHEET
DR - DLM	21	4	I-35-1(14)000		62
CK - DAA	REVISIONS				
DW - JK	5-67 Clearance to Pav. Edge	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
CK - DAD		Webb	15	4	16	IH 35

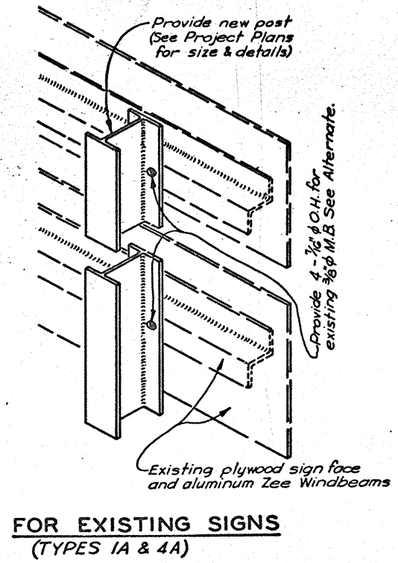
A

ORIGINAL

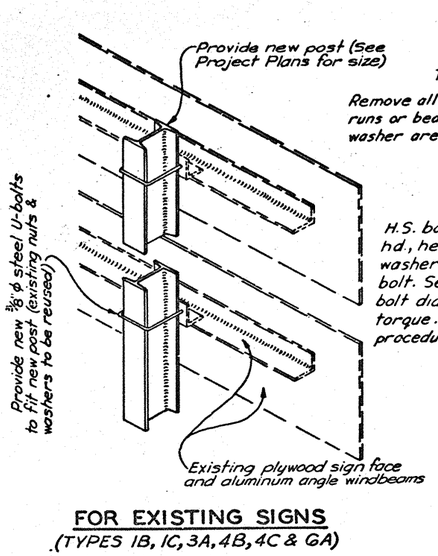




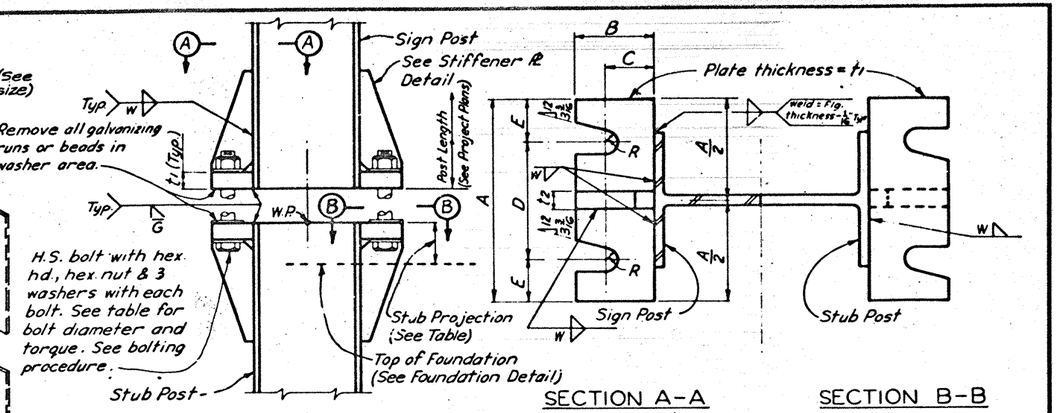
FOR EXISTING SIGNS
(TYPES 1,2,3,4, 5 & G)



FOR EXISTING SIGNS
(TYPES IA & 4A)



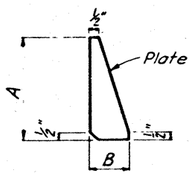
FOR EXISTING SIGNS
(TYPES IB, IC, 3A, 4B, 4C & GA)



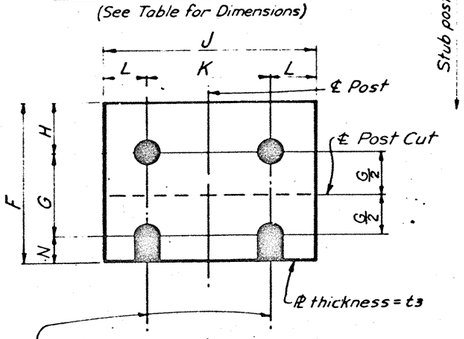
SECTION A-A SECTION B-B
(See Table for Dimensions)

Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.

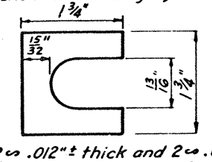
SIGN POST AND STUB POST ELEVATION
(For WF and B Shapes)



STIFFENER PLATE DETAIL
(See Table for Dimensions)

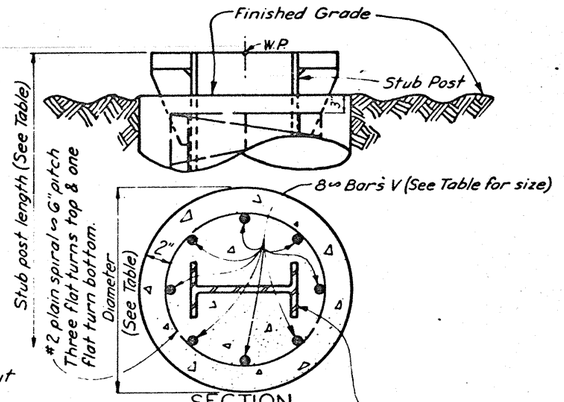


FUSE PLATE DETAIL
(See Table for Dimensions and Weight)



Furnish 2 ea. .012"± thick and 2 ea. .032"± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M.-B3G.

SHIM DETAIL

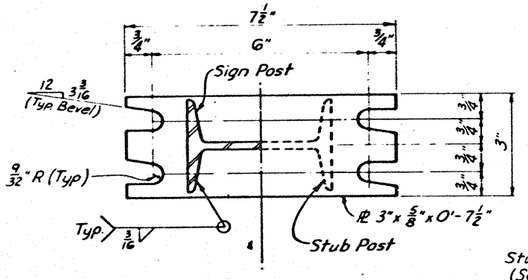


FOUNDATION DETAIL
(Where new foundation is required)

Dimension / Post Size	BASE CONNECTION DATA TABLE: Bolt Size & Torque	A	B	C	D	E	t1	t2	W	R
GBB.5	5/8"ϕ x 2 3/4" Torque=450"#	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32"
GB12										
GB15.5										
8WF17										
8WF20	3/4"ϕ x 3 1/2" Torque=750"#	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	13/32"
10WF21										
10WF25										
12WF27										
3I5.7	1/2"ϕ x 2 1/2" Torque=200"#	SEE DETAIL								
4I7.7										

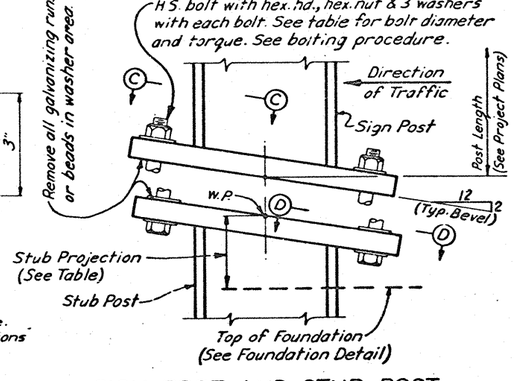
FUSE PLATE DATA TABLE: F	G	H	J	K	L	N		d1	t3	Bolt Dia	Wt. of Each Fuse ℞
3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"		9/16"	1/4"	1/2"ϕ	0.94#
3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"		9/16"	1/4"	1/2"ϕ	0.94#
4 3/8"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	5/8"		11/16"	3/8"	5/8"ϕ	2.58#
4 3/8"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	5/8"		11/16"	3/8"	5/8"ϕ	2.24#
4 3/8"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	5/8"		13/16"	1/2"	3/4"ϕ	2.95#
5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"		13/16"	1/2"	3/4"ϕ	3.88#
5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"		13/16"	1/2"	3/4"ϕ	3.88#
5 1/4"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	3/4"		13/16"	1/2"	3/4"ϕ	4.44#
3 5/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"		9/16"	1/4"	1/2"ϕ	0.49#
3 5/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"		9/16"	1/4"	1/2"ϕ	0.49#

FOUNDATION DATA	Stub Length	Stub Projection	Dr. Shaft Diameter	Bars V Size
	2'-C"	3"	2'-0"	#5
	2'-C"	3"	2'-0"	#5
	2'-6"	3"	2'-0"	#6
	2'-6"	3"	2'-0"	#7
	3'-0"	2 1/2"	2'-0"	#8
	3'-0"	2 1/2"	2'-0"	#9
	3'-0"	2 1/2"	2'-0'	#10
	3'-0"	2 1/2"	2'-0"	#11
	1'-6"	3 1/2"	1'-6"	#5
	1'-6"	3 1/2"	1'-6"	#5



SECTION C-C SECTION D-D

Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.



SIGN POST AND STUB POST ELEVATION
(For 4I7.7 and 3I5.7 Shapes)

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. Assemble post to stub with bolts and WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with 12" to 15" wrench to bed washers and shims and to clean bolt threads then loosen each bolt in turn and retighten in a systematic order to the presribed torque. (See Table)
4. Burr threads at junction with nut using a center punch to prevent nut loosening.

SECTION E-E
(Showing Alternate Method of Attaching Signs To Post)

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

MODIFY EXISTING PLYWOOD GUIDE SIGNS WITH BREAK-AWAY POSTS

63

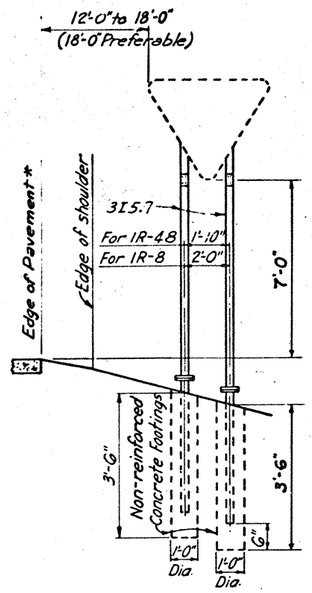
Sheet 2 of 2

ORIGINAL DRAWING DATE Aug. 1966	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN -DLH	21	6	I-35-1(19)000	63
CK -DBD	COUNTY	CONTROL	SECT-CH	JOB	HIGHWAY
DW -JK	Webb	18	4	16	IH 35
CK -DBD					

REVISIONS

8

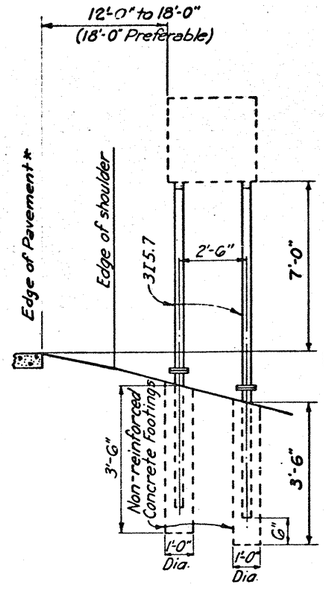
*Or face of mountable curbs. The clearance shall be 2'-0" min. for those signs at locations where there are unmountable curbs.



MAIN LANE BEAM MOUNT

TYPE F-1

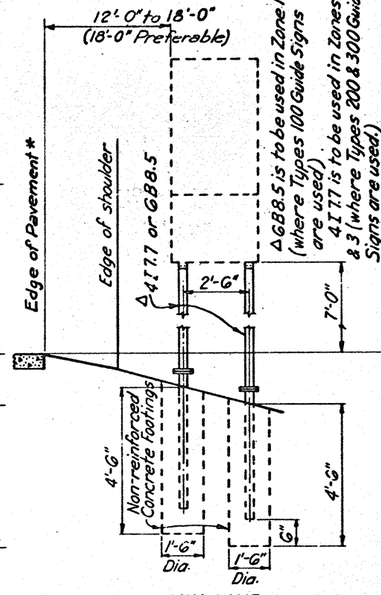
This type beam mount to be used to mount the IR-48 Yield Right of Way sign and the IR-8 No U Turn sign. Note the post spacing.



MAIN LANE & FRONTAGE ROAD BEAM MOUNT

TYPE F-2

This type beam mount to be used to mount the following signs: IR series - 2A, 4, 11, 12, 13, 14, 14A, 15, 17, 17A, 1B, 41, 50, 51 & 52. & IW series - 5-1, 13, 20A, 21, GO, & 4-2.

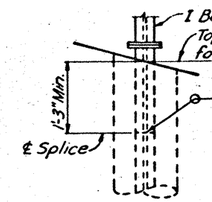


MAIN LANE BEAM MOUNT

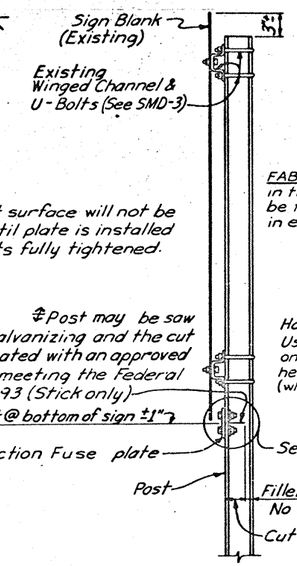
TYPE G

This type beam mount to be used for Speed Limit sign IR-2 when used in combination with IR-3 & IR-2F.

ELEVATION @ EDGE OF PAVEMENT



PERMISSIBLE SHOP SPLICE

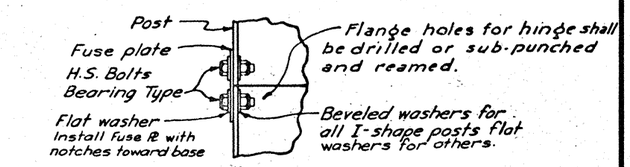


℄ Note: Cut surface will not be treated until plate is installed and all bolts fully tightened.

℄ Post may be saw cut after galvanizing and the cut surface treated with an approved zinc solder meeting the Federal Spec. O-G-93 (Stick only)

℄ Post cut @ bottom of sign ±1"

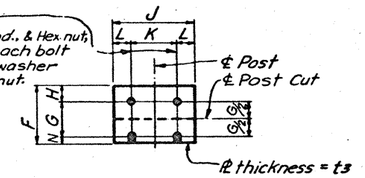
TYPICAL SIDE VIEW



"DETAIL A" HINGE

FABRICATOR NOTE : IMPORTANT - All friction fuse bolts shall be tightened in the shop following a method approved by the Engineer. Tightening shall be to such a degree as to obtain the following minimum residual tension in each bolt:

Bolt Size	Min. Residual Bolt Tension
1/2" ϕ	12050 Lbs.
5/8" ϕ	19200 Lbs.
3/4" ϕ	28400 Lbs.
7/8" ϕ	36050 Lbs.

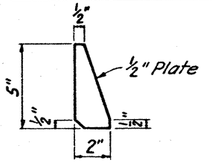


FUSE PLATE DETAIL

(See Table for Dimensions and Weight)

FUSE PLATE DATA TABLE

Post Size \ Dimension	F	G	H	J	K	L	N		d1	t3	Bolt Dia.	Wt. of Each Fuse ℝ
GB8.5	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"		9/16"	1/4"	1/2"ϕ	1.09#
3I5.7	3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"		9/16"	1/4"	1/2"ϕ	0.64#
4I7.7	3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"		9/16"	1/4"	1/2"ϕ	0.64#



STIFFENER ℝ DETAIL

GENERAL NOTES:

Design conforms with AASHO Specifications for the design and Construction of Structural Supports for Highway Signs.

Materials and Fabrication shall conform to the requirements of Texas Highway Department Standard Specifications and Special Specifications.

All high strength bolts, nuts, and washers shall conform to ASTM-A325.

Notched steel fuse plates shall conform to the requirements of ASTM-A441. All holes shall be drilled. All plate cuts shall preferably be saw cuts, however; flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.

Tighten the high strength bolts in the base connection only to the torque shown, DO NOT OVERTIGHTEN.

All bolts other than high strength bolts shall conform to ASTM-A307, Class A.

All structural steel, bolts, nuts, and washers shall be galvanized as per Item 442 of the Standard Specifications. Struct steel to be galv. after fabrication except as noted.

See Standard Plan Sheets SMD-1 and SMD-3 for sign fastening details.

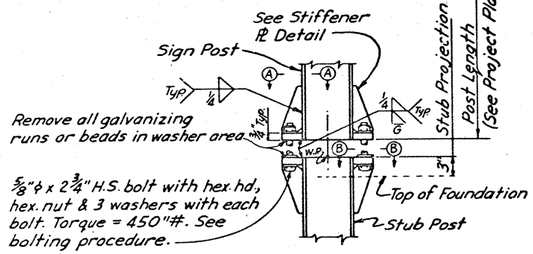
Where solid rock is encountered, footing shall be plan depth or extend two feet minimum into the rock.

Structural steel shall conform with the requirements of ASTM Specification A441.

Galvanizing of all posts shall be projection above concrete plus 6" minimum.

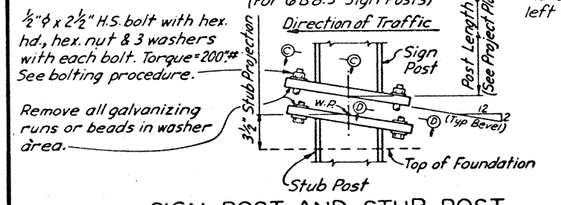
PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. Assemble post to stub with bolts and WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with 12" to 15" wrench to bed washers and shims and to clean bolt threads then loosen each bolt in turn and retighten bolts in a systematic order to the prescribed torque. (See Table)
4. Burr threads at junction with nut using a center punch to prevent nut loosening.



SIGN POST AND STUB POST ELEVATION

(For GB8.5 Sign Posts)



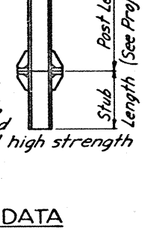
SIGN POST AND STUB POST ELEVATION

(For 3I5.7 and 4I7.7 Only)

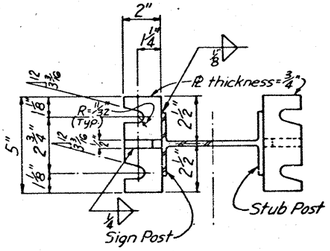
POST WEIGHT DATA	
Post Size‡	Weight
GB8.5	135.7 #
3I5.7	85.9#
4I7.7	119.9#

‡ Last figures = post wt. per ft.

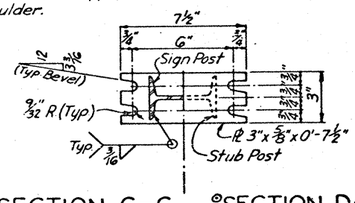
Weight Data is the weight of items shown for one post - (includes 10' of post length, post foundation stub, related base connection plates and stiffeners, Friction Fuse ℝ and all high strength bolts, nuts and washers.)



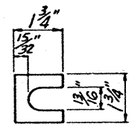
POST WEIGHT DATA



℄ SECTION A-A ℄ SECTION B-B



℄ SECTION C-C ℄ SECTION D-D



Furnish 2 ea .012" ± thick and 2 ea .032" ± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M. - B36.

SHIM DETAIL

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

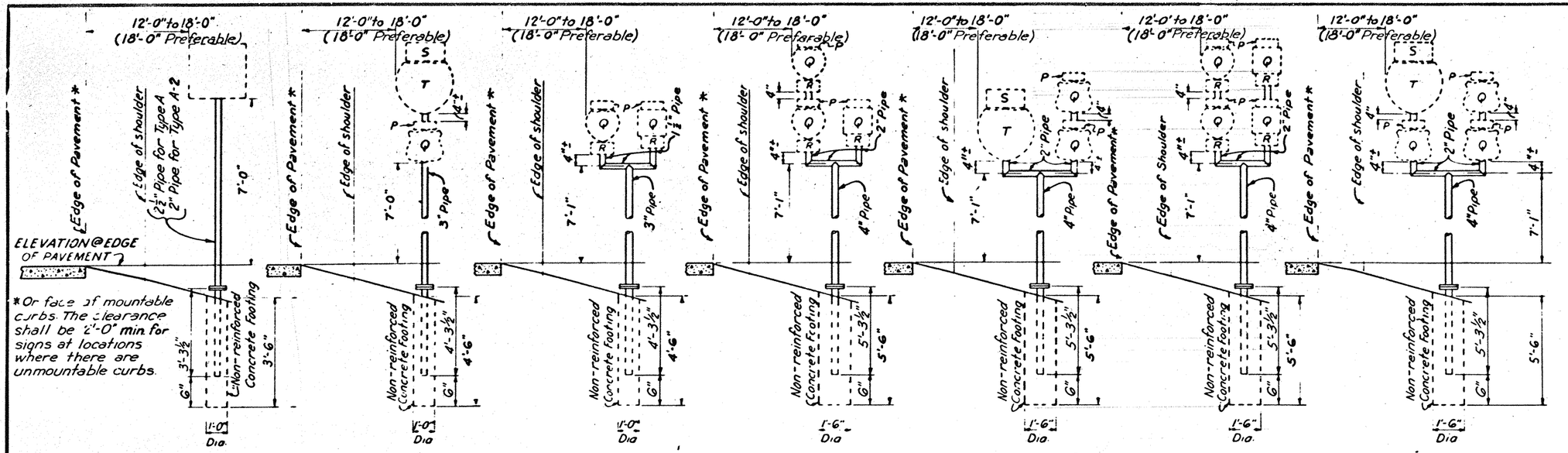
MODIFY EXISTING SIGNS WITH BREAK-AWAY POSTS WARNING AND REGULATORY SIGNS

64

ORIGINAL DRAWING DATE Aug. 1966	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN:-DLH REVISIONS 5-67 Clearance to Pav. Edge	21	6	I-35-1(19)000	64
CK.:-FDM	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
DW:-JK	NUECES		19	6	16	IH 35
CK.:-DLH						

C

ORIGINAL



MARKER COMBINATIONS	"L"
2P + 2Q + 2R + 7"	8'-7"
P + 2Q + 2R + 7"	7'-10"
2Q + 2R + 7"	7'-1"
Q + R + 3"	3'-6"
S + T + 3"	4'-6"
P + Q + R + 3"	4'-3"
P + Q + S + T + 7"	7'-7"

DIMENSION "S"

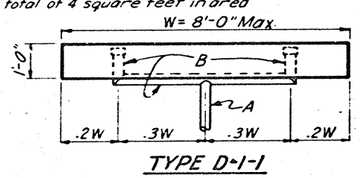
"S" = 1'-4½" for Q1 or Q2
"S" = 1'-7½" for Q3
"S" = 1'-6½" for Q4
"S" = 1'-10½" for T1
"S" = 2'-1½" for T2

Dimension "S" equals the distance from the ℄ of Upright to the ℄ of clearance between sign group.

FRONTAGE ROAD PIPE MOUNTS

TYPES A & A-2

TYPE A - This type pipe mount to be used when one Route Marker is required, for IR-1A, IR-1G signs and other sign areas not exceeding 8 square feet.
TYPE A-2 - This type pipe mount to be used for any sign or combination of signs not exceeding a total of 4 square feet in area.

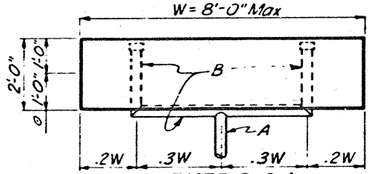


TYPE D-1-1
TYPE D-1-2
TYPE D-1-3

MAIN LANE & FRONTAGE ROAD PIPE MOUNT

TYPE A-1

This type pipe mount to be used for a 36" Interstate Route Marker with a 24" Route Marker on Main Lanes or as a specified optional substitute for Type B.



TYPE D-2-1
TYPE D-2-2
TYPE D-2-3

FRONTAGE ROAD PIPE MOUNT

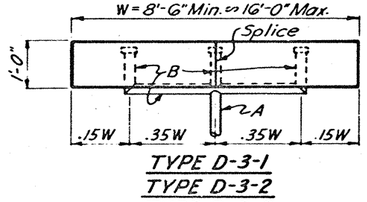
TYPE B

This type pipe mount to be used when 2 Route Markers of the same type or 2 Route Markers of different types are required.

FRONTAGE ROAD PIPE MOUNT

TYPE C

This type pipe mount to be used when 3 Route Markers are required.



TYPE D-3-1
TYPE D-3-2
TYPE D-3-3

MAIN LANE PIPE MOUNT

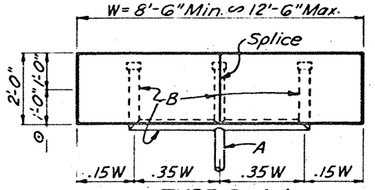
TYPE C-1

This type pipe mount to be used for a 36" Interstate Route Marker with two 24" Route Markers.

FRONTAGE ROAD PIPE MOUNT

TYPE D

This type pipe mount to be used when 4 Route Markers are required.

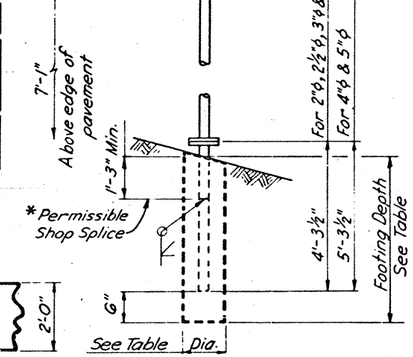


TYPE D-4-1
TYPE D-4-2
TYPE D-4-3

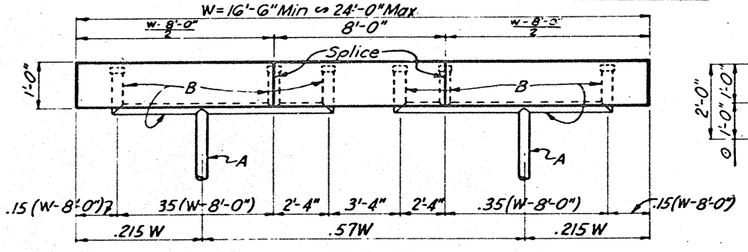
MAIN LANE PIPE MOUNT

TYPE D-1

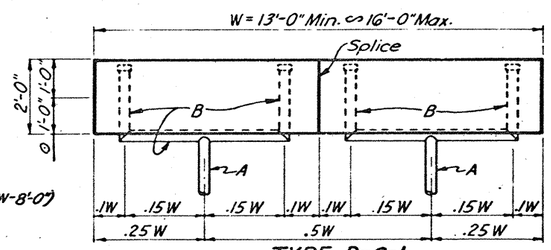
This type pipe mount to be used for a 36" Interstate Route Marker with three 24" Route Markers.



TYPE OF MOUNT	PIPE A	PIPE B	FOUNDATION Footing Dia.	FOUNDATION Footing Depth
D-1-1	3"ϕ	2"ϕ	1'-0"	4'-6"
D-1-2	2½"ϕ	1½"ϕ	1'-0"	4'-6"
D-1-3	2"ϕ	1½"ϕ	1'-0"	4'-6"
D-2-1	4"ϕ	3"ϕ	1'-6"	5'-6"
D-2-2	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-2-3	3"ϕ	2"ϕ	1'-6"	4'-6"
D-3-1	4"ϕ	3"ϕ	1'-6"	5'-6"
D-3-2	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-3-3	3"ϕ	2"ϕ	1'-6"	4'-6"
D-4-1	5"ϕ	3"ϕ	1'-6"	5'-6"
D-4-2	4"ϕ	3"ϕ	1'-6"	5'-6"
D-4-3	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-5-1	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-5-2	3"ϕ	2"ϕ	1'-6"	4'-6"
D-5-3	2½"ϕ	1½"ϕ	1'-6"	4'-6"
D-G-1	4"ϕ	3"ϕ	1'-6"	5'-6"
D-G-2	3½"ϕ	2½"ϕ	1'-6"	4'-6"
D-G-3	3"ϕ	2"ϕ	1'-6"	4'-6"

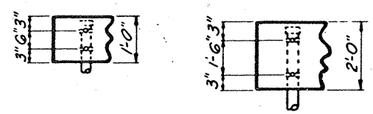


TYPE D-5-1
TYPE D-5-2
TYPE D-5-3



TYPE D-G-1
TYPE D-G-2
TYPE D-G-3

NOTE: (For Types D-1-1, 2 & 3 thru D-G-1, 2 & 3) The last number in Type designation denotes zone for which structure is to be used.



MUFFLER CLAMP LOCATION
(For clamp detail see sheet SMD-3)

FOUNDATION DETAIL
(Non-reinforced)
FOR TYPES D-1-1 THRU D-G-3

* This splice detail permissible on all pipe mounts.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE

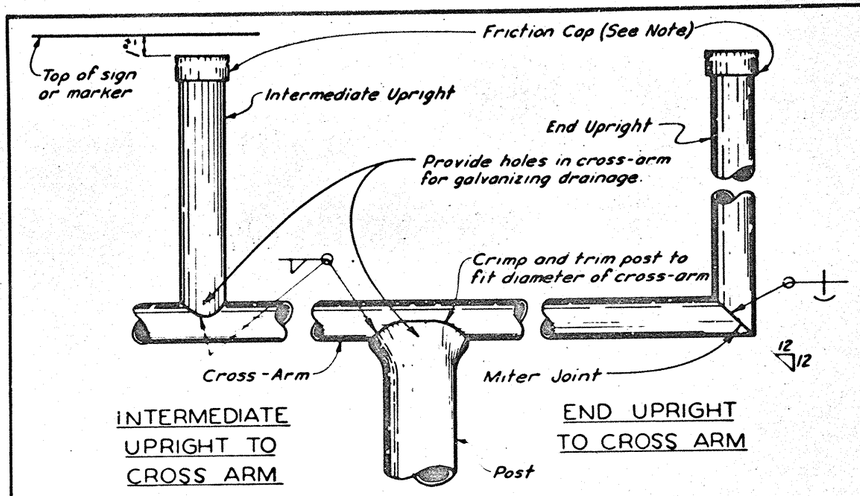
MODIFY EXISTING SIGNS WARNING, REGULATORY AND SMALL GUIDE SIGNS WITH BREAK-AWAY POSTS

Sheet 1 of 2

ORIGINAL DRAWING DATE Aug. 1966	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DR. - BD.	21	6	I-35-1(10)000	65
CK. - CH.	COUNTY	CONTROL	SECT. NO.	JOB	HIGHWAY
DW. - JK.	Wise	18	0	16	IH 35
CK. - DBA					

REVISIONS 5-67 Clearance to Pwr. Lines

D



INTERMEDIATE UPRIGHT TO CROSS ARM

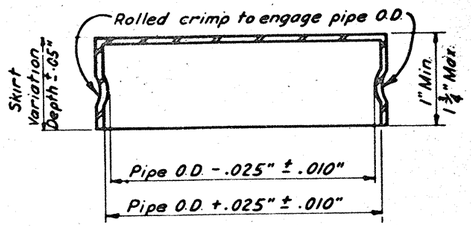
END UPRIGHT TO CROSS ARM

POST TO CROSS ARM

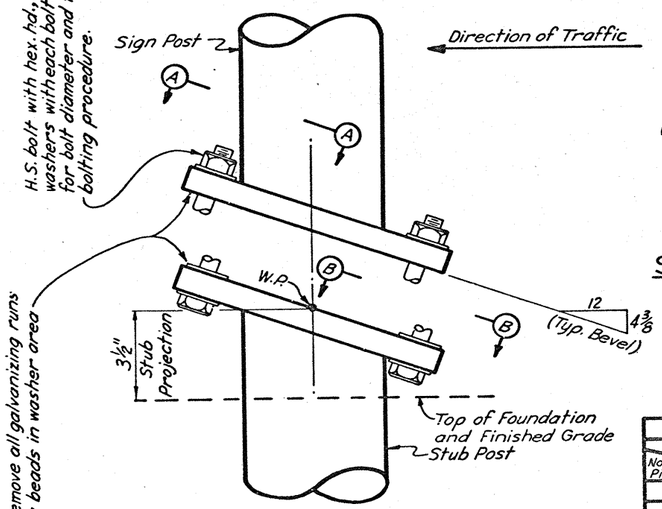
WELDED PIPE MOUNT DETAILS

NOTE:
The Contractor, at his option may furnish Standard Weight pipe conforming to A.S.T.M. Specification A-53, or Standard Weight pipe conforming to API5L, Grade B. Pipe made from materials conforming to the API5L Specifications shall meet all requirements of those specifications except that the Official API Monogram identification is not required.
Combinations of pipe material meeting different specifications may be used in the same project.
The pipe may be welded or seamless.
Hydrostatic tests are not required.

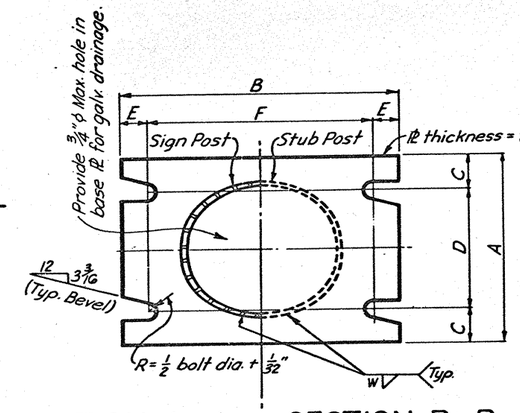
NOTES:
FRICTION CAPS— Caps may be manufactured from either hot rolled or cold rolled steel sheets. For pipe sizes 3½" and smaller the minimum sheet metal thickness shall be 24 gauge.
The rim edges shall be reasonably straight and smooth.
Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.
Caps shall have an electrodeposited coating of zinc in accordance with the requirements of A.S.T.M. Specification A164, Type G S.



FRICTION CAP DETAIL



SIGN POST AND STUB POST ELEVATION



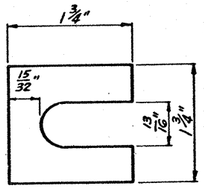
SECTION A–A SECTION B–B

(See Table for Dimensions)
Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.

Nom. Pipe Size \ Dimension	Bolt Size & Torque	A	B	C	D	E	F	t	W
2" ϕ	½" ϕ x 2" Torque = 200"#	4½"	6¼"	1"	2½"	3/4"	4 5/16"	½"	¼"
2½" ϕ		4½"	6¼"	1"	2½"	3/4"	4 5/16"	½"	5/16"
3" ϕ	½" ϕ x 2½" Torque = 200"#	4½"	7"	1"	2½"	3/4"	5½"	3/8"	5/16"
3½" ϕ		5½"	7 1/16"	1"	3½"	3/4"	6¼"	3/4"	3/8"
4" ϕ		5½"	7 3/4"	1"	3½"	3/4"	6¼"	3/4"	3/8"
5" ϕ	5/8" ϕ x 2¾" Torque = 450"#	6½"	9¾"	1½"	4"	7/8"	8"	1"	7/16"

* Plates for base connection shall conform with the requirements of A.S.T.M. A36. Payment will be included in price bid per linear foot of pipe.

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:
1. Assemble post to stub with bolts and WITH ONE FLAT WASHER BETWEEN PLATES.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with 12" to 15" wrench to bed washers and shims and to clean bolt threads then loosen.
4. Retighten bolts in a systematic order to the prescribed torque. (See Table)
5. Loosen each bolt and retighten to presribed torque in the same order as initial retightening.
6. Burr threads at junction with nut using a center punch to prevent nut loosening.



Furnish 2 ea .012" ± thick and 2 ea .032" ± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M. – B36.

SHIM DETAIL

GENERAL NOTES:
Design conforms with A.A.S.H.O. Specifications For The Design And Construction Of Structural Supports For Highway Signs.
Material and fabrication shall conform to the requirements of Texas Highway Department Standard Specifications.

All structural steel, bolts, nuts and washers shall be galvanized as per Item 442 of the Standard Specifications except as noted. Galvanizing of all posts shall be projection above concrete plus 6" minimum.
All high strength bolts and washers shall conform to A.S.T.M. – A325. All high strength nuts shall be of such capacity as to develope the bolt strength.
Tighten the high strength bolts in the base connection only to the torque shown, DO NOT OVERTIGHTEN.
All bolts other than high strength bolts shall conform to A.S.T.M. – A307, Class A.
See Standard Plan Sheets SMD-1 and SMD-3 for sign fastening details.
Where solid rock is encountered, footing shall be plan depth or extend two feet minimum into the rock.

TEXAS HIGHWAY DEPARTMENT
INTERSTATE
MODIFY EXISTING SIGNS WARNING, REGULATORY AND SMALL GUIDE SIGNS WITH BREAK-AWAY POSTS 66

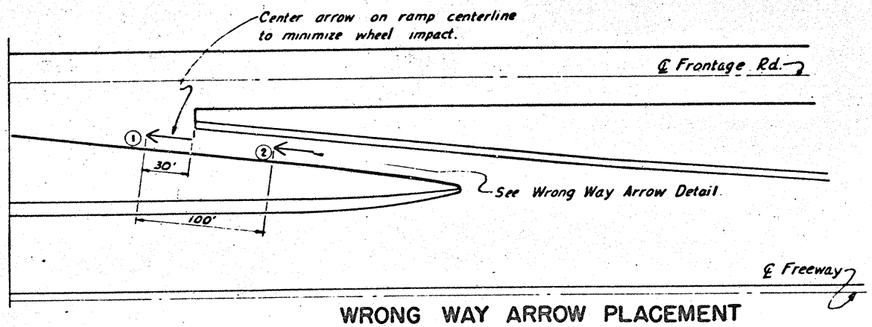
Sheet 2 of 2

Fin. - D.L.H.	Drawing ORIGINAL	Date AUG. 1966	Fed. Road Div. No.	State	Federal and Project No.	Sheet No.
Ck. Dsn. - D.B.D.			6	TEXAS	I-35-1(19)66	66
Ent. - J.K.			State Dist. No.	County	Highway No. / Control No. / Job No.	Standard No.
Ck. Dsn. - D.L.H.			21	Webb	19 / 4 / 12	I-35
Ck. Tr. -						

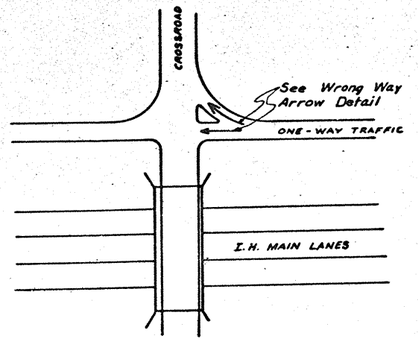
E

ORIGINAL

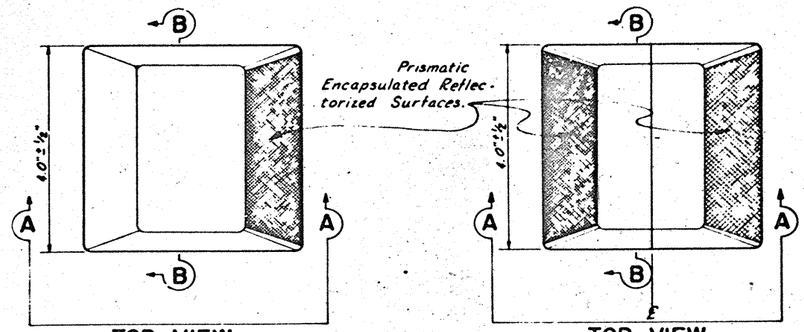
Reflectorized arrow(s) not to exceed two shall be placed on all exit ramps within the limits of the project. Location of arrow (1) shall be as shown. A second arrow shall be placed at location (2).



WRONG WAY ARROW PLACEMENT ON EXIT RAMPS

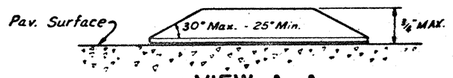


WRONG WAY ARROW PLACEMENT ON ONE-WAY EXIT RAMP AT ITS INTERSECTION WITH A CROSSROAD

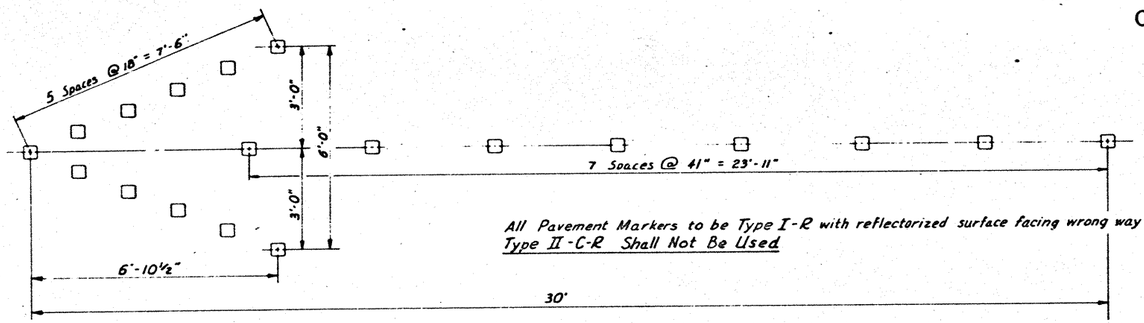


TOP VIEW Type I

TOP VIEW Type II

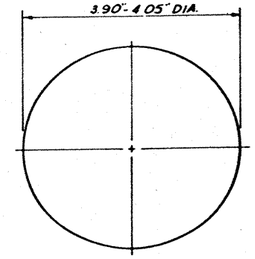


VIEW A-A

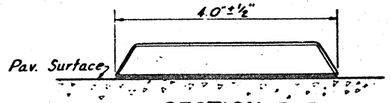


All Pavement Markers to be Type I-R with reflectorized surface facing wrong way traffic
Type II-C-R Shall Not Be Used

WRONG WAY ARROW DETAIL



TOP VIEW

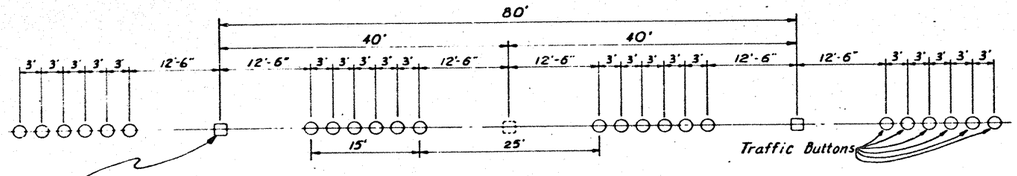


SECTION B-B

Minimum area of markers shall be not less than 12.5 square inches.

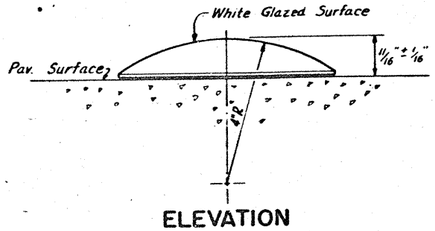
Marker shown is for illustrative purposes only and is not intended to specify any particular product.

PAVEMENT MARKERS (REFLECTORIZED) Types I & II



Pavement Markers Type II-C-R, crystal face toward normal traffic, red face toward wrong way traffic, shall be spaced on 80' centers except on vertical curves, grades over 2%, horizontal curves, and on continuously illuminated sections of highway where they may be placed on 40' centers if deemed necessary by the engineer.

TRAFFIC BUTTON AND PAVEMENT MARKER LANE LINE DETAIL



ELEVATION

TRAFFIC BUTTONS

5098/2

TEXAS HIGHWAY DEPARTMENT
TRAFFIC BUTTONS
(NON - REFLECTORIZED)
&
PAVEMENT MARKERS
(REFLECTORIZED)
FOR LANE LINES AND WRONG WAY ARROWS

INTERSTATE AND OTHER CONTROLLED ACCESS HIGHWAYS
TB & PM-66

67

ORIGINAL DRAWING DATE 7-26-66	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT				SHEET
DM :- Q A	REVISIONS	21	6	I-35-1(19)000				G7
CK :-	1-21-67- D-187- R L A							
DW :-	5-15-67- D-187- R L A	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
CK :-		Webb		15	0	16	I.H. 35

ORIGINAL

FED. ROAD DIV. NO.	STATE	AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(23)003	1
STATE DIST. NO.	COUNTY	STATE CONTROL NO.	HIGHWAY NO.
21	WEBB	18-6-56, 18-5-23, 18-4-20	IH-35

IFE 917

W-409-A

721820

STATE OF TEXAS
STATE HIGHWAY DEPARTMENT

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT.
I-35-1(23)003

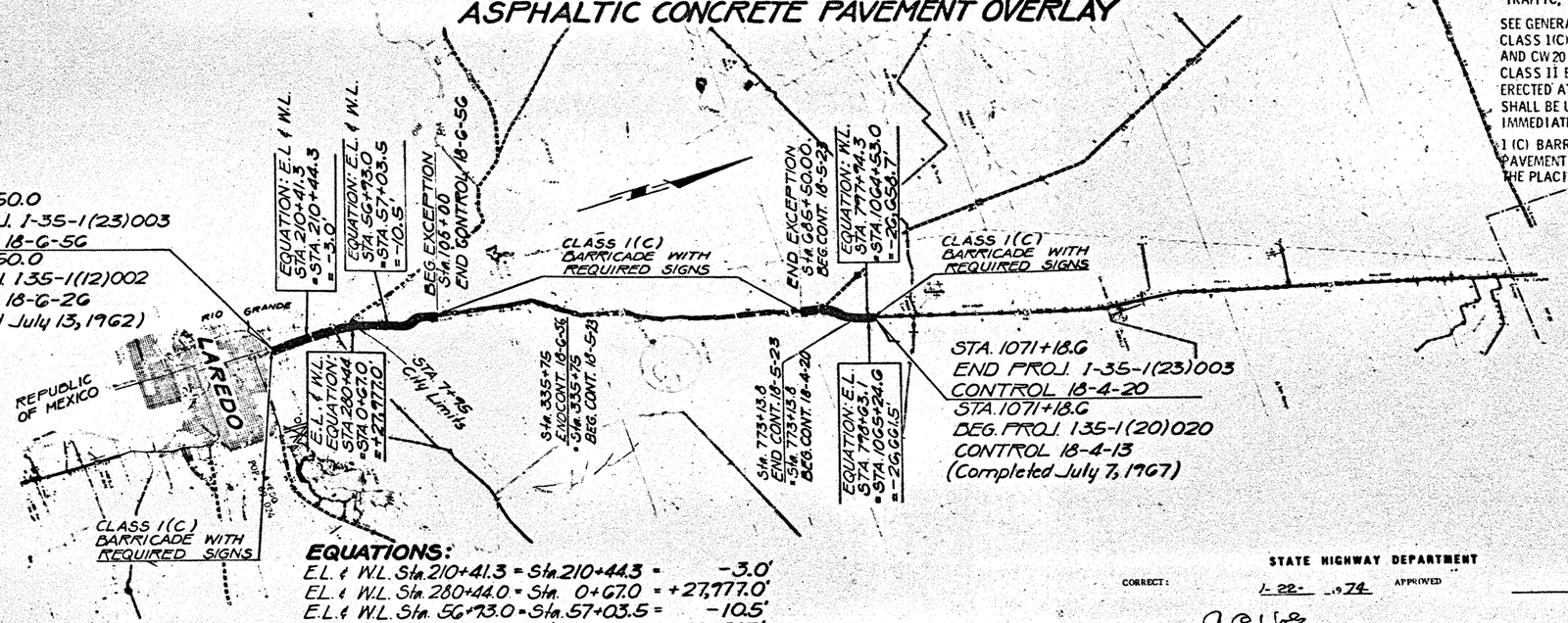
SCALES: PLAN: 1 IN. = 100 FT.
PROFILE: 1 IN. HOR. = 100 FT., 1 IN. VERT. = 10 FT.
CROSS-SECTIONS: 1 IN. HOR. AND VERT. = 5 FT.
OTHERS AS NOTED.

NET LENGTH OF PROJECT= 34,020.60 FT.= 6.556 MI. — URBAN = 13,019.00 FEET = 2.465 MILES; RURAL = 21,001.60 FEET = 4.091 MILES

WEBB COUNTY
HIGHWAY I.H.-35

LIMITS FROM	LIMITS TO	CONTROL	NET LENGTH (FEET) URBAN	NET LENGTH (FEET) RURAL	PROJECT NET LENGTH FEET	PROJECT NET LENGTH MILES
FARIAS STREET IN LAREDO	4.3 MILES NORTH	18-6-56	13,019.00	9,694.50	22,713.50	4.301
0.3 MILES SOUTH OF U.S.83 INTERCHANGE	1.5 MILES SOUTH OF WEBB	18-5-23	-	8,763.80	8,763.80	1.660
1.5 MILES SOUTH OF WEBB	2.0 MILES NORTH OF U.S.83 INTERCHANGE	18-4-20	-	3,143.30	3,143.30	0.595

ASPHALTIC CONCRETE PAVEMENT OVERLAY



EQUATIONS:

E.L. ℄ W.L. Sta. 210+41.3 = Sta. 210+44.3 = -3.0'
E.L. ℄ W.L. Sta. 280+44.0 = Sta. 0+67.0 = +27,777.0'
E.L. ℄ W.L. Sta. 56+73.0 = Sta. 57+03.5 = -10.5'
W.L. Sta. 797+74.3 = Sta. 1064+53.0 = -266.87'
E.L. Sta. 798+63.1 = Sta. 1065+24.6 = -266.15'

EXCEPTIONS:

W.L. 157+50.00 to 164+00.00 = 650.00'
W.L. 105+00.00 to 140+08.50 = 3,508.50'
E.L. 110+00.00 to 140+08.50 = 3,008.50'
W.L. ℄ E.L. 140+08.50 to 685+50.00 = 54,541.50'
W.L. 767+00.00 to 1071+18.60 = 3059.90
TOTALS = (W.L. 62,259.90)(E.L. 57,550.00)

FINAL PLANS
SUMMARY OF FIELD CHANGES

NO.	DESCRIPTION	LIMITS
1.	Modify plans and specification gradation requirements for Item 320.625 & 322.697.	Entire Project

TRAFFIC, DETOURS, BARRICADES, ETC.

SEE GENERAL NOTES AND ITEM 7 OF THE STANDARD SPECIFICATIONS, CLASS 1(C) BARRICADES WITH SIGNS G20-1, G20-2, G20-6, R10-8, AND CW20-1D SHALL BE ERECTED AT EACH END OF THE PROJECT. CLASS II BARRICADES WITH SIGNS CW20-1D AND CW13-4 SHALL BE ERECTED AT ENTRANCE RAMPS, ADDITIONAL BARRICADES AND SIGNS SHALL BE USED TO DIRECT TRAFFIC AND PROTECT THE WORK IN THE IMMEDIATE VICINITY OF OPERATIONS AS DIRECTED BY THE ENGINEER.

1(C) BARRICADES MAY CONSIST OF ONE PANEL ON EACH SIDE AT THE PAVEMENT WHERE THE RIGHT OF WAY WIDTH IS TOO NARROW TO ALLOW THE PLACING OF TWO PANELS.

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	SPECIFICATION DATA
3	TYPICAL CROSS SECTIONS
4	ESTIMATE & QUANTITY
5	PROFILE-BRIDGE APPROACHES AT U.S.83 INTERCHANGE
C-11	STANDARDS - BC(1) THRU (G)-74

CONVENTIONAL SIGNS
STATE OR NATIONAL LINE
CITY OR VILLAGE LINE
COUNTY LINE
BASE OR SURVEY LINE
RIGHT OF WAY LINE
RIGHT OF WAY MARKERS
FENCE LINE
RAILROAD
TRAVELLED WAY
CULVERT OR BRIDGE
POWER LINE
TELEGRAPH OR TELEPHONE

DISTRICT SAFETY COMMITTEE
W.D.B 5-13-74

COUNTY WEBB PROJ. NO. I-35-1(23)003
HWY. NO. IH-35 LETTING DATE OCT. 16 1974
DATE ACCEPTED NOV. 25, 1975

SPECIFICATIONS ADOPTED BY THE STATE HIGHWAY DEPARTMENT OF TEXAS JANUARY 3, 1972, AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM PR-1273, APR IL, 1974).

Layout Scale: 1 In = 10,560 Ft.

STATE HIGHWAY DEPARTMENT

CORRECT: 1-22- 1974
SUP. RESIDENT ENGINEER

5-13 1974
RECOMMENDED FOR APPROVAL:
DISTRICT ENGINEER

APPROVED
BRIDGE ENGINEER
APPROVED: JULY 31 1974
CHIEF ENGINEER OF HIGHWAY DESIGN

5-14 1974
DISTRICT DESIGN ENGINEER

U. S. DEPARTMENT OF TRANPORTATION
FEDERAL HIGHWAY ADMINSTRATION
APPROVED:
DIVISION ENGINEER DATE

FINAL 20 7218 | 3 | 5 | 5 | 12/3/74 | 8246600 | 12/15/75 | M.Hanna 4-6-0421 | 18 4-20-74

GENERAL NOTES AND SPECIFICATION DATA:

ITEM 210: THE POWER ROLLER USED ON EMBANKMENTS AND FLEXIBLE BASES WILL BE PERMITTED ON SURFACE TREATMENTS.

ITEM 213: THE MEDIUM PNEUMATIC ROLLER (TY B) SHALL BE SELF-PROPELLED.

ITEM 300: ASPHALTS NOT LISTED FOR THIS PROJECT MAY BE PERMITTED BY WRITTEN CONCURRENCE BY THE ENGINEER. CERTIFICATION, TO THE SATISFACTION OF THE ENGINEER, FROM SUPPLIER, OF UNAVAILABILITY WILL BE REQUIRED.

ITEM 320: IN ORDER TO HAVE AN AGGREGATE FOR SURFACING THE PAVED SHOULDERS THAT WILL RESULT IN A PERMANENTLY CONTRASTING COLOR AND TEXTURE TO THE ASPHALTIC CONCRETE PAVEMENT ON THE ADJACENT TRAVELED LANES, CRUSHED LIMESTONE AGGREGATE SHALL BE USED FOR THE PAVED SHOULDERS.

ITEMS 320 & 322: THE TYPE AND GRADE OF ASPHALT AND RATE OF APPLICATION SHALL BE AS DIRECTED BY THE ENGINEER. GENERALLY AN ASPHALT CEMENT WILL BE USED DURING THE WARM SEASON (USUALLY APRIL 15TH TO SEPTEMBER 1ST). GENERALLY AN EMULSIFIED ASPHALT WILL BE USED DURING THE COOLER SEASON (USUALLY SEPTEMBER 1ST TO APRIL 15TH). UNLESS OTHERWISE DIRECTED BY THE ENGINEER, THE EMULSIFIED ASPHALT SHALL HAVE A RAPID SET WITH A MAXIMUM PENETRATION OF RESIDUE OF 150.

ITEMS 320 & 322: THE RATES OF APPLICATION AND THE ESTIMATED QUANTITIES OF AGGREGATE ARE BASED ON THE USUAL OR AVERAGE GRADATION OF KNOWN MATERIALS. PRIOR TO SHIPPING AGGREGATE TO THE PROJECT, THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH SAMPLES OF AGGREGATE HE PROPOSES TO USE SO THAT THE GRADATION MAY BE DETERMINED AND RATE OF APPLICATION CHANGED IF NECESSARY. SURFACE TREATMENTS SHALL NOT BE APPLIED WHEN THE AIR TEMPERATURE IS BELOW 70 DEG. F AND IS FALLING BUT IT MAY BE APPLIED WHEN THE AIR TEMPERATURE IS ABOVE 60 DEG. F AND IS RISING. ASPHALTIC MATERIAL MAY BE PLACED BY PREHEATING AGGREGATE TO 280 DEG. F WHEN THE AIR TEMPERATURE IS 70 DEG. F AND FALLING OR WHEN THE AIR TEMPERATURE IS 50 DEG. F AND RISING.

ITEMS 320, 340 & 350: THE ASPHALTIC CONCRETE PAVEMENT SHALL BE IN PLACE FOR A SUFFICIENT PERIOD OF TIME IN THE OPINION OF THE ENGINEER TO PROPERLY DRY AND CURE BEFORE PLACING THE COLOR CONTRAST ONE-COURSE SURFACE TREATMENT.

ITEM 322: THE TWO-COURSE SURFACE TREATMENT SHALL BE IN PLACE FOR A SUFFICIENT PERIOD OF TIME IN THE OPINION OF THE ENGINEER, FOR THE SURFACE TREATMENT TO PROPERLY DRY AND CURE BEFORE PLACING THE ASPHALTIC CONCRETE PAVEMENT.

ITEM 340: SEMI-TRAILER VEHICLES WILL BE PERMITTED TO DUMP DIRECTLY INTO THE FINISHING MACHINE ON ALL COURSES. IF SEMI-TRAILERS ARE USED ON THE WEARING SURFACE COURSE, THE TRAILERS SHALL BE SO DESIGNED THAT NO ADDITIONAL LOAD, OTHER THAN THE ASPHALTIC MATERIAL, SHALL BE APPLIED TO THE FRONT OF THE SPREADING AND FINISHING MACHINE.

ITEM 340: THE CONTRACTOR'S ATTENTION IS DIRECTED TO SPECIFICATION ITEM 501 "AUTOMATIC SCREED CONTROLS FOR ASPHALT SPREADING AND FINISHING MACHINES" WHICH IS INCLUDED IN THE SPECIFICATIONS FOR THIS PROJECT.

ITEM 340: LIME (TY A OR B) SHALL BE ADDED TO THE MINERAL AGGREGATE AT THE RATE OF 1/2 OF 1% BY WEIGHT, IF COMBINED MINERAL AGGREGATE, PRIOR TO ADDITION OF ASPHALT AND MINERAL FILLER, HAS A SAND EQUIVALENT VALUE OF LESS THAN 45. THIS LIME WILL BE ADDED TO THE

GENERAL NOTES AND SPECIFICATION DATA:

AGGREGATE AT THE COLD FEEDER BELT BY MEANS OF A VIBRATING OR RECIPROCATING HOPPER WITH ATTACHED WATER SPRAYER OR ANY OTHER SUITABLE DEVICE APPROVED BY THE ENGINEER. THIS LIME WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 340, "HOT MIX ASPHALTIC CONCRETE PAVEMENT".

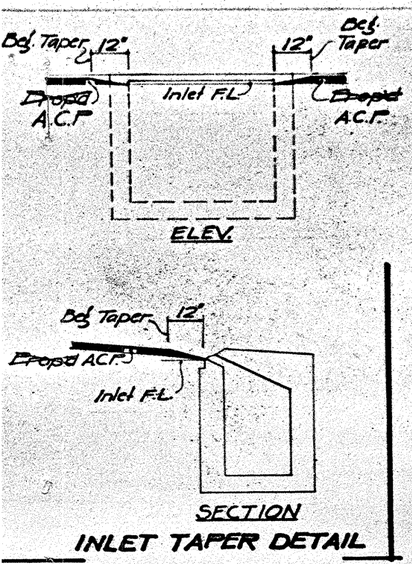
ITEMS 340 & 350: IN ADDITION TO THE TACK COAT MATERIALS SPECIFIED IN THESE STANDARD SPECIFICATIONS, THE CONTRACTOR, IF HE SO DESIRES, MAY USE EA-HVMS.

ITEMS 340 &350: THE POINT OF SAMPLING FOR TESTS TEST METHOD TEX-217-F (PART I AND PART II) SHALL BE THE COARSE AGGREGATE STOCKPILE. CRUSHING OF GRAVEL WILL NOT BE REQUIRED.

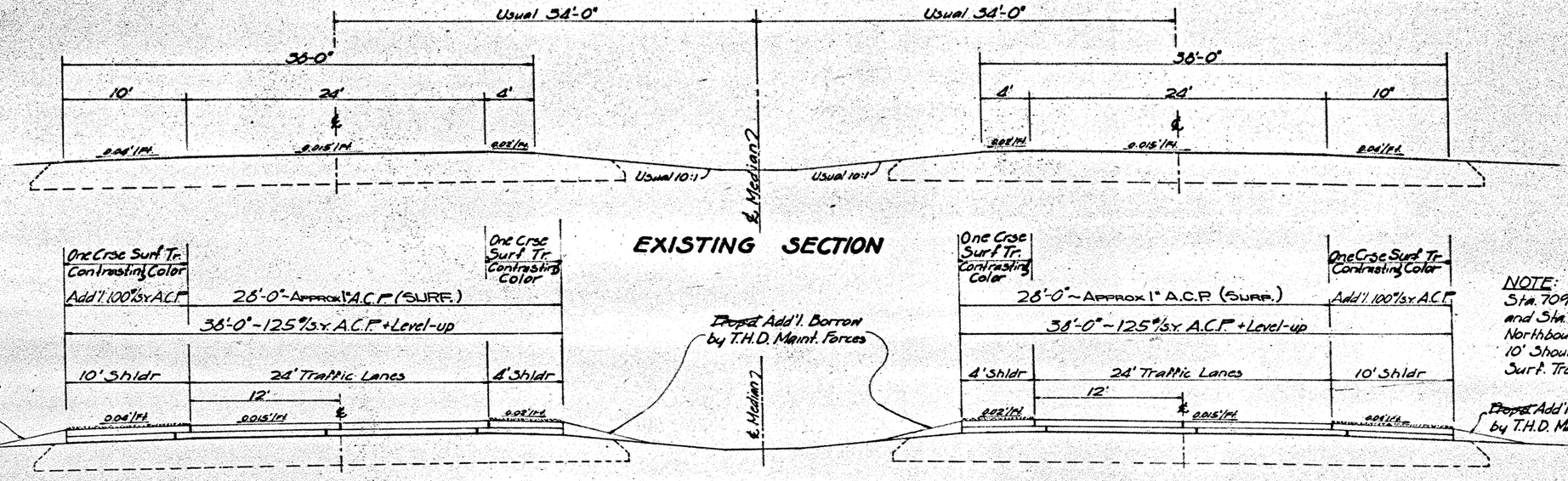
ITEMS 340 & 350: THE COARSE AGGREGATE USED IN THE SURFACE OR FINISH COARSE SHALL HAVE A "POLISH VALUE" OF NOT LESS THAN 35 WHEN TESTED IN ACCORDANCE WITH TEST METHOD TEX-438-A.

ITEM 5001: THE SQUARE FOOTAGE REQUIREMENTS IN THIS SPECIAL SPECIFICATION ARE NOT APPLICABLE TO THIS PROJECT.

SPEC PROV 000---004: THE NUMBER OF TRAINEES IS 2.

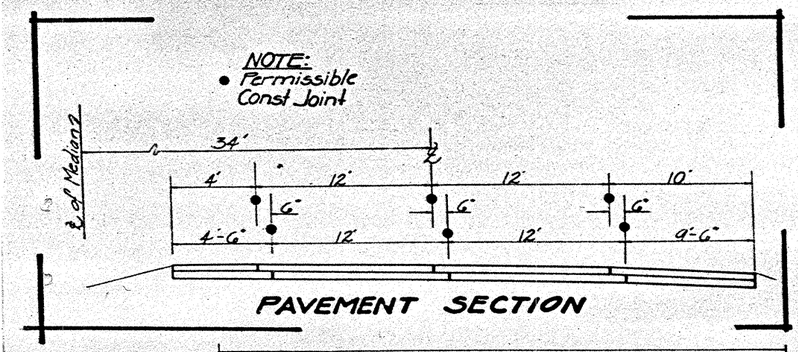


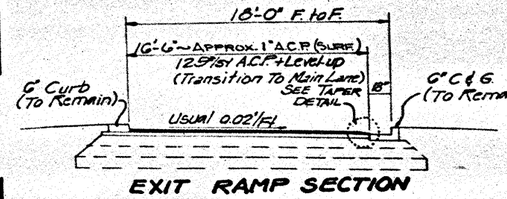
INLET TAPER DETAIL

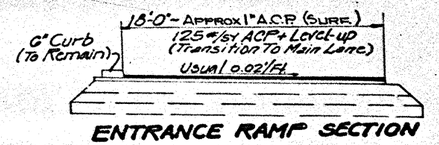


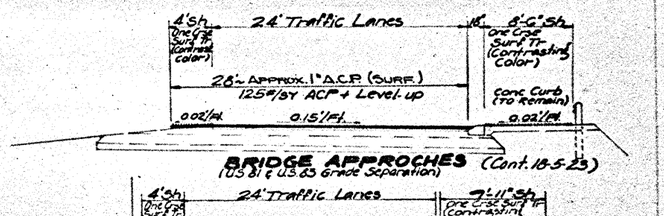
NOTE: (Control 18-5-23) Sta. 709+60 to Sta. 714+40 and Sta. 715+60 to Sta. 726+16 Northbound & Southbound lanes 10' Shoulder will receive One Crse Surf. Treat. (Contrasting Color) ONLY

~~DROP'T~~ PAVEMENT OVERLAY SECTION

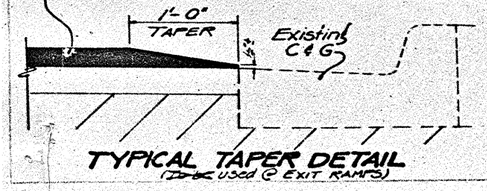


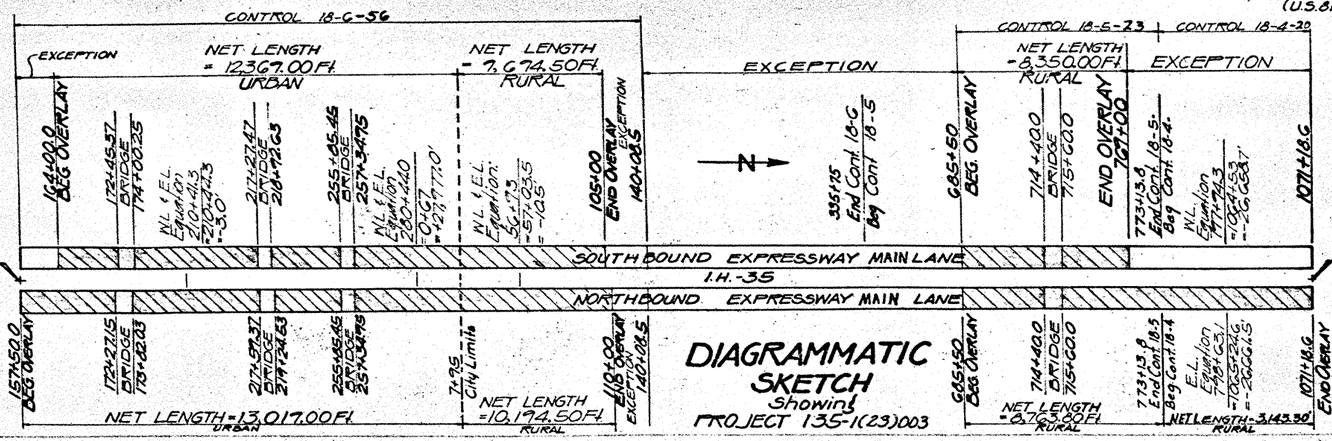






Note: All bridge decks (Cont. 18-6-56) Will be surfaced the full width (38') with two Crs. Surf. Treat. & Approx. 1" A.C.P. 4' & 10' shoulders will take 1 CST (Color Cont.)





DIAGRAMMATIC SKETCH Showing PROJECT 135-1(23)003

STA. 1071+18.6 END PROJ.

3 TYPICAL CROSS SECTIONS

		1-35-1(23)003	3
21	WEBB	18 U.S. & STATE NO. 1H35	

ESTIMATE SUMMARY

EXPRESSWAY LANES PROJECT								ALT.	ITEM-CODE			ITEM DESCRIPTION	UNIT	TOTAL	
CONTROL 18-4-20 RURAL		CONTROL 18-5-23 RURAL		CONTROL 18-G-5G URBAN		CONTROL 18-G-5G RURAL			ITEM NO	DESC CODE	S.F. NO				
EST	FINAL	EST	FINAL	EST	FINAL	EST	FINAL							EST	FINAL
3		18		26		19			210	501		ROLL (FLAT WHEEL)	HR	66	
5		25		38		26			213	503		ROLL (MEDM PNEUM TIRE) (TY D)	HR	94	94
1712	1825	8,477	8505	13,270	10,760	10,828	9970		320	551		ASPH (AC OR EA)	GAL	34,287	31,006
41	42	203	188	317	264	258	242		320	625		AGGR (CL B TY D GR 5 A)	CY	817	736.0
		10	10	53	52				322	636		AGGR (CL B TY A GR 3 A)	CY	63	62.0
		7	6	34	32				322	697		AGGR (CL B TY D GR 5 A)	CY	41	38.0
		523	450	2,775	2435				322	621		ASPH (AC OR EA)	GAL	3,278	2885.0
1101	1248.156	5,573	6689.592	9,517	7613.424	6,960	5379.19	1	340	504	045	AGGR (TY D)	TON	23,171	20930.362
70	85.344	358	457.408	608	520.576	444	367.81	1	340	512	045	ASPH (AC-20)	TON	1,480	1,431.138
29	33.229	183	238.074	281	321.440	186	217.186	2	340	553	045	ASPH (AC-20X SURF)	TON	679	809.789
272	299.718	1,690	2137.645	2,603	2868.328	1,719	1943.33	2	340	519	045	AGGR (TY D) (SURF)	CY	6,284	7,248.821
												ALTERNATE 1A			
1171		5,951		10,125		7,404			350	503	029	HOT MIX-COLD LAID ACP (TY D)	TON	24,651	
												ALTERNATE 2A			
272		1,690		2,603		1,719			350	511	029	HOT MIX-COLD LAID ACP (TY D)	CY	6,284	
29		183		281		186			350	527	029	ASPH (AC-20) (SURF)	TON	679	
												CONTR FORCE ACT OR AGR UNIT PRICE			
0.1		0.2		0.4		0.3						Temp Water-Pollution Cont	LS	1.	
												FORCE ACCOUNT BY CONTRACTOR			
				1.								Job Training (2 Trainees)	LS.	1.	
												STATE FORCE ACCOUNT WORK (NON-PART)			
0.1		0.2		0.4		0.3						Add'l BORROW, SHOULDERING-UP AND REMOVE ACP	LS	1.	

20730.362
1.13 Y

BASIS OF ESTIMATE

ITEM	DESCRIPTION	RATE		UNIT	CONTROL 18-4-20 RURAL	CONTROL 18-5-23 RURAL	CONTROL 18-G-5G URBAN	CONTROL 18-G-5G RURAL
	ONE CRSE SURF TREAT (COLOR CONTRAST)				—	—	—	—
210	ROLL (FLAT WHEEL)	5Hr/Mi/Lane		HR	3	17	24	19
213	ROLL (MEDM PNEUM TIRE) (TY D)	7Hr/Mi/Lane		HR	5	24	35	26
320	AGGR (CL B, TY D, GR 5-A)	1:120		CY	41	203	317	258
320	ASPH (AC OR EA)	* 0.35 Gal/SY		GAL	1712	8,477	13,270	10,828
					—	—	—	—
	ASPHALTIC CONCRETE PAVEMENT				—	—	—	—
340	ASPH (AC-20)	6% by Wt.		TON	60	304	520	381
340	AGGR (TY D)	94% by Wt.		TON	945	4,751	8,143	5,973
	(TY D) Matl from J.W. Nixon Pit	Laredo Texas			—	—	—	—
340	ASPH (AC-20) Level-up	6% by Wt.		TON	10	54	88	63
340	AGGR (TY D) Level-up	94% by Wt.		TON	156	842	1,374	987
340	ASPH (AC-20) (SURF)	6% by Wt.		TON	29	183	281	186
340	AGGR (TY D) (SURF)	94% by Wt.		CY	272	1690	2603	1719
	(TY D Surf) from Adkinson Pit	Freer Texas			—	—	—	—
	TWO CRSE SURF TREAT (BRIDGE SEAL)	1ST CRSE	2ND CRSE		—	—	—	—
210	ROLL (FLAT WHEEL)	2Hr/Mi/Lane	3Hr/Mi/Lane	HR	—	1	2	—
213	ROLL (MEDM PNEUM TIRE) (TY D)	2Hr/Mi/Lane	5Hr/Mi/Lane	HR	—	1	3	—
322	AGGR (CL B, TY A, GR 3-A)	1:75		CY	—	10	53	—
322	AGGR (CL B, TY D GR 5-A)		1:120	CY	—	7	34	—
322	ASPH (AC OR EA)	*.025 Gal/SY	*.045 Gal/SY	GAL	—	523	2,775	—

• Crushed Limestone * Rate for Estimate purposes only

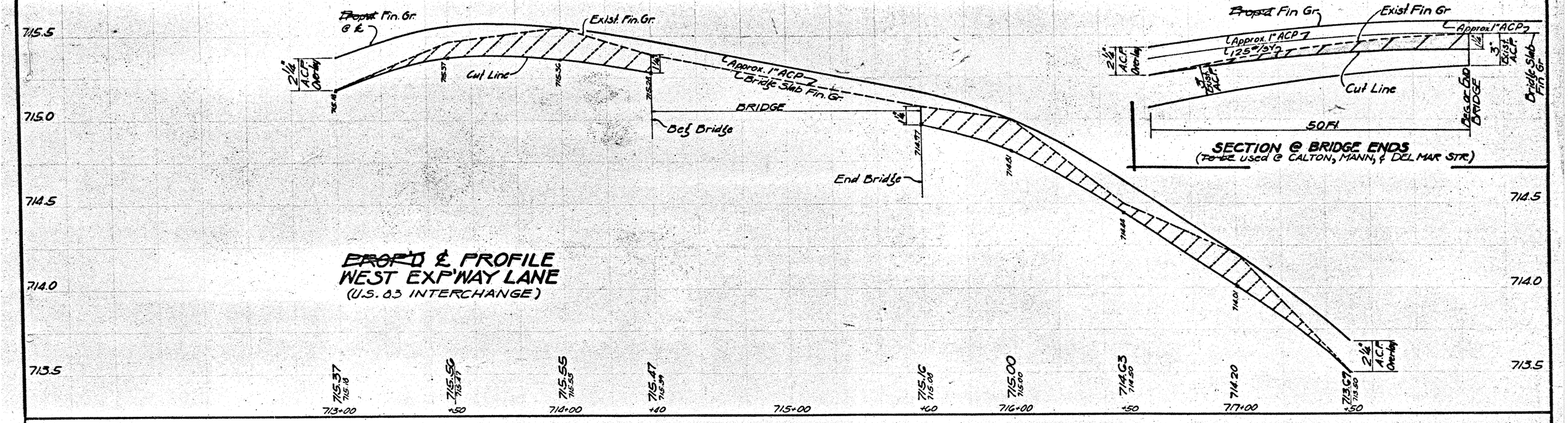
SUMMARY OF AREAS ~ (Sq. Yds)

CONTROL	LOCATION	ONE COURSE SURF TREAT (Color Contrast)	ACP TY D 125#/SY & Level-up	ACP TY D 100#/SY	ACP (TY D) (SURF) APPROX. 1" THICK	TWO CRSE SURF TREAT (BRIDGE SLABS)
18-4-20 RURAL	Main Lanes	—	8,382	—	8,382	—
	10 Ft. Shoulder	3,473	3,473	3,473	—	—
	4 Ft. Shoulder	1,377	1,377	—	1,397	—
	Ramps	—	—	—	—	—
18-5-23 RURAL	Main Lanes	—	44,777	—	45,637	640
	10 Ft. Shoulder	16,124	15,035	11,533	3,470	—
	4 Ft. Shoulder	7,607	7,500	—	7,607	107
	Ramps	489	4,116	—	4,116	—
18-G-5G RURAL	Main Lanes	—	53,038	—	53,038	—
	10 Ft. Shoulder	22,098	22,098	22,098	—	—
	4 Ft. Shoulder	8,838	8,838	—	8,838	—
	Ramps	—	—	—	—	—
18-G-5G URBAN	Main Lanes	—	65,197	—	67,701	2,504
	10 Ft. Shoulder	26,629	27,166	27,166	1,043	1,043
	4 Ft. Shoulder	11,284	10,867	—	11,284	417
	Ramps	—	13,655	—	13,655	—

4

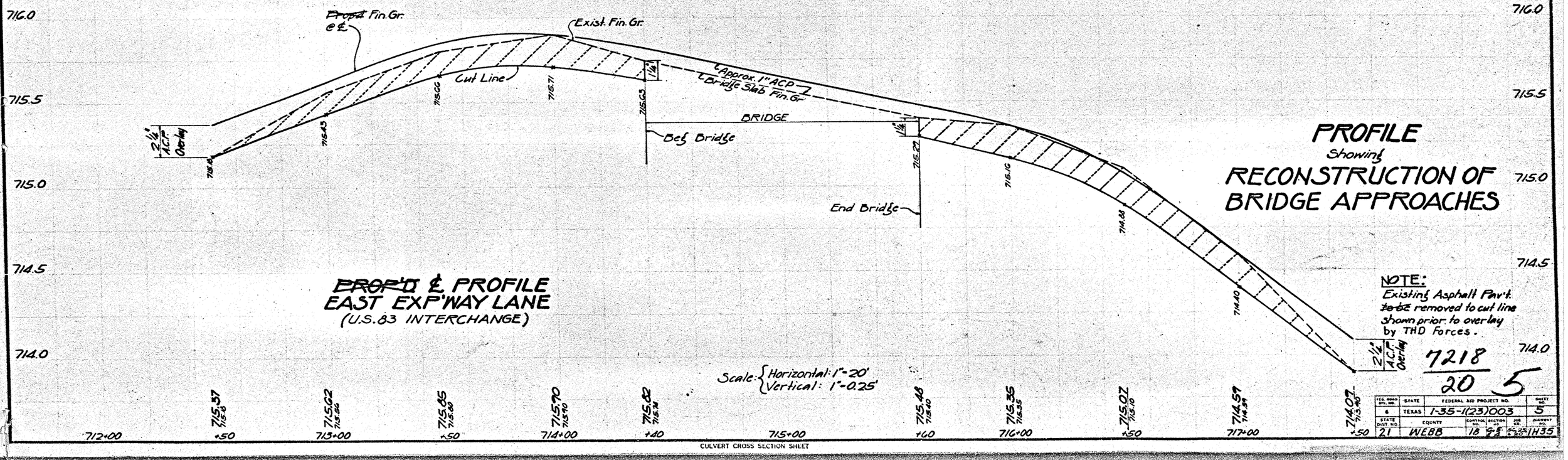
ESTIMATE & QUANTITY

1-35-1(23)003 4
21 WEBB 18 U.S. 59 & 35 IH-35



PROP'D & PROFILE
WEST EXP'WAY LANE
(U.S. 83 INTERCHANGE)

SECTION @ BRIDGE ENDS
(TO BE USED @ CALTON, MANN, & DEL MAR STR.)



PROP'D & PROFILE
EAST EXP'WAY LANE
(U.S. 83 INTERCHANGE)

Scale: { Horizontal: 1"=20'
Vertical: 1"=0.25'

PROFILE
Showing
RECONSTRUCTION OF
BRIDGE APPROACHES

NOTE:
Existing Asphalt Pav't to be removed to cut line shown prior to overlay by THD Forces.

7218
20 5

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I-35-1(23)003	5
STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO. / HIGHWAY NO.	
21	WEBB	18 [illegible]	IH35

CULVERT CROSS SECTION SHEET

999

FINAL 12-18-68

8½ x 11	F-2		
11 x 18	3-RC		
7		TPB 3 Lft Hands Dwl 121 / 1 Lft Hand Shoulder 3 Lft Hand D-15	314

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	I 35-1(17)13	1
STATE DIST. NO.	COUNTY	STATE CONTROL NO.	HIGHWAY NO.
21	WEBB	18-5	IH-35

999 # 314

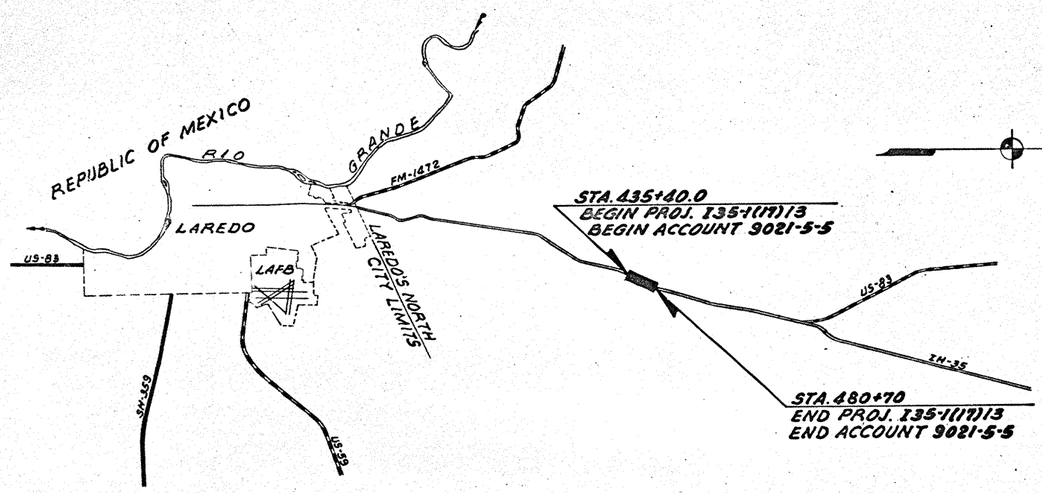
W-481

"FINAL MAP"
STATE OF TEXAS
STATE HIGHWAY DEPARTMENT

PLAN OF PROPOSED RIGHT OF WAY PROJECT

WEBB COUNTY
HIGHWAY IH-35
ACCOUNT NO. 9021-5-5 P.D. 7030
PROJECT NO. I 35-1(17)13
REST AREAS APPROXIMATELY 10.6 MILES
NORTH OF FARIAS STREET IN LAREDO

PLAN SCALE: 1 IN. = 200'
NET LENGTH OF PROJECT = 4,530 FT. = 0.858 MILES



CONVENTIONAL SIGNS

RIGHT OF WAY LINE	
PROPERTY LINE	
COUNTY LINE	
CONTROL OF ACCESS LINE	
SURVEY LINE	
FENCE	
POWER LINE	
TELEPHONE OR TELEGRAPH	
RAILROAD	
BRIDGE OR CULVERT	
CITY LIMITS	
TRAVELLED WAY	
BITUMINOUS SURF. ROAD	

LAYOUT SCALE: 1 IN. = 10,560 FT.

CORRECT: July 28, 1965
S. T. Crook
DISTRICT R.O.W. ENGINEER

APPROVED: July 29, 1965
J. R. Snyder
DISTRICT ENGINEER

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED:
DISTRICT ENGINEER — DATE

U-5896 Utility Adjustment

CENTRAL POWER & LIGHT COMPANY
Description: Relocation of Distribution Line and Facilities.

C.P.&L. To The State of Texas
QUITCLAIM
Filed: Nov. 22, 1966
Vol. 343 Page: 58-60

U-5856 Utility Adjustment

MEDINA ELECTRIC COOPERATIVE, INC.
Description: Relocate Distribution Line

Medina Electric Co-op Inc. To The State of Texas
QUITCLAIM
Filed: Nov. 22, 1966
Vol. 343 Page: 55-57

EST. FLEX. BASE AREAS

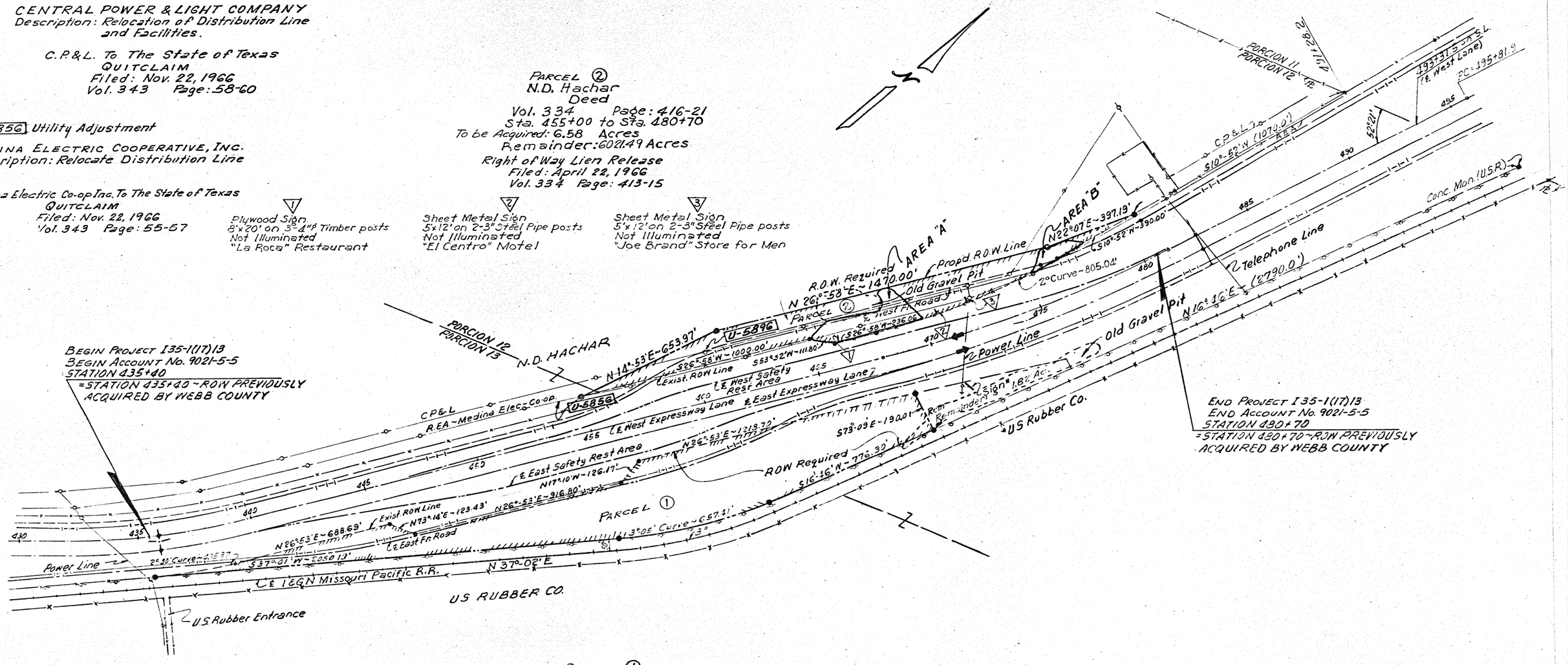
AREA	ACRES
"A"	1.00
"B"	0.30
TOTAL	1.30

PARCEL ②
N.D. Hachar
Deed
Vol. 334 Page: 416-21
Sta. 455+00 to Sta. 480+70
To be Acquired: 6.58 Acres
Remainder: 6021.49 Acres
Right of Way Lien Release
Filed: April 22, 1966
Vol. 334 Page: 413-15

① Plywood Sign
8'x20' on 3-4"ø Timber posts
Not Illuminated
"La Roca" Restaurant

② Sheet Metal Sign
5'x12' on 2-3" Steel Pipe posts
Not Illuminated
"El Centro" Motel

③ Sheet Metal Sign
5'x12' on 2-3" Steel Pipe posts
Not Illuminated
"Joe Brand" Store for Men



PARCEL ①
U.S. Rubber Company
Deed
Vol. 338 Page: 449-54
Sta. 435+40 to Sta. 468+90
To be Acquired: 14.31 Acres
Remainder: 1.82 Acres

REVISIONS:
Feb. 4, 1966
Adding Flexible Base Areas on Parcel 2.
March 22, 1966
Page 2 revised to Eliminate the word "Additional" from the subtitle and Part taken.

RIGHT OF WAY REQUIRED
FOR
SAFETY REST AREAS ON
INTERSTATE HWY. 35
SCALE: 1" = 200'

999/3.14

2

		135-1(17)13		2
21	WEBB	18	5	IH-35

INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
SEE SHEET 2 FOR INDEX	

STATE OF TEXAS
TEXAS DEPARTMENT OF TRANSPORTATION

FINAL PLANS ~~OF PROPOSED~~
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NO NH-2002 (79)
CCSJ: 0018-05-062, ETC

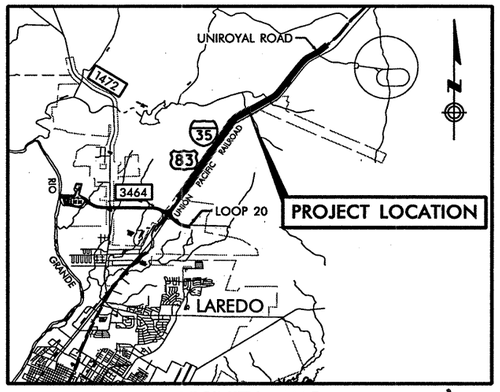
	0018-06-147 IH 35	0018-05-062 IH 35	0018-06-148 TRES EQUIS BLVD	0018-05-063 CARRIER DRIVE	TOTAL
ROADWAY =	16,674.00 FT	10,820.20 FT	2400.00 FT	1700.00 FT	31,596.12 FT = 5.984 MI
BRIDGE =	71.00 FT	172.92 FT	0.00 FT	0.00 FT	243.00 FT = 0.046 MI
TOTAL LENGTH =	16,745.00 FT	10,993.12 FT	2400.00 FT	1700.00 FT	31,838.12 FT = 6.030 MI

WEBB COUNTY

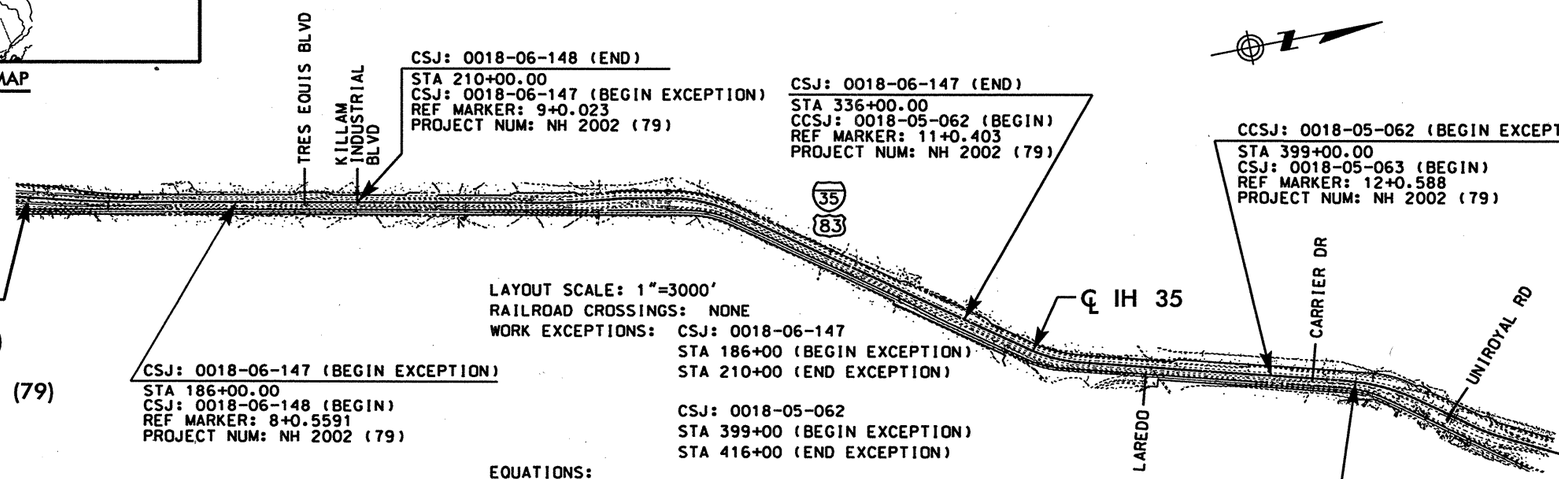
IH 35

FOR THE CONSTRUCTION OF THE WIDENING OF A FREEWAY FACILITY AND CONSTRUCTION OF INTERCHANGE FACILITIES CONSISTING OF PAVEMENT, GRADING, DRAINAGE, SIGNING, PAVEMENT MARKING, ILLUMINATION, SW3P, TRAFFIC MANAGEMENT, AND STRUCTURES.

LIMITS (IH 35) : FROM 0.25 MI NORTH OF THE MILO (LOOP 20/IH 35) INTERCHANGE TO 0.50 MI NORTH OF UNIROYAL RD



VICINITY MAP
NTS



BEGIN PROJECT
STA 144+55.00
CSJ: 0018-06-147 (BEGIN)
REF MARKER: 7+0.868
PROJECT NUM: NH 2002 (79)
X= 662,611.1840
Y=17,112,792.9210

CSJ: 0018-06-147 (BEGIN EXCEPTION)
STA 186+00.00
CSJ: 0018-06-148 (BEGIN)
REF MARKER: 8+0.5591
PROJECT NUM: NH 2002 (79)

CSJ: 0018-06-148 (END)
STA 210+00.00
CSJ: 0018-06-147 (BEGIN EXCEPTION)
REF MARKER: 9+0.023
PROJECT NUM: NH 2002 (79)

CSJ: 0018-06-147 (END)
STA 336+00.00
CCSJ: 0018-05-062 (BEGIN)
REF MARKER: 11+0.403
PROJECT NUM: NH 2002 (79)

CCSJ: 0018-05-062 (BEGIN EXCEPTION)
STA 399+00.00
CSJ: 0018-05-063 (BEGIN)
REF MARKER: 12+0.588
PROJECT NUM: NH 2002 (79)

LAYOUT SCALE: 1"=3000'
RAILROAD CROSSINGS: NONE
WORK EXCEPTIONS: CSJ: 0018-06-147
STA 186+00 (BEGIN EXCEPTION)
STA 210+00 (END EXCEPTION)

CSJ: 0018-05-062
STA 399+00 (BEGIN EXCEPTION)
STA 416+00 (END EXCEPTION)

EQUATIONS:
NB FRTG RD STA 285+61.08(BACK)=286+11.88(AHEAD)
NB FRTG RD STA 422+31.78(BACK)=421+75.09(AHEAD)
SB FRTG RD STA 286+06.33(BACK)=285+66.70(AHEAD)
SB FRTG RD STA 428+22.60(BACK)=428+57.48(AHEAD)

CSJ: 0018-05-063 (END)
STA 416+00.00
CCSJ: 0018-05-062 (END EXCEPTION)
REF MARKER: 12+0.910
PROJECT NUM: NH 2002 (79)

END PROJECT
STA 462+93.12
CCSJ: 0018-05-062 (END)
REF MARKER: 13+0.828
PROJECT NUM: NH 2002 (79)
X= 673,962.3230
Y=17,141,919.2930

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		1
STATE	STATE DIST NO		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

IH 35
LOOP 20 TO UNIROYAL ROAD

TITLE SHEET

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KBR
Engineered by KBR Technical Services, Inc

STATE OF TEXAS A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON APRIL 30, 2003
Abus Abugattas

FINAL PLANS
LETTING DATE : Aug. 6, 2003
WORK BEGIN : March 1, 2004
DATE ACCEPTED: Aug 7, 2009
CONTRACTOR : Price Construction
~~TOTAL COST~~ : Aug 7, 2009
Total Cost $40,982,206.67

DESIGN SPEED:	
MAINLANES	70 mph
FRONTAGE ROADS	50 mph
RAMPS	50 mph
TRES EQUIS BLVD	35 mph
CARRIER DRIVE	35 mph

IH 35	YEAR	ADT
MAIN LANES	2001	18,900
	2021	34,800
FRONTAGE ROADS	2002	8,069
	2022	14,841

The construction work has been performed in accordance with the contract plans under my responsible supervision.

Carlos G. Rodriguez, P.E. — 7/20/09
Carlos G. Rodriguez, P.E. — Date

STATE OF TEXAS CARLOS G. RODRIGUEZ 77488 REGISTERED PROFESSIONAL ENGINEER

COUNTY WEBB PROJ.NO. NH 2002(79)
HWY.NO. IH 35 LETTING DATE Aug. 6, 2003
DATE ACCEPTED

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SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION MARCH 1, 1993 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273).

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SUBMITTED FOR LETTING 5/1/03
AREA ENGINEER

RECOMMENDED FOR LETTING 5/1/03
DIRECTOR OF TRANSPORTATION OPERATIONS

APPROVED FOR LETTING 6-24-03
for DIRECTOR OF DESIGN DIVISION

RECOMMENDED FOR LETTING 5/1/03
DIRECTOR OF TRANSPORTATION PLANNING AND DEVELOPMENT

RECOMMENDED FOR LETTING 05-02-03
DISTRICT ENGINEER

LARKMAP.DGN - KEY — LV ON = 1-5,8-12,14,16-61,63
MILOINT.ROW - ROW — LV ON = 1-61,63
J01LOP01.BCK, BCK — LV ON = 2-28,30,32,33,36,37,39,41-53,58-63
J01LOP01.ALG, ALG — LV ON = 1,37
REF FILE(S): J01LOP01.EDP, EDP — LV ON = 17,25-28,38

b03csp01.dgn-15 HOUFILE023 \hchiWIvef0130\ 4/30/2003

CHANGE ORDER SUMMARY

NO.	DESCRIPTION	CO APPROVED AMOUNT	
1	PRIME COAT	$147,108.14	
2	MSE WALL BACKFILL 24" RCP JACK OR BORE	$926,680.64	
3	GIVE US A BREAK SIGNS, DUST CONTROL WATERING	$15,562.20	
4	PARTNERING SESSION	$1,351.90	
5	INTERNET SERVICE PROVIDER FOR SITE MANAGER USAGE	$1,775.88	
6	DEWATERING OF STRUCTURE AT STA 343+25	$15,800.00	
7	FORCE ACCOUNT TO CORE EXISTING UNDERGROUND CONCRETE ON NBFR	$11,786.00	
8	ADD MOD Inlets, AD MOD Inlets & Collars	$6,679.00	
9	EXTRA ITEMS: WINGWALLS, CONCRETE REMOVAL MBGF TRANS	$27,128.80	
10	CRS-2P OIL FOR SEAL COAT	$0.00	
11	NBFR BRIDGE COLUMNS OVERRUN	$15,094.82	
12	EXTEND WIDENING OF SHDR BY 1 FT	$223,286.88	
13	OVERRUN ITEM 400-0502 STRUC EXCAV (BRIDGE) AT NBFR BRIDGE	$11,532.62	
14	BURGLAR BARS AT STATE FIELD OFFICE	$1,900.00	
15	SGT REMOVAL	$1,435.00	
16	STRUCTURE "A" BOX CULVERT CHANGE	$-76,361.52	
17	ISDN LINE FOR TXDOT FIELD OFFICE	$2,850.00	
18	CULVERT I- HEADWALL CHANGE	$8,278.55	
19	SATELLITE INTERNET	$2,000.00	
20	EXTEND WIDENING SHOULDER BY 1 FT (SUPPLEMENTAL TO CO 12)	$81,046.44	
21	AUXILLIARY LANE FOR EXIT 9 SB MAIN LANES	$73,247.94	
22	SOIL RETENTION BLANKETS	$26,200.00	
23	REMOVE A MONTH OF BARRICADES	$-52,000.00	
24	MULTI-DUCT 90 DEGREE ELBOWS	$5,224.56	
25	WINGWALL CHANGE AT STRUCTURE "H" STA 343+26 EAST SIDE	$5,282.87	
26	EXTRA MSE WALL BACKFILL MATERIAL	$62,099.63	
27	UNIROYAL TRAFFIC SIGNAL CHANGE	$129,066.39	
28	HURRICANE RITA EVACUEE AID	$4,961.60	
29	EROSION CONTROL	$20,000.00	
30	MONTH OF BARRICADES	$52,000.00	
31	ELECTRICAL CONNECTIONS	$5,000.00	
32	TRAFFIC SIGNAL FOUNDATION CHANGE	$83,228.11	
33	TIME ADJUSTMENT AND EXTRA MONTHS OF BARRICADES - DENIED	$676,000.00	
34	TIME ADJUSTMENT & ADD BARRICADES MONTHS DUE TO PREVIOUS COs	$260,000.00	
35	LOWERING CONDUIT AT TRES EQUIS INTERCHANGE	$2,225.93	
36	RELOCATE JUNCTION BOX AT LOWER CONDUIT	$6,073.98	
37	PORT LAREDO INTERSECTION	$113,120.67	
38	SMA AND STONE FILLED MIXES MODIFICATION	$0.00	
39	POLICE OFFICERS	$20,000.00	
40	REMOVAL OF PAVEMENT AT MAIN LANES (FULL DEPTH)	$258,525.58	
41	MAIN LANES CONSTRUCTION LIMITS CHANGE	$-3,100,778.41	
42	PLANING ASPHALT PAVEMENT 5.5"	$178,175.74	
43	SIGNS UPGRADE	$973.56	
44	ADDITIONAL ROADWAY ILLUMINATION AND CCTV CAMERA POLES	$35,054.53	
45	INLET ADJUSTMENT RAMP A	$15,028.42	
46	ANCHOR PLATES T2/T201 TRANSITION RETROFIT	$6,747.00	
47	WIRELESS INTERNET CARD	$4,557.50	
48	POTHOLE REPAIR	$5,880.00	
49	SSCB FOOTING	$36,713.00	
50	MOWING	$3,240.00	

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
22	WEBB	NH 2002 (79)	1A

CHANGE ORDER SUMMARY

NO.	DESCRIPTION	CO APPROVED AMOUNT	
51	PURCHASE OF SURPLUS GRADE #3 ROCK	$53,625.04	
52	PAVEMENT REPAIR ON SOUTHBOUND IH 35 AT UNIROYAL BRIDGE	$4,739.35	
53	CHANGE HDSMACP (1/2" MIX TYPE) TO HDSMACP (3/4" MIX TYPE)	$0.00	
54	TYPICAL SECTION & GYRATION CHANGE	$-320,308.81	
55	ADDITIONAL PAVEMENT MARKINGS	$20,024.39	
56	INCREASE LAW ENFORCEMENT OFFICERS	$376,418.79	
57	AGGREGATE - STOCKPILE & STIE RENTAL	$6,041.45	
58	INCREASE CHANGEABLE MESSAGE SIGNS	$225,634.88	
59	REMOVAL OF UNIROYAL BRIDGE WORK FROM CONTRACT	$54,892.89	
60	INCREASE POLICE OFFICERS	$290,000.00	
61	ADDITIONAL CONTRACT TIME	$0.00	
62	SURF PREP FOR PVMT MRKS	$3,313.62	
63	OVERRUN PLAN & MAJOR ITEMS	$41,524.18	
64	CHANGE SMA TO 2004 SPECS - DENIED	$0.00	
65	PORTABLE CONCRETE BARRIER ADJUSTMENT	$15,074.10	
66	MBGF AT UNIROYAL BRIDGE - DENIED	$0.00	
67	ADDITIONAL SOIL BLANKETS	$46,445.79	
68	CHANGE TRACC TO REACTS	$-78,706.86	
69	INCREASE POLICE OFFICERS - DENIED	$0.00	
70	SSTR BETWEEN RET WALLS	$5,988.00	
71	REMOVE COPING	$3,388.80	
72	BRIDGE MOUNTED SIGNS	$70,196.57	
73	UNIROYAL BRIDGE - TCP ENGINEERING	$2,441.25	
74	WORK ZONE PAVEMENT MARKINGS ADJUSTMENT	$-155,731.28	
75	OVERRUN/UNDERRUN - MBGF, RIPRAP, BACKFILL	$-54,450.86	
76	TRAFFIC CONTROL - PHASES OF CONSTRUCTION	$25,000.00	
77	TRAF SIGNAL FOUNDATION QUANTITIES	$21,159.71	
78	RELOCATE LIGHT POLES AT EXIT 9	$8,227.68	
79	MTL BEAM GD FENCE ADJUSTMENTS AT SBML	$-6,700.36	
80	DELETION OF PFC	$-964,606.40	
81	DELETION OF STORM SEWER SYSTEM NO. 4 & WATERBLASTING PVMT MRKS	$-59,430.41	
82	OVERHEAD SIGN BRIDGE FOUNDATIONS	$19,788.00	
83	PAINTING OF PERMANENT CONCRETE TRAFFIC BARRIER	$35,000.00	
84	DENIED	~~$3,654.50~~	
85	UNDERRUN SPHMACP (1") & CEMENT STAB BACKFILL	$-280,894.65	
86	MAJOR/PLAN QUANTITY ADJUSTMENTS	$-808,139.21	
87	DENIED	~~$-62,104.65~~	
88	DENIED	~~$2,648.16~~	
89	DENIED	~~$-4,621.10~~	
90	ITS EQUIPMENT UPGRADE	$-9,425.14	
91	TRAFFIC SIGNAL ELECTRICAL ITEMS	$2,669.10	
92	FURNISH EQUIPMENT FOR LCS & RELOCATE GROUND BOX	$16,562.44	
93	ALUMINUM SIGNS PLAN QUANTITY ADJUSTMENT	$-904.79	

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
22	WEBB	NH 2002 (79)	1B

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97	TEMPORARY RAMP DETAILS TRSB 2 PHASE II STEP 1A
98	TEMPORARY PAVEMENT DETAILS PHASE II STEP 1A
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142-143	TEMPORARY SPECIAL SHORING PHASE III STEP 2
144-152	NB FRONTAGE ROAD PHASE III STEP 3
153-154	NB FRONTAGE ROAD PHASE III STEP 4
155-157	MAINLANES PHASE IV STEP 1A
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241 *	TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION
242 *	TRAFFIC CONTROL PLAN FREEWAY LANE CLOSURE
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247 *	TRAFFIC CONTROL PLAN
248 *	TRAFFIC CONTROL PLAN FREEWAY CLOSURE
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See next

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TCP (1-2)-98	
TCP (2-6)-98	
TCP (3-3)-98	
TCP (6-1)-98A	
TCP (6-2)-98A	
TCP (6-3)-98A	
TCP (6-4)-98A	
TCP (6-5)-98A	
TCP (6-7)-98A	
TCP (7-1)-98	

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON APRIL 18, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

INDEX OF SHEETS

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STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 51,57,58,60-62

b03isp01.dgn-11 HOUFILE023 \hcivil\cf0130\ 5/8/2003

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DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

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DATE	BY	REV	REVISION
06/11/04	AA	1	ADDED SHEET 608A

STATE OF TEXAS · A.A. ABUGATTAS · R.P.E. 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 11, 2004

a.a. abugattas

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STATE OF TEXAS
A.A. ABUGATTAS
P.E. 34940
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 02, 2003

Alan Abugattas

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* THE STANDARDS SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN ISSUED BY ME UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

Rudy L. Gomez, PE — DATE: 5/8/2003

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

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Rudy L. Gomez, PE — DATE: 11/6/07

DATE	BY	REV	REVISION
11/06/07	OG	1	NEW ADD SHEET

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON NOVEMBER 06, 2007

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

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STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 51,57,58,60-62

HOUFILE023 \hcivil\cf0130\ 11/6/2007 b03isp05.dgn-06

General Notes:

General Notes and Specifications Data

The following Standard Detail Sheets have been modified:

CH-PW-S	IL-HSTDE	IBA	IBB	IBTS
CH-PW-O	MH-M	IBMS	IBDO	PCP(C)
MEBR(C)-2	SSTR	PMDF(C)	TS-FD-99	

---General---

For this project, partnering ~~shall be~~ mandatory.

The Contractor ~~will be~~ required to clean all drainage structures within the project limits as directed by the Engineer. This work ~~will~~ not be paid for directly but ~~shall be~~ considered incidental to the various pay items.

The Contractor ~~shall be~~ responsible for maintaining an accurate vertical and horizontal control throughout the contract.

References to manufacturer's trade or catalog numbers are for the purpose of identification only, and the Contractor ~~will be~~ permitted to furnish like materials of other manufacturers provided they are of equal quality and comply with specifications for this project and are approved by the Engineer.

Uniroyal road ~~shall be~~ open to traffic at all times. Access to all drives and side roads, both public and private, are to be maintained at all times.

All debris as directed by the Engineer ~~shall~~ become property of the Contractor and it ~~shall be~~ his/her responsibility to properly dispose of it.

The Contractor's attention is directed to the fact that both overhead and underground utilities may exist in the vicinity of the construction. The exact location of underground utilities is not certain. The Contractor ~~shall~~ contact utility companies in that area for exact locations at least 48 hours prior to drilling or commencing any work to prevent any damage or interference with present utilities. This action however, ~~shall~~ in no way be interpreted as relieving the Contractor for his/her responsibilities under the terms of the contract as set out in the plans and specifications. The Contractor ~~shall~~ repair any damage caused by his/her operations at his/her own expense and ~~shall~~ restore facilities to service in a timely manner.

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County: WEBB **Control:** 0018-05-062

Highway: IH35: From Loop 20 to Uniroyal Road

During the execution of the work, utmost care ~~shall~~ be exercised to prevent damage to any utilities, structures, or right-of-way. The Contractor is not allowed to enter, stage construction, or stockpile material within the Union Pacific Railroad R.O.W.

The Contractor ~~shall~~ be responsible for contacting, locating, and protecting all underground utilities and structures. The Engineer may assist the Contractor in locating underground utilities and structures; however, any damage to existing utilities or structures ~~shall~~ be repaired at the Contractor's expense. If in the course of the work, underground utilities or structures are encountered and are in conflict with the work, the Contractor ~~shall~~ contact the Engineer who will direct the necessary adjustments. Changes of this nature are considered incidental to the contract work and ~~shall~~ not entitle the Contractor to additional compensation.

Upon completion of this project, as built drawings of all wiring ~~shall be~~ provided to TxDOT via electronic files.

All construction equipment involved in roadway work on or within 30 feet of the roadway ~~shall be~~ equipped with permanently mounted approved 360 degree revolving or strobe warning light with amber lens. This light ~~shall~~ have a minimum lens of 5 inches and a diameter of 5 inches. This light ~~shall~~ have a mounting height of not less than 6 feet above the roadway surface and ~~shall be~~ visible from all sides. This equipment ~~shall~~ also have attached at each side of the rear end of the vehicle an approved orange warning flag mounted not less than 6 feet above the roadway surface.

The Contractor ~~shall~~ protect all areas of the right of way which are not included in the actual limits of the proposed construction areas from destruction. Care ~~shall~~ be exercised to prevent damage to trees, vegetation and other natural surroundings. The areas not disturbed ~~shall be~~ determined by the Engineer prior to beginning the work. The Contractor, at his expense, ~~shall~~ restore any area disturbed as a result of his operations to a condition as good as, or better than, that present prior to his contract.

Erection and/or removal of poles and luminaires located near any overhead or underground electrical lines ~~shall be~~ accomplished using established industry and utility safety practices. The Contractor ~~shall~~ consult with the appropriate utility company prior to beginning such work.

If any overhead or underground electrical lines need to be de-energized, the Contractor ~~shall~~ call the power company to do this work. Any cost associated with de-energizing the electrical lines and/or any other protective measures required ~~shall be~~ at the Contractor's expense.

When the Contractor is working near any power lines, it is his/her responsibility to comply with the appropriate sections of Texas state law and federal regulations relating to the type of work involved. At the Contractor's option, electrical grounding connections and permissible splices

~~may be~~ made by the thermal fusion process, cadweld, thermaweld or equal, in lieu of bolted connections and splices.

Convenience outlets equipped with ground fault interrupter (GFCI) protection ~~shall not be~~ used to supply power to any electronic equipment.

Basis of Estimate

168--Vegetative Watering 33.94 mg/acre/application
four (4) applications

316--Surface treatments (one course)
Asphalt (Ac-15-5TR) 0.24 gal/sy
aggregate (TY PE, GR 3) 1 cy: 120 sy

3231--Porous Friction Crse Eliminated by C.O. 96.0 lbs/sy/in
Asphalt (PG 76-22) 6% by weight
Aggregate (CL A) 94% by weight
Tackcoat-ss1 or ss2 cut 50% by water
0.06 gal residual asphalt

3249--SFHMACP Crse (PG 76-22 Asph)(1") 110.0 lbs/sy/in
(1") nominal aggregate size

3249—SFHMACP Crse (PG 76-22 Asph) (3/4") 110.0 lbs/sy/in
(3/4") nominal aggregate size

3241—SPHMACP Crse (PG 70-22 Asph) (1/2") 110.0 lbs/sy/in
(1/2") nominal aggregate size

3248—HDSMACP Crse (pg 76-22 Asph) (1/2") 110.0 lbs/sy/in
(1/2") nominal aggregate size
3/4"

Intelligent Transportation System – General

Prior to beginning any work in the area of any existing fiber optic cable or its equipment, the contractor ~~shall~~ advise the engineer 72 hours before beginning any work.

The contractor ~~shall~~ maintain the integrity of the existing cables, conduit, and ground boxes contiguous to the section of cables to be removed. If the cable(s), conduit and ground boxes are damaged during work, the contractor ~~shall~~ repair or replace the damaged cable(s), conduit or

ground boxes at the contractor's expense. The replacement or repair method ~~shall be~~ approved by the engineer prior to implementation. Maintaining the integrity of the existing cable(s), conduit and ground boxes during the work ~~shall be~~ considered subsidiary to this item and ~~shall not be~~ paid for directly.

When pulling cables or conductors through conduit, manufacturer's recommended pulling tensions ~~shall not be~~ exceeded and the cables or conductors ~~shall be~~ lubricated with a lubricant as recommended by the cable manufacturer.

All electrical work done ~~shall be~~ in conformance with the National Electrical Code (NEC). Adhesive backed cable restraints ~~shall not be~~ allowed for Electronic components.

All conductors ~~shall be~~ continuous without splices from terminal point to terminal point or as otherwise directed by the engineer. No splicing of cables ~~shall be~~ permitted in ground boxes.

Intelligent Transportation System work: General

The equipment expansion and integration ~~shall be~~ 100% fully compatible and interoperable with TxDOT's STRATIS Traffic Management Center.

This contractor ~~shall~~ consist of furnishing, installing, testing and integrating the following components into the existing STRATIS operations. The contractor ~~shall~~ select this equipment to achieve complete and fully functional interoperability with the existing installation and STRATIS operations.

All elements of the contract ~~shall be~~ integrated into the existing user interface, including all necessary hardware and software to ensure 100% full compatibility and functionality without any degradation to the existing system.

Item 4 Scope of Work

Aggregate stockpiles remaining on State's right of way 30 days after project's "final acceptance" will become the property of the Texas Department of Transportation. Aggregate stockpiles deemed undesirable by the Engineer ~~shall be~~ removed in accordance with the pertinent specifications of this project.

Item 5 Control of the Work

To ensure accurate measurement for final pay quantities and to facilitate the Engineer's check on the Contractor's survey work, the Contractor ~~shall be~~ required to set construction stakes based

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on plan stations and at 50 foot maximum intervals or as directed by the Engineer.

Item 6 Control of Materials

The Contractor ~~will be~~ required to furnish the area Engineer the maximum gross weights, including loads, for all vehicles, including trucks, truck-tractors, trailers, semi-trailers or any combination of such vehicles used to deliver materials to the project. Maximum gross weights are to be determined in accordance with item 6 article 6.7 of the standard specifications.

Item 7 Legal Relations and Responsibilities to the Public

This project requires permit(s) with environmental resource agencies. There is a high probability that environmentally sensitive areas will be encountered on Contractor designated project specific locations (PSL) for the project (haul roads, equipment staging areas, parking areas, etc.) special provision 007-784 to item 7, "legal relations and responsibilities to the public", provides listings for regulatory agencies that may need to be contacted regarding this project.

The department has been authorized to perform work within designated areas of the project under U.S. Army Corps of Engineers (USACE) Nationwide Permit (NWP) #14.

The Contractor ~~shall not~~ initiate activities in a project specific location (PSL) associated with a USACE permit area that have not been previously evaluated by the USACE as part of the permit review of this project. Such activities include, but are not limited to, haul roads, equipment staging areas, borrow and disposal sites. Associated defined here means materials are delivered to or from the PSL. The permit area includes all waters of the U.S. or associated wetlands affected by activities associated with this project. Special restrictions may be required for such work. The Contractor ~~shall be~~ responsible for any and all consultants with the USACE regarding activities, including project specific locations (PSL), that have not been previously evaluated by the USACE. The Contractor ~~shall~~ provide the department with a copy of all consultantions(s) or approval(s) from the USACE prior to initiating activities.

The Contractor may proceed with activities in PSL that do not affect a USACE permit area if a self determination has been made that the PSL is non-jurisdictional or proper USACE clearances have been obtained in jurisdictional areas or have been previously evaluated by the USACE as part of the permit review of this project. The Contractor is solely responsible for documenting any determination(s) that their activities do not affect a USACE permit area. The Contractor ~~shall~~ maintain copies of their determination(s) for review by the department or any regulatory agency.

The Contractor must document and coordinate with the USACE, if required, prior to any excavation hauled from or embankment hauled into a USACE permit area by either (1) or (2) below.

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Highway: IH35: From Loop 20 to Uniroyal Road

(1) **Restricted use of materials for the previously evaluated permit areas.** The Contractor ~~will~~ document both the PSL and their authorization. The Contractor ~~will~~ maintain copies for review by the department or any regulatory agency. When an area within the project limits has been evaluated by the USACE as part of the permit process for this project:

A. Suitable excavation of required material in the areas shown on the plans and cross sections as specified in item 110 is used for permanent or temporary fill (item 132, embankment) within a USACE permit area;
B. Suitable embankment (item 132) from within the USACE permit area is used as fill within a USACE evaluated area; and
C. Unsuitable excavation or excess excavation ["waste"] (item 110) that is disposed of at a location approved by the Engineer within a USACE evaluated area.

(2) **Contractor materials from areas other than previously evaluated areas.** The Contractor will provide the department with a copy of all USACE coordination or approval(s) prior to initiating any activities for an area within the project limits that has not been evaluated by the USACE or for any off right of way locations used for the following, but not limited to, haul roads, equipment staging areas, borrow and disposal sites:

A. Item 132, embankment, used for temporary or permanent fill within a USACE permit area; and,
B. Unsuitable excavation or excess ["waste"] (item 110, excavation) that is disposed of outside a USACE evaluated area.

Item 8 Prosecution and Progress

The contractor ~~shall not~~ start actual construction until this March 1st, 2004 unless a written authorization has been granted by the Engineer.

Unless otherwise authorized by the Engineer, all obstructions, objectionable material and concrete ~~shall be~~ disposed of by hauling it off the project and out of sight from state highways to disposal sites arranged for by the Contractor and satisfactory to the Engineer. The area outside the clear zone or back slope intercept line, whichever is greater, ~~shall~~ remain in its natural condition, unless otherwise directed by the Engineer.

For this project, the Critical Path Method (CPM) shall be mandatory.

Item 110 Excavation

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All hauling of materials will not be paid for directly, but ~~shall be~~ considered as subsidiary to the bid items involved. Excess excavation ~~shall be~~ placed in areas as shown in the plans and as directed by the Engineer. The fill area designated by the Engineer ~~shall be~~ within one mile of the project limits.

Item 132 Embankment

The percent of density, as determined by test method Tex-113-E, ~~shall be~~ a minimum of 95 percent. Density tolerances will be permitted.

The Contractor's attention is called to the fact that the following note for this item applies to any material used for embankment other than that which was excavated from the roadway. Excavation of material which would be used for embankment and would result in creating a pit 5 feet or greater below natural ground within 200 feet of any road designated or maintained as a part of the system of roads under the jurisdiction of TxDOT, except in areas designated in the plans, ~~will not be~~ permitted without the written approval of the Engineer and such excavation of material within 200 feet of the outside edge of the travel lane ~~will not be~~ permitted without the consent of the governmental agency which has jurisdiction of the road.

The securing of embankment material by the excavation of ditches for beneficial drainage purposes, the removal of spoil banks, and the removal of hills for land leveling within 200 feet of any public road will be permitted, provided that selection criteria is met. Existing borrow pits may be extended to no closer than present clearance or the 200 feet clearance cited above, provided there is adequate natural or planted vegetative screening as determined by the Engineer.

Type C Embankment ~~shall~~ have a max. P.I. of 40 except that embankment material in the top two feet below the bottom of the flexible base ~~shall~~ such as to produce a well-bonded embankment and ~~shall~~ have a minimum P.I. of 8 and a maximum P.I. of 30 as determined by preliminary tests and such other tests found necessary by the Engineer

The Contractor's attention is called to the fact that the preliminary test will require approximately 15 days and it is the Contractors responsibility to advise the Engineer of the location of the source sufficiently in advance to avoid delay.

Item 164 Seeding for Erosion Control

Cellulose fiber mulch seeding ~~shall be~~ applied in areas designated on the plans or as directed by the Engineer. Prior to seeding, the areas designated shall be finished to a smooth surface for a uniform application of seed.

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Seeding ~~shall be~~ accomplished by the hydromulch method in two applications as shown below:
1st application – Grass seed and fertilizer
2nd application -Cellulose fiber mulch ~~shall be~~ applied according to a rate shown in the Standard Specification book.
Fertilizer ~~shall be~~ applied at the rate of 100 pounds of Nitrogen per acre. Fertilizer ~~shall be~~ homogenized.

Reseeding:
Areas requiring reseeding due to the non-establishment of sufficient vegetative cover, ~~shall be~~ reseeded in accordance with items 164 and 168. The cost for reseeding ~~shall be~~ paid for by the state provided that the Contractor has followed the seeding and watering requirements as specified in Items 164 and 168.

Seed mixture:
Seed mixture ~~shall be~~ as specified under item 164. Cool season or warm season grasses ~~shall be~~ included as part of Item 164 (see table 4a or 5 in the standard specification manual for dates and seed type).

Item 166 Fertilizer

Areas to receive fertilizer are the same as shown for Item 164.

Item 168 Vegetative Watering

Water ~~shall be~~ applied uniformly over areas after seeding or sodding as directed by the Engineer in accordance with applicable provisions of item 168 "Vegetative Watering". In addition, the Contractor ~~shall be~~ responsible for a 70% grass coverage in order to comply with stabilization requirements. Vegetative coverage ~~shall be~~ uniform. During this period, water equipment ~~shall be~~ metered and operated under pumping pressure capable of delivering the required quantities of water necessary. Each cycle ~~shall be~~ executed every two (2) days, or as directed by the Engineer.

Water ~~shall be~~ applied in such a manner as to ensure adequate moisture and be maintained on the grass seeding and not erode the soil in place. During periods of adequate moisture as determined by the Engineer, mechanical watering may not be required. In addition to metering the water equipment, the Contractor ~~shall~~ upon request of the Engineer, provide a log book showing daily water usage and receipts of water applied.

Upon establishment of 70% vegetative coverage as determined by the Engineer, the Engineer ~~shall~~ have the option to require the Contractor to continue watering as specified for a period not to exceed 30 days.

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Item 300 Asphalts, Oils and Emulsions

Asphalt binder used for all asphaltic concrete mixtures ~~shall~~ meet the requirements of each item as noted in the estimate, unless otherwise noted in the plans.

Item 301 Asphalt Anti Stripping Agents

The addition of 1.5 percent Type A hydrated lime based on the dry weight of aggregate is required. Lime ~~shall be~~ added in dry form in a suitable pugmill mixer. This note applies to all HMAC specifications except for SS 3231 Porous Friction Course.

Item 354 Planing and/or Texturing Pavement

For Depressed Shoulder texturing (asphalt), a continuous milled depression ~~shall be~~ used in the areas shown in the plans. This work will not be paid for directly but ~~shall be~~ considered incidental to Item 354.

The placement of concrete pavement between May 15th and October 1st ~~shall be~~ during nightime hours (commencing at 7 p.m. with all paving operations being completed by 8:00 a.m. of the following morning and as directed by the Engineer.

Item 360 Concrete Pavement

The placement of concrete pavement between May 15th and October 1st ~~shall be~~ during nightime hours (commencing at 7 p.m. with all paving operations being completed by 8:00 a.m. of the following morning and as directed by the Engineer.

Item 400 Excavation and Backfill for Structures

Cement stabilized backfill ~~shall~~ contain aggregate, water and a minimum of 3.0 sacks of Portland cement per cubic yard of material. Cement and water ~~shall~~ conform to the requirements of item 421 "Portland Cement Concrete". Aggregate ~~shall be~~ clean sand or other suitable material and ~~shall be~~ subject to the approval of the Engineer.

If the Contractor elects to cut pavement (existing / detour) for structural work beyond that required by the construction phasing shown in the plans and approved by the Engineer, it ~~shall be~~ restored at his expense and backfilled to its original condition or better in accordance with item 400.

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Item 416 Drilled Shaft Foundations

The Contractor ~~shall~~ probe before drilling foundations to determine the locations of all underground utilities and structures.

The Contractor ~~shall~~ notify the inspector and/or the traffic section with 24 hours anticipation for the staking of the traffic signal foundation locations, after all utilities have been located.

Item 420 Concrete Structures

Concrete for bents ~~shall be~~ paid as plan quantity.

Item 421 Portland Cement Concrete

Transverse construction joints for box culverts and/or box siphons ~~will be~~ allowed at change of grade and/or alignments. These joints ~~will be~~ required at intervals not greater than 60 feet, nor less than 40 feet, unless otherwise approved by the Engineer.

Class "A" concrete used in the structural application within the limits of the paved roadway, will require a minimum of one (1) set of beams per day of production.

The Contractor ~~shall be~~ responsible for all concrete test beams for flexural strength. Test beams ~~shall be~~ done by a TxDOT approved lab and the results ~~shall be~~ maintained in record form and furnished daily to the TxDOT project Engineer.

The Contractor ~~shall~~ notify TxDOT at least seven (7) calendar days prior to the "pre-pour" meeting of the construction of the first bridge deck. The meeting ~~shall be~~ attended by TxDOT, the Contractor, and sub-Contractor(s) responsible for the work.

Item 423 Retaining Walls

All retaining wall panels ~~shall be~~ precast, unless otherwise directed by the Engineer. Individual panels ~~shall~~ not exceed 50 square feet in size.

The Contractor ~~shall~~ provide and maintain positive drainage away from the wall system (including the leveling pad) at all times for the duration of the contract.

Retaining Wall P (from Sta. 398+05 to Sta. 411+50) located along the Northbound Frontage Road at Carrier Drive ~~shall be~~ constructed first; before any work is done on the adjacent IH 35

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mainlanes. This work must be coordinated with the Traffic Management System and any storm sewer system in the immediate vicinity.

Backfill for MSE wall shall be Type "A".

Top of wall footing is to be set at a minimum of one foot below existing grade or finished grade, whichever is lower.

The following MSE panel type systems are approved for use on TxDOT projects:

REINFORCED EARTH WALLS
THE REINFORCED EARTH COMPANY
1331 AIRPORT FREEWAY, SUITE 302
EULESS, TEXAS 76040-4150
(817) 283-5503

RETAINED EARTH WALLS
FOSTER GEOTECHNICAL
901 NORTH HIGHWAY 77
HILLSBORO, TEXAS 76645
(254) 580-9100

REINFORCED SOIL EMBAMKMENT WALLS
TEXAS WELDED WIRE, INC.
645 W. HURST BLVD.
HURST, TEXAS 76053
(817) 282-4560

STRENGTHENED EARTH WALLS
HANSON CONCRETE PRODUCTS
3500 MAPLE AVE.
DALLAS, TEXAS 75219
(214) 525-5877

TRICON RETAINED SOIL WALLS
TRICON PRECAST, INC.
15055 HENRY RD.
HOUSTON, TEXAS 77060
(713) 931-9832

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TENSAR RETAINING WALL SYSTEM
TENSAR EARTH TECHNOLOGIES, INC.
5775-B GLENRIDGE DRIVE
ATLANTA, GEORGIA 30328
(404) 250-1290

STRENGTHENED SOIL WALLS
SHAW TECHNOLOGIES INC.
P.O. BOX 654
COLLEYVILLE, TEXAS 76034
(817) 427-0997

VP WALL SYSTEM
VALLEY PRESTRESS PRODUCTS, INC.
P.O. BOX 1367
MISSION, TEXAS 78573
(956) 584-5701

Item 425 Prestressed Concrete Structural Members

Where road closures or detours around structures are necessary to accomplish proposed work, the removal of existing structures and/or cutting of existing pavement ~~will not be~~ permitted until all precast and/or prestressed members for the proposed structure have been cast, tested and approved for use.

Item 432 Riprap

Proposed riprap for embankment slopes under bridge ends ~~shall be~~ constructed in accordance with standard sheet CRR.

Item 446 Cleaning, Paint and Painting

Source of Supply: All paint ~~shall be~~ purchased from the department. Paint ~~shall be~~ charged to the Contractor at the following prices:
Protection System in Prime Coat----$75.90---per 5 gallon bucket
Appearance Coat (Gray)----------$80.80---per 5 gallon bucket

All priming ~~shall be~~ done in such a manner and sequence that no prime coat ~~shall be~~ deposited on the finish coat.

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The attention of prospective bidders is directed to ordinance and regulations of local municipal and county government and the Texas Air control Board which are applicable to this project.

The Contractor's attention is called to requirements of article 446.4. The Contractor ~~shall~~ notify the Director, equipment and procurement Division, in Austin within 30 days after the date of the authorization to begin work. This written notification ~~shall~~ include the approximate quantities of each type of paint to be used and the anticipated delivery dates required for any paints being purchased from the department.

Item 450 Railing

Metal beam guard fence terminal connectors are required. For this item, white Portland Cement will be required.

Item 462 Concrete Box Culverts and Sewers

Joints in precast concrete box culverts shall be made using any of the methods specified in the item 464, except mortar joints or rubber gasket joints.

The concrete box culvert ~~shall be~~ precast, except as noted on plans, to expedite handling of traffic. Cast in place boxes ~~will be~~ constructed as shown on standard for single barrel boxes and standard details for multiple box culverts.

Aggregate for cement stabilized backfill ~~shall be~~ clean sand or other suitable material and ~~shall be~~ subject to the approval of the Engineer.

On single and/or multiple box culvert construction near existing traffic, the Contractor ~~shall~~ work expeditiously to complete all work on the structure including placement of pipe runners, required safety treatment or railing, backfilling, etc. The portion of roadway which is not handling traffic due to the culvert construction ~~will not be~~ opened to traffic until all work as described above and shown on the TCP has been completed.

Item 464 Reinforced Concrete Pipe

Tongue and groove pipe will be required for installations where part of the structure may protrude into the lime treated subgrade.

The 4 feet depth restriction for heavy equipment passage over pipe structures is voided. The Contractor will be responsible for any construction damage to these facilities.

Item 466 Headwalls and Wingwalls

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Concrete for all headwalls and wingwalls shall be class "C".

Item 470 Manholes and Inlets

Where required on the plans, manholes and inlets are to be built to stage I construction, covered with temporary pavement, and completed in a later phase of construction. This work ~~shall be~~ considered incidental to the various bid items.

Where manholes and inlets are to be placed in paved areas, they ~~shall~~ first be constructed to an elevation such that their temporary steel plate will be flush with the surface of the base material.

Where manholes and/or inlets are to be built complete in graded areas, they ~~shall~~ first be constructed to an elevation at least 4 inches above the top of the highest entering pipe and covered with a steel plate. Upon completion of the grading work where such manholes or inlets are constructed, the Contractor ~~shall~~ complete the construction of such manholes or inlets to the finished elevation. The finished elevation shown in the plans is approximate and ~~shall be~~ adjusted by the Contractor, if required, subject to approval of the Engineer. All grates will be welded to the frames in a manner satisfactory to the Engineer.

Item 471 Frames, Grates, Rings and Covers

All manholes located on paved surfaces will be constructed with a cover of the type that will enable it to be bolted to the ring.

Item 496 Removing Old Structures

Unless otherwise authorized by the Engineer, all obstructions, objectionable material and old concrete ~~shall be~~ disposed of by hauling it off the project and out of sight from state highways to disposal sites arranged for by the Contractor and satisfactory to the Engineer.

Item 502 Barricades, Signs and Traffic Handling

The Contractor ~~shall~~ coordinate the sequence of construction and traffic control plan with any adjacent construction projects to insure the uninterrupted flow of traffic.

The traffic control plan for this project ~~shall be~~ as shown in the plans, as detailed on the "Barricade and Construction Standard" sheets and as provided for in the "Texas Manual on Uniform Traffic Control Devices".

The Engineer reserves the right to instruct the Contractor to postpone construction of phase II, step 3 of the Traffic Control Plan. Contractor ~~shall~~ proceed with other phases of construction until instructed by the Engineer to complete the remaining work of phase II.

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Construction Signs and Barricades designated to be left in place upon completion of this project ~~shall be~~ restored to a condition acceptable to the Engineer before releasing them to the state.

Unless otherwise indicated in the plans, all Barricades, Warning Signs, and Flasher Lights within the limits of this project existing from previously completed projects ~~will be~~ maintained and removed by the Contractor as directed by the Engineer.

Two weeks prior to any alterations on traffic patterns, the Contractor will provide, for approval by the Engineer, a layout showing all Signs, Barricades, Striping and Signalization.

Plastic Drums ~~shall be~~ used in accordance with the plans and manufacturers recommendations, as approved by the Engineer.

For this project, where the designation of urban or rural occurs in the barricade and construction standards for construction signs to regulate, warn and guide traffic in advance of and within the project limits, including cross roads, the urban mounting heights ~~shall~~ apply.

For this project the Contractor will furnish and maintain all barricades and warning signs, including all temporary and portable traffic control devices necessary during the various phases of construction. These Barricades and Warning signs ~~shall be~~ constructed and placed in accordance with the Barricades and Construction standards, Texas MUTCD, and typical construction layouts, or as directed by the Engineer.

Existing signs that are not being used during construction ~~shall be~~ covered with burlap, black polypropylene, or other acceptable material or removed. Existing signs that need to be displayed ~~may be~~ removed and relocated or a suitable sign replacement ~~may be~~ placed on construction supports in its place.

Shadow vehicles equipped with truck mounted attenuators are required as shown on traffic control plan (TCP) standards (1-series) and (2-series). The truck mounted attenuators ~~shall be~~ one of the following:

Alpha 1000 manufactured by energy absorption, inc., or
Ren-Gard CK 1128 manufactured by renco, inc., or
Syro-45 manufactured by syro, or
MPS 350 III TMA manufactured by Syro.

Traffic Control Plans (TCP) for this project ~~shall be~~ as detailed on standard plan sheets and as provided for in the Texas Manual on Uniform Traffic Control Devices.

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The use of advance warning flashing arrow panels is required for the closing of traffic lanes. The Contractor ~~shall be~~ required to furnish at least two stand-by units, in good working condition at job site, ready for immediate use.

Reflective surfaces on channelizing devices, such as cones, vertical panels, drums and barricades ~~shall be~~ the high specific intensity type, flat surface, reflective sheeting and ~~shall~~ conform with departmental specification, "Flat surface reflective sheeting," D-9-8300, Type C.

All existing drainage conditions are to be maintained during all construction phases.

The Contractor ~~shall~~ provide for safe and convenient access to abutting property, highway, public road, and street crossing except as otherwise provided for or as directed by the Engineer.

The Contractor ~~shall be~~ responsible for furnishing four (4) static message board sign for mainlanes traffic approaching the project. The sign message ~~shall be~~ determined by the Engineer and may be changed as the sequence of work necessitates. The message board will not be paid directly but will be considered subsidiary to item 502.

Properly trained flag persons ~~may be~~ required during certain phases of construction and ~~shall be~~ equipped with the proper reflective clothing and two- way radios, as directed by the Engineer.

The Contractor may be required to use orange pedestrian safety barriers to protect excavated areas as directed by the Engineer. This ~~will not~~ be paid for directly, but ~~will be~~ incidental to other pay items.

The Contractor ~~shall~~ coordinate with adjacent Contractors.

Item 504 Facilities for Field Office and Laboratory

The Contractor ~~shall~~ furnish one air-conditioned field office (TY E) at a location approved by the Engineer. This building ~~shall not be~~ less than 8 feet by 16 feet and 8 feet high or an approved equivalent and ~~shall~~ not have less than four glass windows and one door. A workbench and a table, each 3 feet wide and 6 feet long, ~~shall be~~ provided. The Contractor ~~shall~~ provide a telephone, copy machine, personal computer and printer, and software for the hot-mix program for QA/QC as approved by the Engineer. The field office ~~shall be~~ equipped with indoor plumbing facilities

The Contractor ~~shall~~ furnish 120-140 volt single phase electricity to the field office. The Contractor will pay for the electrical and telephone installations work and the monthly service charges

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The Contractor ~~will~~ furnish a Type D structure (asphalt mix laboratory) for the Engineer, meeting the requirements of Item 504. The Contractor is responsible for locating this laboratory at the plant site. The laboratory should be available to the Engineer prior to the paving operations. The building and its contents ~~will be~~ subject to the approval of the Engineer. The building ~~will not be~~ less than 12 feet in width, 33 feet in length and 8 feet in height. The building ~~will be~~ partitioned into a minimum of two rooms. All doors will have a minimum width of 3 feet and a minimum height of 6 feet 8 inches. All exterior openings ~~will be~~ secured with burglar bars. Adequate parking ~~will be~~ provided for at least two full size vehicles.

Storage Room:

One room ~~will be~~ used for sample storage and ~~will be~~ 9 feet 12 feet. it ~~will~~ have counters 2 feet in width and 30 inches high placed along the walls. The storage room ~~will~~ have a minimum total counter length of 12 feet. The room ~~will be~~ equipped with 1-wall light switch, 1-ceiling light and 1-20 amp-110 volt outlet.

Laboratory Room:

The other room of this building ~~will be~~ used as a laboratory and will include access to a bathroom facility from the interior. The laboratory and bathroom facility ~~will~~ have the walls, ceiling and floor insulated such that the air temperature can be maintained at 76 degrees Fahrenheit at all times. The Contractor is responsible for maintaining all mechanical, electrical and plumbing facilities at all times .

The laboratory ~~will be~~ equipped with an exhaust fan of sufficient capacity to evacuate the fumes generated by the asphalt solvent. The fan ~~will be~~ capable of reducing the fume concentrations to levels below OSHA maximums and in accordance with the test method TEX-210-F. The fan motor ~~will be~~ explosion proof. The fan ~~will be~~ located beneath the work bench in the extraction area and shall be exhausted to the outside.

The top of the workbench ~~shall~~ not be less than 3 feet by 4 feet and ~~will be~~ constructed of expanded metal reinforced to support required testing equipment. All sides of the workbench ~~shall be~~ enclosed so that all exhaust airflow is through the expanded metal top. The front of the workbench will have a door which, when opened in conjunction with placing a cover over the expanded metal top, will cause the exhaust tobe pulled through the door opening. Sufficient area ~~will be~~ allowed directly in front of this door for the placement and operations of an extractor. A fresh air intake ~~shall be~~ located so that solvent vapors are drawn away controlled space. All safety considerations regarding the laboratory structure which are required for extraction testing in test method TEX-210-F ~~will be~~ provided.

The laboratory ~~will be~~ furnished with work counter measuring 3 feet in width and 3 feet in height along the walls. The laboratory ~~will~~ have a minimum total work counter length of 20 ft. A desk

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measuring 3 feet by 6 feet ~~will be~~ furnished. Three chairs, one filing cabinet, a telephone and one built in equipment storage cabinet ~~will be~~ provided. The equipment storage cabinet ~~shall be~~ a minimum of 3 feet in length by 3 feet in width by 3 feet in height and ~~shall~~ have provisions for locking securely.

The Contractor ~~will~~ provide and pay for the electrical, other utilities, telephone installations and the monthly service charges. the telephone line(s) provided ~~will be~~ separate from other lines.

The laboratory portion ~~will~~ have a minimum of two windows. a laboratory sink measuring 24 inches by 30 inches and 12 inches deep ~~will be~~ provided with adequate clean portable water supply for testing. The laboratory ~~will be~~ equipped with a minimum of ten 20-amp, 110 volt dual outlets and three 30-amp, 220 volt outlets. All electrical work ~~will~~ comply with the national electrical code (NEC). All outlets ~~will be~~ compatible with the electrical requirements of the equipment to be used for testing. Two light switches ~~will be~~ located on the wall and fluorescent ceiling lights capable of meeting ANSI standards for industrial lighting. Space heaters for heating the structure are unacceptable. Portable structures ~~shall be~~ support blocked for stability and ~~shall be~~ tied down.

The Contractor ~~will be~~ responsible for providing the necessary office furniture consisting of desks, chairs, filing cabinets, etc., as directed by the Engineer.

The Contractor ~~will be~~ required to clean the field office and laboratory as needed, but not less than once a week. This ~~will~~ include, but not be limited to, sweeping and mopping floors, cleaning the toilet and lavatory, and emptying waste baskets.

For electrical work on Type D asphalt mix laboratory and construction site field offices which ~~will~~ also include electrical service to said buildings, electrical license requirements ~~will be~~ as outlined in special provision to Item 8 (Prosecution and Progress) Article 8.3 (#1,B).

The Contractor ~~shall~~ furnish 120-240 volt single phase electricity to the field office.

Item 512 Portable Concrete Traffic Barrier

A portion of the concrete traffic barriers (CTB) ~~to be~~ used on this project ~~will be~~ provided by TxDOT. The Contractor is responsible for transporting the CTB from the TxDOT stockpile located on IH-35 at milepost 7. Upon completion of the project, the CTBs ~~shall be~~ returned to the same location. The Contractor ~~shall be~~ responsible for maintaining the CTBs in good working condition throughout construction.

All connecting hardware for concrete traffic barriers ~~to be~~ used on this project ~~shall be~~ provided by the Contractor. The moving, returning to TxDOT, and upkeep of connecting hardware and the CTB ~~will not be~~ paid for directly, but ~~shall be~~ considered incidental to Item 512.

Item 514 Permanent Concrete Traffic Barrier

Joints ~~shall be~~ spaced at a maximum of 30 feet for all single slope concrete barriers.

Item 529 Concrete Curb, Gutter and Combined Curb and Gutter

In the event that an extrusion machine is not used, application of mortar paste to accurately shape the face of the concrete curb or curb and gutter ~~shall~~ normally be placed within 15 minutes and not later than 25 minutes after the concrete is placed in the forms.

Before final acceptance of the project, discoloration caused by tire marks, mud, asphalt, paint or other similar material ~~shall be~~ removed by any method satisfactory to the Engineer to achieve a uniform color and texture of the finished surface exposed to view.

Item 540 Metal Beam Guard Fence

The optional terminal anchor post with the terminal connector ~~will be~~ required as shown on the metal beam guard fence standard. Spacers and all steel fittings ~~shall be~~ galvanized.

Item 610 Roadway Illumination Assemblies

For roadway illumination assembly (U/P)(TY IF)- underpass induction florescent. in lieu of the list of approved manufacturers shown on RID(5) general notes letter "K", the following manufacturers' fixtures have been pre-approved for induction fluorescent underpass lighting. No substitutes will be allowed. Esco, Kennal, and Energy Plus.

ITEM 610

In addition to the requirements for lamps shown on rid(3), high pressure sodium lamps for this project ~~shall~~ meet ANSI C78 requirements and ~~shall be~~ the type that extinguishes at the end of usable lamp life and remains extinguished without cycling. 400 watt lamps ~~shall~~ contain less than 4.0 mg of mercury. 250 watt lamps ~~shall~~ contain less than 3.0 mg of mercury. Lamps ~~shall be~~ lead free. Lamps ~~shall~~ pass the Federal Toxic Characteristic Leachate Procedure (TCLP). Lamp examples: Osram-Sylvania lu400/eco plus.

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Special Provision 610-002 (English) allows for the use of pre-approved shop drawings for certain illumination poles. The following shop drawings have been pre-approved at the time of letting.

Valmont English dwg. no. DB00388 sheet 1 of 2, revised 6/24/02
Valmont English dwg. no. DB00388 sheet 2 of 2, revised 6/24/02

Union Metal dwg. no. T1406-b4 sheet 1 of 2, revised 11/08/02
Union Metal dwg. no. T1406-b4 sheet 2 of 2, drawn 1/26/00
Union Metal dwg. no. A2A and A2D, revised 11/08/02
Union Metal dwg. no. T1406-b3 sheet 1 of 2, revised 11/08/02
Union Metal dwg. no. T1406-b3 sheet 2 of 2, revised 1/14/00
Union Metal dwg. no. AA9 and AA2A, revised 11/08/02
Union Metal dwg. no. T1408-b2 sheet 1 of 2, revised 11/08/02
Union Metal dwg. no. T1408-b2 sheet 2 0f 2, drawn 1/11/00
Union Metal dwg. no. AA8 and AA3A, drawing not dated

The Engineer may allow other fabricator's shop drawings and updated (newer revision date) standard shop drawings ~~to be~~ used on this project that have been approved since the project letting date provided that the standard shop drawings can be properly identified by a letter of approval from the Traffic Operations Division.

The contractor ~~shall~~ provide shop drawings for luminaire poles in accordance with this item and item 441.

An Engineer licensed in the State of Texas ~~shall~~ seal the shop drawings.

Item 618 Conduit

Conduit ~~shall be~~ placed in an area not exceeding 2 feet in any direction from a straight line and the depth of the conduit ~~shall be~~ 2 feet except when crossing a roadway where the depth ~~shall not be~~ more than 3 feet or less than one (1) foot below the bottom of the base material in the roadway when placed by the jacking or boring method.

Any evidence of damage to the roadway during the jacking or boring operation ~~shall be~~ sufficient grounds to stop method being used.

All conduits will be replaced as approved by Engineer in the field.

All couplings, extensions, and connections ~~shall be~~ tight and waterproof. All proposed and existing conduit ~~shall be~~ brought into a ground box using 45 degree elbows with bells unless otherwise shown. In the event any conduit shown on these plans or existing proves ~~to be~~

unusable due to location or damage, it ~~will be~~ the responsibility of the Contractor to replace such section of conduit with the size and type indicated on these plans, at the Contractor's expense.

The open trench method for placing conduit under pavement ~~will not be~~ allowed unless prior approval is obtained from the Engineer.

At each point where the conduit passes beneath the curb, the Contractor ~~shall~~ place a one (1) inch galvanized carriage bolt in the curb as a means of marking the location of the conduit. Payment for furnishing and placing bolts to be included in the unit bid price for conduit.

All exposed conduit ~~shall~~ be rigid metal conduit (RMC).

Actual conduit lengths, locations and configurations ~~shall be~~ verified at each intersection and ~~shall be~~ as directed and/or approved by the Engineer.

If casing is required in order to place bored conduit, casing ~~shall be~~ incidental to conduit.

When conduit is to be installed where a riprap surface or an asphaltic concrete surface presently exists, care ~~shall be~~ taken in breaking out the existing surface for placement of the conduit. No area greater than is required for placement of the conduit ~~shall be~~ broken out. The broken out surface ~~shall be~~ replaced with class "A" or class "C" concrete or cold mix asphaltic concrete to the exact slope, pattern and thickness of the existing riprap or asphalt. Payment for breaking out the existing surface, wrapping the foundation and replacing the surface ~~shall be~~ considered incidental to the various bid items and ~~will not be~~ paid for directly.

Pulling conductors in PVC conduit ~~shall be~~ accomplished with nonmetallic pull rope.

When backfilling bore pits, the Contractor ~~shall~~ ensure that the conduit does not become damaged during installation or due to any settling of the backfill material. The Contractor ~~shall~~ compact select backfill in three equal lifts to the bottom of the conduit; or if sand is used, it must be placed to a point 2 inches above the conduit. Backfill density ~~shall be~~ equal to the existing soil. Due care ~~should be~~ exercised to prevent any material from entering the conduit.

A detectable underground metalized mylar conduit marking tape, approved by the Engineer, ~~shall be~~ placed over the conduit over a 6-inch backfill, prior to final backfill of the trench. The marking tape ~~shall be~~ imprinted with "TxDOT Conduit & Traffic System – call (956) 712-7770 before proceeding" every 18 inches. The furnishing and installing of the detectable underground metalized mylar conduit marking tape along the conduit system ~~shall not be~~ paid for directly but ~~shall be~~ subsidiary to the conduit Item.

Conduit attached to bridge ~~shall be~~ paid as trenched conduit. Junction boxes are subsidiary to Item 618 and ~~shall not be~~ paid directly.

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Multiduct conduit ~~shall be~~ placed at 48 inches depth from proposed finish grade, in areas were multiduct cross under culverts and drainage pipes, this multiduct ~~shall be~~ placed at 12 inches below of the bottom of the drainage structure. All multiduct bores crossing IH 35, ramps and frontage road ~~shall~~ require casting steel pipe; this casing ~~shall be~~ incidental to the multiduct.

Item 620 Electrical Conductors

Each wire of each cable or conductor ~~shall be~~ tested after installation by the Contractor. Any incomplete circuit or any damage to any wire or any cable ~~will be~~ cause for immediate rejection of the entire cable being tested. The Contractor ~~shall~~ remove and replace the entire cable at his/her expense, and the replacement cable ~~shall~~ also be tested after installation.

Ends of wires to be attached to terminal posts ~~shall be~~ provided with properly sized self-insulated solder less terminals. These terminals ~~shall be~~ attached to wires with a ratchet type compression crimping tool properly sized to the wire. pre-numbered identification tags of plastic or tape ~~shall be~~ placed around each wire adjacent to wire ends in the controller, signal heads and signal pole terminal blocks.

All insulated power conductors ~~shall be~~ color coded in accordance with the national electrical code. The neutral conductor ~~shall be~~ white. White ~~shall not be~~ used for any other conductor. The grounding conductor ~~shall be~~ bare or green. Green ~~shall not be~~ used for any other conductor.

Colored tape marking ~~shall not be~~ used on conductors size 6 AWG or smaller.

Cable and conductors ~~shall not be~~ placed in the same conduit as VIVD coax cable.

All workers installing electrical materials, including conduit in trenches, services poles and all other system electrical apparatus ~~shall~~ have completed and approved course in electrical underground installations. Contractor shall furnish evidence of satisfactory completion of the course.

Item 624 Ground Boxes

All ground boxes for this project ~~shall be~~ TxDOT approved precast polymerconcrete of the size and type specified.

All ground boxes for this project that relate to the traffic management system ~~shall be~~ precast concrete of the size and type specified.

Ground boxes ~~shall be~~ installed as shown on standard sheet ed (3)-03. The cover ~~shall be~~ legibly imprinted with the words "Traffic Signal" in minimum 2" letters or "Illumination" depending on the type of installation. The ground boxes ~~shall~~ also be legibly imprinted with the words "Danger High Voltage".

Ground box locations shown on the plans are approximate. The ground boxes ~~shall not be~~ placed in driveways or wheelchair ramps. Alternate ground box locations ~~shall be~~ as directed by the Engineer. Ground box aprons ~~shall have~~ a 0.02 foot/foot slope. All ground boxes ~~shall be~~ placed clear of ADA Ramps.

Metal ground box covers ~~shall be~~ grounded by an 8' long ground rod in the ground box and a braided strap. A hole ~~shall be~~ cord drilled for the installation of rod.

The Contractor ~~shall~~ provide all personnel and equipment necessary to remove ground box lids for inspection by the Engineer. The Contractor ~~shall~~ provide this assistance within 24 hours after notification from the Engineer.

The Traffic Management System ground boxes ~~shall be~~ as shown on standard sheets "ITS Ground Box Complete" type 1 or type 2. The covers ~~shall be~~ legible imprinted with the words "C.T.M.S." and "DANGER HIGH VOLTAGE" as shown on standard sheets.

Item 628 Electrical services

The Contractor ~~shall~~ identify the service pole with an address number assigned by the power company. This number shall have 2" numerals visible from the highway. They ~~shall be~~ cut out aluminum figures nailed to wood poles or painted figures on steel poles. Service poles ~~shall be~~ grounded in accordance with the national electric code. The cost of such grounding ~~shall be~~ included in the unit price for this item.

The Contractor ~~shall~~ verify and coordinate service pole locations with the Engineering section of the appropriate utility district.

Any and all cost associated with the installation and connection of service pole to the electrical utility company will be considered incidental to the service pole. This includes conduit, conduit fittings and electrical conductors.

A lightning arrestor shall be mounted in a NEMA 1 enclosure to contain fragments in the event of a lightning strike.

Service poles ~~shall be~~ grounded in accordance with the national electric code. The cost of such grounding ~~shall be~~ included in the unit price for this item.

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Service pole address numbers and letters ~~shall be~~ furnished and installed by the Contractor. Type and size of letters and numbers ~~shall be~~ approved by the Engineer.

The service enclosures ~~shall~~ be lockable and ~~shall be~~ equipped with Master #2195 padlocks. Each enclosure ~~shall be~~ supplied with two keys. All locks ~~shall be~~ keyed alike.

Each service ~~shall~~ have a meter. The Contractor ~~shall~~ coordinate this with the local electric utility. Type "T" electrical service ~~will be~~ used on this project.

All conduit entries into service enclosures ~~shall~~ have threaded hubs.

Items 634 & 636 Plywood Signs and Aluminum Signs

Complete sign blanks and panels ~~shall be~~ handled and stored at the job site in such a manner that corners, edges and faces are not damaged. Finished sign blanks ~~shall~~ be stored in either a weather proof warehouse or outside and off the ground in a vertical position. All paper, cardboard and chemically treated separators and packaging ~~shall be~~ removed prior to outside storage.

All signs with green blue, red orange, yellow and brown backgrounds ~~shall be~~ fabricated with high specific intensity reflective sheeting (Type C), and all signs with white backgrounds ~~shall be~~ fabricated with high specific intensity reflective sheeting (Type C). Also, all white legends and borders ~~shall be~~ white high specific intensity reflecting (Type C). Reflectorized removable legend ~~will not be~~ allowed.

White legends and borders ~~shall be~~ white Type C (high specific intensity) reflective sheeting. reflectorized removable legend ~~will not be~~ allowed.

Item 644 Small Roadside Sign Assemblies

All signs ~~shall be~~ installed in accordance with the "Texas Manual on Uniform Traffic Control Devices".

Any detail that conflicts with the standard plan sheets ~~shall be~~ brought to the attention of the Engineer prior to construction unless a note is placed adjacent to the detail to indicate an intentional deviation from the standard plan sheets.

The Contractor ~~shall~~ determine the post lengths and verify them prior to ordering the materials in order to meet the field conditions and to conform to the minimum sign mounting heights in accordance with the "Texas Manual on Uniform Traffic Control Devices".

The Contractor ~~shall~~ probe before drilling for foundations to determine the location of all utilities and structures. This work ~~will not be~~ paid for directly but ~~shall be~~ subsidiary to the bid items involved.

All excess excavation ~~shall be~~ spread uniformly inside the right of way as directed by the Engineer and ~~shall be~~ included in the price of these items.

All signs ~~shall be~~ erected according to the locations shown on the signing layout sheets except that the Engineer may shift a sign in order to secure a more desirable location. The Contractor ~~will~~ stake all sign locations as shown in the plans and approved by the Engineer. It is the intent of the plans to erect all roadside traffic signs with the sign edge a minimum of 6 feet from the edge of the shoulder, or if none, 12 feet from the edge of travel lane. In curb and gutter sections the sign edge ~~shall be~~ a minimum of 2 feet from the face of the curb.

The Contractor's attention is called to the fact that the signing standard plan sheets for regulatory and warning signs specify that 0.625 inch plywood be used for sign blank material, as indicated by Item 634. For this project, aluminum type a may be furnished for the signs shown on these plan sheets. Mounting details for the aluminum type A signs ~~shall be~~ the same as shown for plywood signs on SMD standard detail sheets. Unless otherwise specified, aluminum type A signs ~~shall be~~ 0.08 inches thick.

Sign types for which design details are not shown on the plans ~~shall~~ conform to the latest edition of the department's "Standard Highway Sign Designs for Texas" Manual.

Item 647 Large Roadside Sign Supports

New sign foundation stubs, when left overnight without installed signs and posts, ~~shall be~~ protected by the Contractor with flashing electric lights.

Item 649 Removing or Relocating Roadside Sign Assemblies

All removed sign panels, sign posts, and hardware ~~shall~~ become the property of the Contractor and disposed from the State ROW in a manner approved by the Engineer.

Item 656 Foundations for Signs, Traffic Signals and Roadway Illumination Assemblies

Disposal of surplus material required for foundations ~~will be~~ considered incidental to Item 656 "Foundations for Signs, Traffic Signals and Roadway Illumination Assemblies". All surplus excavated material ~~shall be~~ disposed of as directed by the Contractor.

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For this project the Contractor ~~shall~~ use a Texas Penetrometer reading of fifteen (15).

All stub-outs in foundation and concrete structures ~~shall~~ be rigid metal conduit (RMC) and shall be considered incidental.

Item 658 Delineator and Object Marker Assemblies

Delineator assemblies ~~shall be~~ installed 8 feet from the edge of the shoulder unless restricted by some obstruction, in which case, the delineator assembly ~~shall be~~ placed between 2 feet and 8 feet from the edge of the shoulder.

Bi-directional installation of object markers ~~shall be~~ by any method satisfactory to the Engineer.

Items 662 and 666 Work Zone Pavement Markings and Reflectorized Pavement Markings

All permanent pavement markings for this project under this item ~~shall be~~ 90 mil thick thermoplastic. Type II markings ~~shall be~~ used as a primer.

Item 677 Eliminating Existing Pavement Markings and Markers

Asphalt and aggregate types and grades ~~shall be~~ as approved in writing by the Engineer when a surface treatment is used to eliminate existing pavement markings.

Item 680 Installation of Highway Traffic Signals

The Contractor ~~shall~~ furnish all labor, tools, equipment, and materials, called for in the project plans and specifications and as are necessary for a complete and operating installation.

All traffic signal construction work, including correcting all discrepancies shown on the TxDOT inspector's 'traffic signal installation inspection report" ~~shall be~~ completed prior to beginning of the required test period.

The Contractor ~~shall~~ provide a full-time qualified traffic signal technician to be responsible for the installation, maintenance and/or replacement of all traffic signal devices.

The Contractor ~~will be~~ responsible for adjustments in project construction which may be needed because of conflicts with underground utilities.

Luminaries arms mounted on traffic signal poles ~~shall not be~~ aimed into the intersection, but ~~shall be~~ aimed so that each arm is perpendicular to the centerline of the roadway which it covers in order to develop the proper illumination pattern for the intersection.

The Contractor ~~shall~~ permit the electrical work ~~to be~~ inspected by the state and city for compliance with the plans and specifications.

Conductors ~~shall be~~ continuous without splices from signal controller to signal pole terminal blocks. Conductors for luminaries ~~shall be~~ routed to the service enclosure.

All electrical work done ~~shall be~~ in conformance with the current edition of the national electrical code (NEC) and TxDOT standard sheets.

Any abrasion to any conductor insulation while pulling cable for the traffic signal system ~~will be~~ cause for immediate rejection. The Contractor ~~shall~~ remove and replace the entire cable at his/her expense.

The controller housing ~~shall be~~ bonded with No. 6 AWG copper wire or equal to form a continuous system and effectively grounded to five-eighths (5/8) inch by ten (10) foot copper clad ground rod as indicated in the plans. The signal common, service common, conduit, and metal signal supports ~~shall be~~ bonded with No. 6 AWG copper wire or equal to form a continuous system and effectively grounded to five-eighths (5/8) inch by eight (8) foot copper clad ground rods as indicated in the plans.

All signal heads ~~shall be~~ wrapped with dark plastic or suitable material so that signal faces cannot be seen from the time of installation until placed in operation.

All signal heads furnished by the Contractor ~~shall be~~ of the same manufacturer.

Reflective sheeting for all signs mounted under or adjacent to signal heads ~~shall be~~ high specific intensity.

The Contractor ~~shall~~ furnish and attach compression type connectors and the connectors ~~shall be~~ installed with a compression mechanical release hand crimping tool to each individual conductor before making connections to all terminal strips.

The Contractor ~~shall~~ furnish solid conductors.

Ready mix concrete may be used for this project.

The Contractor may use membrane curing on concrete work as specified by Item 526 "Membrane Curing"

Standard 4.5" galvanized pipe type poles (except breakaway type) used on this project are subject only to the inspection of the Engineer for their acceptance. No mill test reports or documentation will be required.

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Contractor ~~shall be~~ responsible for maintenance of the traffic signals until project is accepted. Contractor ~~shall~~ use Type C (ASTRO bracket) only.

Item 682 Vehicle and Pedestrian Signal Heads

All traffic signal lamps for this project ~~shall~~ meet the requirements of Item 682 "Vehicle and Pedestrian Signal Heads".

Two (2) set screws ~~shall be~~ installed on all vehicle signal head mounting hardware fittings.

All mounting hardware ~~shall be~~ in accordance with the requirements for the Item 682 "Vehicle and Pedestrian Signal Heads".

Item 686 Traffic Signal Pole Assemblies (steel)

The Contractor ~~shall~~ use a welded steel template to hold the anchor bolt and conduits rigidly in place for a mast arm pole or steel strain pole assembly.

The Contractor ~~shall~~ leave a minimum of one full diameter thread exposed on each anchor bolt securing a signal pole.

Anchor bolts for steel strain poles ~~shall be~~ set so that two are in compression and two are in tension.

After the traffic signal pole assembly has been plumbed and all nuts are tight, each anchor bolt nut ~~shall be~~ tack welded in two (2) places to its washer and each washer ~~shall be~~ tack welded to the base plate in two (2) places. No welding is to be made to the bolt. Galvanizing in tack weld areas ~~shall be~~ repaired using zinc-rich paint in accordance with Item 445, "Galvanizing". The exposed upper threads of the anchor bolts ~~shall be~~ cleaned of pipe joint compound and coated with zinc-rich paint to seal the bolt thread-nut joint.

Item 1436– CCTV Field Equipment

The Contractor ~~shall~~ verify the equipment compatibility with TxDOT Laredo. The Contractor shall provide a pan-tilt-zoom (ptz) keyboard compatible with the video switcher. Payment for this equipment ~~shall be~~ subsidiary to this bid item.

Inner duct – the inner duct (1 inch) is incidental to the fiber optic cable.

Items 1437 Communications Hub Building

Overall floor dimensions of the communications hub building ~~shall be~~ 6' by 8'.

The load size of all circuit breakers ~~shall be~~ protected by an Edco model shp-300-10s, hesco hes 300-10, or equivalent three terminal lightning arrestor.

The distribution panel ~~shall be~~ square D QO series, GE THQ series, or equivalent.

Item 1438 - Fiber Optic Cable

All materials and services not expressly called for in the specifications or not shown in the plans, which may be necessary for the complete and proper construction, ~~shall be~~ performed, furnished, and installed by the contractor with no additional payment.

Prior to starting any work involving the existing fiber optic cable, the contractor ~~shall~~ completely identify the fiber strands currently in use and ~~shall~~ take all precautions necessary to prevent damage or interruptions to the fiber strands. The contractor ~~shall~~ furnish all equipment, material and labor necessary for identification and protection of the utilized fibers.

All material and services necessary for connection of new equipment to fiber optic cable ~~shall be~~ furnished by the contractor with no additional payment.

The contractor ~~shall~~ document all changes in the fiber optic cable utilization and ~~shall~~ provide detailed fiber optic cable utilization diagrams to the engineer upon completion of all changes.

The single mode fiber optic cable ~~to be~~ installed on this project ~~shall be~~ tested at a wavelength of 1300 nanometers and 1550 nanometers.

The post termination test ~~shall be~~ preformed as the fiber optic cable is being terminated or fusion spliced. The post termination test checks for attenuation and problems at the fusion or termination point and then overall fiber cable segment. It also determines whether the attenuation and quality of the termination meets the fiber optic specification. If the termination does not meet the specification, then the termination ~~shall be~~ repeated until it meets the specification. Once the terminating is acceptable, the fiber segment ~~shall be~~ tested for attenuation and anomalies. Once the fiber segment is acceptable, the test results are documented and forwarded to the engineer.

When testing the fusion splices on pigtails, the contractor ~~shall~~ use a launch reel of the same type of fiber as the cable pigtail being spliced. This is necessary to extend out the trace so that the fusion splice can be seen and documented properly.

Item 1442 – Retract and Reroute Existing Fiber Optic Cables

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Retract and reroute of all other cables other than fiber optic cable, including but not limited to communication, traffic signal, and power, ~~shall be~~ subsidiary to this item and no other payment ~~shall be~~ made.

Removal of existing conduits and ground boxes, as shown in the plans, ~~shall be~~ subsidiary to this item and no other payment ~~shall be~~ made.

Item 1445 – Asynchronous Subrate Data Channel Unit

This contractor ~~shall~~ furnish, install, and test the Drop/Insert Multiplexor/Demultiplexor PSDM Cards into the existing D/I Muldems presently located at the environmental controlled hub building and the Traffic Management Center. The contractor ~~shall~~ reference Item 1445 Asynchronous Subrate Data Channel Unit "for any additional information .

Item 1447 – FTM Lane Control Signal Field Equipment

Tall brackets and Unistrut material that must be installed on the proposed signage for mounting any LCS head will be paid incidental to this bid item.

TxDOT ~~shall~~ furnish paint specifications to the Contractor as needed to comply with requirements under this item.

Item 1448 – Fiber Optic DMS Signs

Flashing beacons ~~shall be~~ required on all signs.

The Fiber Optic Dynamic Message Signs ~~shall~~ enable the display of text, consisting of a string of alphanumeric characters. The size of the sign ~~shall be~~ as shown on the plans. Each character ~~shall be~~ formed by a matrix of luminous dots. The matrix ~~shall~~ consist of 35 dots over 5 columns and 7 rows. A luminous dot ~~shall~~ consist of the ends of two fiber optic bundles for 12-inch or 18-inch characters and one fiber optic bundle for 8-inch characters. The fiber ends ~~shall be~~ fitted with a convergence cone or lens. An electro-magnetically controlled shutter mechanism ~~shall~~ open and close the opening in front of the fiber optic bundles. All DMS cabinets ~~shall~~ require telephone line drops with dial up modems.

Item 1451 and Item 1454 Data Fiber Optic Transceiver

The fiber optic bypass switches used on this project ~~shall not be~~ integral to the data fiber optic transceiver, Each communication hub ~~shall~~ have all fiber optic bypass switches mounted in one electronic enclosure. The fiber optic bypass switches ~~shall be~~ interconnected to the data fiber optic transceivers utilizing fiber optic jumpers.

Item 1452– Limited Distance Modem (LDM)

The Contractor furnished modems ~~shall be~~ compatible with the existing modems provided for Milo I and Milo II projects.

All proposed limited distance modems ~~shall be~~ provided with an rs-232 cable assembly.

Item 1453– Loop Detector for Surveillance, Communication and Control (SC&C)

All saw cut loop detectors ~~shall be~~ installed on stone filled hot asphalt concrete pavement layer at a minimum depth of 2". The contractor ~~shall be~~ given the option of installing prefabricated loops at above mentioned layer as shown on detail sheet "ITS LOOPS ISNTALLATION DETAILS".

Item 3146, 3241, 3248, 3249, 3231

This project ~~shall be~~ equipped with a self-propelled wheel mounted hot mix transfer vehicle capable of receiving mix from the haul trucks separate from the paver. It ~~shall~~ have minimum approximate storage capacity of 25 tons. It ~~shall be~~ equipped with a pivoting discharge conveyor and a means of completely remixing the ACP prior to placing. The paver hopper ~~shall be~~ equipped with a separate surge storage insert with minimum approximate capacity of 20 tons.

The bottom 2" superpave mix ~~shall be~~ designed at 98% lab molded density at 50 gyrations.

The pg binder for this project:
Hot Mix (TY A): pg 70-22 sbs
Hot Mix (TY C): pg 76-22 sbs
Superpave hot mix ACP (1/2"): pg 64-22
Stone filled Hot Mix ACP (1"): leave pg 70-22 (sbs)
Stone filled Hot Mix ACP (3/4"): pg 76-22 sbs
Heavy duty stone matrix ACP (3/4"): pg 76-22 sbs
Pourus friction course ACP (1/2"): pg 76-22 sbs Eliminated thru C.O.

R.A.P. ~~will not be~~ allowed in the surface mat of ACP.

The longitudinal joints in the top lift ~~shall be~~ at the lane lines.

The asphalt plant ~~shall be~~ equipped with truck scales as defined in Item 520.3 (1) of the standard specifications. Three weight tickets bearing the date, the truck number and the gross, net and tare weights ~~shall be~~ given to the truck driver by the Contractor's or asphalt plant personnel, and then given to the state inspector at the spreading and finishing machine. The Contractor ~~may be~~

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required to weigh loads of asphaltic concrete on public scales or portable platform scales to insure the proper weight of material.

The density and aggregate classification requirements for the mainlanes ~~shall~~ also apply to the shoulders.

The minimum surface aggregate classification required ~~shall be~~ class "A" for the following: SS 3231, SS 3248, SS 3146

Limestone screenings ~~shall be~~ used.

The Contractor ~~will be~~ required to submit a copy of the TEX 233-F production charts to the Engineer on a weekly basis. At the end of the ACP work, all production chart originals ~~shall be~~ provided by the Contractor or the Contractor's ACP producer to the Engineer.

Crushing of the aggregate for hot mix and immediate use for production of the mix ~~will not be~~ allowed. The aggregate ~~shall be~~ stockpiled until enough material is available for five days of hot mix production unless prior written approval is provided by the Engineer.

In order to provide adequate time for design and verification of the mix, a pre-placement meeting ~~shall be~~ held at least one month prior to the placement of the hot mix.

The main purpose of hot mix cores taken by the state are for payment calculations. If (for quality control purposes) the Contractor wants the core information sooner than the state can provide these results, the Contractor should take additional core for their use.

The use of diesel and/or solvents as asphalt release agents in the production, transportation, and/or construction of the hot mix asphaltic concrete is prohibited. Only approved asphalt release agents ~~shall be~~ used, the approved list may be obtained from the district laboratory Engineer.

In addition to the tack coat materials specified in the standard specification, the Contractor, if desired, may use MS-2. The Contractor ~~shall~~ exercise diligence in the application of "tack coat" by the use of flagging and rolling procedures to keep from spraying or spattering the traveling public with asphaltic material.

Blading ~~may also be~~ necessary to clean dirt and grass from pavement edges and turnouts areas as work under this bid item. The cost of this blading ~~will not be~~ paid for directly, but ~~shall be~~ considered subsidiary to this bid item.

Item 3231 Porous Friction Course Eliminated Thru C.O.

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Course aggregate ~~shall~~ have a minimum surface aggregate classification of "A" as specified in the aggregate quality monitoring program.

Item 3249 Stone Filled HMAC (pg 76- 22) (3/4")

Before commencing any paving operation the Contractor ~~shall~~ cut back all soil and vegetation from edges of the pavement and spread it in the backfill area along the edge of the pavement. This material ~~shall be~~ incorporated into the material used for backfilling the edges upon completion of the overlay. This work ~~shall be~~ considered subsidiary to the various bid items.

The course aggregate used on this project shall have a minimum surface aggregate classification of "A" as published in the aggregate quality program rated source quality catalog.

Master gradation limits for material passing the No. 200 sieve ~~shall be~~ 2.0-10.0 percent when determined using either chlorinated solvents or the ignition oven.

The addition of an antistrip additive ~~shall be~~ required. The addition of the antistrip additive ~~shall be~~ in accordance with Item 301. All required moisture damage testing of Item 301 and test method TEX-242-F (Hamburg Wheel-Tracking Test) ~~shall be~~ in effect.

For this item maximum lift thickness ~~shall be~~ 3.5 inches. Multiple lifts may be required to achieve the proposed depth.

Item 5001 Temporary Metal Beam Guard Fence

Type C reflectors ~~shall be~~ required on all temporary metal beam guard fence.

Item 5004 Temporary Erosion, Sediment and Water Pollution Prevention and Control

For this project, a "Storm Water Pollution Prevention Plan" (SW3P) is required. Since the disturbed area is two acres or more on this project, a "Notice of Intent" (NOI) is also required.

The SW3P for this project ~~shall~~ consist of using the following items as directed by the Engineer:
Temporary sediment control fence,
Rock filter dams for erosion and sedimentation control
Construction exits
Earthwork for Erosion Control

Item 5865 Computer Equipment

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The Contractor ~~will be~~ required to provide a laptop computer with the following minimum specifications listed on SS 5865.

The Contractor ~~will be~~ responsible for any repairs the laptop computer may require for the duration of the project.

The Contractor will be responsible for supplying an equivalent spare laptop within three (3) working days at the Contractor's expense in the event the original laptop computer should malfunction and need repairs.

The laptop computer will be returned to the Contractor at the end of the project.

Item 5880 Ride Quality for Pavement Surfaces

For this project Table 1 for pay adjustment table shall be utilized for this project. The areas of localized roughness (bumps) will be assessed.

Surface test type B (profilograph) shall be used. An automated profilograph is required.

Item 6031 Communication cable

The Contractor ~~shall~~ jelly fill each end of the communication cable that is exposed to elements during storage or after installation to prevent water intrusion.

The Contractor ~~shall be~~ responsible for the signal carrying capability and performance of the cable. Each wire ~~shall be~~ installed with a lightning protection device unless otherwise noted.

The 6 pair and 25 pair communications cable shown in the plans ~~to be~~ installed with the fiber optic cable ~~shall be~~ terminated at each communications hub building/cabinet. The Contractor ~~shall~~ install a 1/4 inch phone jack in each communications hub building/cabinet. These phone jacks ~~shall be~~ connected to the six pair communications cable in such a manner as to provide a continuous "party line" voice communications circuit throughout each communications hub building/cabinet on the project. This work ~~will not be~~ paid for directly but shall be considered incidental to the various bid items.

Item 8964 Traffic Signal Controller Assembly (TS-2)

In place of shelf mount detector harnesses, the Contractor ~~shall~~ supply a detector card rack wired to the detector panel as specified in special specification Item 6519.

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The following is a list of sources for relays and circuit breakers in the TxDOT controller specification, Item 8964:

ITEM	MANUFACTURER	PART NUMBER
FLASH TRANSFER RELAYS:	AEMCO MIDTEX MAGNECRAFT	136-4931 136-62T3A1 W21ACPX-2 OR 21ACPXD-5
INTERCONNECT RELAYS (AC AND DC):	MIDTEX POTTER & BRUMFIELD MAGNECRAFT	258 SERIES K10 SERIES W78 SERIES
CIRCUIT BREAKERS:	SQUARE D GE WESTINGHOUSE	QOU150 THQC 115OL QC1050

Item 8970 Video Imaging Vehicle Detection System

The VIVDS cameras, processor units and software ~~shall be~~ compatible with the existing VIVDS autoscope system at the traffic operations center.

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ESTIMATE SUMMARY

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EST.	FINAL	EST.	FINAL	EST.	FINAL		ITEM NO	DESC CODE	SP NO			EST.	FINAL
							100	0502		PREP ROW	STA	286.300	286.300
							104	0503		REMOV CONC (RIPRAP)	SY	9009.000	9894.060
							105	0504		RMV STB BS AND/OR ASH PAV (CL 2) VAR DEP	SY	351564.000	131601.320
							110	0501		EXCAVATION (RDWY)	CY	373813.000	360520.670
							110	0502		EXCAVATION (CHAN)	CY	663.000	0.000
							132	0503		EMBANK (DENS CONT) (TY A) (CL 3)	CY	69414.280	0.000
							132	0509		EMBANK (DENS CONT) (TY C) (CL 3)	CY	133826.720	117769.550
							162	0508		BLOCK SOD (BERMUDA)	SY	4544.000	000.000
							164	0507	002	STND SEED FOR COOL SEASON TMP ERSN CNT	AC	5.570	9.160
							164	0508	002	STND SEED FOR WARM SEASON TMP ERSN CNT	AC	5.570	16.880
							164	0511	002	CELL FIBER MULCH SEED	SY	819315.200	112623.770
							164	0554	002	CELL FIB SEED (PERM) (RURAL) (CLAY)	AC	5.750	24.330
							164	0602	002	DRILL SEED	SY	409657.600	42615.530
							168	0502		VEG WATERING (TEMP EROSN CONTROL)	MG	80440.000	3628.500
							247	0817	017	FL BS (COMPL IN PLAC) (TY A GR1 CL 4)	CY	134927.000	113802.640
							310	0504		ASPH MATRL (MC-30 OR AE-P)	GAL	3166.000	4107.500
							316	0534	004	AGGR (TY PE, GR3)	CY	4159.600	4024.510
							316	0555	004	ASPH (AC-15-5TR)	GAL	119804.700	138 14.000
							354	0503		PLAN ASPH CONC PAV (2 IN)	SY	12078.000	16726.740
							354	0529		PLANE ASPH CONC PAV (0" TO 2")	SY	16757.000	45930.880
							354	0566		PLAN ASPH CONC PAV (2 3/4 IN)	SY	55800.000	0.000
							360	0507	052	CONC PAV (CONT REINF HY STL) (12")	SY	659.000	1556.680
							360	0571	052	CONC PAV (6")	SY	270.600	448.900
				36.000			400	0502		STRUCT EXCAV (BRIDGE)	CY	36.000	418.000
							400	0503		STRUCT EXCAV (CULV SMALL)	CY	1634.300	1634.300
				1339.000			400	0504		STRUCT EXCAV (CULV LARGE)	CY	1822.000	1822.000
				1671.000		⚠	400	0507		CEM STABIL BKFL	CY	5728.830	1341.000
							400	0513		STRUC EXCAV (SEWER)	CY	16754.700	15653.500
							400	0514		CEM STAB BKFL (SEWER)	CY	5703.200	5396.300
				370.000			402	0501		TRENCH EXCAV PROTECTION	LF	15766.000	24531.000
							403	0501		TEMPORARY SPL SHORING	SF	37699.000	24531.000
				436.000			416	0504	007	DRILL SHAFT (30 IN)	LF	436.000	0.000
				1708.000			416	0506	007	DRILL SHAFT (36 IN)	LF	1738.000	1738.000
							416	0508	007	DRILL SHAFT (48 IN)	LF	52.000	64.500
				192.500			420	0513	015	CL C CONC (ABUT)	CY	192.500	192.500
				408.200			420	0514	015	CL C CONC (BENT)	CY	408.200	410.986
							420	0569	015	CL A CONC (CURB OUTLET) (TY I)	EA	11.000	9.000
				68568.000			422	0505		REINF CONC SLAB (CL S)	SF	68568.000	68568.000
				5200.000			422	0509		REINF CONC SLAB (EXT STR) (CL S)	SF	5200.000	0.000
							423	0501		RETAINING WALL (MSE)	SF	139016.000	139016.000
							423	0553		RETAINING WALL (CANT DRILL SHAFT) (24IN)	SF	1062.000	1062.000
							423	0554		RETAINING WALL (CANT DRILL SHAFT) (30IN)	SF	8769.000	8769.000
							423	0555		RETAINING WALL (CANT DRILL SHAFT) (36IN)	SF	1217.000	1217.000
				516.040			425	0503	001	PRESTR CONC BEAM (TY C)	LF	516.040	0.000
				6362.950			425	0507	001	PRESTR CONC BEAM (TY IV)	LF	6362.950	6392.950
				3290.010			425	0522	001	PRESTR CONC BEAM (TY VI) (MOD)	LF	3290.010	3290.010
				322.000			427	0503	003	CL A OR B FINISH FOR EXIST CONC	SY	322.000	322.000
				7866.000			428	0501	002	CONC SURF TREAT	SY	7866.000	7315.000
				25.800			430	0506		CL C CONC FOR EXT STR (ABUT)	CY	25.800	0.000
				600.000			430	0542		CL C CONC FOR EXT STR (CULV) (10' X 8')	LF	600.000	600.000

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ESTIMATE SUMMARY

						WEBB COUNTY NH 2002(79) 0018-05-062 BRIDGES		WEBB COUNTY NH 2002(79) 0018-05-062 ROADWAY ITEMS		ALT.	ITEM-CODE			DESCRIPTION	UNIT	TOTAL	
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		ITEM NO	DESC CODE	SP NO			EST.	FINAL
						96.000					430	0656		CL C CONC FOR EXT STR (CULV) (5' X 4')	LF	96.000	672.000
						576.000					430	0684		CL C CONC FOR EXT STR (CULV) (6'X5')	LF	576.000	0.000
						372.000					430	0726		CL C CONC FOR EXT STR (CULV) (8'X 7')	LF	372.000	372.000
								1083.000			432	0501		RIPRAP (CONC) (CL B)	CY	1083.000	954.609
								299.700			432	0524		RIPRAP (CONC) (CL B) (4 IN)	CY	299.700	314.070
						13.500		4.000			432	0529		RIPRAP (CONC) (CL B) (5 IN)	CY	17.500	35.800
								264.300			432	0531		RIPRAP (CONC) (CL B) (GUARD RAIL)	CY	264.300	635.661
						1832.000					442	0503	018	STR STL (ARMOR JOINT)	LB	1832.000	0.000
						6.000					444	0505		SIGN & BRACKET	EA	6.000	4.000
						2288.500		14114.000			450	0526		RAIL (TY SSTR)	LF	16402.500	16106.500
						629.100					450	0746		RAIL (TY SSTR) (MOD)	LF	629.100	629.100
						592.000					452	0510		REMOV RAIL (CONC)	LF	592.000	10.000
						582.000					454	0503		SEALED EXPANSION JOINTS (4 IN)	LF	582.000	582.000
								240.000			462	0504	003	CONC BOX CULV (4 FT X 3 FT)	LF	240.000	240.000
								546.000			462	0518	003	CONC BOX CULV (7 FT X 4 FT)	LF	546.000	546.000
								13783.000			464	0505	003	RC PIPE (CL III) (24 ")	LF	13783.000	13100.000
								3582.000			464	0507	003	RC PIPE (CL III) (30 IN)	LF	3582.000	3602.000
								2776.000			464	0509	003	RC PIPE (CL III) (36 IN)	LF	2776.000	2776.000
								261.000			464	0510	003	RC PIPE (CL III) (42 IN)	LF	261.000	261.000
								70.000			464	0521	003	RC PIPE (CL IV) (30 IN)	LF	70.000	70.000
								384.000			464	0522	003	RC PIPE (CL IV) (36 IN)	LF	384.000	384.000
								6.000			465	0515	004	INLET EXT (TY E)	EA	6.000	6.000
								5.000			465	0517	004	INLET (COMPL) (TY AD)	EA	5.000	3.000
								47.000			465	0518	004	INLET (COMPL) (TY AAD)	EA	47.000	42.000
								45.000			465	0519	004	INLET (COMPL) (TY M)	EA	45.000	38.000
								1.000			465	0526	004	MANH (COMPL) (TY M)	EA	1.000	1.000
								7.000			465	0538	004	MANH (TY M) (MOD)	EA	7.000	6.000
								5.000			465	0545	004	INLET (COMPL) (TY H) (MOD)	EA	5.000	5.000
								6.000			465	0848	004	INLET (COMPL) (CURB) TY C	EA	6.000	6.000
								16.000			465	3512	004	INLET (COMPL) (TY AZR)	EA	16.000	16.000
								160.000			465	3831	004	INLET (COMPL) (TRENCH DRAIN)	LF	160.000	160.000
								1.000			466	0971	007	WINGWALL (FW-0) (HW=5 FT)	EA	1.000	1.000
						1.000					466	0978	007	WINGWALL (FW-0) (HW=12 FT)	EA	1.000	0.000
								2.000			466	3501	007	WINGWALL (PW) (HW=6 FT)	EA	2.000	2.000
						1.000					466	3502	007	WINGWALL (PW) (HW=7 FT)	EA	1.000	1.000
								1.000			466	3503	007	WINGWALL (PW) (HW=8 FT)	EA	1.000	1.000
								2.000			466	3504	007	WINGWALL (PW) (HW=9 FT)	EA	2.000	2.000
						2.000					466	3506	007	WINGWALL (PW) (HW=11 FT)	EA	2.000	2.000
						1.000					466	3508	007	WINGWALL (PW) (HW=13 FT)	EA	1.000	2.000
								1.000			466	3520	007	HEADWALL (CH-FW-0) (DIA= 36 IN)	EA	1.000	0.000
								1.000			466	3576	007	HEADWALL (CH-PW-0) (DIA= 24 IN)	EA	1.000	1.000
								2.000			466	3578	007	HEADWALL (CH-PW-0) (DIA= 30 IN)	EA	2.000	2.000
								1.000			466	3580	007	HEADWALL (CH-PW-0) (DIA= 36 IN)	EA	1.000	1.000
								3.000			466	3595	007	HEADWALL (CH-PW-S) (DIA= 36 IN)	EA	3.000	3.000
								1.000			466	3697	007	HEADWALL (CH-PW-S) (DIA=36IN) (MOD)	EA	1.000	1.000
								1.000			466	3740	007	HEADWALL (CH-PW-0) (DIA=36 IN) (MOD1)	EA	1.000	1.000
								1.000			466	3741	007	HEADWALL (CH-PW-0) (DIA=36 IN) (MOD2)	EA	1.000	1.000
								5.000			467	0702	009	SAFE END TRT (TY II) (30 ") (RCP) (4: 1) (C)	EA	5.000	4.000
								4.000			467	0785	009	SAFE END TRT (TY II) (24") (RCP) (6: 1) (C)	EA	4.000	1.000
								5.000			467	0831	009	SAFE END TRT (TY II) (24") (RCP) (4: 1) (C)	EA	5.000	4.000

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EST.	FINAL	EST.	FINAL	EST.	FINAL	WEBB COUNTY NH 2002(79) 0018-05-062 BRIDGES EST.	WEBB COUNTY NH 2002(79) 0018-05-062 BRIDGES FINAL	WEBB COUNTY NH 2002(79) 0018-05-062 ROADWAY ITEMS EST.	WEBB COUNTY NH 2002(79) 0018-05-062 ROADWAY ITEMS FINAL	ALT.	ITEM-CODE ITEM NO	ITEM-CODE DESC CODE	ITEM-CODE SP NO	DESCRIPTION	UNIT	TOTAL EST.	TOTAL FINAL
								1.000			467	3763	009	SET (TY II) (24") (RCP) (3:1) (C)	EA	1.000	1.000
								460.000			476	0502		JACK OR BOR PIPE (24 IN) (RC) (CL III)	LF	460.000	0.000
								209.000			476	0511		JACK OR BOR PIPE (24 IN) (RC) (CL IV)	LF	209.000	0.000
								870.000			476	0513		JACK OR BOR PIPE (36 IN) (RC) (CL IV)	LF	870.000	870.000
								1.000			479	0502		ADJ INLETS	EA	1.000	1.000
								11.000			479	0505		ADJ INLET (CAP)	EA	11.000	9.000
								30.000			481	0514		PVC PIPE (SCH 40) (6 IN)	LF	30.000	30.000
								2441.000			496	0504		REMOV OLD STR (PIPE)	LF	2441.000	1956.000
								8.000			496	0516		REMOV OLD STR (LARGE) (BOX CULV)	EA	8.000	7.000
								25.000			496	0517		REMOV OLD STR (SMALL) (INLET)	EA	25.000	23.000
								1.000			496	0518		REMOV OLD STR (SMALL) (MANHOLE)	EA	1.000	1.000
								15.000			496	0530		REMOVE OLD STRUCTURE (WINGWALL)	EA	15.000	15.000
								1.000			496	0535		REMOV OLD STR SMALL (HDWL)	EA	1.000	3.000
								37.000			496	0543		REMOVE OLD STRUCTURE (SMALL) (SET)	EA	37.000	31.000
								1.000			500	0501		MOBILIZATION	LS	1.000	1.000
								42.000			502	0501	027	BARRICADES, SIGNS AND TRAF HANDLE	MO	42.000	47.000
								12421.000			508	0503		CONSTRUCT DETOURS (CL 3)	SY	12421.000	12353.120
								24090.000			512	0501		PORT CONC TRAF BAR (FURN & INSTL)	LF	24090.000	19140.000
								31500.000			512	0502		PORT CONC TRAF BAR (STKPL, INSTL & RETRN)	LF	31500.000	66430.000
								136980.000			512	0503		PORT CONC TRAF BAR (MOVE & RESET)	LF	136980.000	108734.000
								55590.000			512	0504		PORT CONC TRAF BAR (REMOVE)	LF	55590.000	20640.000
								17650.000			514	0517		PERM CONC TRF BAR SGL SLP (TY 2) (H=42")	LF	17650.000	16036.200
						130.000					514	0535		PERM CONC TRF BAR SGL SLP (TY 1) (H=42")	LF	130.000	0.000
								7965.000			514	0596		PERM CONC TRAF BARRIER (SPL) (TY 1)	LF	7965.000	7965.000
								2230.000			514	0597		PERM CONC TRAF BARRIER (SPL) (TY 2)	LF	2230.000	2230.000
								42143.000			529	0532		CONC CURB & GUTTER (TY II)	LF	42143.000	42014.800
								82.000			529	0537		CONC CURB (TY II) (MONO)	LF	82.000	327.800
								545.600			534	0501		STRUCT APPROACH SLABS	CY	545.600	467.900
								25.000			540	0505	024	TERM ANCHOR SECT (12 GA)	EA	25.000	31.000
								1375.000			540	0506	024	MTL BEAM GD FEN (12 GA) (TIM POST)	LF	1375.000	0.000
								4101.500			540	0507	024	MTL BM GD FEN (BLK OUT) (12GA) TIM POST	LF	4101.500	10060.000
								200.000			540	0508	024	MTL BM GD FEN (BLK OUT) (12GA) STL POST	LF	200.000	175.000
								100.000			540	0515	024	MTL BEAM GD FEN (12 GA) (STL POST)	LF	100.000	0.000
								6850.000			542	0501		REMOV METAL BEAM GUARD FENCE	LF	6850.000	7355.000
								1174.000			556	0506	001	PIPE UNDDR (TY 6) (6 ")	LF	1174.000	1174.000
								12.000			610	0503	002	RDWY ILL ASSEM (TY SA 40T-8) (.25 KW) S	EA	12.000	18.000
								16.000			610	0655	002	RDWY ILL ASSEM (U/P) (TY IF)	EA	16.000	12.000
								610.000			618	0501		CONDUIT (RM) (3/4 ")	LF	610.000	610.000
								737.000			618	0505		CONDUIT (RM) (2 ")	LF	737.000	622.000
								240.000			618	0506		CONDUIT (RM) (3 ")	LF	240.000	0.000
								300.000			618	0507		CONDUIT (RM) (4 ")	LF	300.000	300.000
								5785.000			618	0511		CONDUIT (PVC) (SCHD 40) (2 ")	LF	5785.000	6831.000
								385.000			618	0513		CONDUIT (PVC) (SCHD 40) (3 ")	LF	385.000	230.000
								415.000			618	0514		CONDUIT (PVC) (SCHD 40) (4 ")	LF	415.000	405.000
								19889.000			618	0518		CONDUIT (PVC) (SCHD 80) (2 ")	LF	19889.000	19889.000
								2930.000			618	0520		CONDUIT (PVC) (SCHD 80) (3 ")	LF	2930.000	3365.000
								841.000			618	0521		CONDUIT (PVC) (SCHD 80) (4 ")	LF	841.000	841.000
								1520.000			618	0532		CONDUIT (PVC) (SCHD 40) (2 ") (BORE)	LF	1520.000	1555.000
								510.000			618	0534		CONDUIT (PVC) (SCHD 40) (3 ") (BORE)	LF	510.000	656.000
								755.000			618	0539		CONDUIT (PVC) (SCHD 80) (2 ") (BORE)	LF	755.000	755.000

ESTIMATE & QUANTITY SHEET

REVISED 07-29-03

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
22	WEBB	NH 2002(79)	19

ESTIMATE SUMMARY

WEBB COUNTY NH 2002 (79) 0018-05-062 BRIDGES				WEBB COUNTY NH 2002 (79) 0018-05-062 ROADWAY ITEMS		ALT	ITEM-CODE			DESCRIPTION	UNIT	TOTAL	
EST.	FINAL	EST.	FINAL	EST.	FINAL		ITEM NO	DESC CODE	SP NO			EST.	FINAL
							618	0541		CONDUIT (PVC) (SCHD 80) (3 ") (BORE)	LF	4155.000	4155.000
							618	0542		CONDUIT (PVC) (SCHD 80) (4 ") (BORE)	LF	60.000	0.000
							620	0501		ELEC CONDUCTOR (NO. 12) BARE	LF	670.000	670.000
							620	0503		ELEC CONDUCTOR (NO. 8) BARE	LF	4325.000	4825.000
							620	0504		ELEC CONDUCTOR (NO. 6) BARE	LF	1405.000	1920.000
							620	0507		ELEC CONDUCTOR (NO. 12) INSULATED	LF	3040.000	4044.000
							620	0508		ELEC CONDUCTOR (NO. 10) INSULATED	LF	1340.000	1340.000
							620	0509		ELEC CONDUCTOR (NO. 8) INSULATED	LF	8920.000	11200.000
							620	0510		ELEC CONDUCTOR (NO. 6) INSULATED	LF	8247.000	9549.000
							624	0501		GROUND BOX TY A (122311) W/APRON	EA	12.000	13.000
							624	0503		GROUND BOX TY C (162911) W/APRON	EA	20.000	19.000
							624	0523		GROUND BOX (TY 1) W/APRON	EA	57.000	55.000
							624	0524		GROUND BOX (TY 2) W/APRON	EA	3.000	3.000
							628	0504		ELEC SERV TYA (240/480) 100 (NS) GS (E) SP (U)	EA	6.000	6.000
							628	0698		ELEC SERV TYD (120/240) 060 (NS) GS (N) TP (O)	EA	6.000	6.000
							628	0835		ELC SRV TY D (120/240) 100 (NS) GS (N) TP (O)	EA	3.000	2.000
							628	0860		ELC SRV TY T (120/240) 000 (NS) GS (L) SP (U)	EA	2.000	2.000
							636	0501		ALUM SIGNS (TY A)	SF	271.500	0.000
							637	0501		ALUM SIGNS (TY G)	SF	2788.500	0.000
							642	0501		ALUM SIGNS (TY O)	SF	735.250	0.000
							644	0608		SM RD SGN ASSM TY TWT (1) UA (P)	EA	66.000	0.000
							644	0610		SM RD SGN ASSM TY TWT (1) UA (T)	EA	13.000	0.000
							644	0611		SM RD SGN ASSM TY TWT (1) WA (P)	EA	14.000	0.000
							644	0613		SM RD SGN ASSM TY TWT (1) WA (T)	EA	1.000	0.000
							644	0615		SM RD SGN ASSM TY 10BWG (1) SA (P-BM)	EA	2.000	0.000
							644	0618		SM RD SGN ASSM TY 10BWG (1) SA (T)	EA	31.000	0.000
							644	0634		SM RD SGN ASSM TY S80 (1) SA (T)	EA	10.000	0.000
							644	0635		SM RD SGN ASSM TY S80 (1) SA (U)	EA	18.000	15.000
							644	0637		SM RD SGN ASSM TY S80 (1) SA (U-2EXT)	EA	9.000	0.000
							644	0650		SM RD SGN ASSM TY S80 (2) SA (P)	EA	12.000	0.000
							647	0501		LG RDSD SGN SUPT (STRUCT STL)	LB	12276.000	13587.000
							649	0501		REMOV LARGE RDSD SGN ASSMS	EA	24.000	26.000
							649	0502		REMOV SMALL RDSD SGN ASSMS	EA	84.000	79.000
							650	0576	002	OVHD SGN SUPT (160 FT BRDG) (21.0 HT)	EA	1.000	1.000
							650	0772	002	OVHD SGN SUPT (30 FT BAL TEE) (25.0 HT)	EA	1.000	1.000
							650	0773	002	OVHD SGN SUPT (30 FT BAL TEE) (28.0 HT)	EA	1.000	1.000
							656	0501		FND LG RDSD SGN SUPT (12 IN DRIL SHFT)	LF	26.000	26.000
							656	0502		FND LG RDSD SGN SUPT (24 IN DRIL SHFT)	LF	206.400	230.400
							656	0510		FND FOR TRAF SIG (24 IN DRIL SHFT)	LF	63.000	0.000
							656	0512		FND FOR TRAF SIG (36 IN DRIL SHFT)	LF	237.000	90.000
							656	0513		FND FOR TRAF SIG (42 IN DRIL SHFT)	LF	168.000	113.000
							656	0518		TRAF SIG CNTRL FND	CY	2.000	2.000
							656	0535		FND FOR RDWY ILL ASM (TY A) (30IN DR SH)	LF	108.000	120.000
							658	0501		DEL ASM TY A (D-SW)	EA	14.000	14.000
							658	0520		DEL ASM TY A (D-SW) FLEX (7.0')	EA	229.000	229.000
							658	0524		DEL ASM TY A (D-SY) FLEX (7.0')	EA	11.000	11.000
							658	0536		DEL ASM TY A (D-DW) FLEX (7.0')	EA	75.000	75.000
							658	0551		DEL ASM TY C (CL A) (D-SW)	EA	228.000	228.000
							658	0552		DEL ASM TY C (CL A) (D-SY)	EA	39.000	39.000
							658	0568		OBJ MRK ASM TY 2 FLEX (OM-2SR) (7.0')	EA	41.000	41.000

4155.000	60.000	670.000	4325.000	1405.000	3040.000	1340.000	8920.000	8247.000	12.000	20.000	57.000	3.000	6.000	6.000	3.000	2.000	271.500	2788.500	735.250	66.000	13.000	14.000	1.000	2.000	31.000	10.000	18.000	9.000	12.000	12276.000	24.000	84.000	1.000	1.000	1.000	26.000	206.400	63.000	237.000	168.000	2.000	108.000	14.000	229.000	11.000	75.000	228.000	39.000	41.000

ESTIMATE & QUANTITY SHEET

REVISED 07-29-03

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
22	WEBB	NH 2002 (79)	19A

ESTIMATE SUMMARY

						WEBB COUNTY NH 2002 (79) 0018-05-062 BRIDGES		WEBB COUNTY NH 2002 (79) 0018-05-062 ROADWAY ITEMS		ALT.	ITEM-CODE			DESCRIPTION	UNIT	TOTAL	
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		ITEM NO	DESC CODE	SP NO			EST.	FINAL
								7.000			658	0572		OBJ MRK ASM TY 2 FLEX (OM-2VP) (7.0')	EA	7.000	7.000
								3.000			658	0577		OBJ MRK ASM SURF MNT (K MARKER)	EA	3.000	3.000
								6.000			658	0582		OBJ MRK ASM OB-3B	EA	6.000	6.000
								22.000			658	0594		OBJ MRK ASM OB-3F	EA	22.000	5.000
								791.000			662	0501	007	WRK ZN PAV MRK REMOV (W) (4") (SLD)	LF	791.000	6140.000
								160.000			662	0502	007	WRK ZN PAV MRK REMOV (W) (4") (BRK)	LF	160.000	500.000
								4422.000			662	0523	007	WRK ZN PAV MRK REMOV (Y) (4") (SLD)	LF	4422.000	8273.000
								316086.000			662	0549	007	WRK ZN PAV MRK NON-REMOV (W) (4") (SLD)	LF	316086.000	157078.000
								62291.000			662	0550	007	WRK ZN PAV MRK NON-REMOV (W) (4") (BRK)	LF	62291.000	1010.000
								313.000			662	0553	007	WRK ZN PAV MRK NON-REMOV (W) (8") (SLD)	LF	313.000	2212.000
								7.000			662	0564	007	WRK ZN PAV MRK NON-REMOV (W) (ENTR GORE)	EA	7.000	0.000
								7.000			662	0565	007	WRK ZN PAV MRK NON-REMOV (W) (EXIT GORE)	EA	7.000	3.000
								317045.000			662	0569	007	WRK ZN PAV MRK NON-REMOV (Y) (4") (SLD)	LF	317045.000	133855.000
								4154.000			662	0579	007	WRK ZN PAV MRK GDMRK (W)	EA	4154.000	0.000
								158.000			662	0580	007	WRK ZN PAV MRK GDMRK (Y)	EA	158.000	0.000
								11658.000			662	0581	007	WRK ZN PAV MRK SH TRM (TAB) TY W	EA	11658.000	1587.000
								117322.000			666	0501	042	REFL PAV MRK TY I (W) (4") (SLD)	LF	117322.000	151582.000
								40030.000			666	0502	042	REFL PAV MRK TY I (W) (4") (BRK)	LF	40030.000	58615.000
								515.000			666	0503	042	REFL PAV MRK TY I (W) (4") (DOT)	LF	515.000	169.000
								6880.000			666	0506	042	REFL PAV MRK TY I (W) (8") (SLD)	LF	6880.000	15364.000
								43.000			666	0509	042	REFL PAV MRK TY I (W) (12") (SLD)	LF	43.000	1051.000
								1240.000			666	0510	042	REFL PAV MRK TY I (W) (12") (LNDP)	LF	1240.000	1504.000
								1090.000			666	0512	042	REFL PAV MRK TY I (W) (24") (SLD)	LF	1090.000	2652.000
								24.000			666	0513	042	REFL PAV MRK TY I (W) (ARROW)	EA	24.000	38.000
								5.000			666	0514	042	REFL PAV MRK TY I (W) (DBL ARROW)	EA	5.000	9.000
								35.000			666	0516	042	REFL PAV MRK TY I (W) (TND ARROW)	EA	35.000	30.000
								73.000			666	0517	042	REFL PAV MRK TY I (W) (WORD)	EA	73.000	80.000
								8.000			666	0519	042	REFL PAV MRK TY I (W) (ENTR GORE)	EA	8.000	0.000
								1.000			666	0521	042	REFL PAV MRK TY I (W) (RR XING)	EA	1.000	1.000
								117250.000			666	0524	042	REFL PAV MRK TY I (Y) (4") (SLD)	LF	117250.000	93030.000
								6045.000			666	0529	042	REFL PAV MRK TY I (Y) (8") (SLD)	LF	6045.000	6445.000
								6059.000			666	0532	042	REFL PAV MRK TY I (Y) (24") (SLD)	LF	6059.000	3495.000
								117322.000			666	0535	042	REFL PAV MRK TY II (W) (4") (SLD)	LF	117322.000	2975.000
								40030.000			666	0536	042	REFL PAV MRK TY II (W) (4") (BRK)	LF	40030.000	890.000
								515.000			666	0537	042	REFL PAV MRK TY II (W) (4") (DOT)	LF	515.000	116.000
								6880.000			666	0539	042	REFL PAV MRK TY II (W) (8") (SLD)	LF	6880.000	673.000
								43.000			666	0541	042	REFL PAV MRK TY II (W) (12") (SLD)	LF	43.000	0.000
								1240.000			666	0542	042	REFL PAV MRK TY II (W) (12") (LNDP)	LF	1240.000	0.000
								1090.000			666	0544	042	REFL PAV MRK TY II (W) (24") (SLD)	LF	1090.000	172.000
								24.000			666	0545	042	REFL PAV MRK TY II (W) (ARROW)	EA	24.000	7.000
								5.000			666	0546	042	REFL PAV MRK TY II (W) (DBL ARROW)	EA	5.000	1.000
								35.000			666	0548	042	REFL PAV MRK TY II (W) (TND ARROW)	EA	35.000	20.000
								73.000			666	0549	042	REFL PAV MRK TY II (W) (WORD)	EA	73.000	26.000
								9.000			666	0551	042	REFL PAV MRK TY II (W) (ENTR GORE)	EA	9.000	0.000
								1.000			666	0553	042	REFL PAV MRK TY II (W) (RR XING)	EA	1.000	0.000
								117250.000			666	0556	042	REFL PAV MRK TY II (Y) (4") (SLD)	LF	117250.000	2702.000
								6045.000			666	0560	042	REFL PAV MRK TY II (Y) (8") (SLD)	LF	6045.000	880.000
								6059.000			666	0563	042	REFL PAV MRK TY II (Y) (24") (SLD)	LF	6059.000	168.000
								385.000			672	0506	012	RAIS PAV MRKR CL B (REFL) TY I-A	EA	385.000	200.000
								98.000			672	0509	012	RAIS PAV MRKR CL B (REFL) TY II-A-A	EA	98.000	10.000

ESTIMATE & QUANTITY SHEET

REVISED 07-29-03

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
22	WEBB	NH 2002 (79)	19B

ESTIMATE SUMMARY

EST.	FINAL	EST.	FINAL	EST.	FINAL	WEBB COUNTY NH 2002 (79) 0018-05-062 BRIDGES EST.	WEBB COUNTY NH 2002 (79) 0018-05-062 BRIDGES FINAL	WEBB COUNTY NH 2002 (79) 0018-05-062 ROADWAY ITEMS EST.	WEBB COUNTY NH 2002 (79) 0018-05-062 ROADWAY ITEMS FINAL	ALT.	ITEM-CODE ITEM NO	ITEM-CODE DESC CODE	ITEM-CODE SP NO	DESCRIPTION	UNIT	TOTAL EST.	TOTAL FINAL
								3042.000			672	0510	012	RAIS PAV MRKR CL B (REFL) TY II-C-R	EA	3042.000	3387.000
								120058.000			677	0501		ELIM EXT PAV MRK & MRKR (4")	LF	120058.000	92705.000
								2.000			677	0510		ELIM EXT PAV MRK & MRKR (ENTR GORE)	EA	2.000	1.000
								2.000			677	0511		ELIM EXT PAV MRK & MRKR (EXIT GORE)	EA	2.000	1.000
								2.000			680	0501	007	INSTAL OF HWY TRAF SIG (ISOLATED)	EA	2.000	2.000
								70.000			682	0502		VEH SIG SEC (12 IN)	EA	70.000	83.000
								10.000			682	0509		BACK PLATE (3 SEC) (12 IN)	EA	10.000	13.000
								2.000			682	0511		BACK PLATE (5 SEC) (12 IN)	EA	2.000	4.000
								405.000			684	0503		TRAF SIG CBL (TY A) (3 CONDR) (12 AWG)	LF	405.000	1670.000
								744.000			684	0505		TRAF SIG CBL (TY A) (5 CONDR) (12 AWG)	LF	744.000	1186.000
								2870.000			684	0507		TRAF SIG CBL (TY A) (7 CONDR) (12 AWG)	LF	2870.000	2863.000
								2860.000			684	0509		TRAF SIG CBL (TY A) (9 CONDR) (12 AWG)	LF	2860.000	3440.000
								111258.000			684	0543		TRAF SIG CBL (TY C) (2 CONDR) (12 AWG)	LF	111258.000	11258.000
								3235.000			684	0552		TRAF SIG CBL (TY A) (3 CONDR) (16 AWG)	LF	3235.000	3860.000
								1.000			686	0513	003	TRAF SIG POLE ASM (STL) 1 ARM (40 FT)	EA	1.000	2.000
								1.000			686	0514	003	TRAF SIG POLE ASM (STL) 1 ARM (44 FT)	EA	1.000	1.000
								1.000			686	0559	003	TRAF SIG POLE ASM (STL) 2 ARM 40-32'LUM	EA	1.000	1.000
								1.000			686	0565	003	TRAF SIG POLE ASM (STL) 2 ARM 44-36'LUM	EA	1.000	1.000
								1.000			686	0568	003	TRAF SIG POLE ASM (STL) 1 ARM (28 FT) LUM	EA	1.000	0.000
								4.000			686	0569	003	TRAF SIG POLE ASM (STL) 1 ARM (32 FT) LUM	EA	4.000	3.000
								1.000			686	0572	003	TRAF SIG POLE ASM (STL) 1 ARM (44 FT) LUM	EA	1.000	2.000
								409657.000			1058	0516		EROSION CONTORL COMPOST (ECC) (1")	SY	409657.000	0.000
								22.000			1201	0501		12 IN LED TRF SIGNAL LAMP (RED BALL)	EA	22.000	24.000
								22.000			1201	0502		12 IN LED TRF SIGNAL LAMP (YELLOW BALL)	EA	22.000	24.000
								16.000			1201	0503		12 IN LED TRF SIGNAL LAMP (GREEN BALL)	EA	16.000	22.000
								2.000			1201	0504		12 IN LED TRF SIGNAL LAMP (YEL ARW)	EA	2.000	7.000
								8.000			1201	0505		12 IN LED TRF SIGNAL LAMP (GRN ARW)	EA	8.000	9.000
								5.000			1434	0501		CABINET (TYPE 3)	EA	5.000	5.000
								1.000			1435	0501		CAMERA POLE STR W/CABINET (50 FT)	EA	1.000	2.000
								2.000			1436	0501		CCTV FIELD EQUIPMENT	EA	2.000	2.000
								2.000			1437	0501		COMMUNICATION HUB BLDG (6'X 8')	EA	2.000	2.000
								5858.000			1438	0501		FIBER OPTIC CABLE (S/M) (6 STR)	LF	5858.000	5858.000
								20340.000			1438	0502		FIBER OPTIC CABLE (S/M) (72 STR)	LF	20340.000	20340.000
								4.000			1438	0504		FIBER OPTIC SPLICE ENCLOSURE	EA	4.000	4.000
								5.000			1438	0505		FIBER DISTRIBUTION PANEL (72 POSITION)	EA	5.000	5.000
								5.000			1438	0506		FIBER DISTRIBUTION PANEL (12 POSITION)	EA	5.000	7.000
								2.000			1439	0501		PORT EXPANDER 8:1	EA	2.000	0.000
								2220.000			1440	0501		PREPARATION OF EXISTING CONDUIT	LF	2220.000	0.000
								1.000			1441	0501		REMOVE AND RELOCATE CAMERA POLE STRUCT	EA	1.000	0.000
								2804.000			1442	0501		RETRACT AND REROUTE FIBER OPT CABLES	LF	2804.000	2804.000
								4.000			1444	0501		8:1 VIDEO (DE) MUX TRANS W/DATA CHANNEL	EA	4.000	0.000
								2.000			1445	0501		ASYNCHRONOUS SUBRATE DATA CHANNEL UNIT	EA	2.000	0.000
							3.000	9.000			1446	0501		LOCAL CONTROL UNIT	EA	12.000	12.000
								12.000			1447	0501		FTM LANE CONTROL SIGNAL EQUIPMENT	EA	12.000	12.000
								2.000			1448	0501		FIBER OPTIC DMS FIELD EQUIPMENT (18 IN)	EA	2.000	2.000
								19279.000			1450	0501		MULTIDUCT CONDUIT (SCH 80) (4")	LF	19279.000	20079.000
								2551.000			1450	0502		MULTIDUCT CONDUIT (SCH 80) (4") (BORE)	LF	2551.000	2775.000
								16.000			1451	0501		FIB OPT RS-232 DATA TRANS W/CNTRL SIG	EA	16.000	14.000
								1.000			1452	0501		LIMITED DISTANCE MODEM (STAND ALONE)	EA	1.000	1.000
								84.000			1453	0501		LOOP DETECTOR (SC&C)	EA	84.000	82.000

ESTIMATE & QUANTITY SHEET

REVISED 07-29-03

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
22	WEBB	NH 2002 (79)	19C

ESTIMATE SUMMARY

WEBB COUNTY NH 2002(79) 0018-05-062 BRIDGES				WEBB COUNTY NH 2002(79) 0018-05-062 ROADWAY ITEMS		ALT.	ITEM-CODE			DESCRIPTION	UNIT	TOTAL	
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL			ITEM NO	DESC CODE	SP NO				EST.	FINAL
								4.000			1454	0501		FIBER OPTIC VIDEO TRANS W/DATA (VDTR)	EA	4.000	4.000
								33846.600			3146	0501	035	HOT MIX (TY A)	TON	33846.600	35674.470
								16582.500			3146	0520	035	HOT MIX (TY C) (SURF)	TON	16582.500	21117.750
								1572.040			3231	0501		ASPHALT (PG 76-22)	TON	1572.040	0.000
								24648.320			3231	0502		AGGREGATE (CL A)	TON	24648.320	0.000
								7293.000			3241	0502		SPHMACP (PG 64-22) (1 IN)	TON	7293.000	0.000
								37015.700			3241	0506		SPHMACP (PG70-22) (1/2IN)	TON	37015.700	19524.890
								55247.900			3248	0501		HDSMACP (1/2 IN MIX TYPE) (PG 76-22)	TON	55247.900	0.000
								50493.500			3249	0503		SFHMACP (PG 76-22) (3/4 IN)	TON	50493.500	0.000
								111047.300			3249	0506		SFHMACP (PG 76-22) (1 IN)	TON	111047.300	0.000
								2.000			3527	0501		MEDIAN BARRIER GATES TY A (FURN & INST)	EA	2.000	0.000
								930.000			5005	0504		ROCK FILTER DAMS (TY 2)	LF	930.000	144.000
								930.000			5005	0505		ROCK FILTER DAMS (REMOV & REPLAC) (TY 2)	LF	930.000	0.000
								930.000			5005	0506		ROCK FILTER DAMS (REMOV) (TY 2)	LF	930.000	144.000
								700.000			5010	0501		CONSTRUCT EXIT (TY 1)	SY	700.000	0.000
								700.000			5010	0502		CONSTRUCT EXIT (REMOV & REPLAC) (TY 1)	SY	700.000	0.000
								700.000			5010	0503		CONSTRUCT EXIT (REMOV) (TY 1)	SY	700.000	0.000
								2196.000			5012	0505		EARTHWORK (EROSN CONT) (CL 2)	CY	2196.000	6553.760
								59230.000			5249	0501		TEMP SEDMT CONT FENCE	LF	59230.000	43182.500
								59230.000			5249	0502		TEMP SEDMT CONT FENCE (REMOVE & REPLAC)	LF	59230.000	4263.600
								59230.000			5249	0503		TEMP SEDMT CONT FENCE (REMOV)	LF	59230.000	40577.000
								126381.000			5764	0502		ANTI-GRAFITTI COATING (TY II)	SF	126381.000	126381.000
								4.000			5819	0501		SINGLE GUARDRAIL TERM (TY I)	EA	4.000	0.000
								22.000			5819	0510		SINGLE GDRAIL TERM (TY I, II, OR III)	EA	22.000	28.000
								6.000			5840	0503		TRACC (INSTALL) (FAST)	EA	6.000	0.000
								1.000			5865	0502		LAPTOP MICROCOMPUTER	EA	1.000	1.000
								1.000			5865	0503		PRINTER	EA	1.000	1.000
								13.000			5985	0503		REACT 350 (REMOVE)	EA	13.000	13.000
								41.000			5985	0504		REACT 350 (REMOVE & RESET)	EA	41.000	33.000
								13.000			5985	0509		REACT 350 (NARROW REACT 350 9-B)	EA	13.000	13.000
								1730.000			6031	0502		COMMUN CABLE (6 PAIR) (22 AWG)	LF	1730.000	1730.000
								42.000			6519	0501		DETECTOR UNIT	EA	42.000	42.000
								7.000			6519	0502		DETECTOR CARD RACK (8 SLOTS)	EA	7.000	7.000
								7.000			6519	0503		POWER SUPPLY	EA	7.000	7.000
								336.000			6670	0503		PORT CHANGE MES SGN (TY I OR TY II)	DAY	336.000	1709.000
								2.000			8970	0501	001	VIVDS PROCESSOR SYSTEM	EA	2.000	2.000
								11.000			8970	0502	001	VIVDS CAMERA ASSEMBLY	EA	11.000	12.000
								2.000			8970	0503	001	VIVDS SET-UP SYSTEM	EA	2.000	2.000
								3235.000			8970	0505	001	VIVDS COMMUNICATION CABLE (COAXIAL)	LF	3235.000	3860.000

ESTIMATE & QUANTITY SHEET

REVISED 07-24-03

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
22	WEBB	NH 2002(79)	19D

ESTIMATE SUMMARY

EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	WEBB COUNTY IH 35 CSJ 0018-05-062 ROADWAY ITEMS EST.	FINAL	ALT.	ITEM-CODE ITEM NO	DESC CODE	SP NO	DESCRIPTION	UNIT	TOTAL CO EST.	FINAL
								160.000	160.000		104	0501		REMOV CONC (PAV)	SY	160.000	160.000
								96.000	96.000		104	0534		REMOV CONC (TY T501 RAIL)	LF	96.000	96.000
								70210.030	70210.030		105	0509		REMV STB BS AND/OR ASH PAV (CL2)(14")	SY	70210.030	70210.030
								55454.800	53376.690		169	0503		SOIL RET BLANKET (CL 1) (TY C)	SY	55454.800	53376.690
								3252.650	3252.650		204	0503		SPRINKLING DUST CONTROL	MG	3252.650	3252.650
								20.000	20.000		216	0501		ROLLING (PROOF)	HR	20.000	20.000
								86134.960	80388.310		310	0504		ASPH MATL (MC-30 OR AEP)	GAL	86134.960	80388.310
								0.000	0.000		346	2047		STONE MTRX ASHP SMA C SAC A PG76-22S	TON	0.000	0.000
								106.670	106.670		351	0521		REPAIR EXIST FLEX PAV STR (VAR DEPTH)	SY	106.670	106.670
								157248.820	143122.560		354	0602		PLAN ASPH CONC PAV (0" TO 5.5")	SY	157248.820	143122.560
								68.000	68.000		416	0518		DRILL SHAFT (42 IN) (SIGN MTS)	LF	68.000	68.000
								16.000	0.000		420	0509		CL C CONC (MISC)	CY	16.000	0.000
								44.8000	44.8000		420	0579		CL C CONC (COLUMNS)	CY	44.8000	44.8000
								350.000	350.000		464	0559		RC PIPE (SEWER)(CL III)(18 IN)	LF	350.000	350.000
								3.000	3.000		465	0562		INLET (COMPL)(TY AAD)(MOD)	EA	3.000	3.000
								2.000	2.000		465	0627		INLET (COMPL)(TY AD)(MOD)	EA	2.000	2.000
								1.000	1.000		467	2234		SET (TY II)(18 IN)(RCP)(6:1)(C)	EA	1.000	1.000
								8.000	6.000		540	0538		MTL BEAM GD FEN TRANS (THRIE BEAM)	EA	8.000	6.000
								2.000	2.000		612	0501		RELOCATE RDWY ILLUM ASSEM (TRANS BASE)	EA	2.000	2.000
								770.000	770.000		620	0511		ELEC CONDUCTOR (NO. 4) INSULATED	LF	770.000	770.000
								1.000	0.000		628	0859		ELC SRV TY T (120/240)000(NS)GS(L)SP(O)	EA	1.000	0.000
								256.000	256.000		634	0501		PLYWOOD SIGNS (TY A)	SF	256.000	256.000
								238.000	141.000		636	0501		ALUM SIGNS (TY A)	SF	238.000	141.000
								1944.000	1893.750		637	0501		ALUM SIGNS (TY G)	SF	1944.000	1893.750
								17.000	17.000		644	0608		SM RD SGN ASSM TY TWT (1)UA(P)	EA	17.000	17.000
								1.000	1.000		644	0610		SM RD SGN ASSM TY TWT (1)UA(T)	EA	1.000	1.000
								12.000	12.000		644	0611		SM RD SGN ASSM TY TWT (1)WA(P)	EA	12.000	12.000
								2.000	2.000		644	0615		SM RD SGN ASSM TY 10BWG (1)SA(P-BM)	EA	2.000	2.000
								20.000	20.000		644	0618		SM RD SGN ASSM TY 10BWG (1)SA(T)	EA	20.000	20.000
								3.000	3.000		644	0634		SM RD SGN ASSM TY S80 (1)SA(T)	EA	3.000	3.000
								1.000	1.000		644	0650		SM RD SGN ASSM TY S80(2)SA(P)	EA	1.000	1.000
								35.000	34.000		644	0659		SMALL RDSD SGN SUPT (TY BARRIER MOUNT)	EA	35.000	34.000
								66.000	0.000		656	0511		FND FOR TRAF SIG (30 IN DRIL SHFT)	LF	66.000	0.000
								128.000	128.000		656	0514		FND FOR TRAF SIG (48 IN DRIL SHFT)	LF	128.000	128.000
								2000.000	781.000		662	0582		WRK ZN PAV MRK SH TRM (TAB)TY Y	EA	2000.000	781.000
								2.000	0.000		666	0515		REFL PAV MRK TY I (W)(TPL ARROW)	EA	2.000	0.000
								3.000	0.000		672	0507		RAIS PAV MRKR CL B (REFL)(TY I-C)	EA	3.000	0.000
								830.000	830.000		677	0503		ELIM EXT PAV MRK & MRKR (8")	LF	830.000	830.000
								539.000	539.000		677	0506		ELIM EXT PAV MRKR (24")	EA	539.000	539.000
								7.000	7.000		677	0507		ELIM EXT PAV MRKR (ARROW)	EA	7.000	7.000
								5.000	5.000		677	0508		ELIM EXT PAV MRKR (WORD)	EA	5.000	5.000
								2600.000	2600.000		678	0503		PAV SURF PREP FOR MRKS (4")	LF	2600.000	2600.000
								600.000	1503.000		678	0610		PAV SURF PREP FOR MRKS (8")	LF	600.000	1503.000
								250.000	221.000		678	0611		PAV SURF PREP FOR MRKS (24")	LF	250.000	221.000
								18.000	18.000		678	0615		PAV SURF PREP FOR MRKS (ARROW)	EA	18.000	18.000
								18.000	18.000		678	0618		PAV SURF PREP FOR MRKS (WORD)	EA	18.000	18.000
								2.000	2.000		682	0526		PED SIG SEC (2 INDICATION)(12 IN)	EA	2.000	2.000
								655.000	655.000		684	0502		TRAF SIG CBL (TY A)(2 CONDR)(12 AWG)	LF	655.000	655.000
								1.000	1.000		686	0570		TRAF SIG POLE ASM (STL)1 ARM(44 FT)LUM	EA	1.000	1.000
								2.000	2.000		688	0501		PED DETECT (PUSH BTN)	EA	2.000	2.000

ESTIMATE & QUANTITY SHEET

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
22	WEBB	NH 2002(79)	19E

ESTIMATE SUMMARY

EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	WEBB COUNTY IH 35 CSJ 0018-05-062 ROADWAY ITEMS EST.	FINAL	ALT.	ITEM-CODE ITEM NO	DESC CODE	SP NO	DESCRIPTION	UNIT	TOTAL CO EST.	FINAL
								3.000	3.000		1201	0506		12 IN LED TRF SIGNAL LAMP (RED ARW)	EA	3.000	3.000
								2884.000	2884.000		1553	0501		TRAY CABLE (3 CONDR)(12 AWG)	LF	2884.000	2884.000
								0.000	0.000		3248	0502		HDSMACP(3/4" MIX TYPE)(PG-76-22)	TON	0.000	0.000
								50853.3700	51296.570		3248	0502		HDSMACP(3/4"MIX TYPE)(PG-76-22)75 gyrations	TON	50853.3700	51296.570
								50853.370	50441.200		3249	0503		SFHMACP(PG-76-22)(3/4 IN) 75 gyrations	TON	50853.370	50441.200
								59712.650	60876.110		3248	0506		SFHMACP(PG-76-22)(1 IN) 75 gyrations	TON	59712.650	60876.110
								2.000	1.000		3637	0503		INTERNET SERVICE PROVIDER	EA	2.000	1.000
								8.000	7.000		5267	0501		REMOV SINGLE GDRAIL TERMINALS	EA	8.000	7.000
								1.000	1.000		6008	0501		PEDESTAL POLE ASSEM	EA	1.000	1.000
								120.000	120.000		7001	0502		TY II (FULL WIDTH MOWING)	AC	120.000	120.000
								1220.000	1221.000		7199	0501		FAST TRK CONC PAV (JHT-HI STR)(12")	SY	1220.000	1221.000
														FORCE ACCOUNTS			
								15800.000	3304.25		9606	0501		DEWATERING OF STRUCTURE AT STA 343+25	DOL	15800.000	3304.25
								11786.000	8656.890		9606	0502		DRILL EXIST CONC FOUND UNDERGD ON NBFR BRDG	DOL	11786.000	8656.890
								20000.000	596.670		9606	0503		EROSION CONTROL (EARTH WORK)	DOL	20000.000	596.670
								5000.000	624.010		9606	0504		PAYMENT FOR ELECTRICAL SERVICES	DOL	5000.000	624.010
								6073.980	2736.780		9606	0505		RELOCATE JUNT BOXES & LOWER CONDUIT	DOL	6073.980	2736.780
								686418.790	688967.370		9606	0506		OFF DUTY POLICE OFFICERS	DOL	686418.790	688967.370
								25000.000	8268.760		9606	0507		TRAFFIC CONTROL ITEMS	DOL	25000.000	8268.760
														STOCK ACCOUNT MATERIAL PURCHASE			
								53625.040	53625.040		9607	0501		GRADE 3 TRAP ROCK VULCAN 2876.88 TON	DOL	53625.040	53625.040
								5401.040	5401.040		9607	0502		SURPLUS SIGNS FOR CHANGING LANE ASSIGNMENTS	DOL	5401.040	5401.040
														UNIQUE CHANGE ORDER ITEMS			
								71592.450	71592.450		9608	0501		#1- MSE WALL MTL TO BY PAID BY CY IN PLAC	DOL	71592.450	71592.450
								1.000	1.000		9608	0502		#2- 50% OF EXPENSES FOR PATNERING WRKSHOP	DOL	1.000	1.000
								2.000	2.000		9608	0503		#3- CL C CONC COLLAR 36" AT STA 394+32	EA	2.000	2.000
								4.000	3.000		9608	0504		#4- CL C CONC COLLAR 24" (SEVL LOCATIONS)	EA	4.000	3.000
								1.000	1.000		9608	0505		#5- SPECIAL WINGWALL (CULVERT B)	EA	1.000	1.000
								1.000	1.000		9608	0506		#6- SPECIAL WINGWALL (CULVERT C)	EA	1.000	1.000
								37252.000	20877.000		9608	0507		#7- 18" FLOWABLE FILL WIDENING	LF	37252.000	20877.000
								1.000	1.000		9608	0508		#8- INSTALLATION OF BURGLAR BARS AT FO	DOL	1.000	1.000
								1.000	1.000		9608	0509		#9- STEEL CHANGE FROM 6'X5' TO 5'X4' CULV	DOL	1.000	1.000
								1.000	0.000		9608	0510		#10- ISDN LINE FOR TXDOT FIELD OFFICE	DOL	1.000	0.000
								1.000	1.000		9608	0511		#11	DOL	1.000	1.000
								30.000	22.000		9608	0512		#12	DOL	30.000	22.000
								1.000	1.000		9608	0513		#13	DOL	1.000	1.000
								24.000	24.000		9608	0514		#14- MULTI DUCT 90 DEG ELBOWS (4")	EA	24.000	24.000
								1.000	1.000		9608	0515		#15- GIVING FUEL TO HURRICANE EVACUEES	DOL	1.000	1.000
								1.000	1.000		9608	0516		#16- LOWERING EXIST DUCT ON SBFR	DOL	1.000	1.000
								1.000	1.000		9608	0518		#18- INSTALL TXDOT CAMERA POLE AND CABINET	EA	1.000	1.000
								2.000	2.000		9608	0519		#19- 19" ANCHOR BOLTS FOR TRAF SIG FND	EA	2.000	2.000
								2.000	2.000		9608	0520		#20- 21" ANCHOR BOLTS FOR TRAF SIG FND	EA	2.000	2.000
								4.000	2.000		9608	0522		#22- ANCHOR PLATE T2/T201 TRANS RETROFIT	EA	4.000	2.000

ESTIMATE & QUANTITY SHEET

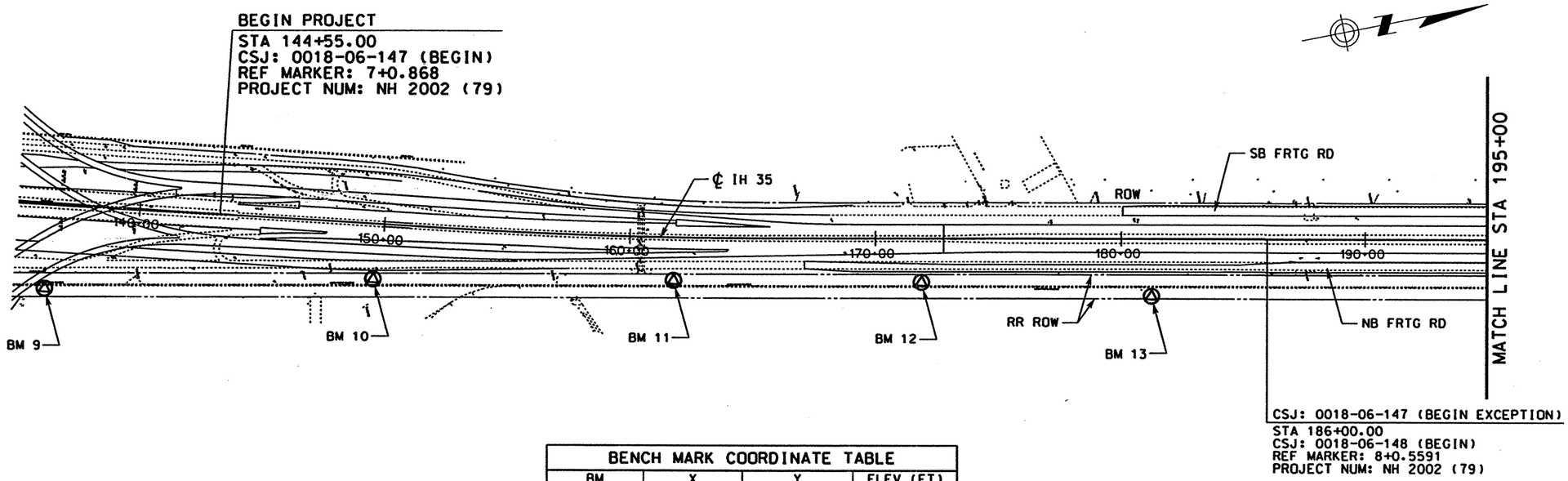
STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
22	WEBB	NH 2002(79)	19F

ESTIMATE SUMMARY

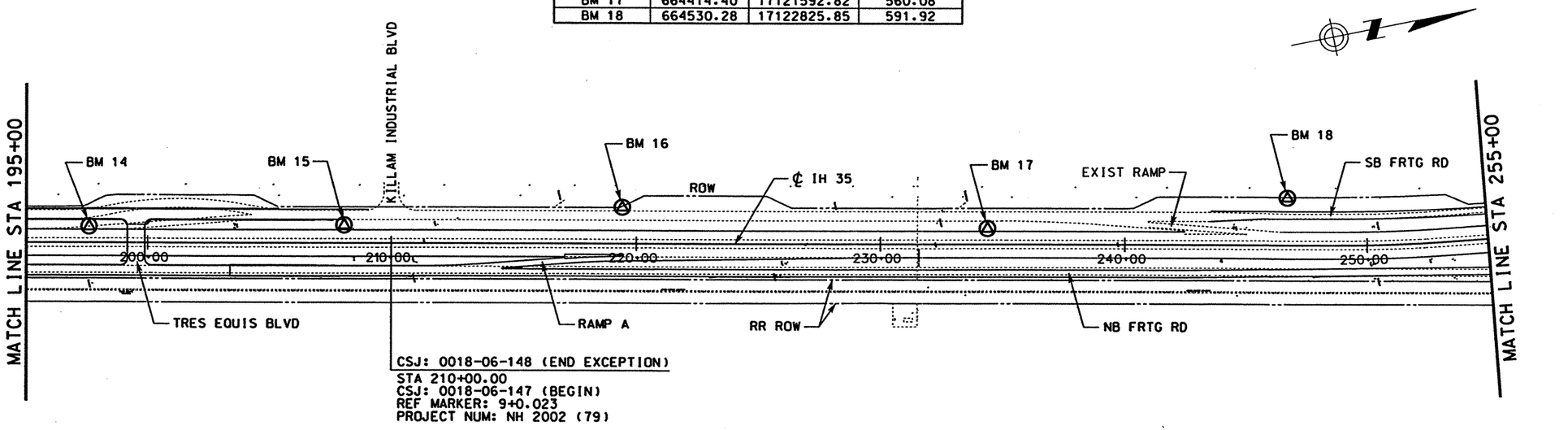
EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	WEBB COUNTY IH 35 CSJ 0018-05-062 ROADWAY ITEMS EST.	FINAL	ALT.	ITEM-CODE ITEM NO	DESC CODE	SP NO	DESCRIPTION	UNIT	TOTAL CO EST.	FINAL
								4.000	2.000		9608	0523		#23- MBGF ANCHOR PLATE	EA	4.000	2.000
								3.000	3.000		9608	0524		#24- INTERNET WIRELESS CARD	EA	3.000	3.000
								50.000	40.000		9608	0525		#25- INTERNET WIRELESS CARD MONTHLY CHARGE	MO	50.000	40.000
								200.000	118.000		9608	0526		#26- PATCH MIC ASPH CONC (CONTAINERIZED)	BKT	200.000	118.000
								15000.000	18392.000		9608	0527		#27- LONGITUDINAL BAR #4 FOR SSCB FOOTING	LF	15000.000	18392.000
								500.000	3070.900		9608	0528		#28- TRANSVERSE BAR @ 5' FOR SSCB FOOTING	EA	500.000	3070.900
								1.000	489.730		9608	0529		#29- DOWELS #4 FOR SSCB FOOTING 12' @ 15'	EA	1.000	489.730
								1.000	1.000		9608	0530		#30- CURING COMPOUND FOR SSCB FOOTING	EA	1.000	1.000
								4.000	4.000		9608	0531		#31- EXP JOINT 1/2" X 48" FOR SSCB FOOTING	EA	4.000	4.000
								450.000	547.000		9608	0532		#32- CL C CONC FOR SSCB FOOTING	CY	450.000	547.000
								1.000	1.000		9608	0533		#33- EXCESS AGGR - STOCKPILE & SITE RENTAL	DOL	1.000	1.000
								1.000	1.000		9608	0534		#34- COMP FOR REMOVAL OF UNIROYAL BRIDGE	DOL	1.000	1.000
								1.000	1.000		9608	0535		#35- UNIROYAL DELETION - TCP ENGINEERING	DOL	1.000	1.000
								50.000	50.000		9608	0536		#36- FOUNDATION FOR SSTR BTWN WALL S & P	SF	50.000	50.000
								120.000	120.000		9608	0537		#37- REMOVE COPING	LF	120.000	120.000
								75000.000	62957.000		9608	0538		#38- ADD'L COST FOR WATERBLASTING	LF	75000.000	62957.000
								2.000	3.000		9608	0539		#39- REMOBILIZATION FOR WATERBLASTING	EA	2.000	3.000
								280.000	280.000		9608	0540		#40- REMOVE & RESET GUARDRAIL AND SGT	LF	280.000	280.000
								140000.000	140000.000		9608	0541		#41- CONCRETE STAIN FINISH - SSCB	SF	140000.000	140000.000
								1.000	1.000		9608	0542		#42- REPAIR OVERHEAD KILLAM SIGN	LS	1.000	1.000
								3.000	3.000		9608	0543		#43- RELOCATE KILLAM EXIT SIGN	LS	3.000	3.000
								1.000	1.000		9608	0544		#44- REACT NOSE PIECE REPLACEMENT	LS	1.000	1.000
								1.000	1.000		9608	0545		#45- GIGABIT ETHERNET SWITCH	EA	1.000	1.000
								2.000	2.000		9608	0546		#46- FIELD HARDENED ETHERNET SWITCH	EA	2.000	2.000
								2.000	2.000		9608	0547		#47- 8 PORT VIDEO SERVER	EA	2.000	2.000
								2.000	2.000		9608	0548		#48- RS-232 PORT SERVER	EA	2.000	2.000
								1.000	1.000		9608	0549		#49- ADJUST 2 INLETS & 1 CAP	LS	1.000	1.000
								2.000	2.000		9608	0550		#50- MEDIA CONVERTER	EA	2.000	2.000
								2.000	2.000		9608	0551		#51- ST TO SC PATCH CORD	EA	2.000	2.000
								1.000	1.000		9608	0552		#52- FURN/INSTL EQUIP FOR LCS HEADS	LS	1.000	1.000
								4.000	0.000		9608	0553		#53- RELOCATE EXIST GRN BOX & REPLACE APRON	EA	4.000	0.000

ESTIMATE & QUANTITY SHEET

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
22	WEBB	NH 2002(79)	19G



BENCH MARK COORDINATE TABLE			
BM	X	Y	ELEV (FT)
BM 9	662737.93	17111902.23	497.24
BM 10	662965.01	17113227.74	505.00
BM 11	663210.60	17114426.49	500.70
BM 12	663417.22	17115417.02	509.46
BM 13	663658.62	17116322.63	521.11
BM 14	663682.54	17117983.85	521.98
BM 15	663883.05	17119011.82	541.02
BM 16	664034.53	17120142.39	584.22
BM 17	664414.40	17121592.82	560.08
BM 18	664530.28	17122825.85	591.92



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j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
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milointr,row , row LV ON = 1-63
j011op01.bmk, bmk LV ON = 1-63

0 250 500
SCALE: 1" = 500'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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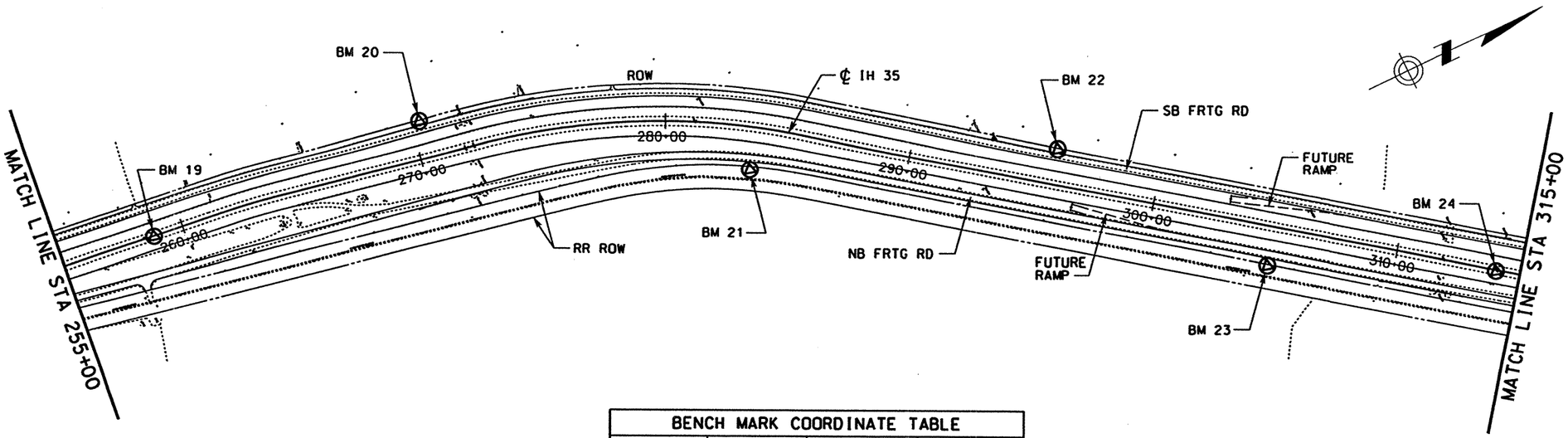
IH 35
LOOP 20 TO UNIROYAL ROAD
PROJECT LAYOUT AND BENCH MARK LOCATION MAP

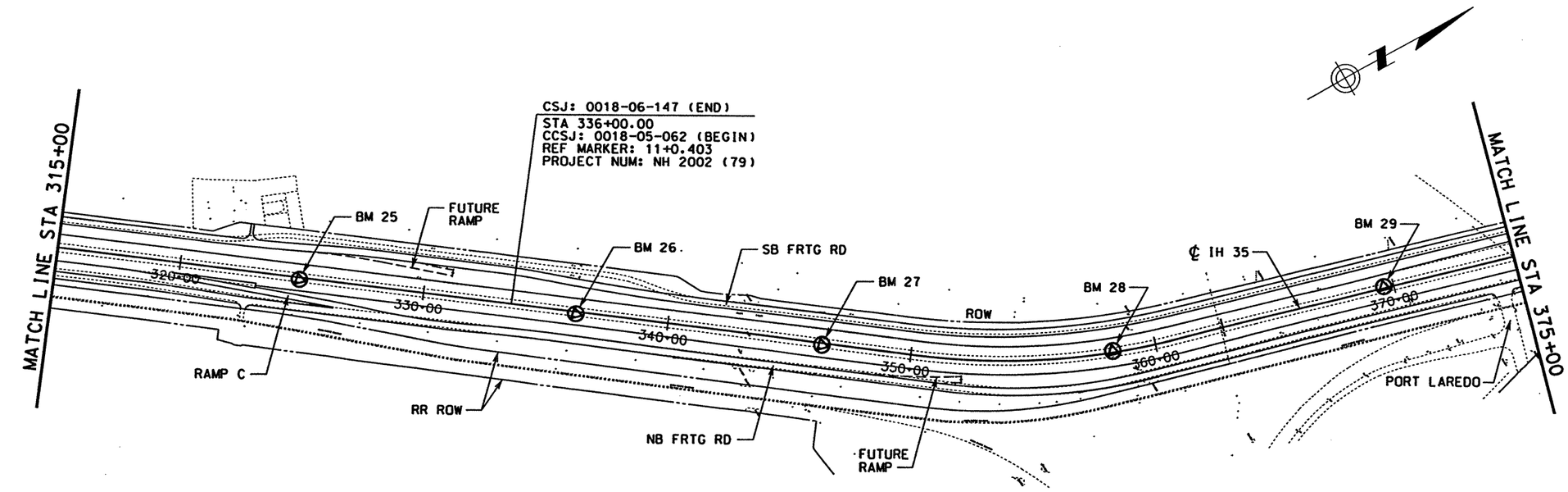
SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		20
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b03bmp09.dgn-06



BENCH MARK COORDINATE TABLE			
BM	X	Y	ELEV (FT)
BM 19	664906.66	17123979.21	580.36
BM 20	664954.09	17125142.25	568.30
BM 21	665709.23	17126259.48	600.26
BM 22	666178.58	17127416.38	590.97
BM 23	666975.19	17127964.35	584.62
BM 24	667394.46	17128781.26	566.50
BM 25	668049.09	17129644.73	576.58
BM 26	668732.11	17130551.31	563.90
BM 27	669339.22	17131360.42	567.09
BM 28	669948.88	17132376.75	595.43
BM 29	670265.36	17133466.53	606.62



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j01lop01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j01lop01.eop, eop LV ON = 1-5,10,11,13-17,19,21-30,33,34
milolnt.row, row LV ON = 1-63
j01lop01.bmk, bmk LV ON = 1-63

0 250 500
SCALE: 1" = 500'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

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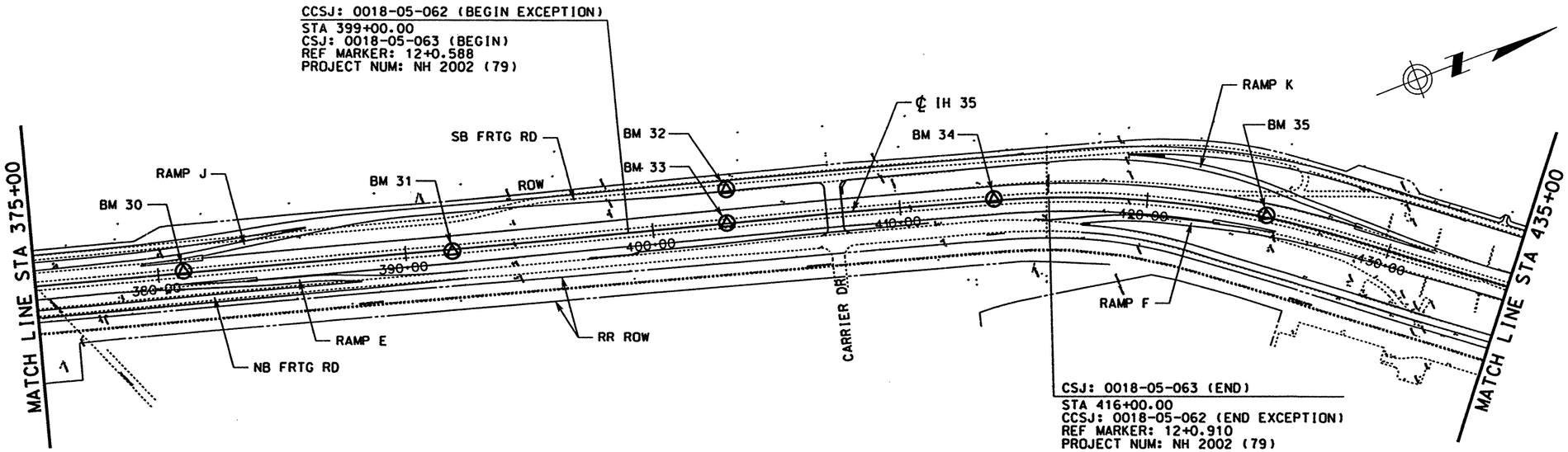
IH 35
LOOP 20 TO UNIROYAL ROAD
PROJECT LAYOUT AND BENCH MARK LOCATION MAP

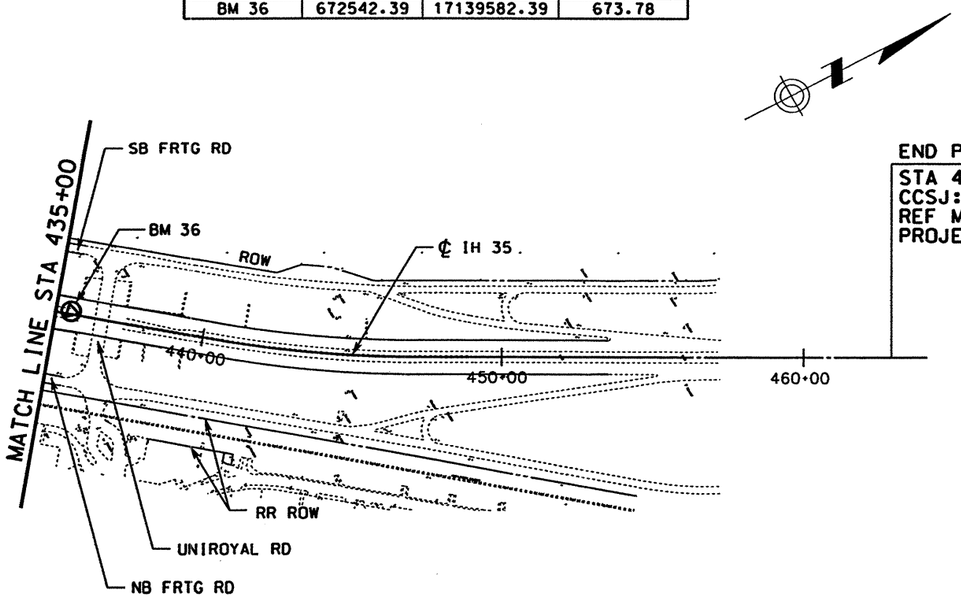
SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		2-1
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\c0130\
b03bmp10.dgn-06



BENCH MARK COORDINATE TABLE			
BM	X	Y	ELEV (FT)
BM 30	670570.10	17134567.74	612.88
BM 31	670875.76	17135608.59	629.40
BM 32	671029.17	17136728.77	659.75
BM 33	671158.51	17136682.84	646.26
BM 34	671447.38	17137723.64	648.78
BM 35	671901.37	17138732.52	658.89
BM 36	672542.39	17139582.39	673.78



END PROJECT
STA 462+93.12
CCSJ: 0018-05-062 (END)
REF MARKER: 13+0.828
PROJECT NUM: NH 2002 (79)

0 250 500
SCALE: 1" = 500'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROJECT LAYOUT AND BENCH MARK LOCATION MAP

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		22
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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b03bmp11.dgn-05

REF FILE(S): j0110p01.bdr, bdr LV ON = 21.47.57.58.60-62
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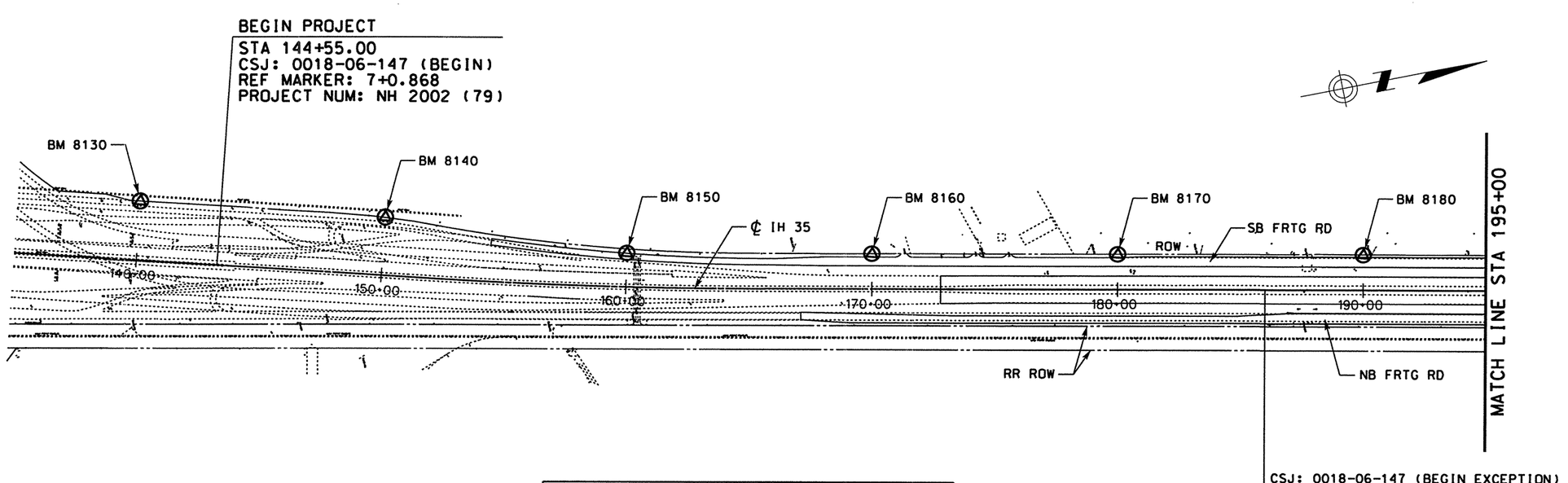
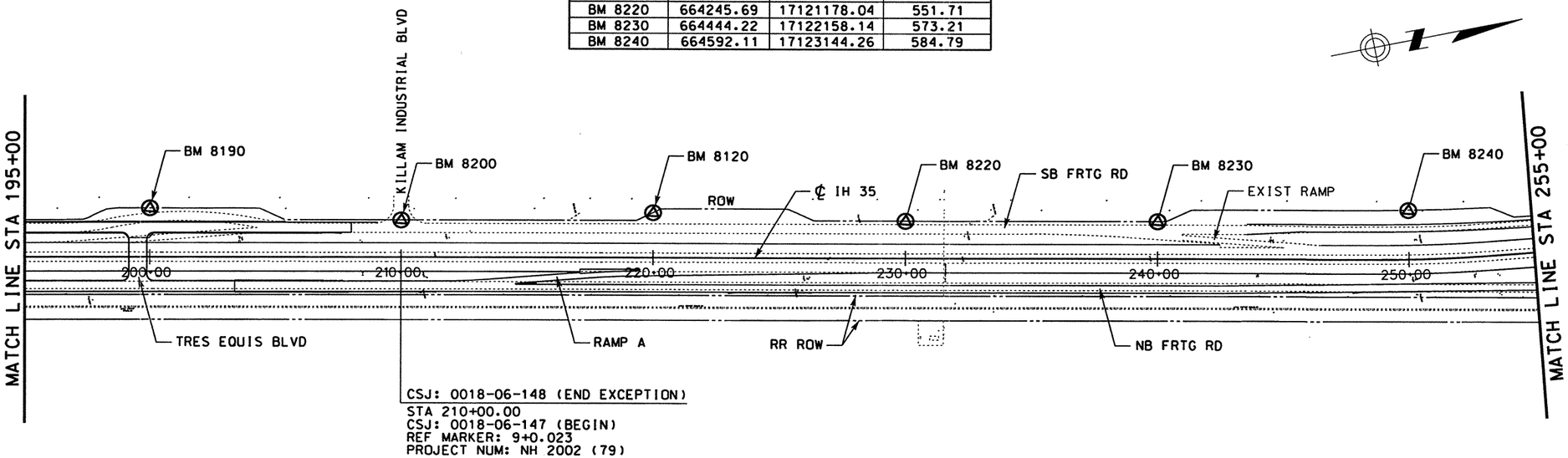
j0110p01.eop, eop LV ON = 1-5.10.11.13-17.19.21-30.33.34
milolnf.row , row LV ON = 1-63
j0110p01.bmk, bmk LV ON = 1-63



BENCH MARK COORDINATE TABLE			
BM	X	Y	ELEV (FT)
BM 8130	662251.35	17112418.71	492.01
BM 8140	662514.79	17113383.39	498.45
BM 8150	662855.74	17114321.09	-
BM 8160	663054.51	17115297.47	501.84
BM 8170	663253.04	17116277.57	513.74
BM 8180	663451.57	17117257.66	512.11
BM 8190	663601.09	17118247.68	537.33
BM 8200	663848.63	17119217.85	543.22
BM 8210	664014.80	17120204.50	549.42
BM 8220	664245.69	17121178.04	551.71
BM 8230	664444.22	17122158.14	573.21
BM 8240	664592.11	17123144.26	584.79



0 250 500
SCALE: 1" = 500'

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

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Abun Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD
PROJECT LAYOUT AND BENCH MARK LOCATION MAP (ADDITIONAL)

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		22A
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/11/2004

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b03bmp12.dgn-01

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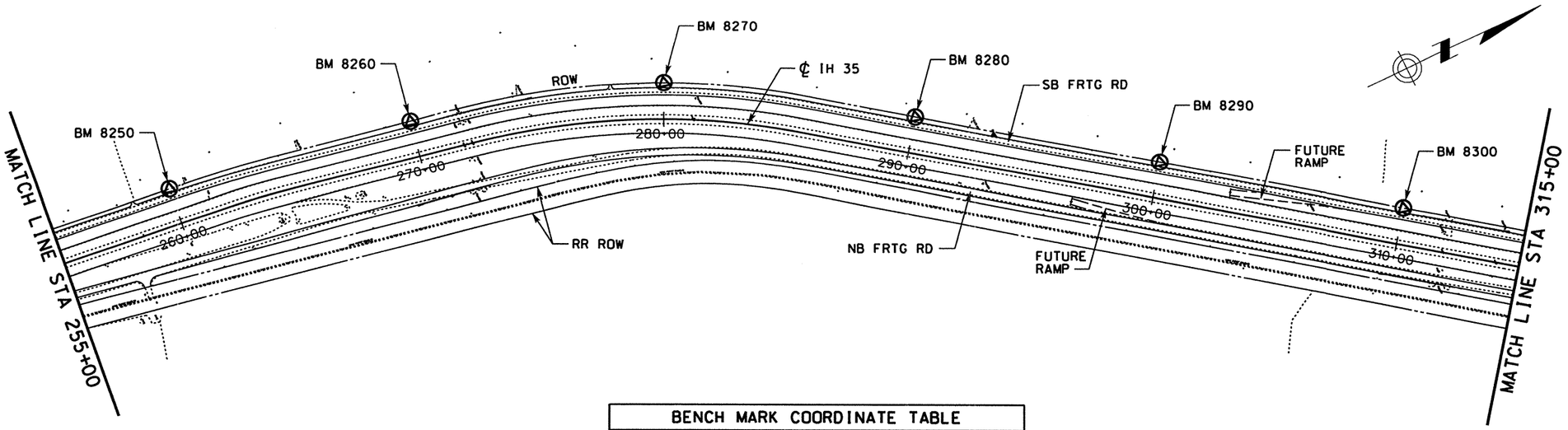
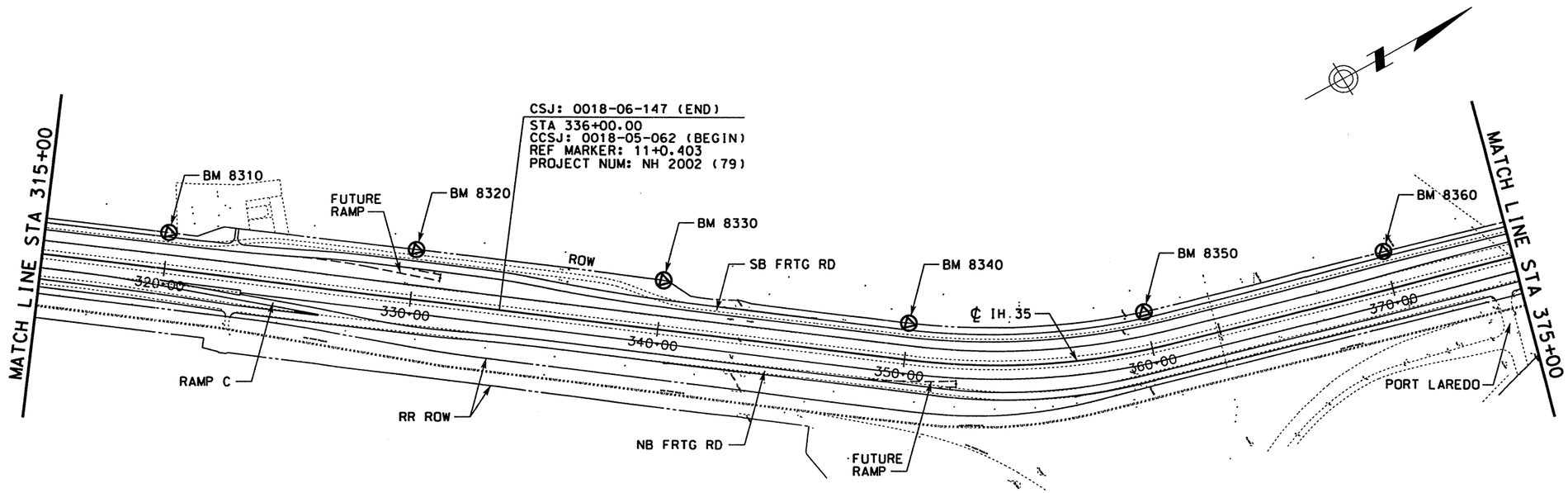
j0110p01.eop, eop LV ON = 1-5.10.11.13-17.19.21-30.33.34
milo1nt.row, row LV ON = 1-63
j0110p01.bmk, bmk LV ON = 1-63



BENCH MARK COORDINATE TABLE			
BM	X	Y	ELEV (FT)
BM 8250	664770.69	17124117.98	582.43
BM 8260	664945.82	17125113.59	568.55
BM 8270	665252.10	17126102.89	579.33
BM 8280	665825.27	17126953.90	597.99
BM 8290	666426.83	17127752.73	589.66
BM 8300	667028.38	17128551.57	565.24
BM 8310	667629.94	17129350.40	572.74
BM 8320	668191.55	17130179.30	566.95
BM 8330	668793.10	17130978.13	561.07
BM 8340	669434.44	17131747.01	576.12
BM 8350	669864.87	17132586.51	598.15
BM 8360	670136.14	17133543.89	610.48



0 250 500
SCALE: 1" = 500'

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROJECT LAYOUT AND BENCH MARK LOCATION MAP (ADDITIONAL)

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		22B
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 21.47.57.58.60-62
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j011op01.bck, bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.eop, eop LV ON = 1-5.10.11.13-17.19.21-30.33.34
milsint.row, row LV ON = 1-63
j011op01.bmk, bmk LV ON = 1-63

3/11/2004
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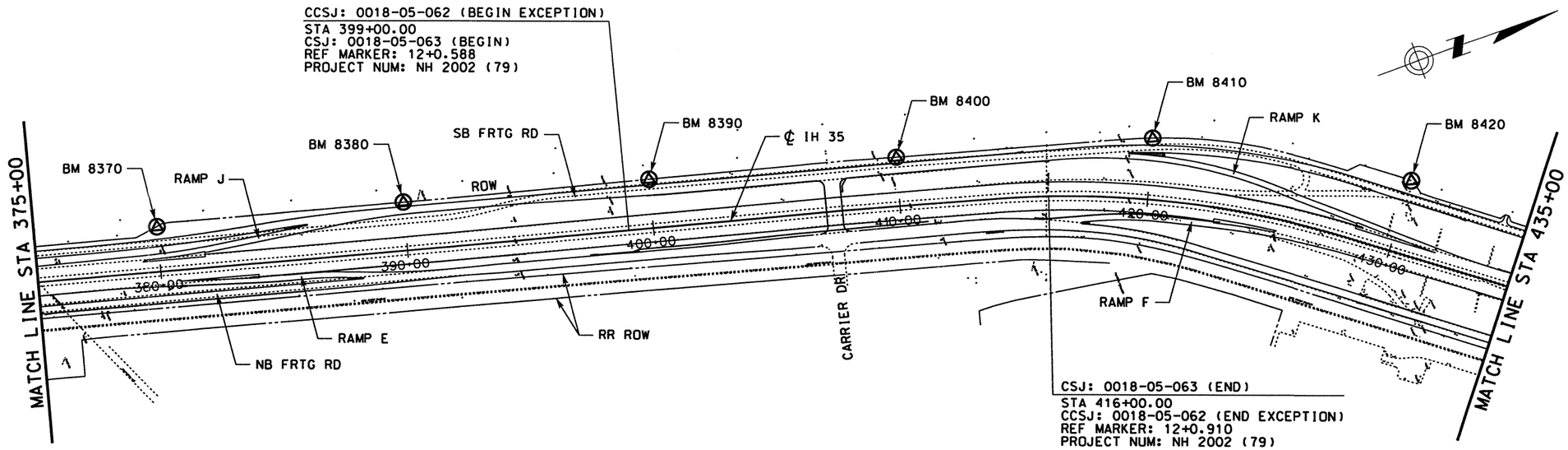
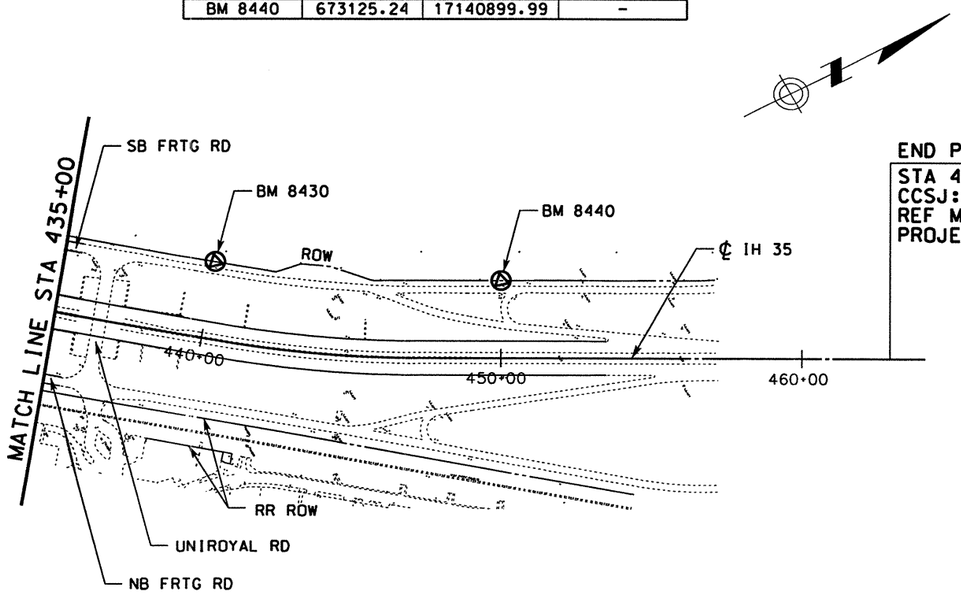


BENCH MARK COORDINATE TABLE			
BM	X	Y	ELEV (FT)
BM 8370	670370.36	17134516.73	614.77
BM 8380	670627.24	17135483.25	637.92
BM 8390	670891.12	17136446.39	644.71
BM 8400	671157.05	17137413.79	642.54
BM 8410	671445.51	17138410.58	639.43
BM 8420	671976.36	17139326.05	640.32
BM 8430	672621.51	17140091.04	644.60
BM 8440	673125.24	17140899.99	-



END PROJECT
STA 462+93.12
CCSJ: 0018-05-062 (END)
REF MARKER: 13+0.828
PROJECT NUM: NH 2002 (79)

REF FILE(S): j01lop01.bdr, bdr LV ON = 21,47,57,58,60-62
j01lop01.alg, alg LV ON = 1,15
j01lop01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j01lop01.eop, eop LV ON = 1-5,10,11,13-17,19,21-30,33,34
milolnt.row , row LV ON = 1-63
j01lop01.bmk, bmk LV ON = 1-63

0 250 500
SCALE: 1" = 500'

STATE OF TEXAS
A.A. ABUGATTAS
R. 34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROJECT LAYOUT AND BENCH MARK LOCATION MAP (ADDITIONAL)

SHEET 3 OF 3

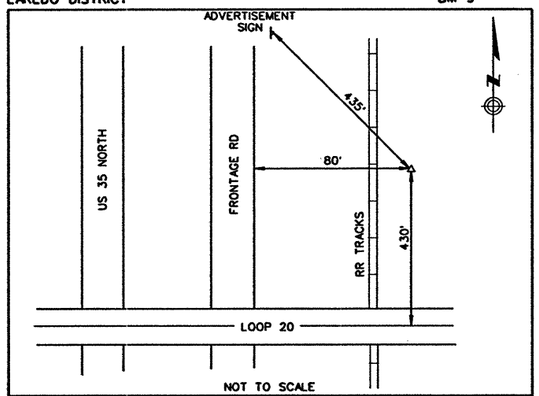
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		22C
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

b03bmp14.dgn-01 H0UFILE023 \hcivil\cf0130\ 3/11/2004

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 9



GENERAL LOCATION: Located 430' North of the centerline of Loop 20, East of Frontage Rd, on the Eastside of the RR Tracks

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5215561.765	N=17111388.89
	E=201996.864	E=662718.05
SURFACE:	N=5215718.232	N=17111902.23
	E=202002.924	E=662737.93
ELEV:	151.560m	ELEV: 497.24
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°36'31.68208"N
LONGITUDE: 99°29'34.25916"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

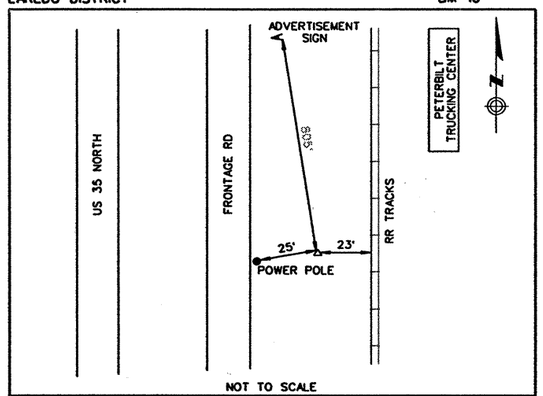
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 10



GENERAL LOCATION: Located 0.3 miles North of Loop 20, on the Eastside of the Frontage Rd, West of the RR Tracks.

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5215965.768	N=17112714.36
	E=202066.078	E=662945.13
SURFACE:	N=5216122.247	N=17113227.74
	E=202072.140	E=662965.01
ELEV:	153.925m	ELEV: 505.00
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°36'44.82489"N
LONGITUDE: 99°29'31.85080"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

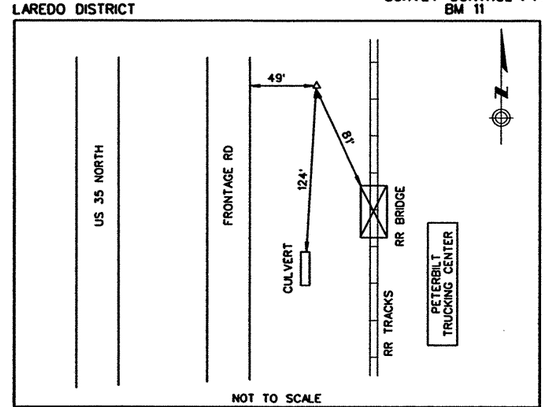
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 11



GENERAL LOCATION: Located 0.6 miles North of Loop 20, on the Eastside of the Frontage Rd, on the Westside of the RR Tracks

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5216331.138	N=17113913.08
	E=202140.931	E=663190.70
SURFACE:	N=5216487.628	N=17114426.49
	E=202146.995	E=663210.60
ELEV:	152.613m	ELEV: 500.70
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°36'56.71403"N
LONGITUDE: 99°29'29.22558"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

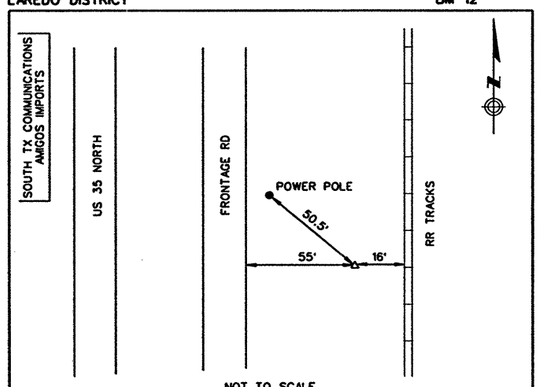
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 12



GENERAL LOCATION: Located 0.8 miles North of Loop 20, on the Eastside of the Frontage Rd, on the Westside of the RR Tracks

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5216633.042	N=17114903.57
	E=202203.907	E=663397.32
SURFACE:	N=5216789.541	N=17115417.02
	E=202209.973	E=663417.22
ELEV:	155.282m	ELEV: 509.46
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°37'06.53824"N
LONGITUDE: 99°29'27.01520"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

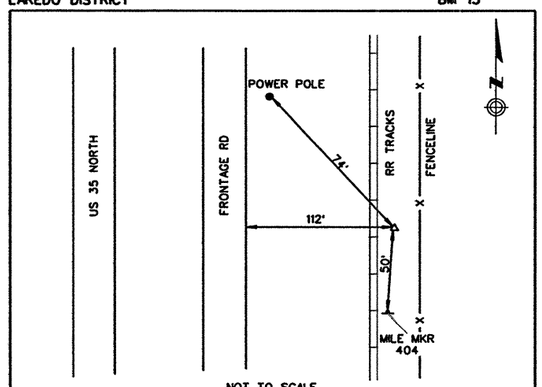
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 13



GENERAL LOCATION: Located 0.9 miles North of Loop 20, East of the Frontage Rd, on the Eastside of the RR Tracks.

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5216909.065	N=17115809.16
	E=202277.483	E=663638.71
SURFACE:	N=5217065.572	N=17116322.63
	E=202283.551	E=663658.62
ELEV:	158.836m	ELEV: 521.11
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°37'15.52431"N
LONGITUDE: 99°29'24.41068"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

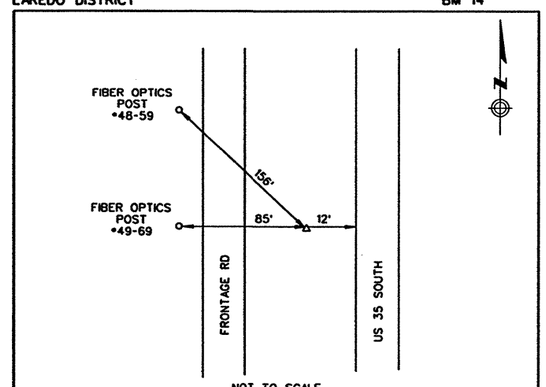
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 14



GENERAL LOCATION: Located 1.2 miles North of Loop 20, between Frontage Rd and US 35.

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5217415.390	N=17117470.33
	E=202284.775	E=663662.63
SURFACE:	N=5217571.913	N=17117983.85
	E=202290.844	E=663682.54
ELEV:	159.101m	ELEV: 521.98
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°37'31.97544"N
LONGITUDE: 99°29'24.28360"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

RODS SURVEYING, INC.
6810 LEE ROAD
SPRING, TEXAS 77379
TEL (281) 379-6388 FAX (281) 379-1602

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

BENCH MARK LOCATION DETAILS

SHEET 1 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		23
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\c\0130\

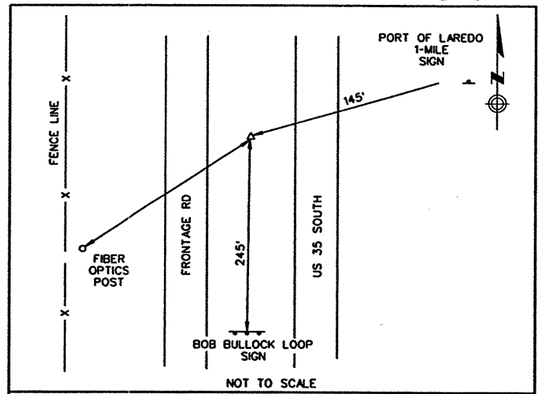
b03bmp02.dgn-02

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 15



NOT TO SCALE

GENERAL LOCATION: Located 1.4 miles North of Loop 20 between Frontage Rd and US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5217728.708	N=17118498.27
	E=202345.887	E=663863.13
SURFACE:	N=5217885.240	N=17119011.82
	E=202351.957	E=663883.05
ELEV:	164.904m	ELEV: 541.02
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°37'42.16893"N
LONGITUDE: 99°29'22.15015"W
DATE SET: DECEMBER. 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

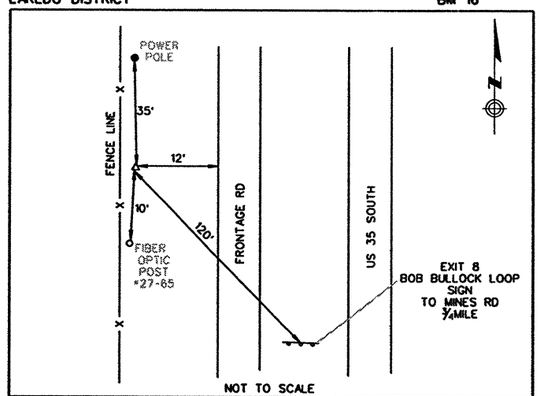
ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 16



NOT TO SCALE

GENERAL LOCATION: Located 1.6 miles North of Loop 20, West of the Frontage Rd, and East of Fence line

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5218073.295	N=17119628.80
	E=202392.059	E=664014.61
SURFACE:	N=5218229.837	N=17120142.39
	E=202398.131	E=664034.53
ELEV:	167.099m	ELEV: 548.22
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°37'53.37646"N
LONGITUDE: 99°29'20.56451"W
DATE SET: DECEMBER. 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

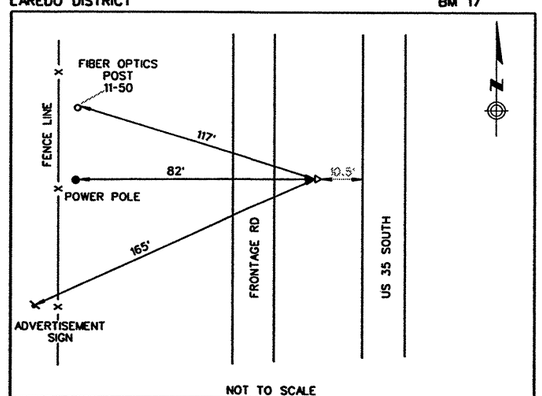
ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 17



NOT TO SCALE

GENERAL LOCATION: Located 1.9 miles North of Loop 20 between Frontage Rd and US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5218515.374	N=17121079.19
	E=202507.838	E=664394.47
SURFACE:	N=5218671.929	N=17121592.82
	E=202513.914	E=664414.40
ELEV:	170.713m	ELEV: 560.08
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°38'07.76792"N
LONGITUDE: 99°29'16.46749"W
DATE SET: DECEMBER. 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

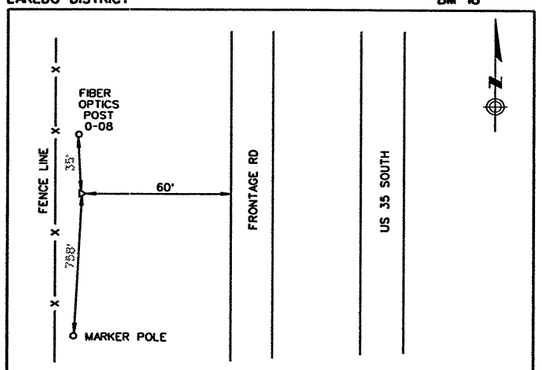
ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 18



NOT TO SCALE

GENERAL LOCATION: Located 0.8 miles North from Killam Ind Blvd, on the Westside of the Frontage Rd, East of fence line

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5218891.192	N=17122312.18
	E=202543.158	E=664510.34
SURFACE:	N=5219047.758	N=17122825.85
	E=202549.234	E=664530.28
ELEV:	180.419m	ELEV: 591.92
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°38'19.98625"N
LONGITUDE: 99°29'15.28639"W
DATE SET: DECEMBER. 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

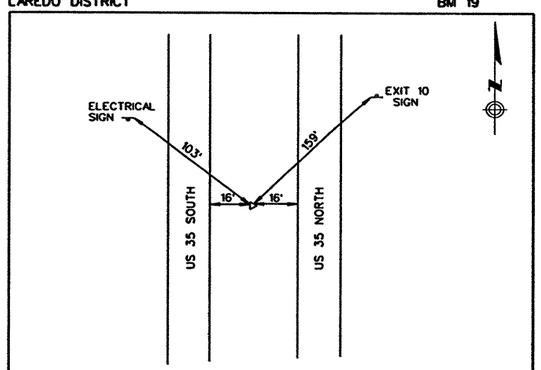
ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 19



NOT TO SCALE

GENERAL LOCATION: Located 1.0 mile North of Killam Ind Blvd, in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5219242.725	N=17123465.51
	E=202657.875	E=664886.71
SURFACE:	N=5219399.302	N=17123979.21
	E=202663.954	E=664906.66
ELEV:	176.893m	ELEV: 580.36
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°38'31.43580"N
LONGITUDE: 99°29'11.20185"W
DATE SET: DECEMBER. 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

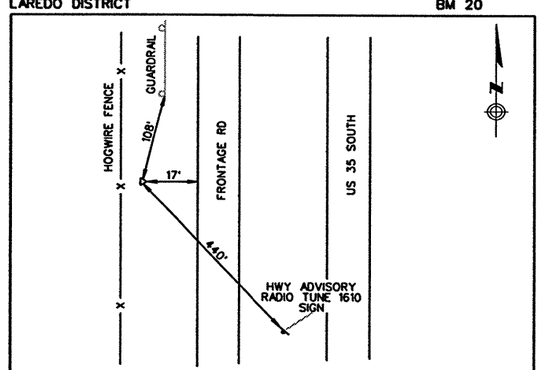
ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 20



NOT TO SCALE

GENERAL LOCATION: Located 1.20 miles North of Killam Ind Blvd, on the Westside of the Frontage Rd, near a hogwire fence.

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5219597.209	N=17124628.51
	E=202672.331	E=664934.14
SURFACE:	N=5219753.797	N=17125142.25
	E=202678.411	E=664954.09
ELEV:	173.218m	ELEV: 568.30
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°38'42.95570"N
LONGITUDE: 99°29'10.77554"W
DATE SET: DECEMBER. 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

RODS SURVEYING, INC.
6810 LEE ROAD
SPRING, TEXAS 77379
TEL (281) 379-6388 FAX (281) 379-1602

STATE OF TEXAS
RUDY L. GOMEZ
R. 58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

BENCH MARK LOCATION DETAILS

SHEET 2 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		24
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

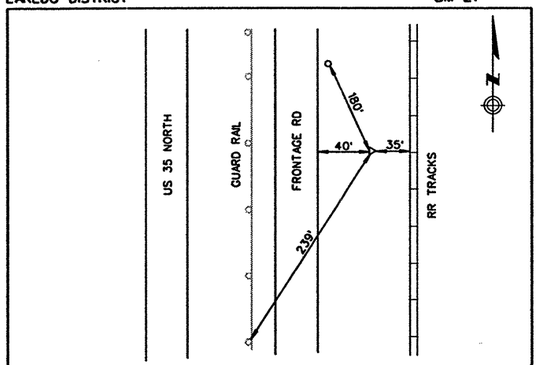
REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62

b03bmp03.dgn-02 HOUFILE023 \hcivil\c10130\ 4/18/2003

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 21



NOT TO SCALE

GENERAL LOCATION: Located 1.5 miles North of Killam Ind Blvd, East of the Frontage Rd, on the Westside of the RR Tracks

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5219937.730	N=17125745.70
	E=202902.491	E=665689.26
SURFACE:	N=5220094.328	N=17126259.48
	E=202908.578	E=665709.23
ELEV:	182.961m	ELEV: 600.26
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°38'54.07670"N
LONGITUDE: 99°29'02.47590"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

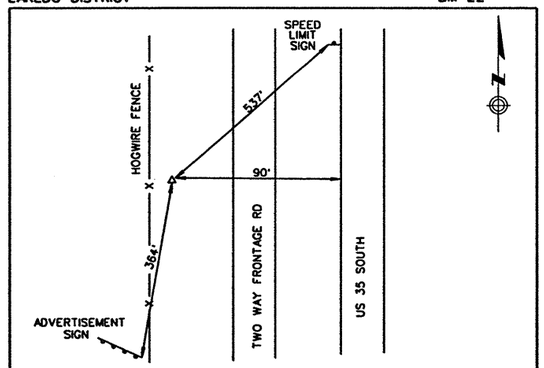
ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 22



NOT TO SCALE

GENERAL LOCATION: Located 1.7 miles North of Killam Ind Blvd, West of the Frontage Rd, East of hogwire fence line

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5220290.346	N=17126902.58
	E=203045.545	E=666158.59
SURFACE:	N=5220446.954	N=17127416.38
	E=203051.636	E=666178.58
ELEV:	180.127m	ELEV: 590.97
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°39'05.56842"N
LONGITUDE: 99°28'57.35714"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

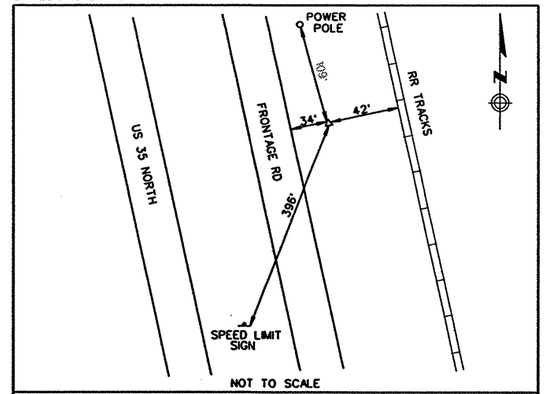
ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 23



NOT TO SCALE

GENERAL LOCATION: Located 1.9 miles North of Killam Ind Blvd, on the Northside of Frontage Rd, West of the RRTracks

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5220457.362	N=17127450.53
	E=203288.344	E=666955.18
SURFACE:	N=5220613.975	N=17127964.35
	E=203294.443	E=666975.19
ELEV:	178.193m	ELEV: 584.62
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°39'11.05566"N
LONGITUDE: 99°28'48.24635"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

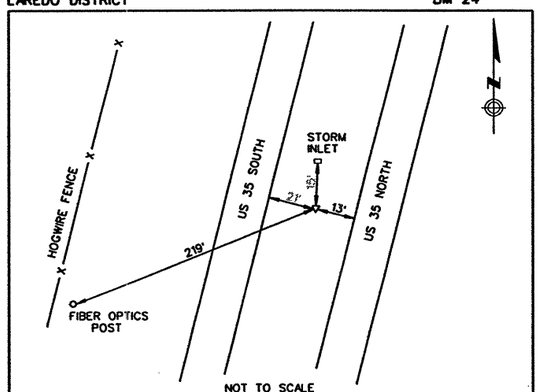
ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 24



NOT TO SCALE

GENERAL LOCATION: Located 2.1 miles North off Killam Ind Blvd, in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5220706.349	N=17128267.41
	E=203416.135	E=667374.44
SURFACE:	N=5220862.970	N=17128781.26
	E=203422.238	E=667394.46
ELEV:	172.671m	ELEV: 566.50
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°39'19.17678"N
LONGITUDE: 99°28'43.95451"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

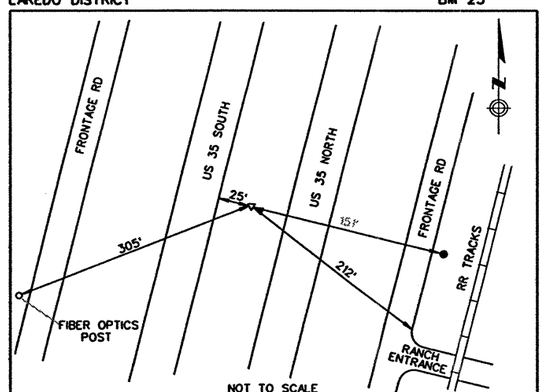
ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 25



NOT TO SCALE

GENERAL LOCATION: Located 2.3 miles North of Killam Ind Blvd, in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5220969.526	N=17129130.85
	E=203615.662	E=668029.05
SURFACE:	N=5221126.155	N=17129644.73
	E=203621.771	E=668049.09
ELEV:	175.742m	ELEV: 576.58
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°39'27.77691"N
LONGITUDE: 99°28'36.74920"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

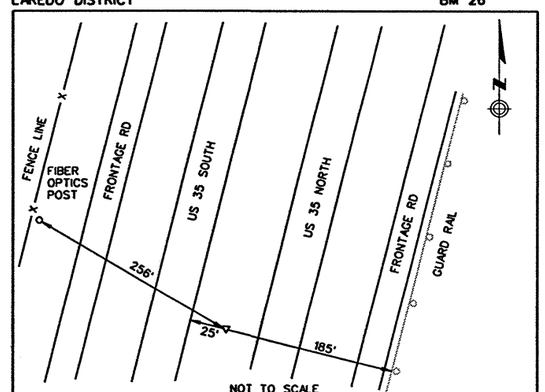
ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 26



NOT TO SCALE

GENERAL LOCATION: Located 2.5 miles North of Killam Ind Blvd, in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5221245.845	N=17130037.41
	E=203823.841	E=668712.05
SURFACE:	N=5221402.483	N=17130551.31
	E=203829.956	E=668732.11
ELEV:	171.878m	ELEV: 563.90
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°39'36.80604"N
LONGITUDE: 99°28'29.23161"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

ROBERTO OBREGON
REG PROF LAND SURVEYOR *2098

DATE SKETCHED: JANUARY, 2001

RODS SURVEYING, INC.
6810 LEE ROAD
SPRING, TEXAS 77379
TEL (281) 379-6388 FAX (281) 379-1602

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

BENCH MARK LOCATION DETAILS

SHEET 3 OF 5

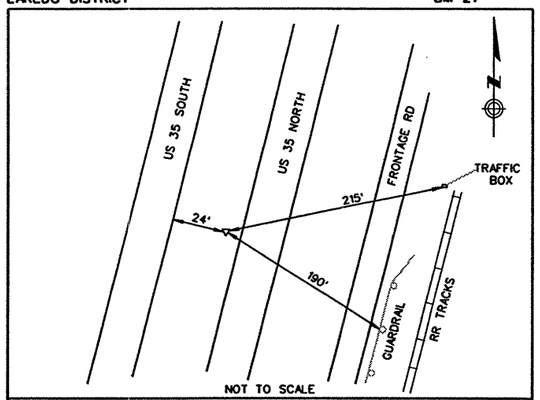
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		25
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62
b03bmp04.dgn-02 HOUFILE023 \hcivil\c\f0130\ 4/18/2003

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 27



GENERAL LOCATION: Located 2.7 miles North of Kilam Ind Blvd, in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5221492.454	N=17130846.49
	E=204008.882	E=669319.14
SURFACE:	N=5221649.099	N=17131360.42
	E=204015.002	E=669339.22
ELEV:	172.849m	ELEV: 567.09
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°39'44.86404"N
LONGITUDE: 99°28'22.54957"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

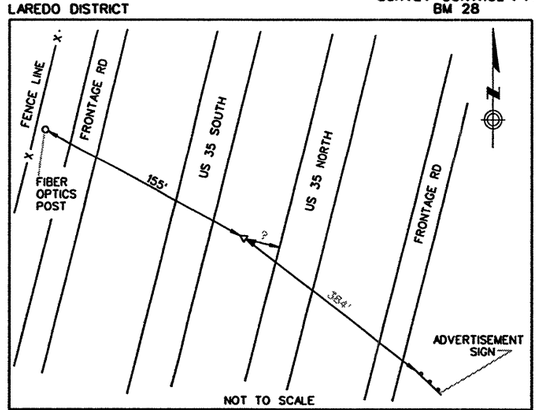
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 28



GENERAL LOCATION: Located 2.9 miles North of Kilmon Ind Blvd in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5221802.222	N=17131862.79
	E=204194.701	E=669928.78
SURFACE:	N=5221958.876	N=17132376.75
	E=204200.827	E=669948.88
ELEV:	181.486m	ELEV: 595.43
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°39'54.97403"N
LONGITUDE: 99°28'15.85659"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

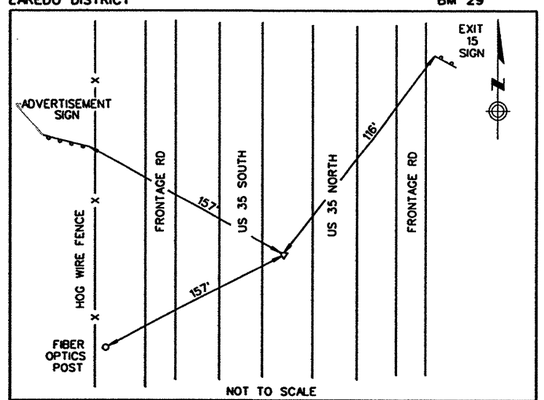
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 29



GENERAL LOCATION: Located 3.1 miles North of Kilam Ind Blvd in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5222134.379	N=17132952.54
	E=204291.160	E=670245.25
SURFACE:	N=5222291.043	N=17133466.53
	E=204297.289	E=670265.36
ELEV:	184.899m	ELEV: 606.62
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°40'05.78895"N
LONGITUDE: 99°28'12.43017"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

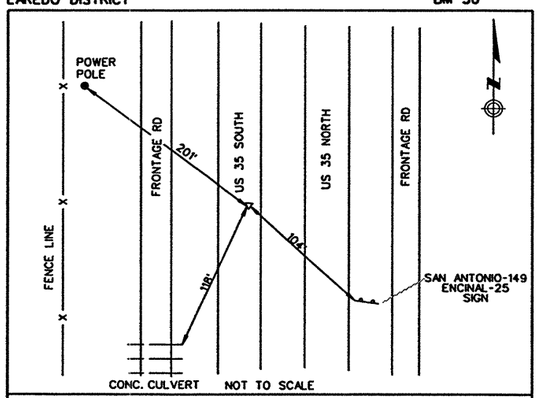
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 30



GENERAL LOCATION: Located 3.4 miles North of Kilam Ind Blvd, in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5222470.017	N=17134053.71
	E=204384.044	E=670549.98
SURFACE:	N=5222626.691	N=17134567.74
	E=204390.175	E=670570.10
ELEV:	186.806m	ELEV: 612.88
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°40'16.71603"N
LONGITUDE: 99°28'09.13503"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

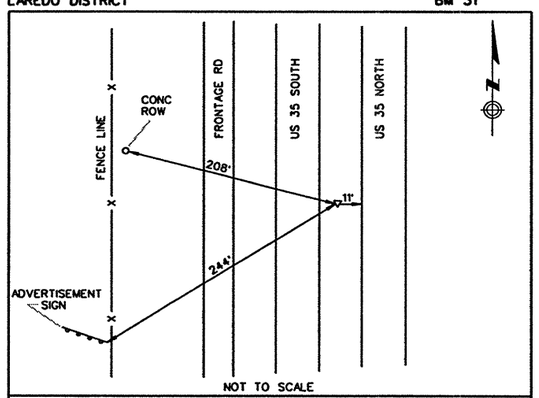
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 31



GENERAL LOCATION: Located 3.6 miles North of Kilam Ind Blvd, in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5222787.260	N=17135094.53
	E=204477.207	E=670855.64
SURFACE:	N=5222943.943	N=17135608.59
	E=204483.341	E=670875.76
ELEV:	191.841m	ELEV: 629.40
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°40'27.04554"N
LONGITUDE: 99°28'05.82436"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

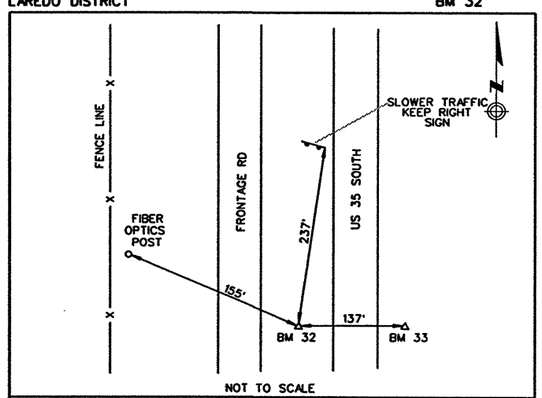
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 32



GENERAL LOCATION: Located 3.8 miles North of Kilam Ind Blvd, in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5223128.681	N=17136214.68
	E=204523.964	E=671009.04
SURFACE:	N=5223285.375	N=17136728.77
	E=204530.100	E=671029.17
ELEV:	201.093m	ELEV: 659.75
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°40'38.14897"N
LONGITUDE: 99°28'04.21372"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

ROOS SURVEYING, INC.
6810 LEE ROAD
SPRING, TEXAS 77379
TEL (281) 379-6388 FAX (281) 379-1602

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

BENCH MARK LOCATION DETAILS

SHEET 4 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	26
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

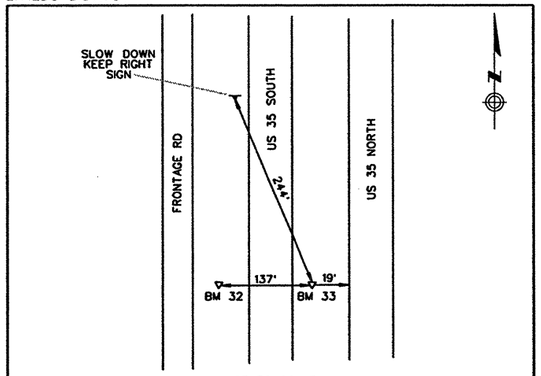
REF FILE(S): J011op01.bdr, bdr LV ON = 47,57,58,60-62

b03bmp05.dgn-02 HOUFILE023 \hcivil\c\0130\ 4/18/2003

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 33



NOT TO SCALE

GENERAL LOCATION: Located 3.8 miles North of Kilam Ind Blvd, in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5223114.681	N=17136168.75
	E=204563.387	E=671138.38
SURFACE:	N=5223271.375	N=17136682.84
	E=204569.524	E=671158.51
ELEV:	196.980m	ELEV: 646.26
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°40'37.70397"N
LONGITUDE: 99°28'02.77118"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

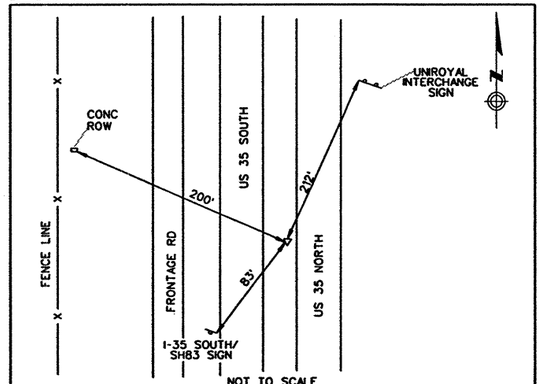
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 34



NOT TO SCALE

GENERAL LOCATION: Located 4.0 miles North of Kilmon Ind Blvd, in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5223431.909	N=17137209.52
	E=204651.431	E=671427.23
SURFACE:	N=5223588.612	N=17137723.64
	E=204657.570	E=671447.38
ELEV:	197.747m	ELEV: 648.78
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°40'48.03166"N
LONGITUDE: 99°27'59.64700"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

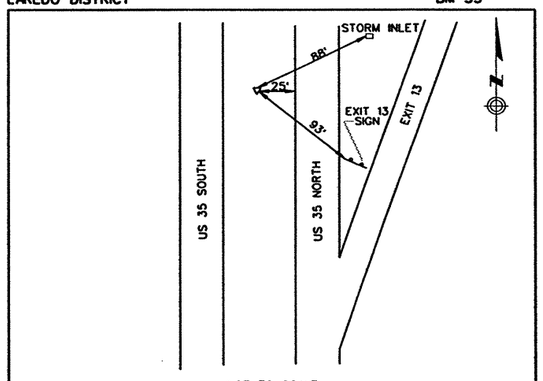
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 35



NOT TO SCALE

GENERAL LOCATION: Located 3.5 miles South of Uniroyal Interchange in the center median between North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5223739.407	N=17138218.37
	E=204789.804	E=671881.21
SURFACE:	N=5223896.119	N=17138732.52
	E=204795.947	E=671901.37
ELEV:	200.830m	ELEV: 658.89
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°40'58.05573"N
LONGITUDE: 99°27'54.68324"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

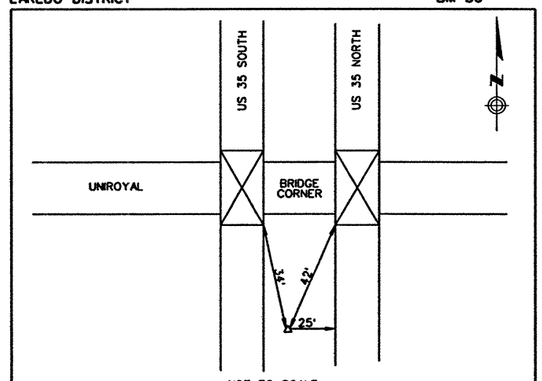
ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

WEBB COUNTY, TEXAS

LAREDO DISTRICT

SURVEY CONTROL PT: BM 36



NOT TO SCALE

GENERAL LOCATION: Located South of the overpass for the intersection of Uniroyal and US 35, in the center of North and South US 35

COORDINATES: SOUTH ZONE (4205)
NAD 83 (1993 ADJ)
NAVD 88

	METERS	US SURVEY FT
GRID:	N=5223998.441	N=17139068.22
	E=204985.181	E=672522.22
SURFACE:	N=5224155.161	N=17139582.39
	E=204991.331	E=672542.39
ELEV:	205.370m	ELEV: 673.78
SURFACE ADJ FACTOR:		1.00003

WGS 84
LATITUDE: 27°41'06.51943"N
LONGITUDE: 99°27'47.62539"W
DATE SET: DECEMBER, 2000
MONUMENT: 5/8" IR IN CONC W/ALUMINUM DISK

ROBERTO OBREGON
REG PROF LAND SURVEYOR #2098

DATE SKETCHED: JANUARY, 2001

RODS SURVEYING, INC.
6810 LEE ROAD
SPRING, TEXAS 77379
TEL (281) 379-6388 FAX (281) 379-1602

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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Rudy L. Gomez

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD

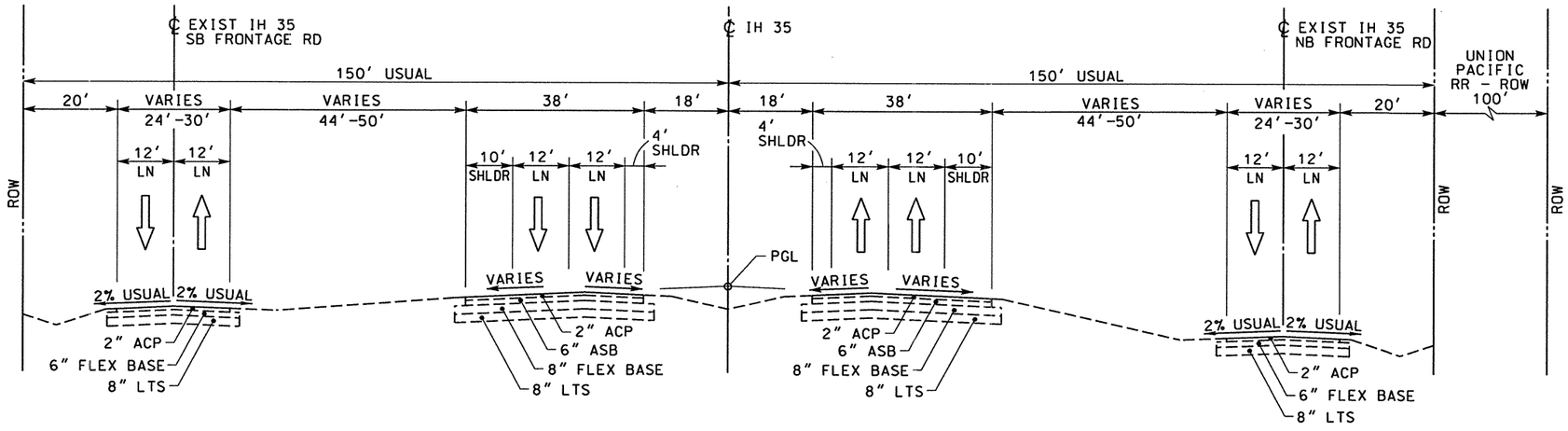
BENCH MARK LOCATION DETAILS

SHEET 5 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		27
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62

b03bmp06.dgn-02 HOUFILE023 \hcivil\c(0130)\ 4/18/2003

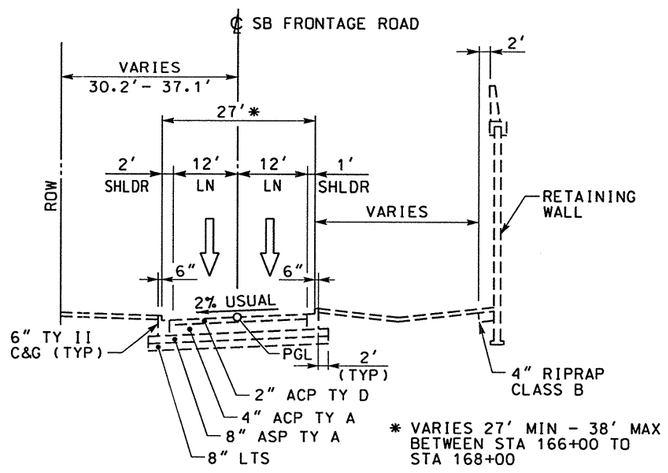


EXISTING TYPICAL SECTION IH 35

NTS

STA 172+80 TO STA 462+93.12

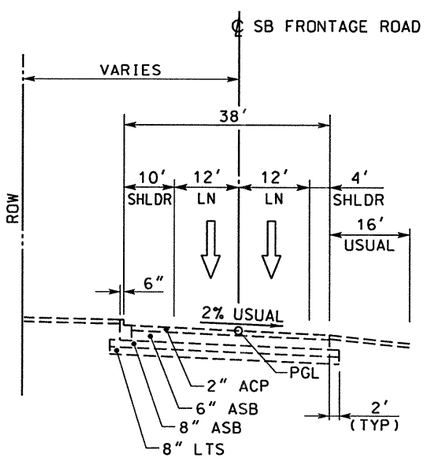
(FOR NB FRONTAGE RD ONLY
BEGIN AT STA 167+20)



EXISTING SOUTHBOUND FRONTAGE ROAD

NTS

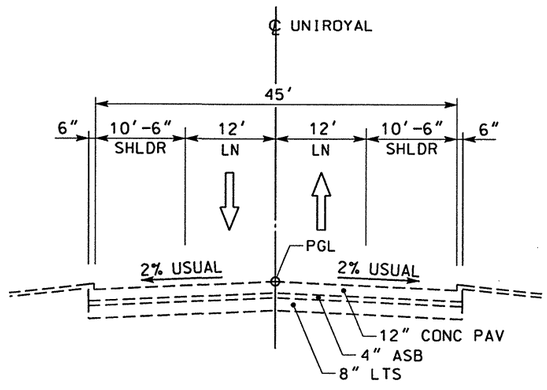
STA 154+40 TO STA 168+00



EXISTING SOUTHBOUND FRONTAGE ROAD

NTS

STA 168+00 TO STA 243+50



EXISTING UNIROYAL ROAD

NTS

STA 10+39.52 TO STA 14+55.90

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

EXISTING TYPICAL SECTIONS

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		28
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/8/2003

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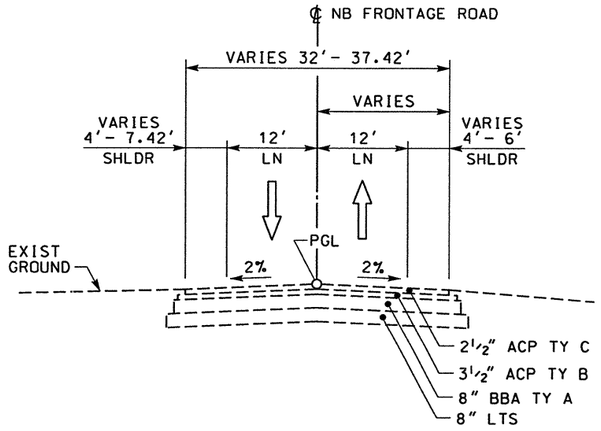
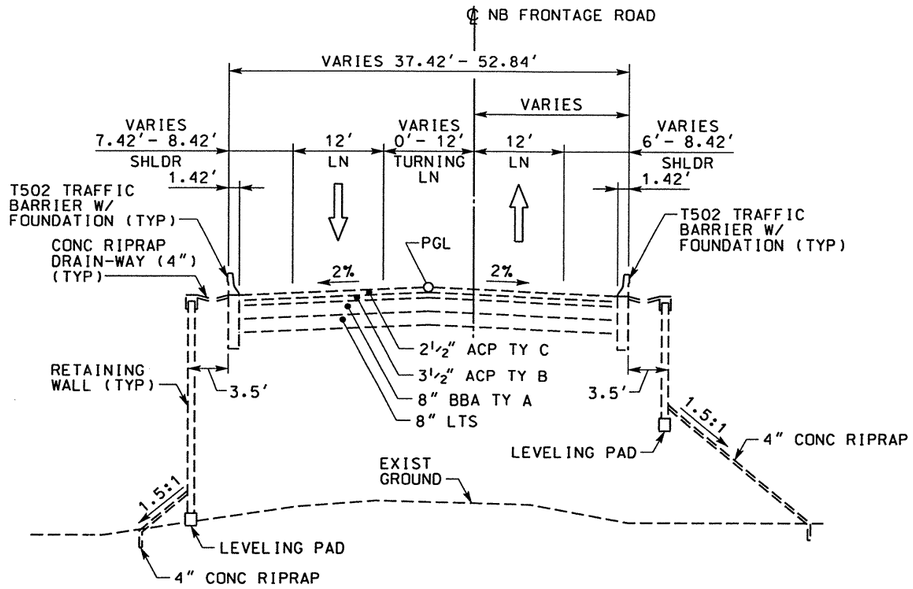
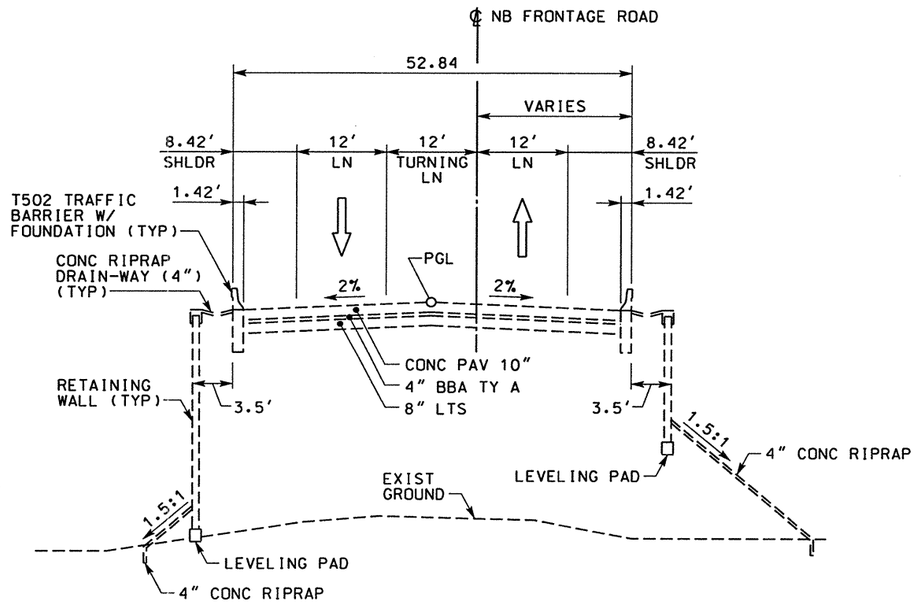


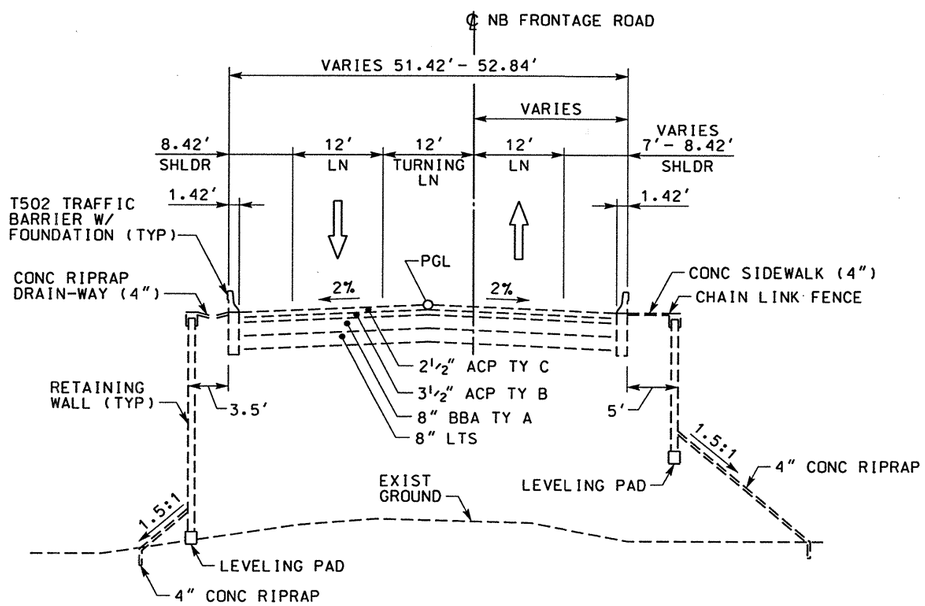
EXISTING
NORTHBOUND FRONTAGE ROAD
NTS
STA 392+80 TO STA 399+77.21



EXISTING
NORTHBOUND FRONTAGE ROAD
NTS
STA 399+77.21 TO STA 406+77.38



EXISTING
NORTHBOUND FRONTAGE ROAD
NTS
STA 406+77.38 TO STA 408+76.10



EXISTING
NORTHBOUND FRONTAGE ROAD
NTS
STA 408+76.10 TO STA 413+76.74

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

EXISTING
TYPICAL SECTIONS

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		28A
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/7/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
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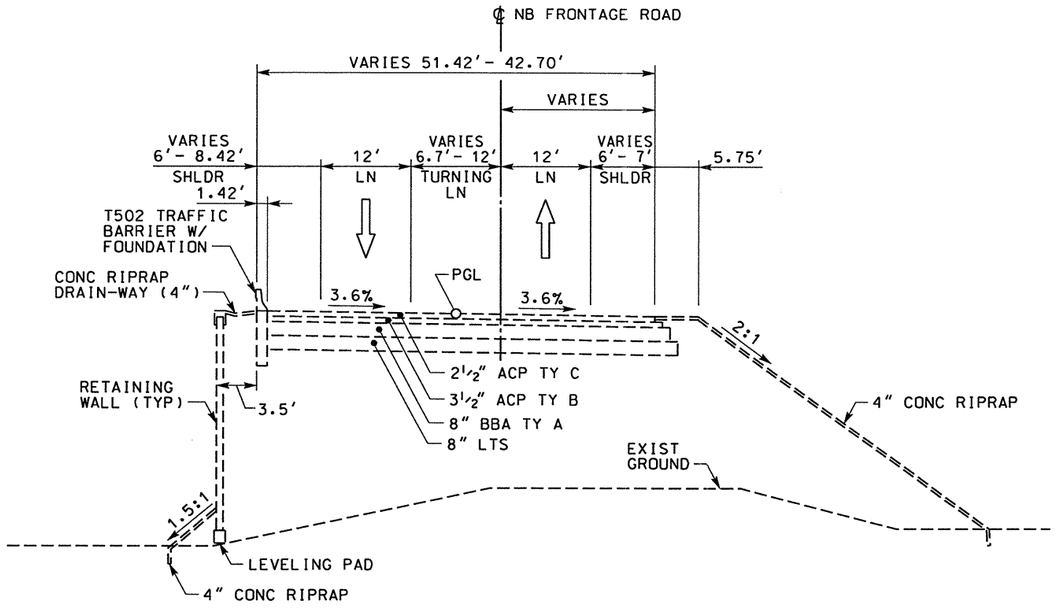
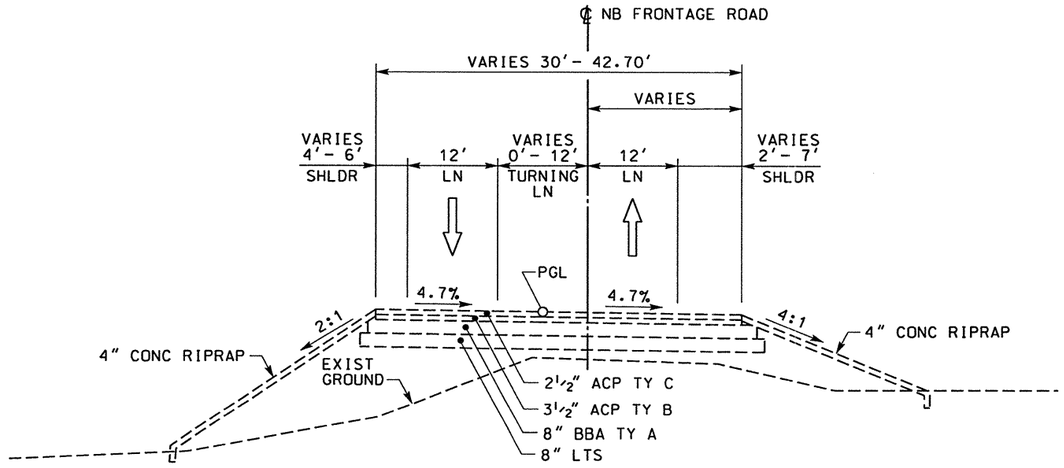


EXISTING
NORTHBOUND FRONTAGE ROAD
NTS
STA 413+76.74 TO STA 415+74.87



EXISTING
NORTHBOUND FRONTAGE ROAD
NTS
STA 415+74.87 TO STA 417+65

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IH 35
LOOP 20 TO UNIROYAL ROAD

EXISTING
TYPICAL SECTIONS

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		28B
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

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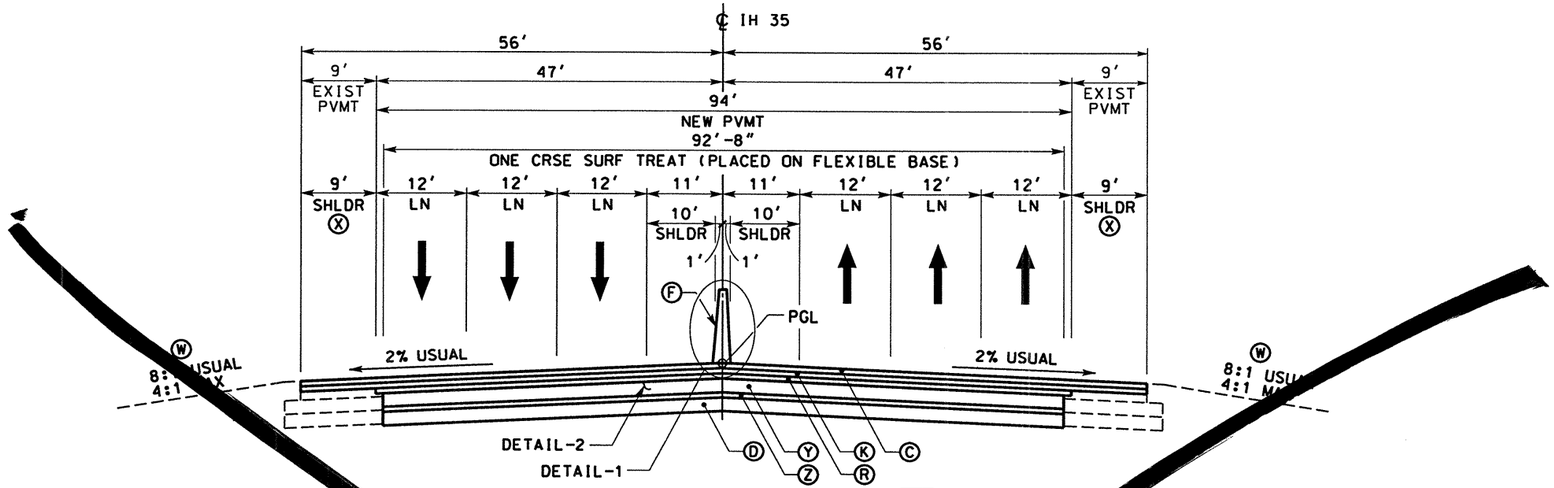
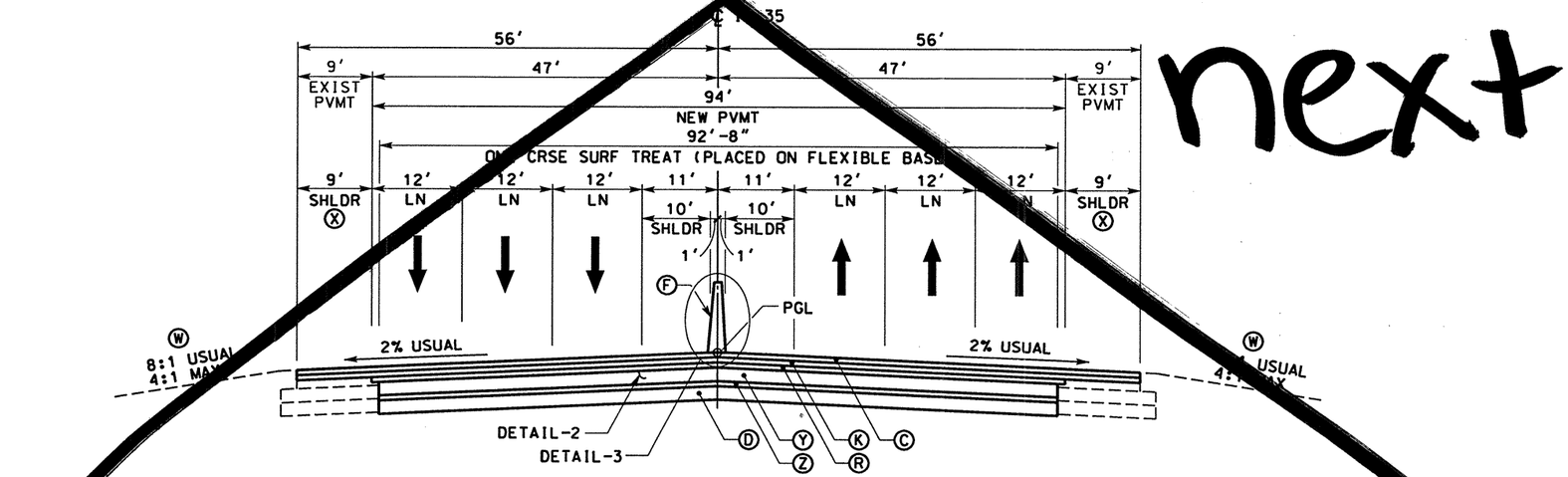


PROPOSED TYPICAL SECTION (ML 1)

NTS

STA 197+70.00 TO STA 200+90.00
STA 204+20.00 TO STA 231+50.00
STA 244+10.00 TO STA 244+71.50
STA 294+15.00 TO STA 297+50.00
STA 343+80.00 TO STA 344+47.59
STA 373+50.00 TO STA 393+50.



PROPOSED TYPICAL SECTION (ML 2)

NTS

STA 172+80.00 TO STA 180+00.00
STA 195+75.00 TO STA 197+70.00
STA 200+90.00 TO STA 204+20.00
STA 231+50.00 TO STA 244+10.00
STA 297+50.00 TO STA 300+70.00
STA 306+80.00 TO STA 317+60.00
STA 331+50.00 TO STA 343+80.00
STA 366+66.52 TO STA 373+50.00
STA 393+50.00 TO STA 397+10.00

See next

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. DIMENSION FOR THE ASPH CONC PVMT LEVEL-UP VARIES.
3. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
4. FOR DETAILS SEE SHEET 6 OF 10.

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

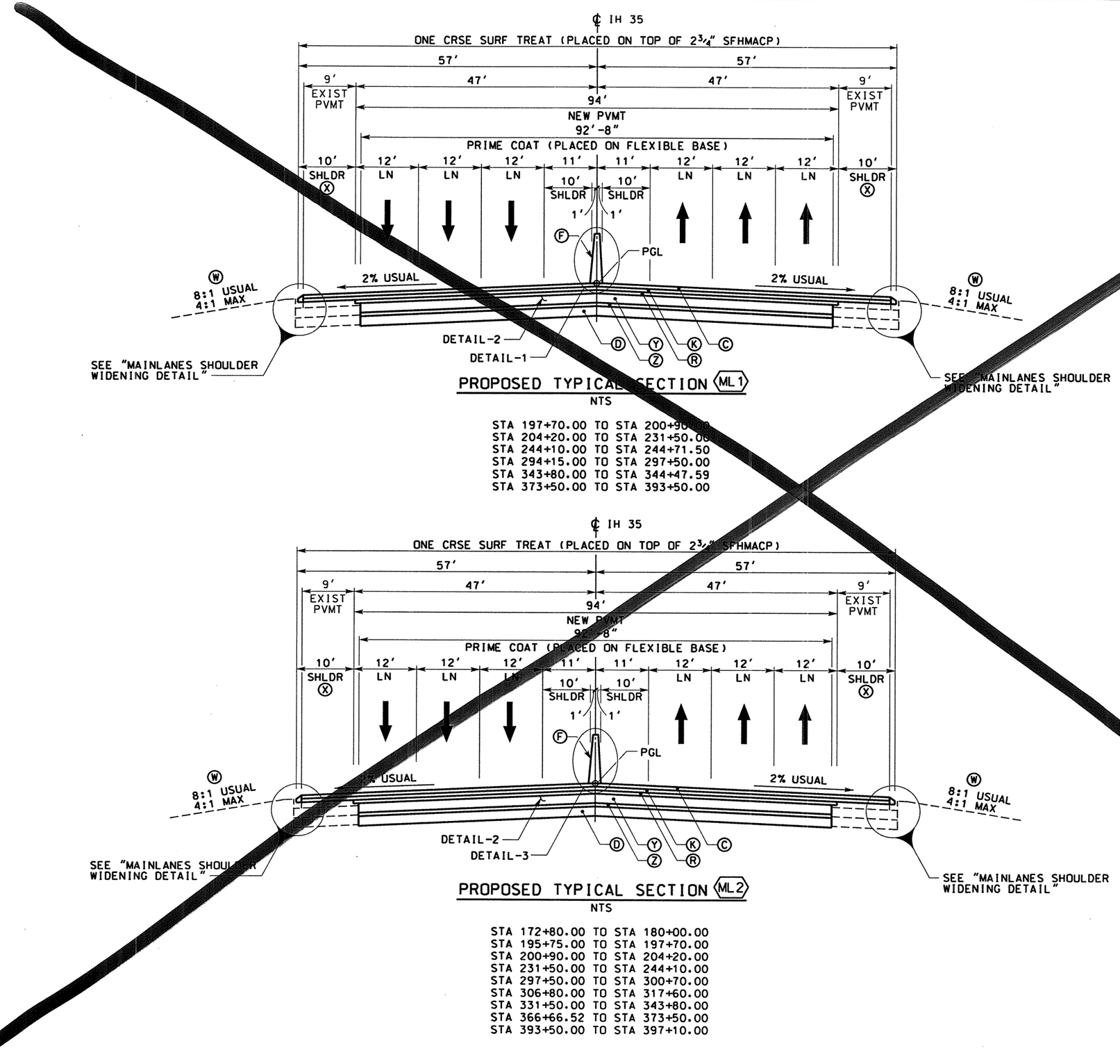
PROPOSED TYPICAL SECTIONS

SHEET 1 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		29
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

HOUFILE023 \hcivil\c0130\ 5/7/2003 b03tsp06.dgn-20



PROPOSED TYPICAL SECTION (ML1)

NTS

STA 197+70.00 TO STA 200+90.00
STA 204+20.00 TO STA 231+50.00
STA 244+10.00 TO STA 244+71.50
STA 294+15.00 TO STA 297+50.00
STA 343+80.00 TO STA 344+47.59
STA 373+50.00 TO STA 393+50.00

PROPOSED TYPICAL SECTION (ML2)

NTS

STA 172+80.00 TO STA 180+00.00
STA 195+75.00 TO STA 197+70.00
STA 200+90.00 TO STA 204+20.00
STA 231+50.00 TO STA 244+10.00
STA 297+50.00 TO STA 300+70.00
STA 306+80.00 TO STA 317+60.00
STA 331+50.00 TO STA 343+80.00
STA 366+66.52 TO STA 373+50.00
STA 393+50.00 TO STA 397+10.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(1")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. DIMENSION FOR THE ASPH CONC PVMT LEVEL-UP VARIES.
3. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
4. FOR DETAILS SEE SHEET 6 OF 10.

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED TYPICAL SECTIONS

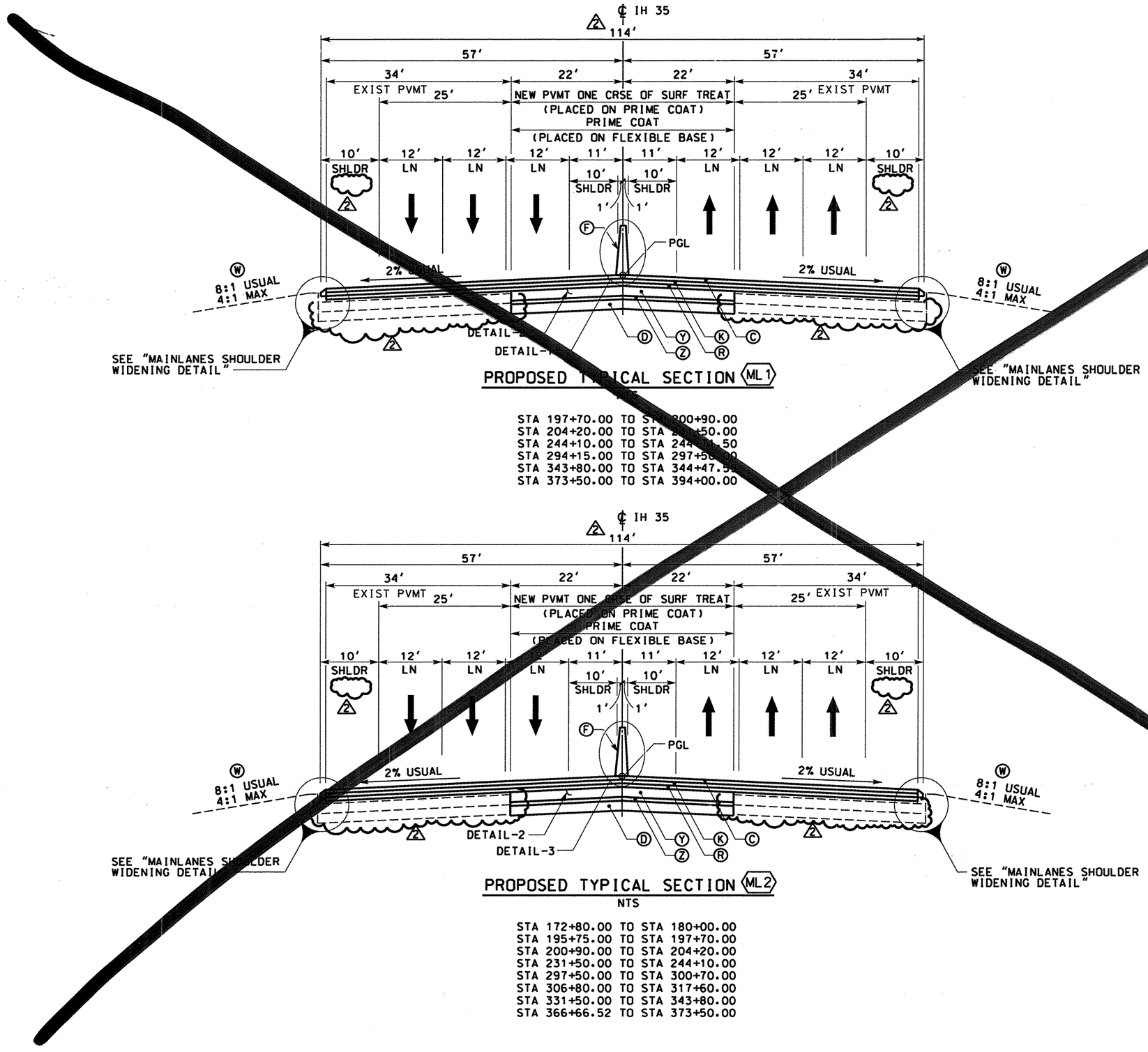
SHEET 1 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	29
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

REF FILE(S): j01lop01.bdr, bdr LV ON = 32,45,47,57,58,60-62

b03tsp06.dgn-22 HOUFILE023 \hciv\cf0130\ 3/4/2004



PROPOSED TYPICAL SECTION (ML1)

NTS

STA 197+70.00 TO STA 200+90.00
STA 204+20.00 TO STA 231+50.00
STA 244+10.00 TO STA 244+71.50
STA 294+15.00 TO STA 297+50.00
STA 343+80.00 TO STA 344+47.50
STA 373+50.00 TO STA 394+00.00

PROPOSED TYPICAL SECTION (ML2)

NTS

STA 172+80.00 TO STA 180+00.00
STA 195+75.00 TO STA 197+70.00
STA 200+90.00 TO STA 204+20.00
STA 231+50.00 TO STA 244+10.00
STA 297+50.00 TO STA 300+70.00
STA 306+80.00 TO STA 317+60.00
STA 331+50.00 TO STA 343+80.00
STA 366+66.52 TO STA 373+50.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(2")
- (C) POROUS FRICTION COURSE
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

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3. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
4. FOR DETAILS SEE SHEET 6 OF 10.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
04/17/07	AA	2	CHG WIDTH OF MAINLANE RECONSTRUCTION AND SHLDR ADJUSTMENT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MAY 08, 2007

Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD

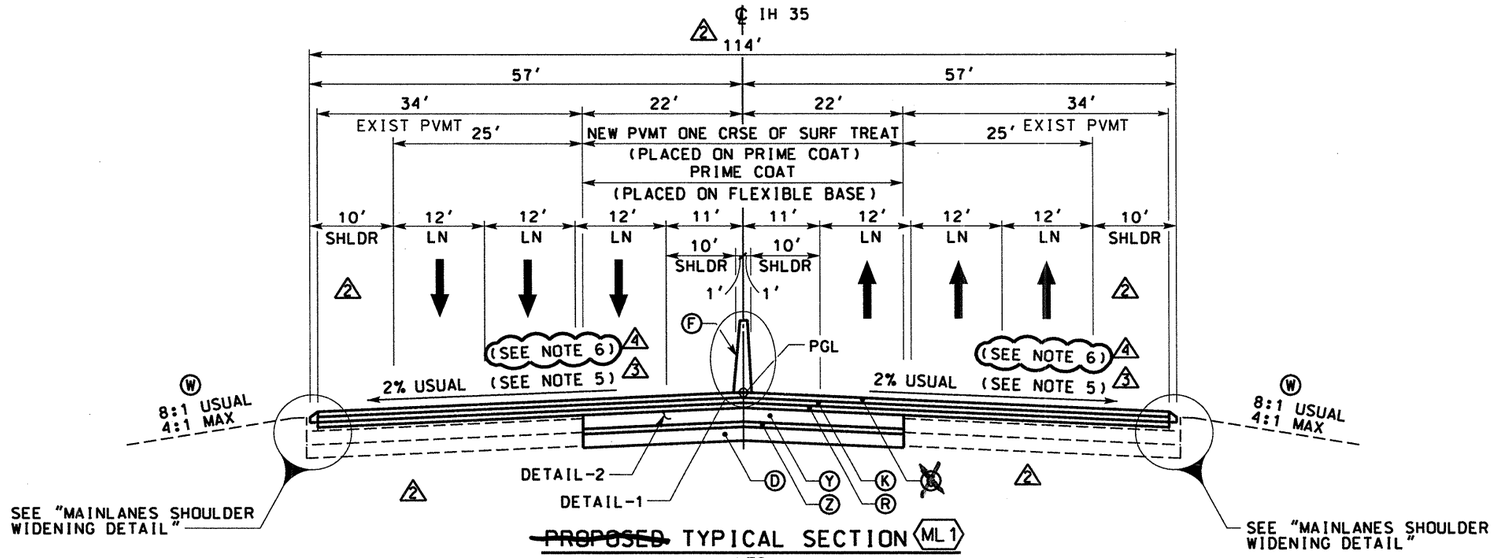
PROPOSED TYPICAL SECTIONS

SHEET 1 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	29
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

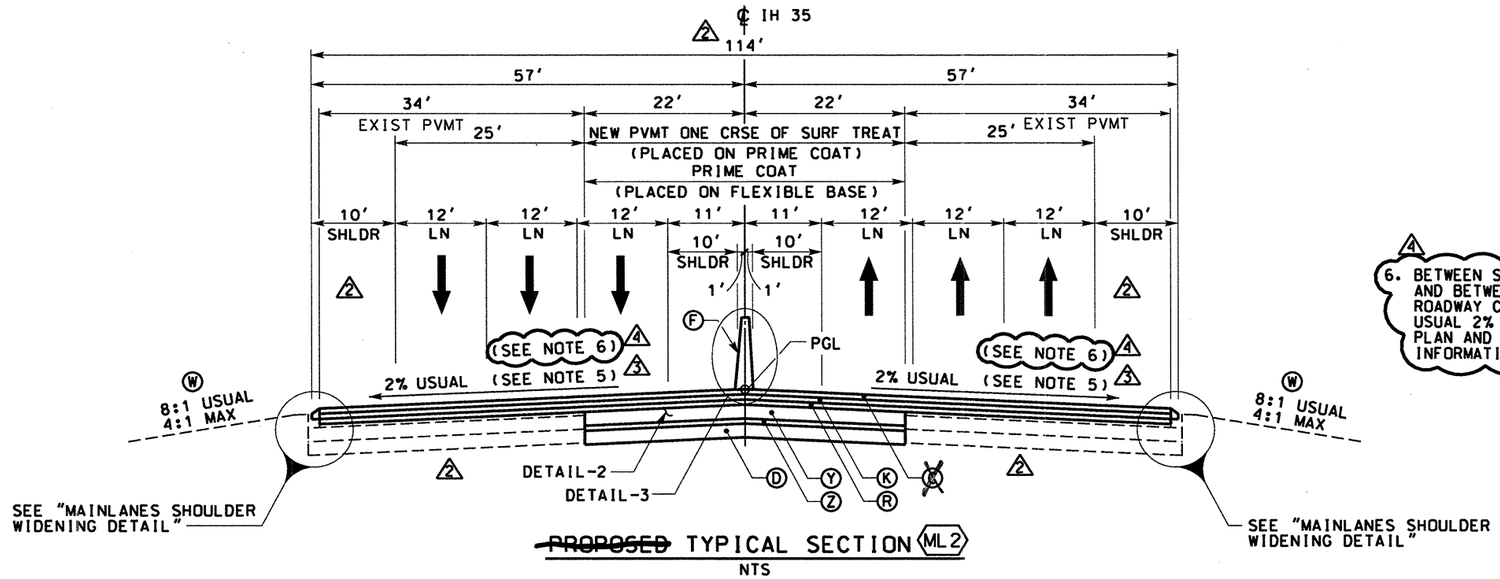
b031sp06.dgn-22 HOUFILE023 \hciwil\cf0130\ 5/14/2007



~~PROPOSED~~ TYPICAL SECTION (ML 1)

NTS

STA 197+70.00 TO STA 200+90.00
STA 204+20.00 TO STA 231+50.00
STA 244+10.00 TO STA 244+71.50
STA 294+15.00 TO STA 297+50.00
STA 343+80.00 TO STA 344+47.59
STA 373+50.00 TO STA 394+00.00



~~PROPOSED~~ TYPICAL SECTION (ML 2)

NTS

STA 172+80.00 TO STA 180+00.00
STA 195+75.00 TO STA 197+70.00
STA 200+90.00 TO STA 204+20.00
STA 231+50.00 TO STA 244+10.00
STA 297+50.00 TO STA 300+70.00
STA 306+80.00 TO STA 317+60.00
STA 331+50.00 TO STA 343+80.00
STA 366+66.52 TO STA 373+50.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

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2. DIMENSION FOR THE ASPH CONC PVMT LEVEL-UP VARIES.
3. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
4. FOR DETAILS SEE SHEET 6 OF 10.
3 5. BETWEEN STA 366+66.52 AND STA 376+00.00 ROADWAY CROSS SLOPE VARIES FROM THE USUAL 2% SLOPE. REFER TO THE "MAINLANE PLAN AND PROFILE" SHEETS FOR CROSS SLOPE INFORMATION.
4 6. BETWEEN STA 172+80.00 AND STA 244+71.50 AND BETWEEN STA 291+27.36 AND STA 344+47.59 ROADWAY CROSS SLOPE VARIES FROM THE USUAL 2% SLOPE. REFER TO THE "MAINLANE PLAN AND PROFILE" SHEETS FOR CROSS SLOPE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
04/17/07	AA	2	CHG WIDTH OF MAINLANE RECONSTRUCTION AND SHLDR ADJUSTMENT
06/06/07	RG	3	PROFILE GRADE CHANGE
09/04/07	RG	4	PROFILE GRADE CHANGE

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

~~PROPOSED~~
TYPICAL SECTIONS

SHEET 1 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	29
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
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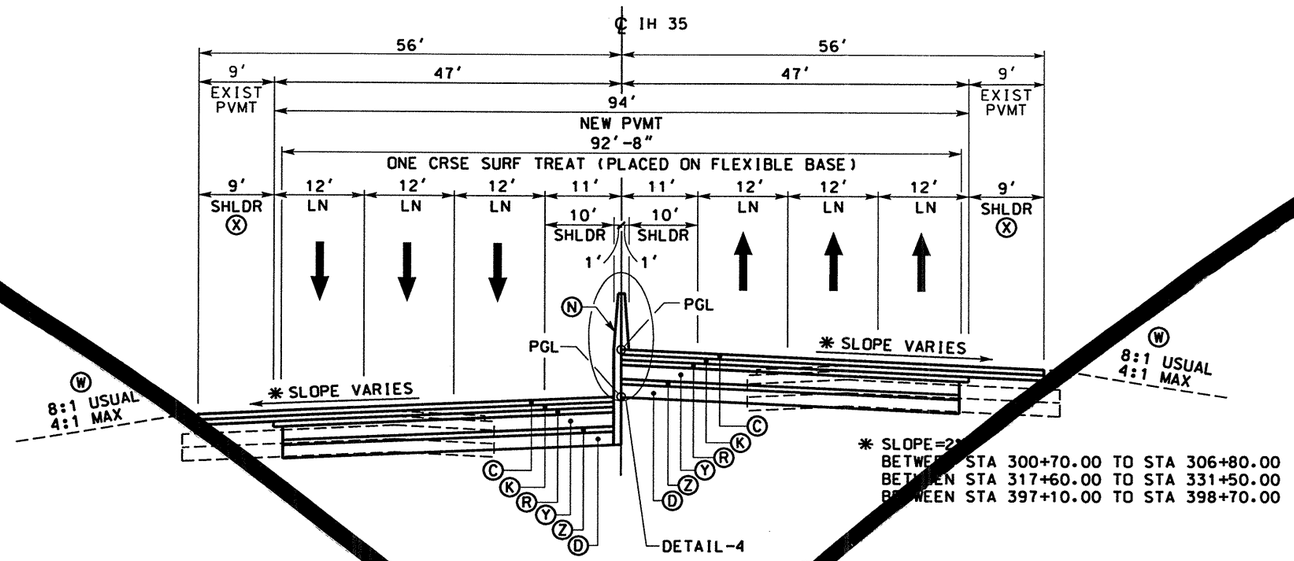


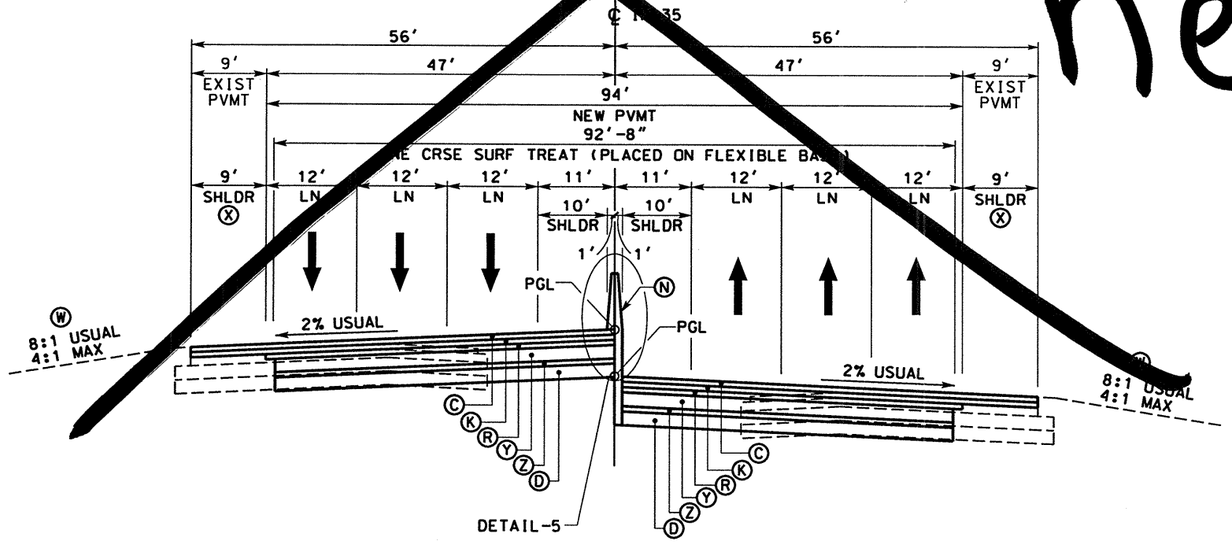
PROPOSED TYPICAL SECTION ML3

NTS

✱ SLOPE=2[illegible]
BETWEEN STA 300+70.00 TO STA 306+80.00
BETWEEN STA 317+60.00 TO STA 331+50.00
BETWEEN STA 397+10.00 TO STA 398+70.00

STA 180+00.00 TO STA 195+[illegible]5.00
STA 300+70.00 TO STA 3[illegible]+80.00
STA 317+60.00 TO STA [illegible]31+50.00
STA 39[illegible]10.00 TO STA 398+70.00

See next



PROPOSED TYPICAL SECTION ML4

NTS

STA 291+27.36 TO STA 294+15.00

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. DIMENSION FOR THE ASPH CONC PVMT LEVEL-UP VARIES.
3. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
4. FOR DETAILS SEE SHEET 6 OF 10.
5. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #1 DETAILS.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED
TYPICAL SECTIONS

SHEET 2 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	30
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

5/7/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
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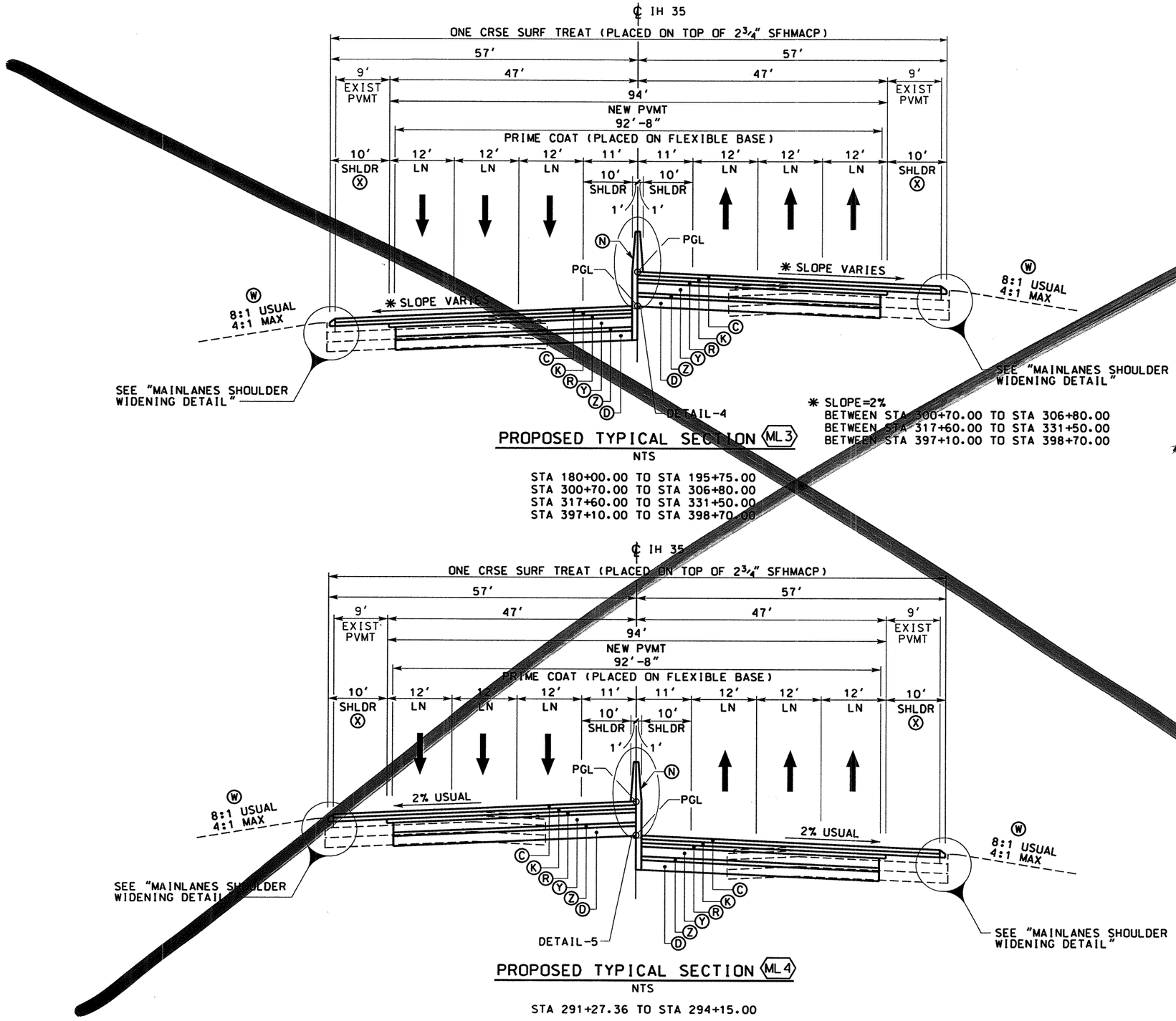

PROPOSED TYPICAL SECTION (ML 3)

NTS

STA 180+00.00 TO STA 195+75.00
STA 300+70.00 TO STA 306+80.00
STA 317+60.00 TO STA 331+50.00
STA 397+10.00 TO STA 398+70.00

* SLOPE=2%
BETWEEN STA 300+70.00 TO STA 306+80.00
BETWEEN STA 317+60.00 TO STA 331+50.00
BETWEEN STA 397+10.00 TO STA 398+70.00

PROPOSED TYPICAL SECTION (ML 4)

NTS

STA 291+27.36 TO STA 294+15.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C)(LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

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STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED TYPICAL SECTIONS

SHEET 2 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	30
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

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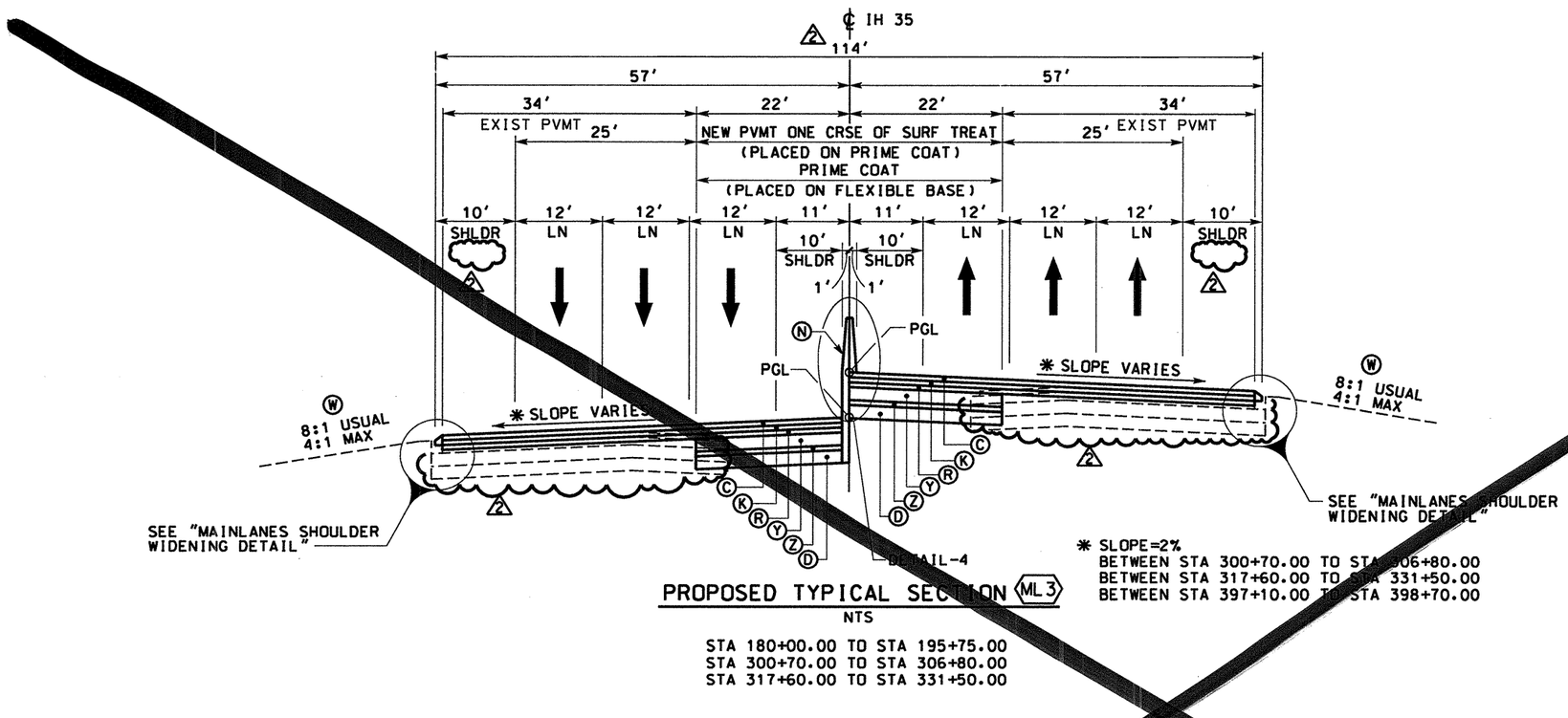
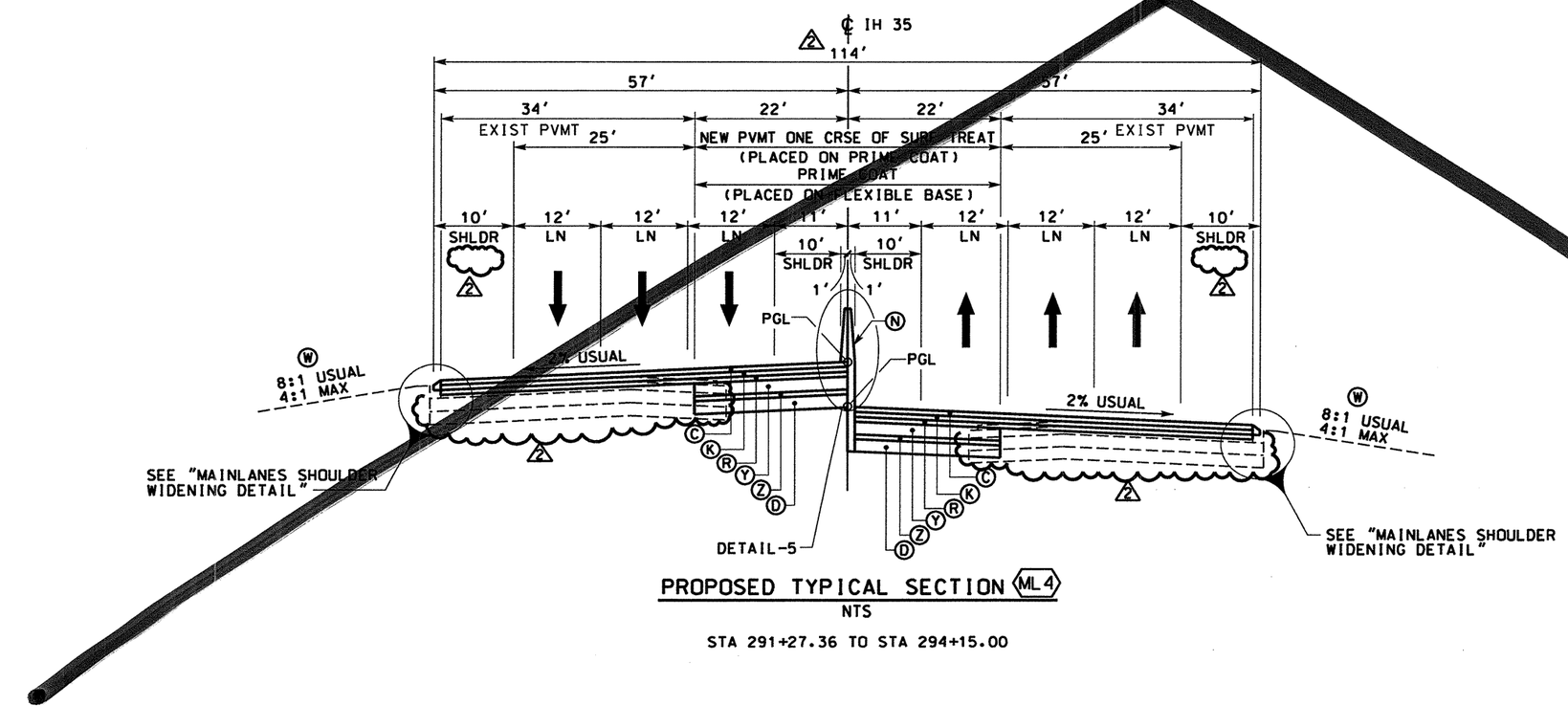


PROPOSED TYPICAL SECTION (ML 3)

NTS

STA 180+00.00 TO STA 195+75.00
STA 300+70.00 TO STA 306+80.00
STA 317+60.00 TO STA 331+50.00

* SLOPE=2%
BETWEEN STA 300+70.00 TO STA 306+80.00
BETWEEN STA 317+60.00 TO STA 331+50.00
BETWEEN STA 397+10.00 TO STA 398+70.00



PROPOSED TYPICAL SECTION (ML 4)

NTS

STA 291+27.36 TO STA 294+15.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
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- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

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DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
04/17/07	AA	2	CHG WIDTH OF MAINLANE RECONSTRUCTION AND SHLDR ADJUSTMENT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MAY 08, 2007

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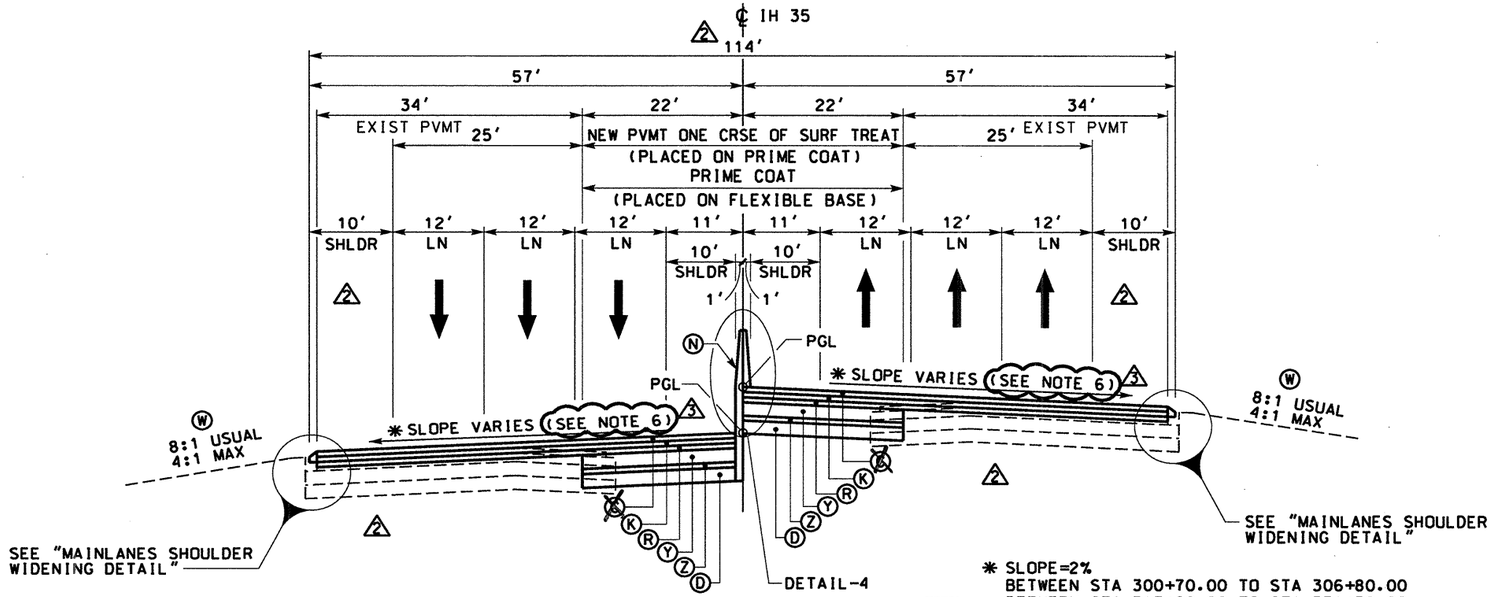
IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED TYPICAL SECTIONS

SHEET 2 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	30
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
b03tsp07.dgn-22 HOUFILE023 \hctivil\cf0130\ 5/14/2007

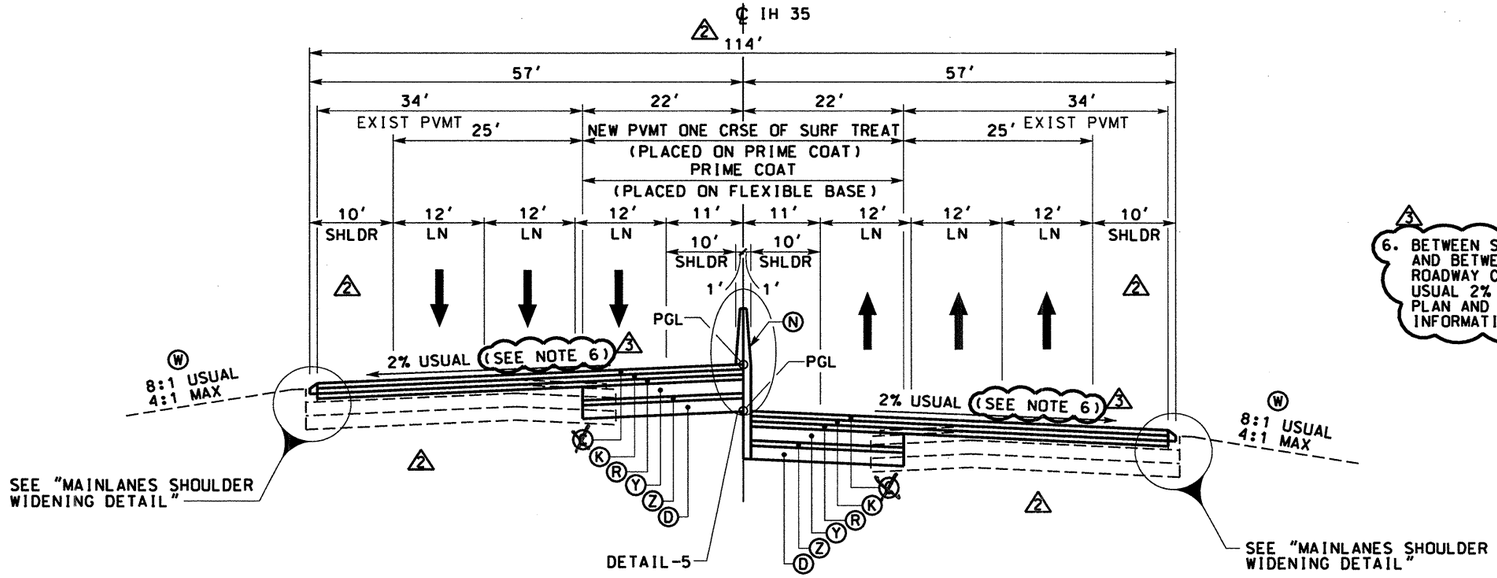


~~PROPOSED~~ TYPICAL SECTION (ML 3)

NTS

* SLOPE=2%
BETWEEN STA 300+70.00 TO STA 306+80.00
BETWEEN STA 317+60.00 TO STA 331+50.00
BETWEEN STA 397+10.00 TO STA 398+70.00

STA 180+00.00 TO STA 195+75.00
STA 300+70.00 TO STA 306+80.00
STA 317+60.00 TO STA 331+50.00



~~PROPOSED~~ TYPICAL SECTION (ML 4)

NTS

STA 291+27.36 TO STA 294+15.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. DIMENSION FOR THE ASPH CONC PVMT LEVEL-UP VARIES.
3. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
4. FOR DETAILS SEE SHEET 6 OF 10.
5. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #1 DETAILS.

(3) 6. BETWEEN STA 172+80.00 AND STA 244+71.50 AND BETWEEN STA 291+27.36 AND STA 344+47.59 ROADWAY CROSS SLOPE VARIES FROM THE USUAL 2% SLOPE. REFER TO THE "MAINLANE PLAN AND PROFILE" SHEETS FOR CROSS SLOPE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
04/17/07	AA	2	CHG WIDTH OF MAINLANE RECONSTRUCTION AND SHLDR ADJUSTMENT
09/04/07	RG	3	PROFILE GRADE CHANGE

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON SEPTEMBER 10, 2007

KBR
Engineered by KBR Technical Services, Inc

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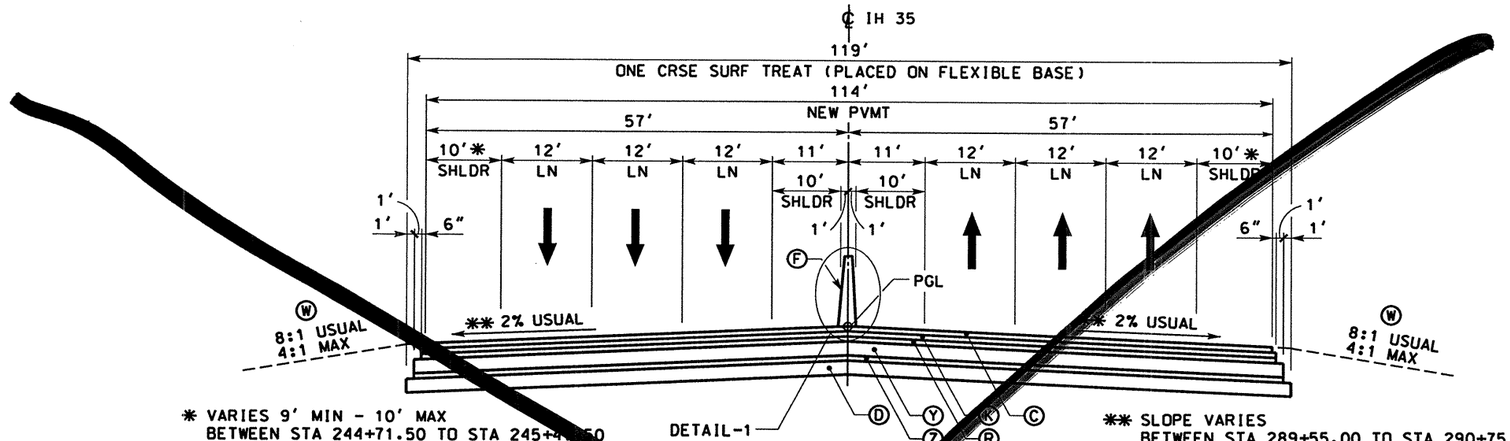
IH 35
LOOP 20 TO UNIROYAL ROAD

~~PROPOSED~~
TYPICAL SECTIONS

SHEET 2 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	30
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
HOUFILE023 \hcivil\cf0130\
b03tsp07.dgn-22



* VARIES 9' MIN - 10' MAX
BETWEEN STA 244+71.50 TO STA 245+[illegible]
BETWEEN STA 344+47.39 TO STA 345+17.[illegible]
BETWEEN STA 435+01.19 TO STA 435+71.19
BETWEEN STA 437+41.19 TO STA 438+11.19
BETWEEN STA 452+80.00 TO STA 453+50.00

* VARIES 9' MIN - 9.25' MAX
BETWEEN STA 290+57.36 TO STA 290+75.00

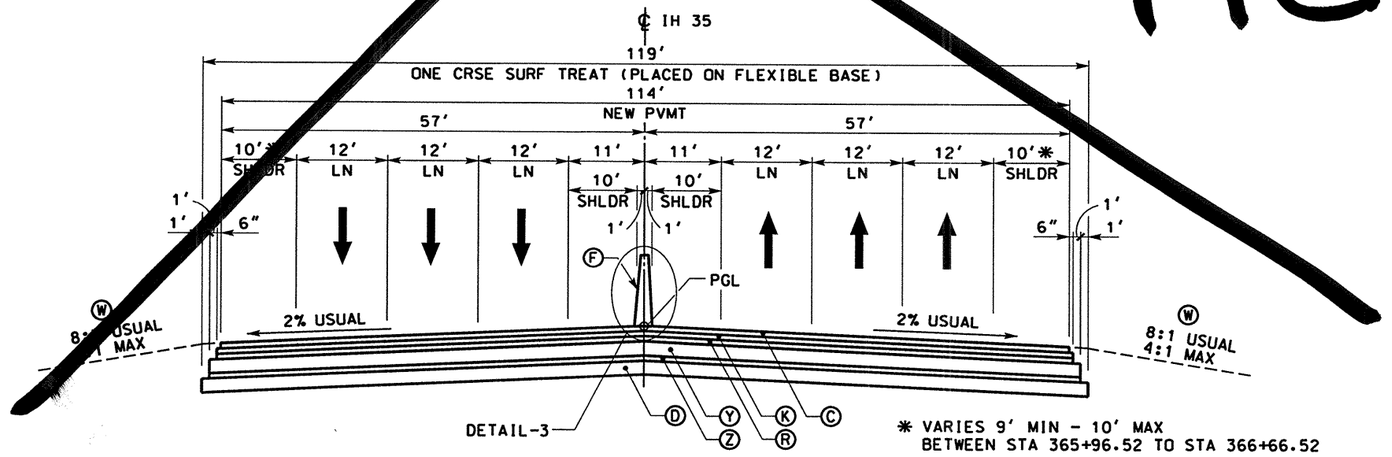
** SLOPE VARIES
BETWEEN STA 289+55.00 TO STA 290+75.00
BETWEEN STA 362+20.00 TO STA 363+75.00
BETWEEN STA 408+80.38 TO STA 433+47.35
BETWEEN STA 437+41.19 TO STA 452+28.28

PROPOSED TYPICAL SECTION (ML5)

NTS

STA 244+71.50 TO STA 245+60.00
STA [illegible]+50.00 TO STA 258+75.00
STA 289+[illegible] TO STA 290+75.00
STA 344+4[illegible] TO STA 345+70.00
STA 362+[illegible] TO STA 363+75.00
STA 408+[illegible] TO STA 435+71.19
STA 4[illegible]+41.19 TO STA 453+50.00

see next



* VARIES 9' MIN - 10' MAX
BETWEEN STA 365+96.52 TO STA 366+66.52

PROPOSED TYPICAL SECTION (ML6)

NTS

STA 258+75.00 TO STA 260+00.00
STA 288+40.00 TO STA 289+55.00
STA 363+75.00 TO STA 366+66.52
STA 403+10.00 TO STA 408+50.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
3. FOR DETAILS SEE SHEET 6 OF 10.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED
TYPICAL SECTIONS

SHEET 3 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		31
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/7/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

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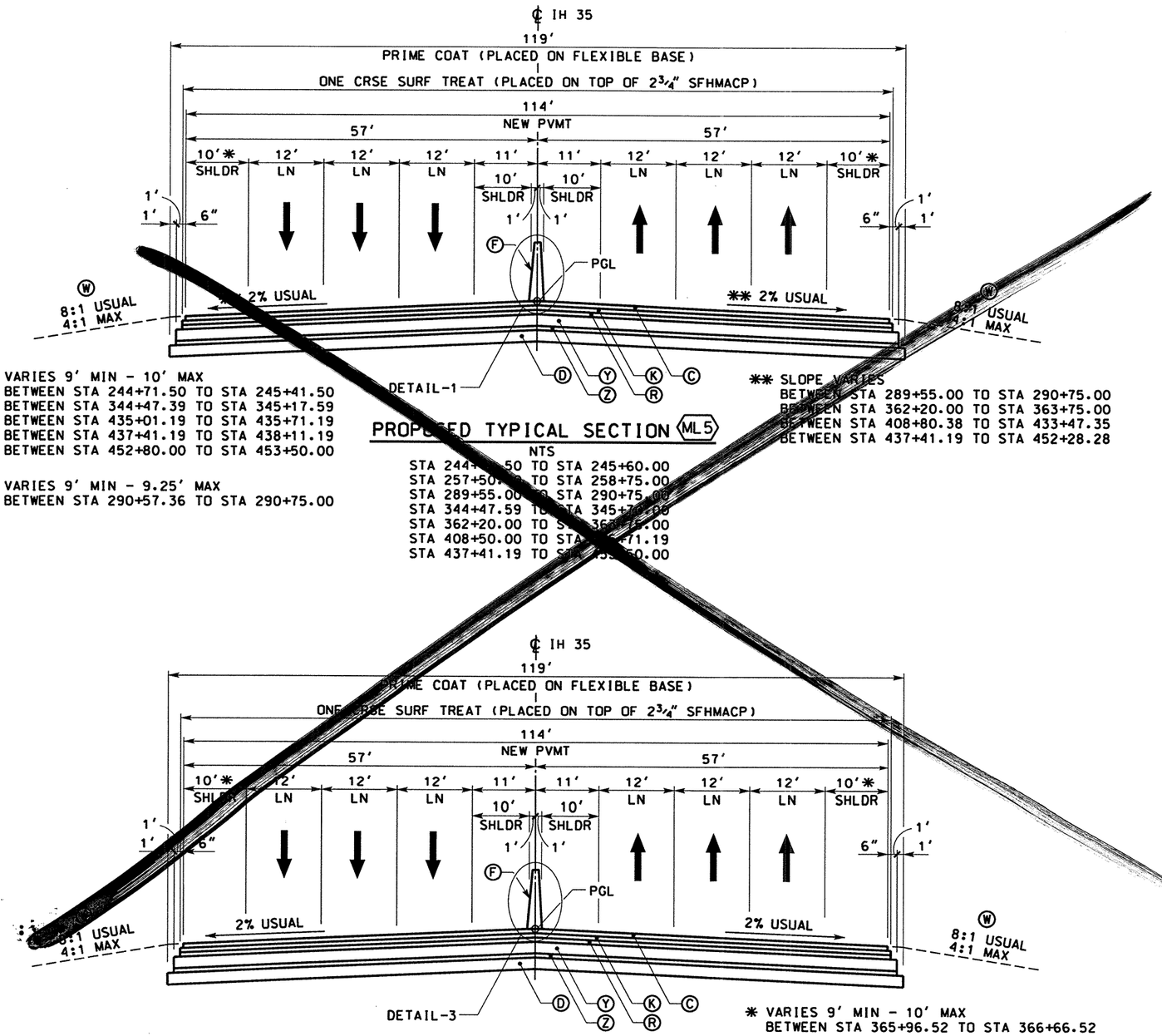

DETAIL-1

* VARIES 9' MIN - 10' MAX
BETWEEN STA 244+71.50 TO STA 245+41.50
BETWEEN STA 344+47.39 TO STA 345+17.59
BETWEEN STA 435+01.19 TO STA 435+71.19
BETWEEN STA 437+41.19 TO STA 438+11.19
BETWEEN STA 452+80.00 TO STA 453+50.00

* VARIES 9' MIN - 9.25' MAX
BETWEEN STA 290+57.36 TO STA 290+75.00

** SLOPE VARIES
BETWEEN STA 289+55.00 TO STA 290+75.00
BETWEEN STA 362+20.00 TO STA 363+75.00
BETWEEN STA 408+80.38 TO STA 433+47.35
BETWEEN STA 437+41.19 TO STA 452+28.28

PROPOSED TYPICAL SECTION (ML5)

NTS

STA 244+[illegible]50 TO STA 245+60.00
STA 257+50[illegible] TO STA 258+75.00
STA 289+55.00 [illegible] STA 290+75.00
STA 344+47.59 TO [illegible]TA 345+[illegible].00
STA 362+20.00 TO S[illegible] 36[illegible].00
STA 408+50.00 TO STA [illegible]71.19
STA 437+41.19 TO S[illegible]50.00

DETAIL-3

* VARIES 9' MIN - 10' MAX
BETWEEN STA 365+96.52 TO STA 366+66.52

PROPOSED TYPICAL SECTION (ML6)

NTS

STA 258+75.00 TO STA 260+00.00
STA 288+40.00 TO STA 289+55.00
STA 363+75.00 TO STA 366+66.52
STA 403+10.00 TO STA 408+50.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
3. FOR DETAILS SEE SHEET 6 OF 10.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED TYPICAL SECTIONS

SHEET 3 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		31
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

REF FILE(S): j011op01.bdr, bdr LV ON = 32.45.47.57.58.60-62
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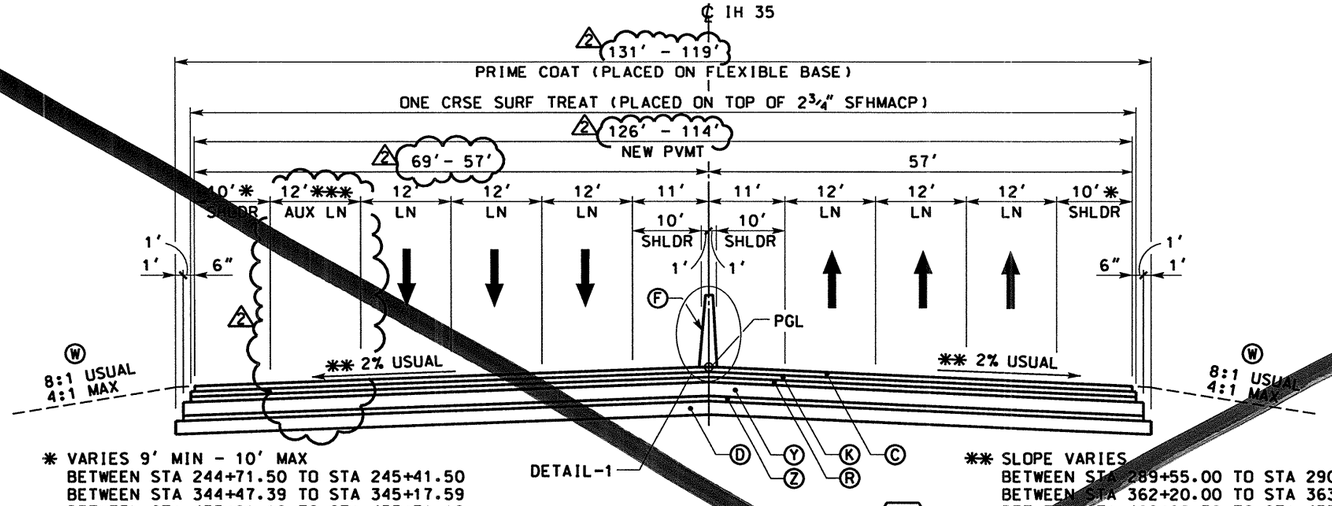


* VARIES 9' MIN - 10' MAX
BETWEEN STA 244+71.50 TO STA 245+41.50
BETWEEN STA 344+47.39 TO STA 345+17.59
BETWEEN STA 435+01.19 TO STA 435+71.19
BETWEEN STA 437+41.19 TO STA 438+11.19
BETWEEN STA 452+80.00 TO STA 453+50.00

* VARIES 9' MIN - 9.25' MAX
BETWEEN STA 290+57.36 TO STA 290+75.00

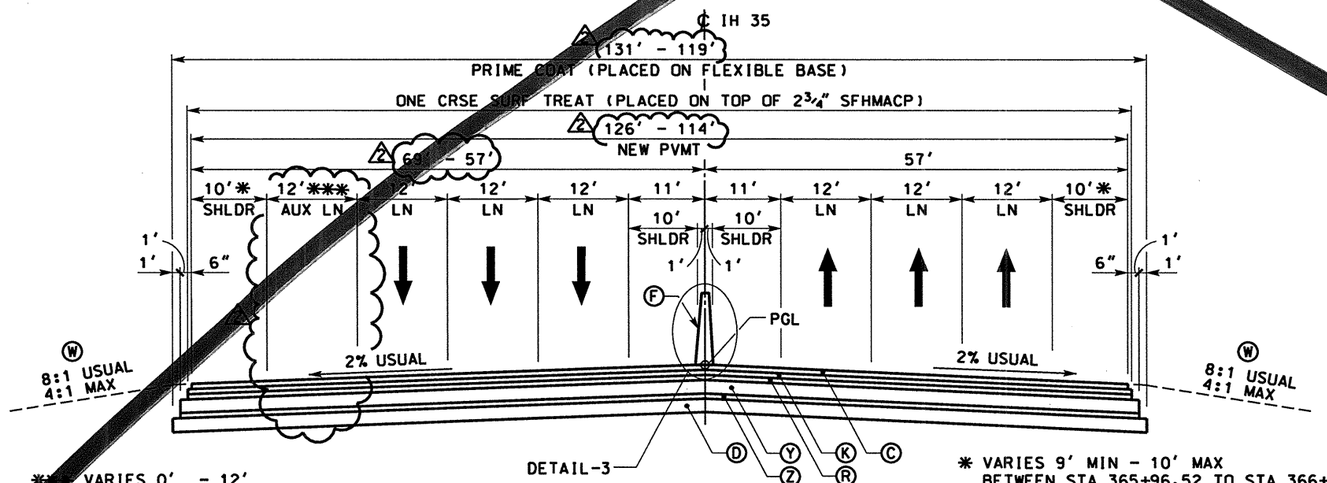
*** VARIES 0' - 12'
BETWEEN STA 244+71.50 TO STA 245+60.00
BETWEEN STA 257+50.00 TO STA 258+75.00

PROPOSED TYPICAL SECTION (ML5)

NTS

STA 244+71.50 TO STA 245+60.00
STA 257+50.00 TO STA 258+75.00
STA 289+55.00 TO STA 290+75.00
STA 344+47.59 TO STA 345+70.00
STA 362+20.00 TO STA 363+75.00
STA 408+50.00 TO STA 435+71.19
STA 437+41.19 TO STA 453+50.00

** SLOPE VARIES
BETWEEN STA 289+55.00 TO STA 290+75.00
BETWEEN STA 362+20.00 TO STA 363+75.00
BETWEEN STA 408+80.38 TO STA 433+47.35
BETWEEN STA 437+41.19 TO STA 452+28.28



*** VARIES 0' - 12'
BETWEEN STA 258+75.00 TO STA 260+00.00

* VARIES 9' MIN - 10' MAX
BETWEEN STA 365+96.52 TO STA 366+66.52

PROPOSED TYPICAL SECTION (ML6)

NTS

STA 258+75.00 TO STA 260+00.00
STA 288+40.00 TO STA 289+55.00
STA 363+75.00 TO STA 366+66.52
STA 403+10.00 TO STA 408+50.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C)(LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (W) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
3. FOR DETAILS SEE SHEET 6 OF 10.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON FEBRUARY 10, 2005

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

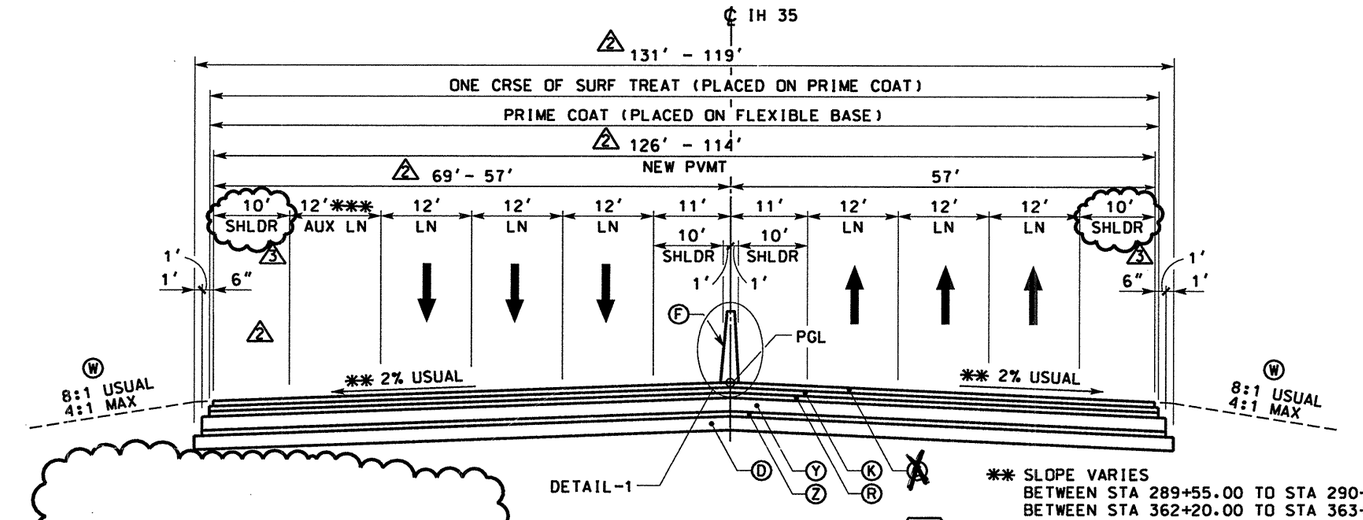
PROPOSED TYPICAL SECTIONS

SHEET 3 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		31
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

b031sp15.dgn-12 HOUFILE023 \hciwin\cf0130\ 2/10/2005



*** VARIES 0' - 12'
BETWEEN STA 244+71.50 TO STA 245+60.00
BETWEEN STA 257+50.00 TO STA 258+75.00

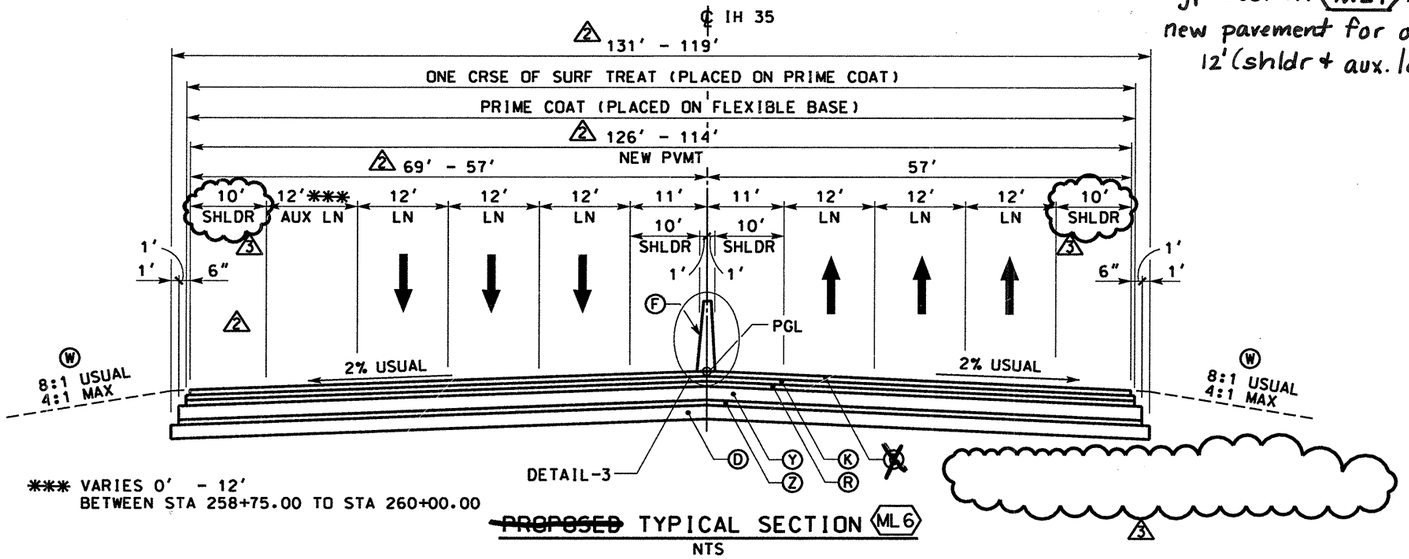
~~PROPOSED~~ TYPICAL SECTION (ML5)
NTS

STA 244+71.50 TO STA 245+60.00
STA 257+50.00 TO STA 258+75.00
STA 289+55.00 TO STA 290+75.00
STA 344+47.59 TO STA 345+70.00
STA 362+20.00 TO STA 363+75.00
STA 408+50.00 TO STA 435+71.19

** SLOPE VARIES
BETWEEN STA 289+55.00 TO STA 290+75.00
BETWEEN STA 362+20.00 TO STA 363+75.00
BETWEEN STA 408+80.38 TO STA 433+47.35
BETWEEN STA 437+41.19 TO STA 452+28.28

NBML: As per C.O. #54, Pavement Structure is as shown in Typ. Section (ML1)

SBML: As per C.O. #54, Pavement Structure is as shown in Typ. Section (ML1). Full depth new pavement for outermost 12'(shldr + aux. lane).



*** VARIES 0' - 12'
BETWEEN STA 258+75.00 TO STA 260+00.00

~~PROPOSED~~ TYPICAL SECTION (ML6)
NTS

STA 258+75.00 TO STA 260+00.00
STA 288+40.00 TO STA 289+55.00
STA 363+75.00 TO STA 366+66.52
STA 394+00.00 YO STA 397+10.00
STA 403+10.00 TO STA 408+50.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
3. FOR DETAILS SEE SHEET 6 OF 10.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MAY 08, 2007

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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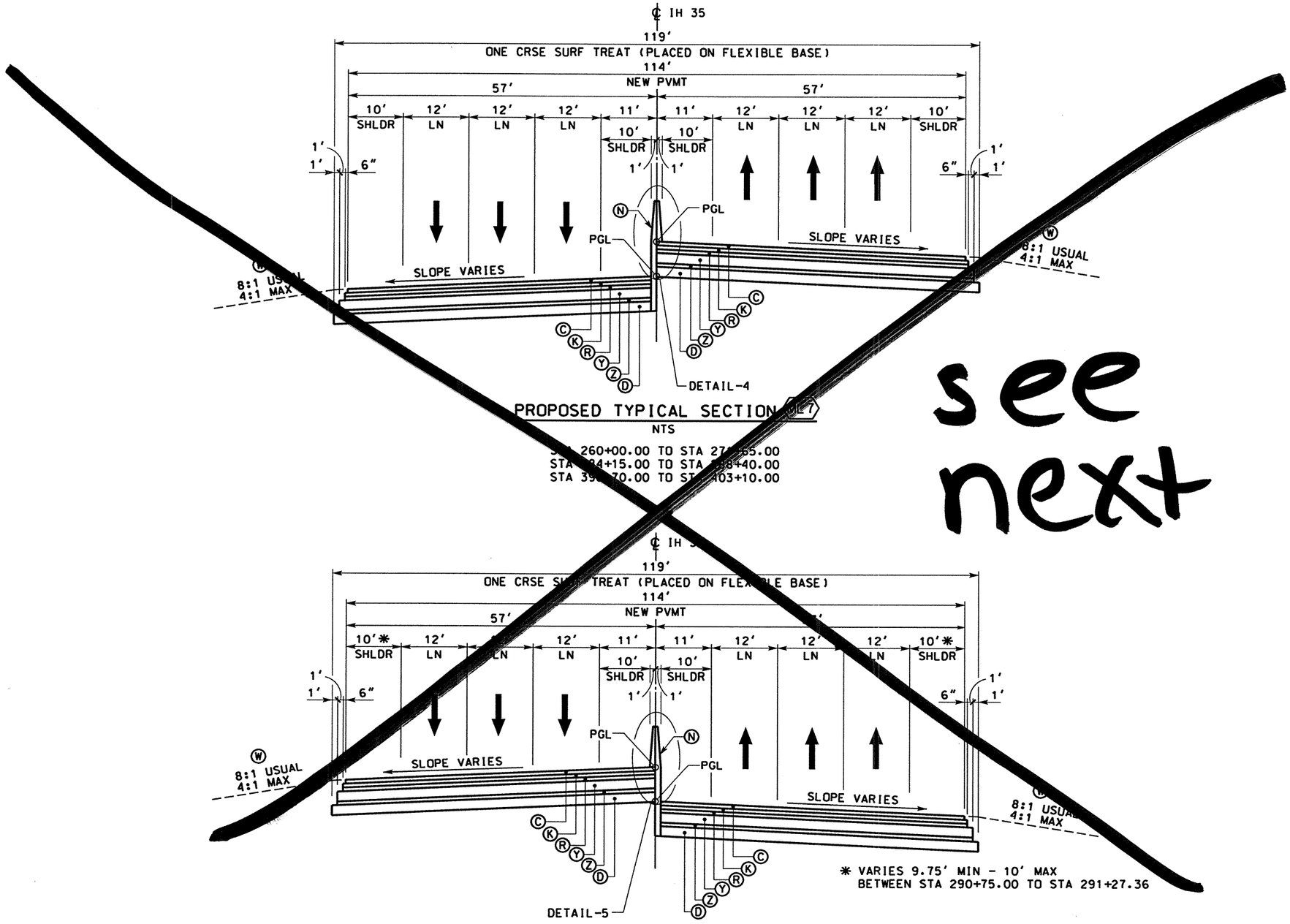
IH 35
LOOP 20 TO UNIROYAL ROAD

~~PROPOSED~~
TYPICAL SECTIONS

SHEET 3 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		31
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
HOUFILE023 \hcivil\c10130\ 5/14/2007
b03tsp15.dgn-12



PROPOSED TYPICAL SECTION ML7

NTS

STA 260+00.00 TO STA 27[illegible]55.00
STA [illegible]4+15.00 TO STA [illegible]8+40.00
STA 39[illegible]70.00 TO ST[illegible]03+10.00

see next

* VARIES 9.75' MIN - 10' MAX
BETWEEN STA 290+75.00 TO STA 291+27.36

PROPOSED TYPICAL SECTION ML8

NTS

STA 245+60.00 TO STA 249+50.00
STA 253+50.00 TO STA 257+50.00
STA 290+75.00 TO STA 291+27.36
STA 345+70.00 TO STA 351+85.00
STA 357+65.00 TO STA 362+20.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
3. FOR DETAILS SEE SHEET 6 OF 10.
4. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #1 DETAILS.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

Rudy L. Gomez

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED TYPICAL SECTIONS

SHEET 4 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		32
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/7/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

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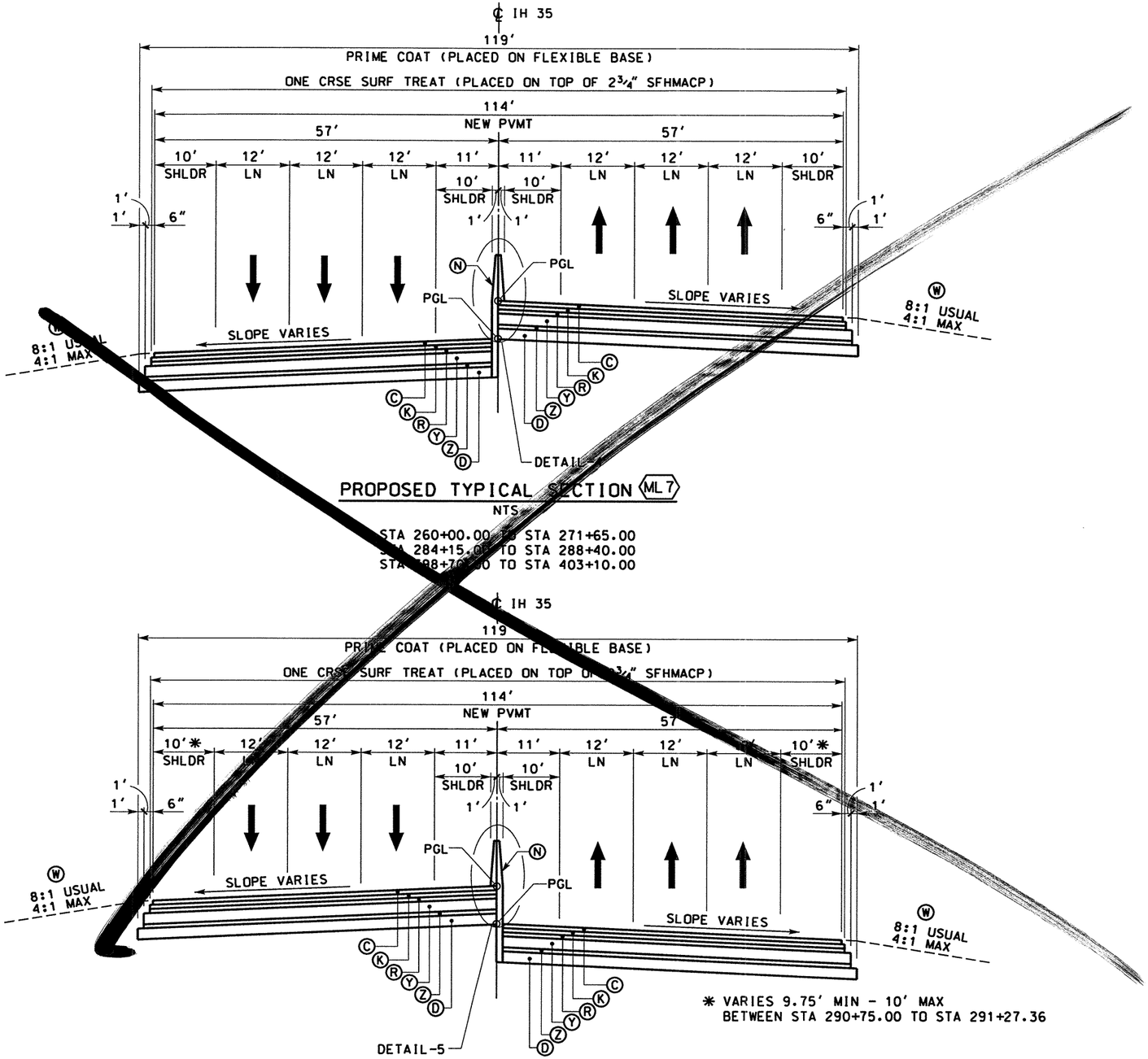

PROPOSED TYPICAL SECTION (ML7)

NTS

STA 260+00.00 TO STA 271+65.00
STA 284+15.00 TO STA 288+40.00
STA 388+70.00 TO STA 403+10.00

PROPOSED TYPICAL SECTION (ML8)

NTS

STA 245+60.00 TO STA 249+50.00
STA 253+50.00 TO STA 257+50.00
STA 290+75.00 TO STA 291+27.36
STA 345+70.00 TO STA 351+85.00
STA 357+65.00 TO STA 362+20.00

* VARIES 9.75' MIN - 10' MAX
BETWEEN STA 290+75.00 TO STA 291+27.36

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
3. FOR DETAILS SEE SHEET 6 OF 10.
4. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #1 DETAILS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED
TYPICAL SECTIONS

SHEET 4 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		32
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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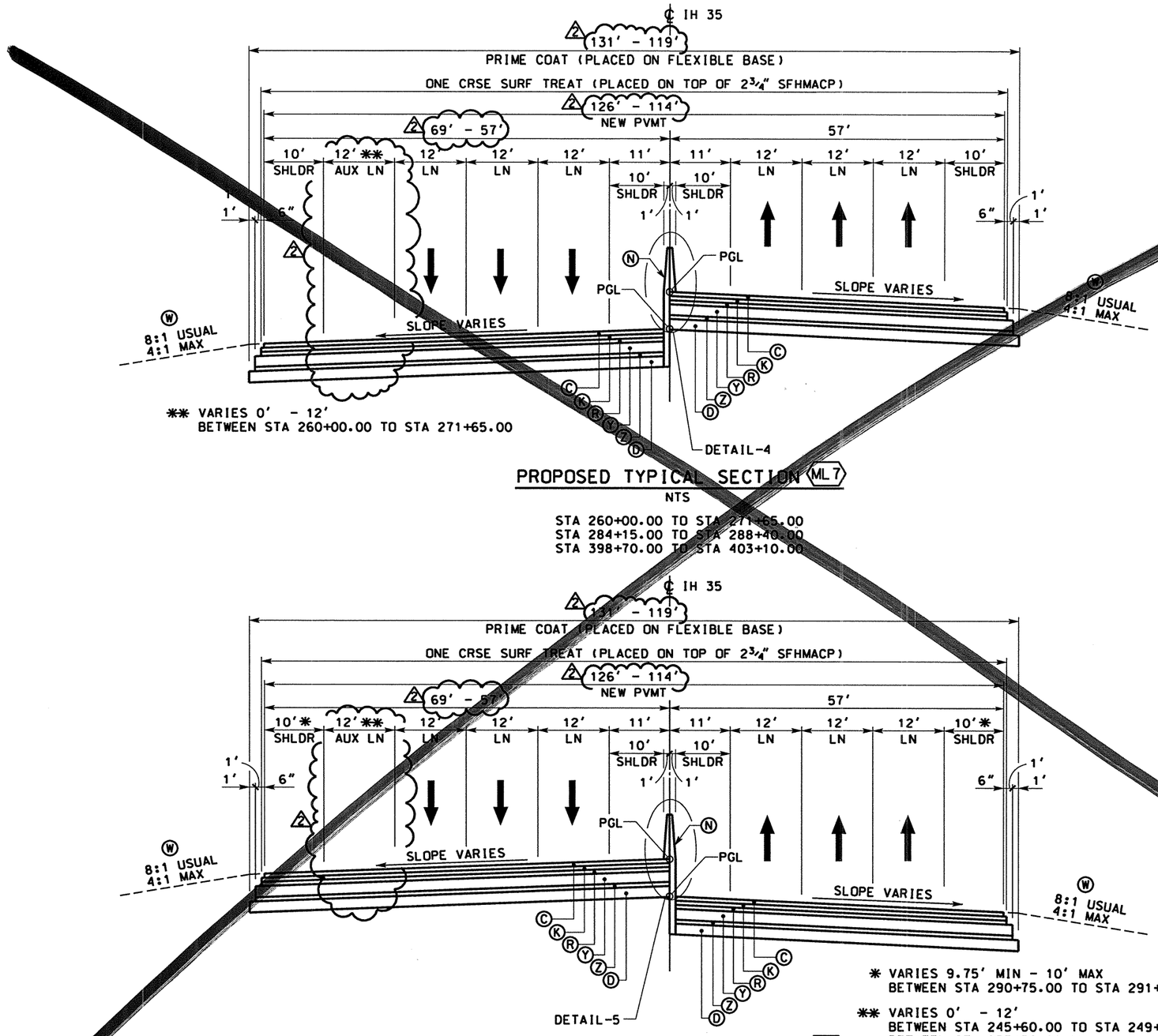
b031sp16.dgn-12

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62



** VARIES 0' - 12'
BETWEEN STA 260+00.00 TO STA 271+65.00

PROPOSED TYPICAL SECTION ML 7

NTS

STA 260+00.00 TO STA 271+65.00
STA 284+15.00 TO STA 288+40.00
STA 398+70.00 TO STA 403+10.00

* VARIES 9.75' MIN - 10' MAX
BETWEEN STA 290+75.00 TO STA 291+27.36

** VARIES 0' - 12'
BETWEEN STA 245+60.00 TO STA 249+50.00
BETWEEN STA 253+50.00 TO STA 257+50.00

PROPOSED TYPICAL SECTION ML 8

NTS

STA 245+60.00 TO STA 249+50.00
STA 253+50.00 TO STA 257+50.00
STA 290+75.00 TO STA 291+27.36
STA 345+70.00 TO STA 351+85.00
STA 357+65.00 TO STA 362+20.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
3. FOR DETAILS SEE SHEET 6 OF 10.
4. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #1 DETAILS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON FEBRUARY 10, 2005

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED
TYPICAL SECTIONS

SHEET 4 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		32
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

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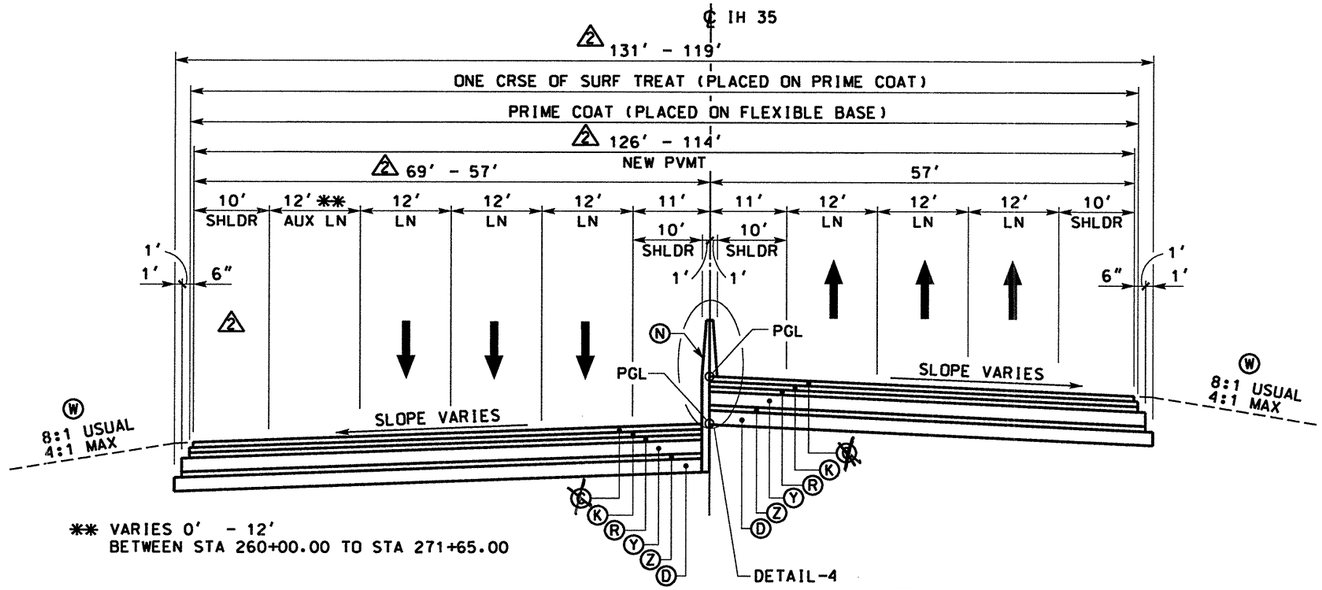
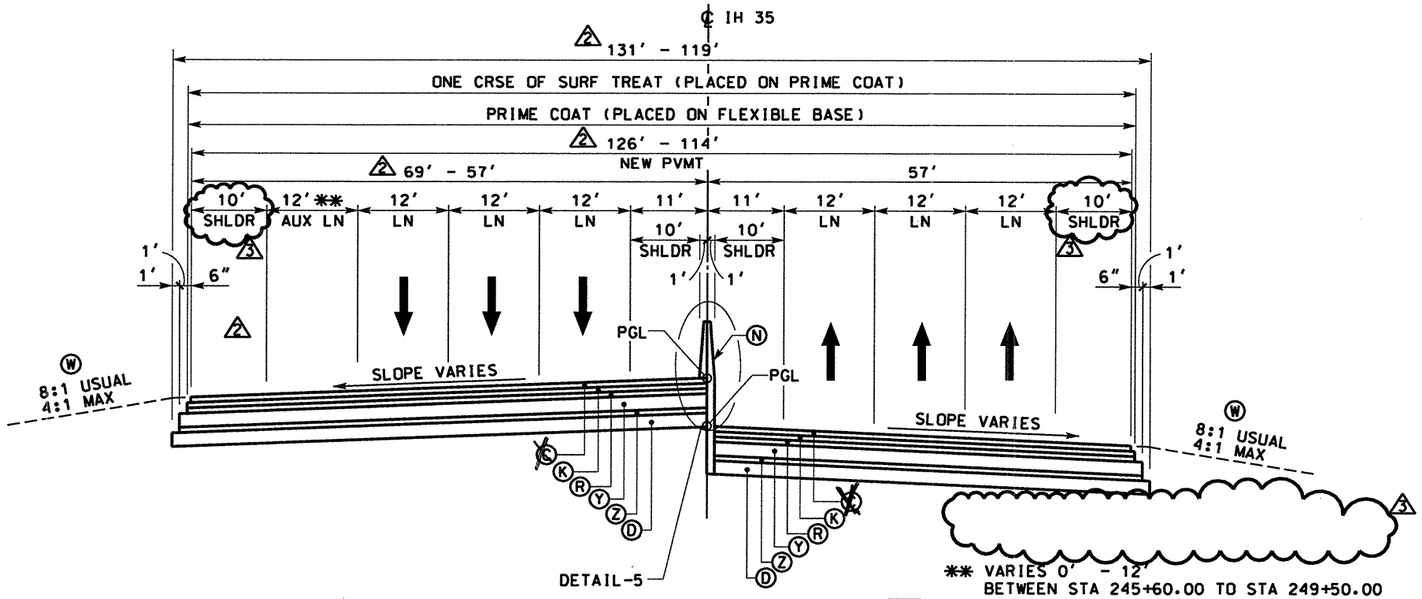


** VARIES 0' - 12'
BETWEEN STA 260+00.00 TO STA 271+65.00

~~PROPOSED~~ TYPICAL SECTION (ML 7)

NTS

STA 260+00.00 TO STA 271+65.00
STA 284+15.00 TO STA 288+40.00
STA 397+10.00 TO STA 398+70.00
STA 398+70.00 TO STA 403+10.00



** VARIES 0' - 12'
BETWEEN STA 245+60.00 TO STA 249+50.00
BETWEEN STA 253+50.00 TO STA 257+50.00

~~PROPOSED~~ TYPICAL SECTION (ML 8)

NTS

STA 245+60.00 TO STA 249+50.00
STA 253+50.00 TO STA 257+50.00
STA 290+75.00 TO STA 291+27.36
STA 345+70.00 TO STA 351+85.00
STA 357+65.00 TO STA 362+20.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE*~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
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3. FOR DETAILS SEE SHEET 6 OF 10.
4. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #1 DETAILS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MAY 08, 2007

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

~~PROPOSED~~
TYPICAL SECTIONS

SHEET 4 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		32
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
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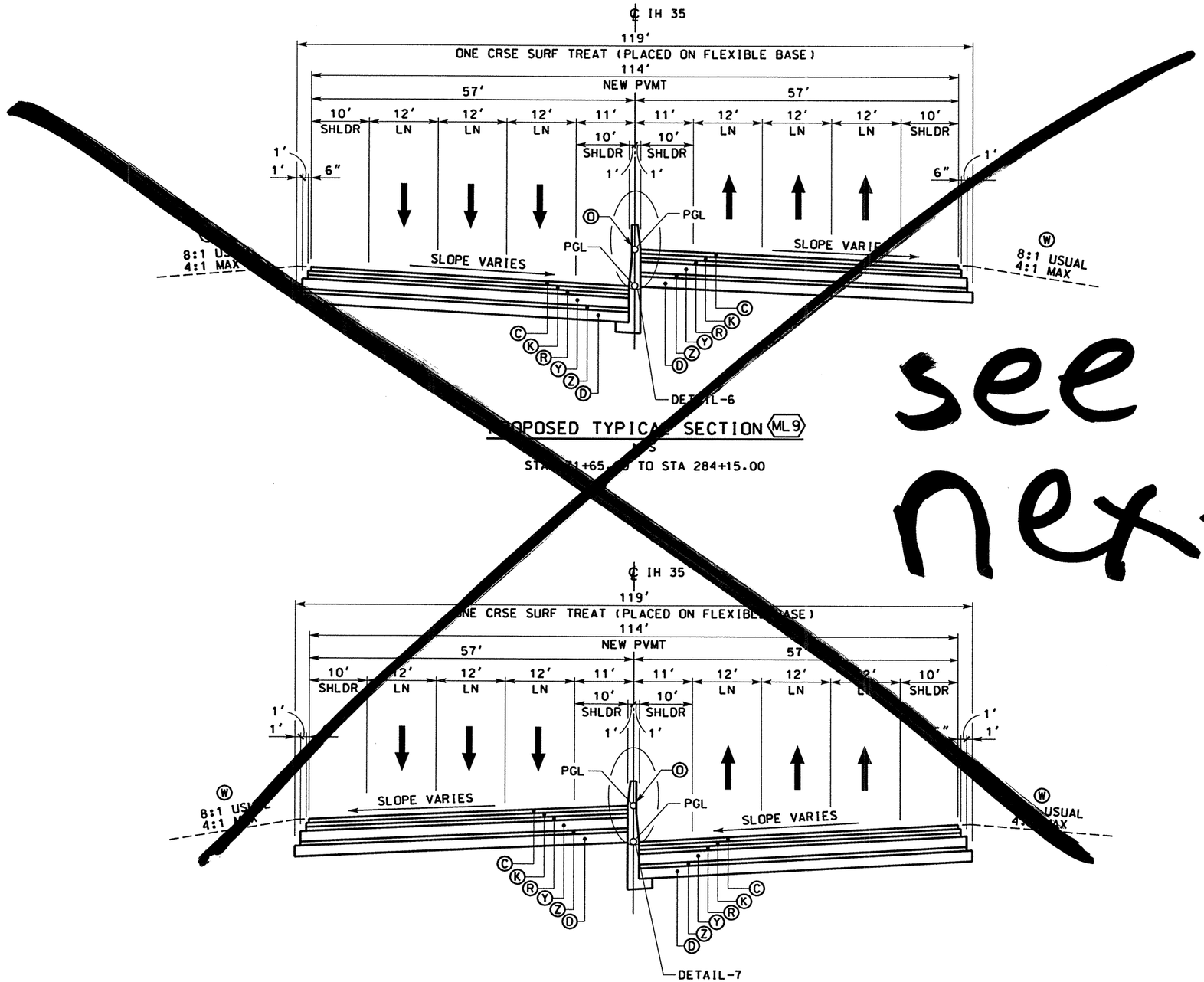

PROPOSED TYPICAL SECTION ML9

STA 241+65.00 TO STA 284+15.00

PROPOSED TYPICAL SECTION ML10

NTS

STA 249+50.00 TO STA 253+50.00
STA 351+85.00 TO STA 357+65.00

see next

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
3. FOR DETAILS SEE SHEET 6 OF 10.
4. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #2 DETAILS.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

Rudy L. Gomez

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED
TYPICAL SECTIONS

SHEET 5 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		33
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

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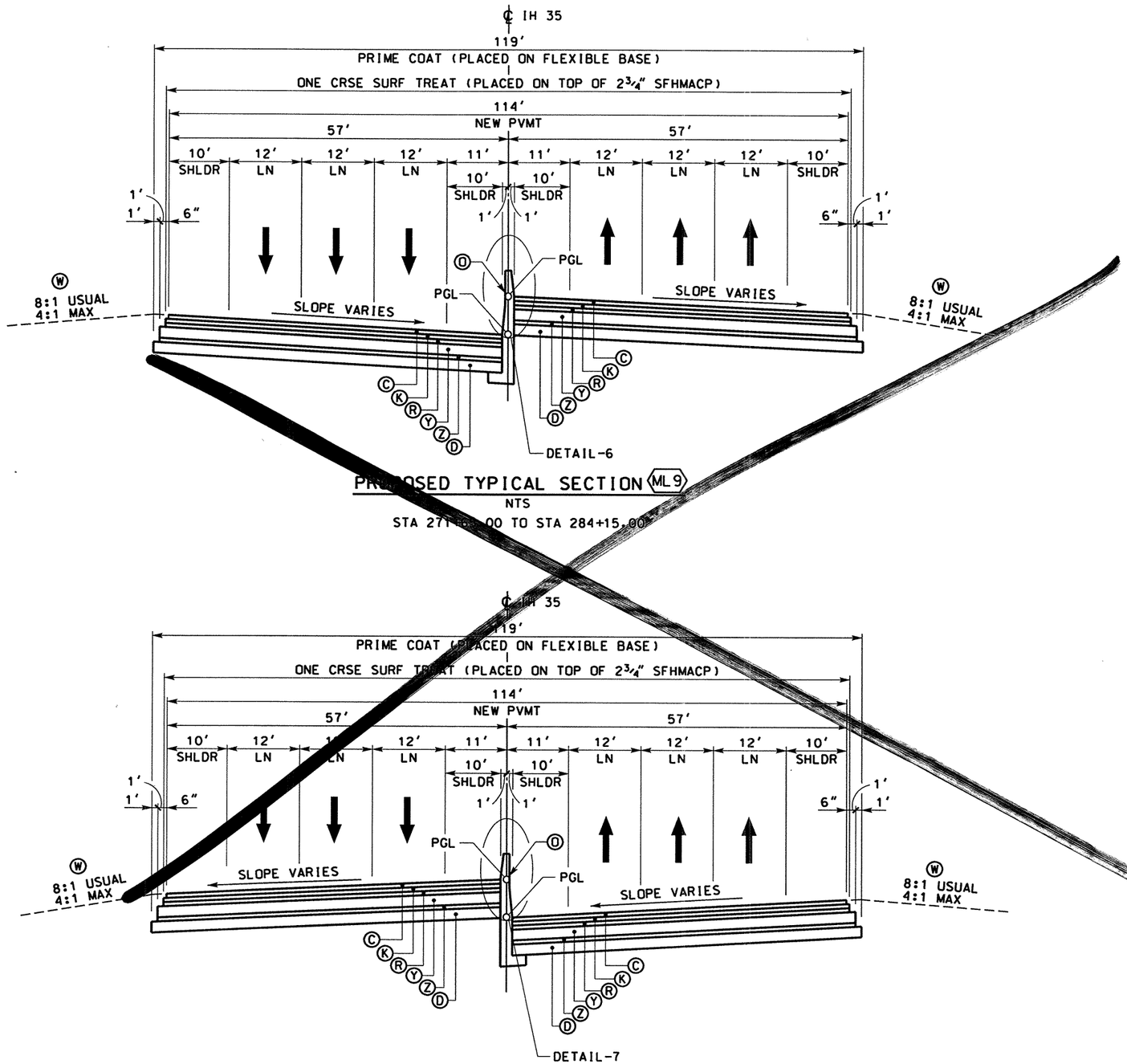
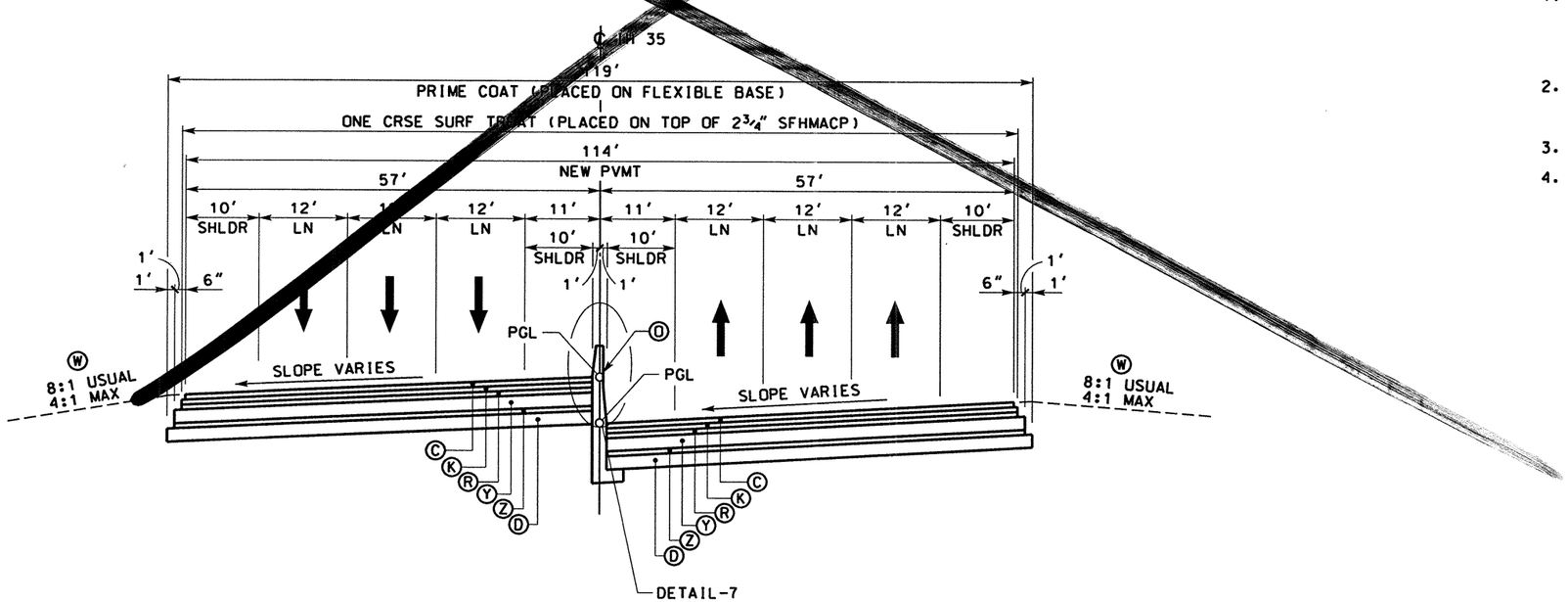


PROPOSED TYPICAL SECTION (ML9)

NTS

STA 271+[illegible].00 TO STA 284+15.00



PROPOSED TYPICAL SECTION (ML10)

NTS

STA 249+50.00 TO STA 253+50.00
STA 351+85.00 TO STA 357+65.00

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
3. FOR DETAILS SEE SHEET 6 OF 10.
4. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #2 DETAILS.

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED
TYPICAL SECTIONS

SHEET 5 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	33
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

3/4/2004

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

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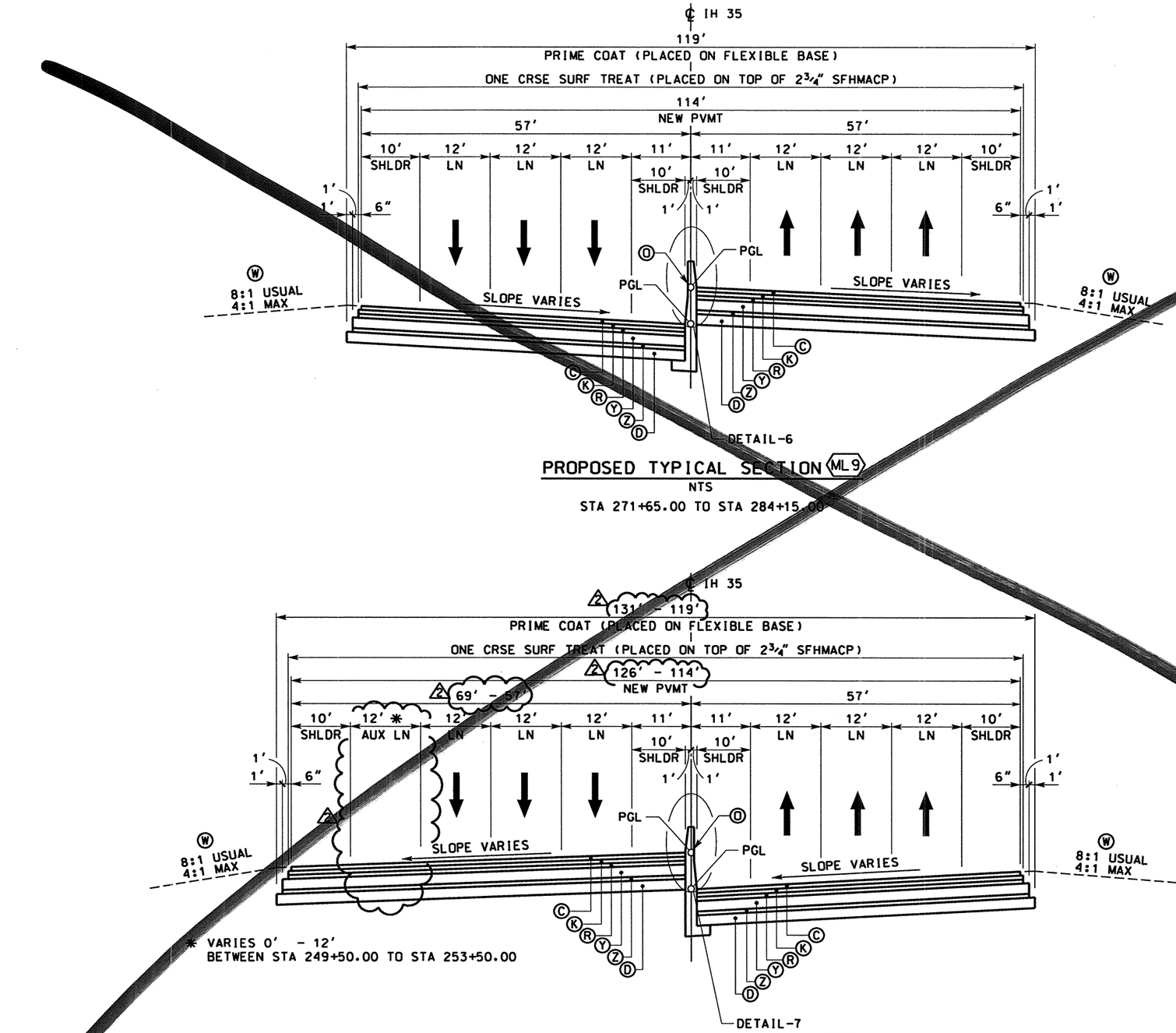

PROPOSED TYPICAL SECTION (ML9)

NTS

STA 271+65.00 TO STA 284+15.00

* VARIES 0' - 12'
BETWEEN STA 249+50.00 TO STA 253+50.00

PROPOSED TYPICAL SECTION (ML10)

NTS

STA 249+50.00 TO STA 253+50.00
STA 351+85.00 TO STA 357+65.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR SUPERELEVATION INFORMATION REFER TO "MAINLANE PLAN AND PROFILE" SHEETS.
3. FOR DETAILS SEE SHEET 6 OF 10.
4. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #2 DETAILS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON FEBRUARY 10, 2005

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IH 35
LOOP 20 TO UNIROYAL ROAD

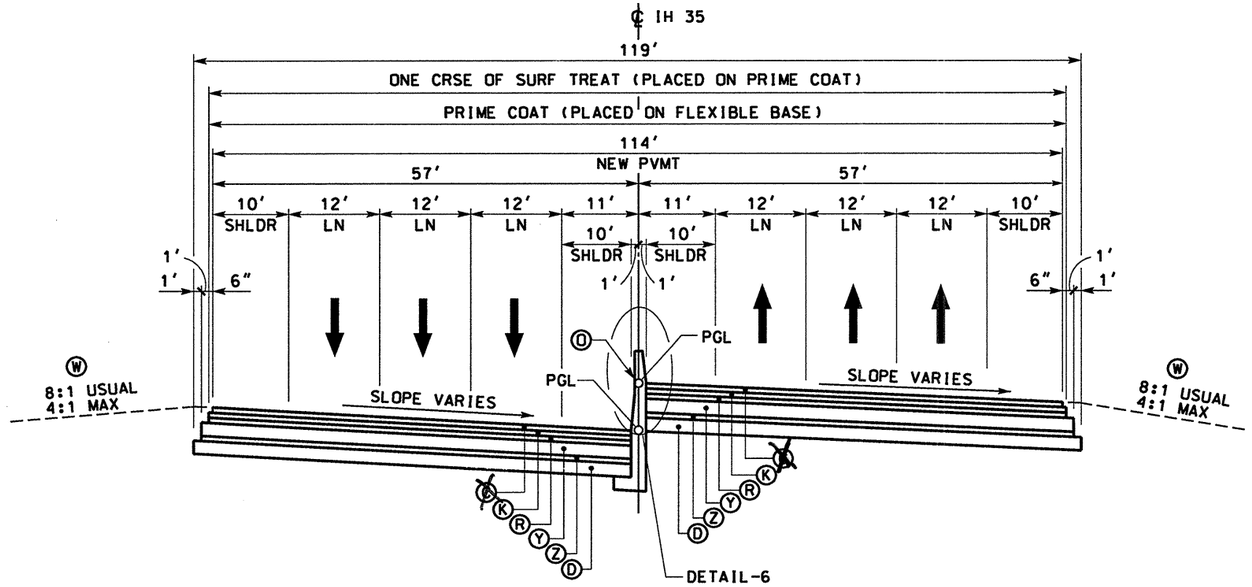
PROPOSED
TYPICAL SECTIONS

SHEET 5 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		33
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

2/10/2005

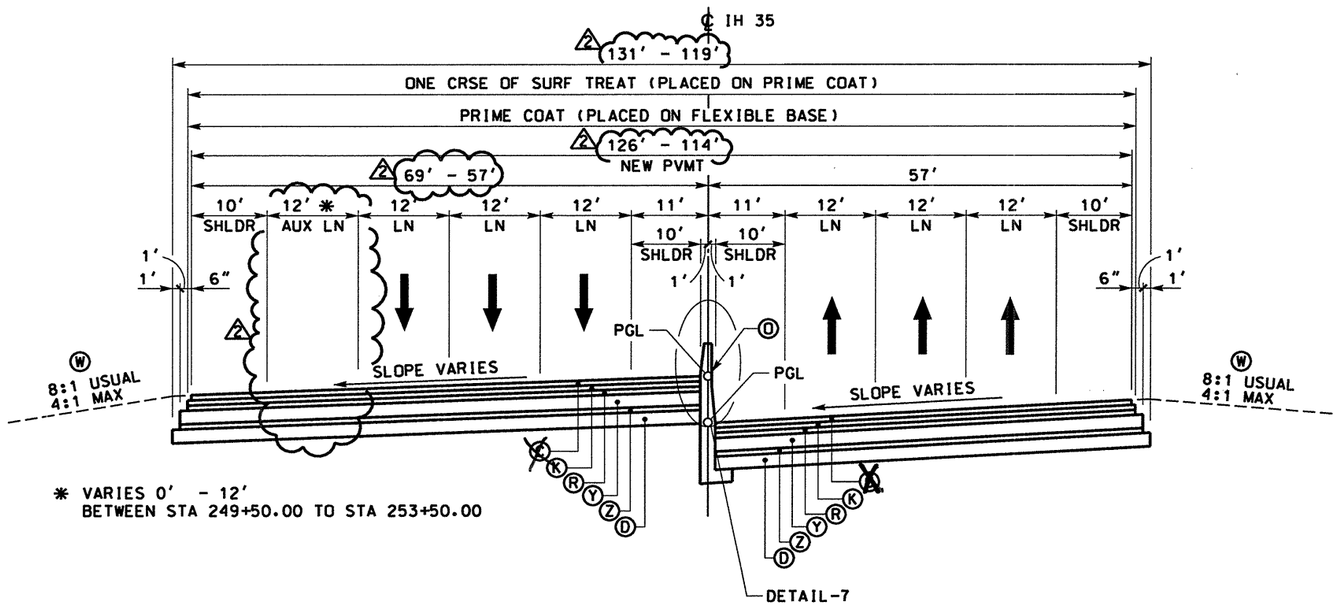
REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
b03tsp17.dgn-10 HOUFILE023 \hciv\hc10130\



~~PROPOSED~~ TYPICAL SECTION (ML9)

NTS

STA 271+65.00 TO STA 284+15.00



* VARIES 0' - 12'
BETWEEN STA 249+50.00 TO STA 253+50.00

~~PROPOSED~~ TYPICAL SECTION (ML10)

NTS

STA 249+50.00 TO STA 253+50.00
STA 351+85.00 TO STA 357+65.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
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3. FOR DETAILS SEE SHEET 6 OF 10.
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11/30/04	AA	2	ADD AUXILIARY LANE

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MAY 08, 2007

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IH 35
LOOP 20 TO UNIROYAL ROAD

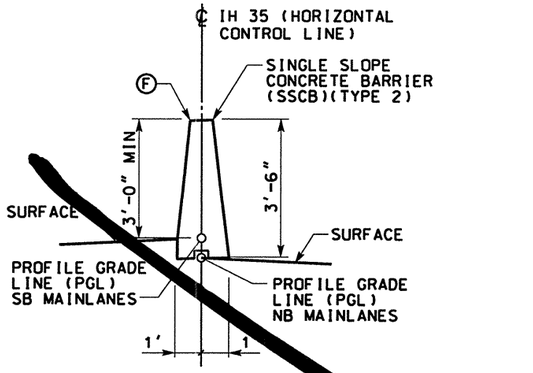
~~PROPOSED~~
TYPICAL SECTIONS

SHEET 5 OF 12

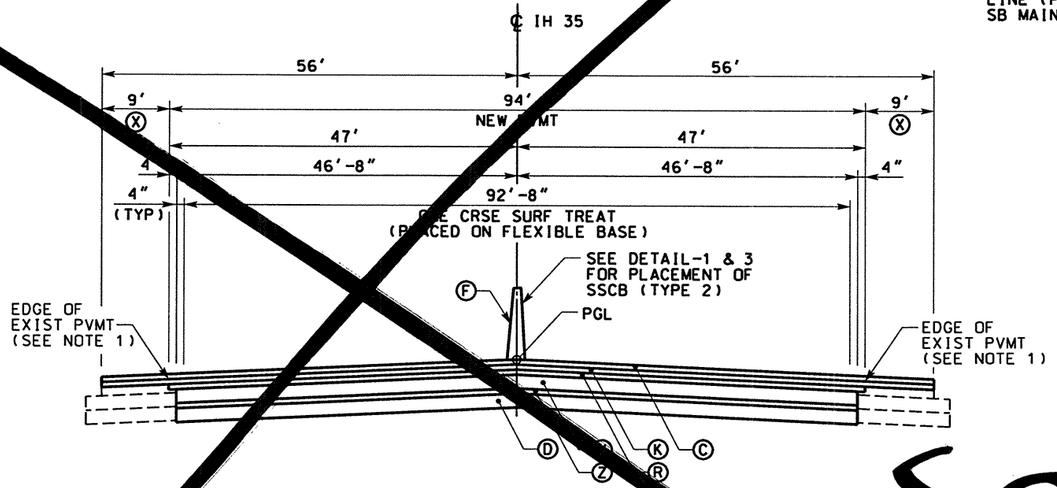
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		33
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/14/2007
HOUFILE023 \hciwil\cf0130\
b031sp17.dgn-10

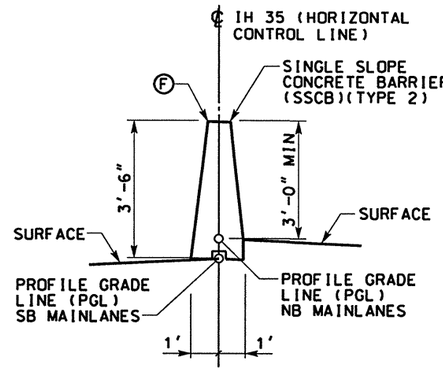
REF FILE(S): j011op01.bdr. bdr LV ON = 32.45.47.57.58.60-62



DETAIL-1
NTS



DETAIL-2
NTS



DETAIL-3
NTS

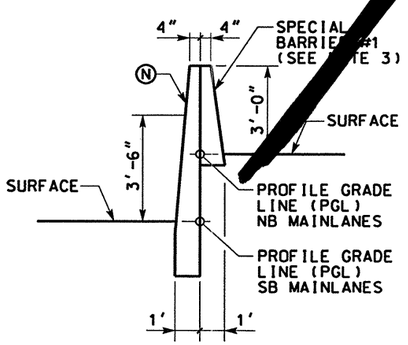
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

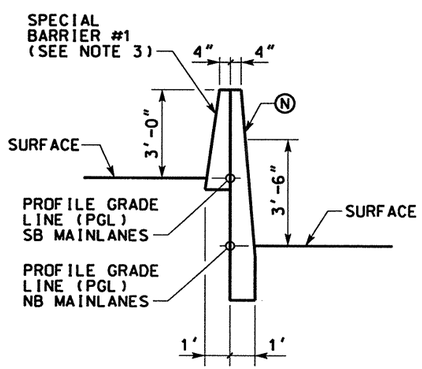
NOTES:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.
2. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #1 DETAILS.
3. FOR MORE INFORMATION, REFER TO SPECIAL BARRIER #2 DETAILS.
4. THE PROFILE GRADE LINE (PGL) FOR BOTH THE NORTHBOUND AND SOUTHBOUND MAINLANES WERE DETERMINE FROM THE EXISTING PAVEMENT AND PROJECTING A 2% USUAL CROSS-SLOPE TOWARD THE CENTERLINE. ALL ROADWAY CROWN CHARACTERISTICS WERE ELIMINATED. THE CONTRACTOR SHALL FIELD VERIFY AND MAKE ANY ADJUSTMENTS IF NECESSARY.

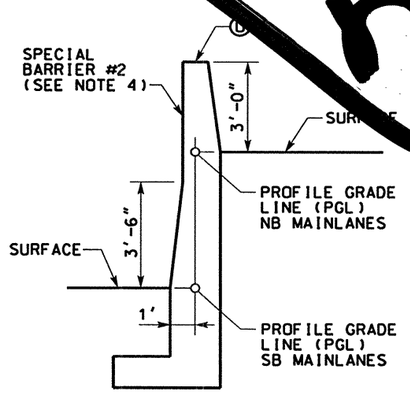
see next



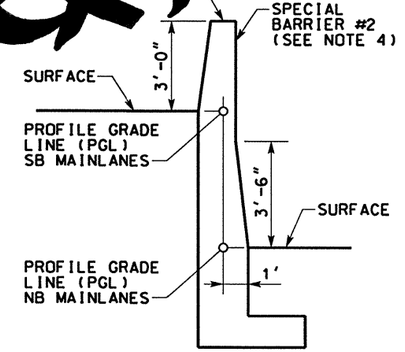
DETAIL-4
NTS



DETAIL-5
NTS



DETAIL-6
NTS



DETAIL-7
NTS

STATE OF TEXAS
RUDY L. GOMEZ
R. 58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

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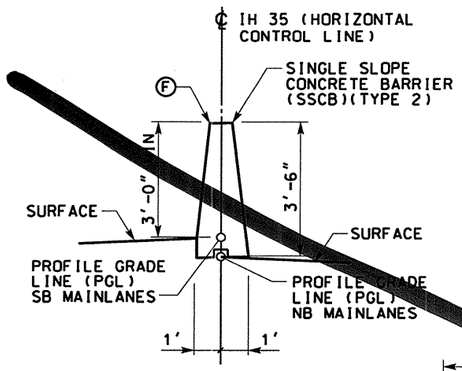
IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED
TYPICAL SECTIONS

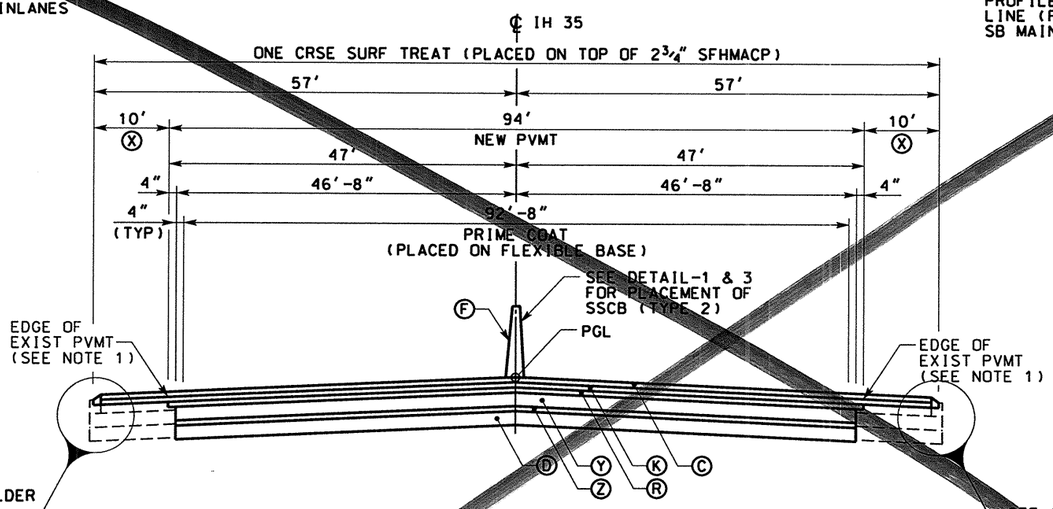
SHEET 6 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		34
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

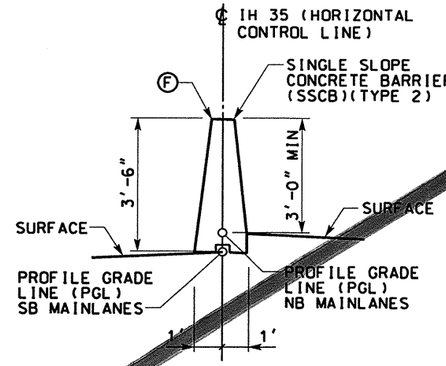
REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
b031sp04.dgn-22 HOUFILE023 \hcivil\cf0130\ 5/7/2003



DETAIL-1
NTS



DETAIL-2
NTS



DETAIL-3
NTS

LEGEND

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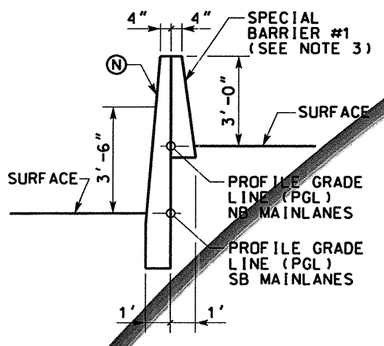
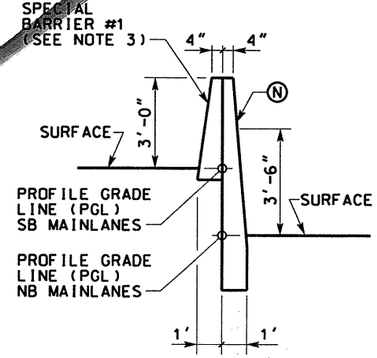
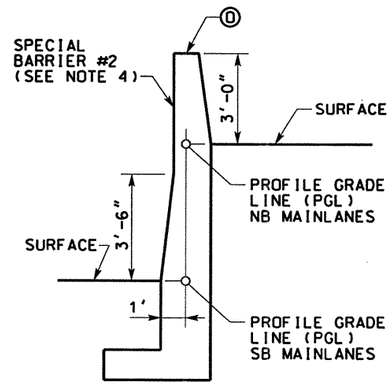


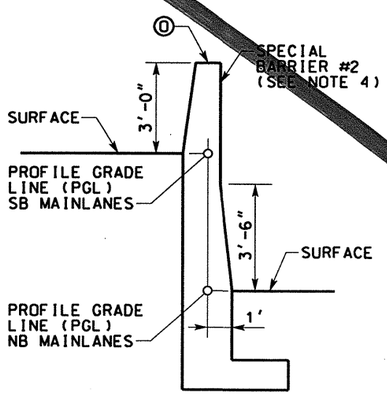
DETAIL-4
NTS



DETAIL-5
NTS



DETAIL-6
NTS



DETAIL-7
NTS

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED TYPICAL SECTIONS

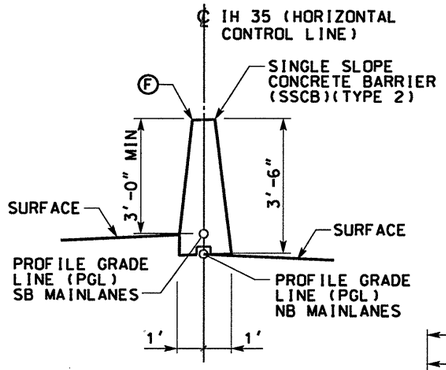
SHEET 6 OF 12

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

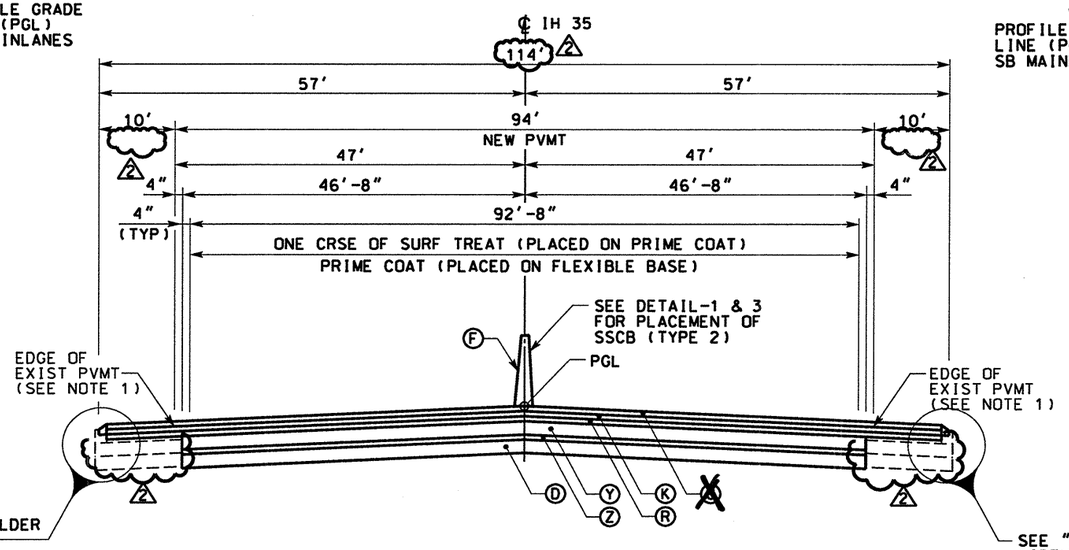
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		34
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

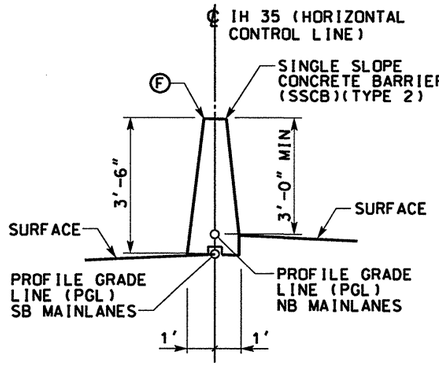
b031sp04.dgn-24 HOUFILE023 \hcivil\cf0130\ 3/4/2004



DETAIL-1
NTS



DETAIL-2
NTS



DETAIL-3
NTS

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
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- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
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- TYPICAL SECTION

NOTES:

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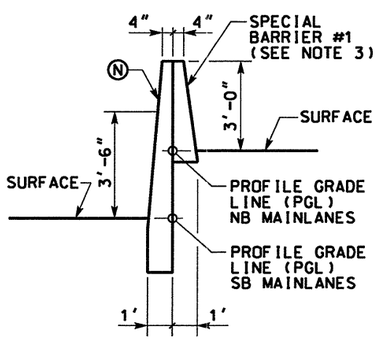
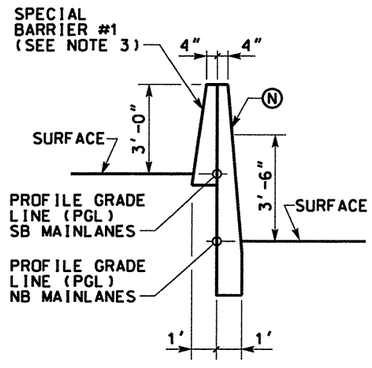
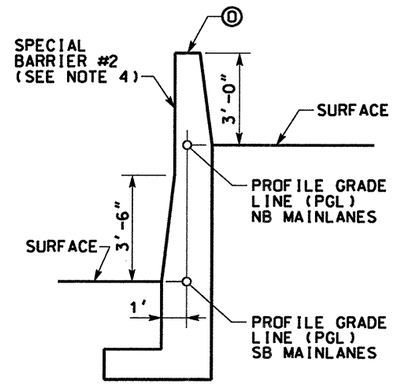


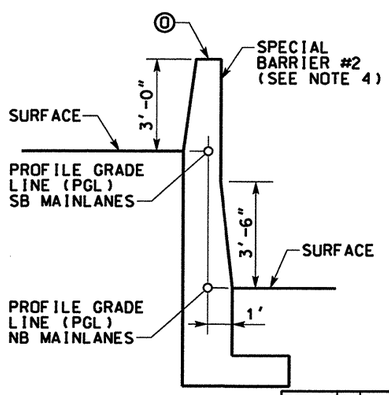
DETAIL-4
NTS



DETAIL-5
NTS



DETAIL-6
NTS



DETAIL-7
NTS

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
04/17/07	AA	2	CHG WIDTH OF MAINLANE RECONSTRUCTION AND SHLDR ADJUSTMENT

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MAY 08, 2007

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Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

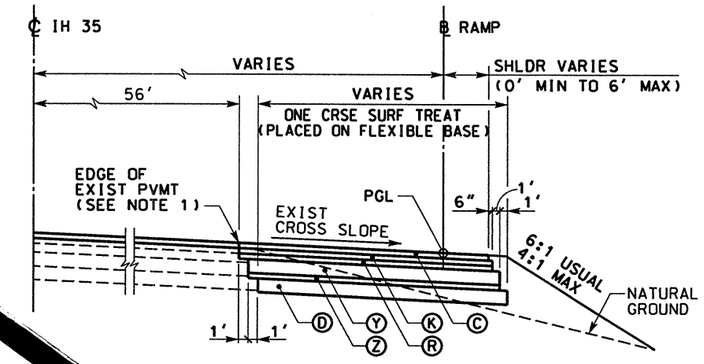
~~PROPOSED~~
TYPICAL SECTIONS

SHEET 6 OF 12

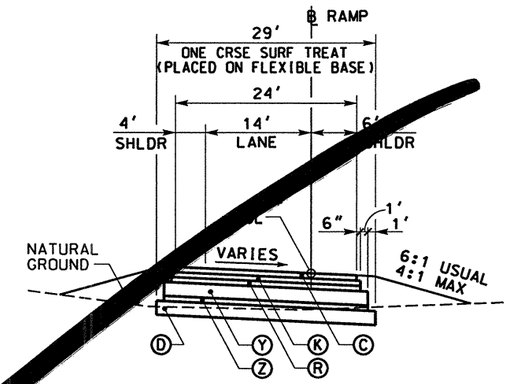
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		34
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

5/14/2007 HOUFILE023 \hcivil\c\0130\ b03tsp04.dgn-24

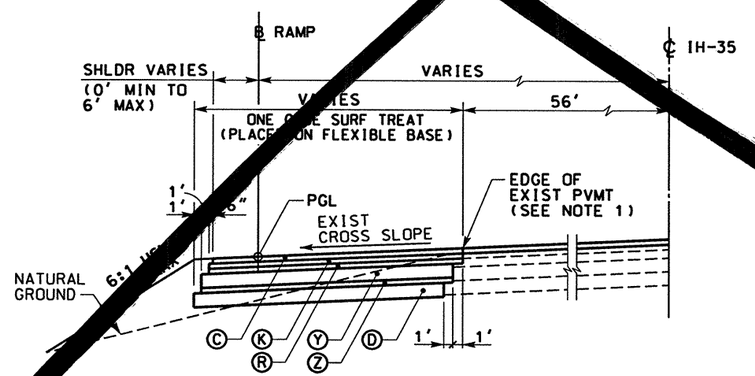


PROPOSED EXIT RAMP
(CONNECT TO MAINLANES)
SCALE: 1"=20'

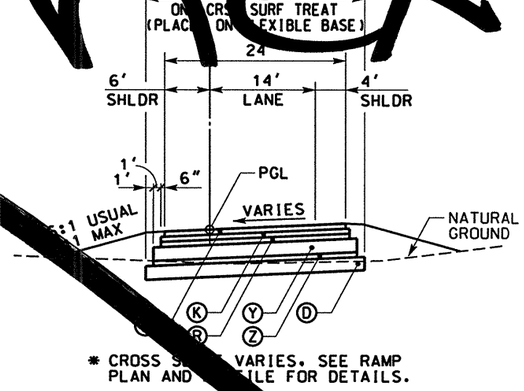


* CROSS SLOPE VARIES. SEE RAMP PLAN AND PROFILE FOR DETAILS.

PROPOSED EXIT RAMP
SCALE: 1"=20'



PROPOSED ENTRANCE RAMP
(CONNECT TO MAINLANES)
SCALE: 1"=20'



* CROSS SLOPE VARIES. SEE RAMP PLAN AND PROFILE FOR DETAILS.

PROPOSED ENTRANCE RAMP
SCALE: 1"=20'

see next

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTE:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD

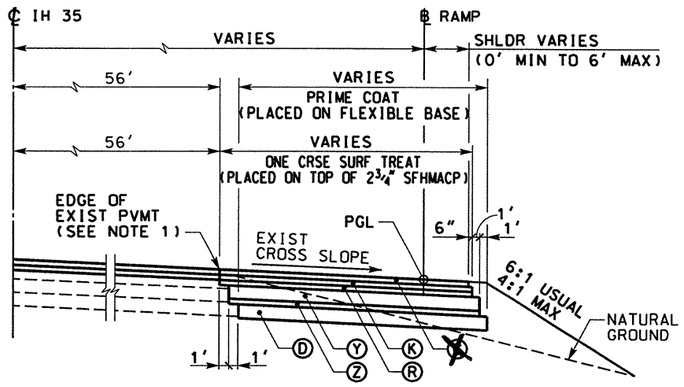
PROPOSED TYPICAL SECTIONS

SHEET 7 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		35
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

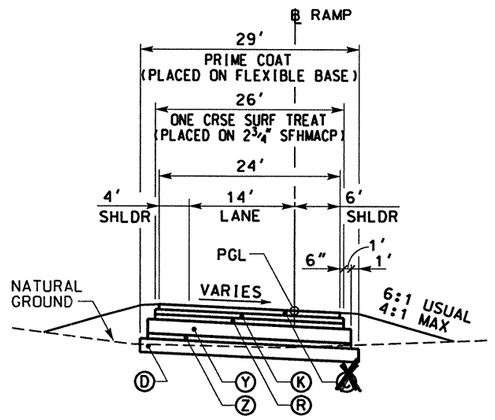
REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

b031sp02.dgn-12 HOUFILE023 \hciwlv\c\0130\ 5/7/2003



~~PROPOSED~~ EXIT RAMP

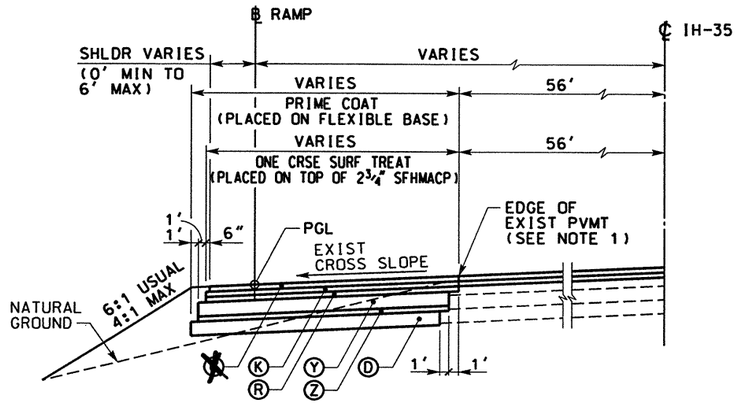
(CONNECT TO MAINLANES)
SCALE: 1"=20'



* CROSS SLOPE VARIES. SEE RAMP PLAN AND PROFILE FOR DETAILS.

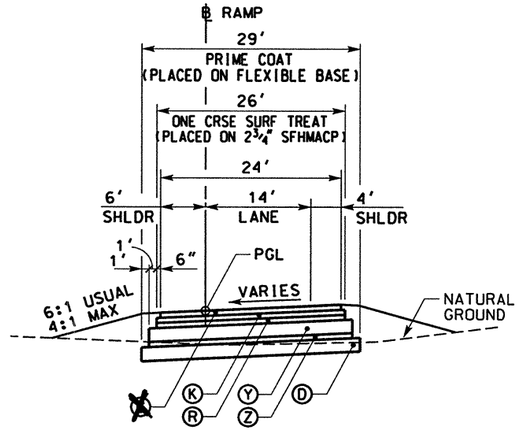
~~PROPOSED~~ EXIT RAMP

SCALE: 1"=20'



~~PROPOSED~~ ENTRANCE RAMP

(CONNECT TO MAINLANES)
SCALE: 1"=20'



* CROSS SLOPE VARIES. SEE RAMP PLAN AND PROFILE FOR DETAILS.

~~PROPOSED~~ ENTRANCE RAMP

SCALE: 1"=20'

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- ~~Ⓒ POROUS FRICTION COURSE (1.5")~~
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTE:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

Alan Abugattas

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

~~PROPOSED~~
TYPICAL SECTIONS

SHEET 7 OF 12

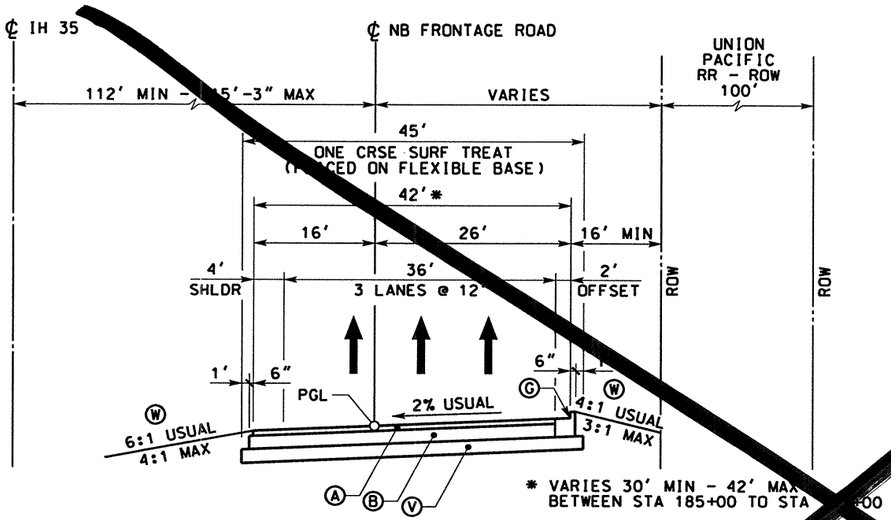
FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	35
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

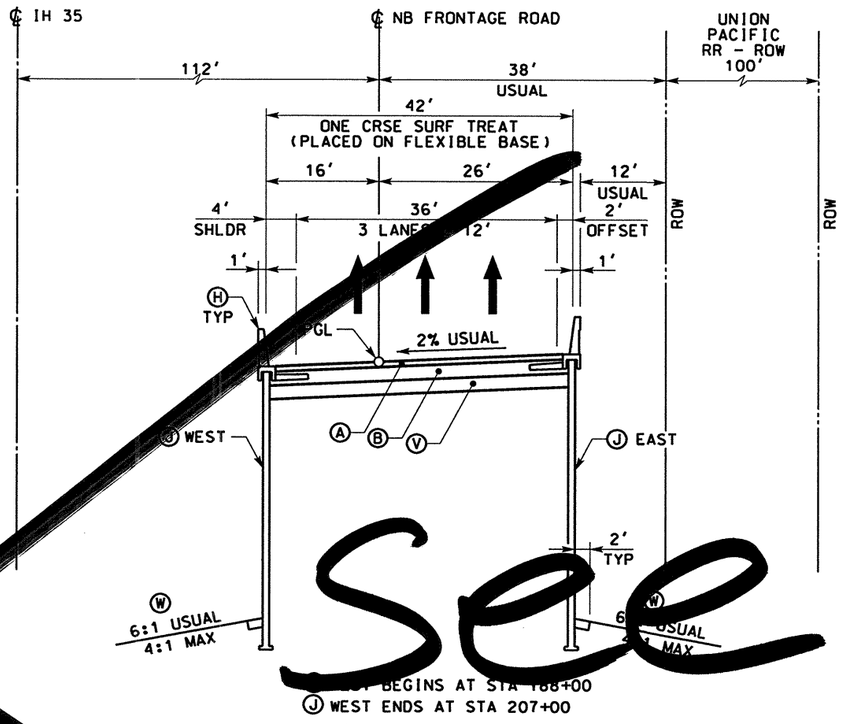
HOUFILE023 \hciwil\c0130\

b031sp02.dgn-13

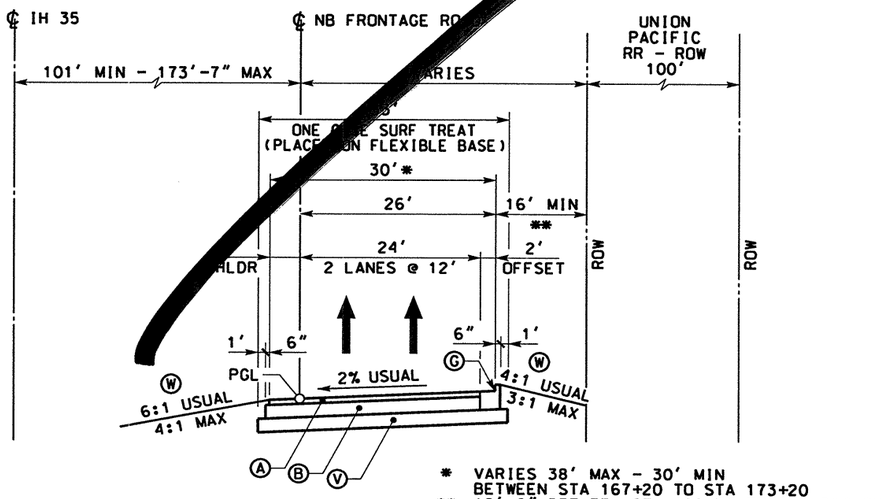
REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62



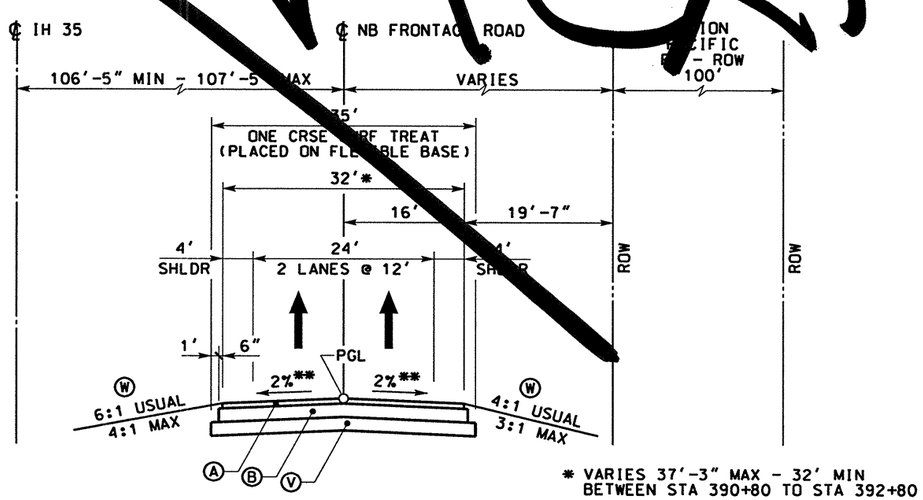
PROPOSED
NORTHBOUND FRONTAGE ROAD (NB1)
NTS
STA 185+00 TO STA 187+00
STA 208+00 TO STA 214+63.61



PROPOSED
NORTHBOUND FRONTAGE ROAD (NB2)
NTS
STA 188+00 TO STA 193+27
STA 204+47 TO STA 208+00



PROPOSED
NORTHBOUND FRONTAGE ROAD (NB3)
NTS
STA 167+20 TO STA 185+00
STA 214+63.61 TO STA 390+80
STA 417+65 TO STA 434+46.81



PROPOSED
NORTHBOUND FRONTAGE ROAD (NB4)
NTS
STA 390+80 TO STA 392+80

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTE:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

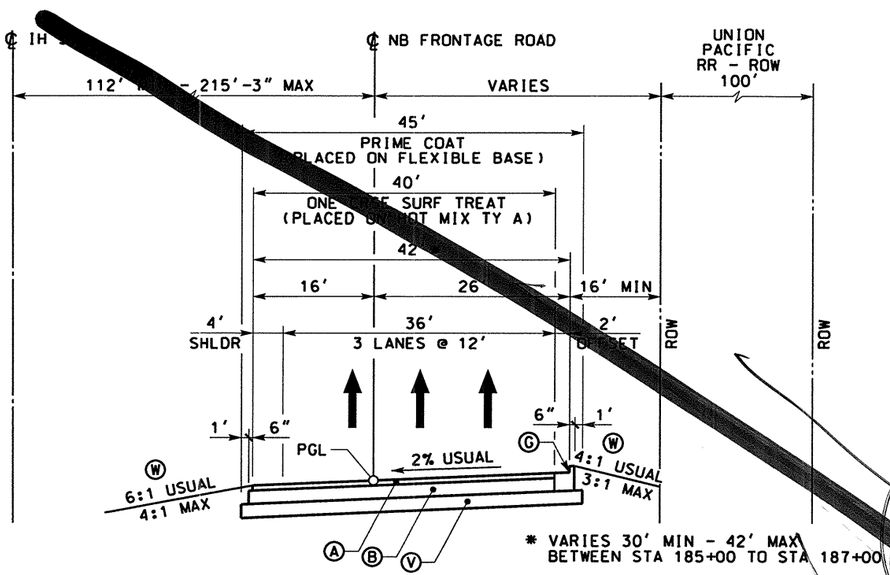
PROPOSED TYPICAL SECTIONS

SHEET 8 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	36
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

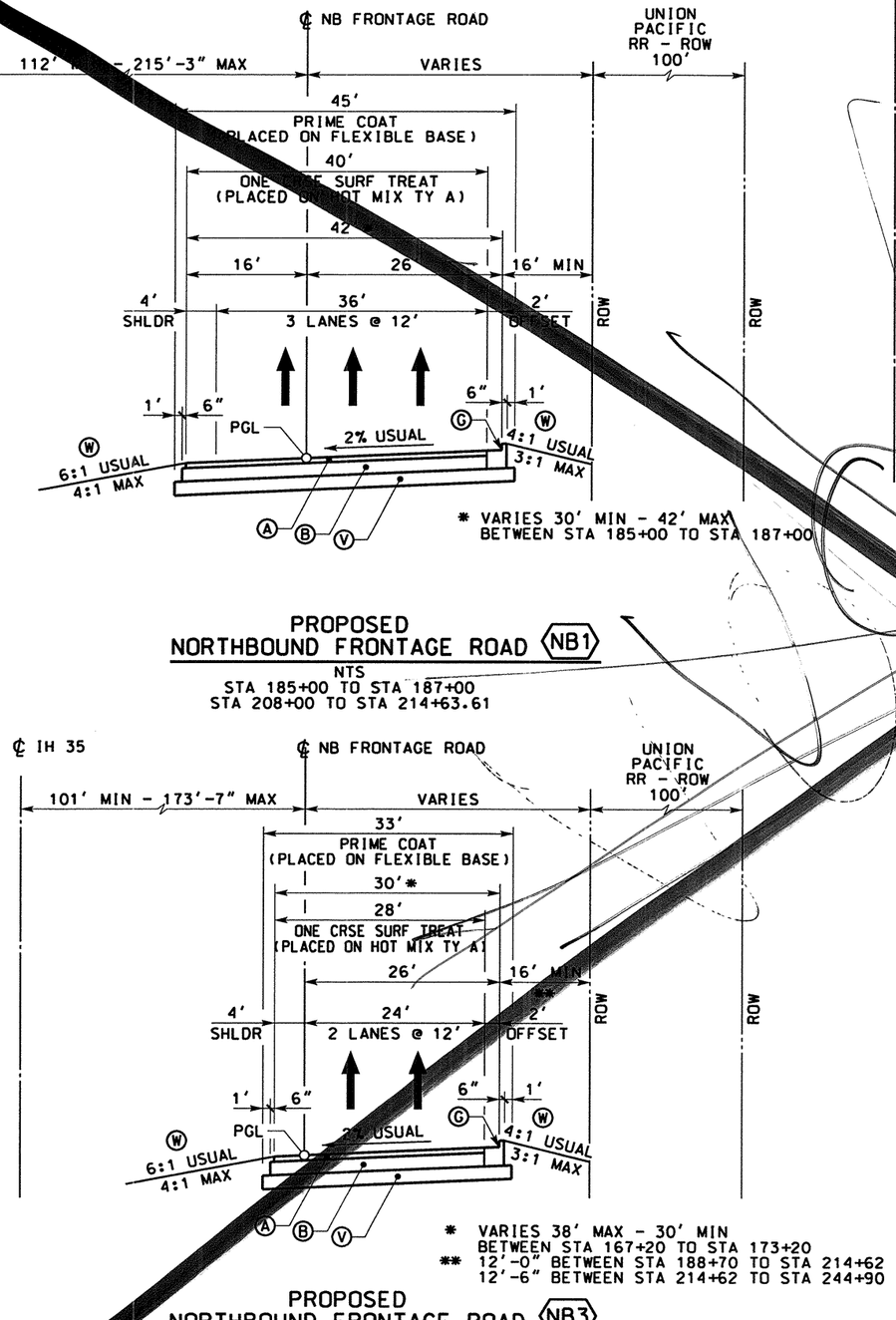
REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

5/7/2003 HOUFILE023 \hcivil\c0130\ b031sp12.dgn-13



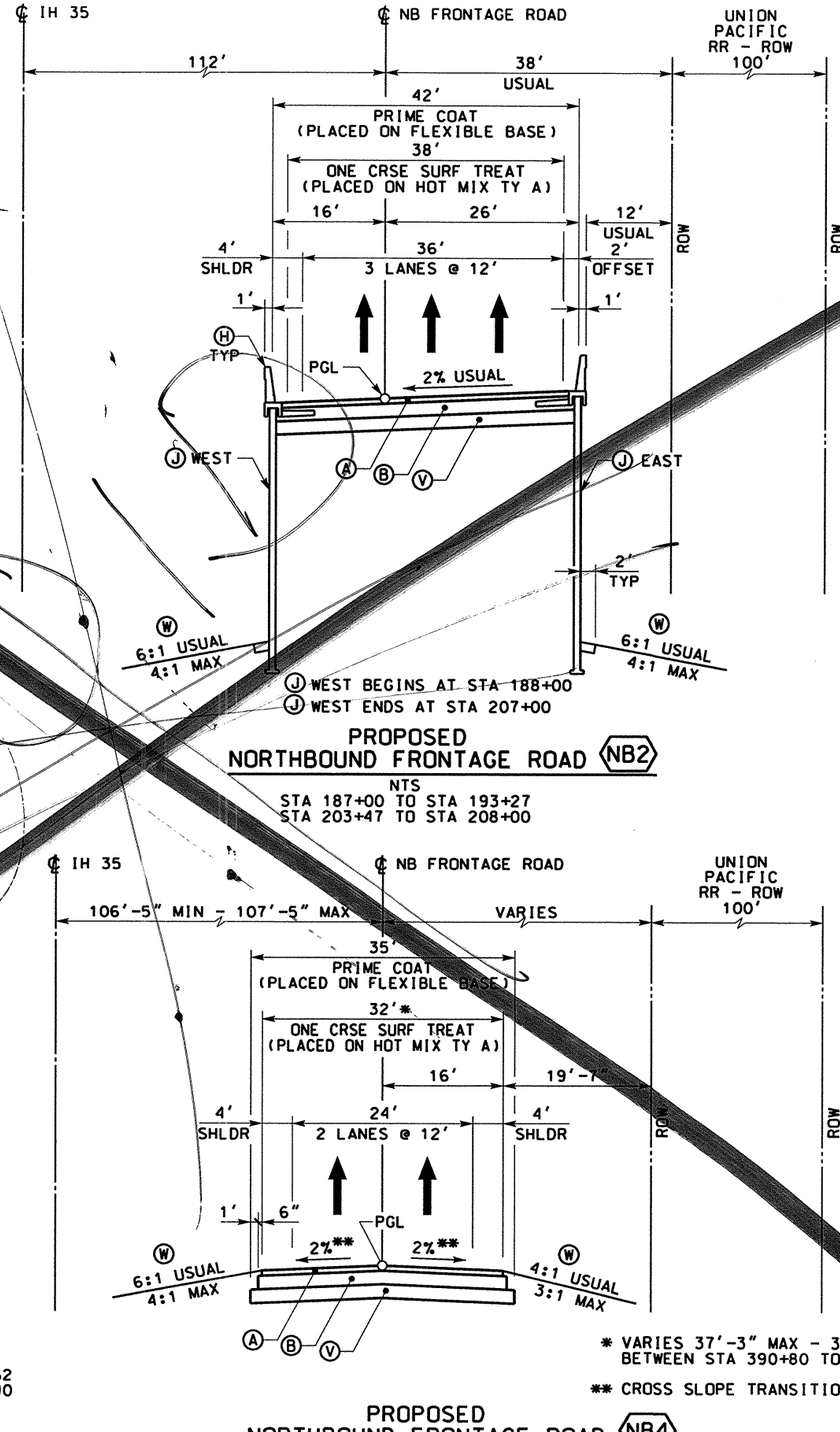
PROPOSED NORTHBOUND FRONTAGE ROAD NB1

NTS
STA 185+00 TO STA 187+00
STA 208+00 TO STA 214+63.61



PROPOSED NORTHBOUND FRONTAGE ROAD NB3

NTS
STA 167+20 TO STA 185+00
STA 214+63.61 TO STA 390+80
STA 417+65 TO STA 434+46.81



PROPOSED NORTHBOUND FRONTAGE ROAD NB2

NTS
STA 187+00 TO STA 193+27
STA 203+47 TO STA 208+00

PROPOSED NORTHBOUND FRONTAGE ROAD NB4

NTS
STA 390+80 TO STA 392+80

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTE:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD

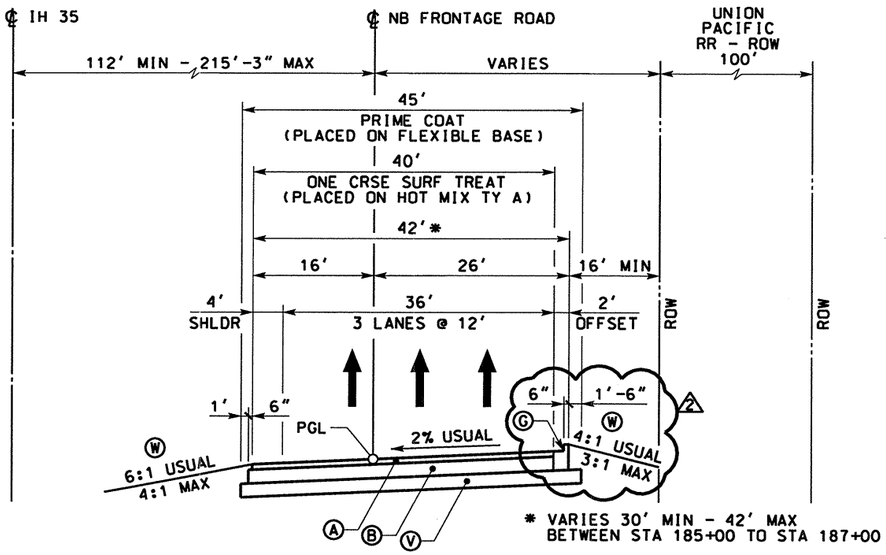
PROPOSED TYPICAL SECTIONS

SHEET 8 OF 12

FED RD	FEDERAL AID PROJECT NO	SHEET NO
DIV NO	NH-2002 (79)	36
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

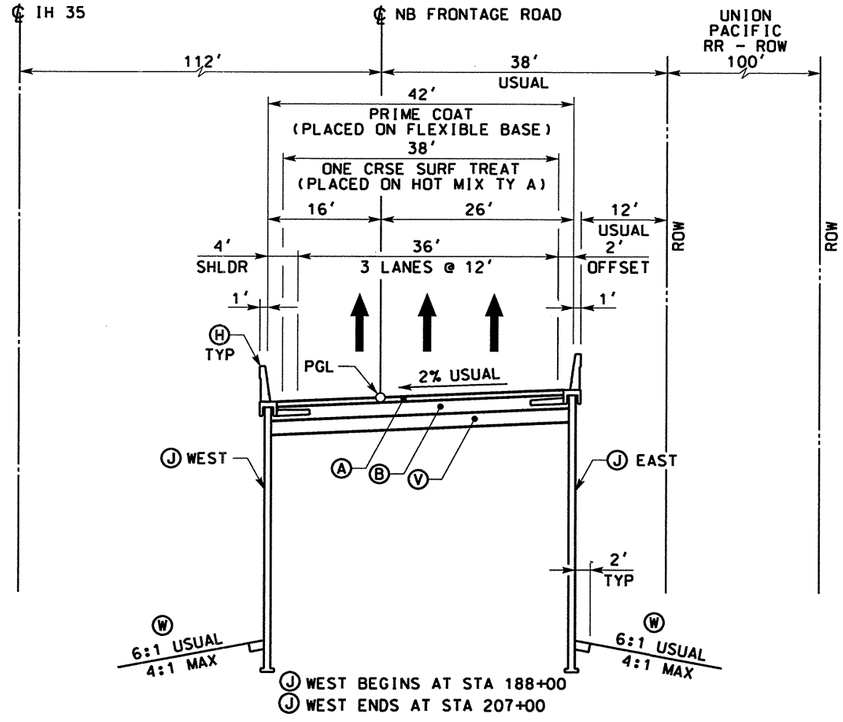
REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

b031sp12.dgn-14 HOUFILE023 \hcivil\cf0130\ 3/4/2004



~~PROPOSED~~
NORTHBOUND FRONTAGE ROAD (NB1)

NTS
STA 185+00 TO STA 187+00
STA 208+00 TO STA 214+63.61



~~PROPOSED~~
NORTHBOUND FRONTAGE ROAD (NB2)

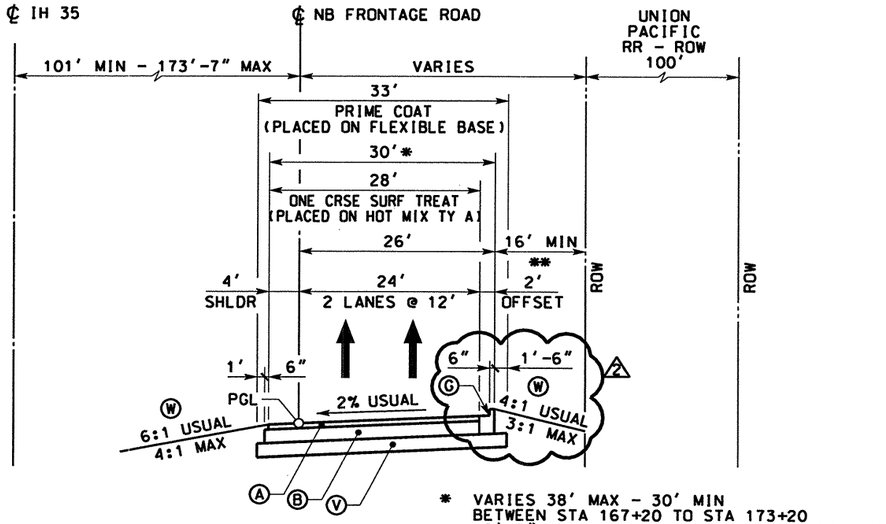
NTS
STA 187+00 TO STA 193+27
STA 203+47 TO STA 208+00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

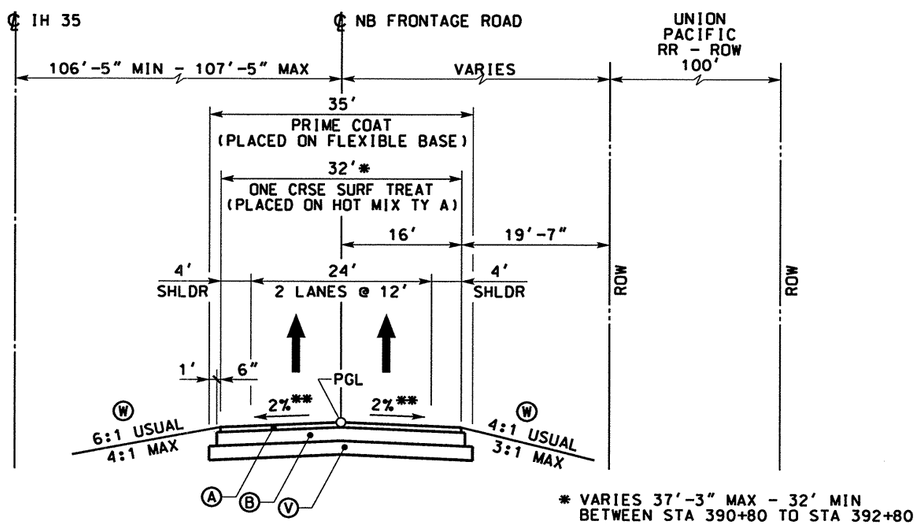
NOTE:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.



~~PROPOSED~~
NORTHBOUND FRONTAGE ROAD (NB3)

NTS
STA 167+20 TO STA 185+00
STA 214+63.61 TO STA 390+80
STA 417+65 TO STA 434+46.81



~~PROPOSED~~
NORTHBOUND FRONTAGE ROAD (NB4)

NTS
STA 390+80 TO STA 392+80

DATE	BY	REV	REVISION
08/24/04	AA	2	REVISE WIDTH OF CURB AND GUTTER TO 2'-0"
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON AUGUST 24, 2004

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

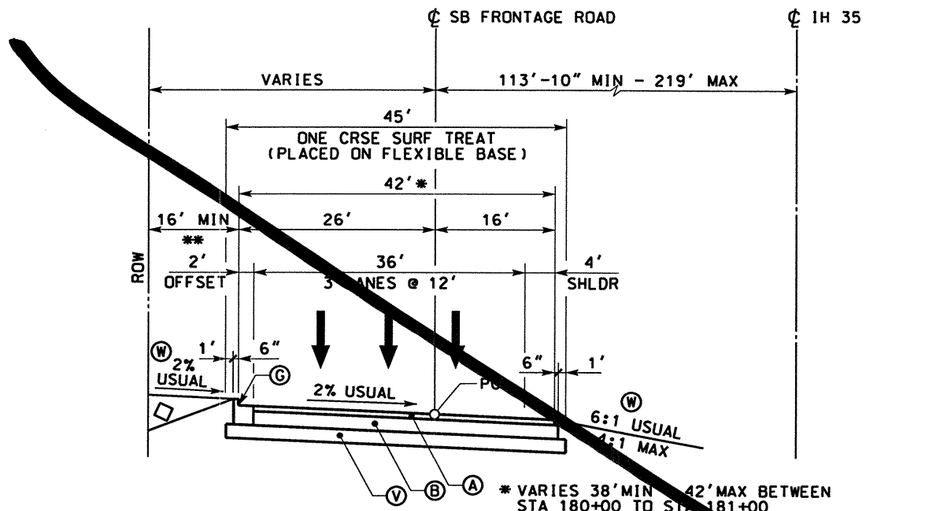
~~PROPOSED~~
TYPICAL SECTIONS

SHEET 8 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		36
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

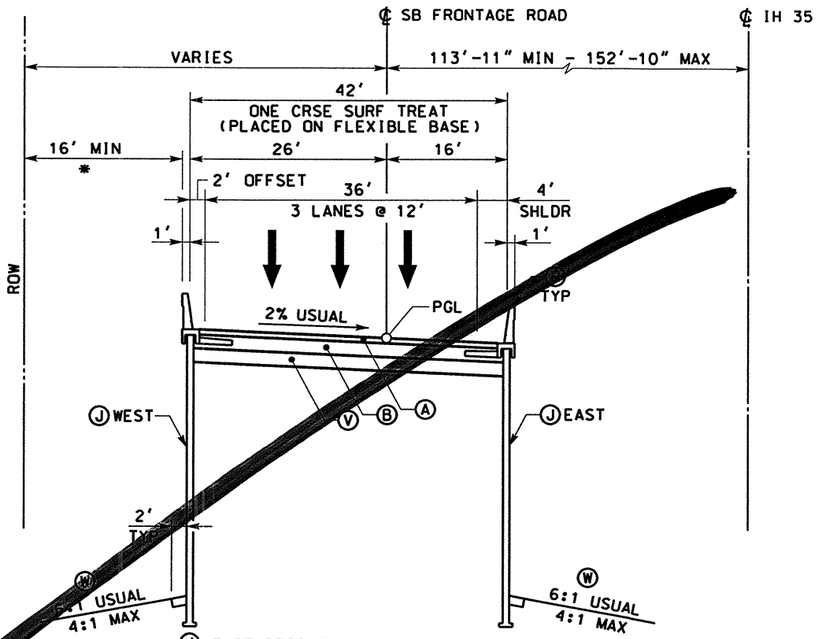
REF FILE(S): j0110p01.bdr, bdr LV ON = 32,45,47,57,58,60-62

b031sp12a.dgn-15 HOUFILE023 \hcivil\cf0130\ 8/24/2004



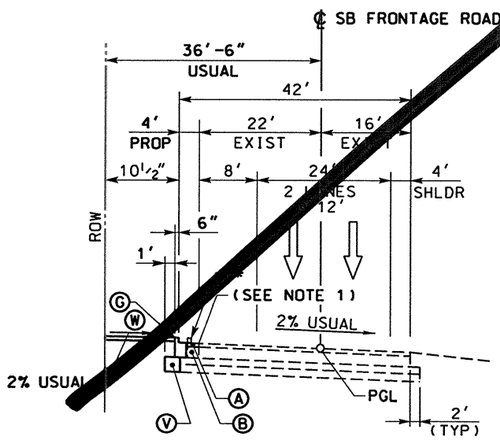
PROPOSED SOUTHBOUND FRONTAGE ROAD (SB1)

NTS
STA 180+00 TO STA 186+50
STA 204+50 TO STA 207+94
STA 415+00 TO STA 419+00



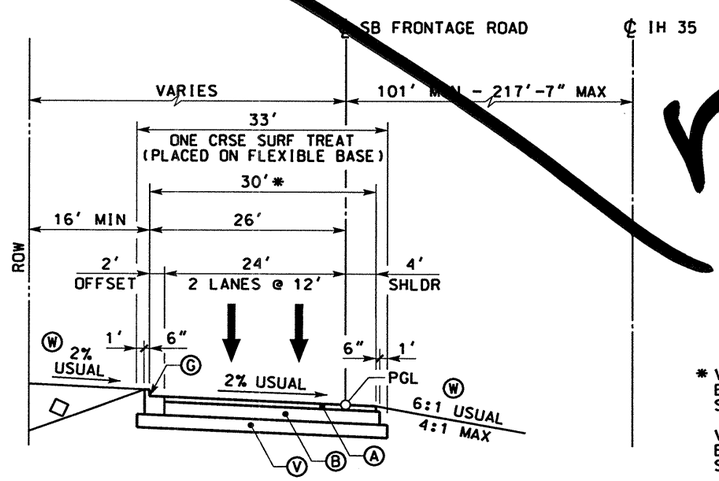
PROPOSED SOUTHBOUND FRONTAGE ROAD (SB2)

NTS
STA 186+50 TO STA 204+50
STA 400+25 TO STA 415+00



PROPOSED SOUTHBOUND FRONTAGE ROAD (SB3)

NTS
STA 207+94 TO STA 209+00



PROPOSED SOUTHBOUND FRONTAGE ROAD (SB4)

NTS
STA 243+50 TO STA 400+25
STA 419+00 TO STA 435+95.90

* VARIES 30'MIN - 38'MAX BETWEEN STA 243+50 TO STA 245+70

VARIES 30'MIN - 42'MAX BETWEEN STA 394+25 TO STA 400+25

VARIES 30'MIN - 42'MAX BETWEEN STA 415+00 TO STA 416+50

◇ FOR FILL CONDITIONS 4:1 USUAL/3:1 MAX

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTE:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.

See next

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

Rudy L. Gomez

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED
TYPICAL SECTIONS

SHEET 9 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	37
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

5/7/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
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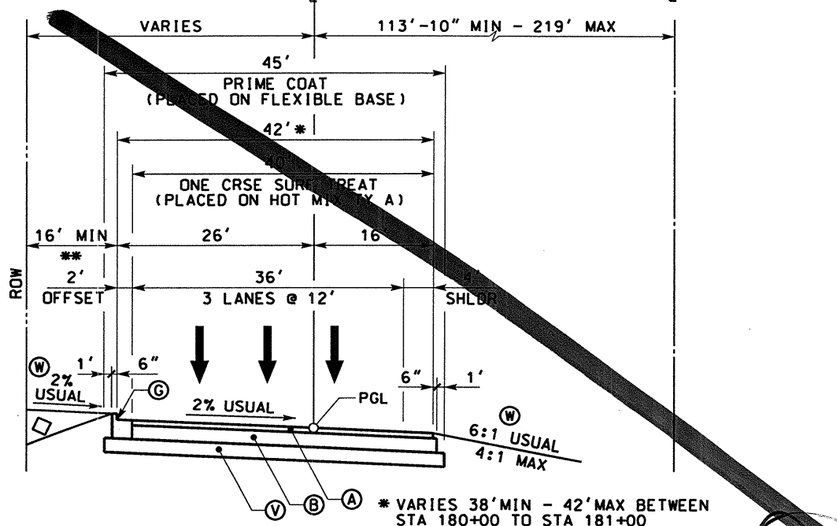
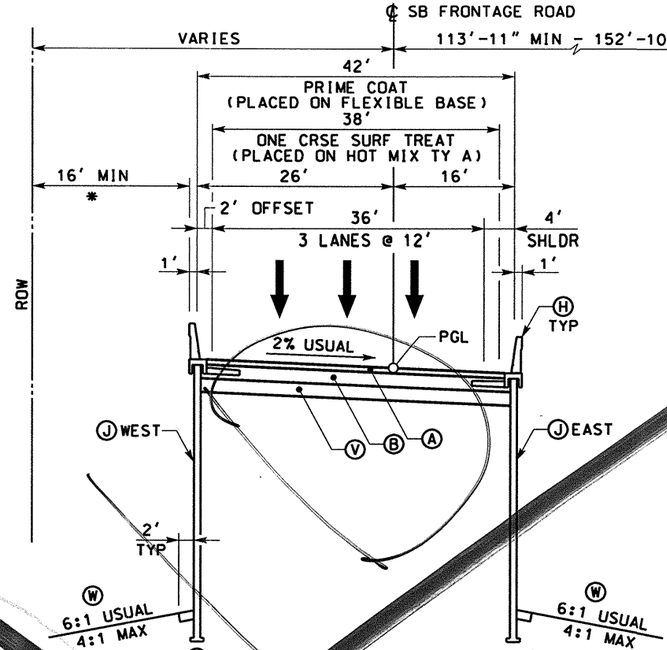


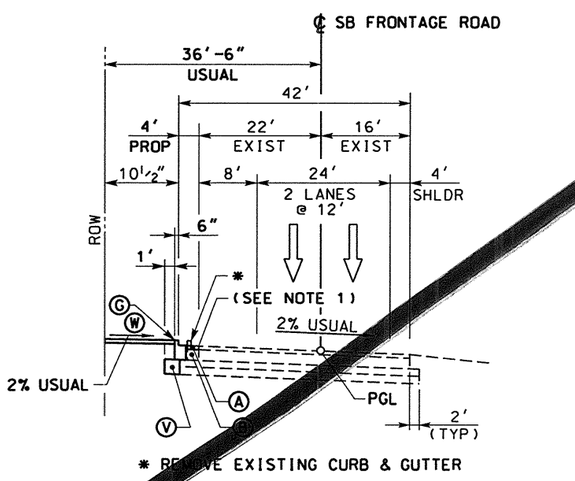
PROPOSED SOUTHBOUND FRONTAGE ROAD (SB1)

NTS
STA 180+00 TO STA 186+50
STA 204+50 TO STA 207+94
STA 415+00 TO STA 419+00



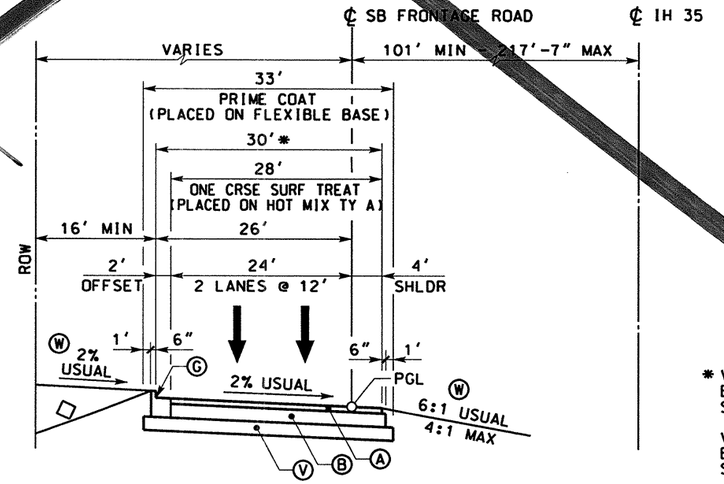
PROPOSED SOUTHBOUND FRONTAGE ROAD (SB2)

NTS
STA 186+50 TO STA 204+50
STA 400+25 TO STA 415+00



PROPOSED SOUTHBOUND FRONTAGE ROAD (SB3)

NTS
STA 207+94 TO STA 209+00



PROPOSED SOUTHBOUND FRONTAGE ROAD (SB4)

NTS
STA 243+50 TO STA 400+25
STA 419+00 TO STA 435+95.90

* VARIES 30'MIN - 38'MAX BETWEEN STA 243+50 TO STA 245+70

VARIES 30'MIN - 42'MAX BETWEEN STA 394+25 TO STA 400+25

VARIES 30'MIN - 42'MAX BETWEEN STA 415+00 TO STA 416+50

◇ FOR FILL CONDITIONS 4:1 USUAL/3:1 MAX

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C)(LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTE:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED TYPICAL SECTIONS

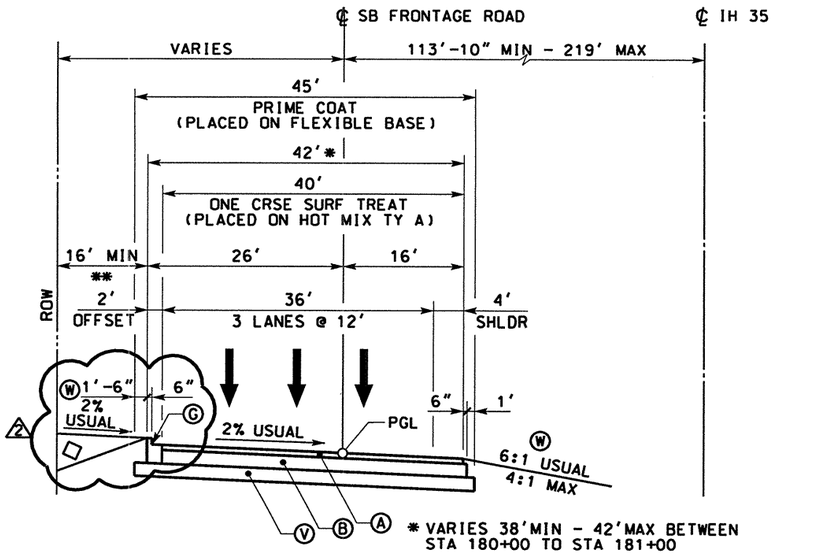
SHEET 9 OF 12

RECORD	FEDERAL AID PROJECT NO	SHEET NO
	NH-2002 (79)	37
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

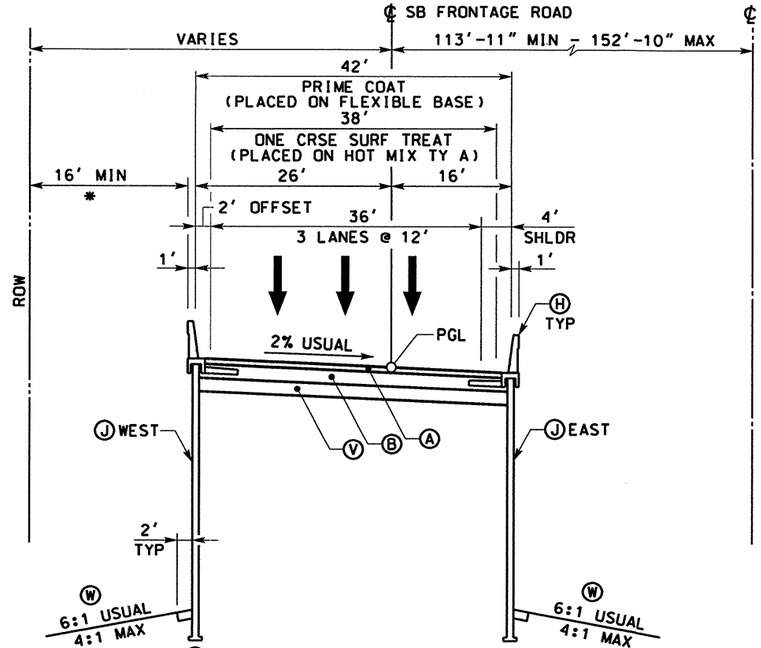
HOUFILE023 \hcivil\c\f0130\b031sp14.dgn-13

REF FILE(S): j0110p01.bdr, bdr LV ON = 32,45,47,57,58,60-62



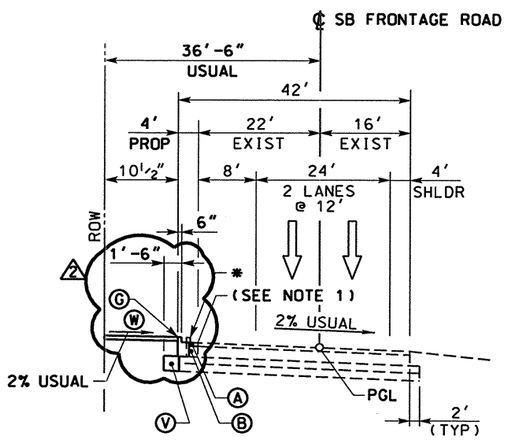
~~PROPOSED~~
SOUTHBOUND FRONTAGE ROAD (SB1)

NTS
STA 180+00 TO STA 186+50
STA 204+50 TO STA 207+94
STA 415+00 TO STA 419+00



~~PROPOSED~~
SOUTHBOUND FRONTAGE ROAD (SB2)

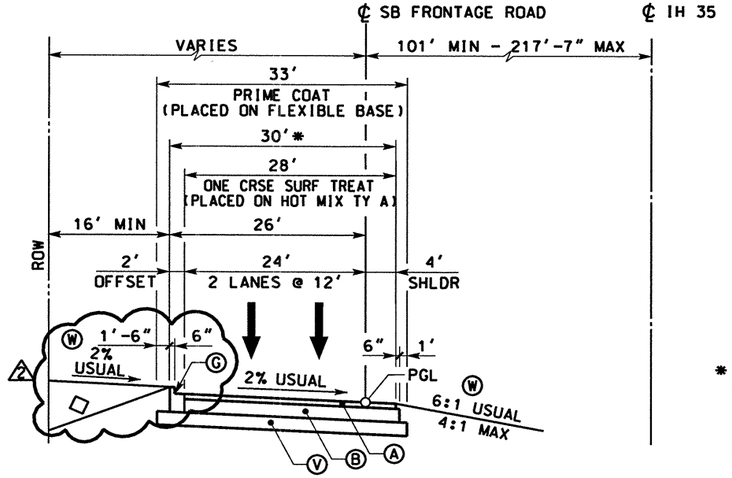
NTS
STA 186+50 TO STA 204+50
STA 400+25 TO STA 415+00



* REMOVE EXISTING CURB & GUTTER

~~PROPOSED~~
SOUTHBOUND FRONTAGE ROAD (SB3)

NTS
STA 207+94 TO STA 209+00



~~PROPOSED~~
SOUTHBOUND FRONTAGE ROAD (SB4)

NTS
STA 243+50 TO STA 400+25
STA 419+00 TO STA 435+95.90

* VARIES 30'MIN - 38'MAX BETWEEN STA 243+50 TO STA 245+70

VARIES 30'MIN - 42'MAX BETWEEN STA 394+25 TO STA 400+25

VARIES 30'MIN - 42'MAX BETWEEN STA 415+00 TO STA 416+50

◇ FOR FILL CONDITIONS 4:1 USUAL/3:1 MAX

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTE:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.

DATE	BY	REV	REVISION
08/24/04	AA	2	REVISE WIDTH OF CURB AND GUTTER TO 2'-0"
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON AUGUST 24, 2004

KBR
Engineered by KBR Technical Services, Inc

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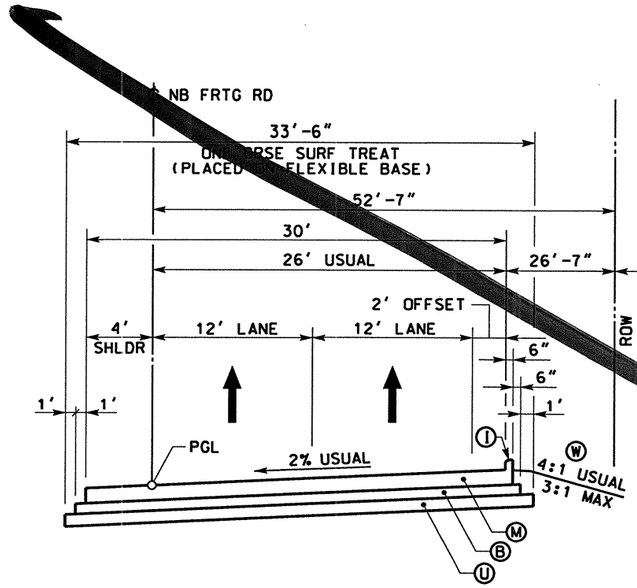
IH 35
LOOP 20 TO UNIROYAL ROAD

~~PROPOSED~~
TYPICAL SECTIONS

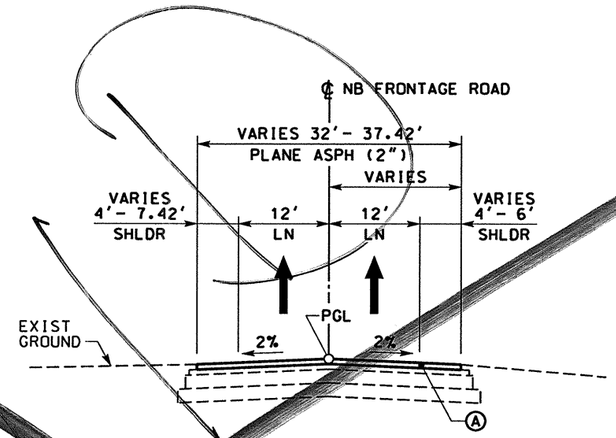
SHEET 9 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		37
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

8/24/2004
HOUFILE023 \hcivil\cf0130\
b03tsp14a.dgn-13
REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62



PROPOSED
NORTHBOUND FRONTAGE ROAD NB5
NTS
STA 434+46.81 TO STA 434+87.81



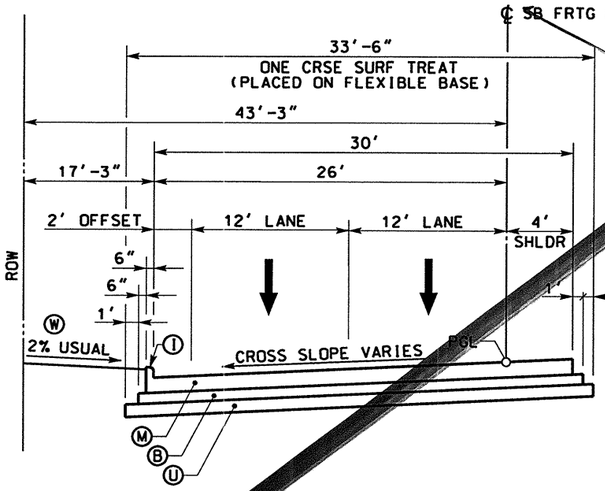
PROPOSED NORTHBOUND FRONTAGE ROAD NB6
NTS
STA 392+80 TO STA 399+77.21

LEGEND

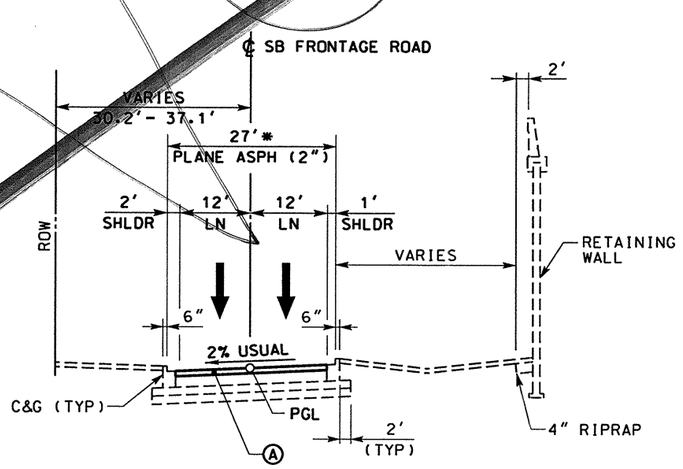
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTE:

1. CONTRACTOR SHALL SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.

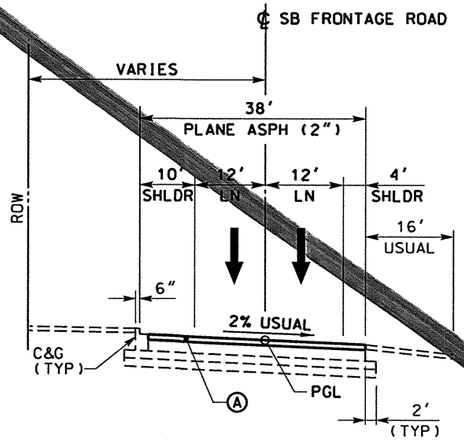


PROPOSED
SOUTHBOUND FRONTAGE ROAD SB5
NTS
STA 435+95.90 TO STA 436+36.90



* VARIES 27' MIN - 38' MAX
BETWEEN STA 166+00 TO
STA 168+00

PROPOSED SOUTHBOUND FRONTAGE ROAD SB6
NTS
STA 154+40 TO STA 168+00



PROPOSED SOUTHBOUND FRONTAGE ROAD SB7
NTS
STA 168+00 TO STA 243+50

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

PROPOSED
TYPICAL SECTIONS

SHEET 10 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	[illegible]
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/8/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62
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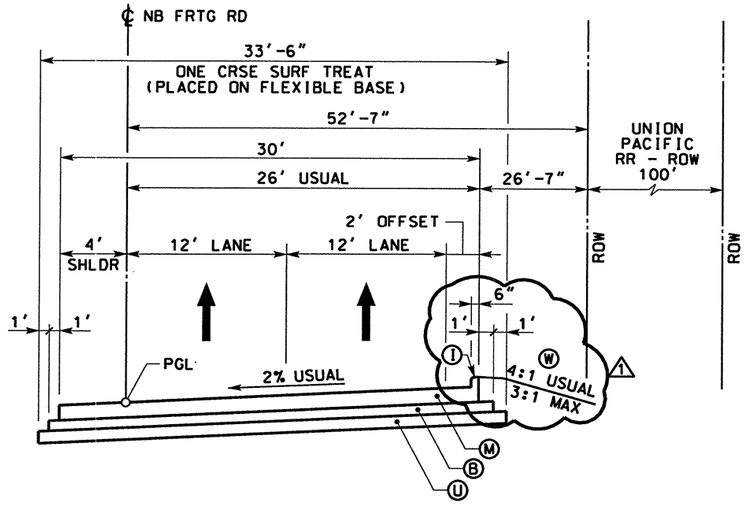
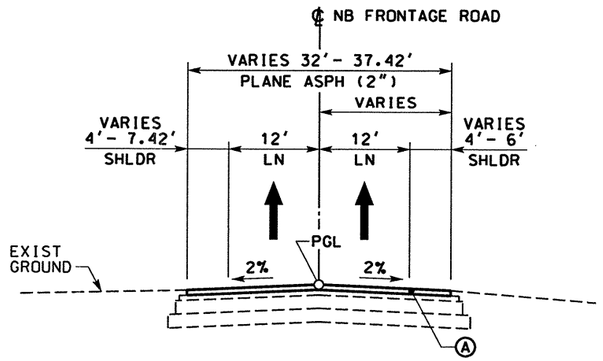


~~PROPOSED~~
NORTHBOUND FRONTAGE ROAD NB5

NTS
STA 434+46.81 TO STA 434+87.81



~~PROPOSED~~ NORTHBOUND FRONTAGE ROAD NB6

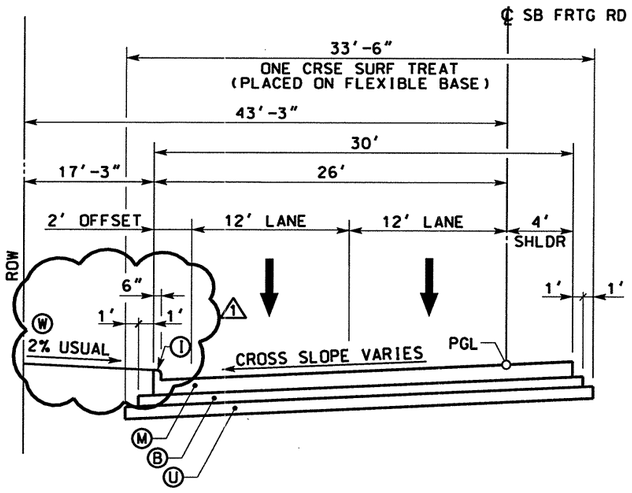
NTS
STA 392+80 TO STA 399+77.21

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

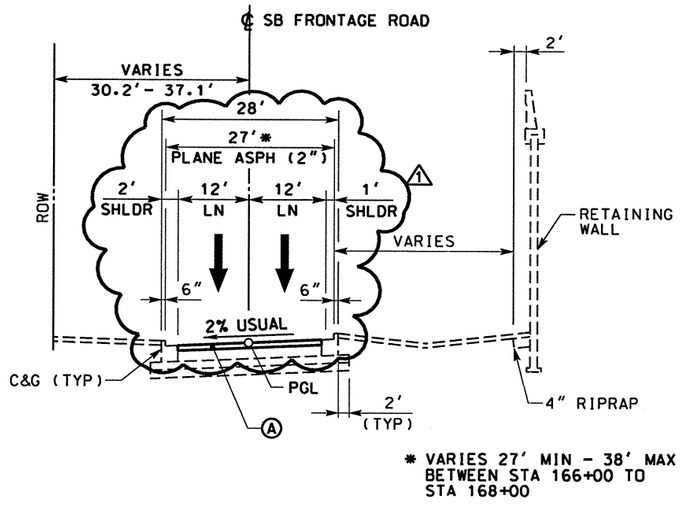
NOTE:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.



~~PROPOSED~~
SOUTHBOUND FRONTAGE ROAD SB5

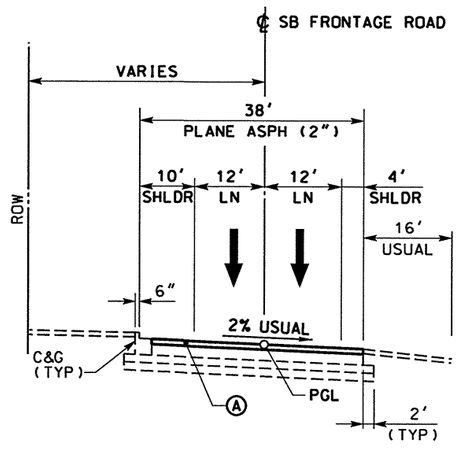
NTS
STA 435+95.90 TO STA 436+36.90



* VARIES 27' MIN - 38' MAX
BETWEEN STA 166+00 TO
STA 168+00

~~PROPOSED~~ SOUTHBOUND FRONTAGE ROAD SB6

NTS
STA 154+40 TO STA 168+00



~~PROPOSED~~ SOUTHBOUND FRONTAGE ROAD SB7

NTS
STA 168+00 TO STA 243+50

DATE	BY	REV	REVISION
08/24/04	AA	1	REVISE WIDTH OF CURB AND GUTTER TO 2'-0"

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON AUGUST 24, 2004

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

~~PROPOSED~~
TYPICAL SECTIONS

SHEET 10 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		38
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

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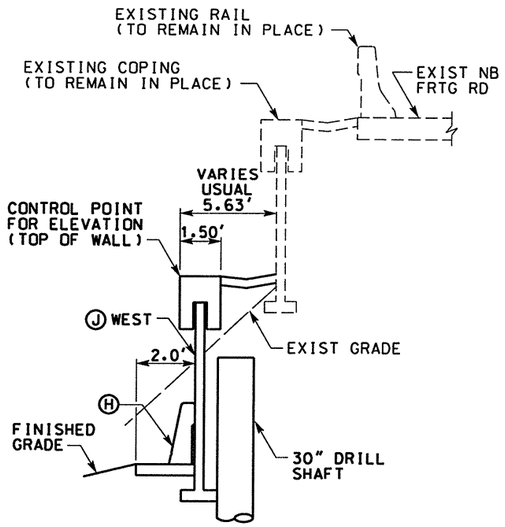


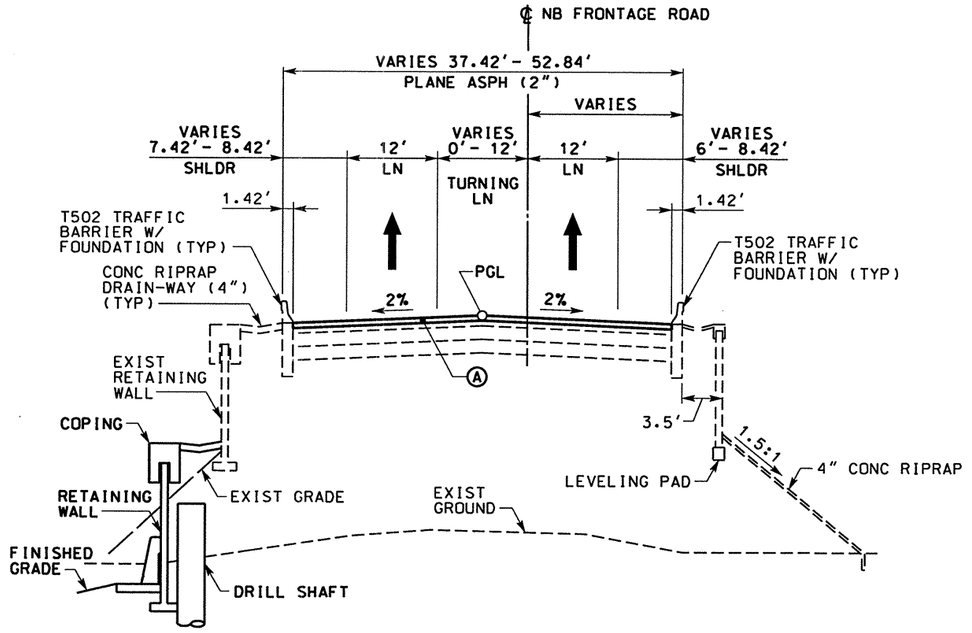
~~PROPOSED~~ NORTHBOUND FRONTAGE ROAD

RETAINING WALL DETAIL

NTS

Ⓙ WEST BEGINS AT STA 399+77.21

Ⓙ WEST ENDS AT STA 411+49.86



~~PROPOSED~~ NORTHBOUND FRONTAGE ROAD (NB7)

NTS

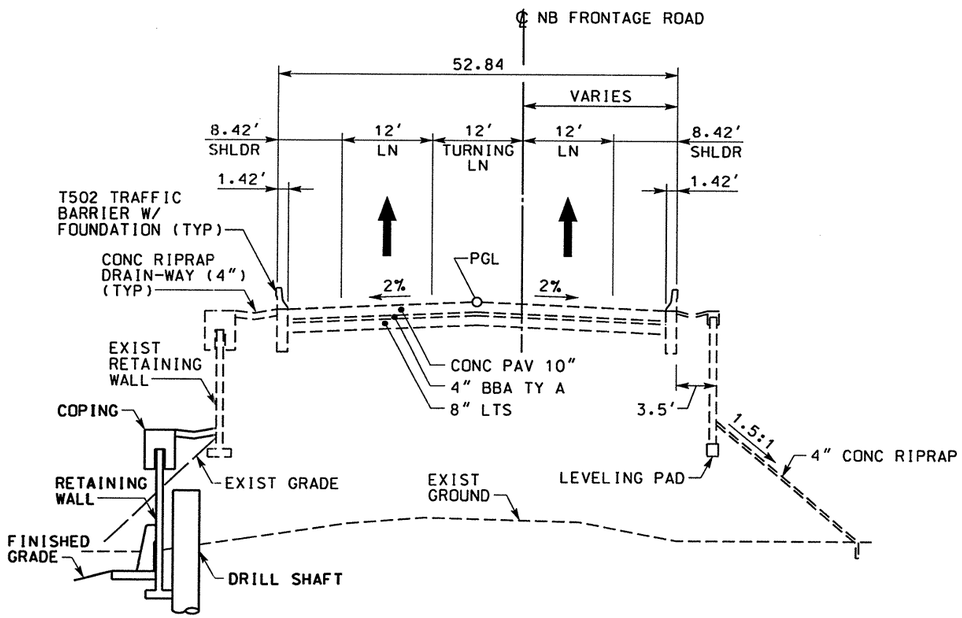
STA 399+77.21 TO STA 406+77.38

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- ~~Ⓒ POROUS FRICTION COURSE (1.5")~~
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTE:

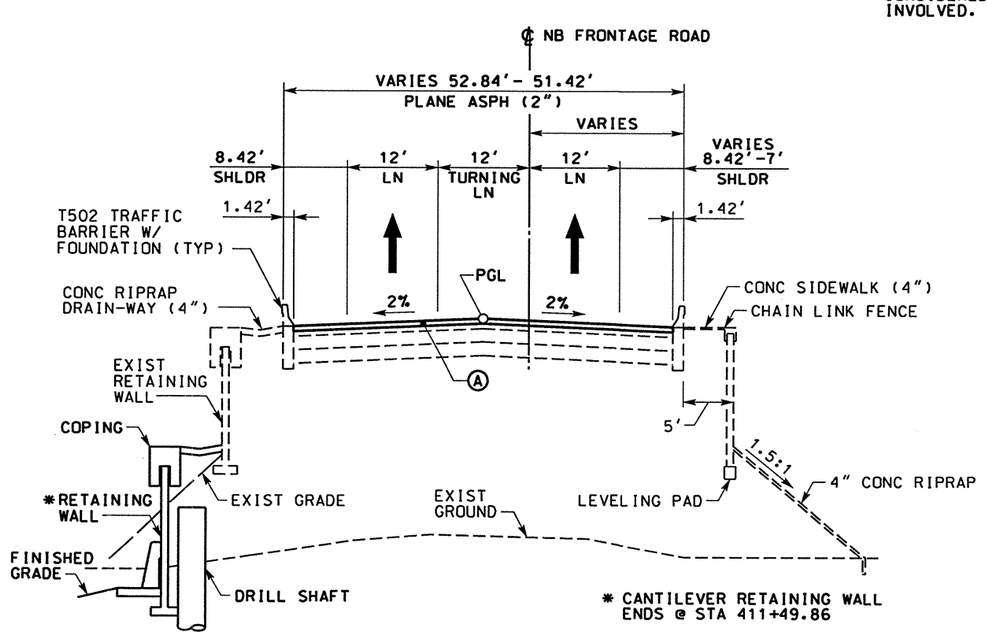
1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.



~~PROPOSED~~ NORTHBOUND FRONTAGE ROAD (NB8)

NTS

STA 406+77.38 TO STA 408+76.10



~~PROPOSED~~ NORTHBOUND FRONTAGE ROAD (NB9)

NTS

STA 408+76.10 TO STA 413+76.74

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

KBR

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IH 35

LOOP 20 TO UNIROYAL ROAD

~~PROPOSED~~

TYPICAL SECTIONS

SHEET 11 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		38A
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/8/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

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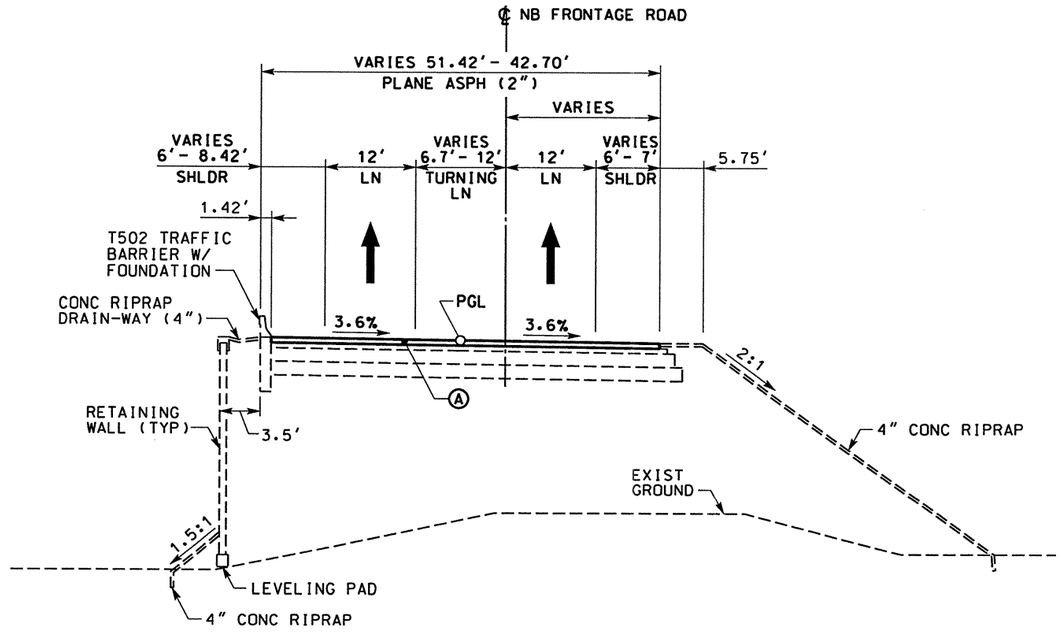
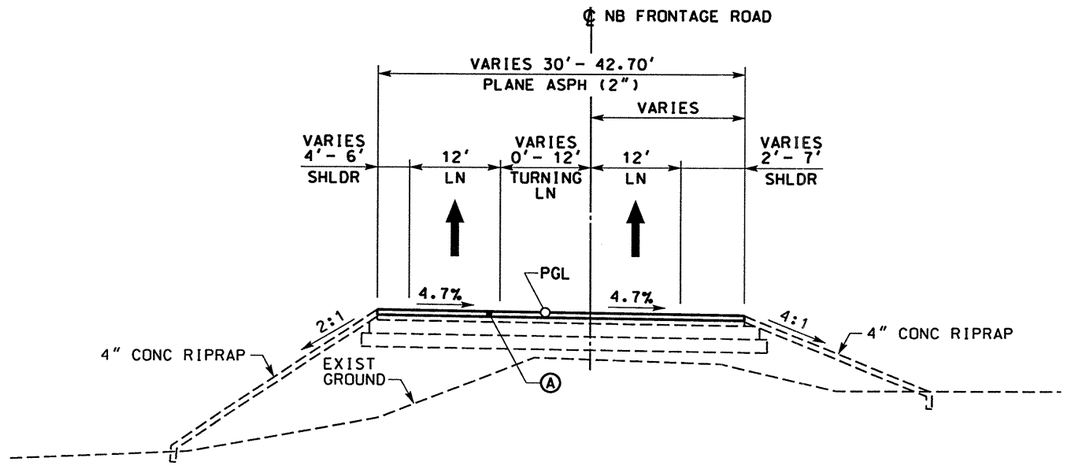


~~PROPOSED~~ NORTHBOUND FRONTAGE ROAD (NB10)

NTS

STA 413+76.74 TO STA 415+74.87



~~PROPOSED~~ NORTHBOUND FRONTAGE ROAD (NB11)

NTS

STA 415+74.87 TO STA 417+65

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTE:

1. CONTRACTOR ~~SHALL~~ SAW CUT A STRAIGHT LINE ON THE EXISTING ROADWAY ACP. ALL COST RELATED TO THIS WORK ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE BID ITEM INVOLVED.

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

Rudy L. Gomez

KBR

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IH 35

LOOP 20 TO UNIROYAL ROAD

~~PROPOSED~~

TYPICAL SECTIONS

SHEET 12 OF 12

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		38B
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32.45.47.57.58.60-62

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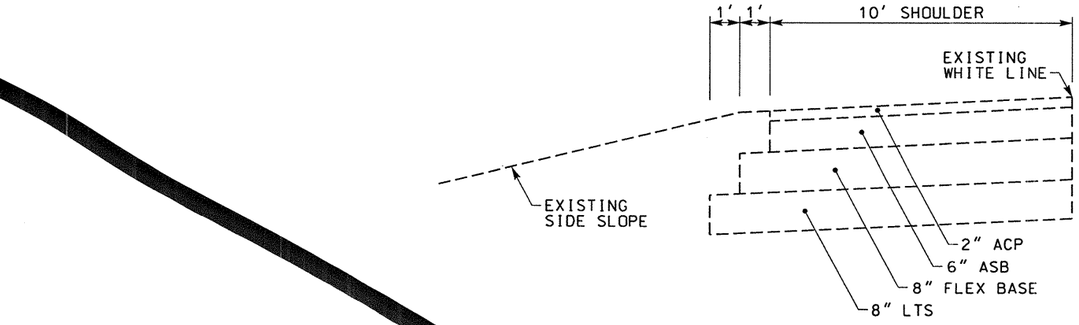
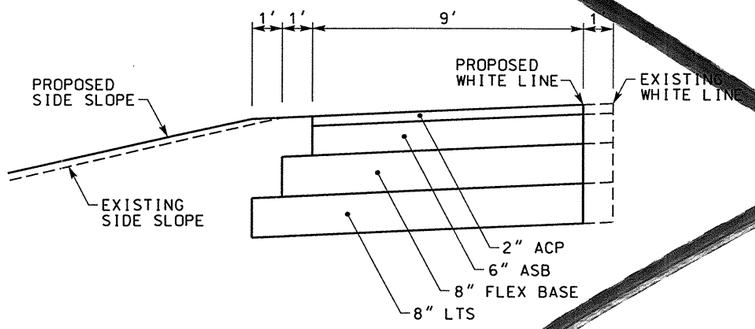
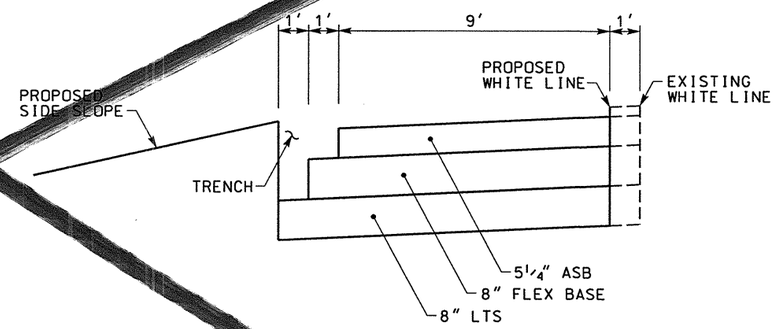


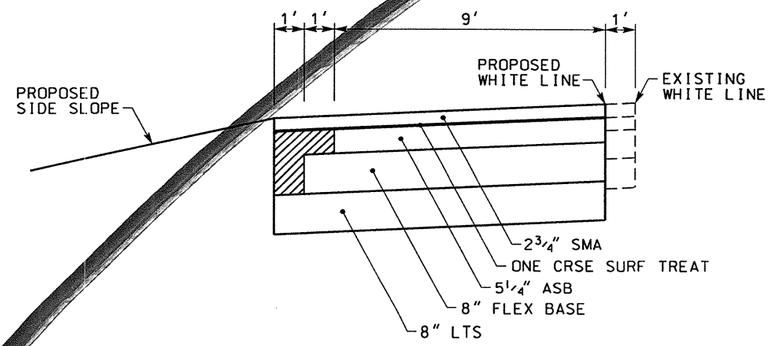
EXISTING CONDITIONS
NTS



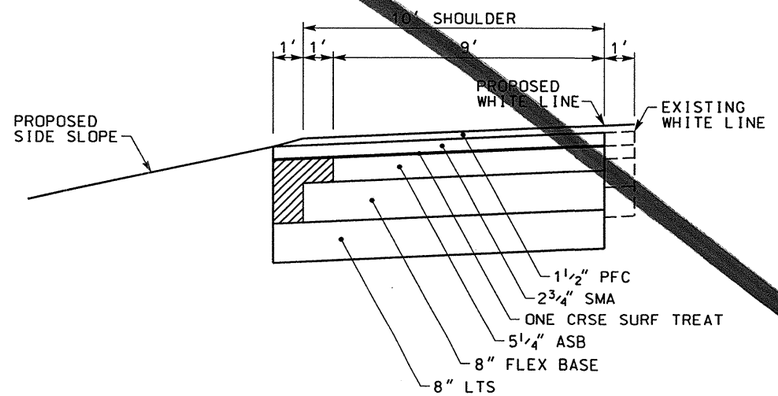
STEP 1
NTS



STEP 2
NTS



STEP 3
NTS



STEP 4
NTS

SUGGESTED CONSTRUCTION SEQUENCE

STEP 1

REMOVE TOP OF EXISTING TOP SOIL. CONSTRUCT EMBANKMENT TO FINAL GRADING.

STEP 2

EXCAVATE TRENCH 2'-0" WIDE TO TOP OF EXISTING LIME TREATED. MILL 2¾" OF EXIST PAVEMENT (2" OF ACP AND ¾" OF ASB) SUBGRADE AS SHOWN.

STEP 3

PLACE FLOWABLE BACKFILL TO MATCH FLUSH TOP OF MILLED SURFACE. APPLY ONE COURSE SURF TREAT (SEAL COAT) ON TOP OF ASB AND FLOWABLE BACKFILL. THEN PLACE 2¾" OF SMA.

STEP 4

PRIME 1½" PFC AND FINISH DRESSING UP SIDE SLOPE AS SHOWN.

MAINLANES SHOULDER WIDENING DETAIL

STA 172+80.00 TO STA 244+71.50
STA 291+27.36 TO STA 344+47.59
STA 366+66.52 TO STA 398+70.00

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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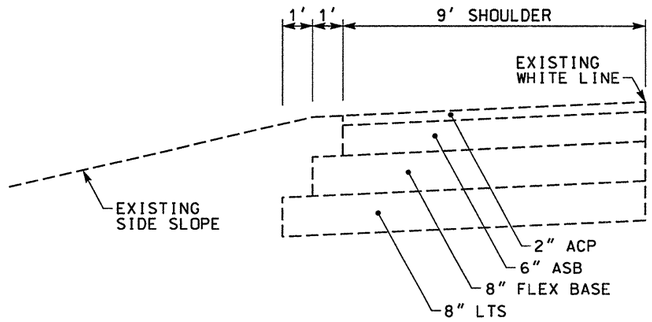
IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
SHOULDER WIDENING DETAILS

SHEET 1 OF 1

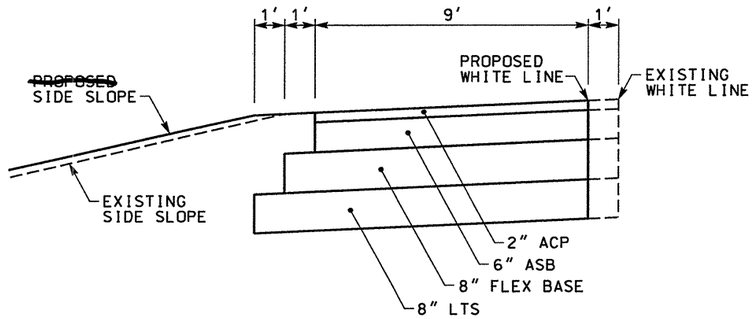
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		38C
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr. bdr LV ON = 45,47,57,58,60-62

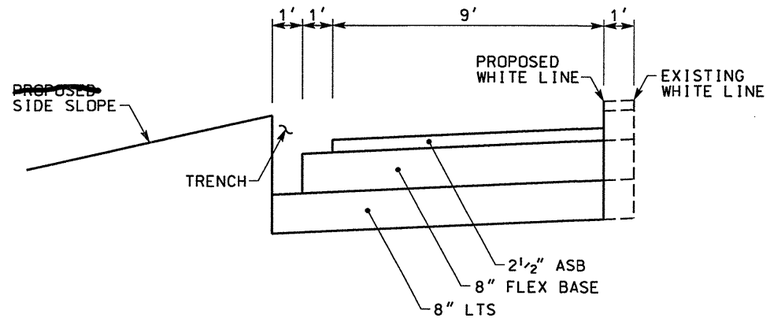
b031sp22.dgn-03 HOUFILE023 \hciwin\cf0130\ 3/5/2004



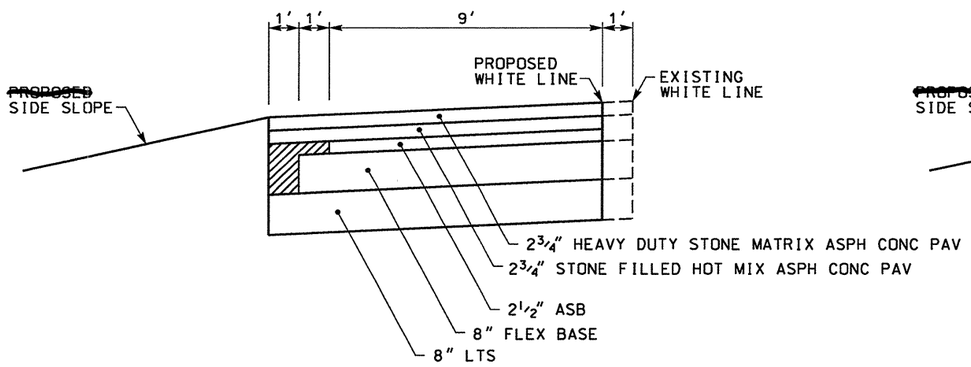
EXISTING CONDITIONS
NTS



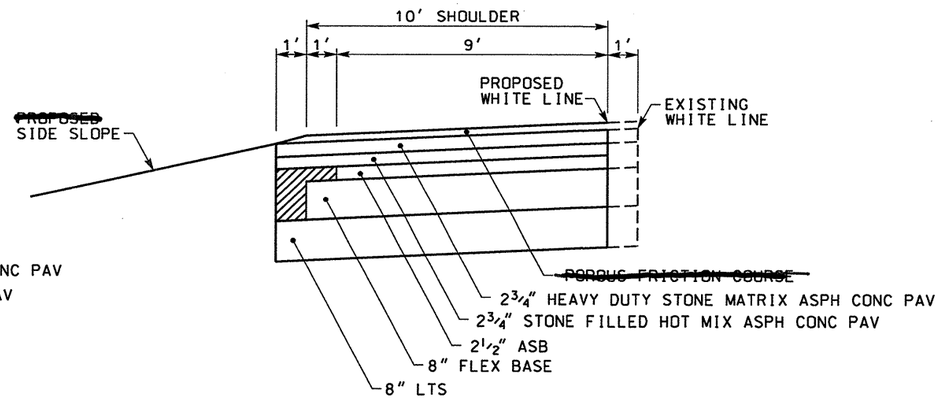
STEP 1
NTS



STEP 2
NTS



STEP 3
NTS



STEP 4
NTS

MAINLANES SHOULDER WIDENING DETAIL

STA 172+80.00 TO STA 244+71.50
STA 291+27.36 TO STA 344+47.59
STA 366+66.52 TO STA 394+00.00

SUGGESTED CONSTRUCTION SEQUENCE

STEP 1

REMOVE 4" OF EXISTING TOP SOIL. CONSTRUCT EMBANKMENT TO FINAL GRADING.

STEP 2

EXCAVATE TRENCH 2'-0" WIDE TO TOP OF EXISTING LIME TREATED. MILL 5½" OF EXIST PAVEMENT (2" OF ACP AND 3½" OF ASB) SUBGRADE AS SHOWN.

STEP 3

PLACE FLOWABLE BACKFILL TO MATCH FLUSH TOP OF MILLED SURFACE. PLACE 2¾" OF ~~GMA~~ SFHMACP AND 2¾" OF HDSMA LAYER.

STEP 4

~~PLACE ONE LAYER OF POROUS FRICTION COURSE AND~~ FINISH DRESSING UP SIDE SLOPE AS SHOWN.

DATE	BY	REV	REVISION
04/16/07	AA	2	REVISED PAVEMENT STRUCTURE FOR MAINLANES
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~MAINLANES~~
SHOULDER WIDENING DETAILS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		38C
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 45,47,57,58,60-62
b031sp22.dgn-03 HOUFILE023 \hchiv\cf0130\ 5/14/2007

TOTAL TCP QUANTITIES

TRAFFIC CONTROL PLAN		ITEM 110	ITEM 132	ITEM 247*	ITEM 403	ITEM 508	ITEM 512 PORT CONC TRAFFIC BARRIER			ITEM 662 WORK ZONE PAVMT MARKINGS										
										REMOVABLE			NON-REMOVABLE							
		EXCAV. (RDWY)	EMBANK. (DENS CONT) (TY C) (CL 3)	FL BS (COM IN PLA) TY A GR 1 CL 4	TEMPORARY SPECIAL SHORING	CONSTRUCT DETOURS (CL 3)	FURN & INSTALL	MOVE & RESET	REMOVE	4" WHITE SOLID	4" WHITE BROKEN	4" YELLOW SOLID	4" WHITE SOLID	4" WHITE BROKEN	8" WHITE SOLID	4" YELLOW SOLID	ENT GORE (W) WHITE	EXIT GORE (W) WHITE	WRK ZN PAV MRK GDMRK (W)	WRK ZN PAV MRK GDMRK (Y)	WRK ZN PAV MRK SH TRM TAB TY W
		CY	CY	CY	SF	SY	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA
		110 501	132 509	247 817	403 501	508 503	512 501	512 503	512 504	662 501	662 502	662 523	662 549	662 550	662 553	662 569	662 564	662 565	662 579	662 580	662 581
PHASE I	PHASE I			0		0	0	0	0				0	0		0	0	0			
PHASE II	PHASE II STEP 1A	651	2456	1828		4113	1470	0	0				0	0		0	0	0			
	PHASE II STEP 1B			0		0	4830	0	0				10483	0		10435	0	0			
	PHASE II STEP 2A			0		0	4020	6300	0				22144	2508	36	21609	2	0			
	PHASE II STEP 2B			0		0	7890	0	0				9123	0		9129	0	0			
	PHASE II STEP 3			0		0	0	0	0				0	0		0	0	0			
PHASE III	PHASE III STEP 1			0		0	0	2160	0				9259	1959		9899	0	1			
	PHASE III STEP 2			0	3923	0	0	6880	0				26076	2369	23	10774	1	0			
	PHASE III STEP 3			0		0	5650	11330	0				426	0		14261	0	0			
	PHASE III STEP 4			0		0	0	1170	0				22860	3616		17788	0	0			
	PHASE III STEP 5			0		0	0	0	0				0	0		0	0	0			
PHASE IV	PHASE IV STEP 1A			0		0	0	2100	0				1973	494		1981	0	0			
	PHASE IV STEP 1B			1245	24531	4300	0	15150	0				14571	3867		15481	0	0			
	PHASE IV STEP 2A			0		0	4370	8710	0	340	85	340	18020	3776		16248	0	0			
	PHASE IV STEP 2B			0	3375	934	2850	0	0				3022	361	165	4809	0	0			
	PHASE IV STEP 2C			0		0	2910	0	0				3452	20		3155	0	0			
	PHASE IV STEP 2D			0		0	0	0	0				0	0		0	0	0			
	PHASE IV STEP 3			0		0	0	21660	0				40949	10007	52	42711	2	3			
	PHASE IV STEP 4			0		0	7860	12330	0				23295	5824		23980	0	0			
	PHASE IV STEP 5		322	429		966	0	26670	0				48249	11930		47718	2	3			
	PHASE IV STEP 6	859		937		2108	13740	15180	26670				27889	6972		27886	0	0			
	PHASE IV STEP 7			0		0	0	1590	27330	451	75	4082	27418	6909		29375	0	0			
	PHASE IV STEP 8			0	0	0	0	0	0				0	0		0	0	0			
	PHASE IV STEP 9			0		0	0	240	1590				6877	1679	37	9806	0	0			
PHASE V	PHASE V			0		0	0	0	0				0	0		0	0	0	4154	158	11658
	TOTALS	1510	2778	4439	31829	12421	55590	131470	55590	791	160	4422	316086	62291	313	317045	7	7	4154	158	11658

TRAFFIC CONTROL PLAN		ITEM 677 ELIM EXIST PVMT MRKNGS & MRKS			ITEM 3146* HOT MIX		ITEM 5985 NARROW REACT 350 9-B SYSTEM			ITEM 6670	ITEM ****
		4"	ENTR GORE	EXIT GORE	HOT MIX (TY C) (SURF)	HOT MIX (TY C) (LEVEL UP)	REMOVE REACT	FURN & INSTAL	MV & RESET REACT	PORTABLE CHANGEABLE MESSAGE SIGN (TY I OR II)	MEDIAN BARRIER GATE
		LF	EA	EA	TONS	TONS	EA	EA	EA	DAY	
		677 501	677 510	677 511	3146 520	3146 525	5985 503	5985 509	5985 504	6670 503	**** 0501
PHASE I	PHASE I	0			0	0	0	0	0	0	
PHASE II	PHASE II STEP 1A	0			679	0	0	1	0	14	
	PHASE II STEP 1B	1220			0	0	0	3	0	42	
	PHASE II STEP 2A	1030			0	0	0	0	2	14	
	PHASE II STEP 2B	0			0	0	0	2	2	14	
	PHASE II STEP 3	0			0	0	0	0	0	0	
PHASE III	PHASE III STEP 1	0			0	0	0	0	2	42	
	PHASE III STEP 2	2740			0	0	0	1	4	14	
	PHASE III STEP 3	0			0	0	0	1	2	14	
	PHASE III STEP 4	0			0	0	0	0	1	14	
	PHASE III STEP 5	0			0	0	0	0	0	0	
PHASE IV	PHASE IV STEP 1A	0			0	0	0	0	1	14	
	PHASE IV STEP 1B	7743	2	2	616	226	0	0	6	14	
	PHASE IV STEP 2A	0			0	0	0	5	1	14	2
	PHASE IV STEP 2B	0			0	39	0	0	1	14	
	PHASE IV STEP 2C	297			0	0	0	0	1	14	
	PHASE IV STEP 2D	0			0	0	0	0	0	0	
	PHASE IV STEP 3	43000			0	0	0	0	5	14	
	PHASE IV STEP 4	0			0	0	0	0	3	14	
	PHASE IV STEP 5	59675			212	0	3	0	5	14	
	PHASE IV STEP 6	0			348	0	4	0	4	14	
	PHASE IV STEP 7	4353			0	0	4	0	1	14	
	PHASE IV STEP 8	0			0	0	0	0	0	0	
	PHASE IV STEP 9	0			0	0	2	0	0	14	
PHASE V	PHASE V	0			0	0	0	0	0	14	
	TOTALS	120058	2	2	1855	265	13	13	41	336	2

* FOR CONTRACTORS INFORMATION ONLY.

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF TRAFFIC CONTROL PLAN QUANTITIES

SHEET 1 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	39
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

6/17/2003

B50QSP1.dgn-02 HOUFILE023 \hciwil\c10130\

REF FILE(S): j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

CSJ 0018-06-147 TCP QUANTITIES

TRAFFIC CONTROL PLAN		ITEM 110	ITEM 132	ITEM 247*	ITEM 403	ITEM 508	ITEM 512 PORT CONC TRAFFIC BARRIER			ITEM 662 WORK ZONE PAVMT MARKINGS							
										REMOVABLE			NON-REMOVABLE				
		EXCAV. (RDWY) CY	EMBANK. (DENS CONT) (TY C) (CL 3) CY	FL BS (COM IN PLA) TY A GR 1 CL 4 CY	TEMPORARY SPECIAL SHORING SF	CONSTRUCT DETOUR (CL 3) SY	FURN & INSTALL LF	MOVE & RESET LF	REMOVE LF	4" WHITE SOLID LF	4" WHITE BROKEN LF	4" YELLOW SOLID LF	4" WHITE SOLID LF	4" WHITE BROKEN LF	8" WHITE SOLID LF	4" YELLOW SOLID LF	ENT GORE (W) WHITE EA	EXIT GORE (W) WHITE EA
		110 501	132 509	247 817	403 501	508 503	512 501	512 503	512 504	662 501	662 502	662 523	662 549	662 550	662 553	662 569	662 564	662 565
PHASE I	PHASE I						0	0	0				0	0		0	0	0
PHASE II	PHASE II STEP 1A	651	2456	1828		4113	550	0	0				0	0		0	0	0
	PHASE II STEP 1B						1200	0	0				9400	0		9396	0	0
	PHASE II STEP 2A						3045	6300	0				9483	68		9395	0	0
	PHASE II STEP 2B						7890	0	0				9123	0		9129	0	0
	PHASE II STEP 3						0	0	0				0	0		0	0	0
PHASE III	PHASE III STEP 1						0	1800	0				9259	1959		9899	0	1
	PHASE III STEP 2						0	6700	0				16411	1551		7054	1	0
	PHASE III STEP 3				3923		0	9330	0				426	0		8354	0	0
	PHASE III STEP 4						0	1170	0				9900	1595		7316	0	0
	PHASE III STEP 5						0	0	0				0	0		0	0	0
PHASE IV	PHASE IV STEP 1A						0	0	0				1973	494		1981	0	0
	PHASE IV STEP 1B						0	0	0				0	0		0	0	0
	PHASE IV STEP 2A						0	0	0				0	0		0	0	0
	PHASE IV STEP 2B						0	0	0				0	0		0	0	0
	PHASE IV STEP 2C						0	0	0				0	0		0	0	0
	PHASE IV STEP 2D						0	0	0				0	0		0	0	0
	PHASE IV STEP 3						0	9240	0				9935	2437		9746	0	1
	PHASE IV STEP 4						0	7830	0				9800	2450		9800	0	0
	PHASE IV STEP 5		322	429		966	0	21390	0				29696	7358		29431	0	2
	PHASE IV STEP 6	500		698		1570	8550	15180	21390				23089	5772		23086	0	0
	PHASE IV STEP 7						0	1590	23730	451	75	4082	22089	5709		24272	0	0
	PHASE IV STEP 8						0	0	0				0	0		0	0	0
	PHASE IV STEP 9						0	240	0				4156	1039		4458	0	0
PHASE V	PHASE V						0	0	0				0	0		0	0	0
	TOTALS	1151	2778	2955	3923	6649	21235	80770	45120	451	75	4082	164740	30432		163317	1	4

TRAFFIC CONTROL PLAN		ITEM 677	ITEM 3146*	ITEM 5985 NARROW REACT 350 9-B SYSTEM			ITEM 6670
		ELIM EXIST PVMT MRK 4" LF	HOT MIX (TY C) (SURF) TONS	REMOVE REACT EA	FURN & INSTAL EA	MV & RESET REACT EA	PORTABLE CHANGEABLE MESSAGE SIGN (TY I OR II) DAY
		677 501	3146 520	5985 503	5985 509	5985 504	6670 503
PHASE I	PHASE I	0		0	0	0	0
PHASE II	PHASE II STEP 1A	0	679	0	0	0	14
	PHASE II STEP 1B	0		0	0	0	0
	PHASE II STEP 2A	0		0	0	1	14
	PHASE II STEP 2B	0		0	2	2	14
	PHASE II STEP 3	0		0	0	0	0
PHASE III	PHASE III STEP 1	0		0	0	1	42
	PHASE III STEP 2	1103		0	1	2	0
	PHASE III STEP 3	0		0	1	1	14
	PHASE III STEP 4	0		0	0	1	14
	PHASE III STEP 5	0		0	0	0	0
PHASE IV	PHASE IV STEP 1A	0		0	0	0	0
	PHASE IV STEP 1B	0		0	0	0	0
	PHASE IV STEP 2A	0		0	0	0	0
	PHASE IV STEP 2B	0		0	0	0	0
	PHASE IV STEP 2C	0		0	0	0	0
	PHASE IV STEP 2D	0		0	0	0	0
	PHASE IV STEP 3	12175		0	0	1	0
	PHASE IV STEP 4	0		0	0	2	0
	PHASE IV STEP 5	36800	212	2	0	4	14
	PHASE IV STEP 6	0	259	4	0	4	14
	PHASE IV STEP 7	4353		4	0	0	0
	PHASE IV STEP 8	0		0	0	0	0
	PHASE IV STEP 9	0		0	0	0	0
PHASE V	PHASE V	0		0	0	0	7
	TOTALS	54431	1150	10	4	19	147

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF TRAFFIC CONTROL PLAN QUANTITIES

SHEET 2 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		40
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/19/2003

B50QSP1.dgn-02 HOUFILE023 \hcivil\c10130\

CSJ 0018-06-148 TCP QUANTITIES

TRAFFIC CONTROL PLAN		ITEM 110	ITEM 247*	ITEM 508	ITEM 512 PORT CONC TRAFFIC BARRIER			ITEM 662 WORK ZONE PAVMT MARKINGS NON-REMOVABLE					ITEM 677	ITEM 3146*	ITEM 5985 NARROW REACT 350 9-B SYSTEM		ITEM 6670
		EXCAV. (RDWY)	FL BS (COM IN PLA) TY A GR 1 CL 4	CONSTRUCT DETOURS (CL 3)	FURN & INSTALL	MOVE & RESET	REMOVE	4" WHITE SOLID	4" WHITE BROKEN	8" WHITE SOLID	4" YELLOW SOLID	ENT GORE (W) WHITE	ELIM EXIST PVMT MRKS 4"	HOT MIX (TY C) (SURF)	REMOVE REACT	MV & RESET REACT	PORTABLE CHANGEABLE MESSAGE SIGN (TY I OR II)
		CY	CY	SY	LF	LF	LF	LF	LF	LF	LF	EA	LF	TONS	EA	EA	DAY
		110 501	247 817	508 503	512 501	512 503	512 504	662 549	662 550	662 553	662 569	662 564	677 501	3146 520	5985 503	5985 504	6670 503
PHASE I	PHASE I				0	0	0	0	0	0	0	0	0		0	0	0
PHASE II	PHASE II STEP 1A				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE II STEP 1B				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE II STEP 2A				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE II STEP 2B				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE II STEP 3				0	0	0	0	0	0	0	0	0		0	0	0
PHASE III	PHASE III STEP 1				0	360	0	0	0	0	0	0	0		0	1	0
	PHASE III STEP 2				0	180	0	2400	818	23	2280	0	0		0	1	0
	PHASE III STEP 3				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE III STEP 4				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE III STEP 5				0	0	0	0	0	0	0	0	0		0	0	0
PHASE IV	PHASE IV STEP 1A				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE IV STEP 1B				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE IV STEP 2A				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE IV STEP 2B				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE IV STEP 2C				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE IV STEP 2D				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE IV STEP 3				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE IV STEP 4				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE IV STEP 5				0	5280	0	4592	1200	0	4800	1	6000		1	1	0
	PHASE IV STEP 6	359	239	538	5190	0	5280	4800	1200	0	4800	0	0	89	1	0	0
	PHASE IV STEP 7				0	1590	3600	5329	1200	0	5103	0	0		0	1	14
	PHASE IV STEP 8				0	0	0	0	0	0	0	0	0		0	0	0
	PHASE IV STEP 9				0	240	1590	2721	1040	37	5348	0	0		1	0	14
PHASE V	PHASE V				0	0	0	0	0	0	0	0	0		0	0	0
	TOTALS	359	239	538	5190	7650	10470	19842	5058	60	22331	1	6000	89	3	4	28

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF TRAFFIC CONTROL PLAN QUANTITIES

SHEET 3 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	41
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

B500SP1.dgn-02 HOUFILE023 \hciwil\cf0130\ 6/19/2003

CSJ 0018-05-062 TCP QUANTITIES

TRAFFIC CONTROL PLAN		ITEM 403	ITEM 512 PORT CONC TRAFFIC BARRIER			ITEM 662 WORK ZONE PAVMT MARKINGS								ITEM 677	ITEM 5985 NARROW REACT 350 9-B SYS		ITEM 6670
		TEMPORARY SPECIAL SHORING	FURN & INSTALL	MOVE & RESET	REMOVE	NON-REMOVABLE 4" WHITE SOLID	NON-REMOVABLE 4" WHITE BROKEN	NON-REMOVABLE 4" YELLOW SOLID	NON-REMOVABLE ENT GORE (W) WHITE	NON-REMOVABLE EXIT GORE (W) WHITE	WRK ZN PAV MRK GDMRK (W)	WRK ZN PAV MRK GDMRK (Y)	WRK ZN PAV MRK SH TRM TAB TY W	ELIM EXIST PVMT MRKS 4"	FURN & INSTAL	MV & RESET REACT	PORTABLE CHANGEABLE MESSAGE SIGN (TY I OR II)
		SF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	LF	EA	EA	DAY
		403 501	512 501	512 503	512 504	662 549	662 550	662 569	662 564	662 565	662 579	662 580	662 581	677 501	5985 509	5985 504	6670 503
PHASE I	PHASE I		0	0		0	0	0	0	0				0	0	0	0
PHASE II	PHASE II STEP 1A		920	0		0	0	0	0	0				0	1	0	0
	PHASE II STEP 1B		3000	0		754	0	287	0	0				467	1	0	42
	PHASE II STEP 2A		915	0		8391	1564	7689	2	0				1030	0	1	0
	PHASE II STEP 2B		0	0		0	0	0	0	0				0	0	0	0
	PHASE II STEP 3		0	0		0	0	0	0	0				0	0	0	0
PHASE III	PHASE III STEP 1		0	0		0	0	0	0	0				0	0	0	0
	PHASE III STEP 2		0	0		6343	0	637	0	0				791	0	1	14
	PHASE III STEP 3		5650	2000		0	0	5907	0	0				0	0	1	0
	PHASE III STEP 4		0	0		9071	1305	6350	0	0				0	0	0	0
	PHASE III STEP 5		0	0		0	0	0	0	0				0	0	0	0
PHASE IV	PHASE IV STEP 1A		0	270		0	0	0	0	0				0	0	1	0
	PHASE IV STEP 1B	3270	0	2190		2701	675	2700	0	0				1350	0	1	0
	PHASE IV STEP 2A		0	780		2701	675	2701	0	0				0	2	0	0
	PHASE IV STEP 2B		0	0		662	166	662	0	0				0	0	0	0
	PHASE IV STEP 2C		0	0		0	0	0	0	0				0	0	0	0
	PHASE IV STEP 2D		0	0		0	0	0	0	0				0	0	0	0
	PHASE IV STEP 3		0	12390		13567	3514	14057	0	1				15750	0	3	14
	PHASE IV STEP 4		7830	4500		12595	3149	13280	0	0				0	0	0	14
	PHASE IV STEP 5		0	0		13062	3147	12588	1	1				15750	0	0	0
	PHASE IV STEP 6		0	0		0	0	0	0	0				0	0	0	0
	PHASE IV STEP 7		0	0		0	0	0	0	0				0	0	0	0
	PHASE IV STEP 8		0	0		0	0	0	0	0				0	0	0	0
	PHASE IV STEP 9		0	0		0	0	0	0	0				0	0	0	0
PHASE V	PHASE V		0	0		0	0	0	0	0	4154	158	11658	0	0	0	0
	TOTALS	3270	18315	22130		69847	14195	66858	3	2	4154	158	11658	35138	4	8	84

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF TRAFFIC CONTROL PLAN QUANTITIES

SHEET 4 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		42
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/19/2003
HOUFILE023 \hcivil\cf0130\
B50QSP1.dan-02

CSJ 0018-05-063 TCP QUANTITIES

TRAFFIC CONTROL PLAN		ITEM 247*	ITEM 403	ITEM 508	ITEM 512 PORT CONC TRAF BAR		ITEM 662 WORK ZONE PAVMT MARKINGS									ITEM 677 ELIM EXIST PVMT MRKNGS & MRKS		
							REMOVABLE			NON-REMOVABLE								
		FL BS (COM IN PLA) TY A GR 1 CL 4 CY	TEMPORARY SPECIAL SHORING SF	CONSTRUCT DETOURS (CL 3) SY	FURN & INSTALL LF	MOVE & RESET LF	4" WHITE SOLID LF	4" WHITE BROKEN LF	4" YELLOW SOLID LF	4" WHITE SOLID LF	4" WHITE BROKEN LF	8" WHITE SOLID LF	4" YELLOW SOLID LF	ENT GORE (W) WHITE EA	EXIT GORE (W) WHITE EA	4" LF	ENTR GORE EA	EXIT GORE EA
		247 817	403 501	508 503	512 501	512 503	662 501	662 502	662 523	662 549	662 550	662 553	662 569	662 564	662 565	677 501	677 510	677 511
PHASE I	PHASE I				0	0				0	0	0	0	0	0	0	0	0
PHASE II	PHASE II STEP 1A				0	0				0	0	0	0	0	0	0	0	0
	PHASE II STEP 1B				630	0				329	0	0	752	0	0	753	0	0
	PHASE II STEP 2A				60	0				4270	876	36	4525	0	0	0	0	0
	PHASE II STEP 2B				0	0				0	0	0	0	0	0	0	0	0
	PHASE II STEP 3				0	0				0	0	0	0	0	0	0	0	0
PHASE III	PHASE III STEP 1				0	0				0	0	0	0	0	0	0	0	0
	PHASE III STEP 2				0	0				922	0	0	803	0	0	846	0	0
	PHASE III STEP 3				0	0				0	0	0	0	0	0	0	0	0
	PHASE III STEP 4				0	0				3889	716	0	4122	0	0	0	0	0
	PHASE III STEP 5				0	0				0	0	0	0	0	0	0	0	0
PHASE IV	PHASE IV STEP 1A				0	1830				0	0	0	0	0	0	0	0	0
	PHASE IV STEP 1B	1245	21261	4300	0	12960				11870	3192	0	12781	0	0	6393	2	2
	PHASE IV STEP 2A				4370	7930	340	85	340	15319	3101	0	13547	0	0	0	0	0
	PHASE IV STEP 2B		3375	934	2850	0				2360	195	165	4147	0	0	0	0	0
	PHASE IV STEP 2C				2910	0				3452	20	0	3155	0	0	297	0	0
	PHASE IV STEP 2D				0	0				0	0	0	0	0	0	0	0	0
	PHASE IV STEP 3				0	30				17447	4056	52	18908	2	1	15075	0	0
	PHASE IV STEP 4				30	0				900	225	0	900	0	0	0	0	0
	PHASE IV STEP 5				0	0				899	225	0	899	0	0	1125	0	0
	PHASE IV STEP 6				0	0				0	0	0	0	0	0	0	0	0
	PHASE IV STEP 7				0	0				0	0	0	0	0	0	0	0	0
	PHASE IV STEP 8				0	0				0	0	0	0	0	0	0	0	0
	PHASE IV STEP 9				0	0				0	0	0	0	0	0	0	0	0
PHASE V	PHASE V				0	0				0	0	0	0	0	0	0	0	0
	TOTALS	1245	24636	5234	10850	22750	340	85	340	61657	12606	253	64539	2	1	24489	2	2

TRAFFIC CONTROL PLAN		ITEM 3146*		ITEM 5985 NARROW REACT 350 9-B SYS		ITEM 6670	ITEM ****
		HOT MIX (TY C) (SURF) TONS	HOT MIX (TY C) (LEVEL UP) TONS	FURN & INSTAL EA	MV & RESET REACT EA	PORTABLE CHANGEABLE MESSAGE SIGN (TY I OR II) DAY	MEDIAN BARRIER GATE
		3146 520	3146 525	5985 509	5985 504	6670 503	**** 0501
PHASE I	PHASE I			0	0	0	
PHASE II	PHASE II STEP 1A			0	0	0	
	PHASE II STEP 1B			2	0	0	
	PHASE II STEP 2A			0	0	0	
	PHASE II STEP 2B			0	0	0	
	PHASE II STEP 3			0	0	0	
PHASE III	PHASE III STEP 1			0	0	0	
	PHASE III STEP 2			0	0	0	
	PHASE III STEP 3			0	0	0	
	PHASE III STEP 4			0	0	0	
	PHASE III STEP 5			0	0	0	
PHASE IV	PHASE IV STEP 1A			0	0	14	
	PHASE IV STEP 1B	616	226	0	5	14	
	PHASE IV STEP 2A			3	1	14	2
	PHASE IV STEP 2B		39	0	1	14	
	PHASE IV STEP 2C			0	1	14	
	PHASE IV STEP 2D			0	0	0	
	PHASE IV STEP 3			0	1	0	
	PHASE IV STEP 4			0	1	0	
	PHASE IV STEP 5			0	0	0	
	PHASE IV STEP 6			0	0	0	
	PHASE IV STEP 7			0	0	0	
	PHASE IV STEP 8			0	0	0	
	PHASE IV STEP 9			0	0	0	
PHASE V	PHASE V			0	0	7	
	TOTALS	616	265	5	10	77	2

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF TRAFFIC CONTROL PLAN QUANTITIES

SHEET 5 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	43
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

6/19/2003
B500SP1.dgn-02 HOUFILE023 \hchivlt\c\f0130\

SUMMARY OF ROADWAY QUANTITIES

ITEM NO - DESCRIPTION			100-502	110-502	247-817	310-504	316-534	316-555	354-503	354-529	354-566	360-507	360-571	427-509	432-501	432-531	450-526	514-517	514-	514-	529-532
LOCATION			PREP ROW	EXCAV (CHAN)	FL BS (COMP IN PLA) (TY A GR 1 CL 4)	ASPH MATRL (MC-30 OR AE-P)	AGGR (TY PE, GR3)	ASPH (AC-15 5TR)	PLANE ASPH CONC PAV (2")	PLANE ASPH CONC PAV (0" TO 2")	PLANE ASPH CONC PAV (2¾")	CONC PAV (CONT REINF HY STL) (12 IN)	CONC PAV (6")	ARCH CONC STAIN FINISH FOR EXIST CONC *	RIPRAP (CONC) (CL B)	RIPRAP (CONC) (CL B) (GUARD RAIL)	RAIL (SSTR)	PERM CONC TRF BAR SGL SLP (TY 2) (H=42")	SPECIAL BARRIER NO 1	SPECIAL BARRIER NO 2	CONC CURB & GUTTER (TY II)
SHEET NO	BEGIN STATION	END STATION	STA	CY	CY	GAL	CY	GAL	SY	SY	SY	SY	SY	SY	CY	CY	LF	LF	LF	LF	LF
CSJ: 0018-06-147																					
IH 35 MAINLANE STATIONS																					
SEE NOTE	154+40	162+00							2027.0												
SEE NOTE	162+00	172+00	4.8		806.9		15.1	435.7	3610.0												480
1 OF 29	172+00	182+00	10.0		3652.8		117.8	3393.3	3245.0	845.0	1840.0			192				665	200		1200
2 OF 29	182+00	186+00	4.0		2266.6		63.9	1841.7			800.0			89					400		800
4 OF 29	210+00	212+00	2.0		787.6		25.5	734.2			400.0			8		4.5		200			200
5 OF 29	212+00	222+00	10.0		3499.6		119.2	3434.1			2000.0			222	9			1000			1000
6 OF 29	222+00	232+00	10.0		3345.5		116.4	3350.9			2000.0			222		11.5		1000			1000
7 OF 29	232+00	242+00	10.0		3345.9		116.4	3350.9			2000.0			222				1000			1000
8 OF 29	242+00	252+00	10.0		5165.6		161.6	4653.5			2000.0			222		10.7		360	390	250	1850
9 OF 29	252+00	262+00	10.0		5463.0		171.3	4933.3			2000.0			222				250	600	150	2000
10 OF 29	262+00	272+00	10.0		5463.0		171.3	4933.3			2000.0			222	25	11.2			965	35	2000
11 OF 29	272+00	282+00	10.0		5463.0		171.3	4933.3			2000.0			222	215	11.8				1000	2000
12 OF 29	282+00	292+00	10.0		5427.6		169.5	4882.3			2000.0			222				235	550	215	2000
13 OF 29	292+00	302+00	10.0		5075.2		146.9	4230.9			2000.0			222				655	345		2000
14 OF 29	302+00	312+00	10.0		4975.2		146.9	4230.9			2000.0			222	9	12.8		520	480		2000
15 OF 29	312+00	322+00	10.0		4975.2		146.9	4230.9			2000.0			222		11.4		560	440		2000
16 OF 29	322+00	332+00	10.0		4975.2		146.9	4230.9			2000.0			222	20			50	950		2000
17 OF 29	332+00	336+00	4.0		1990.2		58.7	1692.4			800.0			89	32			400			800
RAMPS A & C					787.3	880.0															
INTERSECTIONS/DRIVEWAYS					81.2	85.0						206.4	192.4								
CSJ: 0018-06-147 SUBTOTAL			144.8		67446.6	965.0	2065.6	59093.5	8882.0	845.0	27840.0	206.4	192.4	3212	310	73.9		6895	5320	1650	24330
CSJ: 0018-06-148																					
IH 35 MAINLANE STATIONS																					
2 OF 29	186+00	192+00	6.0	663	3666.6		100.9	2906.6			1200.0			133		12.5	1750		600		150
3 OF 29	192+00	202+00	10.0		4211.5		132.6	3818.5			2000.0			222			3880	625	375		
4 OF 29	202+00	210+00	8.0		4134.9		120.4	3468.3			1600.0			128	36	16.2	1825	800			650
CSJ: 0018-06-148 SUBTOTAL			24.0	663	12013.0		353.9	10193.0			4800.0			483	36	28.7	7455	1425	975		800
CSJ: 0018-05-062																					
IH 35 MAINLANE STATIONS																					
17 OF 29	336+00	342+00	6.0		2985.2		88.2	2538.6			1200.0			133		6.6		600			1200
18 OF 29	342+00	352+00	10.0		5342.2		166.2	4759.4			2000.0			222		18.7		370	615	15	2000
19 OF 29	352+00	362+00	10.0		5463.0		171.3	4933.3			2000.0			222	120	11.1			435	565	2000
20 OF 29	362+00	372+00	10.0		5202.8		158.3	4558.7			2000.0			222				980	20		2000
21 OF 29	372+00	382+00	10.0		4975.2		146.9	4231.0			2000.0			222	219	21.0	100	1000			2000
22 OF 29	382+00	392+00	10.0		4975.2		146.9	4231.0			2000.0			222	58	15.3	1057	1000			2000
23 OF 29	392+00	399+00	7.0		2649.5		87.7	2524.9	2500.0		1400.0			156	18	2.3	416	510	190		780
25 OF 29	416+00	422+00	6.0		3188.5		101.1	2911.8	696.0		1200.0			133	36		600	600			1490
26 OF 29	422+00	432+00	10.0		5555.8		173.1	4983.5			2000.0			222		37.4	522	1000			2000
27 OF 29	432+00	442+00	10.0		2944.7		113.7	3272.7			1660.0	278		193		34.5		870			643
28 OF 29	442+00	452+00	10.0		2203.6		110.2	3173.3			2000.0			222				1000			
29 OF 29	452+00	453+50	1.5		332.6		16.5	476.0		15912.0	300.0			24				110			
RAMPS E, F, J, K					1022.6	2148.0															
INTERSECTIONS/DRIVEWAYS					58.0	53.0						174.6	78.2								
CSJ: 0018-05-062 SUBTOTAL			100.5		47797.0	2201.0	1479.1	42594.2	3196.0	15912.0	19760.0	452.6	78.2	2193	451	146.9	2295	8040	1260	580	16113
CSJ: 0018-05-063																					
IH 35 MAINLANE STATIONS																					
23 OF 29	399+00	402+00	3.0		1240.7		44.0	1265.0	1195.0		600.0			67	43	2.3	514		300		300
24 OF 29	402+00	412+00	10.0		4581.5		154.8	4457.3	4115.0		2000.0			222	225	2.3	2850	890	110		200
25 OF 29	412+00	416+00	4.0		1848.2		62.2	1791.3	2172.0		800.0			89	18	10.2	600	400			400
CSJ: 0018-05-063 SUBTOTAL			17.0		7670.4		261.0	7513.6	7482.0		3400.0			378	286	14.8	3964	1290	410		900
TOTALS			286.3	663	134927.0	3166.0	4159.6	119804.7	19560.0	16757.0	55800.0	659.0	270.6	6266	1083	264.3	14114	17650	7965	2230	42143

* FOR CONTRACTORS INFORMATION ONLY

NOTES:
1. ALL QUANTITES ARE BASED ON IH 35 MAINLANE STATIONS.
2. STATION 154+40 TO STATION 172+00 - QUANTITIES ARE FOR THE SOUTHBOUND AND NORTHBOUND FRONTAGE ROADS.

See next

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF ROADWAY QUANTITIES

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	44
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

5/8/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62
HOUFILE023 \hrciwil\cf0130\ b36qsp10.dgn-17

SUMMARY OF ROADWAY QUANTITIES

ITEM NO - DESCRIPTION			100-502	110-502	247-817	310-504	316-534	316-555	354-503	354-529	354-566	360-507	360-571	427-509	432-501	432-531	450-526	514-517	514-	514-	529-532	4088-501
LOCATION			PREP ROW	EXCAV (CHAN)	FL BS (COMP IN PLA) (TY A GR 1 CL 4)	ASPH MATRL (MC-30 OR AE-P)	AGGR (TY PE, GR3)	ASPH (AC-15 5TR)	PLANE ASPH CONC PAV (2")	PLANE ASPH CONC PAV (0" TO 2")	PLANE ASPH CONC PAV (2¾")	CONC PAV (CONT REINF HY STL) (12 IN)	CONC PAV (6")	ARCH CONC STAIN FINISH FOR EXIST CONC *	RIPRAP (CONC) (CL B)	RIPRAP (CONC) (CL B) (GUARD RAIL)	RAIL (SSTR)	PERM CONC TRF BAR SGL SLP (TY 2) (H=42")	SPECIAL BARRIER NO 1	SPECIAL BARRIER NO 2	CONC CURB & GUTTER (TY II)	FLOWABLE BACKFILL
SHEET NO	BEGIN STATION	END STATION	STA	CY	CY	GAL	CY	GAL	SY	SY	SY	SY	SY	SY	CY	CY	LF	LF	LF	LF	LF	CY
CSJ: 0018-06-147																						
IH 35 MAINLANE STATIONS																						
SEE NOTE	154+40	162+00							2027.0													
SEE NOTE	162+00	172+00	4.8		806.9	363.1	15.1	435.7	3610.0												480	
1 OF 29	172+00	182+00	10.0		3652.8	2841.4	136.0	3916.8	3245.0	845.0	1840.0			192				665	200		1200	115.6
2 OF 29	182+00	186+00	4.0		2266.6	1540.7	71.8	2069.3			800.0			89					400		800	64.2
4 OF 29	210+00	212+00	2.0		787.6	614.8	29.4	848.0			400.0			178		4.5		200			200	32.1
5 OF 29	212+00	222+00	10.0		3499.6	2876.7	139.0	4003.2			2000.0			222	9			1000			1000	160.5
6 OF 29	222+00	232+00	10.0		3345.5	2807.3	136.2	3920.0			2000.0			222		11.5		1000			1000	160.5
7 OF 29	232+00	242+00	10.0		3345.9	2807.3	136.2	3920.0			2000.0			222				1000			1000	160.5
8 OF 29	242+00	252+00	10.0		5165.6	3849.6	165.6	4769.2			2000.0			222		10.7		360	390	250	1850	43.6
9 OF 29	252+00	262+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222				250	600	150	2000	
10 OF 29	262+00	272+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	25	11.2			965	35	2000	
11 OF 29	272+00	282+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	215	11.8				100	2000	
12 OF 29	282+00	292+00	10.0		5427.6	4028.4	169.2	4874.2			2000.0			222				235	550	215	2000	60.1
13 OF 29	292+00	302+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222				655	[illegible]		2000	114.2
14 OF 29	302+00	312+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222	9	12.8		520	480		2000	114.2
15 OF 29	312+00	322+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222		11.4		360	440		2000	114.2
16 OF 29	322+00	332+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222	20			50	950		2000	114.2
17 OF 29	332+00	336+00	4.0		1990.2	1416.3	66.6	1920.0			800.0			89	32			400			800	45.7
RAMPS A & C					787.3	880.0																
INTERSECTIONS/DRIVEWAYS					81.2	85.0						206.4	192.4									
CSJ: 0018-06-147 SUBTOTAL			144.8		67446.6	50473.5	2250.9	64516.4	8882.0	845.0	27840.0	206.4	192.4	3212	[illegible]0	73.9		6895	5320	1650	24330	1299.5
CSJ: 0018-06-148																						
IH 35 MAINLANE STATIONS																						
2 OF 29	186+00	192+00	6.0	663	3666.6	2431.0	112.7	3248.0			1200.0			133		12.5	1750		600		150	68.5
3 OF 29	192+00	202+00	10.0		4211.5	3197.0	152.4	4387.6			2000.0			222			3880	625	375			114.2
4 OF 29	202+00	210+00	8.0		4134.9	1475.0	136.2	3923.6			1600.0			128	36	16.2	1825	800			650	91.4
CSJ: 0018-06-148 SUBTOTAL			24.0	663	12013.0	7103.0	401.3	11559.2			4800.0			483	36	28.7	7455	1425	975		800	274.1
CSJ: 0018-05-062																						
IH 35 MAINLANE STATIONS																						
17 OF 29	336+00	342+00	6.0		2985.2	2124.4	100.0	2880.0			[illegible]00.0			133		6.6		600			1200	68.5
18 OF 29	342+00	352+00	10.0		5342.2	3936.4	166.7	4800.0			2000.0			222		[illegible]8.7		370	615	15	2000	28.3
19 OF 29	352+00	362+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	120	[illegible]1			435	565	2000	
20 OF 29	362+00	372+00	10.0		5202.8	3786.0	169.4	4880.0			2000.0			222				980	20		2000	53.3
21 OF 29	372+00	382+00	10.0		4975.2	3540.7	169.4	4880.0			2000.0			222	219	21.0	[illegible]0	1000			2000	114.2
22 OF 29	382+00	392+00	10.0		4975.2	3540.7	169.4	4880.0			2000.0			222	58	15.3	105	1000			2000	114.2
23 OF 29	392+00	399+00	7.0		2649.5	2112.5	100.9	2904.6	250[illegible]0		1400.0			156	18	2.3	416	510	190		780	76.5
25 OF 29	416+00	422+00	6.0		3188.5	2399.8	100.0	2879.8	[illegible]96.0		1200.0			133	36		600	[illegible]0			1490	
26 OF 29	422+00	432+00	10.0		5555.8	4108.5	171.2	4930.[illegible]			2000.0			222		37.4	522	1000			2000	
27 OF 29	432+00	442+00	10.0		2944.7	2690.2	112.1	3[illegible]0.4			1660.0	278.0		193		34.5		870			643	
28 OF 29	442+00	452+00	10.0		2203.7	2600.0	108.3	[illegible]20.0			2000.0			222				1000				
29 OF 29	452+00	453+50	1.5		330.6	390.0	16.[illegible]	468.0		15912.0	300.0			24				110				
RAMPS E, F, J, K					1922.6	2148.0																
INTERSECTIONS/DRIVEWAYS					58.0	53.0						174.6	78.2									
CSJ: 0018-05-062 SUBTOTAL			100.5		47797.0	[illegible]96.9	1553.1	44731.0	3196.0	15912.0	19760.0	452.6	78.2	2193	451	146.9	2695	8040	1260	580	16113	455.0
CSJ: 0018-05-063																						
IH 35 MAINLANE STATIONS																						
23 OF 29	399+00	402+00	3.0		[illegible]240.7	1040.8	43.4	1249.0	1195.0		600.0			67	43	2.3	514	0	300		300	
24 OF 29	402+00	412+00	10.0		4581.5	3670.0	152.9	4404.0	4115.0		2000.0			222	225	2.3	2850	890	110		200	
25 OF 29	412+00	416+00	4.0		1848.2	1475.0	61.4	1770.0	2172.0		800.0			89	18	10.2	600	400			400	
CSJ: 0018-05-063 SUBTOTAL			17.0		7670.4	6185.8	257.7	7423.0	7482.0		3400.0			378	286	14.8	3964	1290	410		900	
TOTALS			286.3	663	134927.0	101259.2	4463.0	128229.6	19560.0	16757.0	55800.0	659.0	270.6	6266	1083	264.3	14114	17650	7965	2230	42143	2028.5

See next

* FOR CONTRACTORS INFORMATION ONLY

NOTES:
1. ALL QUANTITES ARE BASED ON IH 35 MAINLANE STATIONS.
2. STATION 154+40 TO STATION 172+00 - QUANTITIES ARE FOR THE SOUTHBOUND AND NORTHBOUND FRONTAGE ROADS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF ROADWAY QUANTITIES

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	44
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 47.57.58.60-62

HOUFILE023 \hcivil\c\f0130\ 3/5/2004 b36qsp10.dgn-18

SUMMARY OF ROADWAY QUANTITIES

~~4438~~ 45

ITEM NO - DESCRIPTION			100-502	110-502	247-817	310-504	316-534	316-555	354-503	354-529	354-566	360-507	360-571	427-509	432-501	432-531	450-526	514-517	514-	514-	529-532	~~4000~~-501
LOCATION			PREP ROW	EXCAV (CHAN)	FL BS (COMP IN PLA) (TY A GR 1 CL 4)	ASPH MATRL (MC-30 OR AE-P)	AGGR (TY PE. GR3)	ASPH (AC-15 5TR)	PLANE ASPH CONC PAV (2")	PLANE ASPH CONC PAV (0" TO 2")	PLANE ASPH CONC PAV (2¾")	CONC PAV (CONT REINF HY STL) (12 IN)	CONC PAV (6")	ARCH CONC STAIN FINISH FOR EXIST CONC *	RIPRAP (CONC) (CL B)	RIPRAP (CONC) (CL B) (GUARD RAIL)	RAIL (SSTR)	PERM CONC TRF BAR SGL SLP (TY 2) (H=42")	SPECIAL BARRIER NO 1	SPECIAL BARRIER NO 2	CONC CURB & GUTTER (TY II)	FLOWABLE BACKFILL
SHEET NO	BEG STATION	END STATION	STA	CY	CY	GAL	CY	GAL	SY	SY	SY	SY	SY	SY	CY	CY	LF	LF	LF	LF	LF	CY
CSJ: 0018-06-147																						
IH 35 MAINLANE STATIONS																						
SEE NOTE	154+40	162+00							2027.0													
SEE NOTE	162+00	172+00	4.8		806.9	363.1	15.1	435.7	3610.0												480	
1 OF 29	172+00	182+00	10.0		3652.8	2841.4	136.0	3916.8	3245.0	845.0	1840.0			192				665	200		1200	115.6
2 OF 29	182+00	186+00	4.0		2266.6	1540.7	71.8	2069.3			800.0			89					400		800	64.2
4 OF 29	210+00	212+00	2.0		787.6	614.8	29.4	848.0			400.0			178		4.5		200			200	32.1
5 OF 29	212+00	222+00	10.0		3499.6	2876.7	139.0	4003.2			2000.0			222	9			1000			1000	160.5
6 OF 29	222+00	232+00	10.0		3345.5	2807.3	136.2	3920.0			2000.0			222		11.5		1000			1000	160.5
7 OF 29	232+00	242+00	10.0		3345.9	2807.3	136.2	3920.0			2000.0			222				1000			1000	160.5
8 OF 29	242+00	252+00	10.0		5165.6	3849.6	165.6	4769.2			2000.0			222		10.7		360	390	250	1850	43.6
9 OF 29	252+00	262+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222				250	600	150	2000	
10 OF 29	262+00	272+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	25	11.2			965	35	2000	
11 OF 29	272+00	282+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	215	11.8				1000	2000	
12 OF 29	282+00	292+00	10.0		5427.6	4028.4	169.2	4874.2			2000.0			222				235	550	215	2000	60.1
13 OF 29	292+00	302+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222				655	345		2000	114.2
14 OF 29	302+00	312+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222	9	12.8		520	480		2000	114.2
15 OF 29	312+00	322+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222		11.4		560	440		2000	114.2
16 OF 29	322+00	332+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222	20			50	950		2000	114.2
17 OF 29	332+00	336+00	4.0		1990.2	1416.3	66.6	1920.0			800.0			89	32			400			800	45.7
RAMPS A & C					787.3	880.0																
INTERSECTIONS/DRIVEWAYS					81.2	85.0						206.4	192.4									
CSJ: 0018-06-147 SUBTOTAL			144.8		67446.6	50473.5	2250.9	64516.4	8882.0	845.0	21840.0	206.4	192.4	3212	310	73.9		6895	5320	1650	24330	1299.5
CSJ: 0018-06-148																						
IH 35 MAINLANE STATIONS																						
2 OF 29	186+00	192+00	6.0	663	3666.6	2431.0	112.7	3248.0			1200.0			133		12.5	1750		600		150	68.5
3 OF 29	192+00	202+00	10.0		4211.5	3197.0	152.4	4387.6			2000.0			222			3880	625	375			114.2
4 OF 29	202+00	210+00	8.0		4134.9	1475.0	136.2	3923.6			1600.0			128	36	16.2	1825	800			650	91.4
CSJ: 0018-06-148 SUBTOTAL			24.0	663	12013.0	7103.0	401.3	11559.2			4800.0			483	36	28.7	7455	1425	975		800	274.1
CSJ: 0018-05-062																						
IH 35 MAINLANE STATIONS																						
17 OF 29	336+00	342+00	6.0		2985.2	2124.4	100.0	2880.0			1200.0			133		6.6		600			1200	68.5
18 OF 29	342+00	352+00	10.0		5342.2	3936.4	166.7	4800.0			2000.0			222		18.7		870	615	15	2000	28.3
19 OF 29	352+00	362+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	120	11.1			435	565	2000	
20 OF 29	362+00	372+00	10.0		5202.8	3786.0	169.4	4880.0			2000.0			222				980	20		2000	53.3
21 OF 29	372+00	382+00	10.0		4975.2	3540.7	169.4	4880.0			2000.0			222	219	21.0	100	1000			2000	114.2
22 OF 29	382+00	392+00	10.0		4975.2	3540.7	169.4	4880.0			2000.0			222	58	15.3	1057	1000			2000	114.2
23 OF 29	392+00	399+00	7.0		2649.5	2112.5	100.9	2904.6	2500.0		1400.0			156	18	2.3	416	510	190		780	76.5
25 OF 29	416+00	422+00	6.0		3188.5	2399.8	100.0	2879.8	696.0		1200.0			133	36		600	600			1490	
26 OF 29	422+00	432+00	10.0		5555.8	4108.5	171.2	4930.2			2000.0			222		37.4	522	1000			2000	
27 OF 29	432+00	442+00	10.0		2944.7	2690.2	112.1	3228.4			1660.0	278.0		193		34.5		870			643	
28 OF 29	442+00	452+00	10.0		2203.7	2600.0	108.3	3120.0			2000.0			222				1000				
29 OF 29	452+00	453+50	1.5		330.6	390.0	16.3	468.0		15912.0	300.0			24				110				
RAMPS E, F, J, K					1922.6	2148.0																
INTERSECTIONS/DRIVEWAYS					58.0	53.0						174.6	78.2									
CSJ: 0018-05-062 SUBTOTAL			100.5		47797.0	37496.9	1553.1	44731.0	3196.0	15912.0	19760.0	452.6	78.2	2193	451	146.9	2695	8040	1260	580	16113	455.0
CSJ: 0018-05-063																						
IH 35 MAINLANE STATIONS																						
23 OF 29	399+00	402+00	3.0		1240.7	1040.8	43.4	1249.0	1195.0		600.0			67	43	2.3	514	0	300		300	
24 OF 29	402+00	412+00	10.0		4581.5	3670.0	152.9	4404.0	4115.0		2000.0			222	225	2.3	2850	890	110		200	
25 OF 29	412+00	416+00	4.0		1848.2	1475.0	61.4	1770.0	2172.0		800.0			89	18	10.2	600	400			400	
CSJ: 0018-05-063 SUBTOTAL			17.0		7670.4	6185.8	257.7	7423.0	7482.0		3400.0			378	286	14.8	3964	1290	410		900	
TOTALS			286.3	663	134927.0	101259.2	4463.0	128229.6	19560.0	16757.0	55800.0	659.0	270.6	6266	1083	264.3	14114	17650	7965	2230	42143	2028.5

* FOR CONTRACTORS INFORMATION ONLY

NOTES:

1. ALL QUANTITES ARE BASED ON IH 35 MAINLANE STATIONS.
2. STATION 154+40 TO STATION 172+00 - QUANTITIES ARE FOR THE SOUTHBOUND AND NORTHBOUND FRONTAGE ROADS.

VOID

VOID

VOID

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF ROADWAY QUANTITIES

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	44
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

WORK

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62

b36qsp10.dgn-18 HOUFILE023 \hcivil\c\f0130\ 3/11/2004

SUMMARY OF ROADWAY QUANTITIES

ITEM NO - DESCRIPTION			100-502	110-502	247-817	310-504	316-534	316-555	354-503	354-529	354-566	360-507	360-571	427-509	432-501	432-531	450-526	514-517	514-	514-	529-532	4088-501
LOCATION			PREP ROW	EXCAV (CHAN)	FL BS (COMP IN PLA) (TY A GR 1 CL 4)	ASPH MATRL (MC-30 OR AE-P)	AGGR (TY PE. GR3)	ASPH (AC-15 5TR)	PLANE ASPH CONC PAV (2")	PLANE ASPH CONC PAV (0" TO 2")	PLANE ASPH CONC PAV (2¾")	CONC PAV (CONT REINF HY STL) (12 IN)	CONC PAV (6")	ARCH CONC STAIN FINISH FOR EXIST CONC *	RIPRAP (CONC) (CL B)	RIPRAP (CONC) (CL B) (GUARD RAIL)	RAIL (SSTR)	PERM CONC TRF BAR SGL SLP (TY 2) (H=42")	SPECIAL BARRIER NO 1	SPECIAL BARRIER NO 2	CONC CURB & GUTTER (TY II)	FLOWABLE BACKFILL
SHEET NO	BEGIN STATION	END STATION	STA	CY	CY	GAL	CY	GAL	SY	SY	SY	SY	SY	SY	CY	CY	LF	LF	LF	LF	LF	CY
CSJ: 0018-06-147																						
IH 35 MAINLANE STATIONS																						
SEE NOTE	154+40	162+00							2027.0													
SEE NOTE	162+00	172+00	4.8		806.9	363.1	15.1	435.7	3610.0												480	
1 OF 29	172+00	182+00	10.0		3652.8	2841.4	136.0	3916.8	3245.0	845.0	1840.0			192				665	200		1200	115.6
2 OF 29	182+00	186+00	4.0		2266.6	1540.7	71.8	2069.3			800.0			89					400		800	64.2
4 OF 29	210+00	212+00	2.0		767.6	614.8	29.4	848.0			400.0			178		4.5		200			200	32.1
5 OF 29	212+00	222+00	10.0		3499.5	2876.7	139.0	4003.2			2000.0			222	9			1000			1000	160.5
6 OF 29	222+00	232+00	10.0		3345.5	2807.3	136.2	3920.0			2000.0			222		11.5		1000			1000	160.5
7 OF 29	232+00	242+00	10.0		3345.9	2807.3	136.2	3920.0			2000.0			222				1000			1000	160.5
8 OF 29	242+00	252+00	10.0		5327.5	4041.3	173.7	5002.4			2000.0			222		10.7		360	390	250	1850	43.6
9 OF 29	252+00	262+00	10.0		5629.7	4266.7	177.7	5120.0	②		2000.0			222				250	600	150	2000	
10 OF 29	262+00	272+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	25	11.2			965	35	2000	
11 OF 29	272+00	282+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	215	11.8				1000	2000	
12 OF 29	282+00	292+00	10.0		5427.6	4028.4	169.2	4874.2			2000.0			222				235	550	215	2000	60.1
13 OF 29	292+00	302+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222				655	345		2000	114.2
14 OF 29	302+00	312+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222	9	12.8		520	480		2000	114.2
15 OF 29	312+00	322+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222		11.4		560	440		2000	114.2
16 OF 29	322+00	332+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222	20			50	950		2000	114.2
17 OF 29	332+00	336+00	4.0		1990.2	1416.3	66.6	1920.0			800.0			89	32			400			800	45.7
RAMPS A & C					787.3	880.0																
INTERSECTIONS/DRIVEWAYS					81.2	85.0						206.4	192.4									
CSJ: 0018-06-147 SUBTOTAL			144.8		67775.2	50867.8	2267.3	64989.6	8882.0	845.0	27840.0	206.4	192.4	3212	310	73.9		6895	5320	1650	24330	1299.5
CSJ: 0018-06-148				②																		
IH 35 MAINLANE STATIONS																						
2 OF 29	186+00	192+00	6.0	663	3666.6	2431.0	112.7	3248.0			1200.0			133		12.5	1750		600		150	68.5
3 OF 29	192+00	202+00	10.0		4211.5	3197.0	152.4	4387.6			2000.0			222			3880	625	375			114.2
4 OF 29	202+00	210+00	8.0		4134.9	1475.0	136.2	3923.6			1600.0			128	36	16.2	1825	800			650	91.4
CSJ: 0018-06-148 SUBTOTAL			24.0	663	12013.0	7103.0	401.3	11559.2			4800.0			483	36	28.7	7455	1425	975		800	274.1
CSJ: 0018-05-062																						
IH 35 MAINLANE STATIONS																						
17 OF 29	336+00	342+00	6.0		2985.2	2124.4	100.0	2880.0			1200.0			133		6.6		600			1200	68.5
18 OF 29	342+00	352+00	10.0		5342.2	3936.4	166.7	4800.0			2000.0			222		18.7		370	615	15	2000	28.3
19 OF 29	352+00	362+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	133	11.1			435	565	2000	
20 OF 29	362+00	372+00	10.0		5202.8	3786.0	169.4	4880.0			2000.0			222	③			980	20		2000	53.3
21 OF 29	372+00	382+00	10.0		4975.2	3540.7	169.4	4880.0			2000.0			222	219	21.0	100	1000			2000	114.2
22 OF 29	382+00	392+00	10.0		4975.2	3540.7	169.4	4880.0			2000.0			222	58	15.3	1051	1000			2000	114.2
23 OF 29	392+00	399+00	7.0		2649.5	2112.5	100.9	2904.6	2500.0		1400.0			156	18	2.3	416	510	190		780	76.5
25 OF 29	416+00	422+00	6.0		3168.5	2399.8	100.0	2879.8	696.0		1200.0			133	36		600	690			1490	
26 OF 29	422+00	432+00	10.0		5555.8	4108.5	171.2	4930.2			2000.0			222		37.4	522	1060			2000	
27 OF 29	432+00	442+00	10.0		2944.7	2690.2	112.1	3228.4			1660.0	278.0		193		34.5		870			643	
28 OF 29	442+00	452+00	10.0		2203.7	2600.0	108.3	3120.0			2000.0			222				1000				
29 OF 29	452+00	453+50	1.5		330.6	390.0	16.3	468.0		15912.0	300.0			24				110				
RAMPS E, F, J, K					1922.6	2148.0																
INTERSECTIONS/DRIVEWAYS					58.0	53.0						174.6	78.2									
CSJ: 0018-05-062 SUBTOTAL			100.5		47797.0	37496.9	1553.1	44731.0	3196.0	15912.0	19760.0	452.6	78.2	2193	464	146.9	2695	8040	1260	580	16113	455.0
															③							
CSJ: 0018-05-063																						
IH 35 MAINLANE STATIONS																						
23 OF 29	399+00	402+00	3.0		1240.7	1040.8	43.4	1249.0	1195.0		600.0			67	43	2.3	514	0	300		300	
24 OF 29	402+00	412+00	10.0		4581.5	3670.0	152.9	4404.0	4115.0		2000.0			222	225	2.3	2850	890	110		200	
25 OF 29	412+00	416+00	4.0		1848.2	1475.0	61.4	1770.0	2172.0		800.0			89	18	10.2	600	400			400	
CSJ: 0018-05-063 SUBTOTAL			17.0		7670.4	6185.8	257.7	7423.0	7482.0		3400.0			378	286	14.8	3964	1290	410		900	
TOTALS			286.3	663	135255.6	101653.5	4479.4	128702.8	19560.0	16757.0	55800.0	659.0	270.6	6266	1096	264.3	14114	17650	7965	2230	42143	2028.5
					①			②							③							①

* FOR CONTRACTORS INFORMATION ONLY

NOTES:
1. ALL QUANTITES ARE BASED ON IH 35 MAINLANE STATIONS.
2. STATION 154+40 TO STATION 172+00 - QUANTITIES ARE FOR THE SOUTHBOUND AND NORTHBOUND FRONTAGE ROADS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE
01/04/05	AA	3	WINGWALL MODIFICATIONS FOR CULVERT I

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF ROADWAY QUANTITIES

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	44
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j01lop01.bdr, bdr LV ON = 47,57,58,60-62

HOUFILE023 \hciwil\cf0130\ 1/4/2005 b36gsp10.dgn-19

SUMMARY OF ROADWAY QUANTITIES

ITEM NO - DESCRIPTION			100-502	110-502	247-817	310-504	316-534	316-555	354-503	354-529	354-566	360-507	360-571	427-509	432-501	432-531	450-526	514-517	514-	514-	529-532	4088-501
LOCATION			PREP ROW	EXCAV (CHAN)	FL BS (COMP IN PLA) (TY A GR 1 CL 4)	ASPH MATRL (MC-30 OR AE-P)	AGGR (TY PE. GR3)	ASPH (AC-15 5TR)	PLANE ASPH CONC PAV (2")	PLANE ASPH CONC PAV (0" TO 2")	PLANE ASPH CONC PAV (2¾")	CONC PAV (CONT REINF HY STL) (12 IN)	CONC PAV (6")	ARCH CONC STAIN FINISH FOR EXIST CONC *	RIPRAP (CONC) (CL B)	RIPRAP (CONC) (CL B) (GUARD RAIL)	RAIL (SSTR)	PERM CONC TRF BAR SGL SLP (TY 2) (H=42")	SPECIAL BARRIER NO 1	SPECIAL BARRIER NO 2	CONC CURB & GUTTER (TY II)	FLOWABLE BACKFILL
SHEET NO	BEGIN STATION	END STATION	STA	CY	CY	GAL	CY	GAL	SY	SY	SY	SY	SY	SY	CY	CY	LF	LF	LF	LF	LF	CY
CSJ: 0018-06-147																						
IH 35 MAINLANE STATIONS																						
SEE NOTE	154+40	162+00							2027.0													
SEE NOTE	162+00	172+00	4.8		806.9	363.1	15.1	435.7	3610.0												480	
1 OF 29	172+00	182+00	10.0		3652.8	2841.4	136.0	3916.8	3245.0	845.0	1840.0			192				665	200		1200	115.6
2 OF 29	182+00	186+00	4.0		2266.6	1540.7	71.8	2069.3			800.0			89					400		800	64.2
4 OF 29	210+00	212+00	2.0		787.6	614.8	29.4	848.0			400.0			178		4.5		200			200	32.1
5 OF 29	212+00	222+00	10.0		3499.6	2876.7	139.0	4003.2			2000.0			222	9			1000			1000	160.5
6 OF 29	222+00	232+00	10.0		3345.5	2807.3	136.2	3920.0			2000.0			222		11.5		1000			1000	160.5
7 OF 29	232+00	242+00	10.0		3345.9	2807.3	136.2	3920.0			2000.0			222				1000			1000	160.5
8 OF 29	242+00	252+00	10.0		5327.5	4043.9	173.7	5002.4			2000.0			222		10.7		360	390	250	1850	43.6
9 OF 29	252+00	262+00	10.0		5629.7	4266.7	177.7	5120.0			2000.0			222				250	600	150	2000	
10 OF 29	262+00	272+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	25	11.2			965	35	2000	
11 OF 29	272+00	282+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	215	11.8				1000	2000	
12 OF 29	282+00	292+00	10.0		5427.6	4028.4	169.2	4874.2			2000.0			222				235	550	215	2000	60.1
13 OF 29	292+00	302+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222				655	345		2000	114.2
14 OF 29	302+00	312+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222	9	12.8		520	480		2000	114.2
15 OF 29	312+00	322+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222		11.4		560	440		2000	114.2
16 OF 29	322+00	332+00	10.0		4975.2	3540.7	169.4	4800.0			2000.0			222	20			50	950		2000	114.2
17 OF 29	332+00	336+00	4.0		1990.2	1416.3	66.6	1920.0			800.0			89	32			400			800	45.7
RAMPS A & C					787.3	880.0																
INTERSECTIONS/DRIVEWAYS					81.2	85.0						206.4	192.4									
CSJ: 0018-06-147 SUBTOTAL			144.8		67775.2	50867.8	2267.3	64989.6	8882.0	845.0	27840.0	206.4	192.4	3212	310	73.9		6895	5320	1650	24330	1299.5
CSJ: 0018-06-148				2																		
IH 35 MAINLANE STATIONS																						
2 OF 29	186+00	192+00	6.0	663	3666.6	2431.0	112.7	3248.0			1200.0			133		12.5	1750		600		150	68.5
3 OF 29	192+00	202+00	10.0		4211.5	3197.0	152.4	4387.6			2000.0			222			3880	625	375			114.2
4 OF 29	202+00	210+00	8.0		4134.9	1475.0	136.2	3923.6			1600.0			128	36	16.2	1825	800			650	91.4
CSJ: 0018-06-148 SUBTOTAL			24.0	663	12013.0	7103.0	401.3	11559.2			4800.0			483	36	28.7	7455	1425	975		800	274.1
CSJ: 0018-05-062																						
IH 35 MAINLANE STATIONS																						
17 OF 29	336+00	342+00	6.0		2985.2	2124.4	100.0	2880.0			1200.0			133		6.6		600			1200	68.5
18 OF 29	342+00	352+00	10.0		5342.2	3936.4	166.7	4800.0			2000.0			222		18.7		370	615	15	2000	28.3
19 OF 29	352+00	362+00	10.0		5463.0	4066.7	169.4	4880.0			2000.0			222	133	11.1			435	565	2000	
20 OF 29	362+00	372+00	10.0		5202.8	3786.0	169.4	4880.0			2000.0			222	3			980	20		2000	53.3
21 OF 29	372+00	382+00	10.0		4975.2	3540.7	169.4	4880.0			2000.0			222	219	21.0	100	1000			2000	114.2
22 OF 29	382+00	392+00	10.0		4975.2	3540.7	169.4	4880.0			2000.0			222	58	15.3	1057	1000			2000	114.2
23 OF 29	392+00	399+00	7.0		2649.5	2112.5	100.9	2904.6	2500.0		1400.0			156	247	2.3	416	510	190		780	76.5
25 OF 29	416+00	422+00	6.0		3188.5	2399.8	100.0	2879.8	696.0		1200.0			133	4 36		600	600			1490	
26 OF 29	422+00	432+00	10.0		5555.8	4108.5	171.2	4930.2			2000.0			222		37.4	522	1000			2000	
27 OF 29	432+00	442+00	10.0		2944.7	2690.2	112.1	3228.4			1660.0	278.0		193		34.5		870			643	
28 OF 29	442+00	452+00	10.0		2203.7	2600.0	108.3	3120.0			2000.0			222				1000				
29 OF 29	452+00	453+50	1.5		330.6	390.0	16.3	468.0		15912.0	300.0			24				110				
RAMPS E. F. J. K					1922.6	2148.0																
INTERSECTIONS/DRIVEWAYS					58.0	53.0						174.6	78.2									
CSJ: 0018-05-062 SUBTOTAL			100.5		47797.0	37496.9	1553.1	44731.0	3196.0	15912.0	19760.0	452.6	78.2	2193	693	146.9	2695	8040	1260	580	16113	455.0
CSJ: 0018-05-063																						
IH 35 MAINLANE STATIONS																						
23 OF 29	399+00	402+00	3.0		1240.7	1040.8	43.4	1249.0	1195.0		600.0			67	43	2.3	514	0	300		300	
24 OF 29	402+00	412+00	10.0		4581.5	3670.0	152.9	4404.0	4115.0		2000.0			222	225	2.3	2850	890	110		200	
25 OF 29	412+00	416+00	4.0		1848.2	1475.0	61.4	1770.0	2172.0		800.0			89	18	10.2	600	400			400	
CSJ: 0018-05-063 SUBTOTAL			17.0		7670.4	6185.8	257.7	7423.0	7482.0		3400.0			378	286	14.8	3964	1290	410		900	
TOTALS			286.3	663	135255.6	101653.5	4479.4	128702.8	19560.0	16757.0	55800.0	659.0	270.6	6266	1325	264.3	14114	17650	7965	2230	42143	2028.5

* FOR CONTRACTORS INFORMATION ONLY

NOTES:

1. ALL QUANTITES ARE BASED ON IH 35 MAINLANE STATIONS.
2. STATION 154+40 TO STATION 172+00 - QUANTITIES ARE FOR THE SOUTHBOUND AND NORTHBOUND FRONTAGE ROADS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE
01/04/05	AA	3	WINGWALL MODIFICATIONS FOR CULVERT I
06/27/06	JL	4	ADDED RIPRAP

KBR

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF ROADWAY QUANTITIES

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	44
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

7/14/2006

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62
HOUFILE023 \hcivil\cf0130\ b36qsp10.dgn-19

SUMMARY OF ROADWAY QUANTITIES

ITEM NO - DESCRIPTION			529-537	534-501	540-505	540-506	540-507	540-508	540-515	3146-501	3146-520	3231-501	3231-502	3241-506	3248-501	3249-503	3249-506	5819-510	5840-503
LOCATION			CONC CURB (TY II) (MONO)	STRUCT APPROACH SLABS	TERM ANCHOR SECT (12 GA)	MTL BM GD FENCE (TIM POST) (12 GA)	MTL BM GD FENCE (BLK OUT) (12 GA) TIM POST	MTL BM GD FENCE (BLK OUT) (12 GA) STL POST	MTL BM GD FENCE (12 GA) (STL POST)	HOT MIX (TY A)	HOT MIX (TY C) (SURF)	ASPHALT (PG 76-22)	AGGREGATE (CL A)	SPHMACP (PG 70-22) (1/2")	HDSMACP (PG 76-22) (1/2")	SFHMACP (PG 76-22) (3/4")	SFHMACP (PG 76-22) (1")	SINGLE GDRAIL TERM (TY I, II, OR III)	TRACC (INSTALL) (FAST)
SHEET NO	BEGIN STATION	END STATION	LF	CY	EA	LF	LF	LF	LF	TON	TON	TON	TON	TON	TON	TON	TON	EA	EA
CSJ: 0018-06-147																			
IH 35 MAINLANE STATIONS																			
SEE NOTE	154+40	162+00									223.0								
SEE NOTE	167+00	172+00								358.8	572.4								
1 OF 29	172+00	182+00								894.7	797.0	56.7	887.9	1049.4	1731.6	1453.3	3148.3		1
2 OF 29	182+00	[illegible]+00			1					694.2	342.2	24.6	386.0	450.3	752.9	631.9	1368.8		
4 OF 29	210+00	212+00			1		125			198.0	97.8	12.3	193.0	228.1	376.4	315.9	684.4		
5 OF 29	212+00	222+00								772.9	380.4	61.6	965.1	1140.7	1882.2	1579.7	3422.1		
6 OF 29	222+00	232+00			1		250			696.7	342.2	61.6	965.1	1140.7	1882.2	1579.7	3422.1	1	
7 OF 29	232+00	242+00								696.7	342.2	61.6	965.1	1140.7	1882.2	1579.7	3422.1		
8 OF 29	242+00	252+00			1		225			1328.2	652.8	62.4	977.6	1351.5	1919.0	1836.8	4054.4	1	
9 OF 29	252+00	262+00								1393.3	684.4	62.7	982.3	1430.0	1932.6	1932.6	4290.0		
10 OF 29	262+00	272+00			1		240			1393.3	684.4	62.7	982.3	1430.0	1932.6	1932.6	4290.0	1	
11 OF 29	272+00	282+00			1		260			1393.3	684.4	62.7	982.3	1430.0	1932.6	1932.6	4290.0	1	
12 OF 29	282+00	292+00								1393.3	684.4	62.6	981.0	1409.0	1929.0	1907.0	4227.0		
13 OF 29	292+00	302+00								1393.3	684.4	61.6	965.1	1140.7	1882.2	1579.7	3422.1		
14 OF 29	302+00	312+00			1		255	37.5		1393.3	684.4	61.6	965.1	1140.7	1882.2	1579.7	3422.1	1	
15 OF 29	312+00	322+00			1		233.5	12.5		1393.3	684.4	61.6	965.1	1140.7	1882.2	1579.7	3422.1	1	
16 OF 29	322+00	332+00								1393.3	684.4	61.6	965.1	1140.7	1882.2	1579.7	3422.1		
17 OF 29	332+00	336+00								557.3	273.8	24.6	386.0	456.3	752.9	631.9	1368.8		
RAMPS A & C												19.4	309.6	483.8	615.9	615.9	1451.3		
INTERSECTIONS/DRIVEWAYS										4[illegible]8									
CSJ: 0018-06-147 SUBTOTAL					8		[illegible]88.5	50		[illegible]365.7	9499.0	881.9	13823.7	17709.3	27050.9	24248.4	53127.7	6	1
CSJ: 0018-06-148																			
IH 35 MAINLANE STATIONS																			
2 OF 29	186+00	192+00			1	50	75		[illegible]50	1173.3	579.3	37.6	589.4	684.4	1129.3	947.8	2053.3	2	
3 OF 29	192+00	202+00		297.3						1111.8	549.0	62.7	982.3	1140.7	1882.2	1579.7	3422.1		
4 OF 29	202+00	210+00			1	75	225			1230.6	607.7	50.2	785.8	912.6	1505.8	1263.8	2737.7	2	
CSJ: 0018-06-148 SUBTOTAL				297.3	2	125	300		[illegible]50	3515.7	1736.0	150.5	2357.5	2737.7	4517.3	3791.3	8213.1	4	
CSJ: 0018-05-062																			
IH 35 MAINLANE STATIONS																			
17 OF 29	336+00	342+00					110			[illegible]30	410.7	37.0	579.0	684.4	1129.3	947.8	2053.3	1	
18 OF 29	342+00	352+00			2		[illegible]0	100		1393.3	684.4	62.4	978.0	1358.4	1920.2	1845.3	4075.1	1	
19 OF 29	352+00	362+00			1		238			1393.3	[illegible]84.4	62.7	982.3	1430.0	1932.6	1932.6	4290.0	1	
20 OF 29	362+00	372+00								1393.3	[illegible]	62.1	973.1	1275.7	1905.7	1744.4	3827.0		
21 OF 29	372+00	382+00					590			1393.3	684.4	61.6	965.1	1140.7	1882.2	1579.7	3422.1	1	1
22 OF 29	382+00	392+00			2	50	410			1393.3	684.4	61.6	965.1	1140.7	1882.2	1579.7	3422.1		1
23 OF 29	392+00	399+00			1	50				620.0	580.0	[illegible]2.8	676.1	807.2	1319.1	1116.4	2421.5		1
25 OF 29	416+00	422+00								809.9	475.2	37.6	589.4	858.0	1159.6	1159.6	2574.0		
26 OF 29	422+00	432+00			4	[illegible]40	390	50	50	1433.0	704.0	62.7	[illegible]82.3	1430.0	1932.6	1932.6	4290.0	2	1
27 OF 29	432+00	442+00	82	53.3	2	585	35			510.9	220.0	52.0	[illegible]3	1186.7	1604.1	1604.1	3560.7	4	
28 OF 29	442+00	452+00										62.7	982.3	1430.0	1932.6	1932.6	4290.0		
29 OF 29	452+00	453+50										9.4	147.3	[illegible]14.5	289.9	289.9	643.5		1
RAMPS E, F, J, K												47.3	756.1	[illegible].4	1504.1	1504.1	3544.2		
INTERSECTIONS/DRIVEWAYS										38.9									
CSJ: 0018-05-062 SUBTOTAL			82	53.3	12	1125	2138	150	50	11215.2	5811.9	662.3	10391.4	14137.7	[illegible]94.2	19168.8	42413.5	10	5
CSJ: 0018-05-063																			
IH 35 MAINLANE STATIONS																			
23 OF 29	399+00	402+00			1	50				257.8	258.8	18.8	294.7	429.0	579.8	[illegible]9.3	1287.0		
24 OF 29	402+00	412+00		195	1	50				1061.5	977.0	62.7	982.3	1430.0	1932.6	1932.6	4290.0		
25 OF 29	412+00	416+00			1	25	75			430.7	451.6	25.1	392.9	572.0	773.1	773.1	1716.0	2	
CSJ: 0018-05-063 SUBTOTAL				195	3	125	75			1750.0	1687.4	106.6	1669.9	2431.0	3285.5	3285.0	7293.0	2	
TOTALS			82	545.6	25	1375	4101.5	200	100	33846.6	18734.3	1801.3	28242.5	37015.7	55247.9	50493.5	111047.3	22	6

See next

NOTES:
1. ALL QUANTITES ARE BASED ON IH 35 MAINLANE STATIONS.
2. STATION 154+40 TO STATION 172+00 - QUANTITIES ARE FOR THE SOUTHBOUND AND NORTHBOUND FRONTAGE ROADS.

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF ROADWAY QUANTITIES

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	45
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

5/8/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62
HOUFILE023 \hchivil\c\f0130\ b36qsp11.dgn-15

SUMMARY OF ROADWAY QUANTITIES

ITEM NO - DESCRIPTION			529-537	534-501	540-505	540-506	540-507	540-508	540-515	3146-501	3146-520	3231-501	3231-502	3241-506	3248-501	3249-503	3249-506	5819-510	5840-503
LOCATION			CONC CURB (TY II) (MONO)	STRUCT APPROACH SLABS	TERM ANCHOR SECT (12 GA)	MTL BM GD FENCE (TIM POST) (12 GA)	MTL BM GD FENCE (BLK OUT) (12 GA) TIM POST	MTL BM GD FENCE (BLK OUT) (12 GA) STL POST	MTL BM GD FENCE (12 GA) (STL POST)	HOT MIX (TY A)	HOT MIX (TY C) (SURF)	ASPHALT (PG 76-22)	AGGREGATE (CL A)	SPHMACP (PG 70-22) (1/2")	HDSMACP (PG 76-22) (1/2")	SFHMACP (PG 76-22) (3/4")	SFHMACP (PG 76-22) (1")	SINGLE GDRAIL TERM (TY I, II, OR III)	TRACC (INSTALL) (FAST)
SHEET NO	BEGIN STATION	END STATION	LF	CY	EA	LF	LF	LF	LF	TON	TON	TON	TON	TON	TON	TON	TON	EA	EA
CSJ: 0018-06-147																			
IH 35 MAINLANE STATIONS																			
SEE NOTE	154+40	162+00									223.0								
SEE NOTE	167+00	172+00								358.8	572.4								
1 OF 29	172+00	182+00								894.7	797.0	57.7	903.7	1049.4	1731.6	1453.3	3148.3		1
2 OF 29	182+00	186+00			1					694.2	342.2	25.1	392.9	456.3	752.9	631.9	1368.8		
4 OF 29	210+00	212+00			1		125			198.0	97.8	12.5	196.5	228.1	376.[illegible]	315.9	684.4		
5 OF 29	212+00	222+00								772.9	380.4	62.7	982.3	1140.7	[illegible].2	1579.7	3422.1		
6 OF 29	222+00	232+00			1		250			696.7	342.2	62.7	982.3	1140.7	1882.2	1579.7	3422.1	1	
7 OF 29	232+00	242+00								696.7	342.2	62.7	982.3	1140.7	1882.2	1579.7	3422.1		
8 OF 29	242+00	252+00			1		225			1328.2	652.8	62.7	982.3	1351.5	1919.0	1836.8	4054.4	1	
9 OF 29	252+00	262+00								1393.3	684.4	62.7	982.3	1430.0	1932.6	1932.6	4290.0		
10 OF 29	262+00	272+00			1		240			1393.3	684.4	62.7	982.3	1430.0	1932.6	1932.6	4290.0	1	
11 OF 29	272+00	282+00			1		260			1393.3	684.4	62.7	982.3	1430.0	1932.6	1932.6	4290.0	1	
12 OF 29	282+00	292+00								1393.3	684.4	62.7	982.3	1409.0	1929.0	1907.0	4227.0		
13 OF 29	292+00	302+00								1393.3	684.4	62.7	982.3	1140.7	1882.2	1579.7	3422.1		
14 OF 29	302+00	312+00			1		255	37.5		1393.3	684.4	62.7	982.3	1140.7	1882.2	1579.7	3422.1	1	
15 OF 29	312+00	322+00			1		233.5	12.5		1393.3	684.4	62.7	982.3	1140.7	1882.2	1579.7	3422.1	1	
16 OF 29	322+00	332+00								1393.3	684.4	62.7	982.3	1140.7	1882.2	1579.7	3422.1		
17 OF 29	332+00	336+00								557.3	273.8	25.1	392.9	456.3	752.9	631.9	1368.8		
RAMPS A & C												19.4	309.6	483.8	615.9	615.9	1451.3		
INTERSECTIONS/DRIVEWAYS										46.8									
CSJ: 0018-06-147 SUBTOTAL					8		1588.5	50		17365.7	9499.0	892.2	13983.2	17709.3	27050.9	24248.4	53127.7	6	1
CSJ: 0018-06-148																			
IH 35 MAINLANE STATIONS																			
2 OF 29	186+00	192+00			1	50	75		50	1173.3	579.3	37.6	589.4	684.4	1129.3	947.8	2053.3	2	
3 OF 29	192+00	202+00		297.3						1111.8	549.0	62.7	982.3	1140.7	1882.2	1579.7	3422.1		
4 OF 29	202+00	210+00			1	75	225			1230.6	607.7	50.2	785.8	912.6	1505.8	1263.8	2737.7	2	
CSJ: 0018-06-148 SUBTOTAL				297.3	2	125	300		50	3515.7	1736.0	150.5	2357.5	2737.7	4517.3	3791.3	8213.1	4	
CSJ: 0018-05-062																			
IH 35 MAINLANE STATIONS																			
17 OF 29	336+00	342+00					110			836.[illegible]	410.7	37.6	589.4	684.4	1129.3	947.8	2053.3	1	
18 OF 29	342+00	352+00			2		365	100		1393.3	684.4	62.7	982.3	1358.4	1920.2	1845.3	4075.1	1	
19 OF 29	352+00	362+00			1		238			1393.3	684.4	62.7	982.3	1430.0	1932.6	1932.6	4290.0	1	
20 OF 29	362+00	372+00								1393.3	684.4	62.7	982.3	1275.7	1905.7	1744.4	3827.0		
21 OF 29	372+00	382+00					590			1393.3	684.4	62.7	982.3	1140.7	1882.2	1579.7	3422.1	1	1
22 OF 29	382+00	392+00				50	410			1393.3	684.4	62.7	982.3	1140.7	1882.2	1579.7	3422.1		1
23 OF 29	392+00	399+00			1	50				620.0	580.0	43.9	687.6	807.2	1319.1	1116.4	2421.5		1
25 OF 29	416+00	422+00								809.9	475.2	[illegible].6	589.4	858.0	1159.6	1159.6	2574.0		
26 OF 29	422+00	432+00			4	440	390	50	50	1433.0	704.0	62.[illegible]	982.3	1430.0	1932.6	1932.6	4290.0	2	1
27 OF 29	432+00	442+00	82	53.3	2	585	35			510.9	220.0	52.0	815.3	1186.7	1604.1	1604.1	3560.7	4	
28 OF 29	442+00	452+00										62.7	982.3	1430.0	1932.6	1932.6	4290.0		
29 OF 29	452+00	453+50										9.4	147.3	214.5	289.9	289.9	643.5		1
RAMPS E, F, J, K												47.3	756.1	1181.4	1504.1	1504.1	3544.2		
INTERSECTIONS/DRIVEWAYS										38.9									
CSJ: 0018-05-062 SUBTOTAL			82	53.3	12	1125	2138	150	50	11215.2	5811.9	666.7	10461.2	14137.7	20394.2	19168.8	42413.5	10	5
CSJ: 0018-05-063																			
IH 35 MAINLANE STATIONS																			
23 OF 29	399+00	402+00			1	50				257.8	258.8	18.8	294.7	429.0	579.8	579.3	1287.0		
24 OF 29	402+00	412+00		195	1	50				1061.5	977.0	62.7	982.3	1430.0	1932.6	1932.6	4290.0		
25 OF 29	412+00	416+00			1	25	75			430.7	451.6	25.1	392.9	572.0	773.1	773.1	1716.0	2	
CSJ: 0018-05-063 SUBTOTAL				195	3	125	75			1750.0	1687.4	106.6	1669.9	2431.0	3285.5	3285.0	7293.0	2	
TOTALS			82	545.6	25	1375	4101.5	200	100	33846.6	18734.3	1816.0	28471.8	37015.7	55247.9	50493.5	111047.3	22	6

See next

NOTES:
1. ALL QUANTITES ARE BASED ON IH 35 MAINLANE STATIONS.
2. STATION 154+40 TO STATION 172+00 - QUANTITIES ARE FOR THE SOUTHBOUND AND NORTHBOUND FRONTAGE ROADS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF ROADWAY QUANTITIES

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	45
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

REF FILE(S): j01lop01.bdr, bdr LV ON = 47.57.58.60-62
HOUFILE023 \hcivil\cf0130\ 3/5/2004
b36qsp11.dgn-16

SUMMARY OF ROADWAY QUANTITIES

ITEM NO - DESCRIPTION			529-537	534-501	540-505	540-506	540-507	540-508	540-515	3146-501	3146-520	3231-501	3231-502	3241-506	3248-501	3249-503	3249-506	5819-510	5840-503
LOCATION			CONC CURB (TY II) (MONO)	STRUCT APPROACH SLABS	TERM ANCHOR SECT (12 GA)	MTL BM GD FENCE (TIM POST) (12 GA)	MTL BM GD FENCE (BLK OUT) (12 GA) TIM POST	MTL BM GD FENCE (BLK OUT) (12 GA) STL POST	MTL BM GD FENCE (12 GA) (STL POST)	HOT MIX (TY A)	HOT MIX (TY C) (SURF)	ASPHALT (PG 76-22)	AGGREGATE (CL A)	SPHMACP (PG 70-22) (1/2")	HDSMACP (PG 76-22) (1/2")	SFHMACP (PG 76-22) (3/4")	SFHMACP (PG 76-22) (1")	SINGLE GDRAIL TERM (TY I, II, OR III)	TRACC (INSTALL) (FAST)
SHEET NO	BEGIN STATION	END STATION	LF	CY	EA	LF	LF	LF	LF	TON	TON	TON	TON	TON	TON	TON	TON	EA	EA
CSJ: 0018-06-147																			
IH 35 MAINLANE STATIONS																			
SEE NOTE	154+40	162+00									223.0								
SEE NOTE	167+00	172+00								358.8	572.4								
1 OF 29	172+00	182+00								894.7	797.0	50.6	788.7	1049.4	1762.6	1453.3	3148.3		1
2 OF 29	182+00	186+00			1					694.2	342.2	21.9	342.9	456.3	766.3	631.9	1368.8		
4 OF 29	210+00	212+00			1		125			198.0	97.8	10.9	171.5	228.1	383.2	315.9	684.4		
5 OF 29	212+00	222+00								772.9	380.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1		
6 OF 29	222+00	232+00			1		250			696.7	342.2	54.7	857.3	1140.7	1915.8	1579.7	3422.1	1	
7 OF 29	232+00	242+00								696.7	342.2	54.7	857.3	1140.7	1915.8	1579.7	3422.1		
8 OF 29	242+00	252+00			1		225			1328.2	652.8	54.7	857.3	1351.5	1928.1	1836.8	4054.4	1	
9 OF 29	252+00	262+00								1393.3	684.4	54.7	857.3	1430.0	1932.6	1932.6	4290.0		
10 OF 29	262+00	272+00			1		240			1393.3	684.4	54.7	857.3	1430.0	1932.6	1932.6	4290.0	1	
11 OF 29	272+00	282+00			1		260			1393.3	684.4	54.7	857.3	1430.0	1932.6	1932.6	4290.0	1	
12 OF 29	282+00	292+00								1393.3	684.4	54.7	857.3	1409.0	1931.4	1907.0	4227.0		
13 OF 29	292+00	302+00								1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1		
14 OF 29	302+00	312+00			1		255	37.5		1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1	1	
15 OF 29	312+00	322+00			1		233.5	12.5		1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1	1	
16 OF 29	322+00	332+00								1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1		
17 OF 29	332+00	336+00								557.3	273.8	21.9	342.9	456.3	766.3	631.9	1368.8		
RAMPS A & C												16.9	270.2	483.8	615.9	615.9	1451.3		
INTERSECTIONS/DRIVEWAYS										46.8									
CSJ: 0018-06-147 SUBTOTAL					8		1588.5	50		17365.7	9499.0	778.6	12203.8	17709.3	27362.5	24248.4	53127.7	6	1
CSJ: 0018-06-148																			
IH 35 MAINLANE STATIONS																			
2 OF 29	186+00	192+00			1	50	75		50	1173.3	579.3	32.7	514.4	684.4	1149.5	947.8	2053.3	2	
3 OF 29	192+00	202+00		297.3						1111.8	549.0	54.7	857.3	1140.7	1915.8	1579.7	3422.1		
4 OF 29	202+00	210+00			1	75	225			1230.6	607.7	43.6	685.8	912.6	1532.7	1263.8	2737.7	2	
CSJ: 0018-06-148 SUBTOTAL				297.3	2	125	300		50	3515.7	1736.0	131.0	2057.5	2737.7	4598.0	3791.3	8213.1	4	
CSJ: 0018-05-062																			
IH 35 MAINLANE STATIONS																			
17 OF 29	336+00	342+00					110			836.0	410.7	32.8	514.4	684.4	1149.5	947.8	2053.3	1	
18 OF 29	342+00	352+00			2		365	100		1393.3	684.4	54.7	857.3	1358.4	1928.5	1845.3	4075.1	1	
19 OF 29	352+00	362+00			1		238			1393.3	684.4	54.7	857.3	1430.0	1932.6	1932.6	4290.0	1	
20 OF 29	362+00	372+00								1393.3	684.4	54.7	857.3	1275.7	1923.7	1744.4	3827.0		
21 OF 29	372+00	382+00					590			1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1	1	1
22 OF 29	382+00	392+00			2	50	410			1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1		1
23 OF 29	392+00	399+00			1	50				620.0	580.0	38.3	600.1	807.2	1341.6	1116.4	2421.5		1
25 OF 29	416+00	422+00								809.9	475.2	32.8	514.4	858.0	1159.6	1159.6	2574.0		
26 OF 29	422+00	432+00			4	440	390	50	50	1433.0	704.0	54.7	857.3	1430.0	1932.6	1932.6	4290.0	2	1
27 OF 29	432+00	442+00	82	53.3	2	585	35			510.9	220.0	45.4	711.5	1186.7	1604.1	1604.1	3560.7	4	
28 OF 29	442+00	452+00										54.7	857.3	1430.0	1932.6	1932.6	4290.0		
29 OF 29	452+00	453+50										8.2	128.6	214.5	289.9	289.9	643.5		1
RAMPS E. F. J. K												41.3	659.9	1181.4	1504.1	1504.1	3341.2		
INTERSECTIONS/DRIVEWAYS										38.9									
CSJ: 0018-05-062 SUBTOTAL			82	53.3	12	1125	2138	150	50	11215.2	5811.9	581.7	9130.0	14137.7	20530.5	19168.8	42413.5	10	5
CSJ: 0018-05-063																			
IH 35 MAINLANE STATIONS																			
23 OF 29	399+00	402+00			1	50				257.8	258.8	16.4	514.4	429.0	579.8	579.3	1287.0		
24 OF 29	402+00	412+00		195	1	50				1061.5	977.0	54.7	857.3	1430.0	1932.6	1932.6	4290.0		
25 OF 29	412+00	416+00			1	25	75			430.7	451.6	43.8	685.8	572.0	773.1	773.1	1716.0	2	
CSJ: 0018-05-063 SUBTOTAL				195	3	125	75			1750.0	1687.4	114.9	2057.5	2431.0	3285.5	3285.0	7293.0	2	
TOTALS			82	545.6	25	1375	4101.5	200	100	33846.6	18734.3	1606.2	25448.8	37015.7	55776.8	50493.5	111047.3	22	6

NOTES:
1. ALL QUANTITES ARE BASED ON IH 35 MAINLANE STATIONS.
2. STATION 154+40 TO STATION 172+00 - QUANTITIES ARE FOR THE SOUTHBOUND AND NORTHBOUND FRONTAGE ROADS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF ROADWAY QUANTITIES

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	45
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

VOID

REF FILE(S): j01top01.bdr, bdr LV ON = 47,57,58,60-62
HOUFILE023 \hcivil\cf0130\ 3/11/2004
b36qsp11.dgn-17

SUMMARY OF ROADWAY QUANTITIES

ITEM NO - DESCRIPTION			529-537	534-501	540-505	540-506	540-507	540-508	540-515	3146-501	3146-520	3231-501	3231-502	3241-506	3248-501	3249-503	3249-506	5819-510	5840-503
LOCATION			CONC CURB (TY II) (MONO)	STRUCT APPROACH SLABS	TERM ANCHOR SECT (12 GA)	MTL BM GD FENCE (TIM POST) (12 GA)	MTL BM GD FENCE (BLK OUT) (12 GA) TIM POST	MTL BM GD FENCE (BLK OUT) (12 GA) STL POST	MTL BM GD FENCE (12 GA) (STL POST)	HOT MIX (TY A)	HOT MIX (TY C) (SURF)	ASPHALT (PG 76-22)	AGGREGATE (CL A)	SPHMACP (PG 70-22) (1/2")	HDSMACP (PG 76-22) (1/2")	SFHMACP (PG 76-22) (3/4")	SFHMACP (PG 76-22) (1")	SINGLE GDRAIL TERM (TY I, II, OR III)	TRACC (INSTALL) (FAST)
SHEET NO	BEGIN STATION	END STATION	LF	CY	EA	LF	LF	LF	LF	TON	TON	TON	TON	TON	TON	TON	TON	EA	EA
CSJ: 0018-06-147																			
IH 35 MAINLANE STATIONS																			
SEE NOTE	154+40	162+00									223.0								
SEE NOTE	167+00	172+00								358.8	572.4								
1 OF 29	172+00	182+00								894.7	797.0	50.6	788.7	1049.4	1762.6	1453.3	3148.3		1
2 OF 29	182+00	186+00			1					694.2	342.2	21.9	342.9	456.3	766.3	631.9	1368.8		
4 OF 29	210+00	212+00			1		125			198.0	97.8	10.9	171.5	228.1	383.2	315.9	684.4		
5 OF 29	212+00	222+00								772.9	380.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1		
6 OF 29	222+00	232+00			1		250			696.7	342.2	54.7	857.3	1140.7	1915.8	1579.7	3422.1	1	
7 OF 29	232+00	242+00			[2]		[2]			696.7	342.2	54.7	857.3	1140.7	1915.8	1579.7	3422.1	[2]	
8 OF 29	242+00	252+00			2		375			1328.2	652.8	58.7	918.9	1458.3	2075.0	1983.7	4374.9	1	
9 OF 29	252+00	262+00								1393.3	684.4	59.0	925.0	1540.0	2083.9	2083.9	4620.0	1	
10 OF 29	262+00	272+00			1		240			1393.3	684.4	54.7	857.3	1430.0	1932.6	1932.6	4290.0	1	
11 OF 29	272+00	282+00			1		260			1393.3	684.4	54.7	857.3	1430.0	1932.6	1932.6	4290.0	1	
12 OF 29	282+00	292+00								1393.3	684.4	54.7	857.3	1409.0	1931.4	1907.0	4227.0		
13 OF 29	292+00	302+00								1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1		
14 OF 29	302+00	312+00			1		255	37.5		1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1	1	
15 OF 29	312+00	322+00			1		233.5	12.5		1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1	1	
16 OF 29	322+00	332+00								1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1		
17 OF 29	332+00	336+00								557.3	273.8	21.9	342.9	456.3	766.3	631.9	1368.8		
RAMPS A & C												16.9	270.2	483.8	615.9	615.9	1451.3		
INTERSECTIONS/DRIVEWAYS										46.8								[2]	
CSJ: 0018-06-147 SUBTOTAL					[2] 9		[2] 1738.5	50		17365.7	9499.0	786.9	12333.1	17926.1	27660.7	24546.6	53778.6	7	1
CSJ: 0018-06-148																			
IH 35 MAINLANE STATIONS																			
2 OF 29	186+00	192+00			1	50	75		50	1173.3	579.3	32.7	514.4	684.4	1149.5	947.8	2053.3	2	
3 OF 29	192+00	202+00		297.3						1111.8	549.0	54.7	857.3	1140.7	1915.8	1579.7	3422.1		
4 OF 29	202+00	210+00			1	75	225			1230.6	607.7	43.6	685.8	912.6	1532.7	1263.8	2737.7	2	
CSJ: 0018-06-148 SUBTOTAL				297.3	2	125	300		50	3515.7	1736.0	131.0	2057.5	2737.7	4598.0	3791.3	8213.1	4	
CSJ: 0018-05-062																			
IH 35 MAINLANE STATIONS																			
17 OF 29	336+00	342+00					110			836.0	410.7	32.8	514.4	684.4	1149.5	947.8	2053.3	1	
18 OF 29	342+00	352+00			2		365	100		1393.3	684.4	54.7	857.3	1358.4	1928.5	1845.3	4075.1	1	
19 OF 29	352+00	362+00			[3] 2		[3] 488			1393.3	684.4	54.7	857.3	1430.0	1932.6	1932.6	4290.0	[3] 2	
20 OF 29	362+00	372+00								1393.3	684.4	54.7	857.3	1275.7	1923.7	1744.4	3827.0		
21 OF 29	372+00	382+00					590			1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1	1	1
22 OF 29	382+00	392+00			2	50	410			1393.3	684.4	54.7	857.3	1140.7	1915.8	1579.7	3422.1	1	1
23 OF 29	392+00	399+00			1	50				620.0	580.0	38.3	600.1	807.2	1341.6	1116.4	2421.5		1
25 OF 29	416+00	422+00								809.9	475.2	32.8	514.4	858.0	1159.6	1159.6	2574.0		
26 OF 29	422+00	432+00			4	440	390	50	50	1433.0	704.0	54.7	857.3	1430.0	1932.6	1932.6	4290.0	2	1
27 OF 29	432+00	442+00	82	53.3	2	585	35			510.9	220.0	45.4	711.5	1186.7	1604.1	1604.1	3560.7	4	
28 OF 29	442+00	452+00										54.7	857.3	1430.0	1932.6	1932.6	4290.0		
29 OF 29	452+00	453+50										8.2	128.6	214.5	289.9	289.9	643.5		1
RAMPS E, F, J, K												41.3	659.9	1181.4	1504.1	1504.1	3544.2		
INTERSECTIONS/DRIVEWAYS										38.9									
CSJ: 0018-05-062 SUBTOTAL			82	53.3	[3] 13	1125	[3] 2388	150	50	11215.2	5811.9	581.7	9130.0	14137.7	20530.5	19168.8	42413.5	[3] 11	5
CSJ: 0018-05-063																			
IH 35 MAINLANE STATIONS																			
23 OF 29	399+00	402+00			1	50				257.8	258.8	16.4	514.4	429.0	579.8	579.3	1287.0		
24 OF 29	402+00	412+00		195	1	50				1061.5	977.0	54.7	857.3	1430.0	1932.6	1932.6	4290.0		
25 OF 29	412+00	416+00			1	25	75			430.7	451.6	43.8	685.8	572.0	773.1	773.1	1716.0	2	
CSJ: 0018-05-063 SUBTOTAL				195	3	125	75			1750.0	1687.4	114.9	2057.5	2431.0	3285.5	3285.0	7293.0	2	
TOTALS			82	545.6	[2][3] 27	1375	[2][3] 4501.5	200	100	33846.6	18734.3	1614.5 [1]	25578.1	37232.5 [1]	56075.0 [2]	50791.7	111697.8	[3] 24	6

NOTES:
1. ALL QUANTITES ARE BASED ON IH 35 MAINLANE STATIONS.
2. STATION 154+40 TO STATION 172+00 - QUANTITIES ARE FOR THE SOUTHBOUND AND NORTHBOUND FRONTAGE ROADS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE
01/04/05	AA	3	WINGWALL MODIFICATIONS FOR CULVERT I

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF ROADWAY QUANTITIES

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	45
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

1/4/2005

HOUFILE023 \hcivil\cf0130\

b36qsp11.dgn-19

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62

	IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
0018-06-147	167+10.53	0	0	0
	168+00.00	239	36	203
	169+00.00	295	53	445
	170+00.00	264	51	658
	171+00.00	232	51	839
	172+00.00	238	56	1021
	173+00.00	458	81	1398
	174+00.00	610	134	1874
	175+00.00	516	177	2213
	176+00.00	494	193	2514
	177+00.00	595	195	2914
	178+00.00	768	163	3519
	179+00.00	926	116	4329
	180+00.00	[illegible]	101	5186
	181+00.00	1098	128	6154
	182+00.00	1234	167	7221
	183+00.00	1211	193	8239
	184+00.00	1282	177	9344
	185+00.00	1417	134	10627
	186+00.00	1346	132	11841
	210+00.00	0	0	-21116
	210+63.71	600	85	-21101
	211+00.00	323	60	-20838
	212+00.00	840	195	-20193
	213+00.00	817	185	-19561
	214+00.00	842	131	-18850
	214+53.50	459	51	-18442
	215+00.00	386	44	-18100
	216+00.00	788	103	-17415
	217+00.00	693	131	-16853
	217+10.00	66	14	-16801
	218+00.00	650	139	-16290
	219+00.00	784	180	-15686
	220+00.00	822	162	-15026
	221+00.00	851	138	-14313
	222+00.00	818	170	-13665
	223+00.00	760	194	-13099
	224+00.00	742	180	-12537
	225+00.00	766	145	-11916
	226+00.00	752	145	-11309
	227+00.00	698	185	-10796
	228+00.00	733	157	-10220
	229+00.00	789	115	-9546
	230+00.00	772	116	-8890
	230+15.00	111	18	-8797
	230+29.97	108	17	-8706
	231+00.00	515	79	-8270
	232+00.00	804	106	-7572
	233+00.00	870	96	-6798
	234+00.00	871	90	-6023
	235+00.00	828	97	-5292
	236+00.00	780	113	-4625
	237+00.00	775	128	-3978
	238+00.00	790	125	-3313
	239+00.00	750	135	-2698
	240+00.00	698	171	-2179
	241+00.00	813	220	-1786
	242+00.00	530	256	-1512
	243+00.00	466	258	-1304
	243+55.85	347	167	-1124
	244+00.00	366	133	-891
	244+71.50	612	179	-458
	245+00.00	255	71	-274
	246+00.00	938	209	455
	247+00.00	950	180	1225
	248+00.00	1009	190	2044
	249+00.00	1018	226	2836
	250+00.00	926	289	3473
	251+00.00	967	297	4143
	252+00.00	1202	216	5129

IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
253+00.00	1415	148	6396
254+00.00	1561	120	7837
255+00.00	1729	74	9492
256+00.00	1829	57	11264
257+00.00	1902	55	13111
257+88.92	1884	34	14961
258+00.00	252	3	15210
258+41.53	962	13	16159
259+00.00	1399	21	17537
260+00.00	2557	64	20030
261+00.00	2763	109	22684
262+00.00	2785	139	25330
263+00.00	2777	167	27940
264+00.00	2691	268	30363
265+00.00	2798	375	32786
266+00.00	3043	410	35419
267+00.00	2820	436	37803
268+00.00	2261	439	39683
269+00.00	1825	377	41073
270+00.00	1603	302	42374
271+00.00	1366	306	43434
272+00.00	1007	1583	42858
273+00.00	1018	1609	42267
274+00.00	1338	349	43256
275+00.00	1566	261	44561
276+00.00	1766	206	46121
277+00.00	1850	171	47800
277+93.02	1850	122	49508
278+00.00	144	8	49644
279+00.00	2241	116	51769
280+00.00	2372	90	54051
281+00.00	2274	73	56252
282+00.00	2182	70	58364
283+00.00	2151	58	60457
284+00.00	2136	48	62545
285+00.00	2019	54	64510
286+00.00	1862	70	66302
287+00.00	1771	85	67988
288+00.00	1689	112	69565
289+00.00	1746	108	71203
290+00.00	1918	69	73052
291+00.00	2044	42	75054
291+27.36	551	9	75596
292+00.00	1323	36	76883
293+00.00	1522	122	78283
294+00.00	1272	187	79368
295+00.00	1262	196	80434
296+00.00	1354	189	81599
297+00.00	1474	172	82901
298+00.00	1655	128	84428
299+00.00	1728	112	86044
300+00.00	1594	150	87488
301+00.00	1395	195	88688
302+00.00	1196	234	89650
303+00.00	1089	251	90488
304+00.00	1109	238	91359
305+00.00	1086	232	92213
306+00.00	993	239	92967
307+00.00	994	227	93734
308+00.00	1013	220	94527
309+00.00	871	317	95081
310+00.00	745	484	95342
311+00.00	659	563	95438
312+00.00	550	1002	94986
313+00.00	588	978	94596
314+00.00	692	523	94765
315+00.00	743	487	95021
316+00.00	808	439	95390
317+00.00	702	483	95609
318+00.00	507	568	95548

	IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
	319+00.00	456	629	95375
	320+00.00	489	557	95307
	321+00.00	676	351	95632
	322+00.00	845	245	96232
	322+72.33	586	154	96664
	322+76.56	31	8	96687
	323+00.00	164	52	96799
	324+00.00	598	620	96777
	325+00.00	487	1150	96114
	326+00.00	412	1410	95116
	327+00.00	392	1478	94030
	328+00.00	440	1392	93078
	329+00.00	532	1239	92371
	330+00.00	666	764	92273
	331+00.00	1060	261	93072
	332+00.00	1482	118	94436
	333+00.00	1451	96	95791
	334+00.00	1028	264	96555
	335+00.00	798	713	96640
	336+00.00	849	1216	96273
0018-06-147	SUBTOTAL	170084	40354	96273
0018-06-148	186+00.00	0	0	11841
	186+56.00	569	89	12321
	186+91.00	261	79	12503
	187+00.00	57	25	12535
	187+90.53	502	789	12248
	188+00.00	45	127	12166
	189+00.00	499	1427	11238
	189+05.83	32	95	11175
	189+82.72	437	1515	10097
	190+00.00	102	408	9791
	191+00.00	577	3074	7294
	192+00.00	569	4164	3699
	193+00.00	600	5029	-730
	193+13.53	88	739	-1381
	193+17.53	27	159	-1513
	193+18.60	7	27	-1533
	194+00.00	552	2139	-3120
	195+00.00	687	2878	-5311
	196+00.00	780	3132	-7663
	196+65.91	575	2192	-9280
	197+00.00	289	1154	-10145
	198+00.00	835	3351	-12661
	199+00.00	873	3239	-15027
	200+00.00	764	3480	-17743
	200+12.94	91	422	-18074
	201+00.00	837	1999	-19236
	202+00.00	1159	1556	-19633
	203+00.00	1027	1180	-19786
	203+37.53	316	379	-19849
	203+41.53	32	93	-19910
	203+58.92	140	626	-20396
	204+00.00	335	1315	-21376
	204+55.80	485	1449	-22340
	205+00.00	366	902	-22876
	206+00.00	785	1413	-23504
	206+80.83	662	668	-23510
	206+90.53	80	63	-23493
	207+00.00	77	59	-23475
	207+10.15	83	54	-23446
	207+90.53	719	280	-23007
	208+00.00	76	21	-22952
	209+00.00	728	161	-22385
	210+00.00	880	111	-21616
0018-06-148	SUBTOTAL	18605	52062	-21616
0018-05-062	336+00.00	0	0	96273
	337+00.00	816	1361	95728
	338+00.00	749	1246	95231
	339+00.00	737	979	94989
	340+00.00	721	643	95067

See next

NOTE: A COMPACTION FACTOR OF 1.0 WAS USED ON THE ROADWAY EMBANKMENT CALCULATIONS.

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF EARTHWORK QUANTITIES

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		46
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011qp01.bdr, bdr LV ON = 57,58,60-62

b36qsp09.dgn-04 HOUFILE023 \hcivil\c\f0130\ $DATE$

	IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
0018-06-147	167+10.53	0	0	0
	168+00.00	239	36	203
	169+00.00	295	53	445
	170+00.00	264	51	658
	171+00.00	232	51	839
	172+00.00	249	70	1018
	173+00.00	469	95	1392
	174+00.00	621	148	1865
	175+00.00	527	191	2201
	176+00.00	505	207	2499
	177+00.00	606	209	2896
	178+00.00	779	177	3498
	179+00.00	937	130	4305
	180+00.00	969	115	5159
	181+00.00	1107	142	6124
	182+00.00	1245	181	7188
	183+00.00	1211	193	8206
	184+00.00	1282	177	9311
	185+00.00	1417	134	10594
	186+00.00	1368	162	11800
	210+00.00	0	0	-21601
	210+63.71	612	100	-21089
	211+00.00	335	75	-20829
	212+00.00	852	210	-20187
	213+00.00	829	200	-19558
	214+00.00	854	146	-18850
	214+53.50	459	51	-18442
	215+00.00	398	59	-18103
	216+00.00	800	118	-17421
	217+00.00	705	146	-16862
	217+10.00	66	14	-16810
	218+00.00	662	154	-16302
	219+00.00	796	195	-15701
	220+00.00	834	177	-15044
	221+00.00	863	153	-14334
	222+00.00	830	185	-13689
	223+00.00	772	209	-13126
	224+00.00	754	195	-12567
	225+00.00	778	160	-11949
	226+00.00	764	160	-11345
	227+00.00	710	200	-10835
	228+00.00	745	172	-10262
	229+00.00	801	130	-9591
	230+00.00	784	131	-8938
	230+15.00	111	18	-8845
	230+29.97	108	17	-8754
	231+00.00	527	94	-8321
	232+00.00	816	121	-7626
	233+00.00	882	111	-6855
	234+00.00	883	111	-6083
	235+00.00	840	112	-5355
	236+00.00	792	128	-4691
	237+00.00	787	143	-4047
	238+00.00	802	140	-3385
	239+00.00	762	150	-2773
	240+00.00	702	186	-2257
	241+00.00	625	235	-1867
	242+00.00	542	271	-1596
	243+00.00	466	258	-1388
	243+55.85	347	182	-1223
	244+00.00	366	133	-990
	244+71.50	612	179	-557
	245+00.00	255	71	-373
	246+00.00	938	209	356
	247+00.00	950	180	1126
	248+00.00	1009	190	1945
	249+00.00	1018	226	2737
	250+00.00	926	289	3374
	251+00.00	967	297	4044
	252+00.00	1202	216	5030

IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
253+00.00	1415	148	6297
254+00.00	1561	120	7738
255+00.00	1729	74	9393
256+00.00	1829	57	11165
257+00.00	1902	55	13012
257+88.92	1884	34	14862
258+00.00	252	3	15111
258+41.53	962	13	16060
259+00.00	1399	21	17438
260+00.00	2557	64	19931
261+00.00	2763	124	22570
262+00.00	2785	139	25216
263+00.00	2777	167	27826
264+00.00	2691	268	30249
265+00.00	2798	375	32672
266+00.00	3043	410	35305
267+00.00	2820	436	37689
268+00.00	2261	439	39511
269+00.00	1825	377	40959
270+00.00	1603	302	42260
271+00.00	1366	306	43320
272+00.00	1007	1583	42744
273+00.00	1018	1609	42153
274+00.00	1338	349	43142
275+00.00	1566	261	44447
276+00.00	1766	206	46007
277+00.00	1850	171	47686
277+93.02	1830	122	49394
278+00.00	144	8	49530
279+00.00	2241	116	51655
280+00.00	2372	90	53937
281+00.00	2274	73	56138
282+00.00	2182	70	58250
283+00.00	2151	58	60343
284+00.00	2136	48	62431
285+00.00	2019	54	64396
286+00.00	1862	70	66188
287+00.00	1771	85	67874
288+00.00	1689	112	69451
289+00.00	1746	108	71089
290+00.00	1918	69	72938
291+00.00	2044	42	74940
291+27.36	551	9	75482
292+00.00	1323	43	76762
293+00.00	1522	129	78155
294+00.00	1272	194	79233
295+00.00	1262	203	80292
296+00.00	1354	196	81450
297+00.00	1474	179	82745
298+00.00	1655	135	84265
299+00.00	1728	119	85874
300+00.00	1594	157	87311
301+00.00	1395	202	88504
302+00.00	1196	241	89459
303+00.00	1089	258	90290
304+00.00	1109	245	91154
305+00.00	1086	239	92001
306+00.00	993	246	92748
307+00.00	994	234	93508
308+00.00	1013	227	94294
309+00.00	871	324	94841
310+00.00	745	491	95095
311+00.00	659	570	95184
312+00.00	550	1009	94725
313+00.00	588	985	94328
314+00.00	692	530	94490
315+00.00	743	494	94739
316+00.00	808	446	95101
317+00.00	702	490	95313
318+00.00	507	575	95245

	IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
	319+00.00	456	636	95065
	320+00.00	489	564	94990
	321+00.00	676	358	95308
	322+00.00	845	252	95901
	322+72.33	586	154	96333
	322+76.56	31	4	96360
	323+00.00	164	59	96465
	324+00.00	598	627	96436
	325+00.00	487	1157	95766
	326+00.00	412	1417	94761
	327+00.00	392	1485	93668
	328+00.00	440	1399	92709
	329+00.00	532	1246	91995
	330+00.00	666	771	91890
	331+00.00	1080	268	92702
	332+00.00	1502	125	94079
	333+00.00	1471	103	95447
	334+00.00	1048	271	96224
	335+00.00	818	720	96322
	336+00.00	869	1223	95968
0018-06-147	SUBTOTAL	171528	41374	95968
0018-06-148	186+00.00	0	0	11800
	186+56.00	581	99	12282
	186+91.00	268	94	12456
	187+00.00	86	70	12472
	187+90.53	509	804	12177
	188+00.00	52	142	12087
	189+00.00	506	1432	11161
	189+05.83	39	110	11090
	189+82.72	444	1525	10009
	190+00.00	114	418	9705
	191+00.00	584	3069	7220
	192+00.00	581	4154	3647
	193+00.00	612	5034	-775
	193+13.53	88	739	-1426
	193+17.53	27	159	-1558
	193+18.60	7	27	-1578
	194+00.00	564	2149	-3163
	195+00.00	699	2873	-5337
	196+00.00	797	3129	-7669
	196+65.91	575	2192	-9286
	197+00.00	306	1159	-10139
	198+00.00	847	3356	-12648
	199+00.00	885	3254	-15017
	200+00.00	776	3485	-17726
	200+12.94	91	422	-18057
	201+00.00	849	2014	-19222
	202+00.00	1171	1561	-19612
	203+00.00	1036	1192	-19768
	203+37.53	316	379	-19831
	203+41.53	32	93	-19892
	203+58.92	140	626	-20378
	204+00.00	344	1317	-21351
	204+55.80	485	1449	-22315
	205+00.00	375	914	-22854
	206+00.00	794	1415	-23475
	206+80.83	662	668	-23481
	206+90.53	80	63	-23464
	207+00.00	86	71	-23449
	207+10.15	83	54	-23420
	207+90.53	719	280	-22981
	208+00.00	85	33	-22929
	209+00.00	737	168	-22360
	210+00.00	912	153	-21601
0018-06-148	SUBTOTAL	18944	52345	-21601
0018-05-062	336+00.00	0	0	95968
	337+00.00	830	1365	95433
	338+00.00	763	1250	94946
	339+00.00	751	983	94714
	340+00.00	735	647	94802

NOTE: A COMPACTION FACTOR OF 1.0 WAS USED ON THE ROADWAY EMBANKMENT CALCULATIONS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

KBR

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF EARTHWORK QUANTITIES

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		46
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62

HOUFILE023 \hcivil\c10130\ 3/4/2004 b36qsp09.dgn-05

	IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
0018-05-062	341+00.00	646	582	95131
	342+00.00	584	694	95021
	343+00.00	582	1177	94426
	344+00.00	689	1307	93808
	344+47.59	369	445	93732
	345+00.00	424	390	93766
	346+00.00	811	511	94066
	347+00.00	850	383	94533
	348+00.00	907	480	94960
	349+00.00	826	684	95102
	350+00.00	667	878	94891
	351+00.00	575	994	94472
	352+00.00	619	1035	94056
	353+00.00	37	911	94022
	354+00.00	1370	538	94854
	355+00.00	1693	281	96266
	356+00.00	1804	206	97864
	357+00.00	1739	134	99469
	358+00.00	1485	154	100800
	359+00.00	1209	251	101758
	360+00.00	970	312	102416
	361+00.00	850	324	102942
	362+00.00	859	330	103471
	363+00.00	937	312	104096
	364+00.00	971	294	104773
	365+00.00	979	272	105480
	366+00.00	1035	265	106250
	366+66.52	707	208	106749
	367+00.00	340	116	106973
	368+00.00	928	334	107567
	369+00.00	835	335	108067
	370+00.00	835	328	108574
	371+00.00	989	272	109291
	372+00.00	1262	183	110370
	373+00.00	1485	127	111728
	374+00.00	1621	82	113267
	374+23.41	393	11	113649
	375+00.00	1250	59	114840
	376+00.00	1465	158	116147
	377+00.00	1274	245	117176
	378+00.00	1259	255	118180
	379+00.00	1120	264	119036
	380+00.00	828	371	119493
	381+00.00	702	488	119707
	381+84.00	589	387	119906
	382+00.00	111	63	119967
	383+00.00	716	385	120288
	383+93.00	693	440	120541
	384+00.00	50	42	120549
	384+49.04	336	333	120552
	385+00.00	337	409	120480
	385+20.80	134	168	120446
	386+00.00	539	556	120429
	387+00.00	1134	463	121100
	387+70.00	1308	161	122247
	388+00.00	727	55	122919
	389+00.00	3059	193	125785
	390+00.00	3555	193	129147
	391+00.00	3136	163	132120
	392+00.00	2385	238	134267
	393+00.00	1773	379	135661
	394+00.00	1257	340	136578
	395+00.00	1406	162	137822
	396+00.00	1908	55	139675
	397+00.00	2117	75	141717
	397+63.92	1353	112	142958
	398+00.00	773	82	143649
	399+00.00	2807	430	146026
	416+00.00	0	0	164037
	417+00.00	1055	411	164681

	IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
	417+33.80	367	158	164890
	418+00.00	681	427	165144
	419+00.00	1104	862	165386
	419+13.90	159	137	165408
	420+00.00	1042	976	165474
	421+00.00	1547	1295	165726
	422+00.00	1937	1695	165968
	422+29.82	654	633	165989
	423+00.00	1641	1651	165979
	423+49.81	1249	1202	166026
	424+00.00	1426	1149	166303
	424+27.00	830	591	166542
	424+28.00	31	21	166552
	425+00.00	2060	1364	167248
	426+00.00	2838	1813	168273
	427+00.00	2998	2600	168671
	428+00.00	2951	3649	167973
	428+41.29	1155	1547	167581
	428+41.40	3	4	167580
	429+00.00	1620	1995	167205
	430+00.00	2521	3081	166645
	431+00.00	2415	2267	166793
	432+00.00	2092	1535	167350
	433+00.00	1572	1180	167742
	434+00.00	1913	828	168827
	434+09.67	211	60	168978
	435+00.00	2152	570	170560
	435+71.00	812	685	170687
	437+41.19	110	328	170469
	438+00.00	307	823	170053
	439+00.00	670	1019	169704
	440+00.00	617	1636	168685
	441+00.00	578	1723	167540
	442+00.00	586	1544	166782
	443+00.00	591	1268	166105
	444+00.00	603	1154	165554
	445+00.00	650	1066	165138
	446+00.00	716	625	165229
	447+00.00	795	179	165845
	448+00.00	854	87	166612
	449+00.00	928	31	167509
	450+00.00	1020	12	168517
	451+00.00	1051	2	169566
	452+00.00	1004	0	170570
	453+00.00	888	0	171458
	453+50.00	382	0	171840
0018-05-062	SUBTOTAL	131332	73776	171840
0018-05-063	399+00.00	0	0	146026
	400+00.00	3825	604	149247
	400+61.00	2733	208	151772
	401+00.00	1937	29	153680
	402+00.00	5503	15	159168
	403+00.00	5774	1	164941
	403+36.15	2021	8	166954
	404+00.00	3406	175	170185
	405+00.00	4991	1057	174119
	406+00.00	4613	2011	176721
	407+00.00	4275	3153	177843
	407+03.00	117	156	177804
	407+22.78	725	1311	177218
	407+73.80	1790	3583	175425
	408+00.00	903	1455	174873
	409+00.00	3066	4077	173862
	410+00.00	2116	4159	171819
	411+00.00	1305	3663	169461
	411+48.68	419	1568	168312
	412+00.00	352	1515	167149
	413+00.00	639	2532	165256
	414+00.00	581	1689	164148
	414+11.41	62	123	164087

	IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
	414+30.19	101	192	163996
	415+00.00	372	539	163829
	415+28.00	145	155	163819
	415+39.65	59	54	163824
	415+89.45	352	195	163981
	416+00.00	100	44	164037
0018-05-063	SUBTOTAL	52282	34271	164037

see next

GRAND TOTAL		
LOCATION	110-501 EXCAV (RDWY) CY	132-509 EMBANK (DENS CONT) (TY C)(CL 3) CY
0018-06-147	170084	40354
0018-06-148	18605	52062
0018-05-062	131332	73776
0018-05-063	52282	34271
TOTAL	372303	200463

NOTE: A COMPACTION FACTOR OF 1.0 WAS USED ON THE ROADWAY EMBANKMENT CALCULATIONS.

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF EARTHWORK QUANTITIES

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		47
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01top01.bdr, bdr LV DN = 57,58,60-62

$DATE$ HOUFILE023 \hcivil\c0130\ b36cgs31.dgn-01

	IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
0018-05-062	341+00.00	660	586	94876
	342+00.00	604	706	94774
	343+00.00	592	1180	94186
	344+00.00	699	1310	93575
	344+47.59	375	453	93497
	345+00.00	424	390	93531
	346+00.00	811	511	93831
	347+00.00	850	383	94298
	348+00.00	907	480	94725
	349+00.00	826	684	94867
	350+00.00	667	878	94656
	351+00.00	575	994	94237
	352+00.00	619	1035	93821
	353+00.00	877	911	93787
	354+00.00	1370	538	94619
	355+00.00	1693	281	96031
	356+00.00	1804	206	97629
	357+00.00	1739	134	99234
	358+00.00	1485	154	100565
	359+00.00	1209	251	101523
	360+00.00	970	312	102181
	361+00.00	850	324	102707
	362+00.00	859	330	103236
	363+00.00	937	312	103861
	364+00.00	971	294	104538
	365+00.00	979	272	105245
	366+00.00	1035	265	106015
	366+66.52	718	214	106519
	367+00.00	351	122	106748
	368+00.00	945	340	107353
	369+00.00	852	341	107864
	370+00.00	846	334	108376
	371+00.00	1010	278	109108
	372+00.00	1282	193	110197
	373+00.00	1499	137	111559
	374+00.00	1635	92	113102
	374+23.41	412	26	113488
	375+00.00	1264	69	114683
	376+00.00	1479	168	115994
	377+00.00	1288	255	117027
	378+00.00	1279	265	118041
	379+00.00	1134	274	118901
	380+00.00	842	381	119362
	381+00.00	712	498	119576
	381+84.00	589	387	119778
	382+00.00	129	73	119834
	383+00.00	730	395	120169
	383+93.00	693	440	120422
	384+00.00	65	57	120430
	384+49.04	336	333	120433
	385+00.00	351	419	120365
	385+20.80	142	168	120339
	386+00.00	550	571	120318
	387+00.00	1147	478	120987
	387+70.00	1308	161	122134
	388+00.00	738	70	122802
	389+00.00	3070	208	125664
	390+00.00	3566	208	129022
	391+00.00	3147	178	131991
	392+00.00	2393	251	134133
	393+00.00	1781	392	135522
	394+00.00	1265	353	136434
	395+00.00	1414	175	137673
	396+00.00	1916	68	139521
	397+00.00	2125	88	141558
	397+63.92	1361	125	142794
	398+00.00	781	95	143480
	399+00.00	2807	430	145857
	416+00.00	0	0	163868
	417+00.00	1055	411	164512

	IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
	417+33.80	367	158	164721
	418+00.00	681	427	164975
	419+00.00	1104	862	165217
	419+13.90	159	137	165239
	420+00.00	1042	976	165305
	421+00.00	1547	1295	165557
	422+00.00	1937	1695	165799
	422+29.82	654	633	165820
	423+00.00	1641	1651	165810
	423+49.81	1249	1202	165857
	424+00.00	1426	1149	166134
	424+27.00	830	591	166373
	424+28.00	31	21	166383
	425+00.00	2060	1364	167079
	426+00.00	2838	1813	168104
	427+00.00	2998	2600	168502
	428+00.00	2951	3649	167804
	428+41.29	1155	1547	167412
	428+41.40	3	4	167411
	429+00.00	1620	1995	167036
	430+00.00	2521	3081	166476
	431+00.00	2415	2267	166624
	432+00.00	2092	1535	167181
	433+00.00	1572	1180	167573
	434+00.00	1913	828	168658
	434+09.67	211	60	168809
	435+00.00	2152	570	170391
	435+71.19	812	685	170518
	437+41.19	110	328	170300
	438+00.00	407	823	169884
	439+00.00	670	1019	169535
	440+00.00	617	1636	168516
	441+00.00	578	1723	167371
	442+00.00	586	1344	166613
	443+00.00	591	1268	165936
	444+00.00	603	1154	165385
	445+00.00	650	1066	164969
	446+00.00	716	625	165060
	447+00.00	795	179	165676
	448+00.00	854	87	166443
	449+00.00	928	31	167340
	450+00.00	1020	12	168348
	451+00.00	1051	2	169397
	452+00.00	1004	0	170401
	453+00.00	888	0	171289
	453+50.00	382	0	171671
0018-05-062	SUBTOTAL	131904	74212	171671
0018-05-063	399+00.00	0	0	145857
	400+00.00	3825	604	149078
	400+61.00	2733	208	151603
	401+00.00	1937	29	153511
	402+00.00	5503	15	158999
	403+00.00	5774	1	164772
	403+36.15	2021	8	166785
	404+00.00	3406	175	170016
	405+00.00	4991	1057	173950
	406+00.00	4613	2011	176552
	407+00.00	4275	3153	177674
	407+03.00	117	156	177635
	407+22.78	725	1311	177049
	407+73.80	1790	3583	175256
	408+00.00	903	1455	174704
	409+00.00	3066	4077	173693
	410+00.00	2116	4159	171650
	411+00.00	1305	3663	169292
	411+48.68	419	1568	168143
	412+00.00	352	1515	166980
	413+00.00	639	2532	165087
	414+00.00	581	1689	163979
	414+11.41	62	123	163918

	IH 35 STATION	ROADWAY EXCAVATION (CY)	ROADWAY EMBANKMENT (CY)	CUMMULATIVE MASS-VOLUME (CY)
	414+30.19	101	192	163827
	415+00.00	372	539	163660
	415+28.00	145	155	163650
	415+39.65	59	54	163655
	415+89.45	352	195	163812
	416+00.00	100	44	163868
0018-05-063	SUBTOTAL	52282	34271	163868

GRAND TOTAL		
LOCATION	110-501 EXCAV (RDWY) CY	132-509 EMBANK (DENS CONT) (TY C)(CL 3) CY
0018-06-147	171528	41374
0018-06-148	18944	52345
0018-05-062	131904	74212
0018-05-063	52282	34271
TOTAL	374658	202202

NOTE: A COMPACTION FACTOR OF 1.0 WAS USED ON THE ROADWAY EMBANKMENT CALCULATIONS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF EARTHWORK QUANTITIES

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	47
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62

HOUFILE023 \hcivil\cf0130\ 3/5/2004 b36qsp31.dgn-02

SUMMARY OF REMOVAL OF EXISTING STRUCTURES

ITEM NO - DESCRIPTION CODE			104-0503	105-0504	496-0504	496-0516	496-0517		496-0518	496-0543	496-0530	496-0535	542-501
	BEGINNING STATION	ENDING STATION	REMOV CONC (RIPRAP)	REMOV STAB BS AND/OR ASPH PAV (CL 2) VAR DE	REMOV OLD STR (PIPE)	REMOV OLD STR (LARGE)(BOX) (CULV)	REMOV OLD STR (SMALL) (INLET)	PLUG PIPE *	REMOV OLD STR (SMALL) (MANHOLE)	REMOVE OLD STRUCTURE (SMALL) (SET)	REMOVE OLD STRUCTURE (WINGWALL)	REMOVE OLD STR (HDWL)	REMOV METAL BEAM GUARD FENCE
SHEET NO			SY	SY	LF	EA	EA		EA	EA	EA	EA	LF
CSJ: 0018-06-147													
1	167+00	186+00		17674									
1	210+00	215+00		4892	88		1	1		1			95
2	215+00	263+00	65	56667	424		2	3		4	1		1100
3	263+00	311+00	2311	63469	454	2	4	3		5	4		1875
4	311+00	336+00	1599	29912	131	1	3	3		3	2		425
SUB TOTAL			3975	172614	1097	3	10	10		13	7		3495
CSJ: 0018-06-148													
1	186+00	210+00	1440	34430	48	1	3	4		2	1		330
SUB TOTAL			1440	34430	48	1	3	4		2	1		330
CSJ: 0018-05-062													
4	336+00	359+00	965	30466	91	1	4	1		2	2		1280
5	359+00	399+00	878	47452	631	1	5	2	1	10	1	1	620
6	416+00	453+50	1519	48213	522	2	3	1		8	4		875
SUB TOTAL			3362	126131	1244	4	12	4	1	20	7	1	2775
CSJ: 0018-05-063													
5	399+00	407+00		8789									250
6	407+00	416+00	232	9600	52					2			
SUB TOTAL			232	18389	52					2			250
GRAND TOTAL			9009	351564	2441	8	25	18	1	37	15	1	6850

* FOR CONTRACTOR'S INFORMATION ONLY (NO SEPARATE PAY)

REF FILE(S): j011cp01.bdr, bdr LV ON = 57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF
REMOVAL OF
EXISTING STRUCTURES

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	48
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/19/2003 HOUFILE023 \hcivil\cf0130\ b36qsp16.dgn-13

SUMMARY OF BRIDGE CLASS CULVERT QUANTITIES

ITEM NO - DESCRIPTION		400-0504	400-0507	402-0501	432-529	430-656	430-684	430-726	430-542	466-978	466-3502	466-3506	466-3508
LOCATION		STRUCT EXCAV (CULV LARGE)	CEM STABIL BKFL	TRENCH EXCAV PROTECTION	RIPRAP (CONC) (CL B)(5 IN)	CL C CONC FOR EXT STR (CULV)(5'X4')	CL C CONC FOR EXT STR (CULV)(6'X5')	CL C CONC FOR EXT STR (CULV)(8'X7')	CL C CONC FOR EXT STR (CULV)(10'X8')	WINGWALL (FW-0) (HW=12 FT)	WINGWALL (PW) (HW=7 FT)	WINGWALL (PW) (HW=11 FT)	WINGWALL (PW) (HW=13 FT)
ROADWAY	STATION												
		CY	CY	LF	CY	LF	LF	LF	LF	EA	EA	EA	EA
CSJ 0018-06-147													
PSN: 22-240-0018-06-041													
IH 35 ML	STA 187+71.18	313	457	96	13.5	96	576				1		
PSN: 22-240-0018-06-034													
IH 35 ML	STA 311+95.30	346	374	124				372				2	
CSJ 0018-05-062													
PSN: 22-240-0018-05-033													
IH 35 ML	STA 343+25.95	680	840	150					600	1			1
TOTAL		1339	1671	370	13.5	96	576	372	600	1	1	2	1

REF FILE(S): j011op01.bdr. bdr LV ON = 57.58.60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF
BRIDGE CLASS
CULVERT QUANTITIES

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		49
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/3/2003
HOUFILE023 \hcivil\c10130\
b36qsp28.dgn-06

SUMMARY OF CULVERT QUANTITIES

ITEM NO - DESCRIPTION		400-0503	400-0504	400-0507	402-0501	462-0504	462-0518	464-0505	464-0507	464-0509	464-0510	464-0521	464-0522	466-0971	466-3501
LOCATION		STRUCT EXCAV (CULV SMALL)	STRUCT EXCAV (CULV LARGE)	CEM STABIL BKFL	TRENCH EXCAV PROTECTION	CONC BOX CULV (4 FT X 3 FT)	CONC BOX CULV (7 FT X 4 FT)	RC PIPE (CL III) (24 IN)	RC PIPE (CL III) (30 IN)	RC PIPE (CL III) (36 IN)	RC PIPE (CL III) (42 IN)	RC PIPE (CL IV) (30 IN)	RC PIPE (CL IV) (36 IN)	WINGWALL (FW-0) (HW=5 FT)	WINGWALL (PW) (HW=6 FT)
ROADWAY	STATION														
		CY	CY	CY	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA
CSJ 0018-06-147															
IH 35 ML	STA 211+56	172.4		81	107					189					
IH 35 ML	STA 227+12.75	132.8		59.5	131					87	261				
IH 35 ML	STA 250+29.42	75		32.2	62				124						
IH 35 ML	STA 272+00		250	290	205		406								
IH 35 ML	STA 317+19.07	36.9		16.3				62							
CSJ 0018-06-147 SUBTOTAL		417.1	250	479	505		406	62	124	276	261				
CSJ 0018-05-062															
IH 35 ML	STA 359+18	390		420	135								384		
IH 35 ML	STA 379+18.94	326.6		145.4	120					232					
IH 35 ML	STA 394+32.36	162.3		53.7	80					249					
IH 35 ML	STA 398+00	44.3		21	72			72							
IH 35 ML	STA 418+98.62	96.8		45.4	80				160						
IH 35 ML	STA 419+32.34	76.1		30.6	79					75					
IH 35 ML	STA 430+00		113	110	70		140								1
IH 35 ML	STA 432+00		120	110		240								1	1
UNIROYAL RD	STA 10+80	37.5		5.7				61							
CSJ 0018-05-062 SUBTOTAL		1133.6	233	941.8	636	240	140	133	160	556	0	0	384	1	2
CSJ 0018-05-063															
IH 35 ML	STA 409+24	56.5		30.7	70							70			
IH 35 ML	STA 410+56	27.1		19.8	44										
CSJ 0018-05-063 SUBTOTAL		83.6		50.5	114							70			
TOTAL		1634.3	483	1471.3	1255	240	546	195	284	832	261	70	384	1	2

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF
CULVERT QUANTITIES

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	50
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

6/3/2003

HOUFILE023 \hcivil\cf0130\

b36qsp13.dgn-07

REF FILE(S): j011op01.bdr, bdr LV ON = 57.58.60-62

SUMMARY OF CULVERT QUANTITIES

ITEM NO	DESCRIPTION	466-3503	466-3504	466-3520	466-3578	466-3580	466-3697	466-3740	466-3741	466-3576	466-3595	467-3763	467-0831	467-0702	467-0785	476-0511	476-0513
LOCATION		WINGWALL (PW) (W=[illegible] FT)	WINGWALL (PW-0) (HW=9 FT)	HEADWALL (CH-FW-0) (DIA=36 IN)	HEADWALL (CH-PW-0) (DIA=30 IN)	HEADWALL (CH-PW-0) (DIA=36 IN)	HEADWALL (CH-PW-S) (DIA=36 IN) (MOD)	HEADWALL (CH-PW-0) (DIA=36 IN) (MOD 1)	HEADWALL (CH-PW-0) (DIA=36 IN) (MOD 2)	HEADWALL (CH-PW-0) (DIA=24 IN)	HEADWALL (CH-PW-S) (DIA=36 IN)	SAFE END TRT (TY II)(24 IN) (RCP)(3:1)(C)	SAFE END TRT (TY II)(24 IN) (RCP)(4:1)(C)	SAFE END TRT (TY II)(30 IN) (RCP)(4:1)(C)	SAFE END TRT (TY II)(24 IN) (RCP)(6:1)(C)	JACK OR BOR PIPE (24 IN) (RC)(CL IV)	JACK OR BOR PIPE ([illegible] IN) (RC)(CL IV)
ROADWAY	STATION	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF
CSJ 0018-06-147																	
IH 35 ML	STA 211+56										1						265
IH 35 ML	STA 227+12.75										1						315
IH 35 ML	STA 250+29.42													1			
IH 35 ML	STA 272+00		2														
IH 35 ML	STA 317+19.07									1							
CSJ 0018-06-147 SUBTOTAL			2		1					1	2			1			580
CSJ 0018-05-062																	
IH 35 ML	STA 359+18			1					1								290
IH 35 ML	STA 379+18.94						1										
IH 35 ML	STA 394+32.36					1		1									
IH 35 ML	STA 398+00											1	1				
IH 35 ML	STA 418+98.62				1									2			
IH 35 ML	STA 419+32.34										1						
IH 35 ML	STA 430+00	1															
IH 35 ML	STA 432+00																
UNIROYAL RD	STA 10+80														1		
CSJ 0018-05-062 SUBTOTAL		1	0	1	1	1	1	1	1	0	1	1	1	2	1	0	290
CSJ 0018-05-063																	
IH 35 ML	STA 409+24													2			
IH 35 ML	STA 410+56														2	209	
CSJ 0018-05-063 SUBTOTAL														2	2	209	
TOTAL		1	2	1	2	1	1	1	1	1	3	1	1	2	3	209	870

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF CULVERT QUANTITIES

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	51
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/9/2003
HOUFILE023 \hciwil\c10130\
b36qsp30.dgn-09

SUMMARY OF CULVERT QUANTITIES

ITEM NO - DESCRIPTION		466-3503	466-3504	466-3520	466-3578	466-3580	466-3697	466-3740	466-3741	466-3576	466-3595	467-3763	467-0831	467-0702	467-0785	476-0511	476-0513
LOCATION ROADWAY	STATION	WINGWALL (PW) (HW=8 FT) EA	WINGWALL (PW-0) (HW=9 FT) EA	HEADWALL (CH-FW-0) (DIA=36 IN) EA	HEADWALL (CH-PW-0) (DIA=30 IN) EA	HEADWALL (CH-PW-0) (DIA=36 IN) EA	HEADWALL (CH-PW-S) (DIA=36 IN) (MOD) EA	HEADWALL (CH-PW-0) (DIA=36 IN) (MOD 1) EA	HEADWALL (CH-PW-0) (DIA=36 IN) (MOD 2) EA	HEADWALL (CH-PW-0) (DIA=24 IN) EA	HEADWALL (CH-PW-S) (DIA=36 IN) EA	SAFE END TRT (TY II)(24 IN) (RCP)(3:1)(C) EA	SAFE END TRT (TY II)(24 IN) (RCP)(4:1)(C) EA	SAFE END TRT (TY II)(30 IN) (RCP)(4:1)(C) EA	SAFE END TRT (TY II)(24 IN) (RCP)(6:1)(C) EA	JACK OR BOR PIPE (24 IN) (RC)(CL IV) LF	JACK OR BOR PIPE (36 IN) (RC)(CL IV) LF
CSJ 0018-06-147																	
IH 35 ML	STA 211+56										1						265
IH 35 ML	STA 227+12.75										1						315
IH 35 ML	STA 250+29.42				1									1			
IH 35 ML	STA 272+00		2														
IH 35 ML	STA 317+19.07									1							
CSJ 0018-06-147 SUBTOTAL			2		1					1	2			1			580
CSJ 0018-05-062																	
IH 35 ML	STA 359+18			0		1			1								290
IH 35 ML	STA 379+18.94						1										
IH 35 ML	STA 394+32.36					1		1									
IH 35 ML	STA 398+00											1	1				
IH 35 ML	STA 418+98.62				1									2			
IH 35 ML	STA 419+32.34										1						
IH 35 ML	STA 430+00	1															
IH 35 ML	STA 432+00																
UNIROYAL RD	STA 10+80														1		
CSJ 0018-05-062 SUBTOTAL		1	0	0	1	2	2	1	1	0	1	1	1	2	1	0	290
CSJ 0018-05-063																	
IH 35 ML	STA 409+24													2			
IH 35 ML	STA 410+56														2	209	
CSJ 0018-05-063 SUBTOTAL														2	2	209	
TOTAL		1	2	0	2	2	2	1	1	1	3	1	1	5	3	209	870

DATE	BY	REV	REVISION
01/04/05	AA	1	WINGWALL MODIFICATIONS FOR CULVERT I

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF CULVERT QUANTITIES

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		51
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

1/4/2005
HOUFILE023 \hcivil\cf0130\
b36dsp30.dgn-10

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) - MAINLANES

DESIGN	LOCATION			465-0519 INLET (COMPL) (TY M) EA	465-0538 MANH TY M (MOD) EA	465- TRENCH DRAIN LF
	CSJ: 0018-06-147					
	IH 35 MAINLANES					
MLD5-1	IH 35 ML	STA 250+00	2.13' RT	1		
MLD6-2	IH 35 ML	STA 250+30	3.17' RT		1	
MLD6-3	IH 35 ML	STA 251+00	2.13' RT	1		
MLD6-4	IH 35 ML	STA 252+45.61	2.13' RT	1		
MLD6-5	IH 35 ML	STA 252+90	2.13' RT	1		
MLD6-6	IH 35 ML	STA 253+50	2.13' RT	1		
MLD6-7	IH 35 ML	STA 253+55.25	2.13' RT			160
MLE5-47	IH 35 ML	STA 263+50	2.13' LT	1		
MLE5-48	IH 35 ML	STA 265+00	2.13' LT	1		
MLE5-8	IH 35 ML	STA 265+50	2.13' LT	1		
MLE5-9	IH 35 ML	STA 266+00	2.13' LT	1		
MLE5-10	IH 35 ML	STA 269+00	3.17' LT		1	
MLE5-49	IH 35 ML	STA 271+00	2.13' LT	1		
MLE6-11	IH 35 ML	STA 272+10.50	2.13' LT	1		
MLE6-50	IH 35 ML	STA 274+00	2.13' LT	1		
MLE6-12	IH 35 ML	STA 275+00	2.13' LT	1		
MLE6-13	IH 35 ML	STA 278+00	2.13' LT	1		
MLE6-14	IH 35 ML	STA 281+00	2.13' LT	1		
MLE6-15	IH 35 ML	STA 284+00	2.13' LT	1		
	SUBTOTAL			16	2	160

SUMMARY OF INLETS & MANHOLES - MAINLANES

LOCATION			479-0505 ADJ INLET (CAP) EA
CSJ: 0018-06-147			
IH 35 MAINLANES			
IH 35 ML	STA 211+58	0.00'	1
IH 35 ML	STA 227+11	0.00'	1
IH 35 ML	STA 272+02	0.00'	1
IH 35 ML	STA 312+07	0.00'	1
SUBTOTAL			4
CSJ: 0018-06-148			
IH 35 MAINLANES			
IH 35 ML	STA 187+71	0.00'	1
SUBTOTAL			1

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF
INLETS & MANHOLES
(JUNCTION BOX)

SHEET 1 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		S2
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

b36qsp14.dgn-08 HOUFILE023 \hcivil\cf0130\ 4/19/2003

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) - MAINLANES CONT'D

DESIGN	LOCATION			465-0519 INLET (COMPL) (TY M)	465-0538 MANH TY M (MOD)	465- TRENCH DRAIN
				EA	EA	LF
	CSJ: 0018-05-062					
	IH 35 MAINLANES					
MLH6-16	IH 35 ML	STA 346+00	3.17' RT		1	
MLH6-17	IH 35 ML	STA 347+75	2.13' RT	1		
MLH6-18	IH 35 ML	STA 348+00	2.13' RT	1		
MLH6-19	IH 35 ML	STA 348+50	2.13' RT	1		
MLH6-20	IH 35 ML	STA 349+50	2.13' RT	1		
MLH6-21	IH 35 ML	STA 350+50	2.13' RT	1		
MLH6-22	IH 35 ML	STA 351+50	2.13' RT	1		
MLH6-23	IH 35 ML	STA 353+50	2.13' RT	1		
MLH6-24	IH 35 ML	STA 355+50	2.13' RT	1		
MLH6-25	IH 35 ML	STA 357+50	2.13' RT	1		
MLM5-34	IH 35 ML	STA 418+00	2.13' LT	1		
MLM6-35	IH 35 ML	STA 419+30	3.17' LT		1	
MLM6-36	IH 35 ML	STA 420+00	2.13' LT	1		
MLM6-37	IH 35 ML	STA 422+00	2.13' LT	1		
MLM6-38	IH 35 ML	STA 424+00	2.13' LT	1		
MLM6-39	IH 35 ML	STA 426+00	2.13' LT	1		
MLO5-40	IH 35 ML	STA 442+00	2.13' RT	1		
MLO5-41	IH 35 ML	STA 444+00	2.13' RT	1		
MLO6-42	IH 35 ML	STA 446+00	2.13' RT	1		
MLO6-43	IH 35 ML	STA 447+90	2.13' RT	1		
MLO6-44	IH 35 ML	STA 448+50	2.13' RT	1		
MLO6-45	IH 35 ML	STA 448+75	2.13' RT	1		
MLO6-46	IH 35 ML	STA 449+00	2.13' RT	1		
	SUBTOTAL			21	2	
	CSJ: 0018-05-063					
	IH 35 MAINLANES					
MLM5-26	IH 35 ML	STA 412+10	2.13' LT	1		
MLM5-27	IH 35 ML	STA 412+30	2.13' LT	1		
MLM5-28	IH 35 ML	STA 412+60	2.13' LT	1		
MLM5-29	IH 35 ML	STA 413+00	2.13' LT	1		
MLM5-30	IH 35 ML	STA 413+50	2.13' LT	1		
MLM5-31	IH 35 ML	STA 414+00	2.13' LT	1		
MLM5-32	IH 35 ML	STA 415+00	2.13' LT	1		
MLM5-33	IH 35 ML	STA 416+00	2.13' LT	1		
	SUBTOTAL			8		
	IH 35 MAINLANES					
	TOTAL			45	2	160

SUMMARY OF INLETS & MANHOLES - MAINLANES CONT'D

LOCATION			479-0505 ADJ INLET (CAP)
			EA
CSJ: 0018-05-062			
IH 35 MAINLANES			
IH 35 ML	STA 343+25	0.00'	1
IH 35 ML	STA 359+18	0.00'	1
IH 35 ML	STA 379+25	0.00'	1
IH 35 ML	STA 394+28	0.00'	1
IH 35 ML	STA 419+32.34	0.00'	1
SUBTOTAL			5
CSJ: 0018-05-063			
IH 35 MAINLANES			
IH 35 ML	STA 410+57	0.00'	1
SUBTOTAL			1
IH 35 MAINLANES			
TOTAL			11

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF
INLETS & MANHOLES
(JUNCTION BOX)

SHEET 2 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		S3
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr; bdr LV ON = 57,58,60-62
b36qep32.dgn-03 HOUFILE023 \hcivil\cf0130\ 4/19/2003

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) - NORTHBOUND FRONTAGE ROAD

DESIGN	LOCATION	420-0569 CL A CONC (CURB OUTLET) (TY I)	465-0508 INLET (COMPL) (TY H)	465-0517 INLET (COMPL) (TY AD)	465-0518 INLET (COMPL) (TY AAD)	465-0526 MANH (COMPL) (TY M)	465-0538 MANH TY M (MOD)	465-3512 INLET (COMPL) (TY AZR)
		EA	EA	EA	EA	EA	EA	EA
	CSJ: 0018-06-147							
	IH 35 NORTHBOUND FRONTAGE ROAD							
NBB4-5	IH 35 NB STA 211+18 27.00' LT						1	
NBB4-6	IH 35 NB STA 211+25 27.00' LT				1			
NBB4-7	IH 35 NB STA 213+00 30.70' LT				1			
NBB4-8	IH 35 NB STA 216+00 21.20' LT					1		
NBB4-9	IH 35 NB STA 216+00 10.40' LT			1				
NBB4-10	IH 35 NB STA 218+60 22.50' LT				1			
NBC4-11	IH 35 NB STA 226+44 29.00' LT						1	
NBC4-12	IH 35 NB STA 227+50 29.00' LT		1					
NBD4-15	IH 35 NB STA 250+40 22.50' LT			1				
NBE3-32	IH 35 NB STA 263+99 62.00' LT		1					
NBE3-33	IH 35 NB STA 267+50 71.30' LT		1					
NBE3-34	IH 35 NB STA 271+00 56.00' LT		1					
NBE4-14	IH 35 NB STA 273+00 49.00' LT				1			
NBE4-36	IH 35 NB STA 273+27 26.00' RT	1						
NBE4-37	IH 35 NB STA 274+27 26.00' RT	1						
NBE4-38	IH 35 NB STA 276+27 26.00' RT	1						
NBE4-39	IH 35 NB STA 279+27 26.00' RT	1						
NBE4-40	IH 35 NB STA 282+27 26.00' RT	1						
NBG4-44	IH 35 NB STA 312+00 29.00' LT				1			
NBG4-45	IH 35 NB STA 314+00 29.00' LT				1			
	SUBTOTAL	5	4	2	6	1	2	
	CSJ: 0018-06-148							
	IH 35 NORTHBOUND FRONTAGE ROAD							
NBA4-1	IH 35 NB STA 188+00 14.08' LT							1
NBA4-2	IH 35 NB STA 190+00 14.08' LT							1
NBA3-30	IH 35 NB STA 187+00 35.00' LT			1				
NBA4-31	IH 35 NB STA 189+00 31.00' LT				1			
NBB3-48	IH 35 NB STA 207+07 16.00' LT	1						
	SUBTOTAL	1		1	1			2

REF FILE(S): J011op01.bdr, bdr LV ON = 57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF
INLETS & MANHOLES
(JUNCTION BOX)

SHEET 3 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	54
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/19/2003
HOUFILE023 \hcivil\c\f0130\
b36asp24.dgn-09

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) - NORTHBOUND FRONTAGE ROAD

DESIGN	LOCATION	420-0569 CL A CONC (CURB OUTLET) (TY I)	465-0508 INLET (COMPL) (TY H)	465-0517 INLET (COMPL) (TY AD)	465-0518 INLET (COMPL) (TY AAD)	465-0526 MANH (COMPL) (TY M)	465-0538 MANH TY M (MOD)	465-3512 INLET (COMPL) (TY AZR)	465- INLET (COMPL) (TY A)(MOD)
		EA	EA	EA	EA	EA	EA	EA	EA
	CSJ: 0018-06-147								
	IH 35 NORTHBOUND FRONTAGE ROAD								
NBB4-5	IH 35 NB STA 211+18 27.00' LT						1		
NBB4-6	IH 35 NB STA 211+25 27.00' LT				1				
NBB4-7	IH 35 NB STA 213+00 30.70' LT				1				
NBB4-8	IH 35 NB STA 216+00 21.20' LT					1			
NBB4-9	IH 35 NB STA 216+00 10.40' LT			1					
NBB4-10	IH 35 NB STA 218+60 22.50' LT				1				
NBC4-11	IH 35 NB STA 226+44 29.00' LT						1		
NBC4-12	IH 35 NB STA 227+50 29.00' LT		1						
NBD4-15	IH 35 NB STA 250+40 22.50' LT								1
NBE3-32	IH 35 NB STA 263+99 62.00' LT		1						
NBE3-33	IH 35 NB STA 267+50 71.30' LT		1						
NBE3-34	IH 35 NB STA 271+00 56.00' LT		1						
NBE4-14	IH 35 NB STA 273+00 49.00' LT				1				
NBE4-36	IH 35 NB STA 273+27 26.00' RT	1							
NBE4-37	IH 35 NB STA 274+27 26.00' RT	1							
NBE4-38	IH 35 NB STA 276+27 26.00' RT	1							
NBE4-39	IH 35 NB STA 279+27 26.00' RT	1							
NBE4-40	IH 35 NB STA 282+27 26.00' RT	1							
NBG4-44	IH 35 NB STA 312+00 29.00' LT				1				
NBG4-45	IH 35 NB STA 314+00 29.00' LT				1				
	SUBTOTAL	5	4		6	1	2		1
	CSJ: 0018-06-148								
	IH 35 NORTHBOUND FRONTAGE ROAD								
NBA4-1	IH 35 NB STA 188+00 14.08' LT							1	
NBA4-2	IH 35 NB STA 190+00 14.08' LT							1	
NBA3-30	IH 35 NB STA 187+00 35.00' LT			1					
NBA4-31	IH 35 NB STA 189+00 31.00' LT				1				
NBB3-48	IH 35 NB STA 207+07 16.00' LT	1							
	SUBTOTAL	1		1	1			2	

1

DATE	BY	REV	REVISION
6/25/04	DG	01	ADDED TY A (MOD)

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF
INLETS & MANHOLES
(JUNCTION BOX)

SHEET 3 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		54
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/29/2004

HOUFILE023 \hciwil\cf0130\

b36qsp24.dgn-09

REF FILE(S): j011op01.bdr, bdr LV DN = 57.58.60-62

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) - NORTHBOUND FRONTAGE ROAD CONT'D

DESIGN	LOCATION	420-0569 CL A CONC (CURB OUTLET) (TY I)	465-0545 INLET (COMPL) (TY H) (MOD)	465-0517 INLET (COMPL) (TY AD)	465-0518 INLET (COMPL) (TY AAD)	465-0526 MANH (COMPL) (TY M)	465-0538 MANH TY M (MOD)	465-3512 INLET (COMPL) (TY AZR)
		EA	EA	EA	EA	EA	EA	EA
	CSJ: 0018-05-062							
	IH 35 NORTHBOUND FRONTAGE ROAD							
NBH3-21	IH 35 NB STA 339+00 30.00' LT				1			
NBH4-22	IH 35 NB STA 343+22 27.10' LT				1			
NBH4-24	IH 35 NB STA 345+00 27.10' LT				1			
NBH4-25	IH 35 NB STA 346+50 27.10' LT				1			
NBH4-23	IH 35 NB STA 348+00 27.10' LT				1			
NBH4-58	IH 35 NB STA 350+00 24.00' LT				1			
NBI4-26	IH 35 NB STA 359+57 20.00' LT		1					
NBJ4-27	IH 35 NB STA 378+80 18.00' LT				1			
NBJ4-64	IH 35 NB STA 381+00 17.50' LT				1			
NBJ4-28	IH 35 NB STA 383+40 17.00' LT				1			
NBJ4-47	IH 35 NB STA 385+00 9.00' LT				1			
NBJ4-61	IH 35 NB STA 386+50 9.00' LT				1			
NBJ4-62	IH 35 NB STA 388+50 41.10' LT				1			
NBJ4-63	IH 35 NB STA 390+00 33.70' LT				1			
NBK4-29	IH 35 NB STA 394+70 29.00' LT				1			
NBK4-65	IH 35 NB STA 398+00 42.00' LT				1			
NBM4-42	IH 35 NB STA 420+00 26.00' RT	1						
NBM4-43	IH 35 NB STA 422+00 26.00' RT	1						
NBM4-70	IH 35 NB STA 419+64.50 72.00' LT				1			
NBM4-51	IH 35 NB STA 419+80.60 30.80' LT			1				
NBM3-41	IH 35 NB STA 418+07 26.00' RT	1						
	SUBTOTAL	3	1	1	16			
	CSJ: 0018-05-063							
	IH 35 NORTHBOUND FRONTAGE ROAD							
NBK4-66	IH 35 NB STA 401+75 50.00' LT				1			
NBL4-46	IH 35 NB STA 411+80 51.10' LT				1			
	SUBTOTAL				2			
	IH 35 NORTHBOUND FRONTAGE ROAD							
	TOTAL	9	5	4	25	1	2	2

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF
INLETS & MANHOLES
(JUNCTION BOX)

SHEET 4 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	55
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

6/3/2003
HOUFILE023 \hcivil\cf0130\
b36qsp35.dgn-08

REF FILE(S): j011op01.bdr, bdr LV ON = 57.58.60-62

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) - NORTHBOUND FRONTAGE ROAD CONT'D

DESIGN	LOCATION	420-0569 CL A CONC (CURB OUTLET) (TY I) EA	465-0508 INLET (COMPL) (TY H) EA	465-0517 INLET (COMPL) (TY AD) EA	465-0518 INLET (COMPL) (TY AAD) EA	465-0526 MANH (COMPL) (TY M) EA	465-0538 MANH TY M (MOD) EA	465-3512 INLET (COMPL) (TY AZR) EA	465- INLET (COMPL) (TY A)(MOD) EA
	CSJ: 0018-05-062								
	IH 35 NORTHBOUND FRONTAGE ROAD								
NBH3-21	IH 35 NB STA 339+00 30.00' LT				1				
NBH4-22	IH 35 NB STA 343+22 27.10' LT				1				
NBH4-24	IH 35 NB STA 345+00 27.10' LT				1				
NBH4-25	IH 35 NB STA 346+50 27.10' LT				1				
NBH4-23	IH 35 NB STA 348+00 27.10' LT				1				
NBH4-58	IH 35 NB STA 350+00 24.00' LT				1				
NBI4-26	IH 35 NB STA 359+57 20.00' LT		1						
NBJ4-27	IH 35 NB STA 378+80 18.00' LT								1
NBJ4-64	IH 35 NB STA 381+00 17.50' LT				1				
NBJ4-28	IH 35 NB STA 383+40 17.00' LT				1				
NBJ4-47	IH 35 NB STA 385+00 9.00' LT				1				
NBJ4-61	IH 35 NB STA 386+50 9.00' LT				1				
NBJ4-62	IH 35 NB STA 388+50 41.10' LT				1				
NBJ4-63	IH 35 NB STA 390+00 33.70' LT				1				
NBK4-29	IH 35 NB STA 394+70 29.00' LT				1				
NBK4-65	IH 35 NB STA 398+00 42.00' LT				1				
NBM4-42	IH 35 NB STA 420+00 26.00' RT	1							
NBM4-43	IH 35 NB STA 422+00 26.00' RT	1							
NBM4-70	IH 35 NB STA 419+64.50 72.00' LT				1				
NBM4-51	IH 35 NB STA 419+80.60 30.80' LT			1					
NBM3-41	IH 35 NB STA 418+07 26.00' RT	1							
	SUBTOTAL	3	1	1	15				1
	CSJ: 0018-05-063								
	IH 35 NORTHBOUND FRONTAGE ROAD								
NBK4-66	IH 35 NB STA 401+75 50.00' LT				1				
NBL4-46	IH 35 NB STA 411+80 51.10' LT				1				
	SUBTOTAL				2				
	IH 35 NORTHBOUND FRONTAGE ROAD								
	TOTAL	9	5	4	24	1	2	2	2

DATE	BY	REV	REVISION
6/25/04	OG	01	ADDED TY A (MOD)

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF INLETS & MANHOLES (JUNCTION BOX)

SHEET 4 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		55
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62
b36qsp35.dgn-08 HOUFILE023 \hchvil\cf0130\ 6/29/2004

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) - SOUTHBOUND FRONTAGE ROAD

DESIGN	LOCATION	420-0569 CL A CONC (CURB OUTLET) (TY I) EA	465-0503 INLET (COMPL) (TY C) EA	465-0517 INLET (COMPL) (TY AD) EA	465-0515 INLET EXT TY E EA	465-0518 INLET (COMPL) (TY AAD) EA	465-0848 INLET (COMPL) (CURB) TY C EA	465-0538 MANH TY M (MOD) EA	465-3512 INLET (COMPL) (TY AZR) EA
	CSJ: 0018-06-147								
	IH 35 SOUTHBOUND FRONTAGE ROAD								
SBC2-10	IH 35 SB STA 243+00 25.00' RT					1			
SBE1-20	IH 35 SB STA 267+00 24.50' RT					1			
SBE1-21	IH 35 SB STA 269+00 25.00' RT					1			
SBE2-22	IH 35 SB STA 272+50 22.50' RT					1			
SBE2-23	IH 35 SB STA 275+00 16.50' RT					1			
SBE2-24	IH 35 SB STA 278+50 13.60' RT					1			
SBE2-46	IH 35 SB STA 281+00 12.00' RT					1			
SBG1-25	IH 35 SB STA 311+25 27.00' RT					1			
SBG2-26	IH 35 SB STA 316+00 27.00' RT					1			
SBG12-41	IH 35 SB STA 317+18 27.00' RT					1			
SBH1-71	IH 35 SB STA 331+15 35.00' RT					1			
SBH1-55	IH 35 SB STA 335+00 28.00' RT					1			
	SUBTOTAL					12			
	CSJ: 0018-06-148								
	IH 35 SOUTHBOUND FRONTAGE ROAD								
SBA1-59	IH 35 SB STA 187+00 35.50' RT					1			
SBA2-1	IH 35 SB STA 189+00 14.08' RT								1
SBA2-2	IH 35 SB STA 191+00 14.08' RT								1
SBA2-3	IH 35 SB STA 193+00 14.08' RT								1
SBA2-4	IH 35 SB STA 195+00 14.08' RT								1
SBA2-5	IH 35 SB STA 197+00 14.08' RT								1
SBA2-7	IH 35 SB STA 202+50 14.08' RT								1
SBA2-8	IH 35 SB STA 204+75 14.08' RT								1
SBA2-9	IH 35 SB STA 206+78 14.08' RT								1
	SUBTOTAL					1			8

SUMMARY OF INLETS & MANHOLES - SOUTHBOUND FRONTAGE ROAD

LOCATION	479-0502 ADJ INLET EA
CSJ: 0018-06-148	
IH 35	
SBA2-58 IH 35 SB STA 188+95 36.00' RT	1
TOTAL	1

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF
INLETS & MANHOLES
(JUNCTION BOX)

SHEET 5 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		56
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/19/2003
HOUFILE023 \hcivil\cf0130\
b36esp25.dgn-10

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) - SOUTHBOUND FRONTAGE ROAD

DESIGN	LOCATION	420-0569 CL A CONC (CURB OUTLET) (TY I) EA	465-0503 INLET (COMPL) (TY C) EA	465-0517 INLET (COMPL) (TY AD) EA	465-0515 INLET EXT TY E EA	465-0518 INLET (COMPL) (TY AAD) EA	465-0848 INLET (COMPL) (CURB) TY C EA	465-0538 MANH TY M (MOD) EA	465-3512 INLET (COMPL) (TY AZR) EA	465- INLET (COMPL) (TY AD)(MOD) EA	465- INLET (COMPL) (TY AAD)(MOD) EA
	CSJ: 0018-06-147										
	IH 35 SOUTHBOUND FRONTAGE ROAD										
SBC2-10	IH 35 SB STA 243+00 25.00' RT					1					
SBE1-20	IH 35 SB STA 267+00 24.50' RT					1					
SBE1-21	IH 35 SB STA 269+00 25.00' RT					1					
SBE2-22	IH 35 SB STA 272+50 22.50' RT					1					
SBE2-23	IH 35 SB STA 275+00 16.50' RT					1					
SBE2-24	IH 35 SB STA 278+50 13.60' RT					1					
SBE2-46	IH 35 SB STA 281+00 12.00' RT					1					
SBG1-25	IH 35 SB STA 311+25 27.00' RT					1					
SBG2-26	IH 35 SB STA 316+00 27.00' RT					1					
SBG12-41	IH 35 SB STA 317+18 27.00' RT					1					
SBH1-71	IH 35 SB STA 331+15 35.00' RT					1					
SBH1-55	IH 35 SB STA 335+00 28.00' RT					1					
	SUBTOTAL					12					
	CSJ: 0018-06-148										
	IH 35 SOUTHBOUND FRONTAGE ROAD										
SBA1-59	IH 35 SB STA 187+00 35.50' RT					1					
SBA2-1	IH 35 SB STA 189+00 14.08' RT								1		
SBA2-2	IH 35 SB STA 191+00 14.08' RT								1		
SBA2-3	IH 35 SB STA 193+00 14.08' RT								1		
SBA2-4	IH 35 SB STA 195+00 14.08' RT								1		
SBA2-5	IH 35 SB STA 197+00 14.08' RT								1		
SBA2-7	IH 35 SB STA 202+50 14.08' RT								1		
SBA2-8	IH 35 SB STA 204+75 14.08' RT								1		
SBA2-9	IH 35 SB STA 206+78 14.08' RT								1		
	SUBTOTAL					1			8		

1

SUMMARY OF INLETS & MANHOLES - SOUTHBOUND FRONTAGE ROAD

LOCATION	479-0502 ADJ INLET EA
CSJ: 0018-06-148	
IH 35	
SBA2-58 IH 35 SB STA 188+95 36.00' RT	1
TOTAL	1

DATE	BY	REV	REVISION
6/25/04	OG	01	ADDED TY AD(MOD) & TY AAD(MOD)

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF INLETS & MANHOLES (JUNCTION BOX)

SHEET 5 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		56
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01loop01.bdr, bdr LV ON = 57,58,60-62
6/29/2004 HOUFILE023 \hcivil\cf0130\ b36qsp25.dgn-10

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) - SOUTHBOUND FRONTAGE ROAD CONT'D

DESIGN	LOCATION			420-0569 CL A CONC (CURB OUTLET) (TY I) EA	465-0503 INLET (COMPL) (TY C) EA	465-0517 INLET (COMPL) (TY AD) EA	465-0515 INLET EXT TY E EA	465-0518 INLET (COMPL) (TY AAD) EA	465-0848 INLET (COMPL) (CURB) TY C EA	465-0538 MANH TY M (MOD) EA	465-3512 INLET (COMPL) (TY AZR) EA
	CSJ: 0018-05-06[illegible]										
	IH 35 SOUTHBOUND FR[illegible]AGE ROAD										
SBH1-70	IH 35 SB	STA 337+00	2[illegible].00' RT					1			
SBH1-56	IH 35 SB	STA 340+00	26.00' RT					1			
SBH2-28	IH 35 SB	STA 343+40	26.00' RT					1			
SBH2-36	IH 35 SB	STA 347+00	26.00' RT					1			
SBH2-35	IH 35 SB	STA 349+00	26.00' RT					1			
SBH2-38	IH 35 SB	STA 350+00	26.00' RT							1	
SBH2-30	IH 35 SB	STA 350+00	26.00' LT				1		1		
SBH2-31	IH 35 SB	STA 351+00	26.00' LT				1		1		
SBH2-32	IH 35 SB	STA 353+00	26.00' LT				1		1		
SBH2-33	IH 35 SB	STA 355+00	26.00' LT				1		1		
SBH2-34	IH 35 SB	STA 357+00	26.00' LT				1		1		
SBI2-39	IH 35 SB	STA 358+84	29.00' RT					1			
SBI2-42	IH 35 SB	STA 359+00	26.00' LT	1							
SBI2-43	IH 35 SB	STA 360+00	26.00' LT	1							
SBJ2-40	IH 35 SB	STA 379+73	19.00' RT			1					
SBJ2-44	IH 35 SB	STA 383+60	56.00' RT					1			
SBJ2-47	IH 35 SB	STA 385+60	56.00' RT					1			
SBK2-45	IH 35 SB	STA 393+92	52.00' RT					1			
SBN1-68	UNIROYAL RD	STA 10+80	26.00' RT				1		1		
	SUBTOTAL			2		1	6	9	6	1	
	CSJ: 0018-05-063										
	IH 35 SOUTHBOUND FRONTAGE ROAD										
SBK2-12	IH 35 SB	STA 400+22	14.08' RT								1
SBK2-13	IH 35 SB	STA 402+50	14.08' RT								1
SBK2-14	IH 35 SB	STA 404+75	14.08' RT								1
SBM1-17	IH 35 SB	STA 410+00	14.08' RT								1
SBM1-18	IH 35 SB	STA 412+50	14.08' RT								1
SBM1-19	IH 35 SB	STA 415+03	14.08' RT								
	SUBTOTAL										6
	IH 35 SOUTHBOUND FRONTAGE ROAD										
	TOTAL			2		1	6	22	6	1	14

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF INLETS & MANHOLES (JUNCTION BOX)

SHEET 6 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		57
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/19/2003
HOUFILE023 \hicivil\c10130\
b36qsp40.dgn-04
REF FILE(S): j011op01.bdr. bdr LV ON = 57.58.60-62

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) - SOUTHBOUND FRONTAGE ROAD CONT'D

DESIGN	LOCATION	420-0569 CL A CONC (CURB OUTLET) (TY I) EA	465-0503 INLET (COMPL) (TY C) EA	465-0517 INLET (COMPL) (TY AD) EA	465-0515 INLET EXT TY E EA	465-0518 INLET (COMPL) (TY AAD) EA	465-0848 INLET (COMPL) (CURB) TY C EA	465-0538 MANH TY M (MOD) EA	465-3512 INLET (COMPL) (TY AZR) EA	465-3512 INLET (COMPL) (TY AD)(MOD) EA	465-3512 INLET (COMPL) (TY AAD)(MOD) EA
	CSJ: 0018-05-062										
	IH 35 SOUTHBOUND FRONTAGE ROAD										
SBH1-70	IH 35 SB STA 337+00 28.00' RT					1					
SBH1-56	IH 35 SB STA 340+00 26.00' RT					1					
SBH2-28	IH 35 SB STA 343+40 26.00' RT					1					
SBH2-36	IH 35 SB STA 347+00 26.00' RT					1					
SBH2-35	IH 35 SB STA 349+00 26.00' RT					1					
SBH2-38	IH 35 SB STA 350+00 26.00' RT							1			
SBH2-30	IH 35 SB STA 350+00 26.00' LT				1		1				
SBH2-31	IH 35 SB STA 351+00 26.00' LT				1		1				
SBH2-32	IH 35 SB STA 353+00 26.00' LT				1		1				
SBH2-33	IH 35 SB STA 355+00 26.00' LT				1		1				
SBH2-34	IH 35 SB STA 357+00 26.00' LT				1		1				
SBI2-39	IH 35 SB STA 358+84 29.00' RT					1					
SBI2-42	IH 35 SB STA 359+45 26.00' LT	1									
SBI2-43	IH 35 SB STA 360+00 26.00' LT	1									
SBJ2-40	IH 35 SB STA 379+73 19.00' RT									1	
SBJ2-44	IH 35 SB STA 383+60 56.00' RT										1
SBJ2-47	IH 35 SB STA 385+60 56.00' RT										1
SBK2-45	IH 35 SB STA 393+92 52.00' RT					1					
SBN1-68	UNIROYAL RD STA 10+80 26.00' RT				1		1				
	SUBTOTAL	2			6	7	6	1			
	CSJ: 0018-05-063										
	IH 35 SOUTHBOUND FRONTAGE ROAD										
SBK2-12	IH 35 SB STA 400+22 14.08' RT								1		
SBK2-13	IH 35 SB STA 402+50 14.08' RT								1		
SBK2-14	IH 35 SB STA 404+75 14.08' RT								1		
SBM1-17	IH 35 SB STA 410+00 14.08' RT								1		
SBM1-18	IH 35 SB STA 412+50 14.08' RT								1		
SBM1-19	IH 35 SB STA 415+03 14.08' RT								1		
	SUBTOTAL								6		
	IH 35 SOUTHBOUND FRONTAGE ROAD										
	TOTAL	2			6	20	6	1	14	1	2

DATE	BY	REV	REVISION
6/25/04	DG	01	ADDED TY AD(MOD) & TY AAD(MOD)
1/04/05	AA	02	WINGWALL MODIFICATION FOR CULV 1

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF
INLETS & MANHOLES
(JUNCTION BOX)

SHEET 6 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	57
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62
HOUFILE023 \hciv\c10130\ 1/4/2005
b36gsp40.dgn-04

SUMMARY OF INLETS & MANHOLES (JUNCTION BOX) – SOUTHBOUND FRONTAGE ROAD CONT'D

DESIGN	LOCATION	420-0569 CL A CONC (CURB OUTLET) (TY I) EA	465-0503 INLET (COMPL) (TY C) EA	465-0517 INLET (COMPL) (TY AD) EA	465-0515 INLET EXT TY E EA	465-0518 INLET (COMPL) (TY AAD) EA	465-0848 INLET (COMPL) (CURB) TY C EA	465-0538 MANH TY M (MOD) EA	465-3512 INLET (COMPL) (TY AZR) EA	465-3512 INLET (COMPL) (TY AD)(MOD) EA	465-3512 INLET (COMPL) (TY AAD)(MOD) EA
	CSJ: 0018-05-062										
	IH 35 SOUTHBOUND FRONTAGE ROAD										
SBH1-70	IH 35 SB STA 337+00 28.00' RT					1					
SBH1-56	IH 35 SB STA 340+00 26.00' RT					1					
SBH2-28	IH 35 SB STA 343+40 26.00' RT					1					
SBH2-36	IH 35 SB STA 347+00 26.00' RT					1					
SBH2-35	IH 35 SB STA 349+00 26.00' RT					1					
SBH2-38	IH 35 SB STA 350+00 26.00' RT							1			
SBH2-30	IH 35 SB STA 350+00 26.00' LT				1		1				
SBH2-31	IH 35 SB STA 351+00 26.00' LT				1		1				
SBH2-32	IH 35 SB STA 353+00 26.00' LT				1		1				
SBH2-33	IH 35 SB STA 355+00 26.00' LT				1		1				
SBH2-34	IH 35 SB STA 357+00 26.00' LT				1		1				
SBI2-39	IH 35 SB STA 358+84 29.00' RT					1					
SBI2-42	IH 35 SB STA 359+00 26.00' LT	1									
SBI2-43	IH 35 SB STA 360+00 26.00' LT	1									
SBJ2-40	IH 35 SB STA 379+73 19.00' RT									1	
SBJ2-44	IH 35 SB STA 383+60 56.00' RT										1
SBJ2-47	IH 35 SB STA 385+60 56.00' RT										1
SBK2-45	IH 35 SB STA 393+92 52.00' RT					1					
SBN1-68	UNIROYAL RD STA 10+80 26.00' RT				1		1				
	SUBTOTAL	2			6	7	6	1			
	CSJ: 0018-05-063										
	IH 35 SOUTHBOUND FRONTAGE ROAD										
SBK2-12	IH 35 SB STA 400+22 14.08' RT								1		
SBK2-13	IH 35 SB STA 402+50 14.08' RT								1		
SBK2-14	IH 35 SB STA 404+75 14.08' RT								1		
SBM1-17	IH 35 SB STA 410+00 14.08' RT								1		
SBM1-18	IH 35 SB STA 412+50 14.08' RT								1		
SBM1-19	IH 35 SB STA 415+03 14.08' RT								1		
	SUBTOTAL								6		
	IH 35 SOUTHBOUND FRONTAGE ROAD										
	TOTAL	2			6	20	6	1	14	1	2

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DATE	BY	REV	REVISION
6/25/04	DG	01	ADDED TY AD(MOD) & TY AAD(MOD)

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF INLETS & MANHOLES (JUNCTION BOX)

SHEET 6 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		57
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

7/6/2004
HOUFILE023 \hcivil\cf0130\
b36qsp40.dgn-04

REF FILE(S): j011qp01.bdr, bdr LV ON = 57.58.60-62

SUMMARY OF STORM SEWER SYSTEM - MAINLANES

LINE		400-513	400-514	402-501	464-505
FROM	TO	STRUC EXCAV (SEWER)	CEM STAB BKFL (SEWER)	TRENCH EXCAV PROTECTION	RC PIPE (CL III) (24 IN)
		CY	CY	LF	LF
CSJ: 0018-06-147					
IH 35 MAINLANES					
MLD5-1	MLD6-2	24.1	10.4	23	23
MLD6-6	MLD6-5	38.6	23.0	50	50
MLD6-5	MLD6-4	27.6	15.8	35	35
MLD6-4	MLD6-3	118.4	61.3	136	136
MLD6-3	MLD6-2	64.2	28.4	63	63
MLE5-47	MLE5-48	113.9	63.1	140	140
MLE5-48	MLE5-8	32.1	18.0		40
MLE5-8	MLE5-9	32.1	18.0		40
MLE5-9	MLE5-10	247.1	130.8	290	290
MLE5-10	MLE5-49	179.2	85.7	190	190
MLE5-49	CULVERT E	80.6	42.8	95	95
MLE6-15	MLE6-14	344.1	130.8	290	290
MLE6-14	MLE6-13	346.9	130.8	290	290
MLE6-13	MLE6-12	351.0	130.8	290	290
MLE6-12	MLE6-50	73.4	40.6	90	90
MLE6-50	MLE6-11	154.4	81.2	180	180
MLE6-11	CULVERT E	3.7	1.8		2
SUBTOTAL		2231.4	1013.3	2162	2244

REF FILE(S): J011op01.bdr, bdr LV ON = 57.58.60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF STORM SEWER SYSTEM

SHEET 1 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		58
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

HOUFILE023 \hcivil\c10130\ 4/19/2003
b36qsp15.dgn-06

SUMMARY OF STORM SEWER SYSTEM - MAINLANES CONT'D

LINE FROM	LINE TO	400-513 STRUC EXCAV (SEWER)	400-514 CEM STAB BKFL (SEWER)	402-501 TRENCH EXCAV PROTECTION	464-505 RC PIPE (CL III) (24 IN)	467-0785 SAFE END TRT (TY II) (24 IN) (RCP) (6:1) (C)	476-0502 JACK OR BORE PIPE (24 IN)(RC)(CL III)
		CY	CY	LF	LF	EA	LF
CSJ: 0018-05-062							
IH 35 MAINLANES							
MLH6-25	MLH6-24	206.4	85.4	190	190		
MLH6-24	MLH6-23	211.4	85.4	190	190		
MLH6-23	MLH6-22	213.4	85.4	190	190		
MLH6-22	MLH6-21	89.1	40.4	90	90		
MLH6-21	MLH6-20	80.8	40.4	90	90		
MLH6-20	MLH6-19	79.9	40.4	90	90		
MLH6-19	MLH6-18	29.8	18.0	40	40		
MLH6-18	MLH6-17	10.2	6.7	15	15		
MLH6-17	MLH6-16	120.8	74.1	165	165		
MLH6-16	CULVERT H	208.2	112.3	250	250		
MLM5-33	MLM5-34	195.3	85.4	190	190		
MLM5-34	MLM6-35	145.9	55.5	124	124		
MLM6-39	MLM6-38	166.4	85.4	190	190		
MLM6-38	MLM6-37	157.8	85.4	190	190		
MLM6-37	MLM6-36	124.6	85.4		190		
MLM6-36	MLM6-35	33.5	28.5		64		
MLO5-40	MLO5-41	203.7	85.4	190	190		
MLO5-41	MLO6-42	210.3	85.4	190	190		
MLO6-42	MLO6-43	207.9	80.9	180	180		
MLO6-43	MLO6-44	48.9	22.5	50	50		
MLO6-44	MLO6-45	14.4	6.7	15	15		
MLO6-45	MLO6-46	14.9	6.7	15	15		
MLO6-46	SBO5	35.4	19.3	10	43	1	61
SUBTOTAL		2809.0	1321.0	2654	2940	1	61
CSJ: 0018-05-063							
IH 35 MAINLANES							
MLM5-26	MLM5-27	6.5	4.5		10		
MLM5-27	MLM5-28	13.2	9.0		20		
MLM5-28	MLM5-29	20.5	13.5		30		
MLM5-29	MLM5-30	28.7	18.0		40		
MLM5-30	MLM5-31	30.4	18.0		40		
MLM5-31	MLM5-32	73.2	40.4	90	90		
MLM5-32	MLM5-33	80.4	40.4	90	90		
SUBTOTAL		252.9	143.8	180	320		
IH 35 MAINLANES							
TOTAL		5293.3	2478.1	4996	5504	1	61

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF STORM SEWER SYSTEM

SHEET 2 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	59
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

6/9/2003
HOUFILE023 \hcivil\cf0130\
b36gsp33.dgn-06

SUMMARY OF STORM SEWER SYSTEM - NORTHBOUND FRONTAGE ROAD

LINE		400-0513	400-0514	402-0501	464-0505	464-0507	464-0509	467-0831
FROM	TO	STRUC EXCAV (SEWER)	CEM STAB BKFL (SEWER)	TRENCH EXCAV PROTECTION	RC PIPE (CL III)(24 IN)	RC PIPE (CL III)(30 IN)	RC PIPE (CL III)(36 IN)	SAFE END TRT (TY II)(24 IN) (RCP)(4:1)(C)
		CY	CY	LF	LF	LF	LF	EA
CSJ: 0018-06-147								
IH 35 NORTHBOUND FRTG ROAD								
NBB4-10	NBB4-9	241.6	82.9	248	248			
NBB4-9	NBB4-8	9.4	0.9	10	10			
NBB4-8	NBB4-7	301.2	137.6	298		298		
NBB4-7	NBB4-6	123.3	26.3			173		
NBB4-6	NBB4-5	4.7	1.1			7		
NBC4-12	NBC4-11	121.2	18.0		288			
NBE3-32	NBE3-33	296.7	49.1		697			
NBE3-33	NBE3-34	379.7	79.2			695		
NBE3-34	CULVERT E	130.4	22.6	99		198		
NBE4-14	CULVERT E	99.5	18.7	99			99	
NBG4-45	NBG4-44	285.0	37.4	198			198	
SUBTOTAL		1992.7	473.8	952	1243	1371	297	
CSJ: 0018-06-148								
IH 35 NORTHBOUND FRTG ROAD								
NBA4-2	NBA4-1	43.3	88.9		198			
NBA4-1	CULVERT A	4.0	1.8		4			
NBA3-30	CULVERT A	41.9	5.5	58	58			
NBA4-31	CULVERT A	91.6	14.9	98		98		
SUBTOTAL		180.8	111.1	156	260	98		

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF STORM SEWER SYSTEM

SHEET 3 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		60
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 57.58.60-62

HOUFILE023 \hciv\cf0130\ 6/9/2003
b36qsp26.dgn-09

SUMMARY OF STORM SEWER SYSTEM - NORTHBOUND FRONTAGE ROAD CONT'D

LINE		400-0513	400-0514	402-0501	464-0505	464-0507	464-0509	467-0831
FROM	TO	STRUC EXCAV (SEWER)	CEM STAB BKFL (SEWER)	TRENCH EXCAV PROTECTION	RC PIPE (CL III)(24 IN)	RC PIPE (CL III)(30 IN)	RC PIPE (CL III)(36 IN)	SAFE END TRT (TY II)(24 IN) (RCP)(4:1)(C)
		CY	CY	LF	LF	LF	LF	EA
CSJ: 0018-05-062								
IH 35 NORTHBOUND FRTG ROAD								
NBH3-21	NBH4-22	531.6	76.5	405			405	
NBH4-58	NBH4-23	191.1	18.3	195	195			
NBH4-23	NBH4-25	159.9	22.0	145		145		
NBH4-25	NBH4-24	153.3	22.0	145		145		
NBH4-24	NBH4-22	196.0	22.0	145		145		
NBJ4-63	NBJ4-62	125.7	13.6	145	145			
NBJ4-62	NBJ4-61	157.5	53.9	195	195			
NBJ4-61	NBJ4-47	118.4	13.6	145	145			
NBJ4-47	NBJ4-28	148.0	23.6	155		155		
NBJ4-28	NBJ4-64	180.6	35.9			236		
NBJ4-64	NBJ4-27	159.1	32.7			215		
NBK4-66	NBK4-65	122.1	13.9	148	148			
NBK4-65	NBK4-29	344.8	30.6	325	325			
SUBTOTAL		2588.1	378.6	2148	1153	1041	405	
TOTAL		4761.9	963.5	3256	2656	2510	702	

REF FILE(S): J011op01.bdr, bdr LV ON = 57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF STORM SEWER SYSTEM

SHEET 4 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		61
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/9/2003
HOUFILE023 \hciwin\cf0130\
b36qsp34.dgn-05

SUMMARY OF STORM SEWER SYSTEM - SOUTHBOUND FRONTAGE ROAD

LINE FROM	LINE TO	400-0513 STRUC EXCAV (SEWER) CY	400-0514 CEM STAB BKFL (SEWER) CY	402-0501 TRENCH EXCAV PROTECTION LF	432-0529 RIPRAP(CONC) (CL B)(5 IN) CY	464-0503 RC PIPE (CL III)(18 IN) LF	464-0505 RC PIPE (CL III)(24 IN) LF	464-0507 RC PIPE (CL III)(30 IN) LF	464-0509 RC PIPE (CL III)(36 IN) LF	467-0831 SAFE END TRT (TY II)(24 IN) (RCP)(4:1)(C) EA	467-0785 SAFE END TRT (TY II)(24 IN) (RCP)(6:1)(C) EA	476-0502 JACK OR BORE PIPE (24 IN)(RC)(CL III) LF
CSJ: 0018-06-147												
IH 35 SOUTHBOUND FRTG ROAD												
SBC2-10	SB03	445.7	122.9		1					1		399
SBE1-20	SBE1-21	175.8	29.6	195				195				
SBE1-21	CULVERT E	336.7	56.3	298					298			
SBE2-46	SBE2-24	214.1	23.0	245			245					
SBE2-24	SBE2-23	281.8	32.4	345			245					
SBE2-23	SBE2-22	235.3	23.0	245			245					
SBE2-22	CULVERT E	46.3	7.3	48				48				
SBG1-25	CULVERT G	56.6	11.0						58			
SBG2-26	CULVERT G	348.0	37.4	398			398					
SBG12-41	SB07	59.4	48.8	60			60					
SBH1-54	SBH1-55	141.3	60.4	96					96			
SBH1-55	SBH1-70	121.0	18.5	98					98			
SBH1-71	SBH1-55	377.0	35.8	380			380					
SUBTOTAL		2839.0	506.4	2408	1		1573	243	550	1		399
CSJ: 0018-06-148												
IH 35 SOUTHBOUND FRTG ROAD												
SBA2-5	SBA2-4		88.9				198					
SBA2-4	SBA2-3		88.9				198					
SBA2-3	SBA2-2		88.9				198					
SBA2-2	SBA2-1		88.9				198					
SBA2-1	CULVERT A	36.4	51.3				114					
SBA1-59	CULVERT A	41.3	4.7				50					
SBA2-7	SBA2-8	205.0	100.1	223			223					
SBA2-8	SBA2-9	145.9	90.2	201			201					
SBA2-9	SB02	7.0	1.5		1		16			1		
SUBTOTAL		435.6	603.4	424	1		1396			1		

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62

b36qsp27.dgn-11 HOUFILE023 \hciwin\cf0130\ 6/9/2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF STORM SEWER SYSTEM

SHEET 5 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		62
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

SUMMARY OF STORM SEWER SYSTEM - SOUTHBOUND FRONTAGE ROAD CONT'D

LINE		400-0513	400-0514	402-0501	432-0529	464-0503	464-0505	464-0507	464-0509	467-0831	467-0785	476-0502
FROM	TO	STRUC EXCAV (SEWER)	CEM STAB BKFL (SEWER)	TRENCH EXCAV PROTECTION	RIPRAP(CONC) (CL B)(5 IN)	RC PIPE (CL III)(18 IN)	RC PIPE (CL III)(24 IN)	RC PIPE (CL III)(30 IN)	RC PIPE (CL III)(36 IN)	SAFE END TRT (TY II)(24 IN) (RCP)(4:1)(C)	SAFE END TRT (TY II)(24 IN) (RCP)(6:1)(C)	JACK OR BORE PIPE (24 IN)(RC)(CL III)
		CY	CY	LF	CY	LF	LF	LF	LF	EA	EA	LF
CSJ: 0018-05-062												
IH 35 SOUTHBOUND FRTG ROAD												
SBH1-55	SBH1-70	132.3	18.5	98					98			
SBH1-70	SBH1-56	467.4	55.9	296					296			
SBH1-56	CULVERT H	583.2	56.3	298					298			
SBH2-34	SBH2-33	191.1	87.7	195			195					
SBH2-33	SBH2-32	195.9	87.7	195			195					
SBH2-32	SBH2-31	198.4	87.7	195			195					
SBH2-31	SBH2-30	83.1	42.7	95			95					
SBH2-30	SBH2-38	58.7	15.8	55			55					
SBH2-38	SBH2-35	76.6	9.2	98			98					
SBH2-35	SBH2-36	268.4	29.6	195				195				
SBH2-36	SBH2-28	391.5	53.2	350				350				
SBJ2-47	SBJ2-44	152.3	27.5				195					
SBJ2-44	SBJ2-40	317.0	144.9				384					
SBM1-68	SB UNRD	49.5	5.7				60					
SUBTOTAL		3165.4	722.4	2070			1472	545	692			
CSJ: 0018-05-063												
IH 35 SOUTHBOUND FRTG ROAD												
SBK12-14	SBK12-13	41.3	100.1	223			223					
SBK12-13	SBK12-12	191.2	101.5	226			226					
SBK12-12	SB013	16.1	2.1	22	1		22			1		
SBM1-17	SBM1-18		111.4	248			248					
SBM1-18	SBM1-19		112.7	251			251					
SBM1-19	SB014	11.2	1.6	17	1		17			1		
SUBTOTAL		259.8	429.4	987	2		987			2		
TOTAL		6699.8	2261.6	5889	4	0	5428	788	1242	4	0	399

REF FILE(S): j011op01.bdr, bdr LV ON = 57.58.60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF STORM SEWER SYSTEM

SHEET 6 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	63
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/9/2003
HOUFILE023 \hcivil\cf0130\
b36qsp41.dgn-07

SUMMARY OF BRIDGE QUANTITIES

ITEM NO		400	416	416	420	420	422	422	425	425	425		428	430	440	442	444	450	450	452	454	514
DESC CODE		502	504	506	513	514	505	509	503	507	522		501	506	XXX	503	505	526	0746	510	503	535
CSJ	DESCRIPTION	STRUCT EXCAV (BRIDGE)	DRILLED SHAFTS (30 IN)	DRILLED SHAFTS (36 IN)	CL C CONC (ABUT)	CL C CONC (BENT)	REINF CONC SLAB (CL S)	REINF CONC SLAB (EXT STR)	PRESTRESS CONC BEAM (TY C)	PRESTRESS CONC BEAM (TY IV)	PRESTRESS CONC BEAM (TY VI(MOD))	CONC STAIN FINISH *	CONC SURF TREAT	CL C CONC FOR EXT STR (ABUT)	REINF STEEL *	STR STL (ARMOR JOINT)	SIGN & BRACKET	RAIL (SSTR)	RAIL (SSTR) (MOD)	REMOVE RAIL (CONC)	SEALED EXP JOINT (4 IN)	PERM CONC TRF BAR SGL SLP (TY 1) (H=42")
		CY	LF	LF	CY	CY	SF	SF	LF	LF	LF	SY	SY	CY	LB	LB	EA	LF	LF	LF	LF	LF
0018-05-062	UNIROYAL OVERPASS	36	436	0	0	27.6	0	5200	516.04	0	0	66	551	25.8	45706	1832	2	296.0	0	592	0	130
PSN: 22-240-0-0018-05-161																						
0018-06-148	NB FRONTAGE RD	0	0	1076	39.6	235.8	46755	0	0	6362.95	0	332	4974	0	395977	0	0	1992.5	0	0	289	0
PSN: 22-240-0-0018-05-174																						
0018-06-148	TRES EQUIS BLVD	0	0	408	50.2	144.8	11466	0	0	0	1719.11	104	1239	0	102122	0	2	0	314.4	0	150	0
PSN: 22-240-0-0018-05-176																						
0018-06-148	SUBTOTAL	0	0	1484	89.8	408.2	58221	5200	0	6362.95	1719.11	502	6213	25.8	543805	0	4	2288.5	314.4	0	439	0
0018-05-063	CARRIER DR	0	0	224	102.7	0	10347	0	0	0	1570.90	106	1102	0	81477	0	2	0	314.7	0	143	0
PSN: 22-240-0-0018-05-175																						
TOTALS		36	436	1708	192.5	408.2	68568	5200	516.04	6362.95	3290.01	608	7866	25.8	625282	1832	6	2288.5	629.1	592	582	130

SUMMARY OF RETAINING WALL QUANTITIES

ITEM NO-DESC CODE		403-0501				423-0501	423-XXXX	423-XXXX	423-XXXX		432-0524	481-514	556-0506	5764-0502
CSJ	DESCRIPTION WALL/SHEET	TEMPORARY SPL SHORING	DRILLED SHAFTS (30 IN) *	DRILLED SHAFTS (36 IN) *	DRILLED SHAFTS (24 IN) *	RETAINING WALL (MSE)	RETAINING WALL (CANTILEVER DRILLED SHAFTS) (24")	RETAINING WALL (CANTILEVER DRILLED SHAFTS) (30")	RETAINING WALL (CANTILEVER DRILLED SHAFTS) (36")	CONC STAIN FINISH *	RIPRAP (CONC) (CL B)(4")	PVC PIPE (SCH 40) (6 IN)	PIPE UNDDR (TY 6) (6 IN)	ANTI-GRAFFITI COATING (TY II)
		SF	LF	LF	LF	SF	SF	SF	SF	SY	CY	LF	LF	SF
0018-06-148	"B" - SHEET 1 OF 4	0	0	0	0	3037	0	0	0	456	9.9	0	0	1920
0018-06-148	"B" - SHEET 2 OF 4	0	0	0	0	10096	0	0	0	1305	13.6	0	0	8633
0018-06-148	"B" - SHEET 3 OF 4	0	0	0	0	11431	0	0	0	1453	13.6	0	0	10770
0018-06-148	"B" - SHEET 4 OF 4	0	0	0	0	2730	0	0	0	403	7.4	0	0	2264
0018-06-148	"C" - SHEET 1 OF 3	0	0	0	0	1297	0	0	0	194	3.7	0	0	470
0018-06-148	"C" - SHEET 2 OF 3	0	0	0	0	10217	0	0	0	1319	13.6	0	0	8311
0018-06-148	"C" - SHEET 3 OF 3	0	0	0	0	8424	0	0	0	1042	7.9	0	0	8102
0018-06-148	"D" - SHEET 1 OF 1	0	0	0	0	1675	0	0	0	213	2.0	0	0	1593
0018-06-148	"E" - SHEET 1 OF 2	1131	0	0	0	3928	0	0	0	492	4.1	0	0	3754
0018-06-148	"E" - SHEET 2 OF 2	2534	0	0	0	6000	0	0	0	842	13.0	0	0	5371
0018-06-148	"F" - SHEET 1 OF 1	0	0	0	0	6742	0	0	0	749	13.0	0	0	5840
0018-06-148	"G" - SHEET 1 OF 2	0	0	0	0	4381	0	0	0	622	10.5	0	0	3687
0018-06-148	"G" - SHEET 2 OF 2	0	0	0	0	4267	0	0	0	541	5.0	0	0	4060
0018-06-148	"H" - SHEET 1 OF 1	0	0	0	0	708	0	0	0	79	1.1	0	0	664
0018-06-148	"I" - SHEET 1 OF 1	0	0	0	0	4250	0	0	0	590	8.7	0	0	3163
0018-06-148	"J" - SHEET 1 OF 1	0	0	0	0	647	0	0	0	72	1.1	0	0	600
0018-06-148	"K" - SHEET 1 OF 1	0	0	0	0	5548	0	0	0	767	11.2	0	0	5115
0018-06-148	SUBTOTAL	3665	0	0	0	85378	0	0	0	11139	139.4	0	0	74317
0018-05-062	"P" - SHEET 1 OF 3	0	0	0	624	0	828	0	0	137	3.4	0	0	691
0018-05-062	"Q" - SHEET 1 OF 1	0	0	0	0	1518	0	0	0	285	8.6	0	0	651
0018-05-062	"R" - SHEET 1 OF 2	0	0	0	0	1270	0	0	0	277	10.0	0	0	857
0018-05-062	"R" - SHEET 2 OF 2	0	0	0	0	2540	0	0	0	482	14.8	0	0	1903
0018-05-062	"S" - SHEET 1 OF 2	0	0	0	0	2295	0	0	0	362	7.9	0	0	1902
0018-05-062	"S" - SHEET 2 OF 2	0	0	0	0	1004	0	0	0	215	7.7	0	0	654
0018-05-062	"T" - SHEET 1 OF 1	0	0	0	0	2008	0	0	0	389	12.3	0	0	1322
0018-05-062	SUBTOTAL	0	0	0	624	10635	828	0	0	2147	64.7	0	0	7980
0018-05-063	"L" - SHEET 1 OF 2	0	0	0	0	9243	0	0	0	1210	13.6	0	0	8665
0018-05-063	"L" - SHEET 2 OF 2	0	0	0	0	9671	0	0	0	1258	13.6	0	0	8964
0018-05-063	"M" - SHEET 1 OF 2	1259	0	0	0	1509	0	0	0	259	6.8	0	0	1212
0018-05-063	"M" - SHEET 2 OF 2	548	0	0	0	6123	0	0	0	816	10.1	0	0	5546
0018-05-063	"N" - SHEET 1 OF 1	398	0	0	0	1459	0	0	0	162	1.8	0	0	1386
0018-05-063	"O" - SHEET 1 OF 2	0	0	0	0	6248	0	0	0	777	6.2	0	0	4525
0018-05-063	"O" - SHEET 2 OF 2	0	0	0	0	8512	0	0	0	1129	13.6	0	0	4551
0018-05-063	"P" - SHEET 1 OF 3	0	1548	0	128	0	234	3415	0	405	10.1	30	374	3240
0018-05-063	"P" - SHEET 2 OF 3	0	2360	527	0	0	0	4046	1217	585	13.6	0	550	4717
0018-05-063	"P" - SHEET 3 OF 3	0	1260	0	0	0	0	1308	0	145	6.2	0	250	1058
0018-05-063	"P1" - SHEET 1 OF 1	0	0	0	0	118	0	0	0	13	0.0	0	0	109
0018-05-063	"P2" - SHEET 1 OF 1	0	0	0	0	120	0	0	0	13	0.0	0	0	111
0018-05-063	SUBTOTAL	2205	5168	527	128	43003	234	8769	1217	7926	95.6	30	1174	44084
	GRAND TOTAL	5870	5168	527	752	139016	1062	8769	1217	20058	299.7	30	1174	126381

* FOR CONTRACTOR'S INFORMATION ONLY

REF FILE(S): j011op01.bdr, bdr LV ON = 47.57.58.60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF BRIDGE AND RETAINING WALL QUANTITIES
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	64
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/9/2003
HOUFILE023 \hciwin\c10130\
b36qsp08.dgn-25

SUMMARY OF TRAFFIC SIGNAL QUANTITIES

ITEM	DESCR CODE	DESCRIPTION	UNIT	UNIROYAL RD 0018-05-062	CARRIER DR 0018-05-063	TRES EQUIS BLVD 0018-06-148	TOTAL
618	505	CONDUIT (RM) (2")	LF	115	170	540	825
618	506	CONDUIT (RM) (3")	LF		20	220	240
618	507	CONDUIT (RM) (4")	LF		150	150	300
618	511	CONDUIT (PVC) (SCHD 40) (2")	LF	1210	650	120	1980
618	513	CONDUIT (PVC) (SCHD 40) (3")	LF	140	155	90	385
618	514	CONDUIT (PVC) (SCHD 40) (4")	LF	345	55	15	415
618	532	CONDUIT (PVC) (SCHD 40) (2") (BORE)	LF	545	155		700
618	534	CONDUIT (PVC) (SCHD 40) (3") (BORE)	LF	355	155		510
620	504	ELEC CONDUCTOR (NO 6) BARE	LF	850	555		1405
620	507	ELEC CONDUCTOR (NO 12) INSULATED	LF	1710	1330		3040
620	510	ELEC CONDUCTOR (NO 6) INSULATED	LF	30	30		60
624	503	GROUND BOX TY C (162911) W/ APRON	EA	11	3		14
628	860	ELEC SRV TY T (120/240) 000 (NS) GS (L) SP (U)	EA	1	1		2
636	501	ALUM SIGNS (TY A)	SF	78.75	75.75		154.5
		"NO PEDESTRIAN CROSSING" SIGN (R9-3A) (18"X18") [2.25 SF]	EA	5	3		8
		LANE-USE CONTROL SIGN (R3-5L) (30"X36") [7.5 SF]	EA	2	3		5
		LANE-USE CONTROL SIGN (R3-8DT) (36"X36") [9.0 SF]	EA	1			1
		LANE-USE CONTROL SIGN (R3-8LT) (36"X36") [9.0 SF]	EA		1		1
		"LEFT TURN YIELD ON GREEN O" SIGN (R10-12) (30"X36") [7.5 SF]	EA	1	1		2
		"IH 35 NB FRNTG RD" STREET NAME SIGN [7.0 SF]	EA	2	2		4
		"IH 35 SB FRNTG RD" STREET NAME SIGN [7.0 SF]	EA	1	1		2
		"UNIROYAL RD" STREET NAME SIGN [5.0 SF]	EA	3			3
		"CARRIER DR" STREET NAME SIGN [4.5 SF]	EA		2		2
656	510	FND FOR TRAF SIG (24 IN DRIL SHFT)	LF	6	25	32	63
656	512	FND FOR TRAF SIG (36 IN DRIL SHFT)	LF	90	73	74	237
656	513	FND FOR TRAF SIG (42 IN DRIL SHFT)	LF		77	91	168
656	518	TRAF SIG CNTRL FND	CY	1	1		2
680	501	INSTAL OF HWY TRAF SIG (ISOLATED)	EA	1	1		2
		TEXAS DIAMOND CONTROLLER (TS 2) W/ 16 LOAD SWITCHES	EA	1	1		2
682	502	VEH SIG SEC (12 IN)	EA	38	32		70
682	509	BACK PLATE (3 SEC) (12 IN)	EA	5	5		10
682	511	BACK PLATE (5 SEC) (12 IN)	EA	1	1		2
684	503	TRAF SIG CBL (TY A) (3 CONDR) (12 AWG)	LF	405			405
684	505	TRAF SIG CBL (TY A) (5 CONDR) (12 AWG)	LF	348	396		744
684	507	TRAF SIG CBL (TY A) (7 CONDR) (12 AWG)	LF	224	104		328
684	509	TRAF SIG CBL (TY A) (9 CONDR) (12 AWG)	LF	1815	1045		2860
684	552	TRAF SIG CBL (TY A) (3 CONDR) (16 AWG)	LF	1990	1245		3235
686	513	TRAF SIG POLE ASM (STL) 1 ARM (40 FT)	EA	1			1
686	514	TRAF SIG POLE ASM (STL) 1 ARM (44 FT)	EA	1			1
686	559	TRAF SIG POLE ASM (STL) 2 ARM 40-32' LUM *	EA		1		1
686	565	TRAF SIG POLE ASM (STL) 2 ARM 44-36' LUM	EA		1		1
686	568	TRAF SIG POLE ASM (STL) 1 ARM (28 FT) LUM	EA	1			1
686	569	TRAF SIG POLE ASM (STL) 1 ARM (32 FT) LUM	EA	2	2		4
686	572	TRAF SIG POLE ASM (STL) 1 ARM (44 FT) LUM	EA	1			1
1201	501	12 INCH LED TRAF SIGNAL LAMP (RED)	EA	12	10		22
1201	502	12 INCH LED TRAF SIGNAL LAMP (YELLOW)	EA	12	10		22
1201	503	12 INCH LED TRAF SIGNAL LAMP (GREEN)	EA	8	8		16
1201	504	12 INCH LED TRAF SIGNAL LAMP (YEL ARW)	EA	1	1		2
1201	505	12 INCH LED TRAF SIGNAL LAMP (GRN ARW)	EA	5	3		8
8970	501	VIVDS PROCESSOR SYSTEM	EA	1	1		2
8970	502	VIVDS CAMERA ASSEMBLY	EA	6	5		11
8970	503	VIVDS SET-UP SYSTEM	EA	1	1		2
8970	505	VIVDS COMMUNICATION CABLE (COAXIAL)	LF	1990	1245		3235

* 32' CLAMP ON ARM IS FOR FUTURE USE AND SHALL NOT BE ORDERED OR INSTALLED AS PART OF THIS PROJECT.

TEI Traffic Engineers, Inc.
8323 Southwest Freeway, Suite 200, Houston, TX 77074
TEL (713) 270-8145/FAX (713) 270-8148

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IH 35
LOOP 20 TO
UNIROYAL ROAD
SUMMARY OF
TRAFFIC SIGNAL
QUANTITIES

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	65
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO

REF FILE(S): j011op02.bdr, bdr LV ON = 18, 49, 56-58, 60-62
16 MAY 2003 10:17:10
\Brown & Root\I-35&xxx Blvd\signals\b03sls01.dgn

SUMMARY OF TRAFFIC SIGNAL QUANTITIES

ITEM	DESCR CODE	DESCRIPTION	UNIT	UNIROYAL RD 0018-05-062	CARRIER DR 0018-05-063	TRES EQUIS BLVD 0018-06-148	TOTAL
618	505	CONDUIT (RM) (2")	LF	115	170	540	825
618	506	CONDUIT (RM) (3")	LF		20	220	240
618	507	CONDUIT (RM) (4")	LF		150	150	300
618	511	CONDUIT (PVC) (SCHD 40) (2")	LF	1210	650	120	1980
618	513	CONDUIT (PVC) (SCHD 40) (3")	LF	140	155	90	385
618	514	CONDUIT (PVC) (SCHD 40) (4")	LF	345	55	15	415
618	532	CONDUIT (PVC) (SCHD 40) (2") (BORE)	LF	545	155		700
618	534	CONDUIT (PVC) (SCHD 40) (3") (BORE)	LF	355	155		510
620	504	ELEC CONDUCTOR (NO 6) BARE	LF	850	555		1405
620	507	ELEC CONDUCTOR (NO 12) INSULATED	LF	1710	1330		3040
620	510	ELEC CONDUCTOR (NO 6) INSULATED	LF	30	30		60
624	503	GROUND BOX TY C (162911) W/ APRON	EA	11	3		14
628	860	ELEC SRV TY T (120/240) 000 (NS) GS (L) SP (U)	EA	1	1		2
636	501	ALUM SIGNS (TY A)	SF	78.75	75.75		154.5
		"NO PEDESTRIAN CROSSING" SIGN (R9-3A) (18"X18") [2.25 SF]	EA	5	3		8
		LANE-USE CONTROL SIGN (R3-5L) (30"X36") [7.5 SF]	EA	2	3		5
		LANE-USE CONTROL SIGN (R3-8DT) (36"X36") [9.0 SF]	EA	1			1
		LANE-USE CONTROL SIGN (R3-8LT) (36"X36") [9.0 SF]	EA		1		1
		"LEFT TURN YIELD ON GREEN O" SIGN (R10-12) (30"X36") [7.5 SF]	EA	1	1		2
		"IH 35 NB FRNTG RD" STREET NAME SIGN [7.0 SF]	EA	2	2		4
		"IH 35 SB FRNTG RD" STREET NAME SIGN [7.0 SF]	EA	1	1		2
		"UNIROYAL RD" STREET NAME SIGN [5.0 SF]	EA	3			3
		"CARRIER DR" STREET NAME SIGN [4.5 SF]	EA		2		2
656	510	FND FOR TRAF SIG (24 IN DRIL SHFT)	LF	6			6
656	511	FND FOR TRAF SIG (30 IN DRIL SHFT)	LF		31	35	66
656	512	FND FOR TRAF SIG (36 IN DRIL SHFT)	LF	90			90
656	513	FND FOR TRAF SIG (42 IN DRIL SHFT)	LF		73	40	113
656	514	FND FOR TRAF SIG (48 IN DRIL SHFT)	LF		86	153	239
656	518	TRAF SIG CNTRL FND	CY	1	1		2
680	501	INSTAL OF HWY TRAF SIG (ISOLATED)	EA	1	1		2
		TEXAS DIAMOND CONTROLLER (TS 2) W/ 16 LOAD SWITCHES	EA	1	1		2
682	502	VEH SIG SEC (12 IN)	EA	38	32		70
682	509	BACK PLATE (3 SEC) (12 IN)	EA	5	5		10
682	511	BACK PLATE (5 SEC) (12 IN)	EA	1	1		2
684	503	TRAF SIG CBL (TY A) (3 CONDR) (12 AWG)	LF	405			405
684	505	TRAF SIG CBL (TY A) (5 CONDR) (12 AWG)	LF	348	396		744
684	507	TRAF SIG CBL (TY A) (7 CONDR) (12 AWG)	LF	224	104		328
684	509	TRAF SIG CBL (TY A) (9 CONDR) (12 AWG)	LF	1815	1045		2860
684	552	TRAF SIG CBL (TY A) (3 CONDR) (16 AWG)	LF	1990	1245		3235
686	513	TRAF SIG POLE ASM (STL) 1 ARM (40 FT)	EA	1			1
686	514	TRAF SIG POLE ASM (STL) 1 ARM (44 FT)	EA	1			1
686	559	TRAF SIG POLE ASM (STL) 2 ARM 40-32' LUM *	EA		1		1
686	565	TRAF SIG POLE ASM (STL) 2 ARM 44-36' LUM	EA		1		1
686	568	TRAF SIG POLE ASM (STL) 1 ARM (28 FT) LUM	EA	1			1
686	569	TRAF SIG POLE ASM (STL) 1 ARM (32 FT) LUM	EA	2	2		4
686	572	TRAF SIG POLE ASM (STL) 1 ARM (44 FT) LUM	EA	1			1
1201	501	12 INCH LED TRAF SIGNAL LAMP (RED)	EA	12	10		22
1201	502	12 INCH LED TRAF SIGNAL LAMP (YELLOW)	EA	12	10		22
1201	503	12 INCH LED TRAF SIGNAL LAMP (GREEN)	EA	8	8		16
1201	504	12 INCH LED TRAF SIGNAL LAMP (YEL ARW)	EA	1	1		2
1201	505	12 INCH LED TRAF SIGNAL LAMP (GRN ARW)	EA	5	3		8
8970	501	VIVDS PROCESSOR SYSTEM	EA	1	1		2
8970	502	VIVDS CAMERA ASSEMBLY	EA	6	5		11
8970	503	VIVDS SET-UP SYSTEM	EA	1	1		2
8970	505	VIVDS COMMUNICATION CABLE (COAXIAL)	LF	1990	1245		3235

1

* 32' CLAMP ON ARM IS FOR FUTURE USE AND SHALL NOT BE ORDERED OR INSTALLED AS PART OF THIS PROJECT.

DATE	BY	REV	REVISION
7/12/05	SRT	01	REV FDN TYPE & DRILLED SHAFT LENGTHS

TEI Traffic Engineers, Inc.
8323 Southwest Freeway, Suite 200, Houston, TX 77074
TEL (713) 270-8145/FAX (713) 270-8148

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IH 35
LOOP 20 TO
UNIROYAL ROAD
SUMMARY OF
TRAFFIC SIGNAL
QUANTITIES

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		65
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op02.bdr, bdr LV ON = 18, 49, 56-58, 60-62
f:\cf0130\TEI\b03sis01.dgn 7/19/2005 3:58:57 PM

CSJ 0018-05-062, ETC

CONDUIT SUMMARY

ITEM	DESC CODE	DESCRIPTION	UNIT	SHEET 1	SHEET 2		SHEET 3	SHEET 4	SHEET 5	SHEET 6	SHEET 7	SHEET 8		SHEET 9	SHEET 10		SHEET 11		SHEET 12	TOTALS				GRAND TOTAL
				QUANTITIES	QUANTITIES		QUANTITIES	QUANTITIES	QUANTITIES	QUANTITIES	QUANTITIES	QUANTITIES		QUANTITIES	QUANTITIES		QUANTITIES		QUANTITIES	TOTAL RUN LENGTHS				
				00-18-06-147	00-18-06-148	0018-06-147	0018-06-147	0018-06-147	0018-06-147	0018-06-147	0018-06-147	0018-06-147	0018-05-062	0018-05-062	0018-05-062	0018-05-063	0018-05-63	0018-05-062	0018-05-062	0018-06-148	0018-06-147	0018-05-062	0018-05-063	
0618	0505	CONDUIT (RM) (2")	LF		285											247	90			285	0	0	337	622
0618	0518	CONDUIT (PVC)(SCHD 80) (2")	LF		3270		265	2650	650	1307	2828	100	1424	1561	1198	192		2501	1943	3270	7800	8627	192	19889
0618	0539	CONDUIT (PVC)(SCHD 80) (2") BORE	LF				45	150		120						150			290	0	315	290	150	755
0618	0520	CONDUIT (PVC)(SCHD 80) (3")	LF		50			150						73		50		482	2125	50	150	2680	50	2930
0618	0541	CONDUIT (PVC)(SCHD 80) (3") BORE	LF		230		360	330	165	290	442		106	460	148			504	1120	230	1587	2338	0	4155
0618	0521	CONDUIT (PVC)(SCHD 80) (4")	LF		50			200						73		50			468	50	200	541	50	841
0618	0542	CONDUIT (PVC)(SCHD 80) (4") BORE	LF							60										0	60	0	0	60
1450	0501	MULTIDUCT CONDUIT (SCH80)(4")	LF		1305			1255	535	2401	2401	100	2276	2361	1578	863	835	1635	1734	1305	6692	9584	1698	19279
1450	0502	MULTIDUCT CONDUIT (SCH80)(4"BORE)	LF		350		180	300	165	115	221		53	230	74		51	252	560	350	981	1169	51	2551
0620	0510	ELEC CONDR (NO. 6) INSULATED	LF		480			700		240	524		786	219	150	513		3359	1276	480	1464	5790	513	8247
6031	502	COMM CABLE (6 PAIR) (22 AWG)	LF		160			1570												160	1570	0	0	1730
0684	0507	TRAF SIG CBL (TYA) (7 CONDR) (12 AWG)	LF		1635											741	270.			1635	0	0	1011	2646
0684	0543	TRAF SIG CBL (TYC) (2 CONDR) (12 AWG)	LF		9880	4000	6990	10096	2490	7602	20348	600	5400	10116	7648			8220	17868	9880	52126	49252	0	111258
1438	0502	FIBER OPTIC CABLE (SINGLE MODE) (72 FIBERS)	LF					650	2705	2816	3163	100	2536	2726	1902	963	936	1843		0	9434	9007	1899	20340
1438	0501	FIBER OPTIC CABEL (SM 6 FIBERS) (DROP CABLE)	LF		160					100			298	98		100		2007	3095	160	100	5498	100	5858
1442	0501	RETRACT AND REROUTE FIBER OPTIC CABLE	LF		1496			1308												1496	1308	0	0	2804
1440	0501	PREPARATION OF EXISTING CONDUIT	LF					300	1920											0	2220	0	0	2220

EQUIPMENT SUMMARY

ITEM	DESC CODE	DESCRIPTION	UNIT	SHEET 1	SHEET 2		SHEET 3	SHEET 4	SHEET 5	SHEET 6	SHEET 7	SHEET 8		SHEET 9	SHEET 10		SHEET 11		SHEET 12	TOTALS				GRAND TOTAL
				QUANTITIES	QUANTITIES		QUANTITIES	QUANTITIES	QUANTITIES	QUANTITIES	QUANTITIES	QUANTITIES		QUANTITIES	QUANTITIES		QUANTITIES		QUANTITIES	TOTAL QUANTITIES				
				0018-06-147	00-18-06-148	0018-06-147	0018-06-147	0018-06-147	0018-06-147	0018-06-147	0018-06-147	0018-06-147	0018-05-062	0018-05-062	0018-05-062	0018-05-063	0018-05-063	0018-05-062	0018-05-062	0018-06-148	0018-06-0147	0018-05-062	0018-05-063	
0624	0523	GROUND BOX TY 1 W/APRON	EA		2		1	5	2	5	7		5	7	5	1	1	8	8	2	20	33	2	57
0624	0524	GROUND BOX TY 2 W/APRON	EA							1			1			1				0	1	1	1	3
0624	0503	GROUND BOX TYPE C (162911) W/APRON	EA				2	1	1	1	3			2	3	1		1	3	0	8	9	1	18
1437	0501	COMMUNICATION HUB BUILDING (6'X8')	EA								1							1		0	1	1	0	2
1454	0501	FIBER OPTIC VIDEO TRANSCEIVER W/ DATA	EA	2*									1					1		0	2	2	0	4
1451	0501	FIBER OPTIC RS-232 DATA TRANS W/CTRL SIG	EA					8		1	1			1		2	1	1	1	0	10	3	3	16
1438	0505	FIBER OPTIC DIST PANEL (72 POSITION)	EA					1			2							2		0	3	2	0	5
1438	0503	FIBER OPTIC DIST PANEL (12 POSITION)	EA							1			1	1		1	1	1	1	0	1	4	2	7
1438	0504	FIBER OPTIC SPLICE ENCLOSURE	EA							1			1	1		1				0	1	2	1	4
0540	0505	TERM ANCHOR SECTION (12 GA)	EA					2									1			0	2	0	1	3
0540	0506	MTL BM GD FE (12 GA) (TIM POST)	LF					300									150			0	300	0	150	450
5819	0501	SINGLE GDRIAL TERM (TY 1)	EA					2									1			0	2	0	1	3
1439	0501	PORT EXPANDER 8:1	EA					2												0	2	0	0	2
1436	0501	CCTV FIELD EQUIPMENT	EA										1					1		0	0	2	0	2
0416	0506	DRILL SHAFT (36 IN)	LF		10								10					10		10	0	20	0	30
1435	0501	CAMERA POLE STRUCTURE W/CABINET (50 FT)	EA										1							0	0	1	0	1
1434	0501	CABINET (TYPE 3)	EA		1					1				1		1			1	1	1	2	1	5
1447	0501	FTM LANE CONTROL SIGNALS EQUIPMENT	EA		6											3	3			6	0	0	6	12
1446	0501	LOCAL CONTROL UNIT	EA		2			1		1	1			1		2	2	1	1	2	3	3	4	12
1453	0501	LOOP DETECTOR (SURVEI COMM & CONT)	EA				8	8	6	6	8		6	11	5			10	16	0	36	48	0	84
1452	0501	LIMITED DISTANCE MODEM (STAND ALONE)	EA					1												0	1	0	0	1
1448	0501	FIBER OPTIC DMS FIELD EQUIP (18 IN)	EA					1									1			0	1	0	1	2
0416	0508	DRILL SHAFT (48 IN)	LF					26									26			0	26	0	26	52
6519	0502	DETECTOR CARD RACK (8 SLOTS)	EA		1			1		1	1			1				1	1	1	3	3	0	7
6519	0501	DETECTOR CARD UNIT	EA		4			4		6	7			8				5	8	4	17	21	0	42
6519	0503	POWER SUPPLY	EA		1			1		1	1			1				1	1	1	3	3	0	7
1441	0501	REM. AND REL. CAMERA POLE STRUCTURE	EA		1															1	0	0	0	1
0650	0772	OVHD SIGN SUPT (30 FT BAL TEE)(25.0 HT)	EA					1												0	1	0	0	1
0650	0773	OVHD SIGN SUPT (30 FT BAL TEE)(28.0 HT)	EA														1			0	0	0	1	1
1494	0501	8:1 VIDEO (DE) MUX TRANSCENER W/DATA	EA	2*												1			1	0	2	1	1	4
0628	0835	ELEC SERV TYD (120/240) 100 (NS) GS (N) TP (O)	EA								1							1		0	1	1	1	3
0628	0698	ELEC SERV TYD (120/240) 060 (NS) GS (N) TP (O)	EA					1		1			1		1	1			1	0	2	3	1	6
1445	0501	ASYNCHRONOUS SUBRATE DATA CHANNEL UNIT	EA	TOTAL QUANTITY: 2																				

* TO BE AT ENVIRONMENTAL HUB BUILDING LOCATED AT LOOP 20/IH 35 INTERCHANGE

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IH 35
LOOP 20 TO UNIROYAL ROAD
ITS
SUMMARY SHEET
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		66
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

2003/ITS/PROJECT/WEB/0018-05-062IH35WIDEN/IH35WIDENCAD; FILE NAME: B60QUANT SUMMARY.DGN

ELECTRICAL SUMMARY

SHEET NO	DRILL SHAFT	RWDY ILL ASSEM		CONDUITS				CONDUCTORS				GROUND BOX	ELECTRICAL SERVICE	
	656	0610		0618				0620				0624	0628	
	535	503	655	501	505	511	532	501	503	508	509	501	504	503
	RDWY ILL (30 IN)	(TY SA 40T-8) (.25KW)S	(TY IF) (.15KW)	3/4" RM	2" RM	2" PVC SCHD 40	2" PVC SCHD 40 BORE	NO 12 BARE	NO 8 BARE	NO 10 INSULATED (XHHW)	NO 8 INSULATED (XHHW)	TY A (122311) W/ APRON	TY A (240/480) 100 (NS) GS (E)SP(U)	TY A (240/480) 60 (NS) GS (E)SP(U)
	LF	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA
CSJ: 0018-06-148														
1 OF 12	0	0	0	0	0	400	0	0	405	0	810	0	1	0
2 OF 12	0	0	0	0	0	780	0	0	790	0	1580	3	0	0
CSJ: 0018-06-148 SUBTOTAL	0	0	0	0	0	1180	0	0	1195	0	2390	3	1	0
CSJ: 0018-06-147														
3 OF 12	18	3	0	0	0	490	220	0	735	0	1470	3	1	0
4 OF 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 OF 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 OF 12	6	1	0	0	0	220	210	0	445	0	890	1	1	0
7 OF 12	12	2	0	0	0	220	0	0	225	0	450	0	0	0
CSJ: 0018-06-147 SUBTOTAL	36	6	0	0	0	930	430	0	1405	0	2810	4	2	0
CSJ: 0018-05-062														
8 OF 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 OF 12	36	6	0	0	0	1325	220	0	1545	0	3360	4	1	0
CSJ: 0018-05-062 SUBTOTAL	36	6	0	0	0	1325	220	0	1545	0	3360	4	1	0
CSJ: 0018-05-063														
10 OF 12	0	0	0	0	0	370	0	0	375	0	750	1	1	0
CSJ: 0018-05-063 SUBTOTAL	0	0	0	0	0	370	0	0	375	0	750	1	1	0
CSJ: 0018-05-062														
11 OF 12	36	6	0	0	70	2410	270	0	2820	0	9730	7	0	0
12 OF 12	0	0	0	0	0	0	0	0	0	0	0	0	1	0
CSJ: 0018-05-062 SUBTOTAL	36	6	0	0	70	2410	270	0	2820	0	9730	7	1	0
CSJ: 0018-05-062 UNIROYAL DR	0	0	6	100	20	0	0	110	25	220	50	0	0	0
CSJ: 0018-06-148 TRES EQUIS BLVD	0	0	8	305	0	0	70	335	75	670	150	0	0	0
CSJ: 0018-05-063 CARRIER DR	0	0	8	305	0	0	100	335	105	670	210	0	0	0
GRAND TOTAL	108	18	22	710	90	6215	1090	780	7545	1560	19450	19	6	0

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD

ELECTRICAL SUMMARY

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		67
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/16/2003
HOUFILE023 \hciwi\cf0130\
b36qsp02.dgn-12

SUMMARY OF REMOVALS SIGN BRIDGE DELINEATORS AND MARKERS

ITEM NO			649	649	649	650	658	658	658	658	658	658	658	658	658	658	672	672	672
DESCRIPTION CODE			501	502	503	576	520	524	536	551	552	568	572	577	582	594	506	509	510
LOCATION			REMOV LARGE RDSD	REMOV SMALL RDSD	RELOC LARGE RDSD	OVHD SGN SUPT (160 FT BRDG	DEL ASM TY A (D-SW)	DEL ASM TY A (D-SY)	DEL ASM TY A (D-DW)	DEL ASM TY C (CL A) (D-SW)	DEL ASM TY C (CL A) (D-SY)	OBJ MRK ASM TY 2 FLEX (OM-2SR)(7.0')	OBJ MRK ASM TY 2 FLEX (OM-2VP)(7.0')	OBJ MRK ASM SURF MNT (K MARKER)	OBJ MRK ASM OB-3B	OBJ MRK ASM OB-3F	RAIS PAV MRKR CL B (REFL) TY I-A	RAIS PAV MRKR CL B (REFL) TY II-A-A	RAIS PAV MRKR CL B (REFL) TY II-C-R
SHEET NO	BEGINNING STATION	ENDING STATION	SGN ASSMS	SGN ASSMS	SGN ASSMS	(21.0 HT)	FLEX (7.0')	FLEX (7.0')	FLEX (7.0')										
			EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
CSJ0018-06-147 TOTAL																			
1	130+00	140+00																	30
2	140+00	150+00																	13
3	150+00	160+00																	13
4	160+00	170+00																	28
5	170+00	180+00					4	7							1				59
6	180+00	186+00		1			10	3									44		45
9	210+00	220+00	2				10	1		5			1			1			103
10	220+00	230+00	1				5		8	11		2							68
11	230+00	240+00					6					2				1			85
12	240+00	250+00	1	1			8		3	8		1					16		98
13	250+00	260+00	2	3			8			2		1				1			77
14	260+00	270+00	3	9		1	6			2		1				1			81
15	270+00	280+00	2	3			13			22		3							81
16	280+00	290+00					10					3							81
17	290+00	300+00					11		4					1					81
18	300+00	310+00	3				9		7	1						1			81
19	310+00	320+00		4			8			25		1				1			74
20	320+00	330+00		1			11					3	3	1			21		98
21	330+00	336+00		4			4												43
CSJ0018-06-147 TOTAL			14	26	0	1	123	11	22	76	0	17	4	2	1	6	81	0	1239
CSJ0018-06-148																			
6	186+00	190+00		3			3			11	6	2				2	20		38
7	190+00	200+00		2			8										45		161
8	200+00	210+00	2	3			6			11	6	2				2			208
1	TRES EQUIS BLVD																120	28	56
CSJ0018-06-148 TOTAL			2	8	0	0	17	0	0	22	12	4	0	0	0	4	185	28	463
CSJ0018-05-062																			
21	336+00	340+00					4										9		55
22	340+00	350+00					8			27		4				2			82
23	350+00	360+00					17		1	12		2	1			1			117
24	360+00	370+00	1	5			3		9										81
25	370+00	380+00	2				2		17	18						1			99
26	380+00	390+00	1	1			9		8	23		1			2		28		92
27	390+00	399+00					5								1		16		70
29	416+00	420+00		3			3					2	2						48
30	420+00	430+00	1	15			9		11	10	6	1		1	1	2			133
31	430+00	440+00		14					7	34	18	10				4			104
32	440+00	450+00		1			10												41
33	450+00	453+50	1	1			5								1				42
1	UNIROYAL RD			4														34	44
CSJ0018-05-062 TOTAL			6	44	0	0	75	0	53	124	24	20	3	1	5	10	53	34	1008
CSJ0018-05-063																			
27	399+00	400+00		1			1										3		6
28	400+00	410+00	1	4			5										63		180
29	410+00	416+00	1	1			8			6	3								82
																2			
1	CARRIER DRIVE																	36	64
CSJ0018-05-063 TOTAL			2	6	0	0	14	0	0	6	3	0	0	0	0	2	66	36	332
TOTAL			24	84	0	1	229	11	75	228	39	41	7	3	6	22	385	98	3042

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF REMOVALS/ SIGN BRIDGE / DELINEATORS AND MARKERS QUANTITIES

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	68
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/7/2003

REF FILE(S): j01lop01.bdr, bdr LV ON = 57,58,60-62
HOUFILE023 \hcivil\cf0130\
b36dsp37.dgn-03

SUMMARY OF REFLECTORIZED PAVEMENT MARKING QUANTITIES

ITEM NO			666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666
DESCRIPTION CODE			501	502	503	506	509	510	512	513	514	516	517	519	521	524	529	532
LOCATION			REFL PAV MRK TY I (W)(4") (SLD)	REFL PAV MRK TY I (W)(4") (BRK)	REFL PAV MRK TY I (W)(4") (DOT)	REFL PAV MRK TY I (W)(8") (SLD)	REFL PAV MRK TY I (W)(12") (SLD)	REFL PAV MRK TY I (W)(12") (LNDP)	REFL PAV MRK TY I (W)(24") (SLD)	REFL PAV MRK TY I (W) (ARROW)	REFL PAV MRK TY I (W) (DBL ARROW)	REFL PAV MRK TY I (W) (TND ARROW)	REFL PAV MRK TY I (W) (WORD)	REFL PAV MRK TY I (W)(ENTR GORE)	REFL PAV MRK TY I (W) (RR X ING)	REFL PAV MRK TY I (Y)(4") (SLD)	REFL PAV MRK TY I (Y)(8") (SLD)	REFL PAV MRK TY I (Y)(24") (SLD)
SHEET NO	BEGINNING STATION	ENDING STATION	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	LF	LF	LF
CSJ0018-06-147 TOTAL																		
1	130+00	140+00	695	210		600			90	2		4	4			702		
2	140+00	150+00	1000	250												1000		
3	150+00	160+00	1000	250		200										900		
4	160+00	170+00	1700	430												1700		
5	170+00	180+00	3720	1830												3720		
6	180+00	186+00	2405	750												2405	600	290
9	210+00	220+00	3245	1060		450		197		1			5	1		3245		
10	220+00	230+00	3000	1250												3000		
11	230+00	240+00	3390	1250										1		3230		
12	240+00	250+00	4150	1250	87	520			130							3430	470	325
13	250+00	260+00	4000	1410												4000		
14	260+00	270+00	4000	1500												4000		
15	270+00	280+00	4000	1500												4000		
16	280+00	290+00	4000	1500												4000		
17	290+00	300+00	4000	1500												4000		
18	300+00	310+00	4000	1500												4402		
19	310+00	320+00	4000	1340	106	60										4000	175	
20	320+00	330+00	4388	1250		624			180					1		4328	640	430
21	330+00	336+00	2500	890												2400		
CSJ0018-06-147 TOTAL			59193	20920	193	2454	0	197	400	3	0	4	9	3	0	58462	1885	1045
CSJ0018-06-148																		
6	186+00	190+00	1600	560				22								1468	395	450
7	190+00	200+00	4000	1360		300		200	40	5		2	11			3780	940	1125
8	200+00	210+00	3900	1630		300		200	40	4		2	6			3885		
1	TRES EQUIS BLVD				78	280			60			8	8			580		120
CSJ0018-06-148 TOTAL			9500	3550	78	880	0	422	140	9	0	12	25	0	0	9713	1335	1695
CSJ0018-05-062																		
21	336+00	340+00	1600	600												1600		
22	340+00	350+00	4000	1500												4000		
23	350+00	360+00	4000	1500												4000		
24	360+00	370+00	4000	1500												4000		
25	370+00	380+00	3850	1390	111									1		4000		
26	380+00	390+00	4816	1250	17	1020			120					1		4816	800	330
27	390+00	399+00	3760	1330												3600	440	220
29	416+00	420+00	2110	500		220		80						1		1935		845
30	420+00	430+00	5068	1250		318		200					1	1		5118		
31	430+00	440+00	3225	1000	86	612		150	120	1	3	3	7			3160		
32	440+00	450+00	2000	750												2000		
33	450+00	453+50	2900	790										1		2900		
1	UNIROYAL RD					446	43		150	2		6	8		1	1786		
CSJ0018-05-062 TOTAL			41329	13360	214	2616	43	430	390	3	3	9	16	5	1	42915	1240	1395
CSJ0018-05-063																		
27	399+00	400+00	400	180												400	100	60
28	400+00	410+00	4500	1270		600		71	110	6	2	4	13			3195	925	955
29	410+00	416+00	2400	750				120		1			2			1885	560	845
1	CARRIER DRIVE				30	330			50	2		6	8			680		64
CSJ0018-05-063 TOTAL			7300	2200	30	930	0	191	160	9	2	10	23	0	0	6160	1585	1924
TOTAL			117322	40030	515	6880	43	1240	1090	24	5	35	73	8	1	117250	6045	6059

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF REFLECTORIZED PAVEMENT MARKING QUANTITIES

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	69
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

5/7/2003
HOUFILE023 \hcivil\cf0130\
b36qsp05.dgn-09

SUMMARY OF REFLECTORIZED PAVEMENT MARKING QUANTITIES

ITEM NO			666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666
DESCRIPTION CODE			535	536	537	539	541	542	544	545	546	548	549	551	553	556	560	563
LOCATION			REFL PAV MRK TY II (W)(4") (SLD)	REFL PAV MRK TY II (W)(4") (BRK)	REFL PAV MRK TY II (W)(4") (DOT)	REFL PAV MRK TY II (W)(8") (SLD)	REFL PAV MRK TY II (W)(12") (SLD)	REFL PAV MRK TY II (W)(12") (LNDP)	REFL PAV MRK TY II (W)(24") (SLD)	REFL PAV MRK TY II (W) (ARROW)	REFL PAV MRK TY II (W) (DBL ARROW)	REFL PAV MRK TY II (W) (TND ARROW)	REFL PAV MRK TY II (W) (WORD)	REFL PAV MRK TY II (W)(ENTR GORE)	REFL PAV MRK TY II (W) (RR X ING)	REFL PAV MRK TY II (Y)(4") (SLD)	REFL PAV MRK TY II (Y)(8") (SLD)	REFL PAV MRK TY II (Y)(24") (SLD)
SHEET NO	BEGINNING STATION	ENDING STATION	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	LF	LF	LF
CSJ0018-06-147 TOTAL																		
1	130+00	140+00	695	210		600			90	2		4	4			702		
2	140+00	150+00	1000	250												1000		
3	150+00	160+00	1000	250		200										900		
4	160+00	170+00	1700	430												1700		
5	170+00	180+00	3720	1830												3720		
6	180+00	186+00	2405	750												2405	600	290
9	210+00	220+00	3245	1060		450		197		1			5	1		3245		
10	220+00	230+00	3000	1250												3000		
11	230+00	240+00	3390	1250										1		3230		
12	240+00	250+00	4150	1250	87	520			130							3430	470	325
13	250+00	260+00	4000	1410												4000		
14	260+00	270+00	4000	1500												4000		
15	270+00	280+00	4000	1500												4000		
16	280+00	290+00	4000	1500												4000		
17	290+00	300+00	4000	1500												4000		
18	300+00	310+00	4000	1500												4402		
19	310+00	320+00	4000	1340	106	60										4000	175	
20	320+00	330+00	4388	1250		624			180					1		4328	640	430
21	330+00	336+00	2500	890												2400		
CSJ0018-06-147 TOTAL			59193	20920	193	2454	0	197	400	3	0	4	9	3	0	58462	1885	1045
CSJ0018-06-148																		
6	186+00	190+00	1600	560				22								1468	395	450
7	190+00	200+00	4000	1360		300		200	40	5		2	11			3780	940	1125
8	200+00	210+00	3900	1630		300		200	40	4		2	6			3885		
1	TRES EQUIS BLVD				78	280			60			8	8			580		120
CSJ0018-06-148 TOTAL			9500	3550	78	880	0	422	140	9	0	12	25	0	0	9713	1335	1695
CSJ0018-05-062																		
21	336+00	340+00	1600	600												1600		
22	340+00	350+00	4000	1500												4000		
23	350+00	360+00	4000	1500												4000		
24	360+00	370+00	4000	1500												4000		
25	370+00	380+00	3850	1390	111									1		4000		
26	380+00	390+00	4816	1250	17	1020			120					1		4816	800	330
27	390+00	399+00	3760	1330												3600	440	220
29	416+00	420+00	2110	500		220		80						1		1935		845
30	420+00	430+00	5068	1250		318		200					1	1		5118		
31	430+00	440+00	3225	1000	86	612		150	120	1	3	3	7			3160		
32	440+00	450+00	2000	750												2000		
33	450+00	453+50	2900	790										1		2900		
1	UNIROYAL RD					446	43		150	2		6	8		1	1786		
CSJ0018-05-062 TOTAL			41329	13360	214	2616	43	430	390	3	3	9	16	5	1	42915	1240	1395
CSJ0018-05-063																		
27	399+00	400+00	400	180												400	100	60
28	400+00	410+00	4500	1270		600		71	110	6	2	4	13			3195	925	955
29	410+00	416+00	2400	750				120		1			2			1885	560	845
1	CARRIER DRIVE				30	330			50	2		6	8			680		64
CSJ0018-05-063 TOTAL			7300	2200	30	930	0	191	160	9	2	10	23	0	0	6160	1585	1924
TOTAL			117322	40030	515	6880	43	1240	1090	24	5	35	73	8	1	117250	6045	6059

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF REFLECTORIZED PAVEMENT MARKING QUANTITIES

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		70
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

6/2/2003
HOUFILE023 \hciviil\cf0130\
b36qsp36.dgn-09

REF FILE(S): j01lop01.bdr, bdr LV ON = 57.58.60-62

SUMMARY OF SMALL ROADSIDE SIGNS

ITEM	DESC CODE	DESCRIPTION	UNIT	TALLY 0018-06-147	TALLY 0018-06-148	TALLY 0018-05-062	TALLY 0018-05-063	TOTAL
0644	0604	SM RD SGN ASSM TY FRP(1)UA(P)	EA					
0644	0605	SM RD SGN ASSM TY FRP(1)UB(P)	EA					
0644	0606	SM RD SGN ASSM TY FRP(2)UA(P)	EA					
0644	0607	SM RD SGN ASSM TY FRP(2)UB(P)	EA					
0644	0608	SM RD SGN ASSM TY TWT(1)UA(P)	EA	𝍸 𝍸 𝍸 III	𝍸 𝍸 II	𝍸 𝍸 𝍸 𝍸 𝍸 I	𝍸 𝍸 IIII	70
0644	0609	SM RD SGN ASSM TY TWT(1)UA(T-2EXT)	EA					
0644	0610	SM RD SGN ASSM TY TWT(1)UA(T)	EA	I	𝍸 III			9
0644	0611	SM RD SGN ASSM TY TWT(1)WA(P)	EA	𝍸	II	𝍸 II		14
0644	0612	SM RD SGN ASSM TY TWT(1)WA(T-2EXT)	EA					
0644	0613	SM RD SGN ASSM TY TWT(1)WA(T)	EA			I		1
0644	0614	SM RD SGN ASSM TY 10BWG(1)SA(P)	EA					
0644	0615	SM RD SGN ASSM TY 10BWG(1)SA(P-BM)	EA			II		2
0644	0616	SM RD SGN ASSM TY 10BWG(1)SA(P-EXAL)	EA					
0644	0617	SM RD SGN ASSM TY 10BWG(1)SA(T-2EXT)	EA					
0644	0618	SM RD SGN ASSM TY 10BWG(1)SA(T)	EA	𝍸 I	III	𝍸 𝍸 𝍸 𝍸 I		30
0644	0619	SM RD SGN ASSM TY 10BWG(1)SA(U)	EA					
0644	0620	SM RD SGN ASSM TY 10BWG(1)SB(P)	EA					
0644	0621	SM RD SGN ASSM TY 10BWG(1)SB(P-BM)	EA					
0644	0622	SM RD SGN ASSM TY 10BWG(1)SB(P-EXAL)	EA					
0644	0623	SM RD SGN ASSM TY 10BWG(1)SB(T-2EXT)	EA					
0644	0624	SM RD SGN ASSM TY 10BWG(1)SB(T)	EA					
0644	0625	SM RD SGN ASSM TY 10BWG(1)SB(U)	EA					
0644	0626	SM RD SGN ASSM TY 10BWG(2)SA(P)	EA					
0644	0627	SM RD SGN ASSM TY 10BWG(2)SA(T-2EXT)	EA					
0644	0628	SM RD SGN ASSM TY 10BWG(2)SB(P)	EA					
0644	0629	SM RD SGN ASSM TY 10BWG(2)SB(T-2EXT)	EA					
0644	0630	SM RD SGN ASSM TY S80(1)SA(P)	EA					
0644	0631	SM RD SGN ASSM TY S80(1)SA(P-BM)	EA					
0644	0632	SM RD SGN ASSM TY S80(1)SA(P-EXAL)	EA					
0644	0633	SM RD SGN ASSM TY S80(1)SA(T-2EXT)	EA					
0644	0634	SM RD SGN ASSM TY S80(1)SA(T)	EA	IIII	II	III	I	10
0644	0635	SM RD SGN ASSM TY S80(1)SA(U)	EA	𝍸	I	𝍸 III	IIII	18
0644	0636	SM RD SGN ASSM TY S80(1)SA(U-1EXT)	EA					
0644	0637	SM RD SGN ASSM TY S80(1)SA(U-2EXT)	EA		III	III	III	9
0644	0638	SM RD SGN ASSM TY S80(1)SA(U-BM)	EA					
0644	0639	SM RD SGN ASSM TY S80(1)SA(U-WC)	EA					
0644	0640	SM RD SGN ASSM TY S80(1)SB(P)	EA					
0644	0641	SM RD SGN ASSM TY S80(1)SB(P-BM)	EA					
0644	0642	SM RD SGN ASSM TY S80(1)SB(P-EXAL)	EA					
0644	0643	SM RD SGN ASSM TY S80(1)SB(T-2EXT)	EA					
0644	0644	SM RD SGN ASSM TY S80(1)SB(T)	EA					
0644	0645	SM RD SGN ASSM TY S80(1)SB(U)	EA					
0644	0646	SM RD SGN ASSM TY S80(1)SB(U-1EXT)	EA					
0644	0647	SM RD SGN ASSM TY S80(1)SB(U-2EXT)	EA					
0644	0648	SM RD SGN ASSM TY S80(1)SB(U-BM)	EA					
0644	0649	SM RD SGN ASSM TY S80(1)SB(U-WC)	EA					
0644	0650	SM RD SGN ASSM TY S80(2)SA(P)	EA	IIII	IIII	I	II	11
0644	0651	SM RD SGN ASSM TY S80(2)SA(P-EXAL)	EA					
0644	0652	SM RD SGN ASSM TY S80(2)SA(T-2EXT)	EA					
0644	0653	SM RD SGN ASSM TY S80(2)SB(P)	EA					
0644	0654	SM RD SGN ASSM TY S80(2)SB(P-EXAL)	EA					
0644	0655	SM RD SGN ASSM TY S80(2)SB(T-2EXT)	EA					

REF FILE(S): J01LOP01.BDR, BDR LV ON = 47,57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF SMALL ROADSIDE SIGNS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		77
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/21/2003
HOUFILE023 \hciwl\c(0130\
b21ssp12.dgn-03

SUMMARY OF SW3P QUANTITIES

ITEM NO - DESCRIPTION			0162-0508	0164-0511	0164-0602	0166-0509	0168-0502	1058-0516	5005-0504	5005-0505	5005-0506	5010-0501	5010-0502	5010-0503	5012-0505	5249-0501	5249-0502	5249-0503
LOCATION			BLOCK SOD (BERMUDA)	CELL FIBER MULCH SEED	DRILL SEED	FERTILIZER (13-13-13) *	VEG WATERING (TEMP ERSN CNT)	EROSION CONTROL COMPOST (ECC)(1")	ROCK FILTER DAMS (TY 2)	ROCK FILTER DAMS (REMOVE & REPLAC) (TY 2)	ROCK FILTER DAMS (REMOVE) (TY 2)	CONSTRUCT EXIT (TY 1)	CONSTRUCT EXIT (REMOVE & REPLC) (TY 1)	CONSTRUCT EXIT (REMOVE) (TY 1)	EARTHWORK (EROSN CONT) (CL2)	TEMP SEDMT CONT FENCE	TEMP SEDMT CONT FENCE (REMOVE & REPLAC)	TEMP SEDMT CONT FENCE (REMOV)
SHEET NO	BEGINNING STATION	ENDING STATION	SY	SY	SY	TON	MG	SY	LF	LF	LF	SY	SY	SY	CY	LF	LF	LF
CSJ: 0018-06-147																		
1 OF 6	167+20	186+00		41720.8	20860.4	0.65	6142	20860.4	40	40	40				140	3760	3760	3760
1 OF 6	210+00	215+00		12680.8	6340.4	0.20	1868	6340.4							42	1120	1120	1120
2 OF 6	215+00	263+00		140166.6	70083.2	2.17	20641	70083.2	40	40	40	140	140	140	372	10046	10046	10046
3 OF 6	263+00	311+00	78	117321.6	58660.8	1.82	17277	58660.8	130	130	130	140	140	140	381	10306	10306	10306
4 OF 6	311+00	336+00		61080.8	30540.4	0.95	8995	30540.4	90	90	90				188	5082	5082	5082
SUBTOTAL			78	372970.4	186485.2	5.79	54923	186485.2	300	300	300	280	280	280	1123	30314	30314	30314
CSJ: 0018-06-148																		
1 OF 6	186+00	210+00	67	58660.8	29330.4	0.91	8639	29330.4	60	60	60				182	4910	4910	4910
SUBTOTAL			67	58660.8	29330.4	0.91	8639	29330.4	60	60	60				182	4910	4910	4910
CSJ: 0018-05-62																		
4 OF 6	336+00	359+00	145	75116.8	37558.4	1.16	11062	37558.4	220	220	220	140	140	140	193	5204	5204	5204
5 OF 6	359+00	399+00		127582.4	63791.2	1.98	18788	63791.2	40	40	40	140	140	140	314	8460	8460	8460
6 OF 6	416+00	453+50		129228.0	64614.0	2.00	19030	64614.0	250	250	250	140	140	140	293	7904	7904	7904
SUBTOTAL			145	331927.2	165963.6	5.14	48880	165963.6	510	510	510	420	420	420	800	21568	21568	21568
CSJ: 0018-05-63																		
5 OF 6	399+00	407+00		27781.6	13890.8	0.43	4091	13890.8	20	20	20				46	1220	1220	1220
6 OF 6	407+00	416+00	4197	27975.2	13987.6	0.43	4120	13987.6	40	40	40				45	1218	1218	1218
SUBTOTAL			4197	55756.8	27878.4	0.86	8211	27878.4	60	60	60				91	2438	2438	2438
GRAND TOTAL			4484	819315.2	409657.6	12.70	120653	409657.6	930	930	930	700	700	700	2196	59230	59230	59230

* FOR CONTRACTOR'S INFORMATION ONLY.

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF SW3P QUANTITIES

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		72
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/19/2003 HOUFILE023 \hciwil\cf0130\ b36qsp12.dgn-12

TEMPORARY PAVEMENT TMPPVMT (PHASE II STEP 1A)

DESCRIPTION		STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
			N 36°18'09.56" E							
	PC	0+00.00		17,129,499.3397	667,764.1191					
TMPPVMT-1	PI	0+41.18		17,129,532.5298	667,788.5020	0°40'07.34"	8,568.17	82.37	41.18	0°33'02.85" (LT)
	PT	0+82.37		17,129,565.9528	667,812.5647					
			N 35°45'06.71" E							
	PC	0+82.37		17,129,565.9528	667,812.5647					
TMPPVMT-2	PI	1+41.13		17,129,613.6453	667,846.9008	0°40'07.34"	8,568.16	117.53	58.77	0°47'09.39" (LT)
	PT	1+99.90		17,129,661.8044	667,880.5795					
			N 34°57'57.32" E							
	PC	1+99.90		17,129,661.8044	667,880.5795					
TMPPVMT-3	PI	2+49.49		17,129,702.4462	667,909.0012	0°40'07.34"	8,568.16	99.19	49.60	0°39'47.76" (LT)
	PT	2+99.07		17,129,743.4143	667,936.9505					
			N 34°18' 09.56" E							

TEMPORARY SB RAMP TRSB 2 (PHASE II STEP 1A)

DESCRIPTION		STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
			N 34°16'42.42" E							
	PC	10+00.00		17,129,738.4066	667,950.7250					
TRSB2-1	PI	11+66.58		17,129,876.0552	668,044.5466	2°00'00.00"	2,864.79	332.79	166.58	6°39'20.86" (RT)
	PT	13+32.79		17,130,001.9018	668,153.6901					
			N 40°56'03.28" E							
	PC	17+32.77		17,130,304.0731	668,415.7554					
TRSB2-2	PI	17+68.61		17,130,331.1468	668,439.2356	2°00'00.00"	2,864.79	71.67	35.84	1°26'00.29" (LT)
	PT	18+04.44		17,130,358.7993	668,462.0313					
			N 39°30'02.99" E							
	PC	27+70.25		17,131,104.0274	669,076.3681					
TRSB2-3	PI	28+33.54		17,131,152.8683	669,116.6306	2°00'00.00"	2,864.79	126.57	63.30	2°31'53.27" (LT)
	PT	28+96.82		17,131,203.4398	669,154.6966					
			N 36°58'09.72" E							

TEMPORARY NB RAMP TRNB 1 (PHASE IV STEP 6)

DESCRIPTION		STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
			N 11°27'08.59" E							
	PC	10+00.00		17,115,777.5936	663,352.0473					
TRNB1-1	PI	11+00.04		17,115,875.6424	663,371.9107	2°00'00.00"	2,864.79	200.00	100.04	4°00'00.00" (RT)
	PT	12+00.00		17,115,972.0668	663,398.5653					
			N 15°27'08.59" E							
	PC	19+41.32		17,116,686.5901	663,596.0808					
TRNB1-2	PI	20+41.59		17,116,783.2331	663,622.7958	2°00'00.00"	2,864.79	200.45	100.27	4°00'32.63" (LT)
	PT	21+41.77		17,116,881.5074	663,642.6887					
			N 11°26'35.96" E							

TEMPORARY SB RAMP TRSB 1 (PHASE IV STEP 6)

DESCRIPTION		STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
			N 11°27'08.60" E							
	PC	1+00.00		17,118,644.4831	663,838.9735					
TRSB1-1	PI	3+42.30		17,118,881.9554	663,887.0823	2°22'38.71"	2,410.00	482.97	242.30	11°28'55.98" (LT)
	PT	5+82.97		17,119,124.2518	663,886.9562					
			N 0°01'47.37" W							
	PC	5+82.97		17,119,124.2518	663,886.9562					
TRSB1-2	PI	6+40.18		17,119,181.4609	663,886.9264	81°51'04.00"	70.00	95.93	57.21	78°30'59.33" (LT)
	PT	6+78.90		17,119,192.8213	663,830.8565					
			N 78°32'46.71" W							

REF FILE(S): B50TCP1.BDR. bdr LV ON = 47.57.58.60-62

STATE OF TEXAS
MICHAEL A. SEXTON
87896
PROFESSIONAL ENGINEER

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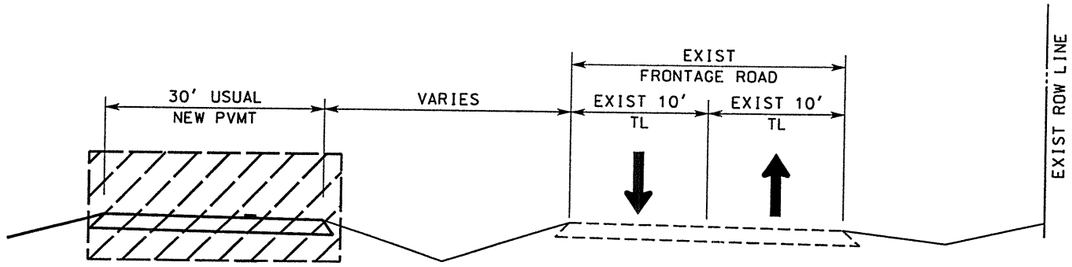
IH 35
LOOP 20 TO UNIROYAL ROAD

TEMPORARY TCP GEOMETRIC DATA SUMMARY

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		73
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50TGDP1.DGN-01 HOUFILE023 \hciv1\cf0130\ 04/18/03



PHASE II STEP 1A
SOUTHBOUND FRONTAGE ROAD

NTS

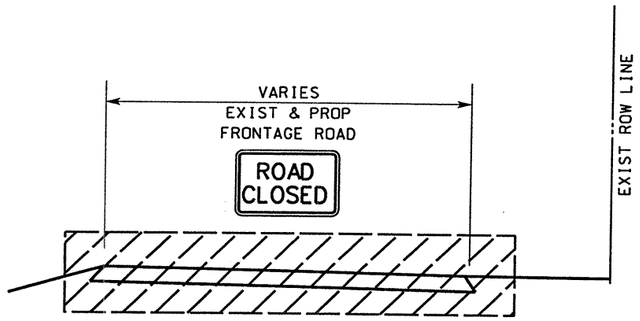
STA 325+00.00 (SBFR) TO STA 329+95.38 (SBFR)

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

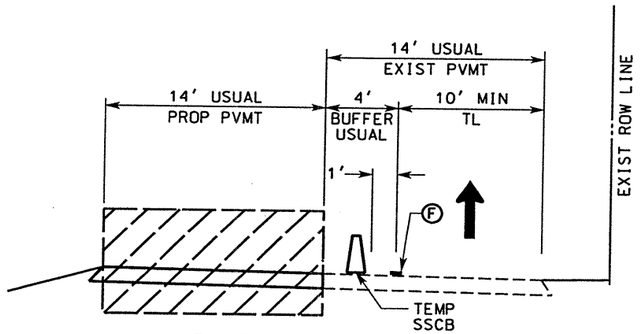
CONSTRUCTION AREA



PHASE II STEP 1B
SOUTHBOUND FRONTAGE ROAD

NTS

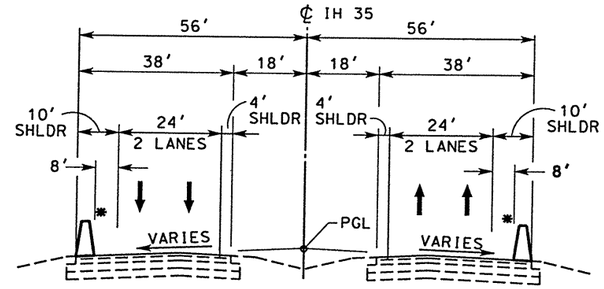
STA 329+95.38 (SBFR) TO STA 429+22.20 (SBFR)



PHASE II STEP 2A
SOUTHBOUND FRONTAGE ROAD

NTS

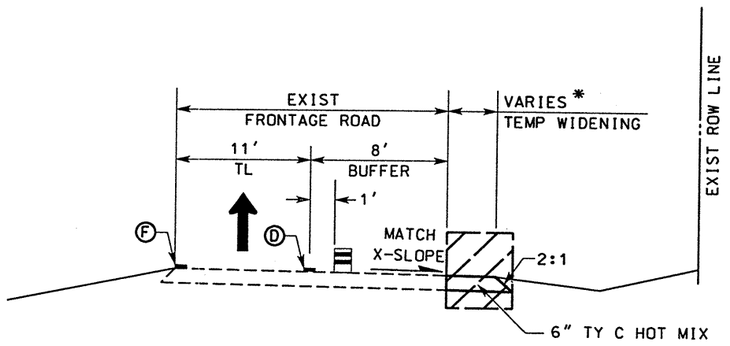
STA 243+50.00 (SBFR) TO STA 325+00.00 (SBFR)



PHASE II
MAINLANES TYPICAL SECTION

NTS

* BARRIER AND BARREL LIMITS AS SHOWN ON PLAN SHEETS. WHERE APPLICABLE DURING FRONTAGE ROAD CONSTRUCTION. BARRIER ~~SHALL BE~~ REMOVED AT THE END OF THE PHASE/STEP IT IS PLACED.

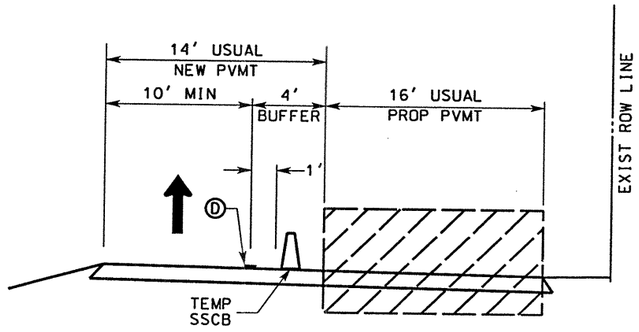


PHASE II STEP 1B
SOUTHBOUND FRONTAGE ROAD

NTS

STA 242+51.09 (SBFR) TO STA 324+00.00 (SBFR)

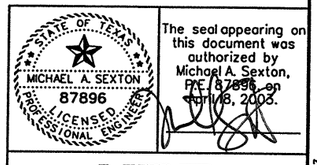
*WIDTH 8.5' FROM STA 244+37.89 (SBFR) TO STA 255+08.01 (SBFR)
WIDTH 3.0' FROM STA 255+08.01 (SBFR) TO STA 260+79.66 (SBFR)
WIDTH 2.0' FROM STA 285+55.25 (SBFR) TO STA 290+85.47 (SBFR)
AND FROM STA 298+62.08 (SBFR) TO STA 312+20.91 (SBFR)



PHASE II STEP 2B
SOUTHBOUND FRONTAGE ROAD

NTS

STA 243+50.00 (SBFR) TO STA 325+00.00 (SBFR)



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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE II

SHEET 1 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		74
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062- ETC	IH 35

04/18/03
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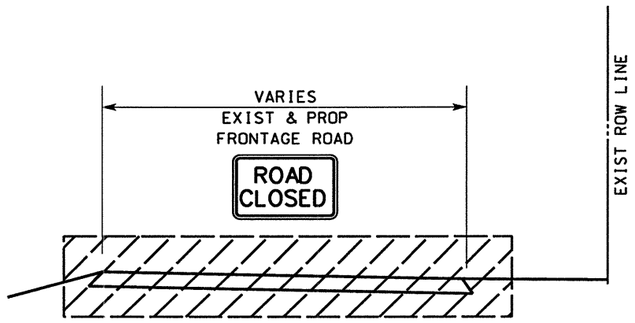
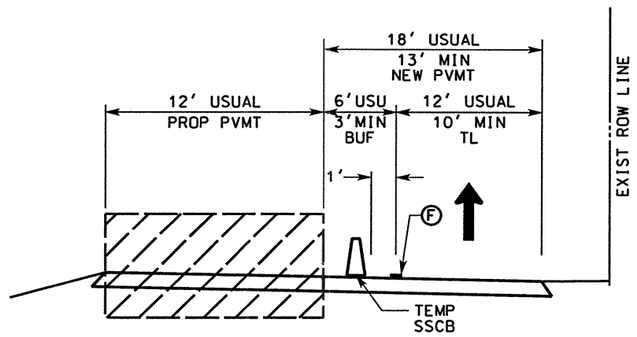


PHASE III STEP 1
NORTHBOUND FRONTAGE ROAD

NTS

STA 167+20.00 (NBFR) TO STA 257+66.50 (NBFR)



PHASE III STEP 3
NORTHBOUND FRONTAGE ROAD

NTS

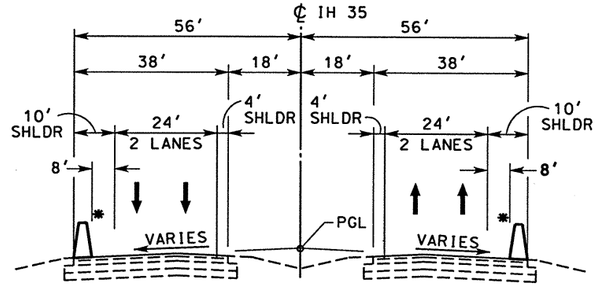
STA 257+66.50 (NBFR) TO STA 392+80.00 (NBFR)

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

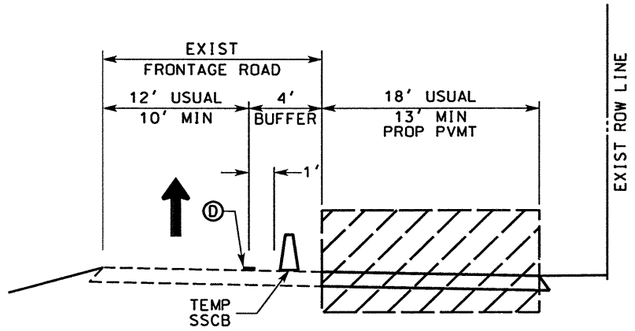
CONSTRUCTION AREA



PHASE III
MAINLANES TYPICAL SECTION

NTS

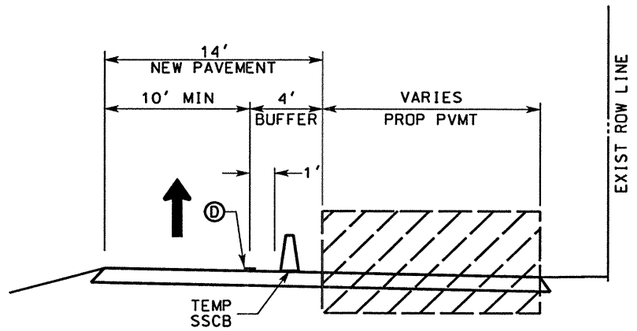
* BARRIER AND BARREL LIMITS AS SHOWN ON PLAN SHEETS. WHERE APPLICABLE DURING FRONTAGE ROAD CONSTRUCTION. BARRIER ~~SHALL BE~~ REMOVED AT THE END OF THE PHASE/STEP IT IS PLACED.



PHASE III STEP 2
NORTHBOUND FRONTAGE ROAD

NTS

STA 257+66.50 (NBFR) TO STA 271+16.46 (NBFR)
STA 280+59.33 (NBFR) TO STA 392+80.00 (NBFR)



PHASE III STEP 4
NORTHBOUND FRONTAGE ROAD

NTS

STA 271+16.46 (NBFR) TO STA 280+59.33 (NBFR)

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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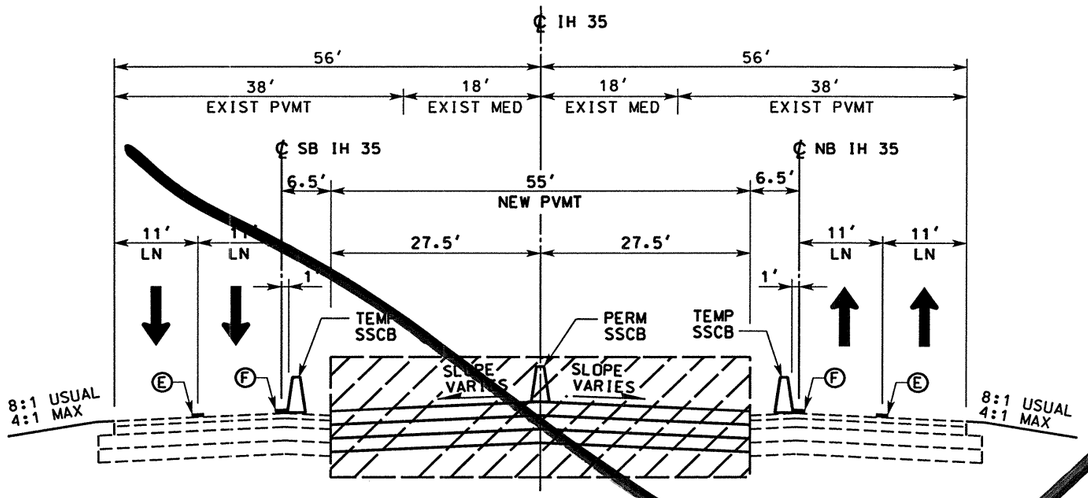
IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE III

SHEET 2 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		75
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

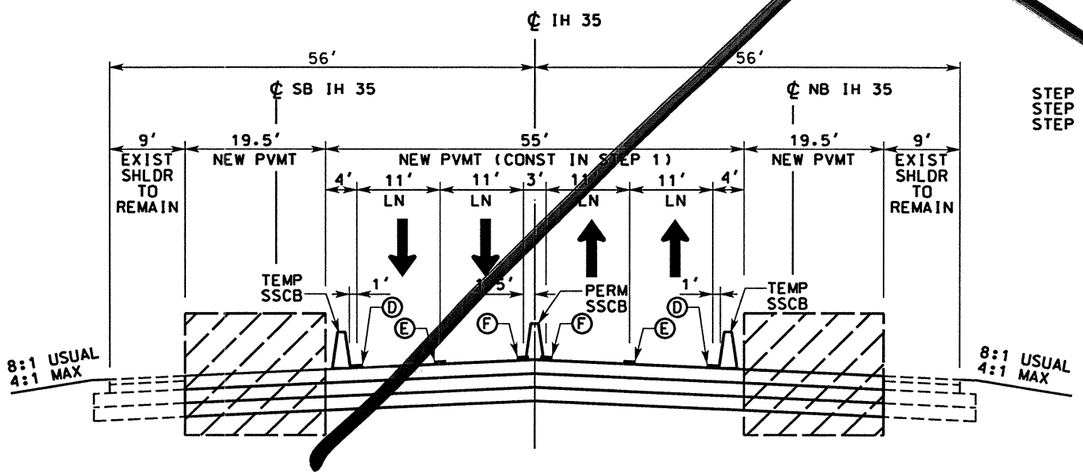
B50TYP01.dgn-03 HOUFILE023 \hciwil\cf0130\ 4/18/2003



PHASE IV TYPICAL SECTION INSIDE MAINLANES RECONSTRUCTION (STEPS 1,3 & 5)

NTS

STEP 1 STA 389+50.00 (ML) TO STA 453+50.00 (ML)
STEP 3 STA 291+27.36 (ML) TO STA 389+50.00 (ML)
STEP 5 STA 172+80.00 (ML) TO STA 291+27.36 (ML)



PHASE IV TYPICAL SECTION OUTSIDE MAINLANE W/O SHOULDER RECONSTRUCTION (STEPS 2, 4 & 6)

NTS

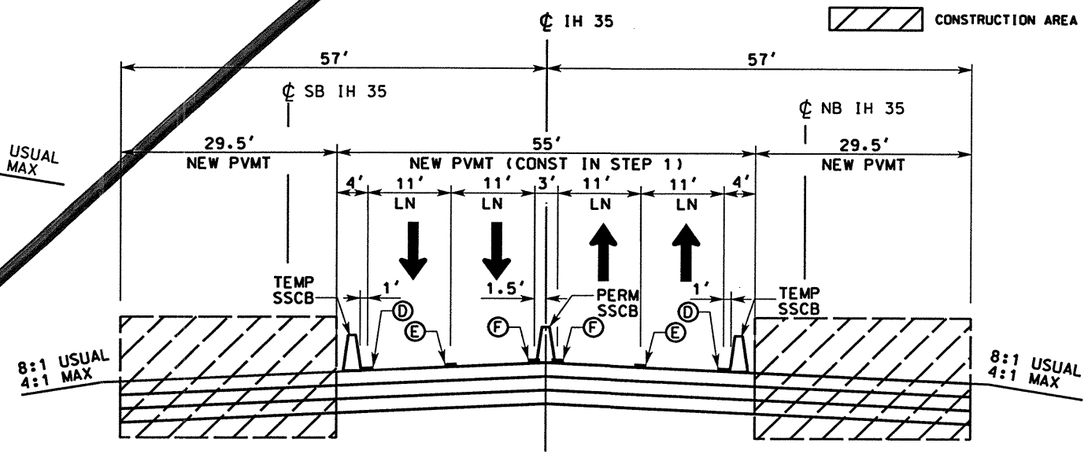
STEP 2A,2B&2C STA 396+50.00 (ML) TO STA 398+70.00 (ML)
STEP 4 STA 298+27.36 (ML) TO STA 344+47.59 (ML) & STA 366+66.52 (ML) TO STA 396+50.00 (ML)
STEP 6 STA 172+80.00 (ML) TO STA 244+71.50 (ML) & STA 291+27.36 (ML) TO STA 298+27.36 (ML)

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

CONSTRUCTION AREA



PHASE IV TYPICAL SECTION OUTSIDE MAINLANE W/ SHOULDER RECONSTRUCTION (STEPS 2, 4 & 6)

NTS

STEP 2A,2B&2C STA 398+70.00 (ML) TO STA 453+50.00 (ML)
STEP 4 STA 344+47.59 (ML) TO STA 366+66.52 (ML)
STEP 6 STA 244+71.50 (ML) TO STA 291+27.36 (ML)

see next

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE IV

SHEET 3 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		76
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
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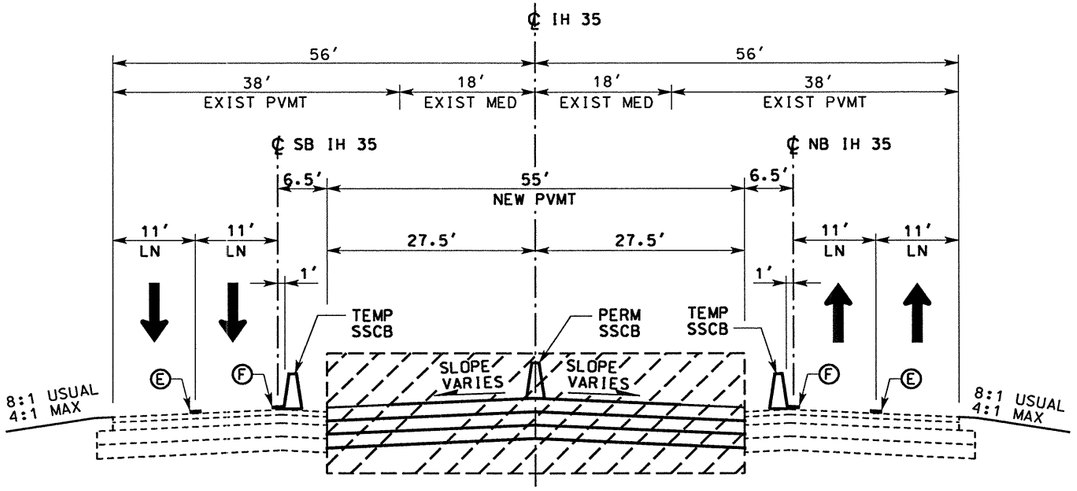
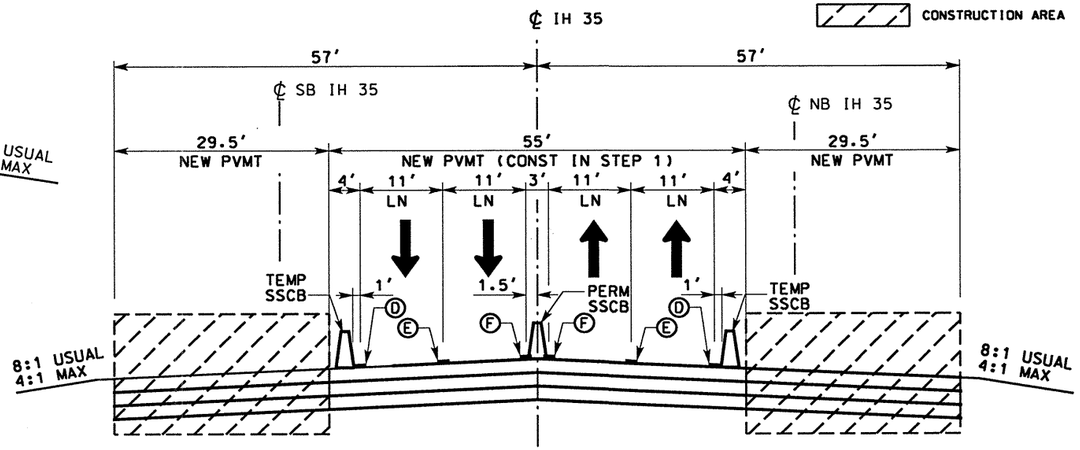


PHASE IV TYPICAL SECTION
INSIDE MAINLANES RECONSTRUCTION (STEPS 1,3 & 5)

NTS

STEP 1 STA 389+50.00 (ML) TO STA 453+50.00 (ML)
STEP 3 STA 291+27.36 (ML) TO STA 389+50.00 (ML)
STEP 5 STA 172+80.00 (ML) TO STA 291+27.36 (ML)

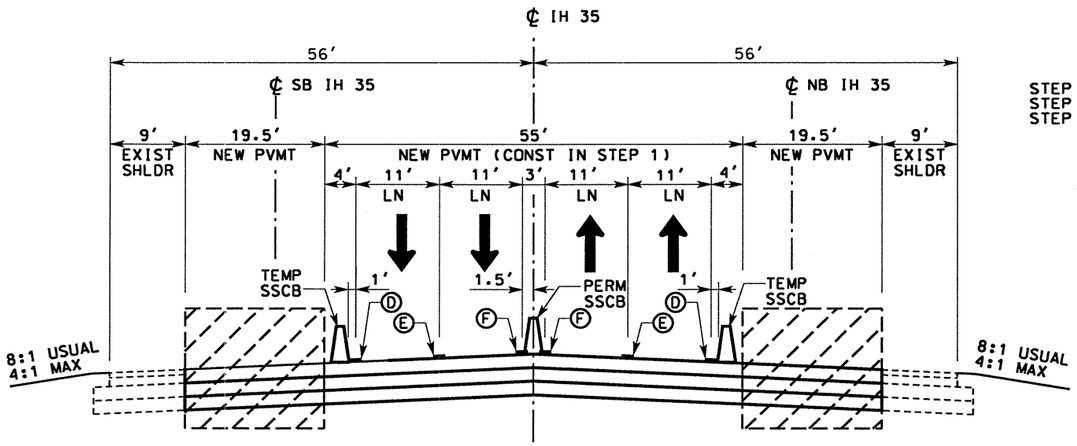


WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

CONSTRUCTION AREA



PHASE IV TYPICAL SECTION
OUTSIDE MAINLANE W/ SHOULDER RECONSTRUCTION (STEPS 2, 4 & 6)

NTS

STEP 2A.2B&2C STA 396+50.00 (ML) TO STA 398+70.00 (ML)
STEP 4 STA 298+27.36 (ML) TO STA 344+47.59 (ML) & STA 366+66.52 (ML) TO STA 396+50.00 (ML)
STEP 6 STA 172+80.00 (ML) TO STA 244+71.50 (ML) & STA 291+27.36 (ML) TO STA 298+27.36 (ML)

PHASE IV TYPICAL SECTION
OUTSIDE MAINLANE W/ SHOULDER RECONSTRUCTION (STEPS 2, 4 & 6)

NTS

STEP 2A.2B&2C STA 398+70.00 (ML) TO STA 453+50.00 (ML)
STEP 4 STA 344+47.59 (ML) TO STA 366+66.52 (ML)
STEP 6 STA 244+71.50 (ML) TO STA 291+27.36 (ML)

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE IV

SHEET 3 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		76
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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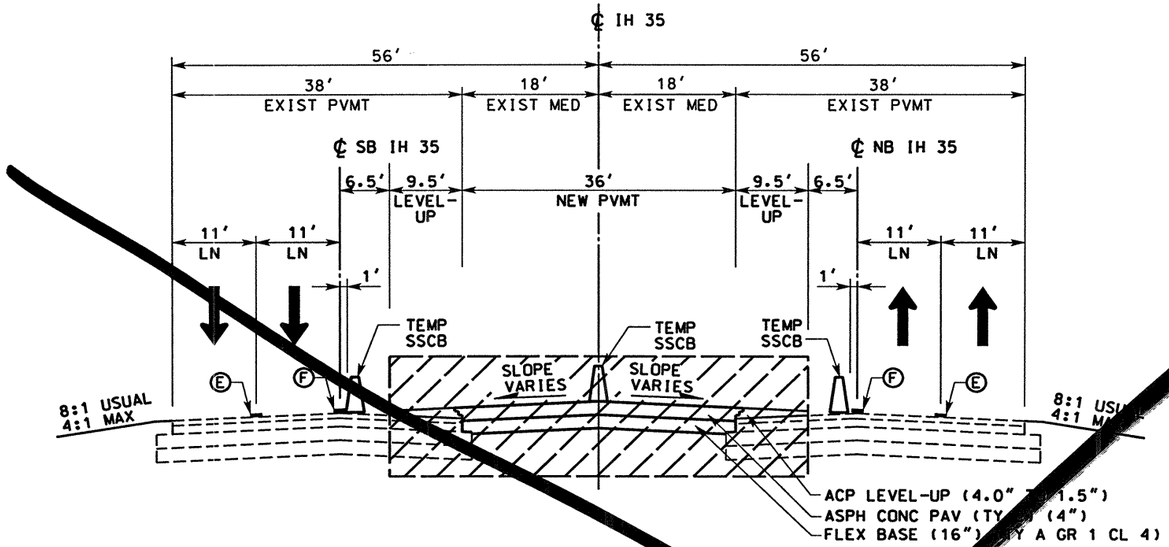
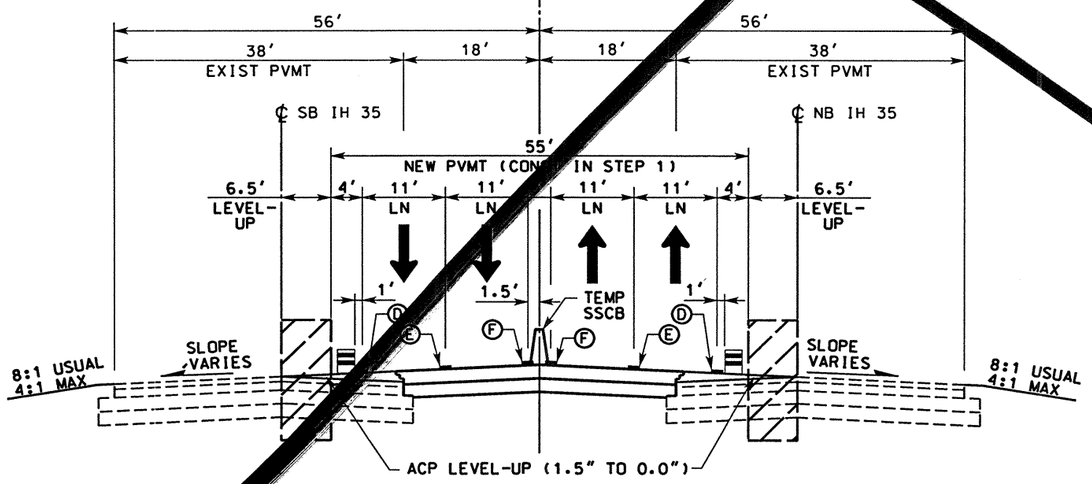


PHASE IV (NORTH DETOUR SECTION)
TYPICAL SECTION (MAINLANES)

NTS

STEP 1 STA 453+50.00 (ML) TO STA 460+50.00 (ML)



PHASE IV (NORTH DETOUR SECTION)
TYPICAL SECTION (MAINLANES)

NTS

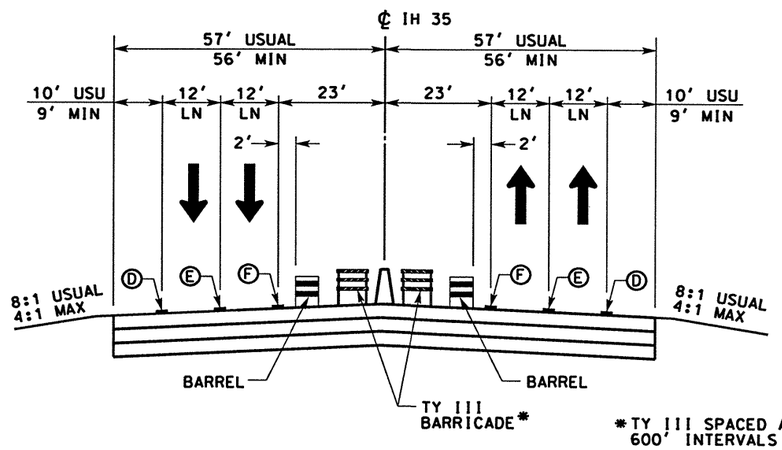
STEP 2B STA 453+50.00 (ML) TO STA 460+50.00 (ML)

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

CONSTRUCTION AREA



*TY III SPACED AT 600′ INTERVALS

PHASE IV (COMPLETED AREAS**)
TYPICAL SECTION (MAINLANES)

NTS

STEP 3 STA 400+50.00 (ML) TO STA 459+30.00 (ML)
STEP 4 STA 403+50.00 (ML) TO STA 459+30.00 (ML)
STEP 5 STA 302+27.36 (ML) TO STA 459+30.00 (ML)
STEP 6 STA 305+27.36 (ML) TO STA 459+30.00 (ML)
STEP 7 STA 165+60.00 (ML) TO STA 459+30.00 (ML)
STEP [illegible] STA 165+60.00 (ML) TO STA 459+30.00 (ML)

** COMPLETED AREAS ARE THOSE AREAS COMPLETED IN A PREVIOUS STEP.

see next

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE IV

SHEET 4 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		77
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

4/18/2003
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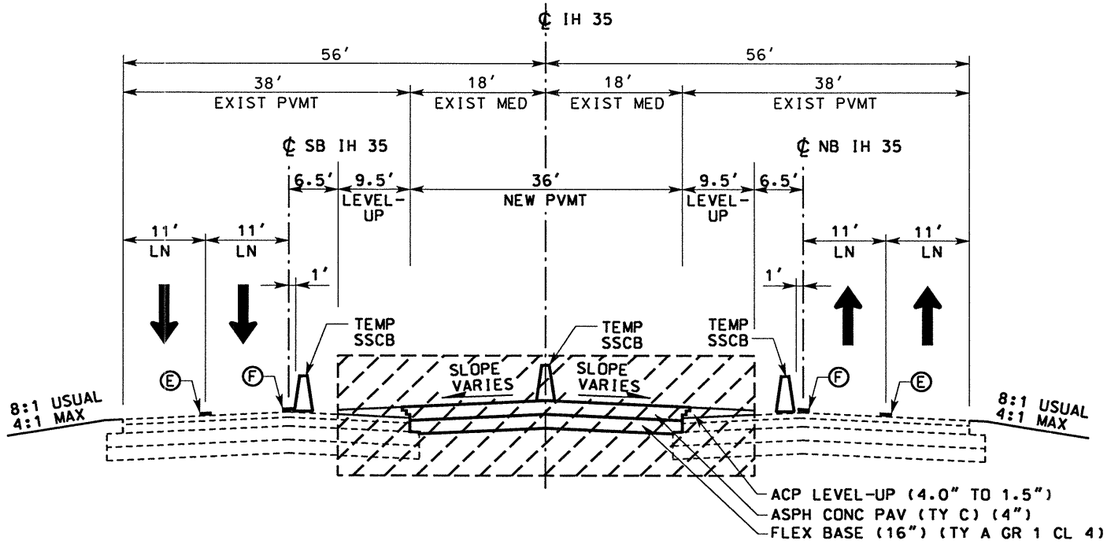
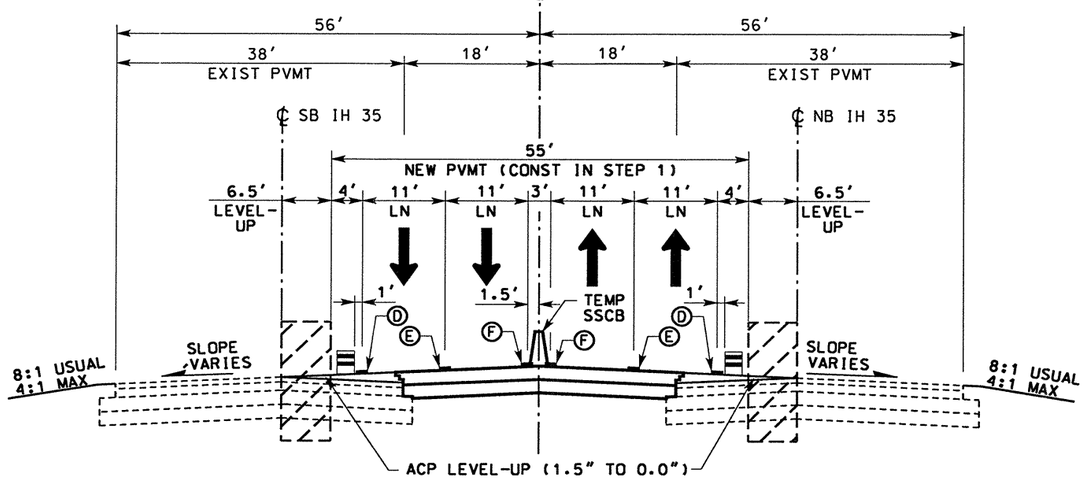


PHASE IV (NORTH DETOUR SECTION) TYPICAL SECTION (MAINLANES)

NTS

STEP 1 STA 453+50.00 (ML) TO STA 460+50.00 (ML)



PHASE IV (NORTH DETOUR SECTION) TYPICAL SECTION (MAINLANES)

NTS

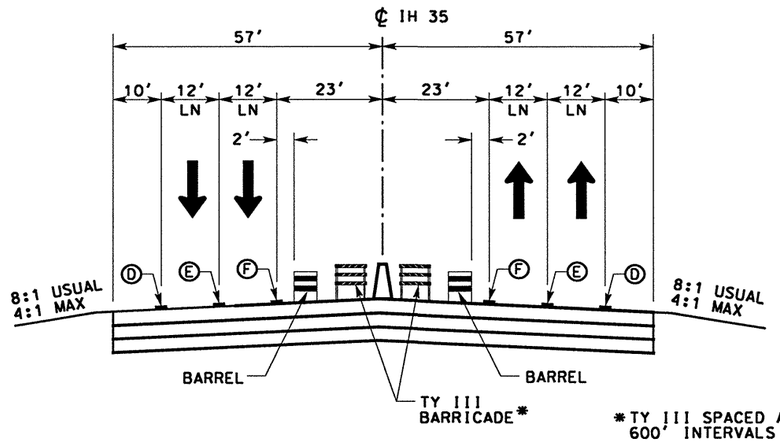
STEP 2B STA 453+50.00 (ML) TO STA 460+50.00 (ML)

WORK ZONE PAVEMENT MARKINGS

Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

CONSTRUCTION AREA



*TY III SPACED AT 600' INTERVALS

PHASE IV (COMPLETED AREAS**) TYPICAL SECTION (MAINLANES)

NTS

STEP 3 STA 400+50.00 (ML) TO STA 459+30.00 (ML)
STEP 4 STA 403+50.00 (ML) TO STA 459+30.00 (ML)
STEP 5 STA 302+27.36 (ML) TO STA 459+30.00 (ML)
STEP 6 STA 305+27.36 (ML) TO STA 459+30.00 (ML)
STEP 7 STA 165+60.00 (ML) TO STA 459+30.00 (ML)
STEP 8 STA 165+60.00 (ML) TO STA 459+30.00 (ML)

** COMPLETED AREAS ARE THOSE AREAS COMPLETED IN A PREVIOUS STEP.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

STATE OF TEXAS
MICHAEL A. SEXTON
87898
LICENSED PROFESSIONAL ENGINEER

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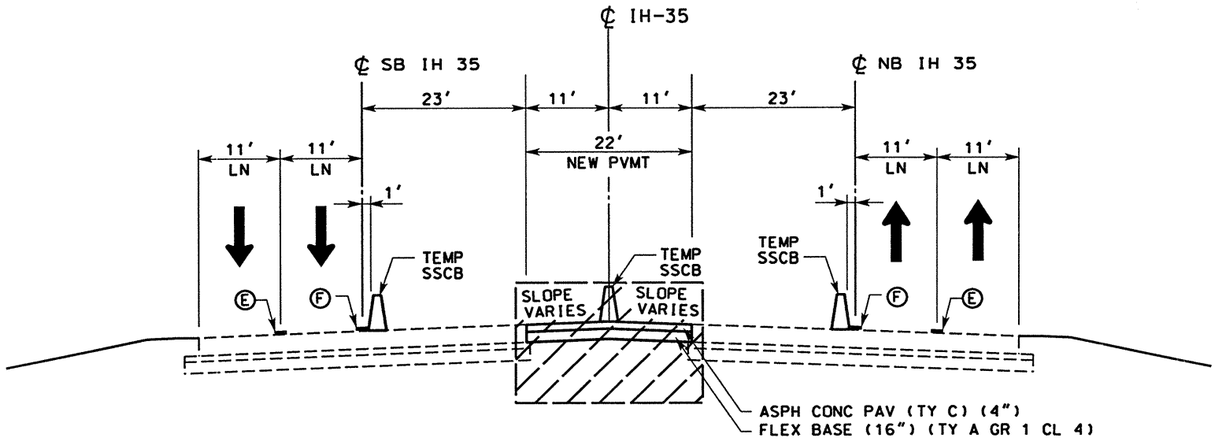
IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE IV

SHEET 4 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		77
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

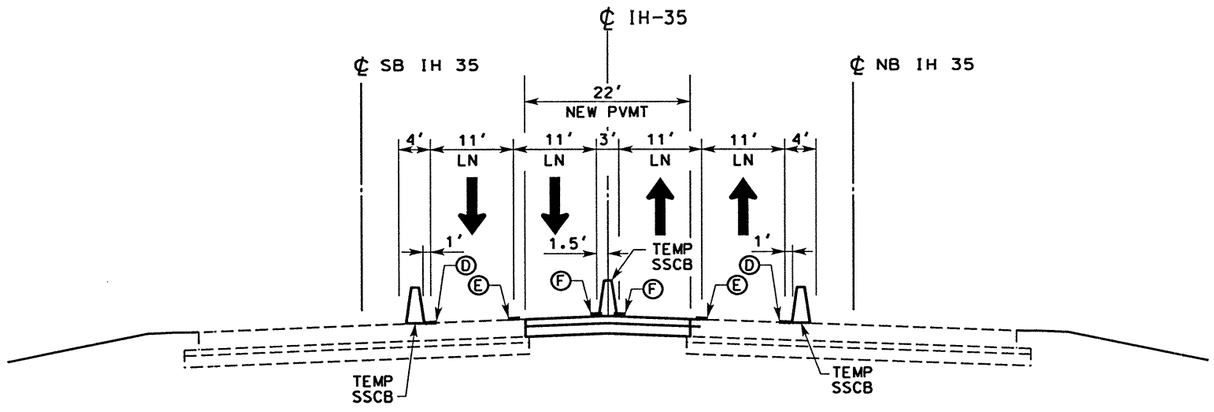
B50TYP01.dgn-04 HOUFILE023 \hcivih\c10130\ $DATE$



PHASE IV (SOUTH DETOUR SECTION)
TYPICAL SECTION (MAINLANES)

NTS

STEP 5 STA 165+80.00 (ML) TO STA 172+80.00 (ML)



PHASE IV (SOUTH DETOUR SECTION)
TYPICAL SECTION (MAINLANES)

NTS

STEP 6 STA 165+80.00 (ML) TO STA 172+80.00 (ML)

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

CONSTRUCTION AREA

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE IV

SHEET 5 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		78
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	063 ETC	IH 35

4/18/2003
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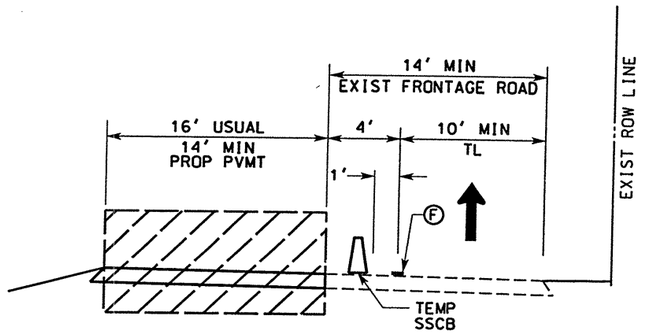
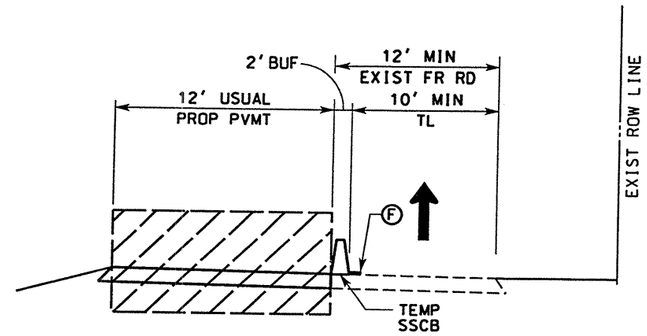


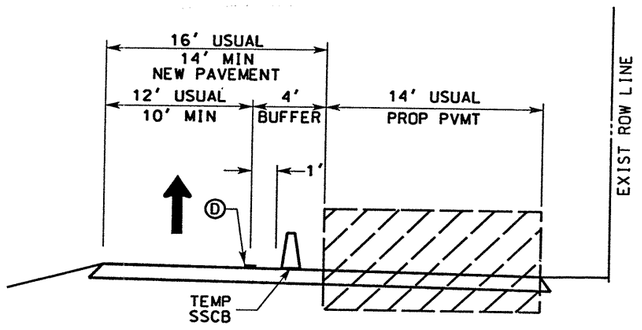
PHASE IV STEP 2B
NORTHBOUND FRONTAGE ROAD
NTS

STA 417+65.99 (NBFR) TO STA 434+87.81 (NBFR)



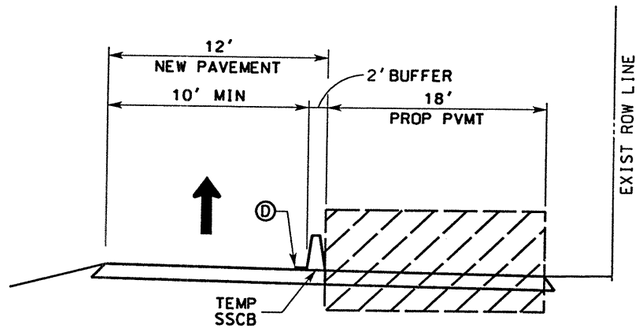
PHASE IV STEP 2B
SOUTHBOUND FRONTAGE ROAD
NTS

STA 429+22.20 (SBFR) TO STA 436+36.94 (SBFR)



PHASE IV STEP 2C
NORTHBOUND FRONTAGE ROAD
NTS

STA 417+65.99 (NBFR) TO STA 434+87.81 (NBFR)



PHASE IV STEP 2C
SOUTHBOUND FRONTAGE ROAD
NTS

STA 429+22.20 (SBFR) TO STA 436+36.94 (SBFR)

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

CONSTRUCTION AREA

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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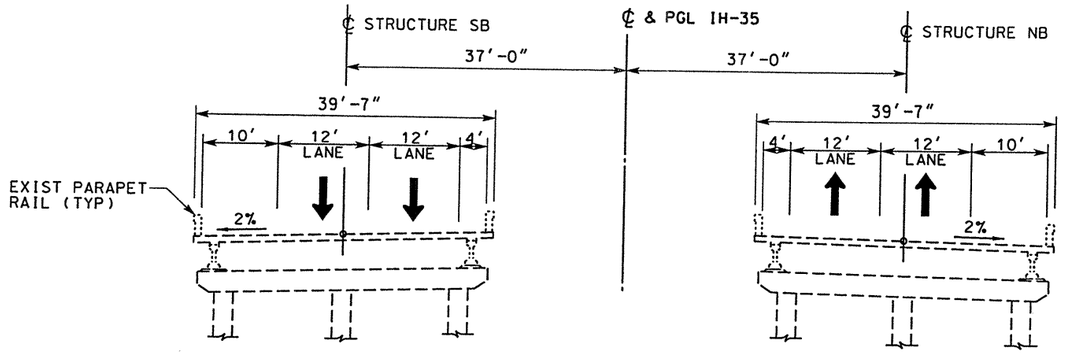
IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE IV

SHEET 6 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	79
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO

50TYP01.dgn-03 HOUFILE023 \hciwin\c\0130\ 04/18/03



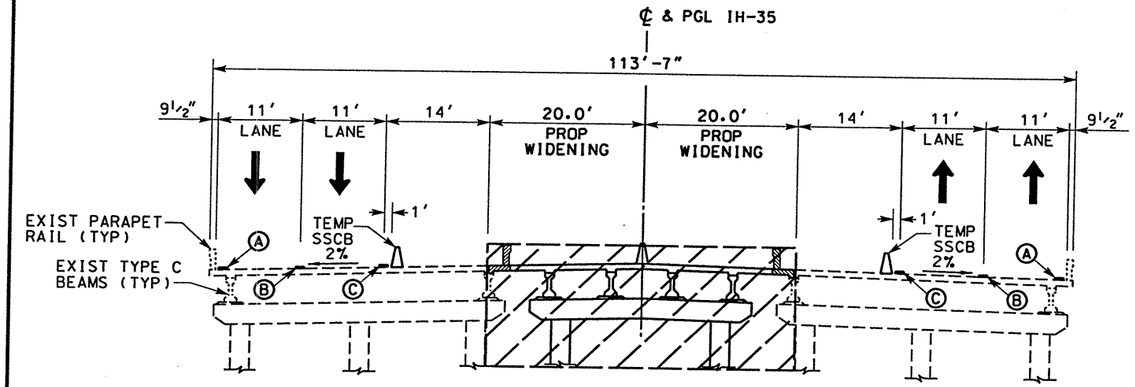
EXISTING

WORK ZONE PAVEMENT MARKINGS

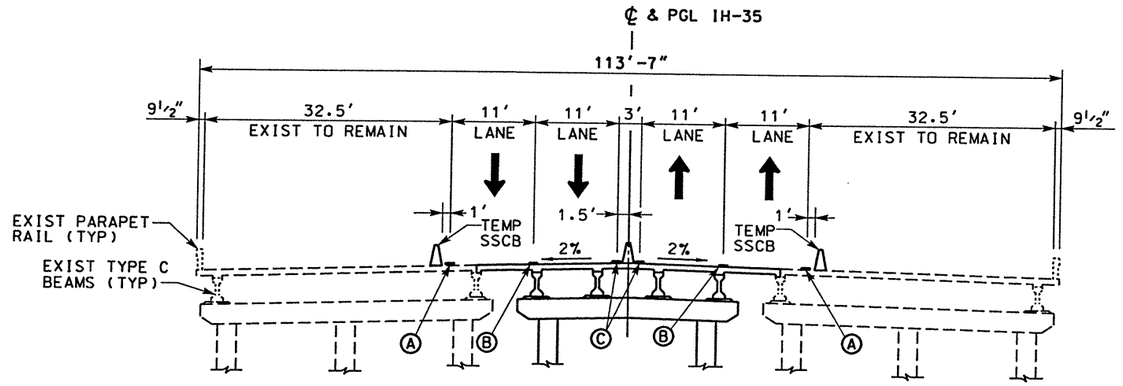
- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

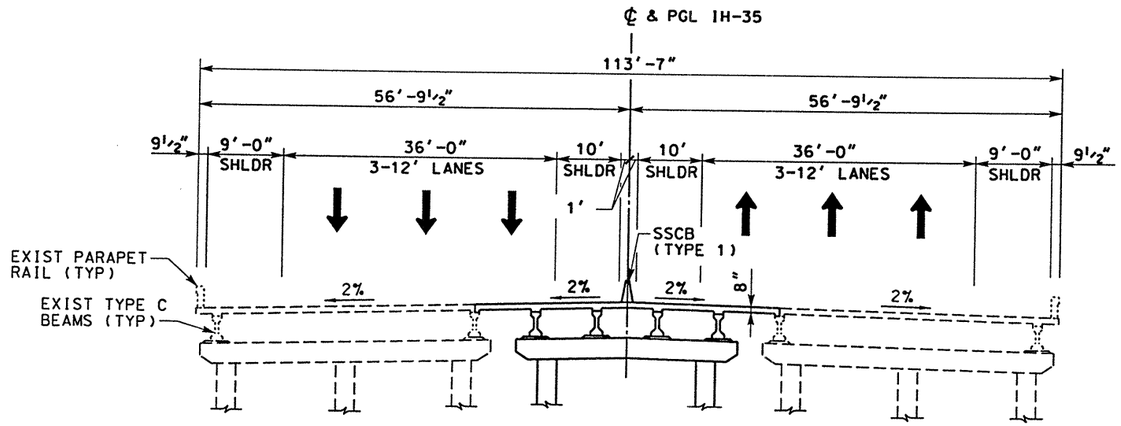
CONSTRUCTION AREA



DURING CONSTRUCTION (PHASE IV STEP1)



DURING CONSTRUCTION (PHASE IV STEP 2B & 2C)



TYPICAL TRANSVERSE SECTION

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
UNIROYAL ROAD BRIDGE
CONSTRUCTION PHASING
TYPICAL SECTIONS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	80
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO

04/18/03

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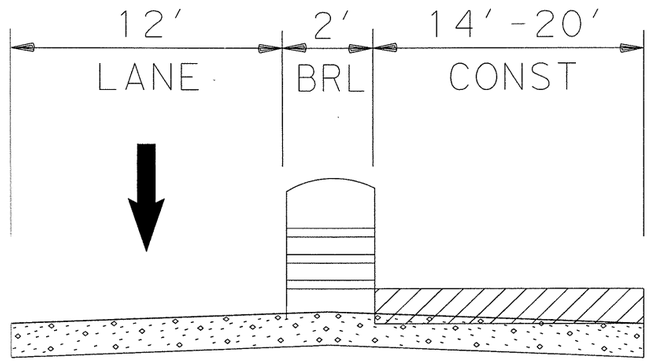
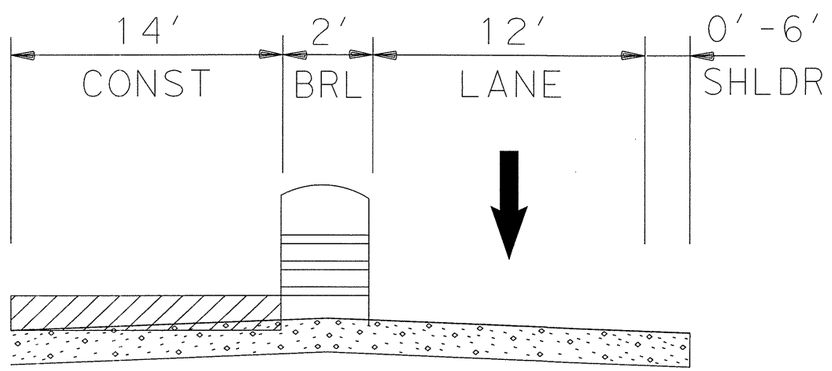


PHASE I



PHASE II

IH35 SBFR
@ UNIROYAL AND IH35
CONSTRUCTION TYPICAL SECTION
STA. 437+58 TO STA. 441+58

N.T.S.

Change Order 27

STATE OF TEXAS
JESUS SAAVEDRA
92098
LICENSED
PROFESSIONAL ENGINEER

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TEXAS DEPARTMENT OF TRANSPORTATION

I.H. 35

TYPICAL SECTIONS

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	NH 2002(79)		
STATE	STATE DIST. NO.	COUNTY	SCALE
TEXAS	22	WEBB	
CONT	SECT	JOB	HIGHWAY NO.
0018	05	062, etc.	IH 35

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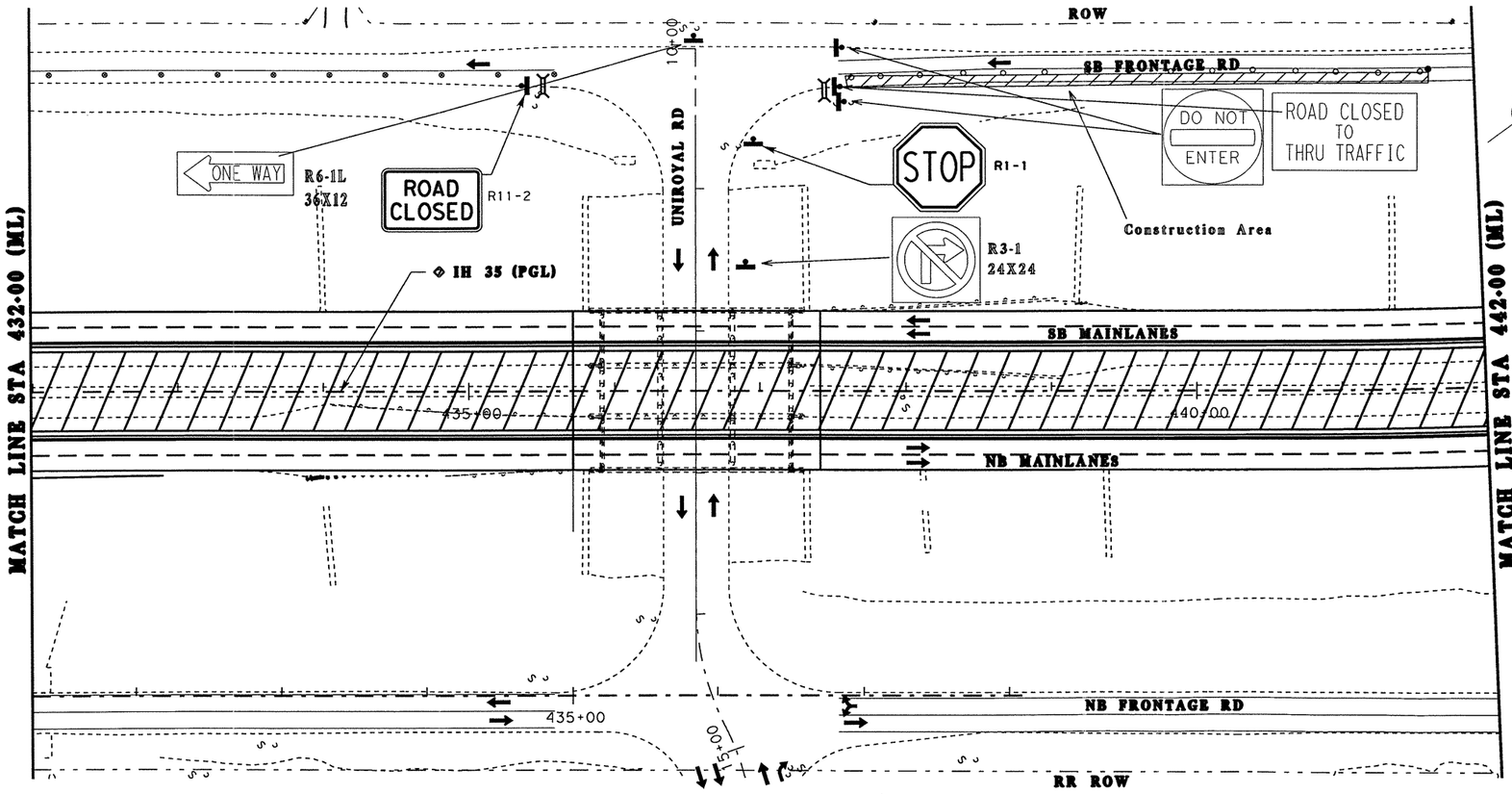

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

Change Order 27

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
JESUS SAAVEDRA
92098
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

TRAFFIC CONTROL

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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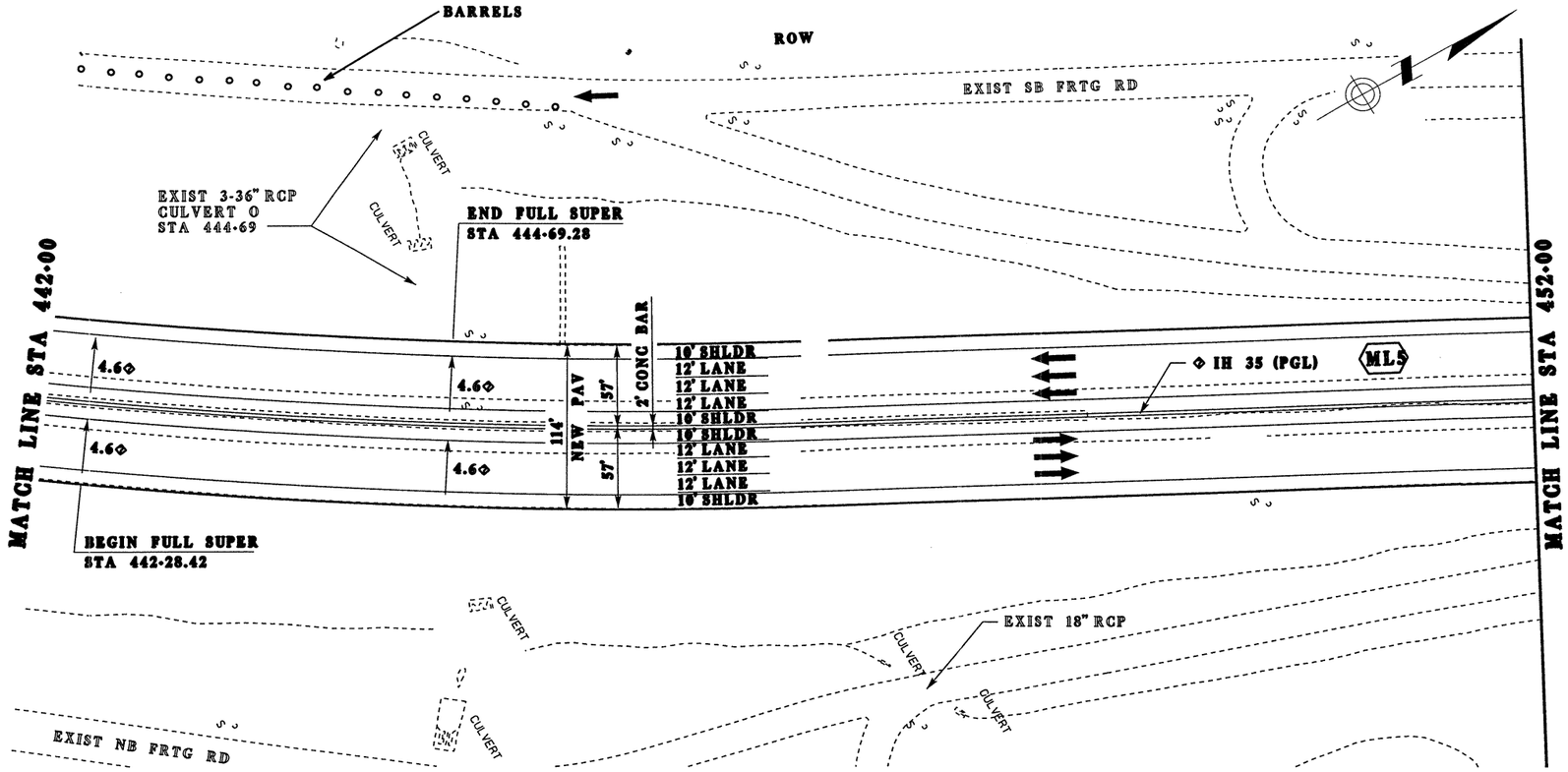

Change Order 27

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
JESUS SAAVEDRA
92098
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROA

TRAFFIC CONTROL

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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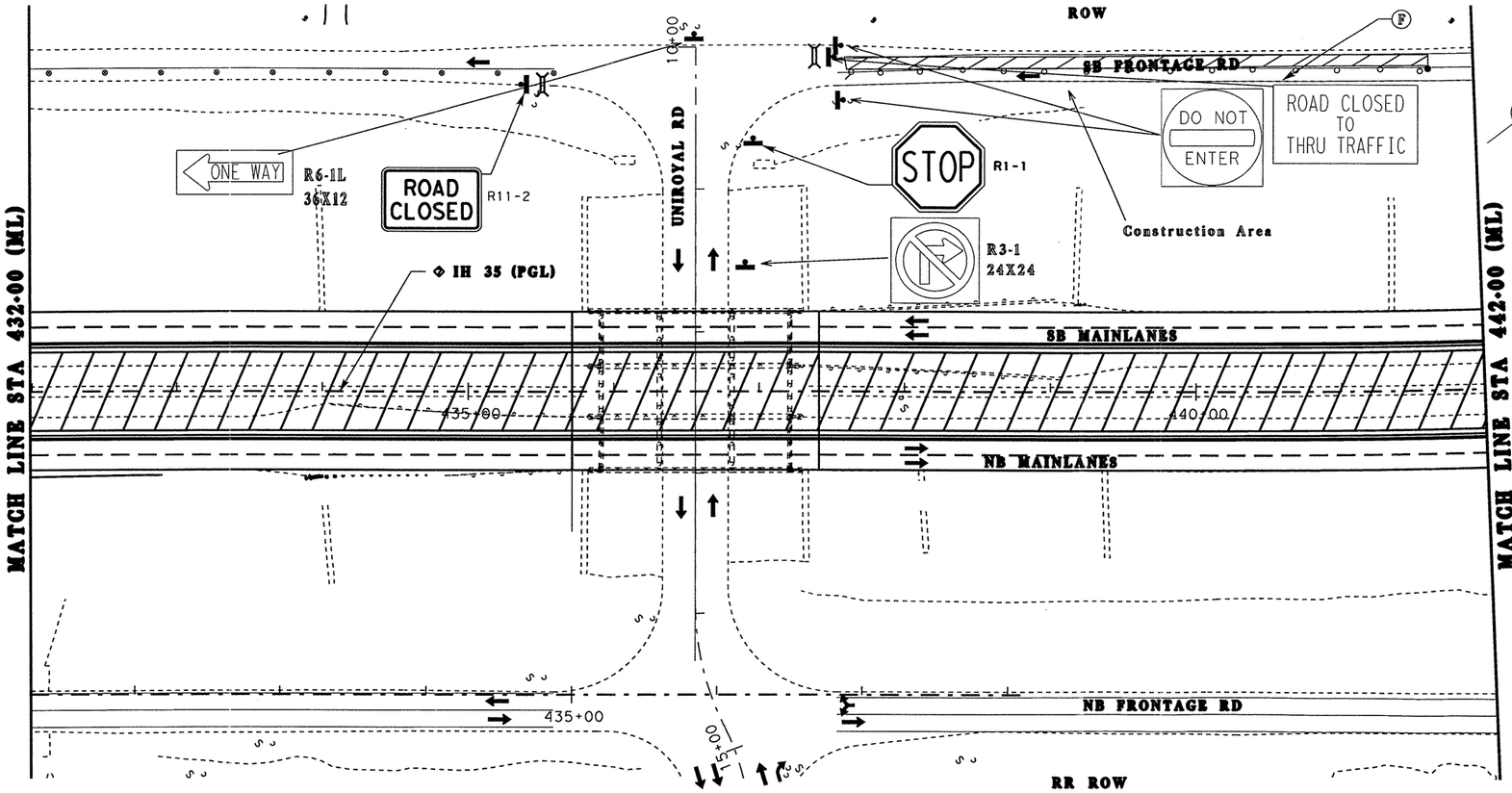

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

Change Order 27

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
JESUS SAAVEDRA
92098
PROFESSIONAL LICENSED ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROA

TRAFFIC CONTROL

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P41804.dgn-03OUFILE023 \\hc\i\cf0130\ $DATE$

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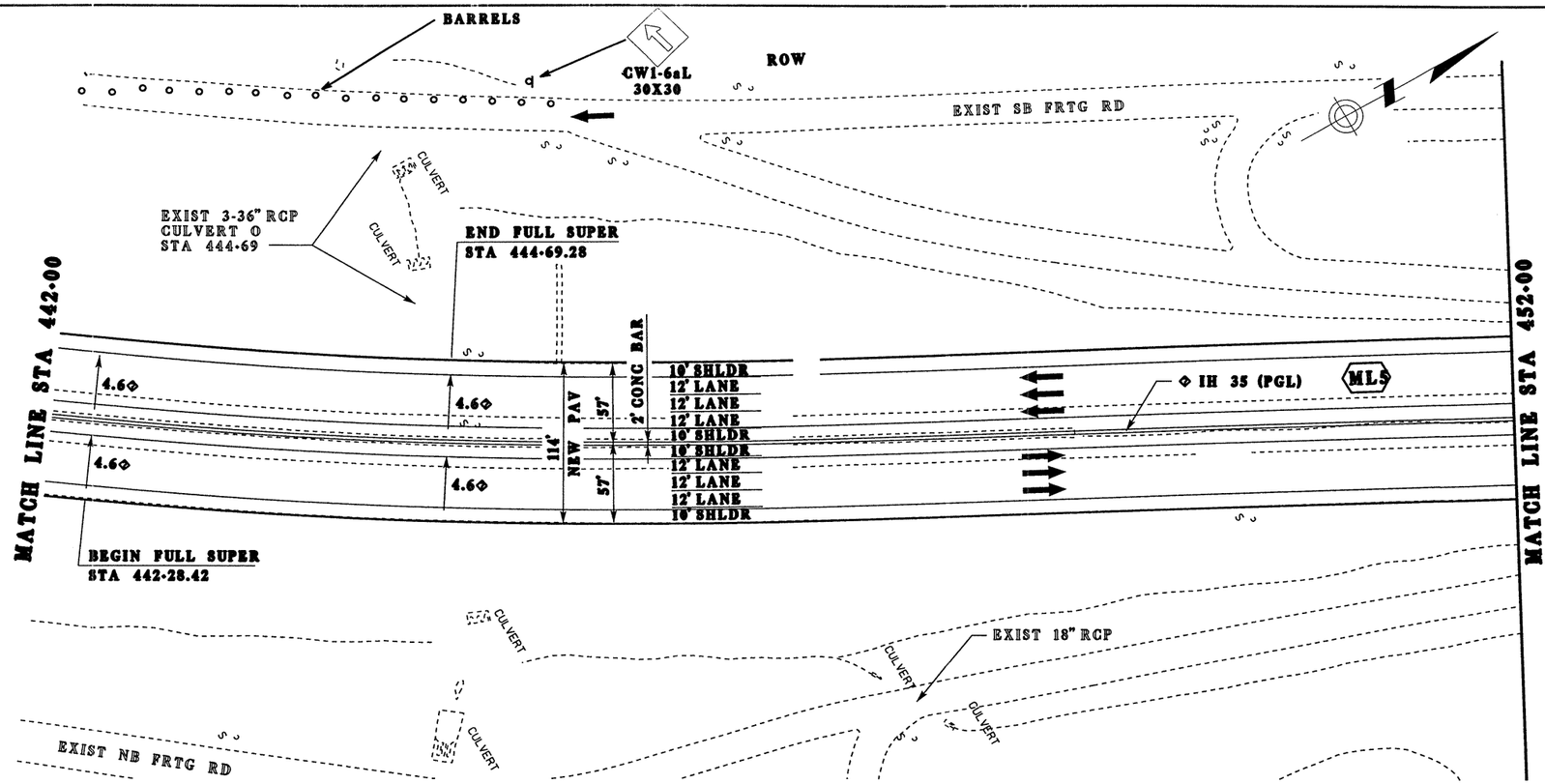

Change Order 27

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
JESUS SAAVEDRA
92098
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

TRAFFIC CONTROL

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j0llop01.pro, pr0 LV ON - 12,13,35
j0llop01.drn, drn LV ON - 8,28

HOUFILE023 \ncf\01301\ $DATE$

GENERAL

1.) THIS SUGGESTED TRAFFIC CONTROL PLAN IS SUBMITTED FOR THE CONTRACTOR'S CONSIDERATION. THE CONTRACTOR MAY SUBMIT AN ALTERNATE CONSTRUCTION SEQUENCE AND TRAFFIC CONTROL PLAN TO THE ENGINEER FOR CONSIDERATION. ALTERNATE PLANS MUST BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN TEXAS.

2.) THE SUGGESTED TRAFFIC CONTROL PLAN HAS BEEN DIVIDED INTO SIX (6) PHASES OF CONSTRUCTION. THE VARIOUS PHASE SEQUENCES SHALL REQUIRE DETOURS, LANE DETOUR TRANSITIONS, AND LANE CLOSURE TRANSITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL CONFLICTING PAVEMENT MARKINGS AND COVERING CONFLICTING SIGNING, AS WELL AS INSTALLING THE REQUIRED TEMPORARY CONCRETE TRAFFIC BARRIERS AND/OR CHANNELING DEVICES WITH APPROPRIATE CONSTRUCTION PAVEMENT MARKINGS AND CONSTRUCTION WARNING SIGNS AS SHOWN ON THE TRAFFIC CONTROL PLAN SHEETS, THE BARRICADES AND CONSTRUCTION STANDARD SHEETS, THE TMUTCD, OR AS DIRECTED BY THE ENGINEER, SINCE THE TRAFFIC CONTROL PLAN IS COMPLEX DUE TO THE VARIOUS PHASES AND SEQUENCES OF WORK INVOLVED, THE CONTRACTOR SHALL BE REQUIRED TO ASSIGN A KNOWLEDGEABLE AND RESPONSIBLE TRAFFIC CONTROL PERSON TO PROVIDE COORDINATION IN THIS REGARD WITH HIS WORK FORCES, SUB-CONTRACTORS, AND WITH THE DEPARTMENT. MOVING FROM ONE PHASE OR SEQUENCE TO ANOTHER SHALL REQUIRE ADVANCE COMPREHENSIVE PLANNING AND COORDINATION WITH THE ENGINEER SO AS TO MAXIMIZE SAFETY AND MINIMIZE INCONVENIENCE FOR THE TRAVELING PUBLIC.

3.) THE IH 35 MAINLANES ARE TO BE SIGNED FOR A WORK ZONE SPEED OF 60 MPH AND FRONTAGE ROADS FOR 40 MPH AS NOTED ON THE PLANS, ADVISORY SPEED SIGNS IN SUFFICIENT NUMBER AS DETERMINED BY THE ENGINEER SHALL BE FURNISHED IN ALL OTHER AREAS OF THE PROJECT.

4.) UPON COMPLETION OF THE PROJECT THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS AND ELEMENTS NOT SET UP FOR RECONSTRUCTION TO THEIR ORIGINAL CONDITION, AND ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE PROJECT.

5.) LEVEL UP OPERATIONS IN DETOUR AREAS, AS NOTED, SHALL OCCUR PRIOR TO SWITCHING TRAFFIC TO THE SECTION COMPLETED IN THE PREVIOUS STEP. WORK ZONE TRAFFIC HANDLING SHALL BE IN ACCORDANCE WITH THE TxMUTCD, TCP (3-2)-98 AND AS DIRECTED BY THE ENGINEER. EDGE DROP OFFS SHALL REQUIRE THE USE OF CW8-11 SIGNS PLACED AS DIRECTED BY THE ENGINEER.

6.) ALL CONSTRUCTION TRAFFIC SHALL BE REGULATED SO AS TO CAUSE A MINIMUM OF INCONVENIENCE TO THE TRAVELING PUBLIC. AT THE TIMES WHEN IT IS NECESSARY FOR TRUCKS TO STOP, UNLOAD OR CROSS ROADWAYS UNDER TRAFFIC, WARNING SIGNS AND FLAGGERS SHALL BE PROVIDED AS NECESSARY TO ADEQUATELY PROTECT PUBLIC TRAVEL.

7.) UPON COMPLETION OF THE PROJECT, THE PROJECT AREAS SHALL BE THOROUGHLY CLEANED OF ALL CONSTRUCTION MATERIALS, AND ALL STOCKPILE LOCATIONS ADEQUATELY CLEAND TO A FINAL ACCEPTANCE BEFORE BARRICADES MAY BE REMOVED FROM THE PROJECT.

SAFETY

1.) ONE HIGH-INTENSITY, YELLOW ROTATING DOME LIGHT SHALL BE REQUIRED ON ALL EQUIPMENT SUCH AS DISTRIBUTORS, SPREADER BOXES, LAY-DOWN MACHINES, ROLLERS, BACK HOES, ROAD GRADERS, LOADERS, ETC. THE LIGHT SHALL BE MOUNTED HIGH ENOUGH TO BE VISIBLE FROM ALL DIRECTIONS AND SHALL BE USED WHEN THE EQUIPMENT IS WITHIN 30 FEET OF THE TRAVELWAY. ALL OTHER EQUIPMENT SUCH AS TRUCKS, TRAILERS, AUTOS, ETC., SHALL BE EQUIPPED WITH EMERGENCY FLASHERS AND THE FLASHERS SHALL BE USED WHILE WITHIN THE WORK ZONE.

2.) THE CONTRACTOR SHALL PROVIDE OFF-DUTY UNIFORMED LAW ENFORCEMENT OFFICERS, WITH JURISDICTION ON THE PROJECT (NUMBER TO BE DETERMINED BY THE ENGINEER) FOR TRAFFIC CONTROL OPERATIONS. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF TAKING OTHER STEPS AND PROVIDING OTHER PERSONNEL WHICH THE CONTRACTOR MAY DEEM NECESSARY FOR THE PROTECTION OF THE WORKERS AND THE TRAVELING PUBLIC.

3.) PEDESTRIAN SAFETY, PLASTIC CONSTRUCTION FENCING, A MINIMUM OF 4 FEET HIGH, SHALL BE USED AROUND OPEN EXCAVATIONS.

4.) FLAGGERS SHALL USE TWO-WAY RADIOS OR OTHER ENGINEER APPROVED METHODS OF COMMUNICATION TO CONTROL TRAFFIC.

TRAFFIC CONTROL DEVICES

1.) ALL WORK ZONE PAVEMENT MARKINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH STANDARD SHEETS WZ (STPM)-03 AND BC (7) AND BC(8)-03 AND THE TMUTCD.

2.) THE CONTRACTOR SHALL MAINTAIN EXISTING AND WORK ZONE PAVEMENT MARKINGS IN GOOD VISIBLE CONDITION THROUGHOUT THE LENGTH OF THE PROJECT. REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY "METHODS AS APPROVED BY THE ENGINEER" AND WILL BE PAID FOR UNDER ITEM 677 ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS.

3.) EXISTING STOP SIGNS SHALL REMAIN IN PLACE AND IN USE THROUGHOUT CONSTRUCTION, UNTIL SPECIFICALLY IDENTIFIED TO BE REMOVED. ALL SIGNS, BARRICADES, WORK ZONE MARKINGS AND DEVICES AS SHOWN SHALL BE IN ACCORDANCE WITH BOTH THE 2003 "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (TMUTCD), INCLUDING INTERIM REVISIONS THERETO, AND TXDOT-LAREDO DISTRICT STANDARDS AND SPECIFICATIONS.

4.) ALL WORK ZONE GUIDEMARKS, SHORT TERM MARKINGS AND STANDARD PAVEMENT MARKINGS REQUIRED FOR THIS PROJECT WILL BE PAID FOR UNDER ITEM 662 "WORK ZONE PAVEMENT MARKINGS."

5.) ADEQUATE SIGNS AND BARRICADES SHALL BE INSTALLED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO OPENING ANY SECTION TO TRAFFIC. THE ENGINEER MAY DIRECT THE CONTRACTOR TO FURNISH ADDITIONAL SIGNS, BARRICADES, AND CHANNELIZING DEVICES REQUIRED TO MAINTAIN TRAFFIC AND MOTORIST SAFETY DURING CONSTRUCTION. ANY SUCH ADDITIONAL SIGNS, BARRICADES, ETC., SHALL BE CONSIDERED AS PART OF PAY ITEM 502 "BARRICADES, SIGNS, AND TRAFFIC HANDLING."

6.) TYPE III PROJECT LIMIT BARRICADES WITH TYPE A WARNING LIGHTS, ACCOMPANYING SIGNS, AND SPECIAL INFORMATION SIGNS SHALL BE REQUIRED AT EACH END OF THE PROJECT. THESE SHALL REMAIN IN PLACE UNTIL FINAL PROJECT ACCEPTANCE. BARRICADES, SIGNS, CHANNELIZING DEVICES AND TRAFFIC CONTROL DEVICES AS SHOWN SHALL BE ADJUSTED OR SHIFTED AS NECESSARY AND APPROVED BY THE ENGINEER TO FIT FIELD CONDITIONS.

7.) THE CONTRACTOR SHALL INSURE THAT BARRICADES, SIGNS, CHANNELIZING DEVICES, WARNING LIGHTS, AND TRAFFIC CONTROL DEVICES ARE MAINTAINED IN A CLEAN, SAFE VISIBLE, AND FUNCTIONAL CONDITION AT ALL TIMES. THIS INCLUDES NECESSARY REPAIR AND/OR MAINTENANCE DUE TO ACTS OF VANDALISM OR ACCIDENT. THE CONTRACTOR SHALL HAVE ENOUGH SIGNS, BARRICADES, AND TRAFFIC CONTROL DEVICES AVAILABLE, AT ALL TIMES, TO REPLACE THOSE DAMAGED.

8.) DETOUR SIGNING AND PAVEMENT MARKINGS SHALL BE AS SHOWN IN THE PLANS AND AS REQUIRED IN THE TMUTCD.

9.) WHERE 4 FEET MINIMUM BUFFER ZONE CAN BE OBTAINED, PLASTIC DRUMS SHALL BE USED FOR CHANNELIZING DEVICES. OTHERWISE, VERTICAL PANELS ARE TO BE USED. SPACING OF THE CHANNELIZING DEVICES SHALL BE AS FOLLOWS UNLESS OTHERWISE SHOWN ON THE PLANS:

	CHAN. DEV SPAC.		
	SPEED	TAPER	TANGENT
FRONTAGE ROADS	40 MPH	40 FT C-C	80-100 FT C-C
MAIN LANES	60 MPH	60 FT C-C	120-150 FT C-C

TAPER LENGTHS SHALL BE THE MINIMUM AS DEFINED IN THE TxMUTCD, OR LONGER AS DIRECTED BY THE ENGINEER.

NOTE THAT THE NUMBER OF BARRELS & BARRICADES SHOWN ON THE PLAN SHEETS ARE NOT EXACT. ACTUAL NUMBER MAY VARY AND SHALL BE BASED ON PROPER SPACING FOR THE CONDITION, AS SHOWN IN THE TxMUTCD, OR AS DIRECTED BY THE ENGINEER.

10.) WORK ZONE PAVEMENT MARKINGS ON BRIDGES, OR THOSE WHICH WILL BE INSTALLED AFTER THE COMPLETION OF WORK ON A CERTAIN PHASE SEQUENCE BUT WILL BE REQUIRED TO BE REMOVED ON A SUBSEQUENT SEQUENCE OF WORK, SHALL BE THE REMOVABLE TYPE. ALL NON-REMOVABLE WORK ZONE PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

TRAFFIC CONTROL PLAN
GENERAL NOTES

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	81
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

REF FILE(S): J011op01.bdr. bdr LV ON = 45.57.60-63

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11.) THE CONTRACTOR SHALL UTILIZE TRAFFIC CONTROL DEVICES AS SHOWN IN THESE DRAWINGS ON A PER PHASE BASIS; THEREFORE, ANY DEVICES UTILIZED IN A PREVIOUS PHASE THAT CONFLICTS WITH THE TRAFFIC CONTROL FOR THE CURRENT PHASE SHALL BE REMOVED.

12.) THE CONTRACTOR SHALL COVER EXISTING ADVANCE SUPPLEMENTAL GUIDE SIGNS AND ENTRANCE/EXIT GORE SIGNS CORRESPONDING TO THE ENTRANCE/EXIT RAMP CLOSURES FOR THAT PARTICULAR SEQUENCE OF PHASE CONSTRUCTION. COVERING OF THESE SIGNS SHALL BE DONE WITH A MATERIAL APPROVED BY THE ENGINEER, WITH THE MATERIAL ATTACHED TO THE SIGN IN A MANNER WHICH WILL PRESENT A NEAT APPEARANCE AND NOT DAMAGE THE SIGN. THE CONTRACTOR SHALL MAINTAIN THESE SIGN COVERINGS FOR THE DURATION OF THE SEQUENCE OF THE CONSTRUCTION. WHEN THE EXIT OR ENTRANCE RAMP IS RE-OPENED TO TRAFFIC, ALL EXISTING PERMANENT SIGNS SHALL BE UNCOVERED AND ALL APPLICABLE TEMPORARY GUIDE SIGNS SHALL BE REMOVED.

13.) TEMPORARY GUIDE SIGNS SHALL BE INSTALLED ON TIMBER BREAKAWAY ROADSIDE SIGN SUPPORTS AS SHOWN ON BARRICADE STANDARD BC (4)-03. ALL WORK AND MATERIALS REQUIRED FOR THE INSTALLATION AND REMOVAL OF THE TEMPORARY GUIDE SIGNS AND FOR THE COVERING EXISTING SIGNS REQUIRED FOR THE VARIOUS STAGES OF PHASE CONSTRUCTION WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 502. ALL TEMPORARY GUIDE SIGNS INSTALLED SHALL REMAIN THE PROPERTY OF THE CONTRACTOR. SEE "TEMPORARY GUIDE SIGNS FOR ENTRANCE/EXIT RAMP CLOSURES" FOR A TYPICAL APPLICATION.

14.) FOR THIS PROJECT THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) AS DESIGNATED IN THE PLANS, AND IN ACCORDANCE WITH SPECIFICATION ITEM 6670, "PORTABLE CHANGEABLE MESSAGE SIGN" (PCMS). THE PCMS SHALL BE PLACED FAR ENOUGH IN ADVANCE OF THE WORK SITE TO ALLOW TRAFFIC AMPLE OPPORTUNITY TO READ & REACT TO THE MESSAGE. PCMS SHALL BE IN PLACE SEVEN (7) DAYS IN ADVANCE OF ALL TRAFFIC PHASE/STEP CHANGES AS NOTED IN TABLE 1. IN ADDITION TO THE ABOVE PCMS, PCMS SHALL BE PLACED 2 WEEKS PRIOR TO COMPLETE FRONTAGE ROAD CLOSURES AND REMAIN IN PLACE UNTIL 2 WEEKS AFTER THE CLOSURE IS MADE, AS NOTED IN TABLE 2. AFTER REMOVAL A STATIC MESSAGE BOARD SHALL REPLACE THE PCMS.

TABLE 1. PCMS FOR PHASE/STEP CHANGES

PHASE/STEP	# OF SIGNS	DAYS/ SIGN	DAYS	PHASE/STEP	# OF SIGNS	DAYS/ SIGN	DAYS
PHASE I	0		0	PHASE IV STEP 2A	2	7	14
PHASE II STEP 1A	2	7	14	PHASE IV STEP 2B	2	7	14
PHASE II STEP 1B	2	7	14	PHASE IV STEP 2C	2	7	14
PHASE II STEP 2A	2	7	14	PHASE IV STEP 3	2	7	14
PHASE II STEP 2B	2	7	14	PHASE IV STEP 4	2	7	14
PHASE III STEP 1	2	7	14	PHASE IV STEP 5	2	7	14
PHASE III STEP 2	2	7	14	PHASE IV STEP 6	2	7	14
PHASE III STEP 3	2	7	14	PHASE IV STEP 7	2	7	14
PHASE III STEP 4	2	7	14	PHASE IV STEP 8	2	7	14
PHASE IV STEP 1A	2	7	14	PHASE V	2	7	14
PHASE IV STEP 1B	2	7	14	PHASE VI	0		0
	SUBTOTAL		140		SUBTOTAL		140

TABLE 2. PCMS FOR FRONTAGE RD CLOSURES

PHASE/STEP	# OF SIGNS	DAYS/SIGN	DAYS
PHASE 2 STEP 1	1	28	28
PHASE 3 STEP 1	1	28	28
		SUBTOTAL	56

15.) ALL DRUMS USED ON THIS PROJECT FOR TRAFFIC CONTROL SHALL BE PLASTIC. PLASTIC DRUMS SHALL BE USED IN ACCORDANCE WITH PLANS AND MANUFACTURER'S RECOMMENDATION, OR AS APPROVED BY THE ENGINEER.

16.) THE CONTRACTOR SHALL PROVIDE TRUCK MOUNTED ATTENUATORS ON ALL SHADOW VEHICLES AS SHOWN ON THE TCP STANDARD SHEETS. SHADOW VEHICLES EQUIPPED WITH TRUCK MOUNTED ATTENUATORS ARE REQUIRED AS SHOWN ON TRAFFIC CONTROL PLAN (TCP) STANDARDS. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER A LETTER CERTIFYING THAT ALL TRUCK-MOUNTED ATTENUATORS (TMA) USED ON THIS PROJECT THAT WERE PURCHASED ON OR AFTER OCTOBER 1, 1998 HAVE BEEN FOUND TO BE CRASHWORTHY USING THE CRITERIA OUTLINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350. IF THE TMA WAS PURCHASED PRIOR TO OCTOBER 1, 1998, A LETTER CERTIFYING CRASHWORTHINESS USING THE CRITERIA OUTLINED IN EITHER NCHRP REPORTS 230 OR 350 SHALL BE PROVIDED TO THE ENGINEER.

CONCRETE TRAFFIC BARRIERS/RAILING

1.) THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY PRECAST CONCRETE TRAFFIC BARRIERS AS REQUIRED FOR THE VARIOUS PHASES OF CONSTRUCTION. SSCB TY 3 CONCRETE TRAFFIC BARRIER WILL BE REQUIRED FOR EXISTING BRIDGES IN CONSTRUCTION PHASES IV. ALL OTHER CONCRETE TRAFFIC SHALL BE SSCB TY 2 42 INCHES HIGH. SLOTTED BARRIERS SHALL BE PROVIDED WHERE TEMPORARY ROADWAY DRAINAGE IS REQUIRED. THE CONTRACTOR WILL BE ALLOWED TO RE-USE THE SSCB MAINLANES SECTIONS, PROVIDED THEY HAVE NOT BEEN DAMAGED WHILE BEING USED FOR TRAFFIC CONTROL. EACH BARRIER SECTION TO BE RE-USED SHALL BE INDIVIDUALLY APPROVED BY THE ENGINEER. PROVIDING AND HANDLING OF TEMPORARY PRECAST CONCRETE TRAFFIC BARRIERS WILL BE PAID FOR UNDER ITEM 512, "PORTABLE CONCRETE TRAFFIC BARRIER".

2.) ALL TEMPORARY CONCRETE TRAFFIC BARRIERS FURNISHED BY THE CONTRACTOR AND NOT UTILIZED AS PERMANENT BARRIER (MOVE AND RESET) SHALL BECOME THE PROPERTY OF TXDOT. THE CONTRACTOR SHALL REMOVE AND DELIVER THESE BARRIERS AND RAILINGS TO A LOCATION SPECIFIED BY THE ENGINEER.

3.) BARRIER REFLECTORS SHALL BE INSTALLED ON ALL TEMPORARY CONCRETE TRAFFIC BARRIERS.

4.) PHASES II THROUGH IV WILL REQUIRE THE USE OF TEMPORARY REUSABLE ENERGY ABSORBING CRASH TERMINAL (REACT 350) SYSTEMS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FURNISH, INSTALL AND MAINTAIN THESE SYSTEMS AT THE DESIGNATED LOCATIONS AS SHOWN ON THE PLANS. THESE SYSTEMS SHALL BE FURNISHED, INSTALLED AND PAID FOR IN ACCORDANCE WITH ITEM 5828 "REUSABLE ENERGY ABSORBING TERMINAL" (REACT 350). THESE SYSTEMS SHALL BE RE-USED AS REQUIRED DURING ALL PHASES OF CONSTRUCTION. ANY DAMAGED TEMPORARY SYSTEMS SHALL BE REPAIRED OR REPLACED IMMEDIATELY IN ACCORDANCE WITH CONTRACT PROVISIONS. THESE SYSTEMS SHALL BECOME THE PROPERTY OF TXDOT AND SHALL BE STOCKPILED AT THE AT THE LOCATION SPECIFIED BY THE ENGINEER.

ROADWAY/DETOUR CONNECTIONS

1.) THE CONTRACTOR SHALL COORDINATE THE TRAFFIC CONTROL PLAN AND THE VARIOUS SEQUENCES OF CONSTRUCTION WITH ADJACENT CONSTRUCTION PROJECTS, TO ENSURE THE UNINTERRUPTED AND SAFE FLOW OF TRAFFIC.

2.) THE CONTRACTOR SHALL NOTIFY THE PROPER CITY OR COUNTY AND TXDOT OFFICIALS WHEN MAJOR TRAFFIC CHANGES ARE TO BE MADE. NOTIFICATIONS MUST BE GIVEN A MINIMUM OF THREE DAYS PRIOR TO THE CHANGE. IN ADDITION, THE CONTRACTOR SHALL PROVIDE A WRITTEN WORK PLAN TO THE ENGINEER FOR APPROVAL.

BRIDGE WORK

1.) TEMPORARY NIGHTTIME CLOSURES OF UNIROYAL IN ACCORDANCE WITH THE "TCP UNIROYAL CLOSURE" PLAN DETAILS AND THE TxMUTCD WILL BE PERMITTED FOR HANGING BEAMS, AS WELL AS SLAB POURS BETWEEN THE HOURS OF 8 PM AND 6 AM.

2.) TEMPORARY NIGHTTIME MAINLANE CLOSURES IN ACCORDANCE WITH THE "MAIN LANE CLOSURES" PLAN DETAILS WILL BE PERMITTED FOR HANGING BEAMS AND DECK PANELS, AS WELL AS SLAB POURS BETWEEN THE HOURS OF 8 PM AND 6 AM. WORK ZONE TRAFFIC CONTROL WILL BE IN ACCORDANCE WITH TCP (6-7)-98A AND AS REQUIRED BY THE ENGINEER.

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

TRAFFIC CONTROL PLAN
GENERAL NOTES

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		82
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

REF FILE(S): j011qp01.bdr, bdr LV ON = 45,57,60-63

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EXISTING ROADS AND/OR PRIVATE DRIVES

1.) THE PORTION OF THIS PROJECT WHICH COINCIDES WITH EXISTING ROADS AND/OR PRIVATE DRIVES SHALL BE KEPT OPEN TO TRAFFIC AT ALL TIMES. UNLESS OTHERWISE PROVIDED FOR OR APPROVED BY THE ENGINEER.

COORDINATION

1.) WHEN CONNECTING PROPOSED ROADWAY AND/OR DETOURS TO SECTIONS OF EXISTING PAVEMENT BEING USED BY TRAFFIC AND SUCH OPERATIONS RESULT IN A DROP-OFF OF MORE THAN 2 INCHES, A 3:1 SLOPE WILL BE REQUIRED. SEE TXDOT GUIDELINES FOR WARNING AND PROTECTIVE DEVICES FOR PAVEMENT "DROP-OFFS". THIS WORK SHALL BE DONE EXPEDITIOUSLY DURING DAYLIGHT HOURS OR AS APPROVED BY THE ENGINEER. NECESSARY FLAGGERS AND APPROPRIATE SIGNING TO SAFELY GUIDE TRAFFIC THROUGH THE WORK AREA WILL BE REQUIRED AS DIRECTED BY THE ENGINEER.

OVERLAY AND SEAL COAT GENERAL NOTES

1.) FOR OVERLAY AND STRIPING, THE CONTRACTOR SHALL USE TXDOT STANDARDS TCP(3-2)-98, TCP(3-3)-98, TCP(6-1)-98, TCP(6-2)-98, TCP(6-3)-98, TCP (6-4)-98, TCP (6-5)-98, TCP(7-1)-98, WZ(UL)-03, WZ(STPM)-03 AND TXMUTCD, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

2.) CONTRACTOR SHALL PERFORM THE OVERLAY IN SECTIONS, WITH LENGTHS TO BE APPROXIMATELY 2 MILES, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

3.) DURING ALL NON-WORKING HOURS (NIGHT, WEEKENDS, ETC.) THE CONTRACTOR SHALL PLACE SIGNS THAT WARN OF UNEVEN LANES (REFER TO STANDARD SHEET WZ(UL)-03) AND REMOVE THE SIGNS DURING ALL WORKING HOURS.

4.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SHORT TERM PAVEMENT MARKINGS UNTIL FINAL PAVEMENT MARKINGS TYPE II ARE IN PLACE. NO SEGMENT OF THE ROADWAY OPEN TO TRAFFIC SHALL REMAIN WITHOUT REFLECTIVE PAVEMENT MARKINGS TYPE II FOR A PERIOD GREATER THAN 14 DAYS UNLESS WEATHER CONDITIONS PROHIBIT PLACEMENT. REFLECTIVE PAVEMENT MARKINGS TYPE II SHALL BE PLACED AS SOON AS WEATHER PERMITS. TYPE I MARKINGS SHALL BE PLACED NO EARLIER THAN 30 AND NO LONGER THAN 45 CALENDAR DAYS AFTER PLACEMENT OF THE TYPE II MARKINGS.

5.) ALL SIGNS, BARRICADES AND CHANNELIZING DEVICES NECESSARY FOR TRAFFIC CONTROL DURING THE OVERLAY OPERATIONS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 502.

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

TRAFFIC CONTROL PLAN
GENERAL NOTES

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		83
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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GENERAL CONSTRUCTION SEQUENCING

GENERAL

CONSTRUCTION AREA LIMITS REFERENCED BELOW AS CONSTRUCTION OR RECONSTRUCTION SHALL INCLUDE ALL ROADWAY, BRIDGE, DRAINAGE, ILLUMINATION, SIGNING AND PAVEMENT MARKINGS NECESSARY TO COMPLETE THE PROPOSED SECTION THAT PHASE/STEP, UNLESS OTHERWISE SHOWN.

CONTRACTOR SHALL NOTIFY TXDOT PERSONNEL A MINIMUM OF SEVEN (7) DAYS IN ADVANCE TO CONTACT THE PUBLIC MEDIA TO NOTIFY AND ADVISE THE TRAVELING PUBLIC PRIOR TO THE PROPOSED CLOSURE OF ANY TRAFFIC LANES FOR EACH PHASE/STEP OF CONSTRUCTION.

ON EXISTING SECTIONS, NOT WITHIN THE LIMITS OF CONSTRUCTION OF THE PHASE/STEP AS REFERENCED BELOW, EXISTING SIGNS, UNLESS OTHERWISE SHOWN OR NOTED, SHALL REMAIN AND CONTROL TRAFFIC. CONFLICTING SIGNS SHALL BE COVERED.

ON PROPOSED SECTIONS, COMPLETED IN A PREVIOUS PHASE/STEP, PROPOSED SIGNS, UNLESS OTHERWISE SHOWN OR NOTED, SHALL CONTROL TRAFFIC. PROPOSED SIGNS THAT CONFLICT WITH CONSTRUCTION SIGNS SHALL BE COVERED.

CONTRACTOR SHALL NOT PROCEED TO THE NEXT PHASE/STEP UNTIL THE PREVIOUS PHASE/STEP IS COMPLETED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

PLACEMENT OF TEMPORARY SSCB UNDER TRAFFIC SHALL BE DONE USING LANE CLOSURES DURING OFF-PEAK HOURS USING TCP (2-4)-03 FOR FRONTAGE ROADS AND TCP (6-1)-98A FOR MAINLANES.

SEE NOTES AT THE END OF THE GENERAL CONSTRUCTION SEQUENCING FOR APPROXIMATE LIMITS OF PROPOSED RAMPS.

BARRIER SHOWN ON PLAN SHEETS MAY BE BARRIER RELOCATED FROM A PREVIOUS STAGE/STEP OF CONSTRUCTION. QUANTITIES OF BARRIER SHOWN ON THE SUMMARY SHEETS ARE ESTIMATED QUANTITIES OF BARRIER THAT SHALL BE RELOCATED AND RESET FOR EACH PHASE/STEP OF CONSTRUCTION.

PHASE I. PROJECT SETUP

STEP 1. INSTALL PROJECT LIMITS SIGNS AND BARRICADES. SEE "TRAFFIC CONTROL PLAN ADVANCE WARNING SIGNS" SHEETS, AS WELL AS BARRICADES & CONSTRUCTION STANDARDS (BC SHEETS) FOR DETAILS AND REQUIREMENTS.

PHASE II. CONSTRUCTION OF SOUTHBOUND FRONTAGE ROAD FROM STA. 243+50.00 TO STA. 429+22.20, CARRIER DRIVE SOUTHBOUND BRIDGE ABUTMENT, TEMPORARY RAMP TRSB2 AND TEMPORARY PAVEMENT. NOTE THAT THE EXISTING SOUTHBOUND ENTRANCE RAMP FROM UNIROYAL SHALL REMAIN OPEN UNTIL THE BEGINNING OF PHASE IV STEP 2B AND ACCESS SHALL BE MAINTAINED FROM UNIROYAL TO THIS RAMP.

STEP 1A. CONSTRUCT TEMPORARY RAMP TRSB2, TEMPORARY PAVEMENT AND SOUTHBOUND FRONTAGE ROAD FROM STA. 325+00.00 TO STA. 329+95.38.
1. INSTALL WORK ZONE TRAFFIC CONTROL DEVICES AND MARKINGS TO CLOSE MAINLANE SHOULDER AND INSIDE LANE OF SOUTHBOUND FRONTAGE ROAD, AS SHOWN ON THE PLAN SHEETS.. MAINLANE SHOULDER CLOSURE WILL REQUIRE TEMPORARY SSCB. LANE CLOSURE ON FRONTAGE ROAD SHALL BE FOR DAYTIME OPERATIONS ONLY. DURING NON WORKING HOURS, FRONTAGE ROAD SHALL BE OPEN AND ANY WORK AREAS ADJACENT TO THE PAVEMENT SHALL BE SLOPED AT 3:1 OR FLATTER AND CW8-9A SIGNS ("SHOULDER DROP OFF") AND BARRELS SHALL BE PLACED ALONG THE EDGE OF PAVEMENT WITHIN THE CONSTRUCTION AREA.
2. CONSTRUCT TEMPORARY RAMP (TRSB2), ADJACENT TEMPORARY PAVEMENT AND SOUTHBOUND FRONTAGE, THRU TY "A" ACP, AS SHOWN IN THE PLAN SHEETS.
3. STRIPE COMPLETED SECTION WITH TEMPORARY STRIPING, ADD BARRICADES AND SIGNING AS SHOWN.

STEP 1B. CONSTRUCT SECTION 1 OF THE SOUTHBOUND FRONTAGE ROAD FROM STA. 329+95.38 TO STA. 429+22.20. ALSO CONSTRUCT TEMPORARY PAVEMENT, WITHIN LIMITS SHOWN IN THE TYPICAL SECTIONS AND PLAN SHEETS.
1. INSTALL WORK ZONE TRAFFIC CONTROL DEVICES AND MARKINGS TO CLOSE THE EXISTING FRONTAGE ROAD FROM STA. 329+95.38 TO STA. 429+22.20 AND CLOSE OUTSIDE LANE FROM STA. 242+51.09 TO STA. 329+95.38. WITH WORK ZONE DEVICES AND MARKINGS, OPEN EXISTING FRONTAGE ROAD FROM STA. 242+51.09 TO STA. 329+95.38 (WITH ACCESS FROM TEMPORARY RAMP TRSB2 AND TEMPORARY PAVEMENT CONSTRUCTED IN STEP 1A) AS ONE WAY TRAFFIC. ALSO SWITCH TRAFFIC FROM TWO-WAY TO ONE-WAY TRAFFIC CONTROL FROM STA. 429+22.20 TO UNIROYAL.

STEP 1B. (CONT'D)
2. RECONSTRUCT FULL WIDTH OF FRONTAGE ROAD, WITHIN LIMITS SPECIFIED, UP THROUGH TY "A" HOT MIX. ALSO, CONSTRUCT TEMPORARY PAVEMENT, WITHIN LIMITS SPECIFIED. INCLUDED IN THE RECONSTRUCTION IS COMPLETELY CONSTRUCTING RAMP "J", PARTIALLY CONSTRUCTING RAMP "K" (FROM FRONTAGE ROAD TO MAINLANE GORE) AND CONSTRUCTING THE SOUTHBOUND SIDE BRIDGE ABUTMENT AT CARRIER DR.
3. STRIPE COMPLETED SECTION WITH TEMPORARY STRIPING AS PER THE PLAN SHEETS. STRIPING SHALL BE PLACED IN THE PERMANENT LOCATIONS, UNLESS OTHERWISE SHOWN.

STEP 2A. CONSTRUCT INSIDE HALF-SECTION OF SECTION 2 OF THE SOUTHBOUND FRONTAGE ROAD FROM STA. 243+50.00 TO STA. 329+95.38.
1. INSTALL WORK ZONE TRAFFIC CONTROL DEVICES AND MARKINGS TO CLOSE THE INSIDE SECTION OF THE FRONTAGE ROAD AND OUTSIDE SHOULDER OF THE SOUTHBOUND MAINLANES. THIS WILL REQUIRE THE USE OF TEMPORARY SSCB AND REACTS TO BE PLACED PRIOR TO OPENING FOR TRAFFIC. CLOSE TEMPORARY RAMP TRSB2. NOTE THAT TRAFFIC SHALL BE MAINTAINED ON THE OUTSIDE SECTION OF THE EXISTING FRONTAGE ROAD AND THE TEMPORARY PAVEMENT CONSTRUCTED IN STEP 1A.
2. RECONSTRUCT INSIDE SECTION OF THE FRONTAGE ROAD, WITHIN LIMITS SPECIFIED, UP THROUGH TY "A" HOT MIX. THIS WORK WILL INCLUDE THE REMOVAL OF THE TEMPORARY RAMP (TRSB2) CONSTRUCTED IN STEP 1A.
3. STRIPE COMPLETED SECTION WITH TEMPORARY STRIPING AS PER THE PLAN SHEETS. STRIPING SHALL BE PLACED AS SHOWN IN STEP 2B.

STEP 2B. CONSTRUCT OUTSIDE HALF-SECTION OF SECTION 2 OF THE SOUTHBOUND FRONTAGE ROAD FROM STA. 243+50.00 TO STA. 329+95.38.
1. INSTALL WORK ZONE TRAFFIC CONTROL DEVICES TO CLOSE OUTSIDE SECTION OF THE FRONTAGE ROAD. THIS SHALL INCLUDE TEMPORARY SSCB AND REACTS, AS SHOWN. NOTE THAT ACCESS TO ADJACENT DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.
2. RECONSTRUCT OUTSIDE SECTION OF THE FRONTAGE ROAD, WITHIN LIMITS SPECIFIED, UP THROUGH TY "A" HOT MIX.
3. REMOVE BARRIERS, REMOVE REACTS AND STRIPE SECTION WITH TEMPORARY STRIPING AS PER THE PLAN SHEETS. STRIPING SHALL BE PLACED IN THE PERMANENT LOCATIONS, UNLESS OTHERWISE SHOWN. OPEN THE COMPLETED SECTION TO TRAFFIC.

STEP 3. CONSTRUCT TY "C" FINAL OVERLAY AND FINAL STRIPING FROM STA. 243+50.00 TO STA. 429+22.20.
1. SEE TRAFFIC CONTROL PLAN GENERAL NOTES OVERLAY AND SEAL COAT GENERAL NOTES SECTION FOR ADDITIONAL INFORMATION AND DETAILS FOR THE TRAFFIC CONTROL DURING THIS STEP OF CONSTRUCTION.

PHASE III. CONSTRUCTION OF NORTHBOUND FRONTAGE ROAD FROM STA. 167+20.00 TO STA. 392+80.67 AND TRES EQUIS NORTHBOUND BRIDGE ABUTMENT.

STEP 1. CONSTRUCT SECTION 1 OF THE NORTHBOUND FRONTAGE ROAD FROM STA. 167+20.00 TO STA. 257+66.50.
1. INSTALL WORK ZONE TRAFFIC CONTROL DEVICES AND MARKINGS TO CLOSE THE FRONTAGE ROAD WITHIN THE CONSTRUCTION LIMITS, AS SHOWN IN THE PLANS. NOTE THAT ALL NORTHBOUND FRONTAGE ROAD TRAFFIC MUST ENTER THE FREEWAY AT THE FIRST ENTRANCE RAMP NORTH LP 20. TRAFFIC ON THE REMAINING SECTIONS OF THE NORTHBOUND FRONTAGE ROAD FROM STA. 257+66.50 TO UNIROYAL SHALL REMAIN TWO-WAY TRAFFIC.
2. RECONSTRUCT FULL WIDTH OF FRONTAGE ROAD, WITHIN LIMITS SPECIFIED, UP THROUGH TY "A" HOT MIX. INCLUDED IN THE RECONSTRUCTION IS COMPLETELY CONSTRUCTING RAMP "A" AND THE TRES EQUIS NORTHBOUND BRIDGE ABUTMENT.
3. UPON COMPLETION, STRIPE COMPLETED SECTION WITH TEMPORARY STRIPING, AS PER PLAN SHEETS. STRIPING WILL BE IN PERMANENT LOCATIONS, UNLESS OTHERWISE SHOWN.

STEP 2. CONSTRUCT OUTSIDE HALF-SECTION OF SECTION 2 OF THE NORTHBOUND FRONTAGE ROAD FROM STA. 257+66.50 TO STA. 392+80.00, EXCEPT FROM STA. 271+16.46 TO STA. 280+59.33. OUTSIDE HALF WITHIN EXCEPTION LIMITS SHALL BE CONSTRUCTED IN STEP 4.
1. REMOVE EXISTING PAVEMENT MARKINGS AND INSTALL WORK ZONE TRAFFIC CONTROL DEVICES AND MARKINGS TO SWITCH TRAFFIC ON THE NORTHBOUND FRONTAGE ROAD FROM TWO-WAY TRAFFIC TO ONE-WAY TRAFFIC. PRIOR TO SWITCHING TRAFFIC, ADVANCE NOTICE SHALL BE REQUIRED, AS NOTED IN THE TCP GENERAL NOTES. NOTE THAT FROM CARRIER TO UNIROYAL TRAFFIC SHALL REMAIN TWO-WAY TRAFFIC.
2. PLACE TEMPORARY SSCB, AS SHOWN IN THE PLANS, TO PROTECT THE CONSTRUCTION AREAS.
3. RECONSTRUCT OUTSIDE HALF-SECTION, UP TO TY "A" HOT MIX FROM STA. 257+66.50 TO STA. 392+80.00 OF THE PROPOSED FRONTAGE ROAD, EXCEPT FROM STA. 271+16.46 TO STA. 280+59.33.
4. STRIPE COMPLETED SECTIONS OF ROADWAY FOR TRAFFIC AS SHOWN IN THE PLANS. SEE STEP 3 FOR LOCATIONS.

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CONSTRUCTION SEQUENCING NOTES

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		84
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

REF FILE(S): J011op01.bdr, bdr LV ON = 45,57,60-63
HOUFILE023 \hciwin\cf0130\ 350CNP1.dgn-03

STEP 3. CONSTRUCT INSIDE HALF-SECTION OF SECTION 2 OF THE NORTHBOUND FRONTAGE ROAD FROM STA. 257+66.50 TO STA. 392+80.00. NOTE THAT THIS DOES INCLUDE FROM STA. 271+16.46 TO STA. 280+59.33.
1. REMOVE EXISTING PAVEMENT MARKINGS, INSTALL WORK ZONE TRAFFIC CONTROL DEVICES AND MARKINGS TO SWITCH TRAFFIC TO THE SECTION COMPLETED IN STEP 2. TRAFFIC WILL BE MAINTAINED AS ONE-WAY FROM LP 20 TO CARRIER AND TWO-WAY FROM CARRIER TO UNIROYAL. NOTE THAT TEMPORARY SSCB SHALL BE REQUIRED ON THE MAINLANES IN THE LOCATIONS SHOWN.
2. RECONSTRUCT REMAINING INSIDE HALF-SECTION OF THE PROPOSED FRONTAGE ROAD, UP THROUGH TY "A" HOT MIX, FROM STA. 257+66.50 TO STA. 392+80.00. INCLUDED IN THE RECONSTRUCTION WILL BE COMPLETELY CONSTRUCTING RAMPS "C" AND "E".
3. AFTER COMPLETION, STRIPE THE COMPLETED FRONTAGE ROAD WITH TEMPORARY STRIPING, IN THE PERMANENT LOCATION, UNLESS OTHERWISE SHOWN, AND OPEN THE FRONTAGE ROAD TO TRAFFIC. THIS WILL REQUIRE REMOVING ANY CONFLICTING STRIPING AND REMOVING THE TEMPORARY SSCB, EXCEPT AS NOTED FOR STEP 4.

STEP 4. CONSTRUCT OUTSIDE HALF-SECTION OF SECTION 2 OF THE NORTHBOUND FRONTAGE ROAD FROM STA. 271+16.46 TO STA. 280+59.33. INSIDE SECTION CONSTRUCTED IN STEP 3.
1. SWITCH TRAFFIC TO THE INSIDE HALF-SECTION COMPLETED IN STEP 3. THIS WILL REQUIRE PLACING THE NECESSARY TEMPORARY SSCB, AS SHOWN IN THE PLANS.
2. RECONSTRUCT REMAINING OUTSIDE HALF-SECTION OF PROPOSED FRONTAGE ROAD, UP THROUGH TY "A" HOT MIX.
3. ONCE COMPLETED, REMOVE CONFLICTING STRIPING AND TEMPORARY SSCB AND PLACE TEMPORARY STRIPING IN THE PERMANENT LOCATIONS TO OPEN FRONTAGE ROAD TO TRAFFIC, EXCEPT WHERE SHOWN OTHERWISE.

STEP 5. CONSTRUCT TY "C" FINAL OVERLAY AND FINAL STRIPING FROM STA. 167+20.00 TO STA. 392+80.00.
1. SEE TRAFFIC CONTROL PLAN GENERAL NOTES OVERLAY AND SEAL COAT GENERAL NOTES SECTION FOR ADDITIONAL INFORMATION AND DETAILS FOR THE TRAFFIC CONTROL DURING THIS STEP OF CONSTRUCTION.

PHASE IV. CONSTRUCTION OF NORTHBOUND AND SOUTHBOUND MAINLANES FROM STA. 172+80.00 TO STA. 453+50.00, CARRIER DR NORTHBOUND BRIDGE ABUTMENT AND SUPERSTRUCTURE, WIDENING OF UNIROYAL OVERPASS, NORTH DETOUR SECTION FROM STA. 453+50.00 TO STA. 460+50.00 AND SOUTH DETOUR SECTION FROM STA. 165+80.00 TO STA. 172+80.00.

STEP 1A. CONSTRUCT PROPOSED RETAINING WALL ALONG NORTHBOUND CARRIER DR EXISTING RETAINING WALL AND NORTHBOUND CARRIER DR BRIDGE ABUTMENT.
1. SET TEMPORARY SSCB AS SHOWN IN THE TYPICAL SECTIONS AND PLAN SHEETS TO CLOSE THE NORTHBOUND MAINLANES SHOULDER.
2. CONSTRUCT RETAINING WALL IN LIMITS SPECIFIED IN THE PLANS.
3. REMOVE TEMPORARY SSCB AND REOPEN THE SHOULDER.

STEP 1B. CONSTRUCT INSIDE OF SEGMENT 1 OF THE MAINLANES FROM STA. 389+50.00 TO STA. 453+50.00 AND DETOUR SECTION FROM STA. 453+50.00 TO STA. 460+50.00.
1. RESET TEMPORARY SSCB FROM NORTHBOUND FRONTAGE ROAD.
2. SHIFT TRAFFIC TO OUTSIDE SECTION OF MAINLANES WITHIN LIMITS SPECIFIED.
3. RECONSTRUCT INSIDE SECTION OF THE MAINLANES FROM STA. 389+50.00 TO STA. 453+50.00, UP THROUGH HEAVY DUTY STONE MATRIX HOT MIX. CONSTRUCT DETOUR FROM STA. 453+50.00 TO STA. 460+50.00. CONSTRUCT WIDENING OF UNIROYAL OVERPASS (INCLUDING SUBSTRUCTURE AND SUPERSTRUCTURE). TEMPORARY OVERNIGHT CLOSURES OF UNIROYAL, FROM 8 PM TO 6 AM WILL BE PERMITTED TO PERFORM THE BRIDGE CONSTRUCTION. SEE "TRAFFIC CONTROL PLAN UNIROYAL CLOSURE" SHEET FOR ADDITIONAL INFORMATION ON DETOURS. THIS DETOUR IS FOR LOCAL UNIROYAL TRAFFIC ONLY. NOTE THIS SHALL REQUIRE ADVANCE NOTICE, AS NOTED IN THE TCP GENERAL NOTES.
4. PLACE TEMPORARY SSCB IN THE COMPLETED MIDDLE SECTION AND STRIPE AS SHOWN IN THE TYPICAL SECTIONS AND PLAN SHEETS (AS SHOWN IN STEP 2A). NOTE THAT A MEDIAN BARRIER GATE SHALL BE PLACED AT THE LOCATION SHOWN IN THE PLANS.

STEP 2A. EXCAVATE AND GRADE ROADWAY, WITHIN LIMITS SHOWN BELOW FOR DRAINAGE PURPOSES. CONSTRUCT CARRIER BRIDGE SUBSTRUCTURE AND SUPERSTRUCTURE.
1. IMMEDIATELY AFTER SWITCHING TRAFFIC TO THE CENTER COMPLETED SECTION OF THE MAINLANES, THE CONTRACTOR SHALL BE REQUIRED TO OBLITERATE THE EXISTING PAVEMENT FROM STA. 403+00.00 TO STA. 410+00.00 (BOTH NORTHBOUND AND SOUTHBOUND). THE CONTRACTOR SHALL THEN GRADE THE AREA TO DRAIN TO THE STRUCTURE AT STA. 394+32.36 (CULVERT K).. THE CONTRACTOR SHALL NOT BE ALLOWED TO CONTINUE WITH ANY CONSTRUCTION UNTIL THE OBLITERATION AND GRADING ARE COMPLETED.

STEP 2B. (CONT'D)
2. AFTER COMPLETION OF ITEM 1, CONSTRUCT CARRIER NORTHBOUND BRIDGE ABUTMENT AND SUPERSTRUCTURE. TEMPORARY OVERNIGHT MAINLANE CLOSURES, FROM 8 PM TO 6 AM WILL BE PERMITTED TO HANG BRIDGE BEAMS AND TO POUR THE SLAB. ADVANCE NOTICE OF THE CLOSURE SHALL BE REQUIRED. SEE "TRAFFIC CONTROL PLAN MAIN LANES CLOSURE CARRIER DR" SHEET FOR ADDITIONAL INFORMATION ON DETOURING. NOTE THAT THE EXISTING T501 RAIL ALONG THE INSIDE EDGE OF THE NORTHBOUND FRONTAGE ROAD SHALL REMAIN IN PLACE UNTIL THE PROPOSED RAIL IS COMPLETED.

STEP 2B. CONSTRUCT OUTSIDE SECTION OF SEGMENT 1 OF THE MAINLANES FROM STA. 396+50.00 TO STA. 453+50.00, SOUTHBOUND FRONTAGE ROAD (INSIDE HALF-SECTION) FROM STA. 429+22.20 TO STA. 436+36.94, NORTHBOUND FRONTAGE ROAD (INSIDE HALF-SECTION) FROM STA. 417+65.99 TO STA. 434+87.81 AND LEVEL-UP NB & SB MAINLANES FROM STA. 453+50.00 TO STA. 460+50.00.
1. CONSTRUCT LEVEL-UP FROM STA. 453+50.00 TO 460+50.00 ON NB & SB MAINLANES. NOTE THAT THE LEVEL-UP OPERATION SHALL BE COMPLETED PRIOR TO SWITCHING TRAFFIC. THIS WILL REQUIRE A ONE-LANE LANE CLOSURE, PERFORMED FROM 8 PM TO 6 AM, UTILIZING THE TCP (6-1)-98A STANDARD. ALSO, STRIPE COMPLETED CARRIER BRIDGE WITH TEMPORARY STRIPING IN THE PERMANENT LOCATIONS.
2. SWITCH TRAFFIC TO THE INSIDE CONSTRUCTED SECTION AND RECONSTRUCT OUTSIDE PORTION OF ROADWAY. THIS WILL INCLUDE PROPOSED RAMPS "F" AND "K", UP THROUGH HEAVY DUTY STONE MATRIX HOT MIX. CONSTRUCT INSIDE HALF-SECTION OF NORTHBOUND AND SOUTHBOUND FRONTAGE ROADS, WITHIN LIMITS SPECIFIED, UP THROUGH TY "A" HOT MIX.
3. ONCE COMPLETED, STRIPE COMPLETED SECTION OF FRONTAGE ROADS AND PLACE TEMPORARY SSCB TO SHIFT TRAFFIC FOR STEP 2C.

STEP 2C. CONSTRUCT OUTSIDE HALF-SECTION OF SOUTHBOUND FRONTAGE ROAD FROM STA. 429+22.20 TO STA. 436+36.94 AND OUTSIDE HALF-SECTION OF THE NORTHBOUND FRONTAGE ROAD FROM STA. 417+65.99 TO STA. 434+87.81. NOTE THAT THE MAINLANE TRAFFIC SHALL REMAIN IN THE INSIDE SECTION UNTIL THE COMPLETION OF STEP 2C.
1. INSTALL WORK ZONE TRAFFIC CONTROL DEVICES AND MARKINGS TO SWITCH TRAFFIC ON THE FRONTAGE ROADS FROM THE OUTSIDE SECTION TO THE COMPLETED INSIDE SECTION.
2. CONSTRUCT FRONTAGE ROADS, UP THROUGH TY "A" HOT MIX.
3. REMOVE BARRIER AND SWITCH TRAFFIC TO THE COMPLETED SECTIONS OF THE MAINLANES AND FRONTAGE ROADS, AS SHOWN IN THE TYPICAL SECTIONS AND PLAN SHEETS. NOTE THAT MAINLANES SHALL NOT BE STRIPED AS THREE LANES (FINAL PROPOSED SECTION) UNTIL THE MAINLANES ARE COMPLETED AT THE END OF PHASE V.

STEP 2D. CONSTRUCT TY "C" FINAL OVERLAY AND FINAL STRIPING ON SOUTHBOUND FRONTAGE ROAD FROM STA. 429+22.20 TO STA. 436+36.94 AND ON NORTHBOUND FRONTAGE ROAD FROM STA. 417+65.99 TO STA. 434+87.81. ALSO CONSTRUCT SEAL COAT ON NORTHBOUND FRONTAGE ROAD FROM STA. 392+80.00 TO STA. 417+65.99.
1. SEE TRAFFIC CONTROL PLAN GENERAL NOTES OVERLAY AND SEAL COAT GENERAL NOTES SECTION FOR ADDITIONAL INFORMATION AND DETAILS FOR THE TRAFFIC CONTROL DURING THIS STEP OF CONSTRUCTION.

STEP 3. CONSTRUCT INSIDE SECTION OF SEGMENT 2 OF THE MAINLANES FROM STA. 291+27.36 TO STA. 389+50.00.
1. RESET TEMPORARY SSCB FROM PREVIOUS PHASES/STEPS OF CONSTRUCTION.
2. SHIFT TRAFFIC TO OUTSIDE SECTION OF MAINLANES WITHIN CONSTRUCTION LIMITS.
3. RECONSTRUCT INSIDE SECTION OF THE MAINLANES FROM STA. 291+27.36 TO STA. 389+50.00, UP THROUGH HEAVY DUTY STONE MATRIX HOT MIX.
4. PLACE TEMPORARY SSCB FROM PREVIOUS PHASES/STEPS OF CONSTRUCTION AND STRIPE AS SHOWN IN THE PLAN SHEETS AND TYPICAL SECTIONS (AS SHOWN IN STEP 4).

STEP 4. CONSTRUCT OUTSIDE SECTION OF SEGMENT 2, OF THE MAINLANES, FROM STA. 298+27.36 TO STA. 396+50.00.
1. SHIFT TRAFFIC TO INSIDE SECTION COMPLETED IN STEP 3.
2. RECONSTRUCT OUTSIDE SECTION OF THE MAINLANES FROM STA. 298+27.36 TO STA. 396+50.00, UP THROUGH HEAVY DUTY STONE MATRIX HOT MIX.
3. REMOVE BARRIER AND SWITCH TRAFFIC TO THE COMPLETED SECTION OF MAINLANES, AS SHOWN IN THE TYPICAL SECTIONS AND PLAN SHEETS. NOTE THAT MAINLANES SHALL NOT BE STRIPED AS THREE LANES (FINAL PROPOSED SECTION) UNTIL THE MAINLANES ARE COMPLETED AT THE END OF PHASE V.

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CONSTRUCTION SEQUENCING NOTES

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		85
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.bdr, bdr LV ON = 45,57,60-63
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STEP 5. CONSTRUCT INSIDE OF SEGMENT 3 OF THE MAINLANES FROM STA. 172+80.00 TO STA. 291+27.36 AND SOUTH DETOUR SECTION FROM STA. 165+80.00 TO STA. 172+80.00.
1. RESET TEMPORARY SSCB FROM PREVIOUS PHASES/STEPS TO LOCATIONS SHOWN ON THE PLANS.
2. SHIFT TRAFFIC TO THE OUTSIDE SECTION OF THE MAINLANES WITHIN THE LIMITS SHOWN.
3. RECONSTRUCT MAINLANES FROM STA. 172+80.00 TO STA. 291+27.36, UP THROUGH HEAVY DUTY STONE MATRIX HOT MIX. ALSO, CONSTRUCT SOUTH DETOUR SECTION FROM STA. 165+80.00 TO STA. 172+80.00, UP THROUGH TY "A" HOT MIX.
4. PLACE TEMPORARY SSCB IN CONSTRUCTED MIDDLE SECTION, AND STRIPE, AS SHOWN IN THE TYPICAL SECTIONS PLAN SHEETS (AS SHOWN IN STEP 6).

STEP 6. CONSTRUCT OUTSIDE OF SEGMENT 3 OF THE MAINLANES FROM STA. 172+80.00 TO STA. 298+27.36. CONSTRUCT TEMPORARY RAMPS TRSB1 AND TRNB1.
1. SWITCH TRAFFIC TO THE INSIDE CONSTRUCTED SECTION FROM STEP 5 AND RECONSTRUCT OUTSIDE PORTION OF MAINLANES FROM STA. 172+80.00 TO STA. 298+27.36, UP THROUGH HEAVY DUTY STONE MATRIX HOT MIX. ALSO CONSTRUCT TEMPORARY RAMPS TRSB1 AND TRNB1. TEMPORARY RAMPS TO REMAIN CLOSED UNTIL STEPS 7 & 8, RESPECTIVELY.
2. REMOVE BARRIER, STRIPE AS SHOWN IN THE TYPICAL SECTIONS AND PLAN SHEETS, AND SWITCH TRAFFIC TO THE COMPLETED SECTION OF THE MAINLANES. NOTE THAT MAINLANES SHALL NOT BE STRIPED AS THREE LANES (FINAL PROPOSED SECTION) UNTIL THE MAINLANES ARE COMPLETED AT THE END OF PHASE V.

STEP 7. CONSTRUCT SECTION 3 OF THE SOUTHBOUND FRONTAGE ROAD FROM STA. 180+00.00 TO STA. 207+94.00.
1. CONVERT SOUTHBOUND FRONTAGE ROAD FROM 1-WAY TRAFFIC TO 2-WAY TRAFFIC FROM THE INTERSECTION OF LOOP 20 TO STA. 180+00.00. THIS WILL INVOLVE REMOVING THE EXISTING MARKINGS AND PLACING TEMPORARY MARKINGS AND SIGNING TO DIRECT TRAFFIC, AS SHOWN IN THE PLANS. ALL EXISTING CONFLICTING SIGNING SHALL BE COVERED. CONFLICTING SIGNAL HEADS AT THE INTERSECTION OF THE SOUTHBOUND FRONTAGE ROAD AND THE WEST BOUND LANES OF LP 20 SHALL BE COVERED.
2. INSTALL WORK ZONE TRAFFIC CONTROL DEVICES AND MARKINGS TO CLOSE THE FRONTAGE ROAD WITHIN THE CONSTRUCTION LIMITS. FRONTAGE ROAD SHALL REMAIN OPEN FROM STA. 207+94.00 TO UNIROYAL, AS 1-WAY TRAFFIC. TRAFFIC SHALL BE REQUIRED TO ENTER THE FREEWAY USING THE TEMPORARY RAMP TRSB1 CONSTRUCTED IN STEP 6.
3. RECONSTRUCT FULL WIDTH OF FRONTAGE ROAD, WITHIN LIMITS, UP THROUGH TY "A" HOT MIX. CONSTRUCT SOUTHBOUND TRES EQUIS BRIDGE ABUTMENT.
4. AFTER COMPLETION OF ITEM 3, CONVERT 2-WAY TRAFFIC ON THE FRONTAGE ROAD BACK TO 1-WAY TRAFFIC USING PROPOSED STRIPING. OPEN COMPLETED SECTION OF FRONTAGE ROAD TO TRAFFIC FROM LP 20 TO UNIROYAL.
5. REMOVE TEMPORARY RAMP AT KILLAM INDUSTRIAL BLVD. CONSTRUCTED UNDER PHASE IV STEP 6. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH TCP (2-1)-98 AND THE TXMUTCD. THE AREA DISTURBED BY THE TEMPORARY RAMP SHALL BE GRADED AND RESTORED TO CONDITIONS REQUIRED IN THE PROPOSED CROSS-SECTIONS AND PLAN SHEETS.

STEP 8. CONSTRUCT TY "C" FINAL OVERLAY AND FINAL STRIPING ON SOUTHBOUND FRONTAGE ROAD FROM STA. 180+00.00 TO STA. 207+94.00. ALSO SEAL COAT SOUTHBOUND FRONTAGE ROAD FROM MILO INTERCHANGE TO STA. 180+00.00 AND FROM STA. 207+94.00 TO STA. 243+50.00.
1. SEE TRAFFIC CONTROL PLAN GENERAL NOTES OVERLAY AND SEAL COAT GENERAL NOTES SECTION FOR ADDITIONAL INFORMATION AND DETAILS FOR THE TRAFFIC CONTROL DURING THIS STEP OF CONSTRUCTION.

STEP 9. CONSTRUCT CARRIER DR. SUPERSTRUCTURE.
1. CLOSE THE DIRECT CONNECTOR AND MAINLANES AS SHOWN IN THE "TRAFFIC CONTROL PLAN FOR MAIN LANE CLOSURE TRES EQUIS" PLAN SHEETS.
2. AFTER CLOSING THE DIRECT CONNECTOR AND THE MAINLANES, THE TRES EQUIS BRIDGE BEAMS MAY BE HUNG. THE SLAB POURED AND THE BRIDGE COMPLETED. THIS WORK SHALL BE PERFORMED DURING THE OVERNIGHT PERIOD FROM 8 PM TO 6 AM.
3. UPON COMPLETION OF THE BRIDGE, STRIPE AND OPEN TO TRAFFIC.

PHASE V. CONSTRUCT FINAL OVERLAY AND STRIPING FOR NORTHBOUND AND SOUTHBOUND MAINLANES.

1. SEE TRAFFIC CONTROL PLAN GENERAL NOTES OVERLAY AND SEAL COAT GENERAL NOTES SECTION FOR ADDITIONAL INFORMATION AND DETAILS FOR THE TRAFFIC CONTROL DURING THIS STEP OF CONSTRUCTION.

PHASE VI. PROJECT CLEANUP.

REF FILE(S): j011op01.bdr, bdr LV ON = 45,57,60-63

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CONSTRUCTION SEQUENCING NOTES

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		86
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO

04/18/03

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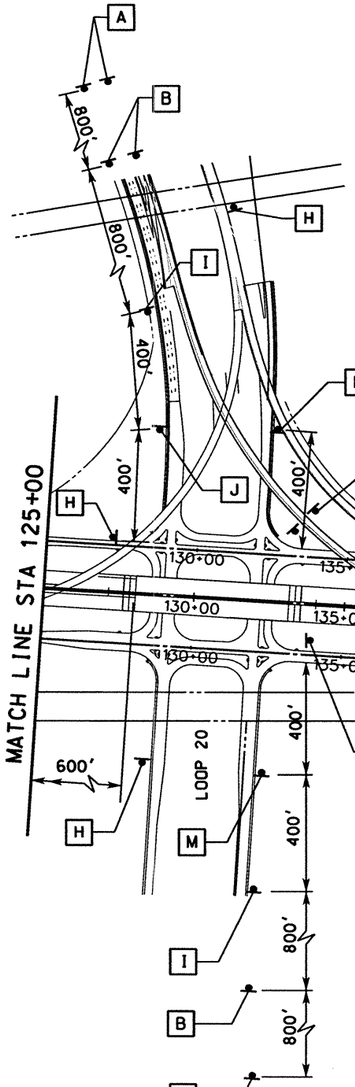

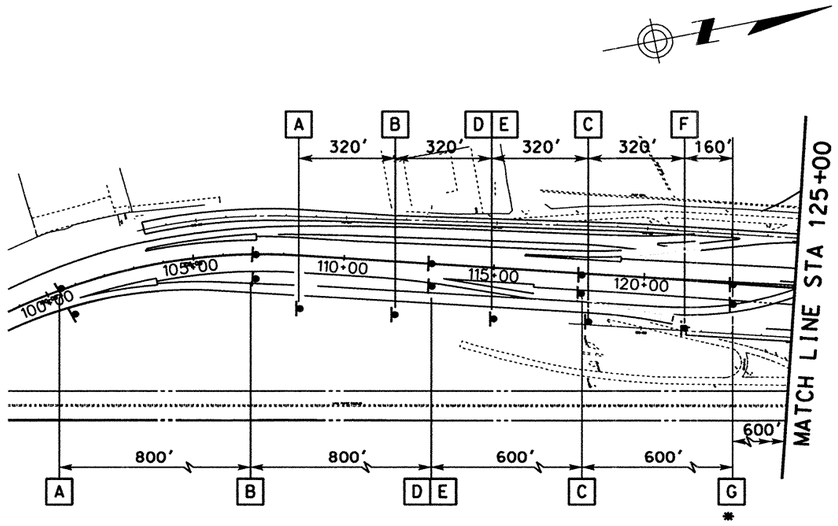

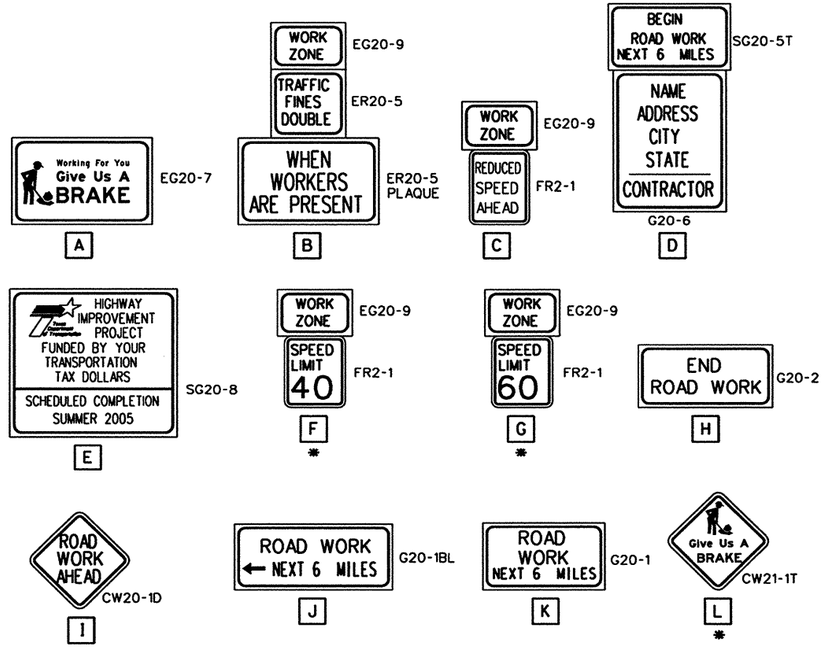

* SIGNS REPEATED MIDWAY BETWEEN PROJECT WORK AREA ≥ 2 MILES.

0 250 500
SCALE: 1" = 500'

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87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN ADVANCED WARNING SIGNS

SHEET 1 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		87
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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REF FILE(S): j0110p01.bdr, bdr LV ON = 13,45,47,57,58,60-62
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EG20-7

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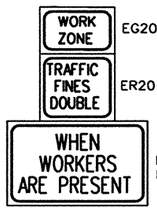

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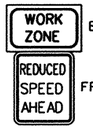

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SG20-8

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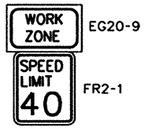

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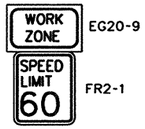

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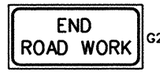

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G20-1BL

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G20-1

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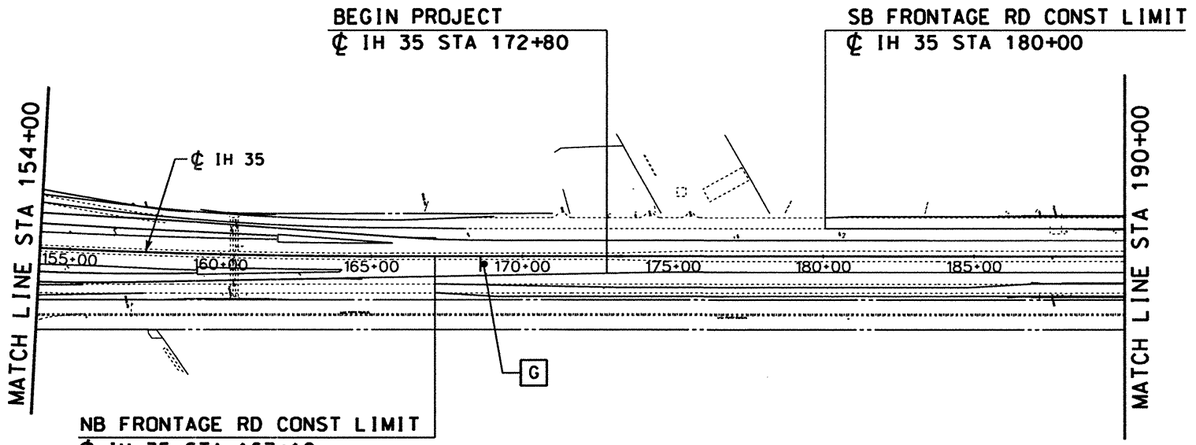

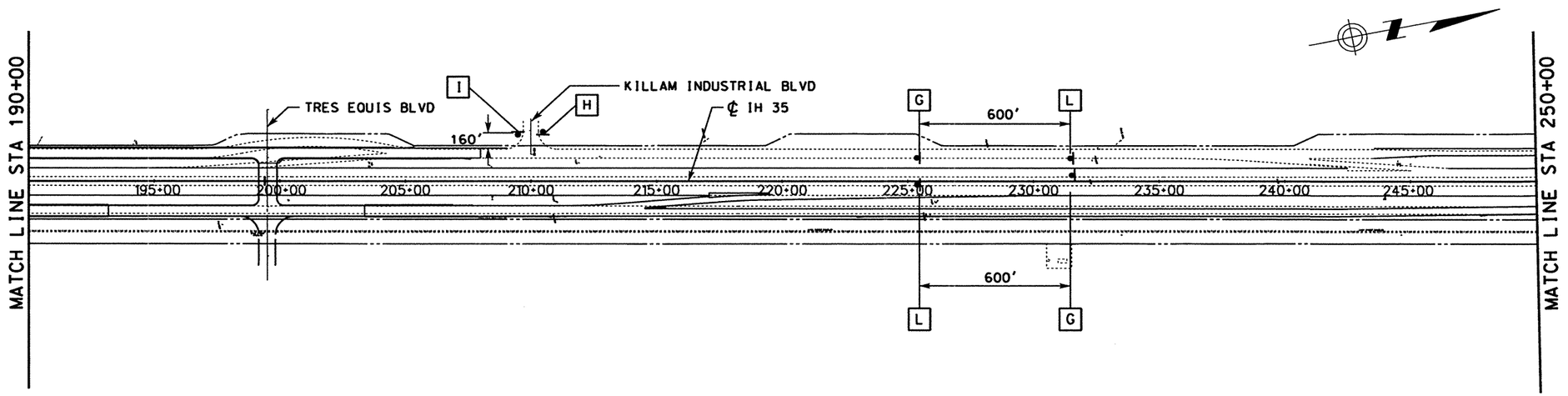

* SIGNS REPEATED MIDWAY BETWEEN PROJECT WORK AREA ≥ 2 MILES.

0 250 500
SCALE: 1" = 500'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

TRAFFIC CONTROL PLAN
ADVANCED WARNING SIGNS

SHEET 2 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		88
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

B50AWP02.dgn-02 HOUFILE023 \hcivil\cf0130\

REF FILE(S): j011op01.bdr, bdr LV ON = 13.45.47.57.58.60-62
j011op01.alg, alg LV ON = 1-6.35-39
j011op01.bck, bck LV ON = 2-9.10.14.17.21.25.28
j011op01.eop, eop LV ON = 1-17.19-63
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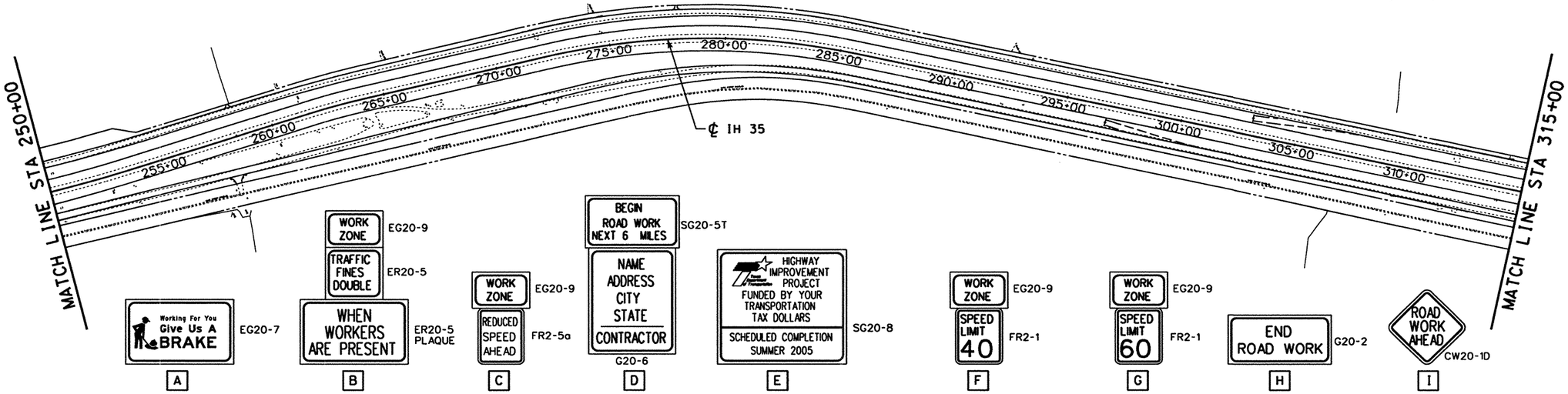

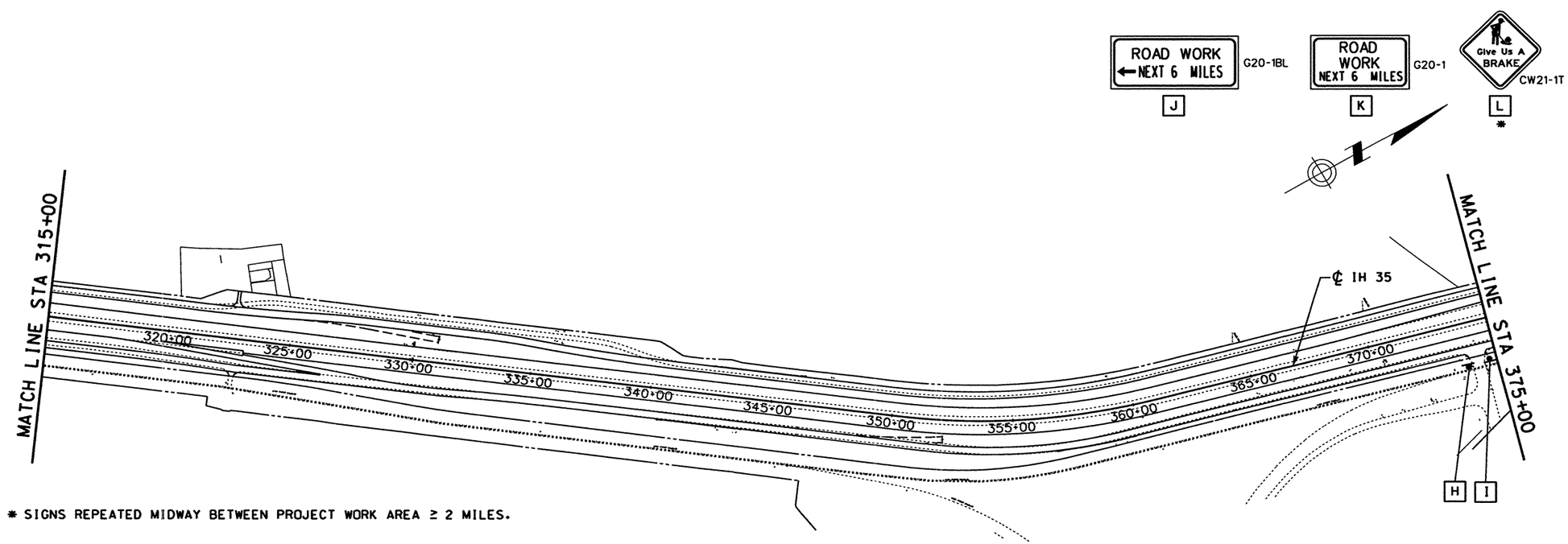

* SIGNS REPEATED MIDWAY BETWEEN PROJECT WORK AREA ≥ 2 MILES.

0 250 500
SCALE: 1" = 500'

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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN ADVANCED WARNING SIGNS

SHEET 3 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		89
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

4/18/2003

B50AWP03.dgn-02 HOUFILE023 \hcivil\cf0130\

REF FILE(S): j0110p01.bdr, bdr LV ON = 13,45,47,57,58,60-62
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j0110p01.bck, bck LV ON = 2-9,10,14,17,21,25,28
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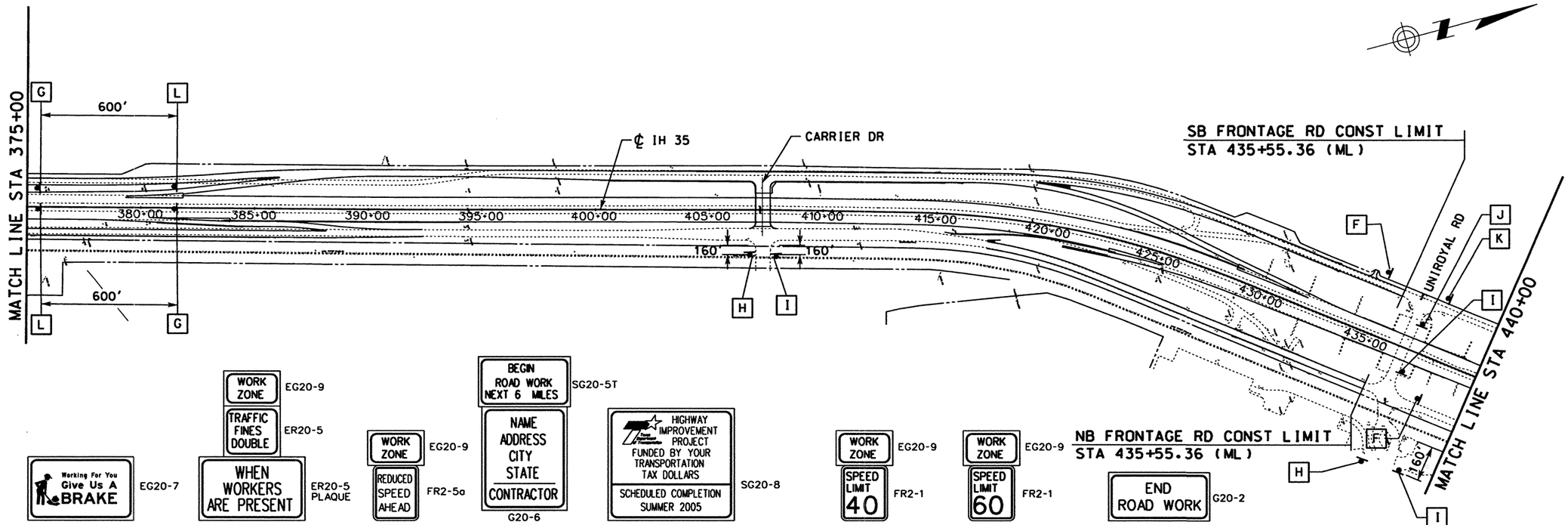
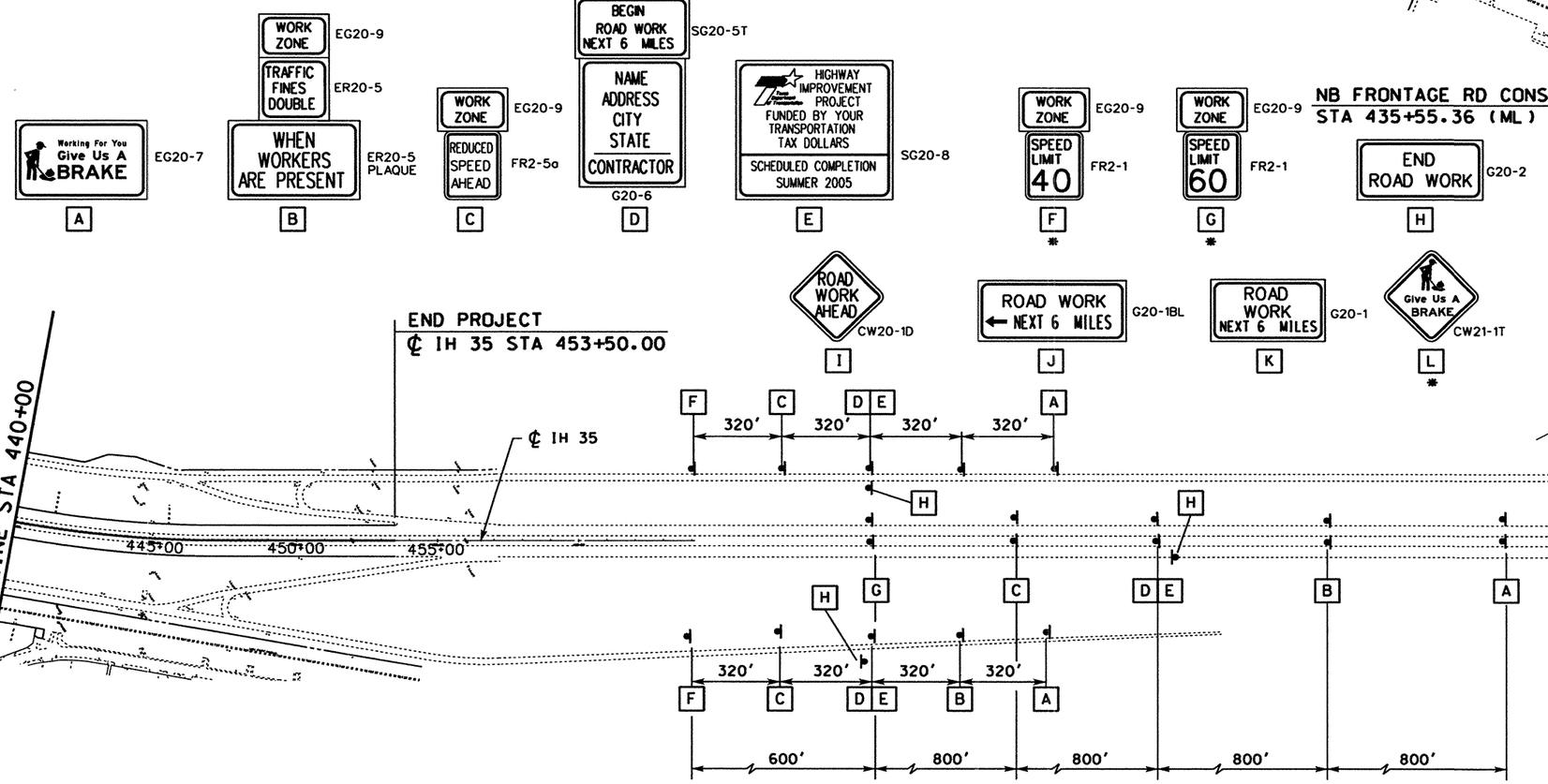
miloint.row , row LV ON = 1-22,24-63





0 250 500
SCALE: 1" = 500'

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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN ADVANCED WARNING SIGNS

SHEET 4 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		90
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

B50AWP04.dgn-02 HOUFILE023 \hcivil\cf0130\

milnt.row . row LV ON = 1-22-24-63
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j011op01.bck. bck LV ON = 2-9.10.14.17.21.25.28
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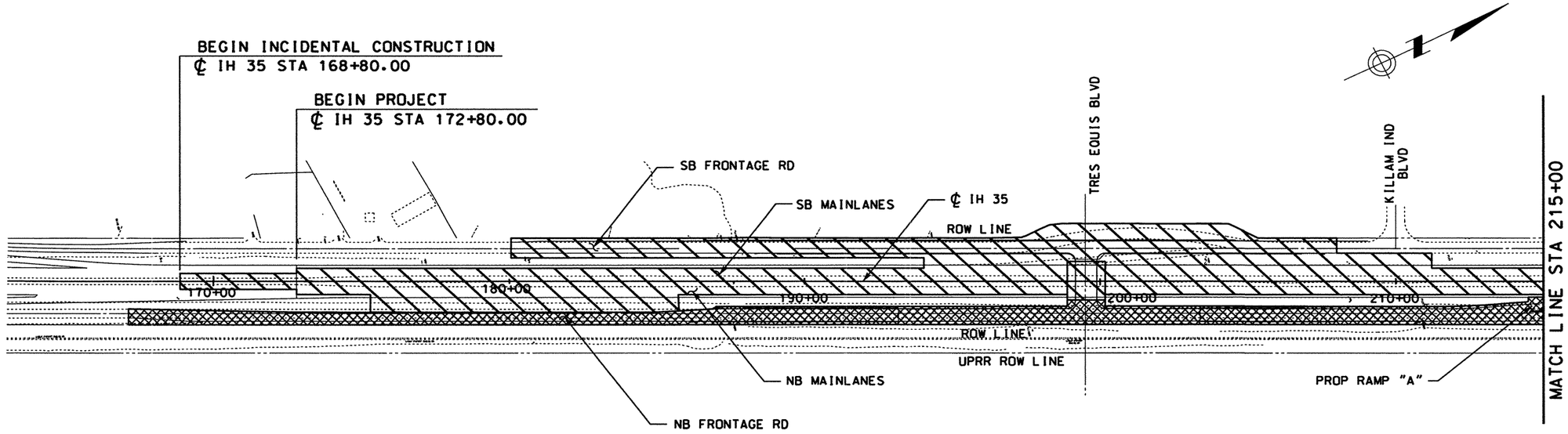

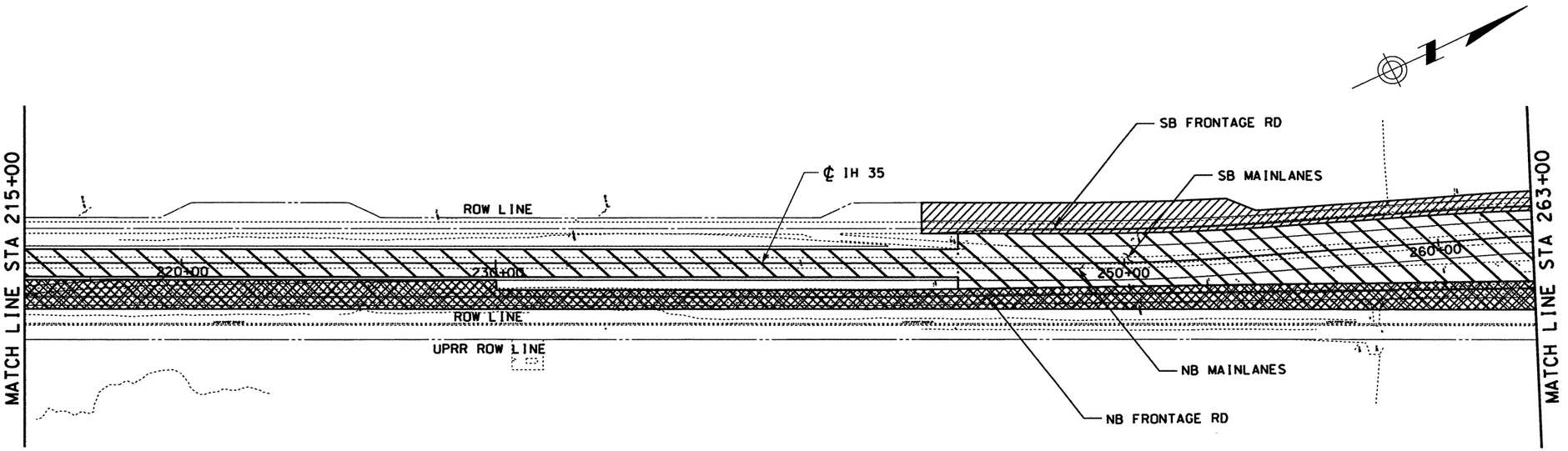

LEGEND

- PHASE II CONST
- PHASE III CONST
- PHASE IV CONST

0 200 400
SCALE: 1" = 400'

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IH 35
LOOP 20 TO UNIROYAL ROAD

CONSTRUCTION SEQUENCING LAYOUT

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		91
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cf0130\

B50CSL01.dgn-03

REF FILE(S): j011op01.tcp, tcp LV ON = 2-5

REF FILE(S): j011op01.bdr, bdr LV ON = 16.47.57.58.60-62
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j011op01.bck, bck LV ON = 2.9.10.14.17.21.25.28
j011op01.eop, eop LV ON = 1-11.13-17.19-63
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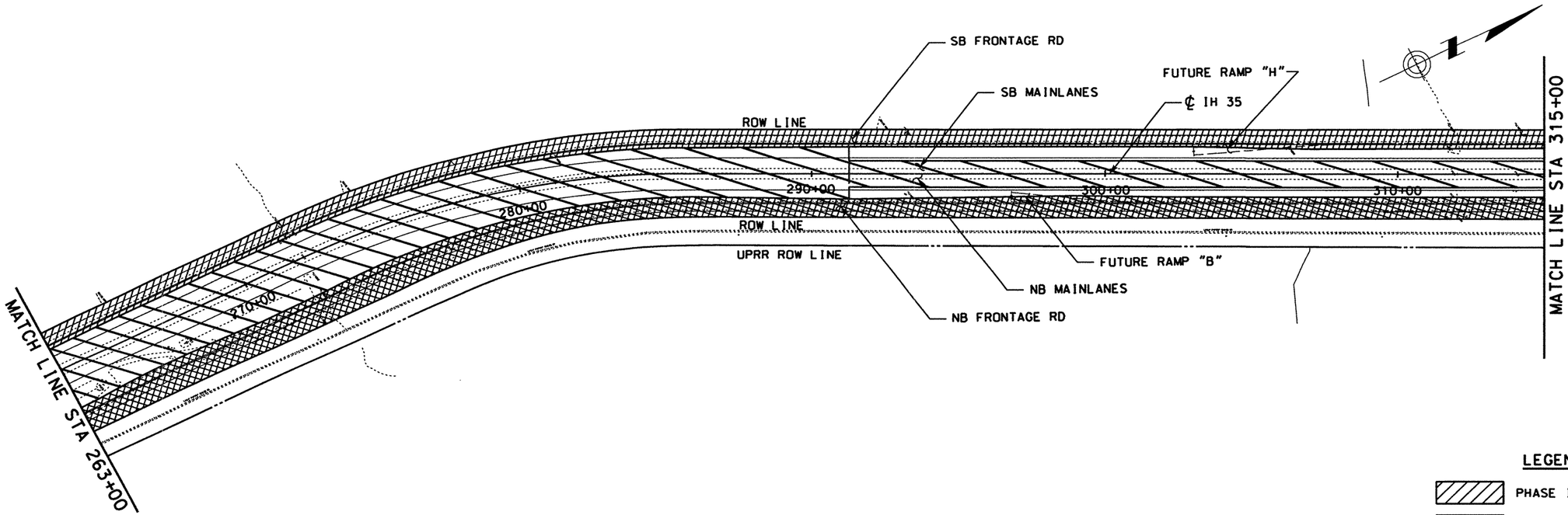

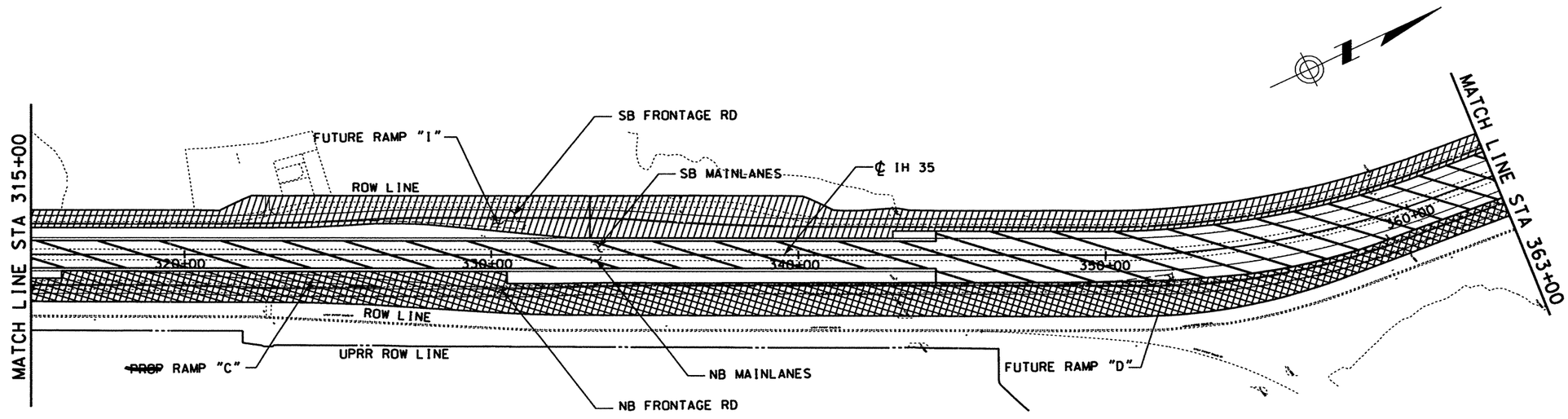

LEGEND

- PHASE II CONST
- PHASE III CONST
- PHASE IV CONST

0 200 400
SCALE: 1" = 400'

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IH 35
LOOP 20 TO UNIROYAL ROAD

CONSTRUCTION SEQUENCING LAYOUT

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		92
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

4/18/2003

B50CSL02.dgn-03 HOUFILE023 \hcivil\cf0130\

REF FILE(S): j0110p01.row, row LV ON = 1-22.34-63
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j0110p01.bck, bck LV ON = 2.9.10.14.17.21.25.28
j0110p01.alg, alg LV ON = 1-6.35-39
j0110p01.bdr, bdr LV ON = 16.47.57.58.60-62

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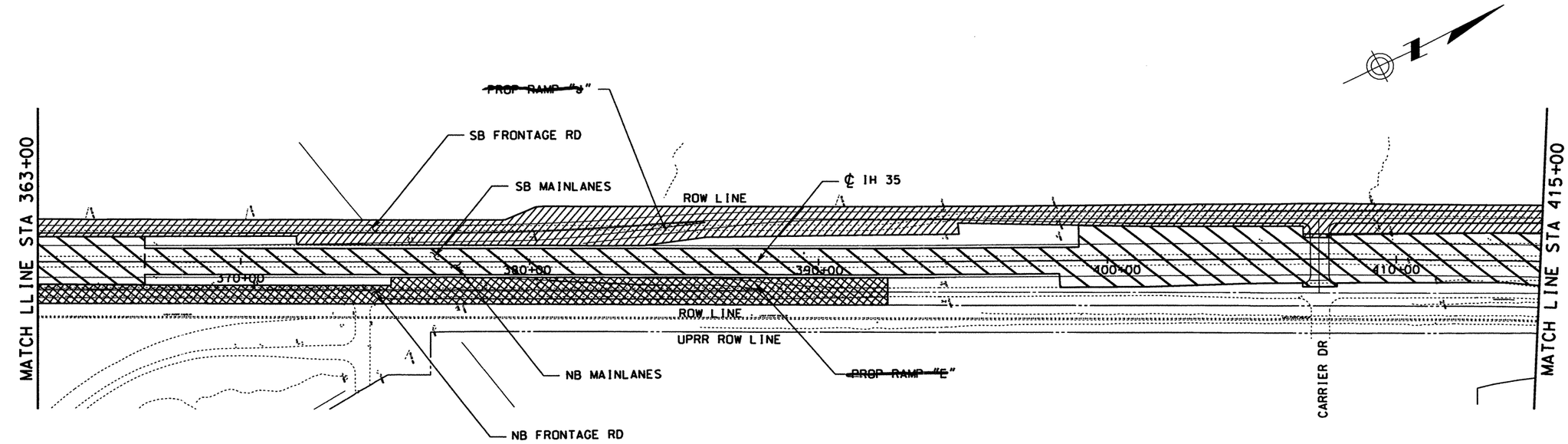

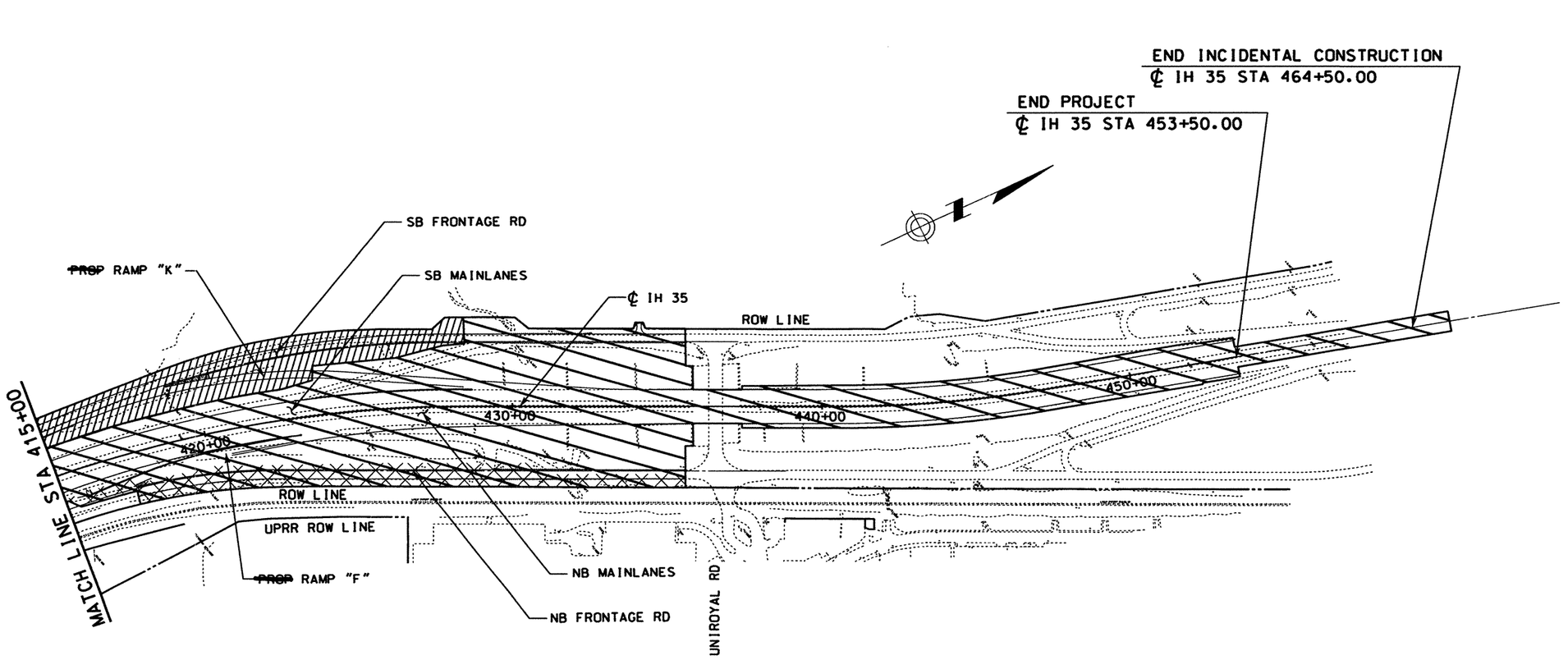

LEGEND

- PHASE II CONST
- PHASE III CONST
- PHASE IV CONST

0 200 400
SCALE: 1" = 400'

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IH 35
LOOP 20 TO UNIROYAL ROAD

CONSTRUCTION SEQUENCING LAYOUT

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		93
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

\\houfile023 \hcivil\cf0130\ B50CSL03.dgn-04

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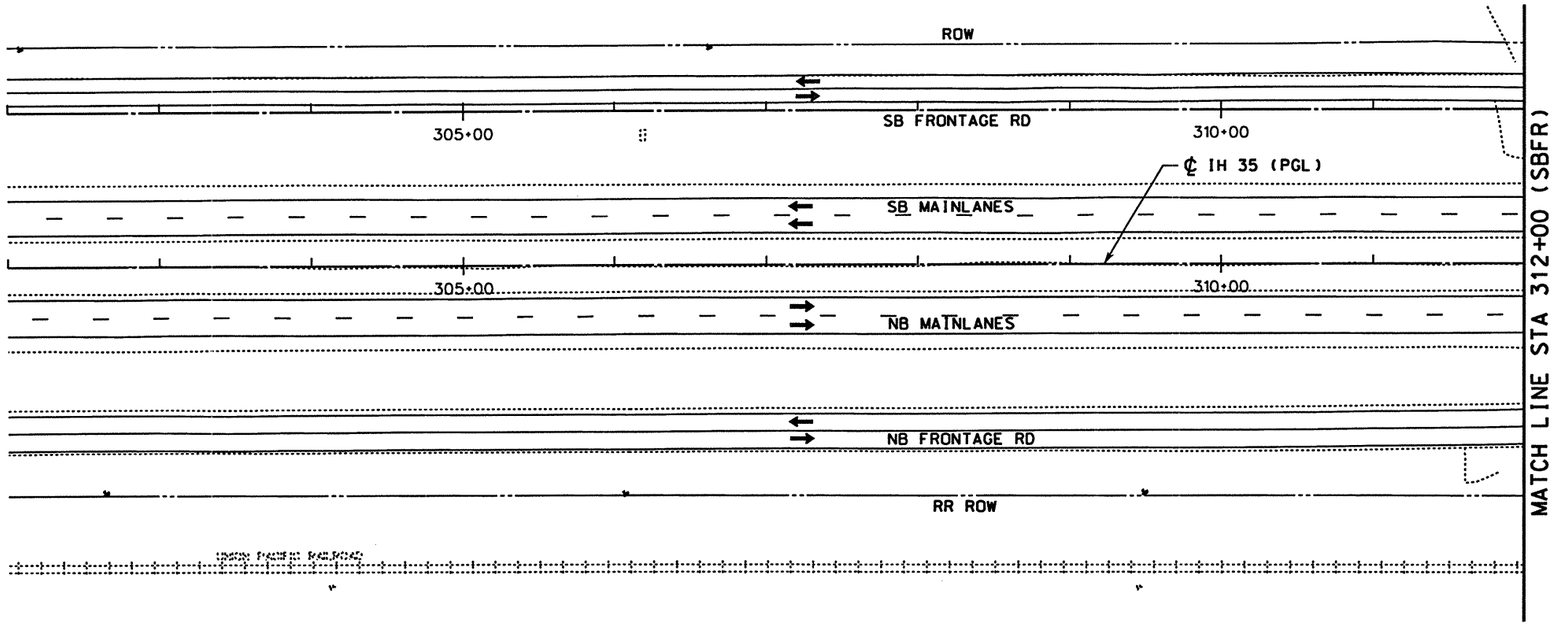
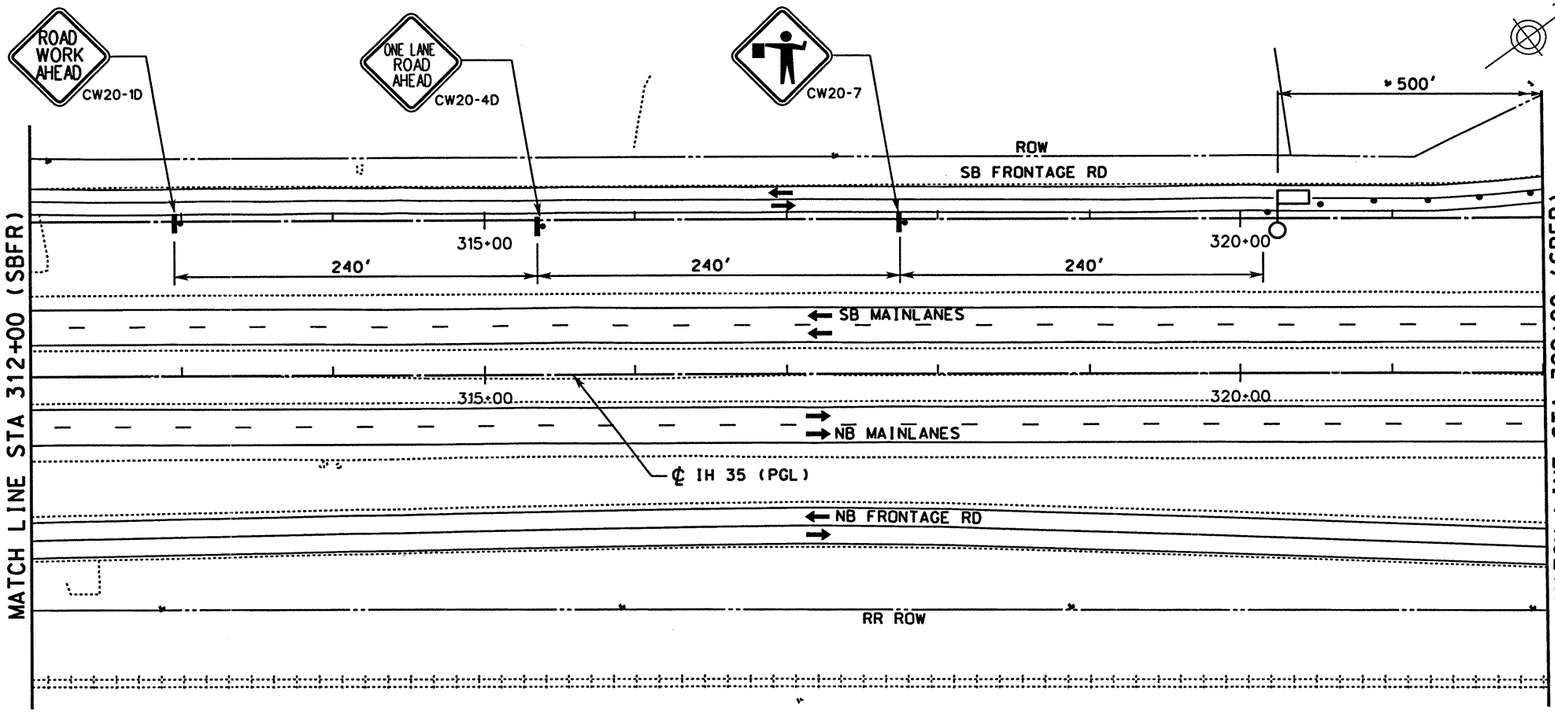
REF FILE(S): J011op01.tcp, tcp
REF FILE(S): J011op01.alg, alg LV ON = 16.47.57.58.60-62
J011op01.alg, alg LV ON = 1-6.35-39
J011op01.bck, bck LV ON = 2.9.10.14.17.21.25.28
J011op01.eop, eop LV ON = 1-11.13-17.19-63
miJoint.row , row LV ON = 1-22.24-63
J011op01.bdr, bdr





WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1A
STA 302+00 TO
STA 322+00

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		94
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P21A01.dgn-05 HOUFILE023 \hciwi\cf0130\ 04/18/03

REF FILE(S): j011op01.pro, pro LV ON = 1-63
j011op01.uti, uti LV ON = 1-17,19-63
j011op01.eop, eop LV ON = 2-9,10,14,17,20-21,25,28
j011op01.bck, bck LV ON = 1-6,35-39
j011op01.alg, alg LV ON = 9-11,32,33,45,47,57,58,60-62
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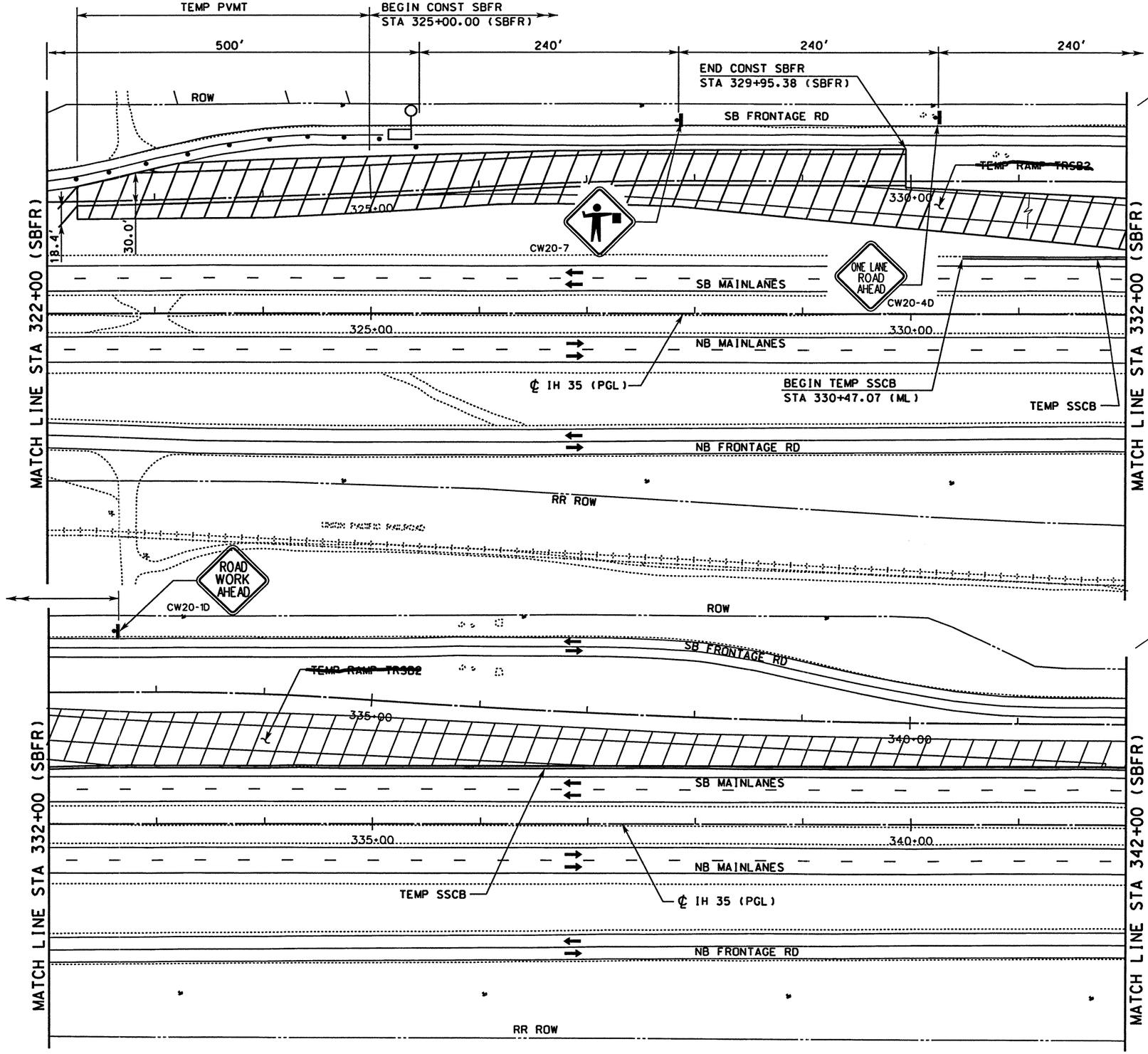
REF FILE(S): j011op01.pro, pro LV ON =
milnt.row, row LV ON = 1-23,25-63



WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

SCALE: 1" = 100' HORIZ

0 50 100

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1A
STA 322+00 TO
STA 342+00

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		9S
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

\hchvlt\cf0130\B50P21A02.dgn-05 HOUFILE023

REF FILE(S): j011op01.bdr, LV ON = 1-63
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j011op01.eop, LV ON = 2.9.10.14.17.20.21.25.28
j011op01.bck, LV ON = 1-6.35-39
j011op01.alg, LV ON = 9-11.32.33.45.47.57.58.60-62

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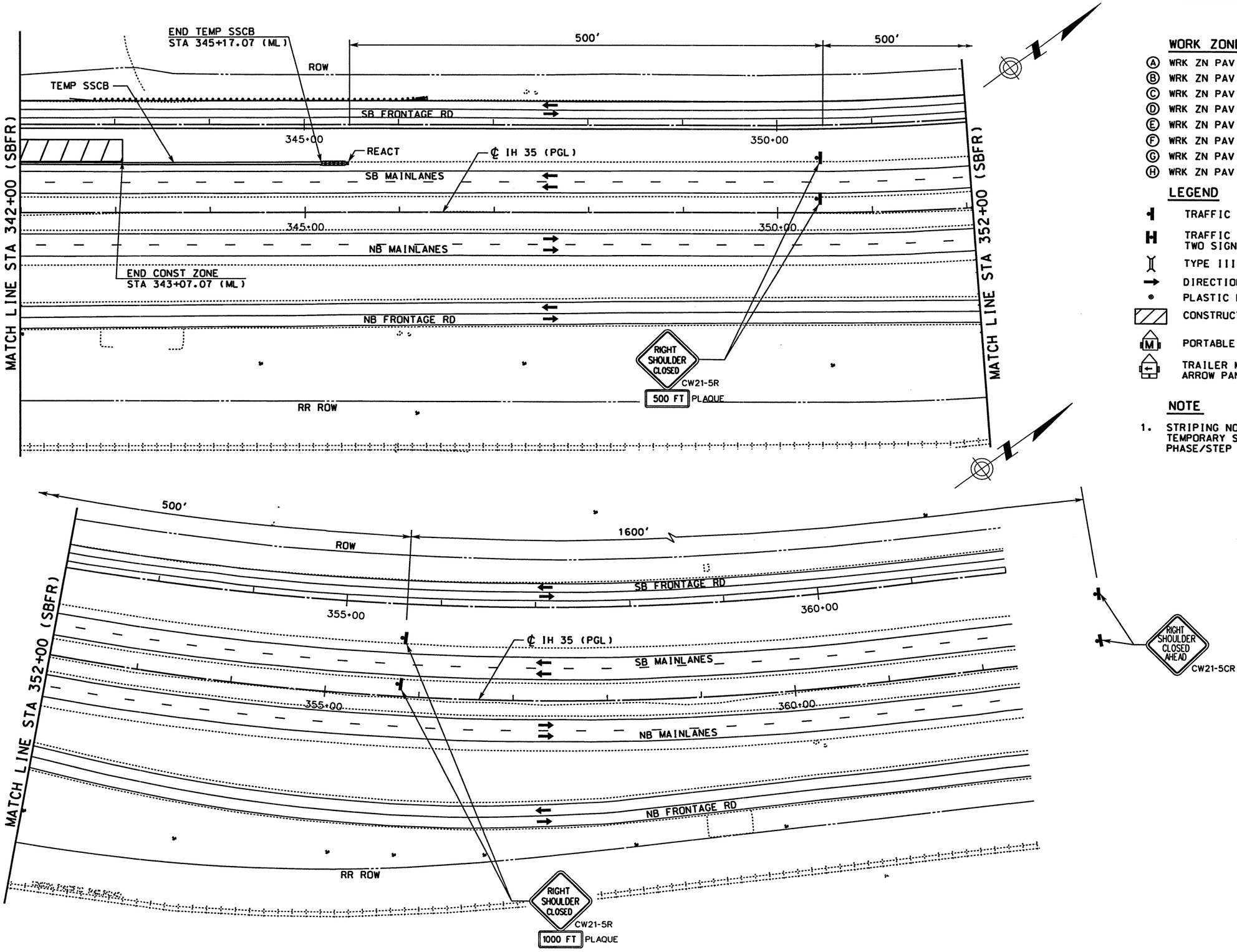

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1A
STA 342+00 TO
STA 362+00

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		96
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

B50P21A03.dgn-04 HOUFILE023 \hclvlh\cf0130\ 04/18/03

REF FILE(S): j011op01.bar, bar LV ON = 1-63
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j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.eop, eop LV ON = 1-17,19-63
j011op01.utl, utl LV ON = 9-11,32,33,45,47,57,58,60-62

REF FILE(S): j011op01.pro, pro LV ON = 1-23,25-63
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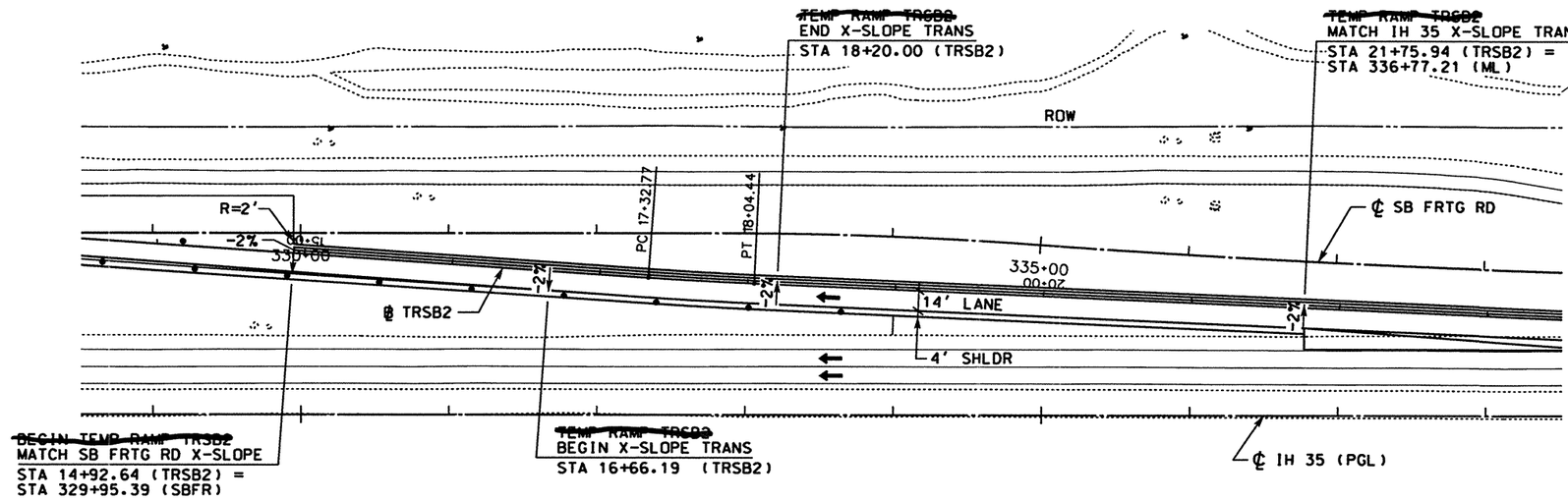
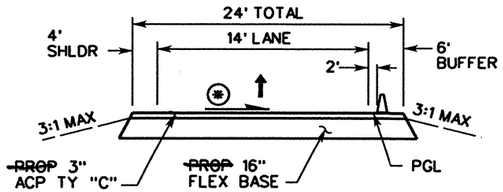




~~TEMPORARY RAMP~~
TYPICAL SECTION
(*) VARIES 2% USUAL

WORK ZONE PAVEMENT MARKINGS

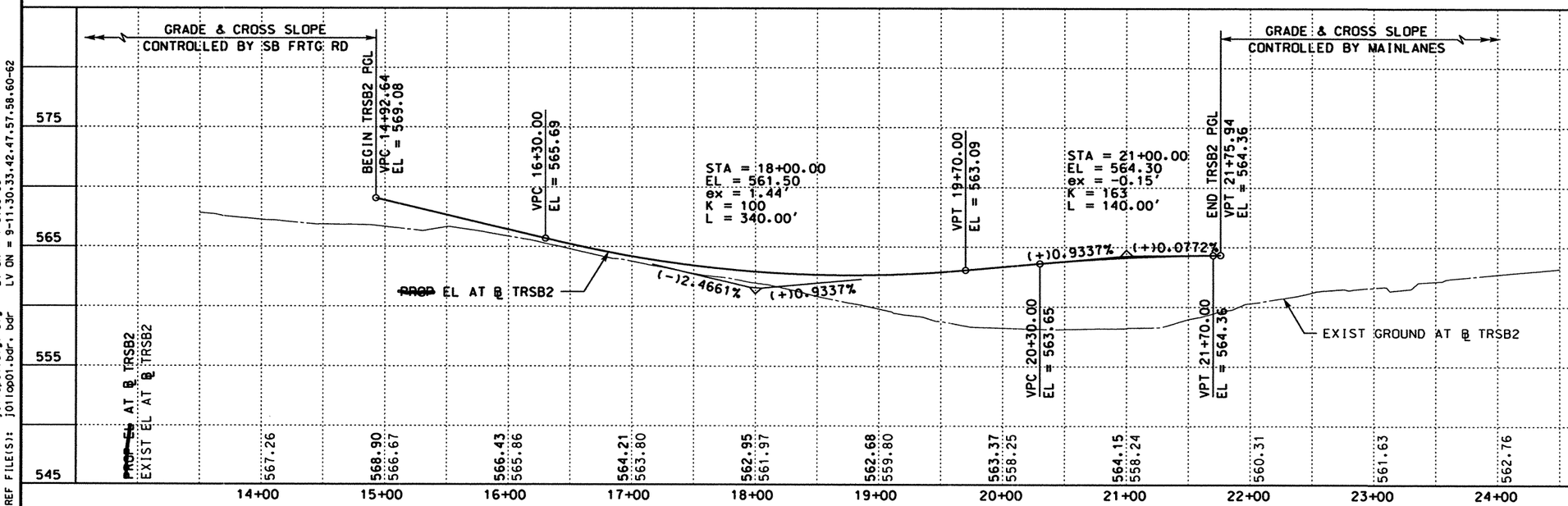
- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- (M) PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTES

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.
2. SEE PHASE II STEP 1B FOR ADDITIONAL DETAIL ON STRIPING, BARRICADES & SIGNING.
3. FOR ALIGNMENT INFORMATION SEE "TCP TEMPORARY GEOMETRIC DATA SUMMARY" SHEET.



0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
TEMPORARY RAMP DETAILS
TRSB2
PHASE II STEP 1A
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	97
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

B50TRP3 .DGN-06 HOUFILE023 \hciwin\c\0130\

REF FILE(S):
JO11op01.drn. drn LV ON = 8.28
JO11op01.pro. pro LV ON = 12.13.35.42.43
FILE(S): mi1oint.row . row LV ON = 1-23.25-63

REF FILE(S):
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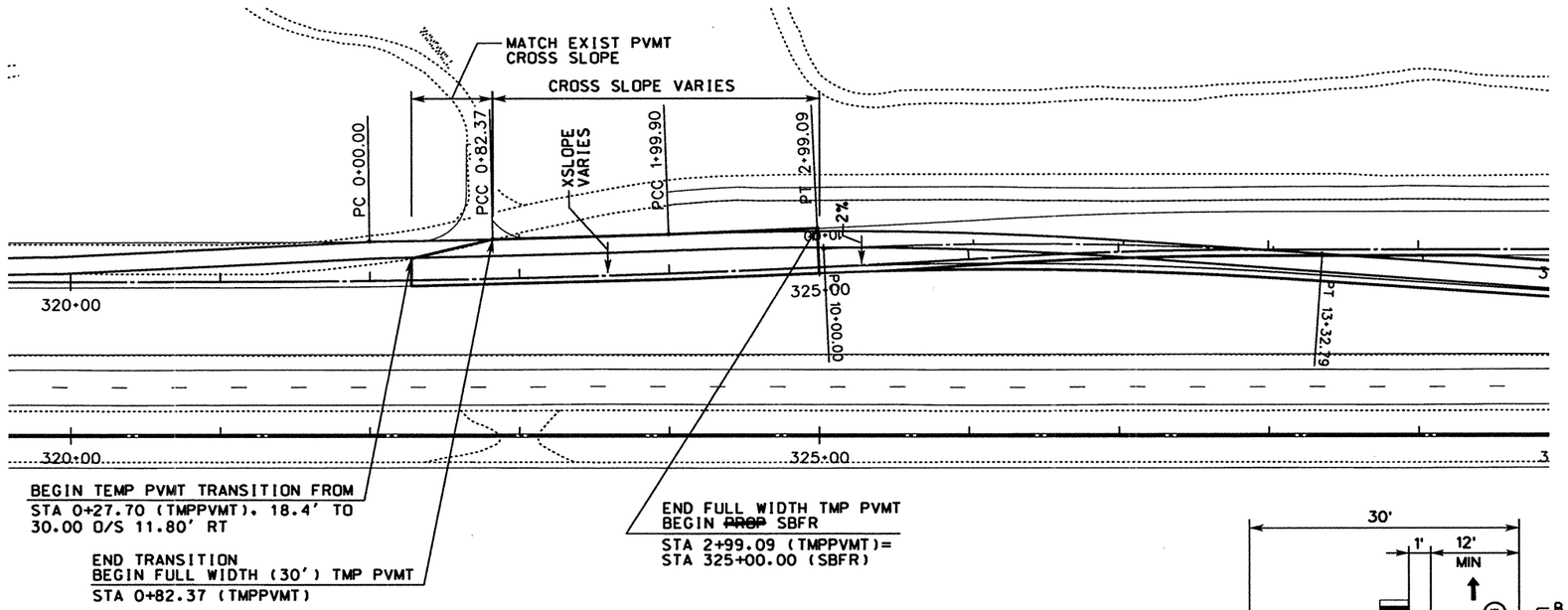
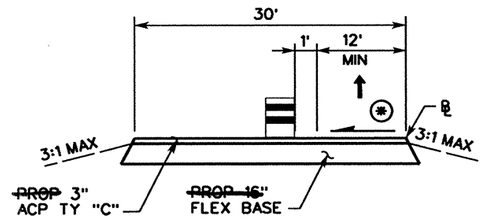
JO11op01.eop. eop LV ON = 1-17.19-63
JO11op01.bck. bck LV ON = 2-9.10.14.17.20.21.25.28
JO11op01.alg. alg LV ON = 1-6.35-39
JO11op01.bdr. bdr LV ON = 9-11.30.33.42.47.57.58.60-62





TEMPORARY PAVEMENT
TYPICAL SECTION

STA 0+27.70 TO STA 2 +99.09

(*) VARIES 2% USUAL

WORK ZONE PAVEMENT MARKINGS

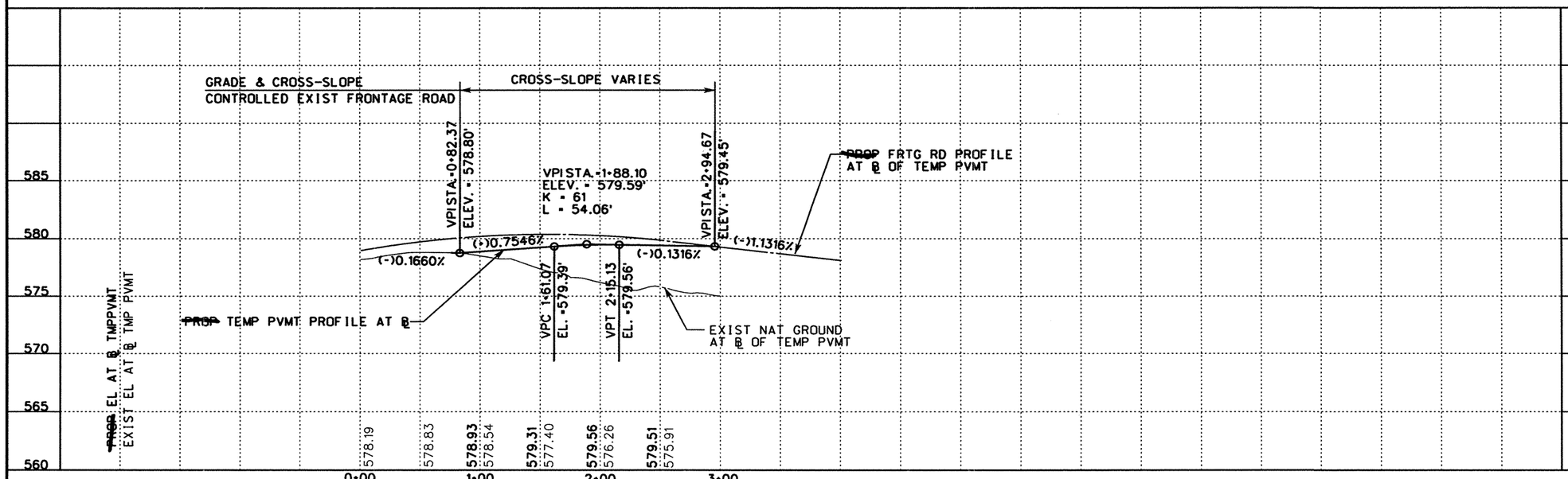
- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTES

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.
2. TEMPORARY PAVEMENT WILL BE REMOVED DURING CONSTRUCTION OF ~~PROPOSED~~ FRONTAGE ROAD.
3. FOR ALIGNMENT INFORMATION SEE "TCP TEMPORARY GEOMETRIC DATA SUMMARY" SHEET.



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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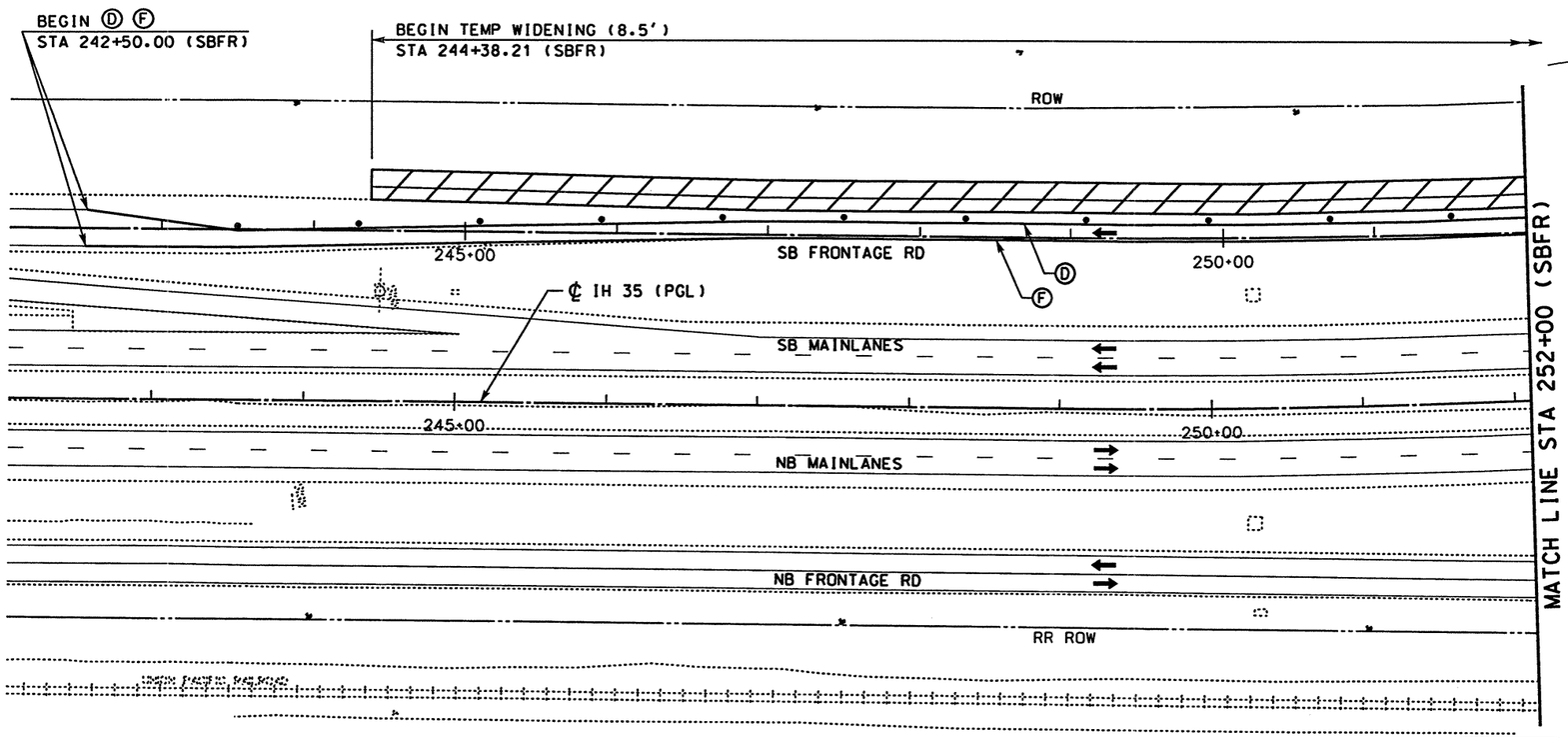
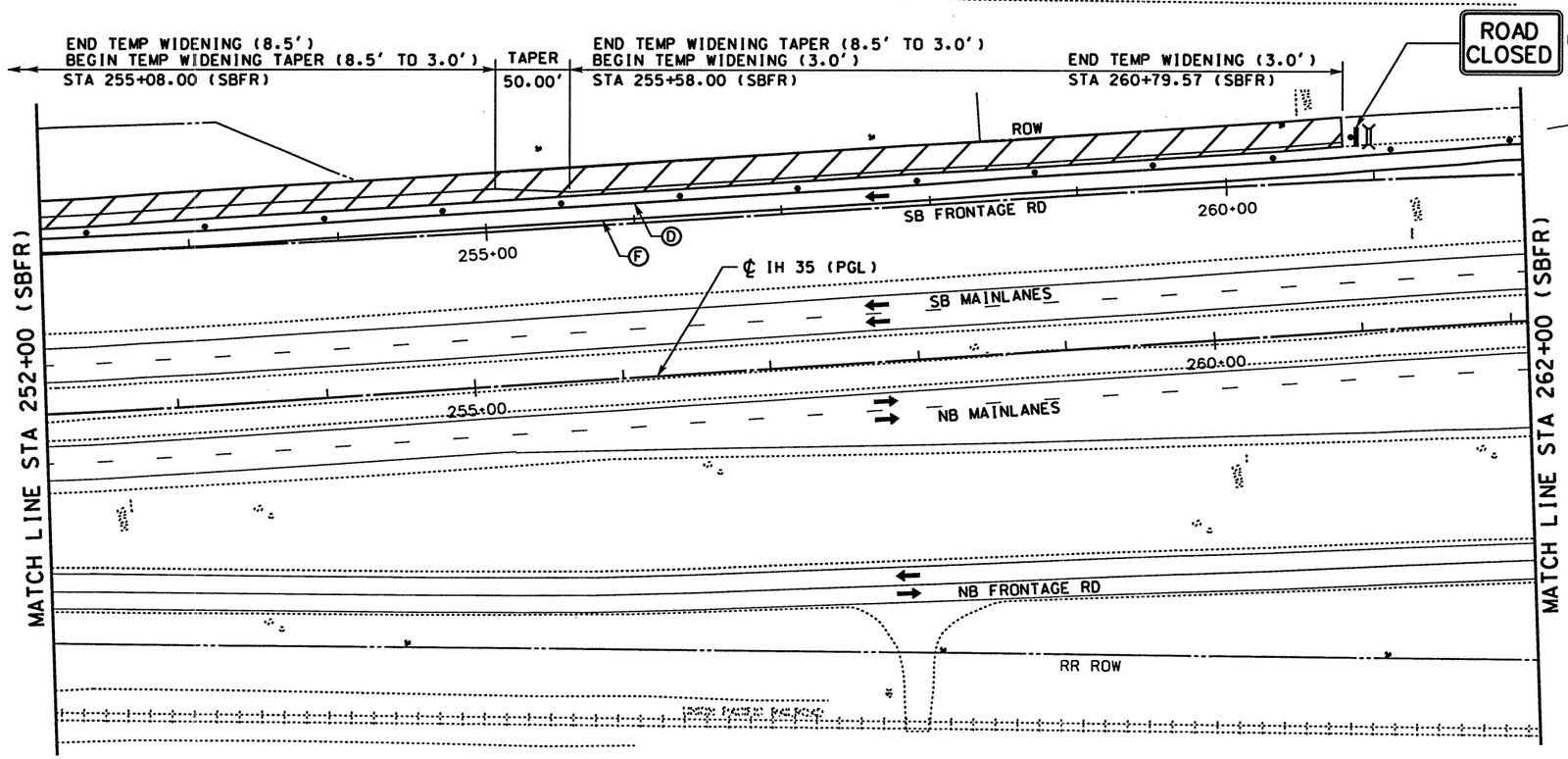
IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY PAVEMENT~~ DETAILS
(PHASE II STEP 1A)

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		98
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
BSOTPP1.dgn-03





WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

SCALE: 1" = 100' HORIZ

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87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1B
STA 242+00 TO
STA 262+00

SHEET 1 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	99
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

04/18/03

B50P2180l.dgn-04 HOUFILE023 \hciwlv\cf0130\

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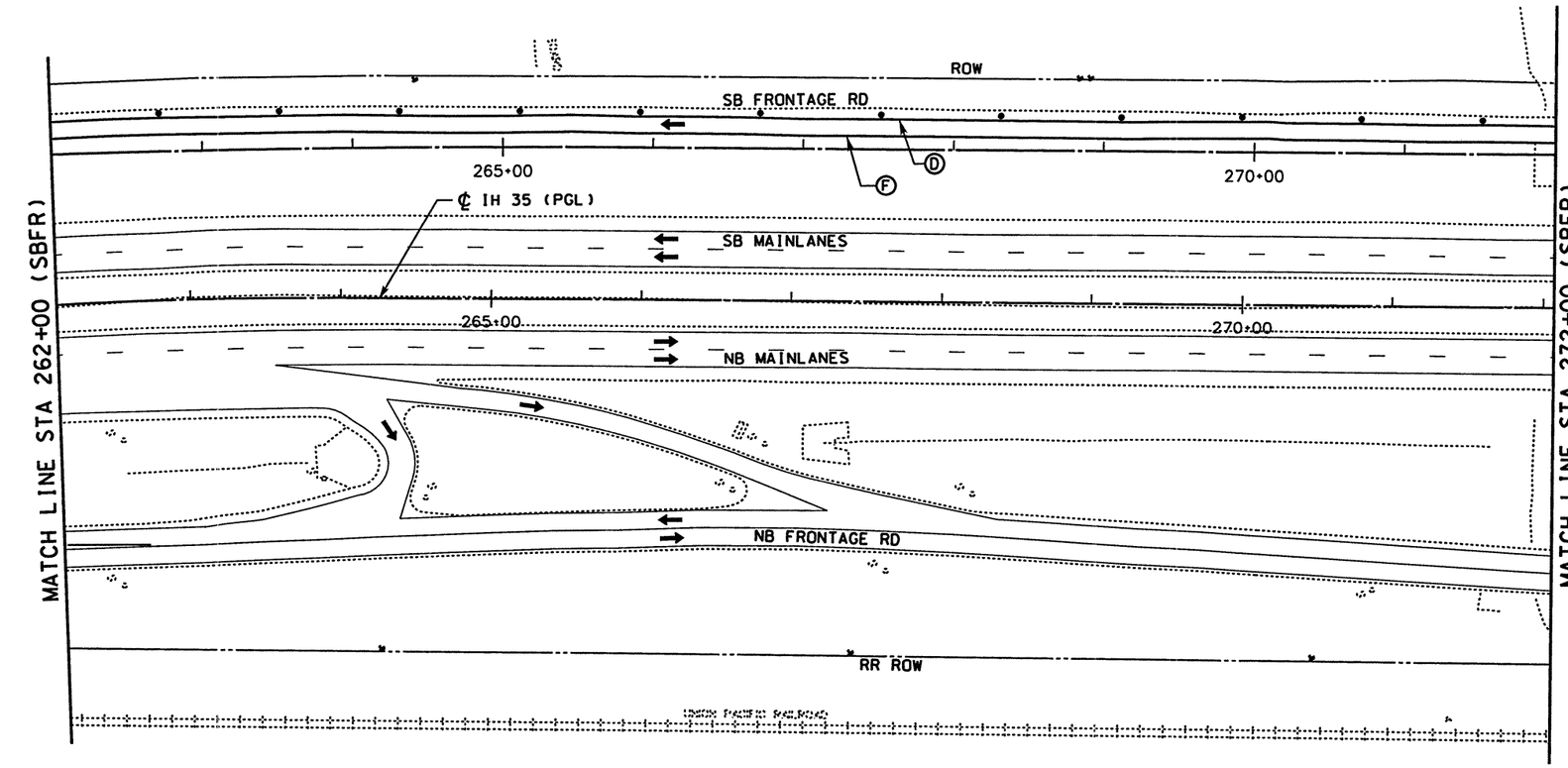

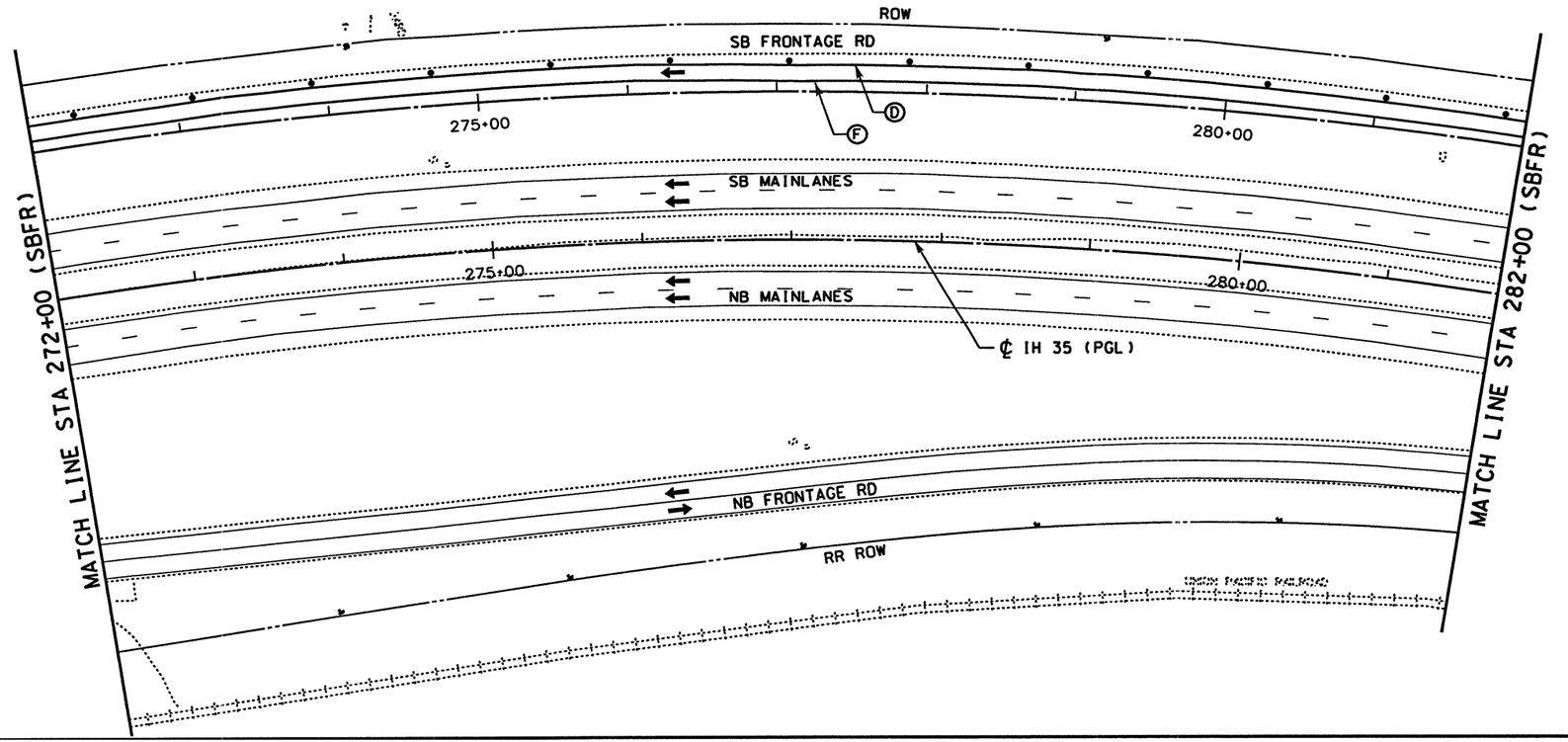

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1B
STA 262+00 TO
STA 282+00

SHEET 2 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		100
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P21B02.dgn-04 HOUFILE023 \hcivil\cf0130\ 04/18/03

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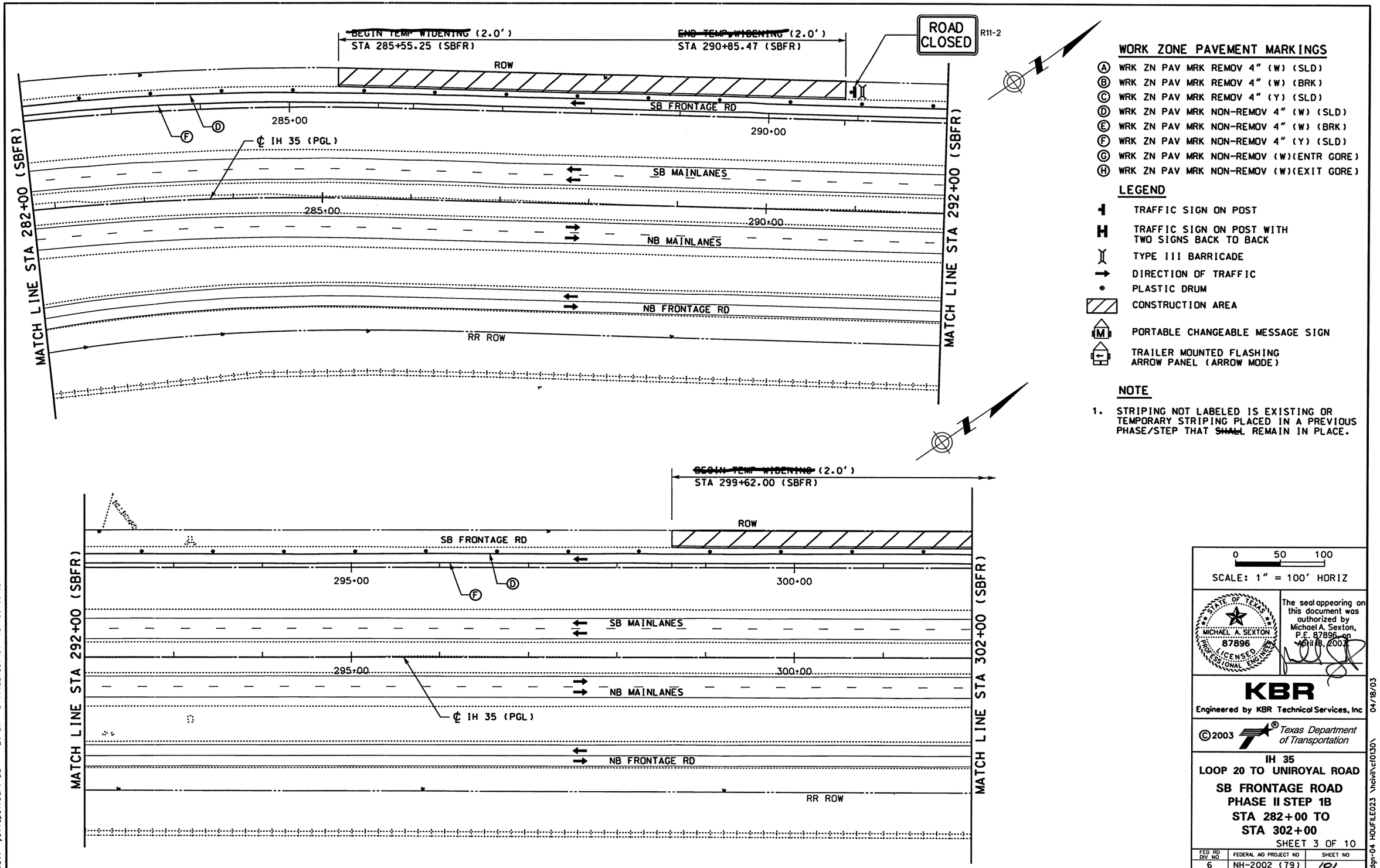
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62



WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1B
STA 282+00 TO
STA 302+00

SHEET 3 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	101
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03

\\civil\cc0130\ BSOP21B03.dgn-04 HOUFILE023

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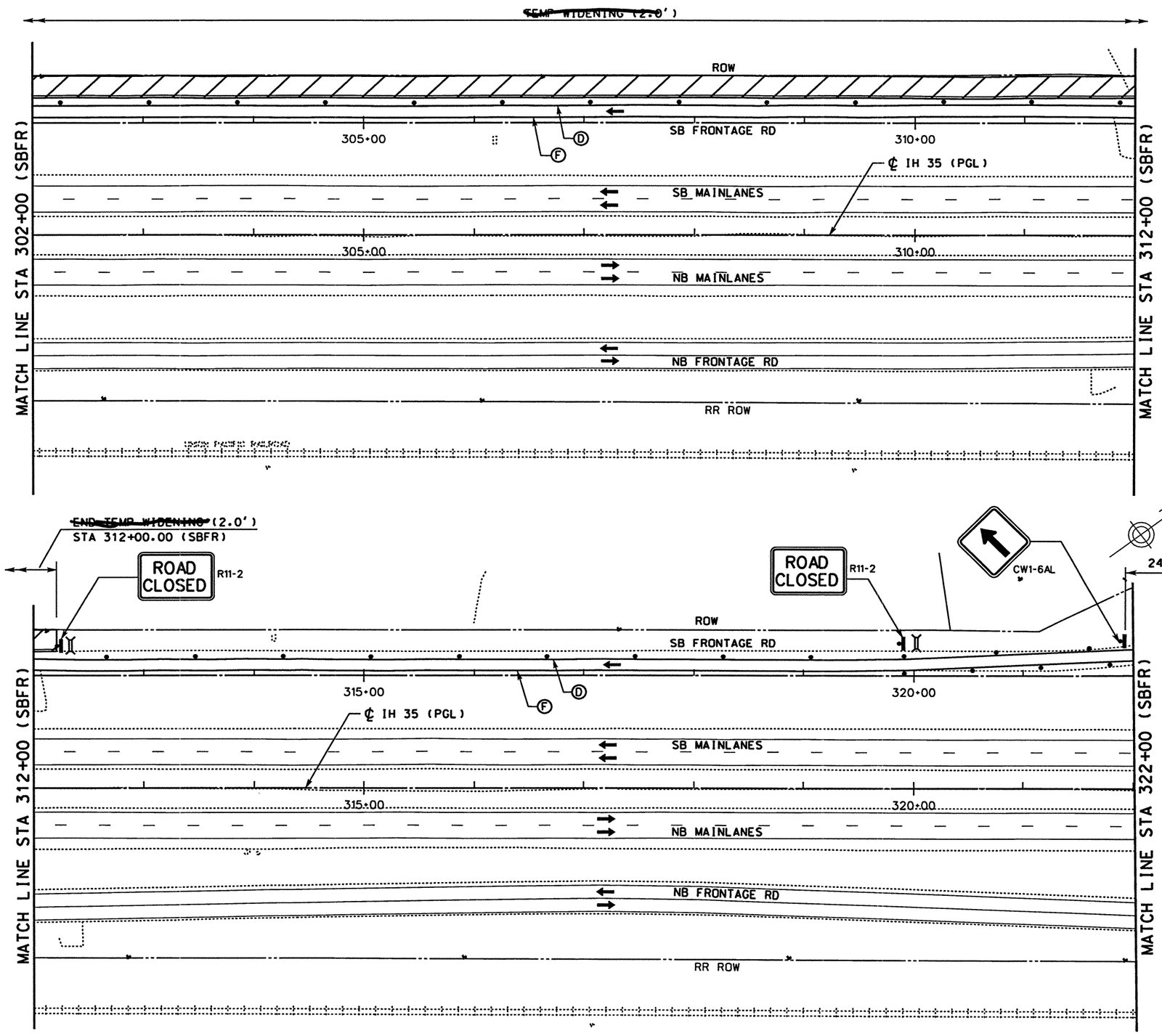

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1B
STA 302+00 TO
STA 322+00

SHEET 4 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		102
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03
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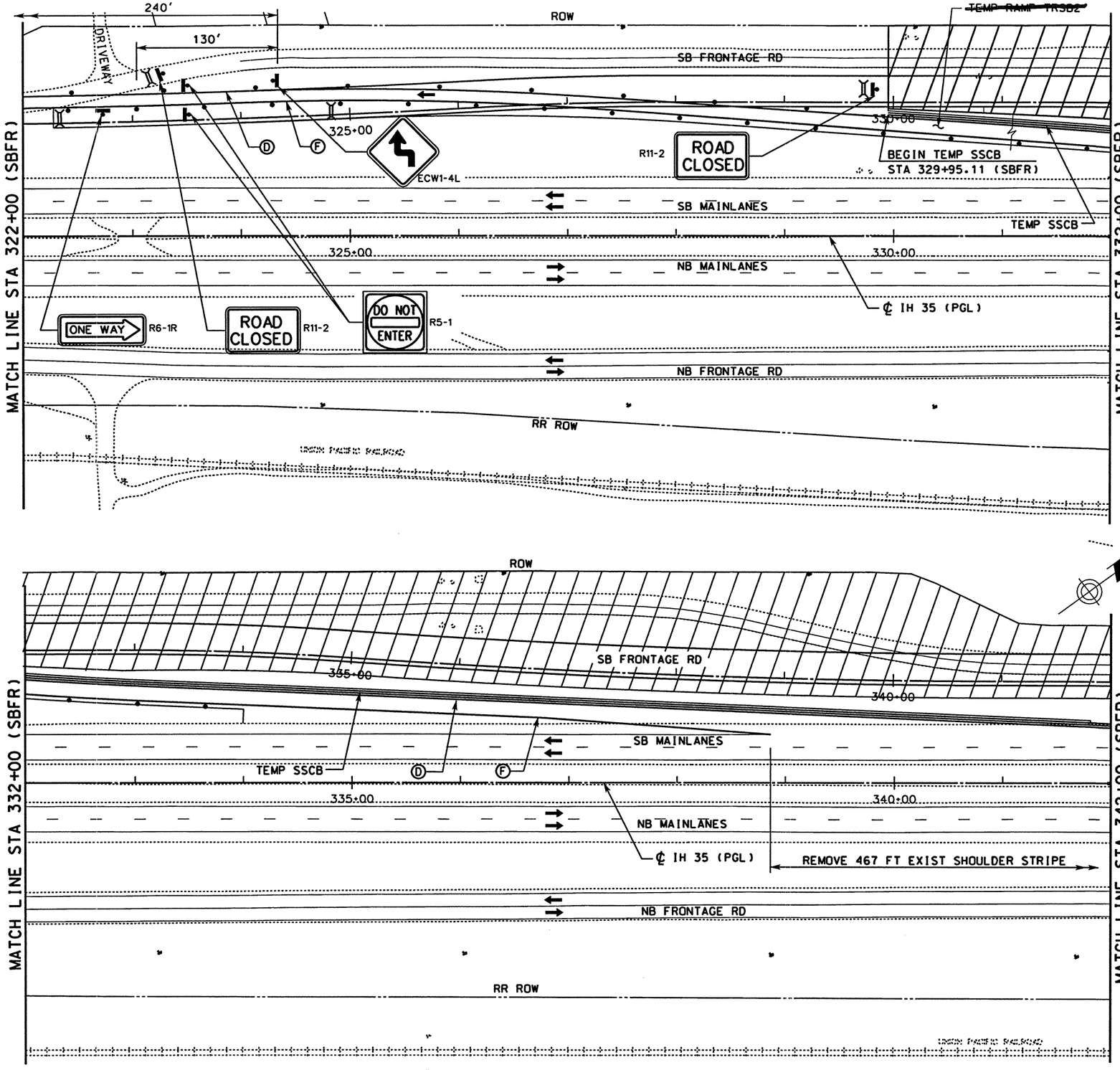

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1B
STA 322+00 TO
STA 342+00

SHEET 5 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	103
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P21B05.dgn-05 H:\FILE023 \hcivil\cf0130\

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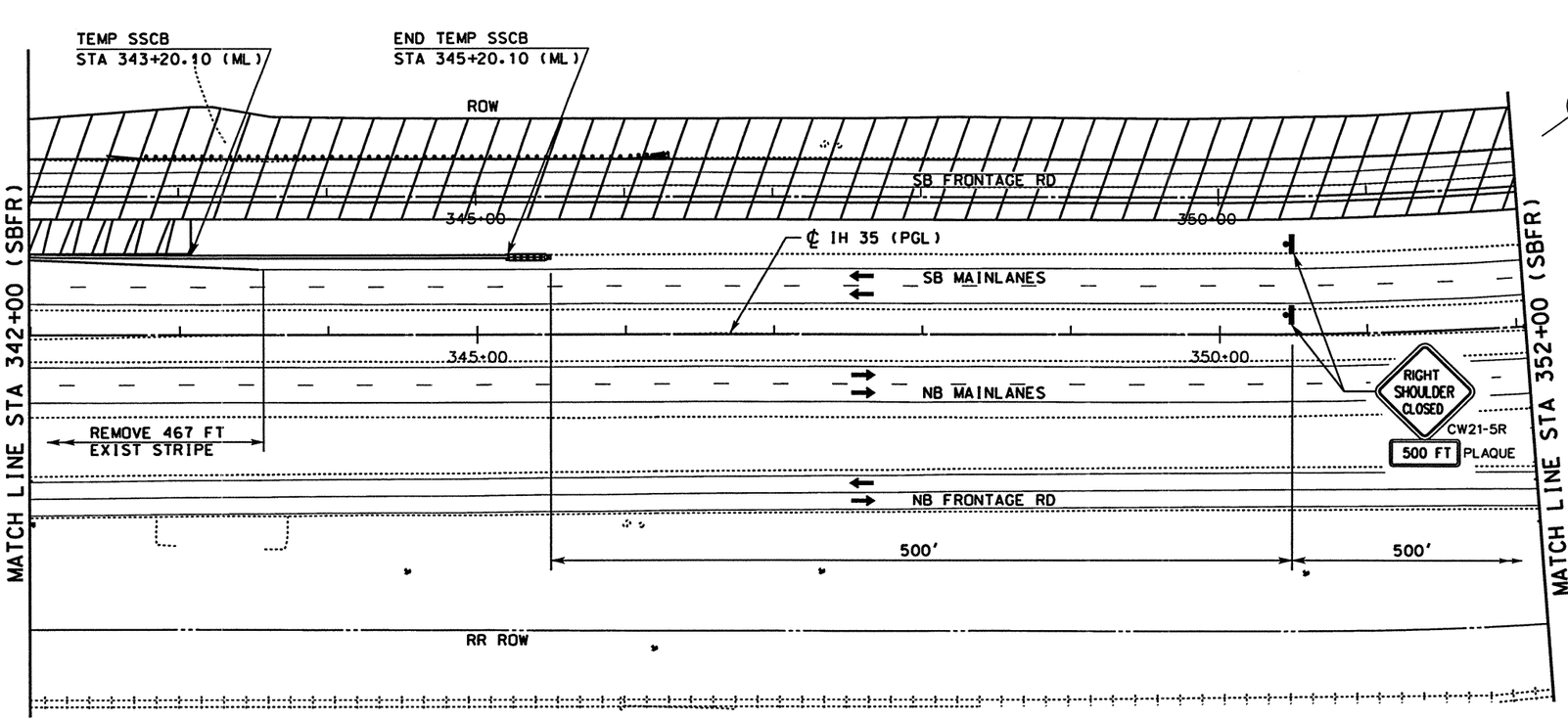

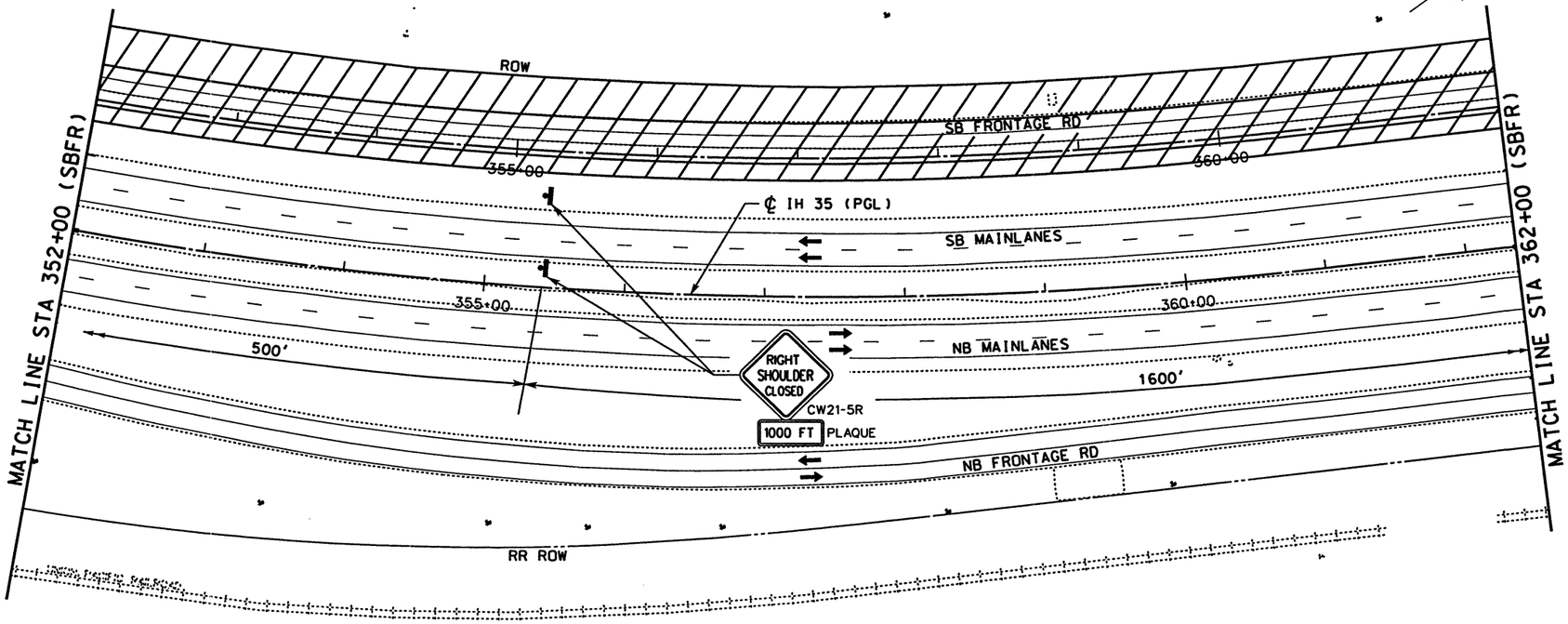

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- (M) PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1B
STA 342+00 TO
STA 362+00

SHEET 6 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		104
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03

B50P2IB06.dgn-04 HOUFILE023 \civil\c10130\

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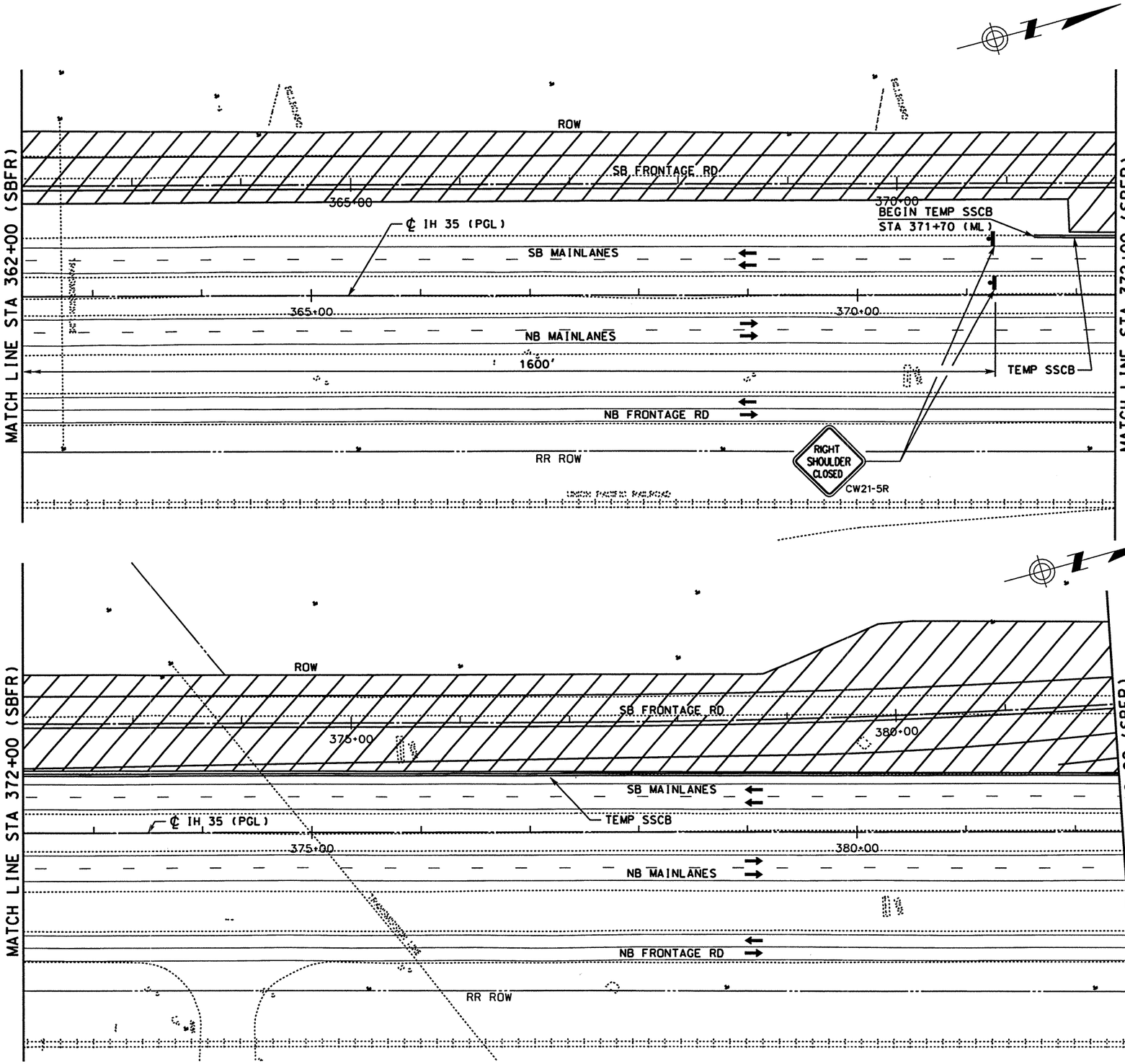

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1B
STA 362+00 TO
STA 382+00

SHEET 7 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	105
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

04/18/03

B50P21B07.dgn-04 HOUFILE023 \hchivil\cf0130\

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j011op01.alg. alg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.32-33.45.47.57.58.60-62

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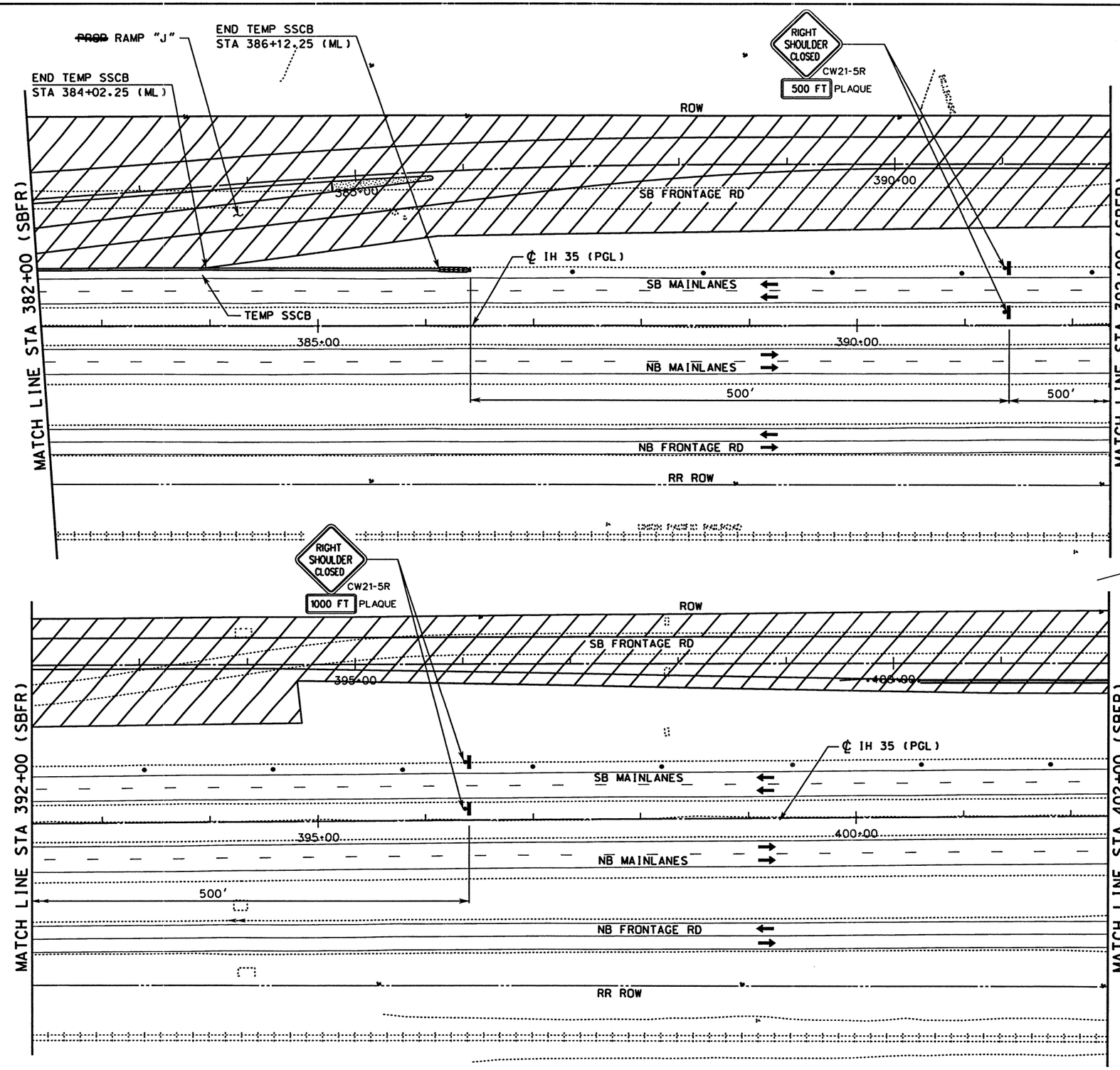

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1B
STA 382+00 TO
STA 402+00

SHEET 8 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	106
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

B50P21B08.dgn-04 HOUFILE023 \hciv\ic0130\ 04/18/03

REF FILE(S): j011op01.pro. LV ON = 1-63
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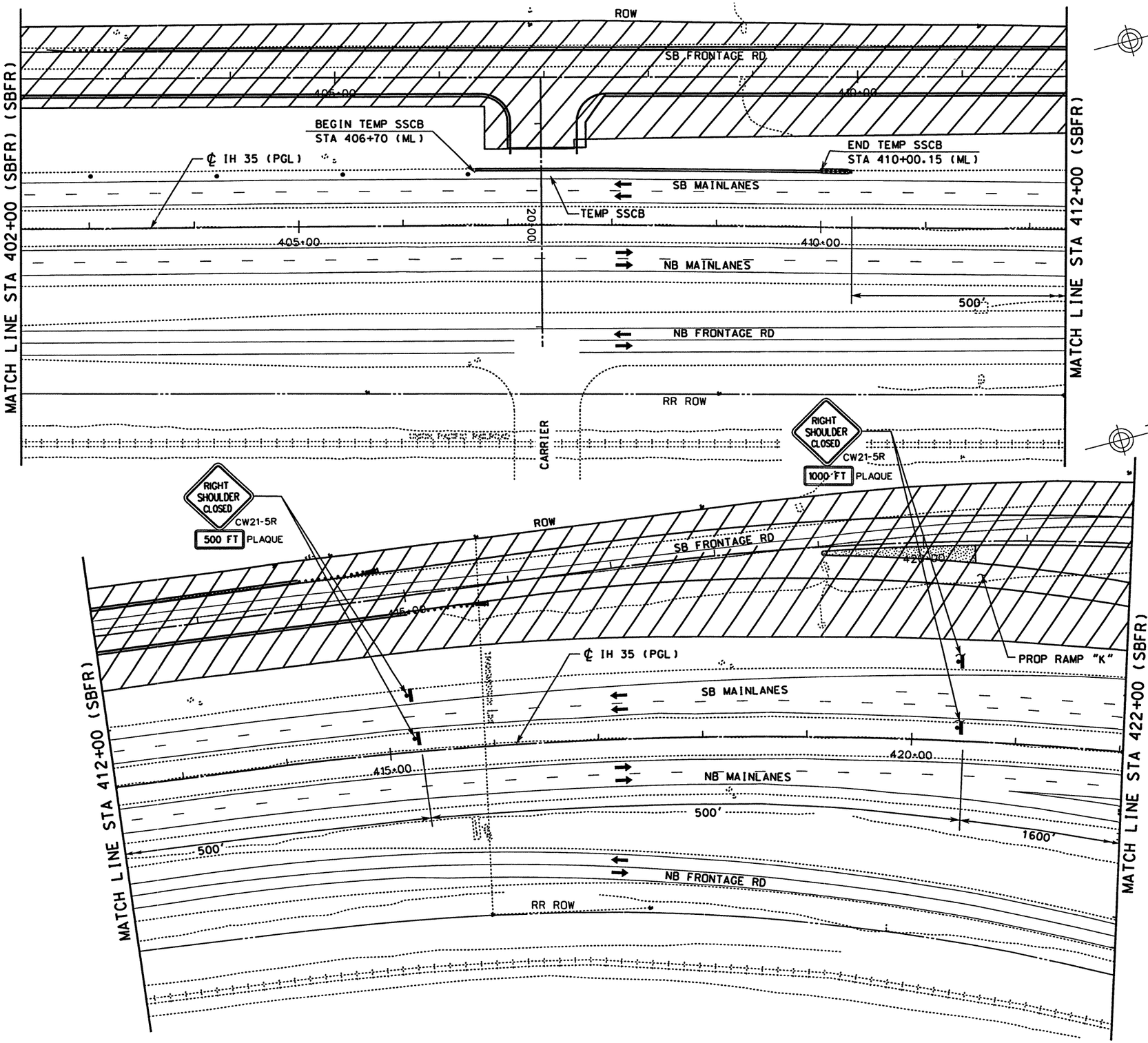

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1B
STA 402+00 TO
STA 422+00

SHEET 9 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	107
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB

CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P21B09.dgn-05 HOUFILE023 \hcivil\cf0130\

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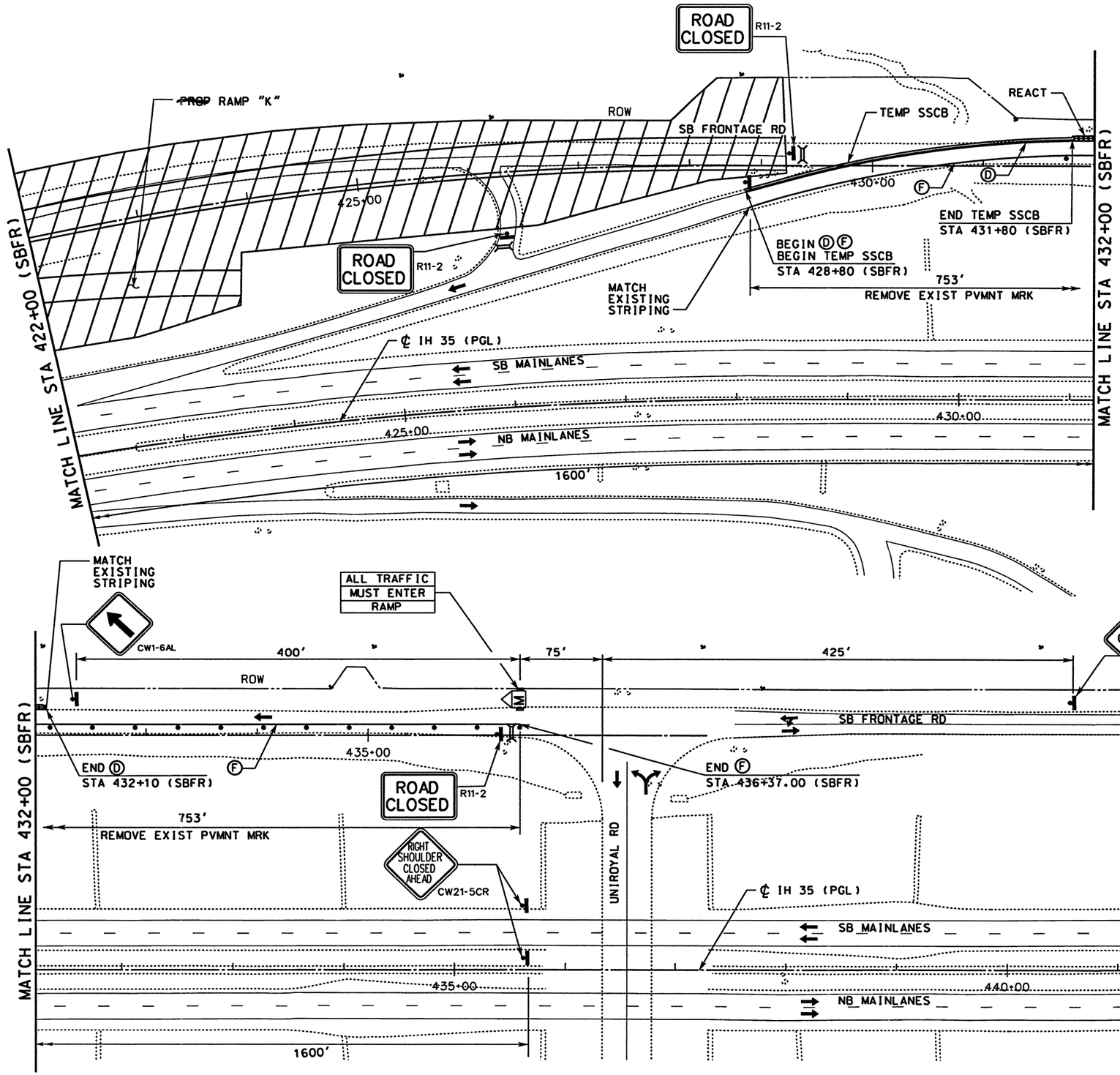

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 1B
STA 422+00 TO
STA 436+00.00

SHEET 10 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		108
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P21B10.dgn-05 HOUFILE023 \hcivil\cf0130\ 04/18/03

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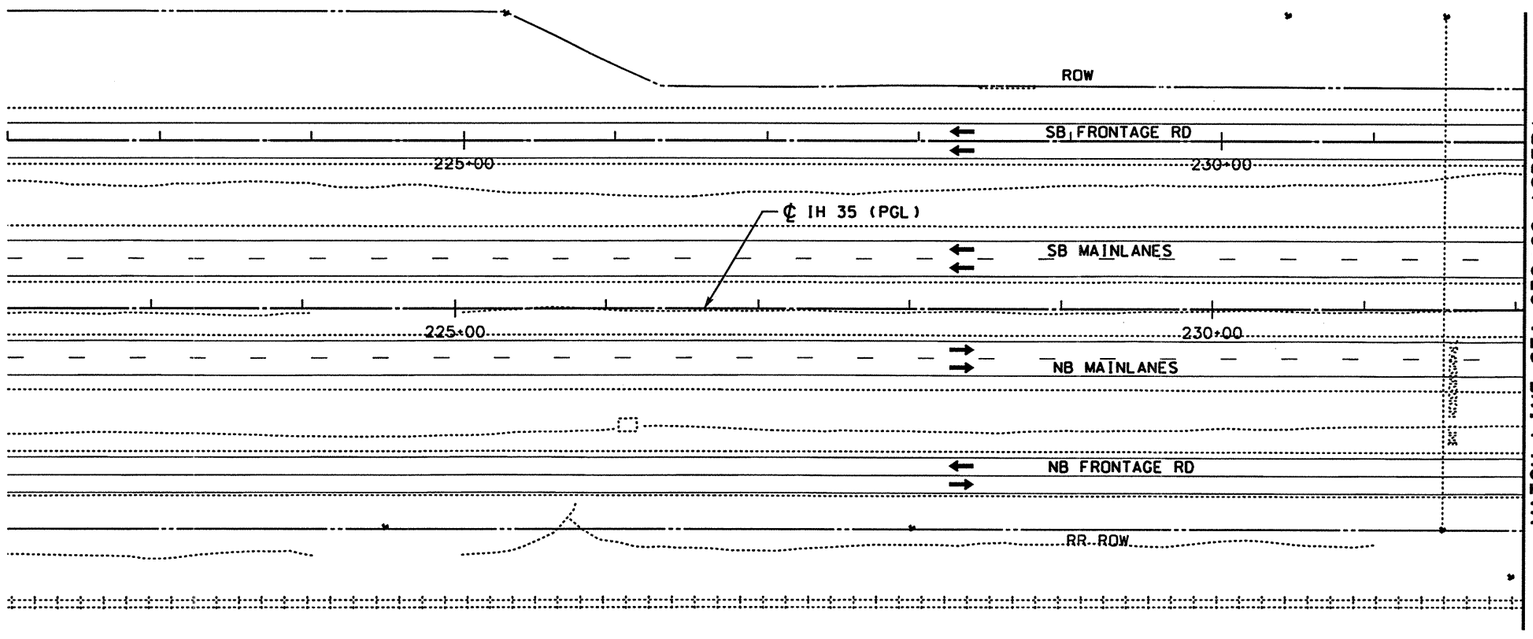

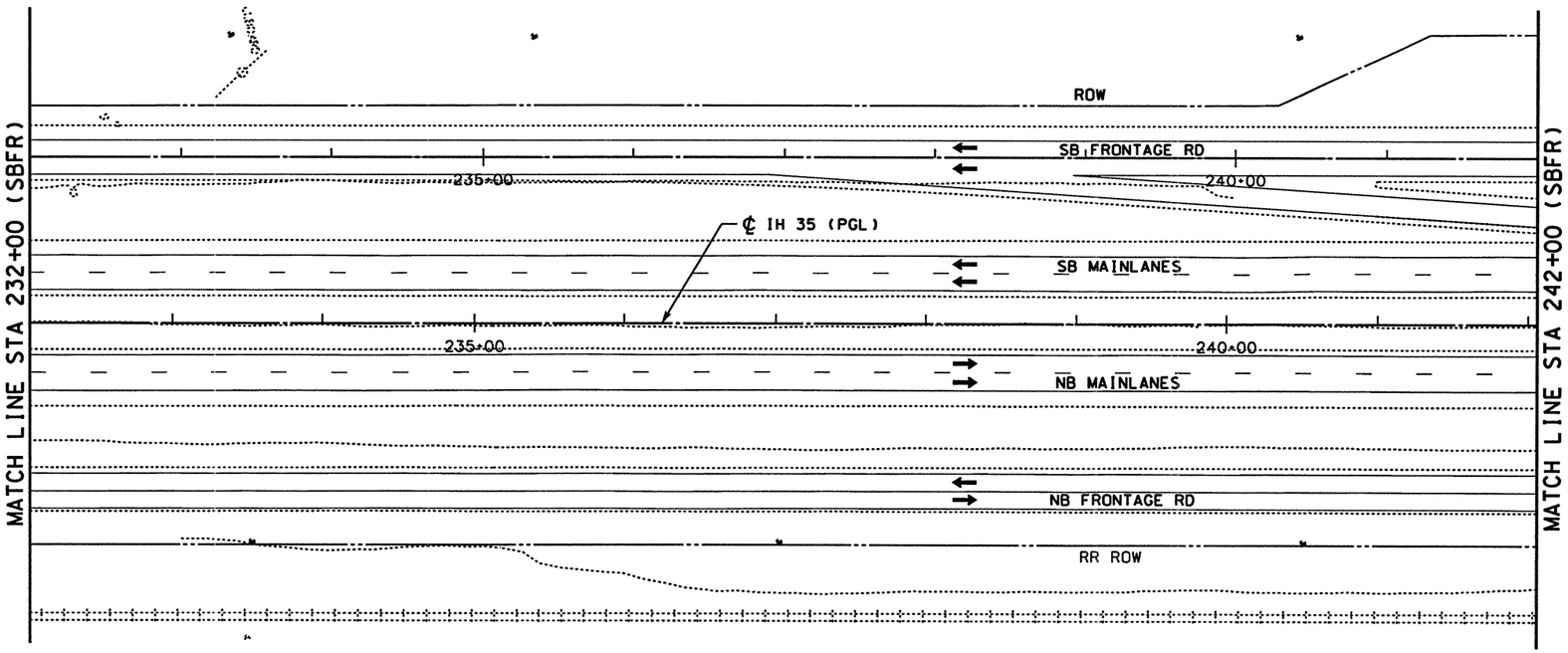

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

SCALE: 1" = 100' HORIZ (0, 50, 100)

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2A
STA 222+00 TO
STA 242+00

SHEET 1 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		109
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

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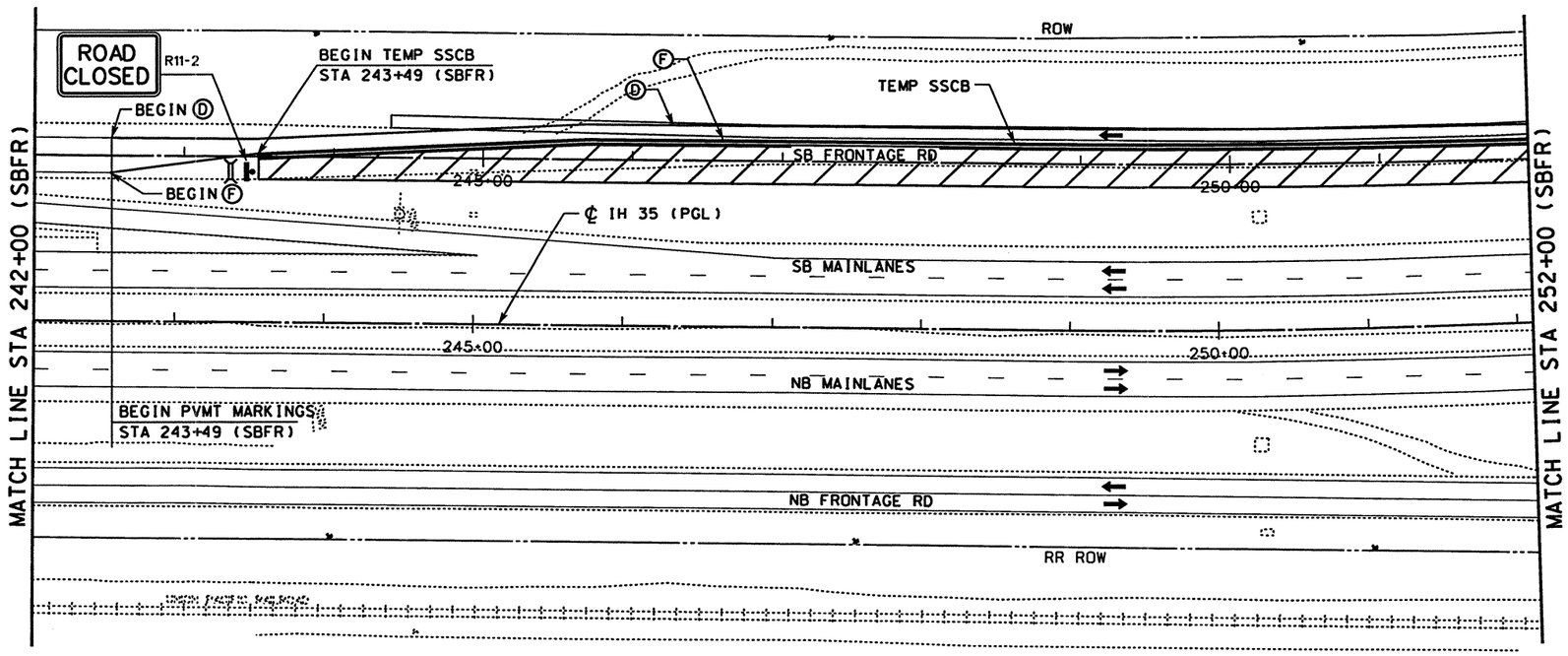
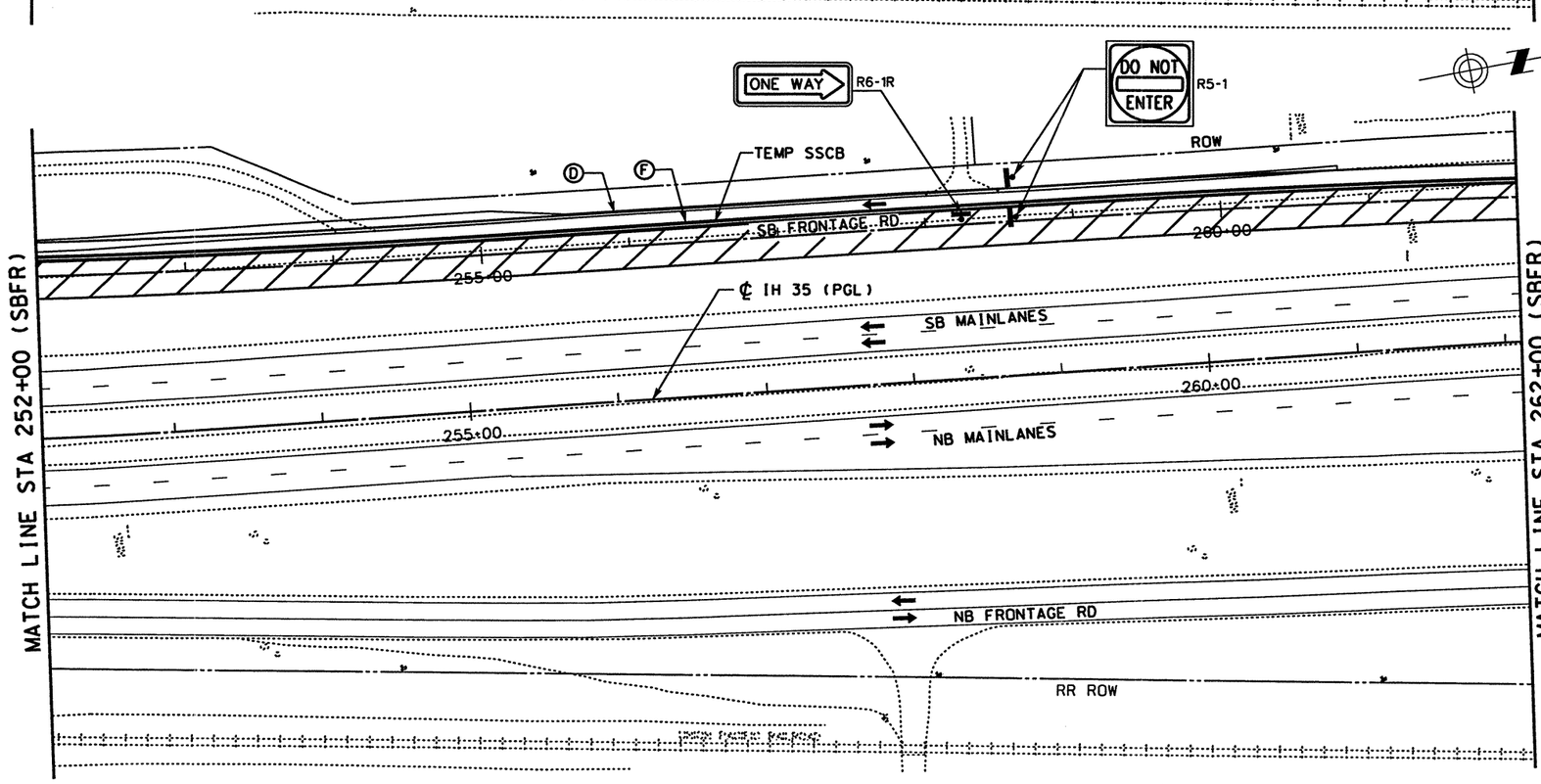
j011op01.bdr, bdr LV ON = 9-11,32-33,45,47,57,58,60-62





WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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87896
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PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2A
STA 242+00 TO
STA 262+00

SHEET 2 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		110
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03

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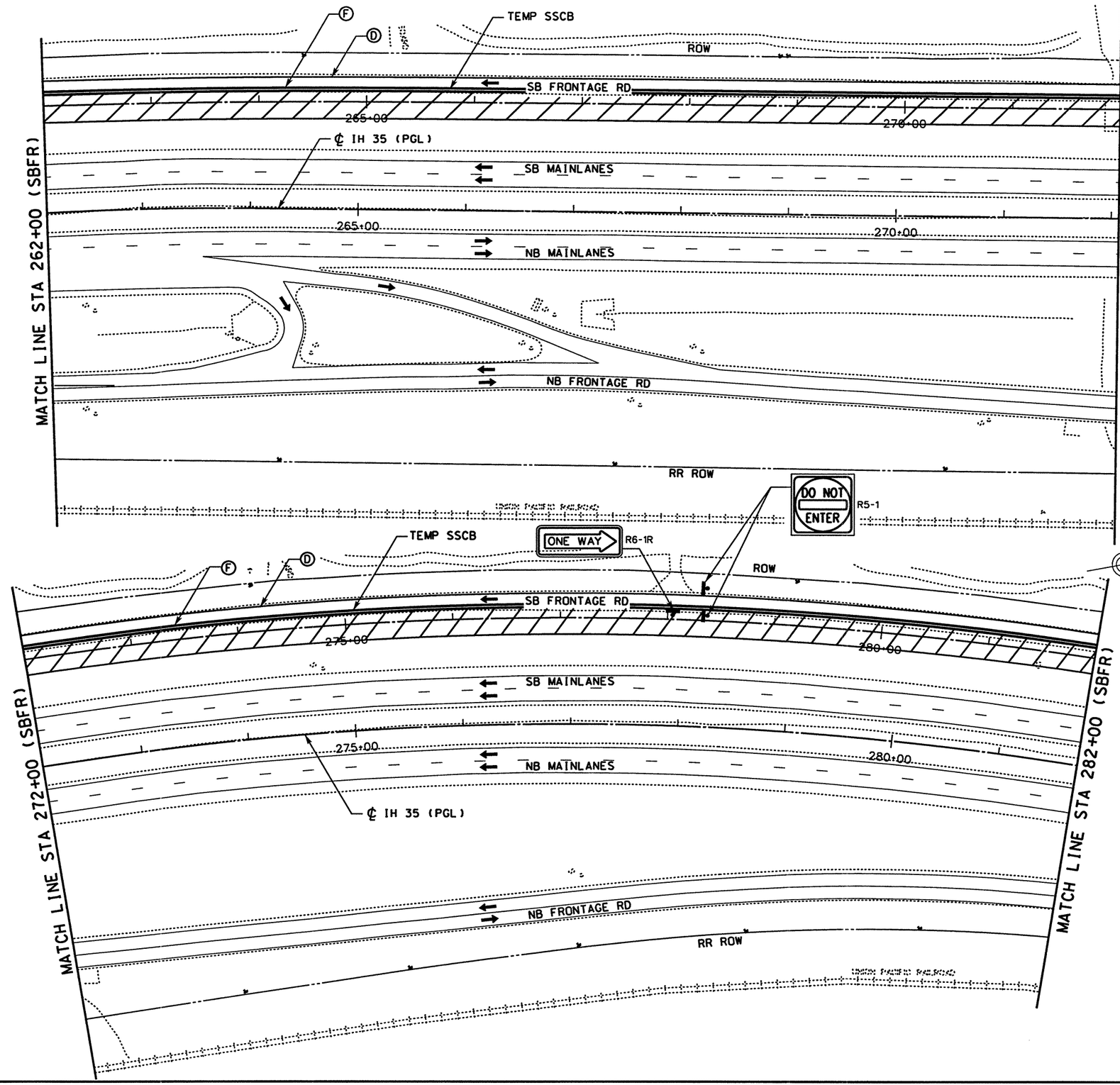

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

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0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2A
STA 262+00 TO
STA 282+00

SHEET 3 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	///
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

B50P22A03.dgn-04 HOUFILE023 \hcivil\cf0130\ 04/18/03

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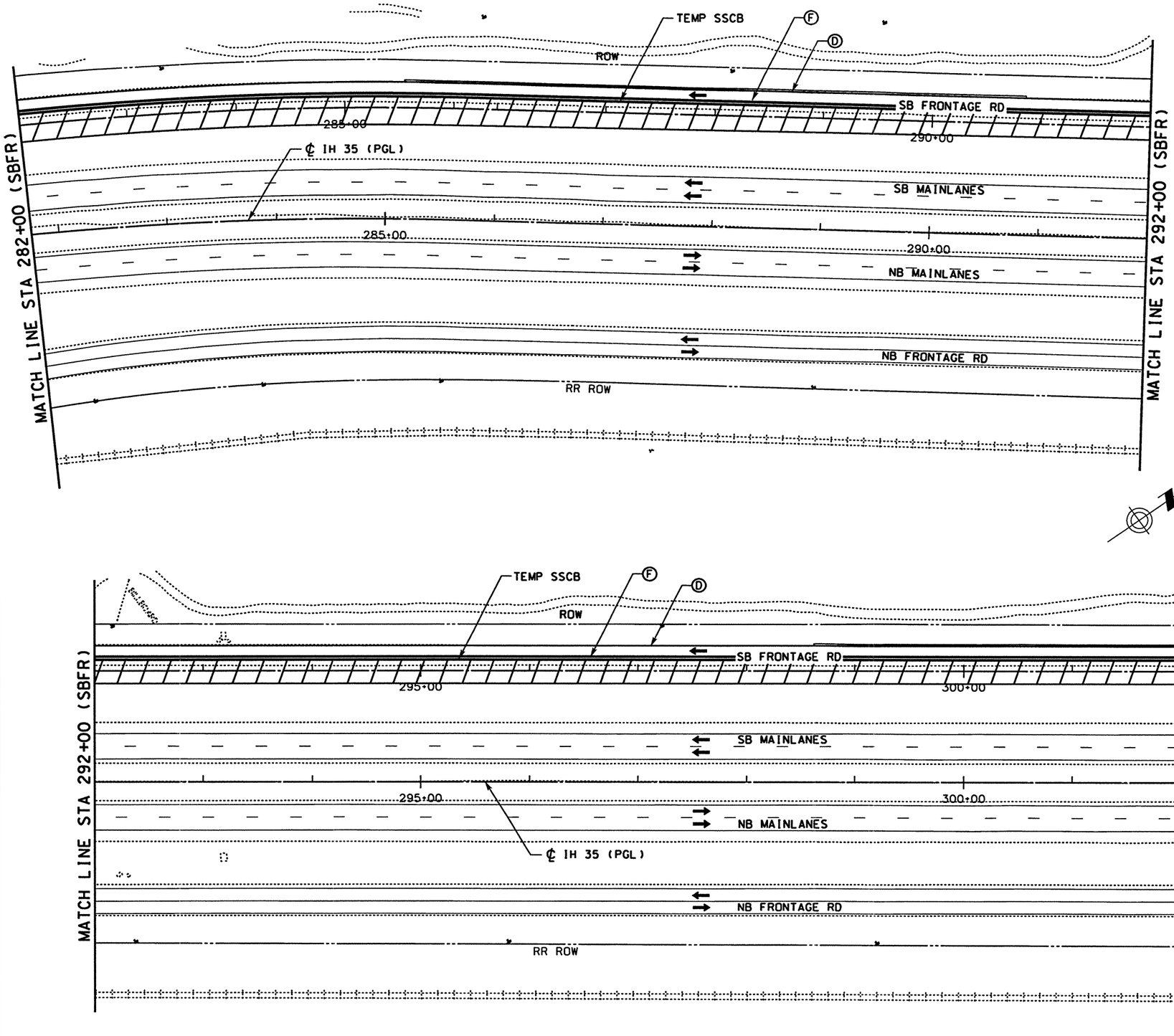

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

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0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2A
STA 282+00 TO
STA 302+00

SHEET 4 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		112
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P22A04.dgn-04 HOUFILE023 \hcivil\cf0130\ 04/18/03

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j011op01.bck, bck LV DN = 2.9.10.14.17.20.21.25.28
j011op01.eop, eop LV DN = 1-17.19-63
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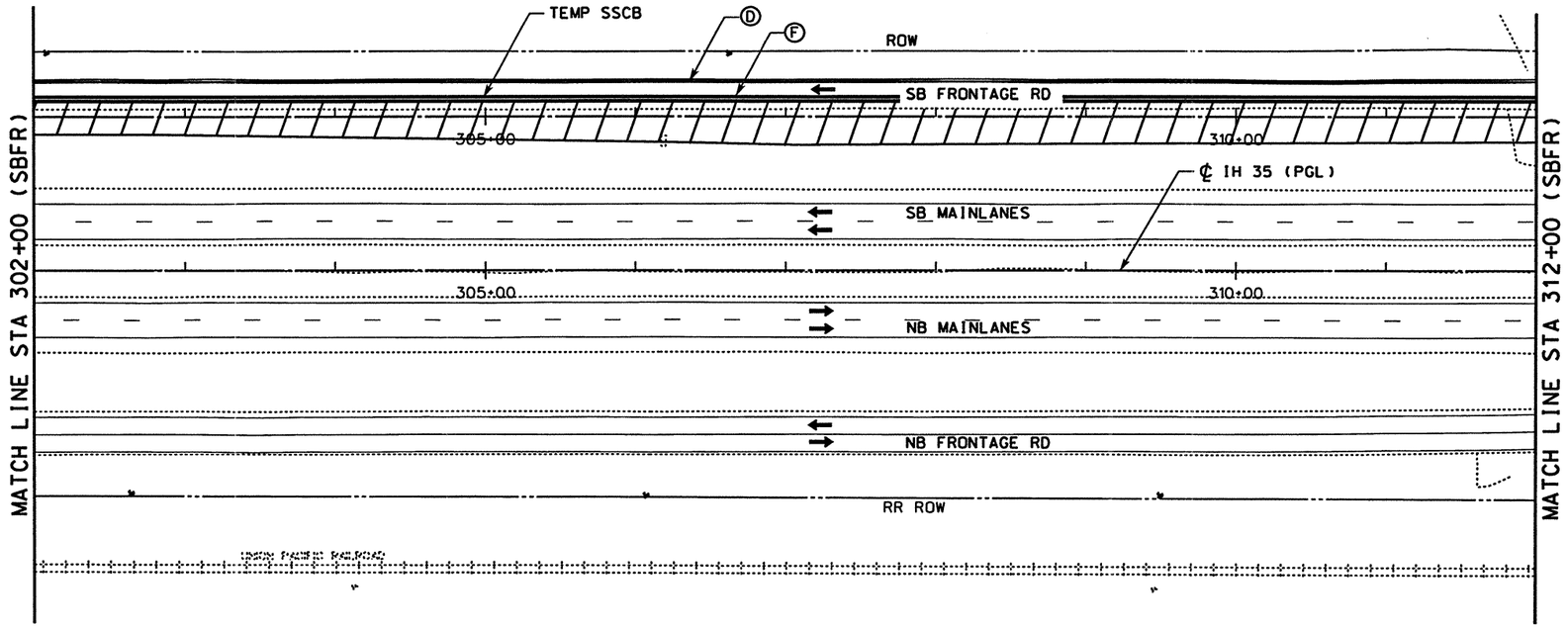

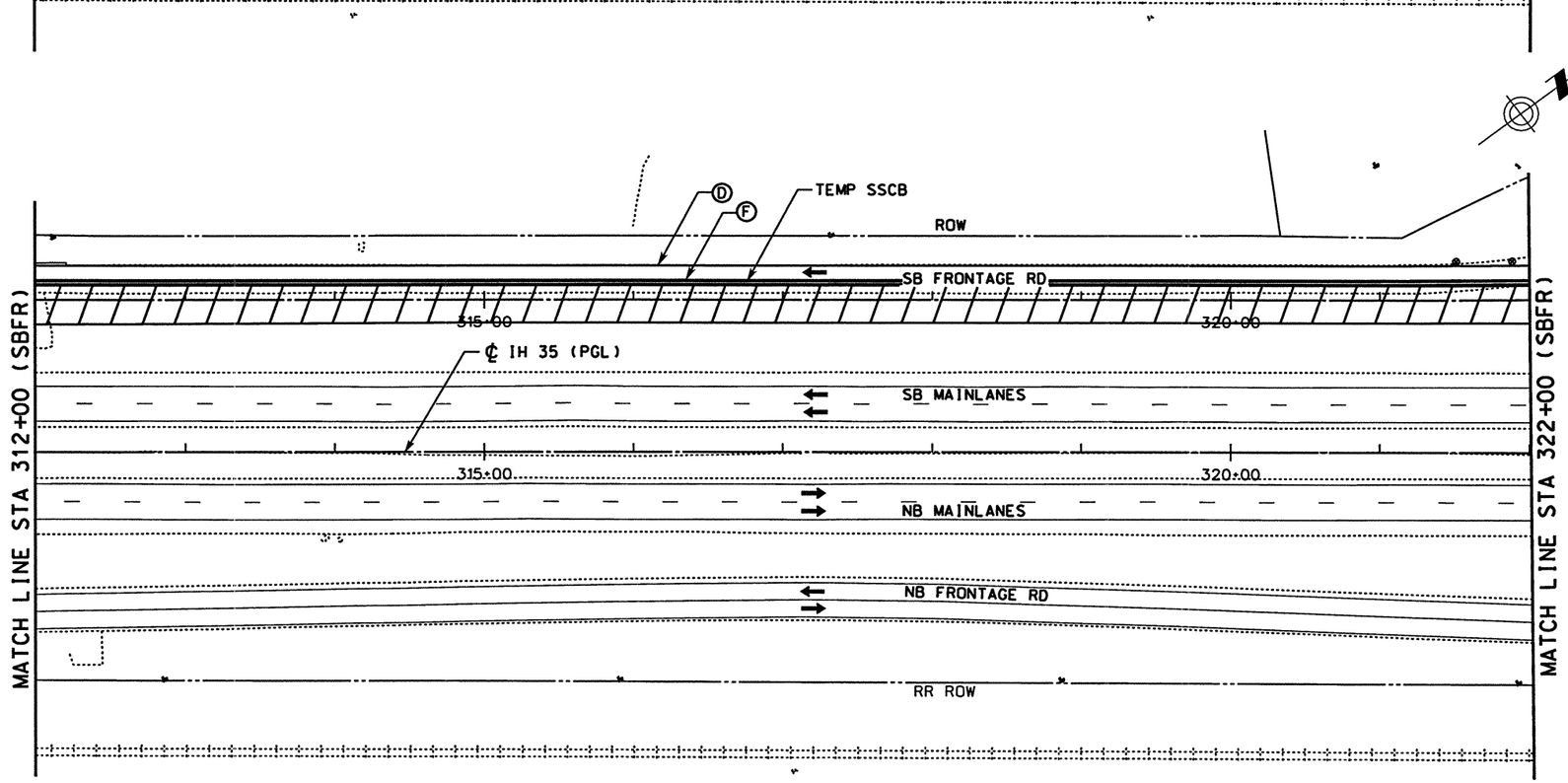

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2A
STA 302+00 TO
STA 322+00

SHEET 5 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		113
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P22A05.dgn-05 HOUFILE023 \hcivil\c\0130\

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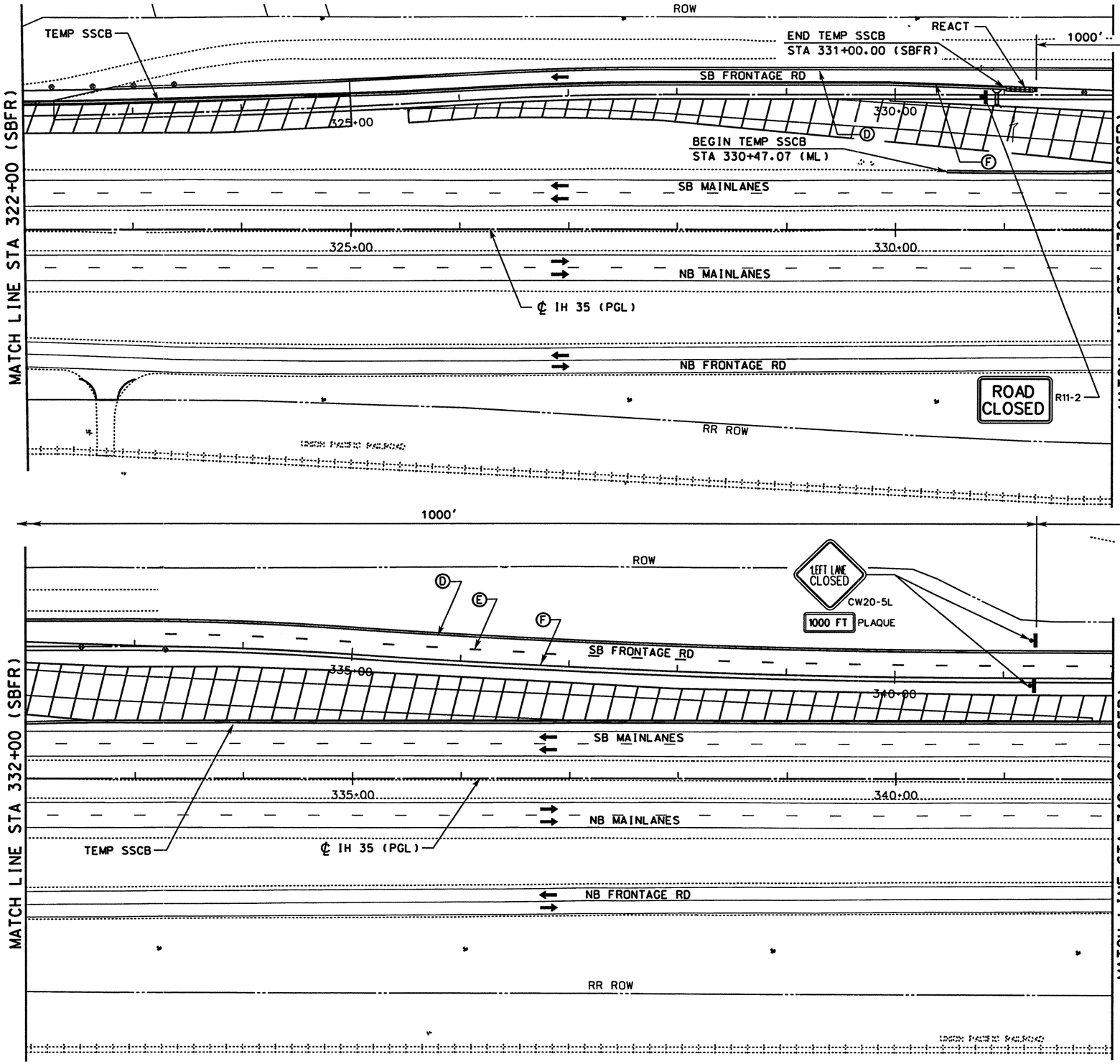

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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04/18/03

IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2A
STA 322+00 TO
STA 342+00

SHEET 6 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		114
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P22A06.dgn-04 HOUFILE023 \hciviL\c10130\

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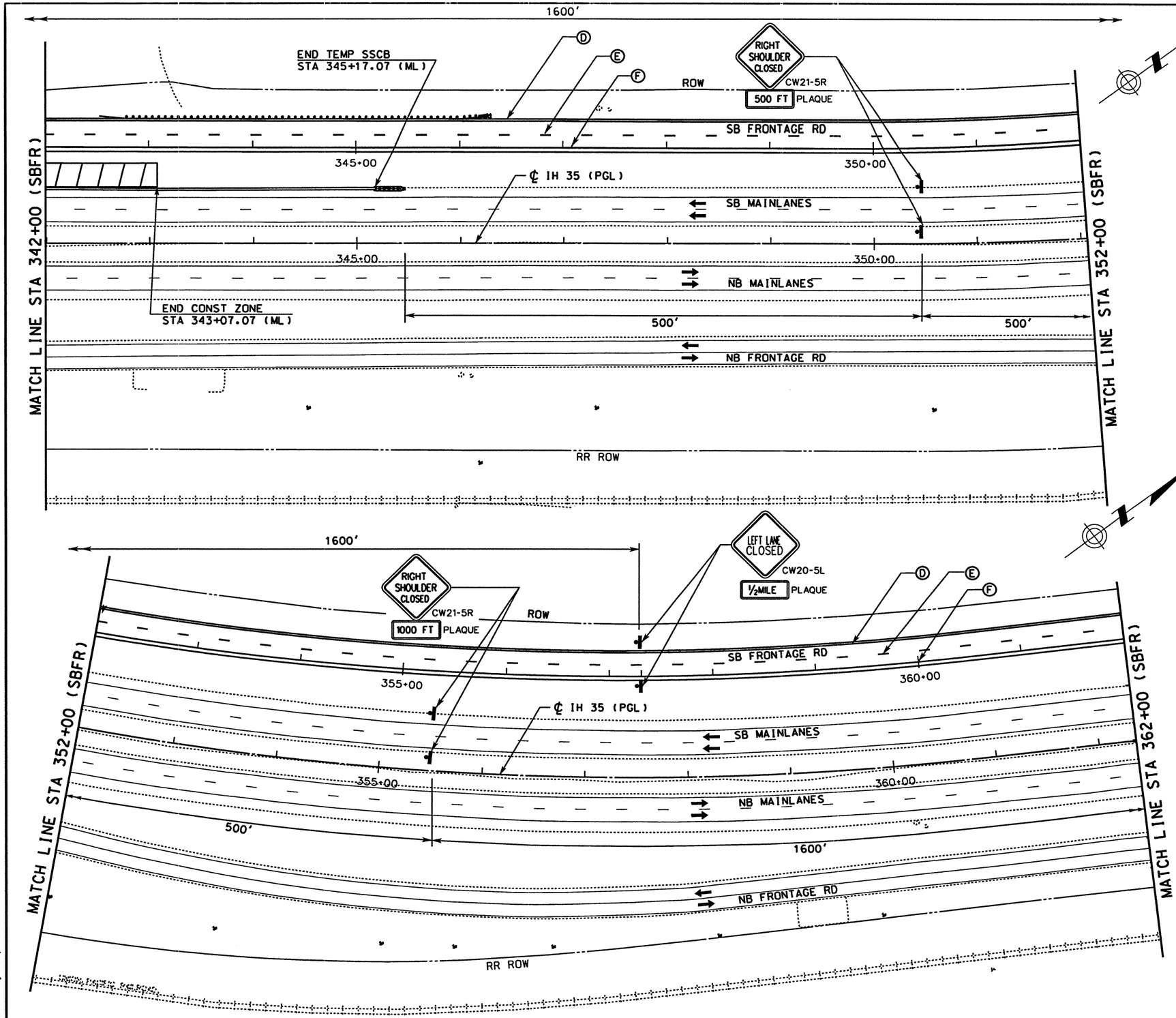

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2A
STA 342+00 TO
STA 362+00

SHEET 7 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	115
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

04/18/03

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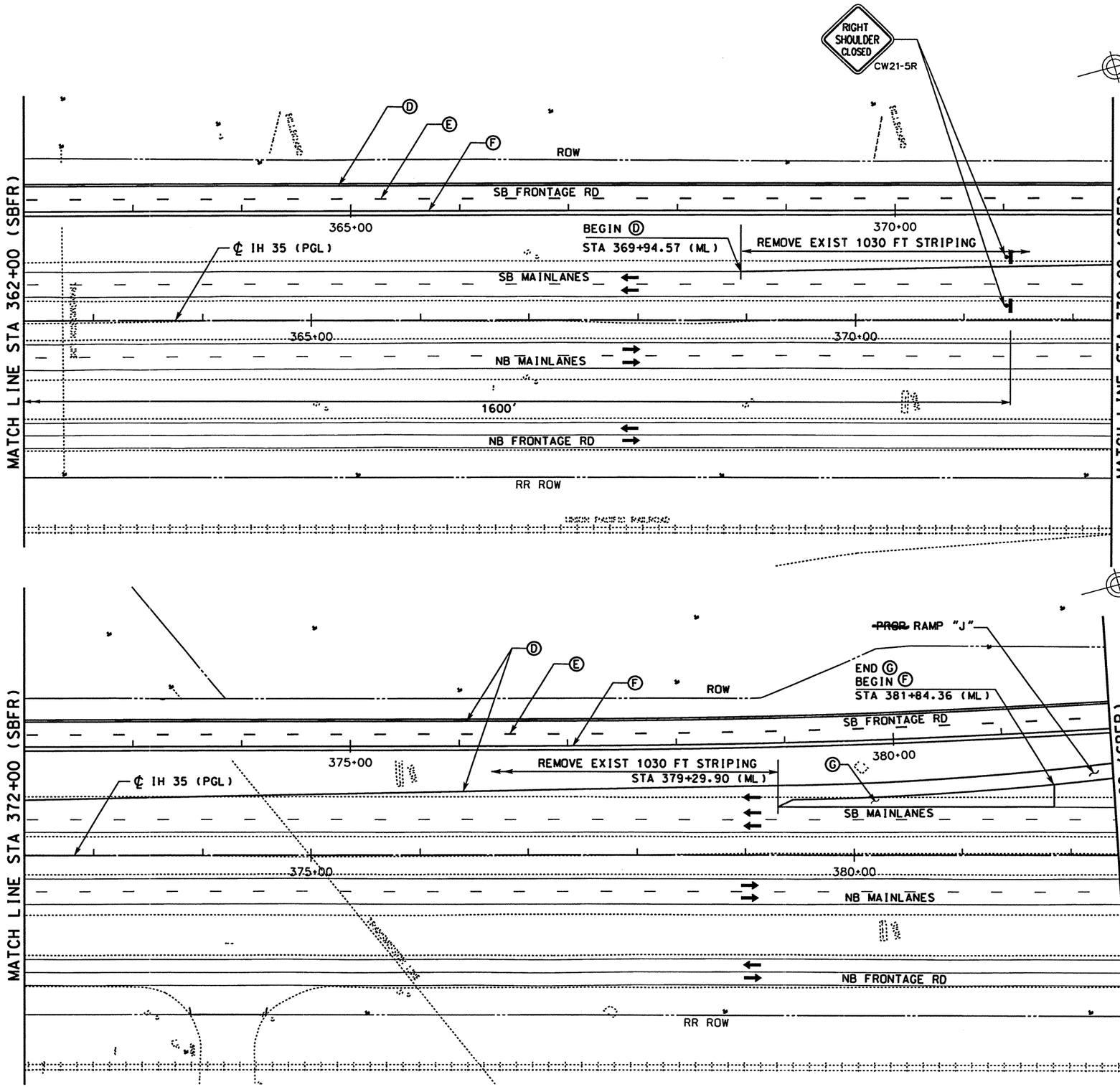

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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MICHAEL A. SEXTON
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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2A
STA 362+00 TO
STA 382+00

SHEET 8 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	116
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03

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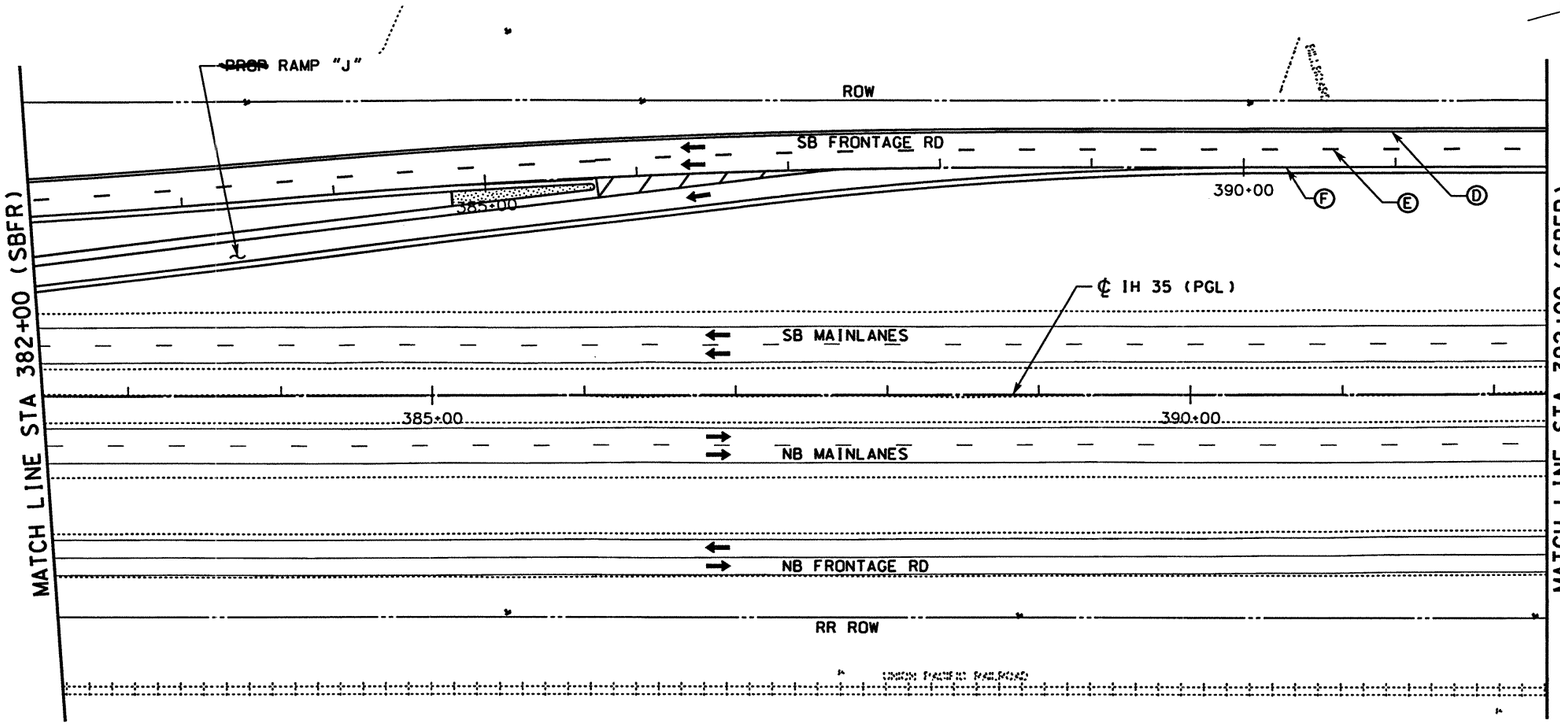

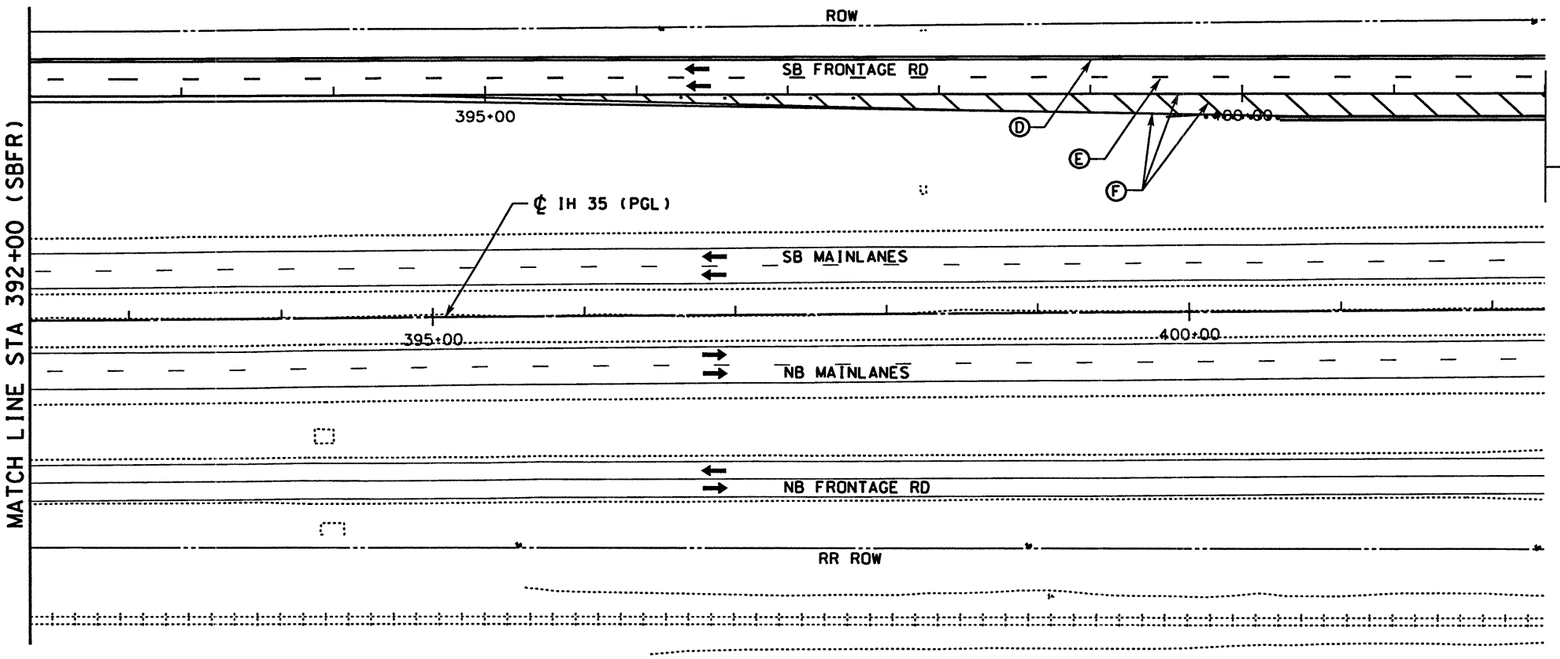

TEMP STRIPING TO MATCH PROP STRIPING LOCATIONS TO STA 429+24.00

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2A
STA 382+00 TO
STA 402+00

SHEET 9 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		117
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03

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j011op01.bdr. bdr LV ON = 9-11.32-33.45.47.57.58.60-62

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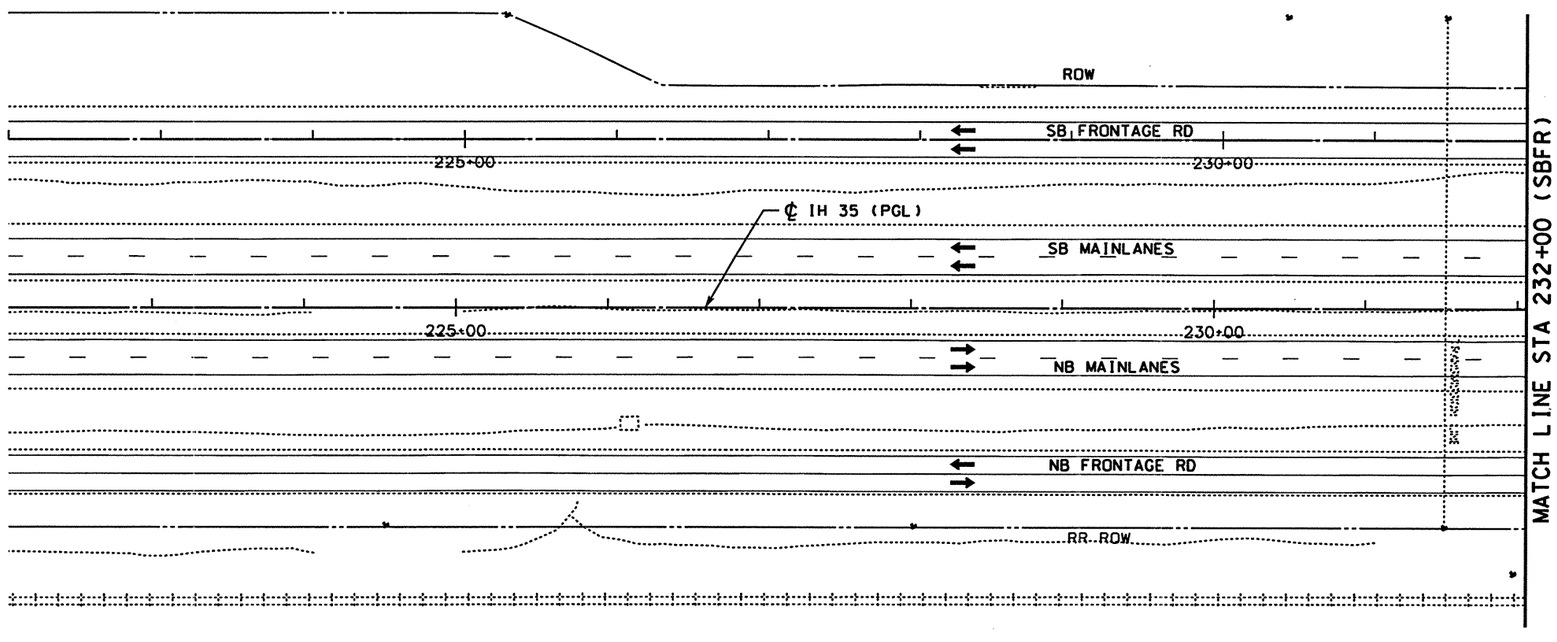

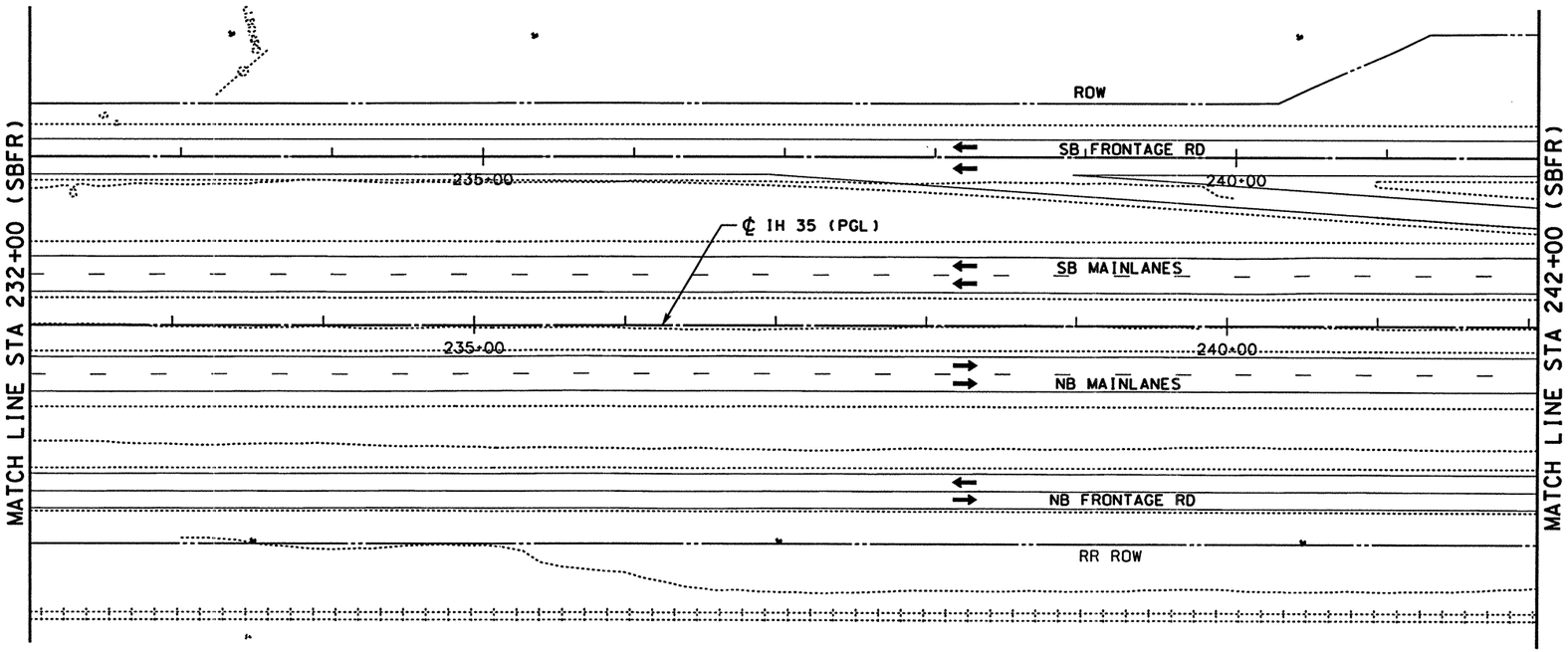

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2B
STA 222+00 TO
STA 242+00

SHEET 1 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	118
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

04/18/03

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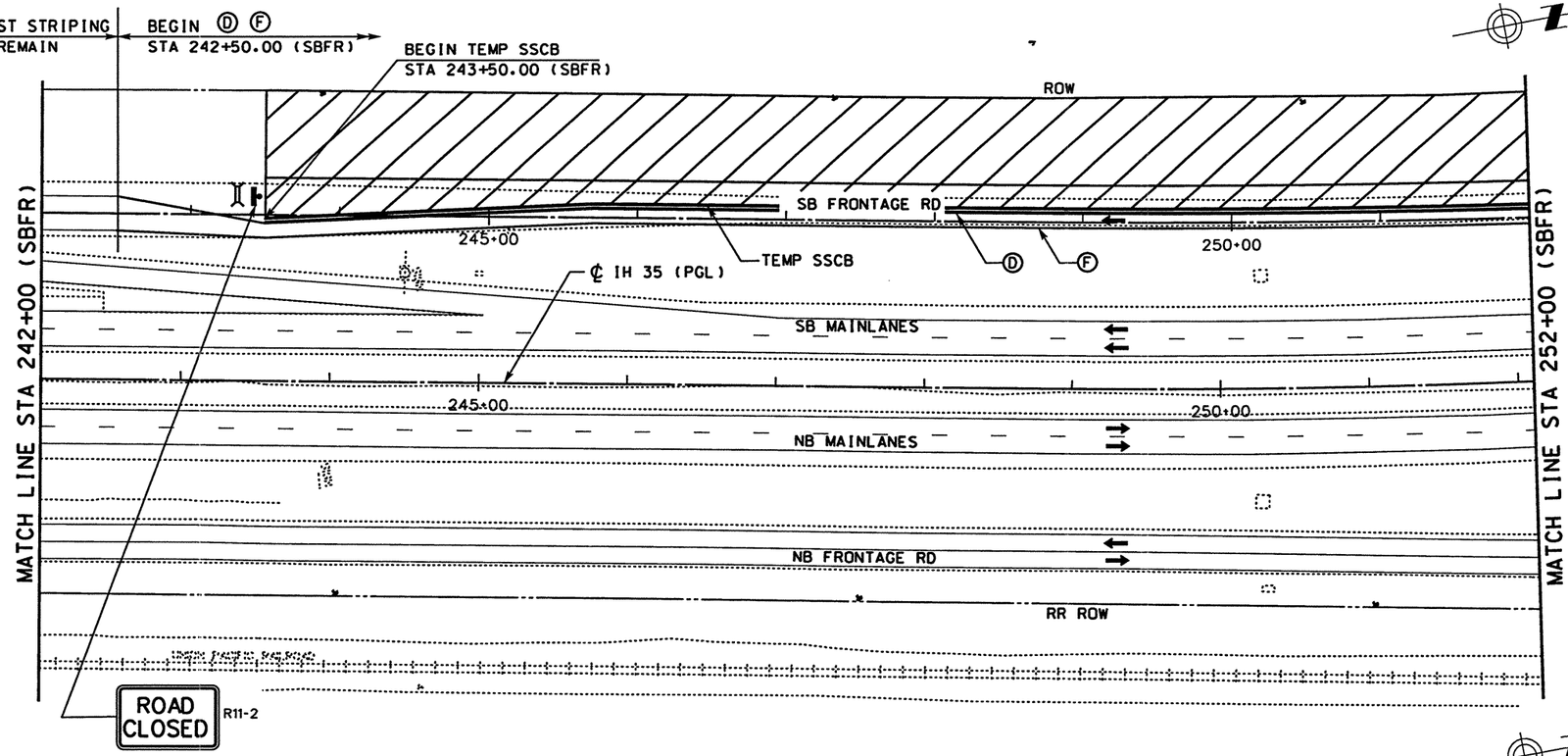

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2B
STA 242+00 TO
STA 262+00

SHEET 2 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	119
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

04/18/03
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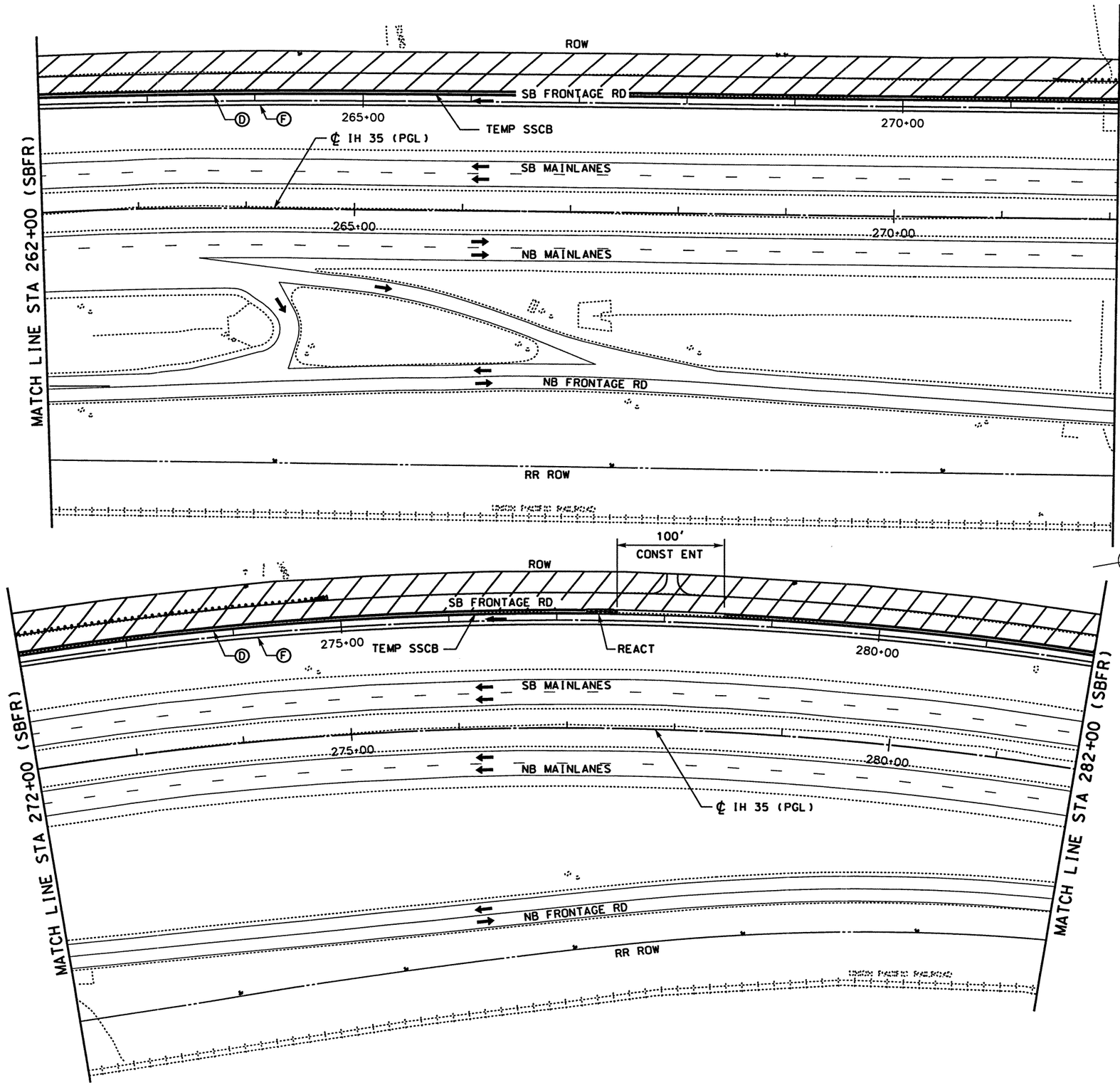

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- (M) PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2B
STA 262+00 TO
STA 282+00

SHEET 3 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	120
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062: ETC	IH 35

04/18/03
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j011op01.bck, bck LV ON = 1-6,35-39
j011op01.alg, alg LV ON = 9-11,32,33,45,47,57,58,60-62
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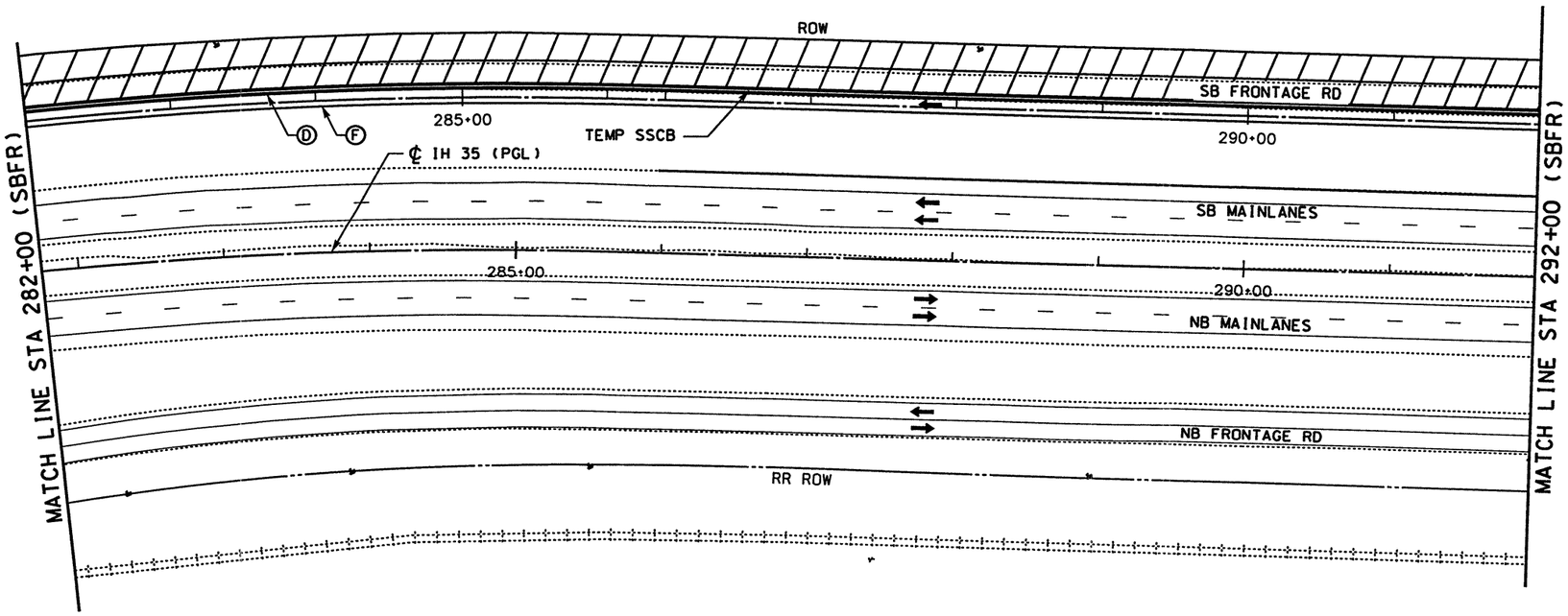

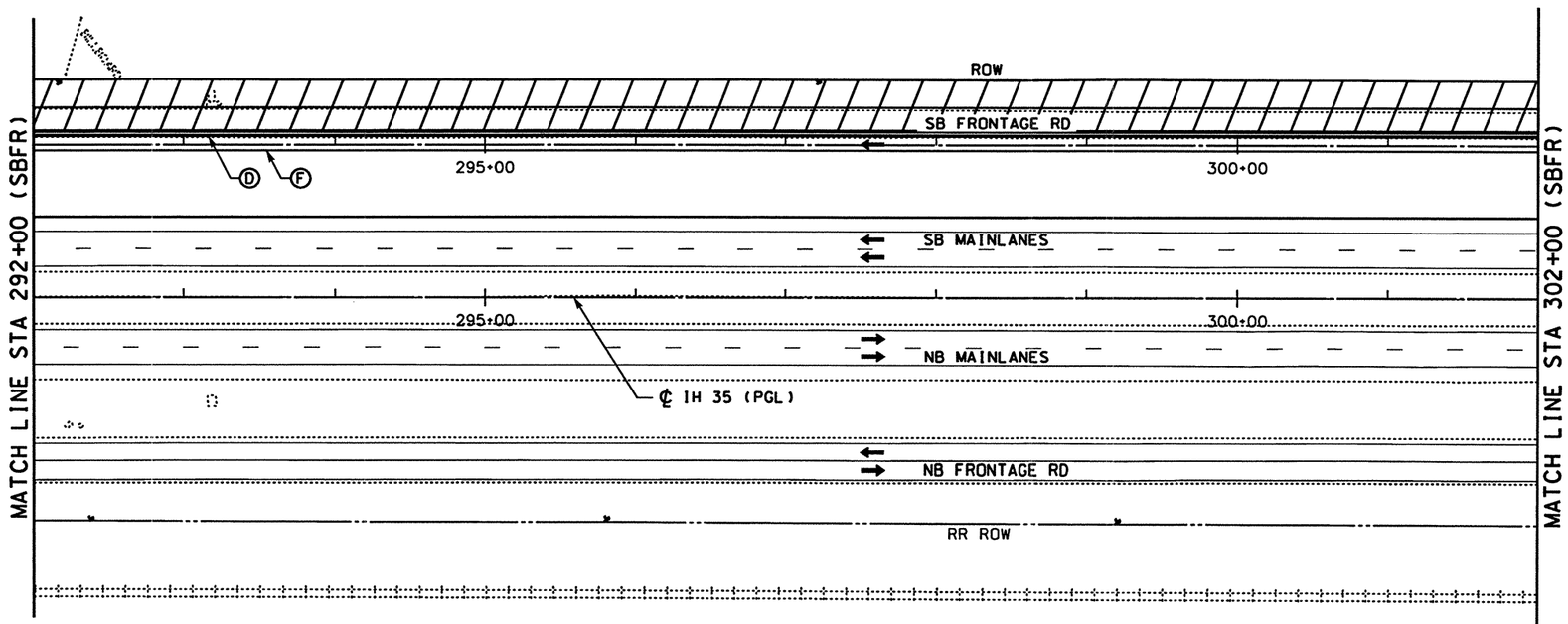

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2B
STA 282+00 TO
STA 302+00

SHEET 4 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		121
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03

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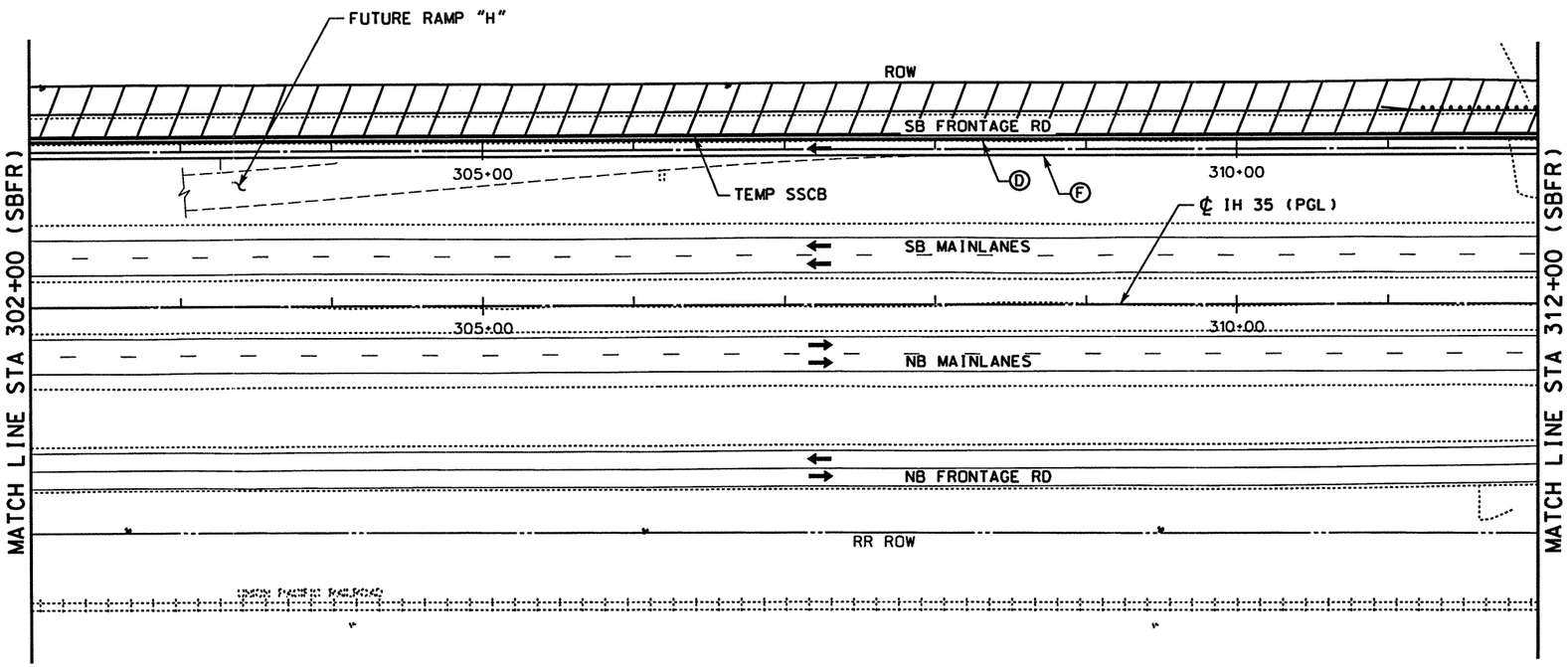

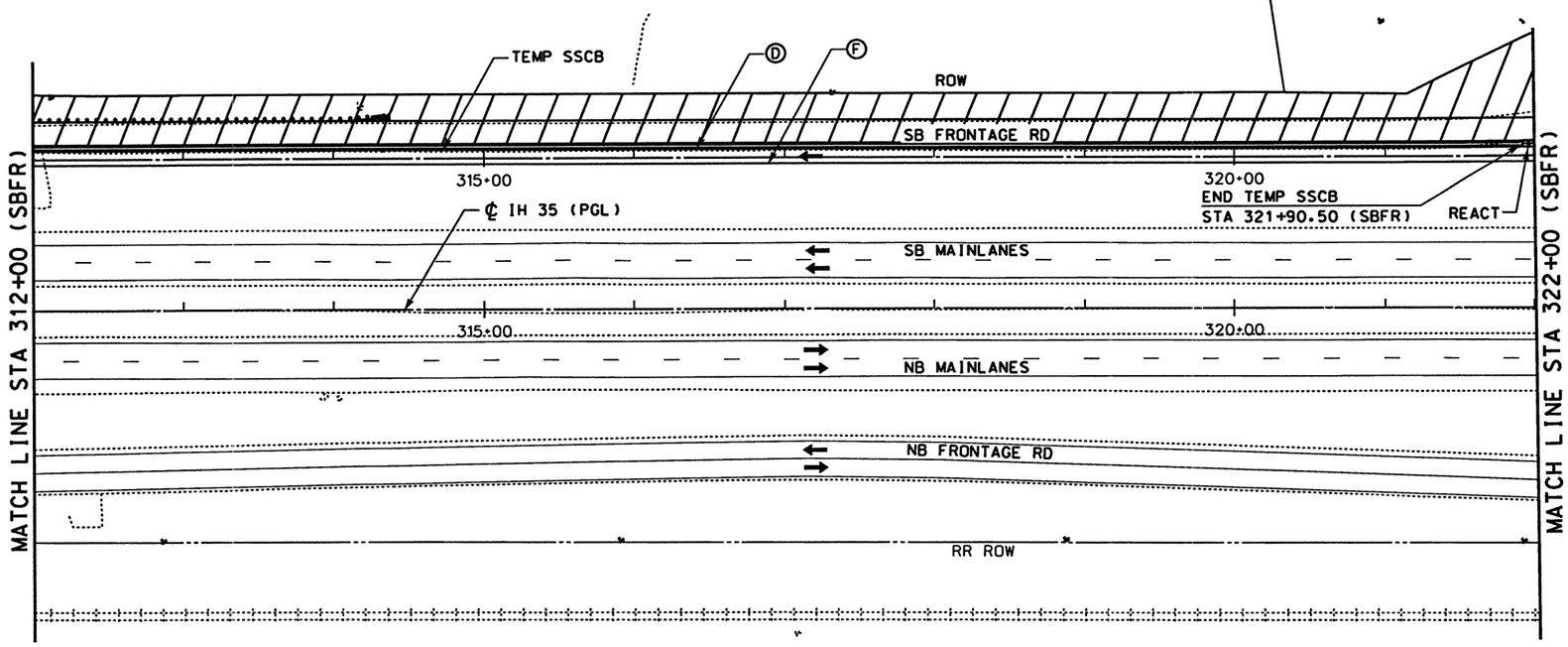

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2B
STA 302+00 TO
STA 322+00

SHEET 5 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	122
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P22B05.dgn-05 HOUFILE023 \hciwil\c\0130\ 04/18/03

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j011op01.bck, bck LV ON = 1-6.35-39
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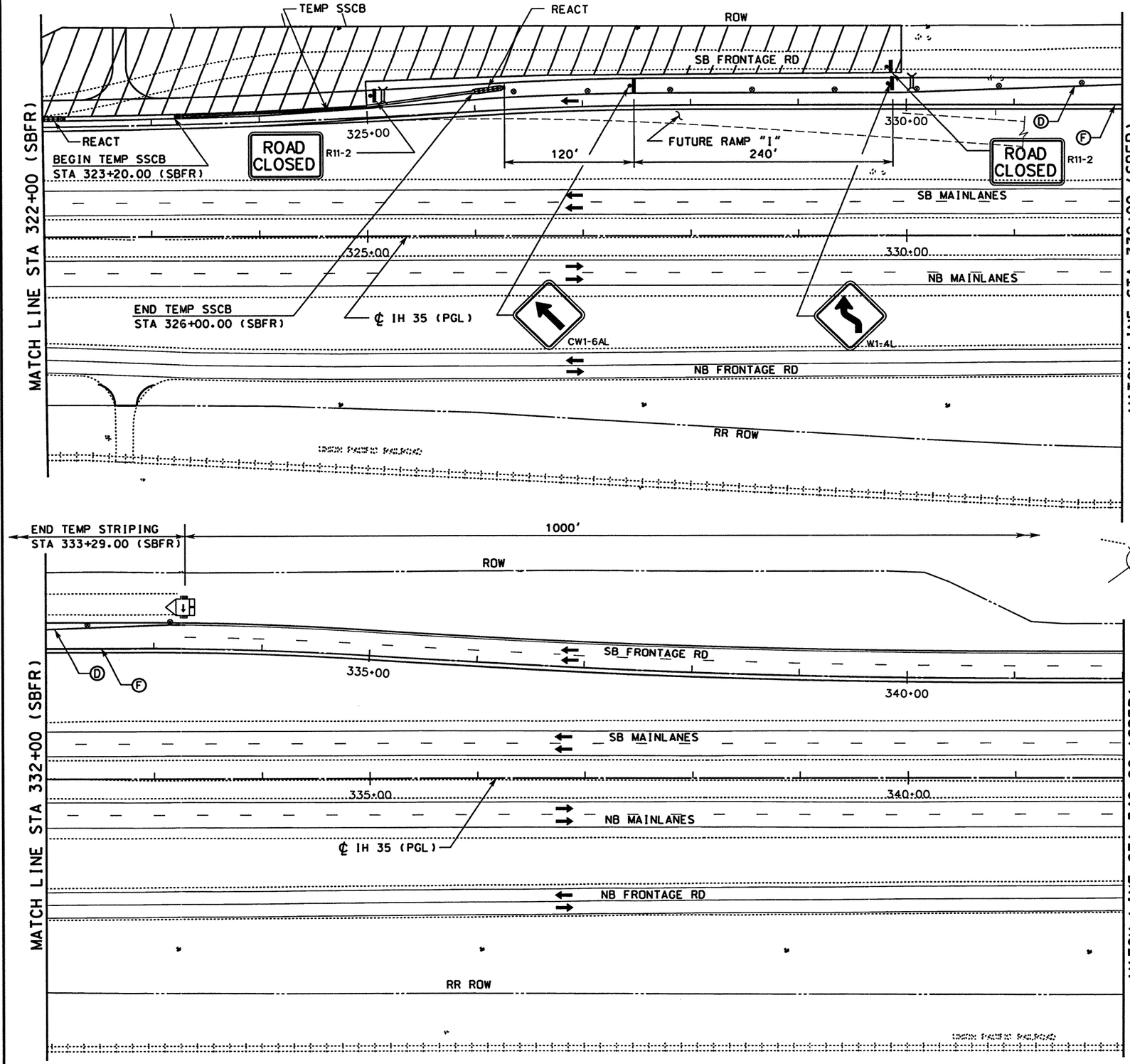

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2B
STA 322+00 TO
STA 342+00

SHEET 6 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		123
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P22B06.dgn-04 HOUFILE023 \hciwil\cf0130\

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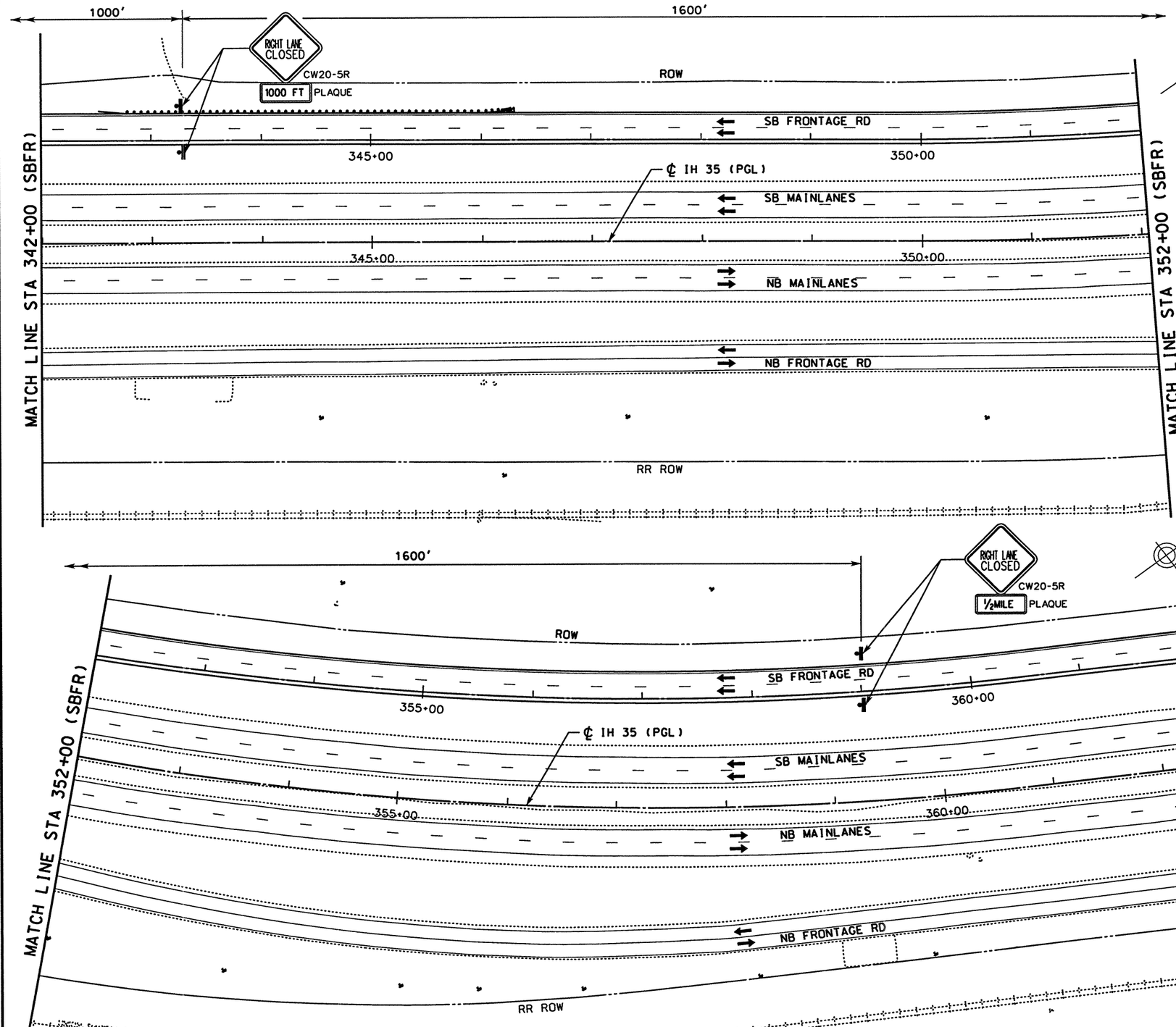

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE II STEP 2B
STA 342+00 TO
STA 362+00

SHEET 7 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	124
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

04/18/03

B50P22807.dgn-04 HOUFILE023 \hcivil\cf0130\

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j0110p01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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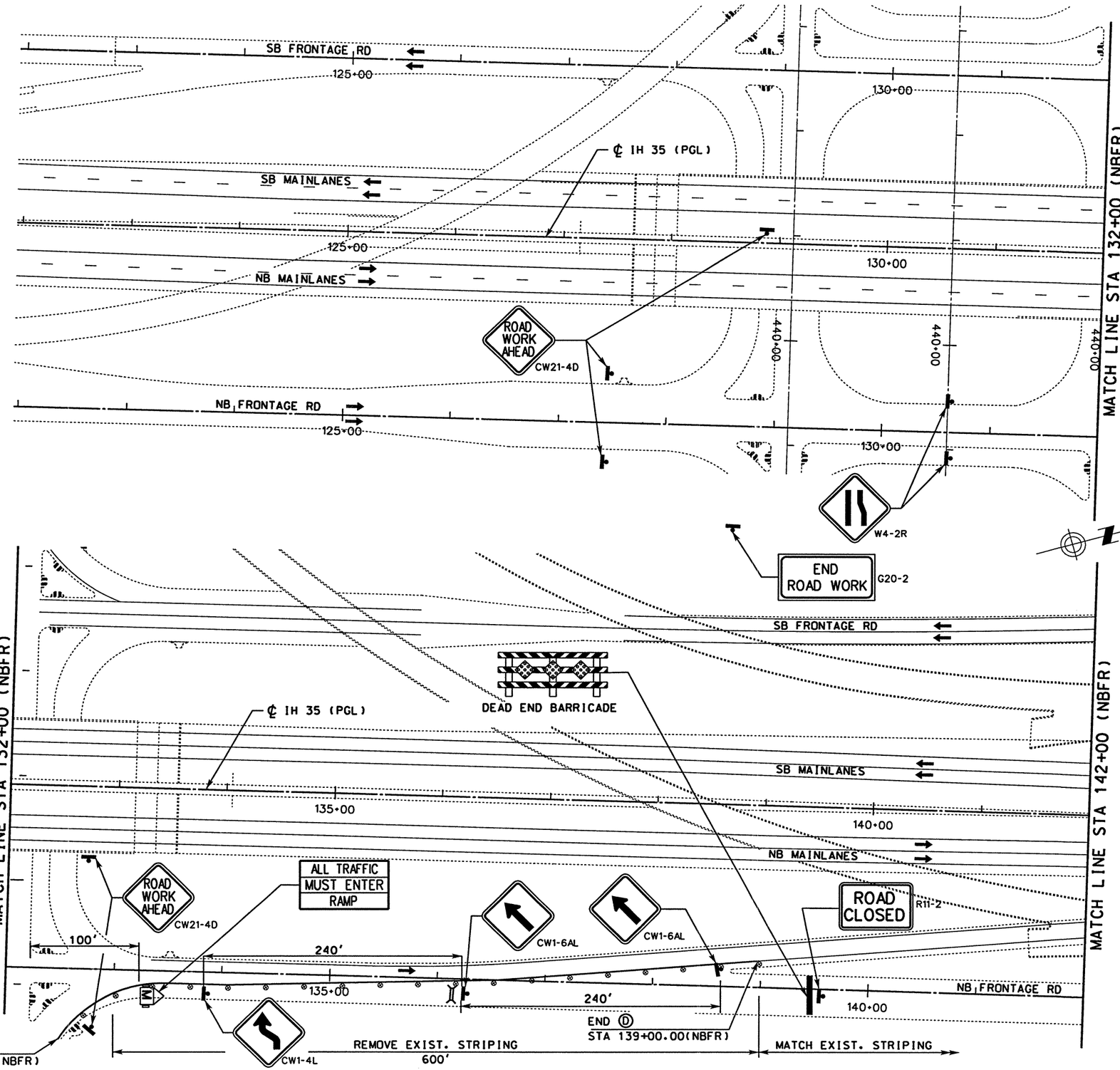

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 1
STA 122+00 TO
STA 142+00

SHEET 1 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	125
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03

HOUFILE023 \hcivil\cf0130\

B50P3101.dgn-03

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j011op01.bck, bck LV ON = 1-6,35-39
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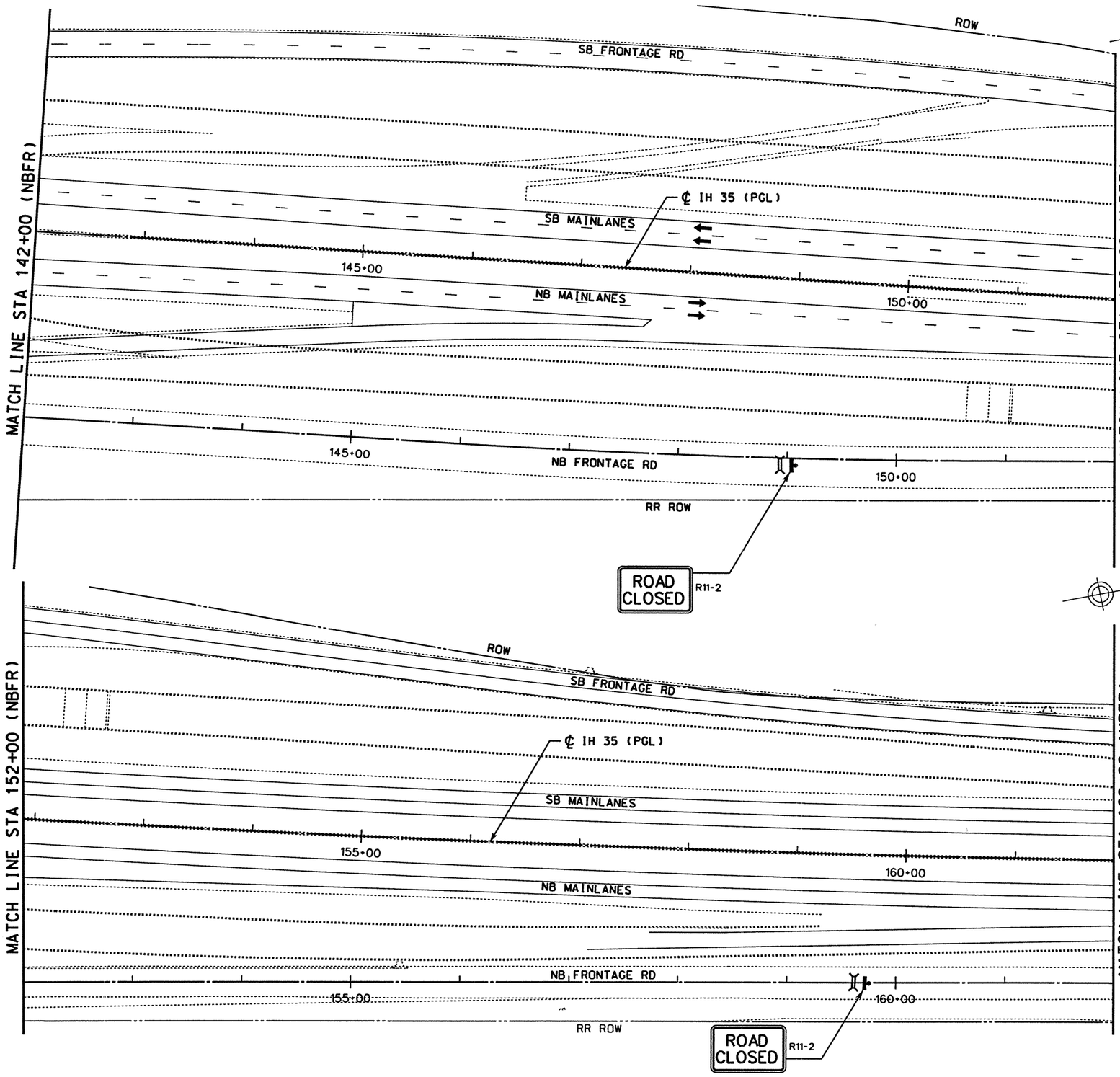

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- (M) PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 1
STA 142+00 TO
STA 162+00

SHEET 2 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	126
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03
HOUFILE023 \hciwin\c10130\
350P3102.dgn-03

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j011op01.bck, bck LV ON = 2-9,10,14,17,20,21,25,28
j011op01.eop, eop LV ON = 1-17,19-63
j011op01.uti, uti LV ON = 1-63

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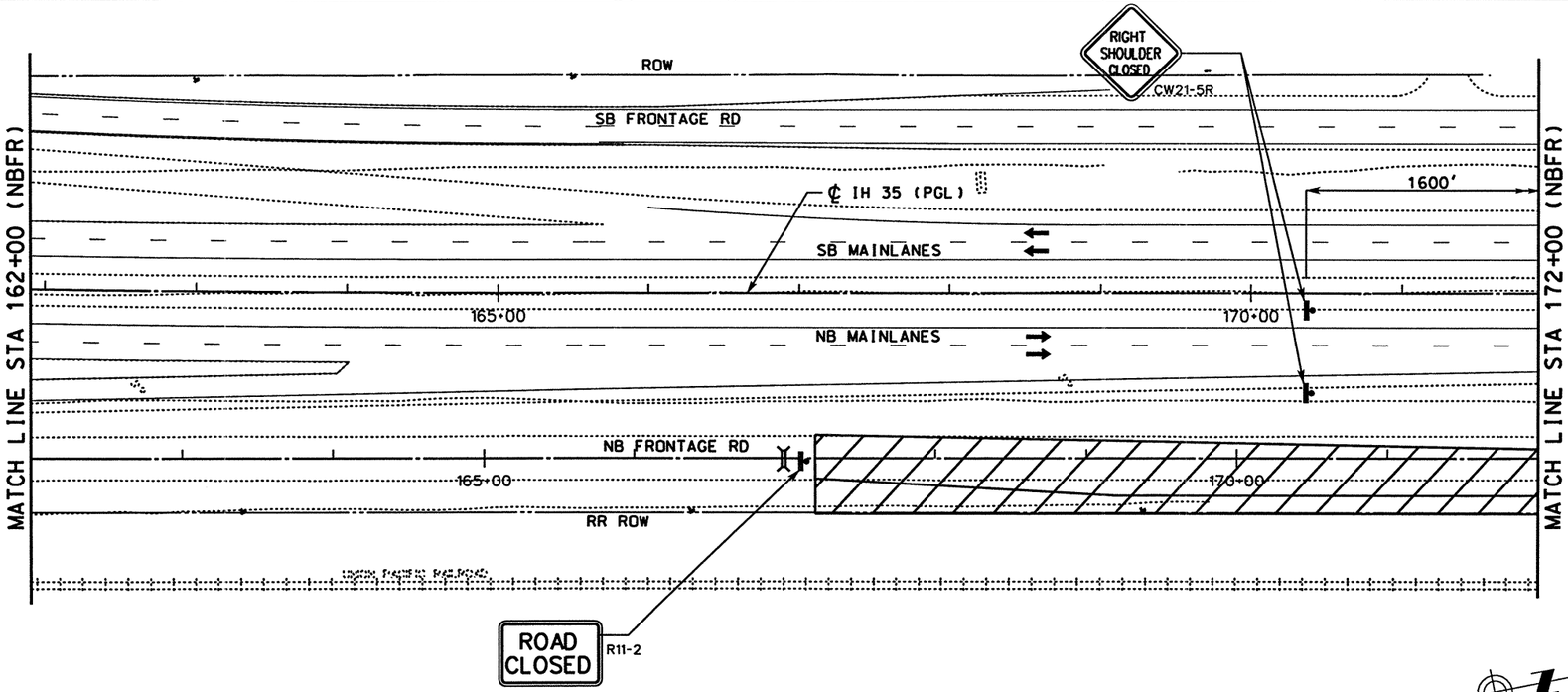

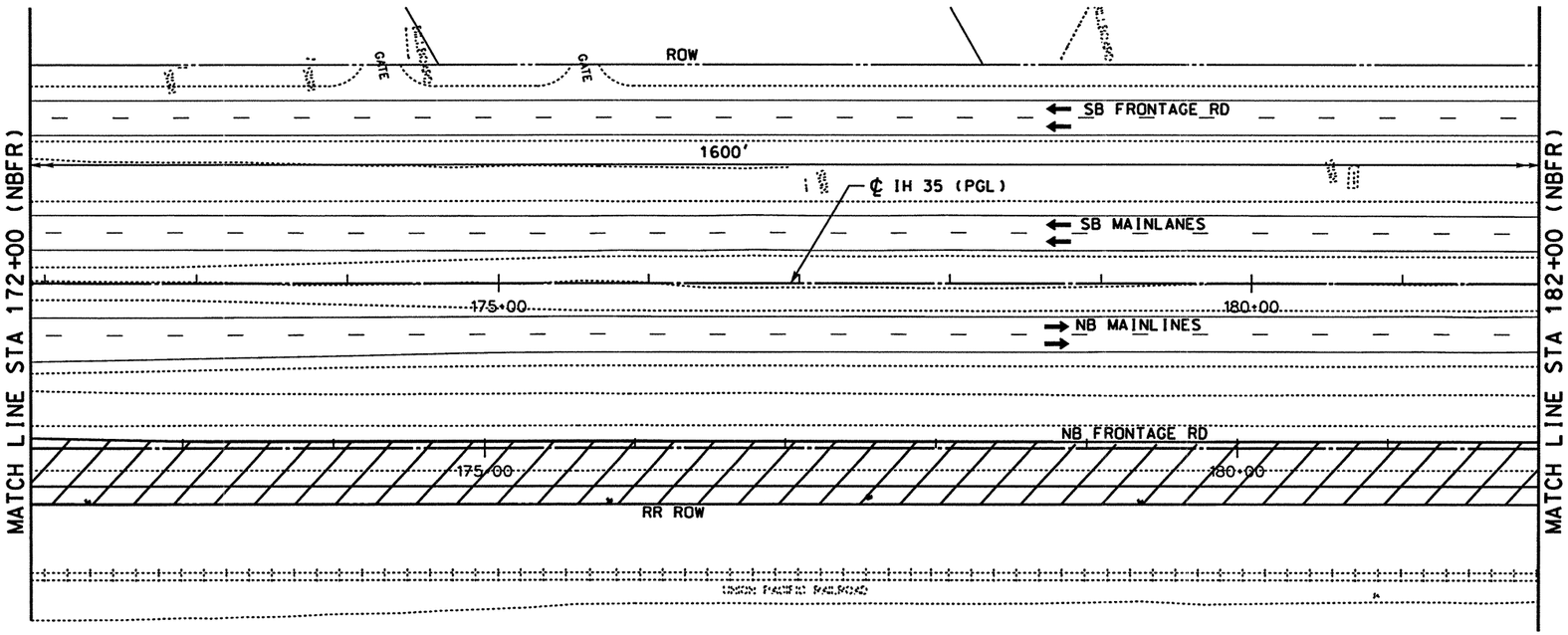

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 1
STA 162+00 TO
STA 182+00

SHEET 3 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		127
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

HOUFILE023 \hciwin\c\f0130\

B50P3103.dgn-05

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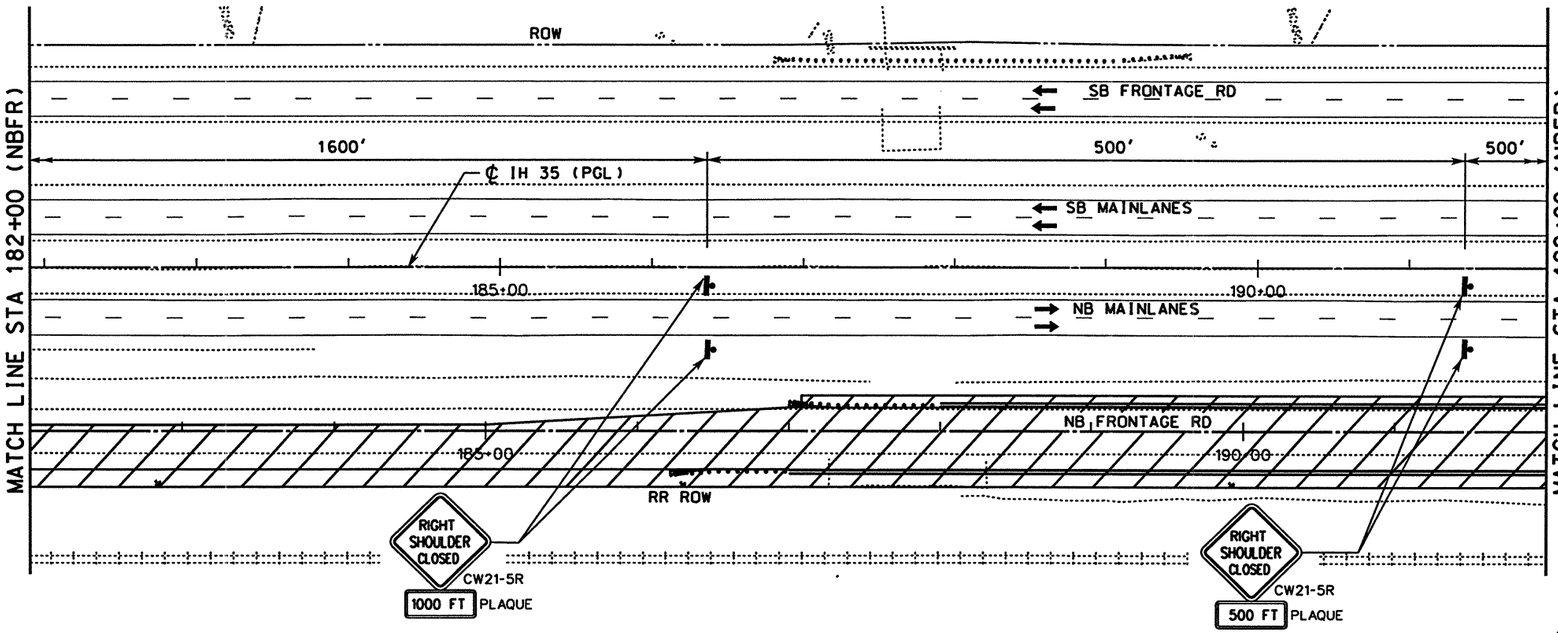
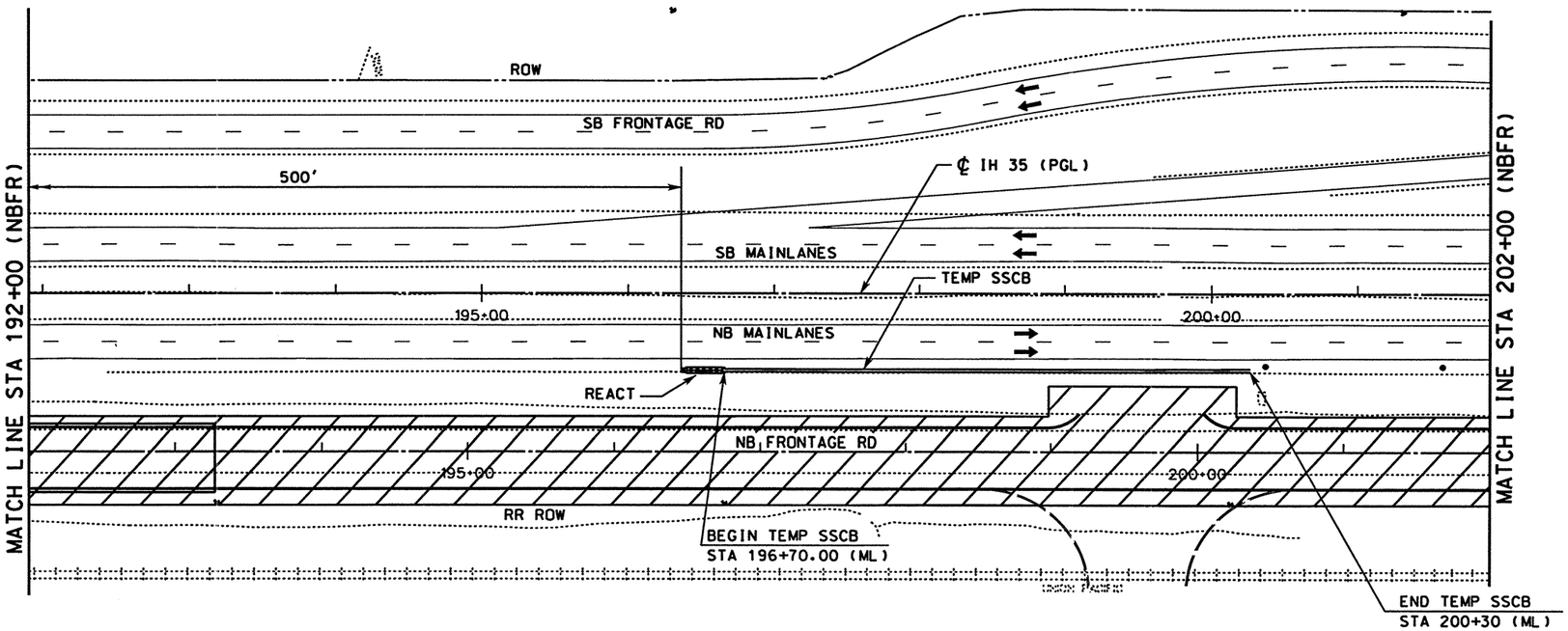
j011op01.eop, eop LV ON = 1-17,19-63
j011op01.bck, bck LV ON = 2-9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62





WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 1
STA 182+00 TO
STA 202+00

SHEET 4 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		128
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

B50P3104.dgn-05 HOUFILE023 \hcivil\cf0130\ 04/18/03

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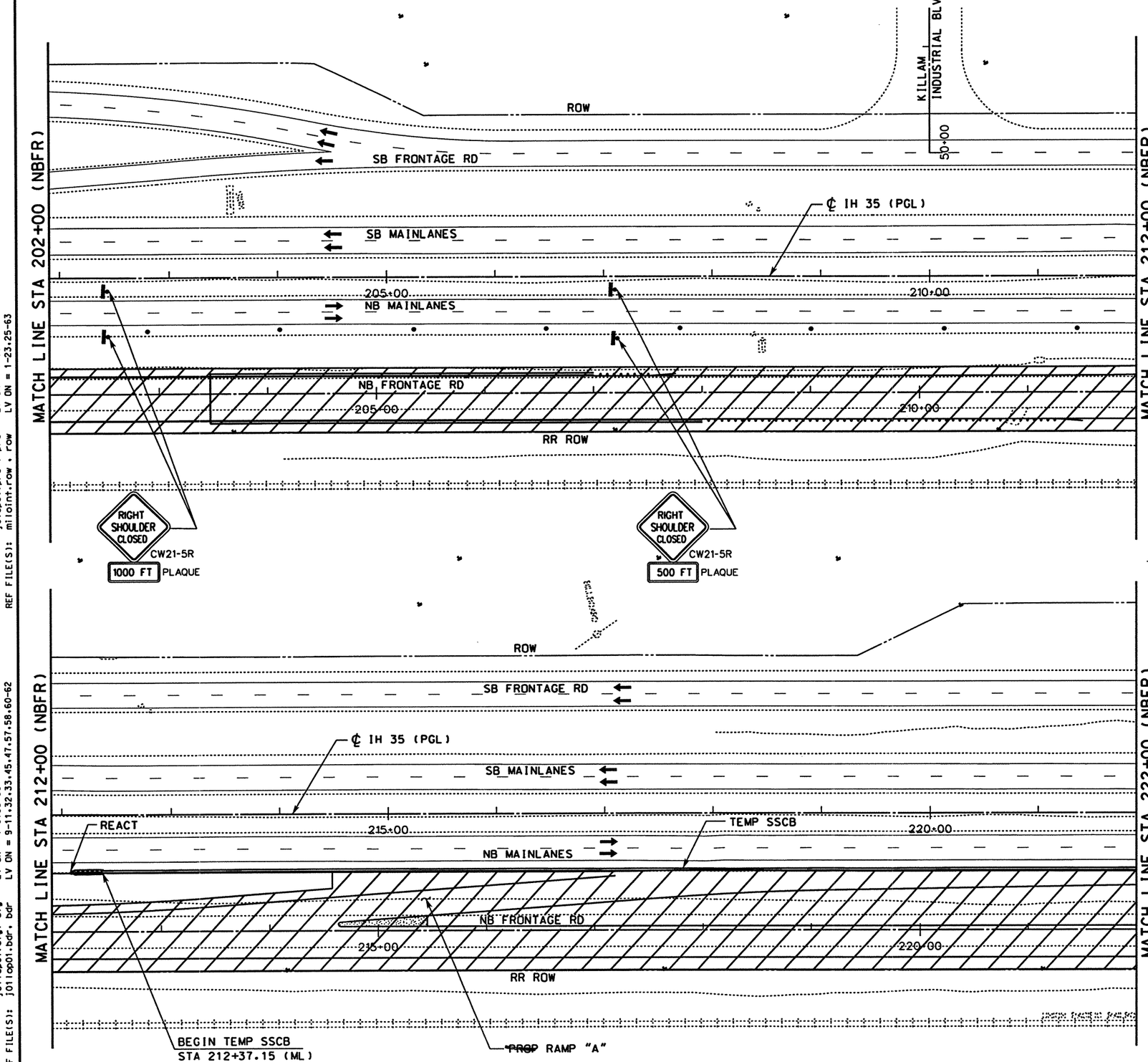
jo11op01.eop. eop LV ON = 1-17.19-63
jo11op01.uti. uti LV ON = 1-63

REF FILE(S): jo11op01.pro. pro LV ON = 1-63
milolnr.row. row LV ON = 1-22.24-63



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 1
STA 202+00 TO
STA 222+00

SHEET 5 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	129
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03

B50P3305.dgn-05 HOUFILE023 \hcivil\cf0130\

REF FILE(S): j011op01.pro • pro LV ON = 1-63
LV ON = 1-23.25-63
j011op01.milointrow • row

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j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2-9.10.14.17.20.21.25.28
j011op01.alg, alg LV ON = 1-6.35-39
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REF FILE(S): j011op01.pro • pro
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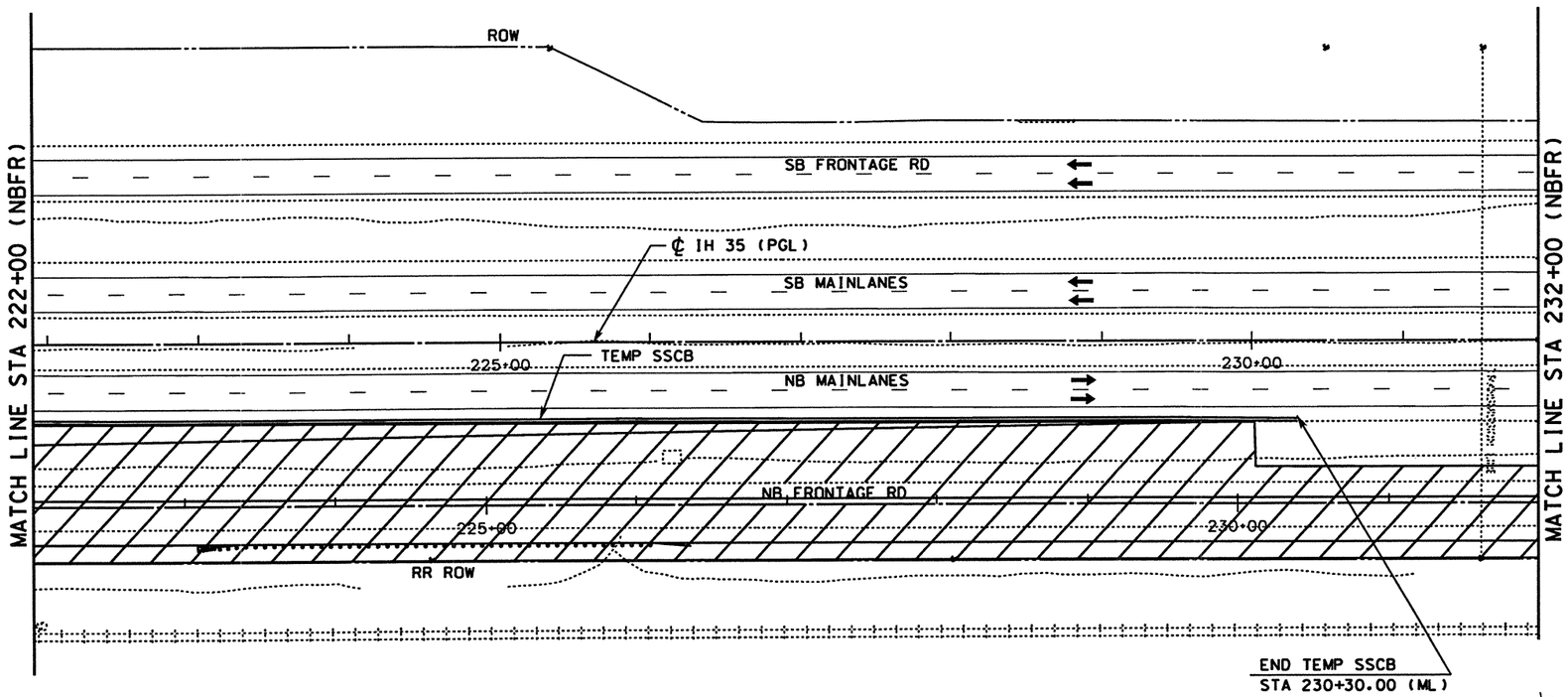

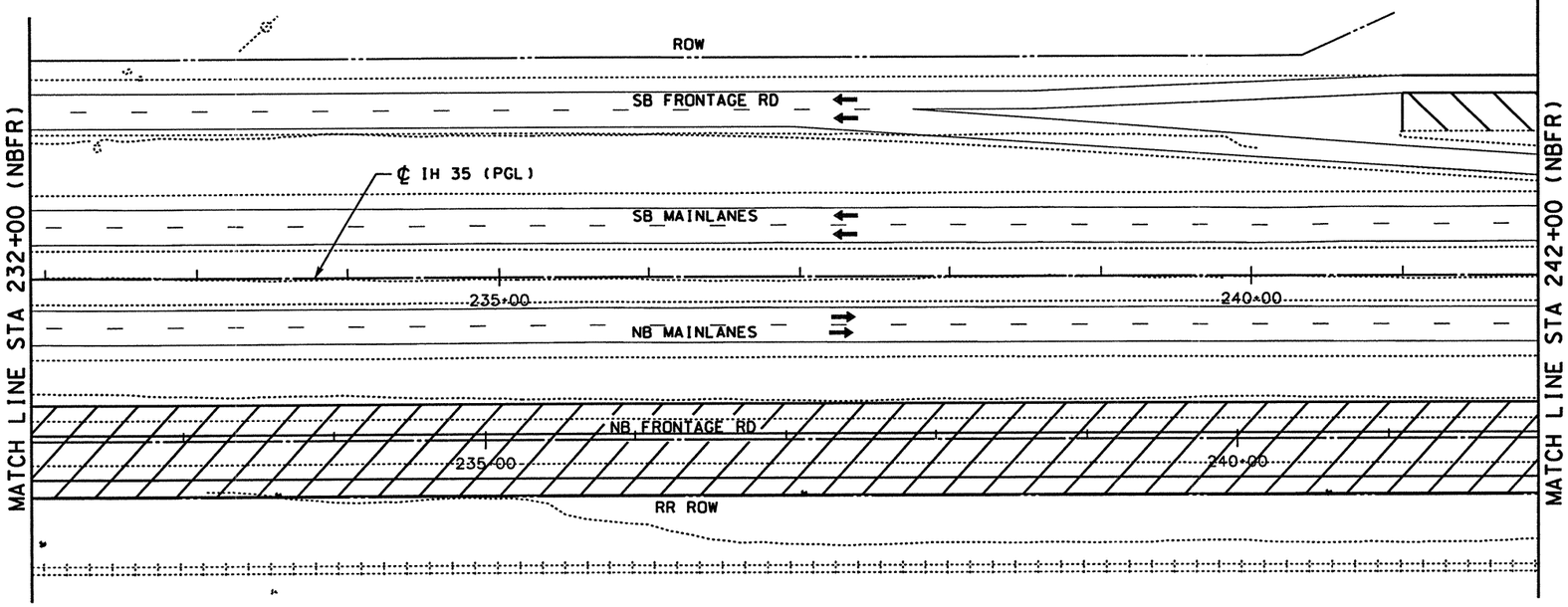

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 1
STA 222+00 TO
STA 242+00

SHEET 6 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		130
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

B50P3106.dgn-04 HOUFILE023 \hciwin\c(0130)\ 04/18/03

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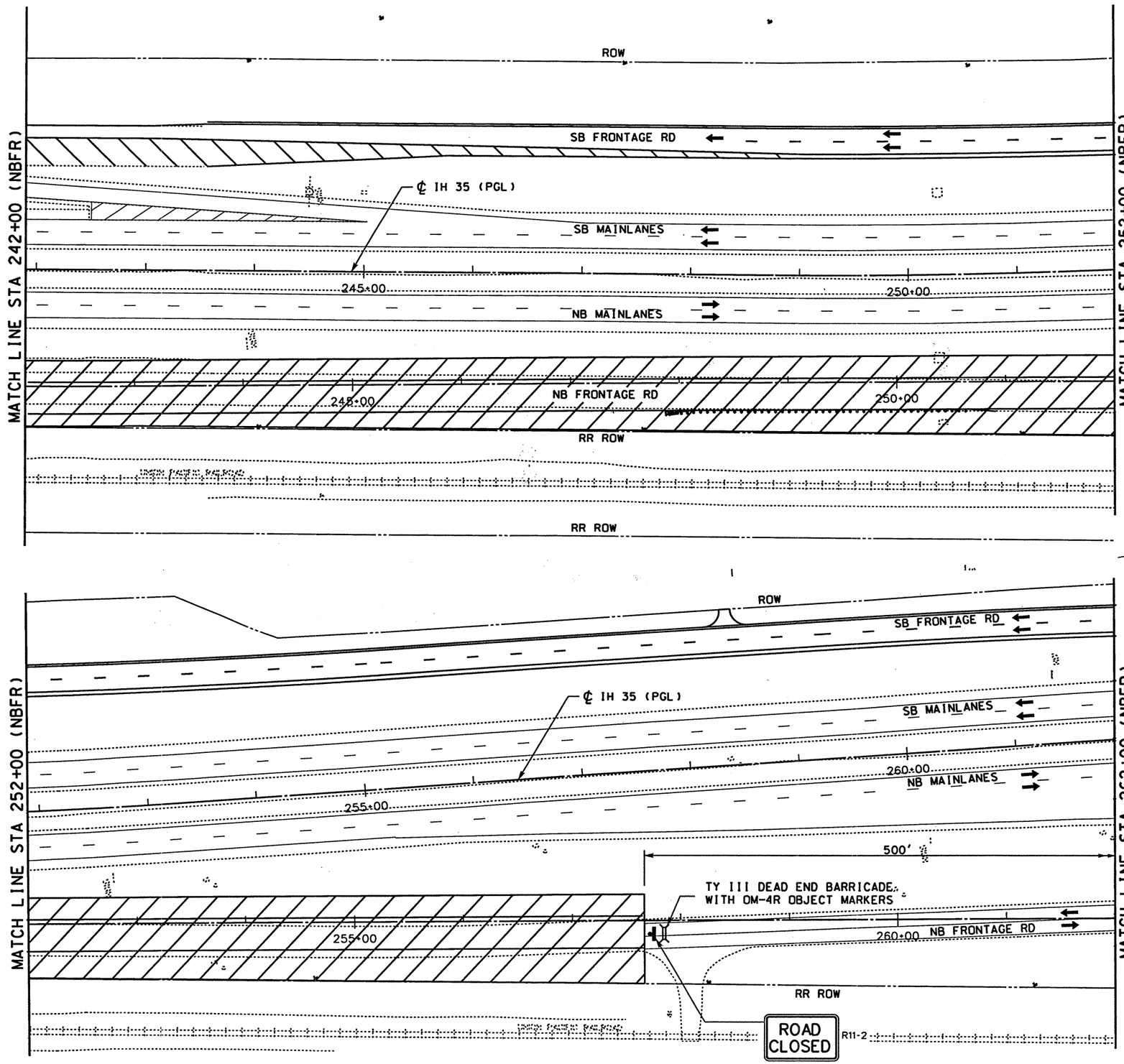

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 1
STA 242+00 TO
STA 262+00

SHEET 7 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		131
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

HOUFILE023 \hchivil\cf0130\

B50P3107.dgn-03

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j0110p01.alg, alg LV ON = 1-6,35-39
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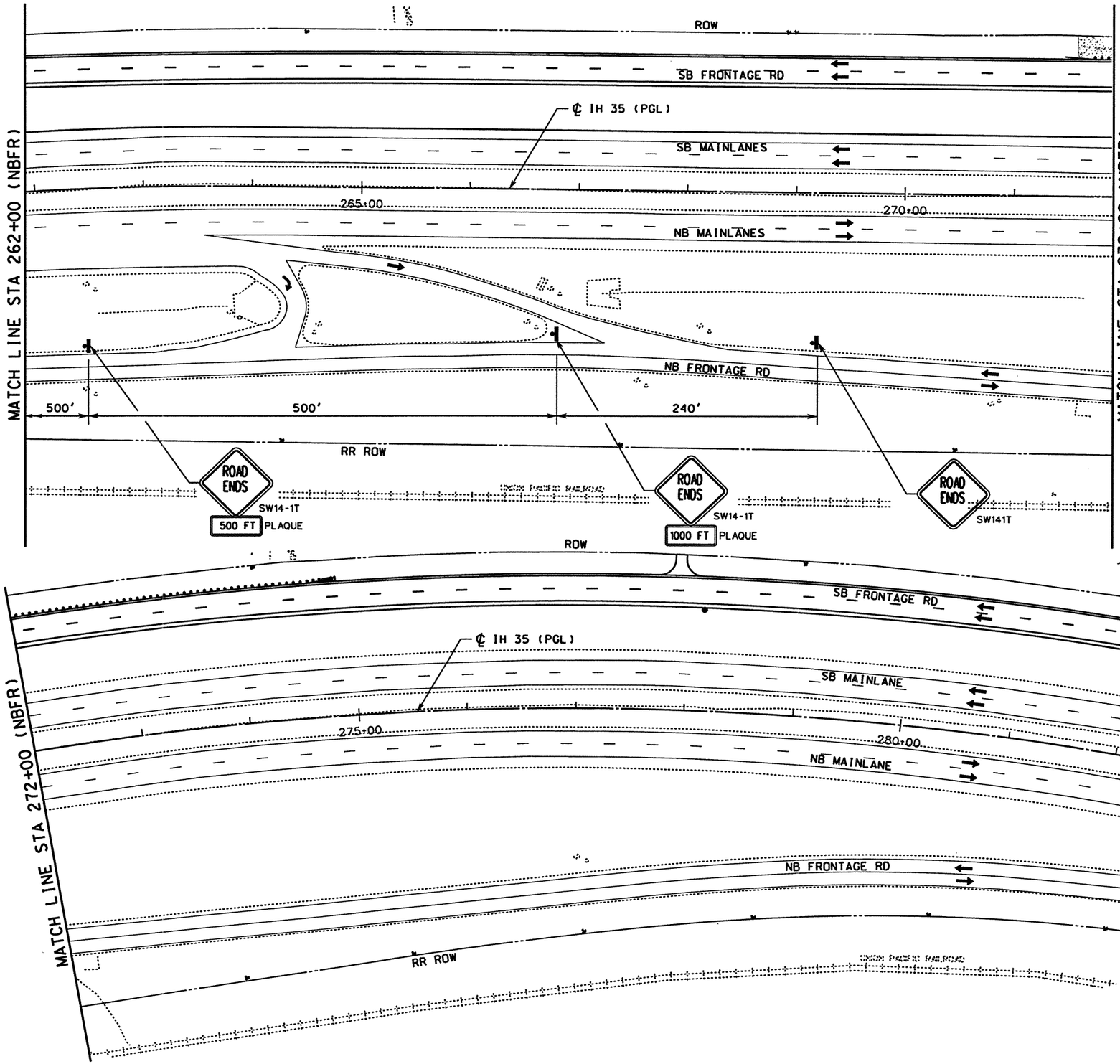

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 1
STA 262+00 TO
STA 282+00

SHEET 8 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		132
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
HOUFILE023 \hcivil\c0130\
B50P3108.dgn-03

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j0110p01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
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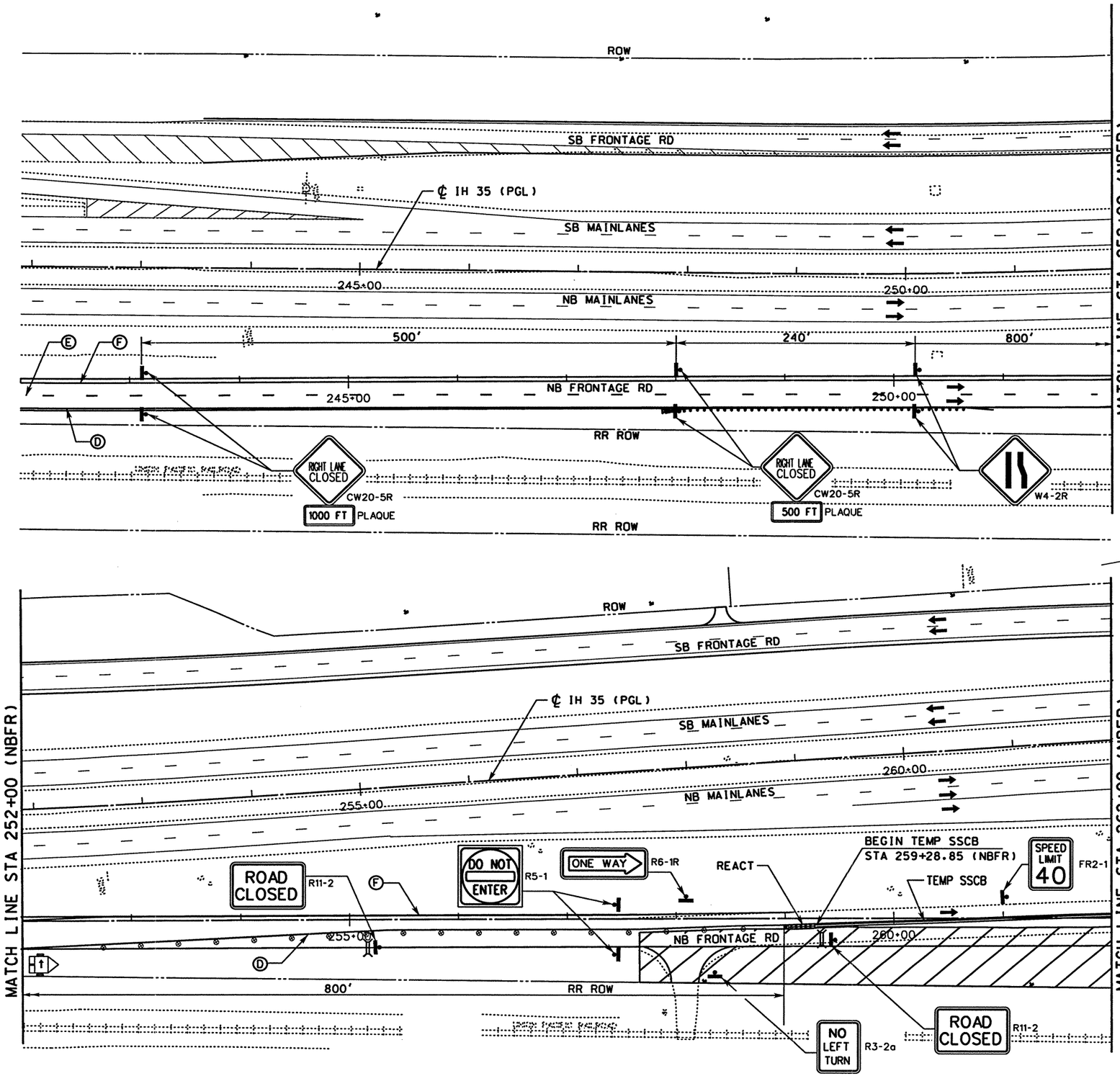
j0110p01.bdr, bdr LV ON = 9-11,32,33,45-47,57,58,60-62



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 2
STA 242+00 TO
STA 262+00

SHEET 1 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	133
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

B50P3201.dgn-05 HOUFILE023 \hcivil\c0130\ 04/18/03

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j011op01.bck. bck LV ON = 1-6.35-39
j011op01.alg. alg LV ON = 9-11.32.33.45.47.57.58.60-62
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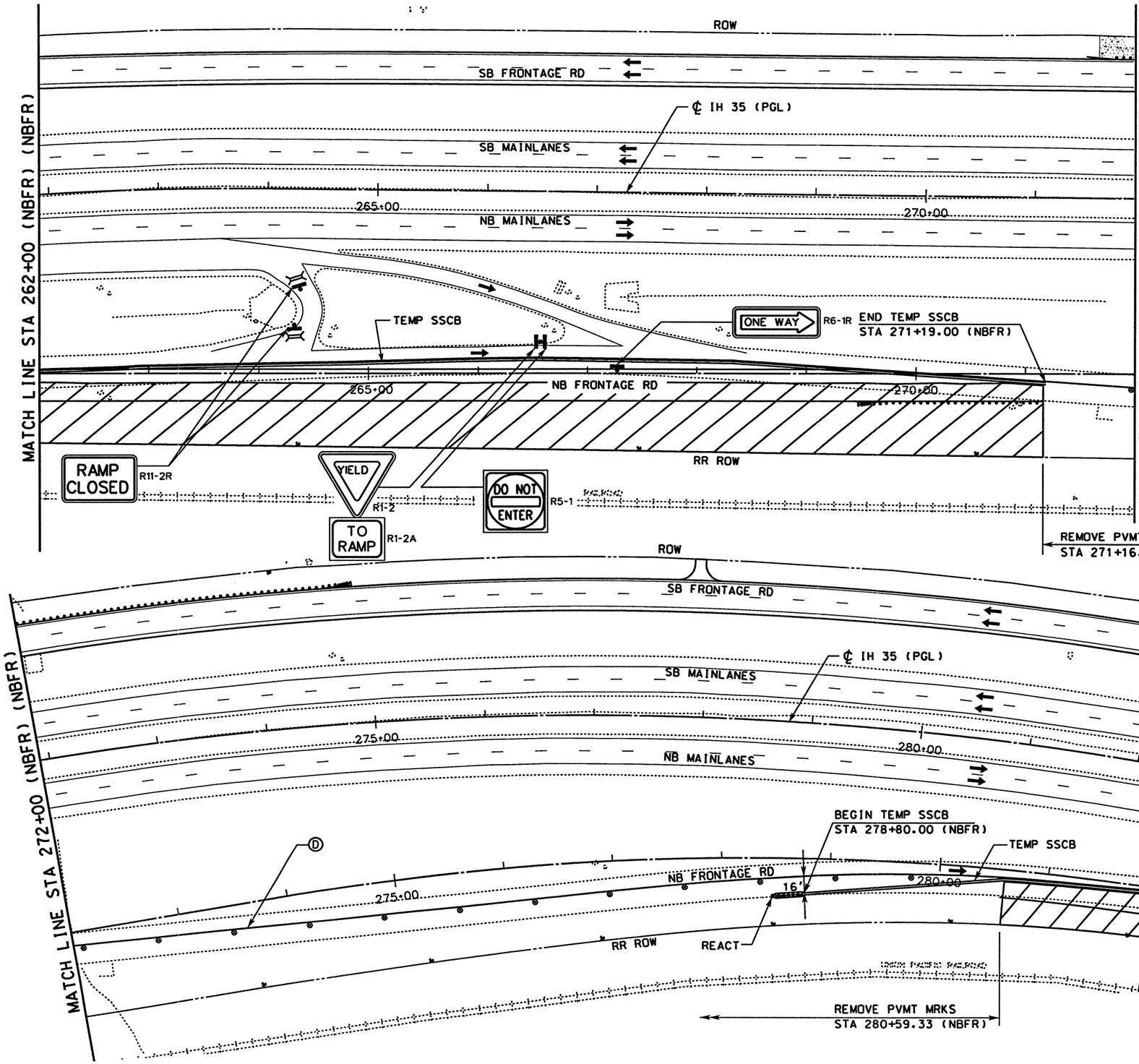

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

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0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 2
STA 262+00 TO
STA 282+00
SHEET 2 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	134
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

04/18/03
HOUFILE023 \hcivil\cf0130\
B50P3202.dgn-04

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j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

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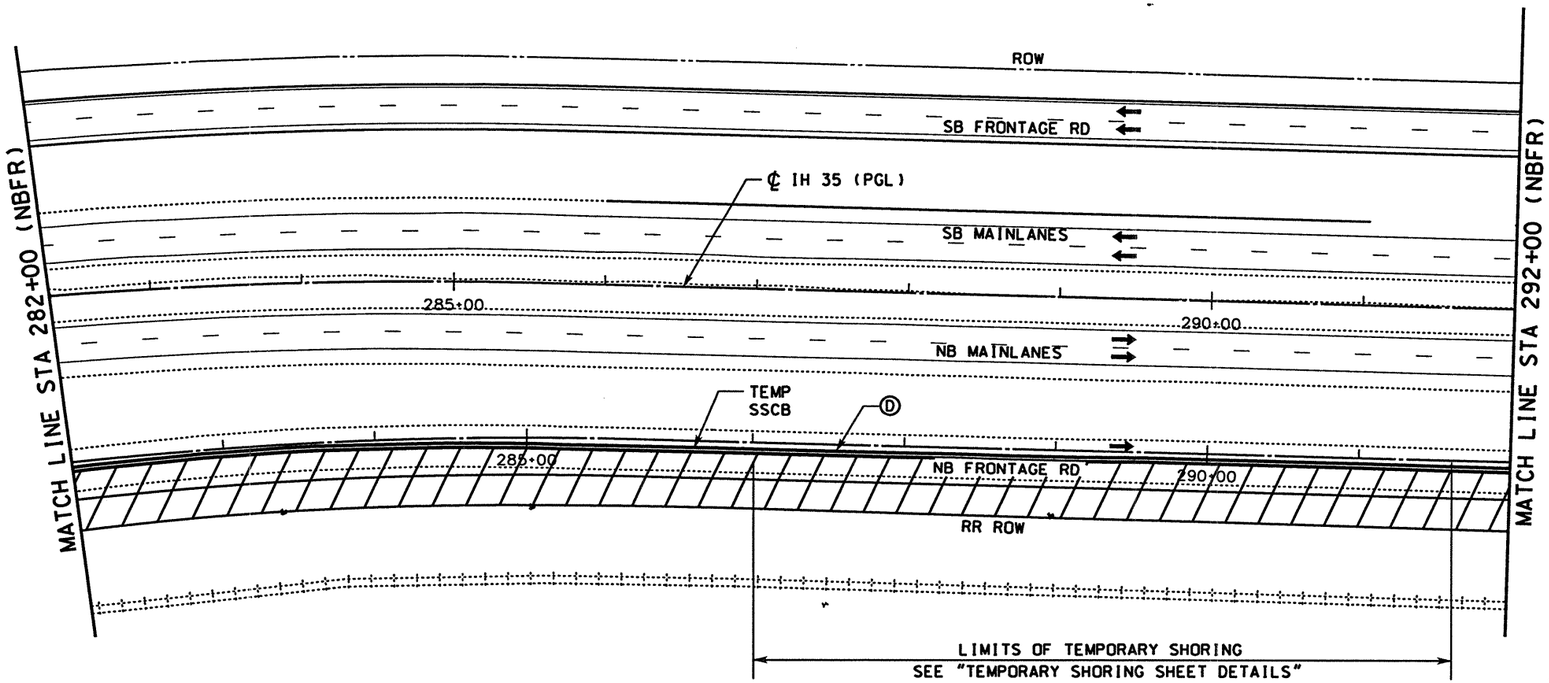

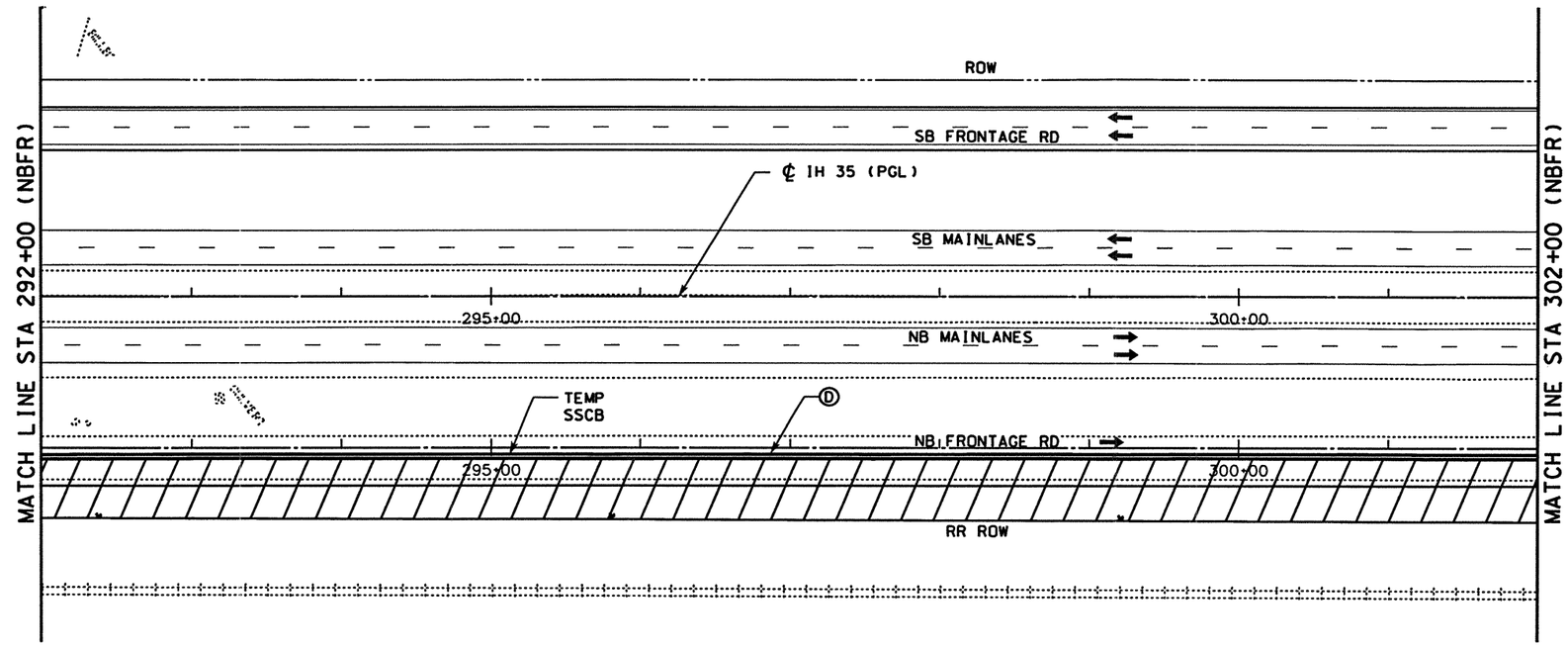

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 2
STA 282+00 TO
STA 302+00

SHEET 3 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		735
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P3203.dgn-05 HOUFILE023 \hcivil\cf0130\

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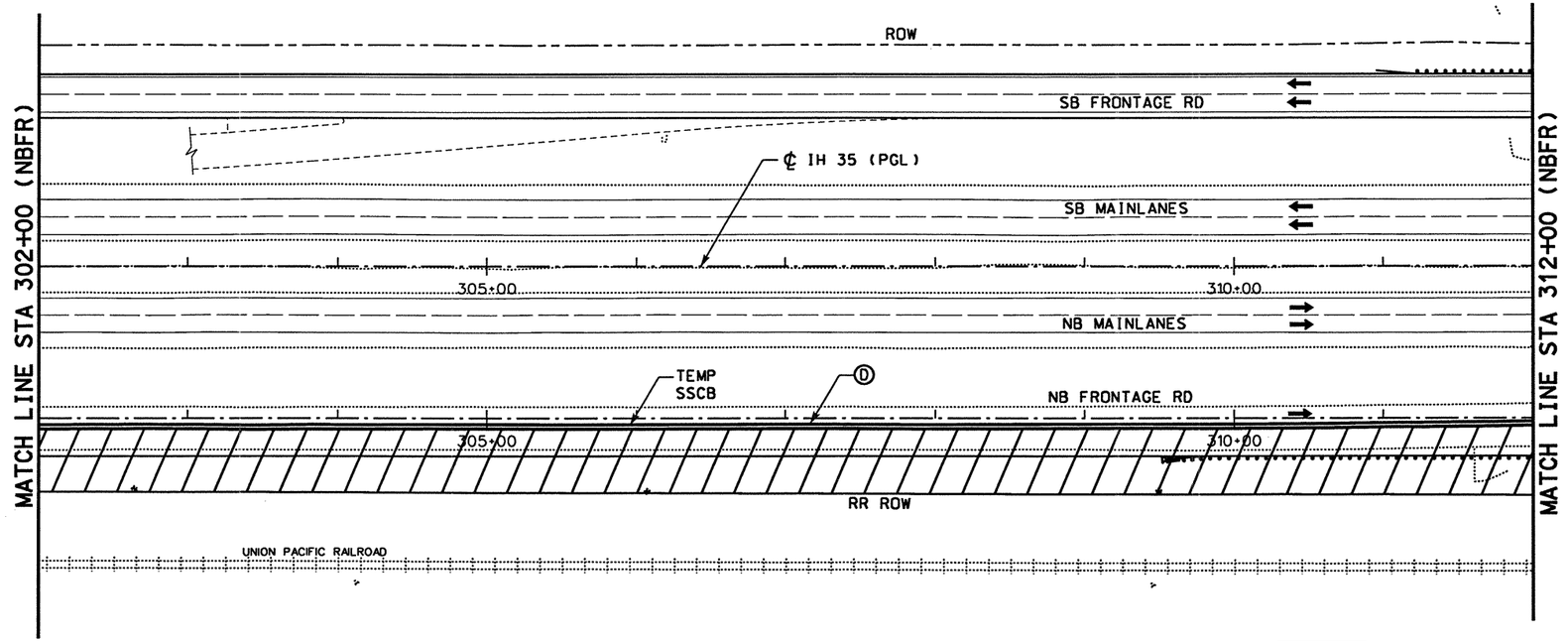
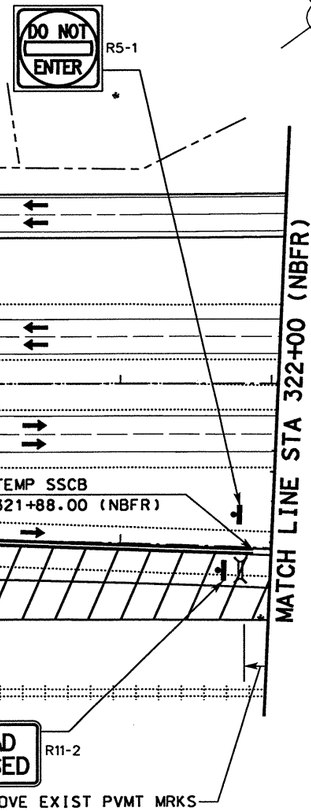
milnt.row, row LV DN = 1-23,25-63





WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS — MICHAEL A. SEXTON — 87896 — LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 2
STA 302+00 TO
STA 322+00

SHEET 4 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	136
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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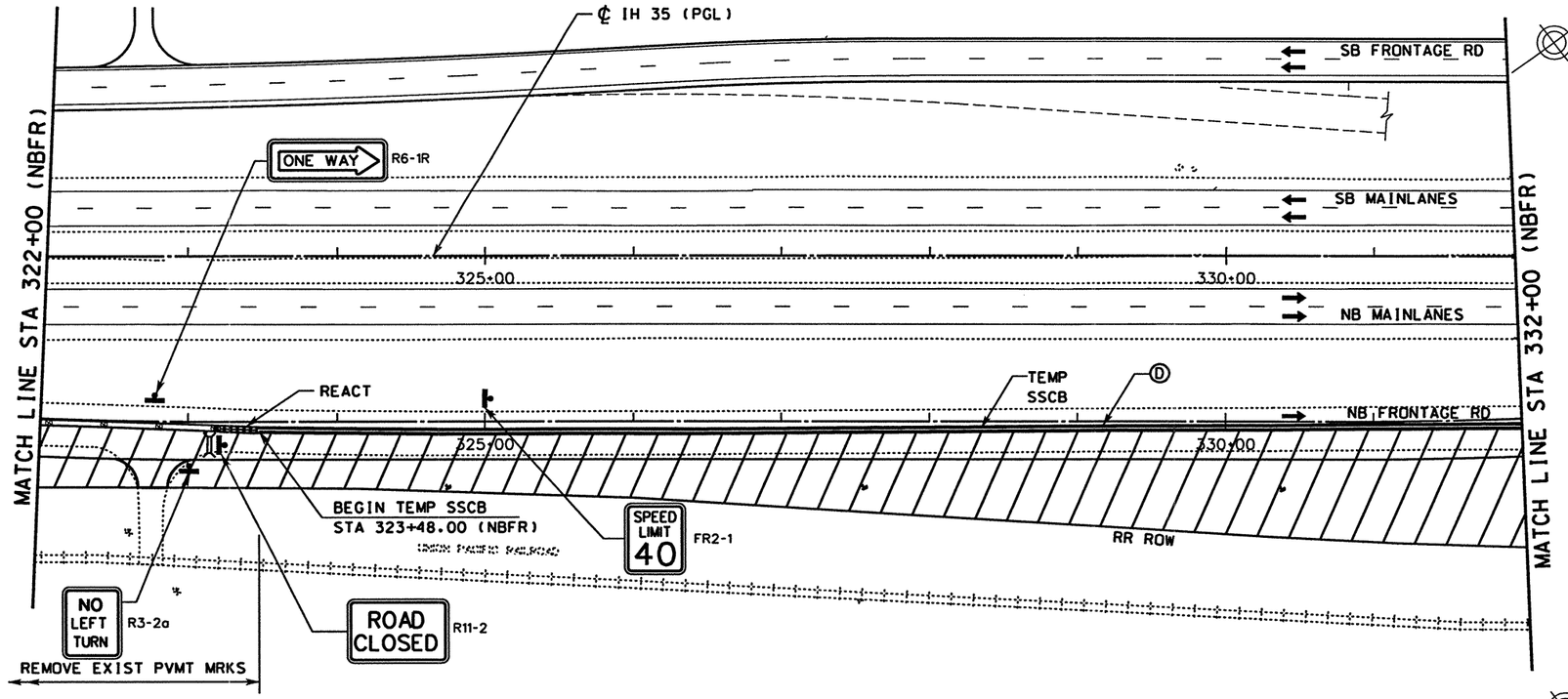

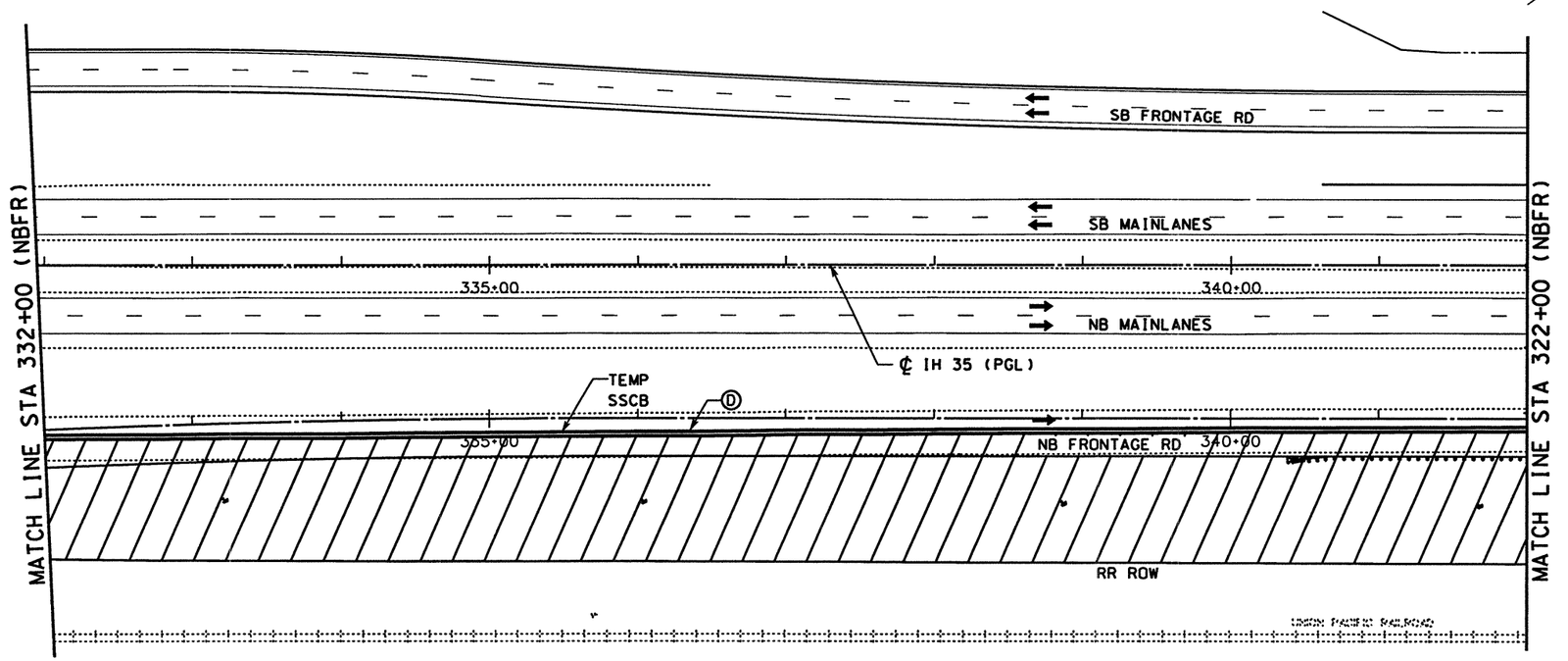

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 2
STA 322+00 TO
STA 342+00

SHEET 5 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		137
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P3205.dgn-05 HOUFILE023 \hcivil\cf0130\

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j011op01.bck, bck LV ON = 2,9,10,14-17,20,21,25,28
j011op01.eop, eop LV ON = 1-17,19-63
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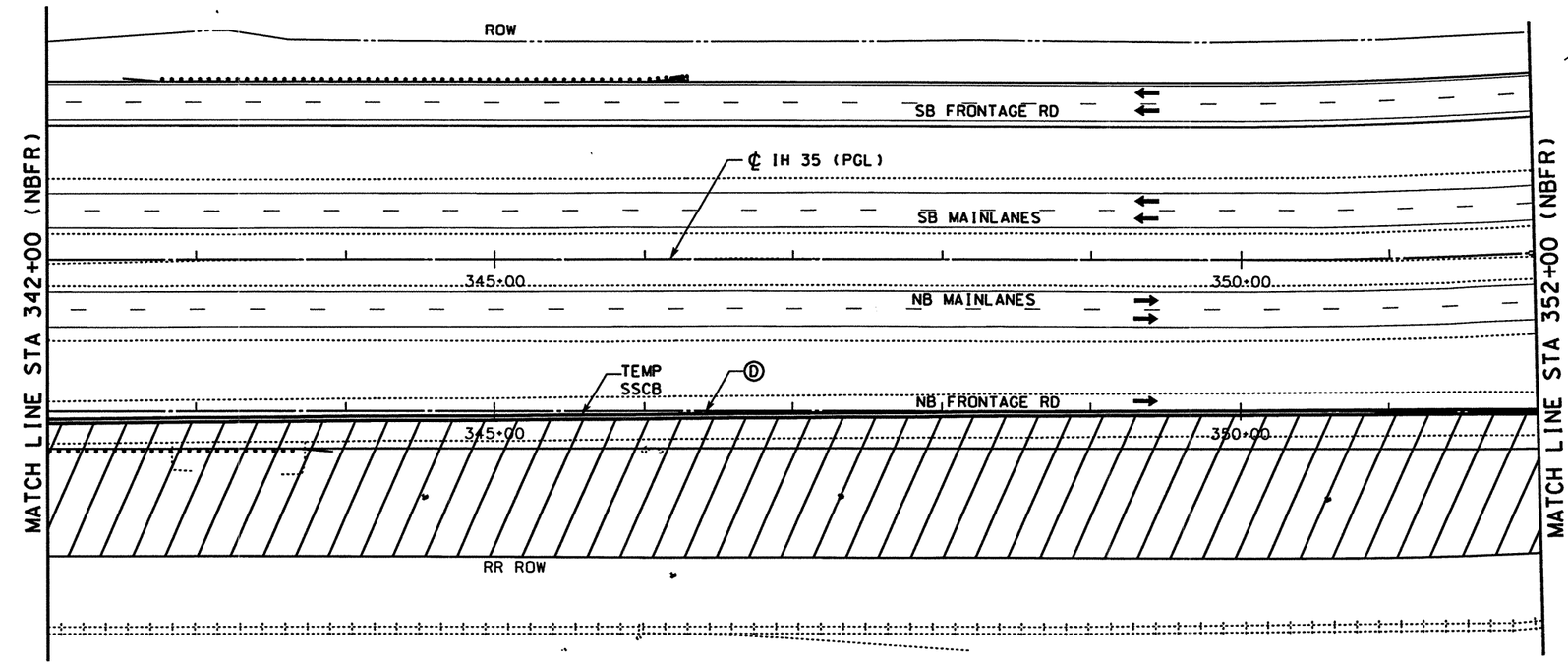

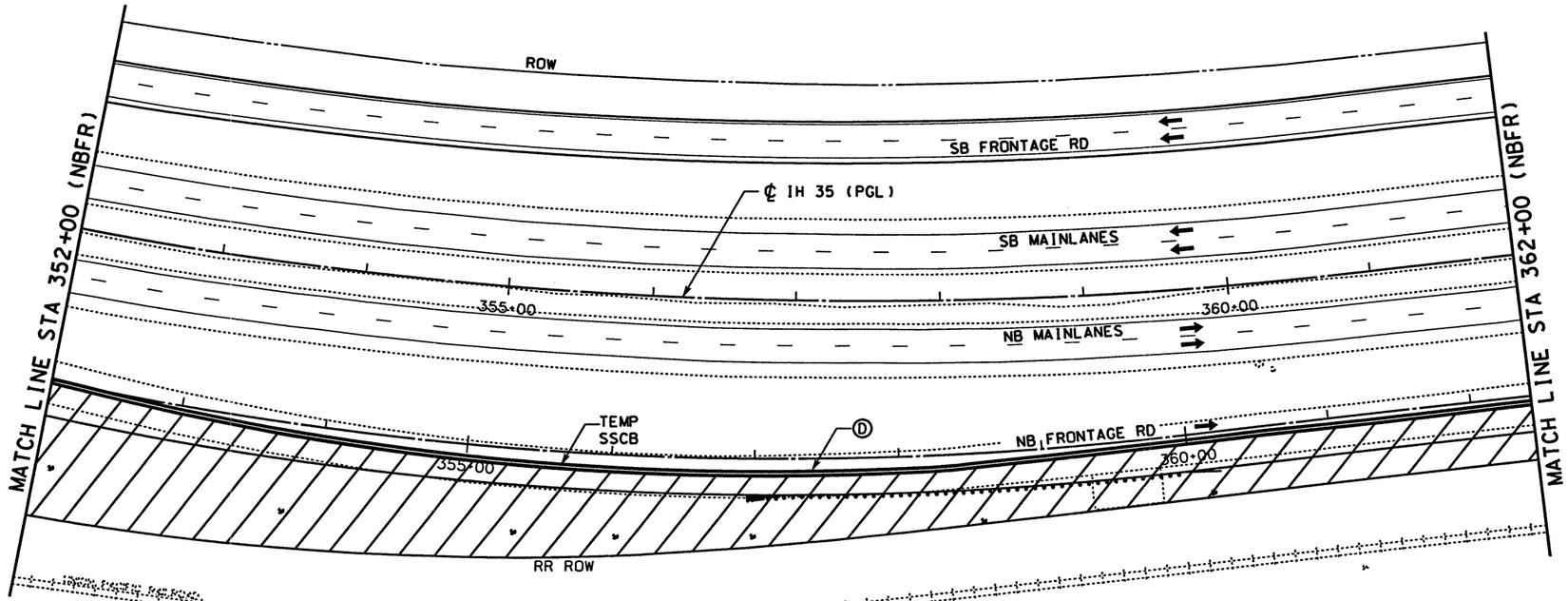

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 2
STA 342+00 TO
STA 362+00

SHEET 6 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		138
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P3206.dgn-05 HOUFILE023 \hciwi\c10130\

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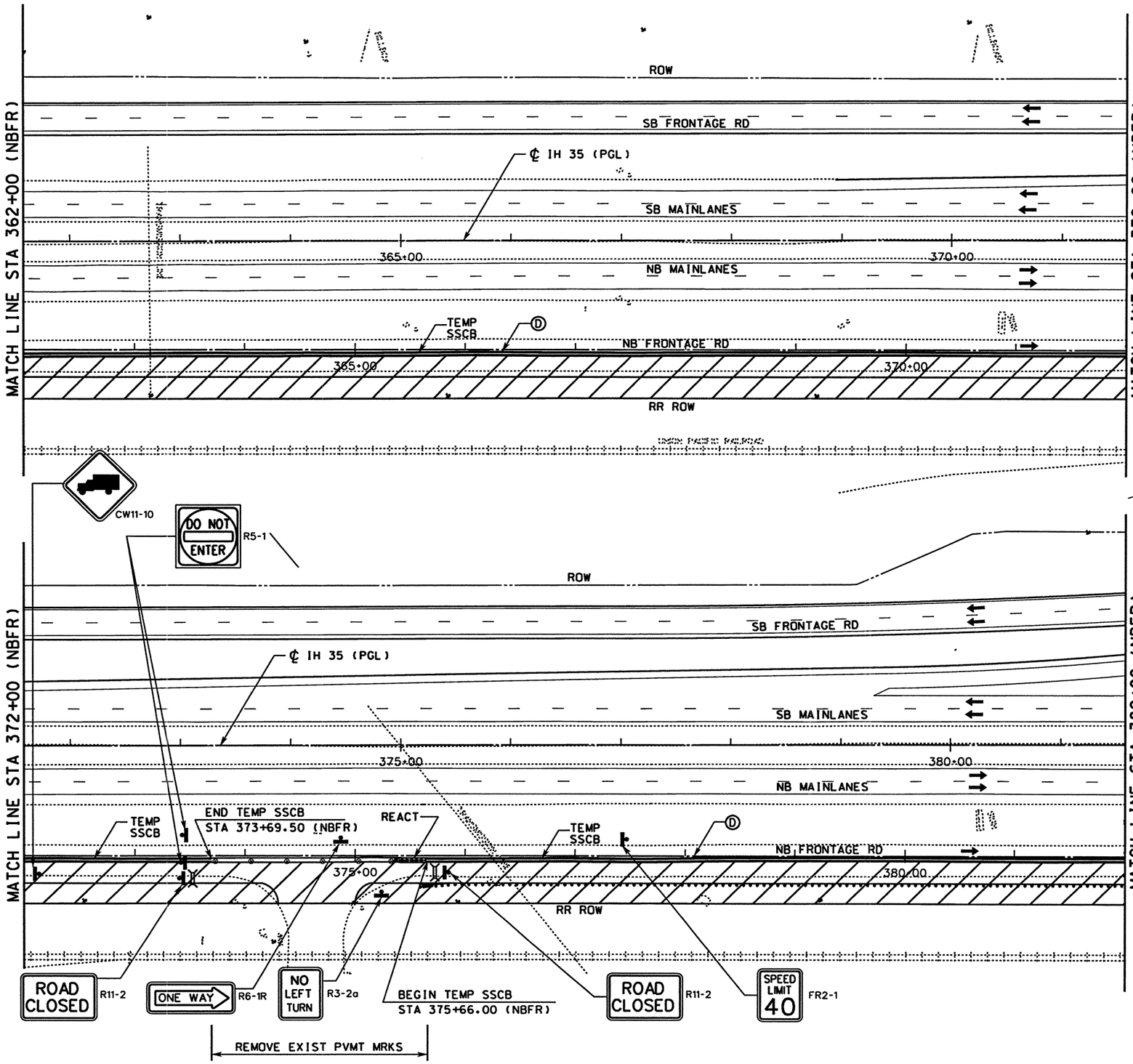

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- (M) PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III, STEP 2
STA 362+00 TO
STA 382+00

SHEET 7 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	139
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

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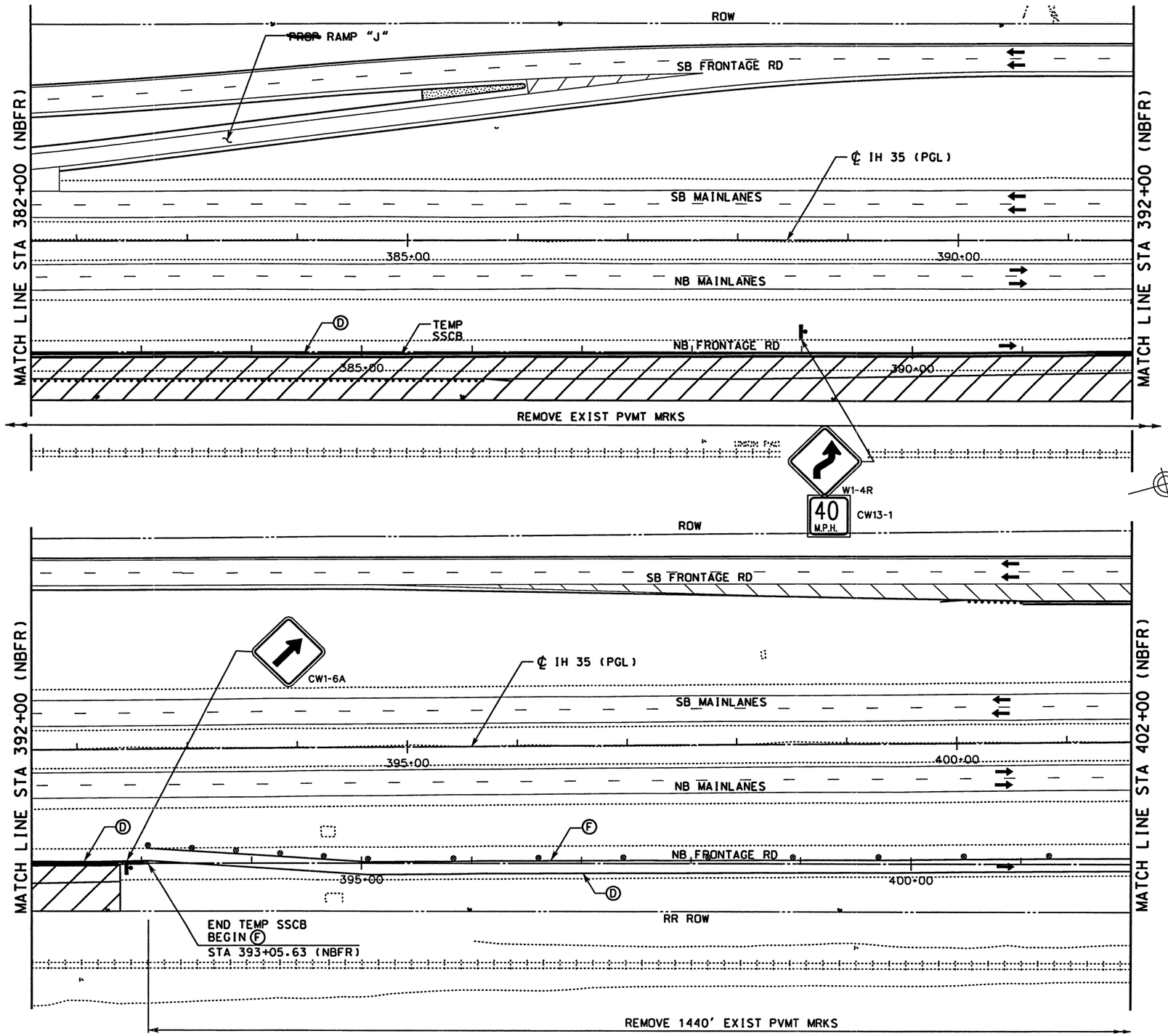

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 2
STA 382+00 TO
STA 402+00

SHEET 8 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		140
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P3208.dgn-05 HOUFILE023 \hchivil\cf0130\

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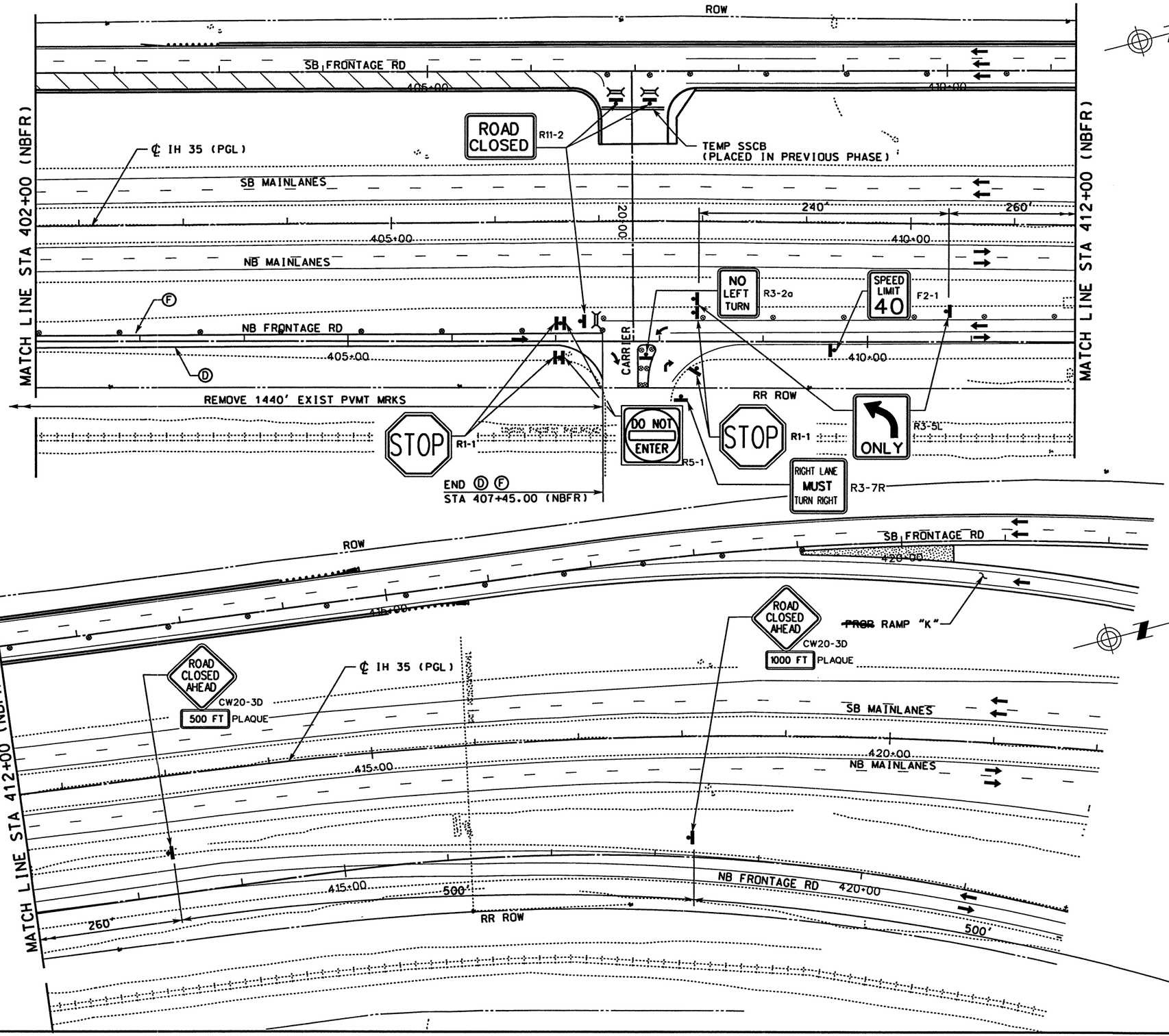

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 2
STA 402+00 TO
STA 422+00

SHEET 9 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		141
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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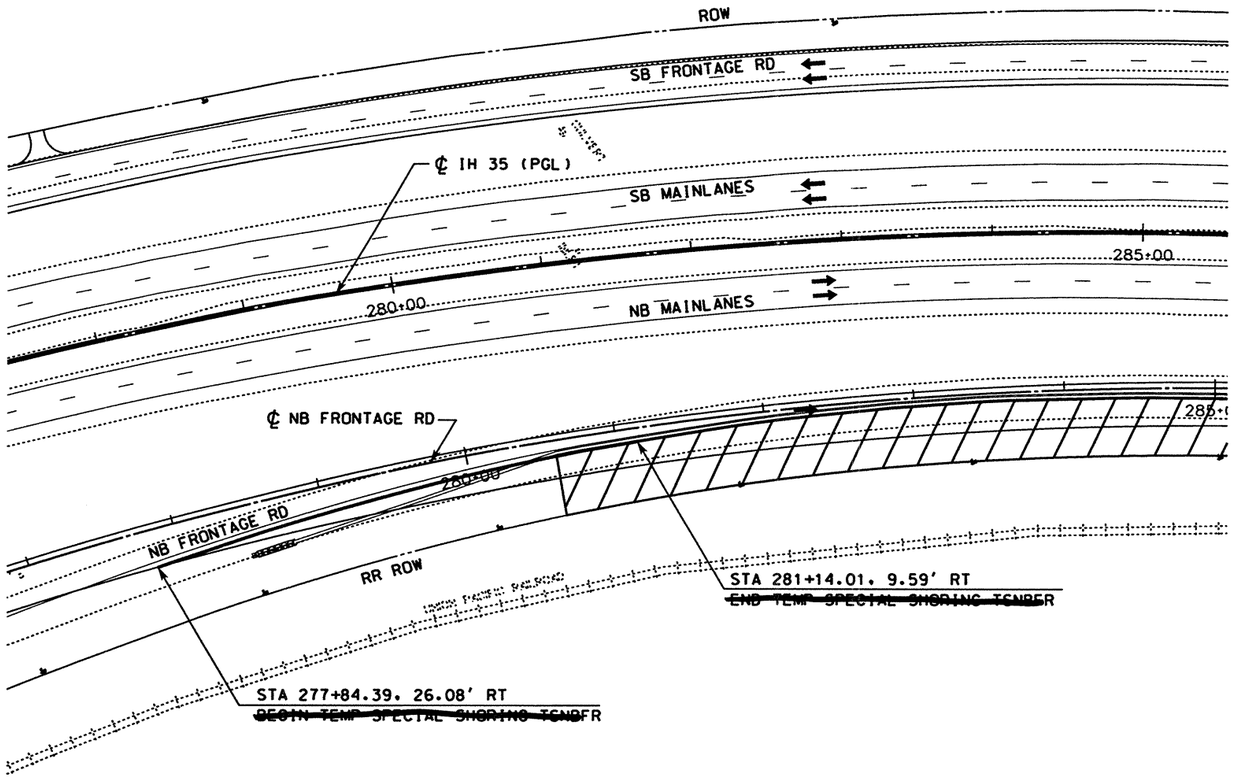
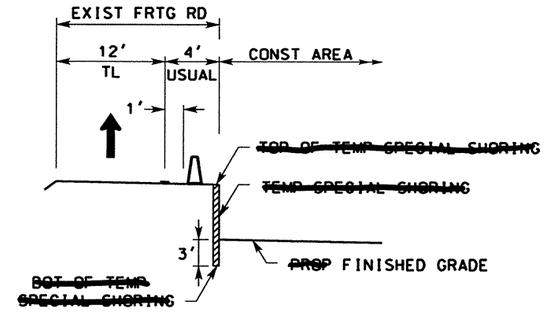
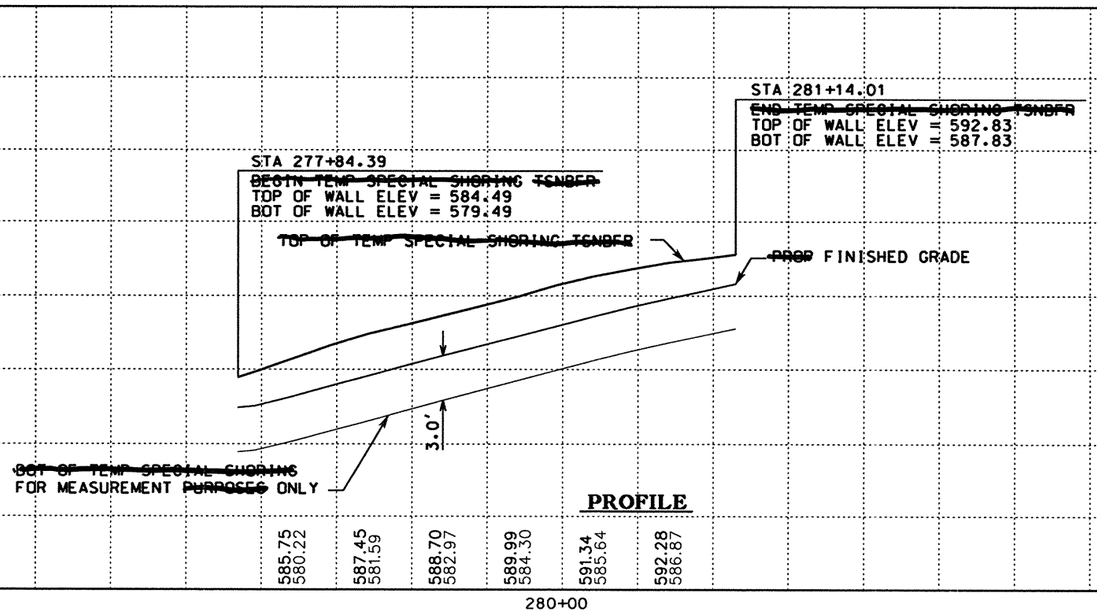
B50P3209.dgn-05 HOUFILE023 \hcivil\cf0130\ 04/18/03



PLAN





PROFILE

LEGEND

- CONSTRUCTION AREA
- DIRECTION OF TRAFFIC

NOTES:

1. STATIONS AND OFFSETS ARE MEASURED FROM NB FRONTAGE RD ALIGNMENT.
2. TOP OF ~~TEMPORARY SHORING~~ IS EXISTING NATURAL GROUND.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY~~
~~SPECIAL SHORING~~
~~PLAN AND PROFILE~~
(~~TSNBFR~~)
PHASE III STEP 2
SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	142
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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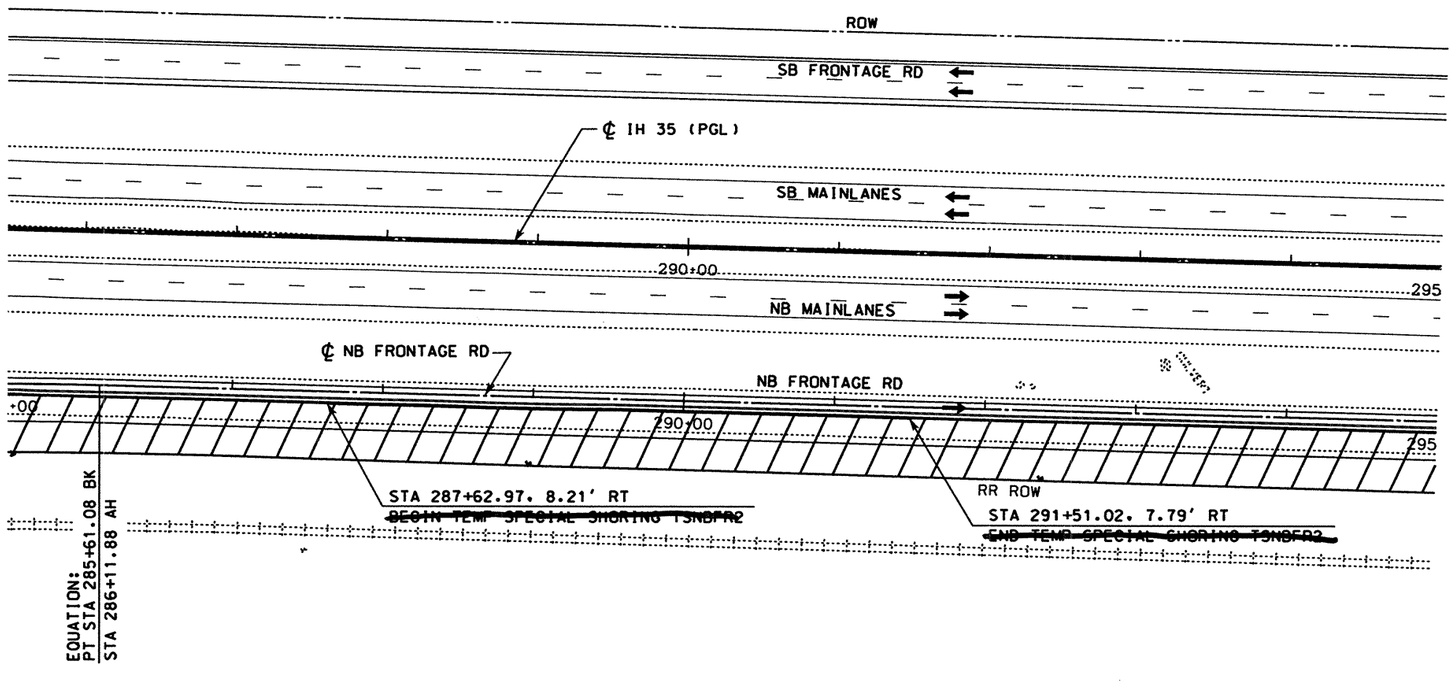
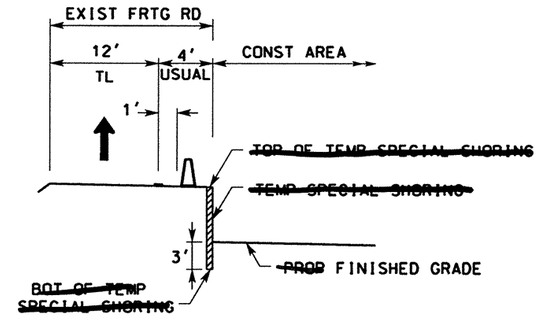


LEGEND

CONSTRUCTION AREA

DIRECTION OF TRAFFIC

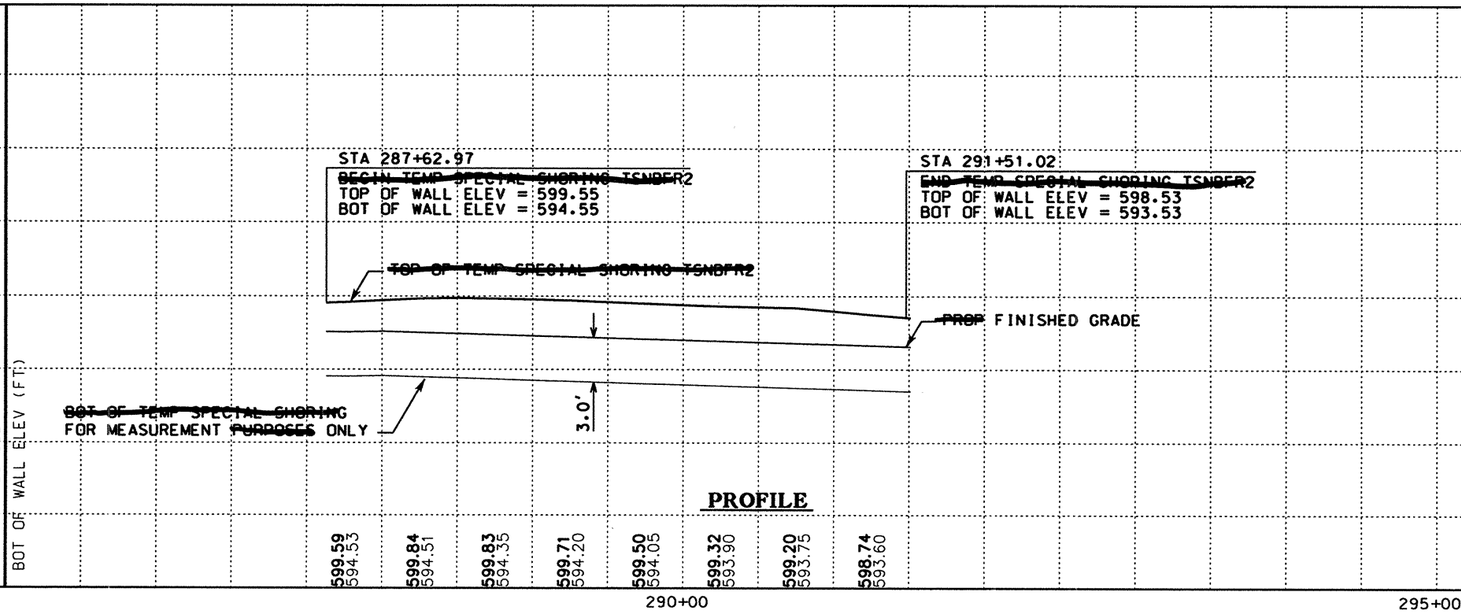


NOTES:

1. STATIONS AND OFFSETS ARE MEASURED FROM NB FRONTAGE RD ALIGNMENT.
2. ~~TOP OF TEMPORARY SHORING~~ IS EXISTING NATURAL GROUND.

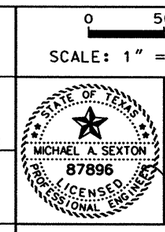
PLAN

PROFILE



0 50 100

SCALE: 1" = 100' HORIZ



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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY~~
~~SPECIAL SHORING~~
~~PLAN AND PROFILE~~
(~~TSNBFR2~~)
PHASE III STEP 2
SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	143
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
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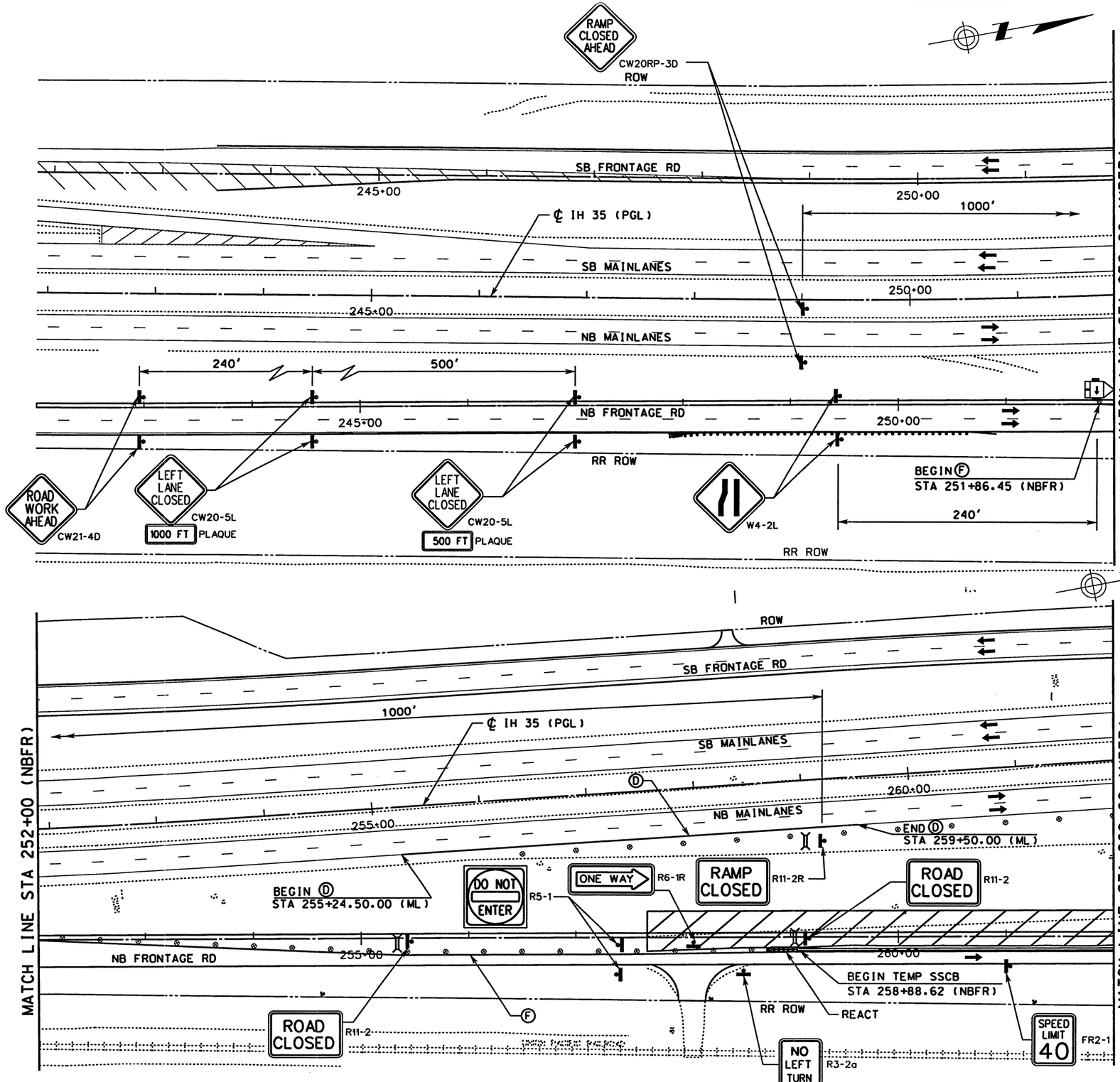

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- H — TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- M — PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 3
STA 242+00 TO
STA 262+00

SHEET 1 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	184
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

04/18/03

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B50P3301.dgn-04

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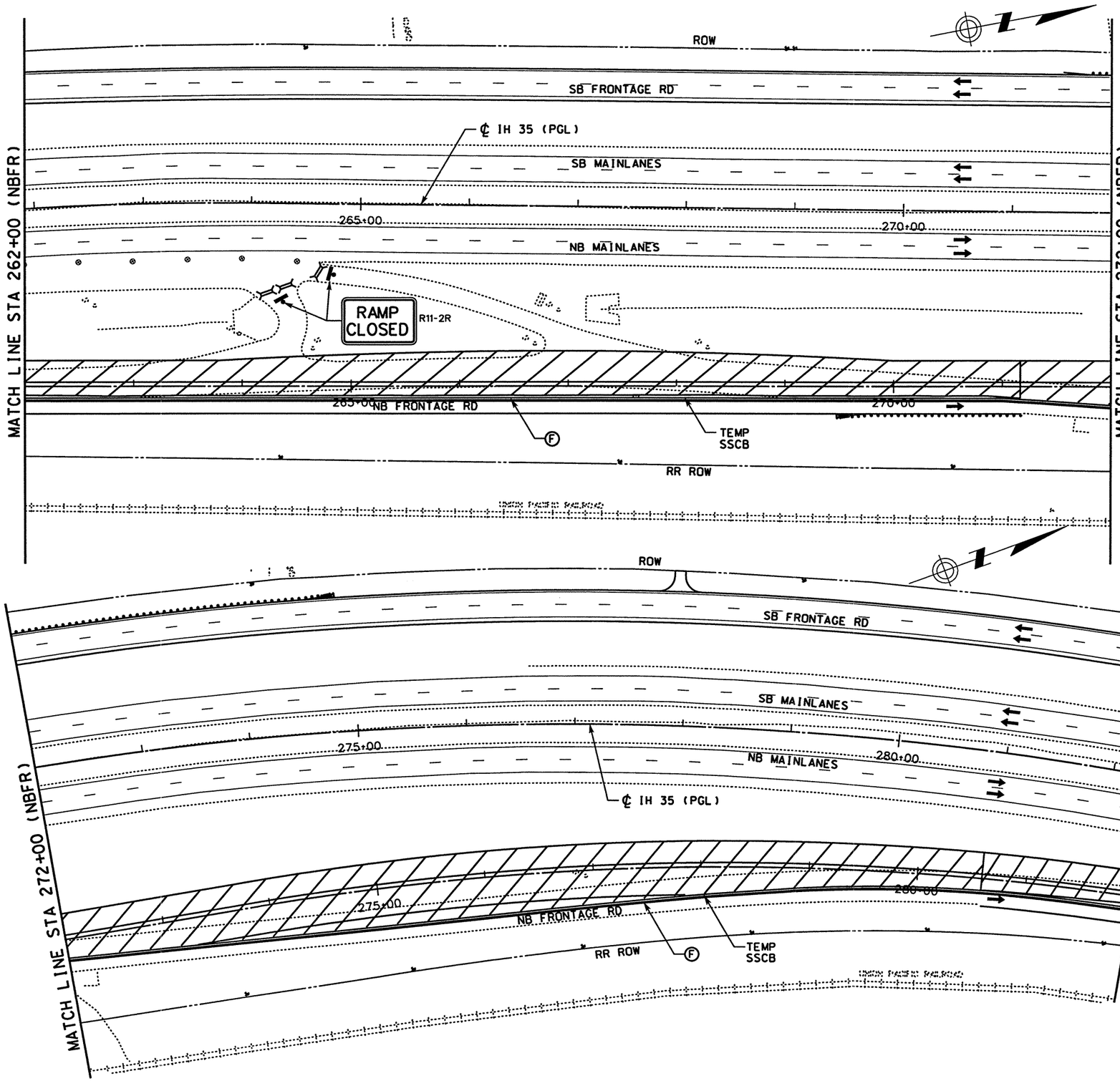

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 3
STA 262+00 TO
STA 282+00

SHEET 2 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		145
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
\hcivil\cf0130\HOUFILE023\B50P3302.dgn-03

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j011op01.dlg, dlg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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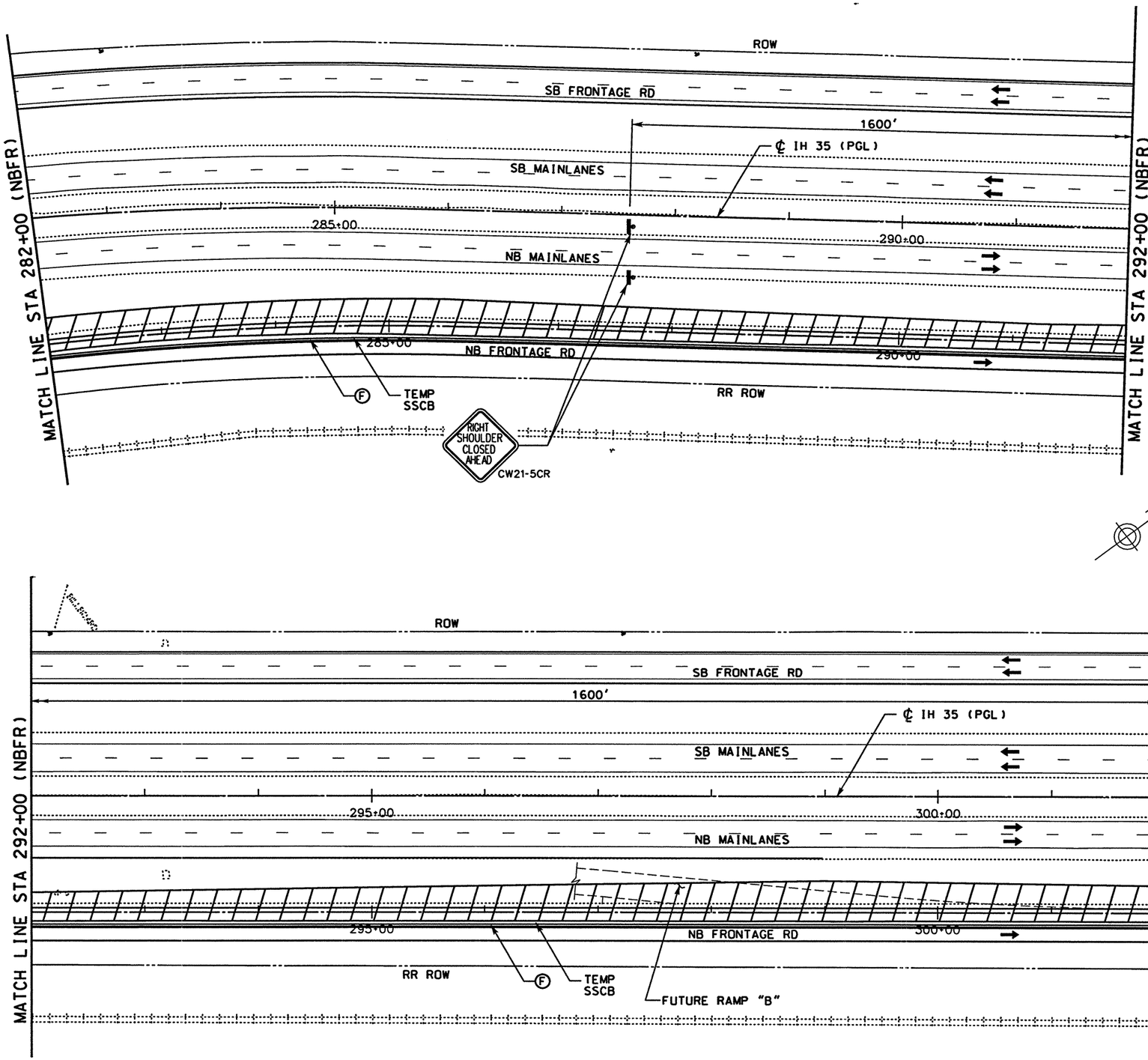

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- Ⓜ PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 3
STA 282+00 TO
STA 302+00
SHEET 3 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	146
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03
B50P3303.dgn-05 HOUFILE023 \hcivil\c0130\

REF FILE(S): j0110p01.dgn, j0110p01.bdr, j0110p01.alg, j0110p01.bck, j0110p01.eop, j0110p01.utl, j0110p01.pro
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LV DN = 1-17.19-63
LV DN = 2.9.10.14.17.20.21.25.28
LV DN = 1-6.35-39
LV DN = 9-11.32.33.45.47.57.58.60-62
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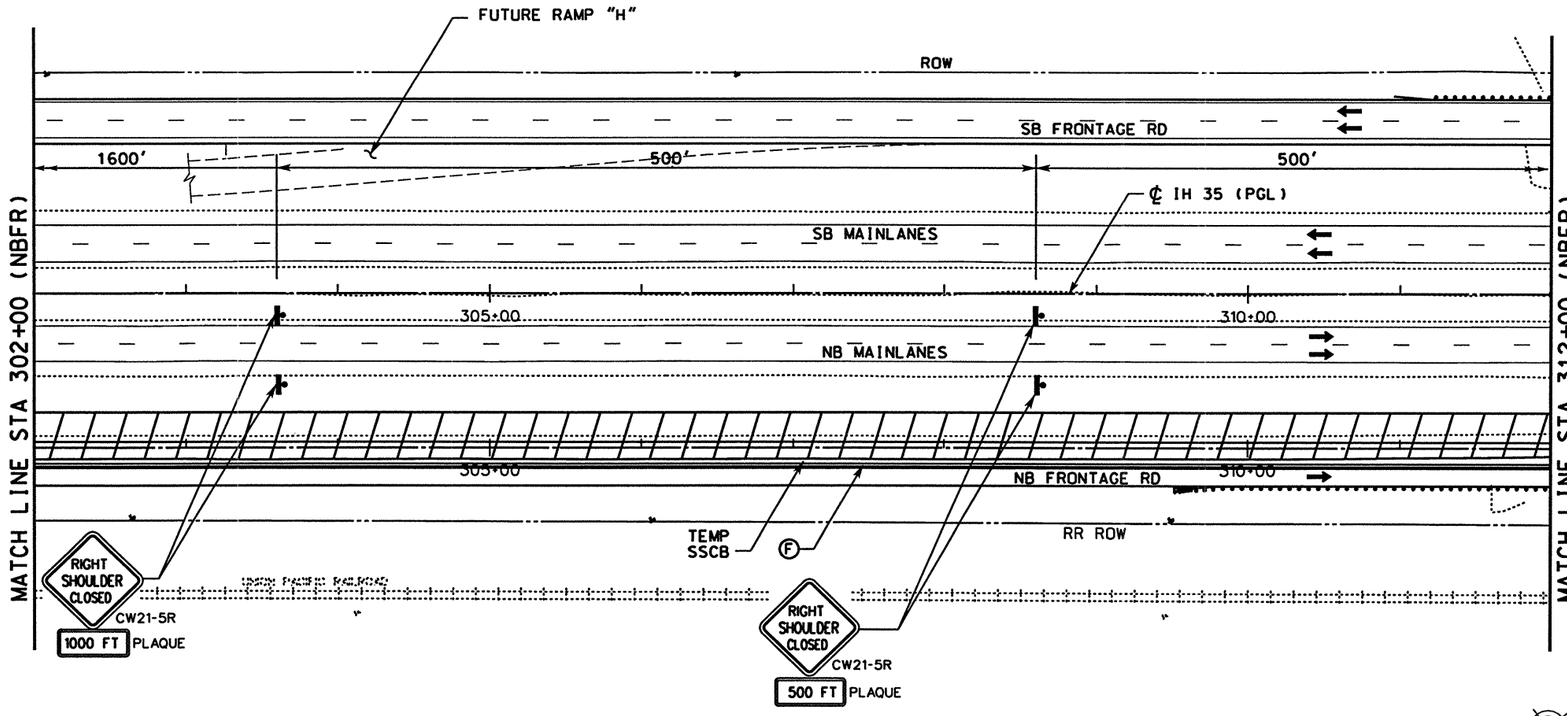

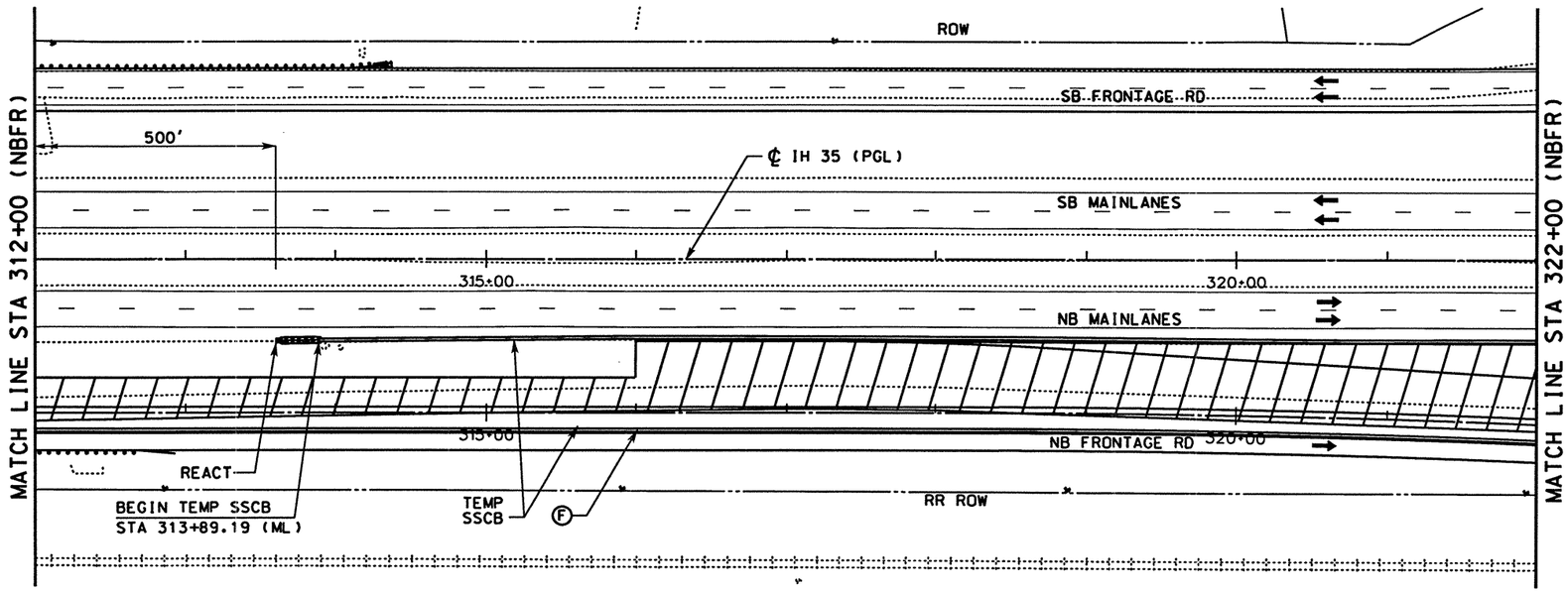

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 3
STA 302+00 TO
STA 322+00

SHEET 4 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		147
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

\hcivil\cf0130\HOUFILE023\B50P3304.dgn-06

REF FILE(S): j011op01.uti, uti LV ON = 1-63
j011op01.eop, eop LV ON = 1-17,19-63
j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

REF FILE(S): j011op01.pro, pro LV ON = 1-23,25-63
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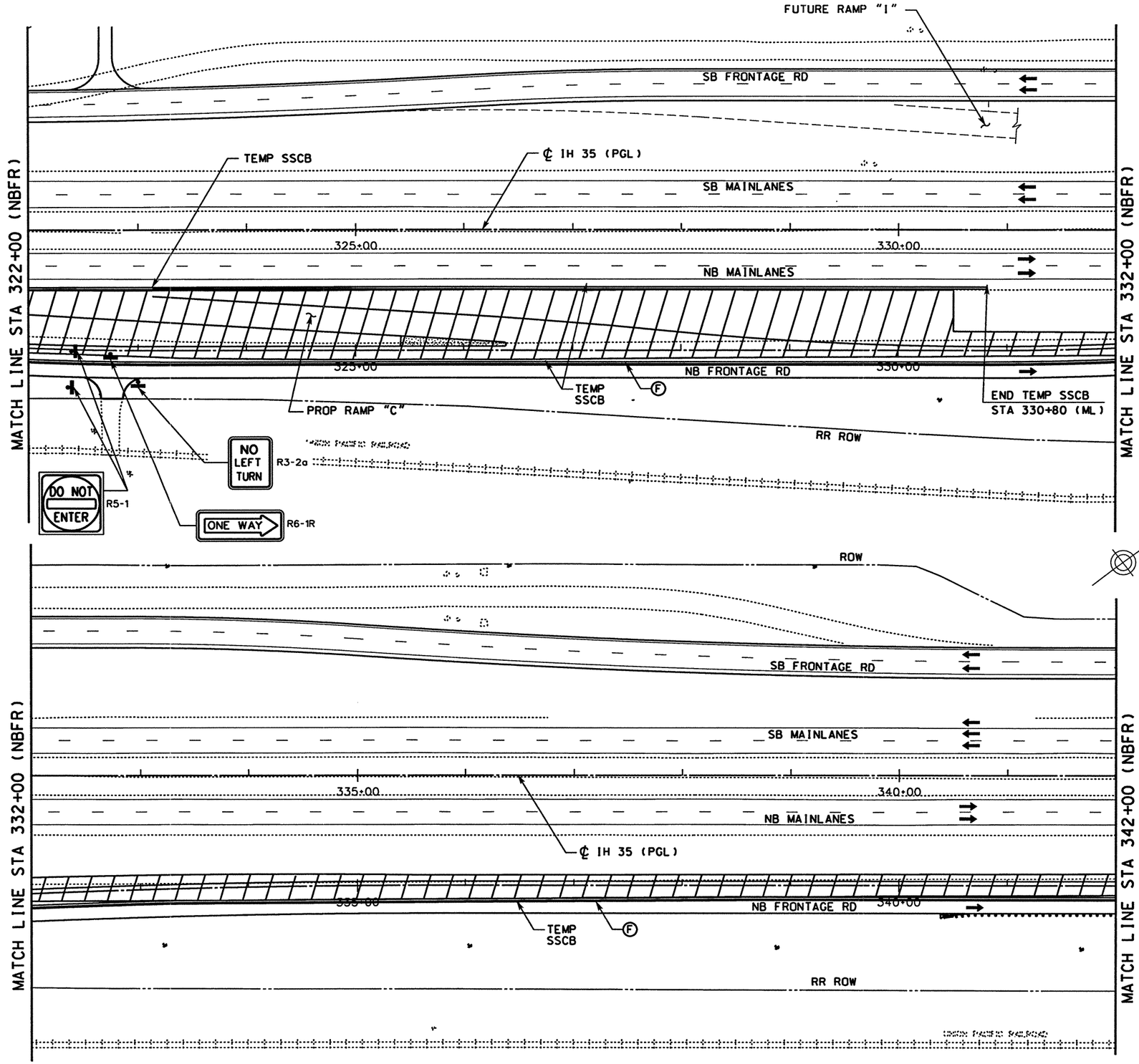

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 3
STA 322+00 TO
STA 342+00

SHEET 5 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		148
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
B50P3305.dgn-04 HOUFILE023 \hchivil\cf0130\

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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j011op01.eop, eop LV ON = 1-17,19-63
j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
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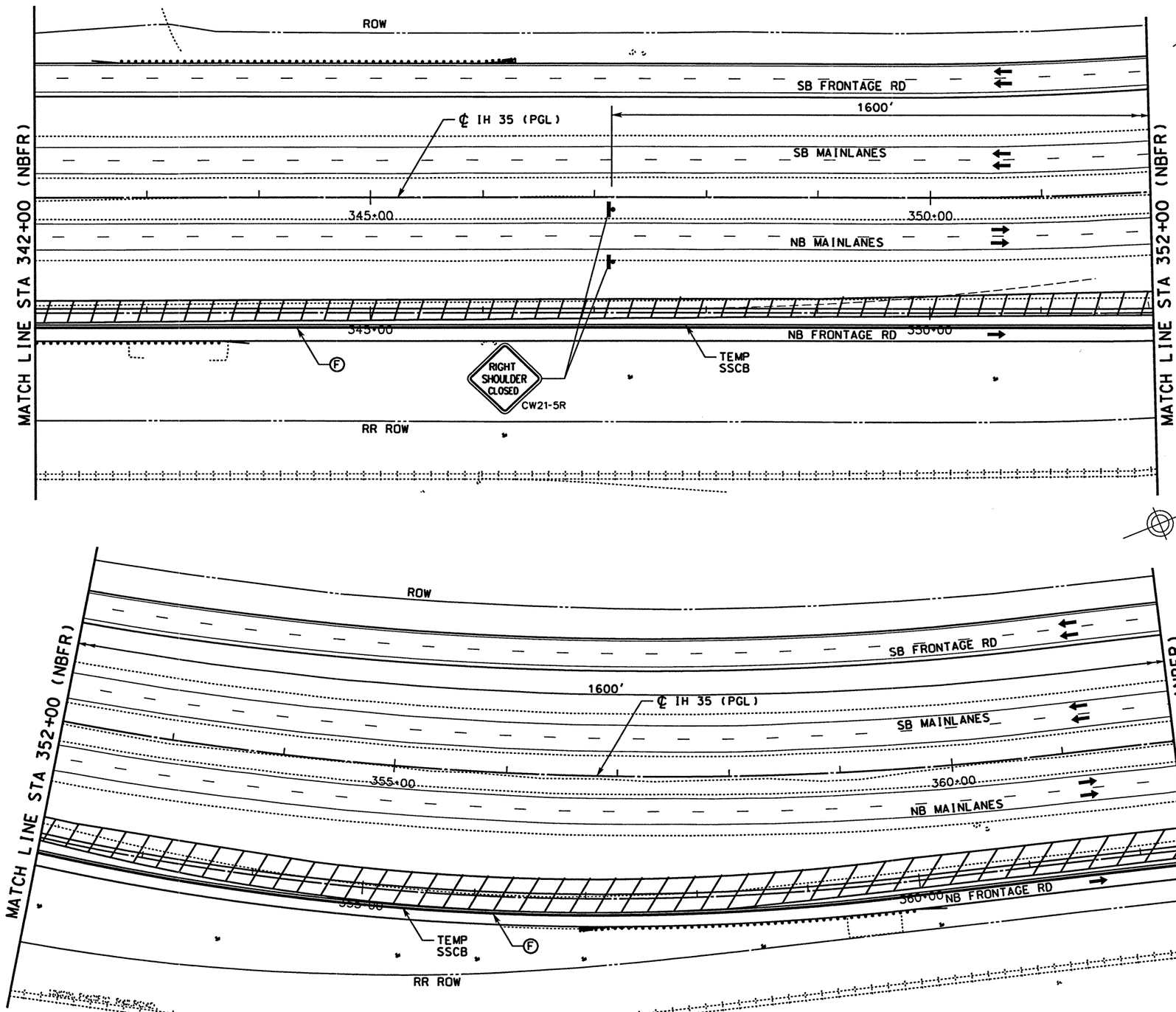
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62



WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- H — TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- M — PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 3
STA 342+00 TO
STA 362+00

SHEET 6 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		149
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P3306.dgn-04 HOUFILE023 \hcivil\cf0130\ 04/18/03

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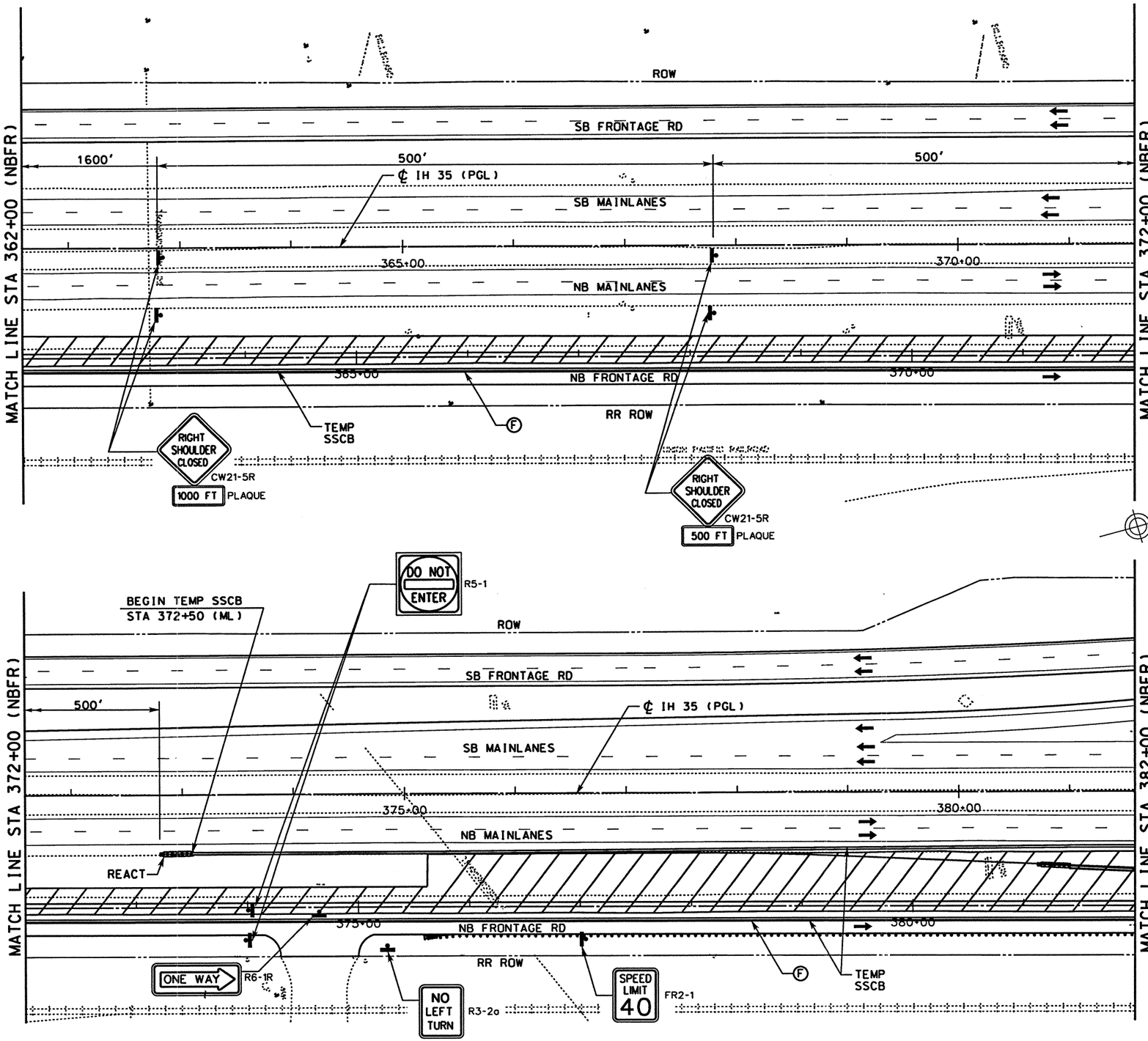

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 3
STA 362+00 TO
STA 382+00

SHEET 7 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		150
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03

B50P3307.dgn-04 HOUFILE023 \hcivil\c0130\

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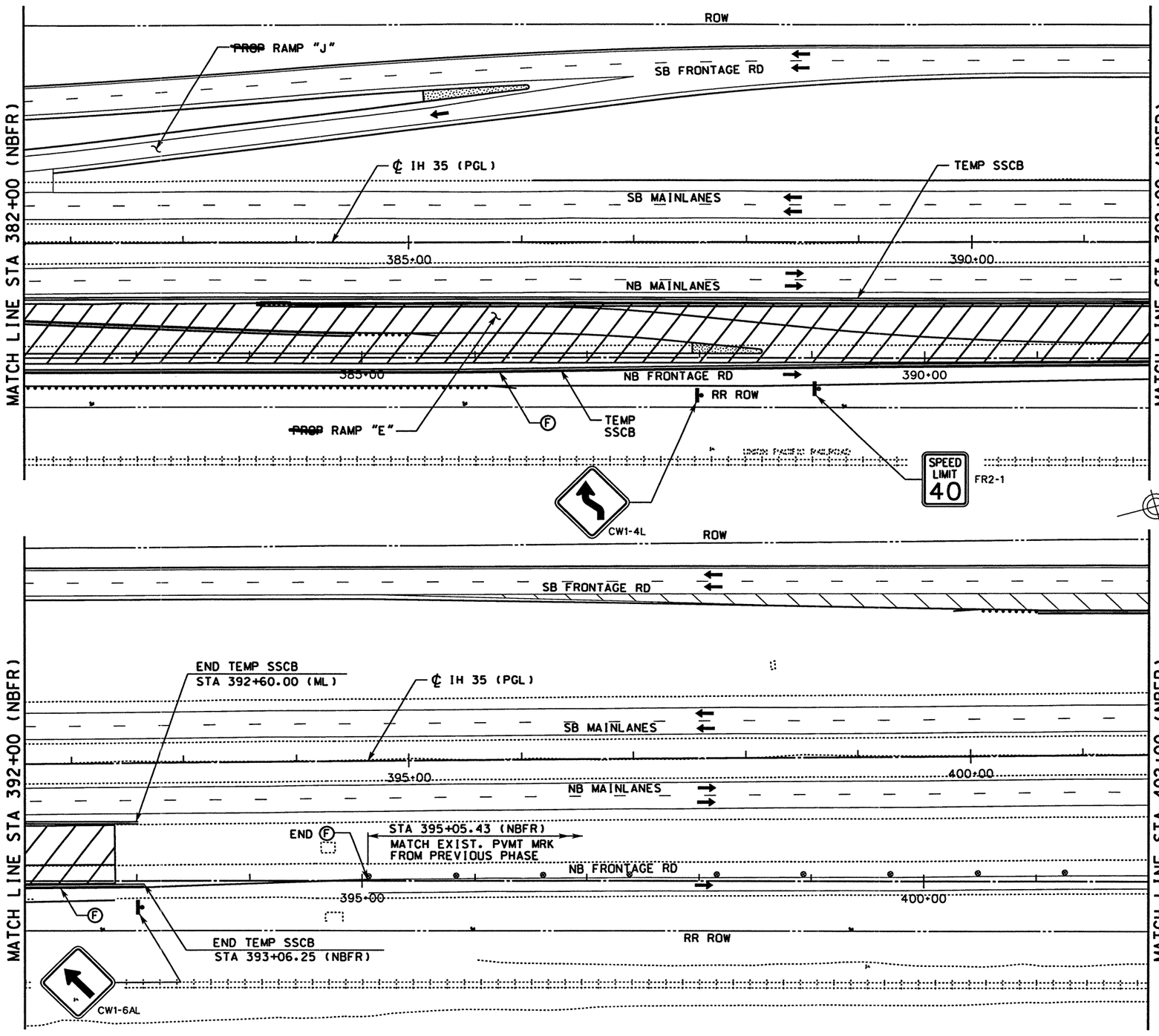
j011op01.bar, bar LV ON = 9-11.32.33.45.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 3
STA 382+00 TO
STA 402+00

SHEET 8 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	151
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03

B50P3308.dgn-04 HOUFILE023 \hchwi\cf0130\

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J011op01.bck, bck LV ON = 2-9.10.14.17.20.21.25.28
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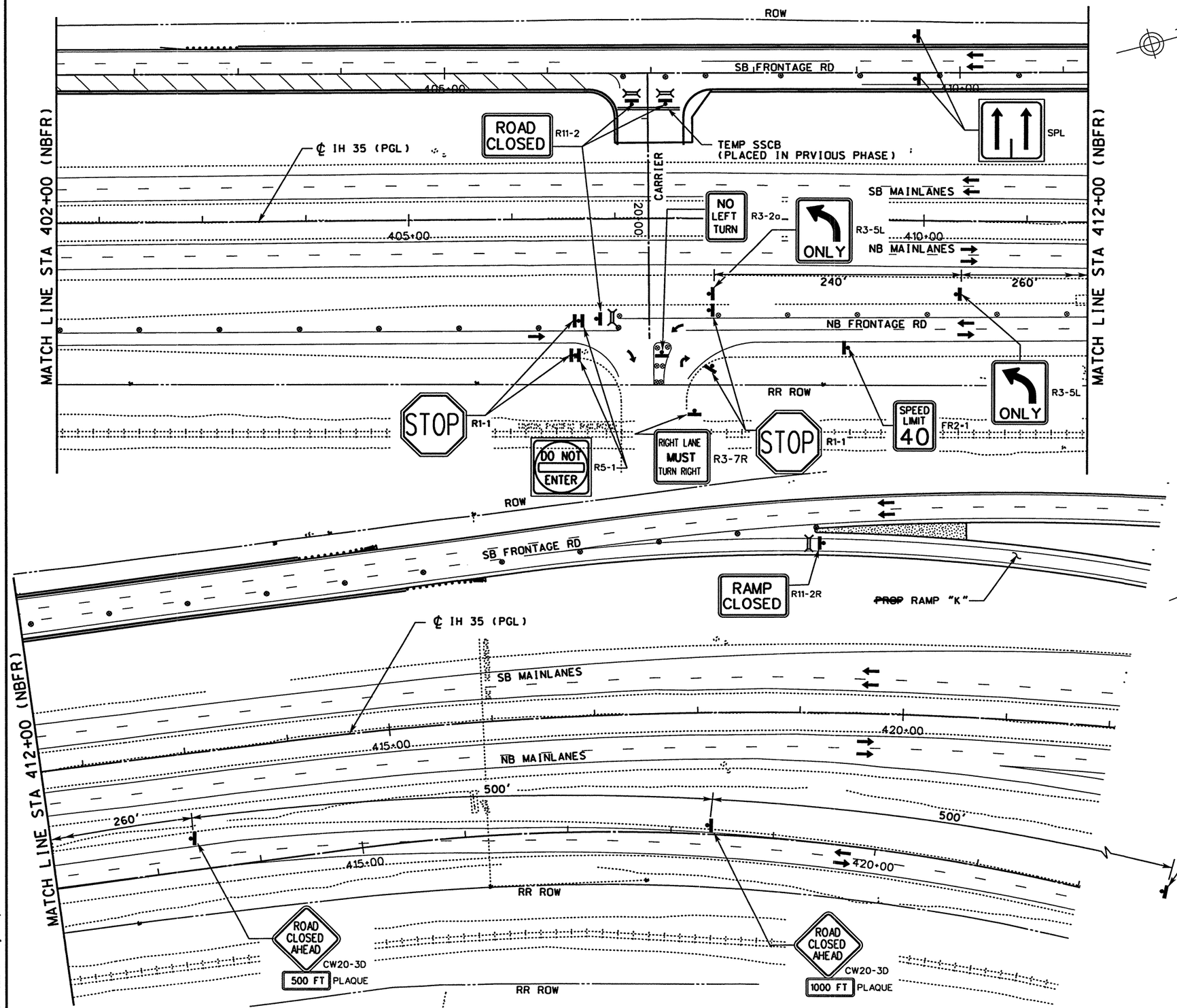
J011op01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 3
STA 402+00 TO
STA 422+00

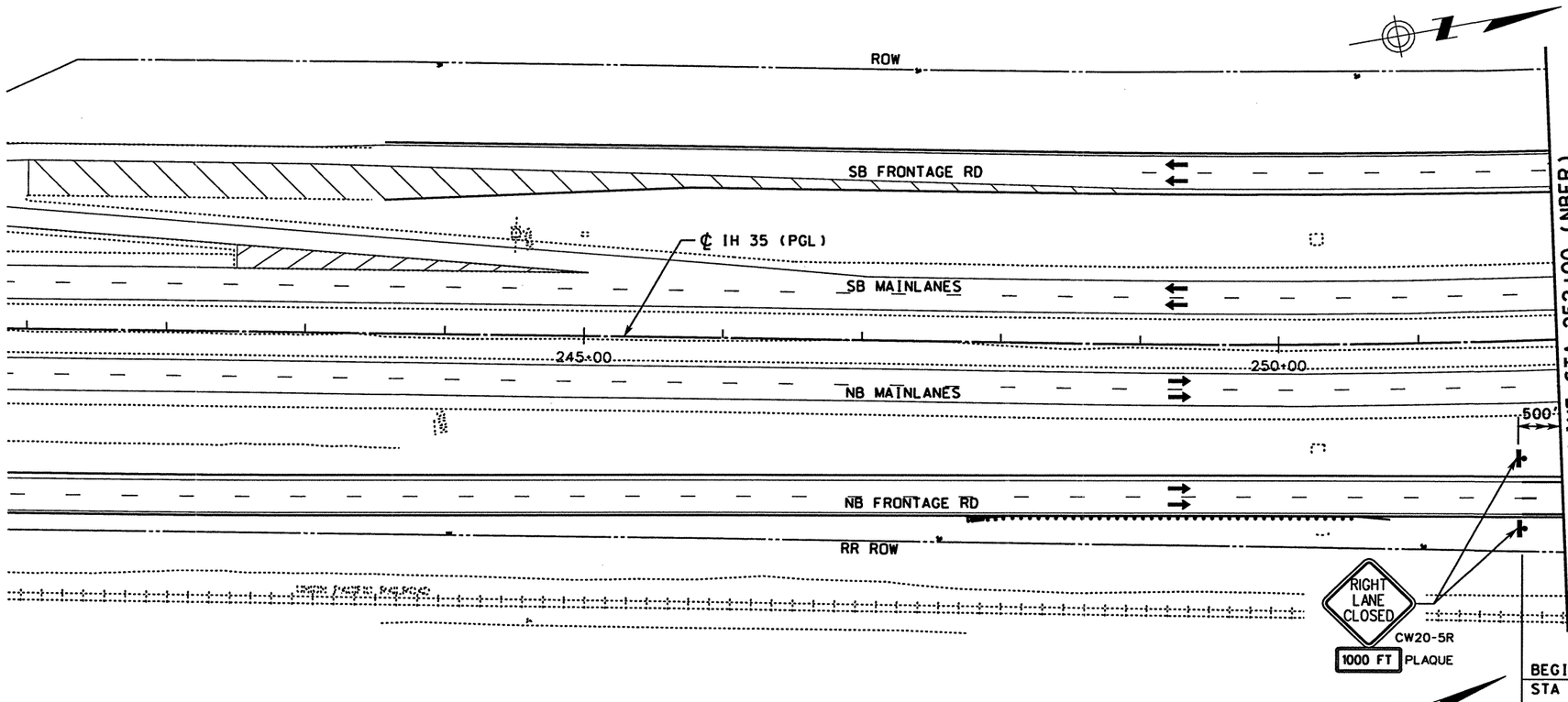
SHEET 9 OF 9

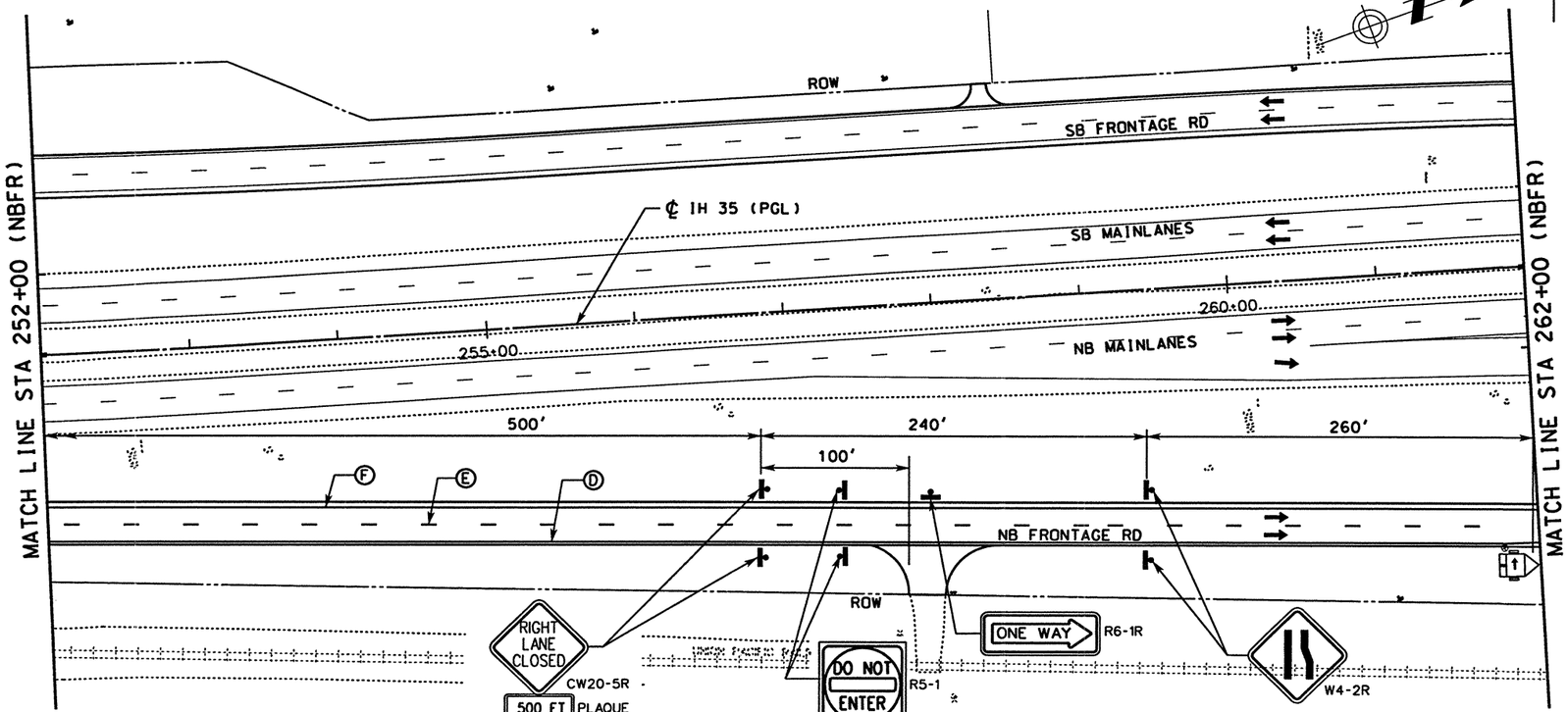
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		152
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

B50P3309.dgn-05 HOUFILE023 \hchwi\cf0130\ 04/18/03

REF FILE(S): j011op01.pro, j011op01.row, j011op01.bdr, j011op01.clg, j011op01.bck, j011op01.eop, j011op01.utl

LV ON = 1-23.25-63
LV ON = 1-63
LV ON = 1-17.19-63
LV ON = 2.9.10.14.17.20.21.25.28
LV ON = 1-6.35-39
LV ON = 9-11.32.33.45.47.57.58.60-62





WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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MICHAEL A SEXTON
87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 4
STA 241+00 TO
STA 262+00

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	153
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03

BSOP3401.dgn-03 HOUFILE023 \hcivil\cf0130\

REF FILE(S): j011op01.pro, pro LV ON = 1-63
j011op01.eop, eop LV ON = 1-17,19-63
j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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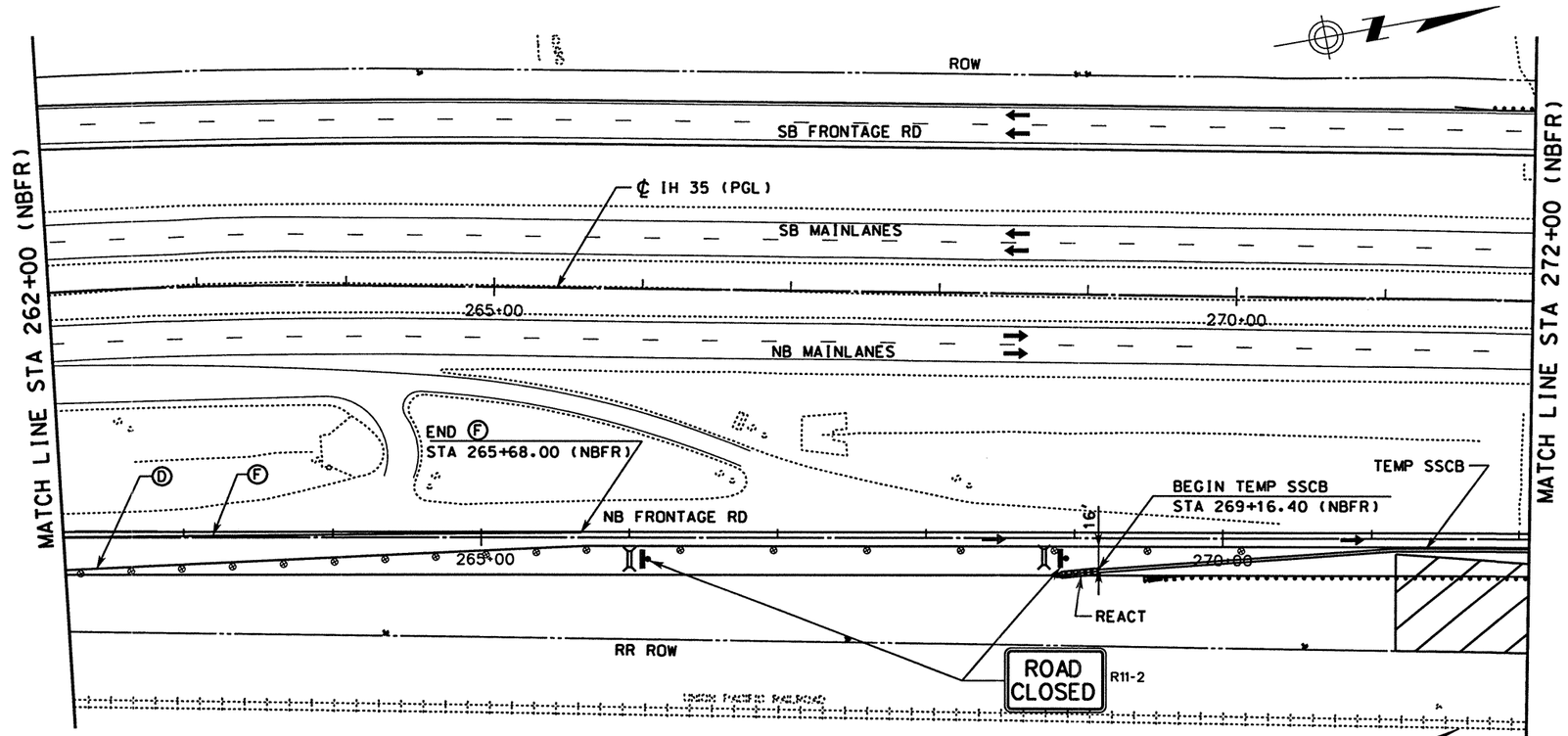

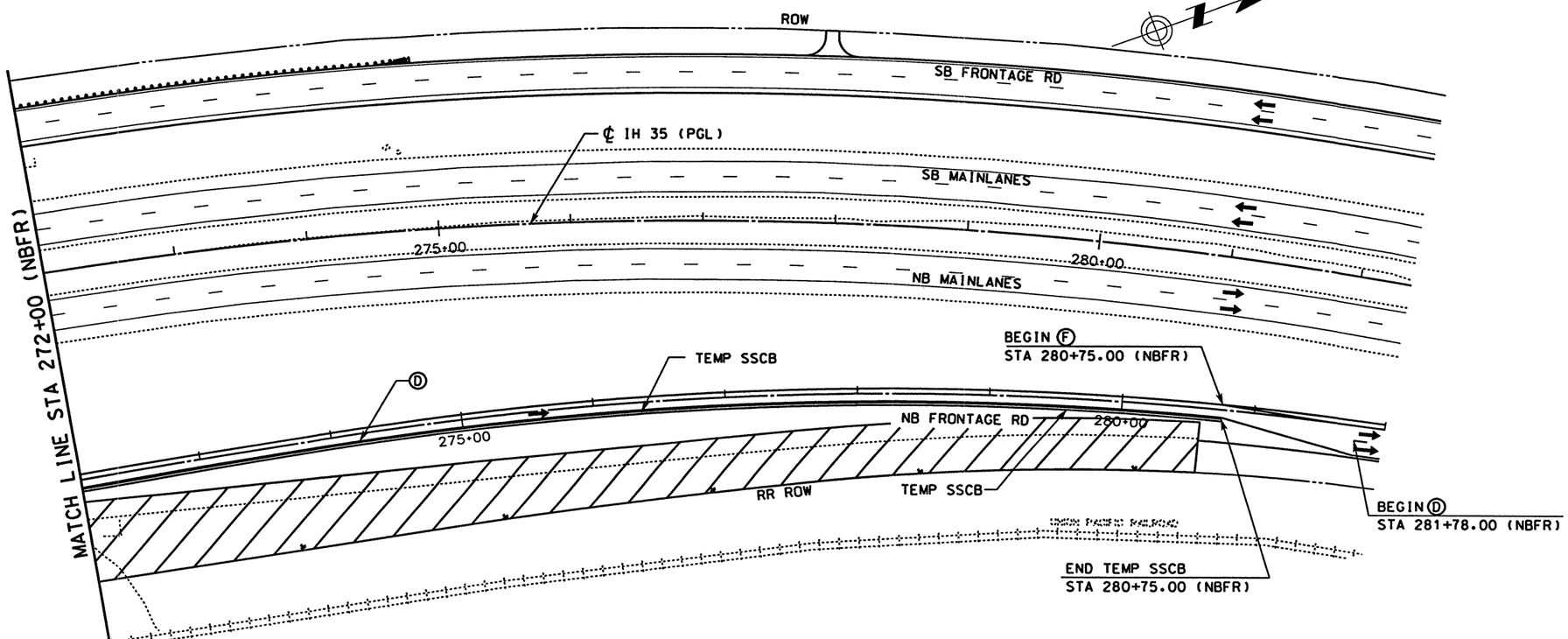

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP ~~THAT~~ SHALL REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PHASE III STEP 4
STA 262+00 TO
STA 282+00

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	154
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

B50P3402.dgn-03 HOUFILE023 \hcivil\cf0130\ 04/18/03

REF FILE(S): j011op01.bdr, bdr LV ON = 9-11,32-33,45,47,57,58,60-62
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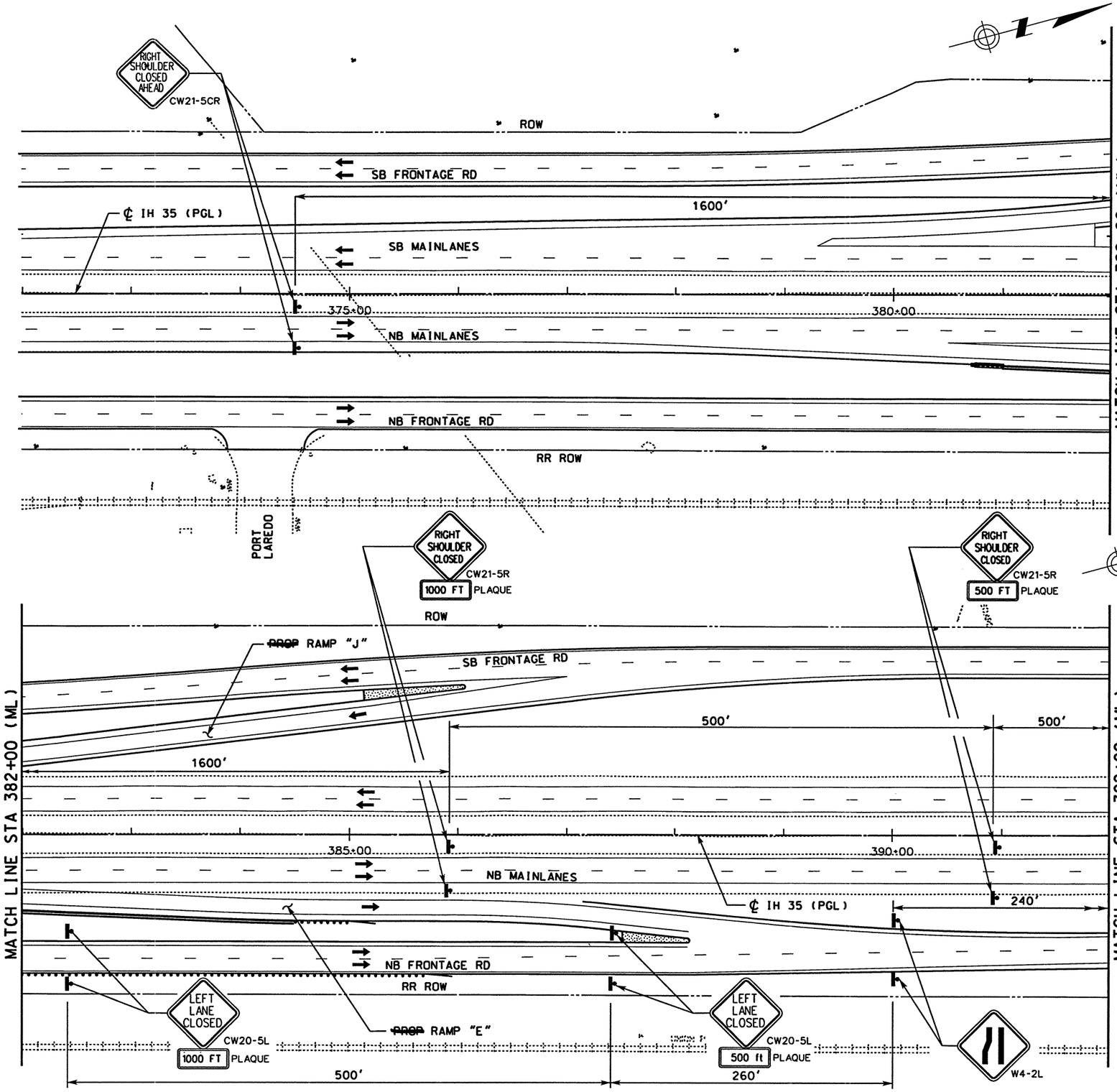

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 1A
STA 372+00 TO
STA 392+00

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		155
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03

B5OP41A01.dgn-04 HOUFILE023 \hciwil\cf0130\

REF FILE(S): j011op01.drn. LV ON = 8.28
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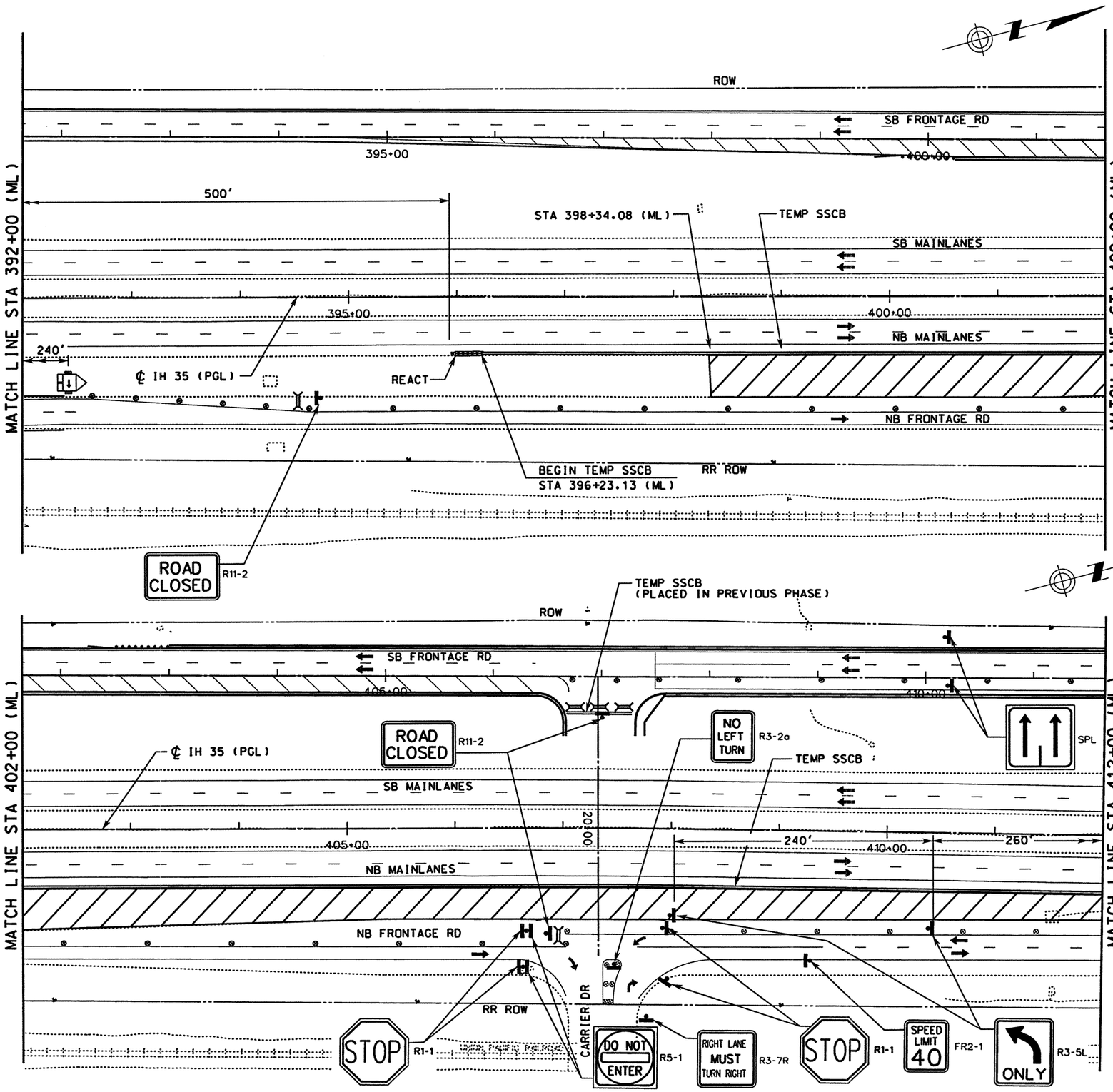
milointr.row. LV ON = 1-23.25-63

REF FILE(S): j011op01.utl. utl LV ON = 1-63
j011op01.eop. eop LV ON = 1-17.19-63
j011op01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.30.33.42.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

STATE OF TEXAS
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 1A
STA 392+00 TO
STA 412+00

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		156
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P41A02.dgn-04 HOUFILE023 \hciwin\cf0130\

REF FILE(S): j011op01.drn. drn LV ON = 8.28
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j011op01.row. row LV ON = 1-23.25-63

REF FILE(S): j011op01.uti. uti LV ON = 1-63
j011op01.eop. eop LV ON = 1-17.19-63
j011op01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
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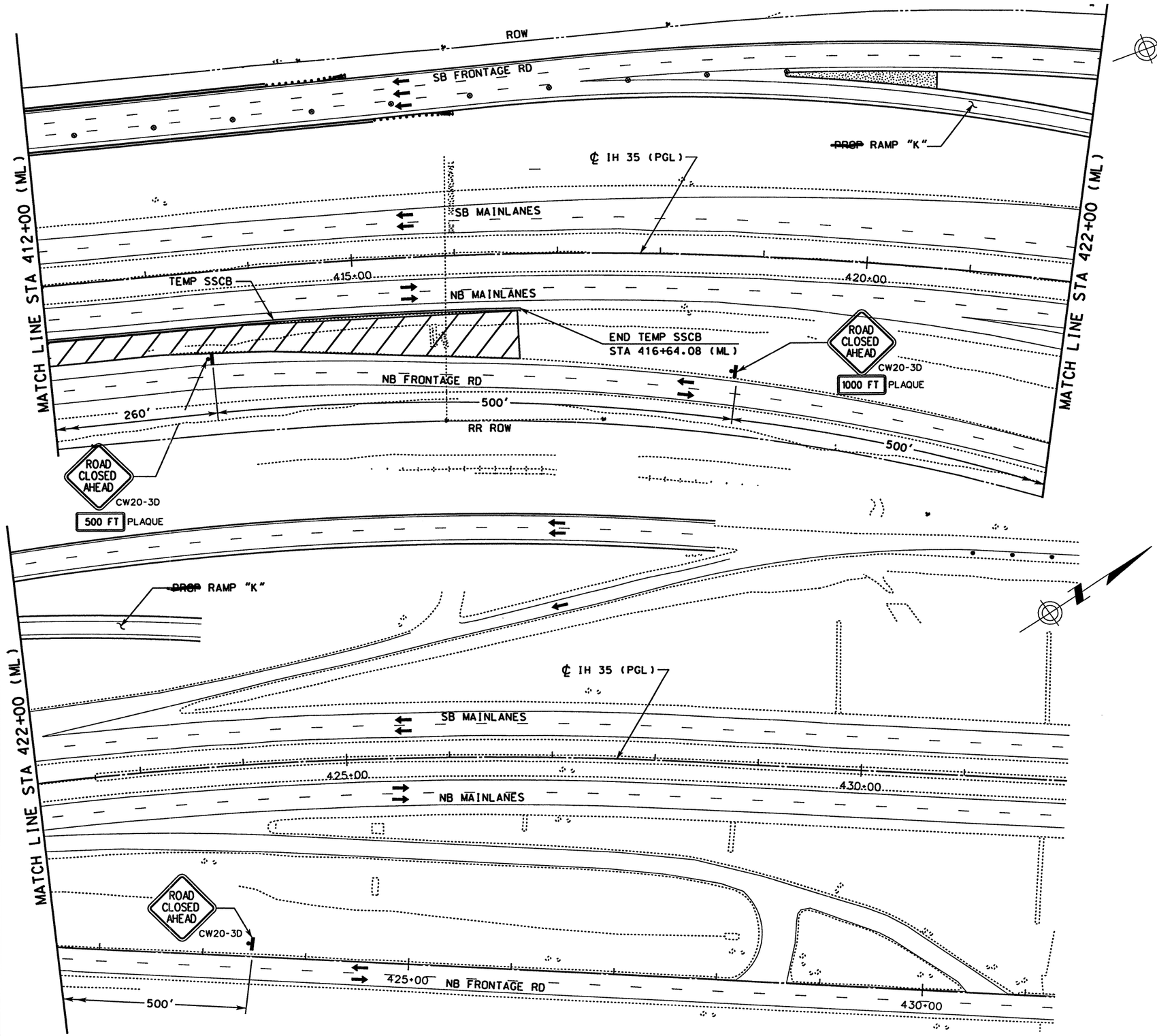
j011op01.bdr. bdr LV ON = 9-11.30.33.42.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- (M) PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 1A
STA 412+00 TO
STA 432+00

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		157
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P41A03.dgn-04 HOUFILE023 \hciv\lvc\0130\

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milojnt.row, row LV ON = 1-23.25-63

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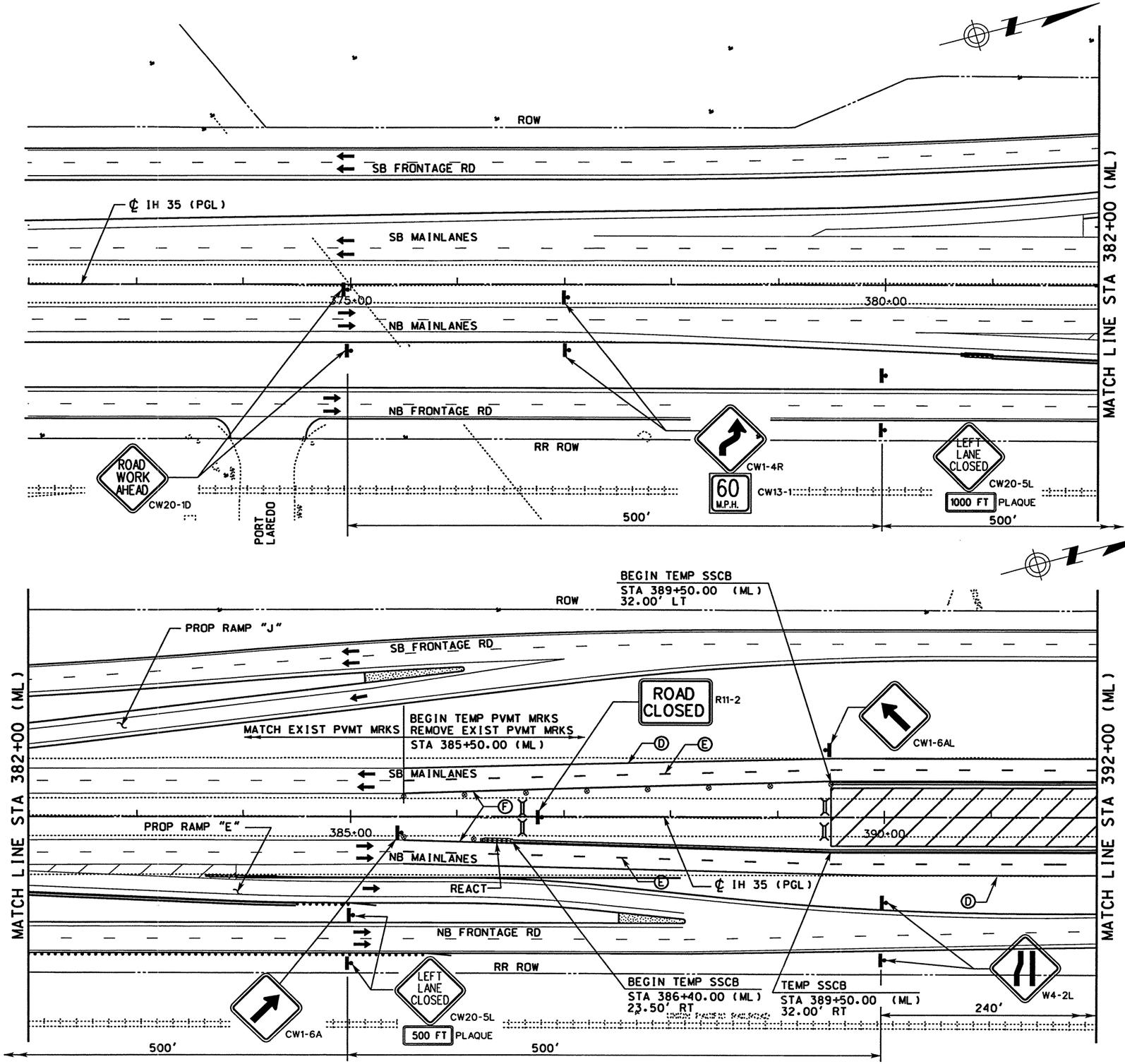
j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.alg, alg LV ON = 1-6.35-39
j011op01.bdr, bdr LV ON = 9-11.30.33.42.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- H — TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- M — PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 1B
STA 372+00 TO
STA 392+00
SHEET 1 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	158
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

04/18/03

B50P41B01.dgn-04 HOUFILE023 \hcivil\cf0130\

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j011op01.bck. bck LV ON = 1-6.35-39
j011op01.eop. eop LV ON = 2.9.10.14.17.20.21.25.28
j011op01.uti. uti LV ON = 1-17.19-63

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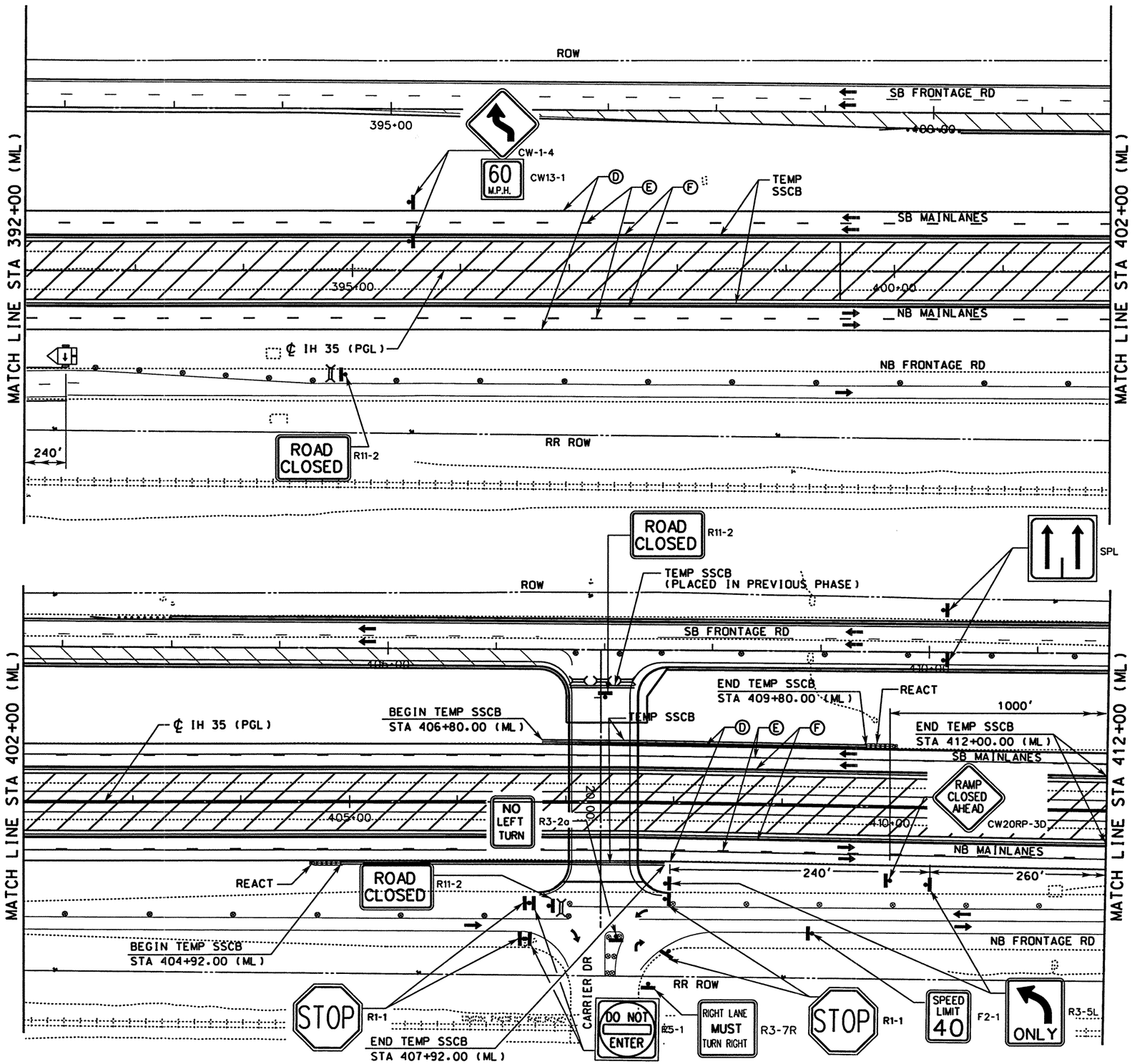

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

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0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 1B
STA 392+00 TO
STA 412+00

SHEET 2 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	159
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03

B50P41B02.dgn-04 HOUFILE023 \hctivil\cf0130\

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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j011op01.row, row LV ON = 1-23-25-63
REF FILE(S): j011op01.utl, utl LV ON = 1-63
j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2-9.10.14.17.20-21.25.28
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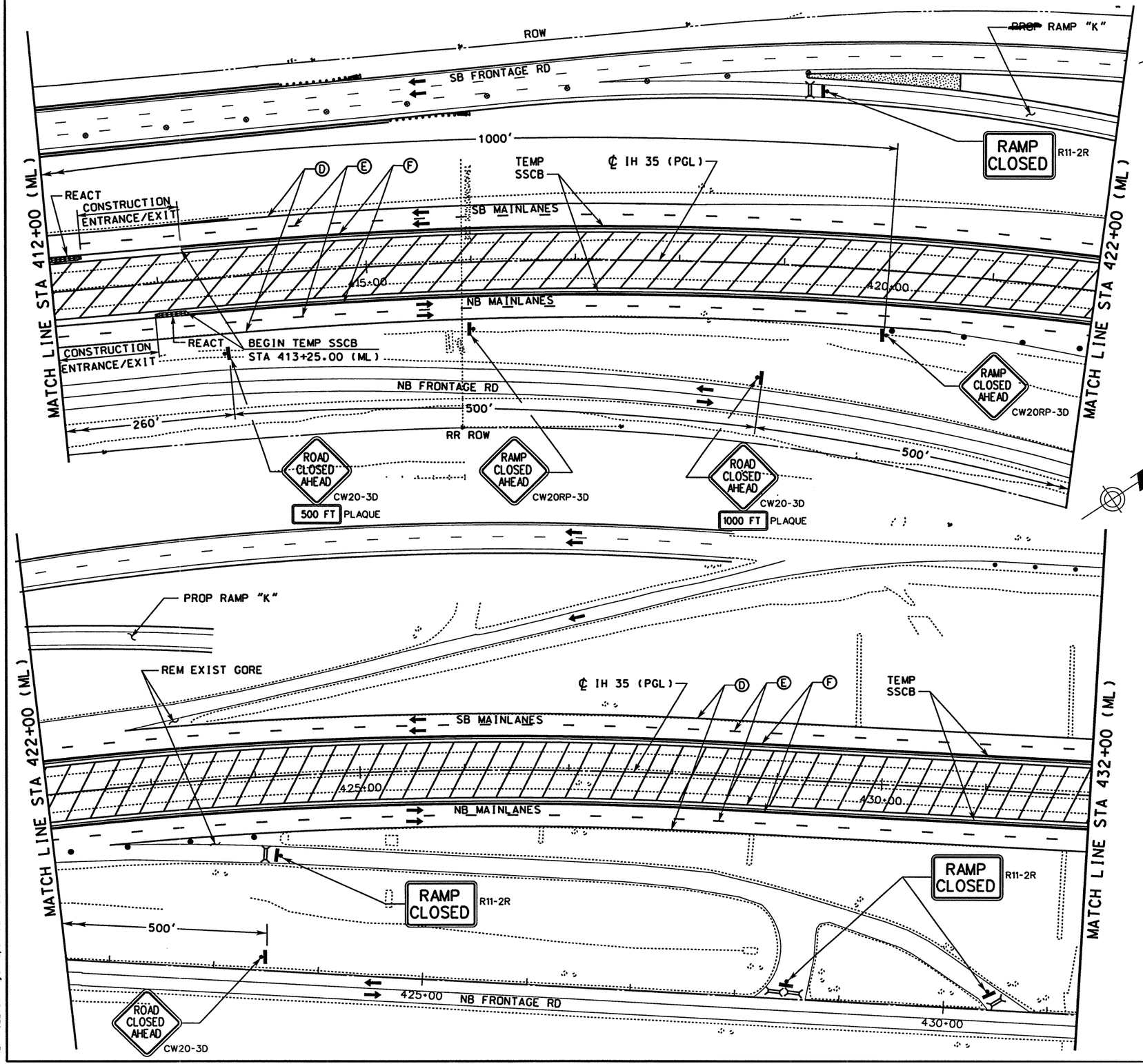
j011op01.bdr, bdr LV ON = 9-11.30.33.42-47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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MICHAEL A. SEXTON
87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 1B
STA 412+00 TO
STA 432+00

SHEET 3 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	160
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03

B50P41B03.dgn-04 HOUFILE023 \hciv\lvcf0130\

REF FILE(S): j011op01.drn, j011op01.pro, j011op01.milpht.row, j011op01.row

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LV ON = 12.13.35
LV ON = 1-23.25-63

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LV ON = 1-17.19-63
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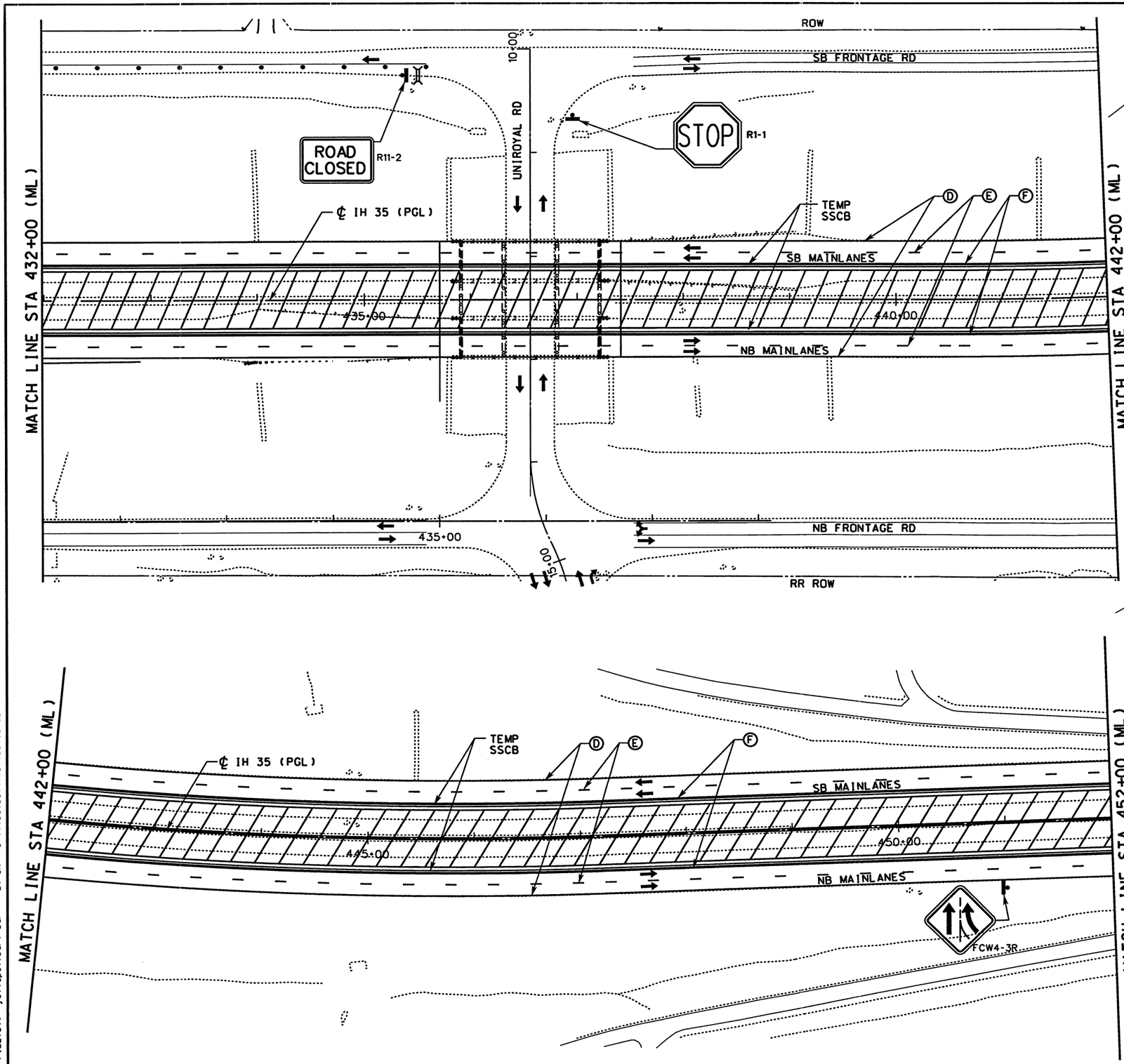
LV ON = 1-6.35-39
LV ON = 9-11.30.33.42.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- H — TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- M — PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 1B
STA 432+00 TO
STA 452+00

SHEET 4 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		161
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P41B04.dgn-03 HOUFILE023 \hciwil\c0130\

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milpint.row

REF FILE(S): j0110p01.bdr, bdr LV ON = 9-11.30.33.47.57.58.60-62
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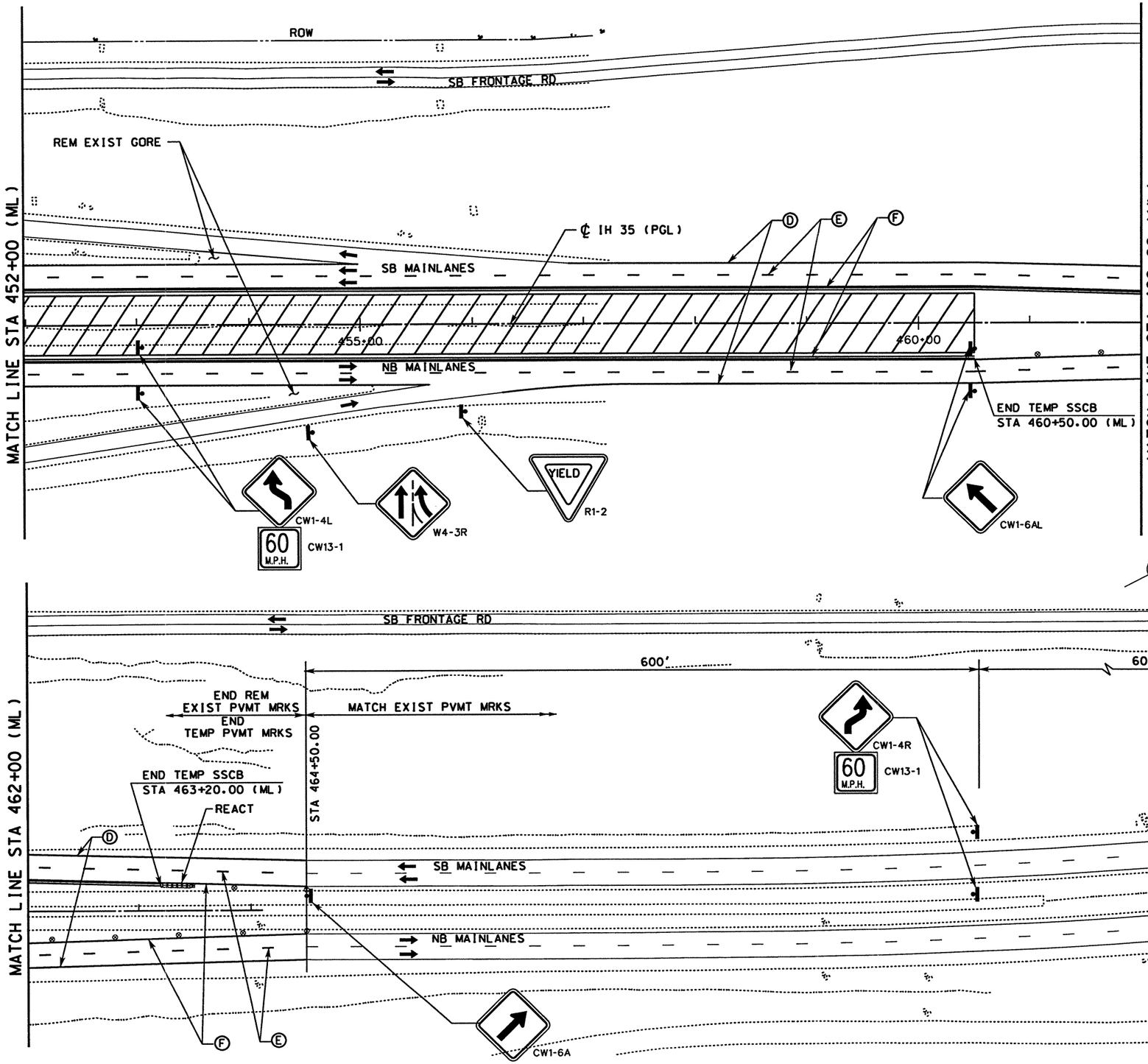
j0110p01.eop, eop LV ON = 1-17.19-63
j0110p01.utl, utl LV ON = 1-63



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 1B
STA 452+00 TO
STA 464+00

SHEET 5 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		162
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P41B05.dgn-03 HOUFILE023 \hchvlv\cf0130\

REF FILE(S): j011op01.drn, drn LV ON = 8.28
j011op01.pro, pro LV ON = 12.13.35
j011op01.row, row LV ON = 1-23.25-63

REF FILE(S): j011op01.uti, uti LV ON = 1-63
j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2.9.10.14.17.20.21.25.28
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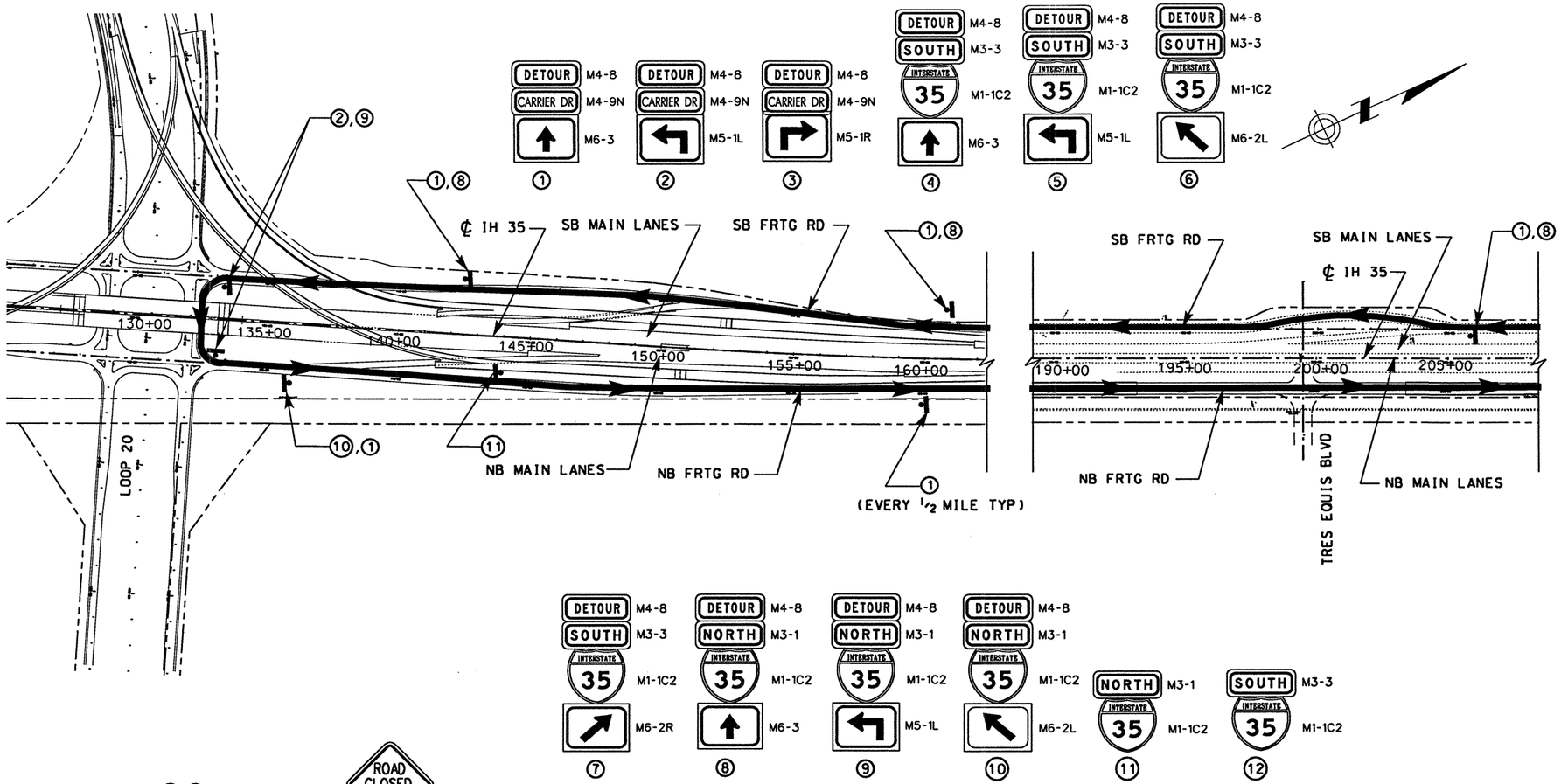

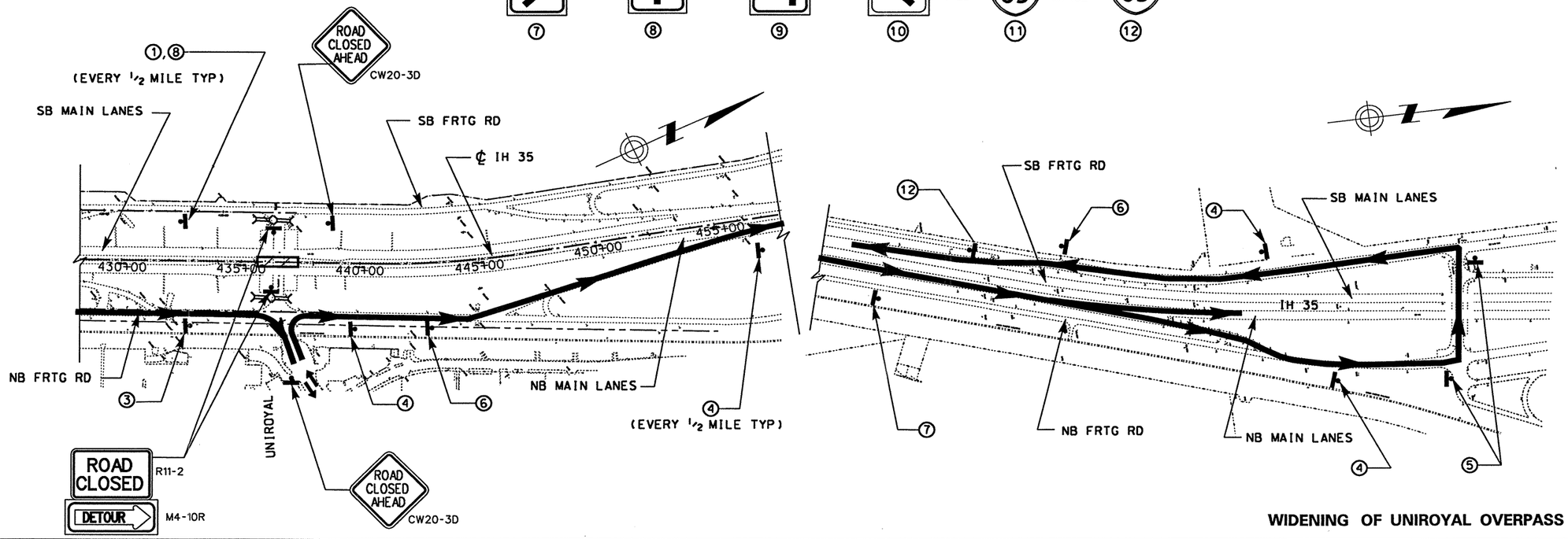

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- H — TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- M — PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

0 250 500
SCALE: 1" = 500'

STATE OF TEXAS — MICHAEL A SEXTON — 87896 — LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
UNIROYAL CROSS STREET CLOSURE
PHASE IV STEP 1B

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	163
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

WIDENING OF UNIROYAL OVERPASS

REF FILE(S): j0110p01.bdr, bdr LV DN = 13.45.47.57.58.60-62
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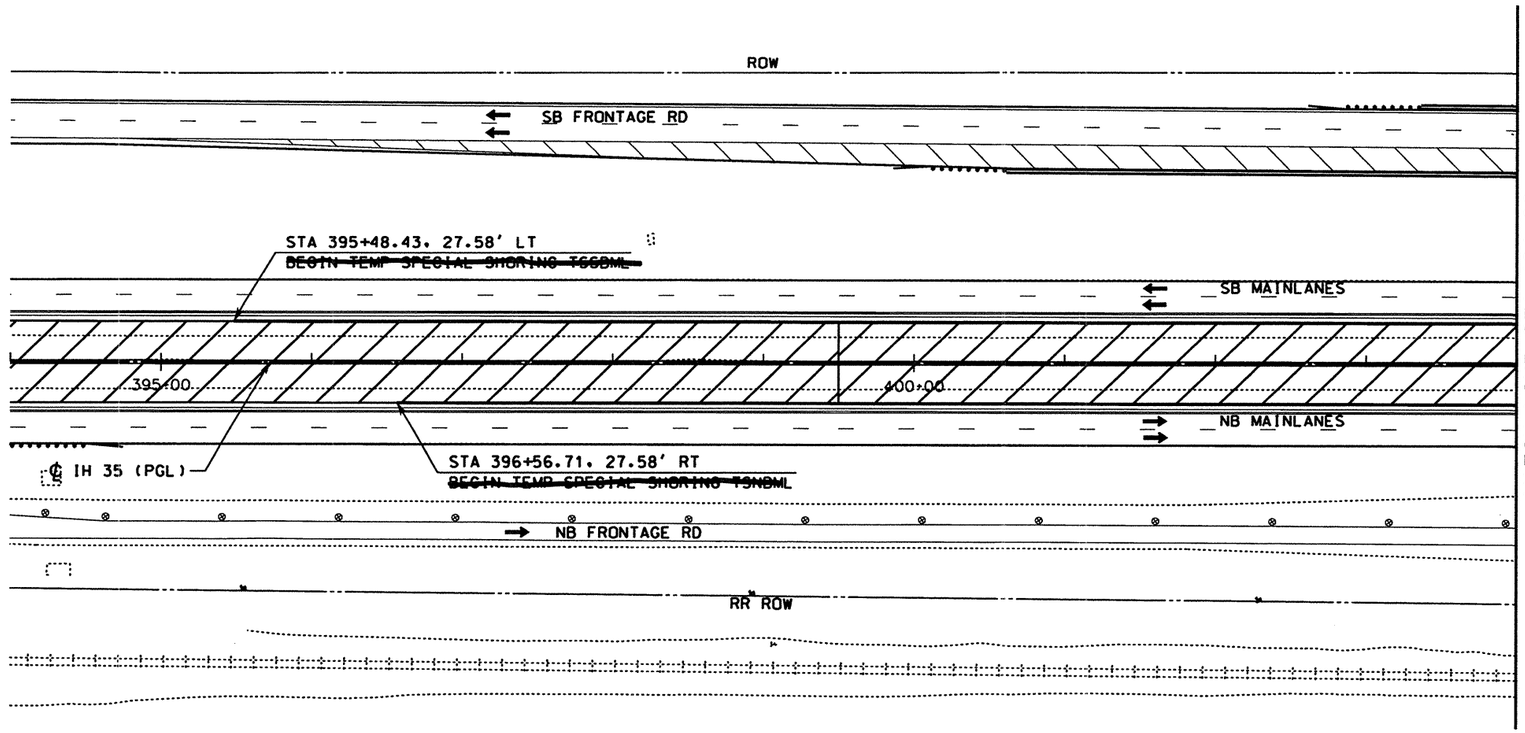
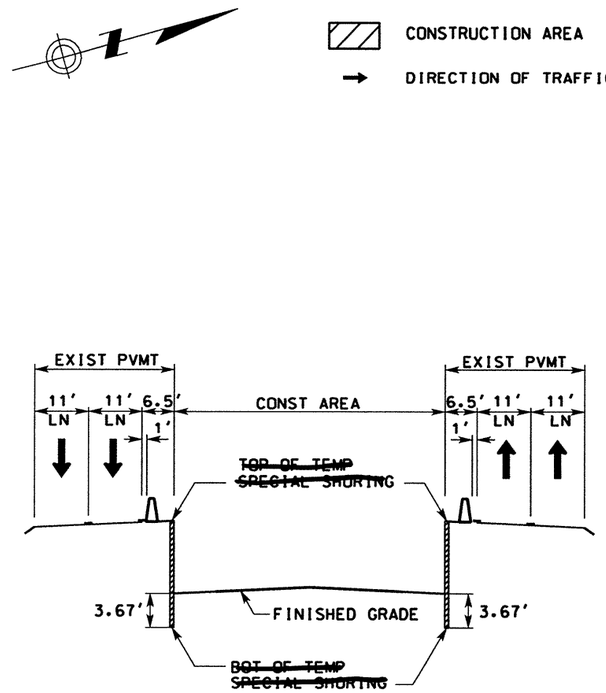
HOUFILE023 \hcivil\rcf0130\ 6/4/2003
B50SCP3.dgn-02

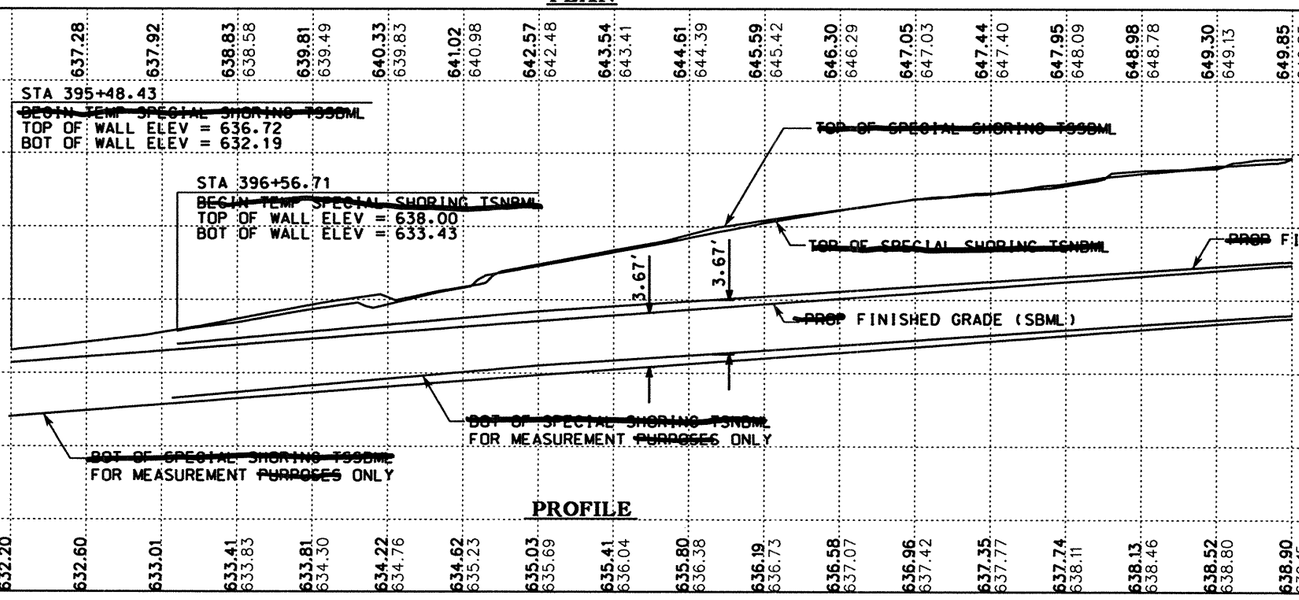




NOTES:

1. STATIONS AND OFFSETS ARE MEASURED FROM MAINLANE ALIGNMENT.
2. TOP OF TEMPORARY SHORING IS EXISTING NATURAL GROUND.

PLAN



PROFILE

	TSSBML	TSNBML
TOP OF WALL ELEV (FT)	637.28	637.92
	638.83	638.58
	639.81	639.49
	640.33	639.83
	641.02	640.98
	642.57	642.48
	643.54	643.41
	644.61	644.39
	645.59	645.42
	646.30	646.29
	647.05	647.03
	647.44	647.40
	647.95	648.09
	648.98	648.78
	649.30	649.13
	649.85	649.85
BOT OF WALL ELEV (FT)	632.20	632.60
	633.01	633.41
	633.83	633.81
	634.30	634.22
	634.76	634.62
	635.23	635.03
	635.69	635.41
	636.04	635.80
	636.38	636.19
	636.73	636.58
	637.07	636.96
	637.42	637.35
	637.77	637.74
	638.11	638.13
	638.46	638.52
	638.80	638.90
	639.15	

650 640 630 620

395+00 400+00

0 50 100
SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY~~
~~SPECIAL SHORING~~
PLAN AND PROFILE
(TSSBML & TSNBML)
PHASE IV STEP 1B
SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	164
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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milolnt.row , row LV ON = 1-23.25-63

LV ON = 1-63
LV ON = 1-17.19-63
LV ON = 2-9.10.14.17.20.21.25.28
LV ON = 1-6.35-39
LV ON = 9-11.30.33.42.47.57.58.60-62
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REF FILE(S):

4/18/2003
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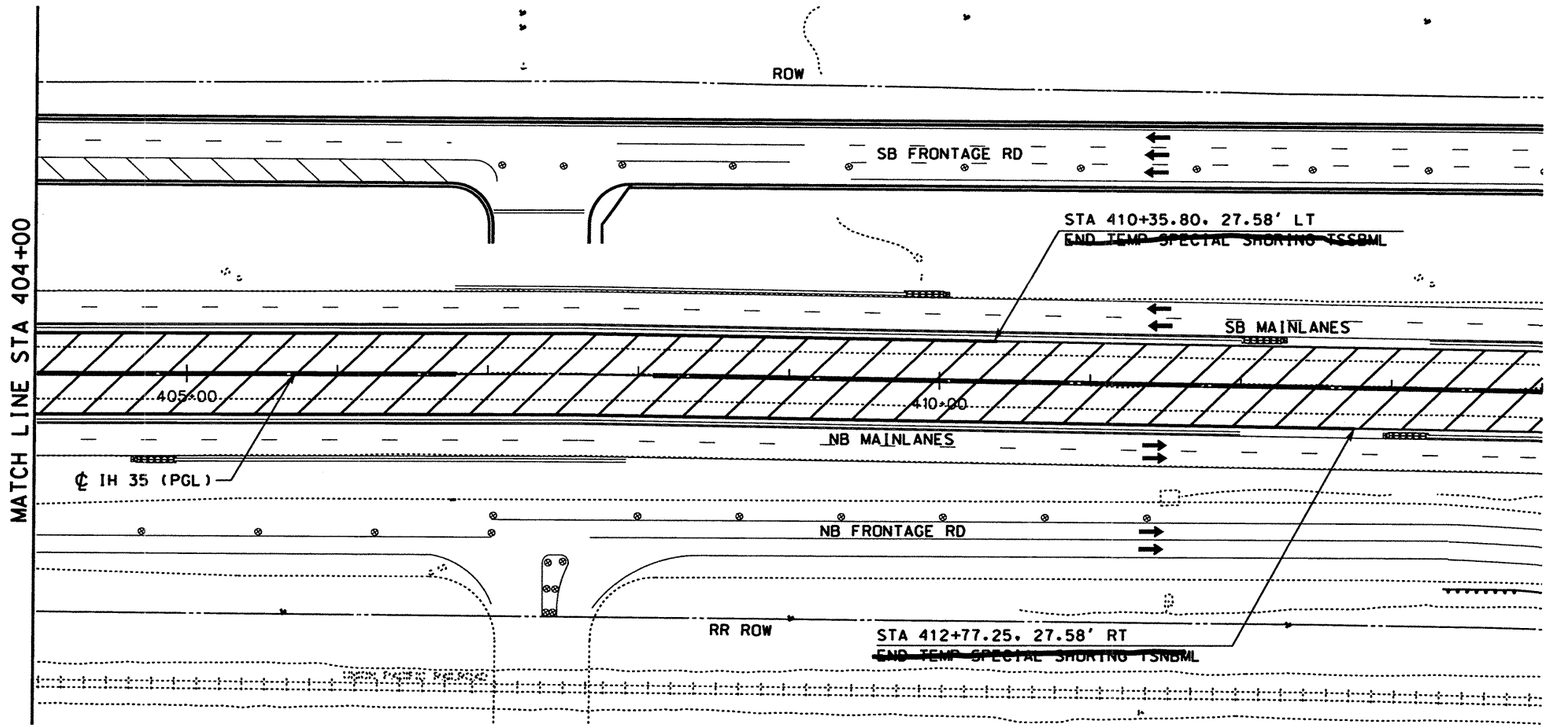
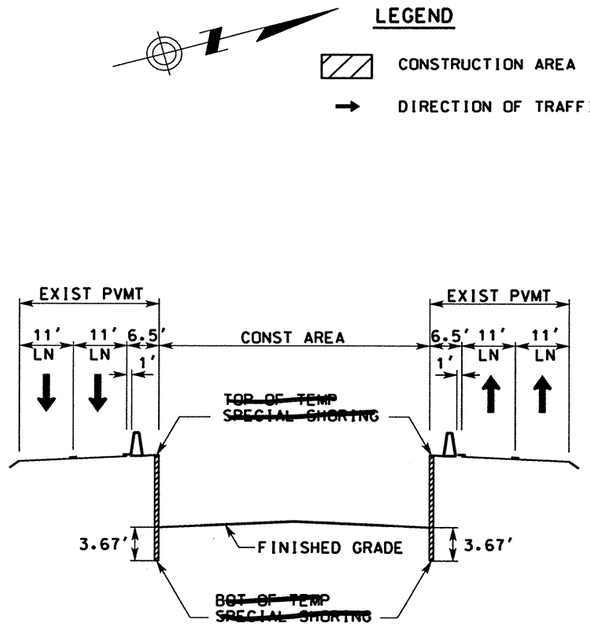
B50TSSP4.dgn-03



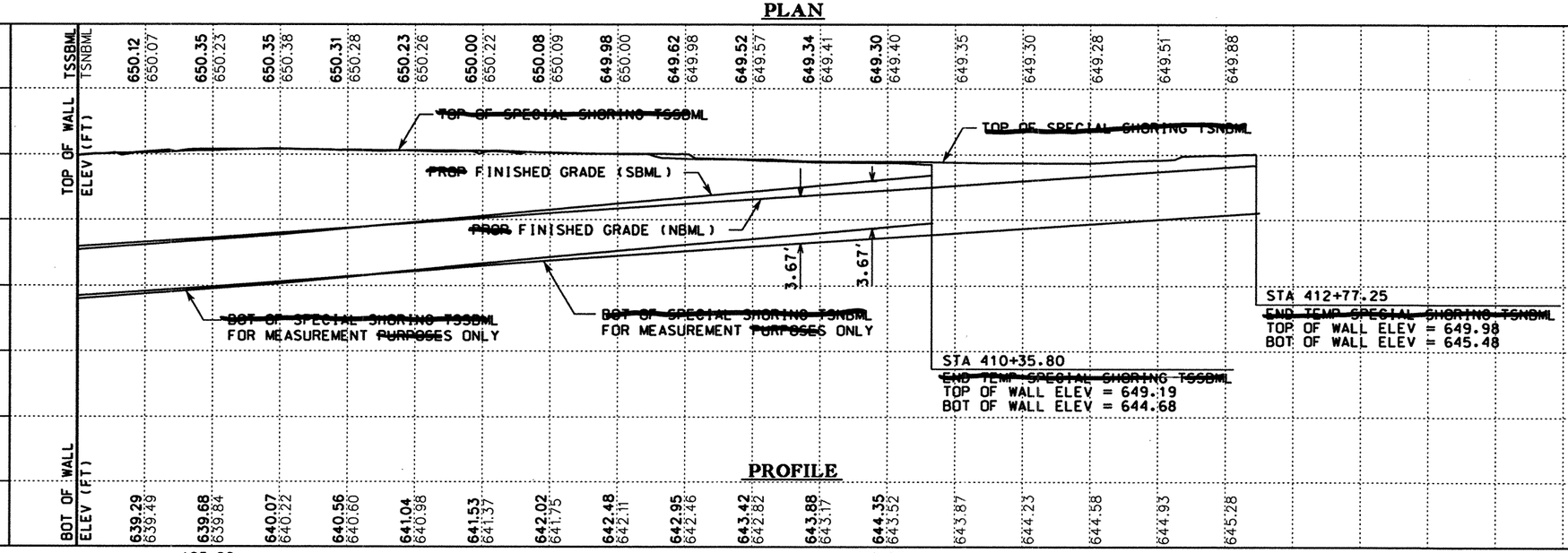


NOTES:

1. STATIONS AND OFFSETS ARE MEASURED FROM MAINLANE ALIGNMENT.
2. TOP OF TEMPORARY SHORING IS EXISTING NATURAL GROUND.

PLAN

PROFILE



0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS — MICHAEL A. SEXTON — 87896 — LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY~~
~~SPECIAL SHORING~~
PLAN AND PROFILE (TSSBML & TSNBML)
PHASE IV STEP 1B
SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	165
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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j011op01.alg, alg LV ON = 1-6.35-39
j011op01.bdr, bdr LV ON = 9-11.30.33.42.47.57.58.60-62

4/18/2003
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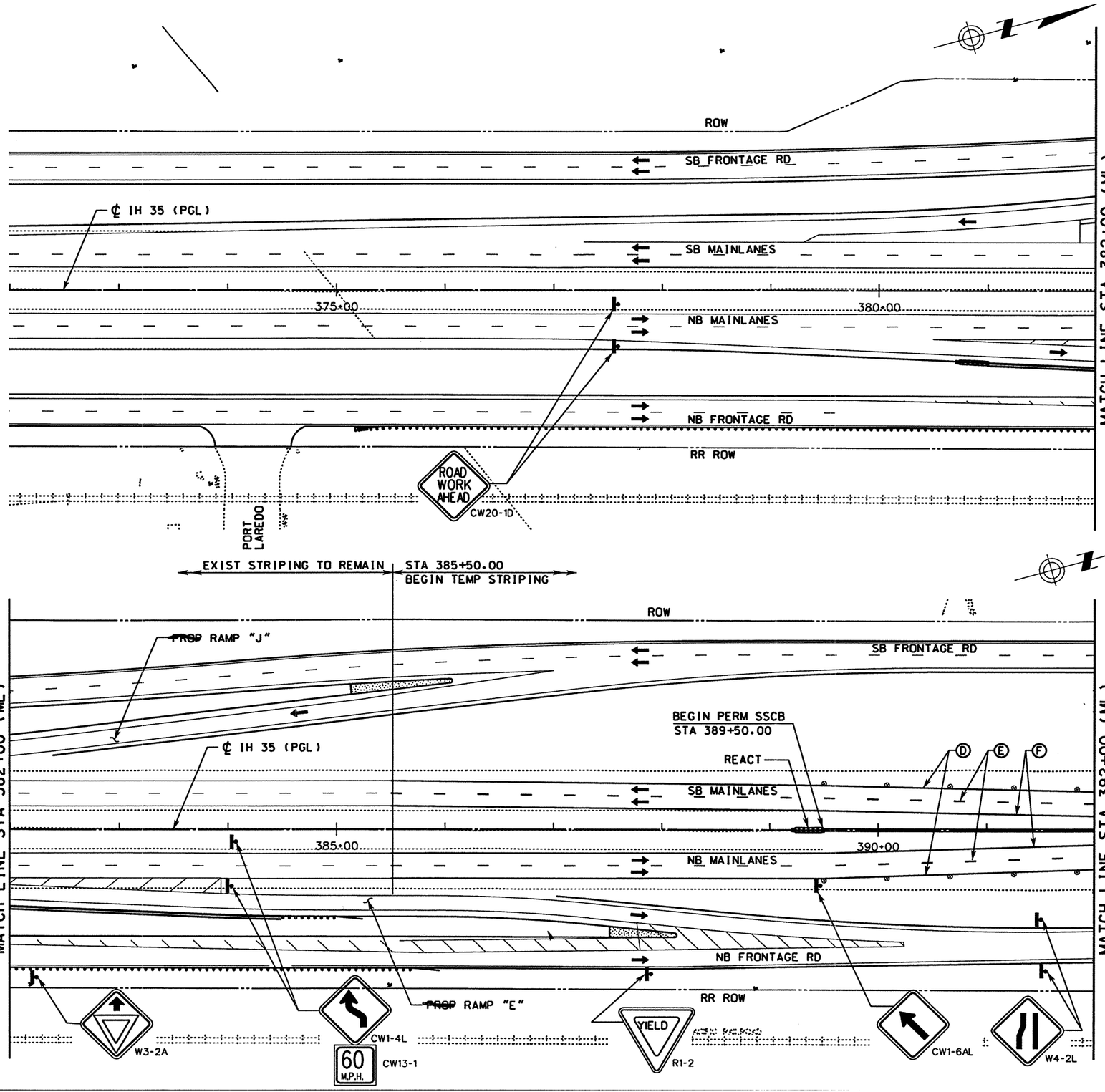

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 2A
STA 372+00 TO
STA 392+00

SHEET 1 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	166
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

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milolnt.row

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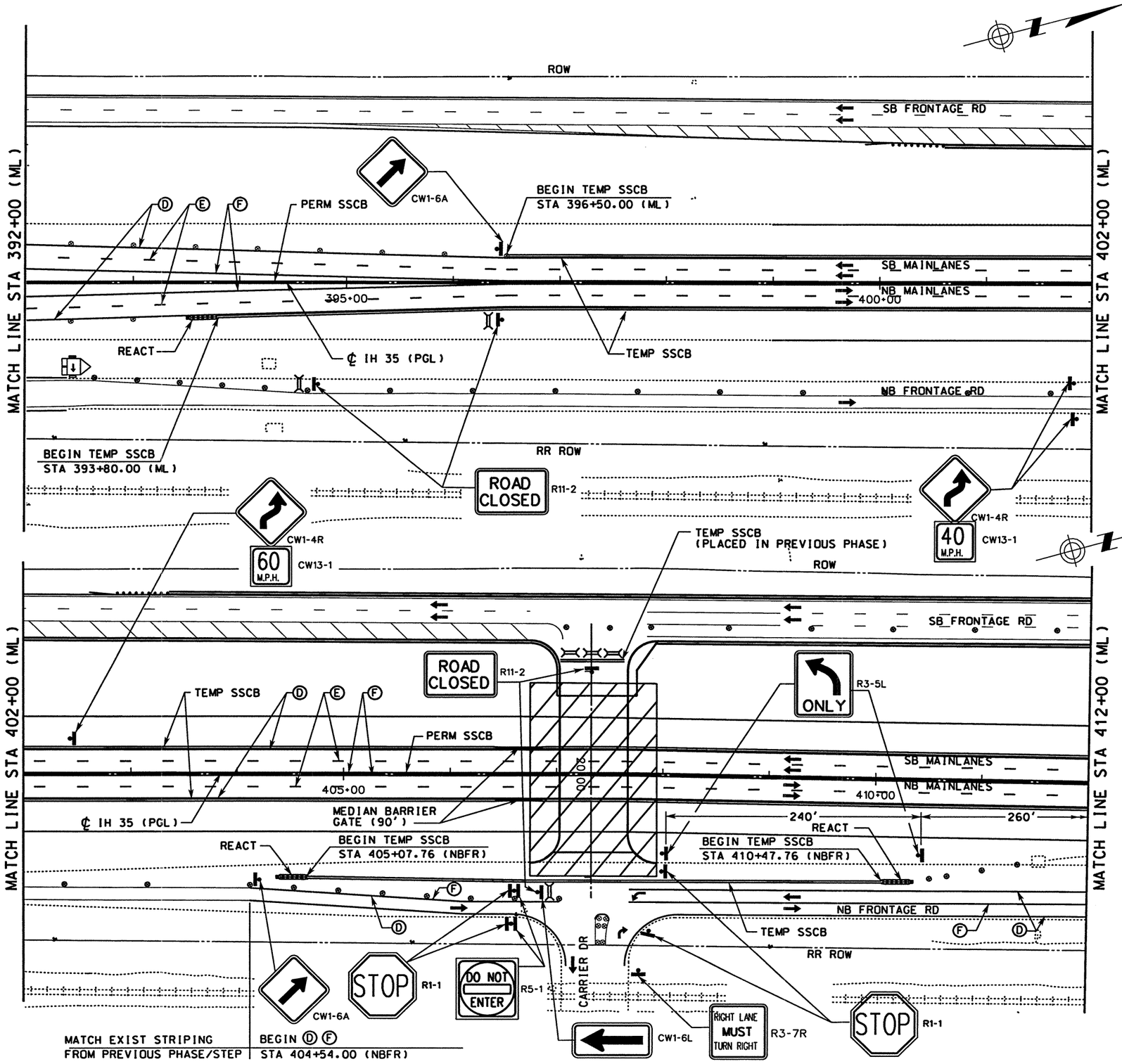

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 2A
STA 392+00 TO
STA 412+00

SHEET 2 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		167
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03 HOUFILE023 \hchivlvc\0130\B5042A02.dgn-04

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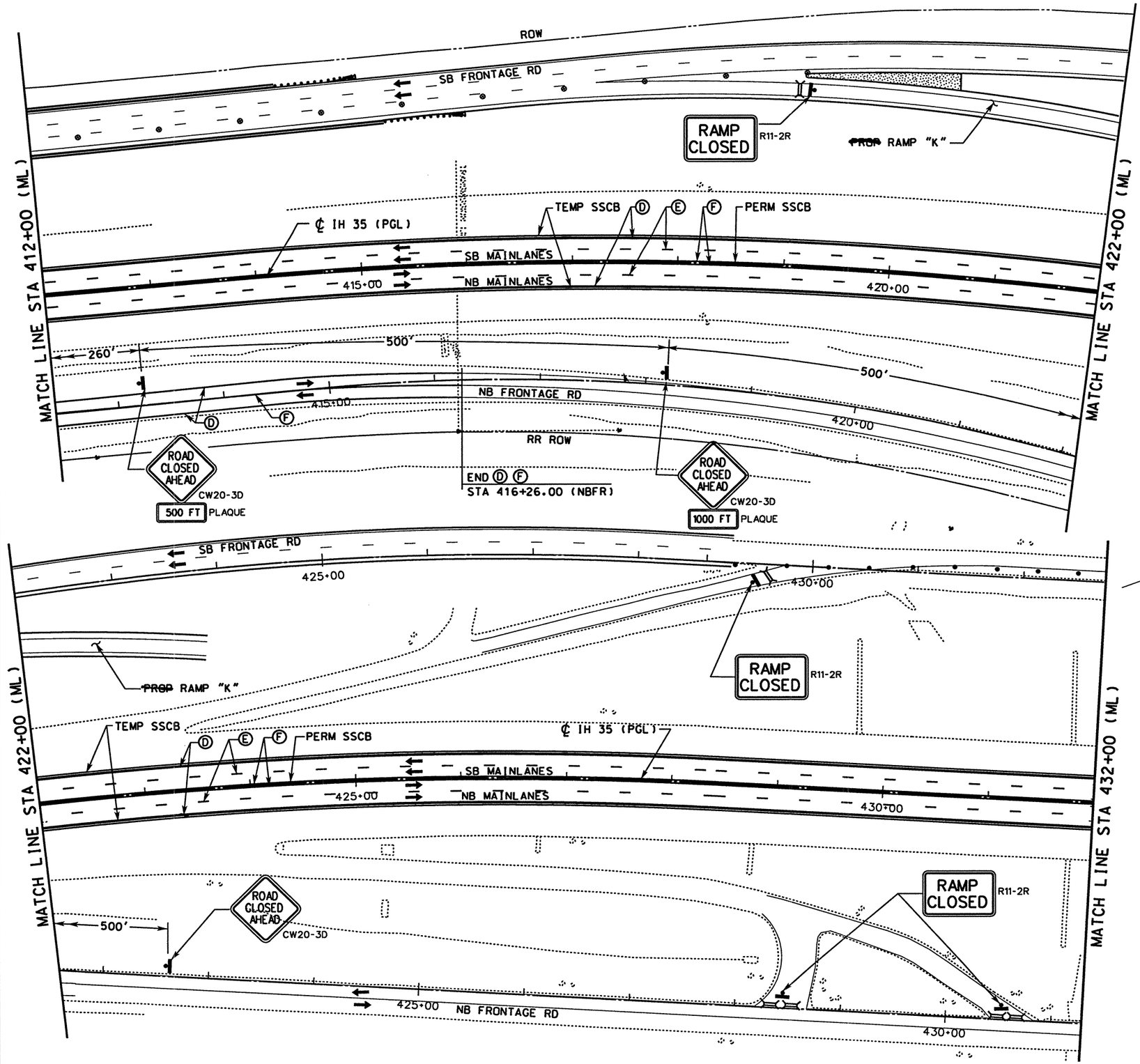

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 2A
STA 412+00 TO
STA 432+00

SHEET 3 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		168
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
HOUFILE023 \hchwh\cf0130\
B5042A03.dgn-05

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j011op01.alg. alg LV ON = 1-6.35-39
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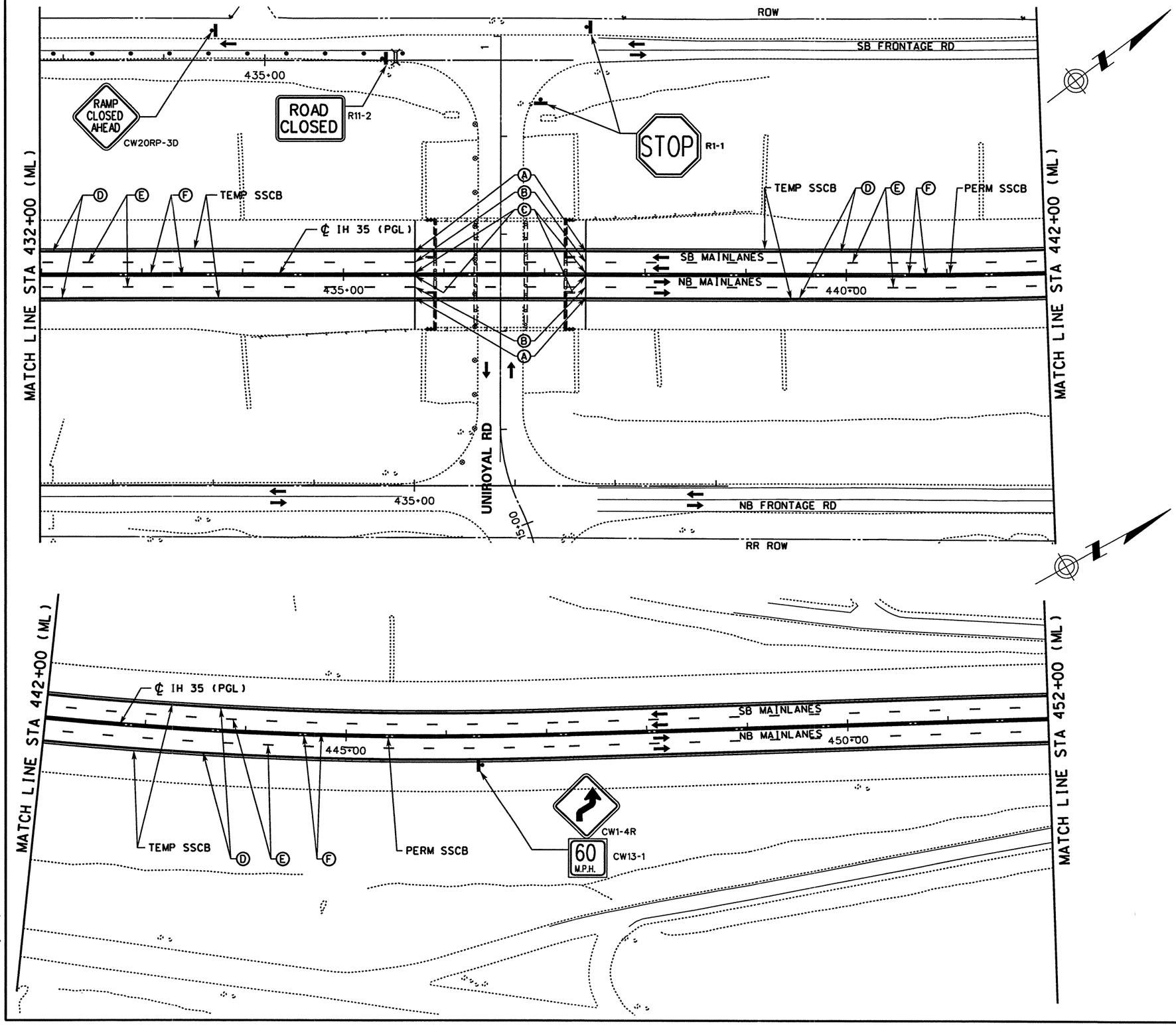

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 2A
STA 432+00 TO
STA 452+00

SHEET 4 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	169
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03

B5042A04.dgn-05 HOUFILE023 \hchiwi\c(0130)\

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REF FILE(S): j011op01.utl, utl LV ON = 1-63
j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2-9.10.14.17.20.21.25.28
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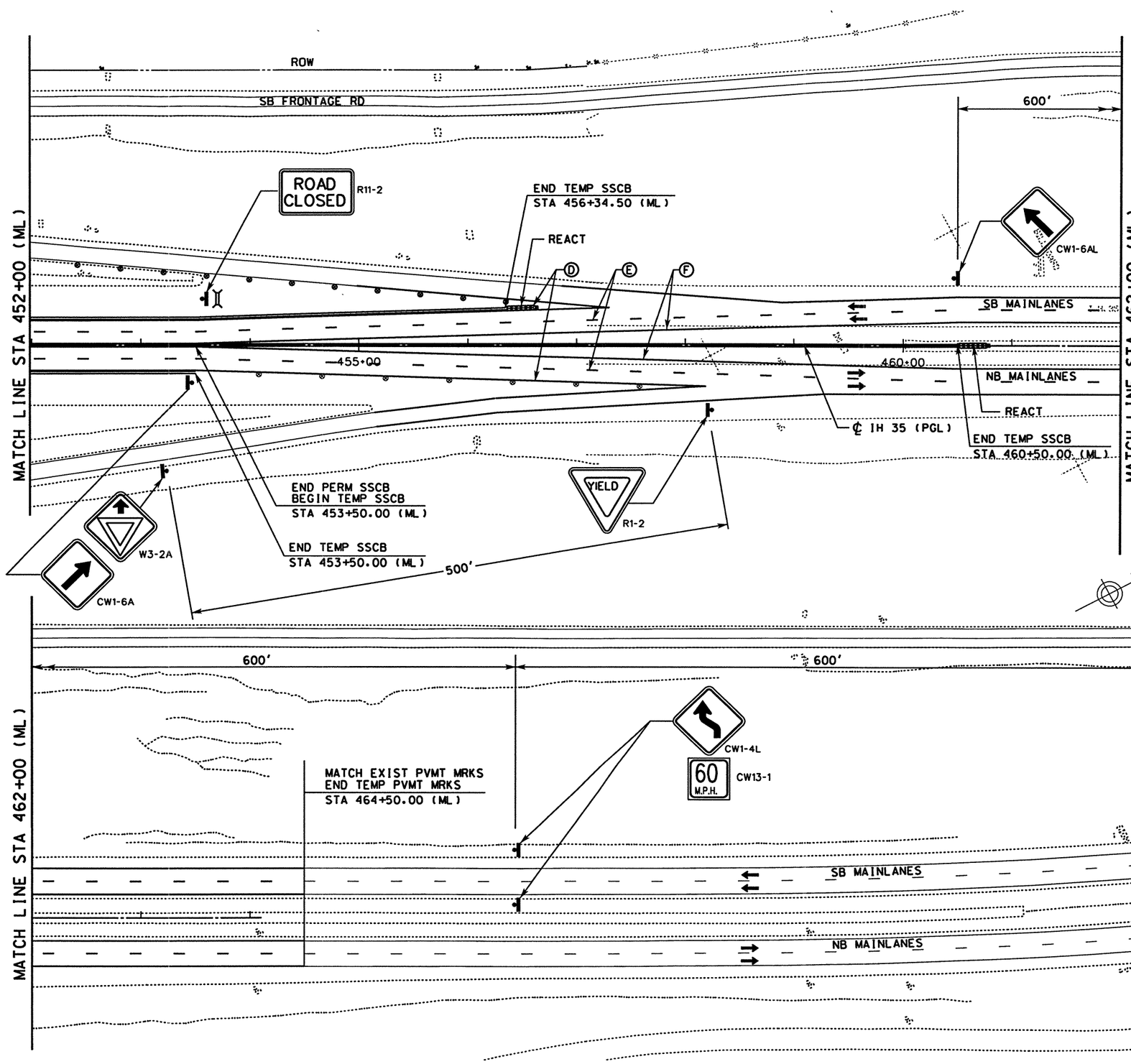
j011op01.bdr, bdr LV ON = 9-11.30.33.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- (M) PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 2A
STA 452+00 TO
STA 464+00

SHEET 5 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	170
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 063 ETC	IH 35

04/18/03
HOUFILE023 \hchivil\cf0130\
5042A05.dgn-05

j011op01.drn. drn LV ON = 8.28
j011op01.pro. pro LV ON = 12.13.35
j011op01.row • row LV ON = 1-23-25-63
REF FILE(S): j011op01.utl, utl LV ON = 1-63
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j011op01.bck. bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.alg. alg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11,30-46,57,58,60-62
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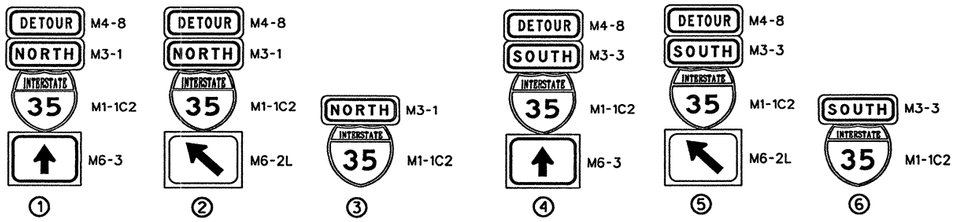
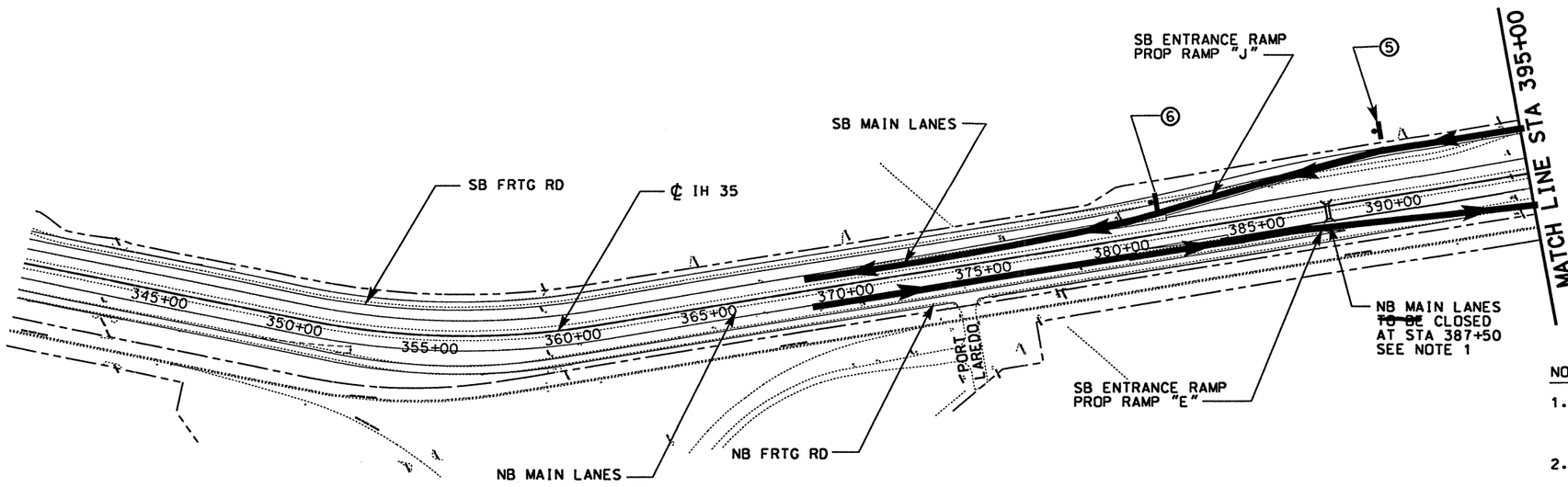
milo1n.row • row





WORK ZONE PAVEMENT MARKINGS

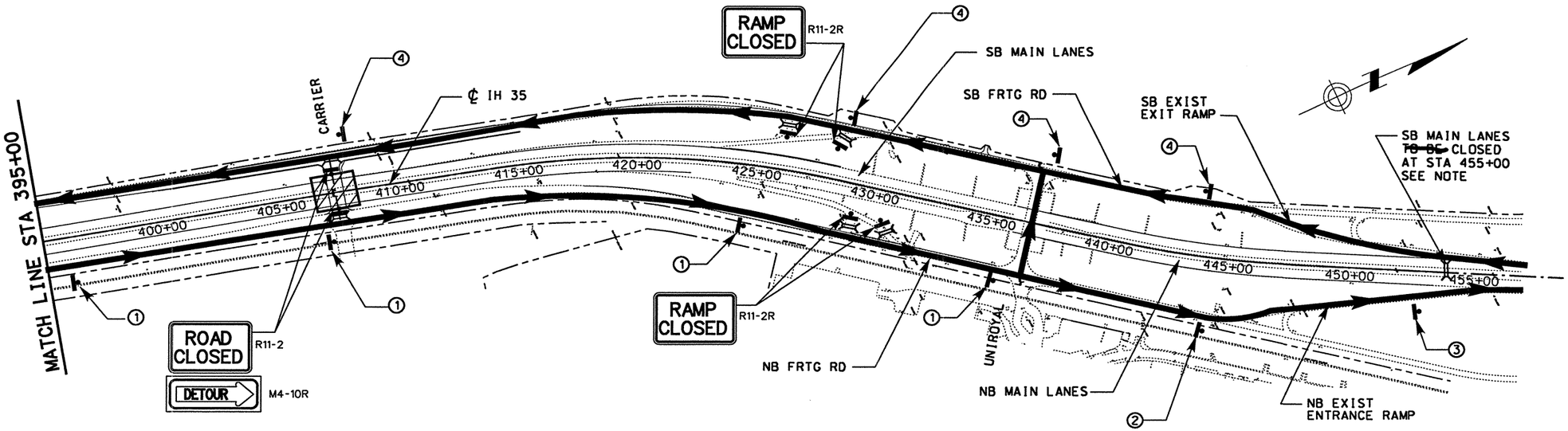
- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE:

1. WORK ZONE TRAFFIC CONTROL FOR FREEWAY CLOSURES ~~SHALL~~ FOLLOW TCP (6-7)-98A AND AS DIRECTED BY THE ENGINEER.
2. NORTHBOUND FRONTAGE ROAD ~~SHALL~~ REMAIN TWO-WAY BETWEEN CARRIER DR. AND UNIROYAL.



0 250 500
SCALE: 1" = 500'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
MAIN LANES CLOSURE
CARRIER
PHASE IV STEP 2A

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	171
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

6/4/2003

HOUFILE023 \hciwin\c(0130)\B50SCP2.dgn-03

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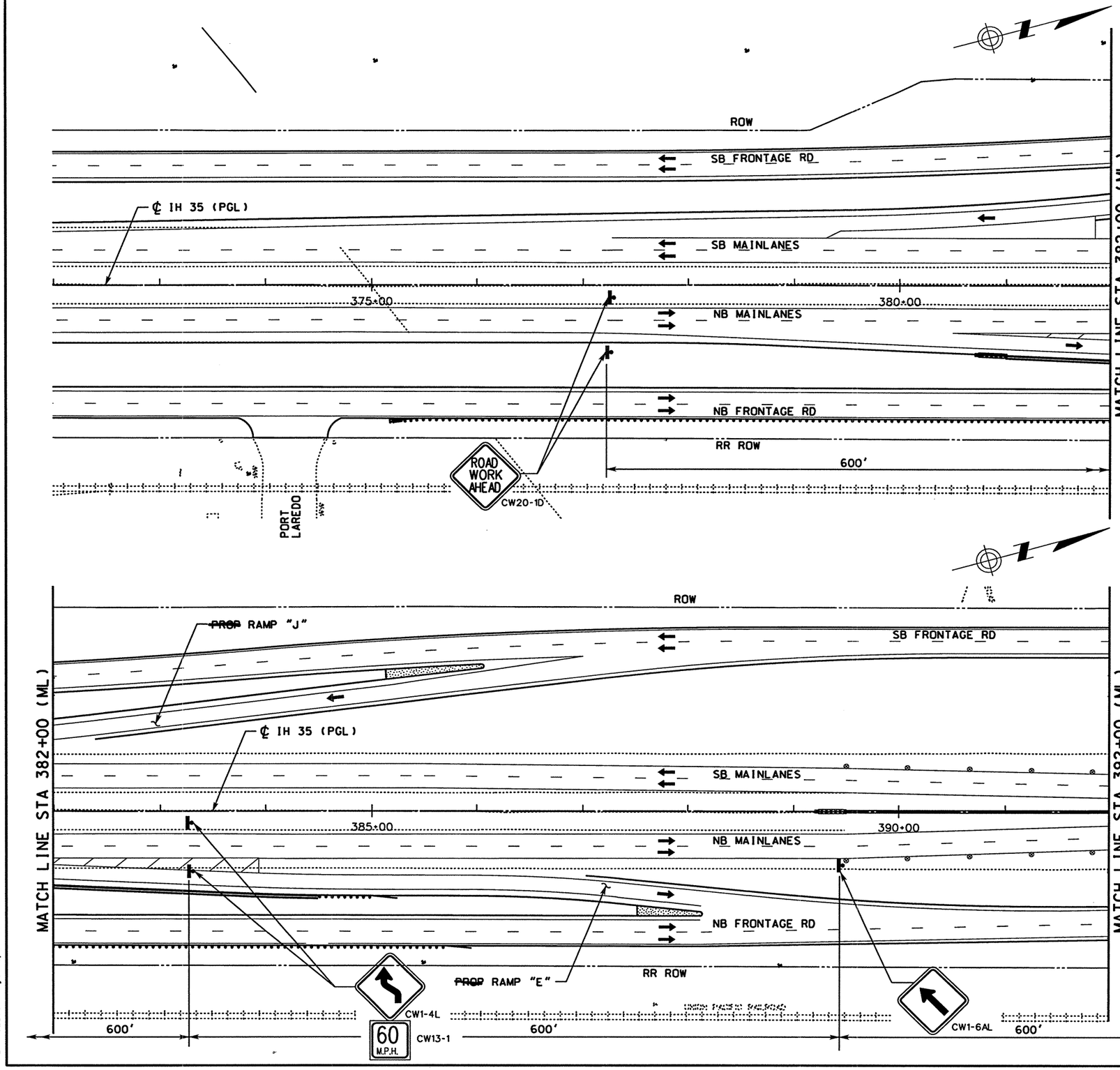

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 2B
STA 372+00 TO
STA 392+00

SHEET 1 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		172
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

HOUFILE023 \hciwlvc\0130\

B50428D1.dgn-05

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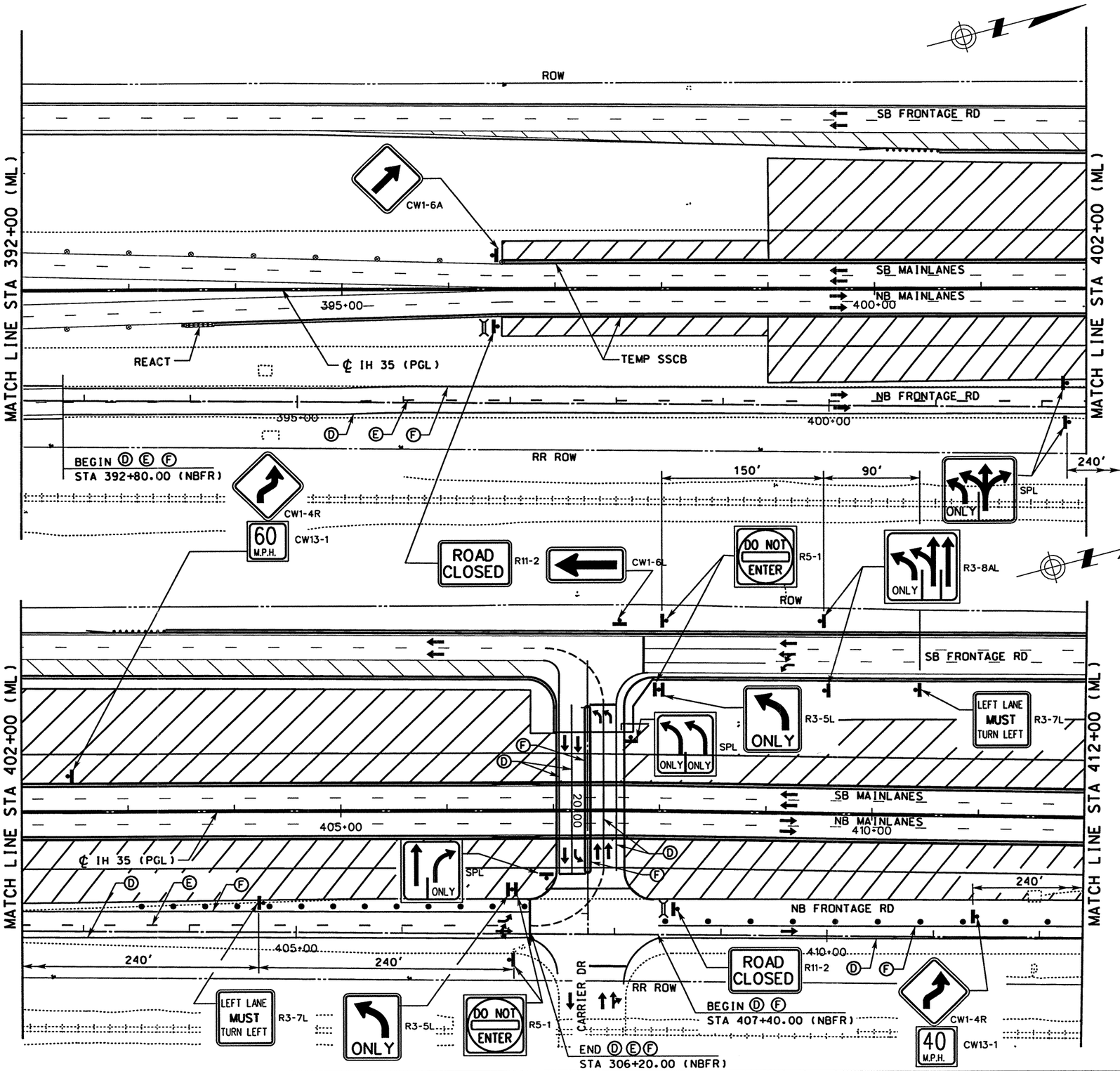

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 2B
STA 392+00 TO
STA 412+00

SHEET 2 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	173
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03
B5042B02.dgn-04 HOUFILE023 \hciwin\cf0130\

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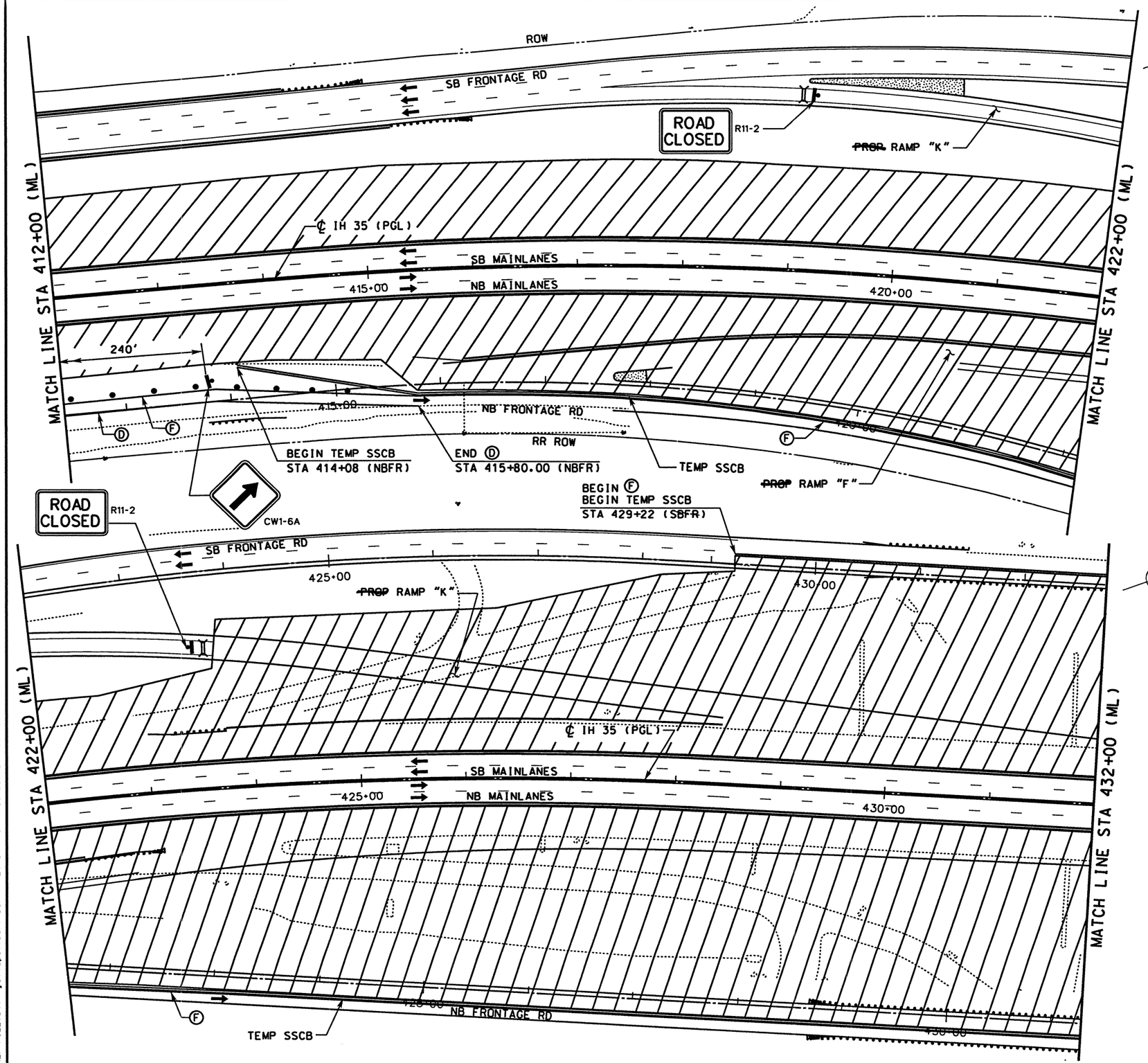

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- Ⓜ PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 2B
STA 412+00 TO
STA 432+00

SHEET 3 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		174
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B5042803.dgn-05 HOUFILE023 \hciwil\c(0130)\ 04/18/03

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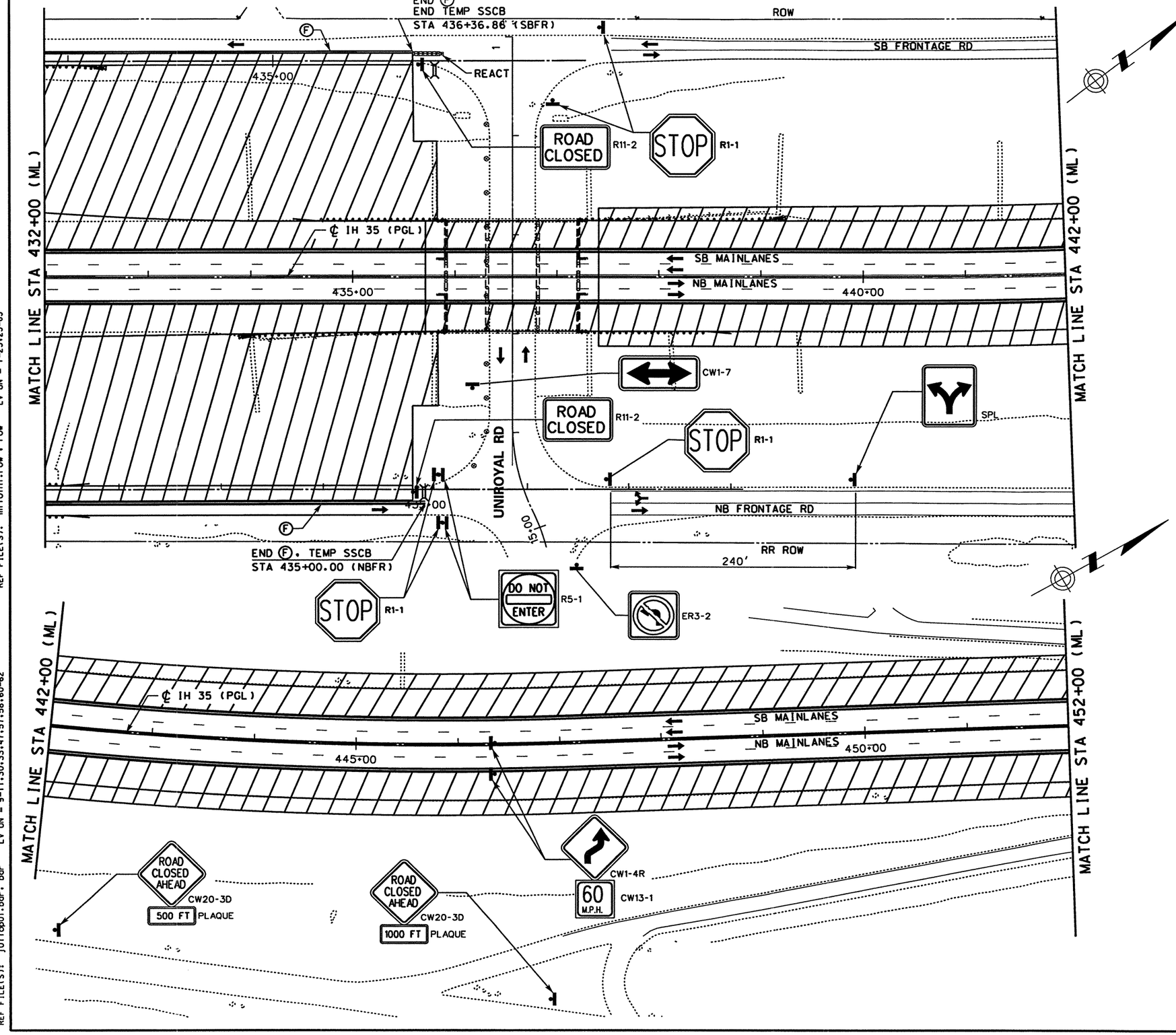

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- H — TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- M — PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 2B
STA 432+00 TO
STA 452+00

SHEET 4 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	175
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

04/18/03

B5042804.dgn-05 HOUFILE023 \hciwin\c0130\

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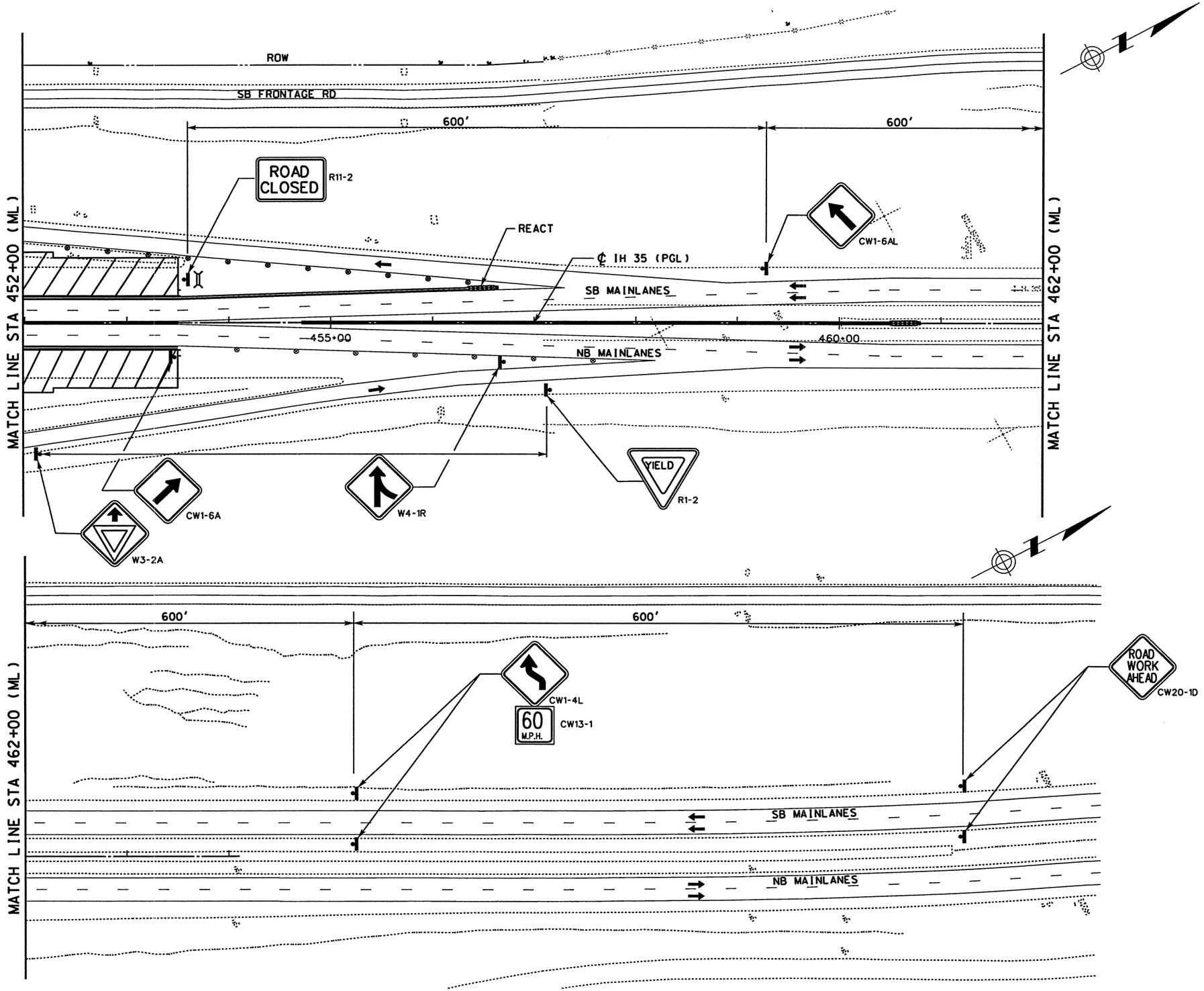

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV STEP 2B
STA 452+00 TO
STA 464+00

SHEET 5 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	176
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

04/18/03
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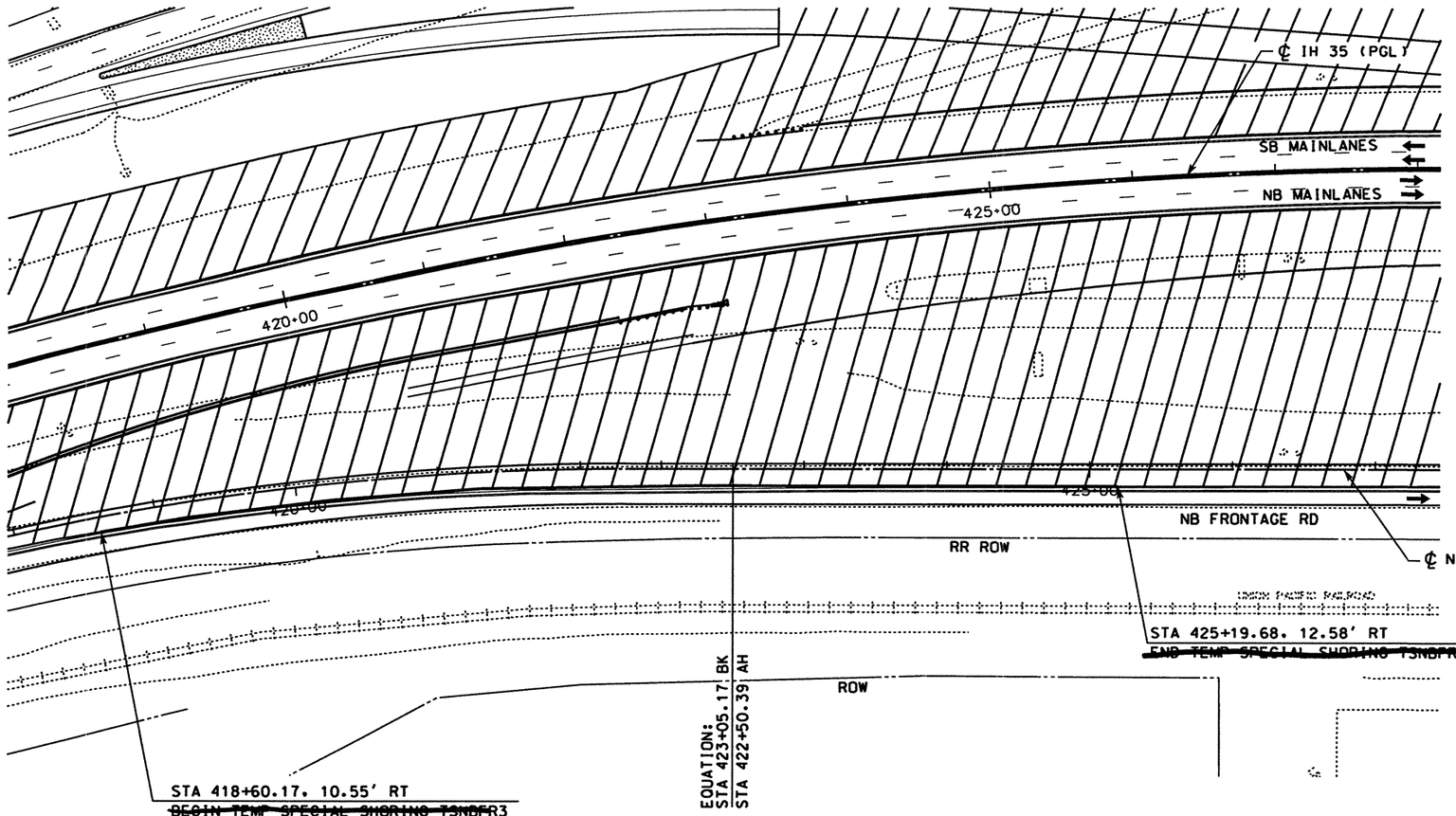
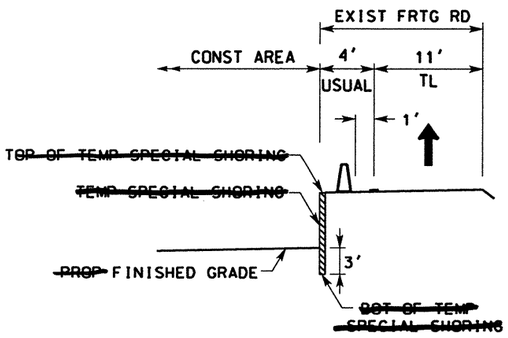


PLAN



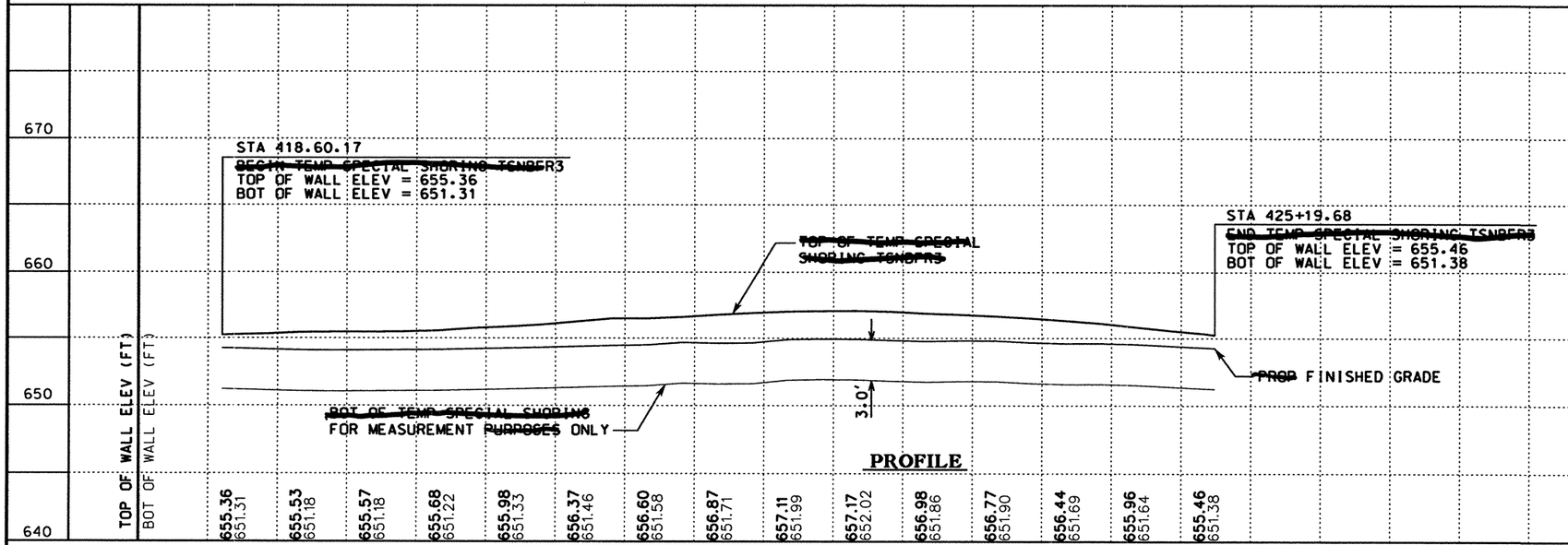
LEGEND

CONSTRUCTION AREA

DIRECTION OF TRAFFIC

NOTES:

1. STATIONS AND OFFSETS ARE MEASURED FROM NB FRONTAGE RD ALIGNMENT.
2. TOP OF TEMPORARY SHORING IS EXISTING NATURAL GROUND.



PROFILE

0 50 100

SCALE: 1" = 100' HORIZ

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MICHAEL A. SEXTON 87896 LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY~~
~~SPECIAL SHORING~~
PLAN AND PROFILE
(TSNBFR3)
PHASE IV STEP 2B

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	177
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062 ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\c0130\

350TSSP3.dgn-04

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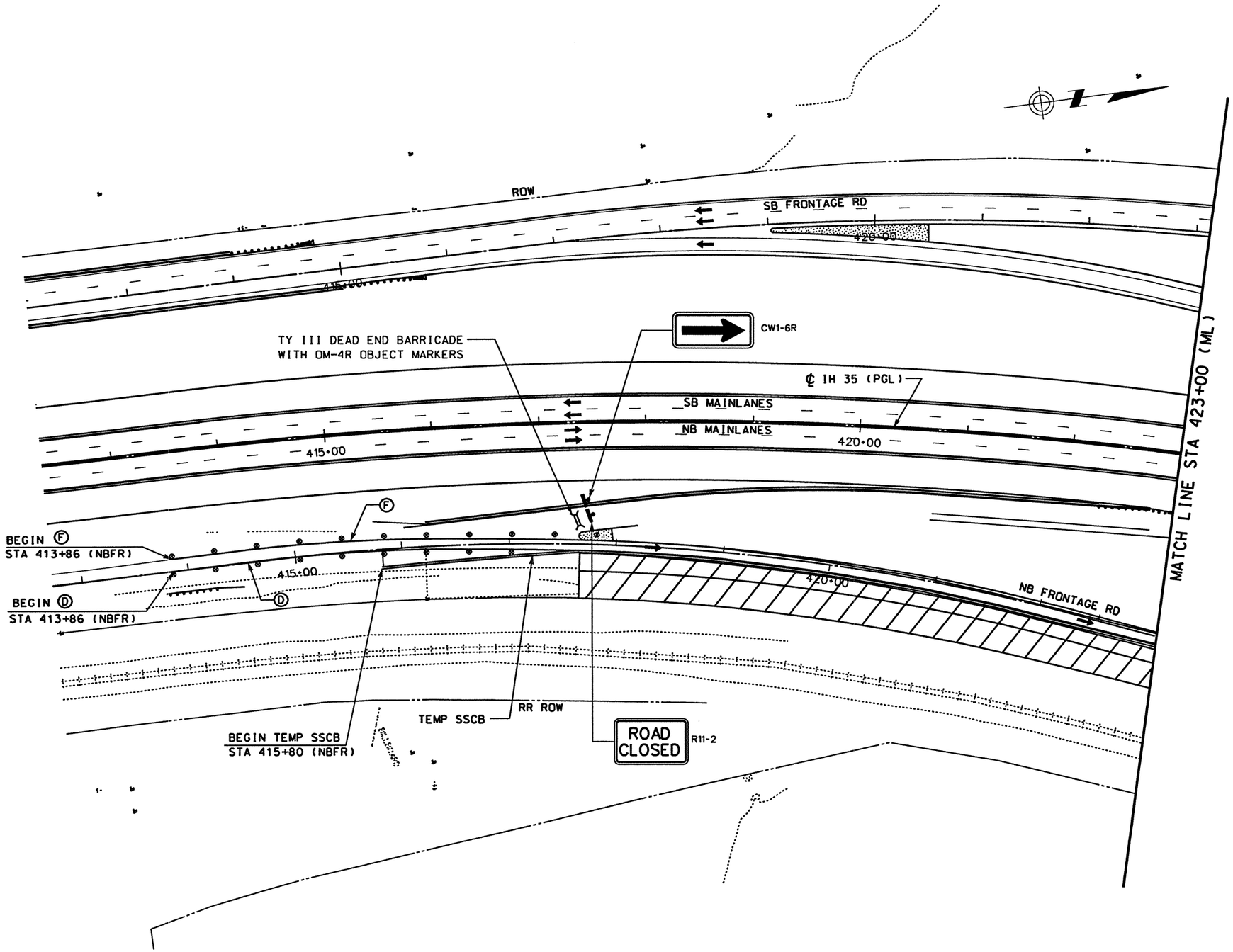

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 2C
STA 412+00 TO
STA 432+00

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		178
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

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milaint.row, row LV ON = 1-23.25-63

REF FILE(S): j011op01.uti, uti LV ON = 1-63
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j011op01.bck, bck LV ON = 2.9.10.14.17.20.21.25.28
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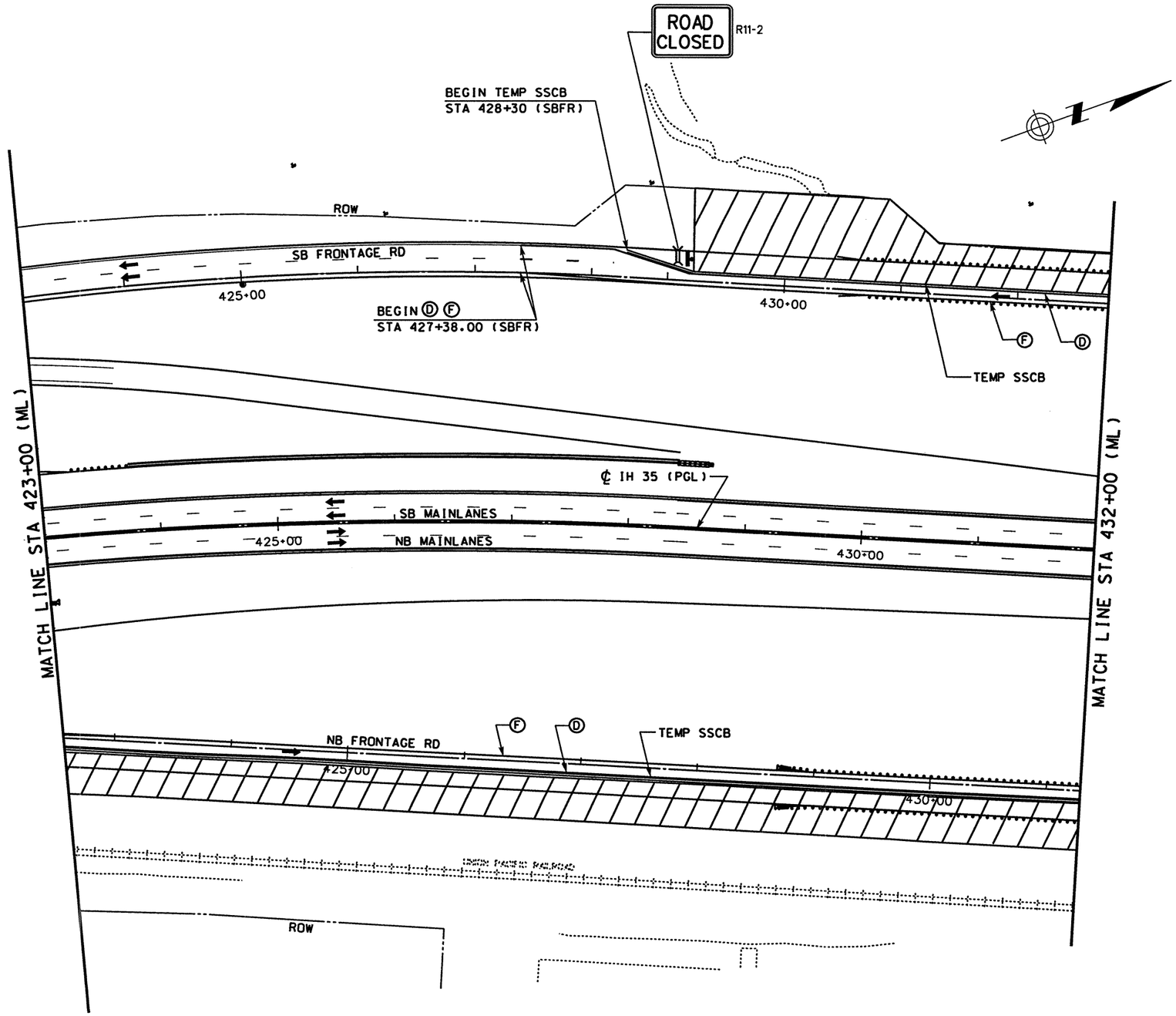

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- Ⓜ PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 2C
STA 412+00 TO
STA 432+00

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		179
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
B5042C02.dgn-05 HOUFILE023 \hcivil\cf0130\

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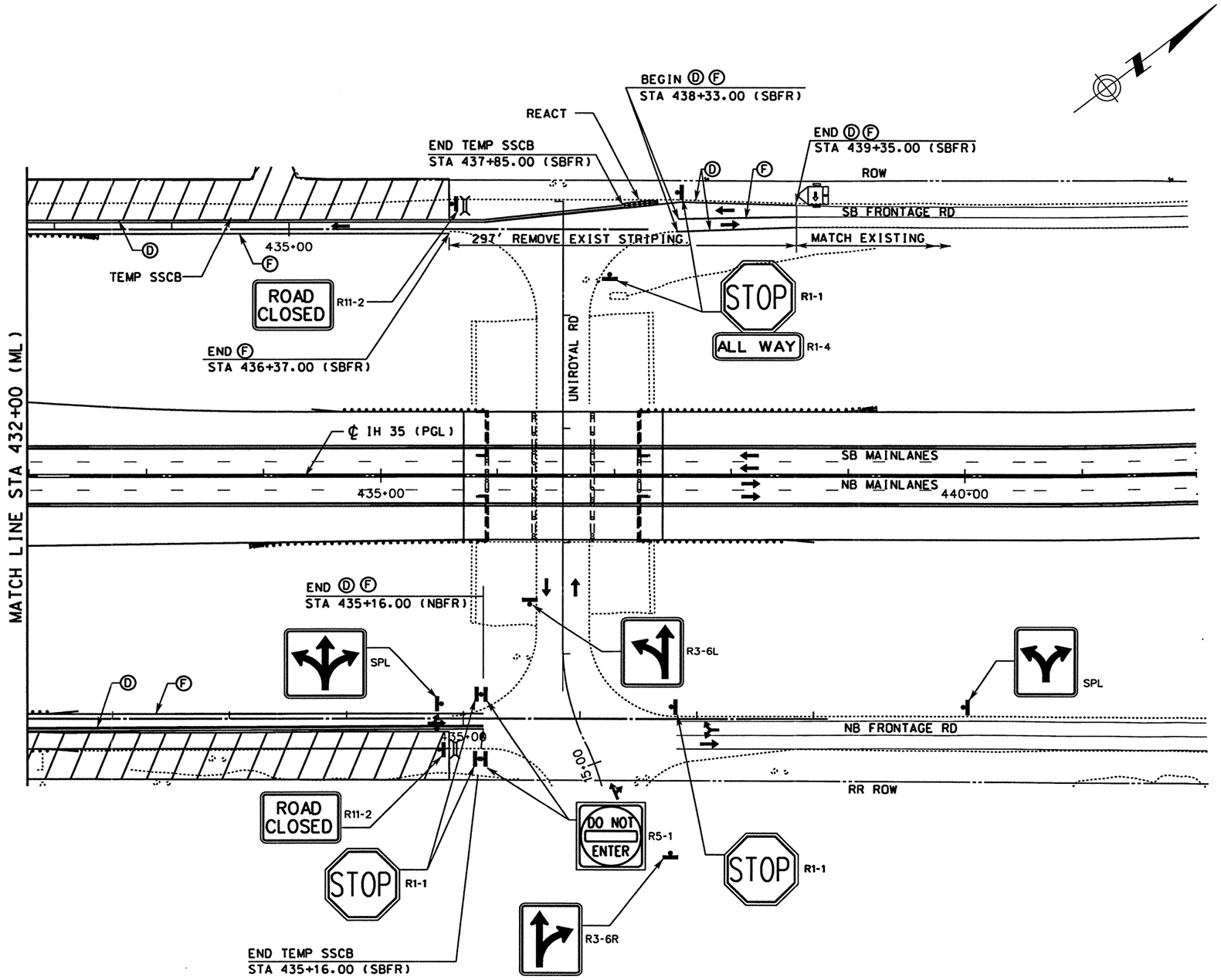

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 2C
STA 432+00 TO
STA 452+00

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		180
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
B5042C03.dgn-05 HOUFILE023 \hchivi\cf0130\

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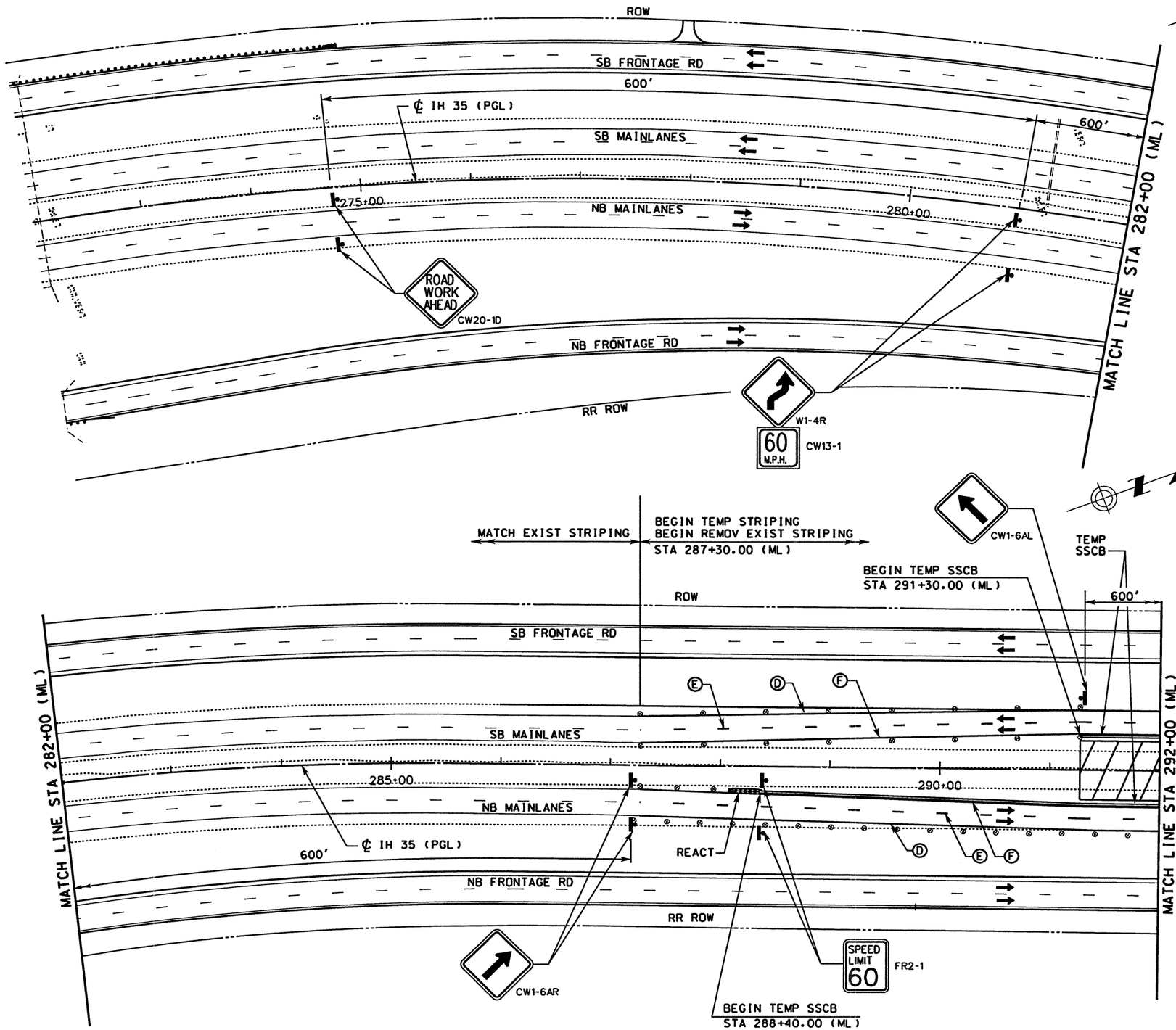

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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87896
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 3
STA 272+00 TO
STA 292+00

SHEET 1 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	181
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

04/18/03
HOUFILE023 \hcivil\cf0130\
B50P4301.dgn-04

REF FILE(S): j011op01.drn. drn LV ON = 8.28
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j011op01.bck. bck LV ON = 2-9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-6.35-39
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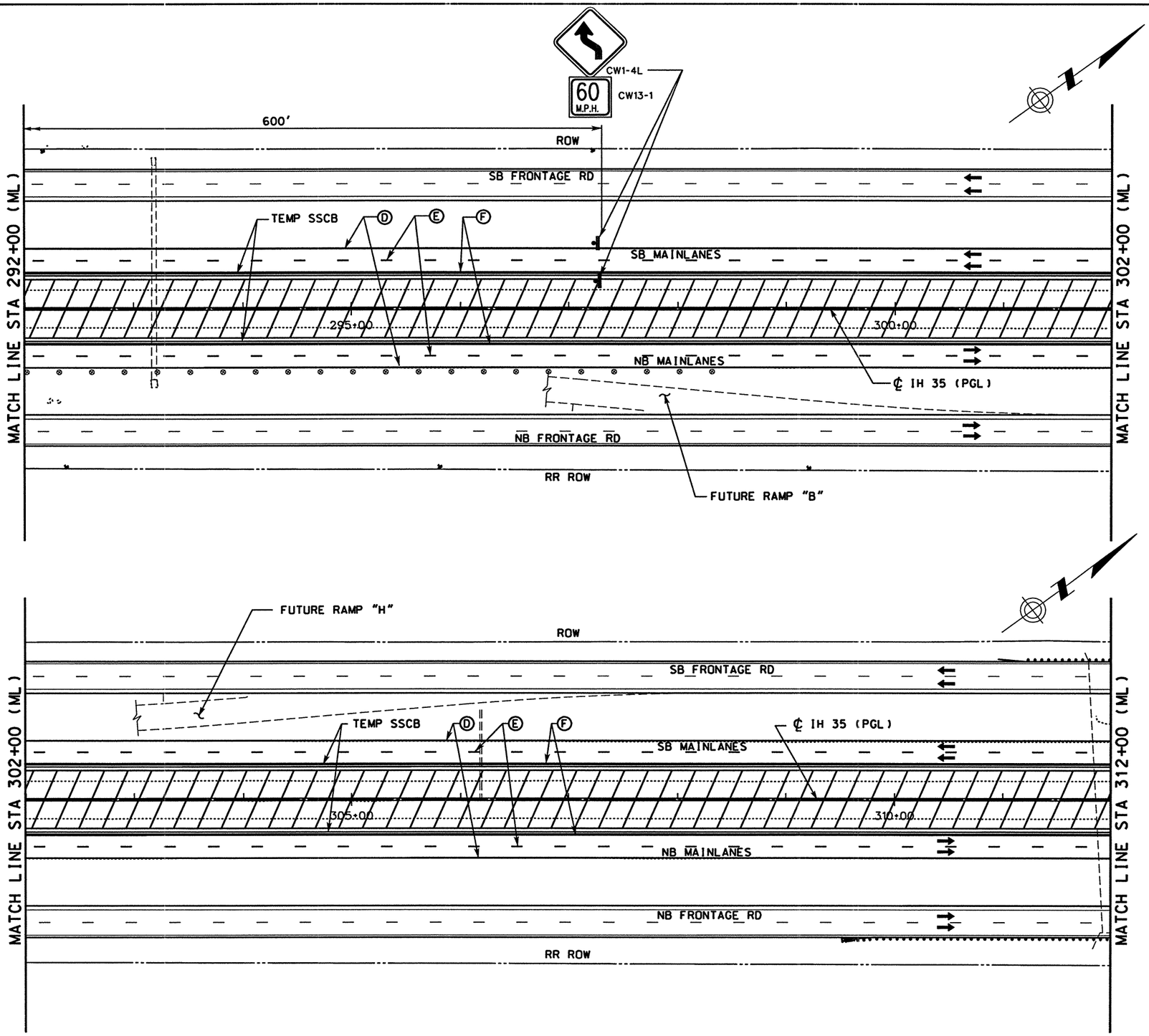

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 3
STA 292+00 TO
STA 312+00

SHEET 2 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		182
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
\hchwi\cf0130\
B50P4302.dgn-04 HOUFILE023

REF FILE(S): j011op01.drn, j011op01.pro, j011op01.bck, j011op01.clg, j011op01.bar, j011op01.utl, j011op01.eop, milolnt.row

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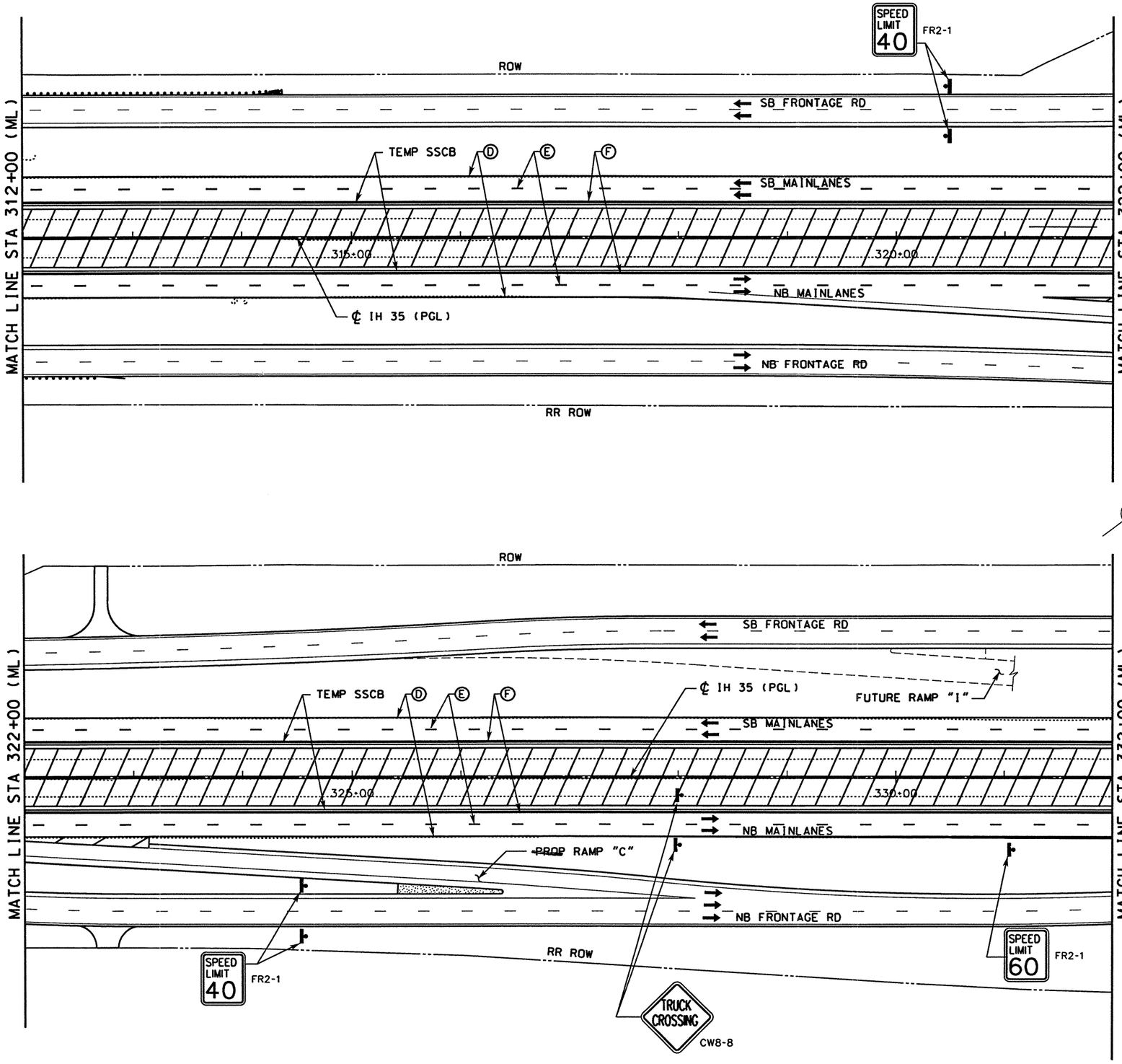
LV ON = 1-6:35-39
LV ON = 9-11:30:33:42:47:57:58:60-62



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 3
STA 312+00 TO
STA 332+00

SHEET 3 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	183
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03

B50P4303.dgn-03 HOUFILE023 \hcivil\c(0130)\

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j011op01.eop, eop LV ON = 1-17.19-63
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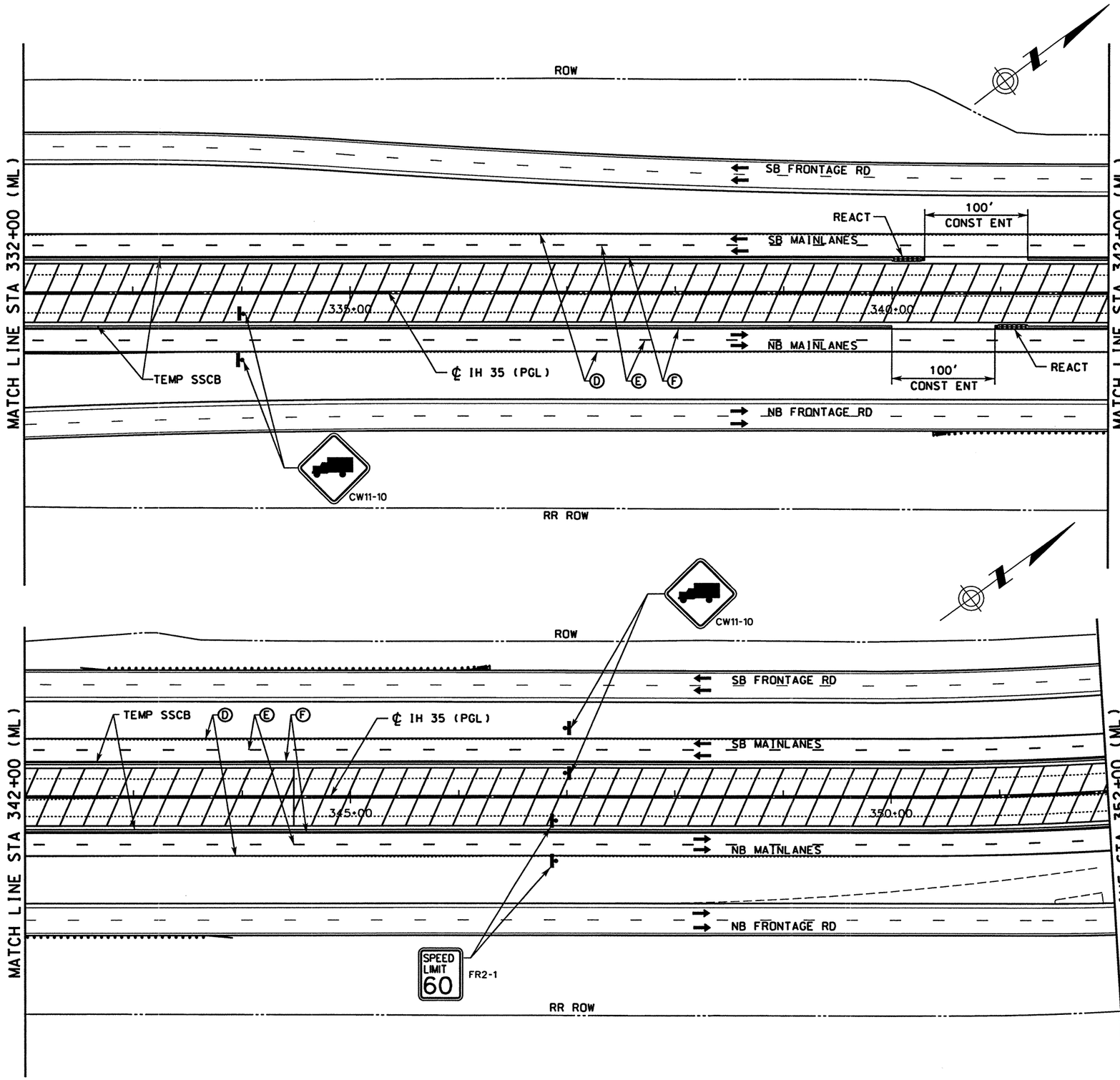

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 3
STA 332+00 TO
STA 352+00

SHEET 4 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		184
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P4304.dgn-04 HOUFILE023 \hciwin\c\0130\

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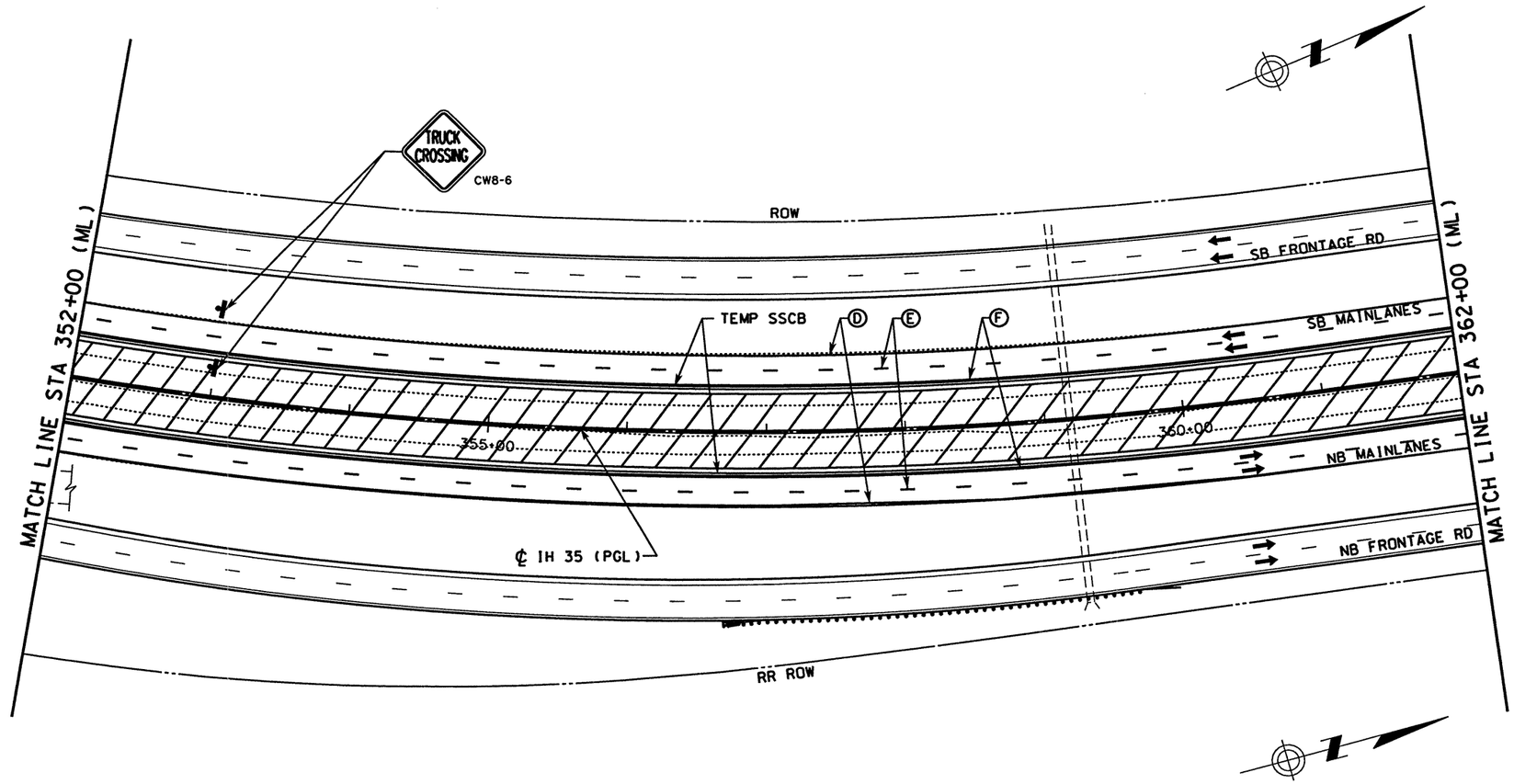

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 3
STA 352+00 TO
STA 372+00

SHEET 5 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		185
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03

B50P4305.dgn-04 HOUFILE023 \hdivit\cf0130\

REF FILE(S): j011op01.drn, j011op01.uti, j011op01.eap, j011op01.bck, j011op01.alg, j011op01.bdr, j011op01.pro, milolnt.row, milolnt.row*.row

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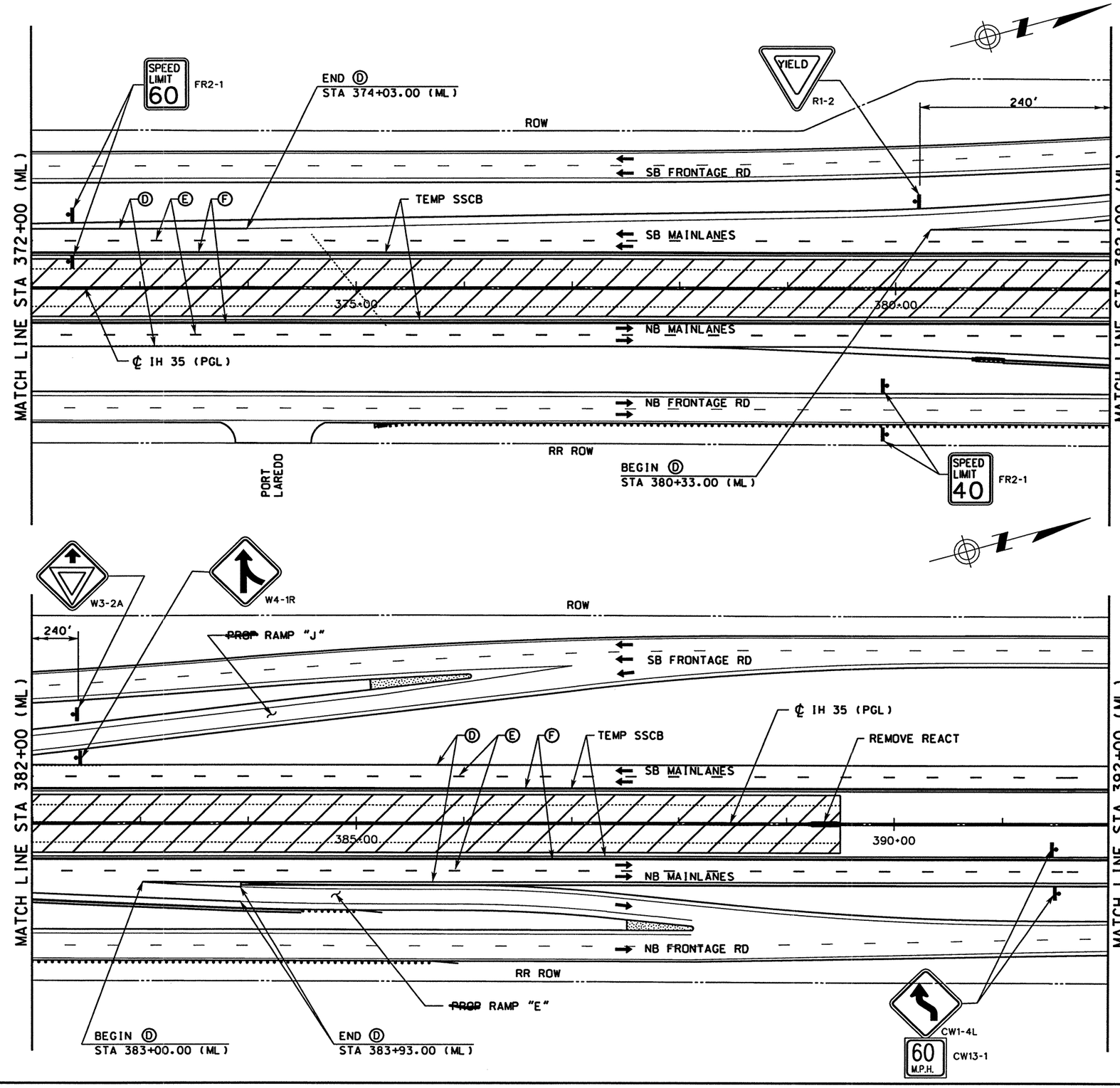

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 3
STA 372+00 TO
STA 392+00

SHEET 6 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		186
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

B50P4306.dgn-03 HOUFILE023 \hciwil\cf0130\ 04/18/03

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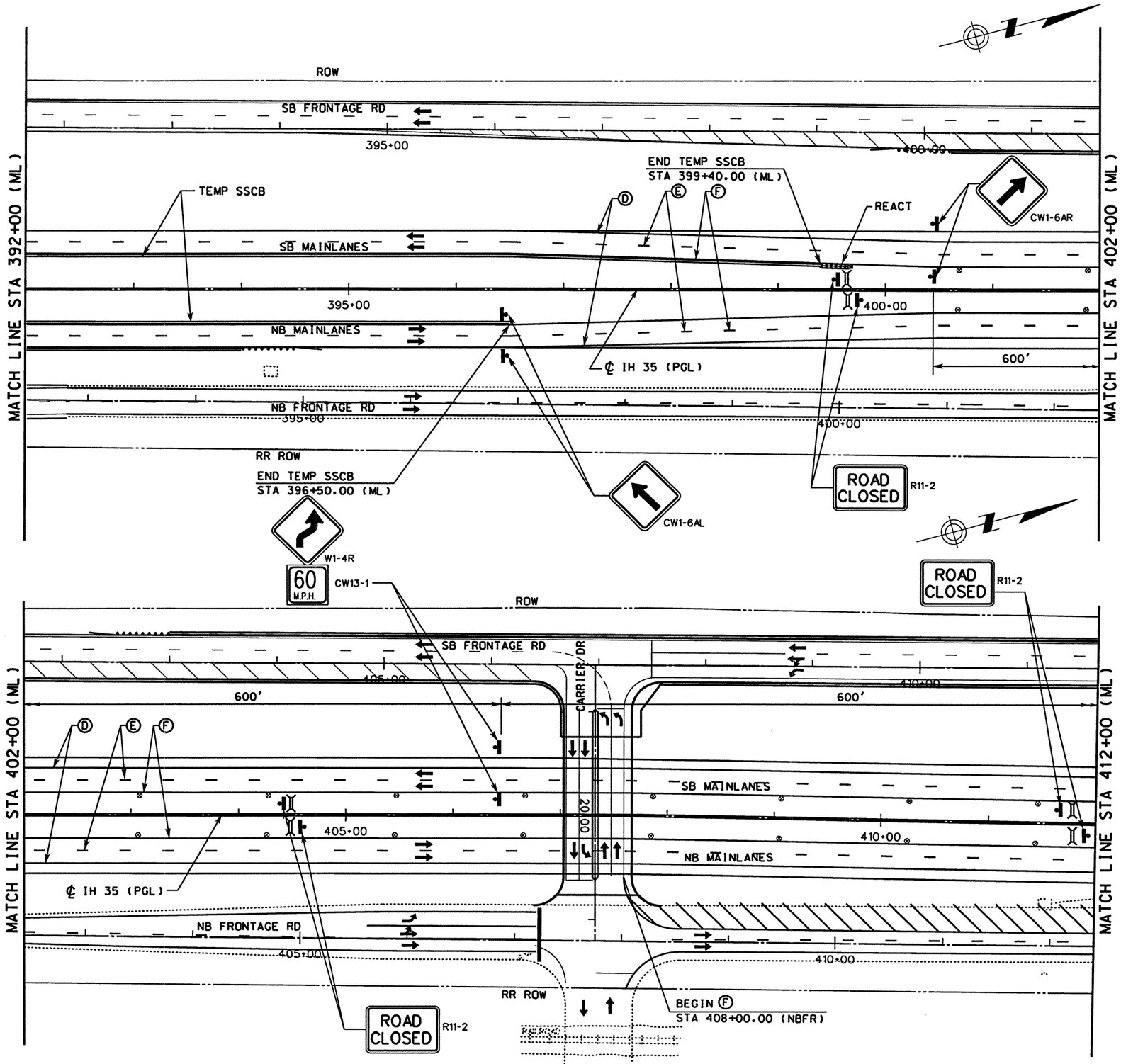
j011op01.eop. eop LV ON = 2-9.10.14-17.20.21.25.28
j011op01.bck. bck LV ON = 1-6.35-39
j011op01.alg. alg LV ON = 9-11.30.33.42.47.57.58.60-62
j011op01.bdr. bdr LV ON



WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
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87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 3
STA 392+00 TO
STA 412+00

SHEET 7 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	187
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

B5OP4307.dgn-03 HOUFILE023 \hciviv\cf0130\ 04/18/03

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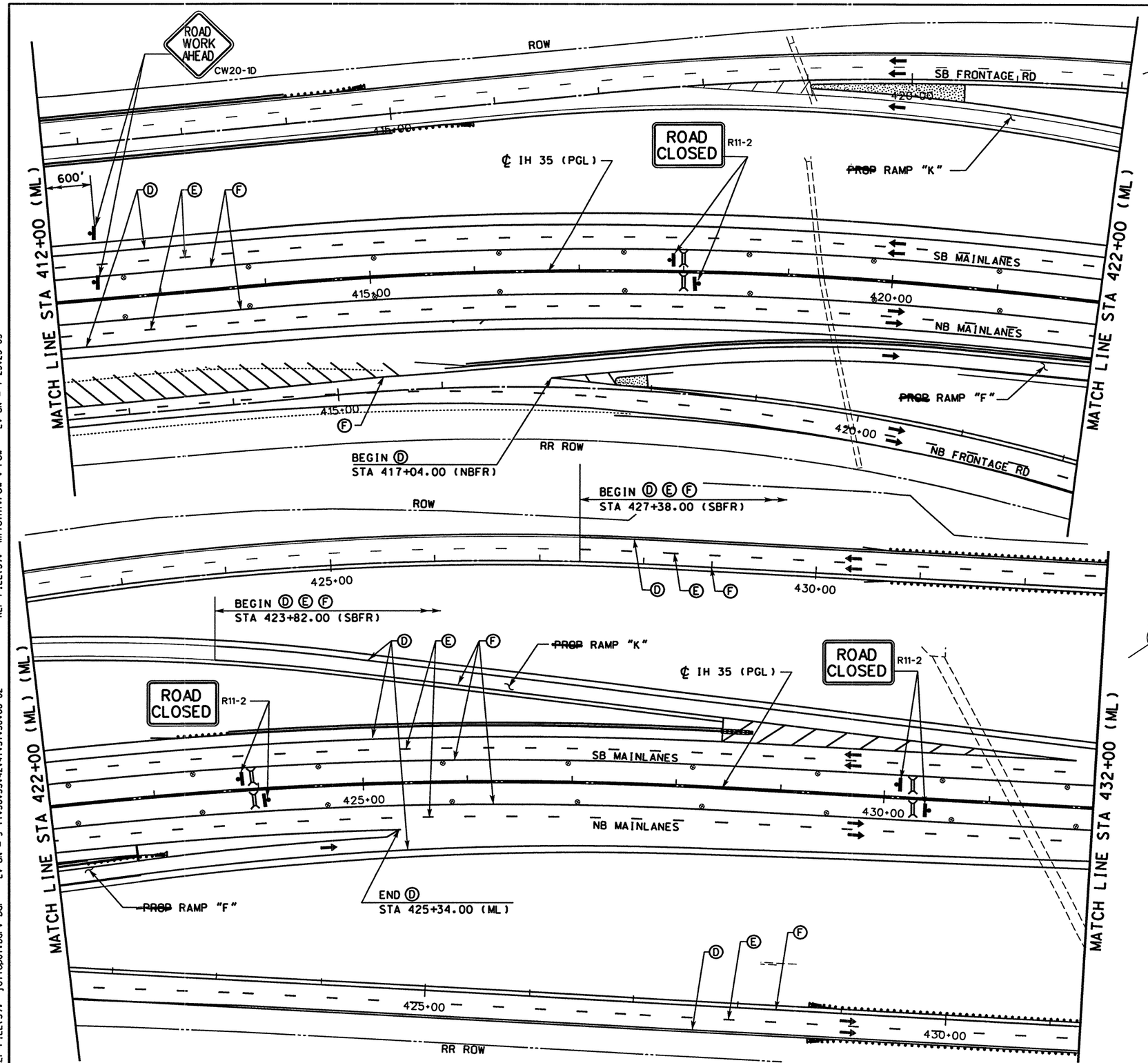

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- Ⓜ PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 3
STA 412+00 TO
STA 432+00

SHEET 8 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	188
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

04/18/03 HOUFILE023 \hcivil\cf0130\ B50P4308.dgn-04

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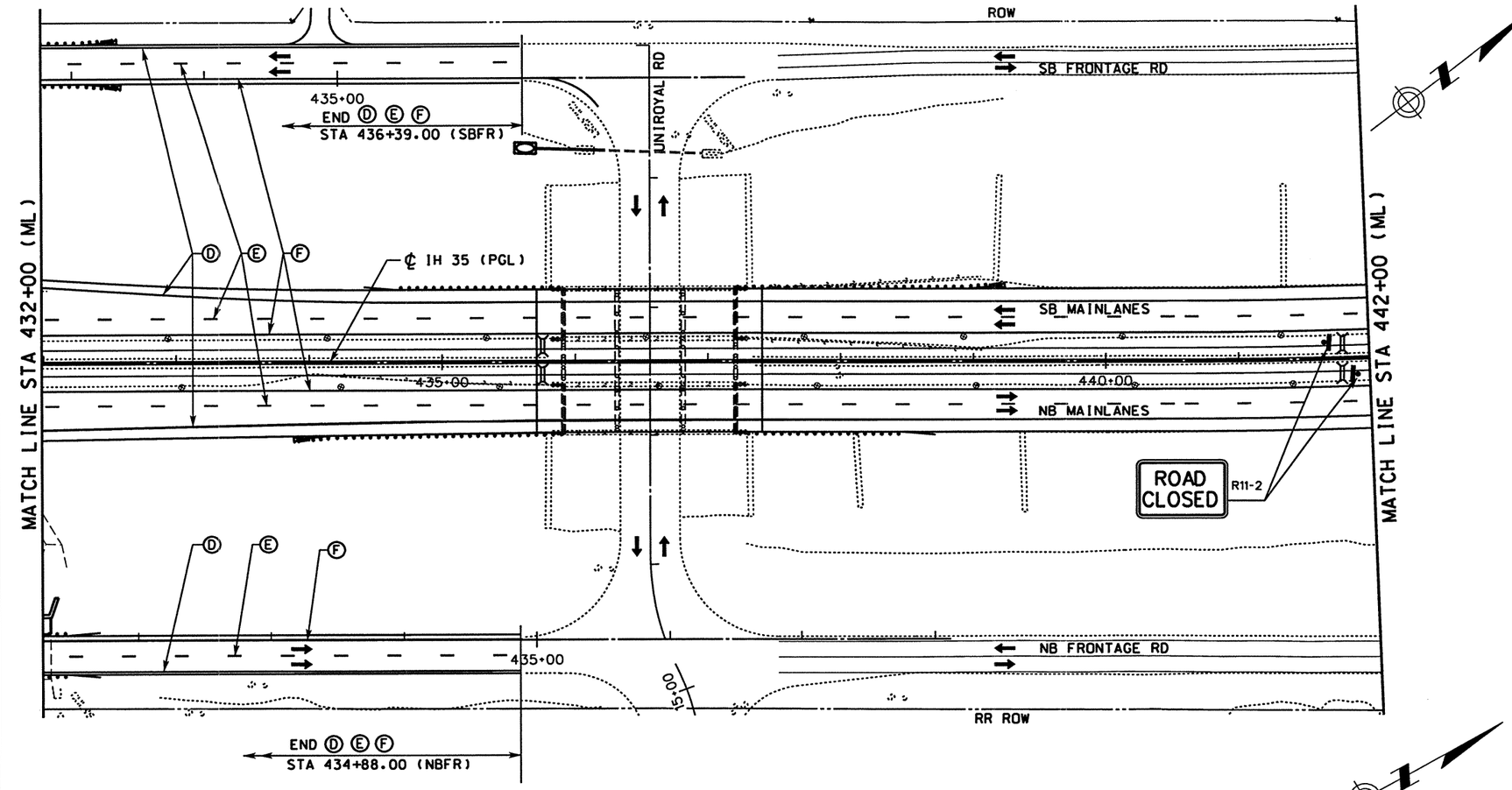

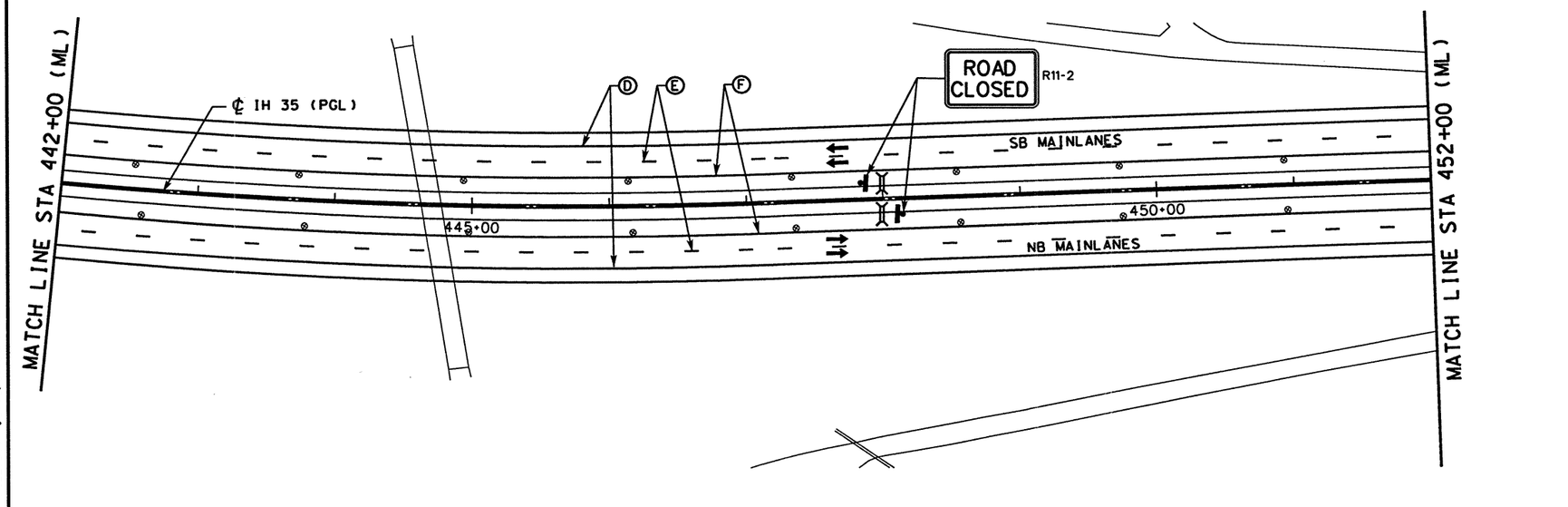

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 3
STA 432+00 TO
STA 452+00

SHEET 9 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		189
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03
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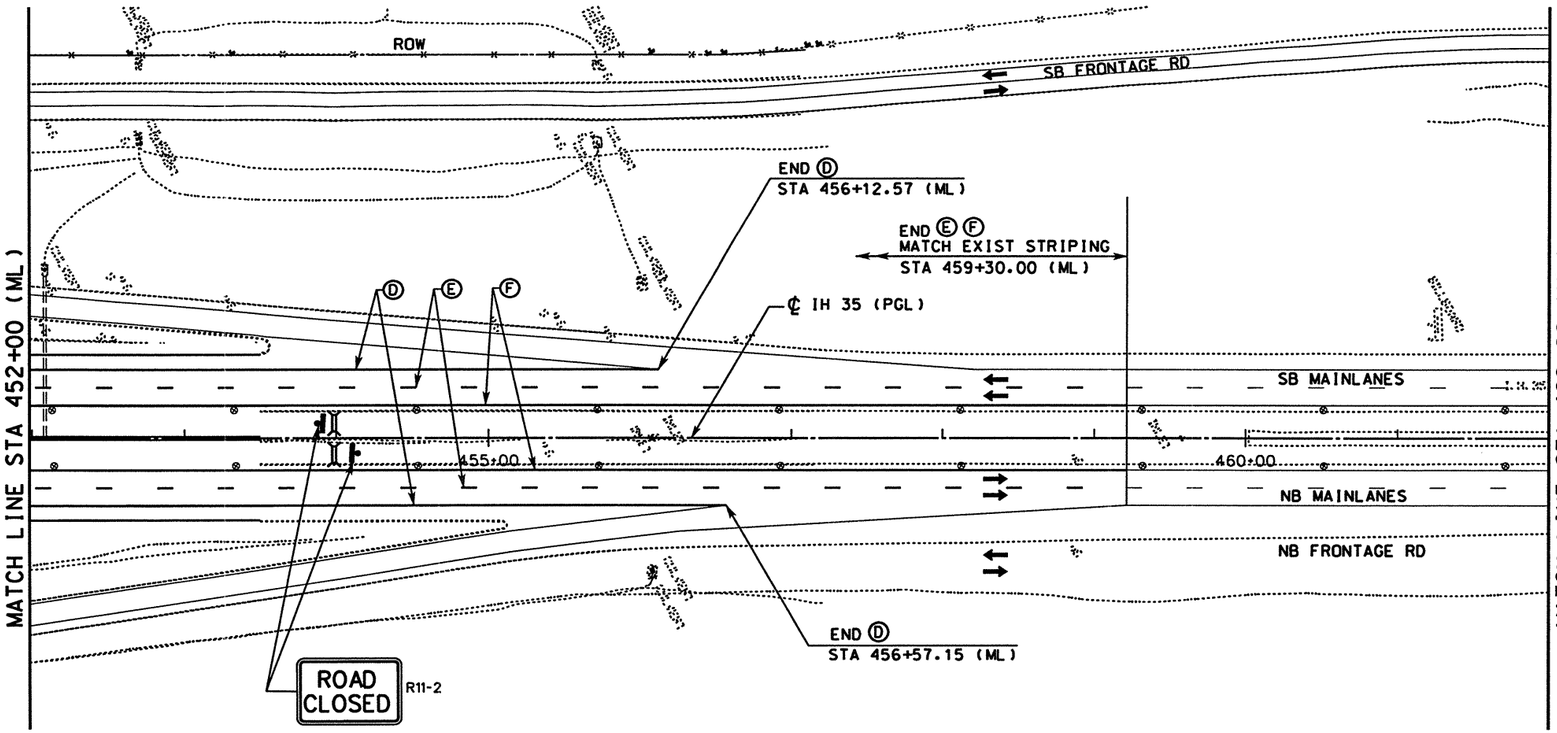

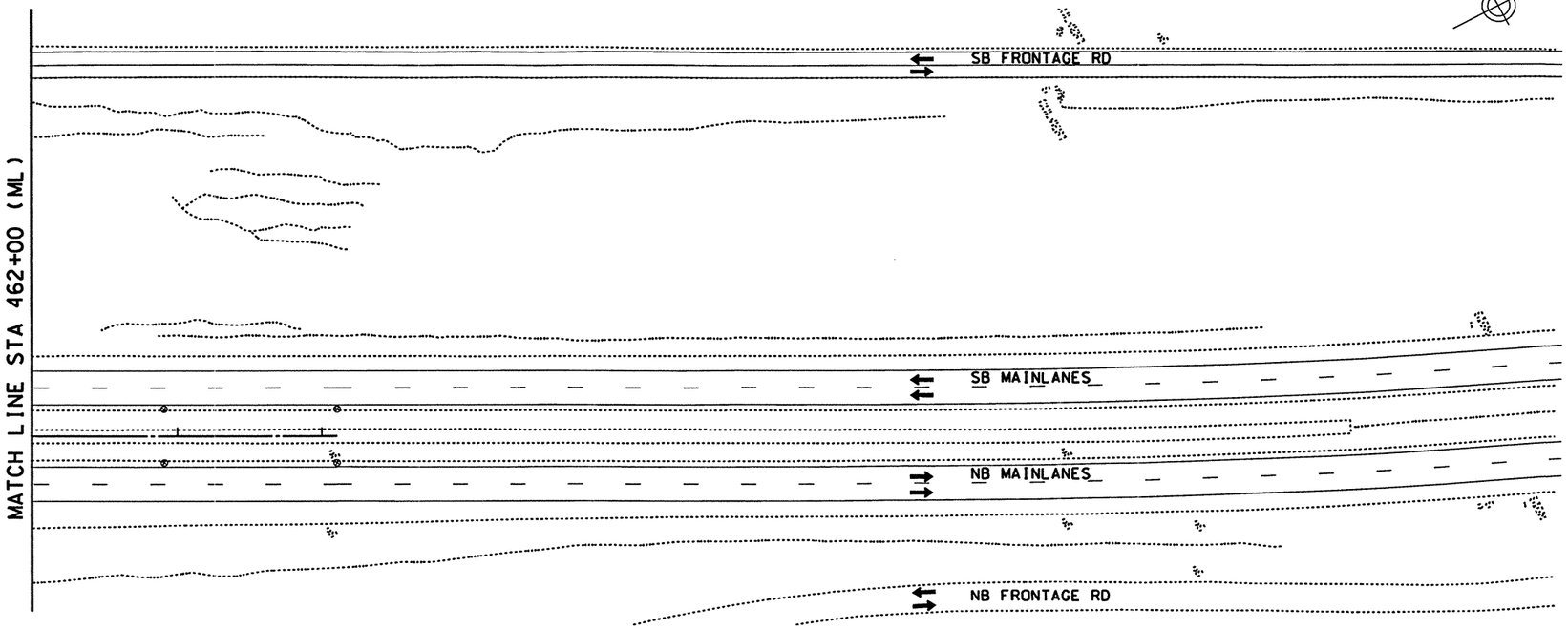

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 3
STA 452+00 TO
STA 464+00

SHEET 10 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		190
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P4310.dgn-02 HOUFILE023 \hclvil\cf0130\ 04/18/03

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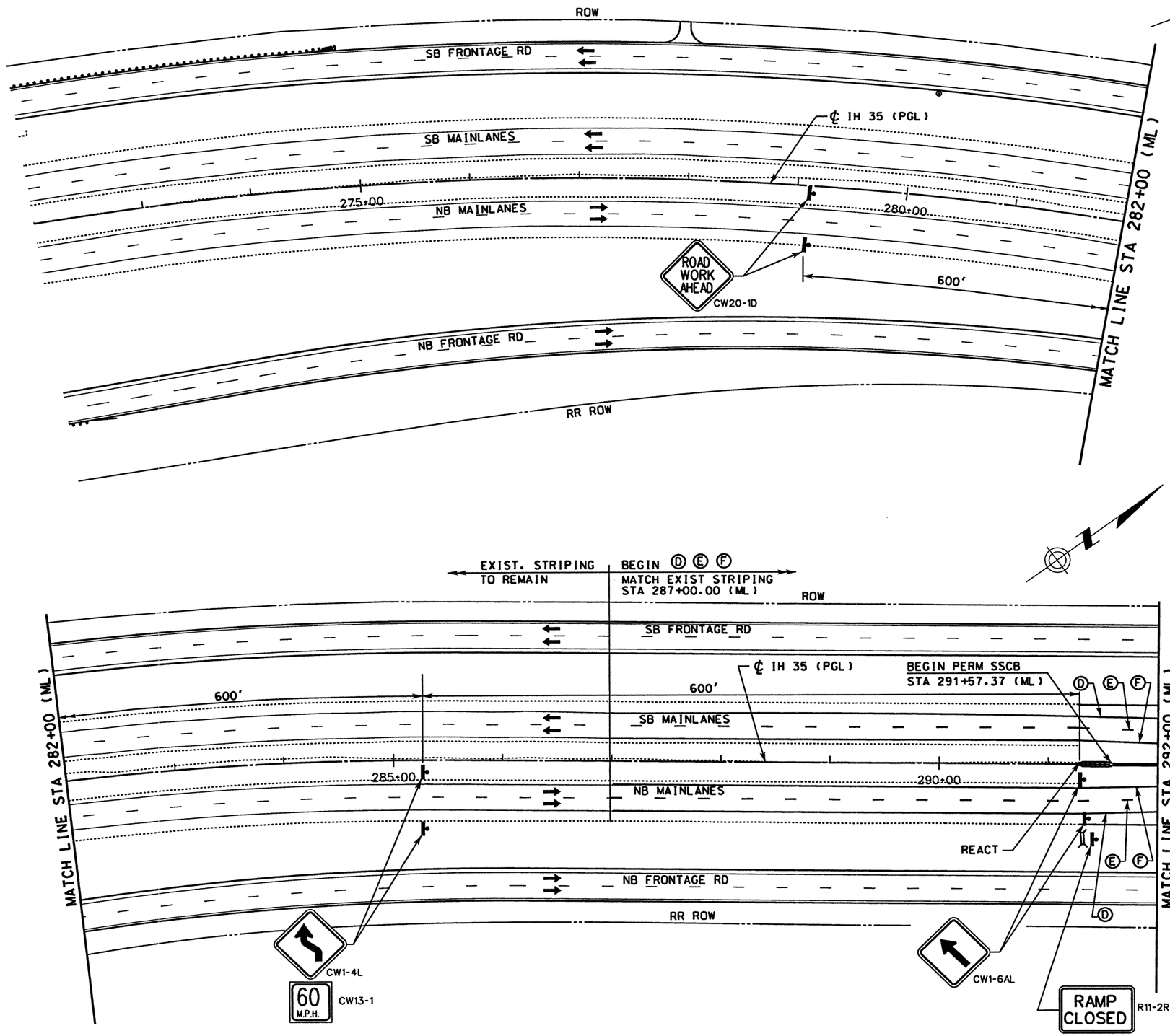

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 4
STA 272+00 TO
STA 292+00

SHEET 1 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	191
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03
B50P4401.dgn-05 HOUFILE023 \hcivil\c\f0130\

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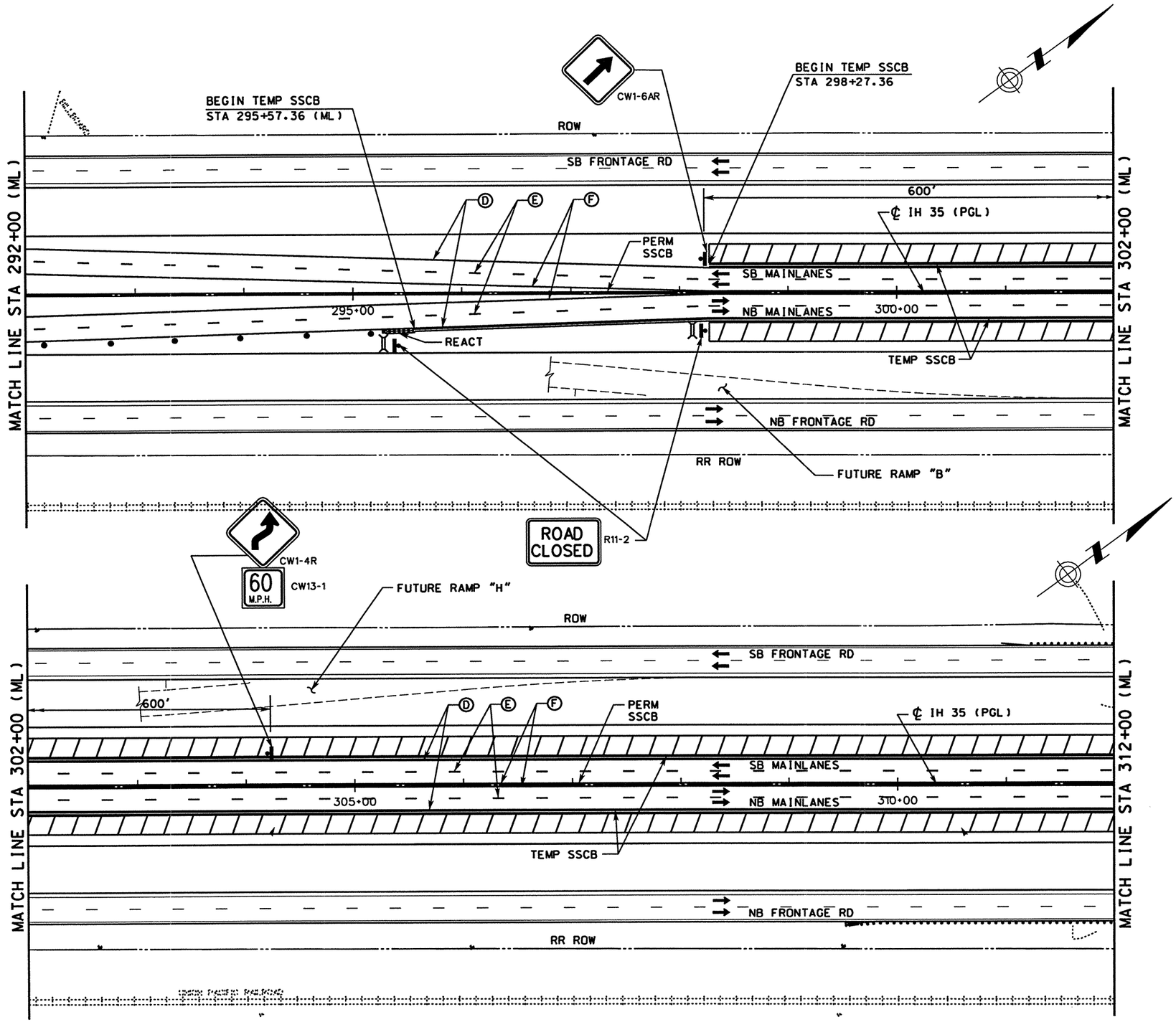

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
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87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 4
STA 292+00 TO
STA 312+00

SHEET 2 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		192
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03
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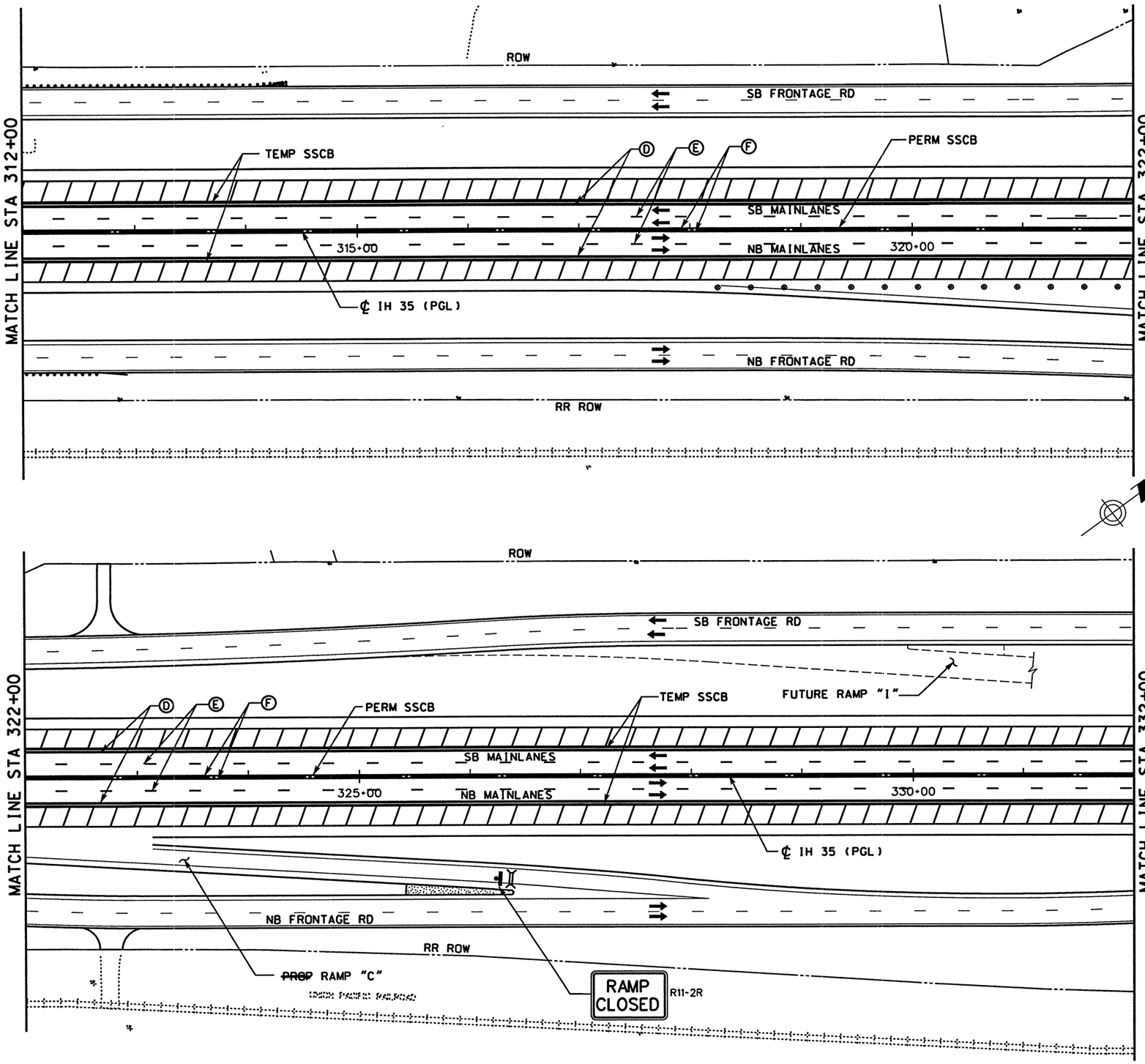

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 4
STA 312+00 TO
STA 332+00

SHEET 3 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	193
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03 HOUFILE023 \hciwil\cf0130\ B50P4403.dgn-03

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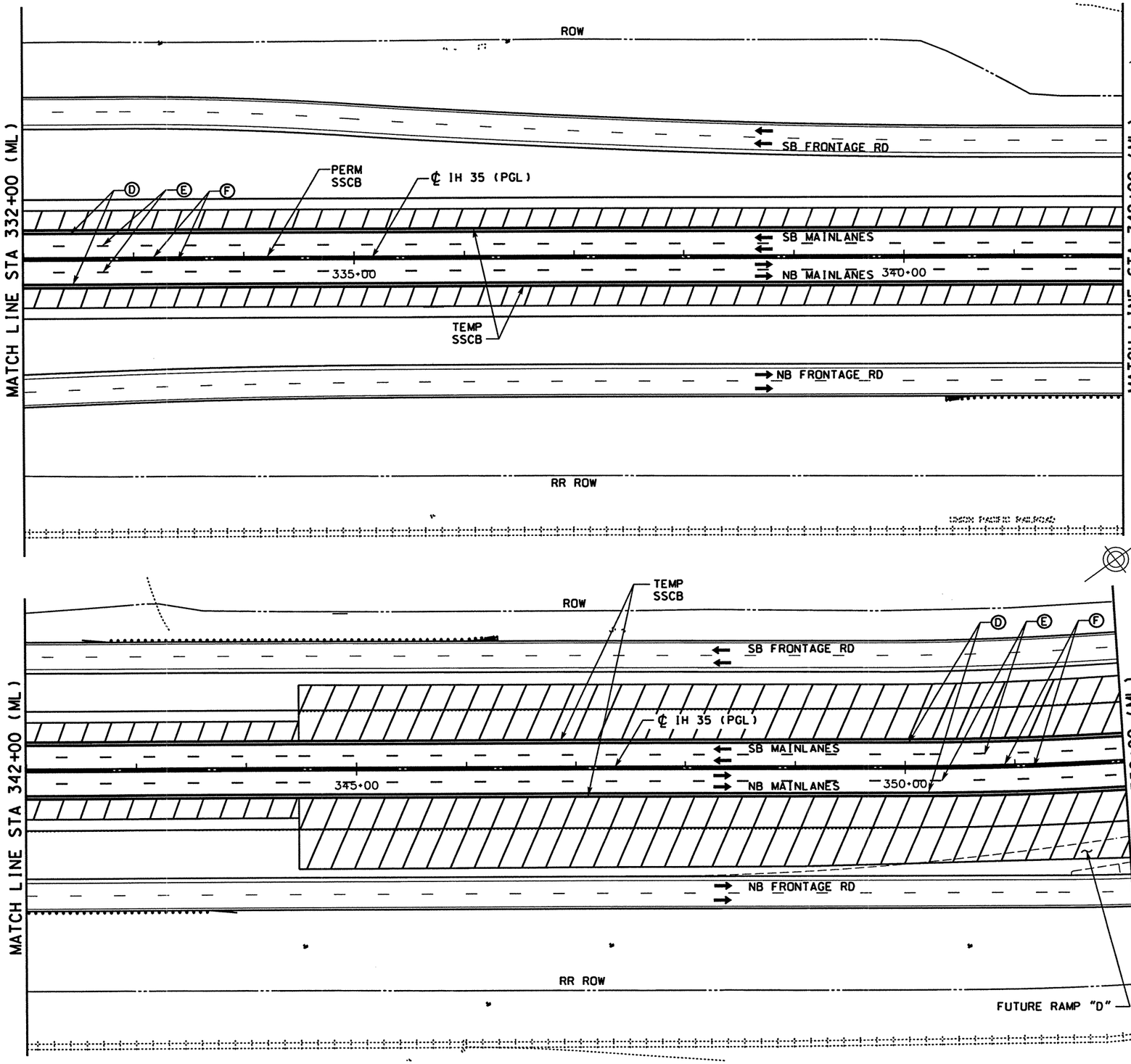

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- Ⓜ PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 4
STA 332+00 TO
STA 352+00

SHEET 4 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		194
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
B50P4404.dgn-05 HOUFILE023 \hchivil\c10130\

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j011op01.alg, LV ON = 1-6,35-39
j011op01.bdr, LV ON = 9-11,30,33,42,47,57,58,60-62

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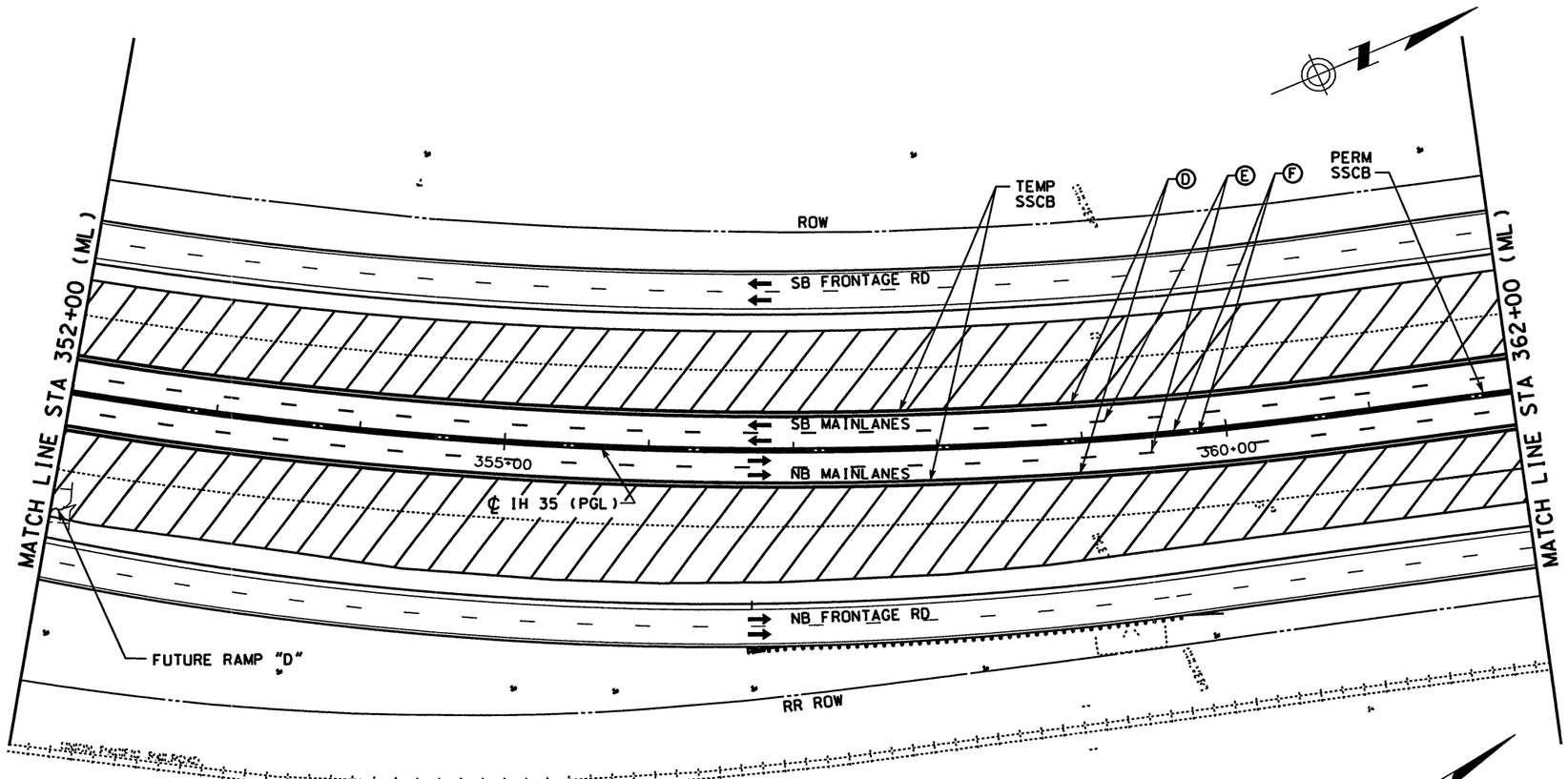

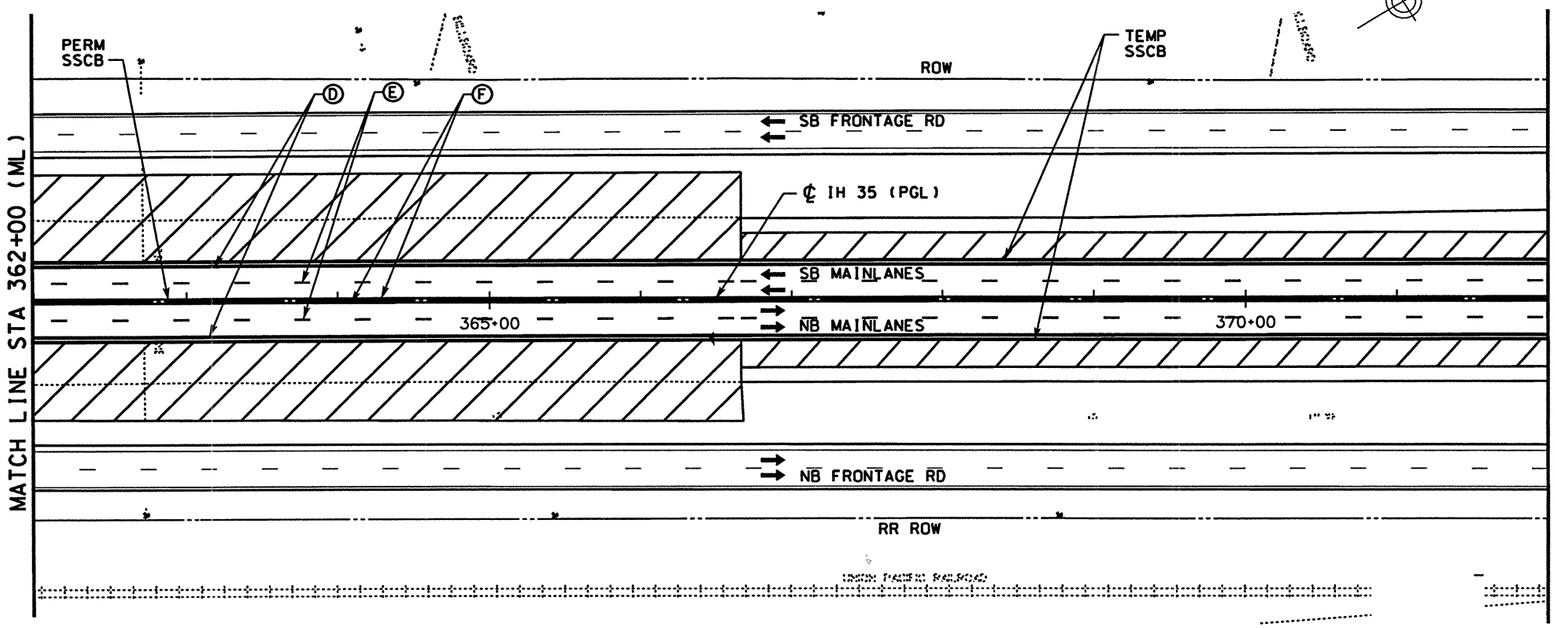

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 4
STA 352+00 TO
STA 372+00

SHEET 5 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		195
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P4405.dgn-04 HOUFILE023 \hchiv11\cf0130\

REF FILE(S): j011op01.bar. bar LV ON = 9-11.30.33.42.47.57.58.60-62
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j011op01.eop. eop LV ON = 1-17.19-63
j011op01.utl. utl LV ON = 1-63

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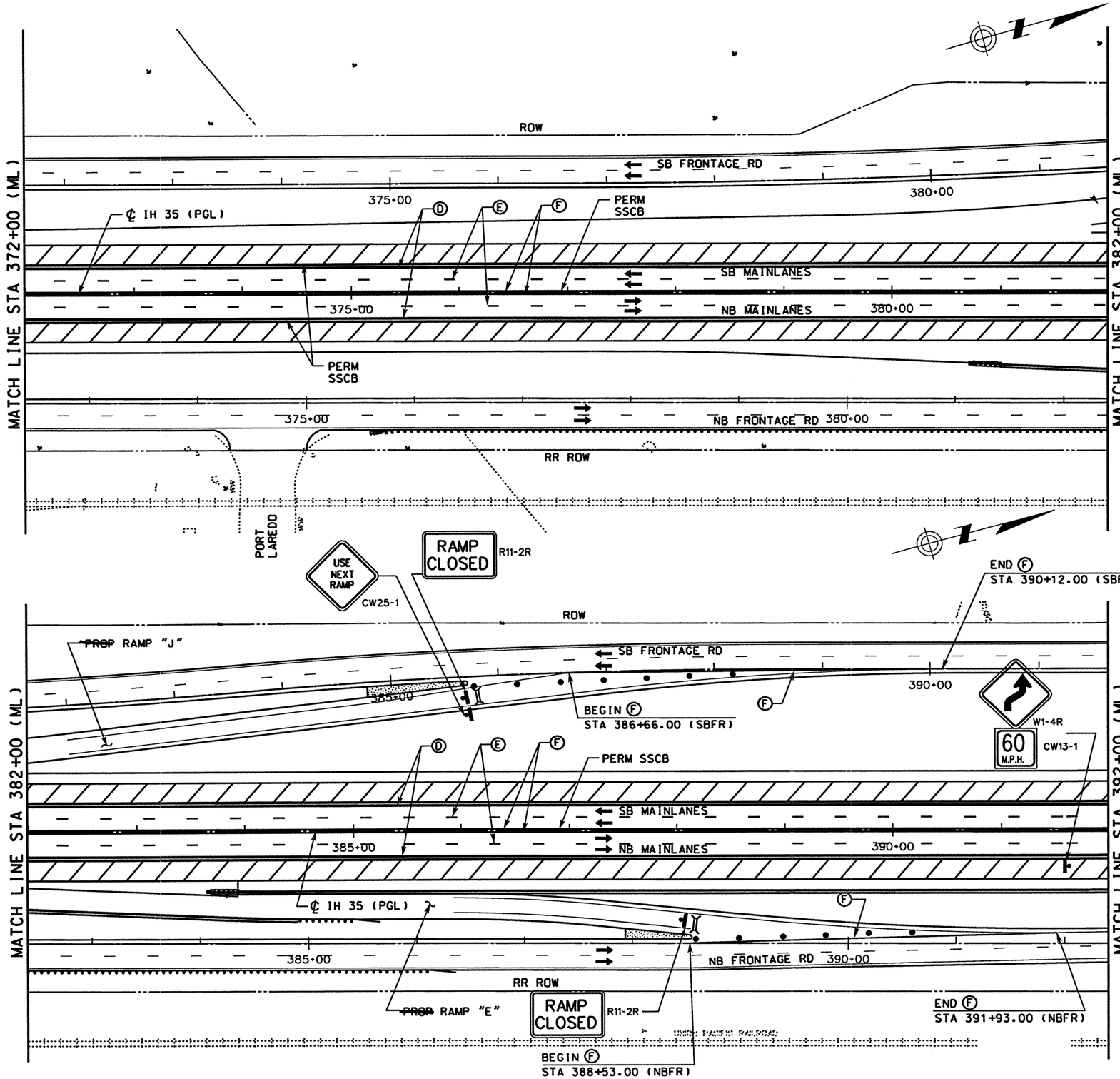

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 4
STA 372+00 TO
STA 392+00

SHEET 6 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	196
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

04/18/03

B50P4406.dgn-04 HOUFILE023 \hciwilc\0130\

REF FILE(S): j011op01.drn, j011op01.pro, j011op01.row, miloint.row
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LV ON = 12.13.35
LV ON = 1-23.25-63

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LV ON = 9-11.30.33.42.47.57.58.60-62
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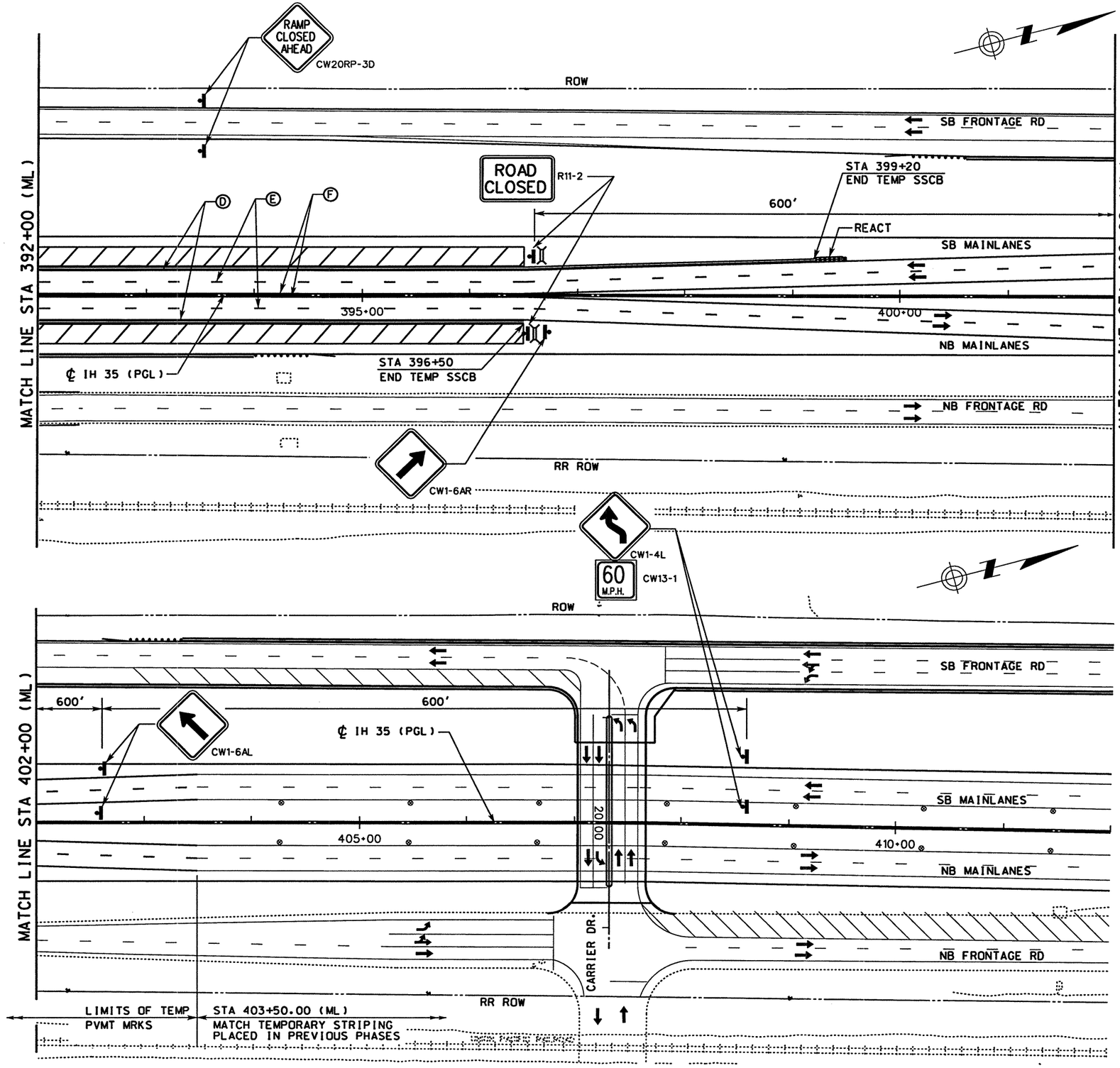
LV ON = 1-63



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 4
STA 392+00 TO
STA 412+00

SHEET 7 OF 7

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	197
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

04/18/03
HOUFILE023 \hchivil\c10130\
B50P4407.dgn-03

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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REF FILE(S): j011op01.uti, uti LV ON = 1-63
j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2-9.10.14.17.20.21.25.28
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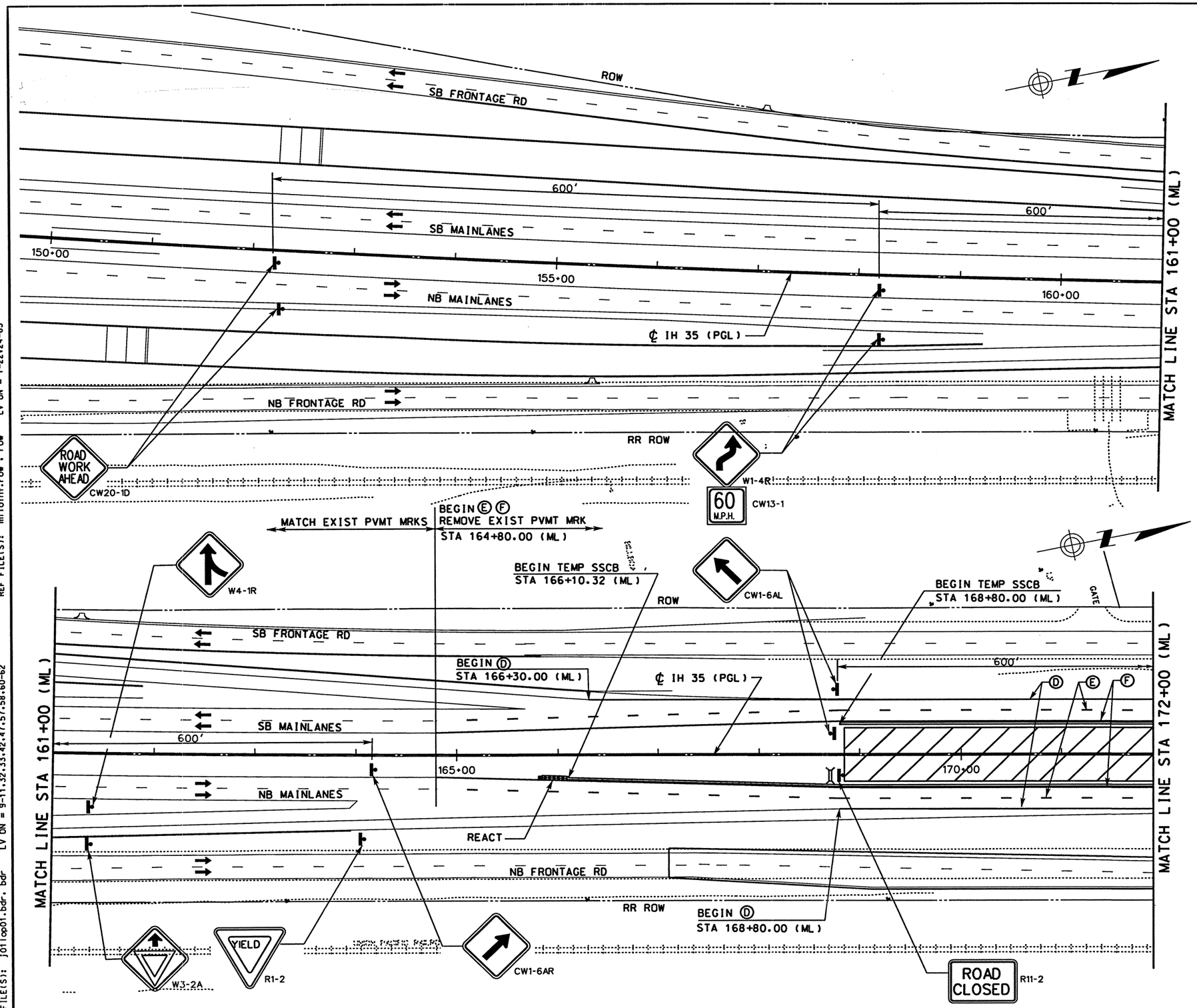

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 150+00 TO
STA 172+00

SHEET 1 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	198
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

04/18/03

B50P4501.dgn-02 HOUFILE023 \hcivil\c10130\

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j011op01.row. row LV ON = 1-22.24-63

REF FILE(S): j011op01.urt. urt LV ON = 1-63
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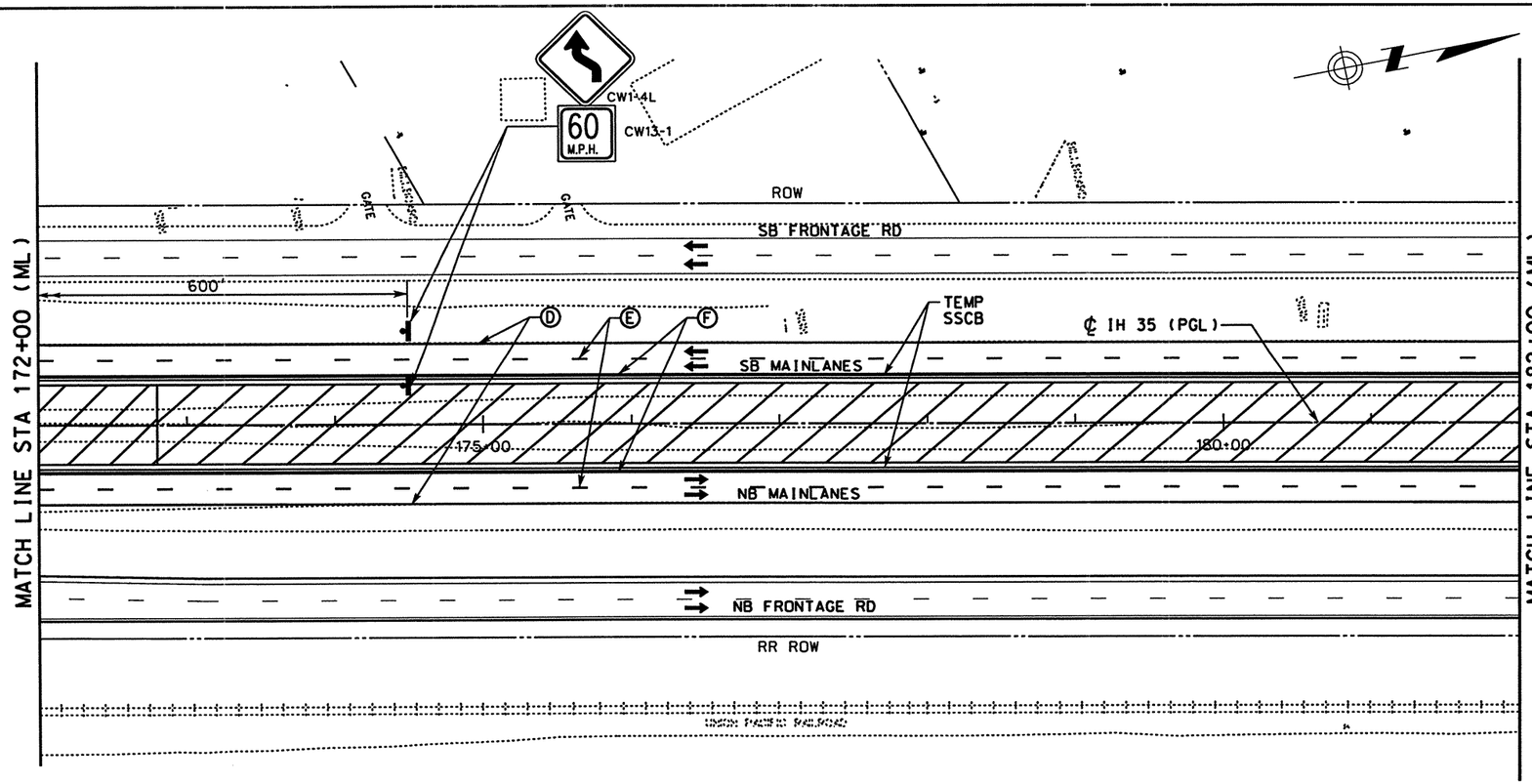
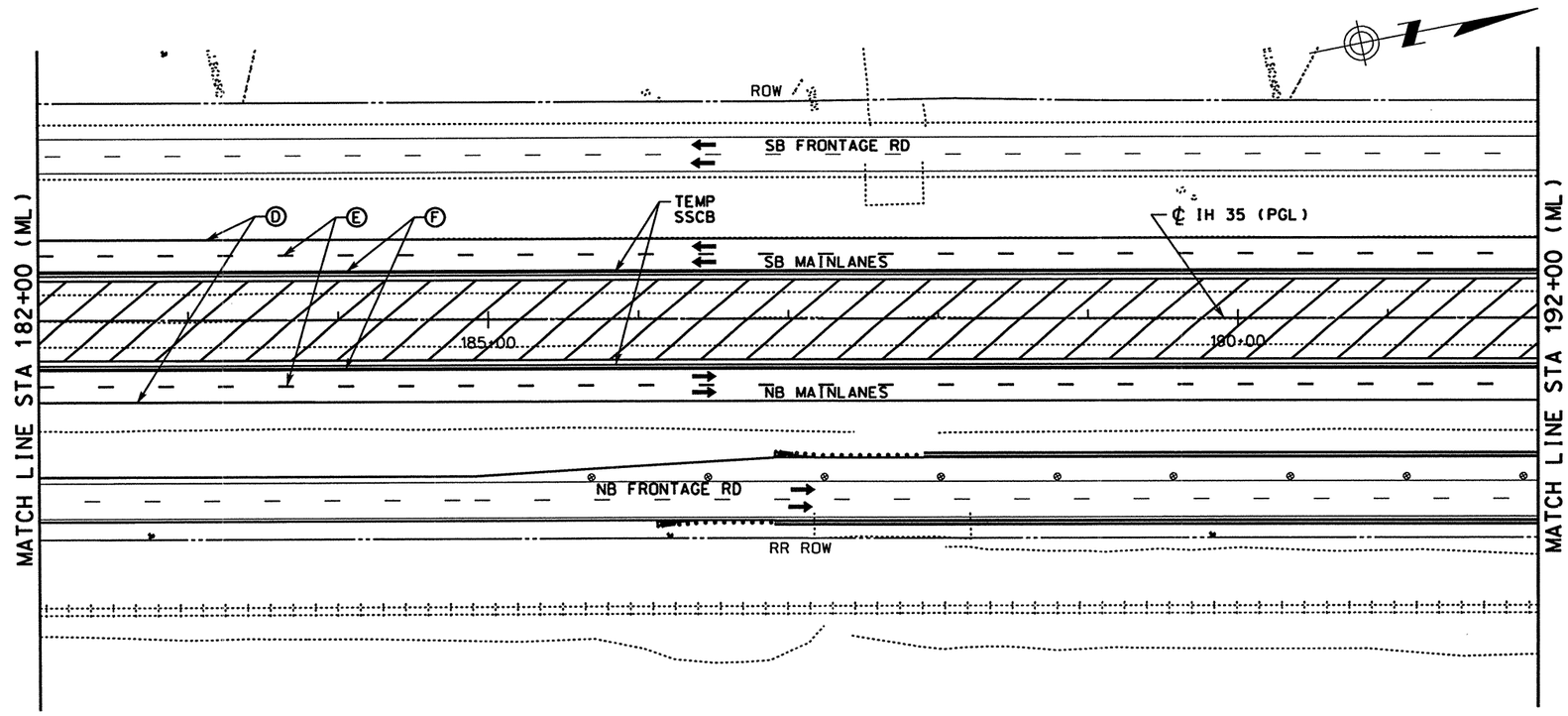
j011op01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.32.33.42.47.57.58.60-62





WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- (M) PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 172+00 TO
STA 192+00

SHEET 2 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		199
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

\hcivil\cf0130\B50P4502.dgn-04 HOUFILE023

REF FILE(S): j011op01.drn, j011op01.pro, j011op01.bck, j011op01.alg, j011op01.bdr, j011op01.uti, j011op01.eop, milointr.row, row

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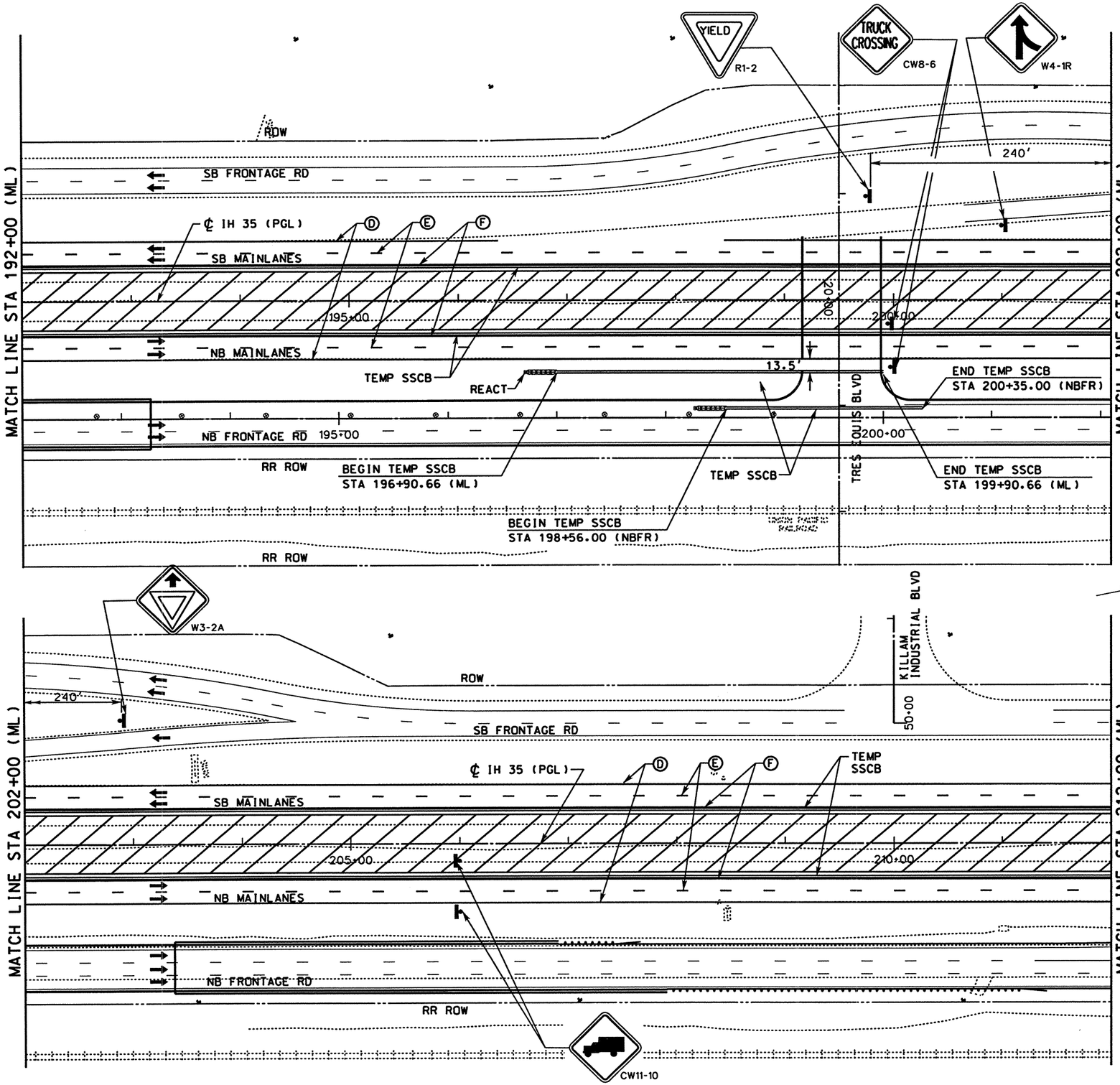

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 192+00 TO
STA 212+00

SHEET 3 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		200
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P4503.dgn-04 HOUFILE023 \hchiu\cf0130\

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j01lop01.uti, uti LV ON = 1-63

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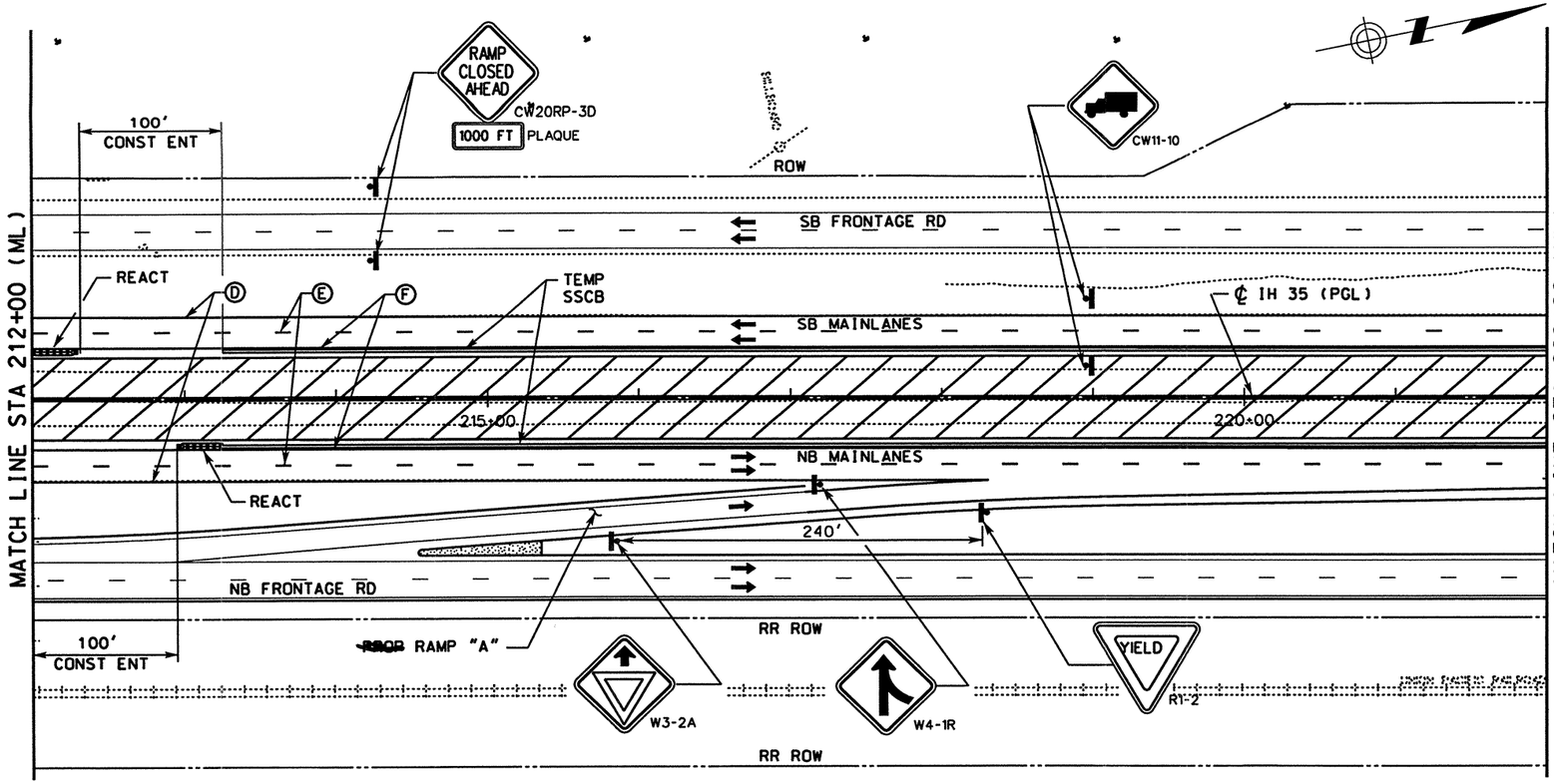

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- (M) PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 212+00 TO
STA 232+00

SHEET 4 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		201
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P4504.dgn-04 HOUFILE023 \hchivil\cf0130\ 04/18/03

REF FILE(S): j011op01.drn, LV ON = 8.28
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j011op01.eop, LV ON = 1-17.19-63
j011op01.bck, LV ON = 2.9.10.14.17.20.21.25.28
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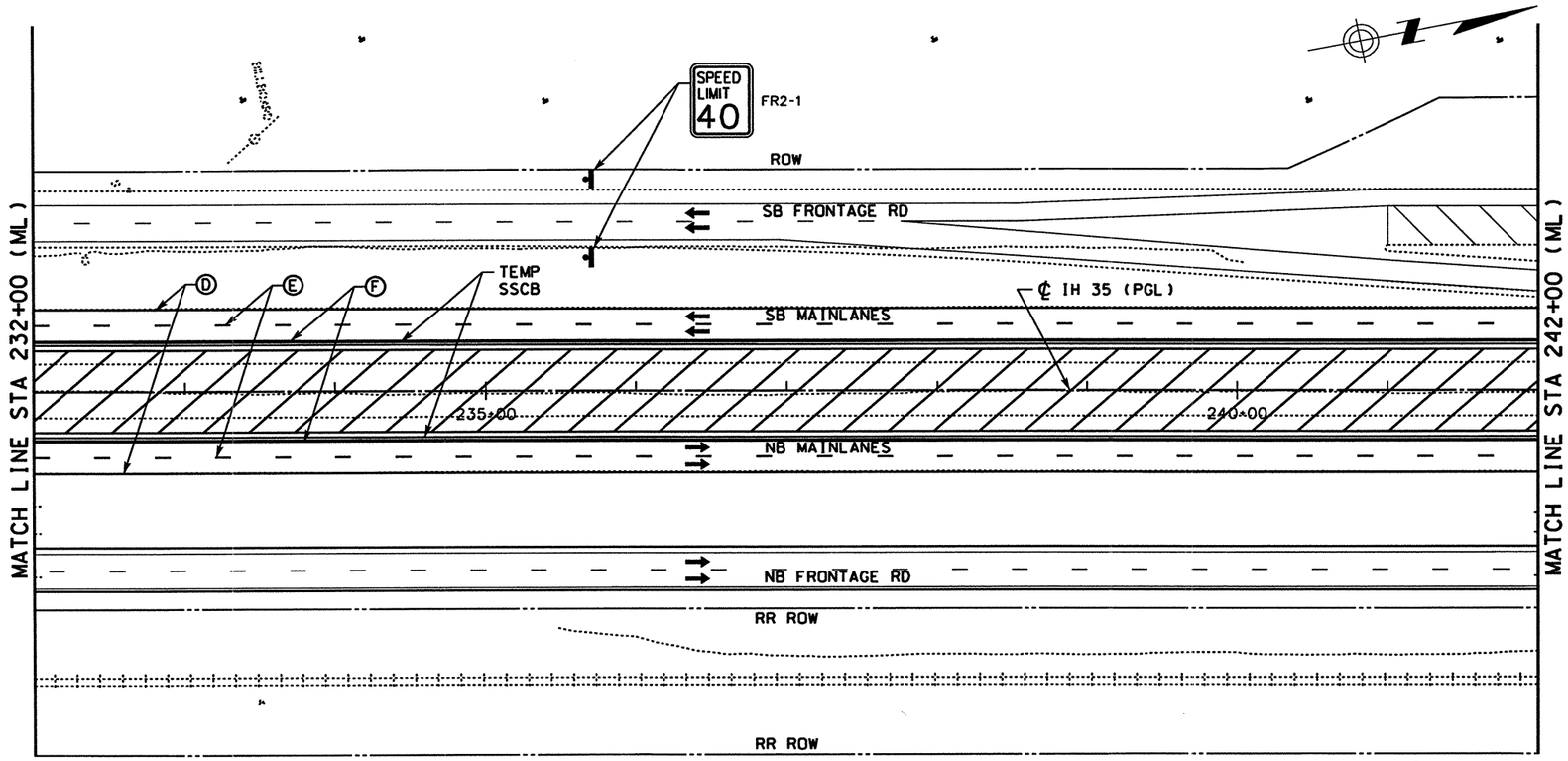

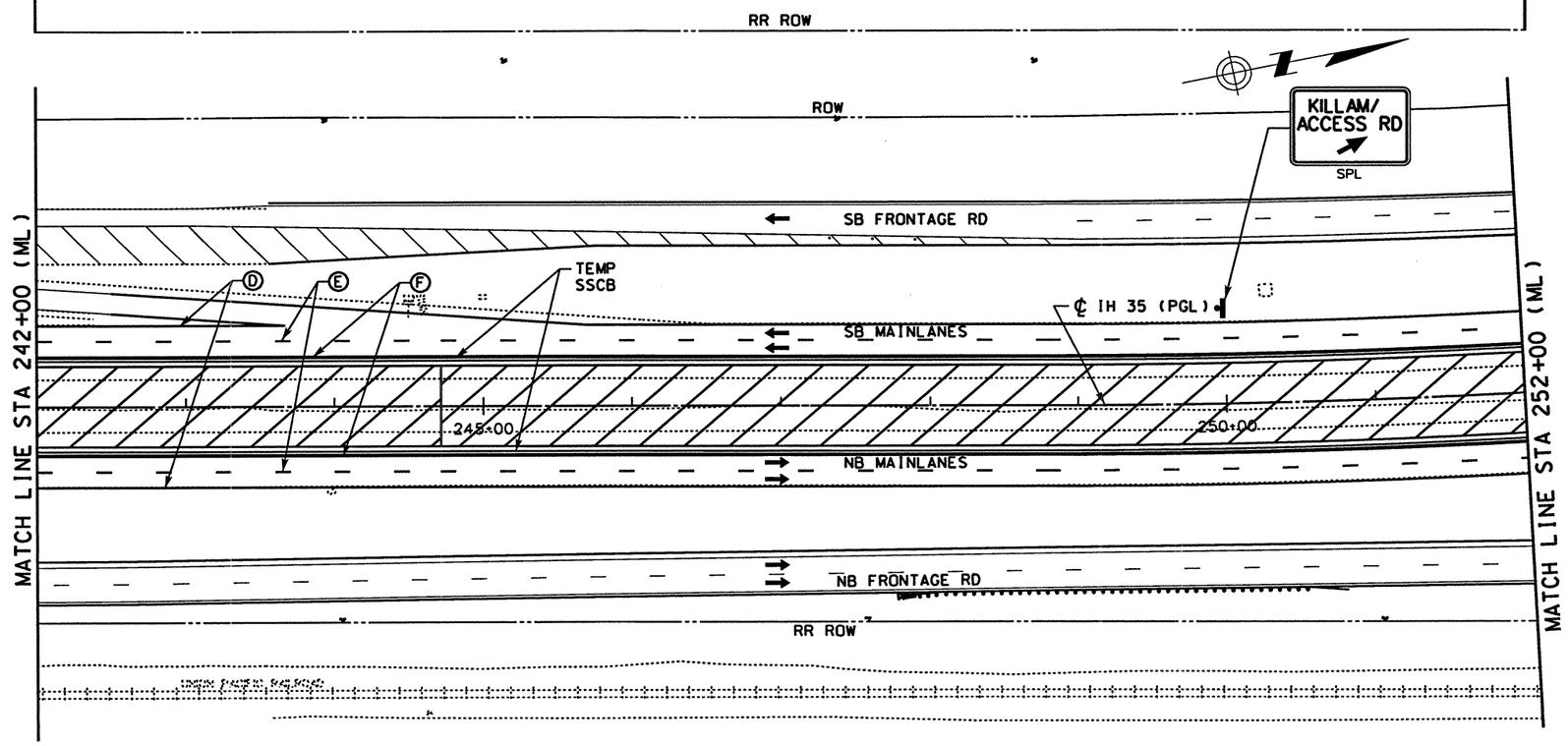

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 232+00 TO
STA 252+00

SHEET 5 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	202
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062- ETC	IH 35

04/18/03 HOUFILE023 \hchivil\cf0130\350P4505.dgn-04

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j011op01.bck, LV ON = 2-9.10.14.17.20.21.25.28
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j011op01.bdr, LV ON = 9-11.32.33.42.47.57.58.60-62
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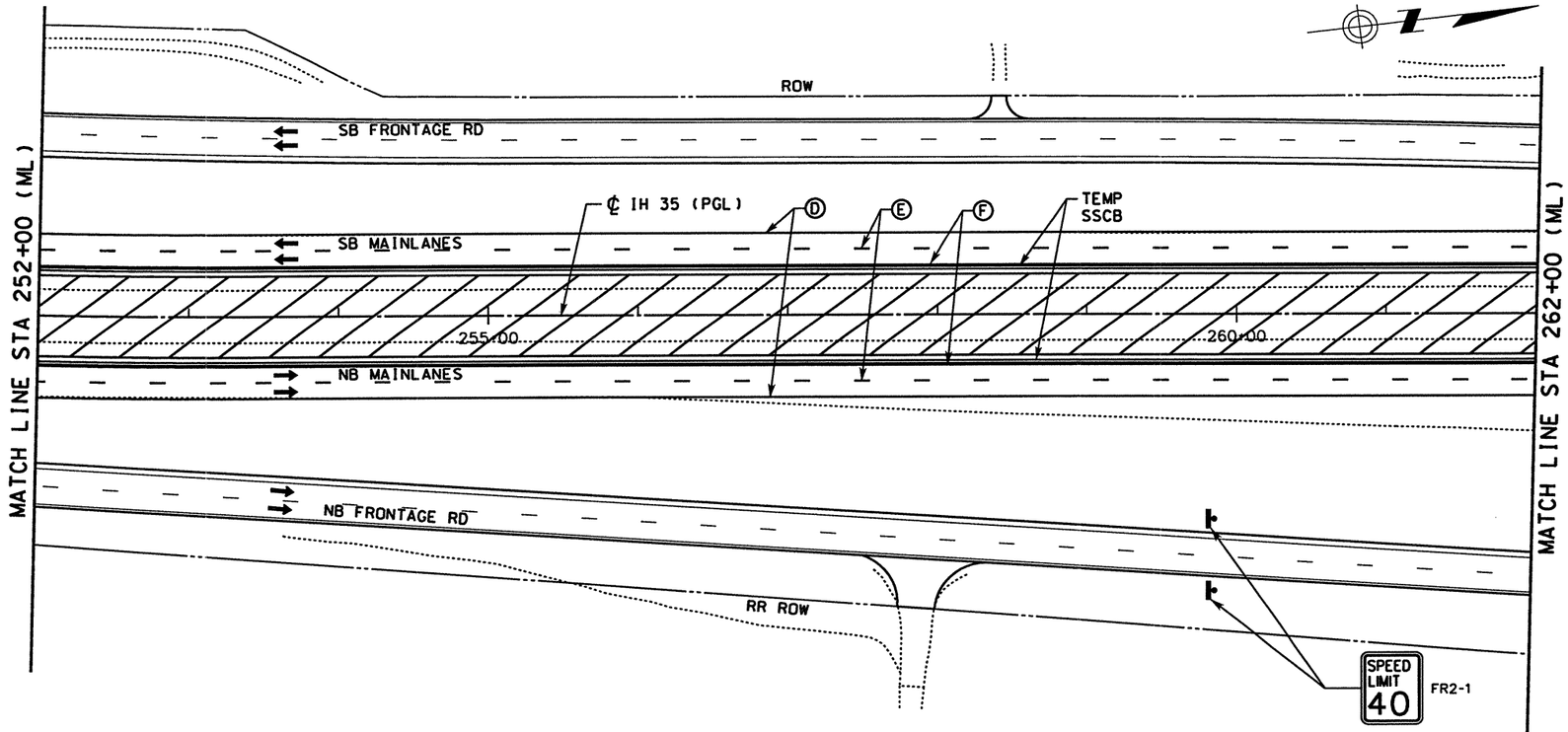

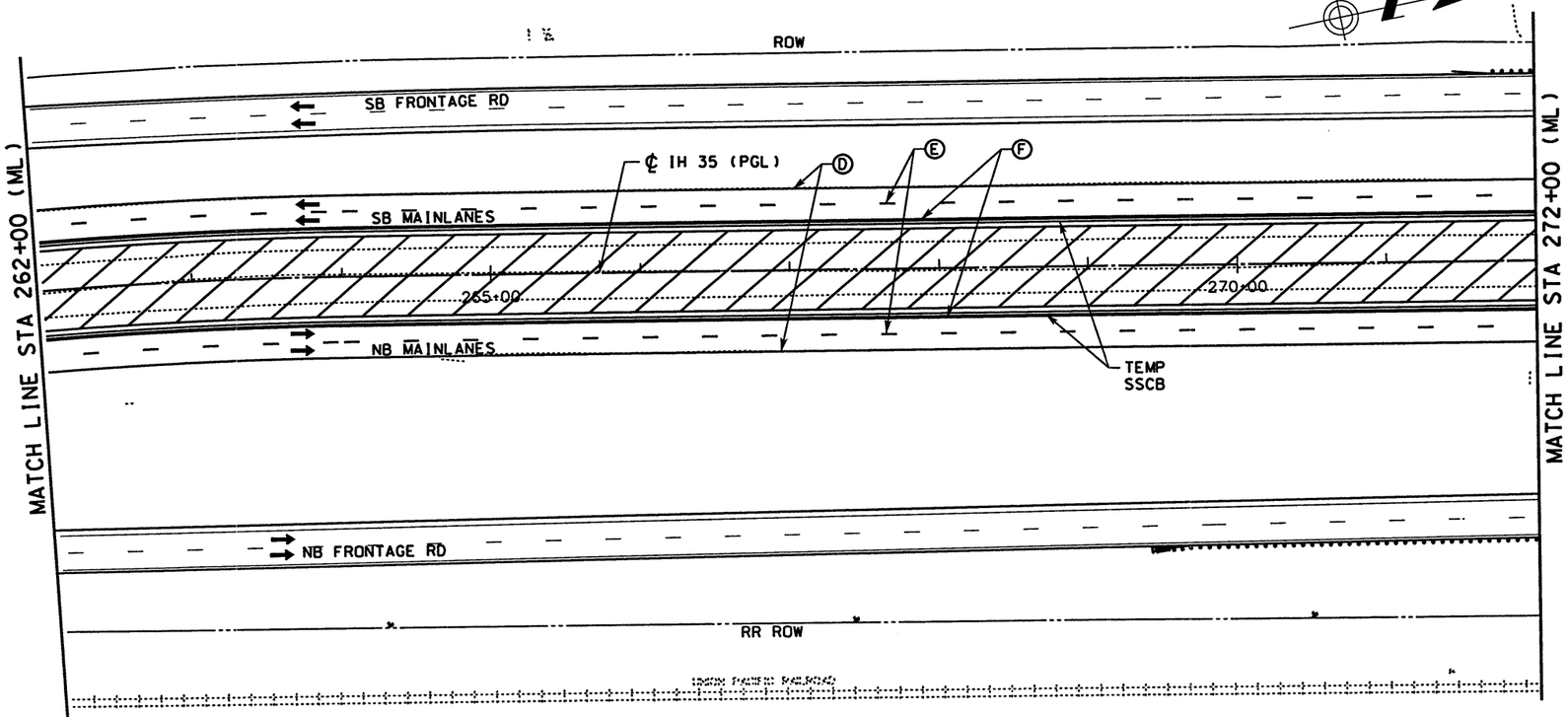

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 252+00 TO
STA 272+00

SHEET 6 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	203
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

04/18/03
B50P4506.dgn-04 HOUFILE023 \hchivil\cf0130\

REF FILE(S): j011op01.drn, LV DN = 8.28
j011op01.pro, LV DN = 12.13.35
miloint.row, LV DN = 1-23.25-63

REF FILE(S): j011op01.bdr, LV DN = 9-11.30.42.57.58.60-62
j011op01.alg, LV DN = 1-6.35-39
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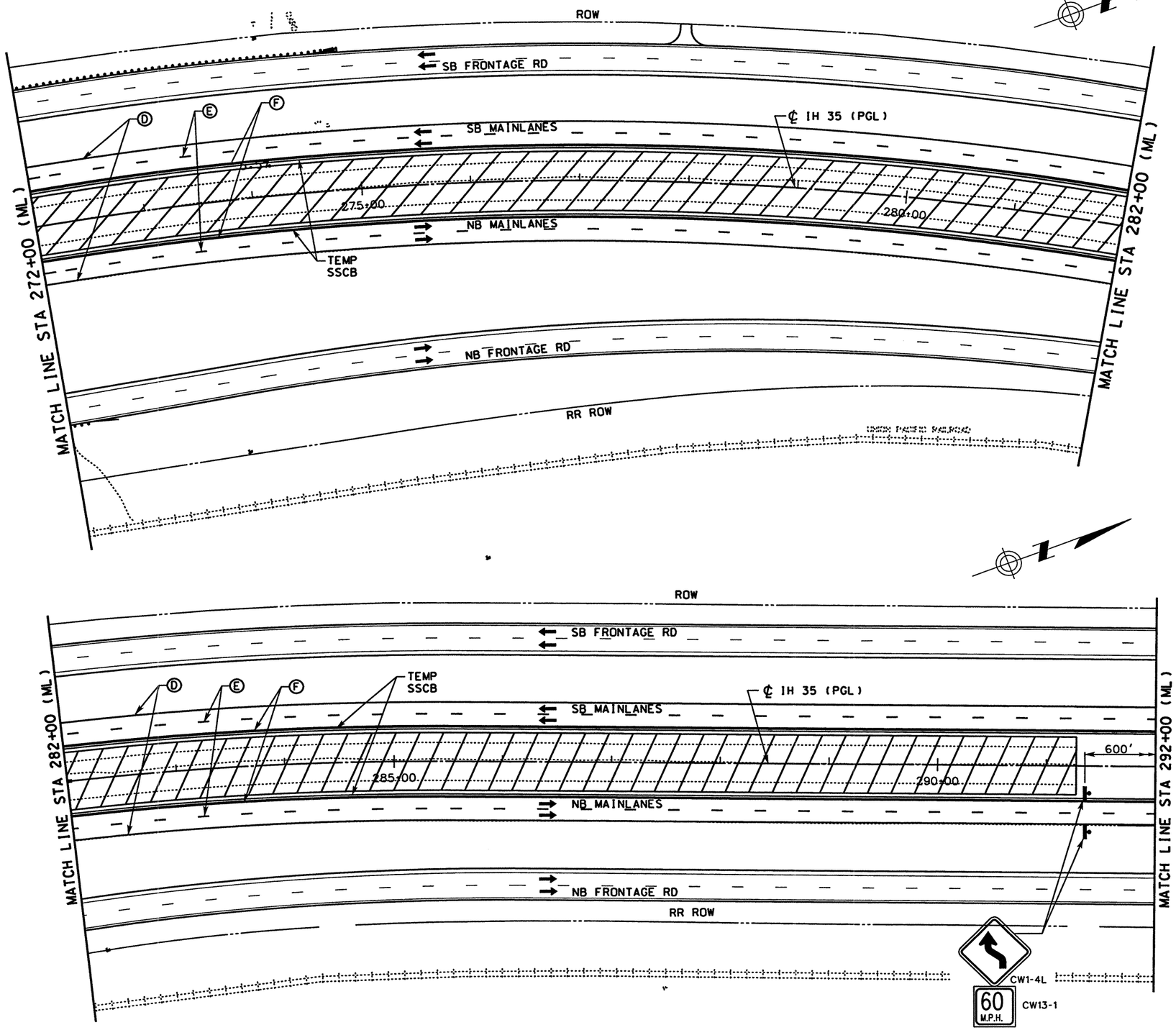

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 272+00 TO
STA 292+00

SHEET 7 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		204
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P4507.dgn-03 HOUFILE023 \hciwil\c0130\ 04/18/03

REF FILE(S): j011op01.bar, bar LV ON = 9-11.30.33.42.47.57.58.60-62
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j011op01.bck, bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.clg, clg LV ON = 1-6.35-39
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j011op01.pro, pro LV ON = 12.13.35
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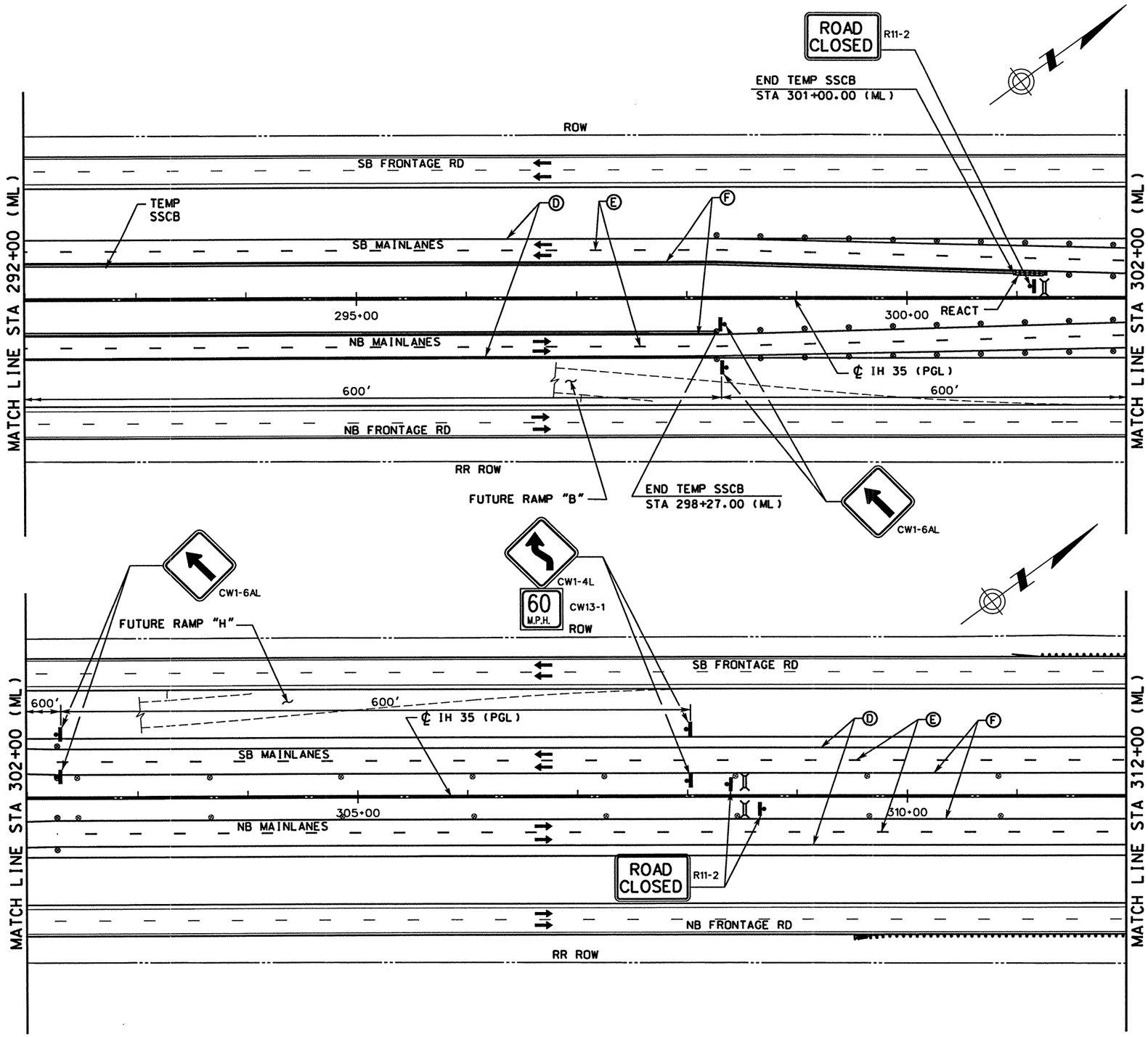

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- (M) PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 292+00 TO
STA 312+00

SHEET 8 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	205
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

B50P4508.dgn-05 HOUFILE023 \hciwin\c\0130\ 04/18/03

REF FILE(S): j0110p01.utl, LV DN = 1-63
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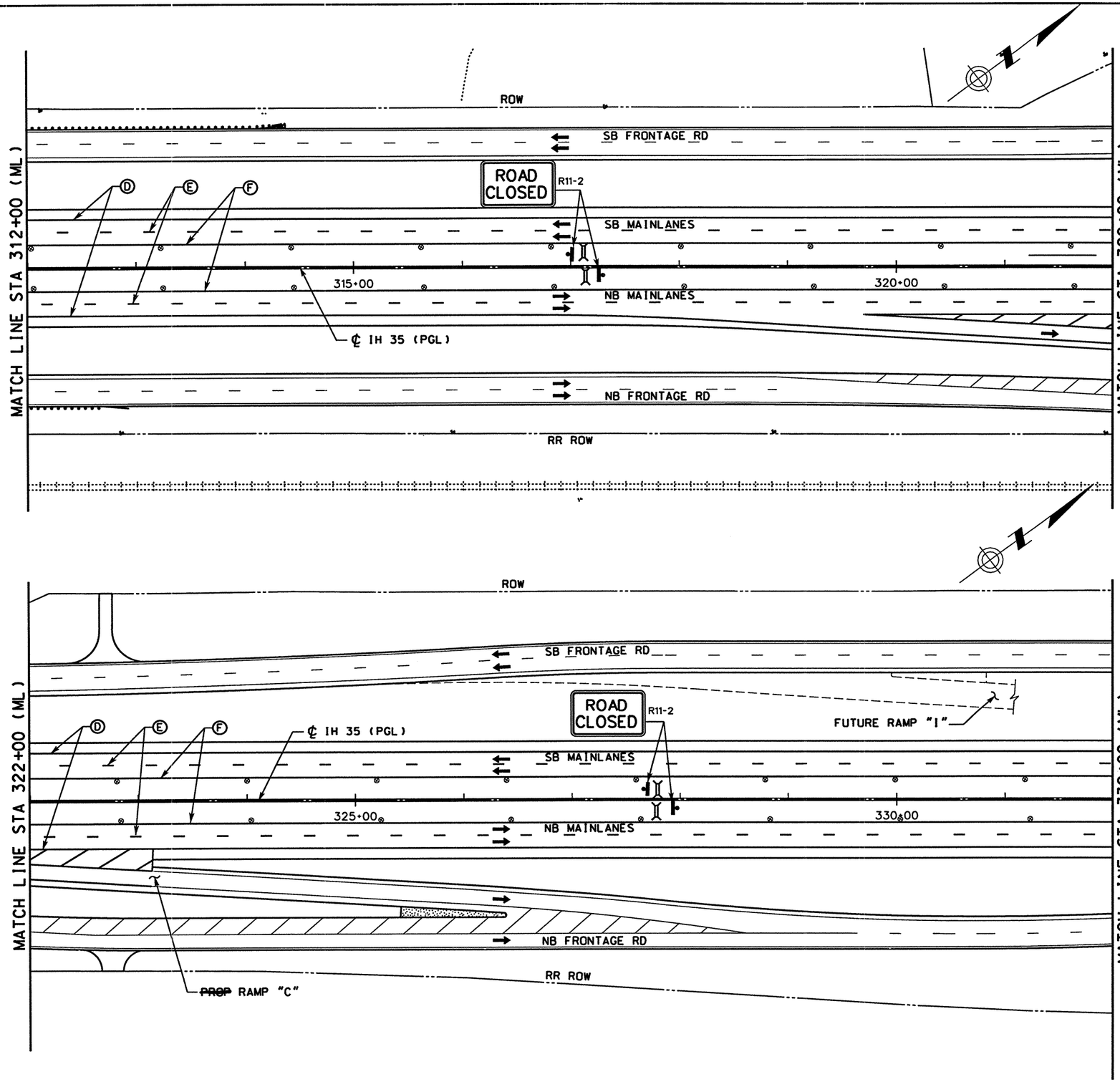

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
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PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 312+00 TO
STA 332+00

SHEET 9 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	206
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

04/18/03
B50P4509.dgn-03 HOUFILE023 \hdivil\cf0130\

REF FILE(S): j011op01.drn LV ON = 8.28
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j011op01.bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.dlg LV ON = 1-6.35-39
j011op01.bdr LV ON = 9-11.30.33.42.47.57.58.60-62
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j011op01.eop LV ON = 1-17.19-63
j011op01.bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.dlg LV ON = 1-6.35-39
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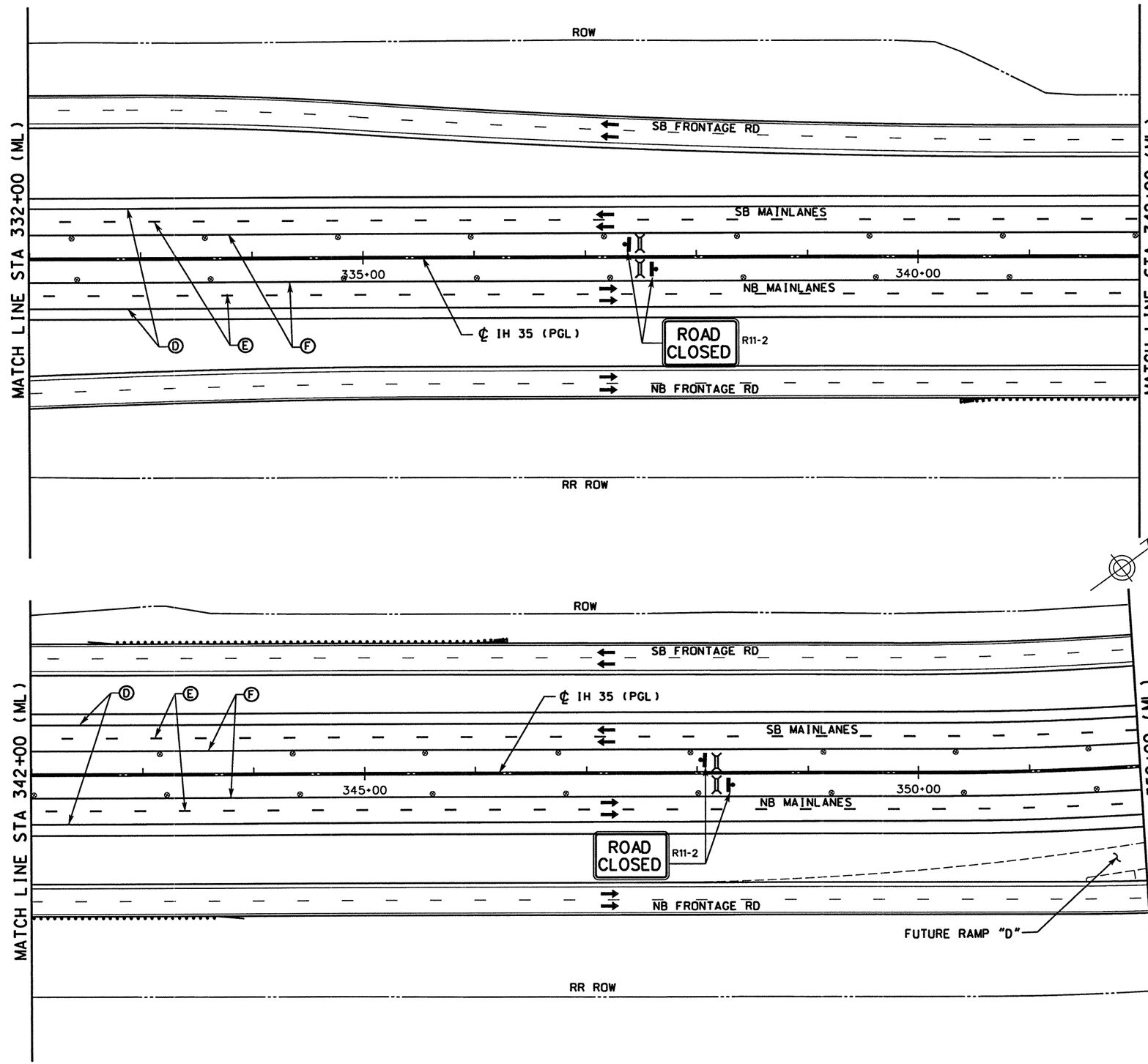

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- Ⓜ PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 332+00 TO
STA 352+00

SHEET 10 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		207
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03
\hcivil\cf0130\HOUFILE023
B50P4510.dgn-04

REF FILE(S): j011op01.drn, LV ON = 8.28
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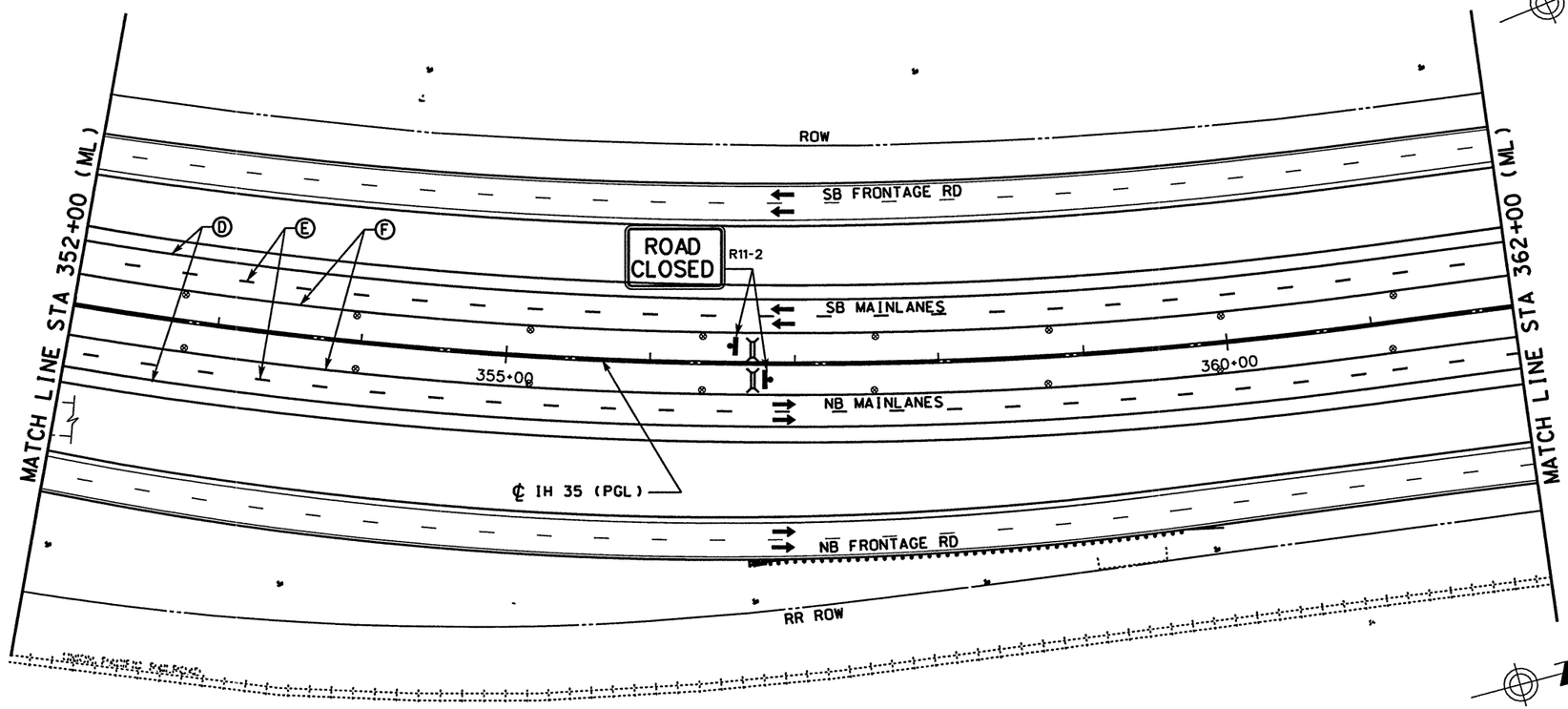

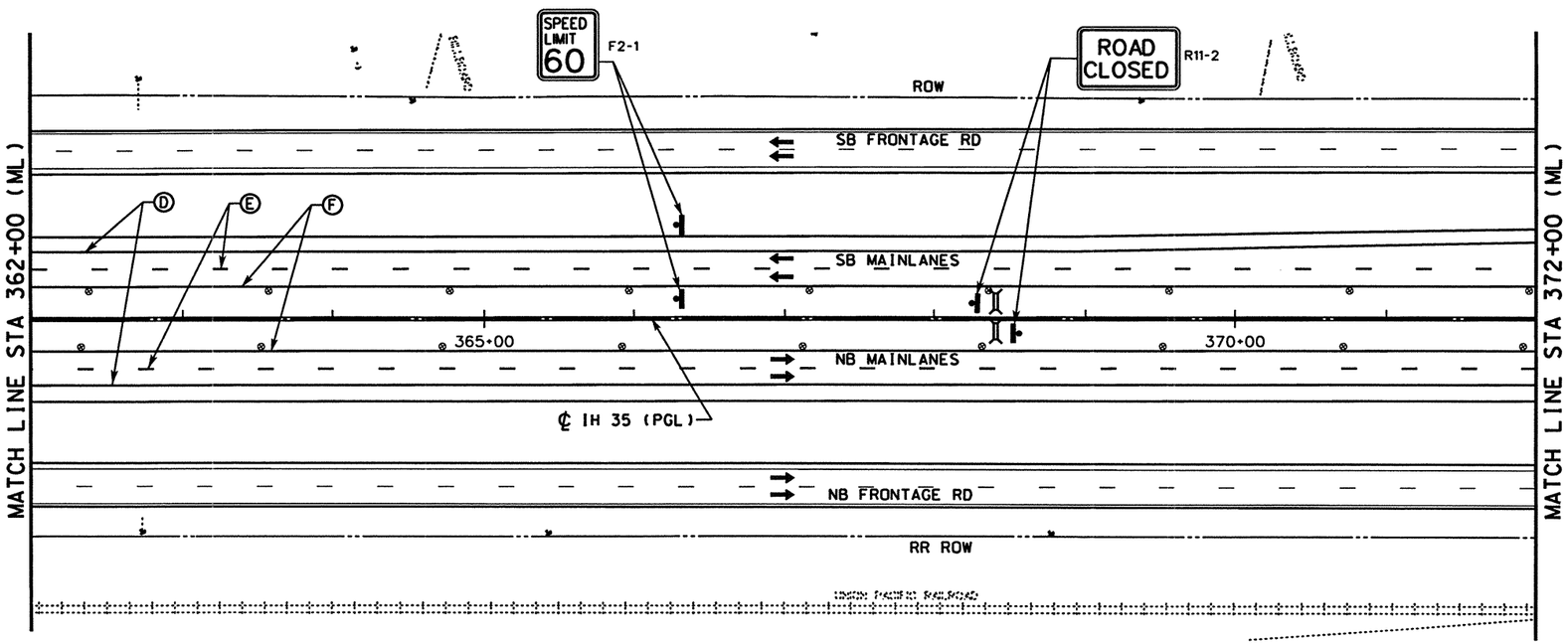

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 352+00 TO
STA 372+00

SHEET 11 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		208
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03
HOUFILE023 \hcivil\cf0130\
B50P451l.dgn-04

REF FILE(S): j011op01.drn. drn LV ON = 8.28
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j011op01.eop. eop LV ON = 1-17.19-63
j011op01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
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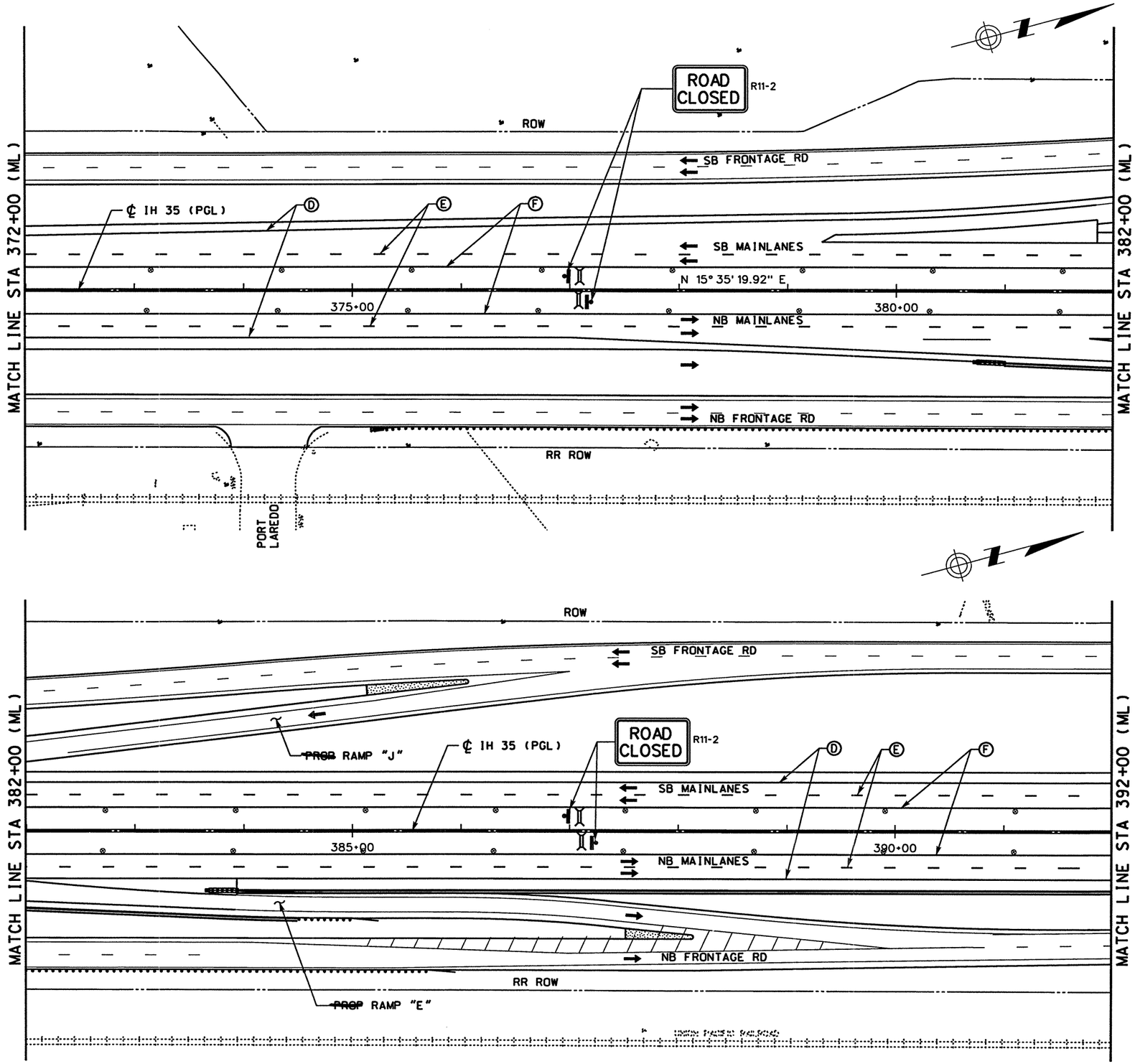
j011op01.bdr. bdr LV ON = 9-11.30.33.42.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 372+00 TO
STA 392+00

SHEET 12 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		209
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
HOUFILE023 \hchivil\cf0130\
B50P4512.dgn-03

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j0110p01.row. row LV ON = 1-23.25-63
j0110p01.uti. uti LV ON = 1-63
j0110p01.eop. eop LV ON = 1-17.19-63
j0110p01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
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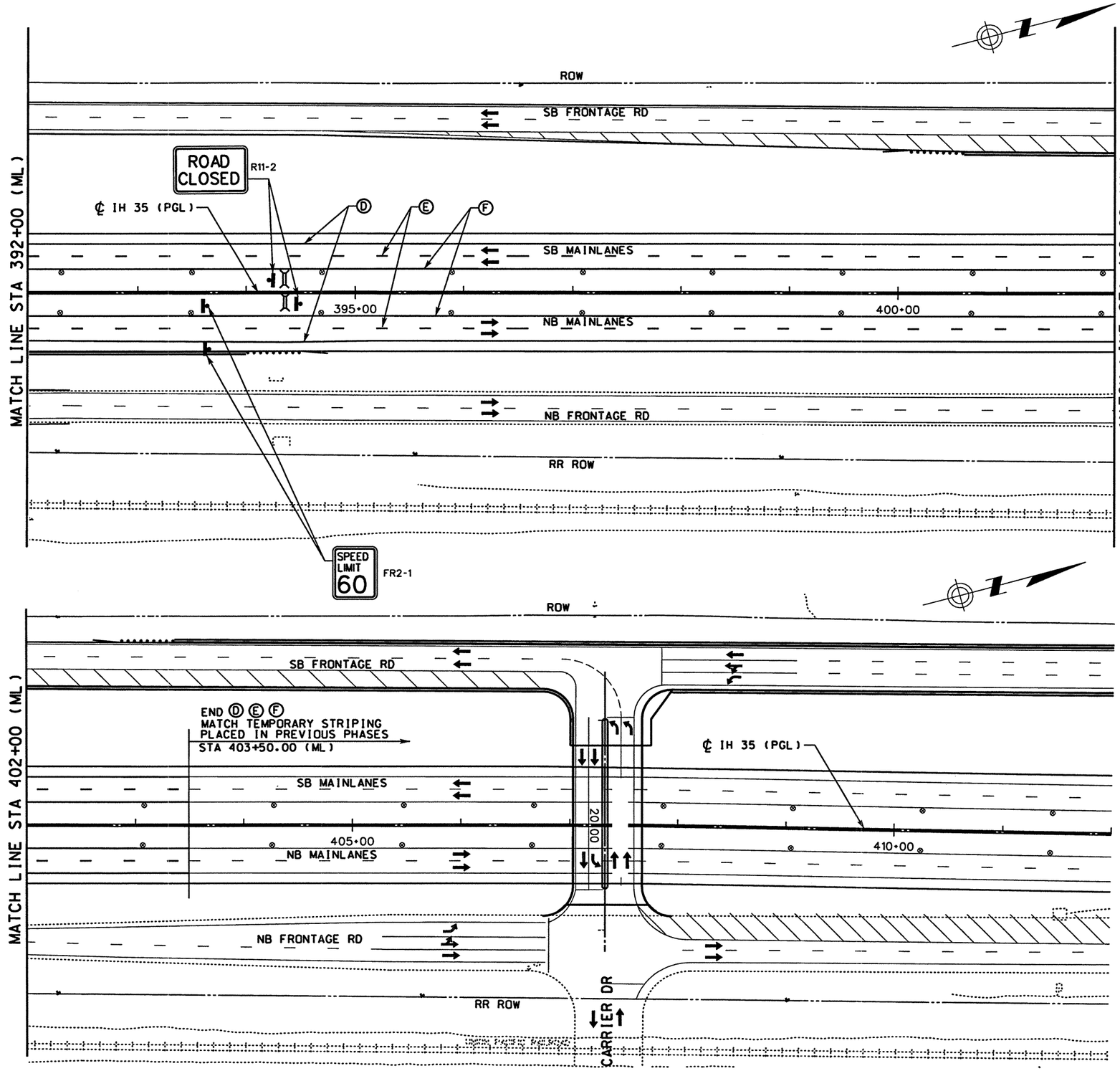

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 5
STA 392+00 TO
STA 412+00

SHEET 13 OF 13

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		210
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
HOUFILE023 \hclvilc\f0130\
B50P4513.dgn-03

REF FILE(S): j011op01.drn. drn LV ON = 8.28
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mi loint.row. row LV ON = 1-23.25-63

REF FILE(S): j011op01.uti. uti LV ON = 1-63
j011op01.eop. eop LV ON = 1-17.19-63
j011op01.bck. bck LV ON = 2-9.10.14.17.20.21.25.28
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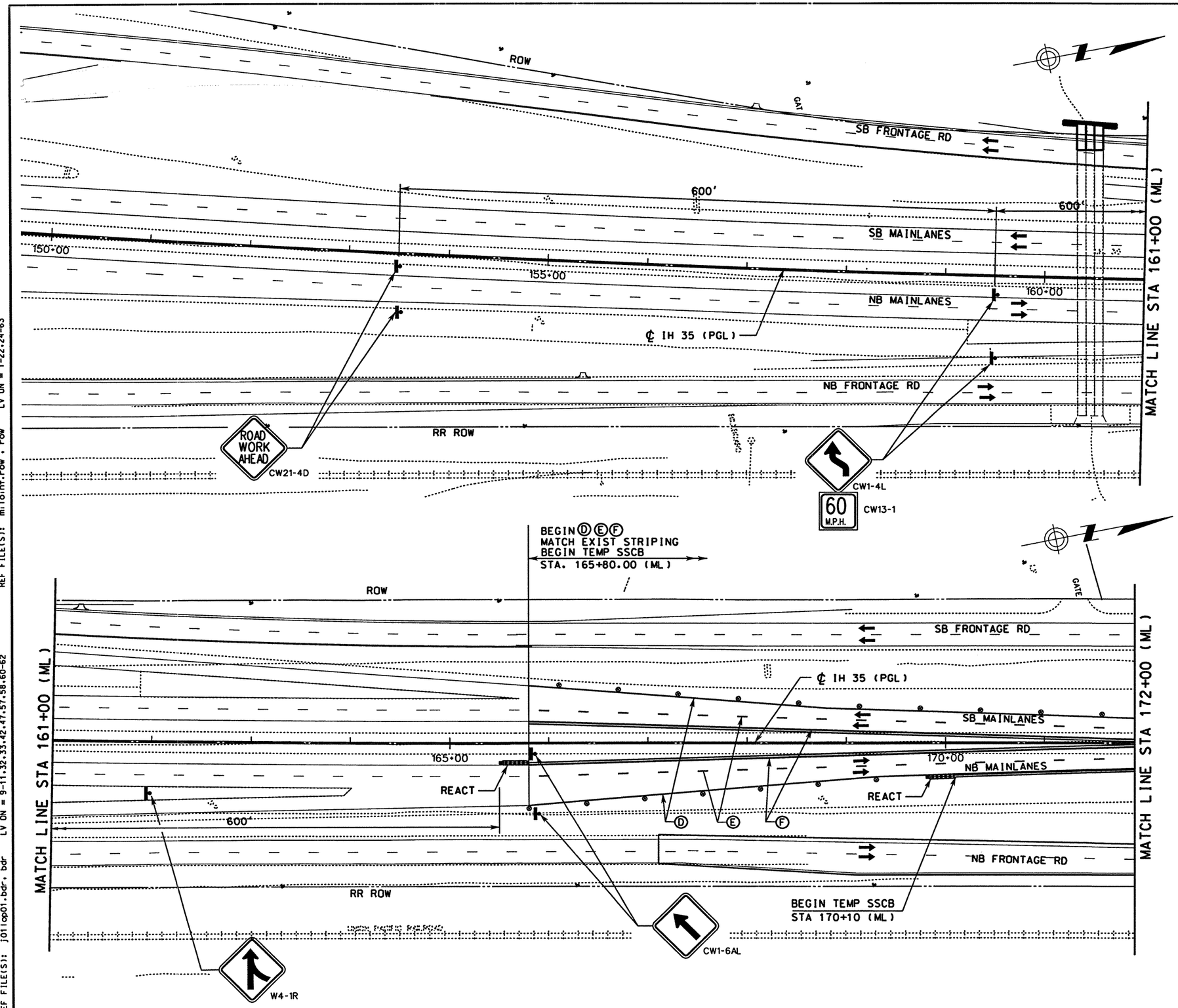
j011op01.bdr. bdr LV ON = 9-11.30.33.42.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 6
STA 150+00 TO
STA 172+00

SHEET 1 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		211
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03
\hcivil\cf0130\HOUFILE023 B50P4601.dgn-04

REF FILE(S): j011op01.drn LV ON = 8.28
j011op01.pro LV ON = 12-13.35
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j011op01.utl LV ON = 1-63
j011op01.eop LV ON = 1-17.19-63
j011op01.bck LV ON = 2-9.10.14.17.20.21.25.28
j011op01.dlg LV ON = 1-6.35-39
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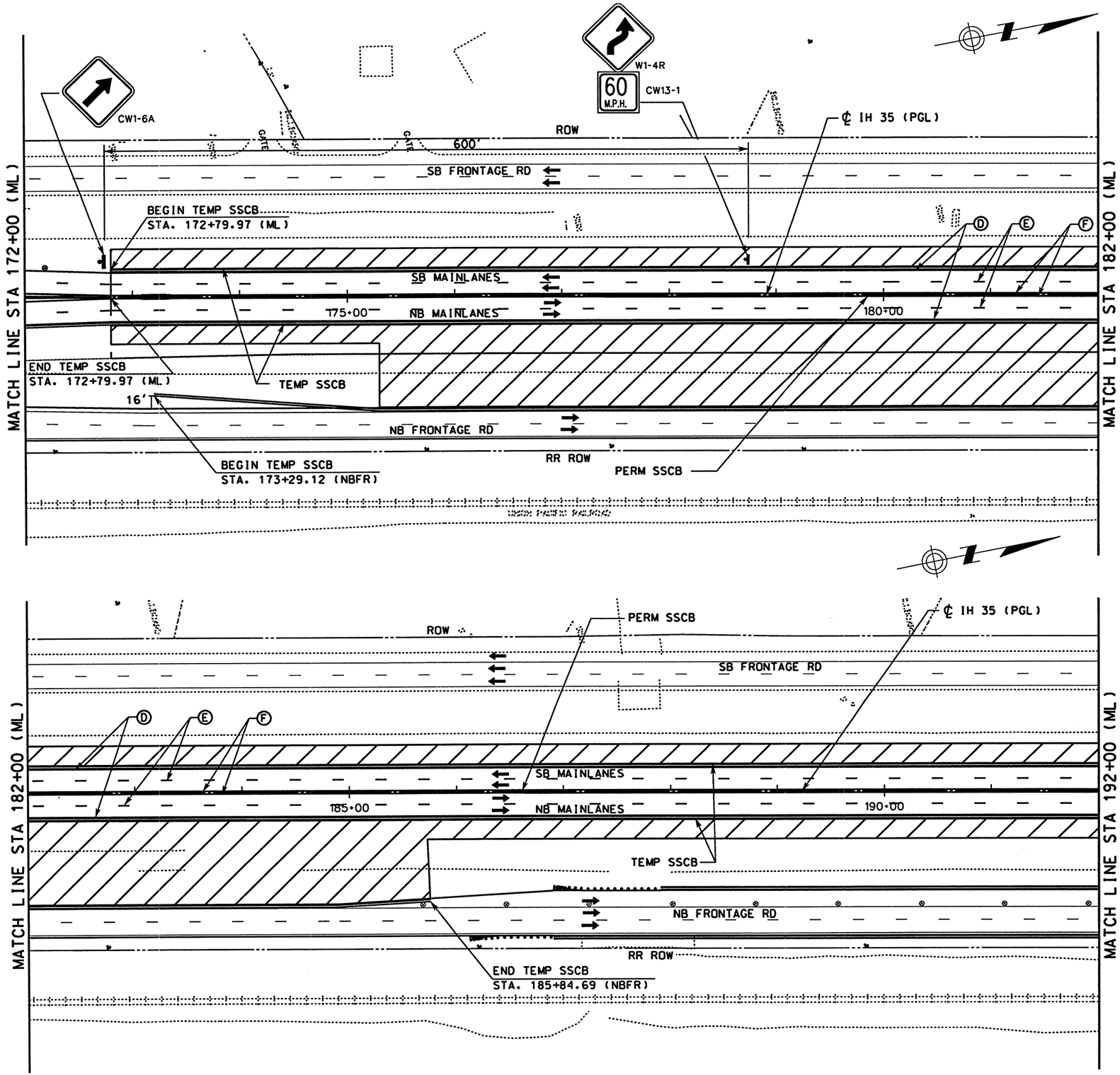

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 6
STA 172+00 TO
STA 192+00

SHEET 2 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	212
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

04/18/03

B50P4602.dgn-04 HOUFILE023 \hcivil\c\0130\

REF FILE(S): j011op01.drn, j011op01.pro, j011op01.row, milojnt.row

j011op01.drn LV ON = 8.28
j011op01.pro LV ON = 12-13.35
j011op01.row LV ON = 1-22.24-63

REF FILE(S): j011op01.utl, j011op01.eop, j011op01.bck, j011op01.alg, j011op01.bdr

j011op01.utl LV ON = 1-63
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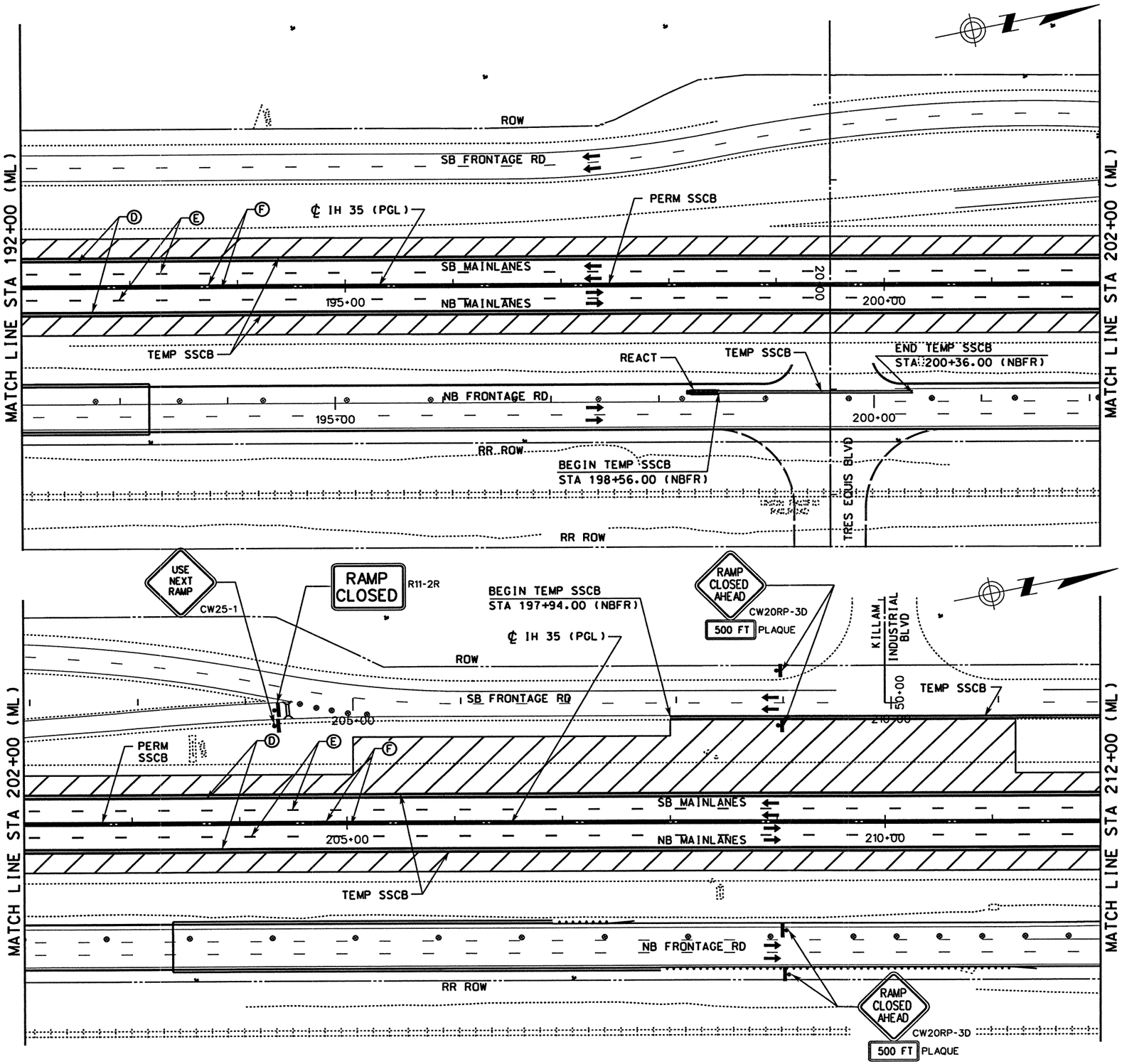
j011op01.bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.alg LV ON = 1-6.35-39
j011op01.bdr LV ON = 9-11.32.33.42.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100'

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 6
STA 192+00 TO
STA 212+00

SHEET 3 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		213
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P4603.dgn-04 HOUFILE023 \hcivil\cf0130\ 04/18/03

REF FILE(S): j01lop01.drn, LV ON = 8.28
j01lop01.pro, LV ON = 12.13.35
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REF FILE(S): j01lop01.uti, LV ON = 1-63
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j01lop01.bck, LV ON = 2.9.10.14.17.20.21.25.28
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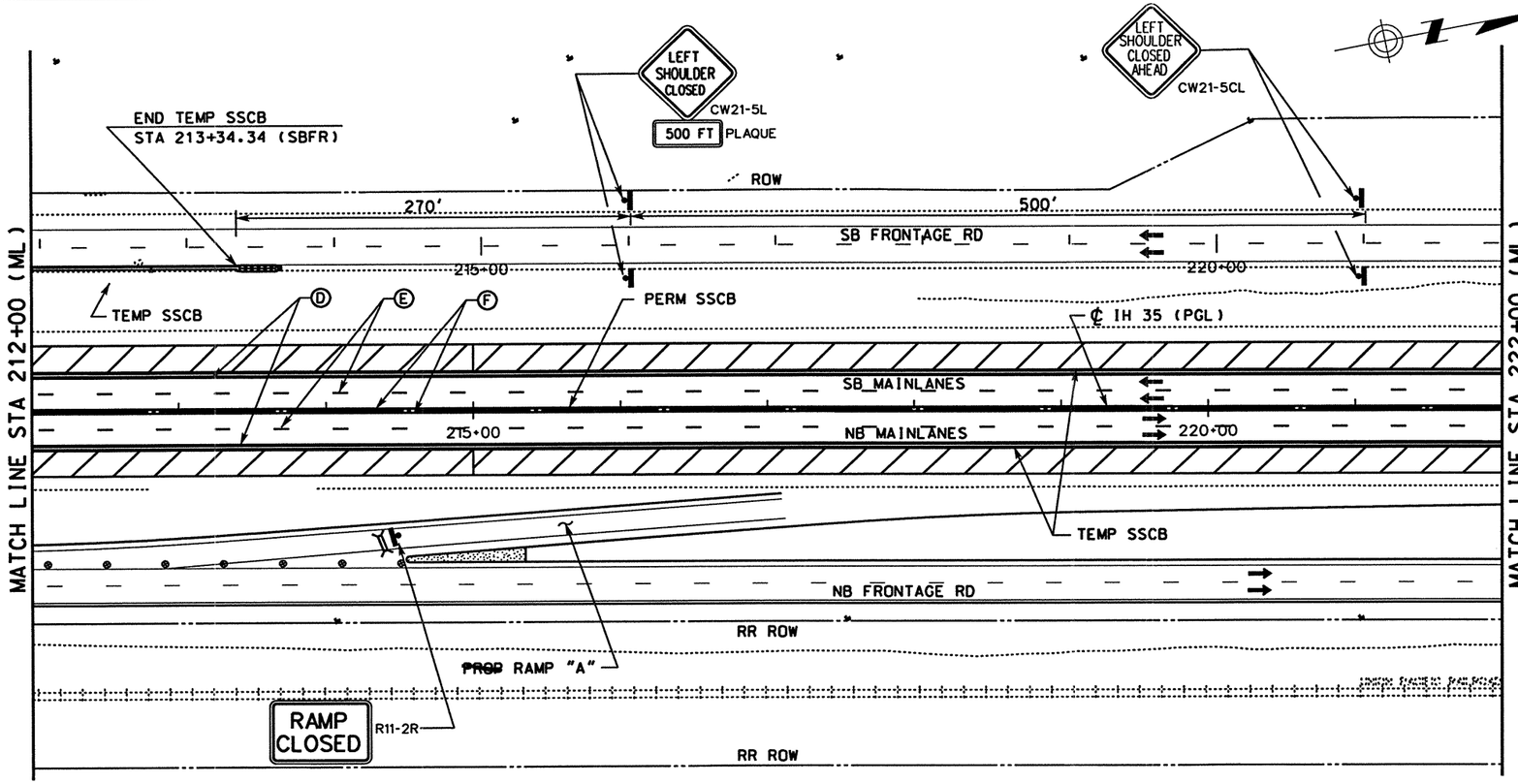

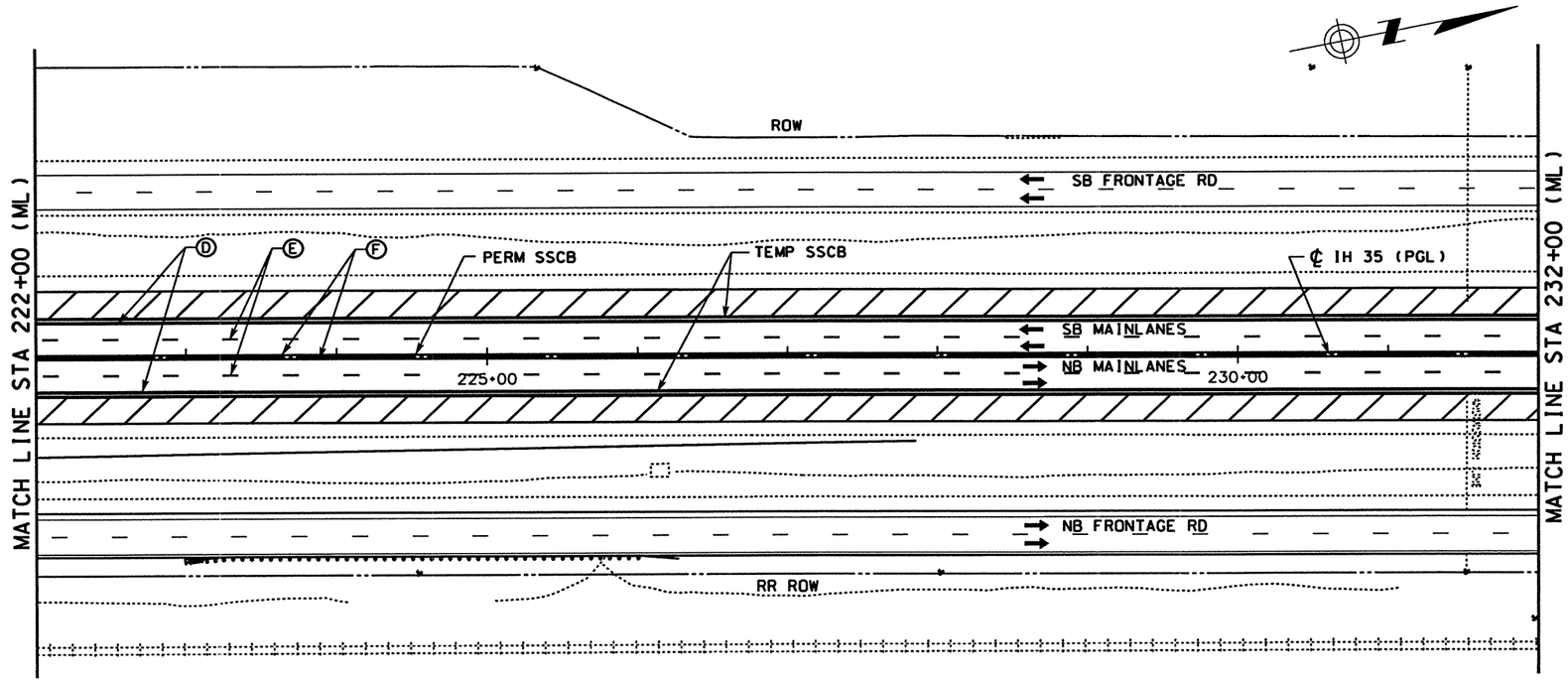

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 6
STA 212+00 TO
STA 232+00

SHEET 4 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		214
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P4604.dgn-04 HOUFILE023 \hcivil\c0130\

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LV DN = 12:13:35
LV DN = 1-23:25-63

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LV DN = 1-6:35-39
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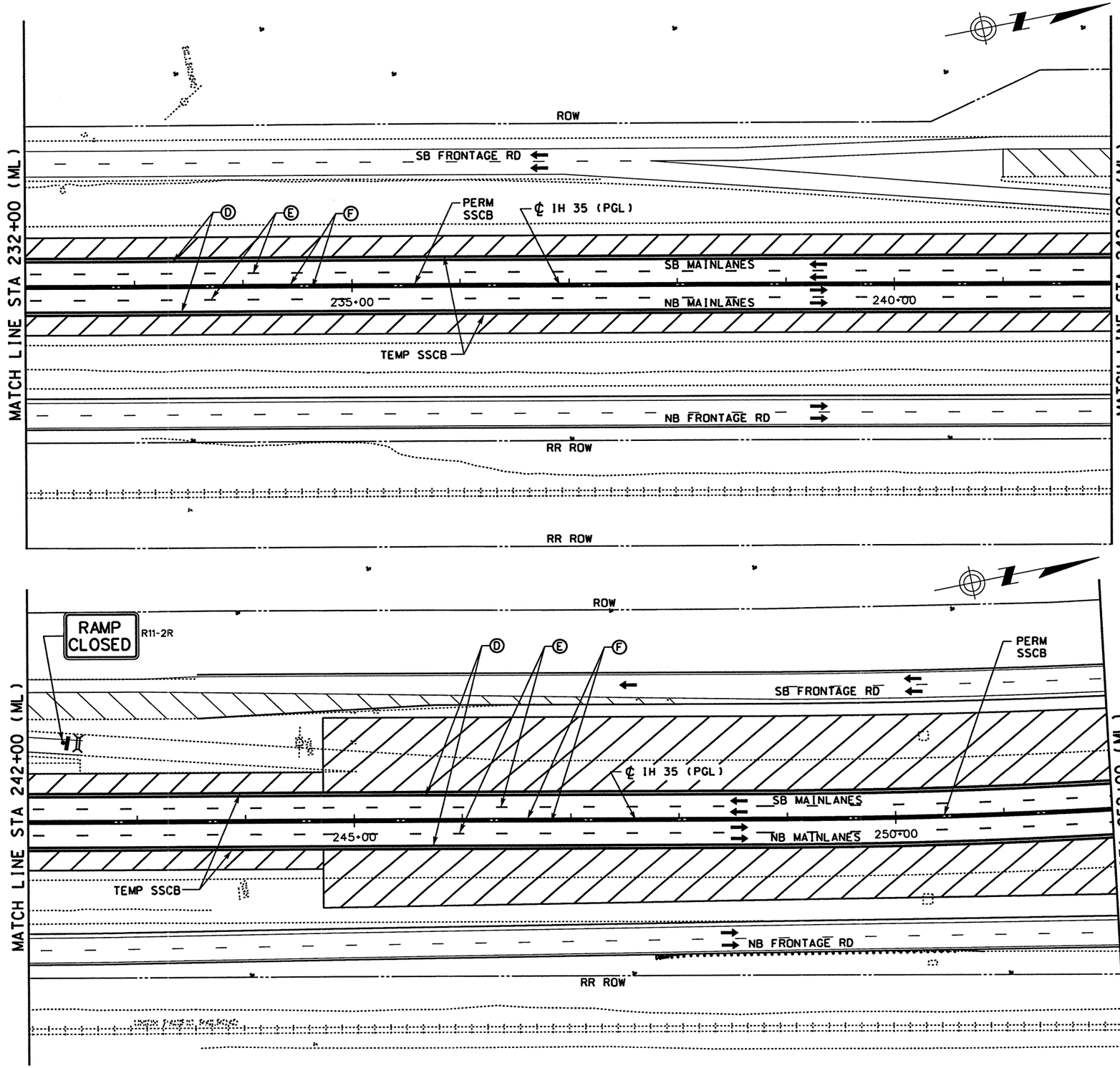

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 6
STA 232+00 TO
STA 252+00

SHEET 5 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		215
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03

B50P4605.dgn-04 HOUFILE023 \hciwilvc(0130)\

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milnt.row . row

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j011op01.eop. eop LV DN = 1-17.19-63
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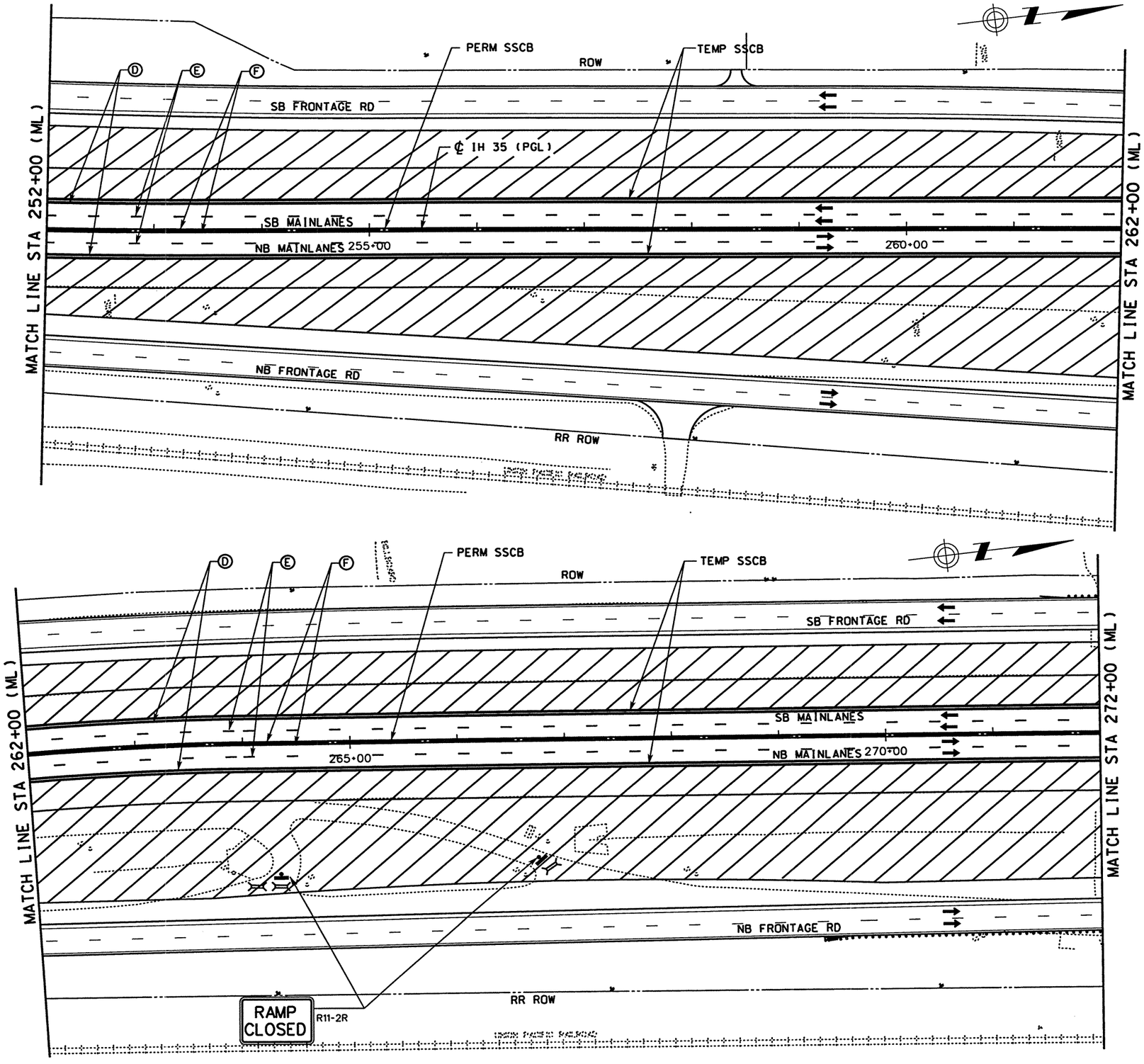

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 6
STA 252+00 TO
STA 272+00

SHEET 6 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		216
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

B50P4606.dgn-03 HOUFILE023 \hciwi\cf0130\ 04/18/03

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REF FILE(S): j01lop01.bdr, LV ON = 9-11.30.42.57.58.60-62
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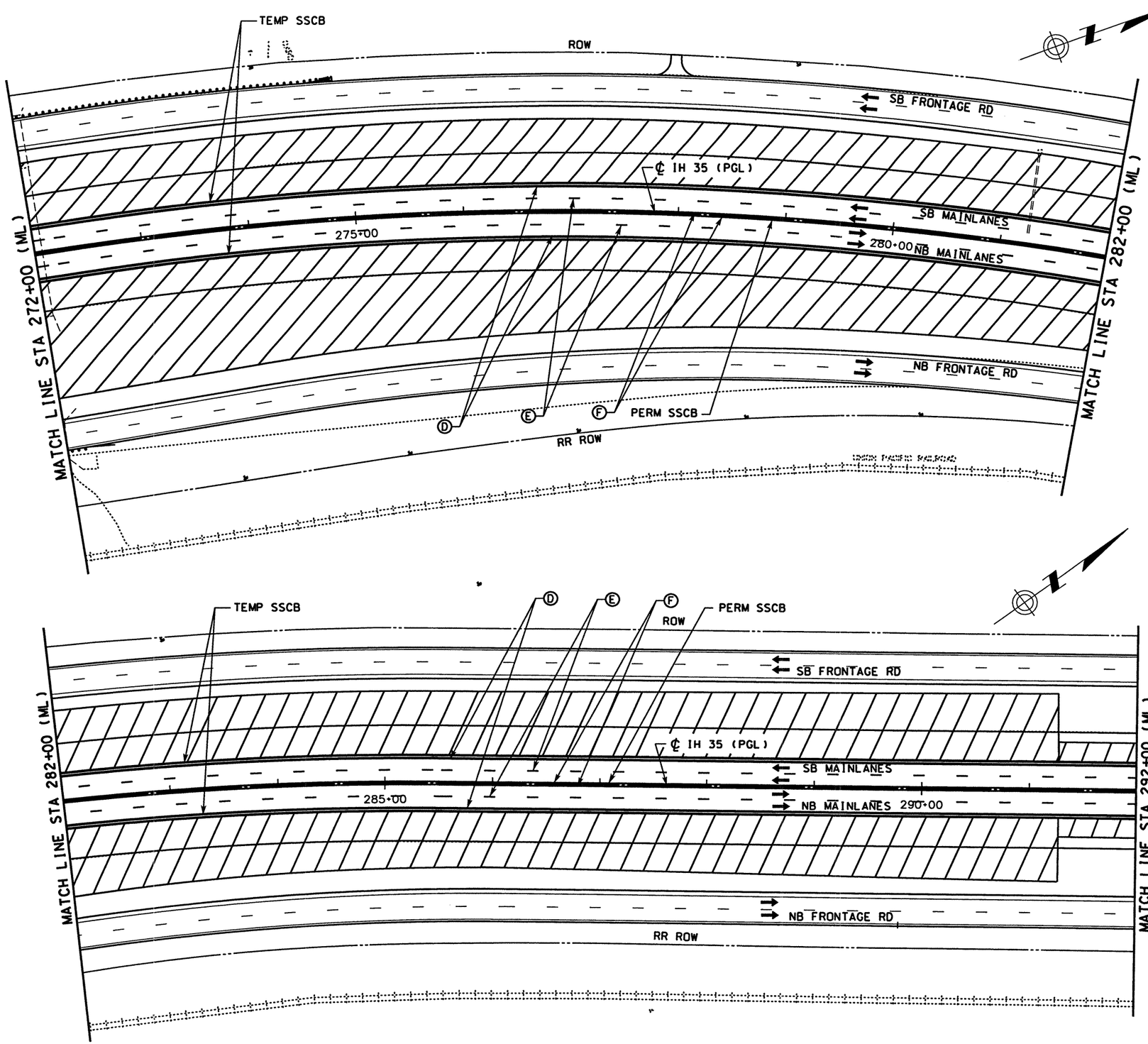

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

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MICHAEL A. SEXTON
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 6
STA 272+00 TO
STA 292+00

SHEET 7 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		217
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

04/18/03

B50P4607.dgn-03 HOUFILE023 \hcivil\cf0130\

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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j011op01.utl, utl LV ON = 2.9.10.14.17.20.21.25.28
j011op01.eop, eop LV ON = 1-6.35-39
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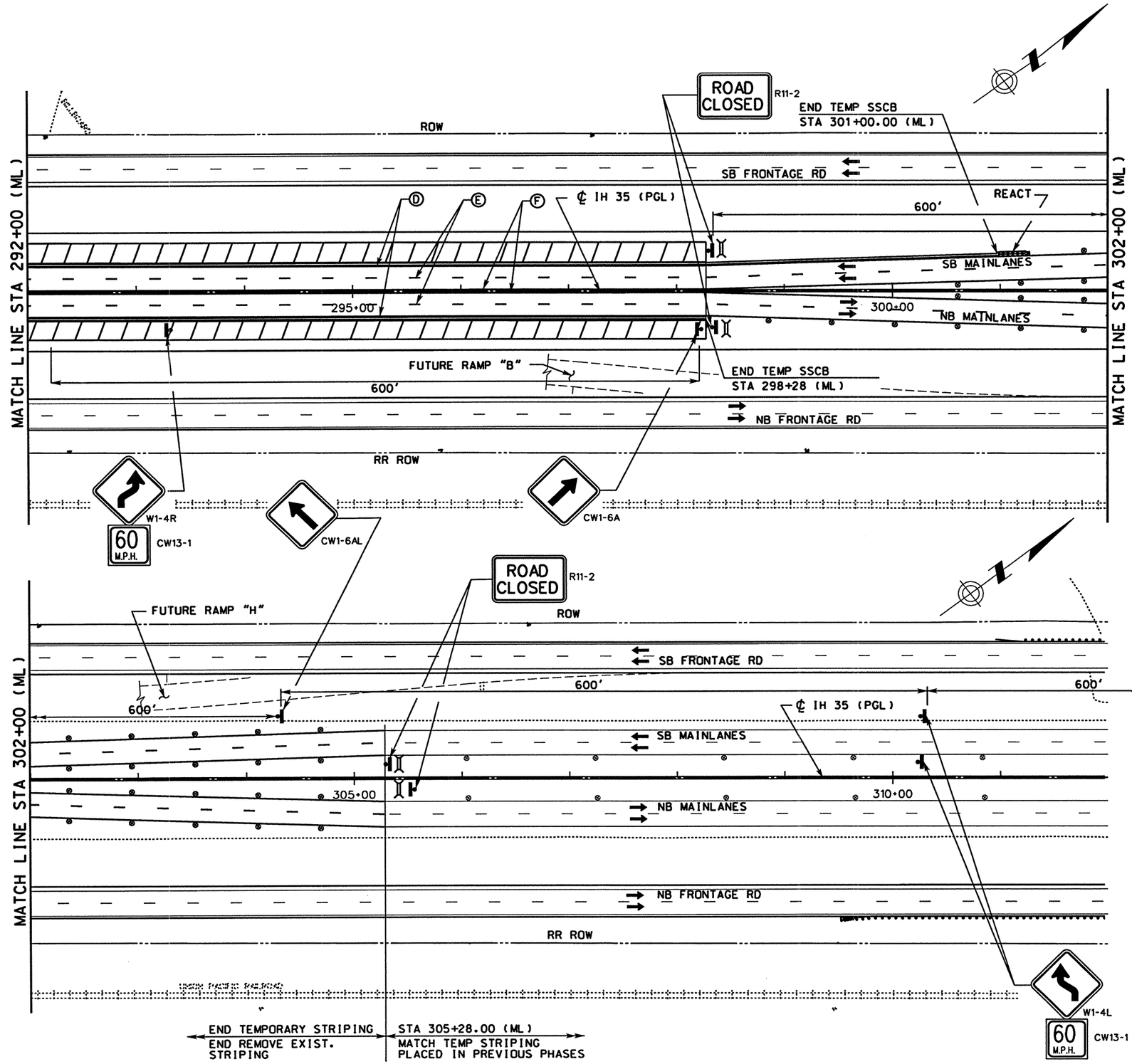

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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MICHAEL A. SEXTON
87896
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PHASE IV, STEP 6
STA 292+00 TO
STA 312+00
SHEET 8 OF 8

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		218
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

04/18/03
\hciwilvc\0130\ HOUFILE023
B50P4608.dgn-05

REF FILE(S): j01lop01.drn. drn LV ON = 8.28
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j01lop01.row . row LV ON = 1-23-25-63

REF FILE(S): j01lop01.utl. utl LV ON = 1-63
j01lop01.eop. eop LV ON = 1-17.19-63
j01lop01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
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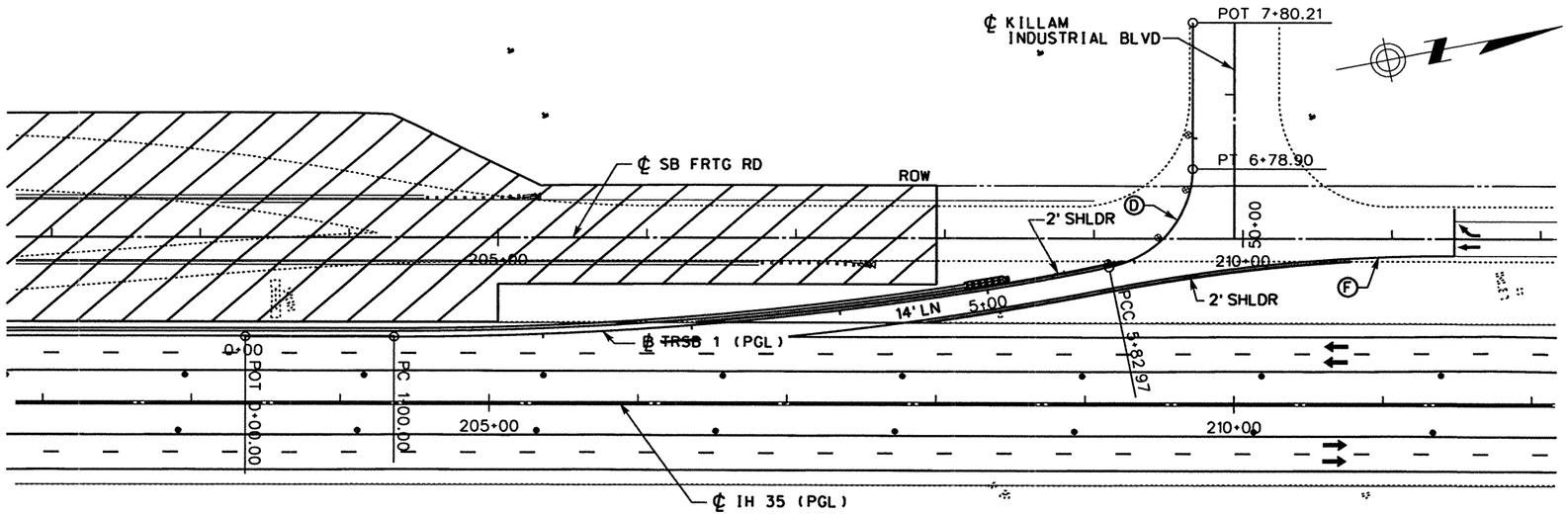
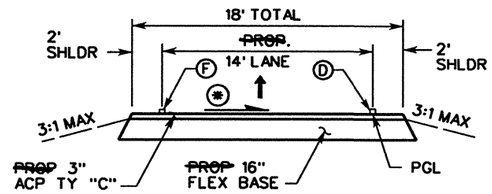
j01lop01.bar. bar LV ON = 9-11.30.33.42.47.57.58.60-62





~~TEMPORARY RAMP~~
TYPICAL SECTION
(*) VARIES 2% USUAL

WORK ZONE PAVEMENT MARKINGS

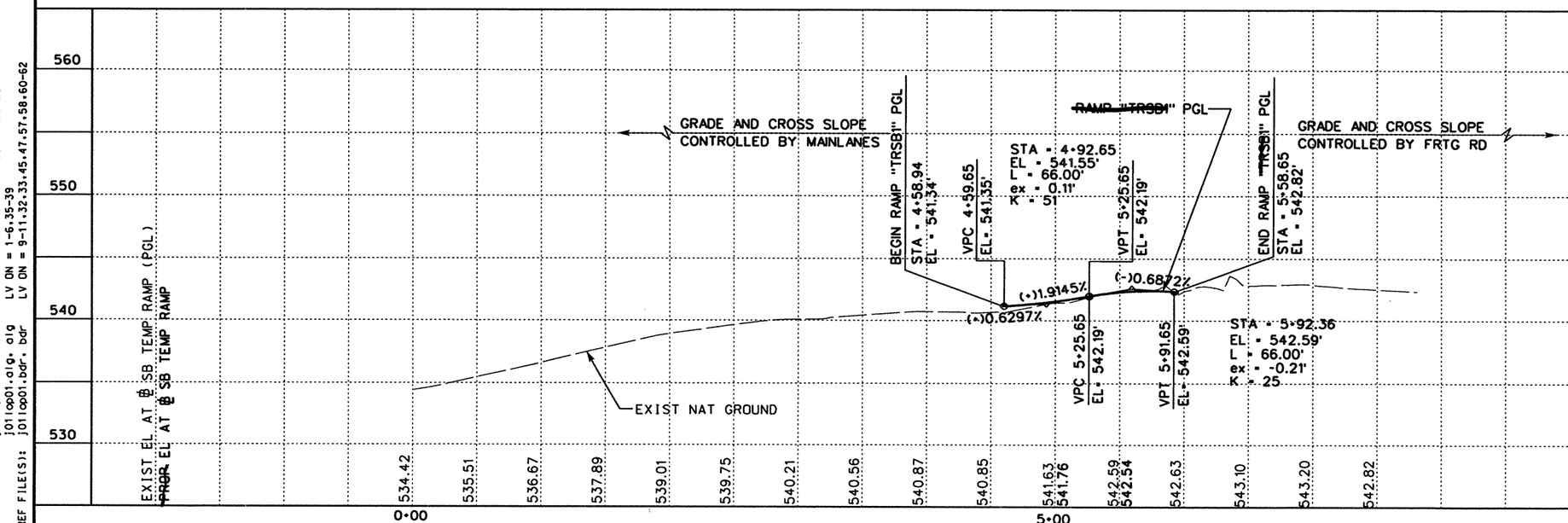
- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTES

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.
2. SEE PHASE IV STEP 6 FOR ADDITIONAL DETAIL ON SIGNING.
3. FOR ALIGNMENT INFORMATION SEE "TCP TEMPORARY GEOMETRIC DATA SUMMARY" SHEET.



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY RAMP~~
DETAILS
TRSB 1
(PHASE IV STEP 6)

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	219
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

REF FILE(S): J011op01.pro. pro LV ON = 1-63
J011op01.utl. utl LV ON = 1-17.19-63
J011op01.eap. eap LV ON = 2.9.10.14.17.20.21.25.28
J011op01.bck. bck LV ON = 1-6.35-39
J011op01.alg. alg LV ON = 9-11.32.33.45.47.57.58.60-62
J011op01.bdr. bdr
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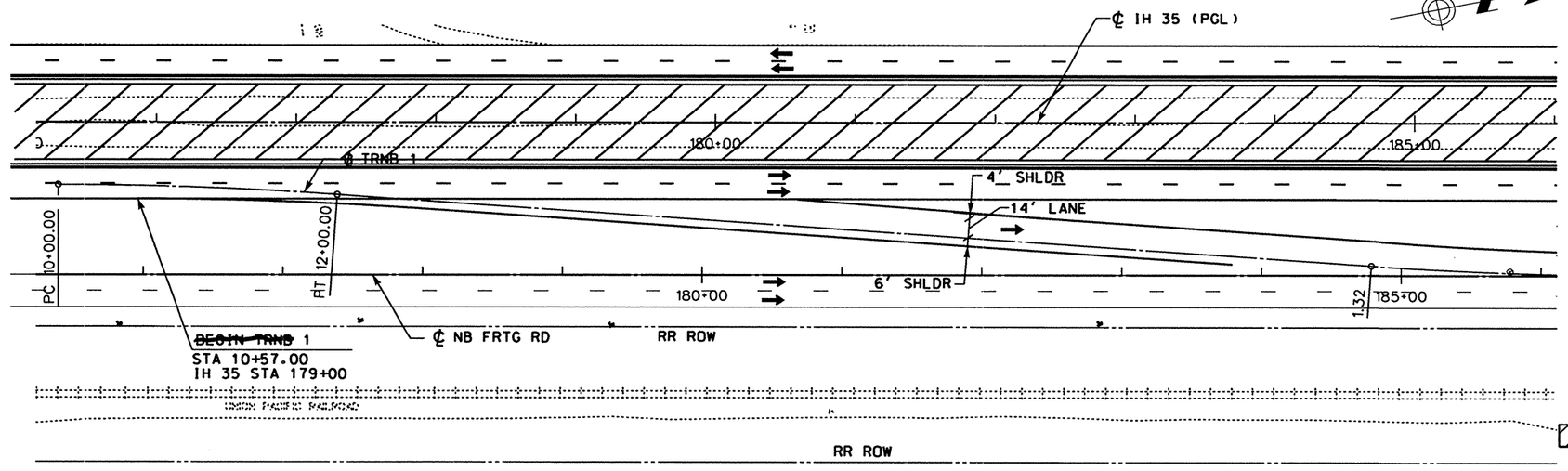
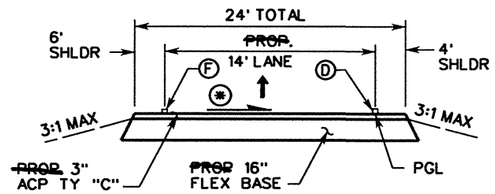
4/18/2003
HOUFILE023 \hcivil\cf0130\
B50TRP1.dgn-05





~~TEMPORARY RAMP~~
TYPICAL SECTION
(*) VARIES 2% USUAL

WORK ZONE PAVEMENT MARKINGS

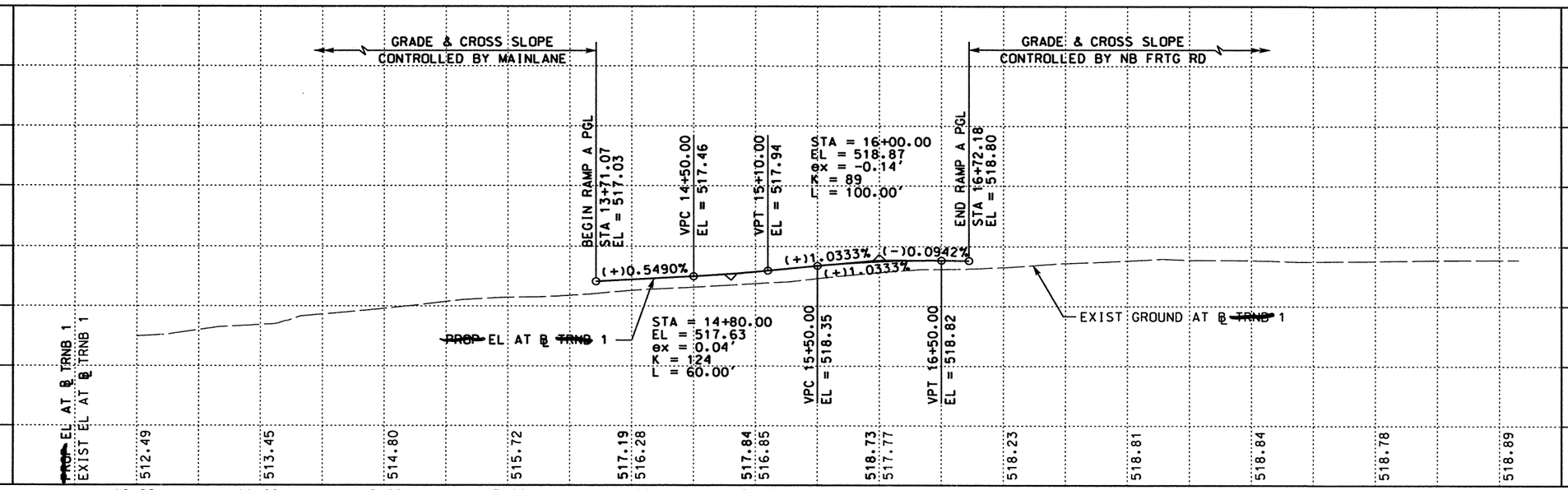
- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- H — TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- M — PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTES

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.
2. SEE PHASE IV STEP 6 FOR ADDITIONAL DETAIL SIGNING.
3. FOR ALIGNMENT INFORMATION SEE "TCP TEMPORARY GEOMETRIC DATA SUMMARY" SHEET.



0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS — MICHAEL A SEXTON — 87896 — LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY RAMP~~
DETAILS
TRNB 1
(PHASE IV STEP 6)

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	220
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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milo1p01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
milo1p01.alg, alg LV ON = 1-10,35-39,50-52
milo1p01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
B50TRP2.DGN-03 HOUFLE023 \hcivil\cf0130\ 4/18/2003

REMOVE EXIST STRIPING
STA 132+23.00 (SBFR)

51'

BEGIN TEMP STRIPING
STA 132+74.00 (SBFR)

END Ⓑ
STA 135+75.00 (SBFR)

Ⓐ Ⓑ Ⓒ

STOP BAR

SB FRONTAGE RD

+00

135+00

140+00

W3-1

ROAD ENDS

ROAD CLOSED R11-2

END Ⓐ
STA 137+25.00 (SBFR)

℄ IH 35 (PGL)

SB MAINLANES

+00

135+00

140+00

NB MAINLANES

440+00

440+00

ROAD CLOSED R11-2

NB FRONTAGE RD

W6-3

MATCH LINE STA.141+00 (SBFR)

Ⓒ

END Ⓒ
STA 150+62.00 (SBFR)

SB FRONTAGE RD

145+00

150+00

℄ IH 35 (PGL)

SB MAINLANES

145+00

150+00

NB MAINLANES

MATCH LINE STA. 141+00 (SBFR)

MATCH LINE STA. 152+00 (SBFR)

NB FRONTAGE RD

RR ROW

WORK ZONE PAVEMENT MARKINGS

Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE IV STEP 7
STA 130+00 TO
STA 152+00

SHEET 1 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	221
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/4/2003
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B50P4701.dgn-05

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j011op01.bdr, bdr LV ON = 9-11,32,33,42,47,57,58,60-62
j011op01.uti, uti LV ON = 1-63
j011op01.eop, eop LV ON = 1-17,19-63
j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-6,35-39
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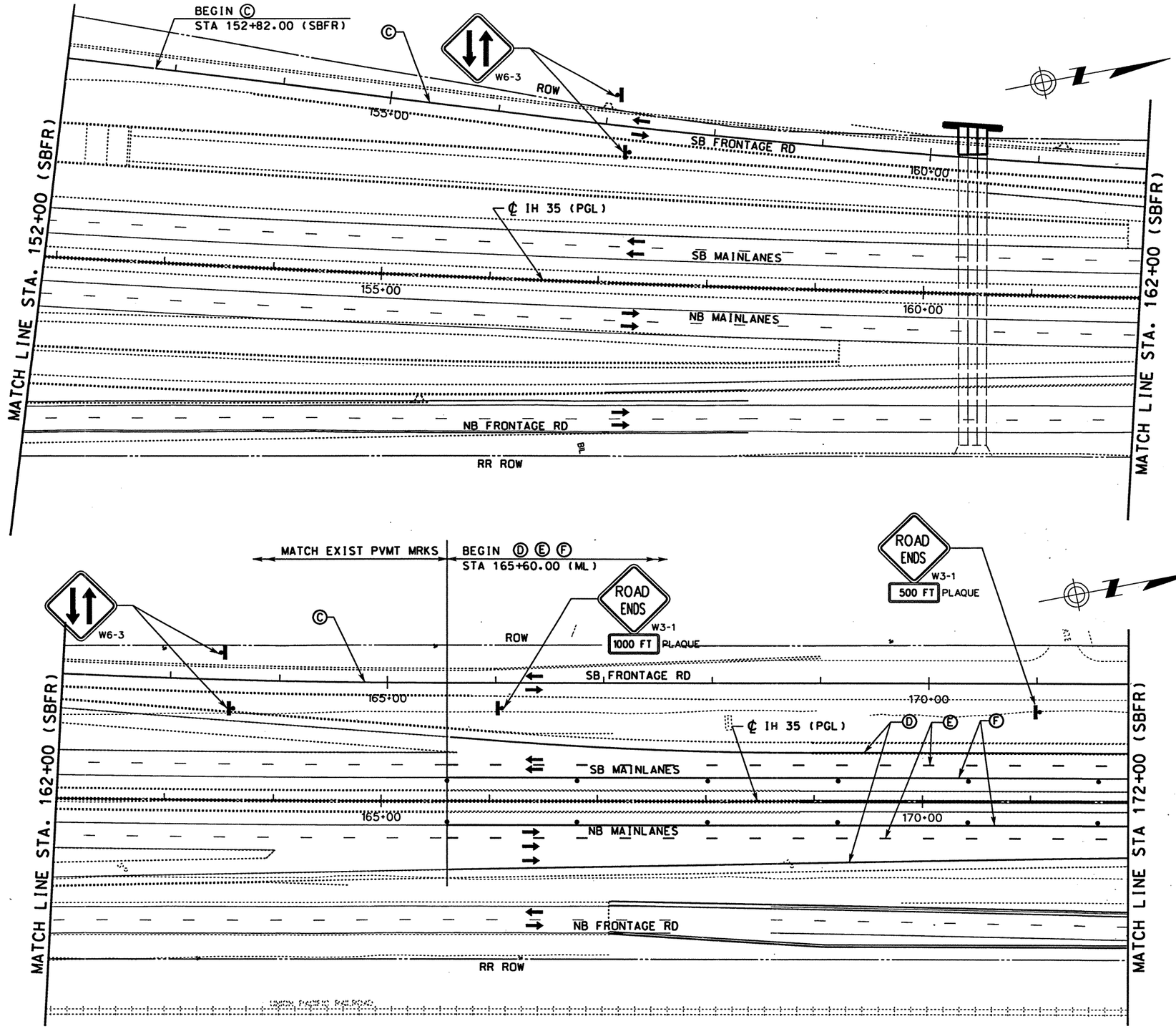

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE RD
PHASE IV, STEP 7
STA 152+00 TO
STA 172+00
SHEET 2 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	122
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

04/18/03
P50P4702.dgn-05 HOUFILE023 \hciviivc\0130\

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j0110p01.eop. eop LV ON = 1-17.19-63
j0110p01.uti. uti LV ON = 1-63

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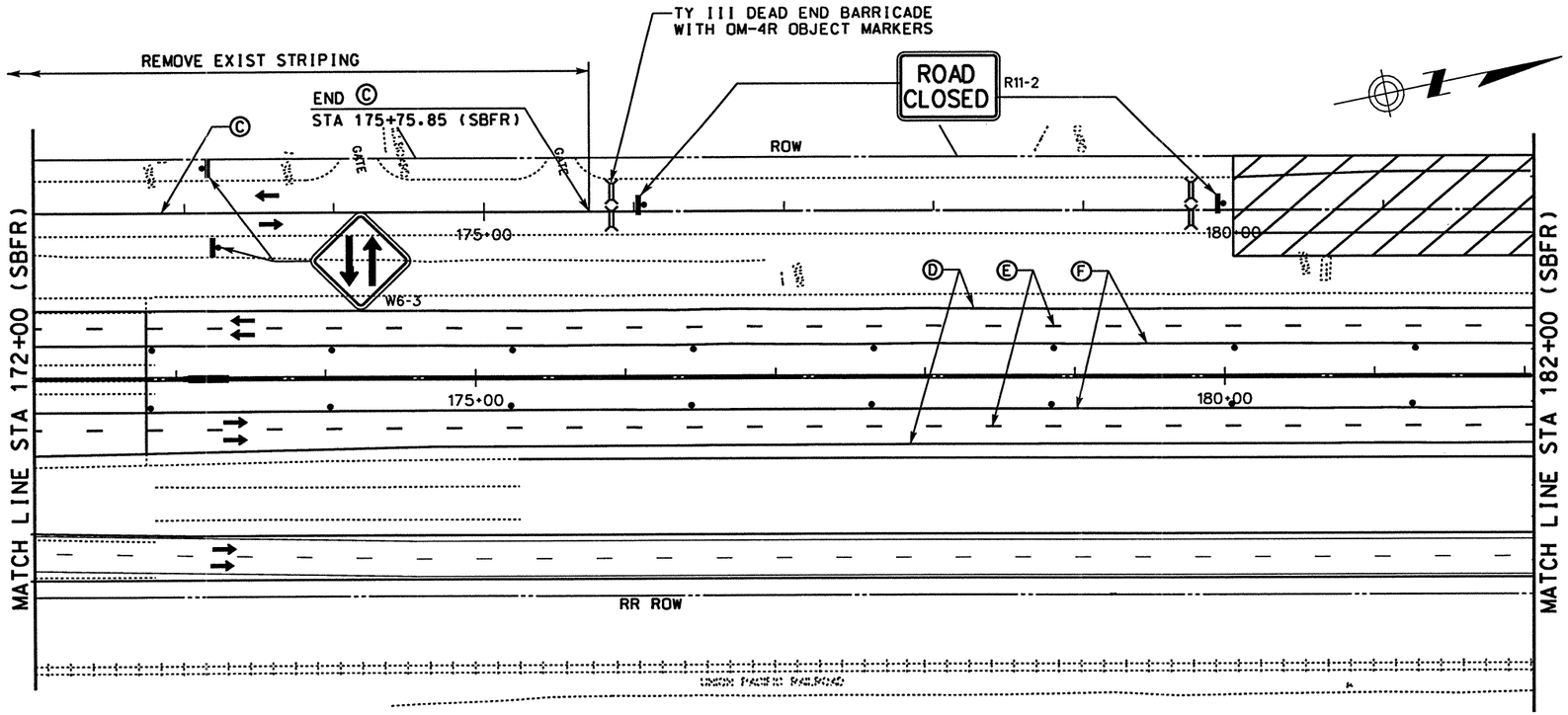

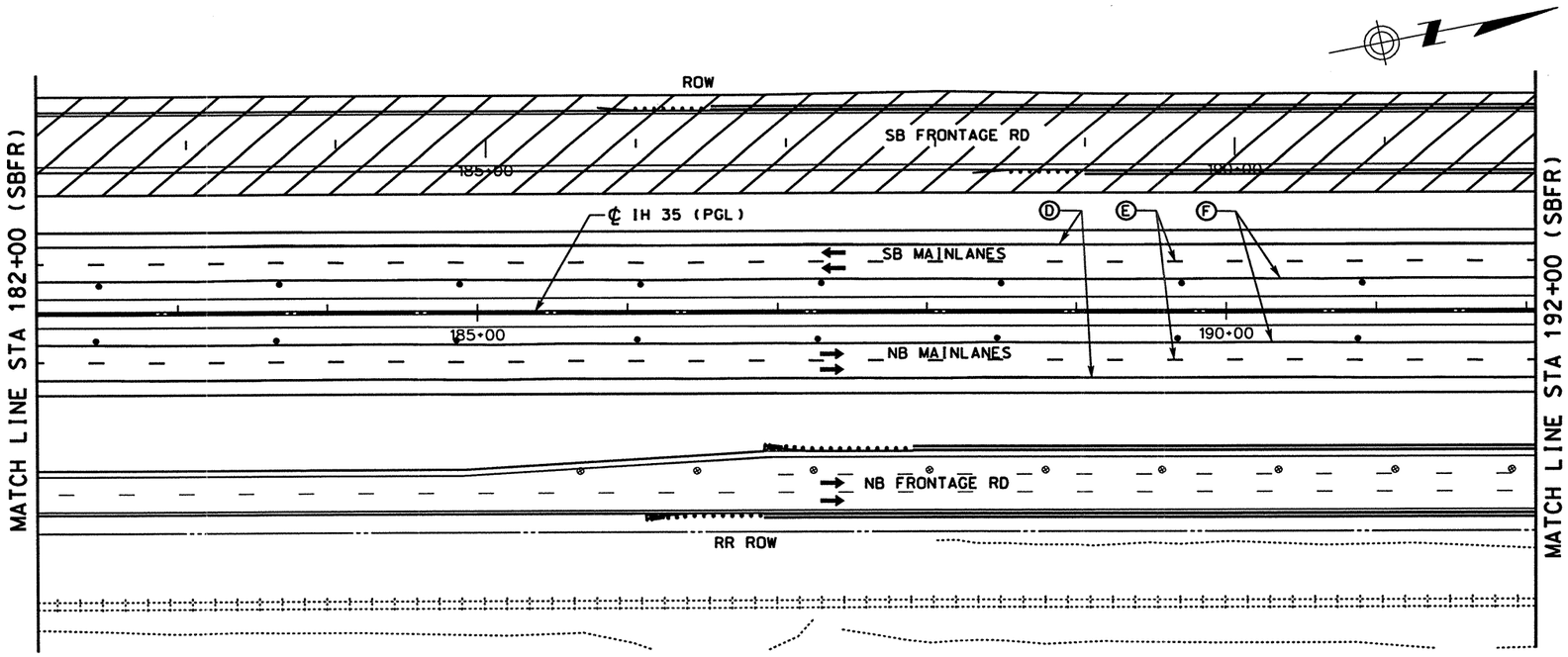

WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE IV STEP 7
STA 172+00 TO
STA 192+00

SHEET 3 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		223
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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j011op01.eop. eop LV ON = 1-17.19-63
j011op01.uti. uti LV ON = 1-63
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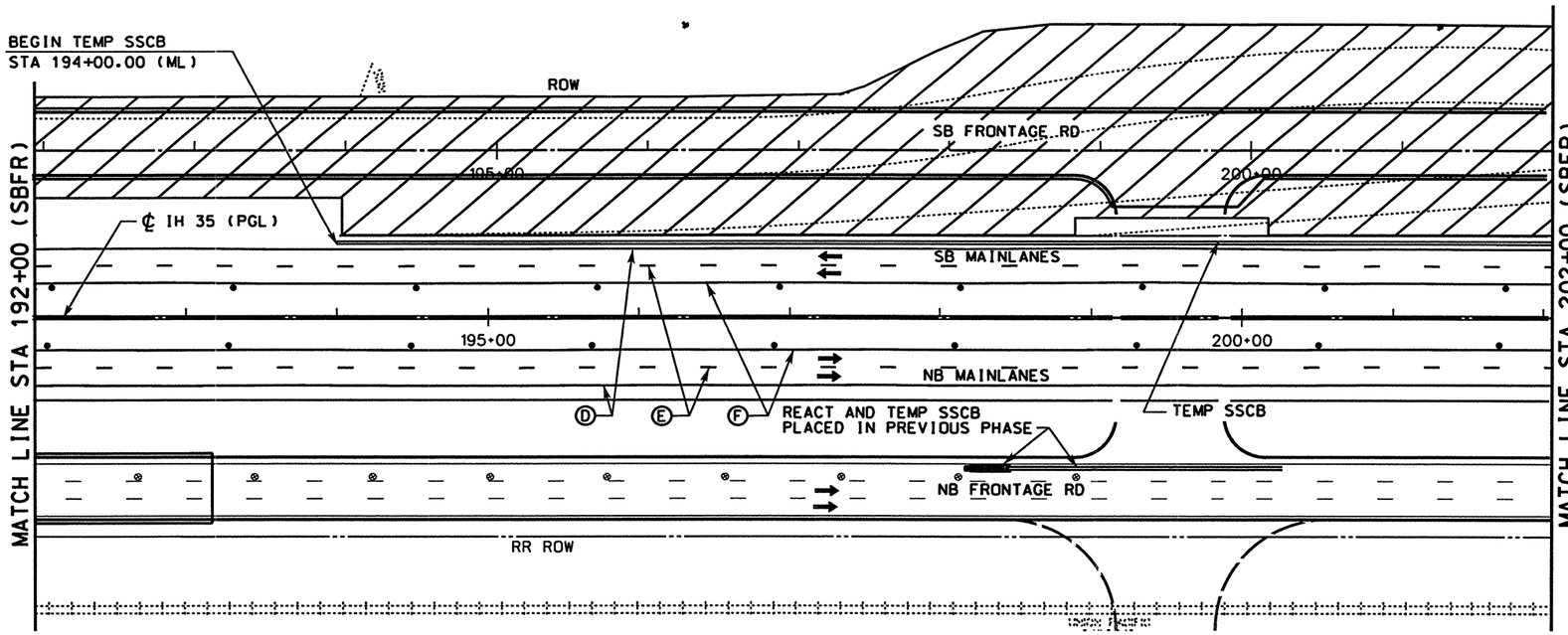
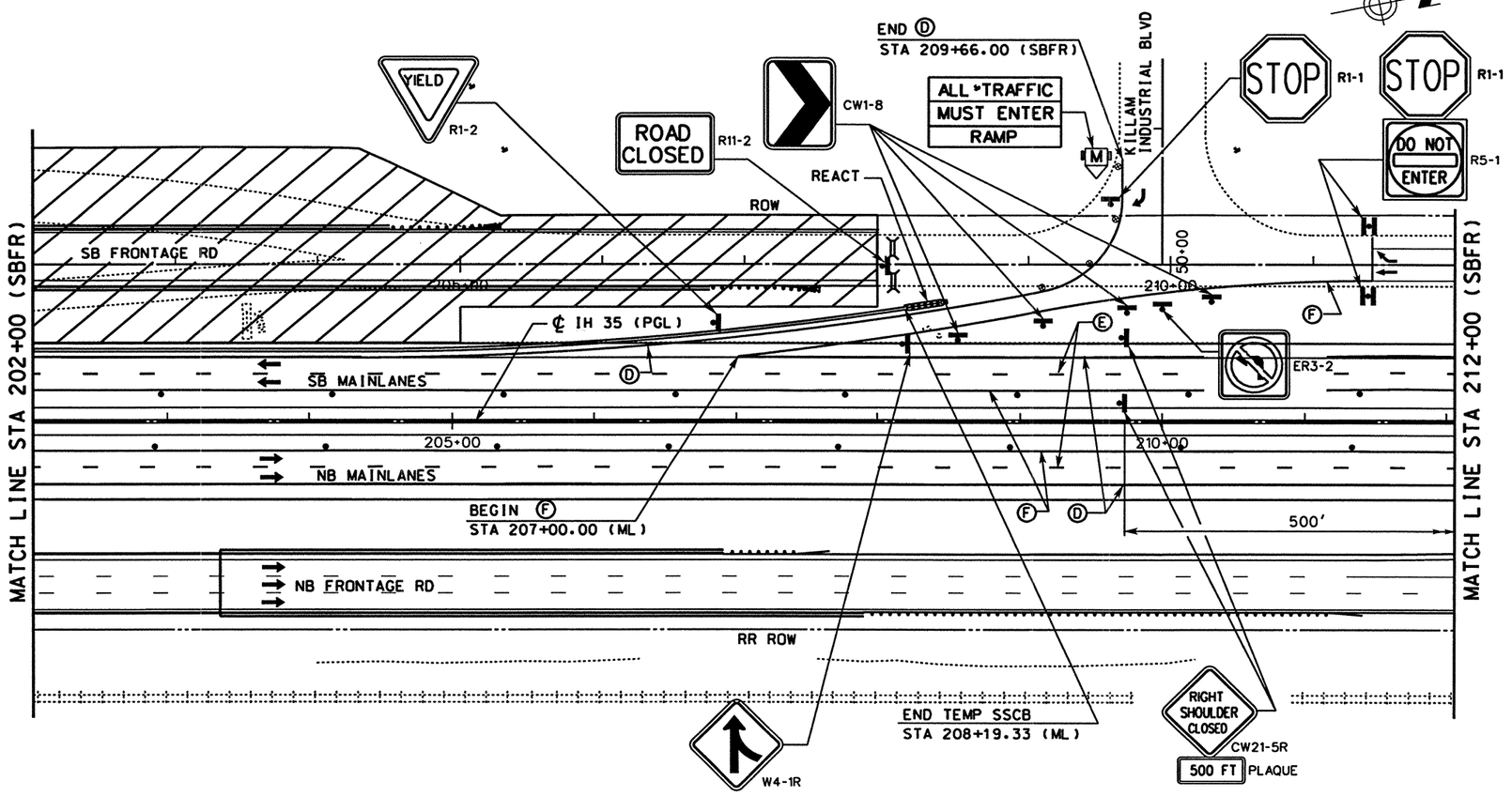
B50P4703.dgn-06 HOUFILE023 \hciwilc\0130\ 04/18/03





WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE IV STEP 7
STA 192+00 TO
STA 212+00
SHEET 4 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	224
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

04/18/03
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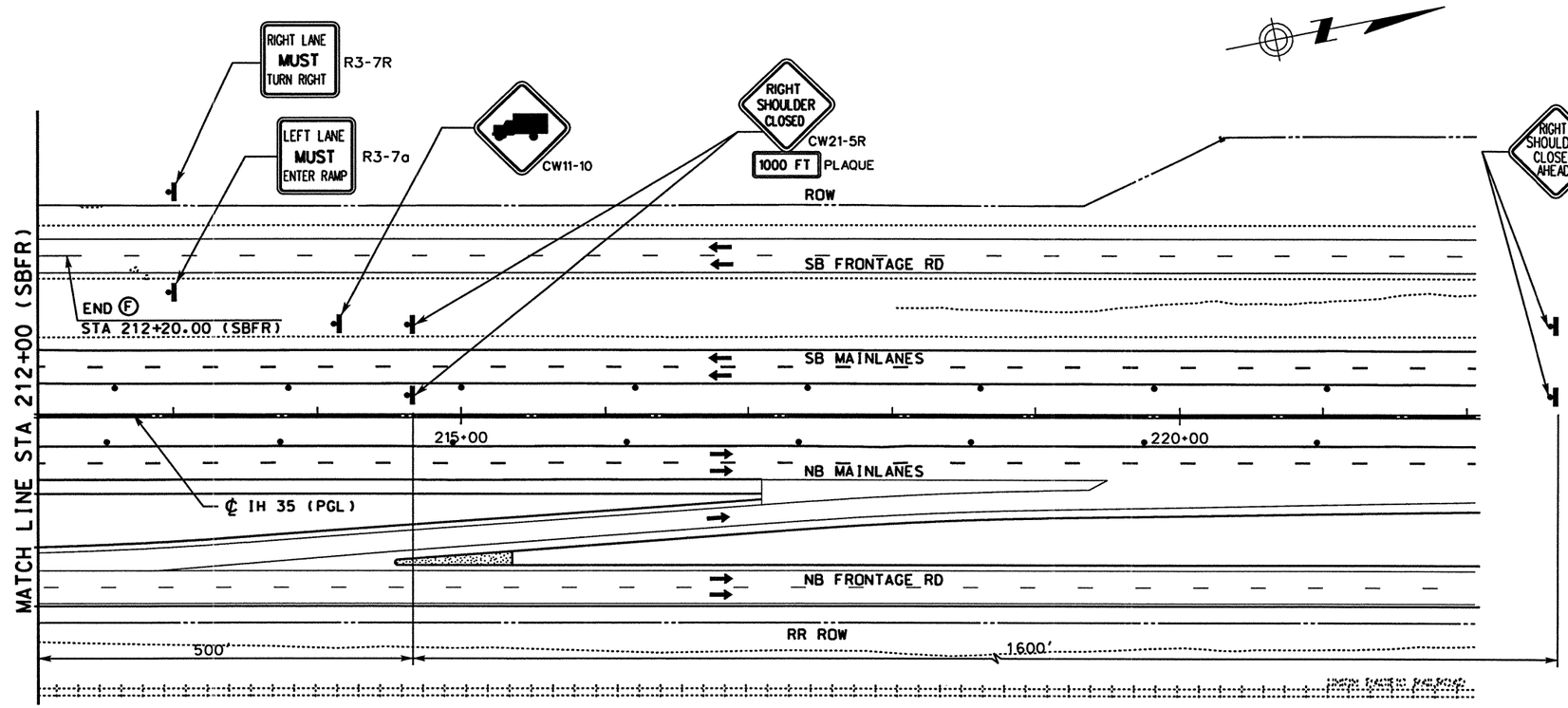

WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE IV STEP 7
STA 212+00 TO
STA 222+00

SHEET 5 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	225
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

04/18/03
B50P4705.dgn-06 \houfile023 \hcivil\cf0130\

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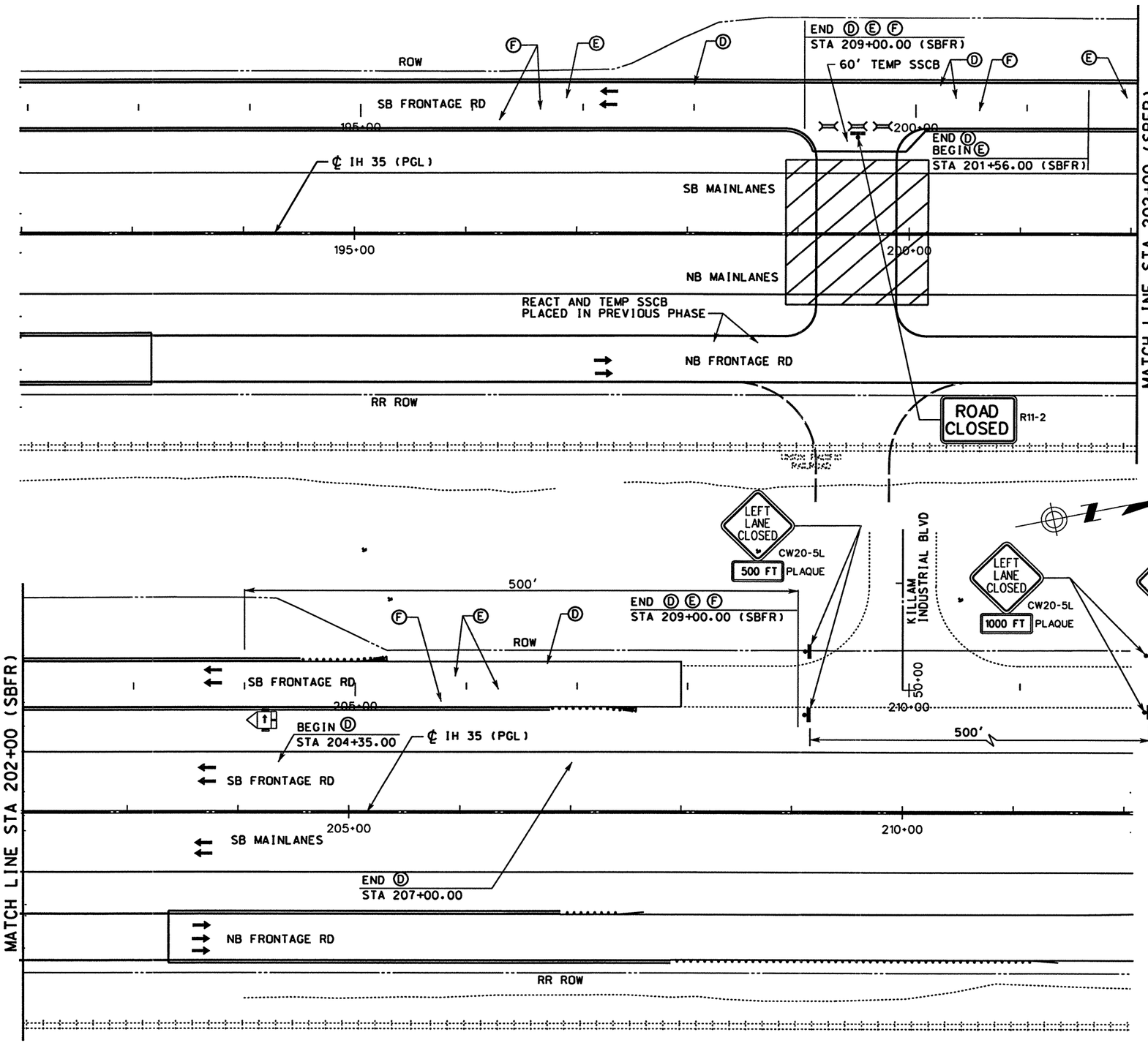
j0110p01.bdr. bdr LV ON = 9-11.32-33.45.47.57.58.60-62



WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- Ⓜ PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTE

1. STRIPING NOT LABELED IS EXISTING OR TEMPORARY STRIPING PLACED IN A PREVIOUS PHASE/STEP THAT ~~SHALL~~ REMAIN IN PLACE.

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PHASE IV STEP 9
STA 192+00 TO
STA 212+00

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	226
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

04/18/03 \hchivil\cf0130\HOUFILE023 B50P4901.dgn-07

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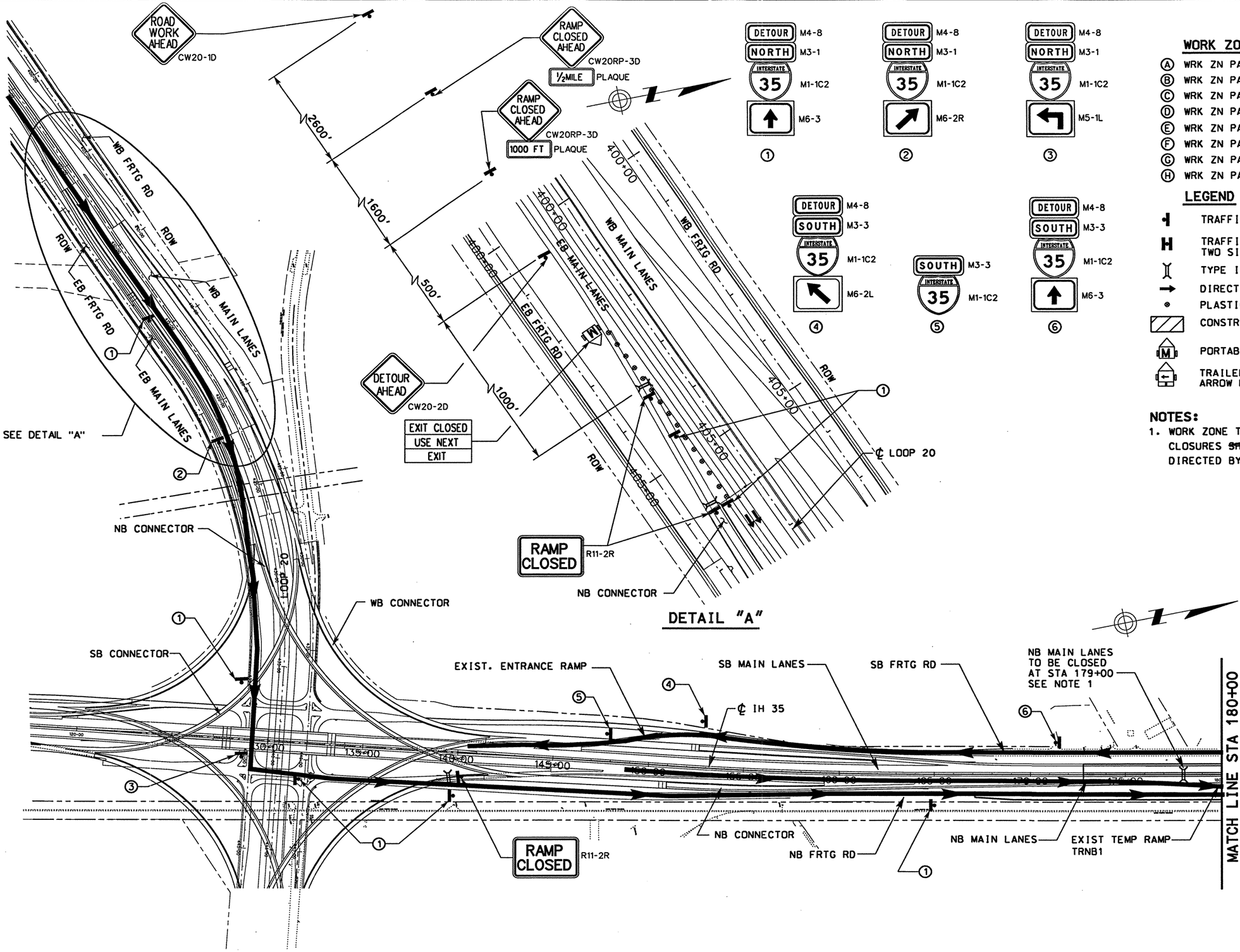
j0110p01.bdr LV ON = 9-11,32,33,45,47,57,58,60-62



WORK ZONE PAVEMENT MARKINGS

- Ⓐ WRK ZN PAV MRK REMOV 4" (W) (SLD)
- Ⓑ WRK ZN PAV MRK REMOV 4" (W) (BRK)
- Ⓒ WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- Ⓓ WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- Ⓔ WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- Ⓕ WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- Ⓖ WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- Ⓗ WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTES:

1. WORK ZONE TRAFFIC CONTROL FOR FREEWAY CLOSURES ~~SHALL~~ FOLLOW TCP (6-7)-98A AND AS DIRECTED BY THE ENGINEER.

REF FILE(S): j01lop01.bdr, bdr LV ON = 13.45.47.57.58.60-62
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j01lop01.bck, bck LV ON = 2.9.10.14.17.21.25.28
j01lop01.eop, eop LV ON = 1-17.19-63
miloint.row , row LV ON = 1-22.34-63

0 250 500
SCALE: 1" = 500'

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED
PROFESSIONAL ENGINEER

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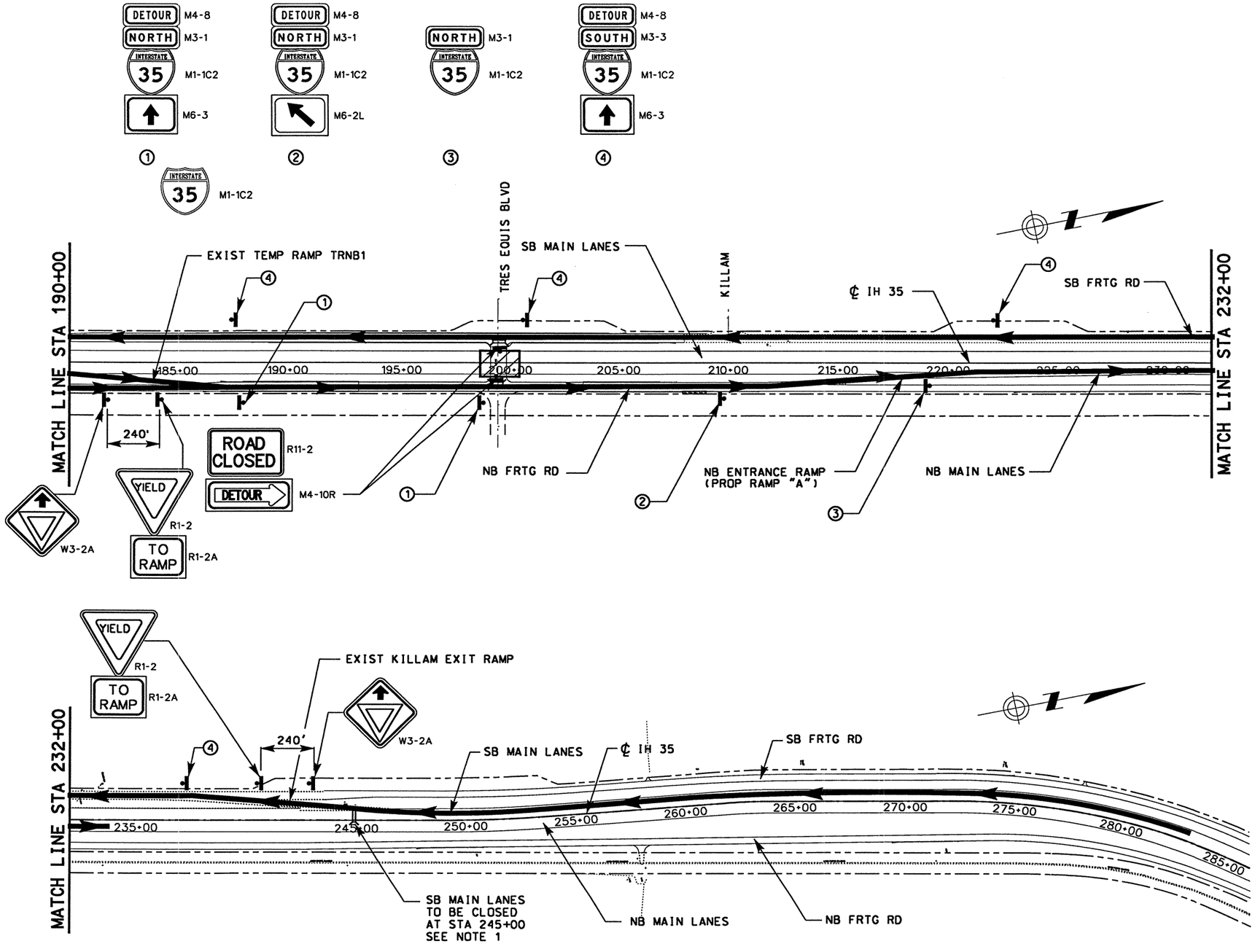
IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
MAIN LANES CLOSURE
TRES EQUIS BLVD
PHASE IV STEP 9

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	227
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

6/4/2003
HOUFILE023 \hciwil\cf0130\
B50SCP1.dgn-04



WORK ZONE PAVEMENT MARKINGS

- (A) WRK ZN PAV MRK REMOV 4" (W) (SLD)
- (B) WRK ZN PAV MRK REMOV 4" (W) (BRK)
- (C) WRK ZN PAV MRK REMOV 4" (Y) (SLD)
- (D) WRK ZN PAV MRK NON-REMOV 4" (W) (SLD)
- (E) WRK ZN PAV MRK NON-REMOV 4" (W) (BRK)
- (F) WRK ZN PAV MRK NON-REMOV 4" (Y) (SLD)
- (G) WRK ZN PAV MRK NON-REMOV (W)(ENTR GORE)
- (H) WRK ZN PAV MRK NON-REMOV (W)(EXIT GORE)

LEGEND

- TRAFFIC SIGN ON POST
- H — TRAFFIC SIGN ON POST WITH TWO SIGNS BACK TO BACK
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- CONSTRUCTION AREA
- M — PORTABLE CHANGEABLE MESSAGE SIGN
- TRAILER MOUNTED FLASHING ARROW PANEL (ARROW MODE)

NOTES:

1. WORK ZONE TRAFFIC CONTROL FOR FREEWAY CLOSURES ~~SHALL~~ FOLLOW TCP (6-7)-98A AND AS DIRECTED BY THE ENGINEER.

0 250 500
SCALE: 1" = 500'

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IH 35
LOOP 20 TO UNIROYAL ROAD
TRAFFIC CONTROL PLAN
MAIN LANES CLOSURE
TRES EQUIS BLVD
PHASE IV STEP 9

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		228
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003

HOUFILE023 \hcivil\c\f0130\ B50SCP1A.dgn-03

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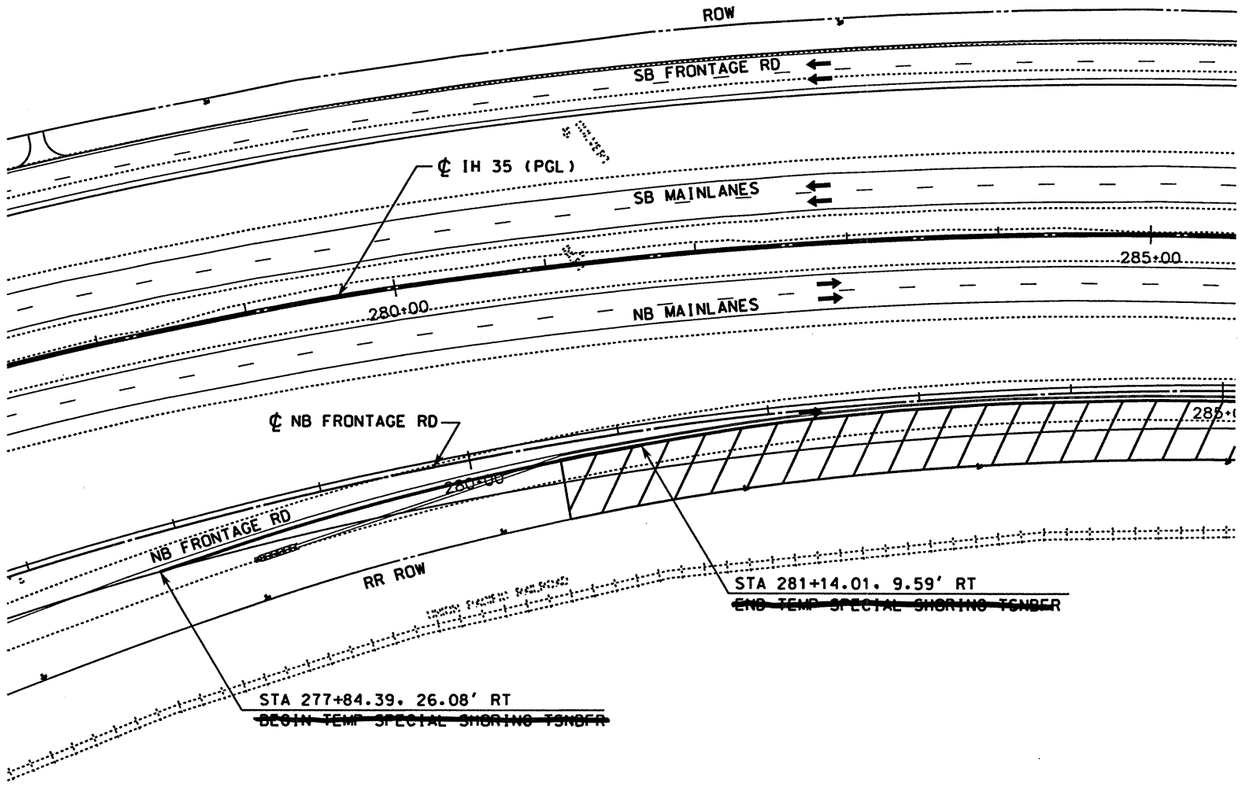
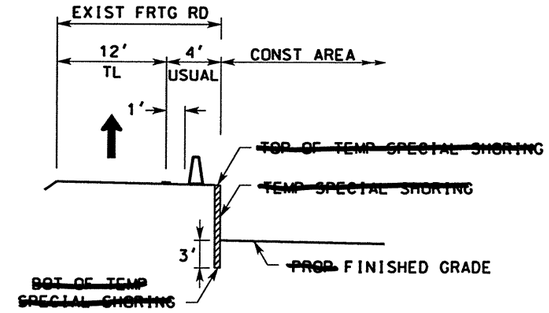


PLAN



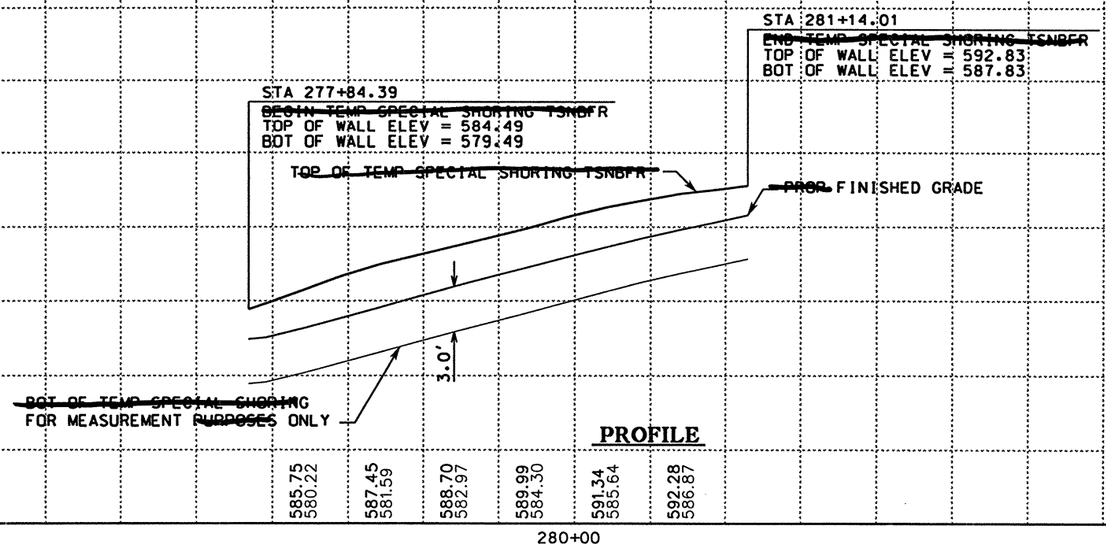
LEGEND

CONSTRUCTION AREA

DIRECTION OF TRAFFIC

NOTES:

1. STATIONS AND OFFSETS ARE MEASURED FROM NB FRONTAGE RD ALIGNMENT.
2. ~~TOP OF TEMPORARY SHORING~~ IS EXISTING NATURAL GROUND.



PROFILE

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY~~
~~SPECIAL SHORING~~
PLAN AND PROFILE
(TSNBFR)
PHASE III STEP 2
SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	229
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/18/2003

HOUFILE023 \hchivit\cf0130\

B50TSSP1.dgn-04

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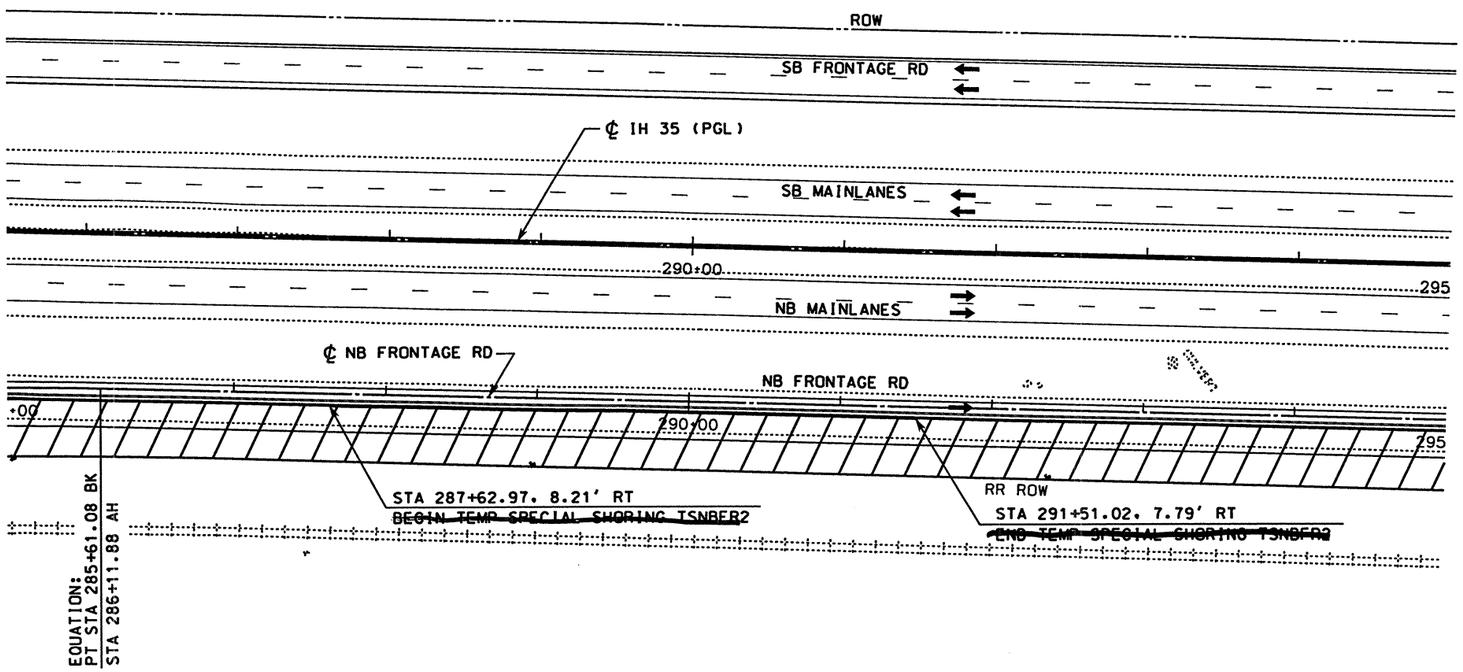
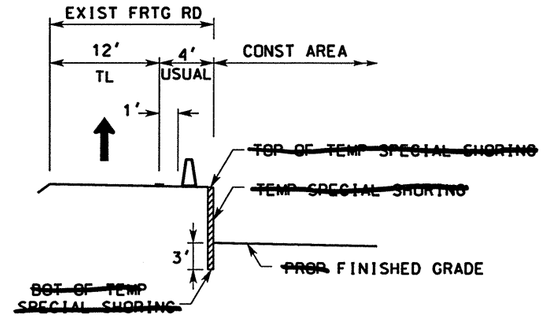


LEGEND

CONSTRUCTION AREA

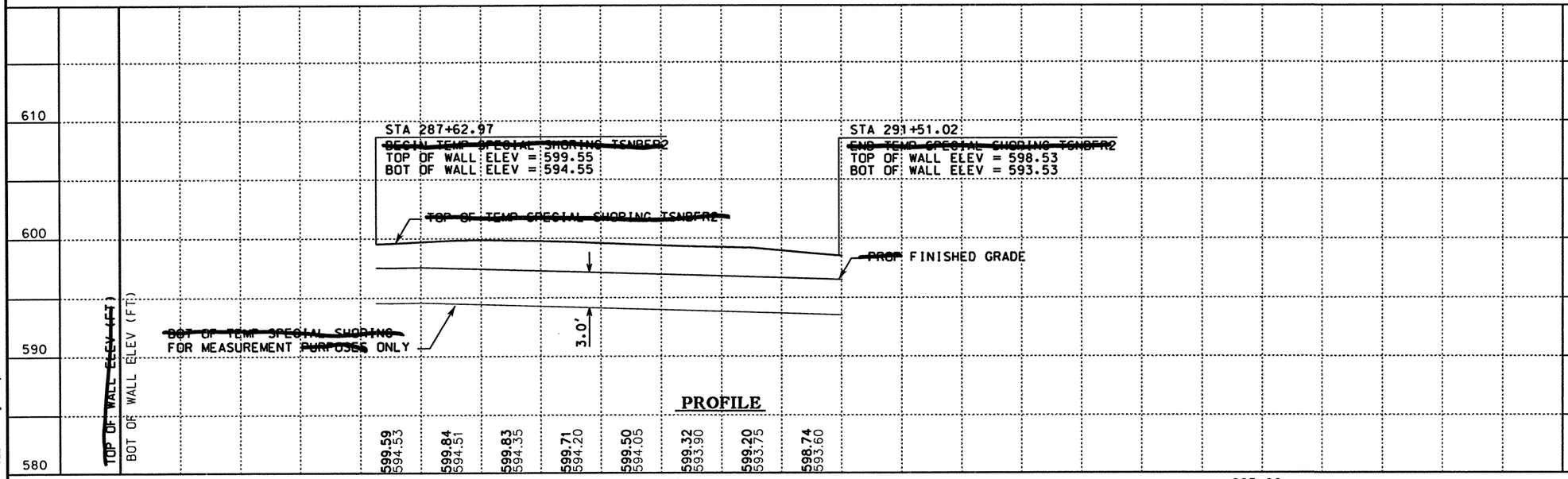
DIRECTION OF TRAFFIC



NOTES:

1. STATIONS AND OFFSETS ARE MEASURED FROM NB FRONTAGE RD ALIGNMENT.
2. ~~TOP OF TEMPORARY SHORING~~ IS EXISTING NATURAL GROUND.

PLAN



PROFILE

0 50 100

SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY~~
~~SPECIAL SHORING~~
PLAN AND PROFILE
(TSNBFR2)
PHASE III STEP 2
SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	230
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

B50TSSP2.dgn-04 \\houfile023 \hcivil\cf0130\

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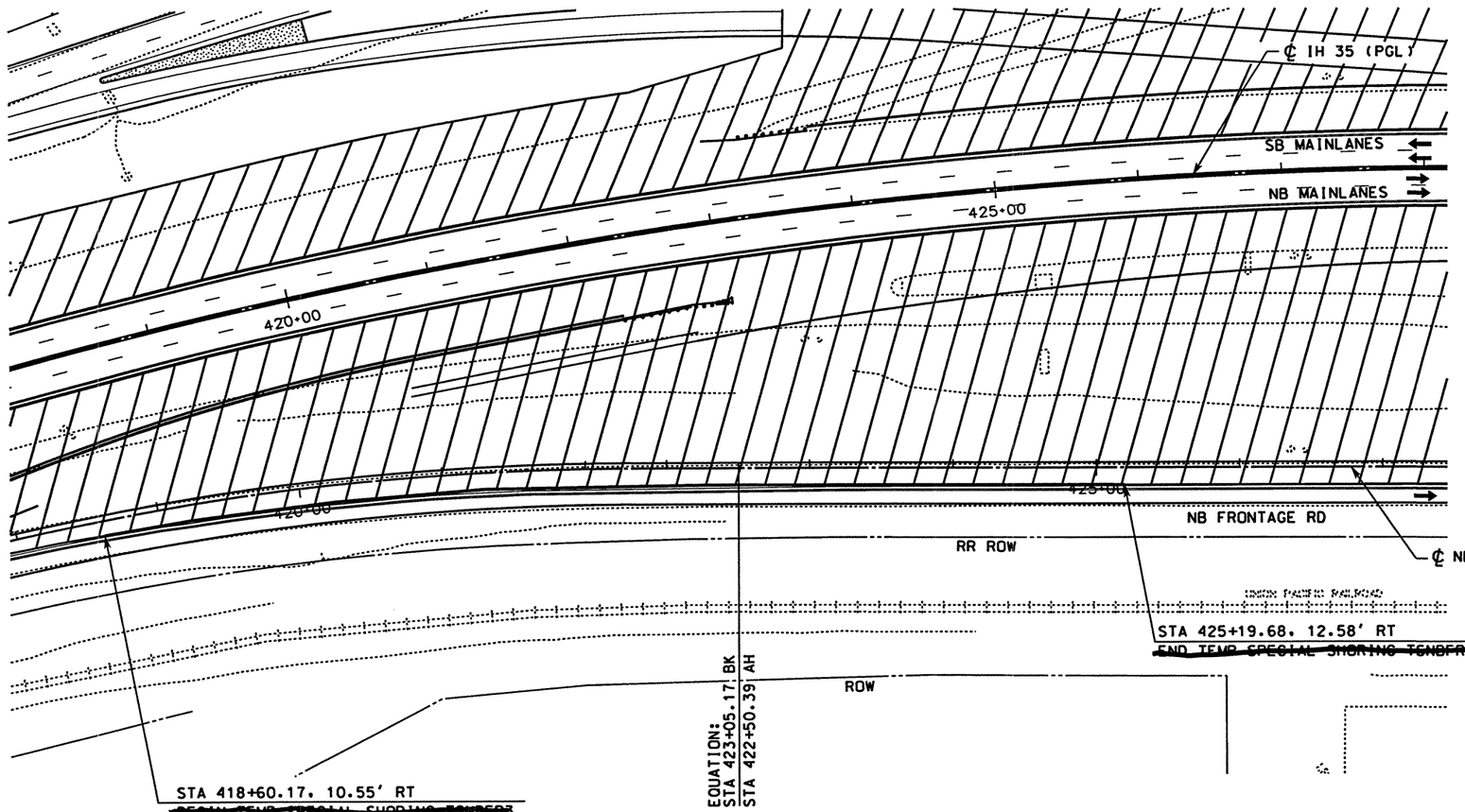
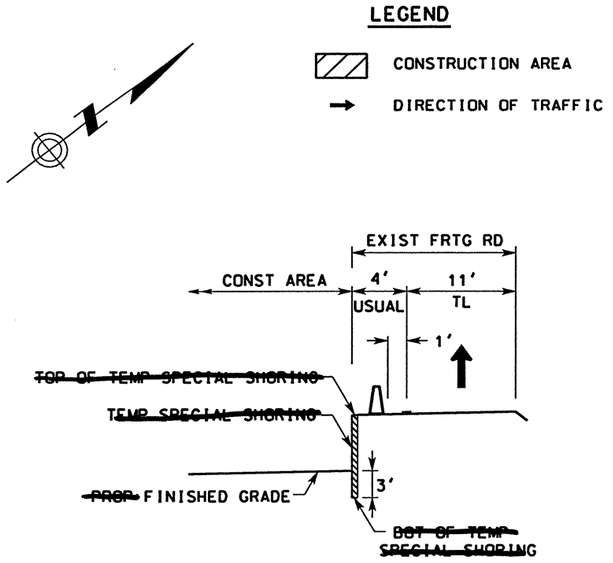
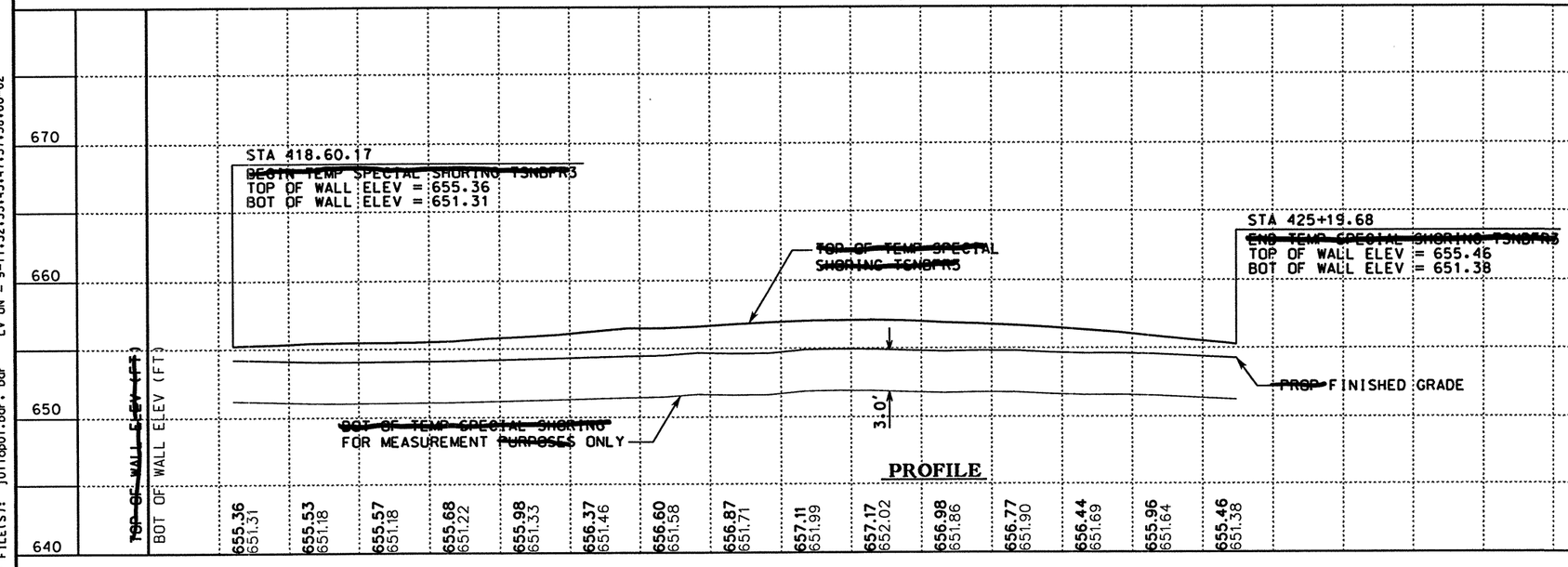


PLAN



NOTES:

1. STATIONS AND OFFSETS ARE MEASURED FROM NB FRONTAGE RD ALIGNMENT.
2. TOP OF TEMPORARY SHORING IS EXISTING NATURAL GROUND.



PROFILE

0 50 100
SCALE: 1" = 100' HORIZ

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY~~
~~SPECIAL SHORING~~
PLAN AND PROFILE
(TSNBFR3)
PHASE IV STEP 2B
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		231
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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B50TSSP3.dgn-04 HOUFILE023 \hcivil\c0130\ 4/18/2003

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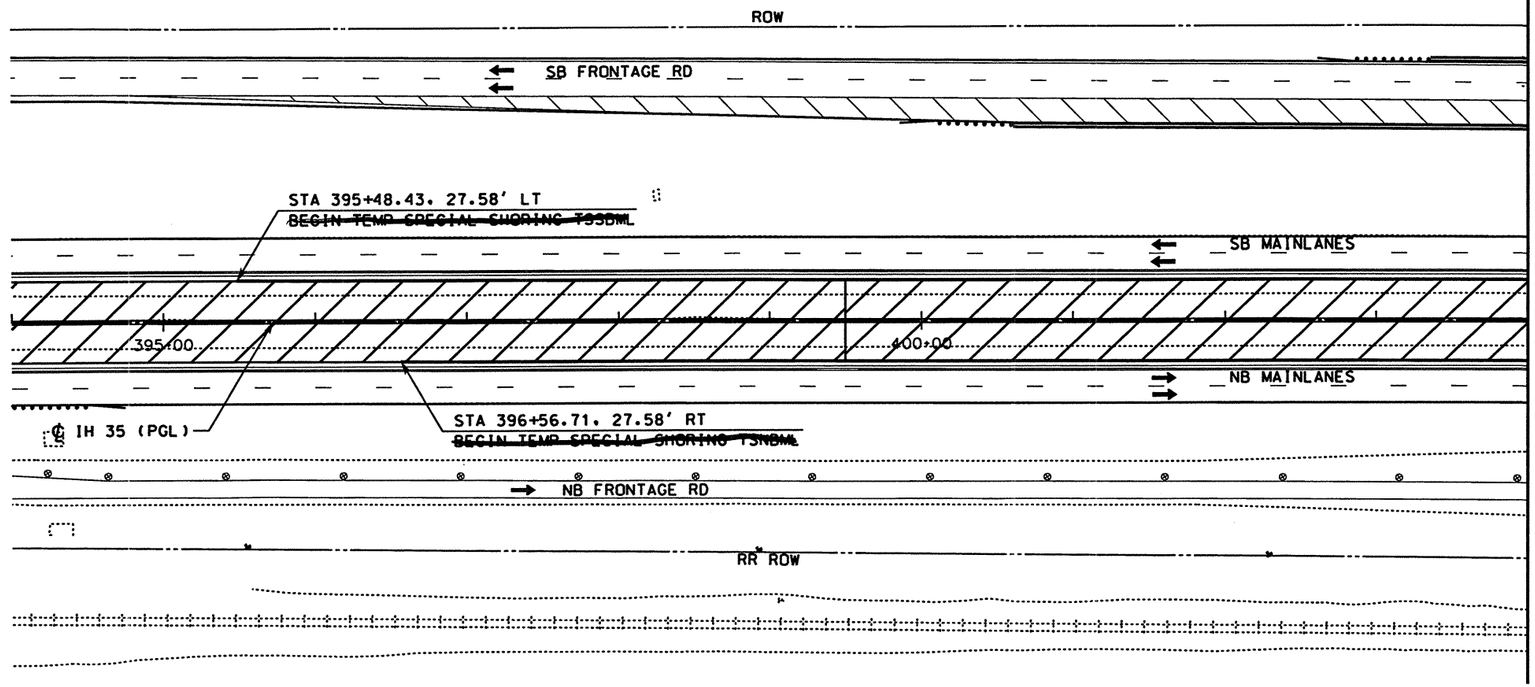
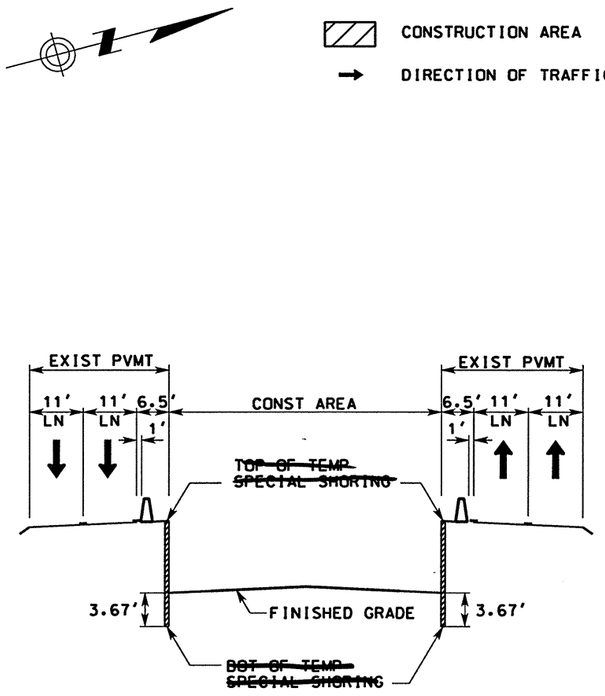


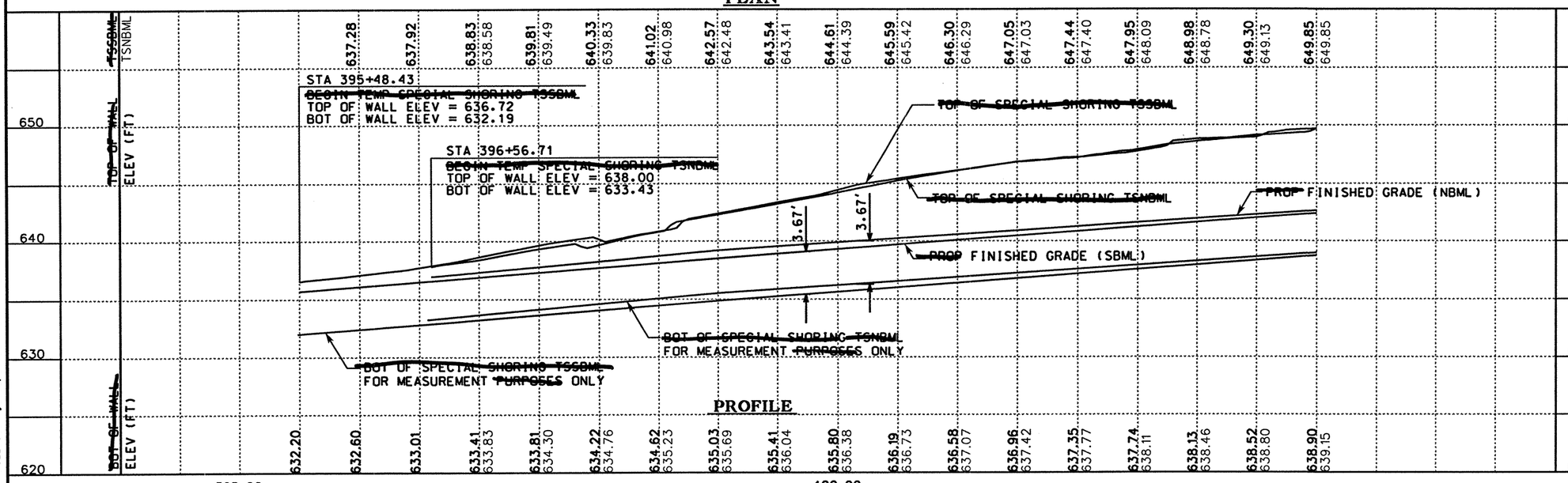


NOTES:

1. STATIONS AND OFFSETS ARE MEASURED FROM MAINLANE ALIGNMENT.
2. ~~TOP OF TEMPORARY SHORING~~ IS EXISTING NATURAL GROUND.

PLAN

PROFILE



0 50 100
SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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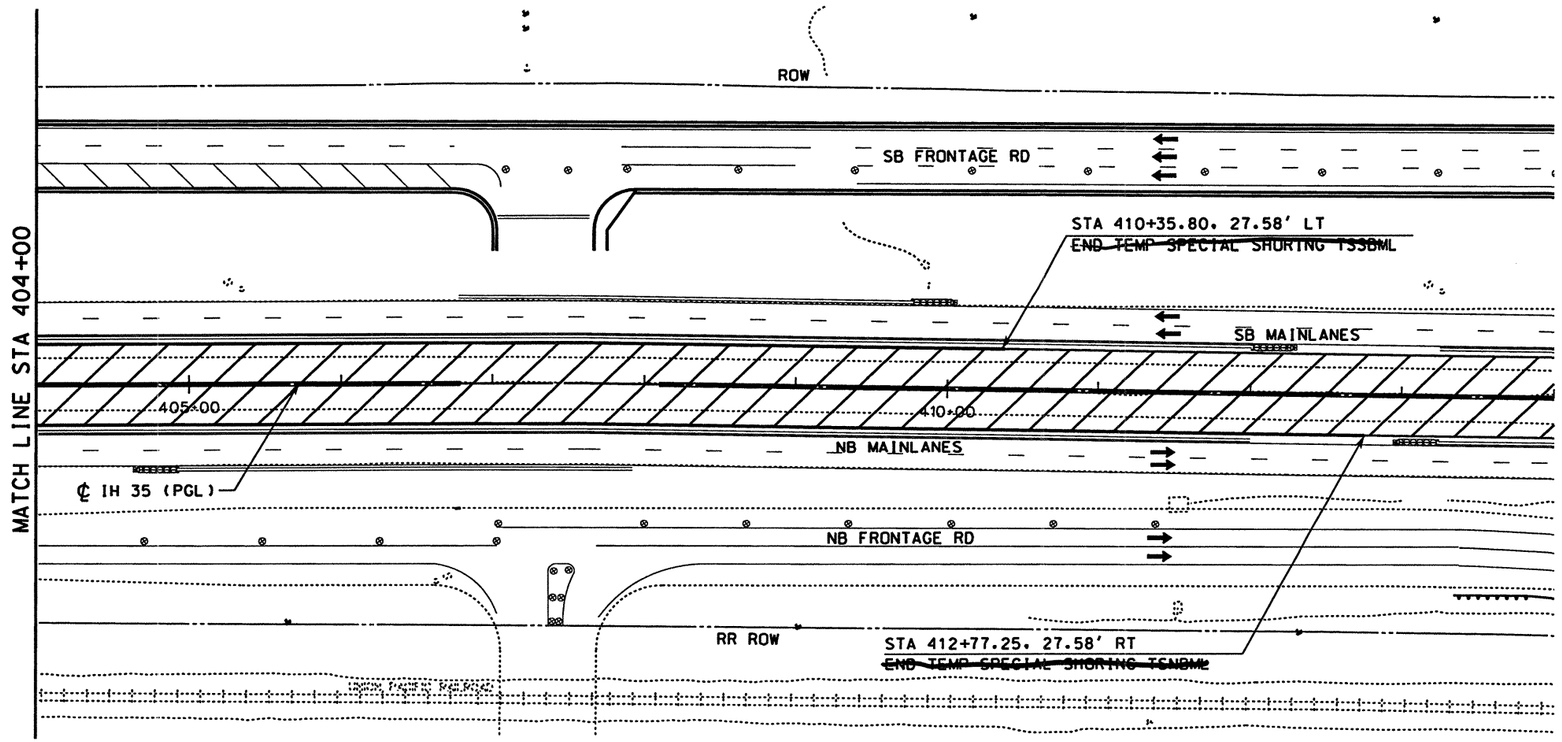
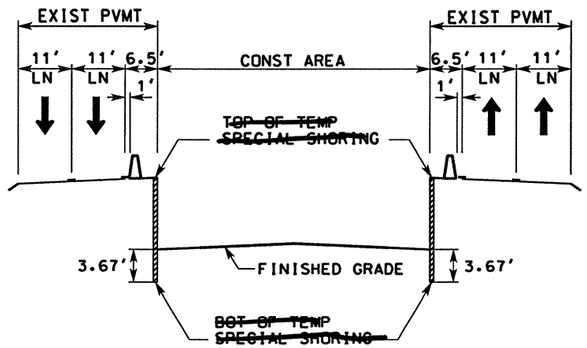
IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY~~
~~SPECIAL SHORING~~
PLAN AND PROFILE
(TSSBML & TSNBML)
PHASE IV STEP 1B
SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	232
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/18/2003
B50TSSP4.dgn-03 HOUFILE023 \hcivil\cf0130\





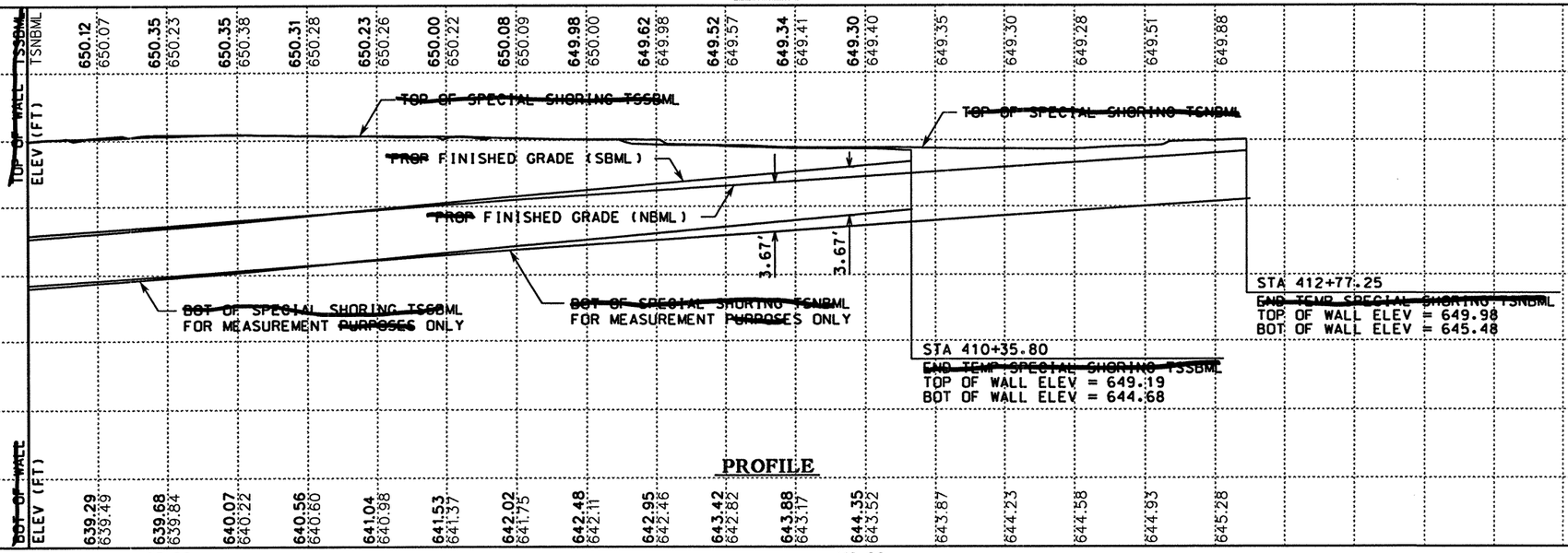
LEGEND

- CONSTRUCTION AREA
- DIRECTION OF TRAFFIC

NOTES:

1. STATIONS AND OFFSETS ARE MEASURED FROM MAINLANE ALIGNMENT.
2. TOP OF TEMPORARY SHORING IS EXISTING NATURAL GROUND.

PLAN



PROFILE

0 50 100

SCALE: 1" = 100' HORIZ

STATE OF TEXAS
MICHAEL A. SEXTON
87896
LICENSED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
~~TEMPORARY~~
~~SPECIAL SHORING~~
PLAN AND PROFILE
(TSSBML & TSNBML)
PHASE IV STEP 1B
SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		233
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

B50TSSP5.dgn-03 HOUFILE023 \hcivil\c0130\

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j0110p01.bck, bck LV ON = 2.9.10.14.17.20.21.25.28
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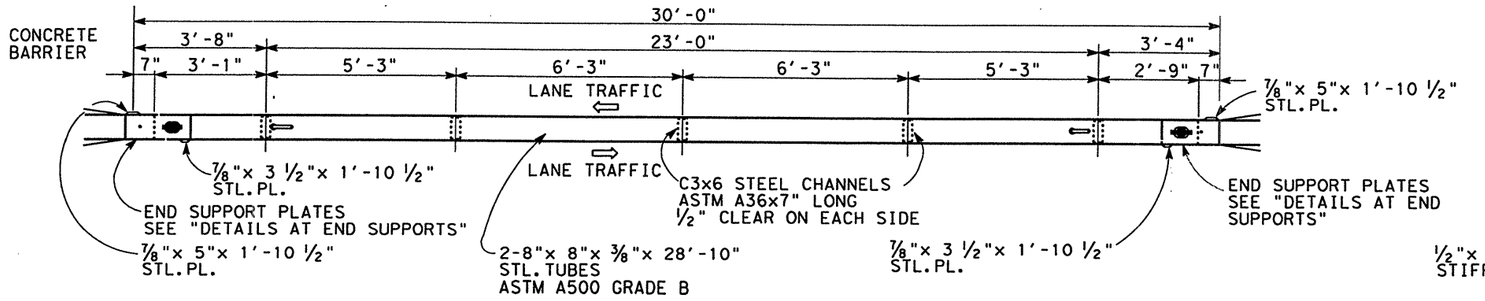
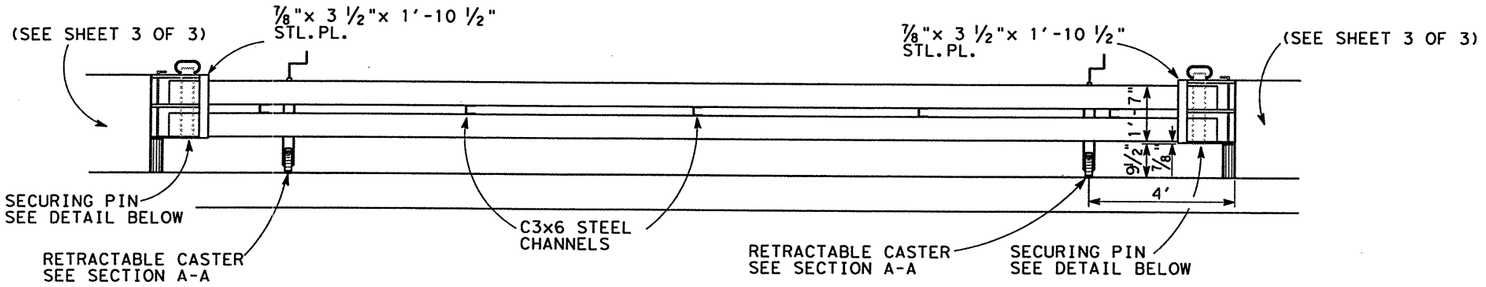
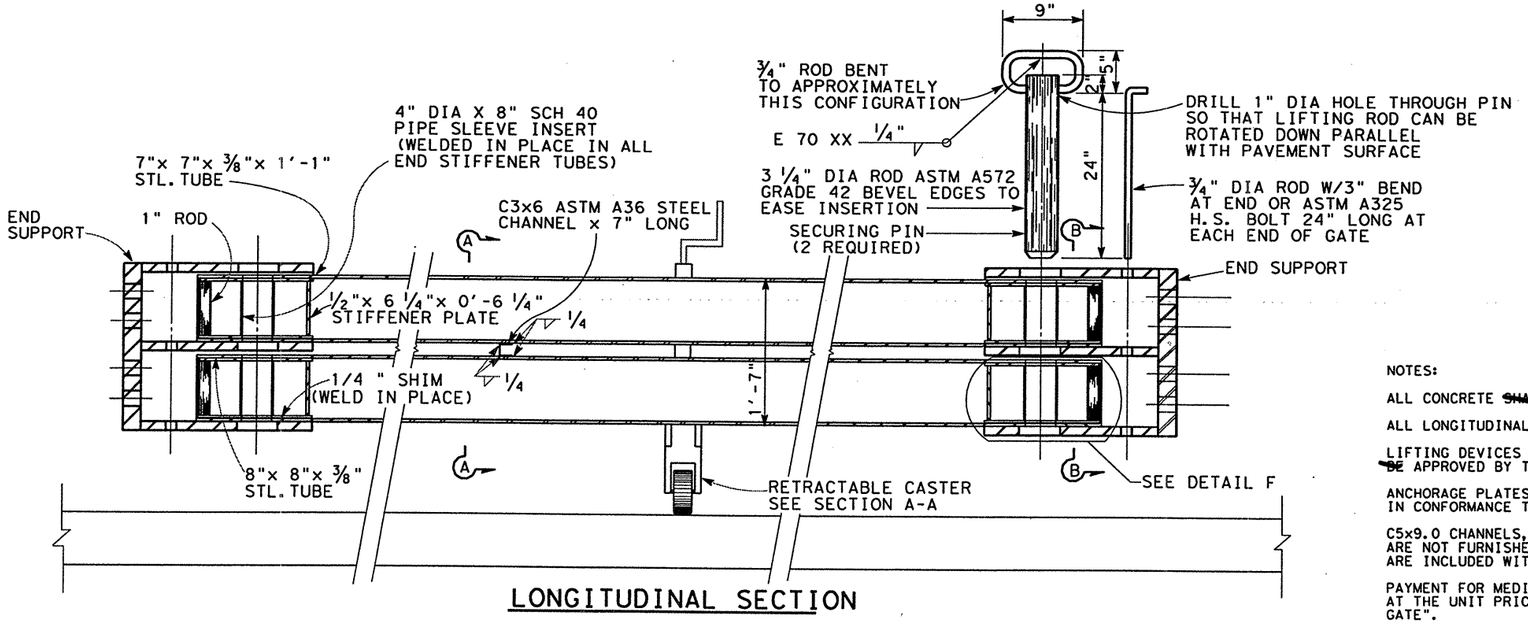


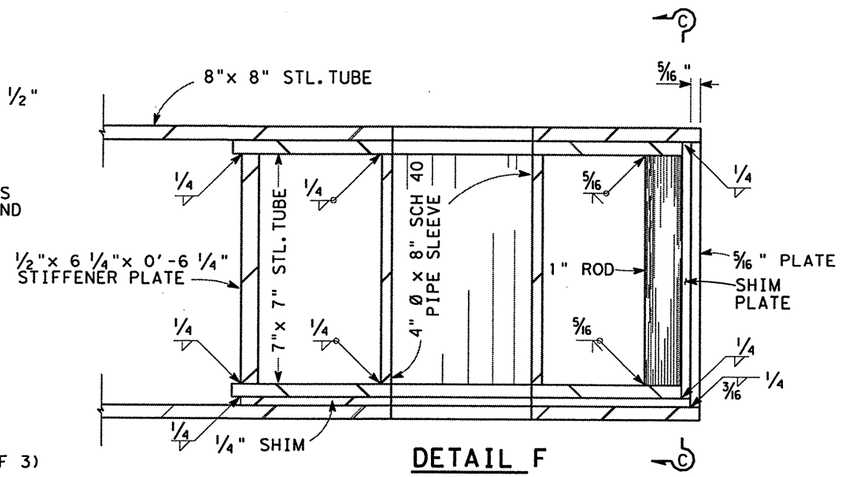
PLAN



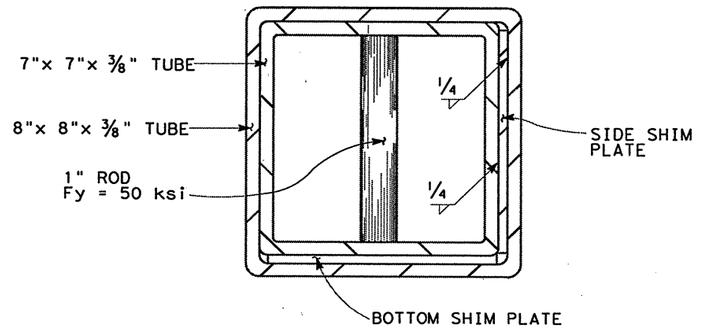
ELEVATION



LONGITUDINAL SECTION



DETAIL F



SECTION C-C

THIS ITEM WAS NOT INSTALLED PLAN SHTS # 234, 235 & 236

NOTES:

ALL CONCRETE ~~SHALL BE~~ CLASS "C".

ALL LONGITUDINAL REINFORCING ~~SHALL BE~~ GRADE 60.

LIFTING DEVICES AND ATTACHMENTS TO BARRIER ~~SHALL BE~~ APPROVED BY THE ENGINEER.

ANCHORAGE PLATES ~~SHALL BE~~ HOT-DIP GALVANIZED IN CONFORMANCE TO ASTM DESIGNATION A123.

C5x9.0 CHANNELS, 1 1/8" O BOLTS, NUTS AND WASHERS ARE NOT FURNISHED WITH THIS BARRIER SECTION BUT ARE INCLUDED WITH THE ADJACENT SECTION.

PAYMENT FOR MEDIAN BARRIER GATES ~~SHALL BE~~ MADE AT THE UNIT PRICE BID FOR EACH "MEDIAN BARRIER GATE".

PAYMENT FOR CONCRETE BARRIER ~~SHALL BE~~ INCLUDED FOR PAYMENT WITH ITEM 512 "CONCRETE TRAFFIC BARRIER".

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY P.E. 81485, ON APRIL 18, 2003

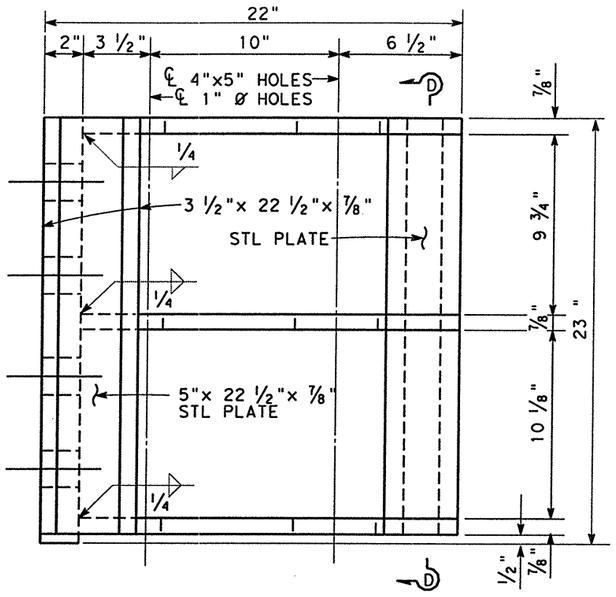
TEXAS DEPARTMENT OF TRANSPORTATION

~~MEDIAN BARRIER GATE DETAILS FOR EMERGENCY BARRIER OPENING~~

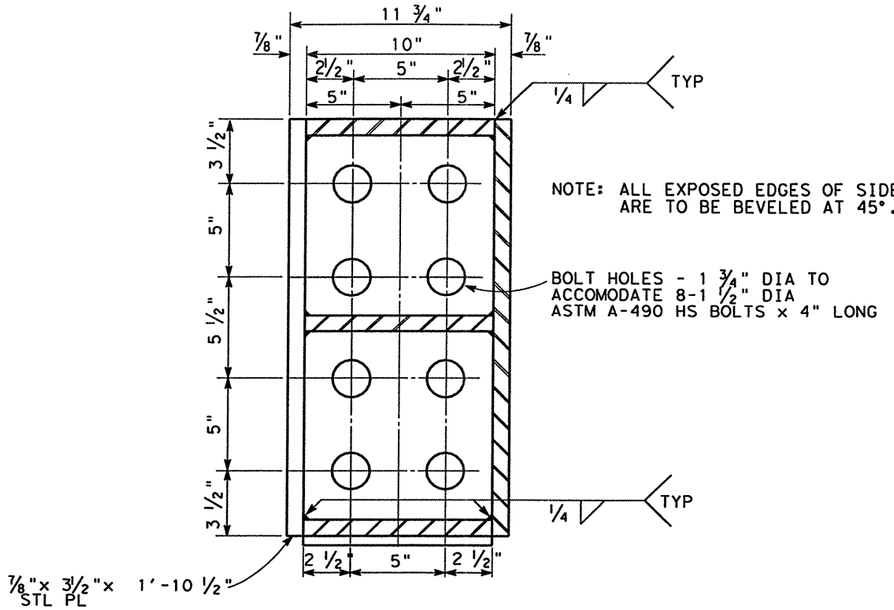
SHEET 1 OF 3 SHEETS

DN:	DRAWING: FILE NAME:	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
CK DN:		LAREDO	6	NH - 2002 (79)	234
DW: CFK	REVISIONS: JUNE, 1999	COUNTY	CONTROL	SECT JOB	HIGHWAY
CK DW: MGA		WEBB	2018	05 052 ETC	IH 35
TR:					

HOUFILE023 \HCIVIL\CF0130 4/18/2003 SOMRGP1.DGN



ELEVATION

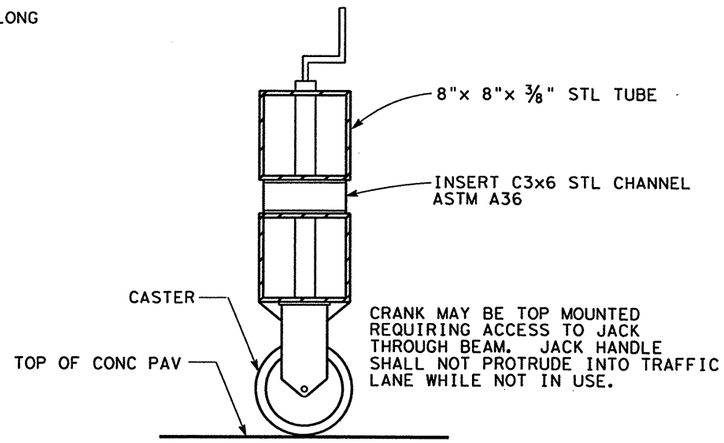


NOTE: ALL EXPOSED EDGES OF SIDE PLATES ARE TO BE BEVELED AT 45°.

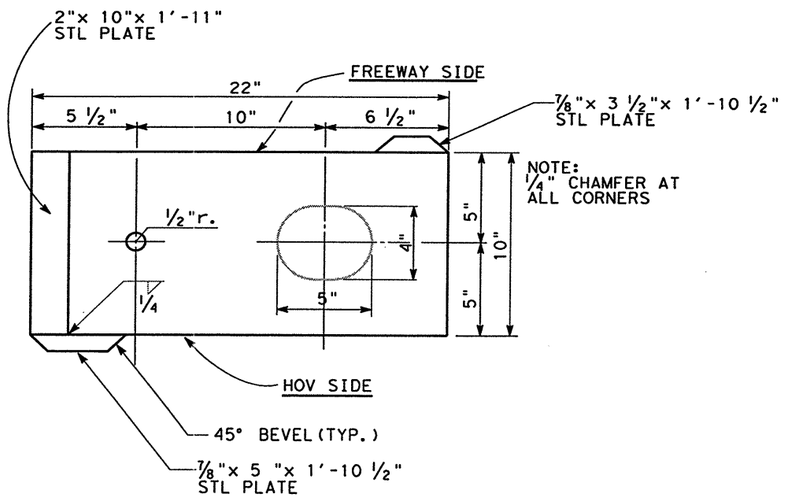
BOLT HOLES - 1 ¾" DIA TO ACCOMODATE 8-1 ½" DIA ASTM A-490 HS BOLTS x 4" LONG

SECTION D-D

HAND CRANKED JACK W/CASTER ASSEMBLY AS MANUFACTURED BY HOLLAND HITCH CO., P.O. BOX 3015, 430 W. 18TH ST., HOLLAND, MI. 49423. JACK TO BE ABLE TO LIFT 5000# VERTICAL 2-3 INCHES, HOLLAND HITCH OR APPROVED EQUAL US-300 , JS-300-J & V-300-JS. CASTER SHALL BE 10" DIA, 3" WIDE, CAPACITY OF 2900#, MODEL DUR-1030-16 MANUFACTURED BY R.W.M. MANUFACTURING, INC. OR TM-10501-16 MANUFACTURED BY ALBION MANUFACTURING, INC. CASTER SHALL NOT ROTATE.

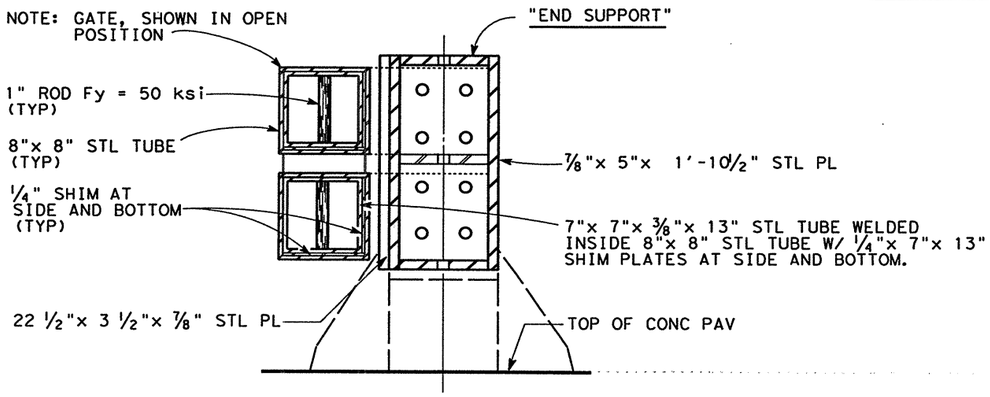


SECTION A-A



PLAN

DETAILS AT END SUPPORTS



SECTION B-B

GENERAL NOTES:

ALL STEEL TO BE ASTM A572 GRADE 50 UNLESS OTHERWISE SPECIFIED.

PROVIDE BOTH PINS (3 ¼" DIA & ¾" DIA) AT BOTH ENDS.

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY P.E. 81485, ON APRIL 18, 2003

TEXAS DEPARTMENT OF TRANSPORTATION

~~MEDIAN BARRIER GATE DETAILS FOR EMERGENCY BARRIER OPENING~~

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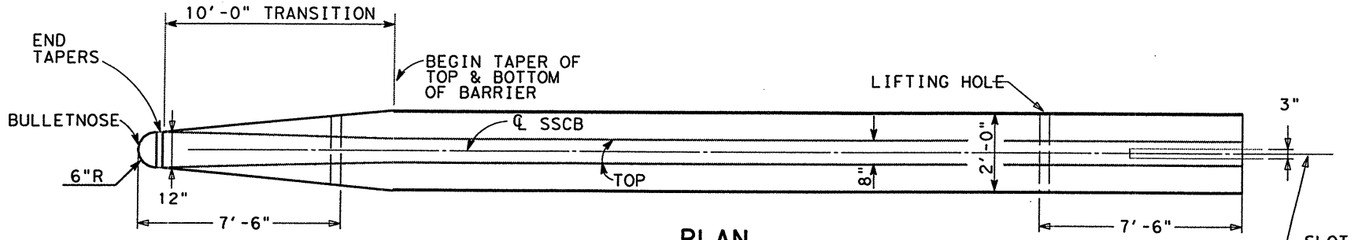
SHEET 2 OF 3 SHEETS

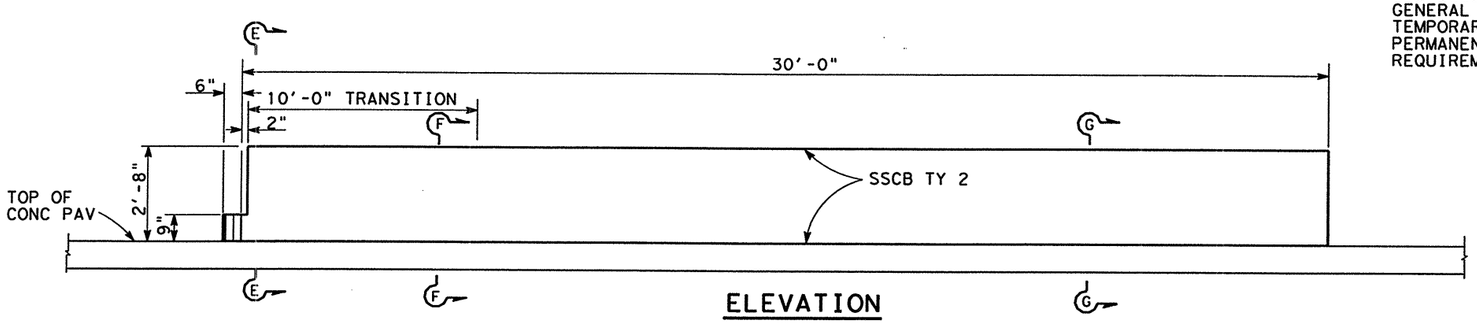
DN:	DRAWING: FILE NAME:	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
CK DN:		LAREDO	6	NH - 2002 (79)	235
DW: CFK	REVISIONS: JUNE, 1999	COUNTY	CONTROL	SECT	JOB	HIGHWAY
CK DW: MGA		WEBB	0018	05	062-ETC	IH 35
TR:						

HOUFILE023 \HCIVIL\CF0130 4/18/2003

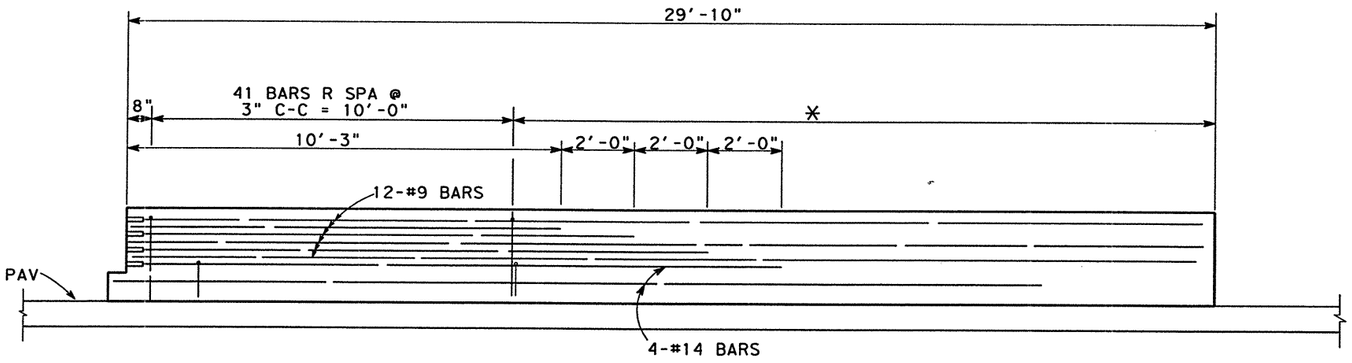
50MBGP2.DGN



PLAN

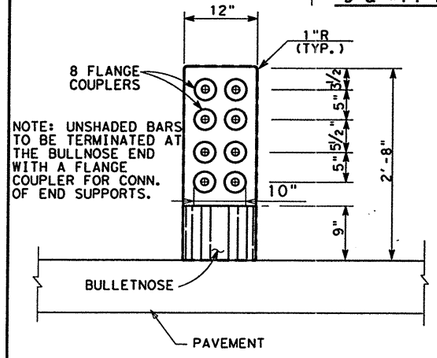


ELEVATION

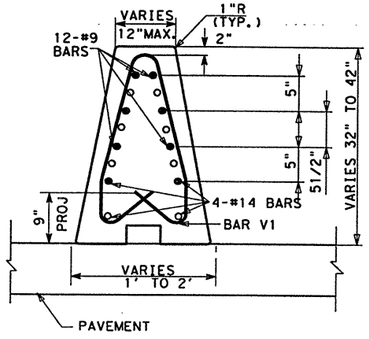


ELEVATION SHOWING REINFORCING

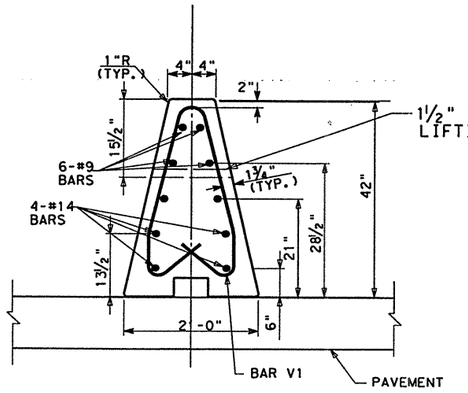
#9 & #14 THREADED BAR



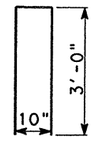
SECTION E-E



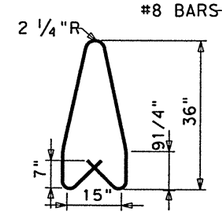
SECTION F-F



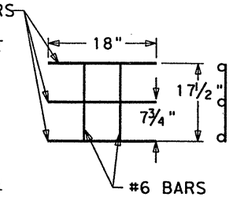
*SECTION G-G



BAR R (#6)

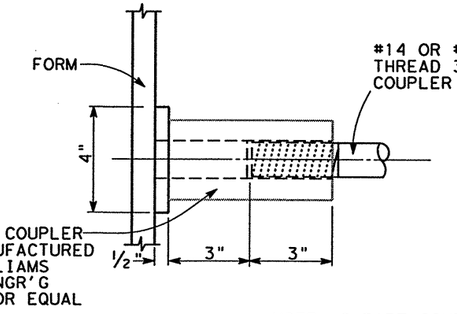


V1 BAR (#4)



REBAR GRID

SLOT FOR REBAR GRID SEE SSCB (2)-00 (MOD) GENERAL NOTES ON TEMPORARY AND PERMANENT INSTALLATION REQUIREMENTS



NOTE: 2 PART COUPLER TO BE USED WITH #9 BAR. STRAIGHT 1½" COUPLER FOR #14 BAR.

FLANGE COUPLER

GENERAL NOTES:

1. THE GENERAL NOTES LISTED ON SSCB (2)-00 (MOD) SHALL APPLY UNLESS MODIFIED ON THIS SHEET.
2. WELDED WIRE FABRIC SHALL NOT BE ALLOWED.

*SEE SSCB (2)-00 (MOD) FOR SPACING DETAIL

Median Barrier Gates were not installed.

STATE OF TEXAS — JAMES B. HORNSBY — 81485 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY P.E. 81485, ON APRIL 18, 2003

James B. Hornsby

TEXAS DEPARTMENT OF TRANSPORTATION

~~MEDIAN BARRIER GATE DETAILS FOR EMERGENCY BARRIER OPENING~~

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SHEET 3 OF 3 SHEETS

DN:	DRAWING: FILE NAME:	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
CK DN:		LAREDO	6	NH - 2002 (79)	236
DW: CFK	REVISIONS:	COUNTY	CONTROL	SECT	JOB	HIGHWAY
CK DW: MGA	JUNE, 1999	WEBB	0018	05	062-FIC	IH 35
TR:	JULY, 2001					

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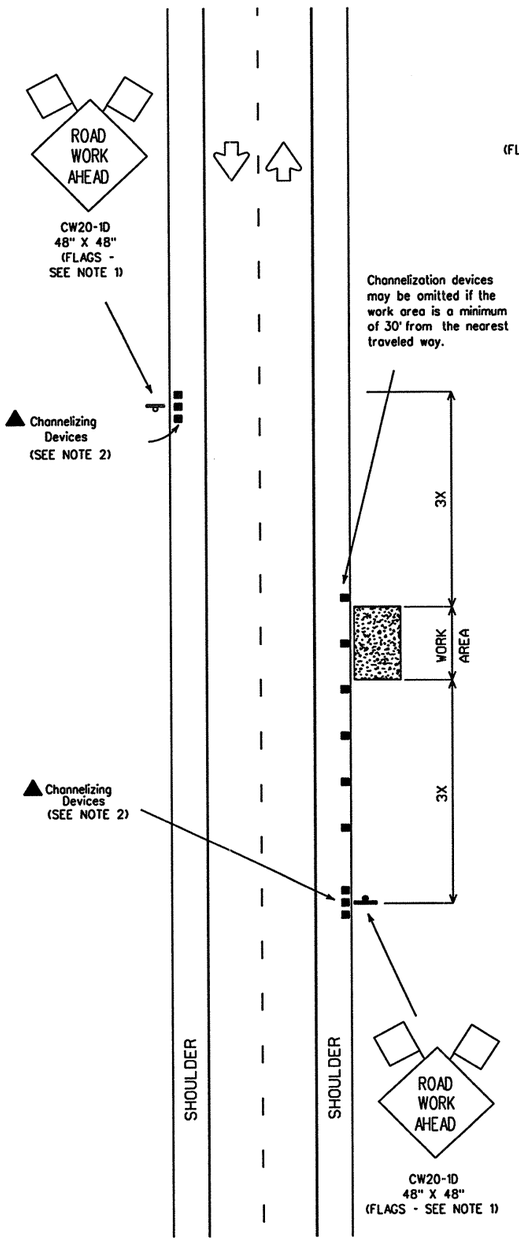
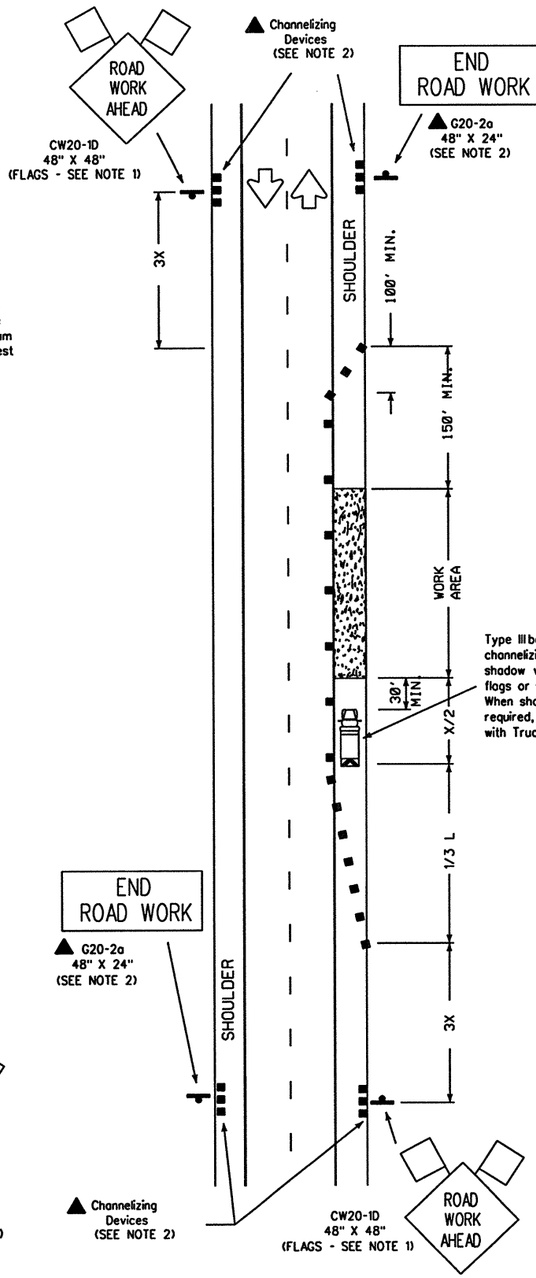


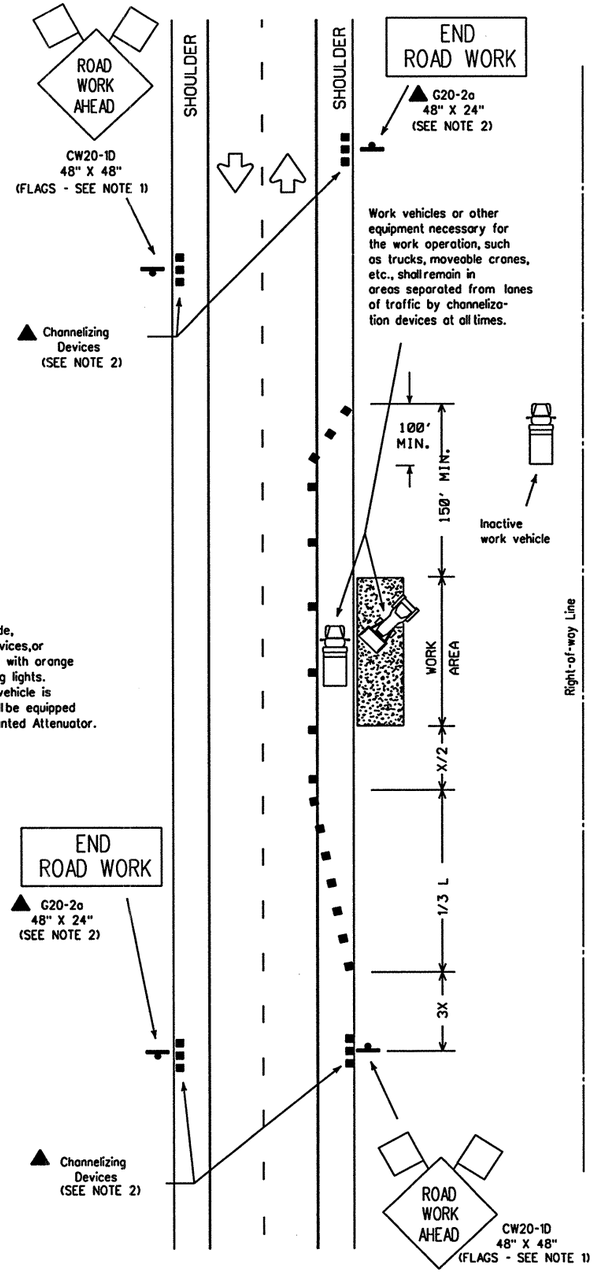
TCP (1-1a)

Work Area Near Shoulder



TCP (1-1b)

Work Area on Shoulder



TCP (1-1c)

Work Vehicles on Shoulder

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag

Heavy Work Vehicle Truck Mounted Attenuator

Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign

Flagger Sign Post

Posted Speed *	Formula	Minimum Desirable Taper Lengths * * 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing X Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'
35		205'	225'	245'	35'	70'-90'	160'
40		265'	295'	320'	40'	80'-100'	240'
45	L=WS	450'	495'	540'	45'	90'-110'	320'
50		500'	550'	600'	50'	100'-125'	400'
55		550'	605'	660'	55'	110'-140'	500'
60		600'	660'	720'	60'	120'-150'	* 600'
65		650'	715'	780'	65'	130'-165'	* 700'
70		700'	770'	840'	70'	140'-175'	* 800'

* Conventional Roads Only

* * Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES:

1. Unless otherwise stated in the plans, flags attached to signs are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
3. On high speed facilities advance warning signs should be installed approximately 3X from the work area or from the beginning of a lane or shoulder taper. On low speed facilities the advance warning signs should be placed based on the "X" minimum distance.
4. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

The requirement for shadow vehicles will be listed in the project GENERAL NOTES, Item 502, Barricades, Signs and Traffic Handling.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(1-1)-98

©TxDOT December 1985

DN: LR	CK: MT	DW: DN	CK: MT	MEC MOJ

REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
2-94	LAREDO	6	NH - 2002 (79)	237
8-95				
1-97	COUNTY	CONTROL	SECT JOB	HIGHWAY
4-98	WEBB	0018	05 062-ETC	IH 35

04/18/03

HOUFILE023 \HCIVIL\CF0130 B50TCPP1.DGN

LEVELS DISPL
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7 8 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

DATE:
ACC:
FILE:

DN:
CK:
DW:
CK:

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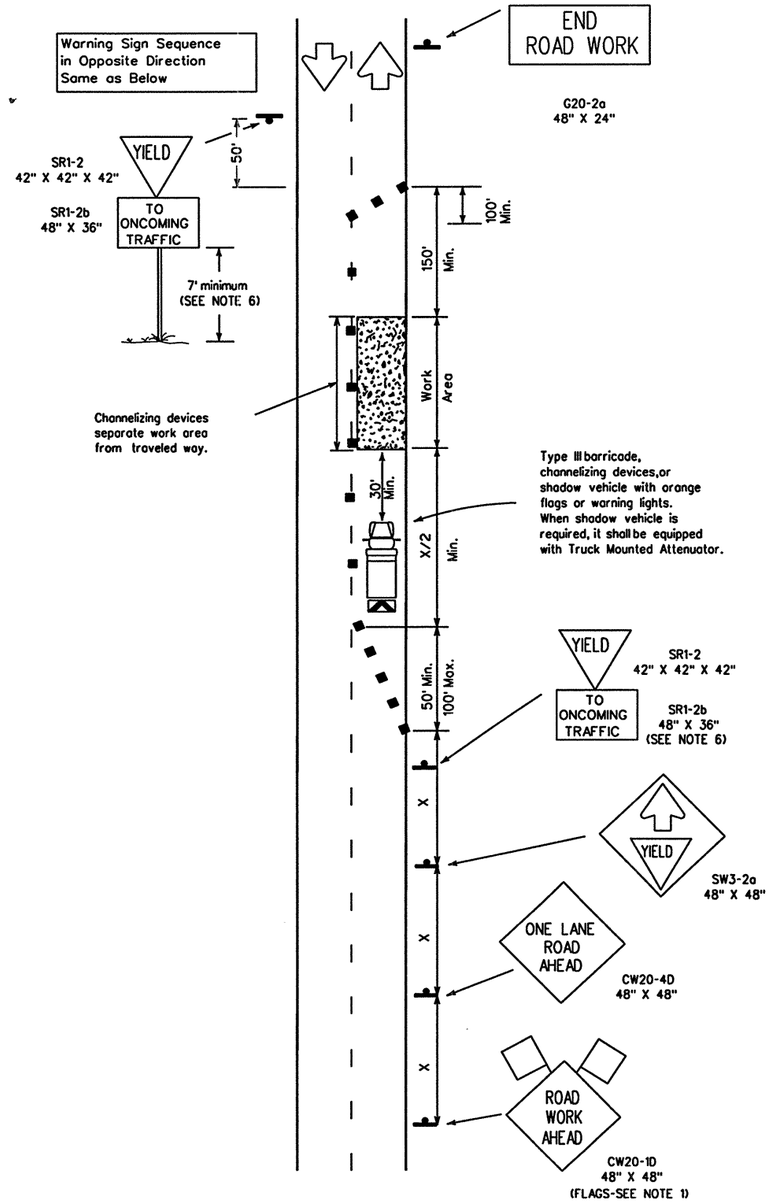
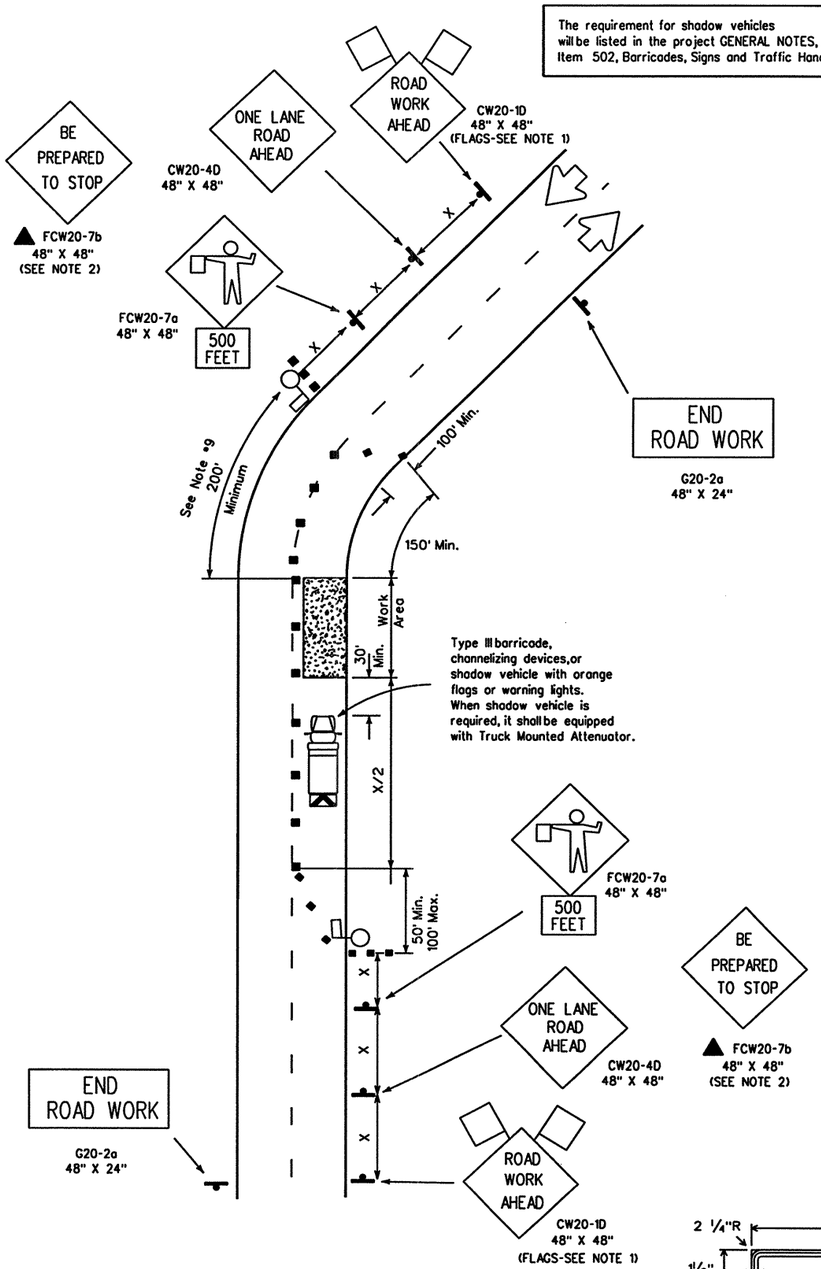


TCP (1-2a)

One Lane Closed
Adequate Field of View



TCP (1-2b)

One Lane Closed
Inadequate Field of View

LEGEND

Type III Barricade — Channelizing Devices — Flag
Heavy Work Vehicle — Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel — Portable Changeable Message Sign
Flagger — Sign Post

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing X Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'
35		205'	225'	245'	35'	70'-90'	160'
40		265'	295'	320'	40'	80'-100'	240'
45	L=WS	450'	495'	540'	45'	90'-110'	320'
50		500'	550'	600'	50'	100'-125'	400'
55		550'	605'	660'	55'	110'-140'	500'
60		600'	660'	720'	60'	120'-150'	* 600'
65		650'	715'	780'	65'	130'-165'	* 700'
70		700'	770'	840'	70'	140'-175'	* 800'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

TYPICAL USAGE: MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES:

1. Flags attached to signs are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
3. The BE PREPARED TO STOP sign may be installed after the ONE LANE ROAD AHEAD sign, but proper sign spacing shall be maintained.
4. ROAD WORK AHEAD sign may be repeated if the visibility of the work zone is less than 1500'.

TCP(1-2a)

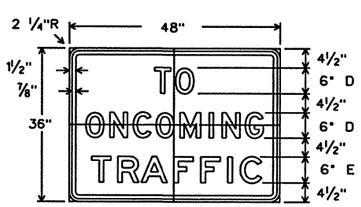
5. YIELD sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work zones should be no longer than one half city block. In rural areas on roadways with less than 4000 ADT, work areas should be no longer than 400'.
6. YIELD TO ONCOMING TRAFFIC sign shall be placed on a support at a 7' minimum mounting height.

TCP(1-2b)

7. Flaggers should use two-way radios or other methods of communication to control traffic.
8. Length of work area should be based on the ability of flaggers to communicate.
9. Distance along curve of work area should be adequate length for motorists to identify and react to flagger signals.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us



SR1-2b
48" x 36"

Letters - Black
Background - White
Reflective

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(1-2)-98

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DN: LR	CK: MT	DW: DN	CK: MT	MEG NO.:

REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
4-90 2-94 1-97 4-98	LAREDO	6	NH - 2002 (79)	238
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062-ETC	IH 35

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DATE: ACC: FILE:
LEVELS OF

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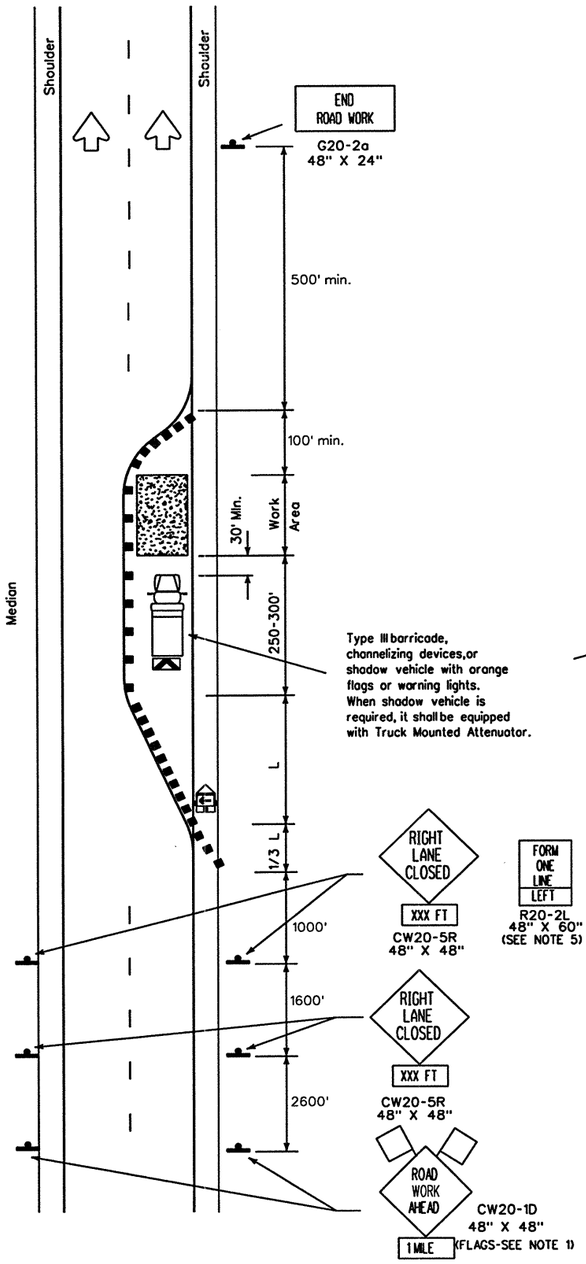
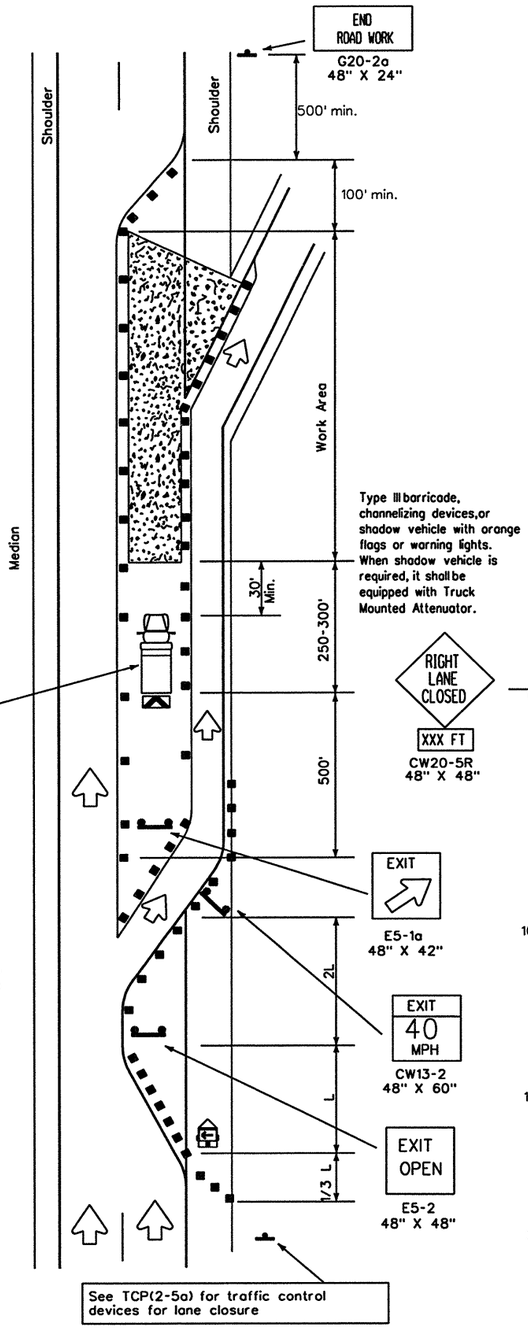
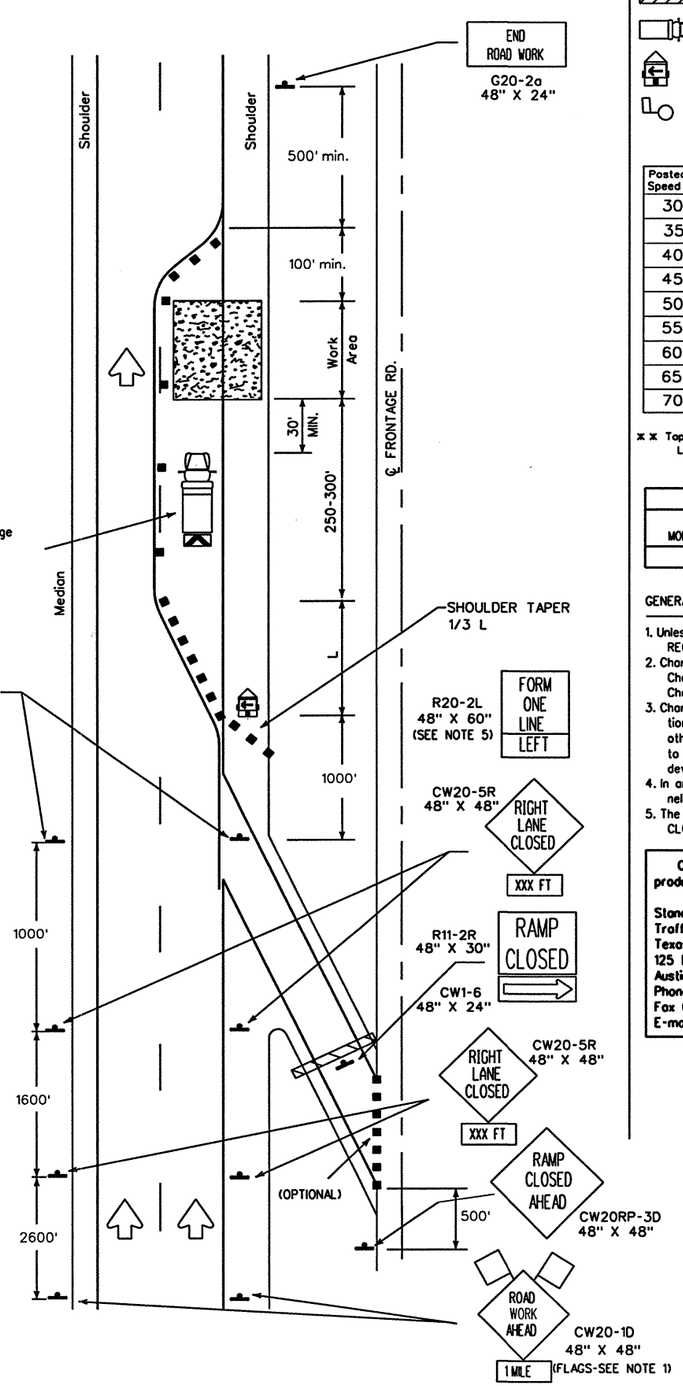


TCP (2-6a)
One Lane Closure



TCP (2-6b)
Lane Closure Near Exit Ramps



TCP (2-6c)
Lane Closure Near Entrance Ramps

LEGEND

Type III Barricade
Channelizing Devices
Flag
Heavy Work Vehicle
Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel
Portable Changeable Message Sign
Flagger
Sign Post

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

TYPICAL USAGE: MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

GENERAL NOTES:

1. Unless otherwise stated in the plans, flags attached to signs are REQUIRED.
2. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
3. Channelizing devices used along the work area or along tangent sections may be supplemented with vertical panels (VP) placed on every other channelizing device. If night time conditions make it difficult to see at least two VP's, the VP's may be placed on each channelizing device.
4. In areas with safety lighting or continuous illumination the channelizing devices can be supplemented with delineators.
5. The FORM ONE LINE LEFT sign may be used following the RIGHT LANE CLOSED sign.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

The requirement for shadow vehicles will be listed in the project GENERAL NOTES, Item 502, Barricades, Signs and Traffic Handling.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(2-6)-98

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DN: LR	CK: MT	DW: DN	CK: DM	REQ NO.:

REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
2-94	LAREDO	6	NH - 2002 (79)	239
8-95	COUNTY	CONTROL	SECT JOB	HIGHWAY
1-97	WEBB	0018	05 062-ETC	IH 35

DN: CK: DW: CK:
DATE:
ACC:
FILE:
LEVELS DISPL
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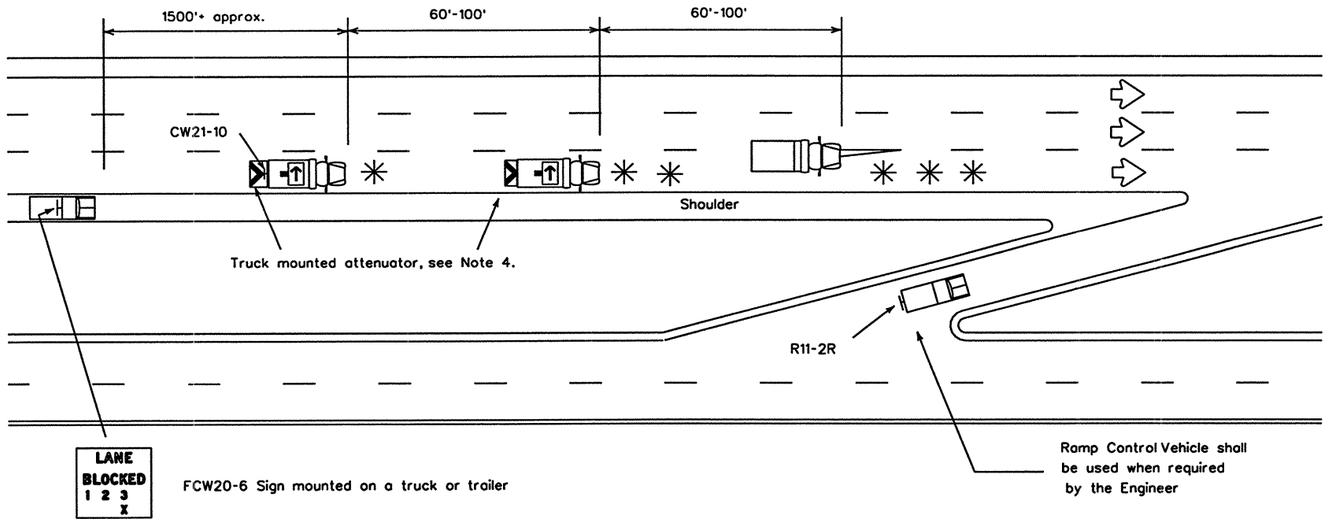
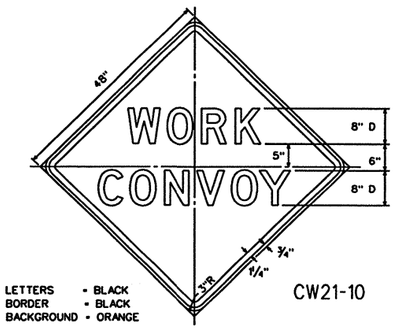




Legend:

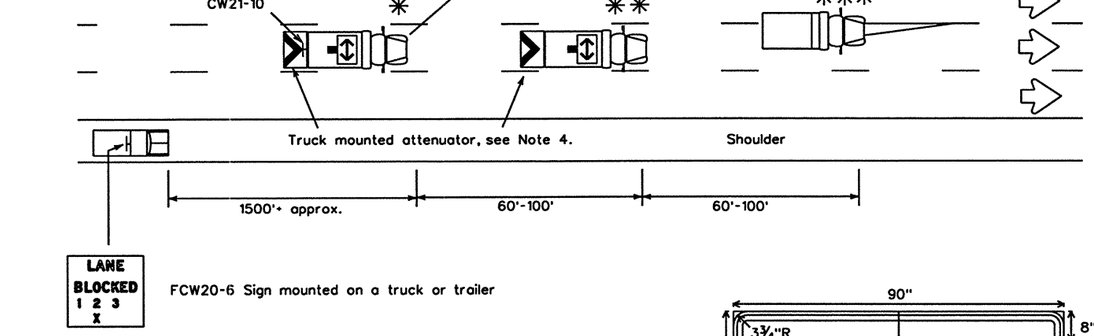
- ✱ TRAIL VEHICLE
- ✱✱ SHADOW VEHICLE
- ✱✱✱ WORK VEHICLE
- Truck mounted attenuator
- HEAVY WORK VEHICLE

Arrow Panel Displays

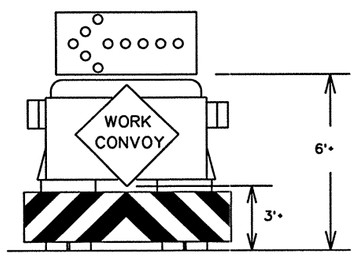
- RIGHT Directional
- LEFT Directional
- RIGHT or LEFT Directional
- CAUTION mode

GENERAL NOTES:

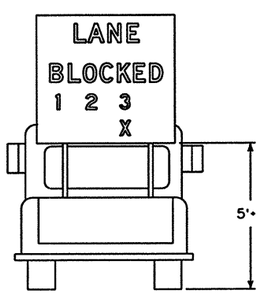
1. TRAIL, SHADOW, LEAD, and work vehicles shall be equipped with arrow panels as illustrated. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
3. The use of yellow rotating beacons or strobe lights on vehicles are required unless otherwise stated elsewhere in the plans.
4. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and the TRAIL VEHICLE are required.
5. Optional striping on the back panel of all truck mounted attenuators shall be 8" red and white reflective sheeting placed in an inverted "V" design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION D-9-8300, TYPE C.
6. Flashing Arrow Panels shall be Type B or Type C as per BC Standards. The panel operation shall be controlled from inside the vehicle.
7. Each vehicle shall have two-way radio communication capability.
8. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
9. Vehicle spacing between TRAIL VEHICLE and SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE.
10. The LANE BLOCKED sign (FCW20-6) shall be used on divided highways and may be mounted on a truck or trailer. For divided highways with two lanes in each direction, the RIGHT or LEFT LANE CLOSED sign (CW20-5, 48" x 48") may be substituted for the LANE BLOCKED sign (FCW20-6).



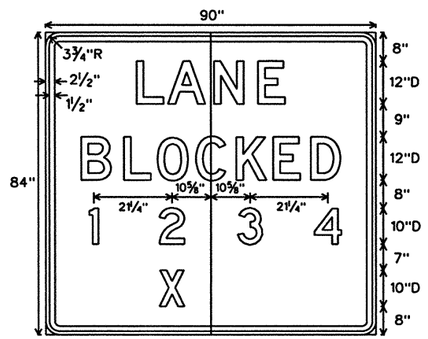
Shadow and trail vehicle shall be equipped with Truck Mounted Attenuator.



Typical Trail Vehicle with LEFT Directional display Flashing Arrow Panel

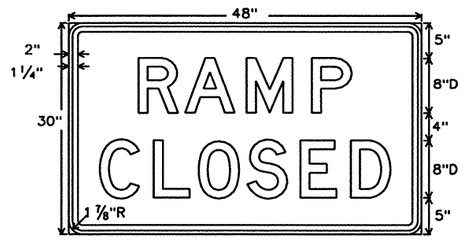


Typical Advance Warning Vehicle



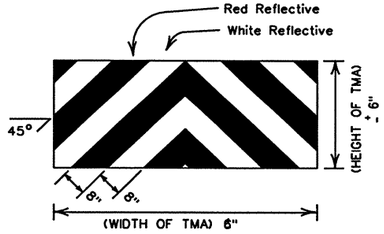
FCW20-6

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - ORANGE



R11-2R

LETTERS - BLACK
BORDER - BLACK
BACKGROUND - WHITE



OPTIONAL STRIPING FOR TMA

STRIPING FOR TMA WILL BE REQUIRED ON ALL PROJECTS AWARDED AFTER JANUARY 1, 2000

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

TCP(3-2)-98

© TxDOT December 1985 | DN: LR | CK: | DW: DN | CK: DM | MEG NO.:

REVISIONS: 2-94, 8-95, 1-97, 4-98

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
LAREDO	6	NH - 2002 (79)	240
COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

DN: CK: DW: CK:
DATE: ACC: FILE:
LEVELS DISP
HOUFILE023 \HCIVIL\CF0130 04/18/03
B50TXP03.DGN

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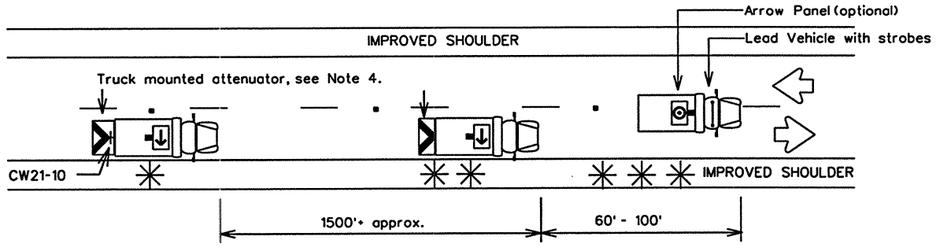
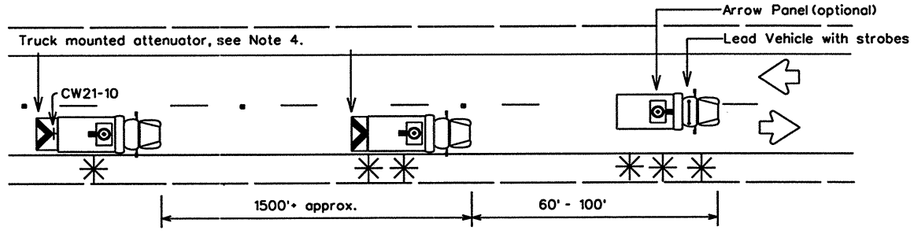
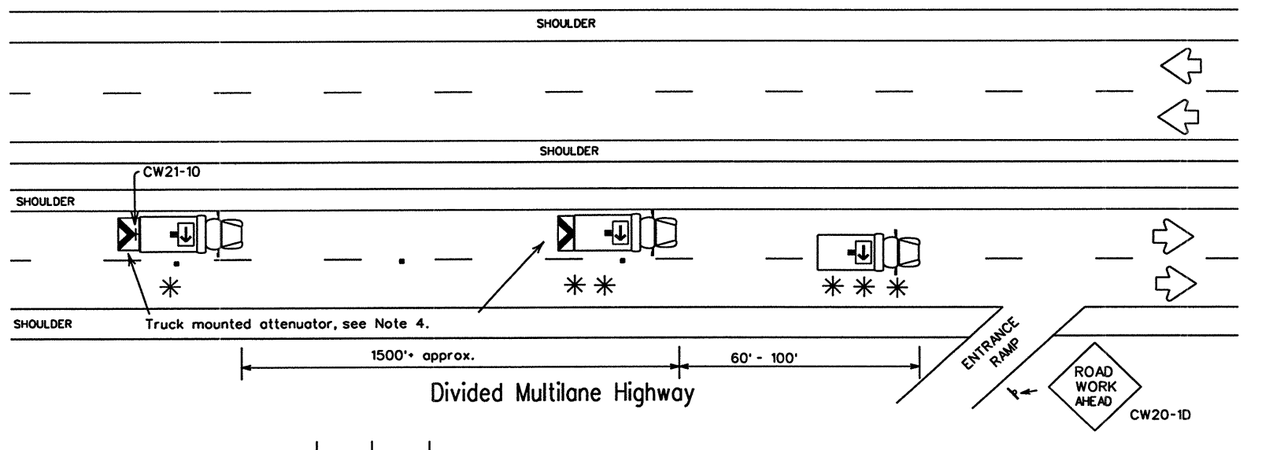


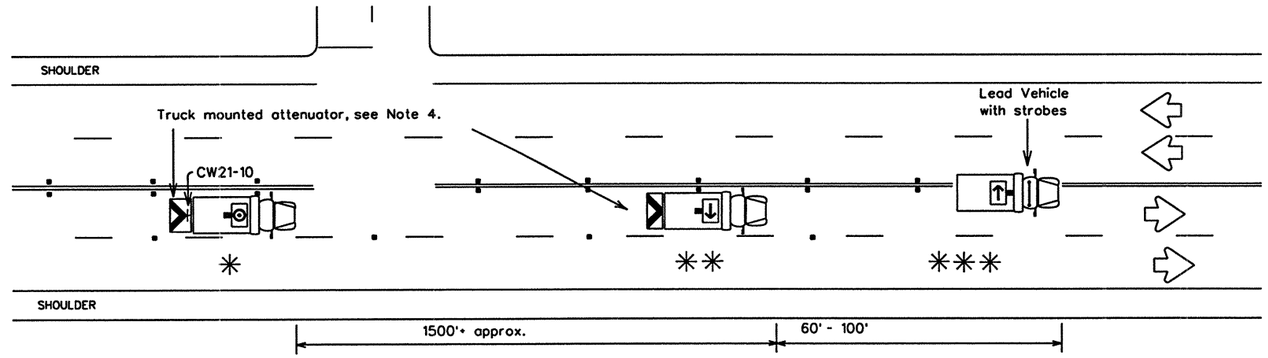
Two Lane Highway With Paved Shoulders (work on travel lane)



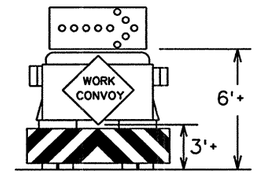
Two Lane Highway Without Paved Shoulders (work on travel lane)



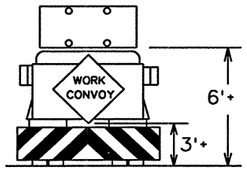
Divided Multilane Highway



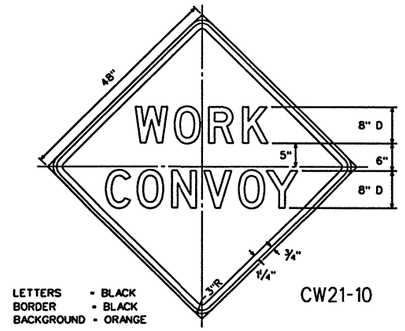
Undivided Multilane Highway



TYPICAL TRAIL VEHICLE
RIGHT Directional display
Flashing Arrow Panel



TYPICAL TRAIL VEHICLE
with (four corner flash)
CAUTION display
Flashing Arrow Panel



CW21-10

Legend:

- * TRAIL VEHICLE
- ** SHADOW VEHICLE
- *** WORK VEHICLE
- Truck mounted attenuator
- HEAVY WORK VEHICLE

Arrow Panel Displays

- RIGHT Directional
- LEFT Directional
- RIGHT or LEFT Directional
- CAUTION mode

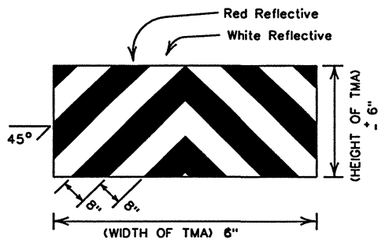
GENERAL NOTES:

1. TRAIL, SHADOW, LEAD, and work vehicles shall be equipped with arrow panels as illustrated. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
3. The use of yellow rotating beacons or strobe lights on vehicles are required unless otherwise stated elsewhere in the plans.
4. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and the TRAIL VEHICLE are required.
5. Optional striping on the back panel of all truck mounted attenuators shall be 8" red and white reflective sheeting placed in an inverted "V" design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION D-9-8300, TYPE C.
6. Flashing Arrow Panels shall be Type B or Type C as per BC Standards. The panel operation shall be controlled from inside the vehicle.
7. Each vehicle shall have two-way radio communication capability.
8. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
9. Vehicle spacing between TRAIL VEHICLE and SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

Shadow and trail vehicle shall be equipped with Truck Mounted Attenuator.



OPTIONAL STRIPING FOR TMA

STRIPING FOR TMA WILL BE REQUIRED ON ALL PROJECTS AWARDED AFTER JANUARY 1, 2000

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION

TCP(3-3)-98

©TxDOT September 1987	DN: LR	CK:	DW: DN	CK: DM	MEG NO.:			
REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT			SHEET		
2-94	LAREDO	6	NH - 2002 (79)			241		
8-95	COUNTY	CONTROL	SECT	JOB		HIGHWAY		
1-97	WEBB	0018	05	062-ETC		IH 35		
4-98								

LEVELS DGN
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

DN: CK: DW: CK:
DATE: ACC: FILE:

HOUFILE023 \HCIVIL\CF0130 04/18/03
B50TXP03.DGN

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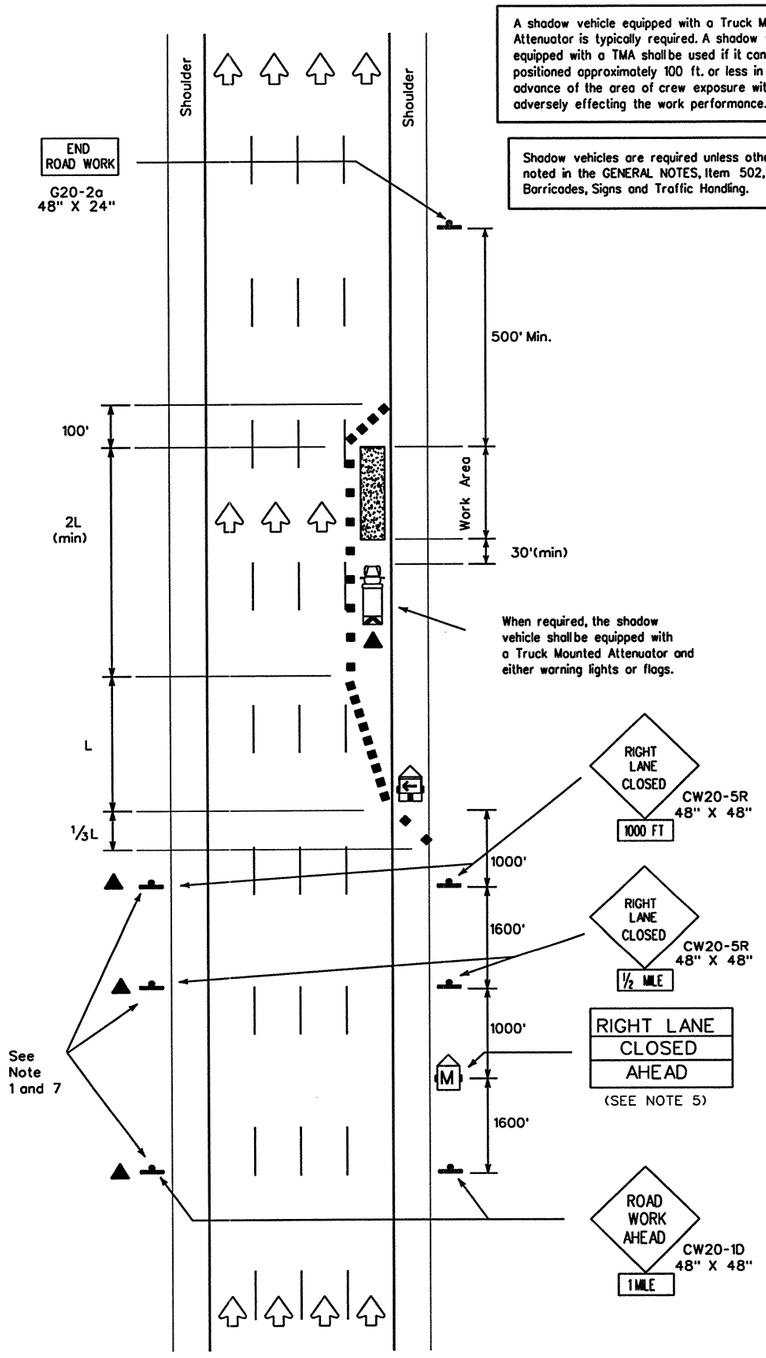
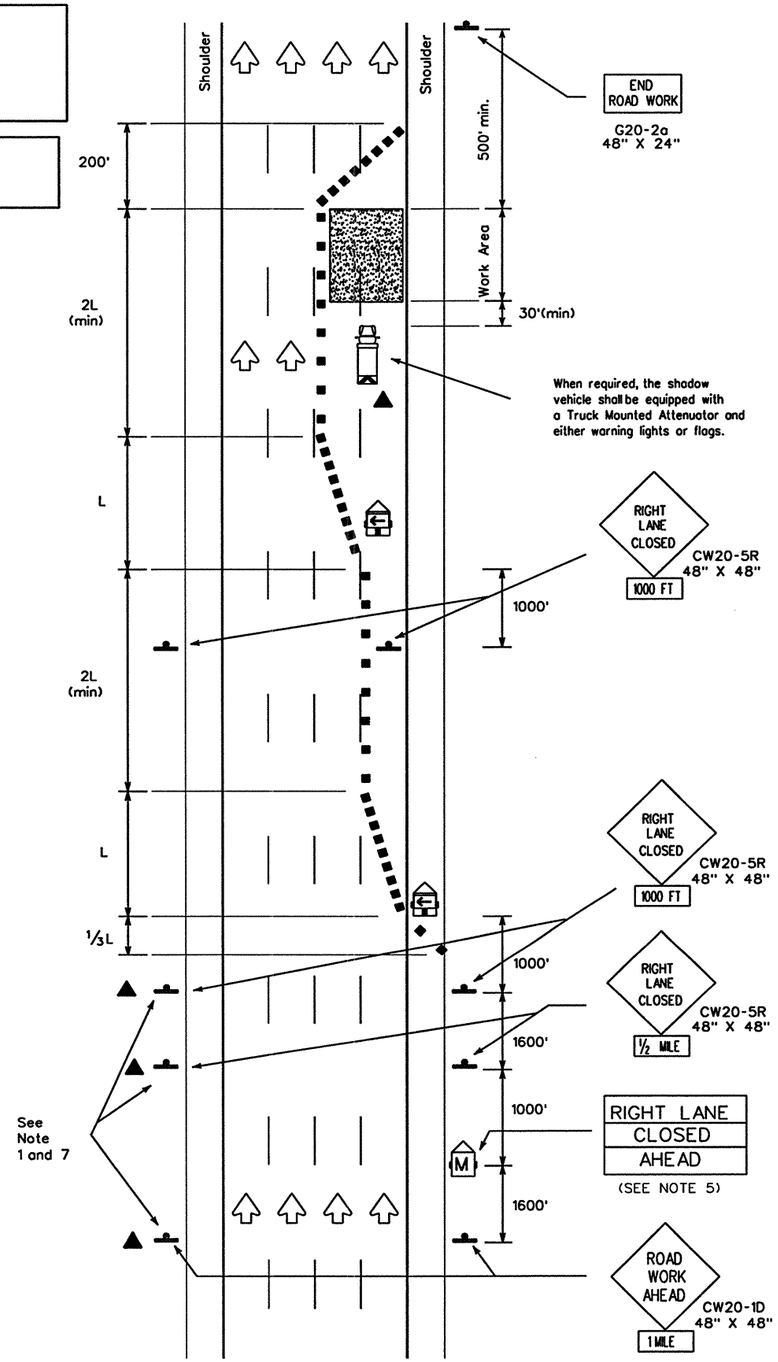


TCP (6-1a)
Typical Freeway
One Lane Closure



TCP (6-1b)
Typical Freeway
Two Lane Closure

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign
Flagger Sign Post

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

GENERAL NOTES:

1. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. Drums are the typical channelizing device. Cones or other devices may be used if approved by the Engineer. Drums shall be used during nighttime operations.
3. All construction signs and barricades placed during any phase of work shall remain in place until removal is approved by the Engineer.
4. The Engineer may direct the Contractor to furnish additional signs and barricades as required to maintain traffic flow and motorist safety during construction.
5. Static message board or changeable message signs stating the date and duration of ramp or freeway closure shall be placed a minimum of seven (7) calendar days in advance of actual closure.
6. High level warning flags should be used on advance warning signs during daytime operations. Warning lights may be used to add emphasis to advance warning signs during nighttime operations.
7. Duplicate construction warning signs should be erected on the median side of freeways where median width will permit and traffic volume justifies the signing.
8. The number of closed lanes may be increased provided the spacings of traffic control devices, taper lengths and tangent lengths meet the requirements of the TMUTCD.
9. Warning signs shown shall be appropriately altered for left lane closures.
10. The TCP details may require additional and/or relocation of route shields, guide signs, etc. to guide motorists along entire length of detour due to ramp and freeway closures.
11. See BC Standards for additional sign details.
12. When possible, changeable message signs should be located 500 feet in advance of the last available exit ramp prior to the lane closure to allow motorists an alternate route.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN
FREEWAY LANE CLOSURE

TCP(6-1)-98A

©TxDOT February 1994

DN: LR	CK: CW	DW: DN	CK: MT	MEG NO.:

REVISIONS 1-97, 4-98, 8-98

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
LAREDO	6	NH - 2002 (79)	242

COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

DN: CK: DW: CK:
DATE: ACC: FILE:
LEVELS DISP
HOUFILE023 \HCIVIL\CF0130 04/18/03
B50TXP04.DGN

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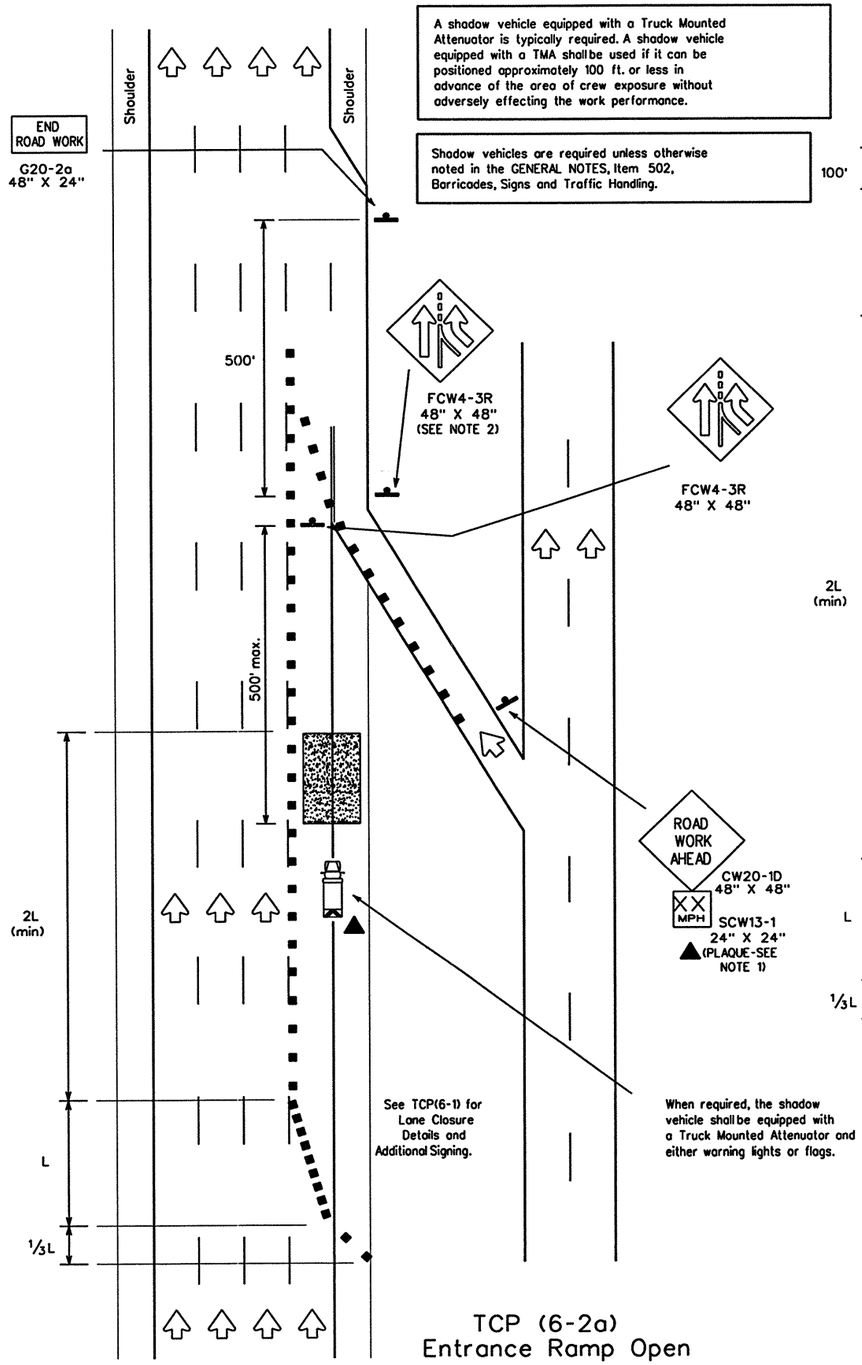
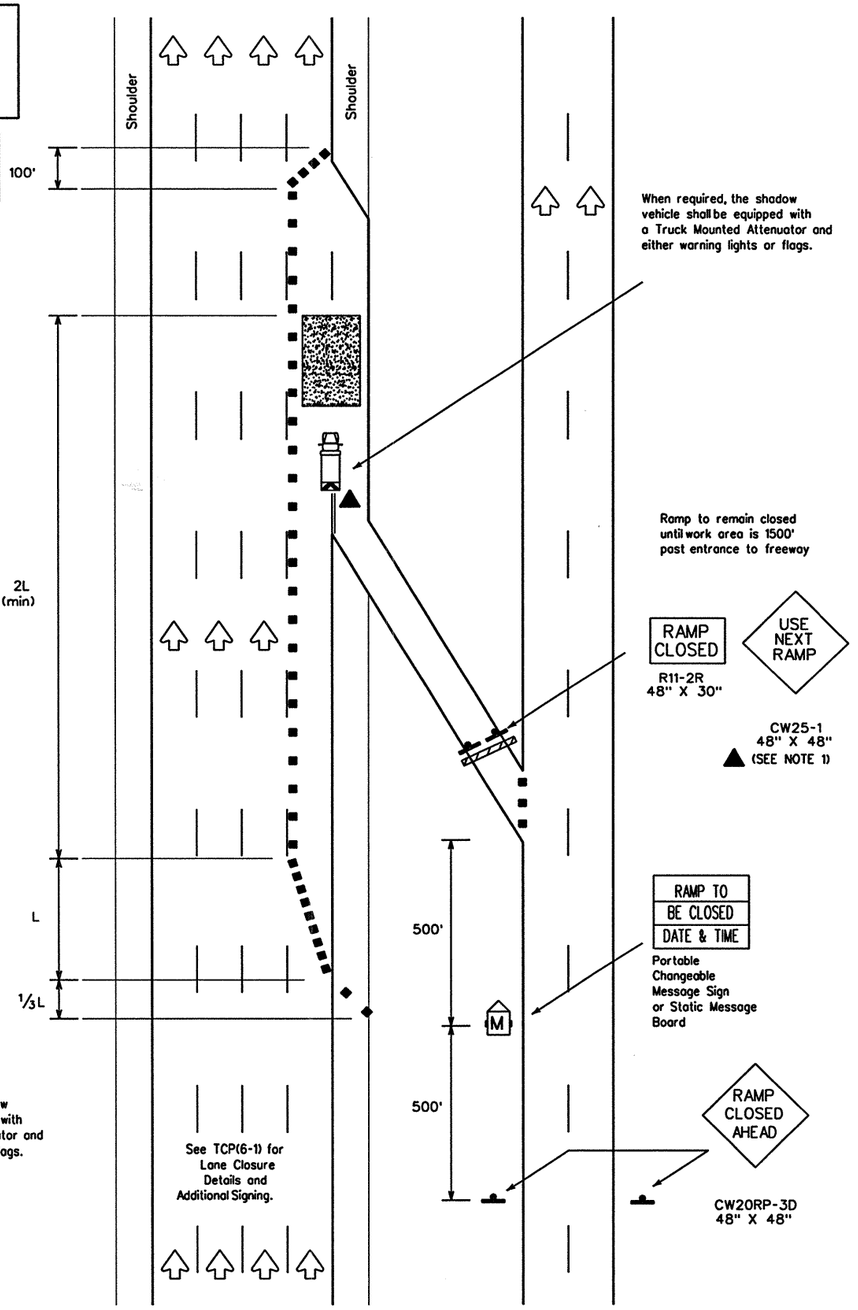


TCP (6-2a)
Entrance Ramp Open
Work Within 500' of Ramp



TCP (6-2b)
Entrance Ramp Closed

LEGEND

Type III Barricade
Channelizing Devices
Flag
Heavy Work Vehicle
Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel
Portable Changeable Message Sign
Flagger
Sign Post

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES:

1. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. ADDED LANE Symbol (FCW4-3R) sign may be omitted when sign between ramp and mainlane can be seen from both roadways.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

ADDITIONAL REQUIREMENTS FOR LANE CLOSURES AND ADVANCE SIGNING SHALL BE AS SHOWN ON TCP (6-1) OR AS DIRECTED BY THE ENGINEER.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN
WORK AREA NEAR RAMP

TCP(6-2)-98A

© TxDOT February 1994

DN: LR	CK: CW	DW: DN	CK: MT	MEG NOJ

REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
1-97	LAREDO	6	NH - 2002 (79)	243
4-98	COUNTY	CONTROL	SECT / JOB	HIGHWAY
8-98	WEBB	0018	05 / 062-ETC	IH 35

LEVELS DSP
1 2 3 4 5 6 7 8 9
17 18 19 20 21 22 23 24 25
33 34 55 56 57 58 59 04 11 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 80 61 62 63

DATE:
ACC:
FILE:
DN:
CK:
DW:
CK:

HOUFILE023 \HCIVIL\CF0130 04/18/03
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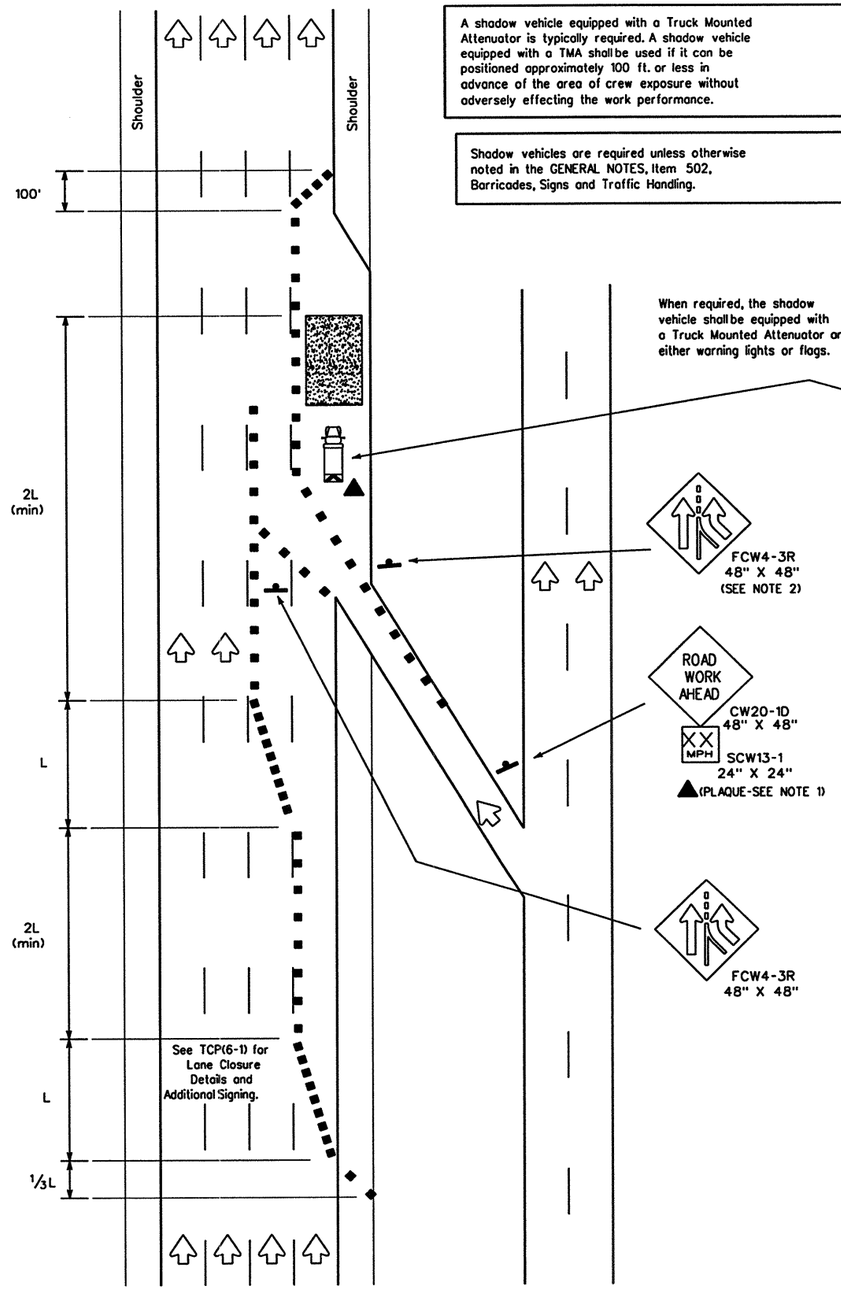
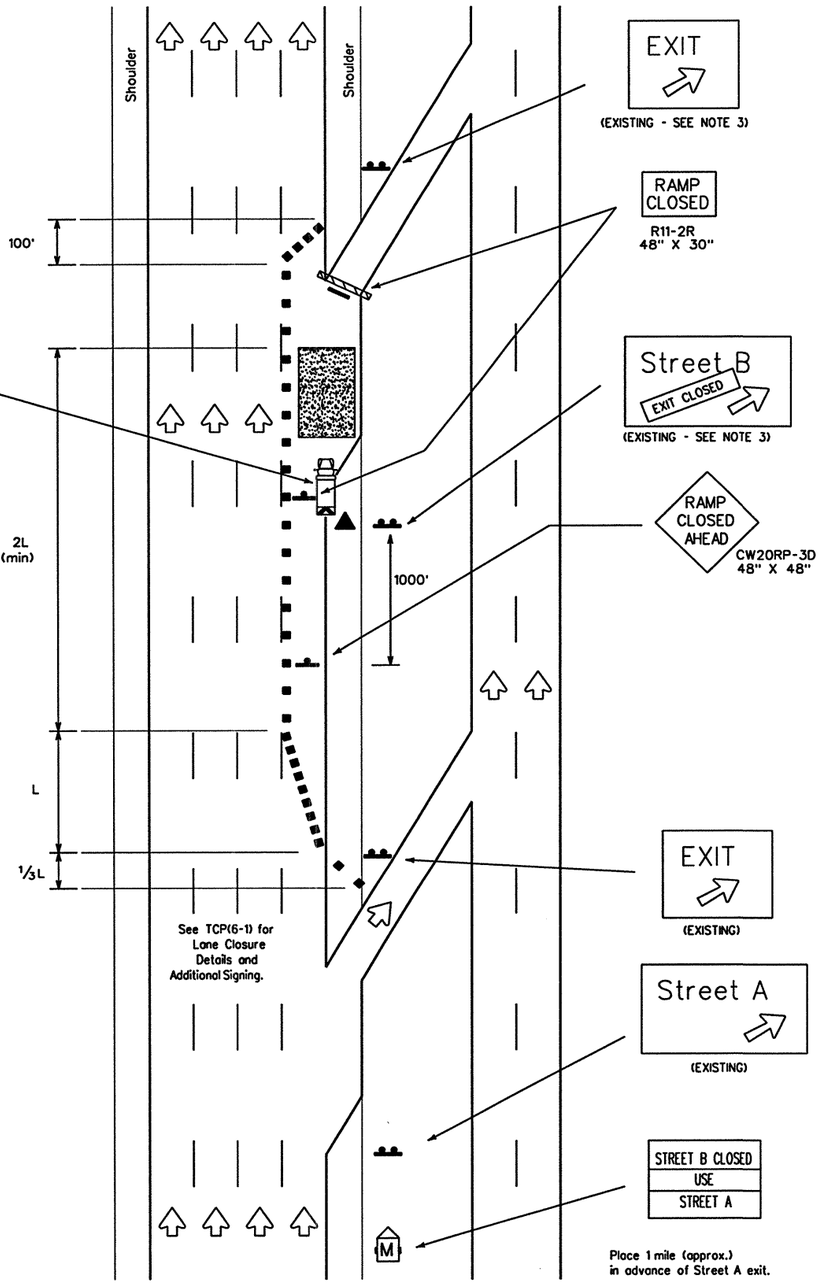
A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned approximately 100 ft. or less in advance of the area of crew exposure without adversely effecting the work performance.

Shadow vehicles are required unless otherwise noted in the GENERAL NOTES, Item 502, Barricades, Signs and Traffic Handling.



TCP (6-3a)
Entrance Ramp Open



TCP (6-3b)
Exit Ramp Closed
Traffic Exits Prior to Closed Ramp

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign
Flagger Sign Post

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
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50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES:

1. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. ADDED LANE (FCW4-3R) sign may be omitted when sign between ramp and mainlane can be seen from both roadways.
3. Existing exit gore, exit direction, and advance guide signs not in use should be covered, removed or EXIT CLOSED (CW26-1T) sign attached. See BC Standards for sign details.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

ADDITIONAL REQUIREMENTS FOR LANE CLOSURES AND ADVANCE SIGNING SHALL BE AS SHOWN ON TCP (6-1) OR AS DIRECTED BY THE ENGINEER.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(6-3)-98A

© TxDOT February 1994

DN: LR	CK: CW	DW: DN	CK: MT	MEG NO.:

REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
1-97	LAREDO	6	NH - 2002 (79)	244
4-98	COUNTY	CONTROL	SECT JOB	HIGHWAY
8-98	WEBB	0018	05 062-ETC	IH 35

DN: CK: DW: CK:
DATE: ACC: FILE:
LEVELS DISP
HOUFILE023 \HCIVIL\CF0130 04/18/03
B50TXP04.DGN

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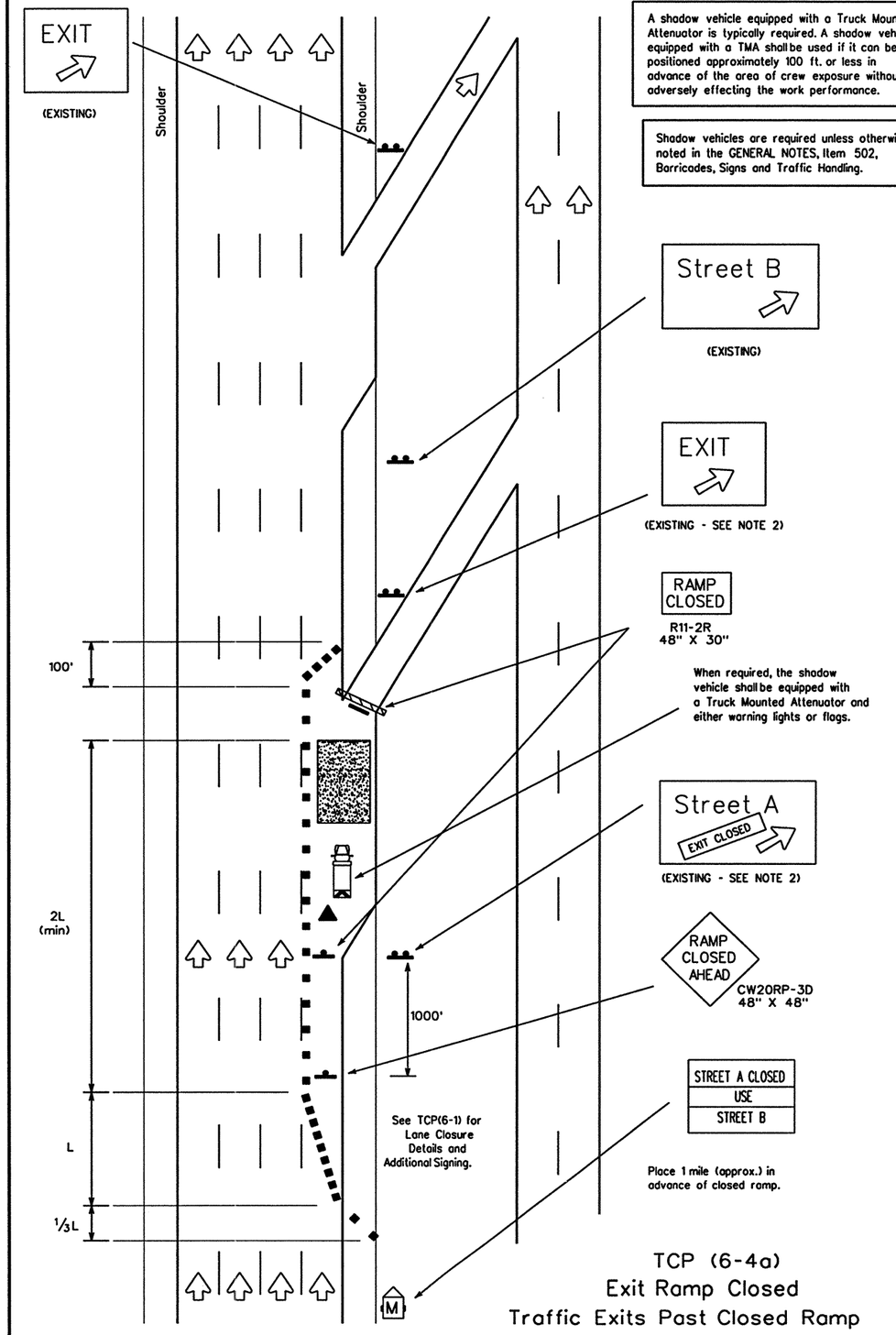
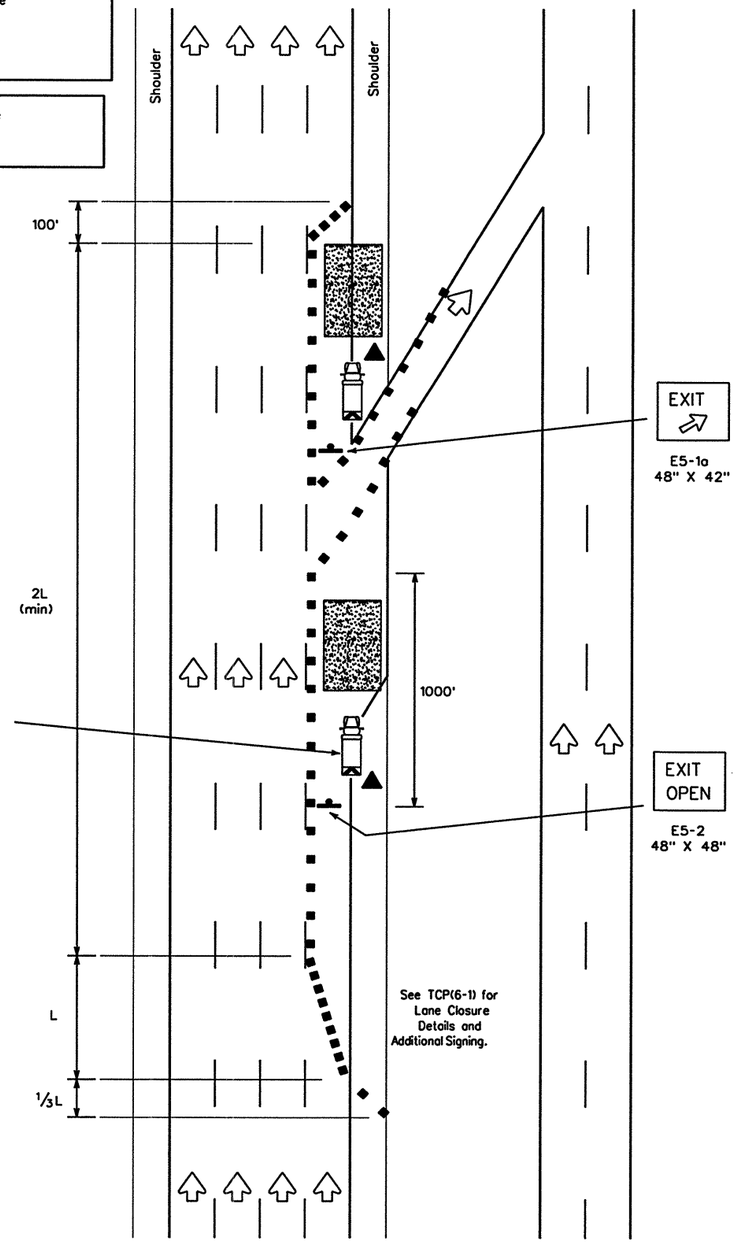


TCP (6-4a)
Exit Ramp Closed
Traffic Exits Past Closed Ramp



TCP (6-4b)
Exit Ramp Open

LEGEND

Type III Barricade
Channelizing Devices
Flag
Heavy Work Vehicle
Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel
Portable Changeable Message Sign
Flagger
Sign Post

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55		550'	605'	660'	55'	110'-140'
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65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

TYPICAL USAGE: MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES:

1. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. Existing exit gore, exit direction, and advance guide signs not in use should be covered, removed or EXIT CLOSED (CW26-1T) sign attached.
3. See BC Standards for sign details.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

ADDITIONAL REQUIREMENTS FOR LANE CLOSURES AND ADVANCE SIGNING SHALL BE AS SHOWN ON TCP (6-1) OR AS DIRECTED BY THE ENGINEER.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(6-4)-98A

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DN: LR	CK: CW	DW: DN	CK: MT	MEG NO.:

REVISIONS
1-97
4-98
8-98

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
LAREDO	6	NH - 2002 (79)	245

COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

DN:
CK:
DW:
CK:
DATE:
ACC:
FILE:

LEVELS DISP
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

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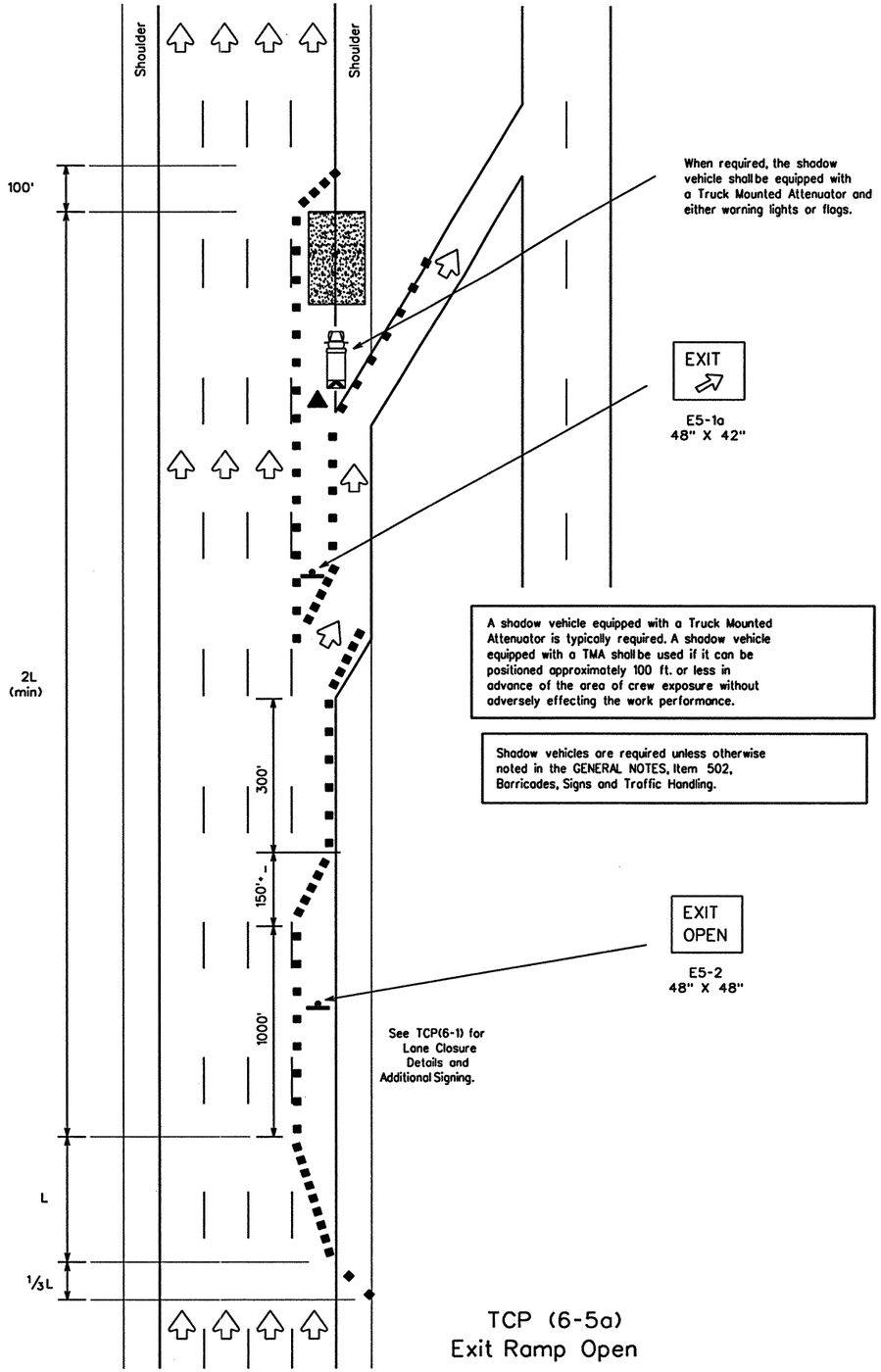
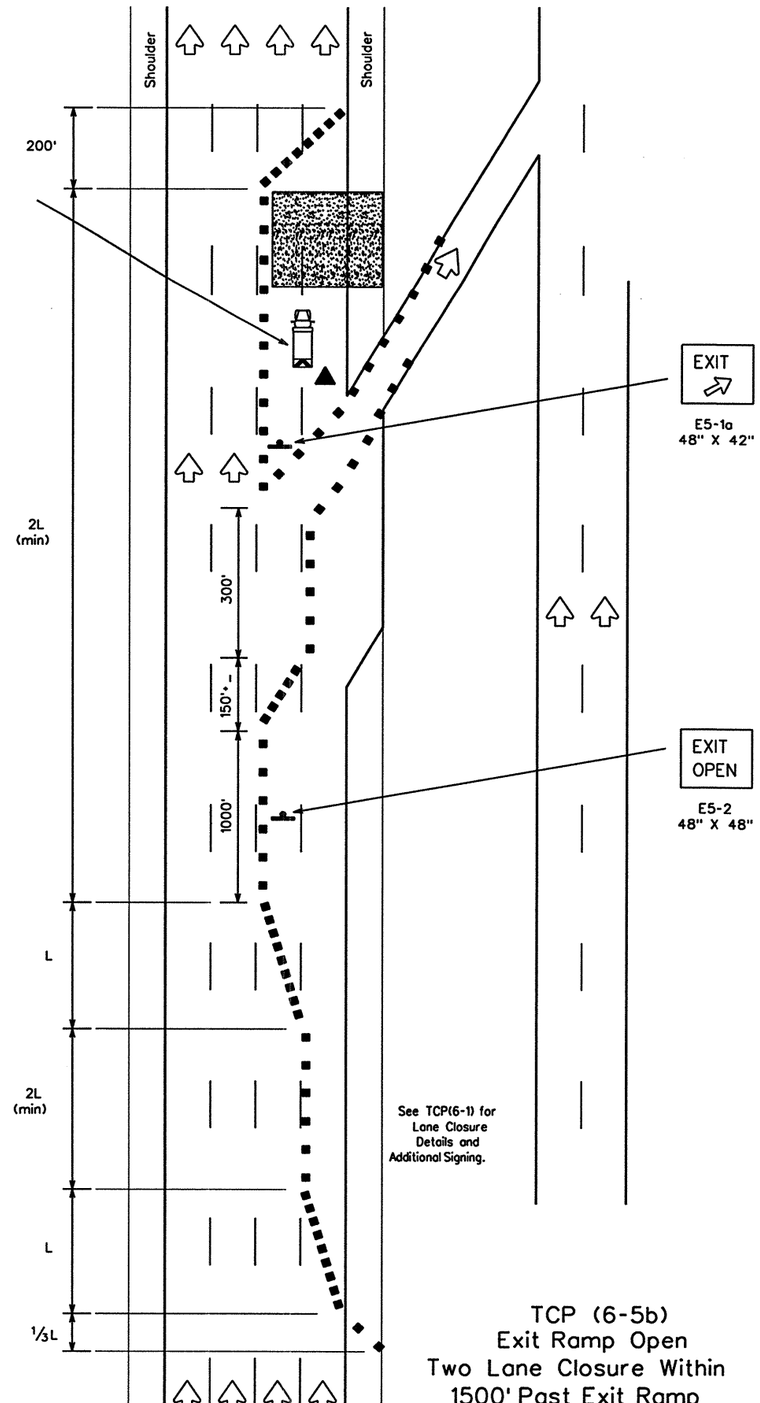


TCP (6-5a)
Exit Ramp Open



TCP (6-5b)
Exit Ramp Open
Two Lane Closure Within
1500' Past Exit Ramp

LEGEND

Type III Barricade
Channelizing Devices
Flag
Heavy Work Vehicle
Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel
Portable Changeable Message Sign
Flagger
Sign Post

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'

** Taper lengths have been rounded off.
L-Length of Taper (FT.) W-Width of Offset (FT.) S-Posted Speed (MPH)

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. See BC standards for sign details.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

ADDITIONAL REQUIREMENTS FOR LANE CLOSURES AND ADVANCE SIGNING SHALL BE AS SHOWN ON TCP (6-1) OR AS DIRECTED BY THE ENGINEER.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(6-5)-98A

© TxDOT February 1994

DN: LR	CK: CW	DW: DN	CK: MT	MCG NO.:

REVISIONS
1-97
4-98
8-98

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
LAREDO	6	NH - 2002 (79)	246

COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

DN: CK: DW: CK:
DATE: ACC: FILE:
LEVELS DISABLED
HOUFILE023 \HCIVIL\CF0130 04/18/03
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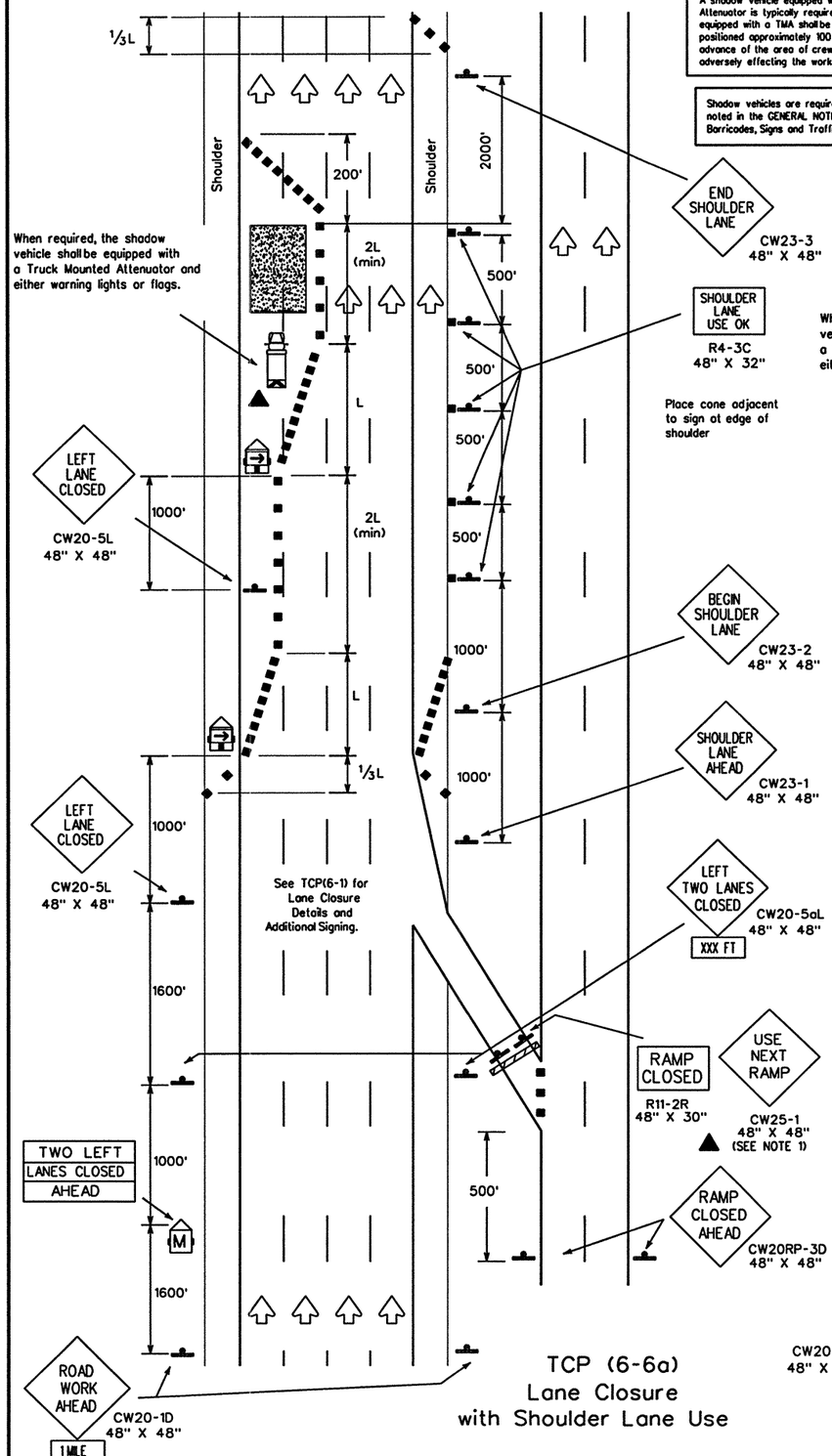
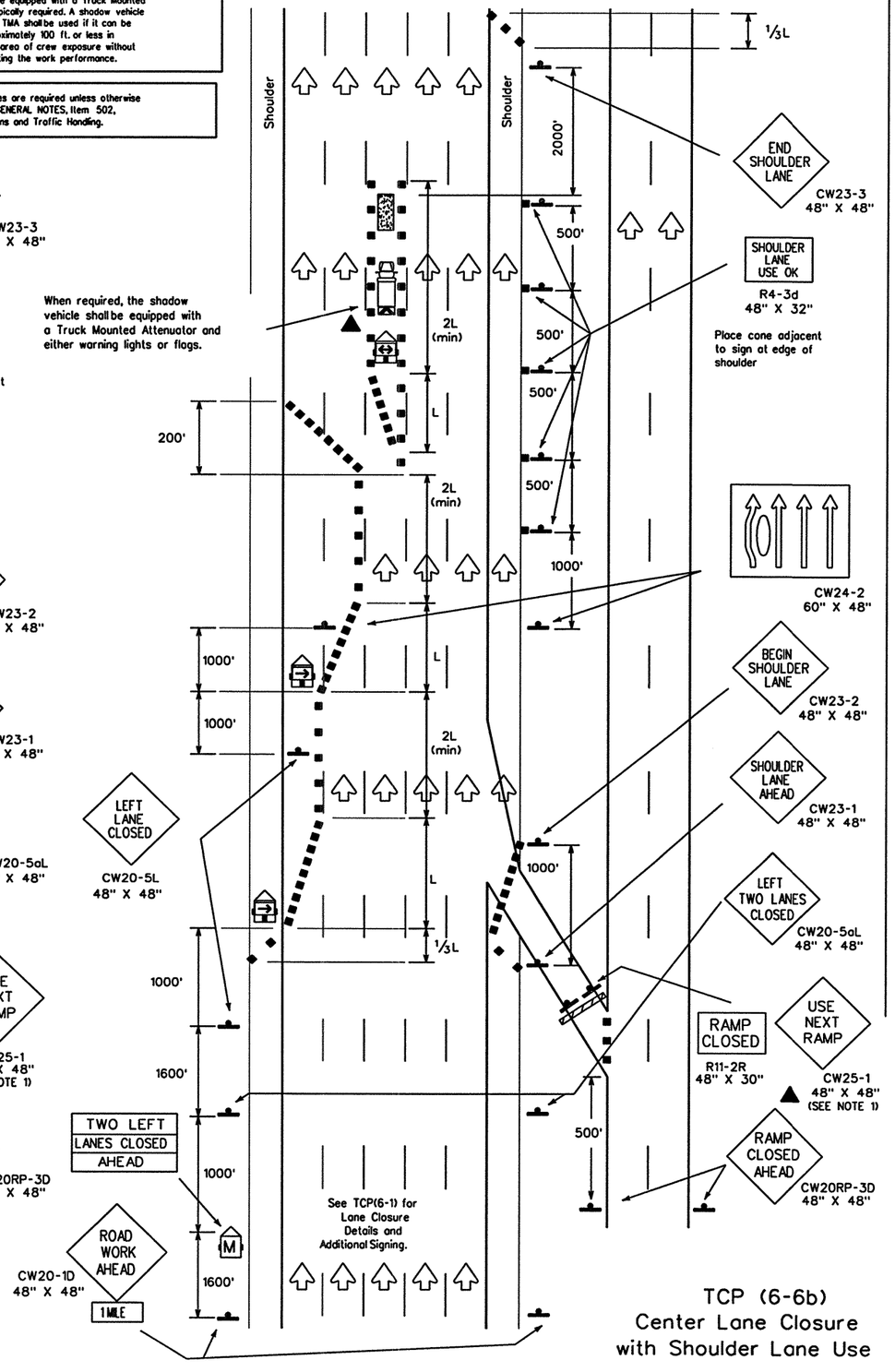
A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned approximately 100 ft. or less in advance of the area of crew exposure without adversely effecting the work performance.

Shadow vehicles are required unless otherwise noted in the GENERAL NOTES, Item 502, Barricades, Signs and Traffic Handling.



TCP (6-6a)
Lane Closure
with Shoulder Lane Use

When required, the shadow vehicle shall be equipped with a Truck Mounted Attenuator and either warning lights or flags.



TCP (6-6b)
Center Lane Closure
with Shoulder Lane Use

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign
Flagger Sign Post

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

TYPICAL USAGE: MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES:

1. All traffic control devices illustrated are REQUIRED, except those denoted with the traingle symbol may be omitted when stated elsewhere in the plans.
2. See BC Standards for additional sign details.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

ADDITIONAL REQUIREMENTS FOR LANE CLOSURES AND ADVANCE SIGNING SHALL BE AS SHOWN ON TCP (6-1) OR AS DIRECTED BY THE ENGINEER.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(6-6)-98A

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DN: LR	CK: CW	DW: DN	CK: MT	MSG NO.:

REVISIONS: 1-97, 4-98, 8-98

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
LAREDO	6	NH - 2002 (79)	247

COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

DN: CK: DW: CK:
DATE: ACC: FILE:
LEVELS DGN: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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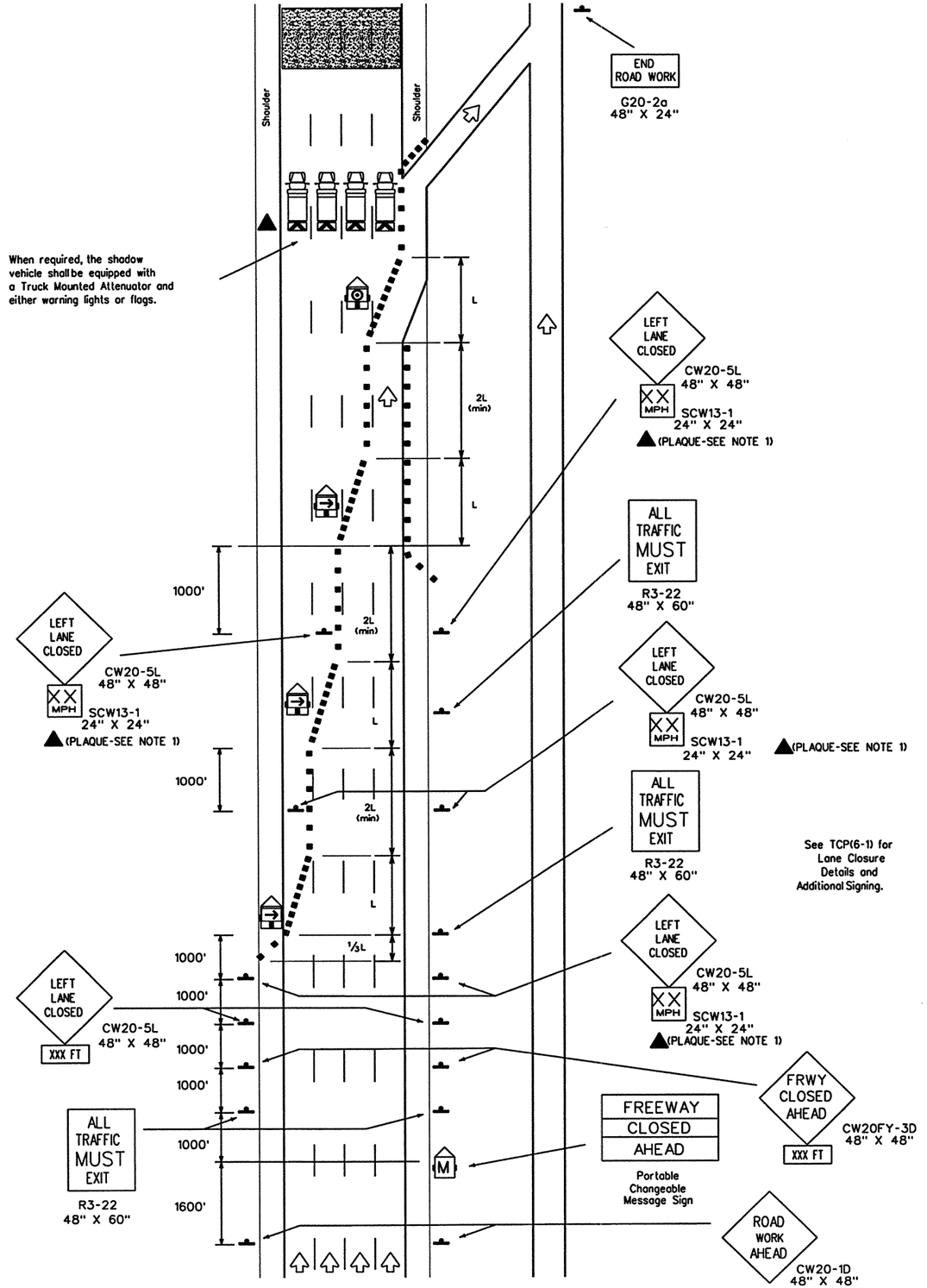
A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned approximately 100 ft. or less in advance of the area of crew exposure without adversely effecting the work performance.

Shadow vehicles are required unless otherwise noted in the GENERAL NOTES, Item 502, Barricades, Signs and Traffic Handling.



TCP (6-7)
Complete Freeway Closure

LEGEND

- Type III Barricade
- Channelizing Devices
- Flag
- Heavy Work Vehicle
- Truck Mounted Attenuator
- Trailer Mounted Flashing Arrow Panel (arrow mode)
- Portable Changeable Message Sign
- Trailer Mounted Flashing Arrow Panel (caution mode)
- Flagger
- Sign Post

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES:

1. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

ADDITIONAL REQUIREMENTS FOR LANE CLOSURES AND ADVANCE SIGNING SHALL BE AS SHOWN ON TCP (6-1) OR AS DIRECTED BY THE ENGINEER.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN
FREEWAY CLOSURE

TCP(6-7)-98A

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DN: LR	CK: CW	DW: DN	CK: MT	REQ NO.:

REVISIONS
1-97
4-98
8-98

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
LAREDO	6	NH - 2002 (79)	248

COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

LEVELS DGN: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
DATE:
ACC:
FILE:
DN:
CK:
DW:
CK:

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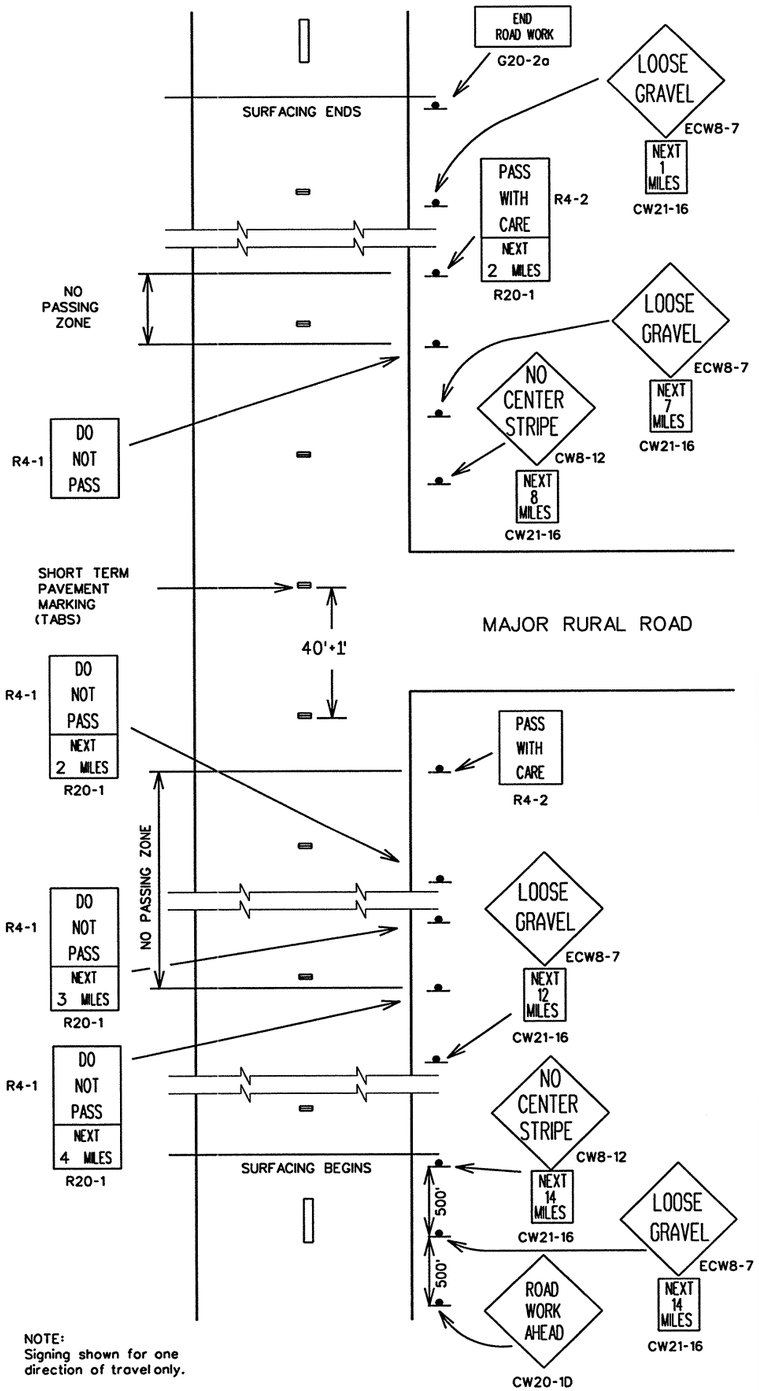
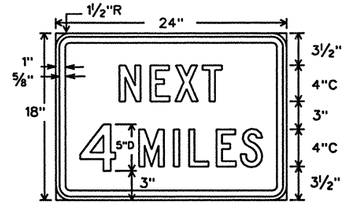


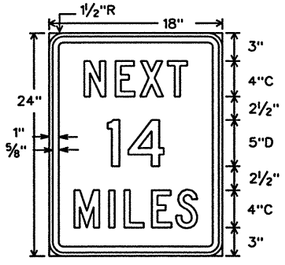
NOTE:
Signing shown for one direction of travel only.



R20-1
24"x18"

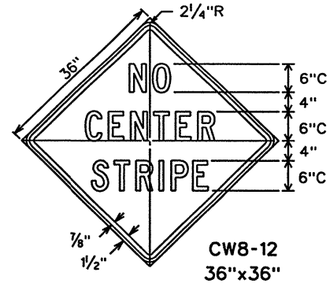
Legend - Black
Border - Black
Background - White Refl.

FOR USE WITH REGULATORY SIGNS ONLY



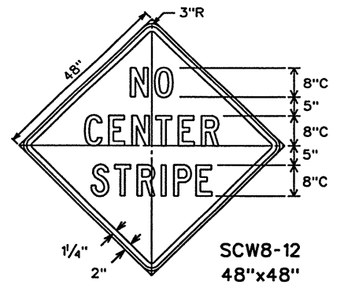
CW21-16
18"x24"

Legend - Black
Border - Black
Background - Orange Refl.



CW8-12
36"x36"

Legend - Black
Border - Black
Background - Orange Refl.



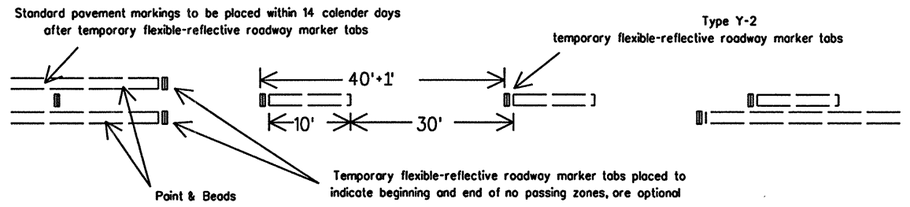
SCW8-12
48"x48"

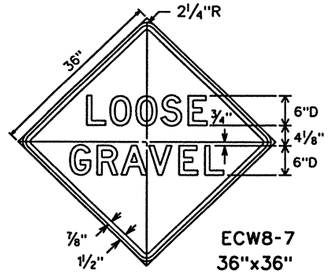
Legend - Black
Border - Black
Background - Orange Refl.

FOR USE WITH CONSTRUCTION WARNING SIGNS ONLY

TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS

for surfacing projects only





ECW8-7
36"x36"

Legend - Black
Border - Black
Background - Orange Refl.

GENERAL NOTES

The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where the surfacing operation has covered or obliterated existing pavement markings. These traffic control devices are to be used to supplement those required by BC Standards.

"DO NOT PASS" SIGN (R4-1) and NO-PASSING ZONES

Prior to the beginning of construction, all currently striped no-passing zones should be signed with the DO NOT PASS sign (R4-1) and PASS WITH CARE sign (R4-2) placed at the beginning and end of each zone for each direction of travel except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.

At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined and signed as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES sign (R20-1) may be used at the beginning of such zones. The DO NOT PASS and NEXT XX MILES signs should be repeated every mile to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of a no-passing zone may be signed with a PASS WITH CARE and NEXT XX MILES sign.

Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshields and lights. The DO NOT PASS and NEXT XX MILES sign should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with existing pavement markings. Also, unless one days operation completes the entire length of such combined zones, care must be taken to place DO NOT PASS and PASS WITH CARE signs in order to sign the beginning and end of the no-passing zones in the area where the surfacing operation has stopped for the day.

R4-1 and R4-2 signs should be mounted on fixed supports as detailed on BC Standards. These signs are to remain in place until standard pavement markings are placed.

"NO CENTER STRIPE" SIGN (CW21-15)

At the time construction activity obliterates the existing centerline (low volume roads may not have an existing centerline), a NO CENTER STRIPE sign (CW8-12) should be erected at each end of the work area and just beyond major rural intersections and other location deemed necessary by the Engineer. Where possible, the signs erected at each end of the work area should be located in such a manner that drivers can read the sign and immediately see the change to no centerline. The NO CENTER STRIPE sign should be supplemented with the NEXT XX MILES sign (CW21-16) mounted below it.

The NO CENTER STRIPE sign should be erected as detailed on BC Standards. These signs are to remain in place until standard pavement markings are placed.

"LOOSE GRAVEL" SIGN (ECW8-7)

When construction begins, a LOOSE GRAVEL sign (ECW8-7) should be erected at each end of the work area and repeated at intervals of approximately two (2) miles in rural areas and closer in urban areas. The LOOSE GRAVEL sign should be supplemented with the NEXT XX MILES sign (CW21-16) mounted below it.

The LOOSE GRAVEL sign should be erected as detailed on BC Standards. They should remain in place until the loose gravel condition no longer exists.

PAVEMENT MARKINGS

Short term pavement markings for surfacing projects shall use Temporary Flexible-reflective Roadway Marker Tabs. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement no more than two (2) days before the surfacing is applied. After the surfacing is rolled and swept the cover over the reflective strip shall be removed. Tabs shall NOT be used to simulate edge lines.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL DETAILS for SURFACING OPERATIONS

TCP(7-1)-98

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DN: LR	CK: MT	DW: DN	CK:	MEG NO.:

REVISIONS
4-92
1-97
4-98

DISTRICT	FED REG	FEDERAL AID PROJECT		SHEET
LAREDO	6	NH - 2002 (79)		249
COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

LEVELS DSF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

DN: CK: DW: CK:
DATE: 04/18/03
ACC:
FILE: HOUFILE023 \HCIVIL\CF0130 B50TXP05.DGN

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LEVELS DISPLAYED ACC:

| | | |

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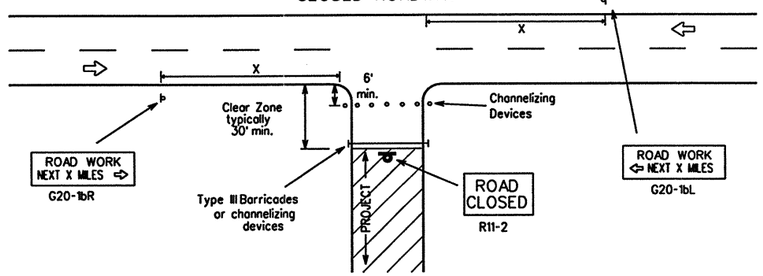
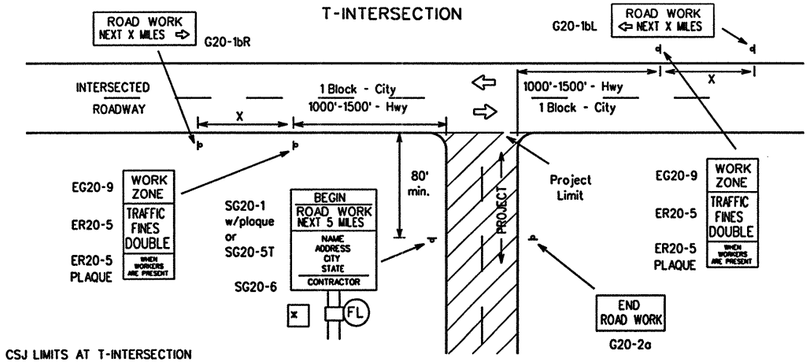
CLOSED ROADWAY



Barricades or channelizing devices shall be erected completely across roadway. Drums, vertical panels or cones shall be used in place of Type III Barricades when shown in plans or as specified by the Engineer.

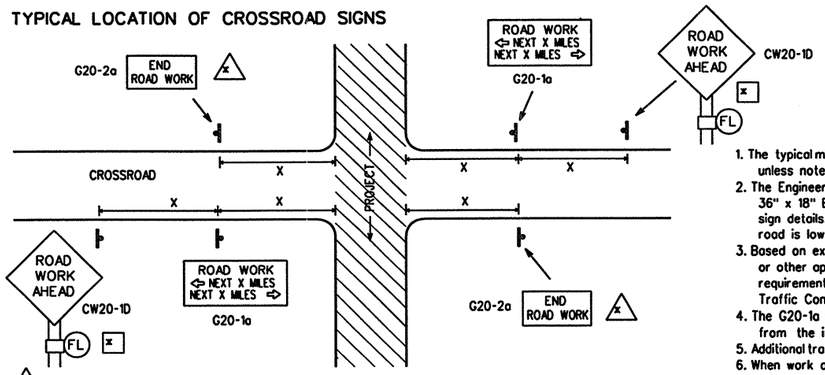
T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. A ROAD WORK NEXT X MILES (G20-1bR(L)) sign should be erected on the intersected highway as shown above.
2. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
3. The Engineer/Inspector shall ensure that construction work zone signs are installed with adequate spacing between the signs so the legibility of existing permanent and other work zone signs is not obstructed.

TYPICAL LOCATION OF CROSSROAD SIGNS



May be mounted on back of CW20-1D sign with approval of engineer. (See note 2 at right)

1. The typical minimum signing on a crossroad approach should be a CW20-1D ROAD WORK AHEAD sign and a G20-2a END ROAD WORK sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (MCW20-1D) sign mounted back to back with the reduced size 36" x 18" END ROAD WORK (SG20-2a) sign on low volume crossroads. See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a rood is low volume. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The G20-1a sign shall be required on major crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

1.5.6

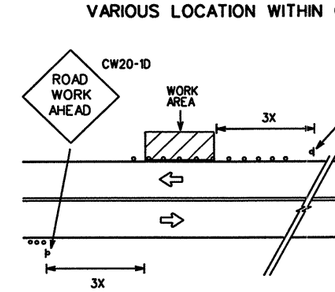
Posted Speed	Sign Spacing "X" △	Long-term Or Intermediate-term Stationary Approach Warning Signs CW20 and CW21 Series		Short-term Stationary Or Short Duration Approach Warning Signs CW21 Series		Other Warning Signs
MPH	Feet (Apprx.)	Standard inches	Minimum inches [4]	Standard inches [7]	Minimum inches [4] [7]	Standard inches [7]
30	120	48 x 48	36 x 36	30 x 30 or 36 x 36	24 x 24 or 30 x 30	30 x 30 or 36 x 36
35	160					
40	240					
45	320		Use Standard Size		Use Standard Size	
50	400					
55	500 [2]					
60	600 [2]			48 x 48		48 x 48
65	700 [2]					
70	800 [2]					
75	900 [2]					
x	x [3]					

x For typical sign spacings on expressways and freeways, see Part VI of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign and/or distance between each additional sign.

General Notes:
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have ½ mile or more advance warning.
4. For use only on secondary roods or city streets where speeds are low.
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Appendix A or the "Standard Highway Sign Design" manual for complete list of available sign design sizes.
7. Where two sizes are listed, see sign size listing in "TMUTCD", Appendix A or the "Standard Highway Sign Design" manual for proper size.

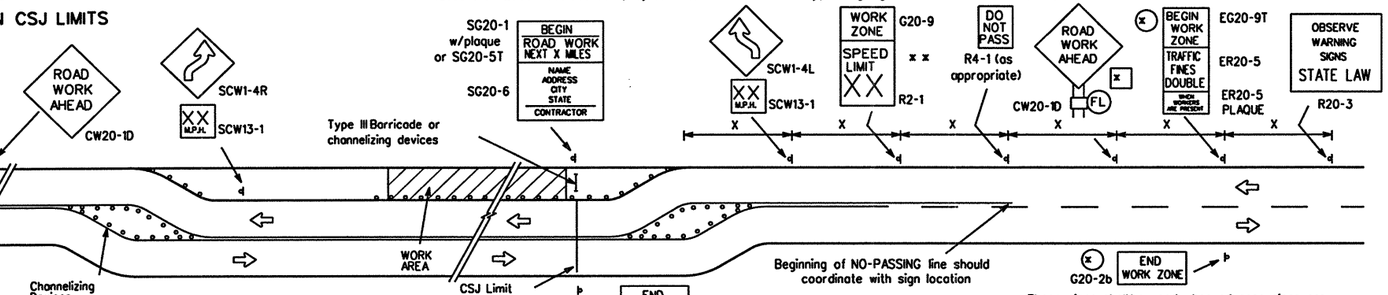
TYPICAL DETAILS FOR WORK AREAS IN VARIOUS LOCATION WITHIN CSJ LIMITS



When extended distances occur between minimal work areas, the Engineer/Inspector should ensure additional Rood Work Ahead (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

TYPICAL SIGNING AND TRAFFIC CONTROL DEVICE DETAILS FOR WORK BEGINNING AT THE CSJ LIMITS

(Less than 2000 feet between project limits and work area) (Typical signing shall be installed at all CSJ Limits)

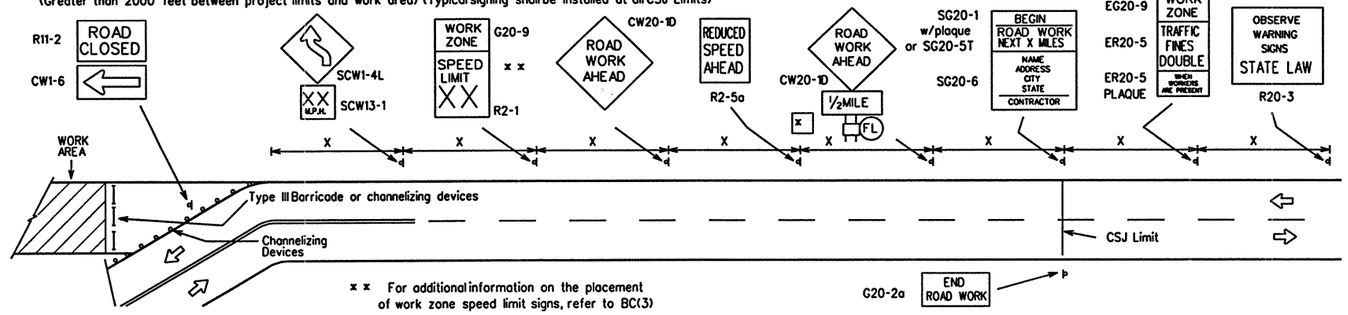


x x For additional information on the placement of work zone speed limit signs, refer to BC(3)

(x) These signs shall be used when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a work zone where traffic fines may double if workers are present.

TYPICAL DETAIL FOR PROJECT LIMIT AWAY FROM WORK AREA

(Greater than 2000 feet between project limits and work area) (Typical signing shall be installed at all CSJ Limits)



x x For additional information on the placement of work zone speed limit signs, refer to BC(3)

LEGEND

- Sign
- (FL) Flashing Type A-Low Intensity Warning Light
- O O Channelizing Devices
- I Type III Barricade
- [x] The Type A Warning Lights shall not be used with signs manufactured with Type E Sheeting (Fluorescent Prismatic) meeting the requirements of Departmental Material Specification DMS-8300.
- X See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Functional Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
again click on "Compliant Work Zone Traffic Control Devices".
This site is printable.

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14	15	16				

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION PROJECT LIMIT STANDARD

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REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
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	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062-ETC	IH 35

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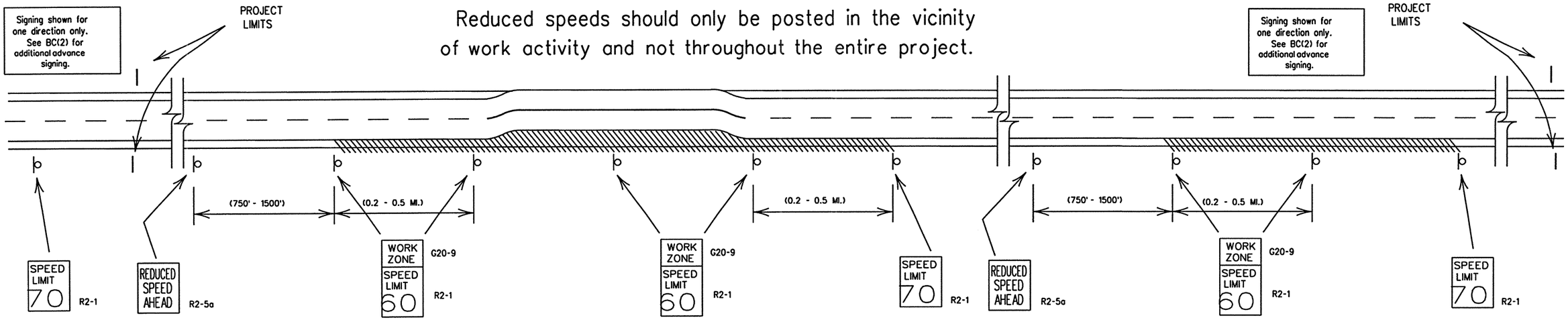
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMIT signs should be posted and visible to the motorists at all times. Work activity in the area of reduced speed zone should be greater than 12 consecutive hours per day. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, work activity is within 15 feet of pavement edge or actually on the pavement.

SHORT TERM WORK ZONE SPEED LIMIT signs should be posted and visible to the motorists only when work activity is present. Work activity in the area of reduced speed should be less than 12 consecutive hours. When work activity is not present, signs should be covered with an approved sign cover or removed from work area.

GENERAL NOTES:

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance. Regulatory work zone speed signs (R2-1) should be removed during periods when they are not needed to minimize interference with traffic.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of speed limit signs should be:
   40 mph and greater 0.2 to 2 miles
   35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background.
6. Fabrication, errection and maintenance of REDUCED SPEED AHEAD sign, WORK ZONE plaque and SPEED LIMIT signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless otherwise noted.
8. Techniques that may help reduce traffic speeds. (In order of effectiveness.)
   A. Flagger stationed next to sign.
   B. Law enforcement.
   C. Portable changeable message sign (PCMS).
   D. Low-power radar transmitter.
9. Refer to "Work Zone Speed Limit Work Sheets 1 and 2" to determine when a construction speed zone should be required.

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2	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT STANDARD

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DN: JWT	CK: GRB	DW: FDN	CK: CAL

REVISIONS

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
LAREDO	6	NH - 2002 (79)	251

COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

4/18/2003

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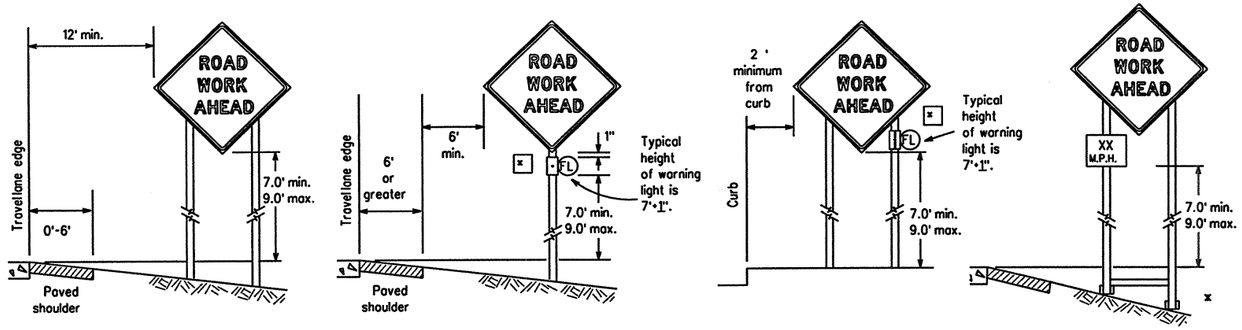
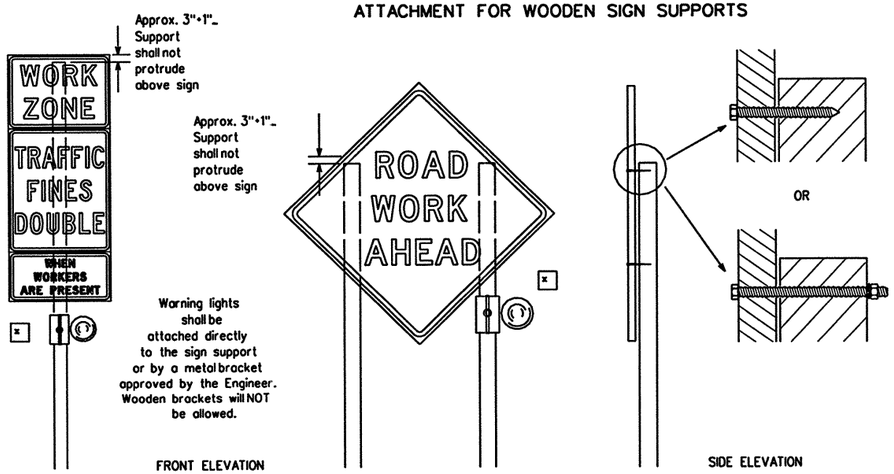
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



It is the intent of these plans to provide positive guidance to motorists throughout the project limits by the use of signs, pavement markings, delineation and/or channelizing devices. All traffic control devices shall conform with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" list (CWZTCD).

x When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

ATTACHMENT FOR WOODEN SIGN SUPPORTS



Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails will NOT be allowed.

Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Supports shall not be extended or repaired by splicing or other means.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Functional Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
again click on "Compliant Work Zone Traffic Control Devices".
This site is printable.

(FL) Flashing Type A - Low Intensity Warning Light

x The Type A Warning lights shall not be used with Type E Sheeting (Fluorescent Prismatic) meeting the requirements of DMS-8300.

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC sheets or the CWZTCD. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
6. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes. The additional signs requested by the Engineer/Inspector shall not be subsidiary.
7. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD). The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so that the Engineer can verify the correct procedures are being followed.
8. The contractor is responsible for sign installations and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
9. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1".
10. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

Duration of Work (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part VI)

1. The types of sign supports, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring that the sign support and substrate meets crashworthiness and length of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location from overnight to 3 days.
   c. Short-term stationary - daytime work that occupies a location from 1 to 12 hours.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves intermittently or continuously. Does not stop for more than 15 minutes at a time.

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9.0 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Engineer may allow the use of smaller size construction warning signs on secondary roads or city streets where speeds are low if the sign size is listed as an option on the "Typical Construction Warning Sign Size and Spacing" chart shown on BC(2).
2. The Contractor shall furnish the sign sizes shown in plans, the BC Sheets, the TCP sheets or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure that the sign substrate is allowed for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign faces.

REFLECTIVE SHEETING

1. Reflectorized signs shall be constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 or DMS-8310. The DMS specifications can be accessed from the following web address: http://manuals.dot.state.tx.us:80/dynaweb/colmates/dms/@Generic_BookView
2. White sheeting, meeting the requirements of DMS-8300 Type C (High Specific Intensity), shall be used for signs with white background and channelizing devices.
3. Orange sheeting, meeting the requirements of DMS-8300 Type E (Fluorescent Prismatic), shall be used for signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This type of sign support meets the crashworthiness standards regardless of the direction of impact. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face. These materials can damage the retroreflectivity of sign sheeting.
7. Signs shall be removed upon completion of the work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact.
6. Rubber (such as tire inner tubes) shall NOT be used for sandbags.
7. Rubber ballasts (such as those used with cones or edgeline channelizers) shall NOT be used as sign support weights.
8. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
9. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES STANDARD

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REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
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	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062-ETC	IH 35

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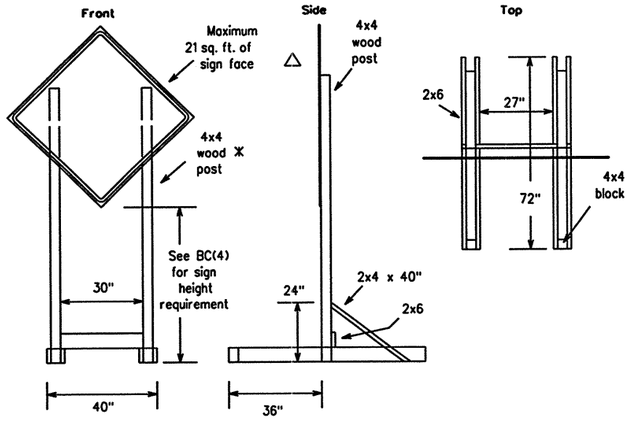
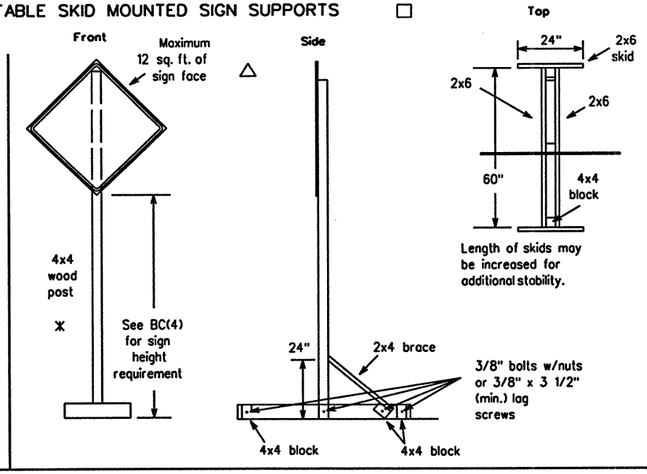
EXAMPLES OF SKID MOUNTED SIGN SUPPORTS

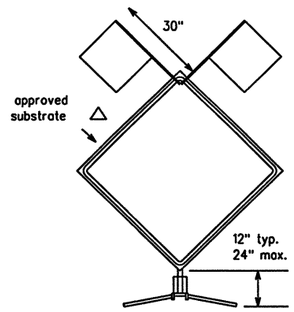
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □



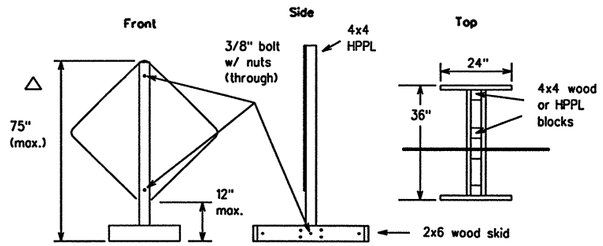


SHORT TERM STATIONARY/SHORT DURATION - PORTABLE SIGN SUPPORTS □

For Daytime use only.
1 Foot Mounting Height

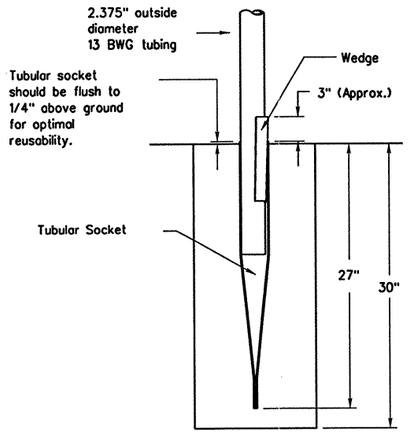


Flags as required by Engineer or as shown on plans



The upright SHALL be made of hollow-profile plastic lumber (HPPL). Wood or metal shall NOT be used.

EXAMPLES OF GROUND MOUNTED SIGN SUPPORTS



WEDGE ANCHOR SYSTEM WITH THIN-WALL TUBE

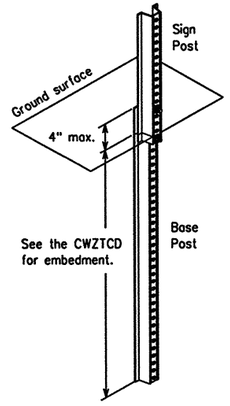
The wedge anchor system with thin wall tubing may be used to support up to 10 sq. ft. of sign area.

Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18 inches. When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18 inches or provide a minimum foundation depth of 30 inches. If solid rock is encountered, the socket/stub may be reduced in length as required to a min. length of 18 inches. Any material removed from the socket/stub shall be from the bottom and the clearance requirements shown above must still be adhered to. The inner surfaces of the socket/stub must remain free of debris.
Install Wedge Anchor System per manufacturer recommendations.
Attach the sign to the sign post.
Insert the sign post into the socket and align the sign face with the roadway.
Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

Supports shall be straight within 1/4 inch per 5 feet of length and shall have a smooth, uniform finish free from defects affecting strength or appearance. Any bolt holes and sheared ends shall be free from burrs.

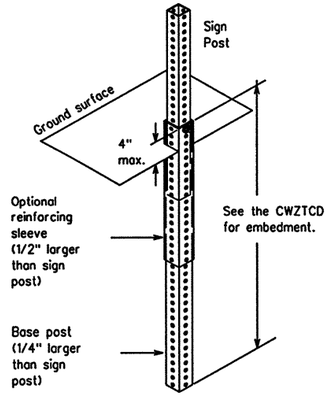
WING CHANNEL

Lap-splice/base bolted anchor

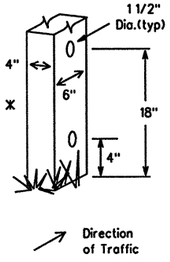


PERFORATED SQUARE METAL TUBING

With Anchor



Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation. Two post installations can be used for larger signs.



WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS

Nominal Post Size	No. of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

No more than 2 sign posts shall be mounted within a 7 ft. circle.

When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

□ See BC(4) for definition of "Work Duration."

* Sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

△ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Functional Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
again click on "Compliant Work Zone Traffic Control Devices".
This site is printable.

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT STANDARD

5 of 12 BC(5)-03

© TxDOT 11-4-02	DN: JWT	CK: GRB	DW: FDN	CK: CAL
REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
	LAREDO	6	NH - 2002 (79)	253
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062-ETC	IH 35

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| ACC: | | |

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PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. PCMS placed on the shoulder or within the R-O-W, but are not behind a concrete traffic barrier shall have a minimum of four plastic drums placed perpendicular to traffic, on the upstream side of the PCMS.
3. Messages on PCMS should contain no more than 8 words (four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
4. Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed.
5. Each phase of the message should convey a single thought.
6. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
7. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
8. Specify the actual days of the week; e.g., TUES THROUGH FRI or TUES-FRI in the coming week that work activity will occur.
9. The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
10. The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for two seconds each.
11. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
12. Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
13. Do not use the words "Danger" or "Caution" in message.
14. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
15. Do not display messages that scroll horizontally or vertically across the face of the sign.
16. The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated.

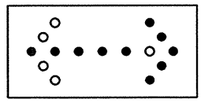
Word or Phrase	Abbreviation	Word or Phrase	Abbreviation
Access Road	ACCES RD	Miles	MI
Air Quality	AIR QLTY	Miles Per Hour	MPH
Avenue	AVE	Time Minutes	Time MIN
Best Route	BEST RTE	Monday	MON
Boulevard	BLVD	Normal	NORM
Bridge	BRDG	North	N
Cannot	CANT	Parking	PKING
Center	CNTR	Parking Lot	PRK LOT
Construction Ahead	CONST AHEAD	Road	RD
Detour Route	DETOUR RTE	Right Lane	RGT LN
East	E	Saturday	SAT
Emergency	EMER	Service Road	SERV RD
Emergency Vehicle	EMER VEH	Shoulder	SHLDR
Entrance, Enter	ENT	Slippery	SLIP
Express Lanes	EXP LANE	South	S
Expressway	EXPWY	Speed	SPD
Distance Feet	Distance FT	Street	ST
Fog Ahead	FOG AHD	Sunday	SUN
Freeway	FRWY, FWY	Telephone	PHONE
Freeway Blocked	FWY BLKD	Thursday	THURS
Friday	FRI	To Downtown	TO DWNTN
Hazardous Driving	HAZ DRIVING	Traffic	TRAF
Highway	HWY	Travelers	TRVLRS
Hours	HR	Tuesday	TUES
Information	INFO	Turnpike	Name TRNPK
Left	LFT	Upper Level	UPPR LVL
Left Lane	LFT LN	Warning	WARN
Lane Closed	LN CLSD	Wednesday	WED
Lower Level	LOWR LVL	Weight Limit	WT LIMIT
Maintenance	MAINT	Wet Pavement	WET PVMT
Roadway designation #	IH-number, US-number, SH-number, FM-number	West	W

WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND CONCRETE TRAFFIC BARRIER.

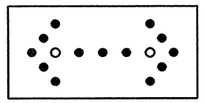
TYPICAL FLASHING ARROW PANEL

1. The Flashing Arrow Panel should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Panels should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Panel.
4. The Flashing Arrow Panel should be able to display the following symbols:

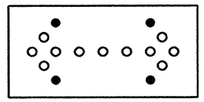
Flashing RIGHT (LEFT) ARROW



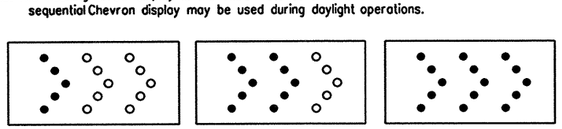
Flashing DOUBLE ARROW



Flashing CAUTION



5. The "CAUTION" display consists of four corner lamps flashing simultaneously.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Panel shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential Chevron display may be used during daylight operations.



11. The Flashing Arrow Panel shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Panel SHOULD NOT BE USED to laterally shift all lanes of traffic on a multi-lane roadway at once.

REQUIREMENTS

TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

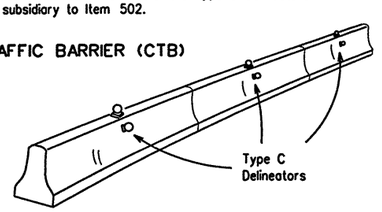
ATTENTION: Flashing Arrow Panels shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW PANEL FROM THE RIGHT-OF-WAY OR PLACE THE ARROW PANEL BEHIND CONCRETE TRAFFIC BARRIER.

TYPE C DELINEATORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

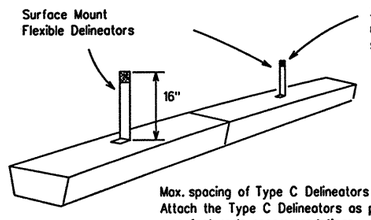
1. Type C Delineators shall be prequalified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Type C Delineators can be found at the following Web site: ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/dms8600preq.pdf.
2. Color of delineators shall be as specified in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD). The cost of the Type C Delineators shall be considered subsidiary to Item 502.

CONCRETE TRAFFIC BARRIER (CTB)



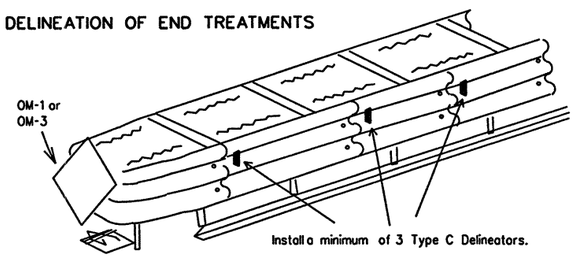
3. Two (2) Type C Delineators should be mounted on each section of CTB in approximately the midsection of the CTB. The Type C Delineator on the side of the CTB shall be installed directly below the Type C Delineator mounted on top of the CTB.
4. Maximum spacing of Type C Delineators is 40 feet.
5. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
6. Attach Type C Delineators on CTB as per manufacturer's recommendations.
7. Missing or damaged Type C Delineators shall be replaced as directed by the Engineer.

LOW PROFILE CONCRETE BARRIER (LPCB)



Max. spacing of Type C Delineators is 20 feet. Attach the Type C Delineators as per manufacturer's recommendations.

DELINEATION OF END TREATMENTS



	APPROACHING TRAFFIC	
	BOTH SIDES	ONE SIDE
DELINEATION	OM-1	OM-3 or Vertical Panel

Attach the Type C Delineators as per manufacturer's recommendations.

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the dates shown in the CWZTCD to ensure that the TMA meets the age requirements and the crashworthiness criteria established by the Federal Highway Administration (FHWA) for TMAs.
4. Refer to the CWZTCD for a list of approved TMAs.
5. TMAs are required on freeways unless otherwise noted in the plans.
6. A TMA should be used anytime that it can be positioned approximately 100 feet or less in advance of the area of crew exposure without adversely affecting the work performance.
7. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with signs. They are intended to warn of an approaching potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation " FL". The Type A Warning Lights shall not be used with signs manufactured with Type E Sheeting (Fluorescent Prismatic) meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation " SB ".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.

END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet crashworthy standards as defined in the National Cooperative Highway Research Report 350. Refer to the CWZTCD List for approved end treatments and manufacturers.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
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Austin, Texas 78701-2483
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STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION ARROW & MESSAGE SIGNS, REFLECTORS & WARNING LIGHT STANDARD

6 of 12 BC(6)-03

©TxDOT 11-4-02	DN: BAS	CK: GRB	DW: FDN	CK: CAL
REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
	LAREDO	6	NH - 2002 (79)	254
	COUNTY	CONTROL	SECT JOB	HIGHWAY
	WEBB	0018	05 062-ETC	IH 35

SPLAYED 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 ACC: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

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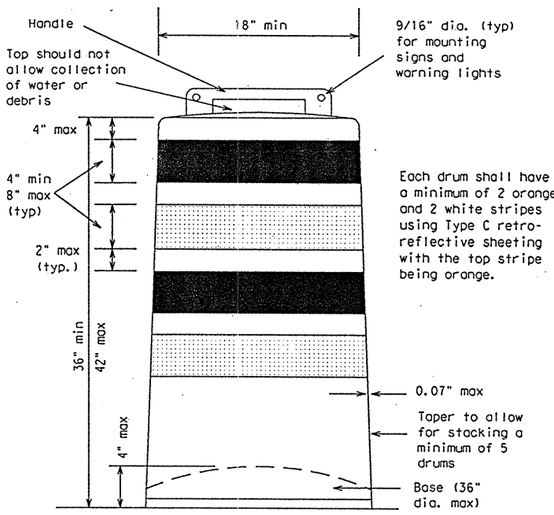


GENERAL NOTES

1. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
2. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
3. The Contractor shall have a maximum of 24 hours to replace any plastic drums or other traffic control devices identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

Prequalified plastic drums shall meet the following requirements:

GENERAL DESIGN REQUIREMENTS

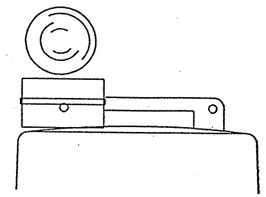
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, delineator reflector unit or non-plywood sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a minimum unballasted weight of 7.7 lbs. and maximum unballasted weight of 11 lbs. The wall of the drum body shall be a minimum of 0.07 inch in thickness. Weight of any drum supplied shall not vary more than 0.5 lb. from that of the prequalified sample.
10. Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Flat Surface Reflective Sheeting." High Specific Intensity (Type C) retro-reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, checking, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
4. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
5. Ballast shall not be placed on top of drums.
6. Adhesives may be used to secure base of drums to pavement.

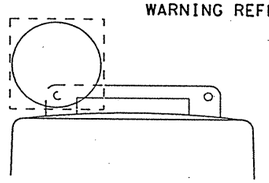


Type C Warning Light or approved substitute mounted adjacent to the travel way.

WARNING LIGHTS AND DELINEATORS MOUNTED ON PLASTIC DRUMS

1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A flashing warning lights are not intended for delineation and shall not be used in a series.
3. Type C steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
4. Type A and Type C warning lights shall be installed at locations as detailed on other sheets in the plans.
5. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
6. Type A Class 1, Type A Class 2, or Type B Reflector Units (D & OM Standard) may be attached to drums to delineate the intended vehicular path. The color of the reflector unit shall correspond to the pavement marking it is supplementing or for which it is substituting (left edgeline-yellow or right edgeline-white). The reflective unit shall be attached to the handle of the drum using the mounting hole nearest the travel lane and shall be aligned perpendicular to approaching traffic.
7. Delineators may be used as directed by the Engineer. Delineators may not be used as a substitute for warning lights.

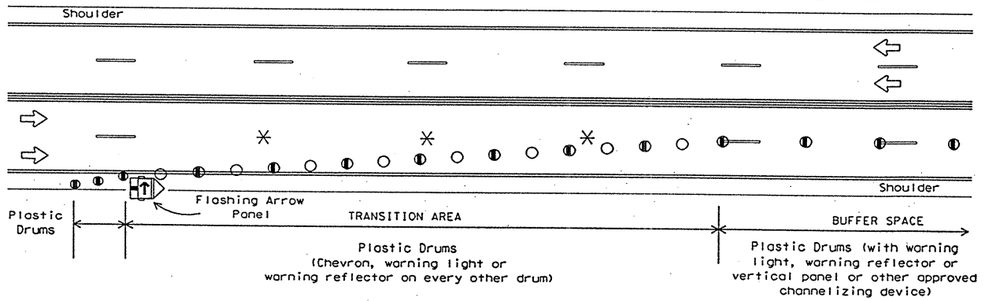
WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C WARNING LIGHTS



Warning reflector may be round or square. Must have a reflective surface area of at least 30 square inches

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type D (Non-fluorescent Prismatic).
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.

TYPICAL DETAIL OF LANE CLOSURE USING PLASTIC DRUMS AS CHANNELIZING DEVICES

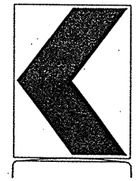


LEGEND

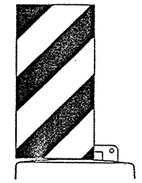
- Flashing Arrow Panel
- Plastic Drum
- Plastic Drum w/ approved channelizing device

Provide adequate sight distance when placing lane closures. Do not place lane closures in vertical or horizontal curves.
See BC(8) for table showing the spacing of channelizing devices in the taper and tangent section.

* NOTE: Lane lines shall be removed when the lane closure occupies a location for longer than 2 weeks.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type E (Fluorescent Prismatic) sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Flat Surface Reflective Sheeting," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type C (High Specific Intensity). Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.

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4/03 Revision

1 Revised note

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION PLASTIC DRUM STANDARD

7 of 12 BC(7)-03

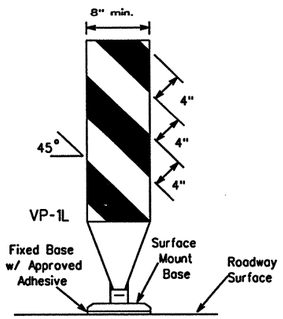
© TxDOT 11-4-02	DW: BAS	CK: GRB	DW: FDN	CK: CAL
REVISIONS 4-03	STATE DISTRICT: LAREDO	FEDERAL REGION: 6	FEDERAL AID PROJECT: NH-2002 (79)	SHEET: 255
	COUNTY: WEBB	CONTROL: 0018	SECTION: 05	JOB: 062	HIGHWAY: IH35

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

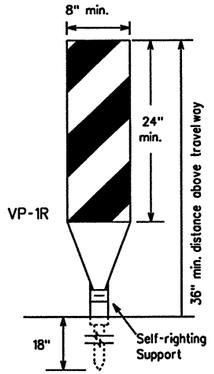
CHANNELIZING DEVICES

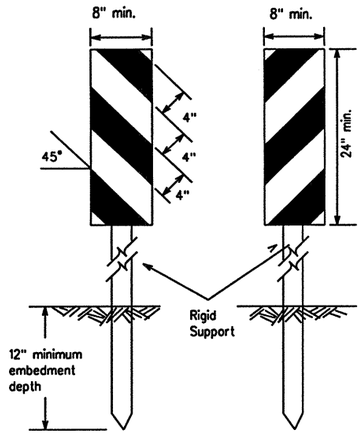
VERTICAL PANELS



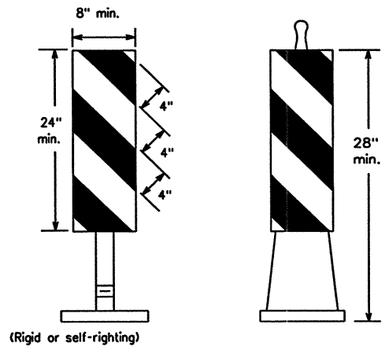
FIXED

(Rigid or self-righting)





DRIVEABLE

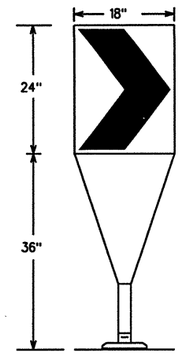


(Rigid or self-righting)

PORTABLE

1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual Appendix B "Treatment of Pavement Drop-offs in Work Zones" for additional guidelines on the use of VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways, freeways, and on high speed roadways shall have a minimum of 2 square feet of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless noted otherwise.

CHEVRONS



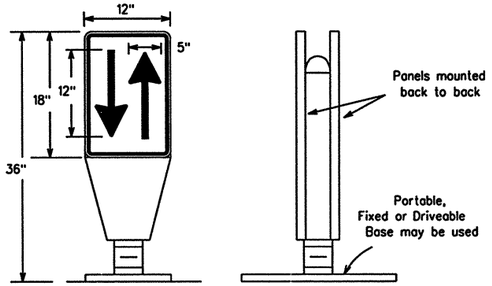
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black non-reflective legend. Sheeting for the chevron shall be retroreflective Type E (Fluorescent Prismatic) conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall be black vinyl non-reflective decal sheeting meeting the requirements of DMS-8320.

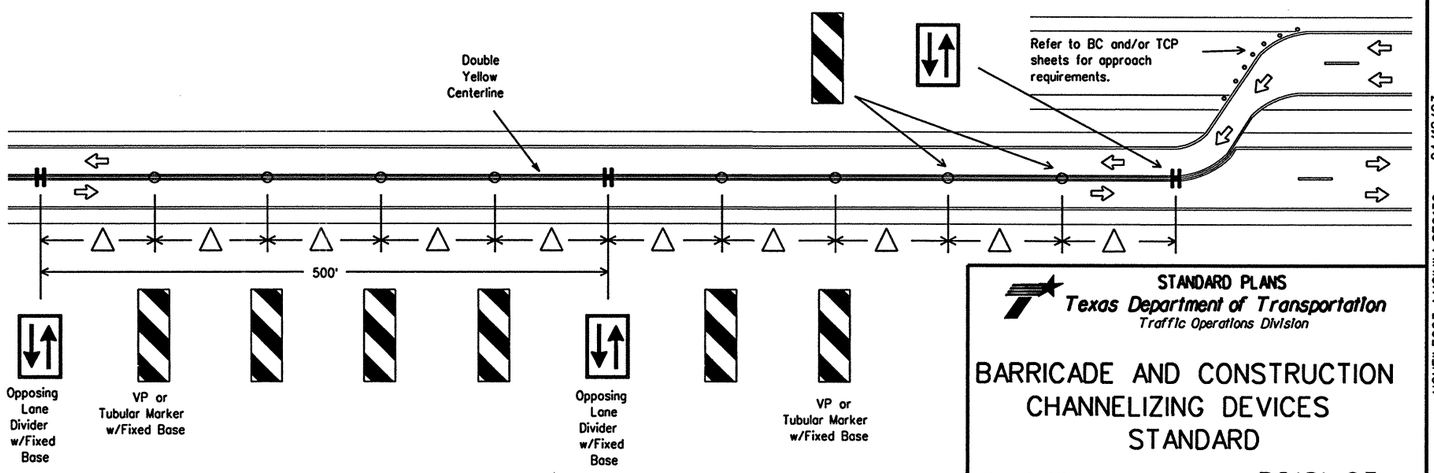
Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45		450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55	L=WS	550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'
75		750'	825'	900'	75'	150'-185'

** Taper lengths have been rounded off.
L-Length of Taper (FT.) W-Width of Offset (FT.) S-Posted Speed (MPH)

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust. The OTLD is placed on a flexible self-righting support that returns to an upright position when impacted by a vehicle.
2. The OTLD may be used in combination with simple tubular markers or vertical panels (vp's).
3. Spacing between the OTLD shall not exceed 500 feet. Tubular markers or vp's placed between the OTLD's should not exceed 100 foot spacing.
4. The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type E (Fluorescent Prismatic) conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall be black vinyl non-reflective decal sheeting meeting the requirements of DMS-8320.



△ Spacing between the VP's or tubular markers shall not exceed 100 feet. On roadways with speeds less than 45 MPH, spacing between the tubular markers or VP's shall be as shown on the channelizing spacing table shown on this page. If the table shows spacing greater than 100 feet based on the roadway speed, then use a maximum of 100 feet spacing between the tubular markers or VP's. Every fifth channelizing device shall be an OTLD. Spacing between the OTLD shall not exceed 500 feet. When using this type of traffic control set-up, the OTLD, VP's or tubular markers shall have the fixed base with approved adhesive per the manufacturer's recommendations.

GENERAL NOTES:

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The contractor shall maintain devices in a clean condition and replace damaged, non-reflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh approximately 35 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.
8. Examples on this sheet are the most commonly used channelizing devices in work zones. For other devices, refer to the CWZTCD.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Functional Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
again click on "Compliant Work Zone Traffic Control Devices".
This site is printable.

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES STANDARD

8 of 12 BC(8)-03

© TxDOT 11-4-02	DN: BAS	CK: GRB	DW: FDN	CK: CAL
REVISIONS				

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
LAREDO	6	NH - 2002 (79)	256
COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

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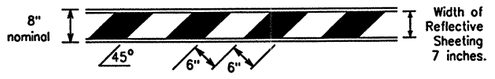
TYPE III BARRICADES

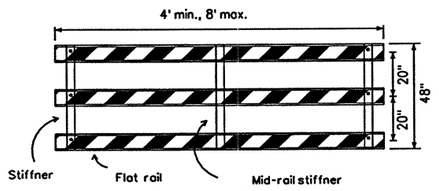
1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type III Barricades and a list of all materials used in the construction of Type III Baricades.
2. Type III Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.

Barricades shall NOT be used as a sign support.

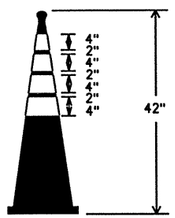
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES



Stiffner may be inside or outside of support.

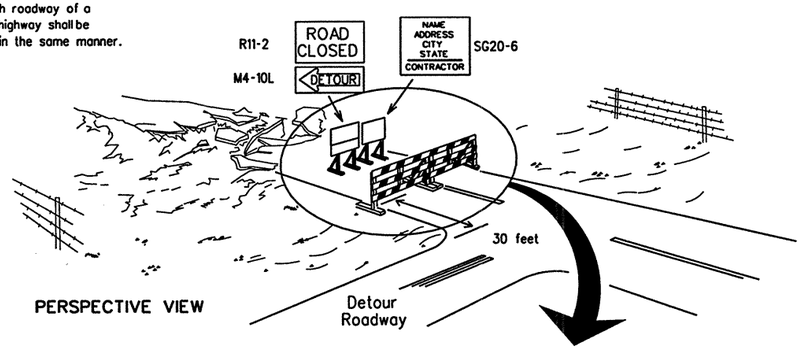


EDGELINE CHANNELIZER

1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.

TYPE III BARRICADE (POST AND SKID) TYPICAL APPLICATION

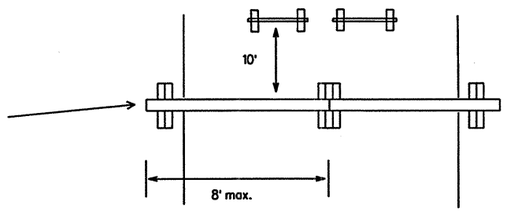
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

The three rails on Type III barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.

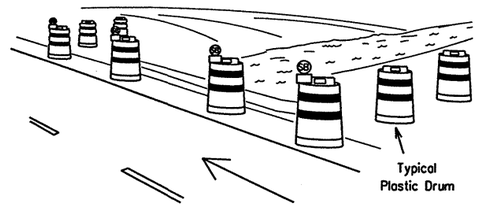
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

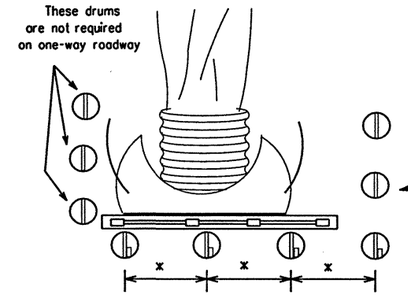
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type III Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



PERSPECTIVE VIEW

1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



Increase number of plastic drums on the side of approaching traffic if the crown width makes it necessary. (minimum of 2 and maximum of 4 drums)

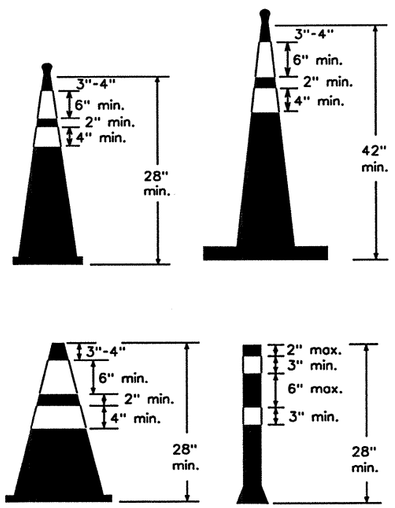
x Maximum spacing between drums shall be 10 feet. A minimum of two drums shall be used across the work area.

PLAN VIEW

Legend

- Plastic drum
- Plastic drum with steady burn light

CONES



28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs.

1. Traffic cones and tubular markers shall be a minimum of 28 inches in height when used either on freeways or at nighttime.
2. Cones or tubular markers shall be predominantly orange, fluorescent red-orange, or fluorescent yellow-orange. They should be kept clean and bright for maximum visibility.
3. Cones used only for daytime operations do not require the reflectorized bands.
4. Cones used for nighttime operations shall be reflectorized. Reflectorized material shall have a smooth, sealed outer surface that displays the same approximate color during the day and night. The reflectorized bands shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
5. When used at night, appropriate personnel shall ensure that cones and tubular markers remain in their proper location and in an upright position.
6. Reflectorization of cones shall consist of a minimum 6 inch band placed at least 3 inches but not more than 4 inches from the top, supplemented by a minimum 4 inch band spaced a minimum of 2 inches below the 6 inch band.
7. Reflectorization of tubular markers shall be a minimum of two 3 inch bands placed a maximum of 2 inches from the top with a maximum of 6 inches between bands. The reflectorized bands shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
8. One-piece cones or tubular markers are generally suitable for temporary usage (up to 8 hours) with other channelization devices such as vertical panels, drums or two-piece cones for long term usage. Care should be taken to ensure they remain in their proper location and in an upright position.
9. Cones or tubular markers used on each project shall be of the same size and shape.
10. The handle may be designed as a hook or other shape, fabricated from non-rigid materials similar to the cone material, and may extend up to a maximum of 8 inches above the top of cone. Length of the handle shall not be considered with regard to the overall height of the cone.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

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again click on "Compliant Work Zone Traffic Control Devices".
This site is printable.

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION TYPE III BARRICADE & CONES STANDARD

9 of 12 BC(9)-03

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REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
	LAREDO	6	NH - 2002 (79)	257
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062-ETC	IH 35

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ACC:

WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and the sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(11).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.
3. A list of prequalified reflective raised pavement markers can be found at the following web site:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/dms4200preq.pdf
4. A list of prequalified non-reflective traffic buttons can be found at the following web site:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/4300preq.pdf

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241. A list of prequalified products can be found at the following web site:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/pavemark.pdf
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240 or the TXDOT Purchase Specification No. 550-74-89. A list of prequalified products and a copy of the TXDOT Purchase Specifications can be found at web sites:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/pavement.pdf
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/tss/tss377.pdf

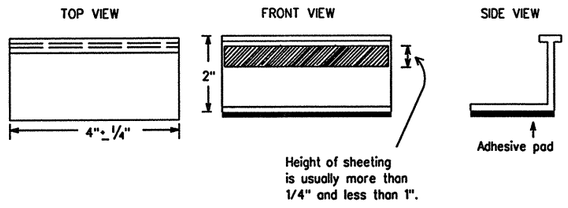
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 150 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria shall be replaced as required by the Engineer at the expense of the Contractor.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway, shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than two weeks, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernible marking, by any method that does not materially damage the surface or texture of the pavement.
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.

Raised Pavement Markers used as Guidemarks

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS

PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PREFABRICATED PAVEMENT MARKINGS-PERMANENT	DMS-8240
PREFABRICATED PAVEMENT MARKINGS-REMOVABLE	DMS-8241
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS	DMS-8242

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

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Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
again click on "Compliant Work Zone Traffic Control Devices".
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STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS STANDARD

10 of 12 BC(10)-03

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REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
1-97	LAREDO	6	NH - 2002 (79)	258
2-98	COUNTY	CONTROL	SECT	JOB	HIGHWAY
1-02	WEBB	0018	05	062-ETC	IH 35
11-02					

HOUFILE023 \HCIVIL\CF0130 04/18/03
350TXP06.DGN

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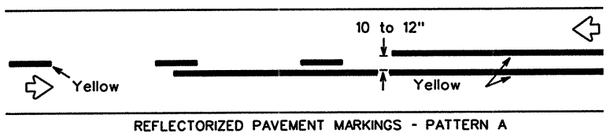
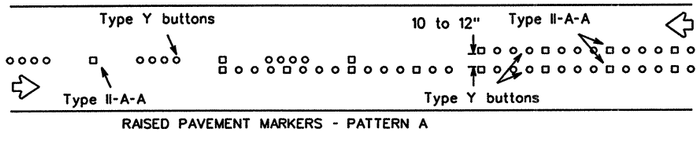
PAVEMENT MARKING PATTERNS

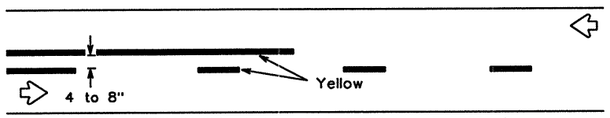
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



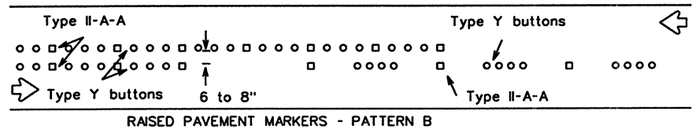
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



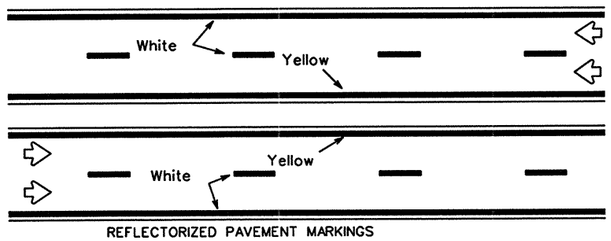
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



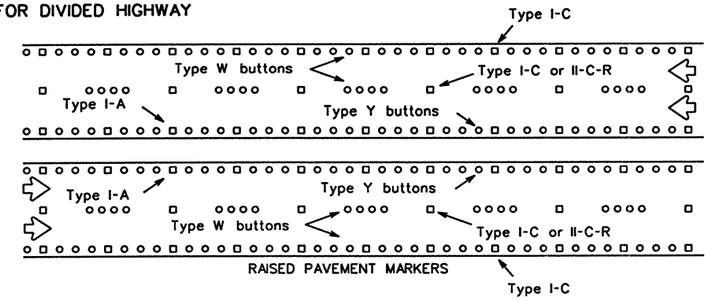
RAISED PAVEMENT MARKERS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



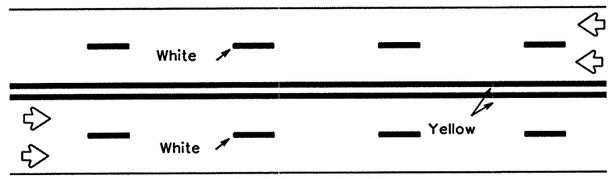
REFLECTORIZED PAVEMENT MARKINGS



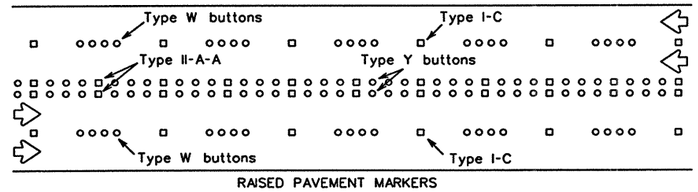
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



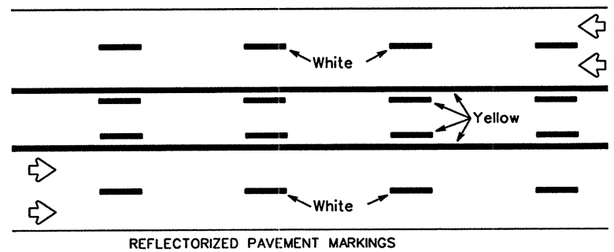
REFLECTORIZED PAVEMENT MARKINGS



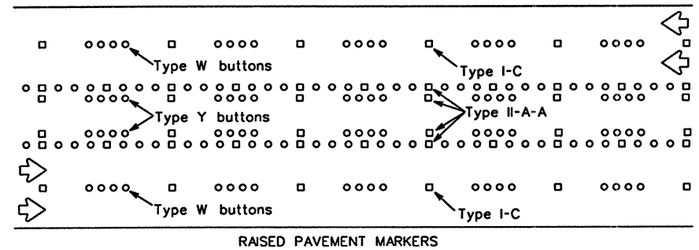
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE



REFLECTORIZED PAVEMENT MARKINGS



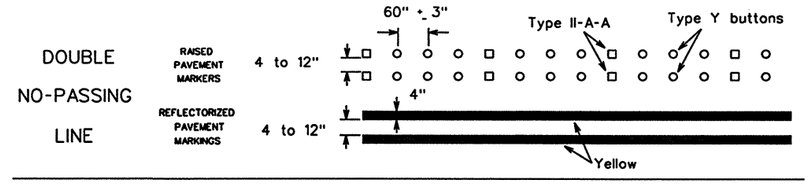
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

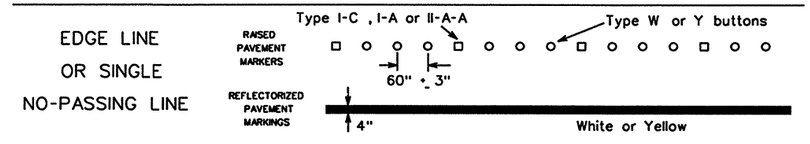
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

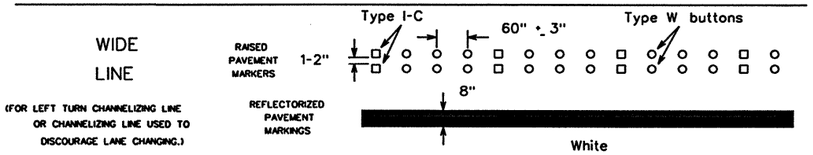


EDGE LINE OR SINGLE NO-PASSING LINE



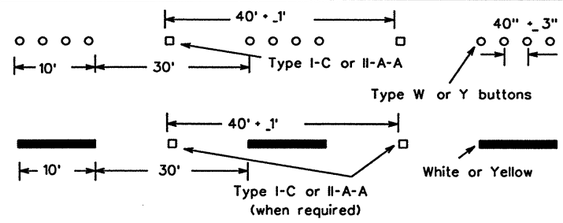
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)



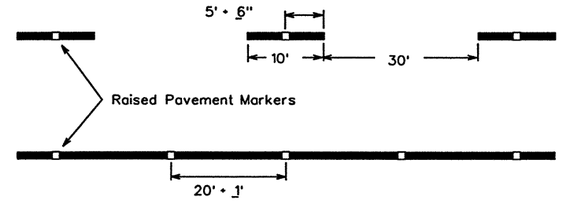
BROKEN LINE

(FOR CENTER LINE OR LANE LINE.)



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

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Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
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Click on "Functional Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
again click on "Compliant Work Zone Traffic Control Devices".
This site is printable.

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item "RAISED PAVEMENT MARKERS."

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS STANDARD

11 of 12 BC(11)-03

©TxDOT February 1998	DN: LR	CK: DTN	DW: FDN	CK: CAL
REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
2-94	LAREDO	6	NH - 2002 (79)	259
1-97	COUNTY	CONTROL	SECT	JOB	HIGHWAY
2-98	WEBB	0018	05	062-ETC	IH 35
11-02					

04/18/03
HOUFILE023 \HCIVIL\CF0130
BSOTXP06.DGN

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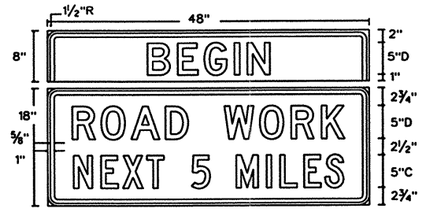
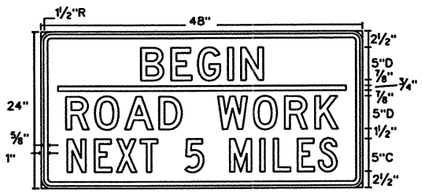


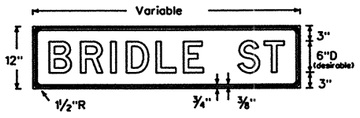
SG20-1 w/plaque
48" X 26"

Letters - Black
Numbers - Black
Border - Black
Background - Orange Refl.



SG20-5T
48" X 24"

Letters - Black
Numbers - Black
Border - Black
Background - Orange Refl.

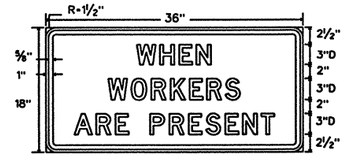


M4-9N
Variable X 12"

Letters - Black
Border - Black
Background - Orange Refl.

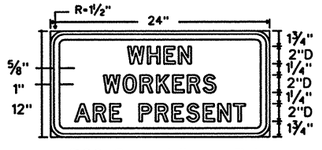
The M4-9R,L or S sign is to be used to detour local streets or roads that are not a State or Federal numbered highway; however, it should not be used in lieu of the M4-10 sign at the beginning of the detour or to detour State or Federal numbered routes.

Also, when the M4-9R,L or S sign is used, a sign (M4-9N) with the name of the street being detoured may be mounted above it.



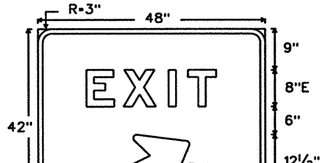
ER20-5
Plaque
36" X 18"

Letters - Black
Border - Black
Background - White Refl.



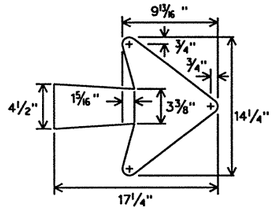
R20-5
Plaque
24" X 12"

Letters - Black
Border - Black
Background - White Refl.

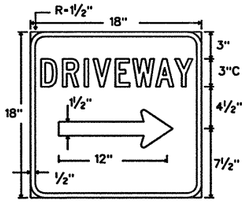


E5-1a
48" X 42"

Letters - White Refl.
Arrow - White Refl.
Border - White Refl.
Background - Green Refl.

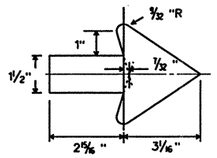


B-1 Arrow Detail



D-70a
18" X 18"

Letters - White Refl.
Symbol - White Refl.
Border - White Refl.
Background - Blue Refl.



D-70S
42" X 14"

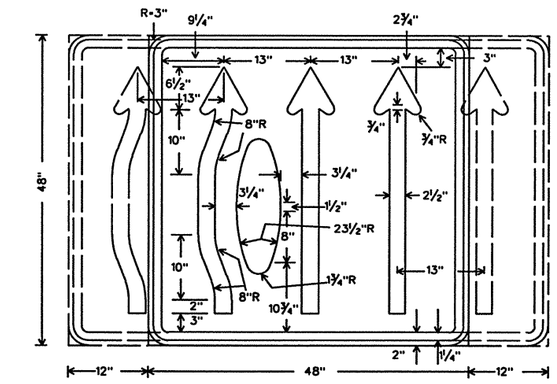
Letters - White Refl.
Symbol - White Refl.
Border - White Refl.
Background - Blue Refl.

* Alternate first line legend for D-70S

RESTAURANT	D70R 4"C
BUSINESS	D70B 4"C
MOTEL	D70M 4"C
GAS	D70G 4"C

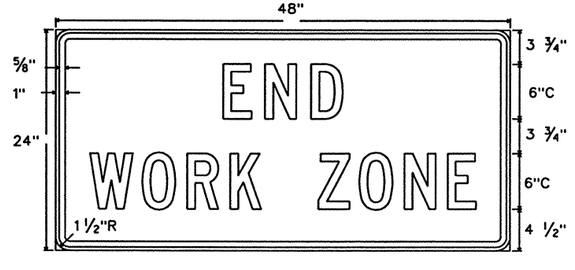
E5-2
48" X 48"

Letters - Black
Border - Black
Background - Orange Refl.



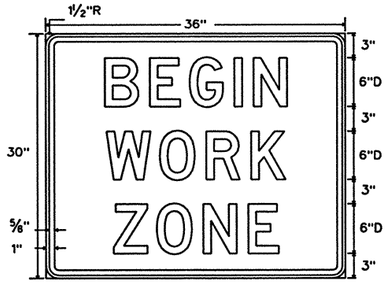
CW24-2
Var. X 48"

A mirror image may be used to show proper lane alignment.



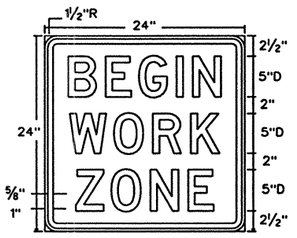
G20-2b
48" X 24"

Letters - Black
Border - Black
Background - Orange Refl.



EG20-9T
36" X 30"

Letters - Black
Border - Black
Background - Orange Refl.



G20-9T
24" X 24"

Letters - Black
Border - Black
Background - Orange Refl.

DEPARTMENT MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
FLAT SURFACE REFLECTIVE SHEETING	DMS-8300
VINYL NON-REFLECTIVE DECAL SHEETING	DMS-8320

COLOR	USAGE	REFLECTIVE SHEETING OR OTHER MATERIAL
BLUE	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
RED	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
GREEN	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
ORANGE	BACKGROUND	TYPE E (FLUORESCENT PRISMATIC)
WHITE	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
YELLOW	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
BLACK	LEGEND & BORDERS	VINYL NON-REFLECTIVE DECAL SHEETING
WHITE	LEGEND & BORDERS	TYPE C (HIGH SPECIFIC INTENSITY)

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Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
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STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION REGULATORY & GUIDE SIGNS STANDARDS

12 of 12 BC(12)-03

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DW- GRB	CK- BAS	DW- FDN	CK- CAL

REVISIONS
10-99
11-02

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
LAREDO	6	NH - 2002 (79)	260

COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

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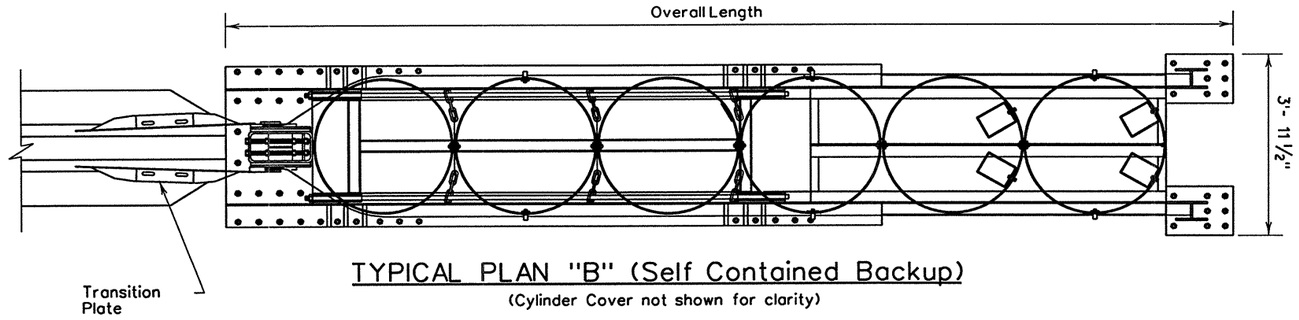
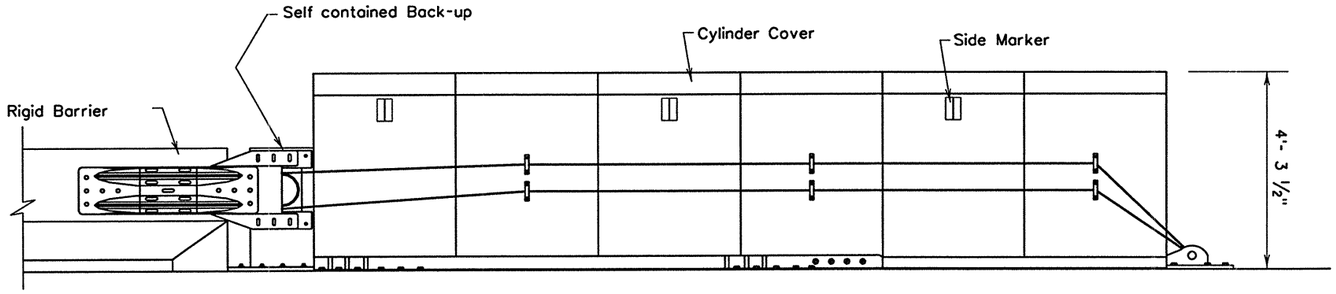
LET	PLAYED	ACC:
1 2 3 4 5 6	1 10 11 12 13 14 15 16	
17 18 19 20 21 22	23 24 25 26 27 28 29 30 31 32	
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48		
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63		

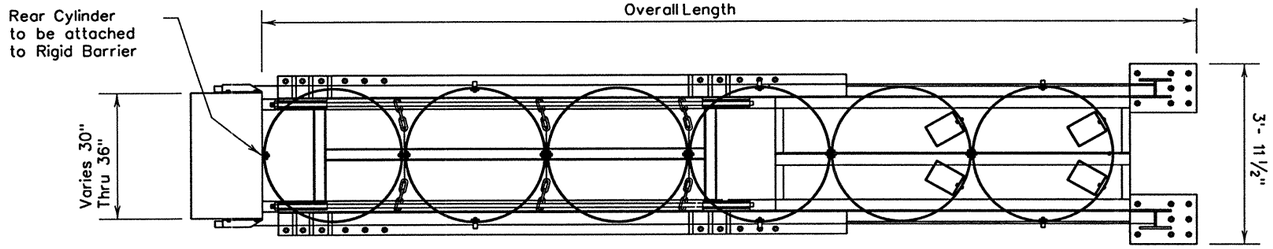


TYPICAL PLAN "B" (Self Contained Backup)

(Cylinder Cover not shown for clarity)

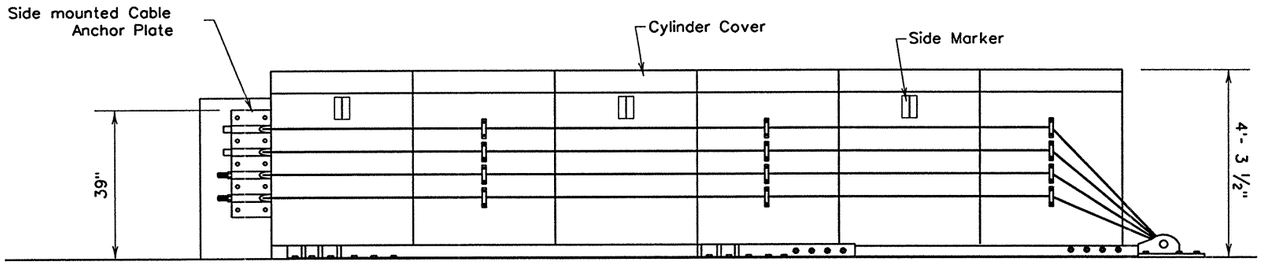


TYPICAL ELEVATION "B"



TYPICAL PLAN "S" (Side Mount, Concrete Backup Support)

(Cylinder Cover not shown for clarity)



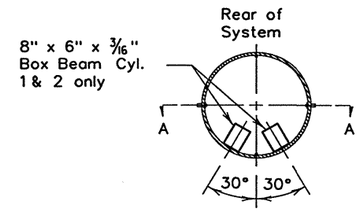
TYPICAL ELEVATION "S"

GENERAL NOTES

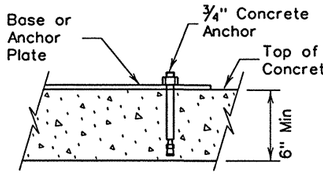
1. The nose of the REACT 350 shall be clad with a plastic wrap with standard delineation adhered to the wrap and shall have a series of side marker reflectors on both sides of the unit. See site plan views for marker and plastic wrap color orientation.
2. All steel components to be hot dipped galvanized except stakes, drive spikes, threaded bolts in backup unit, and wedge fittings on cables.
3. Contact QUIXOTE TRANSPORTATION SAFETY INC.(1-888-323-6374) if the REACT 350 is to span expansion joints.
4. The installation area should be free from curbs, elevated objects, or depressions.

DESIGN DATA

	REACT 350.4-B	REACT 350.4-S	REACT 350.6-B	REACT 350.6-S	REACT 350.9-B	REACT 350.9-S	REACT 350 HS-B	REACT 350 HS-S
DESIGN SPEED	45 MPH	45 MPH	55 MPH	55 MPH	65 MPH	65 MPH	70 MPH	70 MPH
OVERALL LENGTH	15'-3"	13'-9"	21'-3"	19'-9"	30'-3"	28'-9"	30'-3"	28'-9"
OVERALL WEIGHT	2580 lb.	2340 lb.	3340 lb.	3100 lb.	4310 lb.	4070 lb.	4520 lb.	4280 lb.

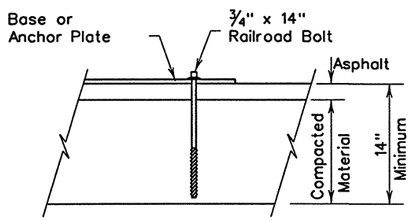


PLAN



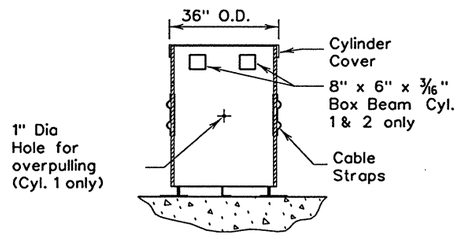
CONCRETE PAVEMENT DETAIL

NOTE: If separate pad is required for REACT, then the pad thickness shall be 8"



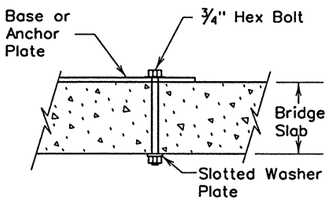
ASPHALT PAVEMENT DETAIL

Min. Asphalt thickness shall be 2"



TYPICAL CYLINDER

SECTION A-A



BRIDGE DECK DETAIL

Texas Department of Transportation
Design Division (Roadway)

REUSABLE ENERGY ABSORBING CRASH TERMINAL (NARROW REACT 350)

REACT(N)-03

SHEET 1 OF 2

FILE: reactn03.dgn	DN:	CK:	DW: BGD	CK: AM
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REVISIONS	LAREDO	6	NH - 2002 (79)	261
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062-ETC	IH 35

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LEVELS DIS:

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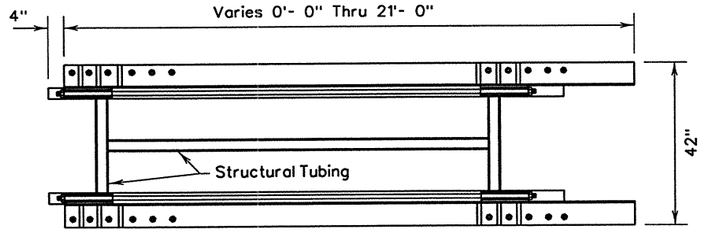
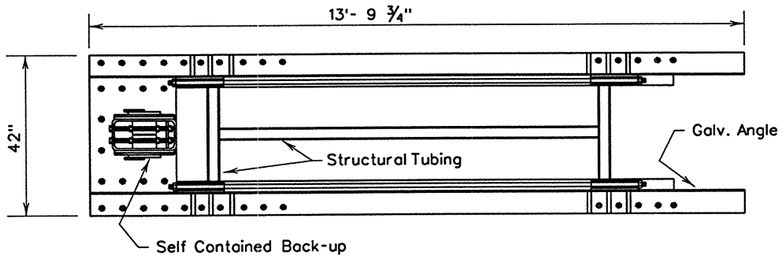


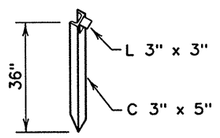
REAR SECTION OF BASE TRACK

(FOR UNITS WITHOUT SELF CONTAINED BACK-UP ONLY) "S"



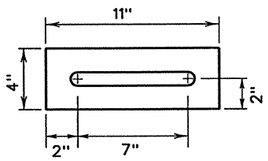
REAR SECTION OF BASE TRACK

(FOR UNITS WITH SELF CONTAINED BACK-UP ONLY) "B"



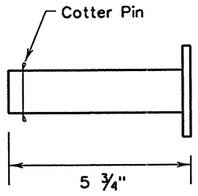
CHANNEL STAKE

(FOR USE W/ASPHALT PAVEMENT)

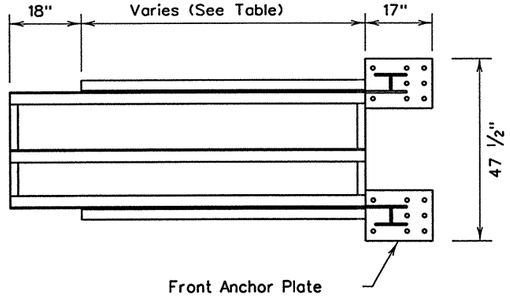


SLOTTED WASHER PLATE

(FOR BRIDGE DECK APPLICATIONS ONLY)



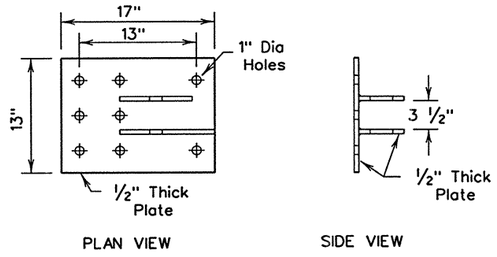
FRONT ANCHOR PIN DETAIL



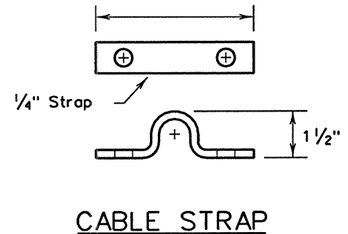
FRONT SECTION OF BASE TRACK

NUMBER OF CYLINDERS	FRONT BASE TRACK LENGTH
4	1'-5"
6	7'-5"
9	16'-5"
11	22'-5"

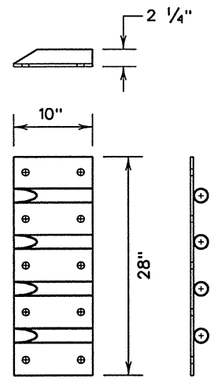
(The Front Section will vary depending on the size of the system)



FRONT ANCHOR PLATE DETAIL

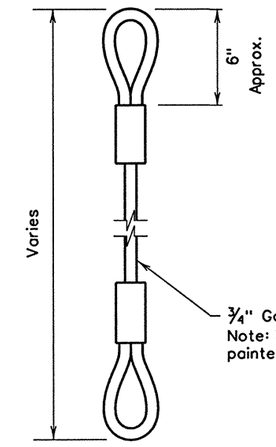


CHAIN DETAIL



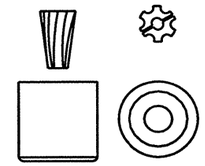
SIDE CABLE ANCHOR PLATE

(FOR UNITS WITHOUT A SELF CONTAINED BACK-UP ONLY)

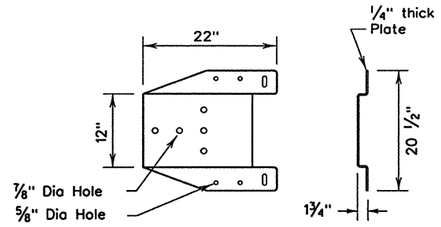


CABLE DETAIL

(FOR UNITS WITH SELF CONTAINED BACK-UP ONLY)

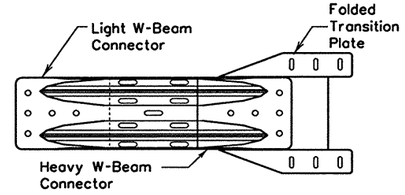


CABLE WEDGE



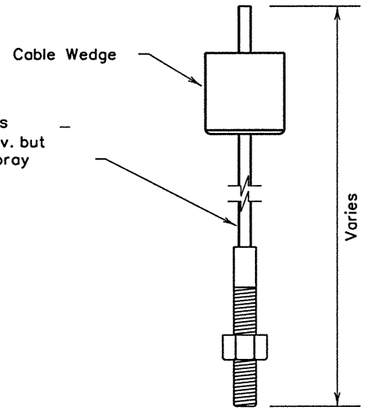
FOLDED TRANSITION PLATE

(For use in transition applications)



TRANSITION PLATE WITH W-BEAM CONNECTOR

(Connector overlap will vary per traffic direction - Reverse traffic shown)



CABLE DETAIL

(FOR UNITS WITH SELF CONTAINED BACK-UP ONLY)

Texas Department of Transportation
Design Division (Roadway)

REUSABLE ENERGY ABSORBING CRASH TERMINAL (NARROW REACT 350)

REACT(N)-03

SHEET 2 OF 2

FILE: reactn03.dgn	DN:	CK:	DW: BGD	CK: AM
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REVISIONS	LAREDO	6	NH - 2002 (79)	262
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062-ETC	IH 35

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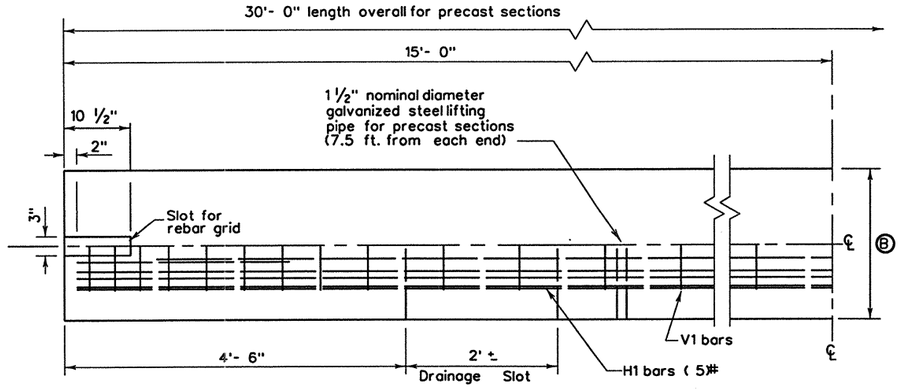
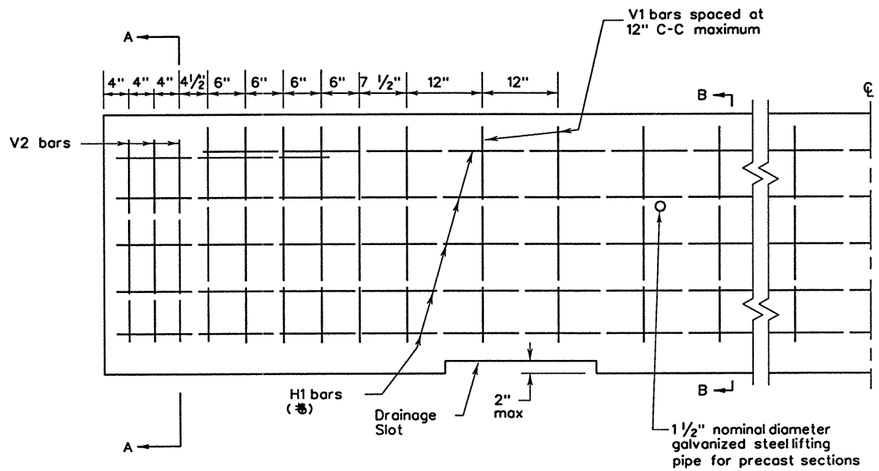


PLAN VIEW

(SYMMETRICAL ABOUTCENTER LINE)

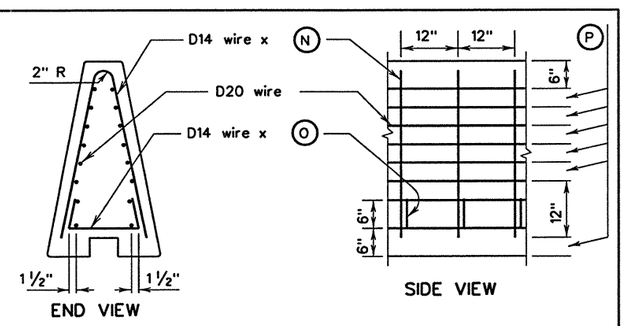


ELEVATION

(SYMMETRICAL ABOUT CENTERLINE)

When precast barrier is to be used with the welded wire fabric option, conventional bar reinforcement will be required within 2 ft., plus a development length of 18", from the ends of each barrier segment.

Welded wire fabric
Ⓟ x 12 - D20 x D14
60 ksi minimum yield strength



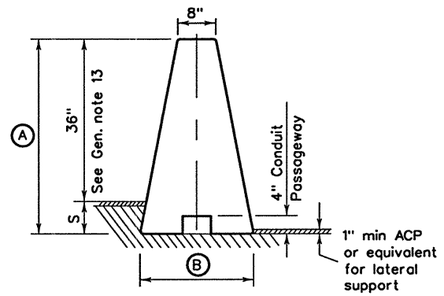
END VIEW

SIDE VIEW

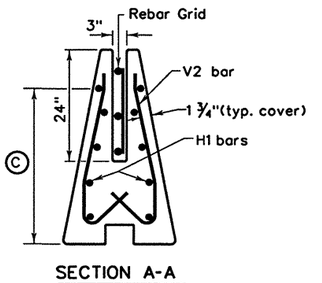
WELDED WIRE FABRIC OPTIONAL REINFORCING

GENERAL NOTES

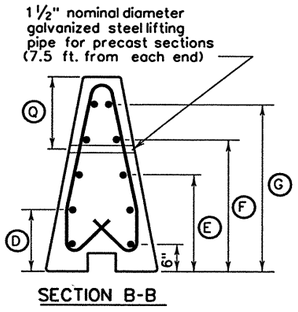
1. Precast barrier length shall be 30 feet (1") unless otherwise specified in the plans. Cast-in-place or slip-formed barrier shall have an intermediate barrier joint at a maximum spacing of 100 feet unless otherwise directed by the Engineer. Refer to the intermediate barrier joint detail. Cast-in-place or slip-formed barrier will have the vertical V1 bars placed at 12" C-C maximum except near joints. The narrower vertical bar spacing at the ends of each barrier segment, as shown in the elevation view, will be required at the joints. The V2 bars shown in the elevation view will be replaced by V1 bars for cast-in-place or slip-form construction.
2. The usual temporary installation will require the placement of the rebar grid in the ungrouted slot. The usual permanent installation using precast barrier will connect the barrier segments with the rebar grid placed in the slot and grouted in place.
3. When installed in a permanent roadway location, the end connections of the precast barrier shall be grouted with a mixture of two parts sand and one part cement with enough water to make the mixture plastic. Grouting shall be done in a manner that will assure a smooth surface at the joint.
4. All concrete shall be class C or H, unless otherwise specified.
5. All reinforcing steel shall be Grade 60, unless otherwise specified.
6. Each precast barrier to be installed in a temporary location shall be delivered with a rebar grid.
7. Chamfer top and end edges ¾inch.
8. Unless otherwise shown in the plans, the Contractor has the option of placing either precast or cast-in-place permanent concrete barrier. Cast-in-place barrier may be slip-formed. Additional reinforcement may be tack welded to the upper two-thirds of the reinforcing cage to provide bracing. Lifting pipe, rebar grid and slot shall be omitted for cast-in-place or slip-form construction.
9. Bar splices for roadway barrier shall be a minimum of 24 times the nominal diameter of the bar.
10. Welded wire fabric may be used as an option to conventional reinforcement for precast or cast-in-place barrier. Welded wire fabric shall be made in accordance with ASTM A 497.
11. Conduit will be provided only when called for elsewhere in the plans. The position of the conduit or conduit passageway may be adjusted to facilitate construction, subject to approval of the Engineer.
12. Transitions to barrier height, as needed, shall be determined by the Engineer. Changes in barrier height should not normally exceed 2 inches per 30 foot. Vertical steel shall be uniformly transitioned throughout the variation in barrier height as directed by the Engineer.
13. A 36 inch minimum height differential between top of barrier and top of ACP shall be required at placement in order to allow for up to 6 inches of future overlays while maintaining a 30 inch minimum future effective height of barrier. Total minimal barrier height for design is therefore dictated by allowance for future overlays plus existing stairstep dimension "S". Minimums typically rounded to 42", 48" or 54" to facilitate precasting.



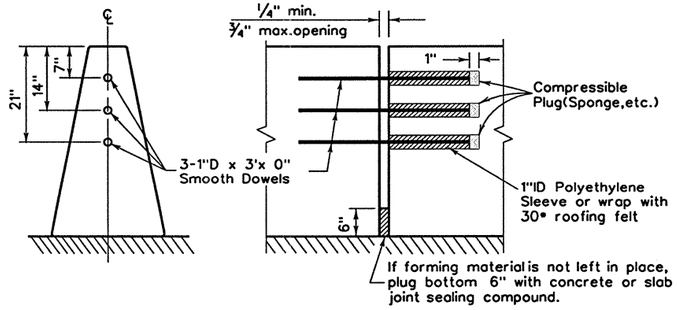
TYPICAL SECTION



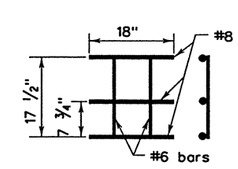
SECTION A-A



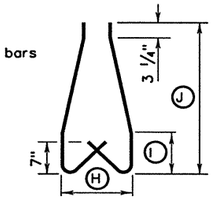
SECTION B-B



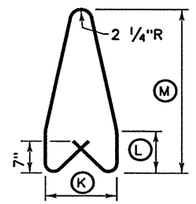
INTERMEDIATE BARRIER JOINT DETAIL (cast-in-place or slip-formed sections)



REBAR GRID



V2 BAR (#)



V1 BAR (4#

REINFORCING DETAILS

R = Radius
D = Diameter

Barrier Height	DIMENSIONS (inches)															
Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	Ⓘ	Ⓙ	Ⓚ	Ⓛ	Ⓜ	Ⓝ	Ⓞ	Ⓟ	Ⓠ
42	24	33 ½	13 ½	21	28 ½	36	15	9 ¼	33 ¼	15	9 ¼	36	72	28	4	15 ½
48	26 9/32	39 ½	15	24	33	42	17 ¼	10 ¾	39 ¼	17 ¼	10 ¾	42	84	31 ½	5	17
54	28 9/16	45 ½	16 ½	27	37 ½	48	19 ½	12 ¼	45 ¼	19 ½	12 ¼	48	96	34 ¾	6	18 ½

Texas Department of Transportation
Design Division (Roadway)

SINGLE SLOPE CONCRETE BARRIER TYPE 2

SSCB(2)-00A

FILE: sscb200a.dgn	DN: GTH	CK: GTH	DW: BGD	CK: TGM	NEG:

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REVISIONS

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
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LEVELS DSR

1	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
63																

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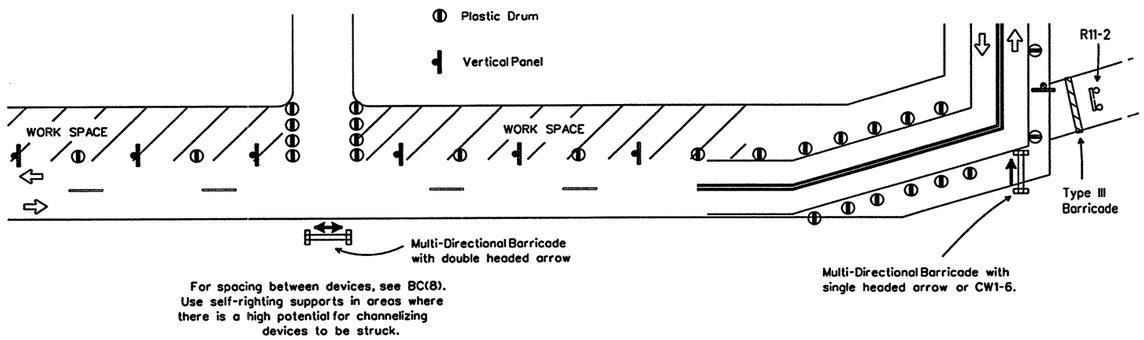
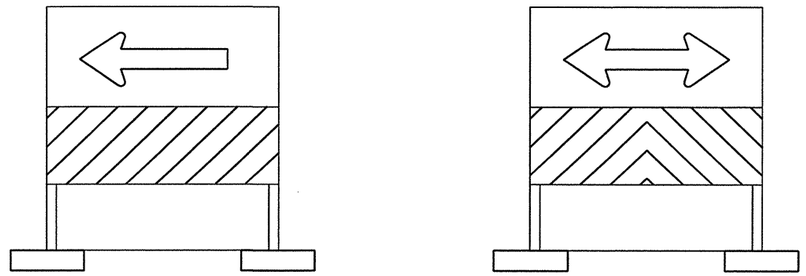
CHANNELIZING DEVICES FOR URBAN ROADWAY TYPE PROJECT



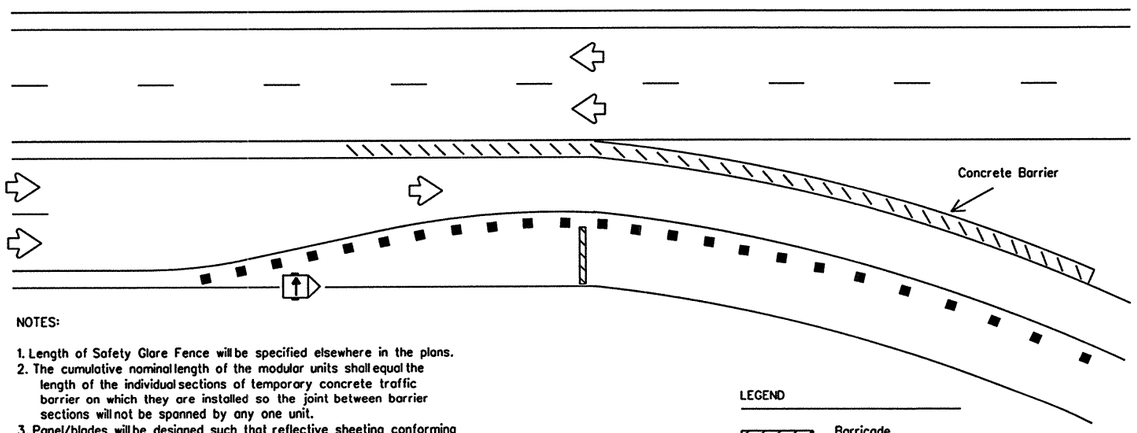
For spacing between devices, see BC(8). Use self-righting supports in areas where there is a high potential for channelizing devices to be struck.

MULTI-DIRECTIONAL BARRICADE



1. Multi-directional barricade shall not be used for lane closures.
2. May be used for sharp changes in alignment, or across roadway from stem of "T" intersection.
3. Typically used for Intermediate Term Stationary, Short Term Stationary or Short Duration work zone operations.
4. See the CWZTCD List for approved designs.

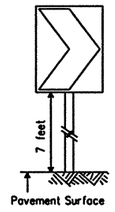
BARRIER DELINEATION WITH SAFETY GLARE FENCE



NOTES:

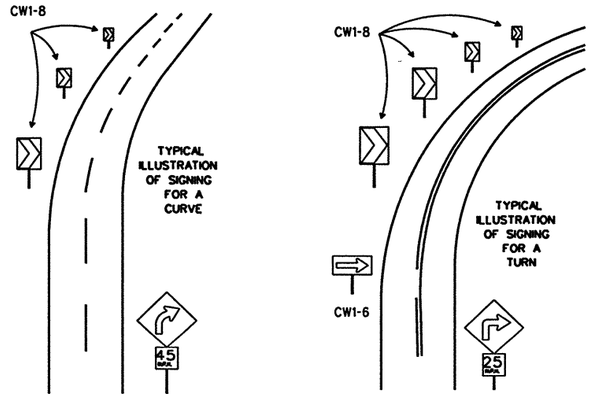
1. Length of Safety Glare Fence will be specified elsewhere in the plans.
2. The cumulative nominal length of the modular units shall equal the length of the individual sections of temporary concrete traffic barrier on which they are installed so the joint between barrier sections will not be spanned by any one unit.
3. Panel/blades will be designed such that reflective sheeting conforming with Departmental Material Specification DMS-8300, Flat Surface Reflective Sheeting, Type C (High Specific Intensity), minimum size of 2 inches by 12 inches can be attached to the edge of the panel/blade. The sheeting shall be attached to one panel/blade per section of concrete barrier not to exceed a spacing of 30 feet. Barrier reflectors are not necessary when panel/blades are installed.
4. Moduler Glare Screens for head light barrier shall meet the requirements of DMS-8610.

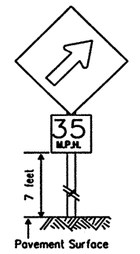
USAGE OF CW1-6, ECW1-6a AND CW1-8 SIGNS



CW1-8

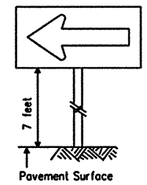
The CHEVRON sign (CW1-8) may be used to replace roadside delineation on curves or used in transitions or tapers.





ECW1-6a

An UPWARD SLOPING ARROW sign (ECW1-6a) is intended to be used to indicate the beginning of a curve or transition. It should be preceded with an appropriate curve sign when needed, and should not be used throughout the curve or transition. Advisory speed plaque is optional.



CW1-6

A LARGE ARROW sign (CW1-6) is intended to be used to give notice of a sharp change in alignment (turn) in the direction of travel. It should be preceded with an appropriate advance construction warning turn sign.

NOTES:

1. CW1-6, ECW1-6a & CW1-8 signs shall be mounted on fixed supports.
2. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
3. For two-way traffic, use some arrangement of signs on outside of curve for each direction of travel.
4. Appropriate advance warning CURVE or TURN sign with Advisory Speed ploque should be used when needed.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

PREQUALIFICATION PROCEDURES ARE OBTAINED FROM:

CONSTRUCTION DIVISION-MATERIALS AND TESTS SECTION
TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT)
125 EAST 11th STREET
AUSTIN, TX 78701-2483

DEPARTMENTAL MATERIAL SPECIFICATIONS

FLAT SURFACE REFLECTIVE SHEETING	DMS-8300
DELINEATORS AND OBJECT MARKERS	DMS-8600
MODULER GLARE SCREENS	DMS-8610

COLOR	USAGE	SIGN SHEETING
ORANGE	BACKGROUND	TYPE E (FLUORESCENT PRISMATIC)
WHITE	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
BLACK	LEGEND & BORDERS	VINYL NON-REFLECTIVE SHEETING

REFER TO THE BC SHEETS FOR SHEETING REQUIREMENT ON CHANNELIZING DEVICES.

The five categories of work duration and their time at a location shall be:

A. Long-term stationary is work that occupies a location more than 3 days.

B. Intermediate-term stationary is work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than 1 hour.

C. Short-term stationary is daytime work that occupies a location for more than 1 hour, but less than 12 hours.

D. Short duration is work that occupies a location up to 1 hour.

E. Mobile is work that moves intermittently or continuously.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN
TYPICAL DETAILS

WZ(TD)-03

© TxDOT February 1998

DN: LR	CK: DTN	DW: DN	CK: GB	MCG NO.:

REVISIONS
4-98
3-03

DISTRICT	FED REG	FEDERAL AID PROJECT		SHEET
LAREDO	6	NH - 2002 (79)		264
COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

ACC:

PLAYED																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63		

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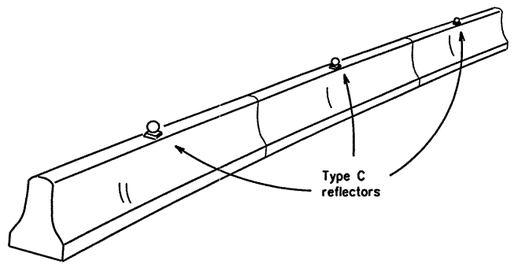
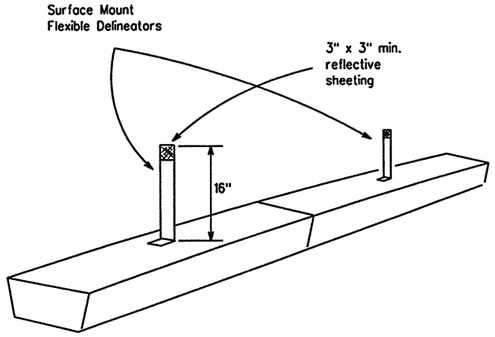
CONCRETE TRAFFIC BARRIER (CTB)



NOTE:
Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as barrier delineation.

LOW PROFILE CONCRETE BARRIER (LPCB)



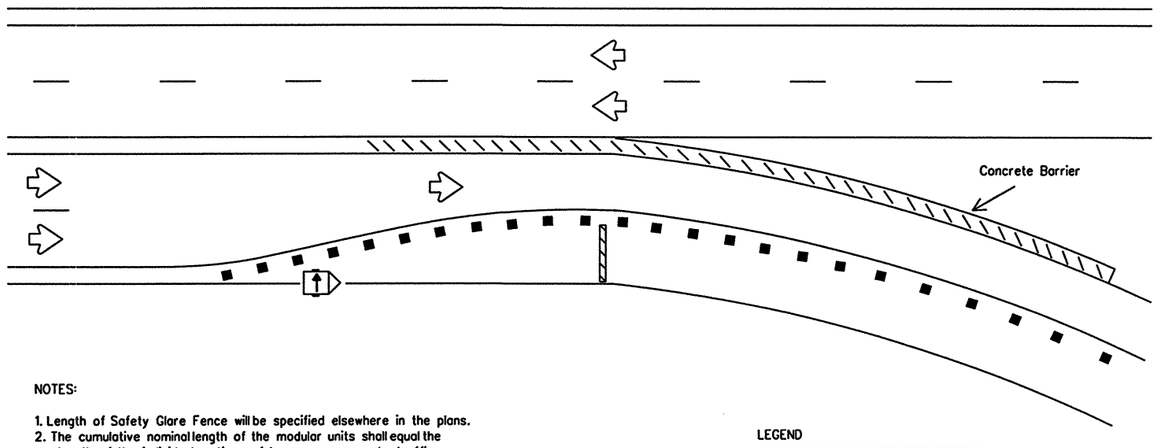
Barrier reflectors will be installed only on barriers designated for reflectorization as required elsewhere in the plans.

Reflectors should be mounted one reflector per section of barrier, preferably in the center.

Maximum spacing of reflectors is 40 feet for CTB and 20 feet for LPCB. Mount reflectors to barrier with construction adhesive or butyl rubber adhesive.

Color of barrier reflectors will conform to the Texas "Manual on Uniform Traffic Control Devices", (TMUTCD).

BARRIER DELINEATION WITH SAFETY GLARE FENCE



NOTES:

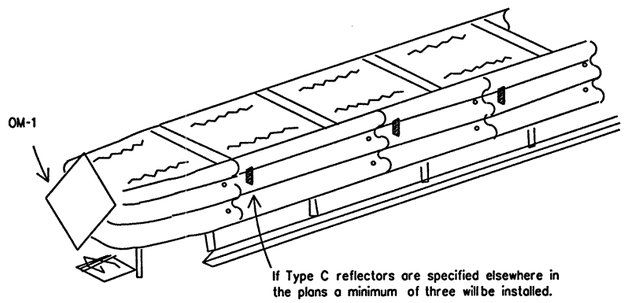
1. Length of Safety Glare Fence will be specified elsewhere in the plans.
2. The cumulative nominal length of the modular units shall equal the length of the individual sections of temporary concrete traffic barrier on which they are installed so the joint between barrier sections will not be spanned by any one unit.
3. Panel/blades will be designed such that reflective sheeting conforming with Departmental Specification D-9-8300, Type C, minimum size of 2 inches by 12 inches can be attached to the edge of the panel/blade. The sheeting shall be attached to one panel/blade per section of concrete barrier not to exceed a spacing of 30 feet. Barrier reflectors are not necessary when panel/blades are installed.

LEGEND

- Barricade
- Channelizing devices
- Trailer mounted flashing arrow panel
- Safety glare fence

DELINEATION OF SAFETY END TREATMENTS

⚠1



If Type C reflectors are specified elsewhere in the plans a minimum of three will be installed.

	APPROACHING TRAFFIC	
	BOTH SIDES	ONE SIDE
DELINEATION	OM-1	OM-3 or Vertical Panel

REFLECTORS FOR CONCRETE TRAFFIC BARRIER, AND ATTENUATORS

Type C reflectors may be installed using pop rivets, nuts and bolts, construction adhesive or butyl rubber adhesive.

Type C reflectors shall be prequalified and shall conform to the color and reflectivity requirements of Specification D-9-8600.

Color of Type C reflector will be the same as the nearest edge line, gore pavement marking or as directed by the Engineer.

Unless stated elsewhere in the plans, delineation and reflectors shown on this standard shall be considered subsidiary to the various bid items.

PREQUALIFICATION PROCEDURES ARE OBTAINED FROM:

MATERIALS AND TESTS DIVISION
TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT)
125 EAST 11th STREET
AUSTIN, TX 78701-2483

SPECIFICATION REFERENCE TABLE

MATERIALS AND TESTS DIVISION SPECIFICATIONS	
EPOXY	D-9-6100
BITUMINOUS ADHESIVE	D-9-6130
ALUMINUM SIGN BLANKS	D-9-7110
FLAT SURFACE REFLECTIVE SHEETING, TYPE C (HIGH SPECIFIC INTENSITY)	D-9-8300
DELINEATOR AND OBJECT MARKER	D-9-8600

10/99 Revision

⚠1 Remove drum mounted guard fence

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

WORK ZONE BARRIER DELINEATION

WZ(BD)-99

© TxDOT April 1992

DN: GRB	CK: GRB	DW: FDN	CK: CAL

REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
8-95 1-97 10-99	LAREDO	6	NH - 2002 (79)	265

COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062,ETC	IH 35

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DN: CK: DW: CK:
DATE: ACC: FILE:
LEVELS DISPL/

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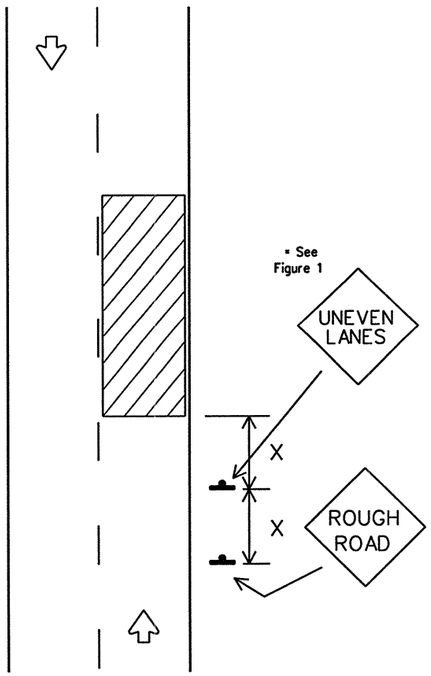
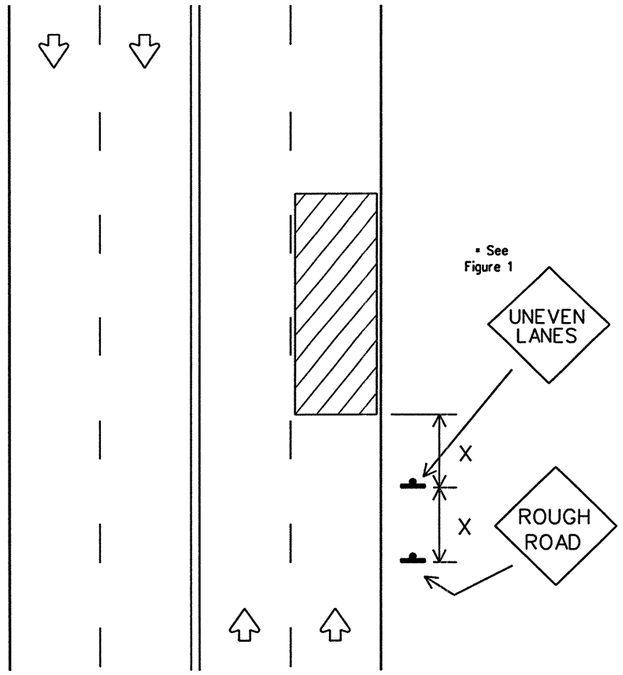
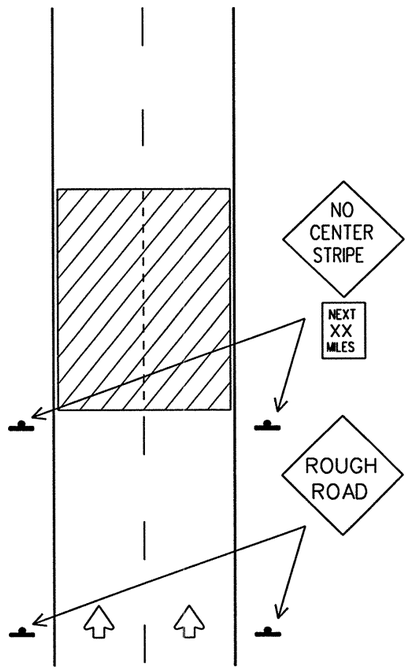
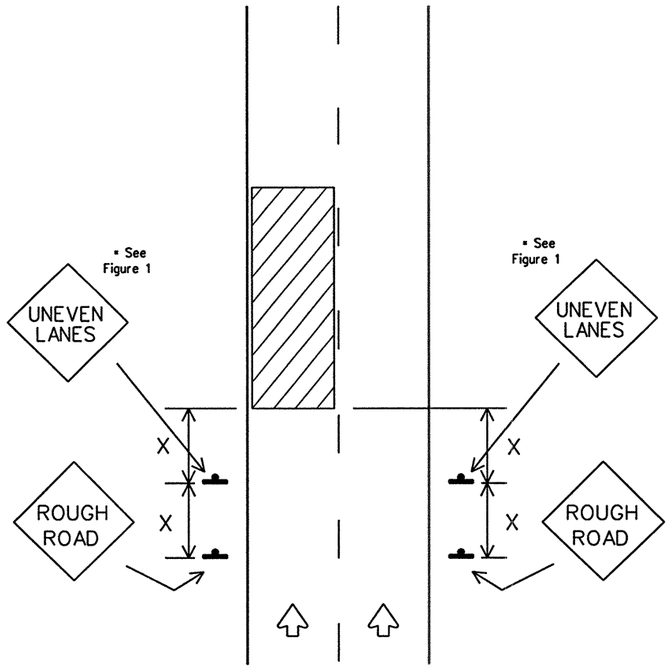


Signing shown for one direction.







"X" distance - See Note 4 on this page.

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN HARDWARE	DMS-7120
PREFABRICATED PAVEMENT MARKINGS-PERMANENT	DMS-8240
PREFABRICATED PAVEMENT MARKINGS-REMOVABLE	DMS-8241
FLAT SURFACE REFLECTIVE SHEETING	DMS-8300
VINYL NON-REFLECTIVE DECAL SHEETING	DMS-8320

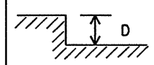
COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE E (FLUORESCENT PRISMATIC)
BLACK	LEGEND & BORDERS	VINYL NON-REFLECTIVE DECAL SHEETING

GENERAL NOTES:

1. If spalling or holes occur, ROUGH ROAD signs should be placed in advance of the condition and may be repeated throughout the project.
2. UNEVEN LANES sign (CW8-11) should be installed in advance of the condition and repeated every mile. Signs installed along the uneven lane condition may be supplemented with the NEXT XX MILES sign (CW21-16) or Advisory Speed sign (CW13-1).
3. NO CENTER STRIPE signs (CW8-12) should be installed if centerlines or lane lines are obscured or obliterated. The signs should remain in place until permanent pavement markings are installed.
4. Signs shall be spaced at the distances recommended as per BC standards.
5. When operations are completed and final surface treatment will not be applied as part of this project, advance signs shall be left in place and become the property of the State. These signs shall be installed on approved permanent sign supports as per TxDOT standards. Additional signs may be required as directed by the Engineer. Minimum mounting height of signs is 7 feet. Signs shall remain in place until final surface is applied. Signs shall be considered subsidiary to the Item "BARRICADES, SIGNS AND TRAFFIC HANDLING."
6. Pavement markings shall be replaced as operations proceed.
7. Short term markings shall not be used to simulate edge lines.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

TRAFFIC CONTROL DURING PLANING, OVERLAY AND LEVELING OPERATIONS ARE SHOWN ELSEWHERE IN THE PLANS.

FIGURE 1

Edge Condition	Edge Height (D)	Warning Devices
	less than or equal to 1" greater than 1" to: 1¼" (maximum-planing) 1½" (typical-overlay)	Signs: ECW8-8 Signs: CW8-11, ECW8-8

Distance "D" may be a maximum of 1¼" for planing operations and 2" for overlay operations if uneven lanes are open to traffic after work operations cease.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

SIGNING FOR UNEVEN LANES

WZ(UL)-03

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DN: MT	CK:	DW: DN	CK: MT	MEG NO.:

REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
8-95	LAREDO	6	NH - 2002 (79)	266
1-97	COUNTY	CONTROL	SECT JOB	HIGHWAY
2-98	WEBB	0018	05 062-ETC	IH 35

LAYED ACC:
LEV 1 2 3 4 5 6 | 7 8 9 10 11 12 13 14 15 16 | 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 | 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 | 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

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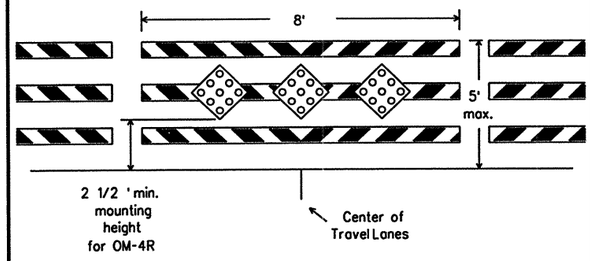
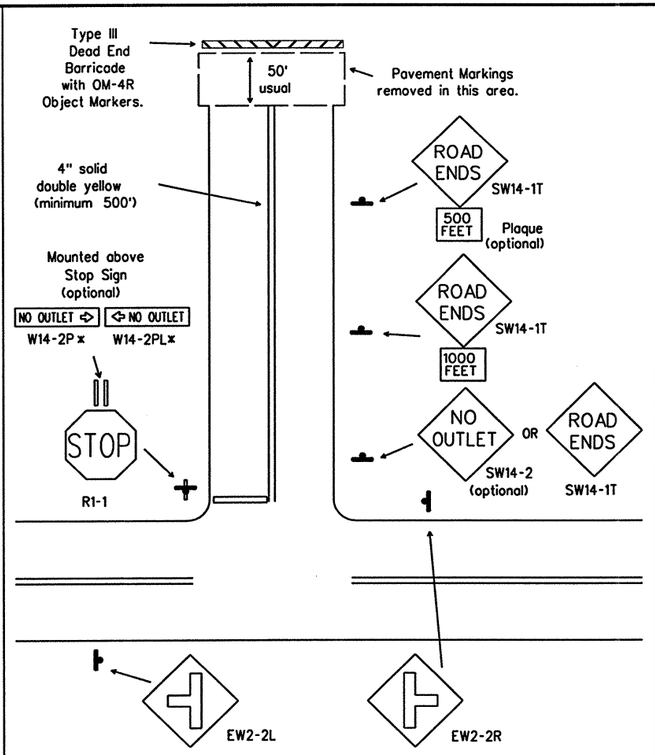
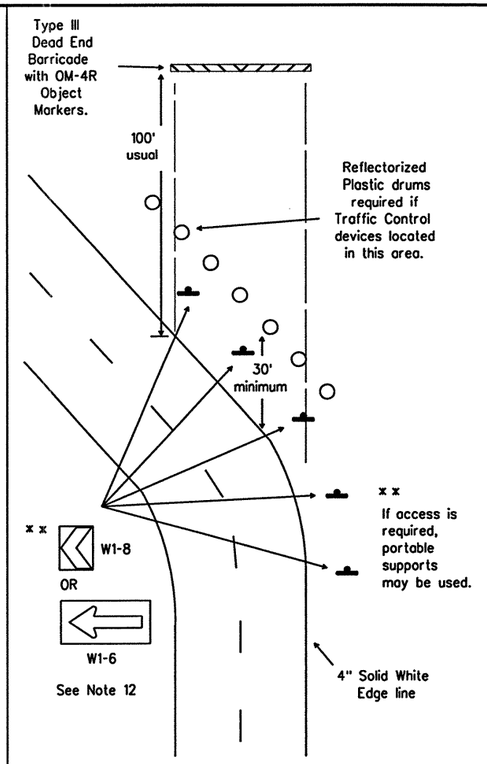
TYPICAL DEAD END BARRICADE INSTALLATION



Barricade striping is red and white sloping toward the center of the roadway. (See Note 1)



x W14-1P DEAD END plaque may be used as an alternate.



Devices shown for one direction of travel

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN HARDWARE	DMS-7120
WINGED CHANNEL POSTS	DMS-7130
FLAT SURFACE REFLECTIVE SHEETING	DMS-8300
VINYL NON-REFLECTIVE DECAL SHEETING	DMS-8320
DELINEATORS AND OBJECT MARKERS	DMS-8600

COLOR	USAGE	SHEETING MATERIAL
RED	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
WHITE	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
YELLOW	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
BLACK	LEGEND & BORDERS	VINYL NON-REFLECTIVE SHEETING

GENERAL NOTES:

1. Barricade striping shall be red and white reflective sheeting for all permanent road closures. Orange and white reflective sheeting may be substituted for locations where duration of road closure is expected to be 18 months or less, or when approved by the Engineer. Red and orange reflective sheeting shall not be combined on barricades or locations.
2. Barricades shall be designed and constructed to Compliant Work Zone Traffic Control Device List (CWZTCD) standards in a first-class workmanship manner of clean sound material. Components made of lumber shall be painted with a minimum of two coats of white paint to ensure thorough coverage and a uniform white color. Barricade striping material shall meet the color and retroreflective requirements of Departmental Material Specification DMS-8300, Type C.
3. Post type breakaway supports shall be used as barricade supports. Barricades may be fabricated with "skid" supports if approved by the Engineer. Skid supports should be anchored using sand bags to prevent movement. For construction details of post (fixed Type III barricades) see CWZTCD list Part D.2.f. The dead end road barricades may also be anchored to the pavement using the bolt down median anchor manufactered by Universal Anchor System shown on SMD(FRP). The barricades shall be built using FRP posts and approved rails as shown on the CWZTCD List.
4. Barricades shall not be placed parallel to traffic unless a minimum adequate clear zone of 30 feet from edge of travel lane is provided.
5. A minimum of one 8-foot wide barricade and three OM-4R object markers shall be required for all locations. Barricades shall extend across all travel lanes and shoulders if shoulders are present. Barricades may be extended to the ROW as directed by Engineer.
6. Stockpiled materials shall not be placed on traffic side of barricades.
7. OM-4 object markers shall be mounted to the middle rail using two 1/2" through bolts with flat washers and lock washers.
8. OM-4 object markers shall be constructed of 0.063 aluminum and shall meet the color and reflective requirements of DMS-8300 Type C and DMS-8600.
9. Plastic drums shall meet the requirements as listed on the CWZTCD list or the BC Standards. Plastic drums may be anchored with adhesive to prevent movement.
10. All signs and chevrons shall be installed with hardware and support at the minimum mounting height in accordance with the SMD and BC Standards. Signs shall be mounted at a 7 foot minimum height. Signs shall not be attached to barricades.
11. Motorists should be able to see at least three chevron signs as they approach the curve and as they drive through the curve from either direction.
12. Delineation devices such as the chevron or large arrow signs shall only be placed on the outside portion of a curve.

GENERAL NOTE FOR SIGNS:

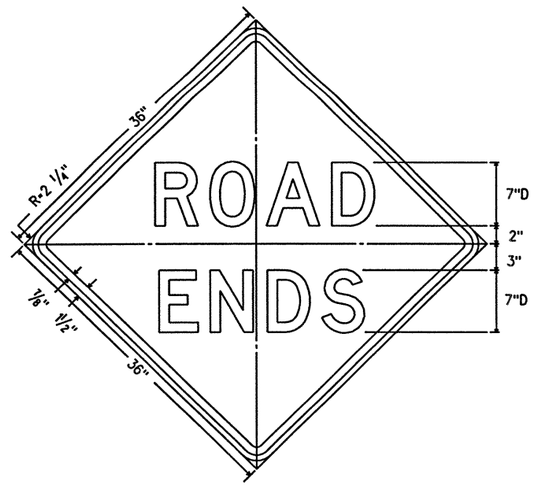
1. The alphabets and lateral spacing between letters and numerals shall conform with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways" (TMUTCD), latest edition, and any approved changes thereto.
2. Lateral spacing of text shall provide a balanced appearance.
3. All materials shall conform to Departmental Material Specifications.
4. Legend shall be black and applied by screening process, cut-out vinyl non-reflective sheeting or combination thereof.
5. Sign blanks shall be any material that meets the DMS requirements for permenant sign substrates.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.



SW14-1T
36" X 36"

Letters - Black
Border - Black
Background - Yellow Refl.

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

WORK ZONE DEAD END ROADWAY DETAILS

WZ(DERD)-03

© TxDOT August 1995	DW- LR/MT	CK- GRB	DW- FDN	CK- CAL

REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
1-97	LAREDO	6	NH - 2002 (79)	267
2-98	COUNTY	CONTROL	SECT	JOB	HIGHWAY
4-98	WEBB	0018	05	062-ETC	IH 35
3-03					

ACC:

LEV	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	32	33	34	35
	36	37	38	39	40	41	42
	43	44	45	46	47	48	49
	50	51	52	53	54	55	56
	57	58	59	60	61	62	63

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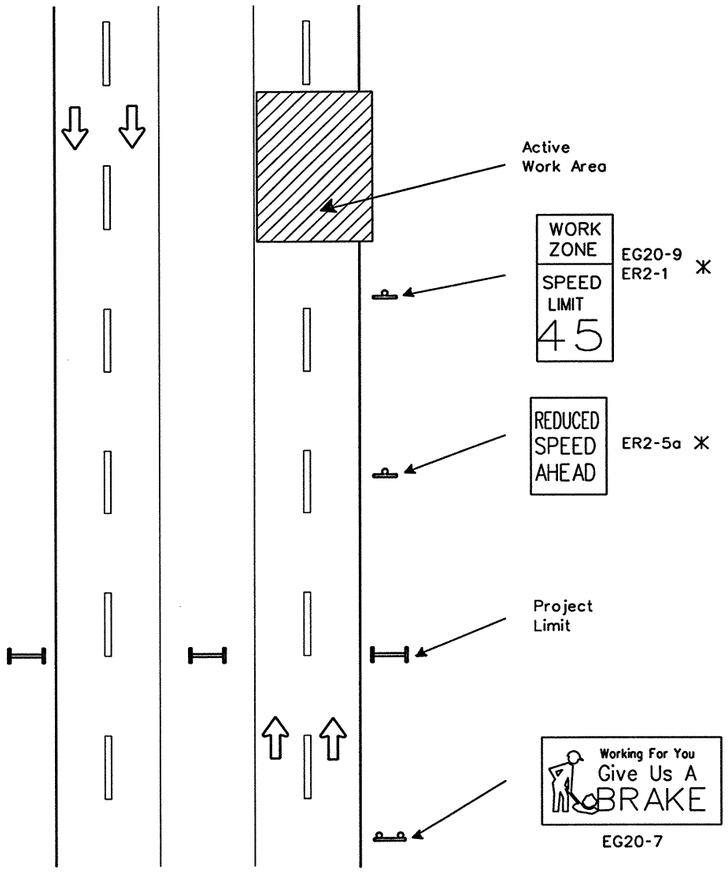
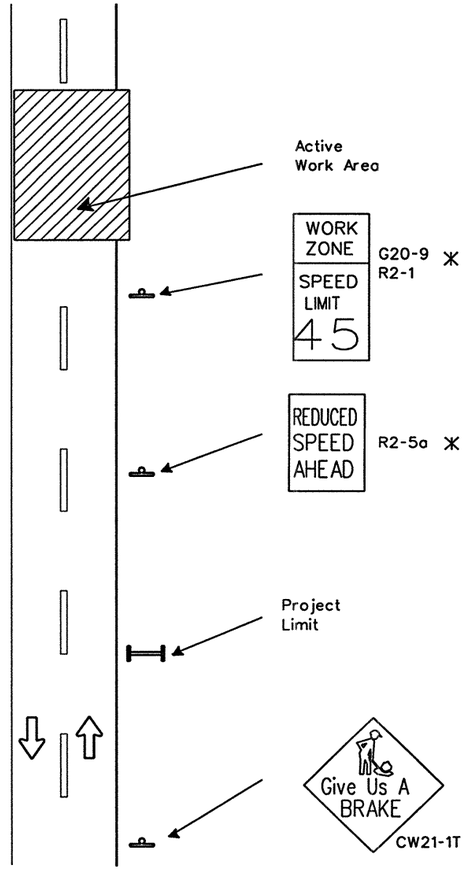
LEV 1 2 3 4 5 6 7 | LAYED 8 9 10 11 12 13 14 15 16 | ACC: 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 45 55 56 57 58 59 60 41 42 43 44 45 46 47 48 95 05 51 52 53 54 55 56 57 58 59 60 61 62 63

Divided Highway



Undivided Highway



SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

* Posted only when reduced speed is directed by the Engineer

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN TEXT	SIGN DIMENSIONS	REFLECTIVE SHEETING	PLY TY A (SQ FT)	GALVANIZED STRUCT STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	EG20-7	Give Us A BRAKE	16' x 8'	Type E	128	W8x18	16	17	12
Orange	G20-7	Give Us A BRAKE	8' x 4'	Type E	32	S4x7.7	12	13	7*

* 12" Non-reinforced Concrete Footing (LF)

SUMMARY OF SMALL SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN TEXT	SIGN DIMENSIONS	REFLECTIVE SHEETING	PLY TY A (SQ FT)
Orange	EG20-9	WORK ZONE	36" x 24"	Type E	6
Orange	G20-9	WORK ZONE	24" x 18"	Type E	3
White	ER2-1	SPEED LIMIT	36" x 48"	Type C	12
White	ER2-5a	REDUCED SPEED AHEAD	36" x 48"	Type C	12
Orange	CW21-1T	GIVE US A BRAKE	48" x 48"	Type E	16

DEPARTMENTAL MATERIAL SPECIFICATIONS

PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
FLAT SURFACE REFLECTIVE SHEETING	DMS-8300
VINYL NON-REFLECTIVE SHEETING	DMS-8320

COLOR	USAGE	SHEETING MATERIAL
WHITE	BACKBROUND	TYPE C (HIGH SPECIFIC INTENSITY)
ORANGE	BACKGROUND	TYPE E (FLUORESCENT PRISMATIC)
BLACK	LEGEND & BORDERS	VINYL NON-REFLECTIVE SHEETING

GENERAL NOTES:

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE and WORK ZONE SPEED LIMIT signs should be repeated halfway through the project.
4. The WORK ZONE (G20-9) sign is to be installed in combination with a SPEED LIMIT (R2-1) sign.
5. Speed limits shall be regulatory and approved by the Transportation Commission.
6. EG20-9, G20-9, ER2-1, R2-1, ER2-5a, R2-5a and CW21-1T signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
7. G20-7 and EG20-7 signs shall be paid for under the following bid items:
   Item 634 Plywood Signs Type A
   Item 647 Large Roadside Sign Supports
   Item 656 Foundations for Signs, Traffic Signals and Roadway Ill. Assem.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-03

©TxDOT August 1995

DN: LR	CK:	DW: DN	CK:	MSG NO.:

REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
6-96	LAREDO	6	NH - 2002 (79)	268
8-96				
5-98	COUNTY	CONTROL	SECT JOB	HIGHWAY
3-03	WEBB	0018	05 062-ETC	IH 35

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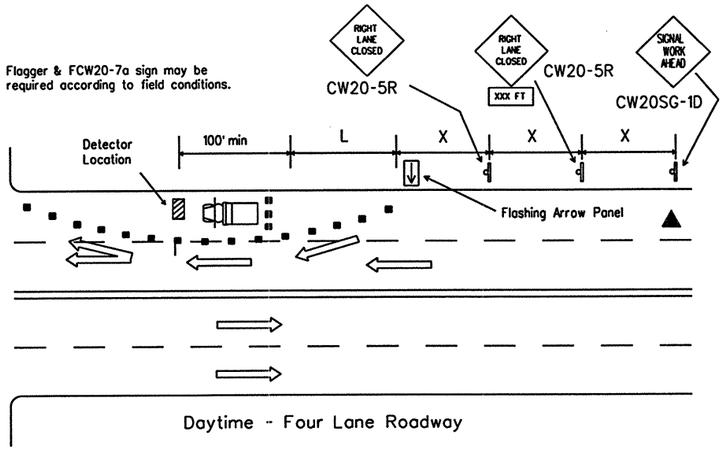
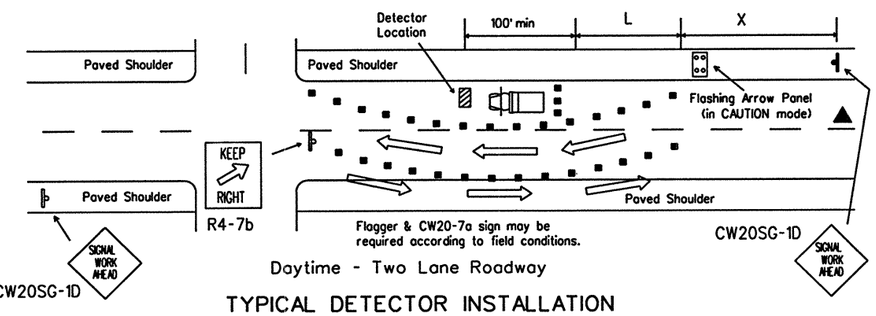


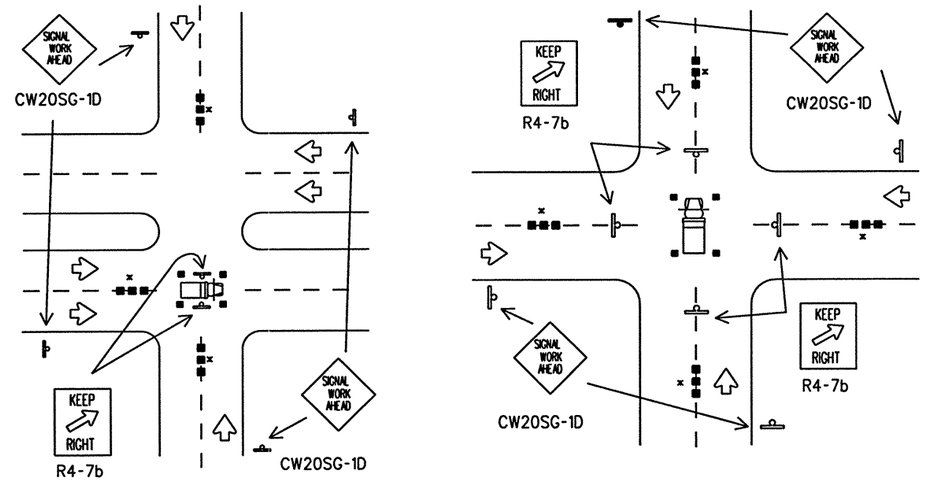
Posted Speed	Formula	Minimum Desirable Taper Lengths x x 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing x Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'
35		205'	225'	245'	35'	70'-90'	160'
40		265'	295'	320'	40'	80'-100'	240'
45	L=WS	450'	495'	540'	45'	90'-110'	320'
50		500'	550'	600'	50'	100'-125'	400'
55		550'	605'	660'	55'	110'-140'	500'
60		600'	660'	720'	60'	120'-150'	600'
65		650'	715'	780'	65'	130'-165'	700'
70		700'	770'	840'	70'	140'-175'	800'
75		750'	825'	900'	75'	150'-185'	900'

x x Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)



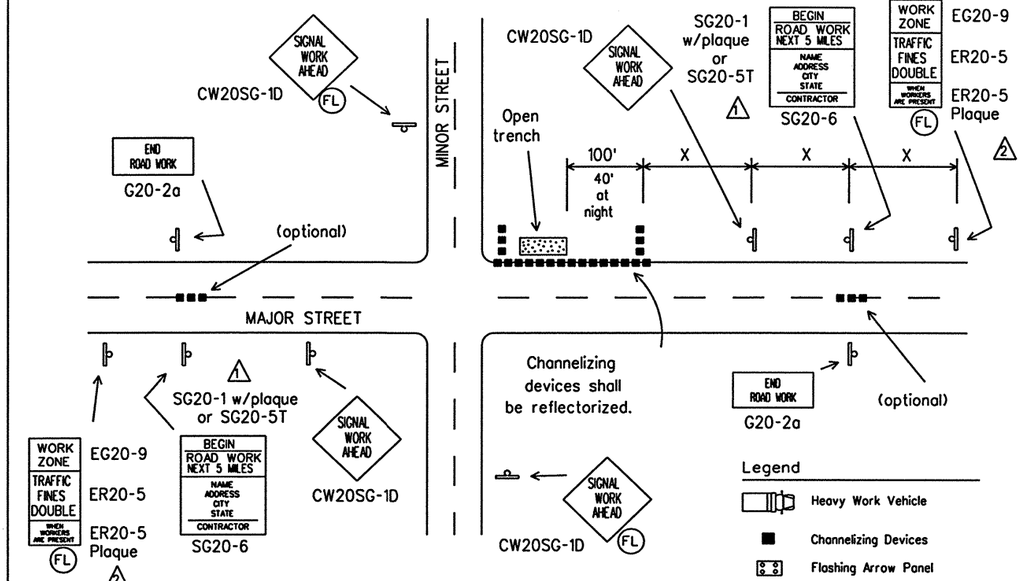
TYPICAL DETECTOR INSTALLATION
OR OTHER WORK OPERATIONS THAT ARE SHORT TERM OR SHORT DURATION

Nighttime Channelizing Devices shall be reflectorized.



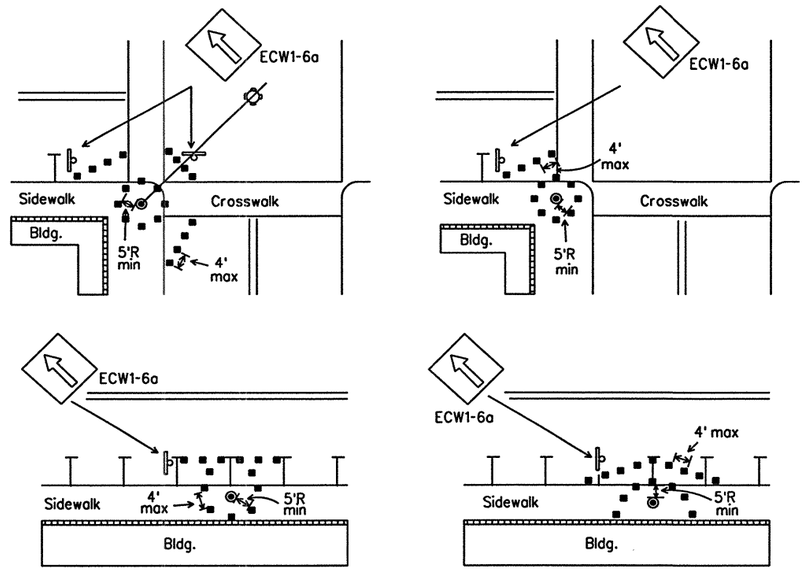
TYPICAL HANGING SIGNAL INSTALLATIONS
OR OTHER WORK OPERATIONS THAT ARE SHORT TERM OR SHORT DURATION

x Advance warning channelizing devices are optional.



TYPICAL ADVANCE SIGNING
FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

Observe Warning Signs State Law (R20-3) shall be required.
See BC(2).
Location will be as directed by the Engineer.



Channelizing devices should not be placed closer than 5 foot radius (minimum) to signal poles.
Parking may be eliminated by placing channelizing devices in spaces.
If pedestrian walkways are blocked, refer to the Texas Manual on Uniform Traffic Control Devices (TMUTCD) Part 6.

TYPICAL RESTRICTED PEDESTRIAN MOVEMENTS
FOR ALL WORK OPERATIONS REGARDLESS OF WORK DURATION

▲ The arrow panel may be omitted when stated elsewhere in the plans.

1. Typical channelizing device is the 28" cone.
2. Plastic drums or vertical panels may be used if approved by the Engineer.
3. For several closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits.
4. See details elsewhere in the plans for advance signing requirements.
5. Advance signs shall be in place when signal construction operations are in progress.
6. The contractor shall remove advance signs when no construction operations are underway.
7. Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
8. All holes, trenches or other hazardous areas shall be adequately protected by lights or other protective devices.
9. Trenches shall be covered or surrounded with orange plastic construction fence as directed by the Engineer.
10. Flagger and FCW20-7a sign may be required according to field conditions.
11. Vehicles parked in roadway shall be equipped with two strobes.
12. High level flags at corners of vehicle may also be used.
13. Work operations that require work vehicle in traveled way 20 minutes or less may use cones, high level flags and strobes as advance warning devices.
14. Cones should only be placed around vehicle.
15. Flaggers may be used on high speed rural intersections.

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL INSTALLATION TYPICAL DETAILS

SHEET 1 OF 2 WZ(BTS-1)-03

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REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
2-98	LAREDO	6	NH - 2002 (79)	269
4-98	COUNTY	CONTROL	SECT	JOB	HIGHWAY
10-99	WEBB	0018	05	062-ETC	IH 35
3-03					

FILE: HOUFILE023 \HOIVIL\CF0130 4/18/2003
15OWZP1.DGN

ACC:
LEV 1 2 3 4 5 6 | LAYED 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

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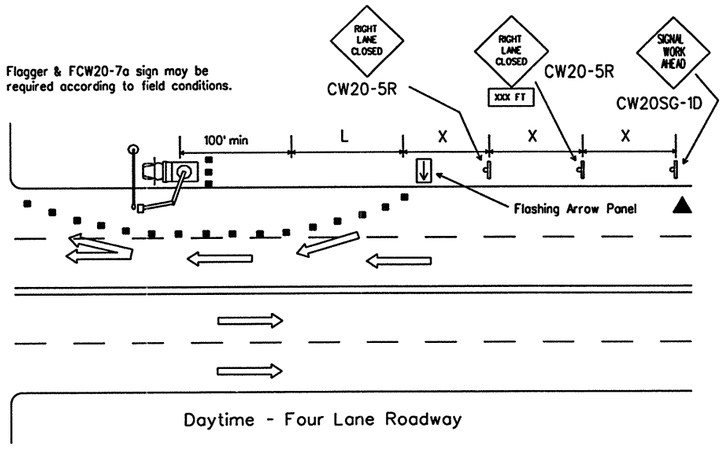
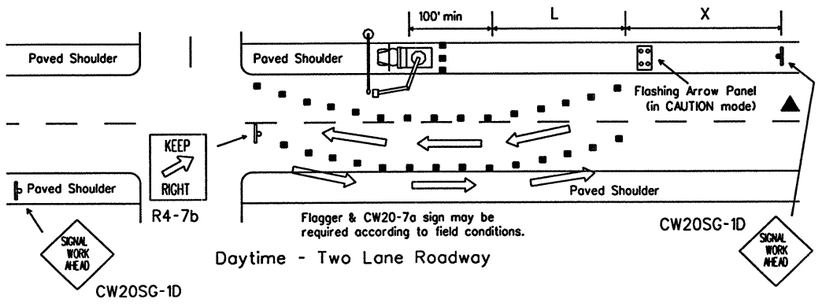
"ABOVE LANE" WORK PERFORMED BY BUCKET TRUCK



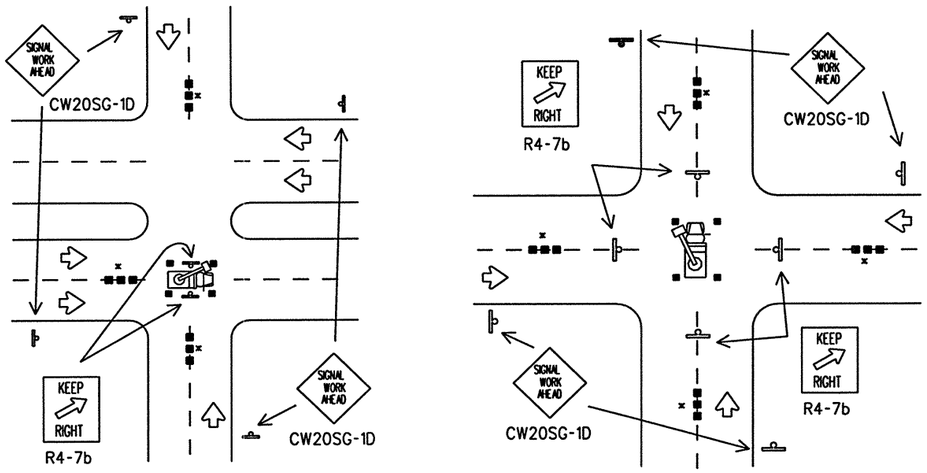
Daytime - Four Lane Roadway



Daytime - Two Lane Roadway

▲ The arrow panel may be omitted when stated elsewhere in the plans.

"ABOVE TRUCK" WORK PERFORMED BY BUCKET TRUCK



GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
6. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes. The additional signs requested by the Engineer/Inspector shall not be subsidiary.
7. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD). The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so that the Engineer can verify the correct procedures are being followed.
8. The contractor is responsible for sign installations and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
9. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1".
10. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

Duration of Work (as defined by the TMUTCD Part 6)

The types of sign supports, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring that the sign support and substrate meets crashworthiness and length of work requirements.

a. Long-term stationary is work that occupies a location more than 3 days.
b. Intermediate-term stationary is work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than 1 hour.
c. Short-term stationary is daytime work that occupies a location for more than 1 hour, but less than 12 hours.
d. Short duration is work that occupies a location up to 1 hour.
e. Mobile is work that moves intermittently or continuously.

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This type of sign support meets the crashworthiness standards regardless of the direction of impact. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face. These materials can damage the retroreflectivity of sign sheeting.
7. Signs shall be removed upon completion of the work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact.
6. Rubber (such as tire inner tubes) shall NOT be used for sandbags.
7. Rubber ballasts (such as those used with cones or edgeline channelizers) shall NOT be used as sign support weights.
8. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
9. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

DEPARTMENTAL MATERIAL SPECIFICATIONS

PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
FLAT SURFACE REFLECTIVE SHEETING	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310
VINYL NON-REFLECTIVE SHEETING	DMS-8320

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE E (FLUORESCENT PRISMATIC)
WHITE	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
WHITE	LEGEND & BORDERS	TYPE C (HIGH SPECIFIC INTENSITY)
BLACK	LEGEND & BORDERS	VINYL NON-REFLECTIVE SHEETING

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC SIGNAL INSTALLATION BARRICADES AND SIGNS

SHEET 2 OF 2 WZ(BTS-2)-03

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REVISIONS
2-98
4-98
10-99
3-03

DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
LAREDO	6	NH - 2002 (79)	270

COUNTY	CONTROL	SECT	JOB	HIGHWAY
WEBB	0018	05	062-ETC	IH 35

4/18/2003

HOUFILE023 \HCIVIL\CF0130 350WZP1.DGN

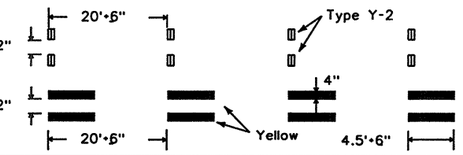
ACC:

LEV	LAYER															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63		

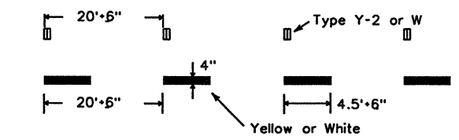
WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

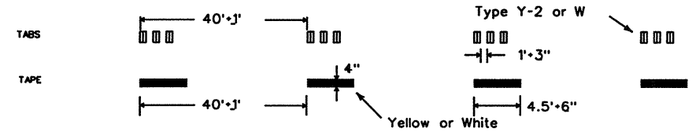


SINGLE NO-PASSING LINE or CHANNELIZATION LINE



BROKEN LINE

(FOR CENTER LINE OR LANE LINE.)



NOTES:

1. Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible-reflective roadway marker tabs unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
4. Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
5. No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
6. For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Permanent pavement markings should then be placed.
7. For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer. DO NOT PASS and PASS WITH CARE signs shall be erected (see note 6).

TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS (TABS)

1. Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(10).
2. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
3. When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
4. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

REMOVABLE - PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241. A list of prequalified products can be found at the following web site:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/pavemark.pdf

NON REMOVABLE - PREFABRICATED PAVEMENT MARKINGS

1. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240 or the TXDOT Purchase Specification No. 550-74-89. A list of prequalified products and a copy of the TXDOT Purchase Specifications can be found at web sites:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/pavement.pdf
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/tss/tss377.pdf

RAISED PAVEMENT MARKERS

1. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200.
2. A list of prequalified reflective raised pavement markers can be found at the following web site:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/dms4200preq.pdf

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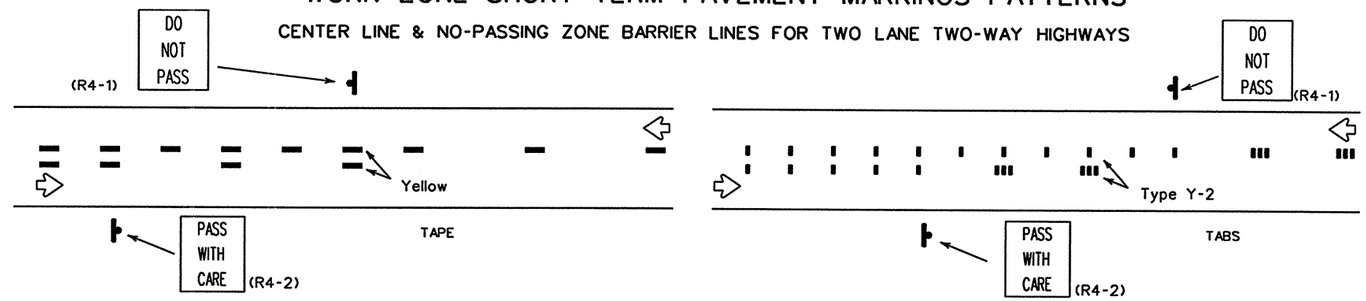
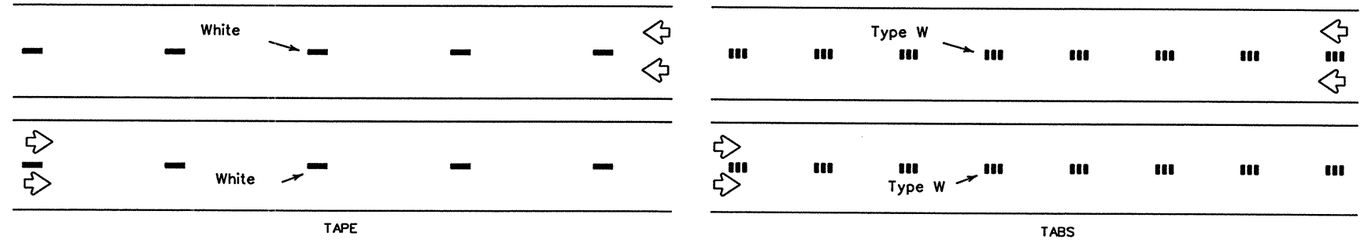
DISPLAYED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ACC:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS

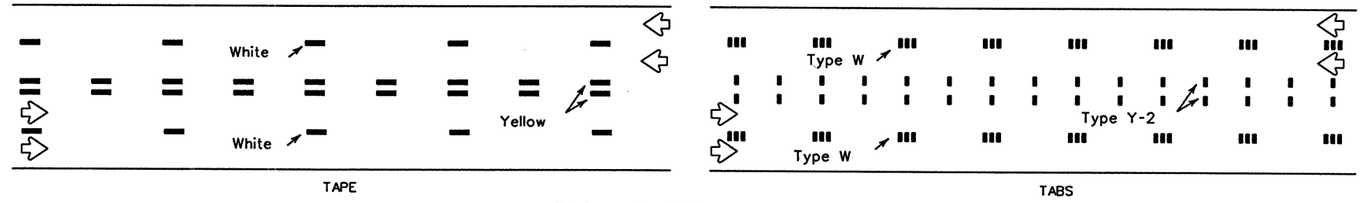
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



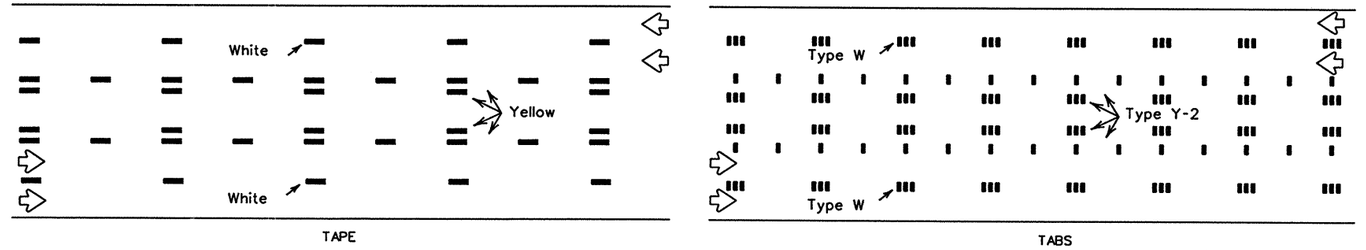
LANE LINES FOR DIVIDED HIGHWAY

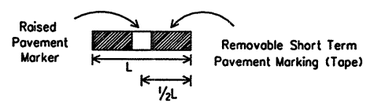


LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE





If raised pavement markers are used to supplement REMOVABLE short term markings, the markers shall be applied to the top of the tape at the approximate mid length of the tape. This allows an easier removal of raised markers and tape.

DEPARTMENT MATERIAL SPECIFICATIONS	
PREFABRICATED PAVEMENT MARKINGS-PERMANENT	DMS-8240
PREFABRICATED PAVEMENT MARKINGS-REMOVABLE	DMS-8241
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS	DMS-8242
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ(STPM)-03

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DN: LR	CK:	DW: DN	CK: MT	MEC NO.:

REVISIONS	DISTRICT	FED REG	FEDERAL AID PROJECT	SHEET
1-97	LAREDO	6	NH - 2002 (79)	271
3-03	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062-ETC	IH 35

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B50WZP1.DGN

IH 35 STATION	NB IH 35 (PGL) BOTTOM OF BARRIER	SB IH 35 (PGL) BOTTOM OF BARRIER	TOP OF BARRIER (EL)
173+35.00	511.44	511.33	514.44
174+00.00	512.33	512.19	515.33
175+00.00	513.70	513.51	516.70
176+00.00	515.07	514.83	518.07
177+00.00	516.36	516.13	519.36
178+00.00	517.44	517.19	520.44
179+00.00	518.33	517.99	521.33
180+00.00	519.02	518.53	522.02
181+00.00	519.50	518.79	522.50
182+00.00	519.79	518.79	522.79
183+00.00	519.87	518.53	522.87
184+00.00	519.79	518.27	522.79
185+00.00	519.70	518.24	522.70
186+00.00	519.60	518.35	522.60
187+00.00	519.51	518.45	522.51
188+00.00	519.52	518.56	522.52
189+00.00	519.75	518.73	522.75
190+00.00	520.08	519.02	523.08
191+00.00	520.42	519.38	523.42
192+00.00	520.75	519.74	523.75
193+00.00	521.09	520.10	524.09
194+00.00	521.42	520.46	524.42
195+00.00	521.76	521.02	524.76
196+00.00	522.38	521.97	525.38
197+00.00	523.46	523.32	526.46
198+00.00	525.02	525.07	528.07
199+00.00	527.02	527.12	530.12
200+00.00	529.14	529.18	532.18
201+00.00	531.25	531.24	534.25
202+00.00	533.37	533.31	536.37
203+00.00	535.49	535.37	538.49
204+00.00	537.48	537.44	540.48
205+00.00	539.20	539.39	542.39
206+00.00	540.65	541.01	544.01
207+00.00	541.84	542.29	545.29
208+00.00	542.77	543.24	546.24
209+00.00	543.43	543.84	546.84
210+00.00	543.83	544.10	547.10
211+00.00	543.96	544.03	547.03
212+00.00	543.82	543.85	546.85
213+00.00	543.56	543.67	546.67
214+00.00	543.36	543.55	546.55
215+00.00	543.54	543.78	546.78
216+00.00	544.15	544.40	547.40
217+00.00	545.19	545.42	548.42
218+00.00	546.62	546.81	549.81
219+00.00	548.15	548.27	551.27
220+00.00	549.50	549.72	552.72
221+00.00	550.58	550.89	553.89
222+00.00	551.40	551.71	554.71
223+00.00	551.96	552.20	555.20
224+00.00	552.26	552.34	555.34
225+00.00	552.30	552.30	555.30
226+00.00	552.24	552.27	555.27
227+00.00	552.19	552.23	555.23
228+00.00	552.18	552.23	555.23
229+00.00	552.60	552.66	555.66
230+00.00	553.57	553.62	556.62
231+00.00	555.09	555.11	558.11
232+00.00	557.16	557.14	560.16
233+00.00	559.51	559.44	562.51
234+00.00	561.87	561.75	564.87
235+00.00	564.23	564.06	567.23
236+00.00	566.58	566.37	569.58
237+00.00	568.94	568.68	571.94
238+00.00	571.29	570.98	574.29
239+00.00	573.65	573.29	576.65
240+00.00	576.01	575.60	579.01
241+00.00	578.36	577.91	581.36
242+00.00	580.59	580.17	583.59

IH 35 STATION	NB IH 35 (PGL) BOTTOM OF BARRIER	SB IH 35 (PGL) BOTTOM OF BARRIER	TOP OF BARRIER (EL)
243+00.00	582.43	582.16	585.43
244+00.00	583.88	583.84	586.88
244+75.00	584.70	584.88	587.88
245+00.00	584.92	585.19	588.19
245+25.00	585.12	585.48	588.48
245+50.00	585.30	585.75	588.75
245+75.00	585.45	586.00	589.00
246+00.00	585.57	586.23	589.23
246+25.00	585.67	586.45	589.45
246+50.00	585.75	586.64	589.64
246+75.00	585.80	586.81	589.81
247+00.00	585.83	586.96	589.96
247+25.00	585.83	587.09	590.09
247+50.00	585.80	587.20	590.20
247+75.00	585.75	587.29	590.29
248+00.00	585.68	587.37	590.37
248+25.00	585.58	587.42	590.42
248+50.00	585.46	587.45	590.45
248+75.00	585.31	587.46	590.46
249+00.00	585.14	587.46	590.46
249+25.00	584.94	587.43	590.43
249+50.00	584.72	587.38	590.38
249+75.00	584.48	587.32	590.32
250+00.00	584.20	587.23	590.23
250+25.00	583.91	587.13	590.13
250+50.00	583.62	587.00	590.00
250+75.00	583.37	586.86	589.86
251+00.00	583.15	586.73	589.73
251+25.00	582.97	586.59	589.59
251+50.00	582.82	586.46	589.46
251+75.00	582.71	586.32	589.32
252+00.00	582.63	586.19	589.19
252+25.00	582.58	586.05	589.05
252+50.00	582.57	585.92	588.92
252+75.00	582.58	585.78	588.78
253+00.00	582.59	585.65	588.65
253+25.00	582.61	585.51	588.51
253+50.00	582.62	585.38	588.38
253+75.00	582.63	585.24	588.24
254+00.00	582.65	585.11	588.11
254+25.00	582.66	584.97	587.97
254+50.00	582.67	584.84	587.84
254+75.00	582.68	584.70	587.70
255+00.00	582.70	584.57	587.57
255+25.00	582.71	584.43	587.43
255+50.00	582.72	584.30	587.30
255+75.00	582.74	584.16	587.16
256+00.00	582.75	584.03	587.03
256+25.00	582.76	583.89	586.89
256+50.00	582.77	583.76	586.76
256+75.00	582.78	583.62	586.62
257+00.00	582.77	583.49	586.49
257+25.00	582.76	583.35	586.35
257+50.00	582.72	583.22	586.22
257+75.00	582.68	583.08	586.08
258+00.00	582.63	582.92	585.92
258+25.00	582.56	582.76	585.76
258+50.00	582.48	582.58	585.58
258+75.00	582.38	582.39	585.39
259+00.00	582.28	582.18	585.28
259+25.00	582.16	581.97	585.16
259+50.00	582.03	581.74	585.03
259+75.00	581.89	581.50	584.89
260+00.00	581.74	581.24	584.74
260+25.00	581.57	580.98	584.57
260+50.00	581.39	580.70	584.39
260+75.00	581.21	580.41	584.21
261+00.00	581.03	580.11	584.03
261+25.00	580.84	579.79	583.84
261+50.00	580.66	579.46	583.66

IH 35 STATION	NB IH 35 (PGL) BOTTOM OF BARRIER	SB IH 35 (PGL) BOTTOM OF BARRIER	TOP OF BARRIER (EL)
261+75.00	580.48	579.13	583.48
262+00.00	580.29	578.80	583.29
262+25.00	580.11	578.46	583.11
262+50.00	579.93	578.14	582.93
262+75.00	579.74	577.85	582.74
263+00.00	579.56	577.59	582.56
263+25.00	579.38	577.36	582.38
263+50.00	579.19	577.15	582.19
263+75.00	579.01	576.97	582.01
264+00.00	578.82	576.81	581.82
264+25.00	578.64	576.69	581.64
264+50.00	578.46	576.58	581.46
264+75.00	578.27	576.48	581.27
265+00.00	578.09	576.38	581.09
265+25.00	577.91	576.27	580.91
265+50.00	577.72	576.17	580.72
265+75.00	577.54	576.07	580.54
266+00.00	577.36	575.96	580.36
266+25.00	577.17	575.86	580.17
266+50.00	576.99	575.76	579.99
266+75.00	576.81	575.65	579.81
267+00.00	576.62	575.53	579.62
267+25.00	576.44	575.40	579.44
267+50.00	576.26	575.26	579.26
267+75.00	576.07	575.11	579.07
268+00.00	575.89	574.95	578.89
268+25.00	575.70	574.78	578.70
268+50.00	575.52	574.60	578.52
268+75.00	575.34	574.41	578.34
269+00.00	575.15	574.20	578.15
269+25.00	574.98	573.99	577.98
269+50.00	574.84	573.77	577.84
269+75.00	574.73	573.54	577.73
270+00.00	574.65	573.31	577.65
270+25.00	574.61	573.08	577.61
270+50.00	574.61	572.86	577.61
270+75.00	574.64	572.65	577.64
271+00.00	574.70	572.48	577.70
271+25.00	574.79	572.35	577.79
271+50.00	574.92	572.25	577.92
271+75.00	575.09	572.18	578.09
272+00.00	575.29	572.15	578.29
272+25.00	575.52	572.15	578.52
272+50.00	575.78	572.19	578.78
272+75.00	576.08	572.26	579.08
273+00.00	576.42	572.37	579.42
273+25.00	576.79	572.51	579.79
273+50.00	577.18	572.68	580.18
273+75.00	577.59	572.89	580.59
274+00.00	577.99	573.13	580.99
274+25.00	578.39	573.41	581.39
274+50.00	578.79	573.72	581.79
274+75.00	579.19	574.07	582.19
275+00.00	579.59	574.45	582.59
275+25.00	579.99	574.86	582.99
275+50.00	580.39	575.31	583.39
275+75.00	580.80	575.77	583.80
276+00.00	581.20	576.23	584.20
276+25.00	581.60	576.68	584.60
276+50.00	582.00	577.14	585.00
276+75.00	582.40	577.60	585.40
277+00.00	582.80	578.06	585.80
277+25.00	583.20	578.51	586.20
277+50.00	583.60	578.97	586.60
277+75.00	584.01	579.43	587.01
278+00.00	584.41	579.89	587.41
278+25.00	584.81	580.35	587.81
278+50.00	585.21	580.80	588.21

0 30 60
SCALE: 1" = 60'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

℄ MAINLANES
BARRIER DATA

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		272
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/19/2003

HOUFILE023 \hcivil\cf0130\

b36qsp20.dgn-03

REF FILE(S): J01op01.bdr, bdr LV ON = 5,45,57,60-63

IH 35 STATION	NB IH 35 (PGL) BOTTOM OF BARRIER	SB IH 35 (PGL) BOTTOM OF BARRIER	TOP OF BARRIER (EL)
278+75.00	585.61	581.26	588.61
279+00.00	586.01	581.72	589.01
279+25.00	586.41	582.18	589.41
279+50.00	586.81	582.63	589.81
279+75.00	587.22	583.09	590.22
280+00.00	587.62	583.55	590.62
280+25.00	588.02	584.01	591.02
280+50.00	588.42	584.46	591.42
280+75.00	588.82	584.92	591.82
281+00.00	589.22	585.38	592.22
281+25.00	589.62	585.84	592.62
281+50.00	590.03	586.29	593.03
281+75.00	590.43	586.75	593.43
282+00.00	590.83	587.21	593.83
282+25.00	591.23	587.67	594.23
282+50.00	591.63	588.13	594.63
282+75.00	592.03	588.58	595.03
283+00.00	592.41	589.04	595.41
283+25.00	592.77	589.50	595.77
283+50.00	593.12	589.96	596.12
283+75.00	593.46	590.41	596.46
284+00.00	593.78	590.87	596.78
284+25.00	594.09	591.33	597.09
284+50.00	594.39	591.78	597.39
284+75.00	594.67	592.22	597.67
285+00.00	594.93	592.64	597.93
285+25.00	595.18	593.04	598.18
285+50.00	595.42	593.42	598.42
285+75.00	595.64	593.79	598.64
286+00.00	595.85	594.14	598.85
286+25.00	596.04	594.47	599.04
286+50.00	596.22	594.79	599.22
286+75.00	596.38	595.08	599.38
287+00.00	596.53	595.37	599.53
287+25.00	596.67	595.63	599.67
287+50.00	596.79	595.88	599.79
287+75.00	596.89	596.10	599.89
288+00.00	596.98	596.32	599.98
288+25.00	597.06	596.51	600.06
288+50.00	597.12	596.69	600.12
288+75.00	597.17	596.85	600.17
289+00.00	597.21	596.99	600.21
289+25.00	597.22	597.12	600.22
289+50.00	597.23	597.23	600.23
289+75.00	597.22	597.32	600.32
290+00.00	597.20	597.39	600.39
290+25.00	597.16	597.45	600.45
290+50.00	597.10	597.49	600.49
290+75.00	597.04	597.51	600.51
291+00.00	596.96	597.51	600.51
291+25.00	596.87	597.50	600.50
292+00.00	596.62	597.36	600.36
293+00.00	596.28	596.94	599.94
294+00.00	595.94	596.46	599.46
295+00.00	595.60	595.97	598.97
296+00.00	595.26	595.48	598.48
297+00.00	594.92	595.00	598.00
298+00.00	594.59	594.51	597.59
299+00.00	594.25	594.03	597.25
300+00.00	593.91	593.54	596.91
301+00.00	593.54	593.00	596.54
302+00.00	592.84	592.16	595.84
303+00.00	591.73	590.97	594.73
304+00.00	590.22	589.44	593.22
305+00.00	588.31	587.57	591.31
306+00.00	585.99	585.36	588.99
307+00.00	583.28	582.81	586.28
308+00.00	580.43	580.10	583.43
309+00.00	577.59	577.40	580.59
310+00.00	574.95	574.77	577.95

IH 35 STATION	NB IH 35 (PGL) BOTTOM OF BARRIER	SB IH 35 (PGL) BOTTOM OF BARRIER	TOP OF BARRIER (EL)
311+00.00	572.85	572.64	575.85
312+00.00	571.30	571.06	574.30
313+00.00	570.31	570.03	573.31
314+00.00	569.86	569.55	572.86
315+00.00	569.96	569.61	572.96
316+00.00	570.62	570.23	573.62
317+00.00	571.82	571.39	574.82
318+00.00	573.58	573.05	576.58
319+00.00	575.53	574.79	578.53
320+00.00	577.34	576.35	580.34
321+00.00	578.77	577.57	581.77
322+00.00	579.79	578.44	582.79
323+00.00	580.41	578.96	583.41
324+00.00	580.62	579.14	583.62
325+00.00	580.43	578.96	583.43
326+00.00	579.85	578.44	582.85
327+00.00	578.85	577.58	581.85
328+00.00	577.46	576.37	580.46
329+00.00	575.74	574.83	578.74
330+00.00	573.99	573.24	576.99
331+00.00	572.23	571.65	575.23
332+00.00	570.48	570.06	573.48
333+00.00	568.73	568.47	571.73
334+00.00	567.26	567.13	570.26
335+00.00	566.33	566.27	569.33
336+00.00	565.93	565.89	568.93
337+00.00	565.92	565.86	568.92
338+00.00	565.93	565.85	568.93
339+00.00	565.94	565.84	568.94
340+00.00	565.96	565.82	568.96
341+00.00	565.97	565.81	568.97
342+00.00	565.98	565.80	568.98
343+00.00	566.00	565.86	569.00
344+00.00	566.37	566.41	569.41
344+50.00	566.73	566.89	569.89
344+75.00	566.96	567.18	570.18
345+00.00	567.21	567.50	570.50
345+25.00	567.50	567.86	570.86
345+50.00	567.82	568.25	571.25
345+75.00	568.17	568.68	571.68
346+00.00	568.55	569.14	572.14
346+25.00	568.96	569.63	572.63
346+50.00	569.39	570.16	573.16
346+75.00	569.86	570.72	573.72
347+00.00	570.36	571.32	574.32
347+25.00	570.90	571.95	574.95
347+50.00	571.46	572.61	575.61
347+75.00	572.05	573.31	576.31
348+00.00	572.67	574.04	577.04
348+25.00	573.32	574.81	577.81
348+50.00	574.00	575.61	578.61
348+75.00	574.72	576.42	579.42
349+00.00	575.45	577.24	580.24
349+25.00	576.18	578.05	581.05
349+50.00	576.91	578.87	581.87
349+75.00	577.64	579.68	582.68
350+00.00	578.37	580.49	583.49
350+25.00	579.10	581.31	584.31
350+50.00	579.84	582.12	585.12
350+75.00	580.56	582.94	585.94
351+00.00	581.28	583.75	586.75
351+25.00	581.98	584.56	587.56
351+50.00	582.67	585.36	588.36
351+75.00	583.34	586.13	589.13
352+00.00	584.01	586.89	589.89
352+25.00	584.66	587.62	590.62
352+50.00	585.30	588.34	591.34
352+75.00	585.92	589.03	592.03
353+00.00	586.53	589.70	592.70
353+25.00	587.13	590.35	593.35

IH 35 STATION	NB IH 35 (PGL) BOTTOM OF BARRIER	SB IH 35 (PGL) BOTTOM OF BARRIER	TOP OF BARRIER (EL)
353+50.00	587.72	590.98	593.98
353+75.00	588.29	591.59	594.59
354+00.00	588.86	592.18	595.18
354+25.00	589.40	592.75	595.75
354+50.00	589.94	593.30	596.30
354+75.00	590.46	593.83	596.83
355+00.00	590.97	594.33	597.33
355+25.00	591.47	594.82	597.82
355+50.00	591.95	595.29	598.29
355+75.00	592.42	595.73	598.73
356+00.00	592.88	596.15	599.15
356+25.00	593.33	596.56	599.56
356+50.00	593.76	596.94	599.94
356+75.00	594.18	597.30	600.30
357+00.00	594.59	597.64	600.64
357+25.00	594.98	597.97	600.97
357+50.00	595.36	598.27	601.27
357+75.00	595.73	598.55	601.55
358+00.00	596.09	598.80	601.80
358+25.00	596.43	599.04	602.04
358+50.00	596.76	599.26	602.26
358+75.00	597.08	599.46	602.46
359+00.00	597.39	599.63	602.63
359+25.00	597.68	599.79	602.79
359+50.00	597.96	599.92	602.92
359+75.00	598.22	600.04	603.04
360+00.00	598.48	600.13	603.13
360+25.00	598.72	600.20	603.20
360+50.00	598.95	600.27	603.27
360+75.00	599.16	600.34	603.34
361+00.00	599.36	600.41	603.41
361+25.00	599.56	600.48	603.48
361+50.00	599.75	600.55	603.55
361+75.00	599.94	600.62	603.62
362+00.00	600.14	600.69	603.69
362+25.00	600.33	600.76	603.76
362+50.00	600.52	600.85	603.85
362+75.00	600.72	600.95	603.95
363+00.00	600.91	601.07	604.07
363+25.00	601.10	601.21	604.21
363+50.00	601.31	601.36	604.36
363+75.00	601.53	601.54	604.54
364+00.00	601.77	601.73	604.77
364+25.00	602.02	601.94	605.02
364+50.00	602.30	602.17	605.30
364+75.00	602.59	602.42	605.59
365+00.00	602.91	602.68	605.91
365+25.00	603.24	602.97	606.24
365+50.00	603.59	603.27	606.59
365+75.00	603.93	603.59	606.93
366+00.00	604.28	603.93	607.28
366+25.00	604.63	604.28	607.63
366+50.00	604.98	604.64	607.98
367+00.00	605.68	605.37	608.68
368+00.00	607.07	606.81	610.07
369+00.00	608.47	608.26	611.47
370+00.00	609.85	609.69	612.85
371+00.00	611.08	610.97	614.08
372+00.00	612.13	612.06	615.13
373+00.00	612.99	612.97	615.99
374+00.00	613.66	613.68	616.68
375+00.00	614.15	614.21	617.21
376+00.00	614.45	614.55	617.55
377+00.00	614.58	614.72	617.72
378+00.00	614.67	614.84	617.84
379+00.00	614.77	614.97	617.97
380+00.00	614.86	615.10	618.10
381+00.00	614.95	615.23	618.23
382+00.00	615.05	615.36	618.36
383+00.00	615.20	615.51	618.51

0 30 60
SCALE: 1" = 60'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

℄ MAINLANES
BARRIER DATA

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		273
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J011op01.bdr, bdr LV ON = 5,45,57,60-63

HOUFILE023 \hcivil\cf0130\ 4/19/2003

b38qsp21.dgn-02

IH 35 STATION	NB IH 35 (PGL) BOTTOM OF BARRIER	SB IH 35 (PGL) BOTTOM OF BARRIER	TOP OF BARRIER (EL)
384+00.00	615.84	616.07	619.07
385+00.00	617.02	617.18	620.18
386+00.00	618.76	618.84	621.84
387+00.00	621.05	621.06	624.06
388+00.00	623.84	623.74	626.84
389+00.00	626.52	626.48	629.52
390+00.00	628.90	628.98	631.98
391+00.00	631.01	631.14	634.14
392+00.00	632.82	632.95	635.95
393+00.00	634.34	634.41	637.41
394+00.00	635.58	635.51	638.58
395+00.00	636.53	636.30	639.53
396+00.00	637.38	637.04	640.38
397+00.00	638.23	637.77	641.23
398+00.00	639.07	638.51	642.07
399+00.00	639.94	639.25	642.94
400+00.00	641.12	640.30	644.12
401+00.00	642.71	641.86	645.71
402+00.00	644.17	643.48	647.17
403+00.00	645.24	644.71	648.24
404+00.00	645.91	645.53	648.91
405+00.00	646.20	645.95	649.20
406+00.00	646.10	645.98	649.10
407+00.00	646.05	645.98	649.05
408+00.00	646.54	646.52	649.54
409+00.00	647.55	647.55	650.55
409+25.00	647.83	647.83	650.83
409+50.00	648.11	648.11	651.11
409+75.00	648.39	648.39	651.39
410+00.00	648.66	648.66	651.66
410+25.00	648.91	648.91	651.91
410+50.00	649.15	649.15	652.15
410+75.00	649.37	649.37	652.37
411+00.00	649.58	649.58	652.58
411+25.00	649.77	649.77	652.77
411+50.00	649.94	649.94	652.94
411+75.00	650.10	650.10	653.10
412+00.00	650.24	650.24	653.24
412+25.00	650.37	650.37	653.37
412+50.00	650.48	650.48	653.48
412+75.00	650.57	650.57	653.57
413+00.00	650.67	650.67	653.67
413+25.00	650.77	650.77	653.77
413+50.00	650.86	650.86	653.86
413+75.00	650.96	650.96	653.96
414+00.00	651.05	651.05	654.05
414+25.00	651.15	651.15	654.15
414+50.00	651.24	651.24	654.24
414+75.00	651.34	651.34	654.34
415+00.00	651.44	651.44	654.44
415+25.00	651.53	651.53	654.53
415+50.00	651.63	651.63	654.63
415+75.00	651.72	651.72	654.72
416+00.00	651.82	651.82	654.82
416+25.00	651.91	651.91	654.91
416+50.00	652.01	652.01	655.01
416+75.00	652.11	652.11	655.11
417+00.00	652.20	652.20	655.20
417+25.00	652.30	652.30	655.30
417+50.00	652.39	652.39	655.39
417+75.00	652.49	652.49	655.49
418+00.00	652.59	652.59	655.59
418+25.00	652.68	652.68	655.68
418+50.00	652.78	652.78	655.78
418+75.00	652.87	652.87	655.87
419+00.00	652.97	652.97	655.97
419+25.00	653.06	653.06	656.06
419+50.00	653.16	653.16	656.16
419+75.00	653.26	653.26	656.26
420+00.00	653.35	653.35	656.35

IH 35 STATION	NB IH 35 (PGL) BOTTOM OF BARRIER	SB IH 35 (PGL) BOTTOM OF BARRIER	TOP OF BARRIER (EL)
420+25.00	653.45	653.45	656.45
420+50.00	653.57	653.57	656.57
420+75.00	653.72	653.72	656.72
421+00.00	653.89	653.89	656.89
421+25.00	654.10	654.10	657.10
421+50.00	654.33	654.33	657.33
421+75.00	654.60	654.60	657.60
422+00.00	654.89	654.89	657.89
422+25.00	655.22	655.22	658.22
422+50.00	655.57	655.57	658.57
422+75.00	655.95	655.95	658.95
423+00.00	656.36	656.36	659.36
423+25.00	656.80	656.80	659.80
423+50.00	657.27	657.27	660.27
423+75.00	657.77	657.77	660.77
424+00.00	658.30	658.30	661.30
424+25.00	658.84	658.84	661.84
424+50.00	659.38	659.38	662.38
424+75.00	659.92	659.92	662.92
425+00.00	660.46	660.46	663.46
425+25.00	661.00	661.00	664.00
425+50.00	661.54	661.54	664.54
425+75.00	662.08	662.08	665.08
426+00.00	662.62	662.62	665.62
426+25.00	663.16	663.16	666.16
426+50.00	663.68	663.68	666.68
426+75.00	664.19	664.19	667.19
427+00.00	664.69	664.69	667.69
427+25.00	665.17	665.17	668.17
427+50.00	665.65	665.65	668.65
427+75.00	666.11	666.11	669.11
428+00.00	666.56	666.56	669.56
428+25.00	667.00	667.00	670.00
428+50.00	667.43	667.43	670.43
428+75.00	667.84	667.84	670.84
429+00.00	668.25	668.25	671.25
429+25.00	668.64	668.64	671.64
429+50.00	669.02	669.02	672.02
429+75.00	669.39	669.39	672.39
430+00.00	669.74	669.74	672.74
430+25.00	670.09	670.09	673.09
430+50.00	670.42	670.42	673.42
430+75.00	670.74	670.74	673.74
431+00.00	671.05	671.05	674.05
431+25.00	671.35	671.35	674.35
431+50.00	671.63	671.63	674.63
431+75.00	671.91	671.91	674.91
432+00.00	672.17	672.17	675.17
432+25.00	672.42	672.42	675.42
432+50.00	672.66	672.66	675.66
432+75.00	672.89	672.89	675.89
433+00.00	673.10	673.10	676.10
433+25.00	673.30	673.30	676.30
434+00.00	673.84	673.84	676.84
435+00.00	674.39	674.39	677.39
436+00.00	674.75	674.75	677.75
437+00.00	674.93	674.93	677.93
437+25.00	674.94	674.94	677.94
437+50.00	674.94	674.94	677.94
437+75.00	674.93	674.93	677.93
438+00.00	674.91	674.91	677.91
438+25.00	674.88	674.88	677.88
438+50.00	674.83	674.83	677.83
438+75.00	674.78	674.78	677.78
439+00.00	674.71	674.71	677.71
439+25.00	674.63	674.63	677.63
439+50.00	674.53	674.53	677.53
439+75.00	674.43	674.43	677.43
440+00.00	674.31	674.31	677.31
440+25.00	674.19	674.19	677.19

IH 35 STATION	NB IH 35 (PGL) BOTTOM OF BARRIER	SB IH 35 (PGL) BOTTOM OF BARRIER	TOP OF BARRIER (EL)
440+50.00	674.05	674.05	677.05
440+75.00	673.89	673.89	676.89
441+00.00	673.73	673.73	676.73
441+25.00	673.55	673.55	676.55
441+50.00	673.37	673.37	676.37
441+75.00	673.17	673.17	676.17
442+00.00	672.96	672.96	675.96
442+25.00	672.74	672.74	675.74
442+50.00	672.50	672.50	675.50
442+75.00	672.26	672.26	675.26
443+00.00	672.00	672.00	675.00
443+25.00	671.73	671.73	674.73
443+50.00	671.45	671.45	674.45
443+75.00	671.15	671.15	674.15
444+00.00	670.85	670.85	673.85
444+25.00	670.53	670.53	673.53
444+50.00	670.20	670.20	673.20
444+75.00	669.86	669.86	672.86
445+00.00	669.51	669.51	672.51
445+25.00	669.14	669.14	672.14
445+50.00	668.77	668.77	671.77
445+75.00	668.38	668.38	671.38
446+00.00	667.98	667.98	670.98
446+25.00	667.57	667.57	670.57
446+50.00	667.14	667.14	670.14
446+75.00	666.71	666.71	669.71
447+00.00	666.26	666.26	669.26
447+25.00	665.80	665.80	668.80
447+50.00	665.33	665.33	668.33
447+75.00	664.85	664.85	667.85
448+00.00	664.36	664.36	667.36
448+25.00	663.89	663.89	666.89
448+50.00	663.45	663.45	666.45
448+75.00	663.05	663.05	666.05
449+00.00	662.68	662.68	665.68
449+25.00	662.35	662.35	665.35
449+50.00	662.04	662.04	665.04
449+75.00	661.78	661.78	664.78
450+00.00	661.54	661.54	664.54
450+25.00	661.34	661.34	664.34
450+50.00	661.17	661.17	664.17
450+75.00	661.04	661.04	664.04
451+00.00	660.94	660.94	663.94
451+25.00	660.87	660.87	663.87
451+50.00	660.84	660.84	663.84
451+75.00	660.84	660.84	663.84
452+00.00	660.88	660.88	663.88
452+25.00	660.95	660.95	663.95
453+00.00	661.35	661.35	664.35
453+10.00	661.43	661.43	664.43

0 30 60
SCALE: 1" = 60'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

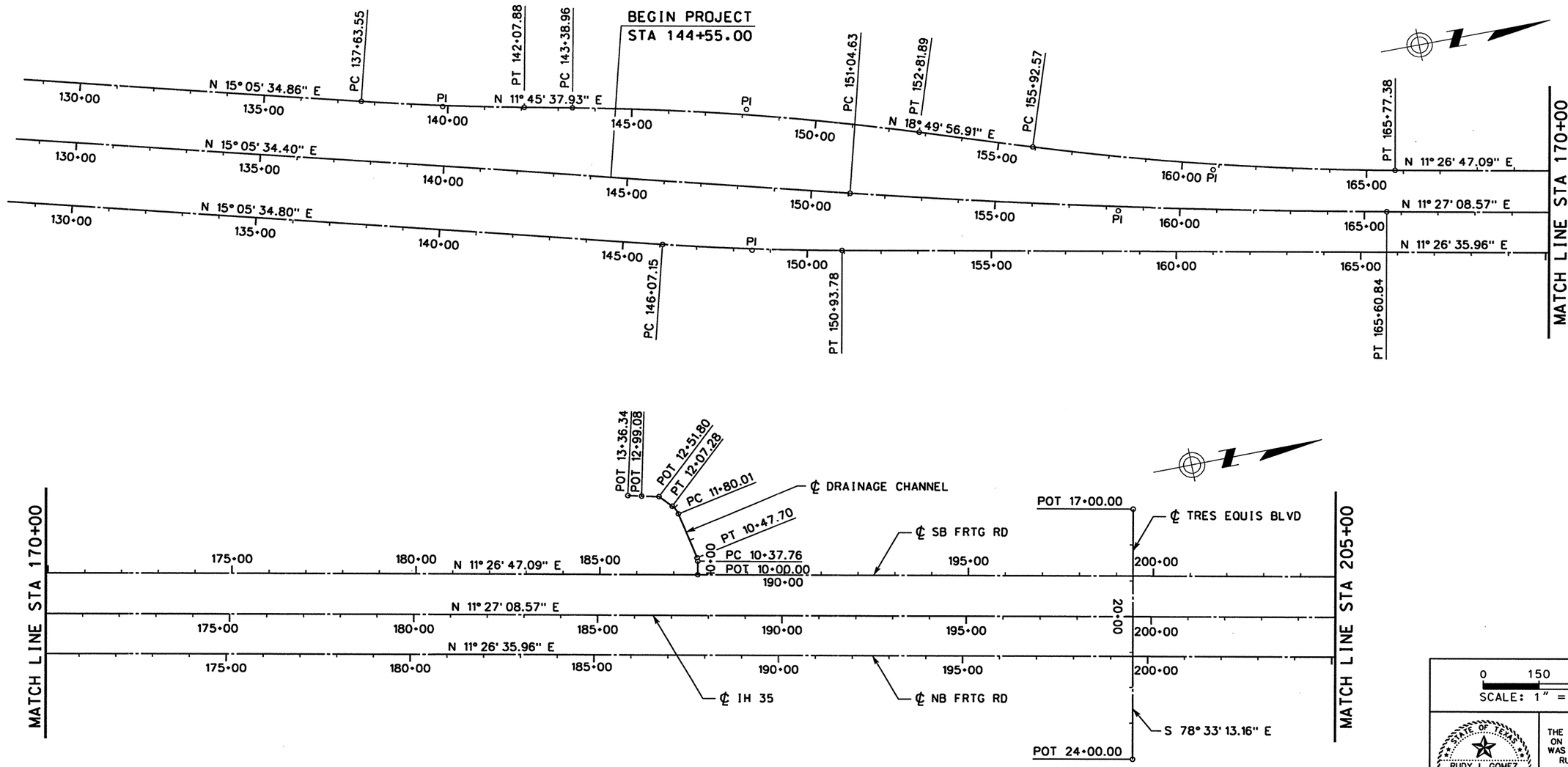
℄ MAINLANES
BARRIER DATA

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		274
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j0110p01.bdr, bdr LV ON = 5,45,57,60-63

b36app22.dgn-04 HOUFILE023 \hcivil\cf0130\ 4/19/2003



0 150 300
SCALE: 1" = 300'

STATE OF TEXAS
RUDY L. GOMEZ
R. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
HORIZONTAL ALIGNMENT PLAN

SHEET 1 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		275
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op02.alg, alg LV DN = 1.15
j011op01.bdr, bdr LV DN = 21.47.57.58.60-62

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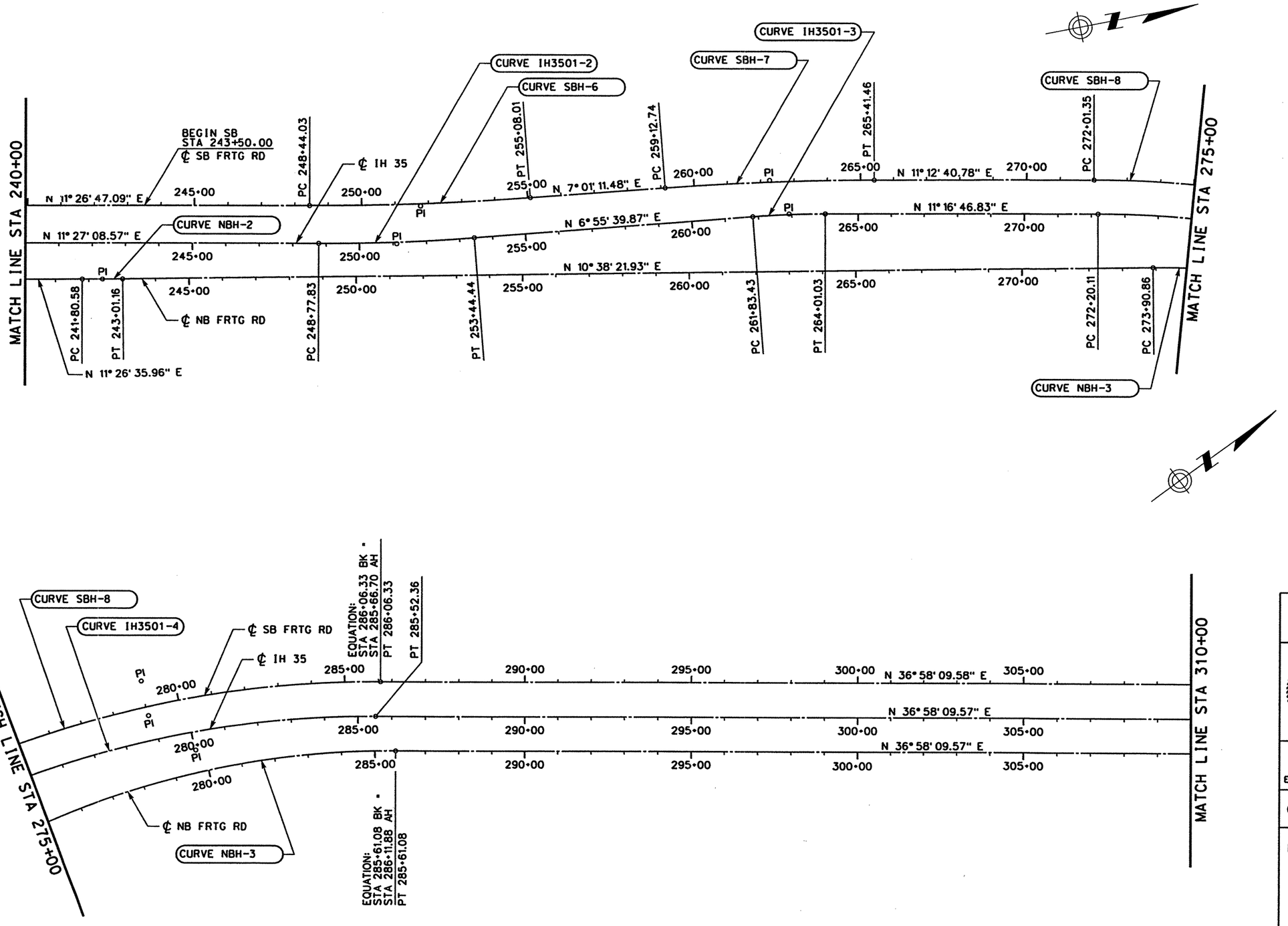

0 150 300
SCALE: 1" = 300'

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
HORIZONTAL ALIGNMENT PLAN

SHEET 2 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	276
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): J011op02.alg, alg LV ON = 1:15
J011op01.bdr, bdr LV ON = 21,47,57,58,60-62

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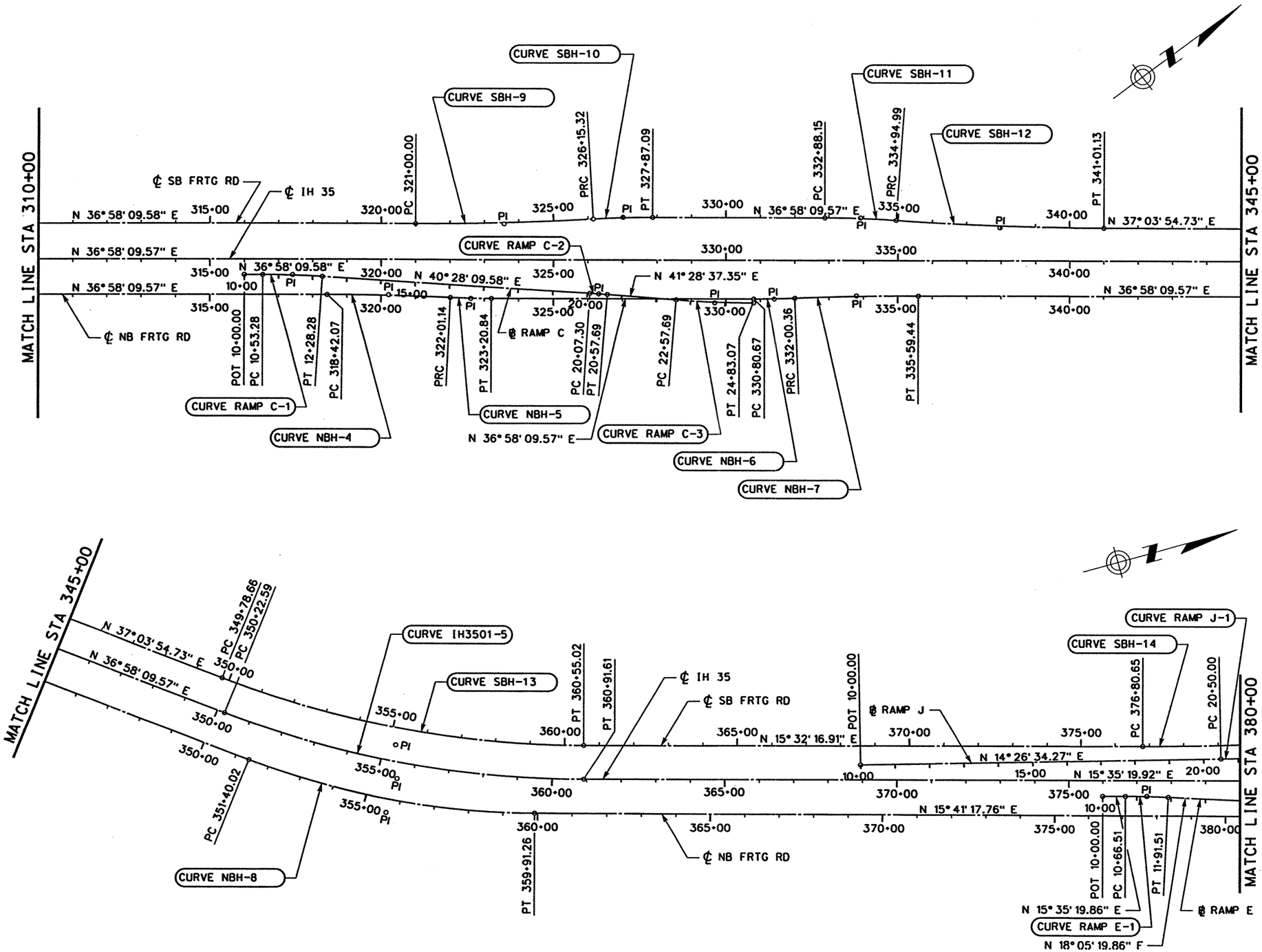

0 150 300
SCALE: 1" = 300'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
HORIZONTAL ALIGNMENT PLAN

SHEET 3 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		277
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J011ap02.dlg, dlg LV ON = 1.15
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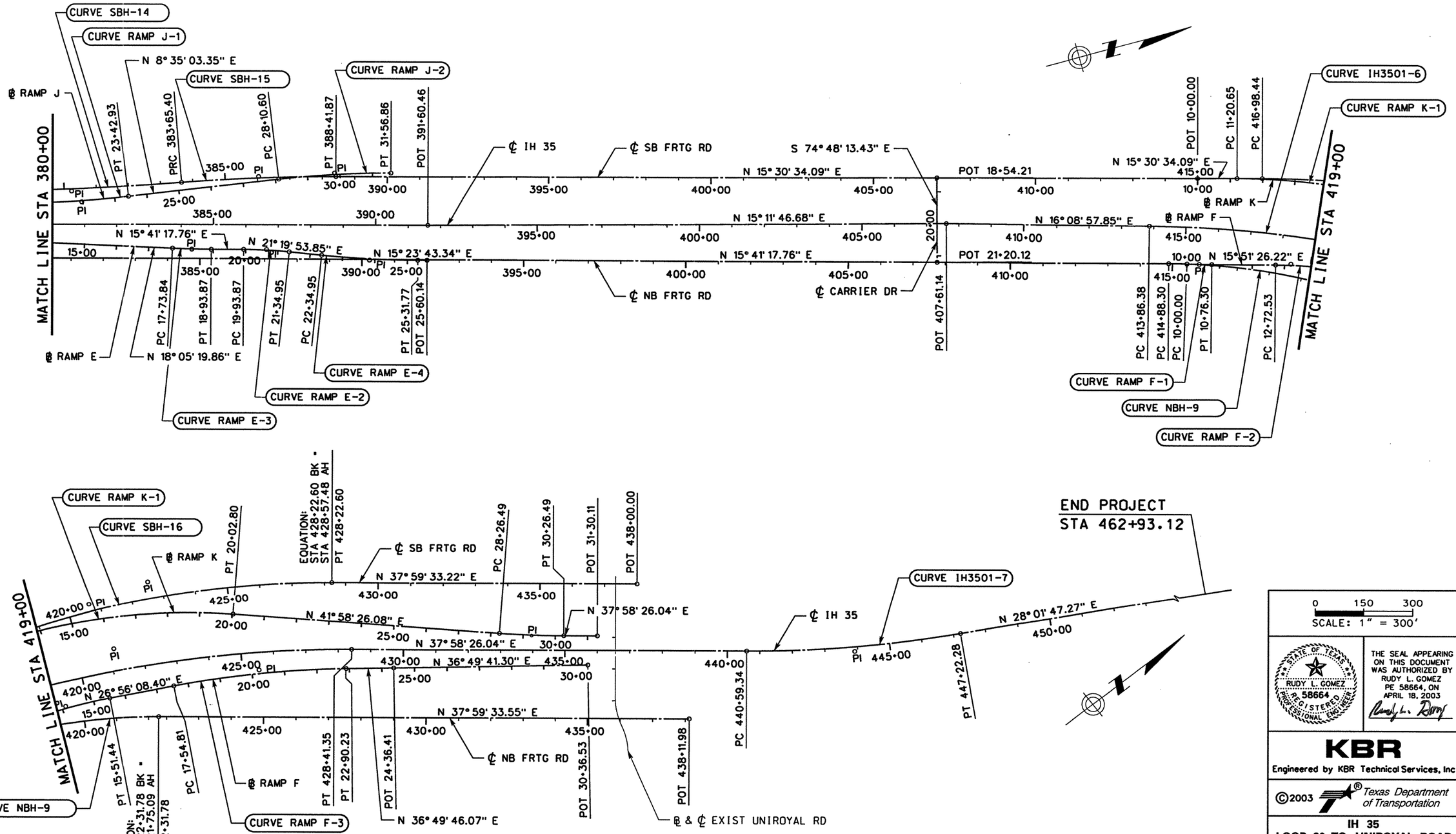

REF FILE(S): j011op02.alg, alg LV ON = 1.15
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0 150 300
SCALE: 1" = 300'

STATE OF TEXAS
RUDY L. GOMEZ
R. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
HORIZONTAL ALIGNMENT PLAN

SHEET 4 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	278
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/21/2003
HOUFILE023 \hcivil\cf0130\
b03hop04.dgn-05

IH 35 MAINLANES

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
	POT 110+00.00		17,109,457.1016	661,711.5548					
		N 15° 05' 34.40" E						4,104.63'	
	PC 151+04.63		17,113,420.1439	662,780.3382					
IH3501-1	PI 158+32.98		17,114,123.3663	662,969.9885	0° 15' 00.00"	22,918.31'	1,456.20'	728.35'	3° 38' 25.83" LT
	PT 165+60.84		17,114,837.2117	663,114.6043					
		N 11° 27' 08.57" E							
	PC 248+77.83		17,122,988.6148	664,765.9721					
IH3501-2	PI 251+11.26		17,123,217.3964	664,812.3203	0° 58' 10.82"	5,908.78'	466.62'	233.43'	4° 31' 28.70" LT
	PT 253+44.44		17,123,449.1213	664,840.4759					
		N 6° 55' 39.87" E							
	PC 261+83.43		17,124,281.9850	664,941.6727					
IH3501-3	PI 262+92.28		17,124,390.0410	664,954.8020	2° 00' 00.00"	2,864.79'	217.60'	108.85'	4° 21' 06.96" RT
	PT 264+01.03		17,124,496.7891	664,976.0930					
		N 11° 16' 46.83" E							
	PC 272+20.11		17,125,300.0467	665,136.3034					
IH3501-4	PI 278+97.62		17,125,964.4739	665,268.8240	1° 55' 41.84"	2,971.33'	1,332.25'	677.51'	25° 41' 22.74" RT
	PT 285+52.36		17,126,505.7788	665,676.2723					
		N 36° 58' 09.57" E							
	PC 350+22.59		17,131,675.2168	669,567.3858					
IH3501-5	PI 355+63.39		17,132,107.2943	669,892.6170	2° 00' 00.00"	2,864.79'	1,069.02'	540.80'	21° 22' 49.65" LT
	PT 360+91.61		17,132,628.2023	670,037.9481					
		N 15° 35' 19.92" E						3,068.85'	
	POT 391+60.46		17,135,584.1670	670,862.6492					
		N 15° 11' 46.68" E						1,600.67'	
	POT 407+61.14		17,137,128.8702	671,282.2286					
		N 16° 08' 57.85" E						625.25'	
	PC 413+86.38		17,137,729.4432	671,456.1362					
IH3501-6	PI 421+22.79		17,138,436.7931	671,660.9632	1° 30' 00.00"	3,819.72'	1,454.97'	736.41'	21° 49' 28.20" RT
	PT 428+41.35		17,139,017.2976	672,114.0773					
		N 37° 58' 26.04" E							
	PC 440+59.34		17,139,977.4272	672,863.5087					
IH3501-7	PI 443+91.64		17,140,239.3800	673,067.9766	1° 30' 00.00"	3,819.72'	662.94'	332.30'	9° 56' 38.77" LT
	PT 447+22.28		17,140,532.7064	673,224.1368					
		N 28° 01' 47.27" E						1,688.24'	
	POT 464+10.52		17,142,022.9185	674,017.4910					

IH 35 TRES EQUIS BLVD

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
	POT 17+00.00	S 78° 33' 13.16" E	17,118,218.4600	663,493.3390				700.00'	
	POT 24+00.00		17,118,079.5450	664,179.4160					

IH 35 CARRIER DRIVE

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
	POT 18+54.21	S 74° 48' 13.43" E	17,137,139.4480	671,134.0310				265.91'	
	POT 21+20.12		17,137,069.7460	671,390.6430					

NOTE:

1. THE HORIZONTAL ALIGNMENT FOR THE IH 35 MAINLANES WAS PLACED IN THE CENTER BETWEEN THE NORTHBOUND AND SOUTHBOUND MAINLANES. THE CONTRACTOR SHALL FIELD VERIFY AND MAKE ANY ADJUSTMENTS IF NECESSARY.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD

GEOMETRIC DATA SUMMARY

SHEET 1 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		279
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J011gp01.bdr, bdr LV ON = 47,57,58,60-62
b03gdp01.dgn-06 HOUFILE023 \hclvlh\c\f0130\ 4/18/2003

UNIROYAL ROAD

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
	POT 10+00.00		17,139,808.3010	672,425.1210					
		S 52° 00' 26.74" E						391.96'	
	PC 13+91.96		17,139,567.0262	672,734.0212					
UNRLH-1	PI 14+37.72		17,139,538.8572	672,770.0855	28° 38' 52.40"	200.00'	89.97'	45.76'	25° 46' 32.90" LT
	PRC 14+81.93		17,139,529.1735	672,814.8109					
		S 77° 46' 59.62" E							
	PRC 14+81.93		17,139,529.1735	672,814.8109					
UNRLH-2	PI 15+23.70		17,139,520.3352	672,855.6299	28° 38' 52.40"	200.00'	82.35'	41.76'	23° 35' 25.87" RT
	PT 15+64.28		17,139,495.8999	672,889.5006					
		S 54° 11' 31.89" E							

IH 35 NORTHBOUND FRONTAGE ROAD

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
	POT 168+70.00		17,115,108.7259	663,283.8381					
		N 11° 26' 35.96" E							
	PC 241+80.59		17,122,273.9946	664,734.2486					
NBH-2	PI 242+40.89		17,122,333.0894	664,746.2107	0° 40' 00.00"	8,594.37'	120.58'	60.29'	0° 48' 14.03" LT
	PT 243+01.18		17,122,392.3462	664,757.3425					
		N 10° 38' 21.93" E							
	PC 273+90.86		17,125,428.9161	665,327.7840					
NBH-3	PI 279+86.49		17,126,014.3045	665,437.7534	2° 15' 00.00"	2,546.48'	1,170.22'	595.63'	26° 19' 47.64" RT
EQUATION-1	PT 285+61.08 (BACK)		17,126,490.1860	665,795.9566					
EQUATION-1	PT 286+11.88 (AHEAD)		17,126,490.1860	665,795.9566					
		N 36° 58' 09.57" E						3,230.19'	
	PC 318+42.07		17,129,070.9720	667,738.5530					
NBH-4	PI 320+21.63		17,129,214.4354	667,846.5400	0° 40' 00.00"	8,594.37'	359.07'	179.56'	2° 23' 37.78" RT
	PRC 322+01.14		17,129,353.2632	667,960.4250					
		N 39° 21' 47.35" E							
	PRC 322+01.14		17,129,353.2632	667,960.4250					
NBH-5	PI 322+61.00		17,129,399.5391	667,998.3867	2° 00' 00.00"	2,864.79'	119.69'	59.85'	2° 23' 37.78" LT
	PT 323+20.84		17,129,447.3602	668,034.3823					
		N 36° 58' 09.57" E							
	PC 330+80.67		17,130,054.4382	668,491.3390					
NBH-6	PI 331+40.53		17,130,102.2593	668,527.3347	2° 00' 00.00"	2,864.79'	119.69'	59.85'	2° 23' 37.78" LT
	PRC 332+00.36		17,130,151.5422	668,561.3016					
		N 34° 34' 31.79" E							
	PRC 332+00.36		17,130,151.5422	668,561.3016					
NBH-7	PI 333+79.93		17,130,299.3908	668,663.2022	0° 40' 00.00"	8,594.36'	359.07'	179.56'	2° 23' 37.78" RT
	PT 335+59.44		17,130,442.8541	668,771.1892					
		N 36° 58' 09.57" E							
	PC 351+40.02		17,131,705.6712	669,721.7306					
NBH-8	PI 355+70.60		17,132,049.6886	669,980.6776	2° 30' 00.00"	2,291.83'	851.24'	430.58'	21° 16' 51.81" LT
	PT 359+91.26		17,132,464.2308	670,097.1086					
		N 15° 41' 17.76" E							
	PC 414+88.30		17,137,756.4850	671,583.5247					
NBH-9	PI 418+64.80		17,138,118.9656	671,685.3334	3° 00' 00.00"	1,909.86'	743.48'	376.51'	22° 18' 15.79" RT
EQUATION-2	PT 422+31.78 (BACK)		17,138,415.6866	671,917.0959					
EQUATION-2	PT 421+75.09 (AHEAD)		17,138,415.6866	671,917.0959					
		N 37° 59' 33.55" E							
	POT 438+11.98		17,139,705.7020	672,924.7000					
								1,636.89'	

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD

GEOMETRIC DATA SUMMARY

SHEET 2 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		280
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62

b03gdp02.dgn-06 HOUFILE023 \hciviv\c\f0130\ 4/18/2003

IH 35 SOUTHBOUND FRONTAGE ROAD

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
SBA-1	POT 122+00.00		17,110,658.6710	661,864.7110					
		N 15° 05' 35.00" E							
	PC 137+63.55		17,112,168.2885	662,271.8398					
SBH-2	PI 139+85.78		17,112,382.8500	662,329.7048	0° 45' 00.00"	7,639.44'	444.33'	222.23'	3° 19' 57.00" LT
	PT 142+07.88		17,112,600.4124	662,374.9996					
		N 11° 45' 38.00" E							
	PC 143+38.96		17,112,728.7406	662,401.7165					
SBH-3	PI 148+11.02		17,113,190.8930	662,497.9330	0° 45' 00.00"	7,639.44'	942.93'	472.06'	7° 04' 19.00" RT
	PT 152+81.89		17,113,637.6838	662,650.3157					
		N 18° 49' 57.00" E							
	PC 155+92.57		17,113,931.7379	662,750.6059					
SBH-4	PI 160+85.66		17,114,398.4284	662,909.7755	0° 45' 00.00"	7,639.44'	984.81'	493.09'	7° 23' 10.00" LT
	PT 165+77.38		17,114,881.7085	663,007.6293					
SBH-5	POT 168+70.00		17,115,168.5060	663,065.6997					
		N 11° 26' 47.09" E						7,974.03'	
	PC 248+44.03		17,122,983.9384	664,648.1566					
SBH-6	PI 251+76.19		17,123,309.4890	664,714.0736	0° 40' 00.00"	8,594.37'	663.98'	332.16'	4° 25' 35.61" LT
	PT 255+08.01		17,123,639.1562	664,754.6676					
		N 7° 01' 11.48" E							
	PC 259+12.74		17,124,040.8517	664,804.1309					
SBH-7	PI 262+27.24		17,124,352.9949	664,842.5671	0° 40' 00.00"	8,594.37'	628.72'	314.50'	4° 11' 29.30" RT
	PT 265+41.46		17,124,661.4940	664,903.7150					
		N 11° 12' 40.78" E							
	PC 272+01.35		17,125,308.7853	665,032.0151					
SBH-8	PI 279+15.91		17,126,009.7154	665,170.9470	1° 50' 00.00"	3,125.22'	1,404.98'	714.57'	25° 45' 28.79" RT
EQUATION-1	PT 286+06.33 (BACK)		17,126,580.6236	665,600.6782					
EQUATION-1	PT 285+66.70 (AHEAD)		17,126,580.6236	665,600.6782					
		N 36° 58' 09.57" E						3,533.30'	
	PC 321+00.00		17,129,403.5830	667,725.5621					
SBH-9	PI 323+57.74		17,129,609.5035	667,880.5616	0° 40' 00.00"	8,594.37'	515.32'	257.74'	3° 26' 07.64" LT
	PRC 326+15.32		17,129,824.3421	668,022.9428					
		N 33° 32' 01.93" E							
	PRC 326+15.32		17,129,824.3421	668,022.9428					
SBH-10	PI 327+01.23		17,129,895.9549	668,070.4032	2° 00' 00.00"	2,864.79'	171.77'	85.91'	3° 26' 07.64" RT
	PT 327+87.09		17,129,964.5950	668,122.0697					
		N 36° 58' 09.57" E							
	PC 332+88.15		17,130,364.9171	668,423.3981					
SBH-11	PI 333+91.61		17,130,447.5818	668,485.6211	2° 00' 00.00"	2,864.79'	206.84'	103.47'	4° 08' 12.58" RT
	PRC 334+94.99		17,130,525.5424	668,553.6452					
		N 41° 06' 22.15" E							
	PRC 334+94.99		17,130,525.5424	668,553.6452					
SBH-12	PI 337+98.18		17,130,753.9990	668,752.9838	0° 40' 00.00"	8,594.37'	606.14'	303.20'	4° 02' 27.42" LT
	PT 341+01.13		17,130,995.9350	668,935.7277					
		N 37° 03' 54.73" E							
	PC 349+78.66		17,131,696.1586	669,464.6344					
SBH-13	PI 355+23.26		17,132,130.7231	669,792.8782	2° 00' 00.00"	2,864.79'	1,076.36'	544.60'	21° 31' 37.83" LT
	PT 360+55.02		17,132,655.4205	669,938.7648					
		N 15° 32' 16.91" E							
	PC 376+80.65		17,134,221.6368	670,374.2348					
SBH-14	PI 380+23.22		17,134,551.6947	670,466.0039	0° 42' 00.00"	8,185.00'	684.76'	342.58'	4° 47' 36.11" LT
	PRC 383+65.40		17,134,888.2668	670,529.8716					
		N 10° 44' 40.80" E							
	PRC 383+65.40		17,134,888.2668	670,529.8716					
SBH-15	PI 386+03.77		17,135,122.4599	670,574.3120	1° 00' 00.00"	5,729.45'	476.47'	238.37'	4° 45' 53.29" RT
	PT 388+41.87		17,135,352.1523	670,638.0522					
		N 15° 30' 34.09" E							
	PC 416+98.44		17,138,104.7057	671,401.8928					
SBH-16	PI 422+67.85		17,138,653.3742	671,554.1497	2° 00' 00.00"	2,864.79'	1,124.15'	569.40'	22° 28' 59.13" RT
EQUATION-2	PT 428+22.60 (BACK)		17,139,102.1151	671,904.6506					
EQUATION-2	PT 428+57.48 (AHEAD)		17,139,102.1151	671,904.6506					
		N 37° 59' 33.22" E						942.52'	
	POT 438+00.00		17,139,844.9070	672,484.8280					

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD

GEOMETRIC DATA SUMMARY

SHEET 3 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		281
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/8/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62
HOUFILE023 \hcivil\cf0130\ b03gdp03.dgn-02

IH 35 RAMP A

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
		N 11° 26' 35.96" E							
	PC 10+00.00		17,119,325.0383	664,137.3140					
RAMP-A-1	PI 11+07.91		17,119,430.8072	664,158.7239	2° 00' 00.00"	2,864.79'	215.73'	107.91'	4° 18' 52.28" LT
	PT 12+15.73		17,119,537.8870	664,172.1161					
		N 7° 07' 43.68" E							
	PC 15+86.14		17,119,905.4366	664,218.0845					
RAMP-A-2	PI 16+65.64		17,119,984.3199	664,227.9502	2° 00' 00.00"	2,864.79'	158.95'	79.50'	3° 10' 44.75" RT
	PT 17+45.09		17,120,062.5347	664,242.1754					
		N 10° 18' 28.43" E							
								481.40'	
	POT 22+26.49		17,120,536.1633	664,328.3157					
		N 10° 18' 23.00" E						600.00'	
	POT 28+26.49		17,121,126.4823	664,435.6629					

IH 35 RAMP C

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
	POT 10+00.00		17,128,913.0476	667,545.8345					
		N 36° 58' 09.58" E						53.28'	
	PC 10+53.28		17,128,955.6127	667,577.8739					
RAMP-C-1	PI 11+40.80		17,129,025.5432	667,630.5117	2° 00' 00.00"	2,864.79'	175.00'	87.53'	3° 30' 00.00" RT
	PT 12+28.28		17,129,092.1299	667,687.3204					
		N 40° 28' 09.58" E							
	PC 20+07.30		17,129,684.7770	668,192.9404					
RAMP-C-2	PI 20+32.50		17,129,703.9430	668,209.2920	2° 00' 00.00"	2,864.79'	50.39'	25.19'	1° 00' 27.77" RT
	PT 20+57.69		17,129,722.8185	668,225.9782					
		N 41° 28' 37.35" E							
	PC 22+57.69		17,129,872.6627	668,358.4421					
RAMP-C-3	PI 23+70.44		17,129,957.1382	668,433.1194	2° 00' 00.00"	2,864.79'	225.39'	112.75'	4° 30' 27.78" LT
	PT 24+83.07		17,130,047.2215	668,500.9265					
		N 36° 13' 23.46" E							

IH 35 RAMP E

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
	POT 10+00.00		17,134,068.7606	670,487.6147					
		N 15° 35' 19.86" E						66.51'	
	PC 10+66.51		17,134,132.8269	670,505.4889					
RAMP-E-1	PI 11+29.02		17,134,193.0373	670,522.2873	2° 00' 00.00"	2,864.79'	125.00'	62.51'	2° 30' 00.00" RT
	PT 11+91.51		17,134,252.4578	670,541.6961					
		N 18° 05' 19.86" E							
	PC 17+73.84		17,134,806.0038	670,722.5036					
RAMP-E-2	PI 18+33.86		17,134,863.0606	670,741.1404	2° 00' 00.00"	2,864.79'	120.03'	60.02'	2° 24' 02.11" LT
	PT 18+93.87		17,134,920.8480	670,757.3709					
		N 15° 41' 17.76" E							
	PC 19+93.87		17,135,017.1227	670,784.4113					
RAMP-E-3	PI 20+64.47		17,135,085.0917	670,803.5015	4° 00' 00.00"	1,432.39'	141.08'	70.60'	5° 38' 36.09" RT
	PT 21+34.95		17,135,150.8541	670,829.1830					
		N 21° 19' 53.85" E							
	PC 22+34.95		17,135,244.0032	670,865.5595					
RAMP-E-4	PI 23+83.49		17,135,382.3661	670,919.5930	2° 00' 00.00"	2,864.79'	296.81'	148.54'	5° 56' 10.52" LT
	PT 25+31.77		17,135,525.5753	670,959.0269					
		N 15° 23' 43.34" E						28.37'	
	POT 25+60.14		17,135,552.9290	670,966.5590					

IH 35 RAMP F

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
		N 17° 22' 59.83" E							
	PC 10+00.00		17,137,810.6470	671,599.6050					
RAMP-L2-1	PI 10+38.15		17,137,847.0568	671,611.0035	2° 00' 00.00"	2,864.79'	76.30'	38.15'	1° 31' 33.61" LT
	PT 10+76.30		17,137,883.7573	671,621.4284					
		N 15° 51' 26.22" E					196.23'		
	PC 12+72.53		17,138,072.5226	671,675.0474					
RAMP-L2-2	PI 14+12.43		17,138,207.0932	671,713.2725	4° 00' 00.00"	1,432.39'	278.90'	139.89'	11° 09' 22.18" RT
	PT 15+51.44		17,138,331.7250	671,776.8124					
		N 27° 00' 48.40" E					203.37'		
	PC 17+54.81		17,138,512.9062	671,869.1823					
RAMP-L2-3	PI 20+23.17		17,138,751.9938	671,991.0742	1° 50' 00.00"	3,125.22'	535.42'	268.37'	9° 48' 57.68" RT
	PT 22+90.23		17,138,966.8006	672,151.9426					
		N 36° 49' 46.08" E					146.19'		
	POT 24+36.41		17,139,083.8122	672,239.5723					
		N 36° 49' 41.30" E					600.12'		
	POT 30+36.53		17,139,564.1705	672,599.2943					

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

GEOMETRIC DATA SUMMARY

SHEET 4 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		282
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J011op01.bdr, bdr LV ON = 47,57,58,60-62

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IH 35 RAMP J

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
	POT 10+00.00		17,133,414.0701	670,209.4447					
		N 14° 26' 34.27" E						1,050.00'	
	PC 20+50.00		17,134,430.8858	670,471.3294					
RAMP-J-1	PI 21+96.59		17,134,572.8455	670,507.8916	2° 00' 00.00"	2,864.79'	292.93'	146.59'	5° 51' 30.92" LT
	PT 23+42.93		17,134,717.7957	670,529.7726					
		N 8° 35' 03.35" E							
	PC 28+10.60		17,135,180.2276	670,599.5789					
RAMP-J-2	PI 29+83.94		17,135,351.6272	670,625.4525	2° 00' 00.00"	2,864.79'	346.26'	173.34'	6° 55' 30.78" RT
	PT 31+56.86		17,135,518.6566	670,671.8037					
		N 15° 30' 34.13" E							

IH 35 RAMP K

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
	POT 10+00.00		17,137,913.4879	671,348.8293					
		N 15° 30' 34.09" E					120.65'		
	PC 11+20.65		17,138,029.7444	671,381.0908					
RAMP-K2-1	PI 15+69.74		17,138,462.4783	671,501.1756	3° 00' 00.00"	1,909.86'	882.15'	449.09'	26° 27' 51.99" RT
	PT 20+02.80		17,138,796.3515	671,801.5212					
		N 41° 58' 26.08" E					823.69'		
	PC 28+26.49		17,139,408.7278	672,352.4026					
RAMP-K2-2	PI 29+26.53		17,139,483.1032	672,419.3093	2° 00' 00.00"	2,864.79'	200.00'	100.04'	4° 00' 00.05" LT
	PT 30+26.49		17,139,561.9647	672,480.8647					
		N 37° 58' 26.03" E					103.61'		
	POT 31+30.11		17,139,643.6425	672,544.6186					

DRAINAGE CHANNEL STA 187+20

DESCRIPTION	STATION	BEARING	NORTHING	EASTING	DEGREE	RADIUS	CURVE LENGTH	TANGENT	DEFLECTION
	POT 10+00.00		17,117,025.8280	663,441.7680					
		N 78° 24' 21.17" W						37.76'	
	PC 10+37.76		17,117,033.4171	663,404.7776					
CHANNEL-1	PI 10+42.80		17,117,034.4295	663,399.8430	229° 10' 59.22"	25.00'	9.94'	5.04'	22° 47' 04.71" LT
	PT 10+47.70		17,117,033.4519	663,394.9013					
		S 78° 48' 34.12" W							
	PC 11+80.01		17,117,007.7751	663,265.1113					
CHANNEL-2	PI 11+93.99		17,117,005.0611	663,251.3927	114° 35' 29.61"	50.00'	27.27'	13.98'	31° 15' 05.55" LT
	PT 12+07.28		17,116,995.6237	663,241.0727					
		S 47° 33' 28.57" W						44.52'	
	POT 12+51.80		17,116,965.5790	663,208.2180					
		S 12° 47' 57.57" W						47.28'	
	POT 12+99.08		17,116,919.4750	663,197.7440					
		S 13° 45' 30.27" W						37.26'	
	POT 13+36.34		17,116,883.2820	663,188.8820					

STATE OF TEXAS
RUDY L. GOMEZ
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IH 35
LOOP 20 TO UNIROYAL ROAD

GEOMETRIC DATA SUMMARY

SHEET 5 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	283
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

4/18/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62
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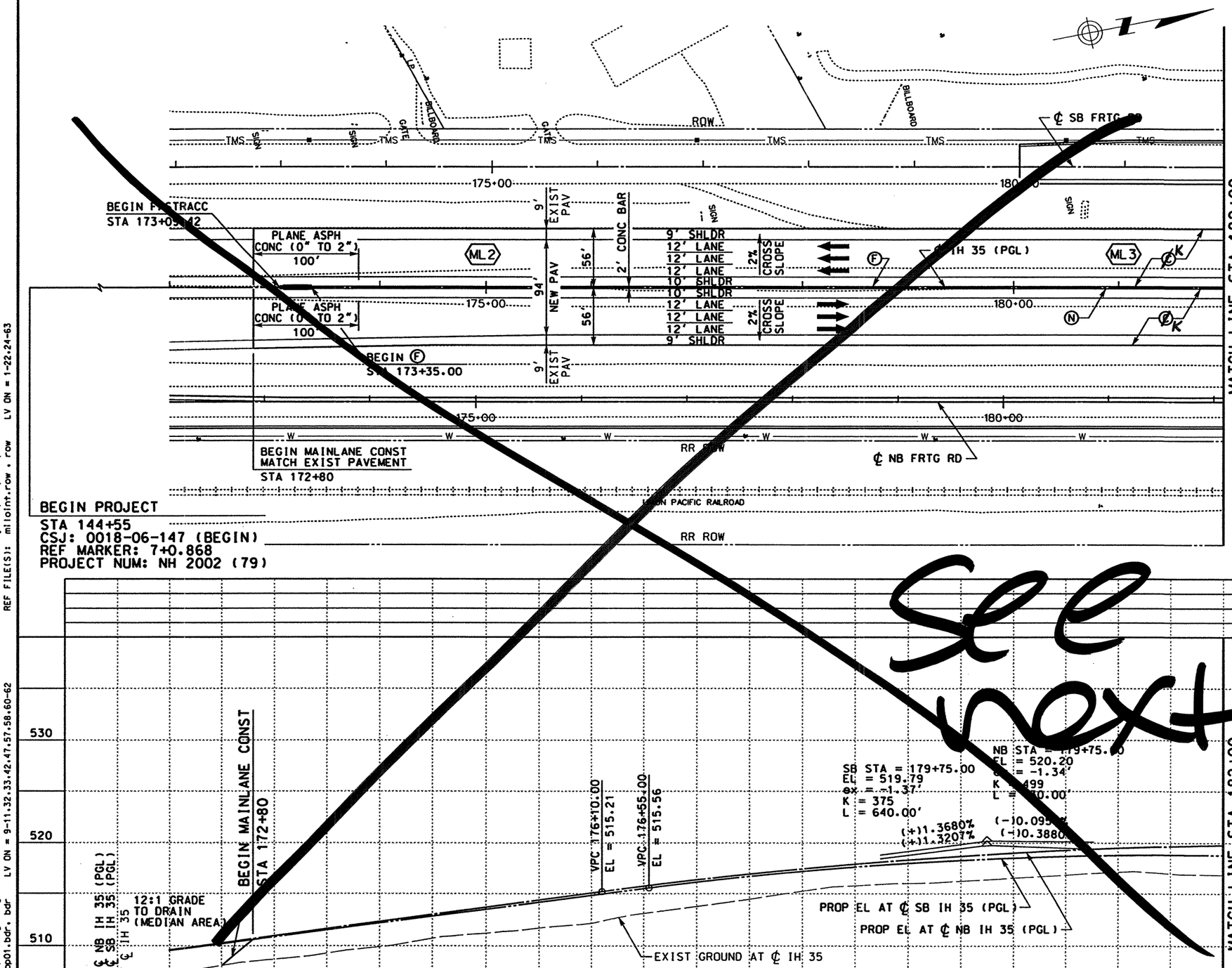

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- ~~Ⓒ POROUS FRICTION COURSE (1.5")~~
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 172+80 TO
STA 182+00

SHEET 1 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	284
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

REF FILE(S): j011op01.drn. drn LV ON = 8.28
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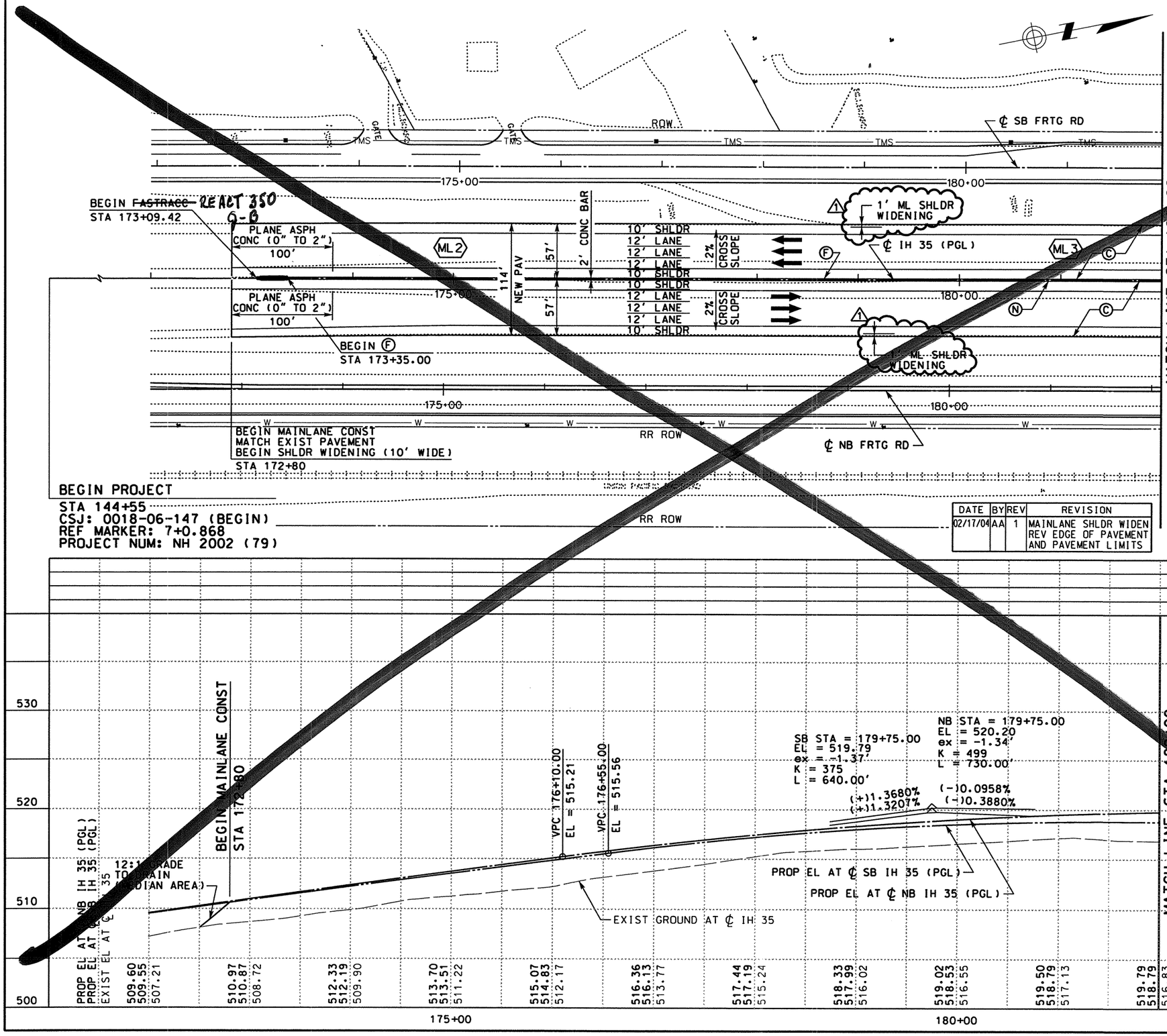
j011op01.bck. bck LV ON = 1-63
j011op01.alg. alg LV ON = 1-17.19-63
j011op01.bdr. bdr LV ON = 2.3.9.10.14.17.20.21.25.28
j011op01.utl. utl LV ON = 1-10.33-39.50
LV ON = 9-11.32.33.42.47.57.58.60-62
REF FILE(S): b03pp01.dgn-19 HOUFILE023 \hciv\c\0130\ 4/18/2003



LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 172+80 TO STA 182+00
SHEET 1 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	284
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

3/5/2004

REF FILE(S): j011op01.utl, utl LV ON = 1-63
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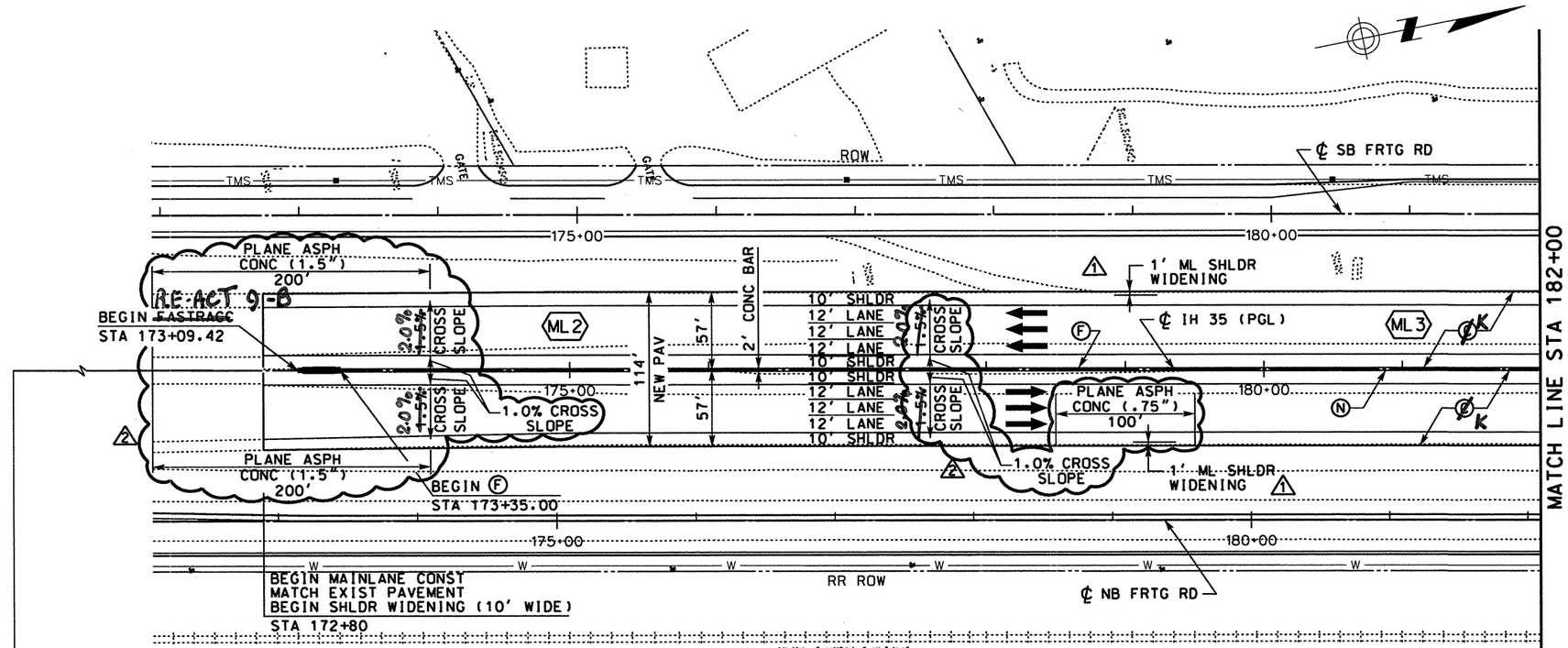


LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- ~~Ⓒ POROUS FRICTION COURSE~~
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

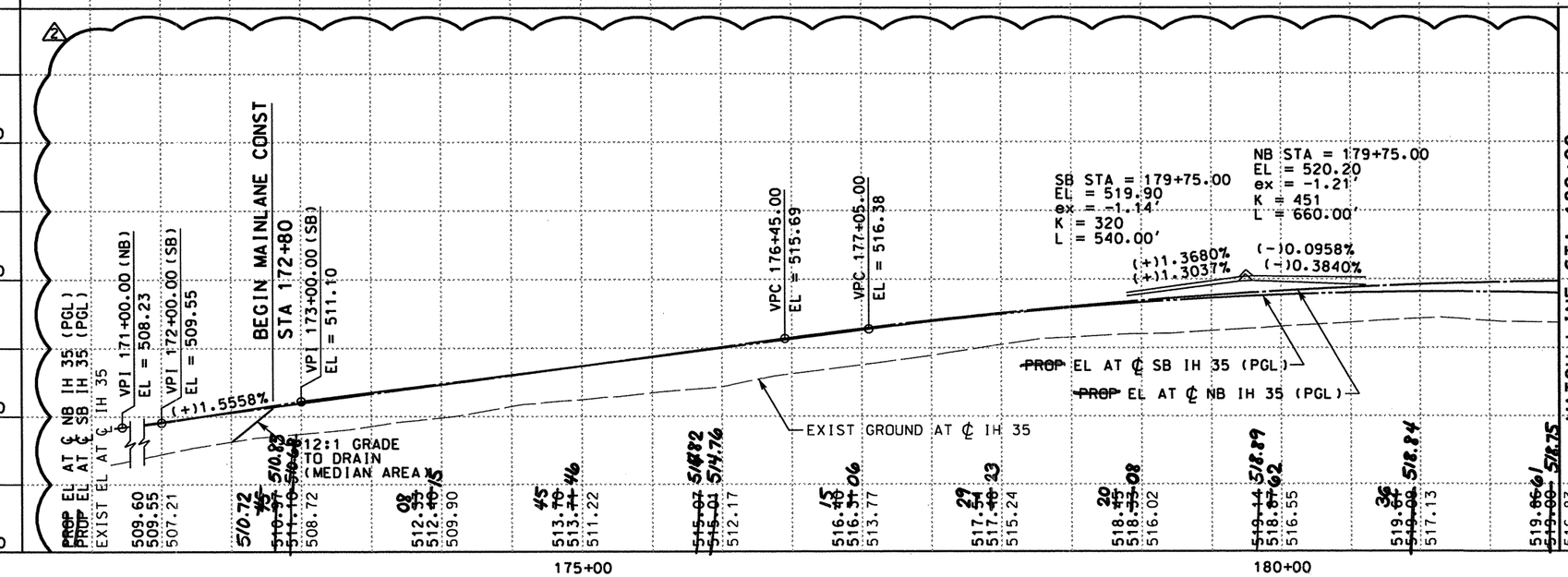
NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
2. 3. CROSS SLOPE TRANSITION BETWEEN STA 172+00.00 AND STA 174+00.00

BEGIN PROJECT
STA 144+55
CSJ: 0018-06-147 (BEGIN)
REF MARKER: 7+0.868
PROJECT NUM: NH 2002 (79)

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY SIDNEY S. AFONSO PE 88055, ON SEPTEMBER 10, 2007

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 172+80 TO
STA 182+00
SHEET 1 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	254
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

9/11/2007

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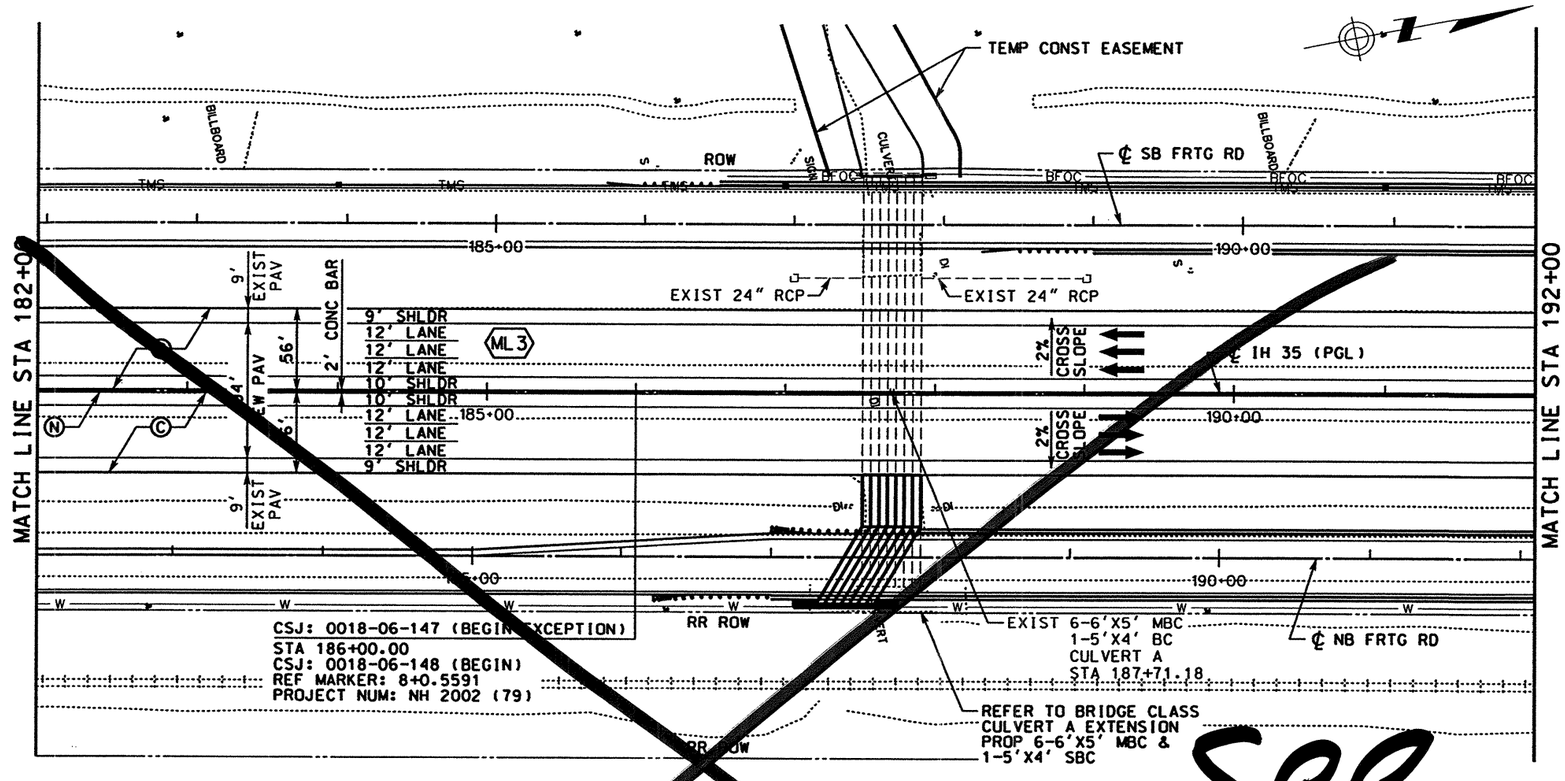

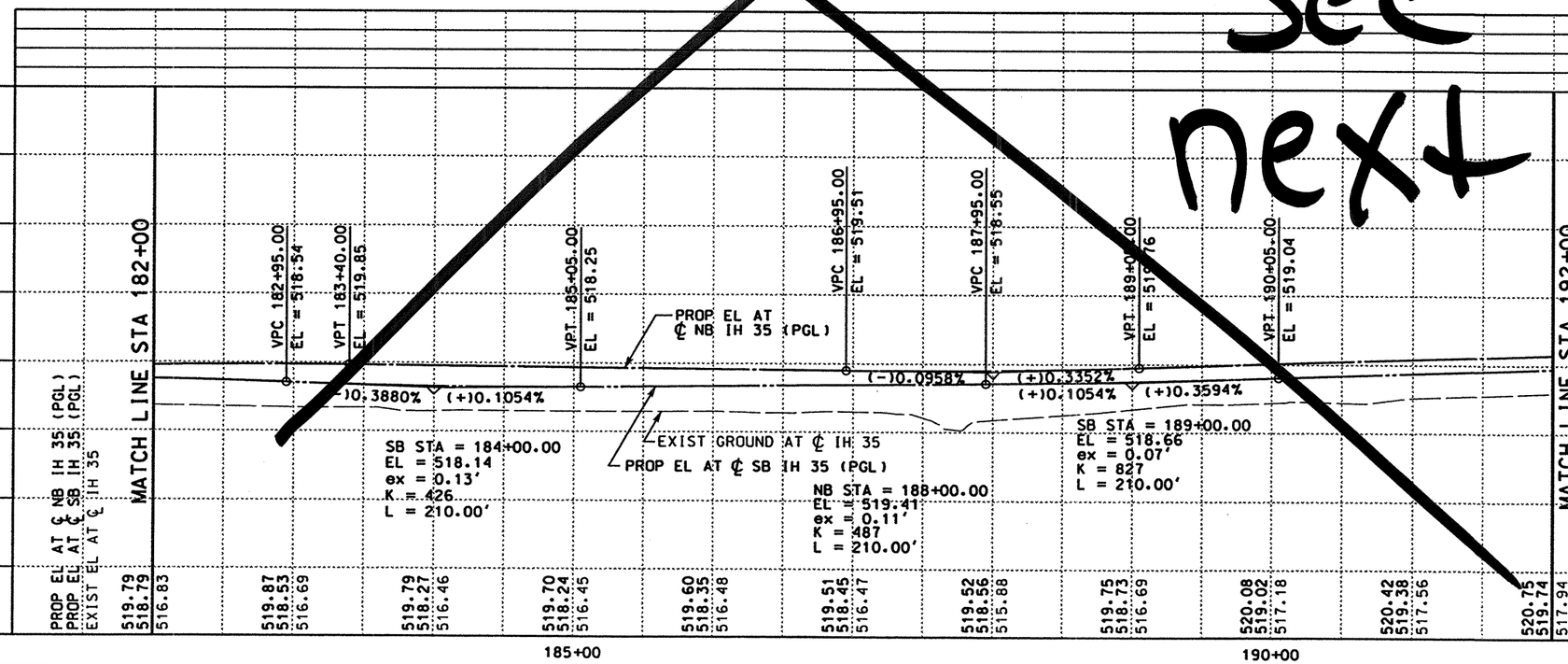

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "CHANNEL EXCAVATION" PLAN SHEET FOR TEMP CONST EASEMENT INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 182+00 TO
STA 192+00

SHEET 2 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	283
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/18/2003

REF FILE(S): j011op01.drn, j011op01.pro, j011op01.row, j011op01.bck, j011op01.alg, j011op01.bdr, j011op01.utl, j011op01.eop, j011op01.pro, j011op01.drn, b03ppo02.dgn-18 HOUFILE023 \hchivil\cf0130\
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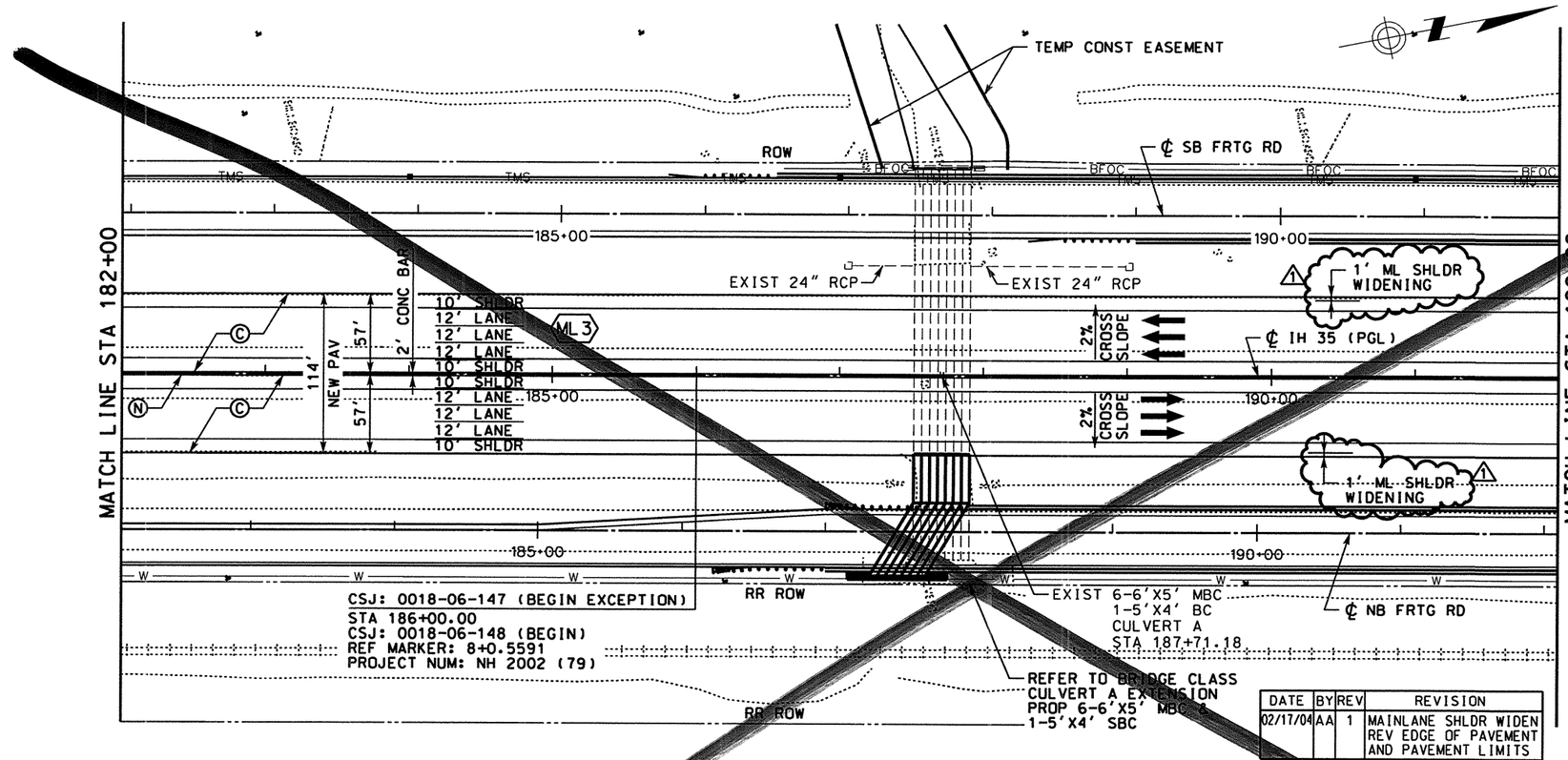
LV ON = 1-22.24-63
LV ON = 1-63
LV ON = 1-17.19-63
LV ON = 2.3.9.10.14.17.20.21.25.28
LV ON = 1-10.33-39.50
LV ON = 9-11.30.42.57.58.60-62



LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")

⬡ TYPICAL SECTION

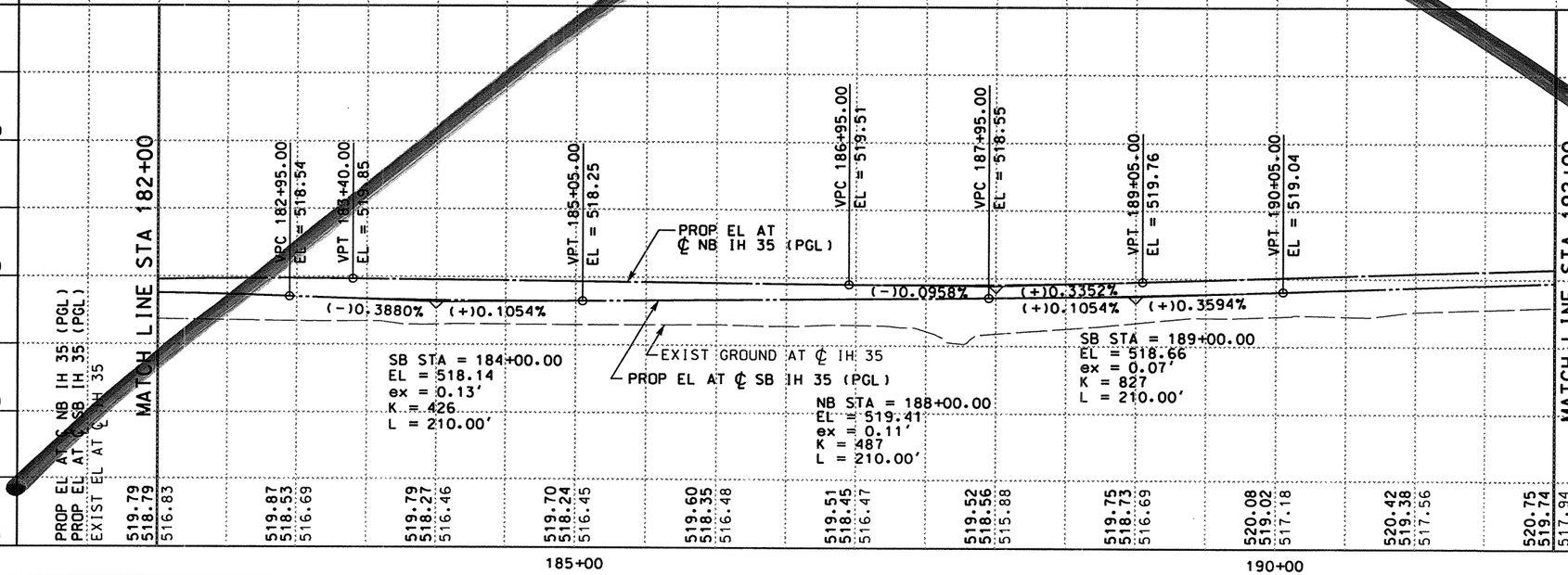
NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "CHANNEL EXCAVATION" PLAN SHEET FOR TEMP CONST EASEMENT INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEERS

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 182+00 TO
STA 192+00

SHEET 2 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	285
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

3/5/2004

REF FILE(S): j011op01.uti, uti; j011op01.eap, eap; j011op01.bck, bck; j011op01.alg, alg; j011op01.bdr, bdr
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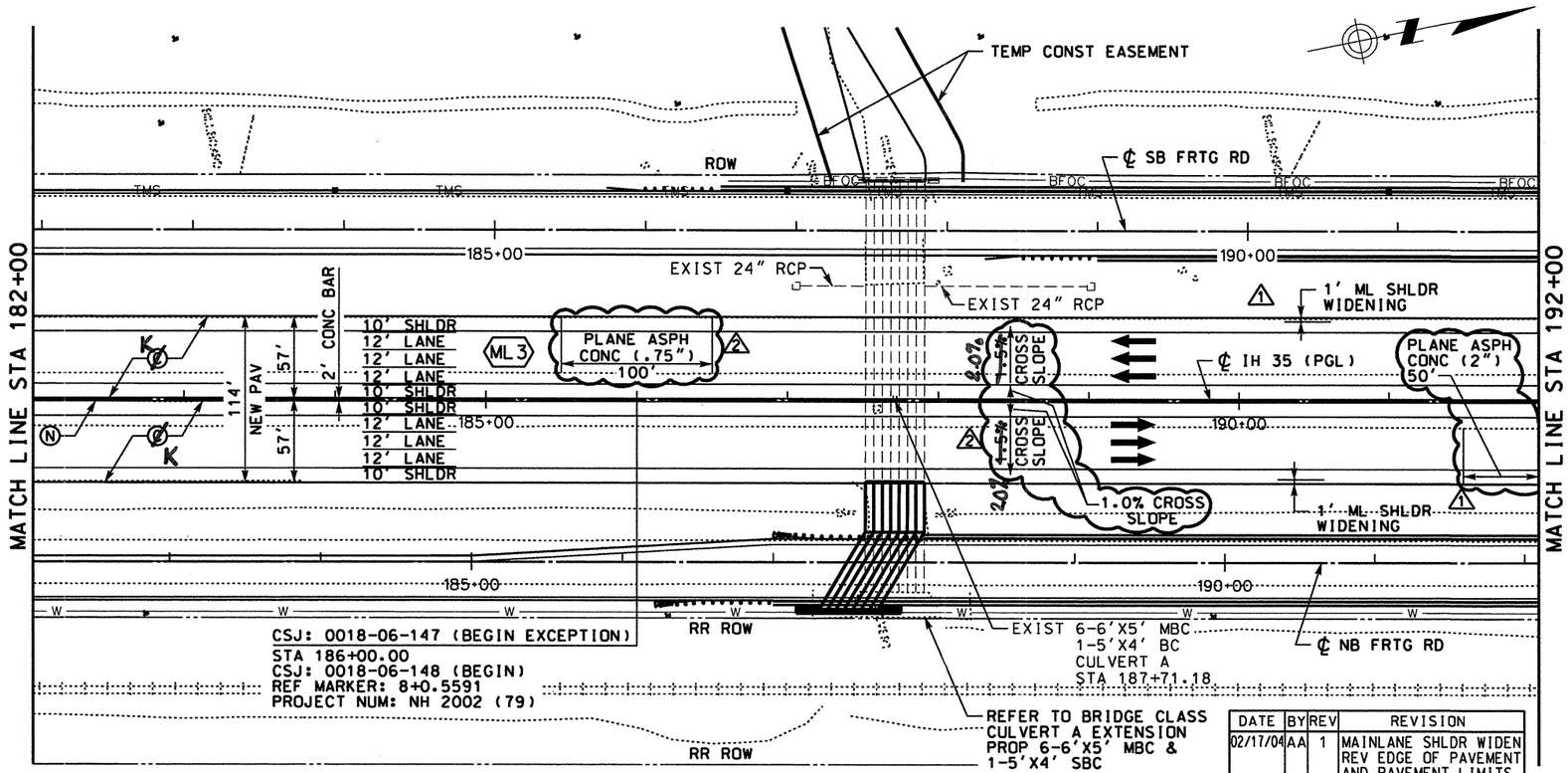


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

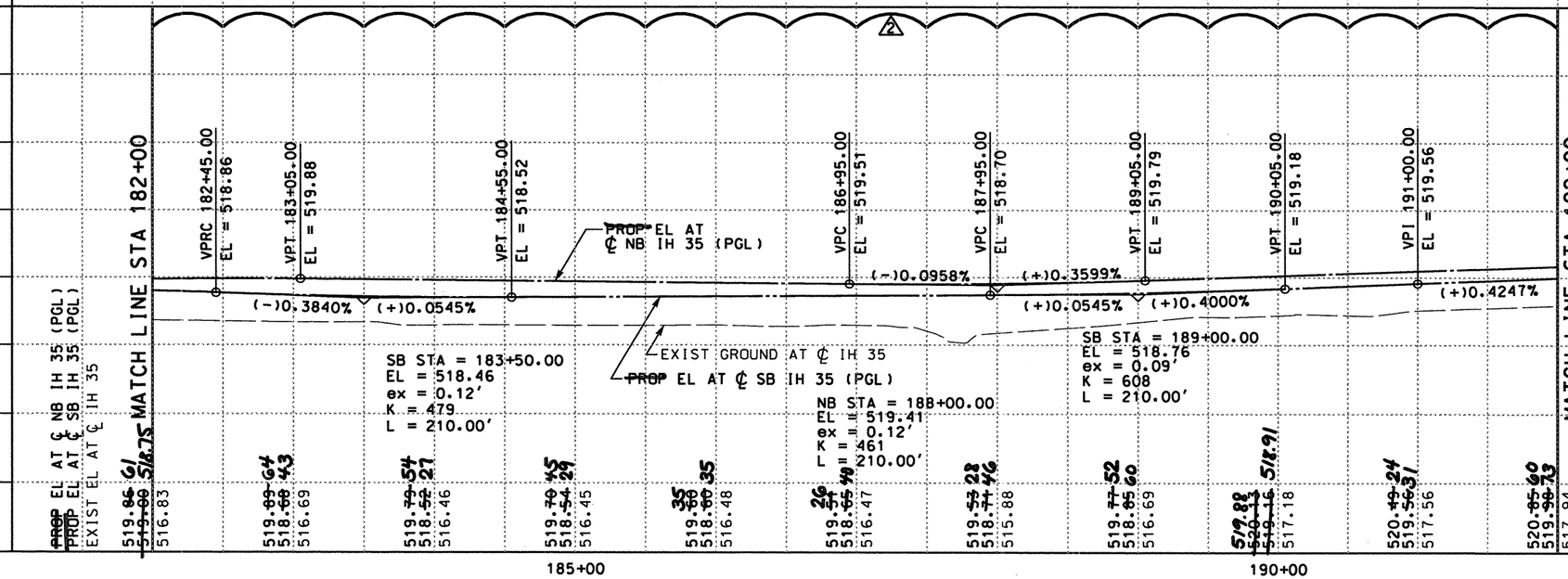
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED"~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "CHANNEL EXCAVATION" PLAN SHEET FOR TEMP CONST EASEMENT INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY SIDNEY S. AFONSO PE 88055, ON SEPTEMBER 10, 2007

SIDNEY S. AFONSO 88055 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 182+00 TO
STA 192+00

SHEET 2 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	285
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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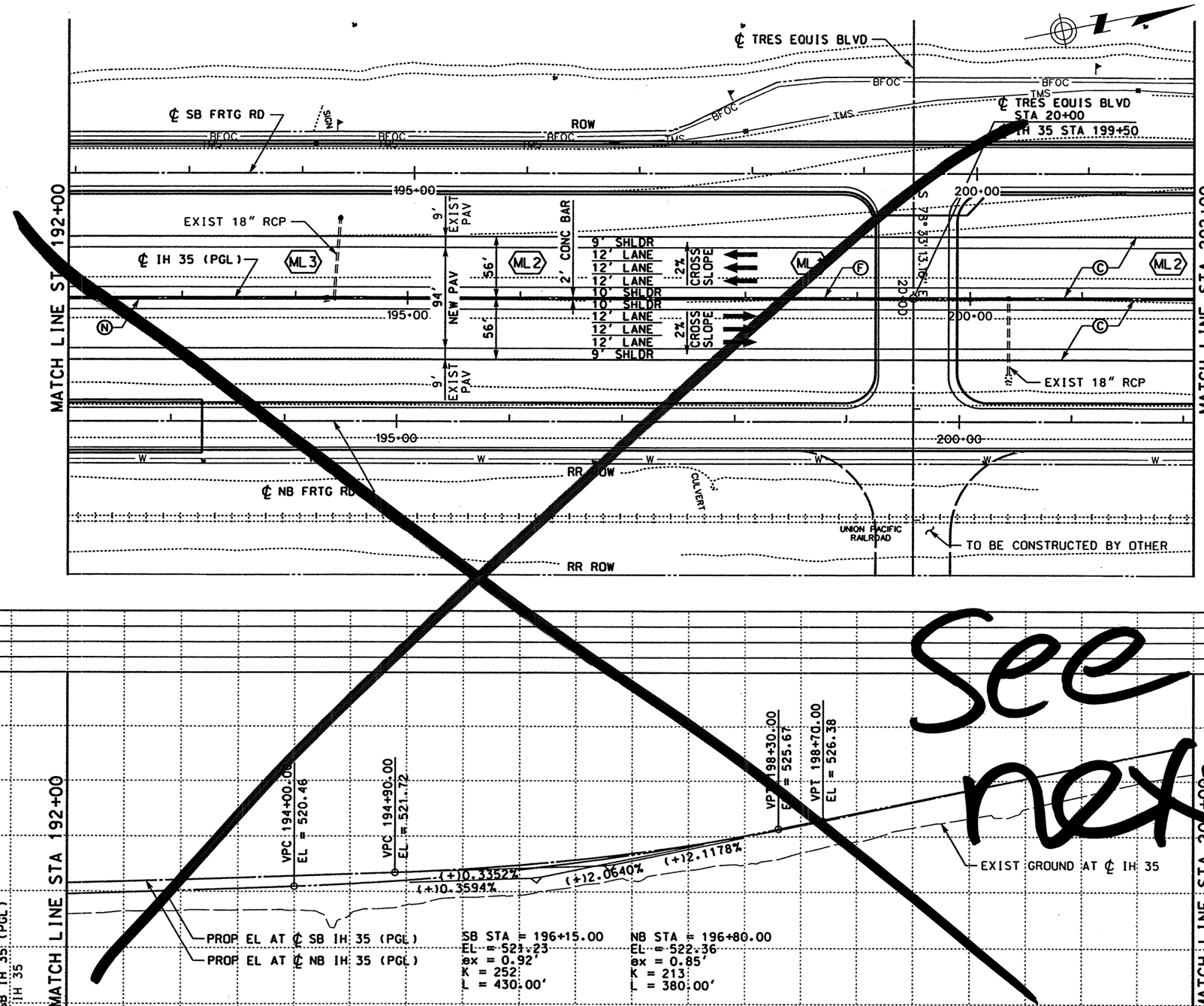

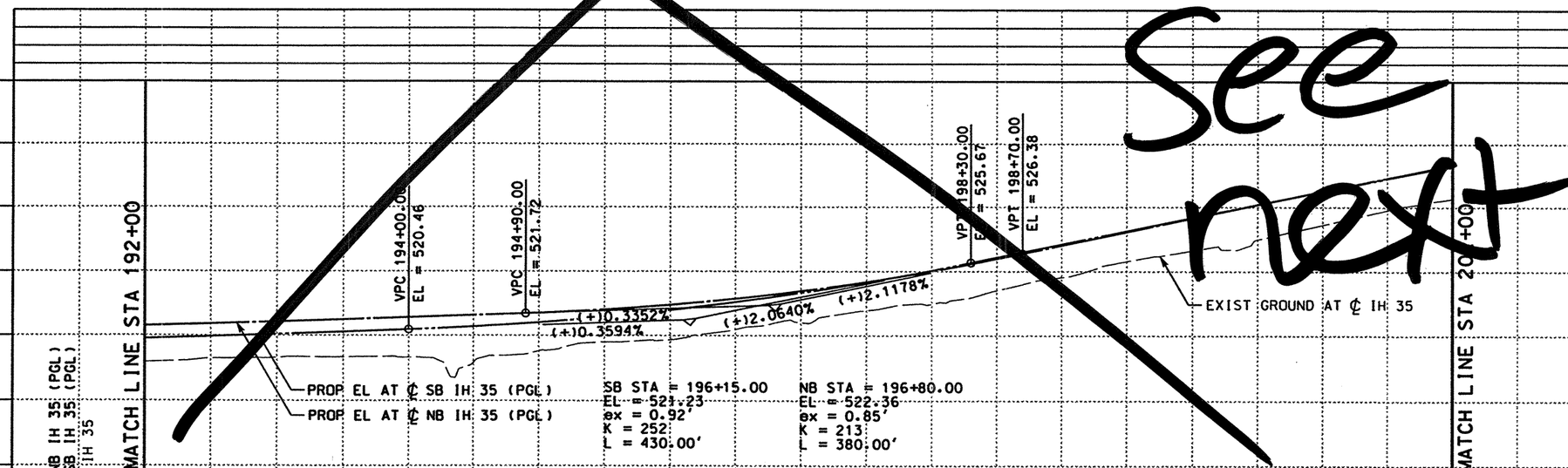

See next

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE TRES EQUIS BLVD "BRIDGE LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 192+00 TO
STA 202+00

SHEET 3 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	286
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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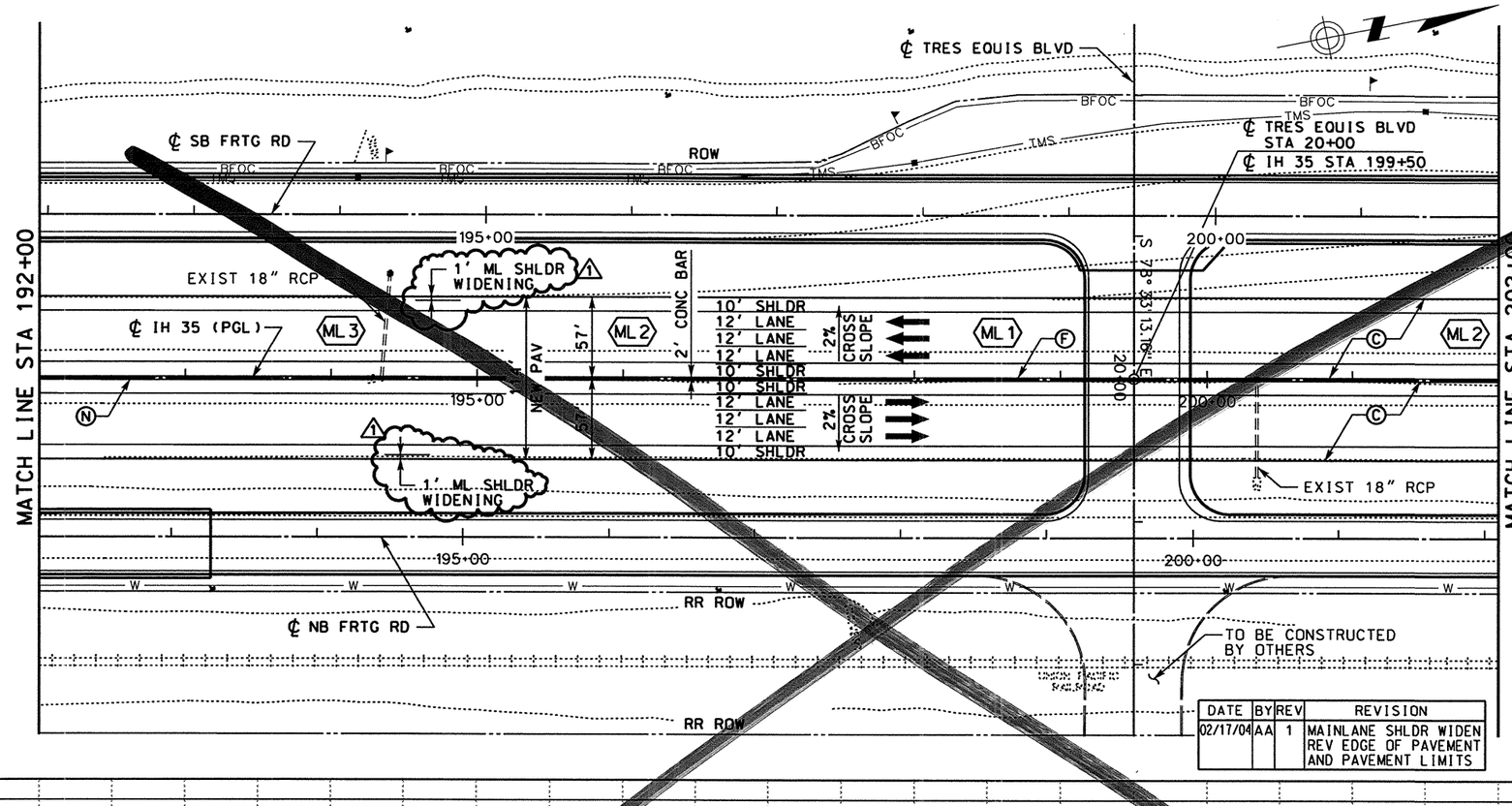


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

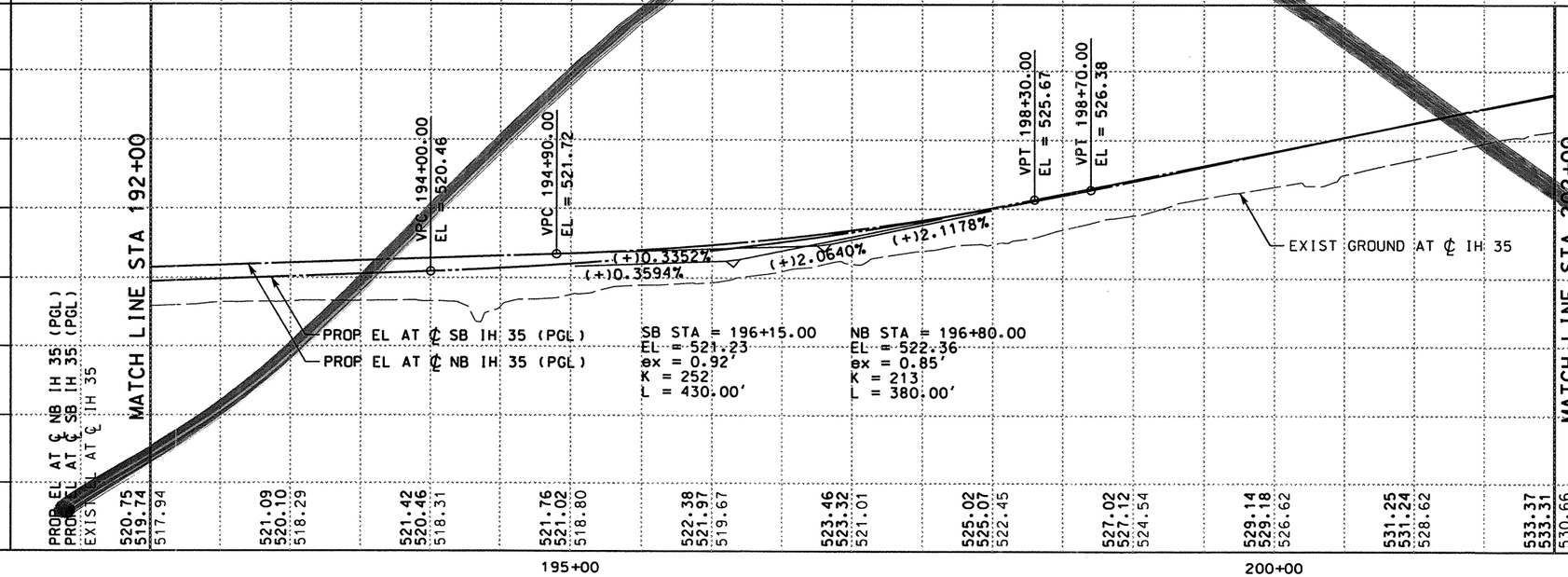
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE TRES EQUIS BLVD "BRIDGE LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 192+00 TO STA 202+00

SHEET 3 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	286
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/5/2004

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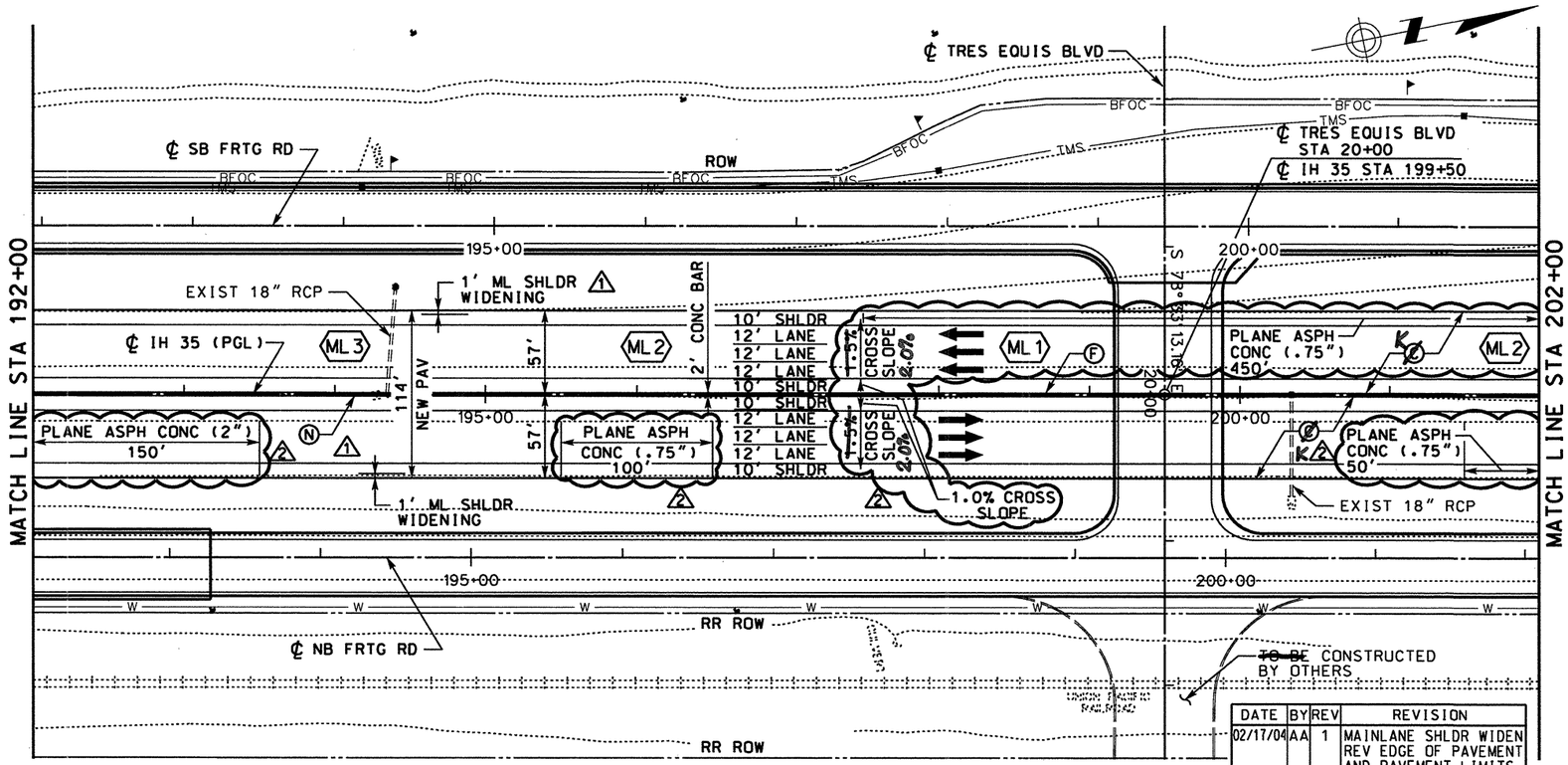


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

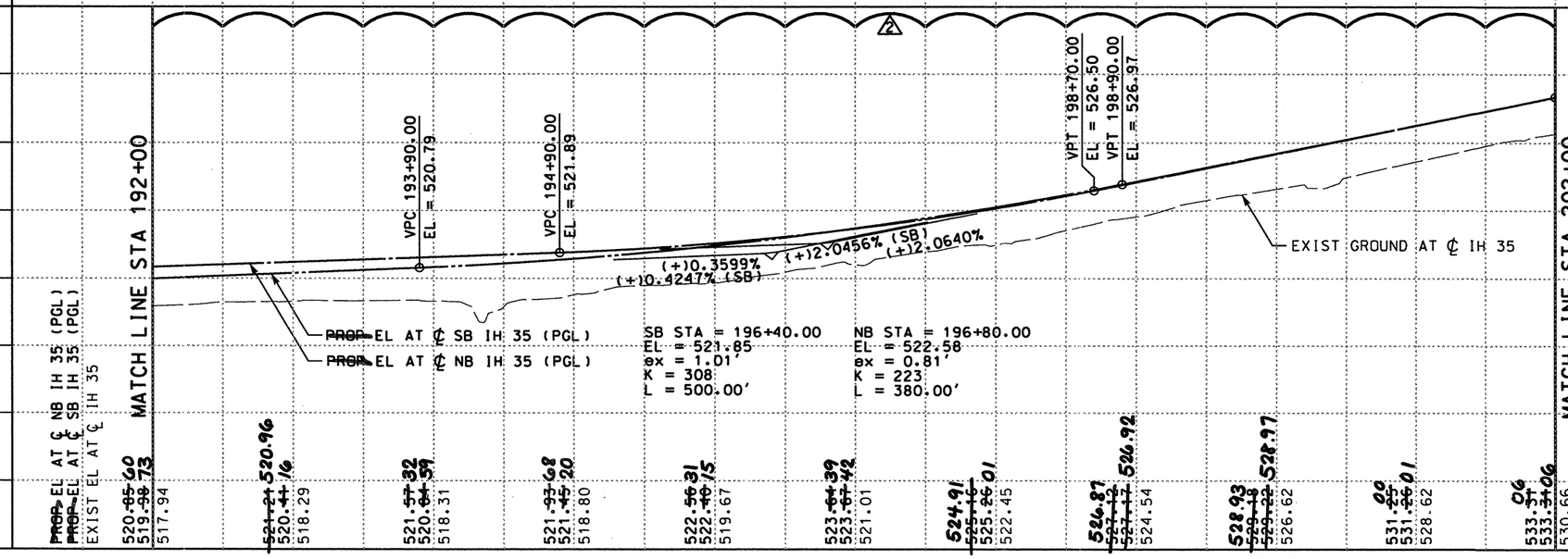
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED"~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE TRES EQUIS BLVD "BRIDGE LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY SIDNEY S. AFONSO PE 88055, ON SEPTEMBER 10, 2007

STATE OF TEXAS · SIDNEY S. AFONSO · 88055 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 192+00 TO
STA 202+00

SHEET 3 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	286
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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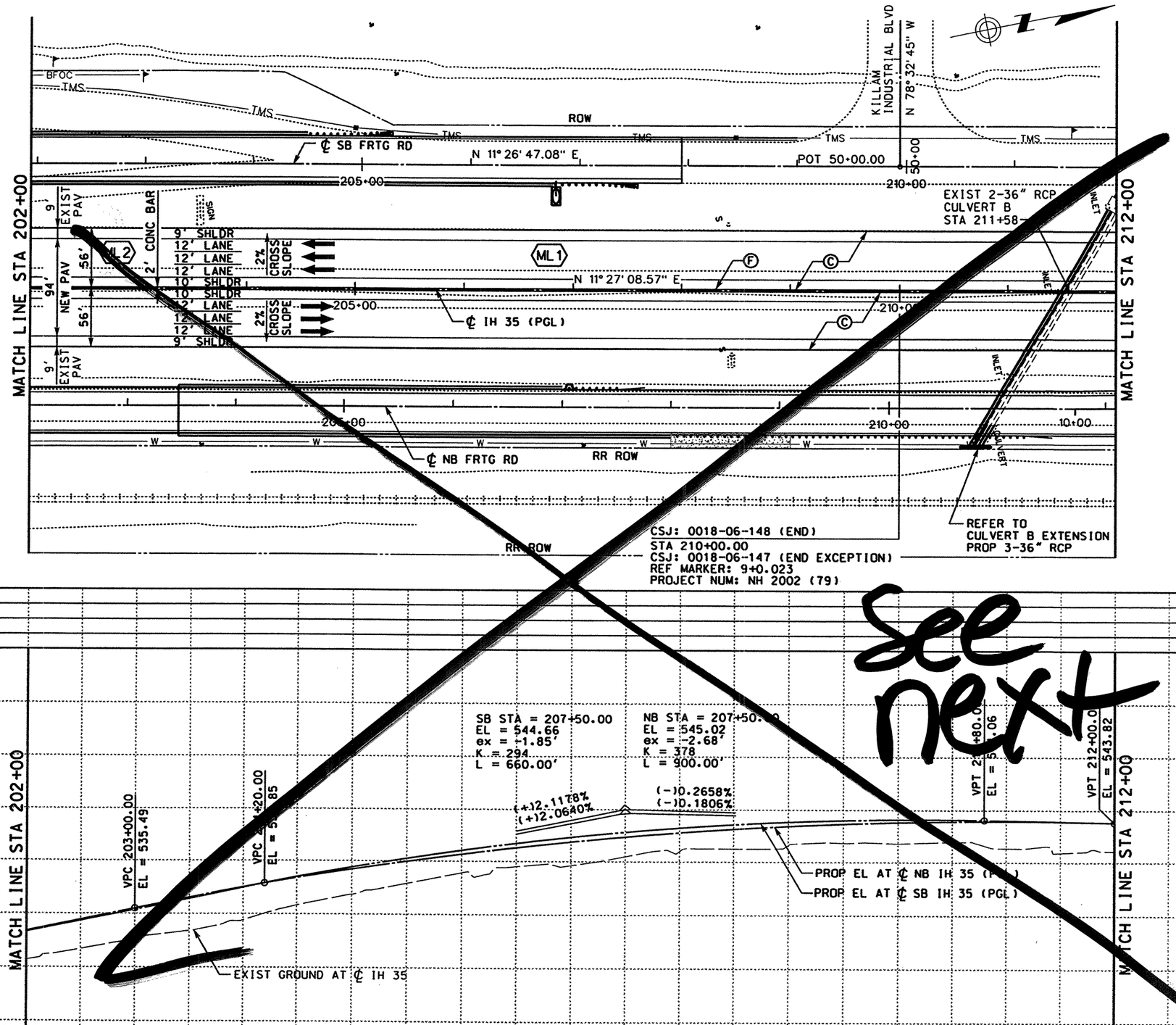

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 202+00 TO
STA 212+00

SHEET 4 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	287
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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j011op01.bdr, bdr LV ON = 9-11.32.33.42.47.57.58.60-62

b03ppp04.dgn-17 HOUFILE023 \hcivil\cf0130\

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY [illegible])(LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE [illegible] MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER
THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004
KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 202+00 TO
STA 212+00

SHEET 4 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	287
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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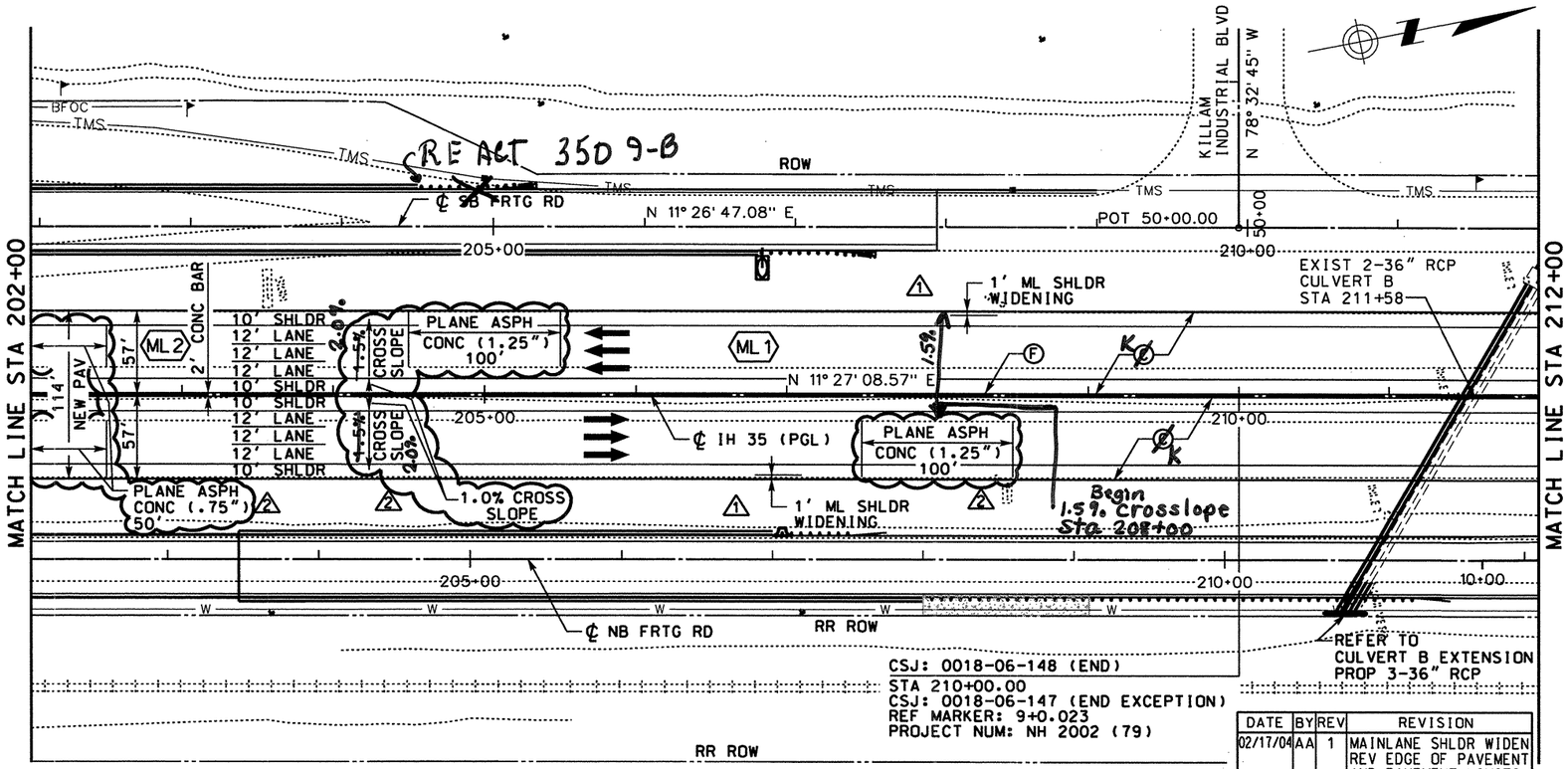


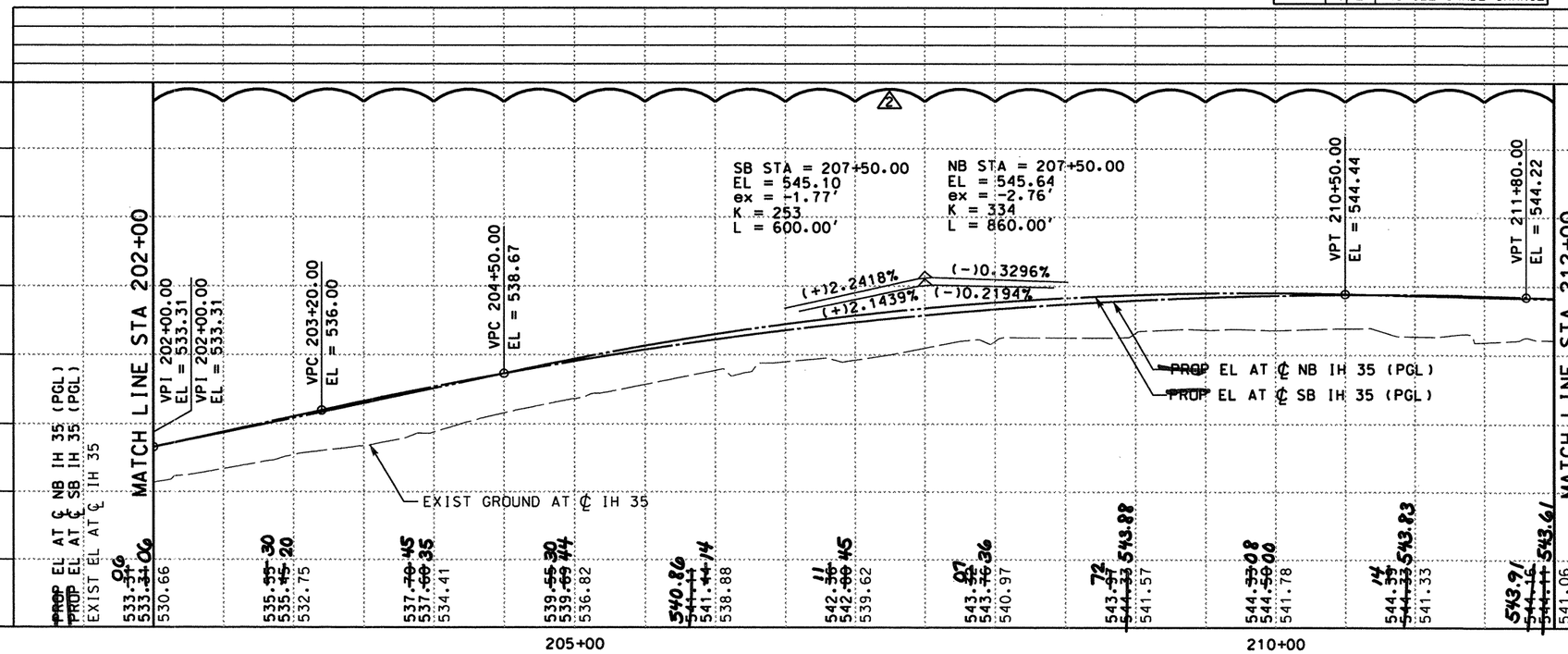
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED"~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
SIDNEY S. AFONSO
88055
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY SIDNEY S. AFONSO PE 88055, ON SEPTEMBER 10, 2007

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 202+00 TO
STA 212+00

SHEET 4 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	287
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j011op01.drn. drn LV ON = 8.28
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j011op01.eop. eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2.3.9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-10.33-39.50
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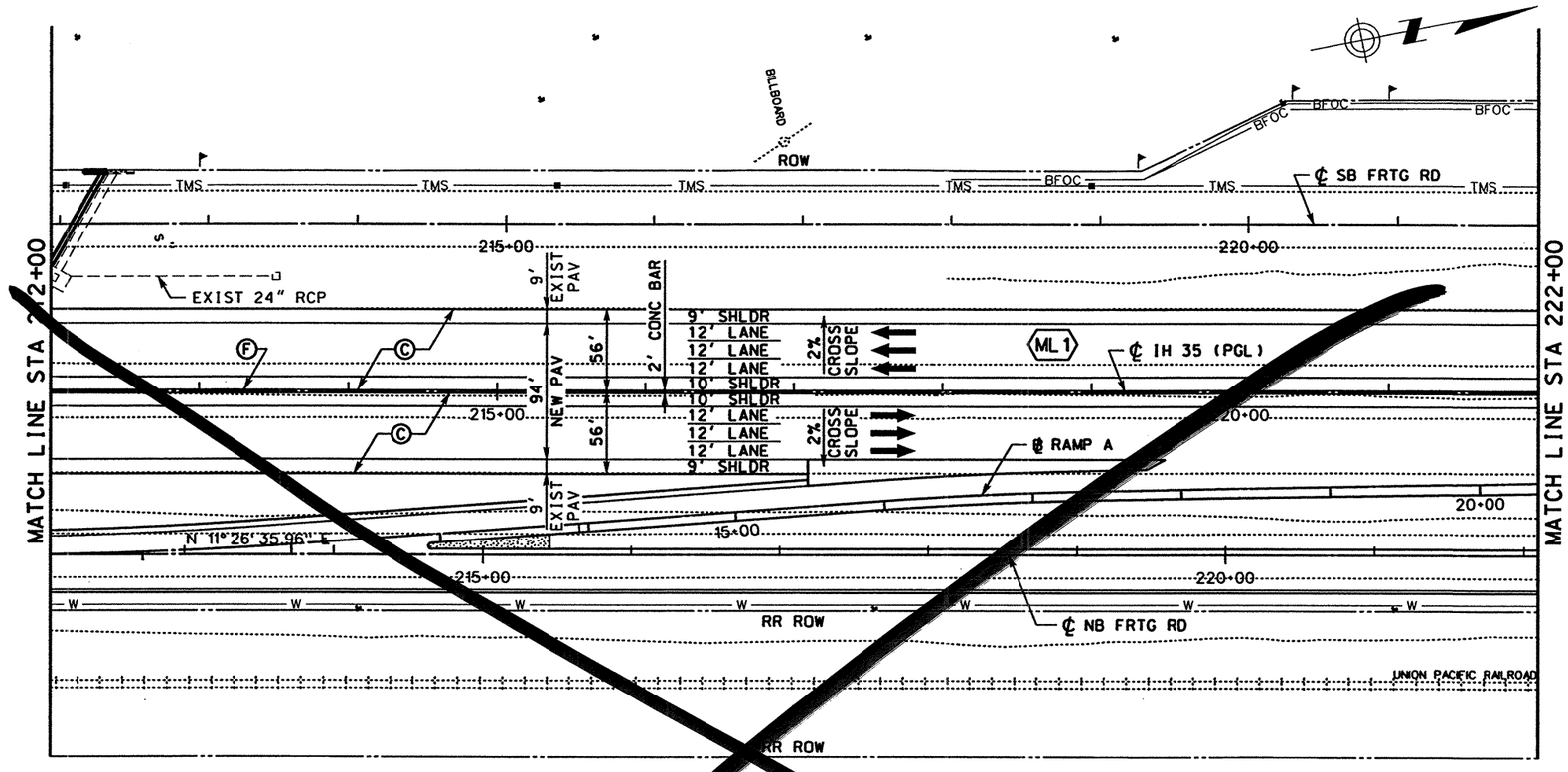
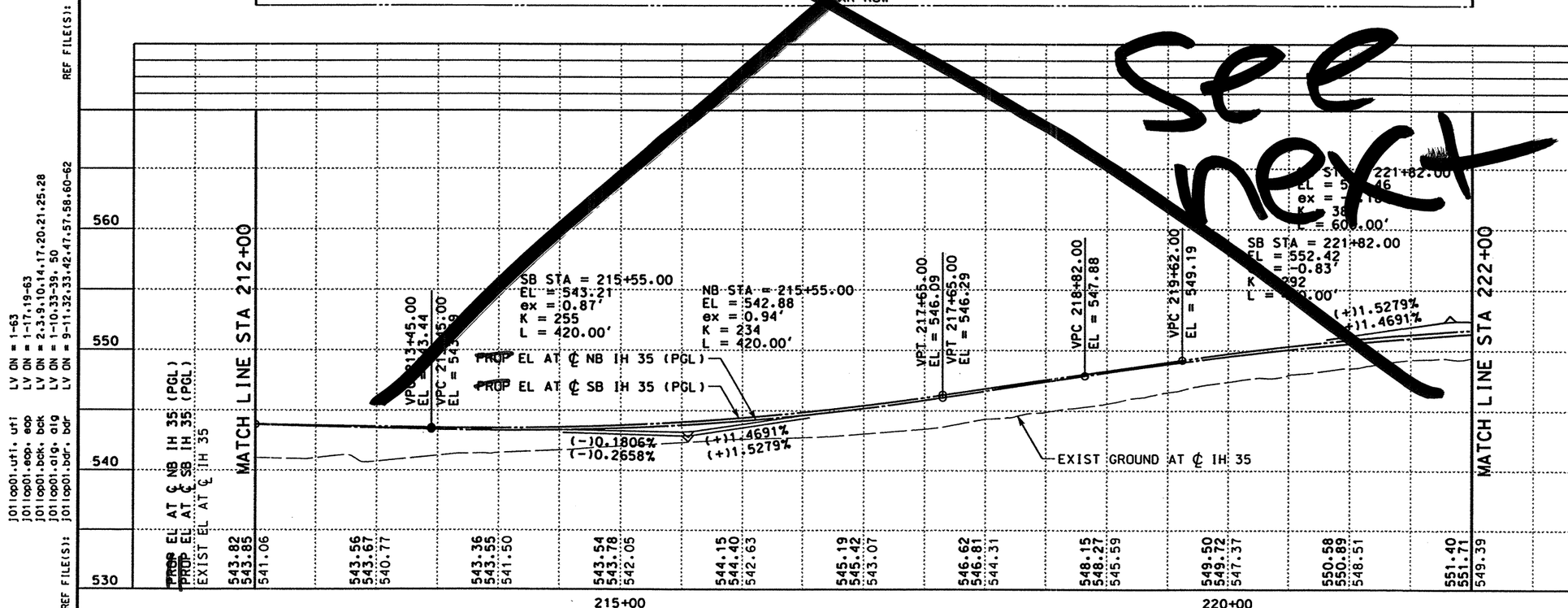
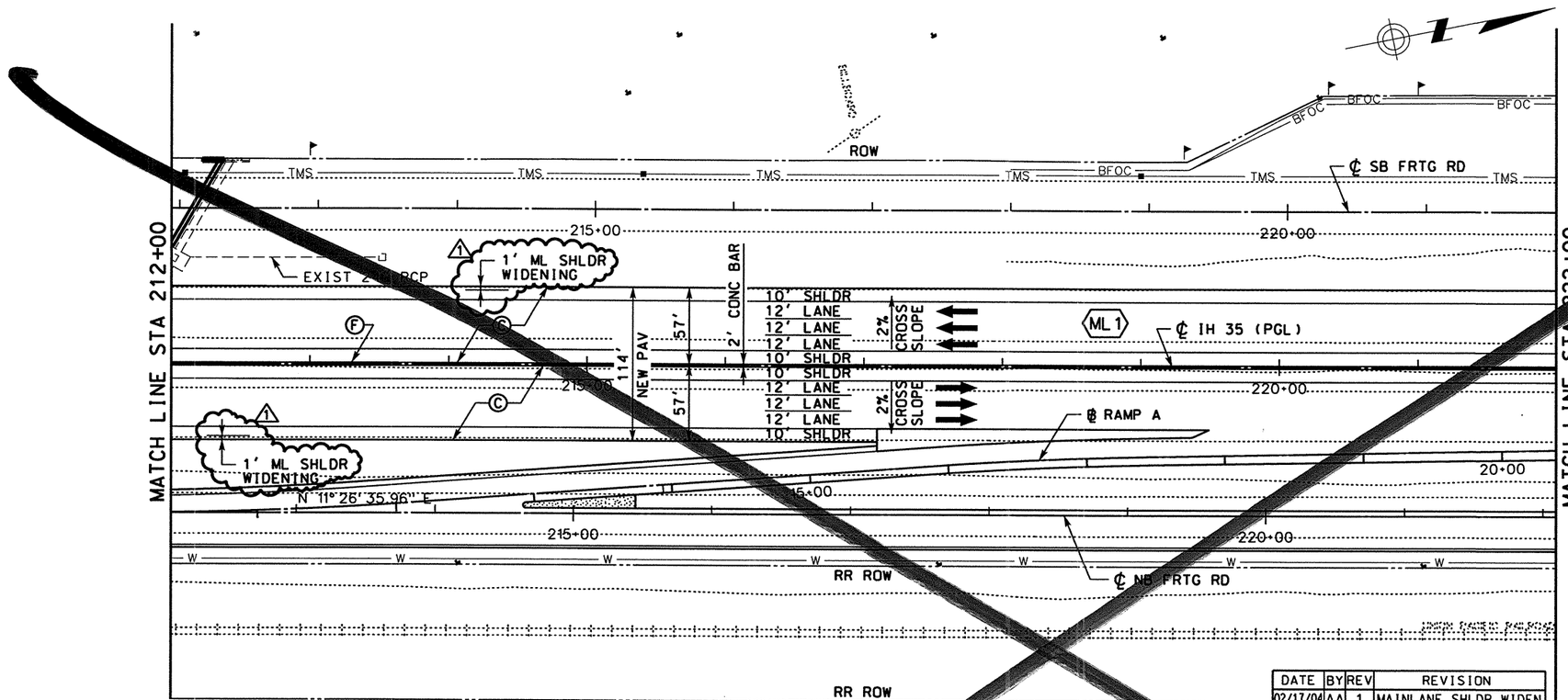
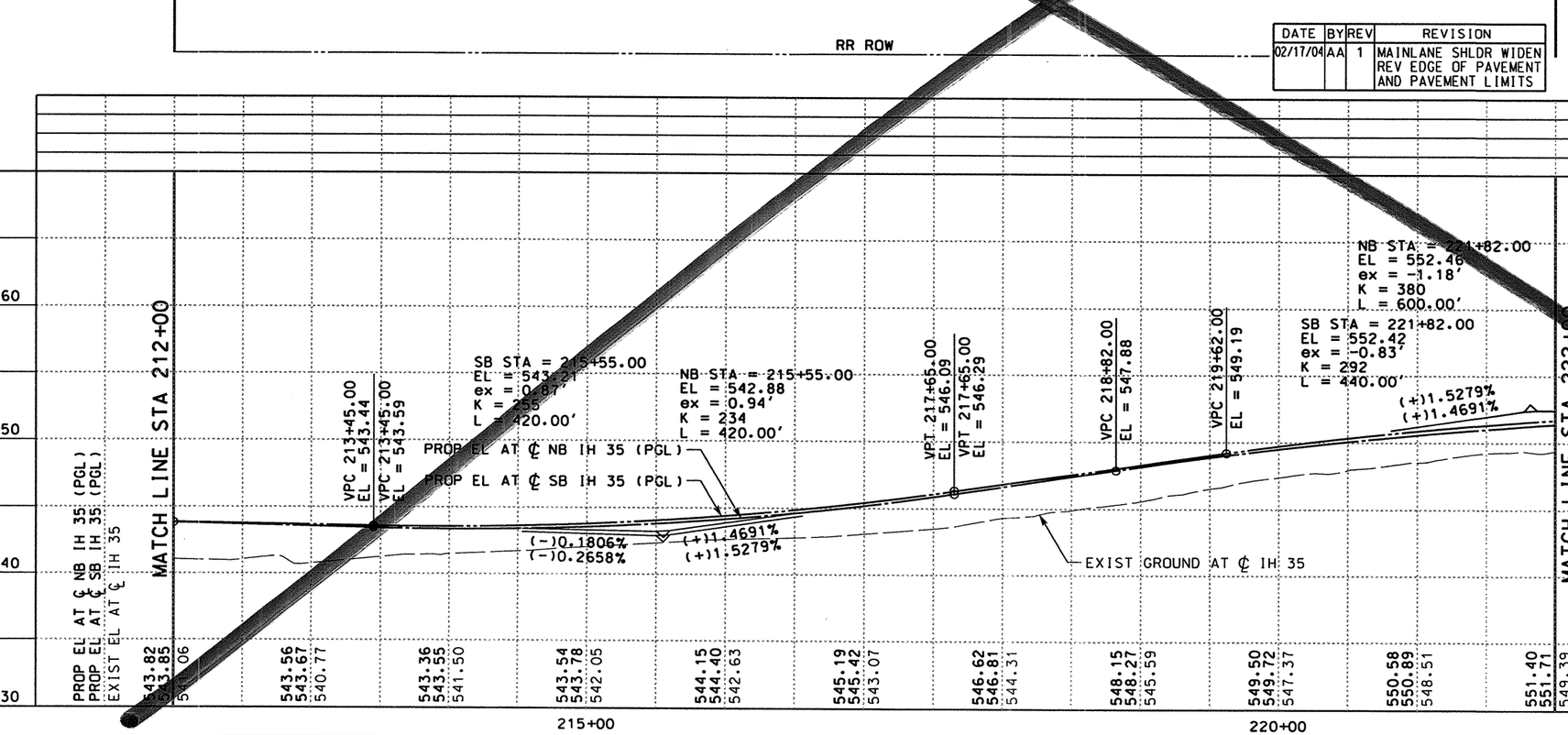

MATCH LINE STA 212+00
MATCH LINE STA 222+00
BILLBOARD
ROW
TMS
BFOC
℄ SB FRTG RD
215+00
220+00
EXIST 24" RCP
9' EXIST PAV
2' CONC BAR
9' SHLDR
12' LANE
12' LANE
12' LANE
10' SHLDR
10' SHLDR
12' LANE
12' LANE
12' LANE
9' SHLDR
56'
56'
94'
NEW PAV
2% CROSS SLOPE
2% CROSS SLOPE
ML 1
℄ IH 35 (PGL)
℄ RAMP A
N 11°26'35.96" E
15+00
20+00
RR ROW
℄ NB FRTG RD
UNION PACIFIC RAILROAD
See next


MATCH LINE STA 212+00
MATCH LINE STA 222+00
PROP EL AT ℄ NB IH 35 (PGL)
PROP EL AT ℄ SB IH 35 (PGL)
EXIST EL AT ℄ IH 35
SB STA = 215+55.00
EL = 543.21
ex = 0.87'
K = 255
L = 420.00'
NB STA = 215+55.00
EL = 542.88
ex = 0.94'
K = 234
L = 420.00'
VPC 213+45.00
EL = 543.44
VPC 217+65.00
EL = 546.09
VPT 217+65.00
EL = 546.29
VPC 218+82.00
EL = 547.88
VPC 219+62.00
EL = 549.19
SB STA = 221+82.00
EL = 552.42
ex = -0.83'
K = 292
L = 600.00'
(-)0.1806%
(-)0.2658%
(+)1.4691%
(+)1.5279%
(+)1.5279%
(+)1.4691%
EXIST GROUND AT ℄ IH 35
560
550
540
530
215+00
220+00

| | | |





LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C)(LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE C MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 212+00 TO
STA 222+00

SHEET 5 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	288
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

3/5/2004

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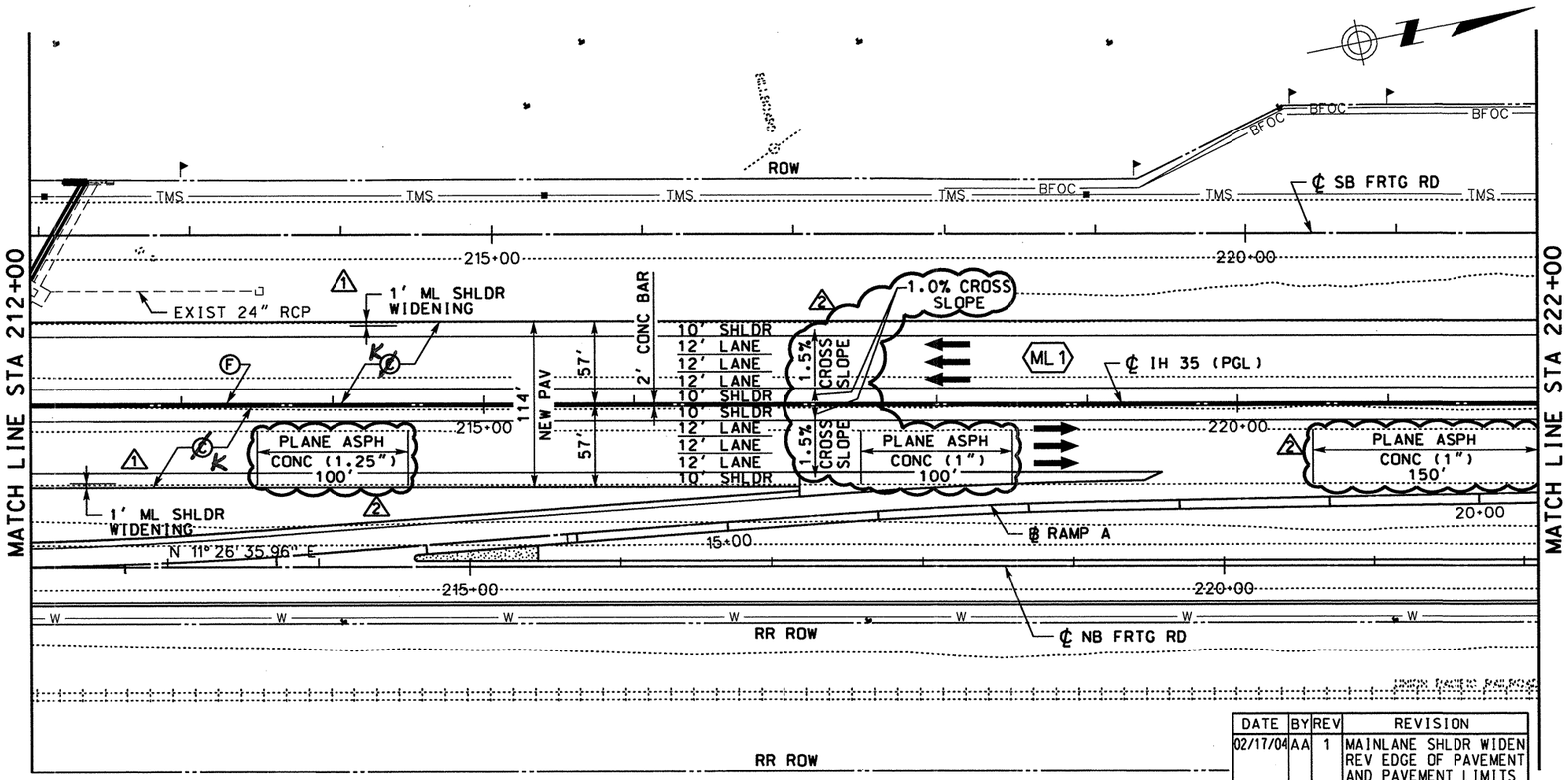


LEGEND

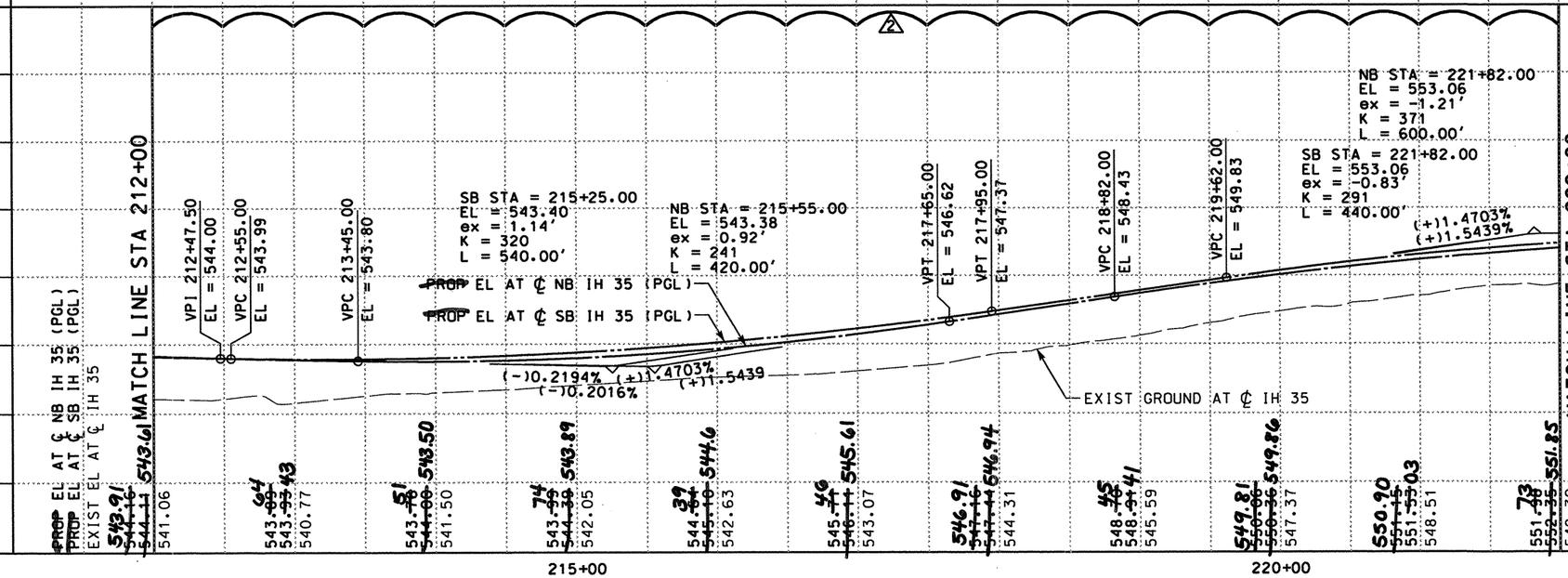
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



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SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY SIDNEY S. AFONSO PE 88055, ON SEPTEMBER 10, 2007

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 212+00 TO
STA 222+00

SHEET 5 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	288
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

9/11/2007

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j011op01.alg, alg LV ON = 1-10.33-39, 50
j011op01.bdr, bdr LV ON = 9-11.32.33.42-47.57.58.60-62
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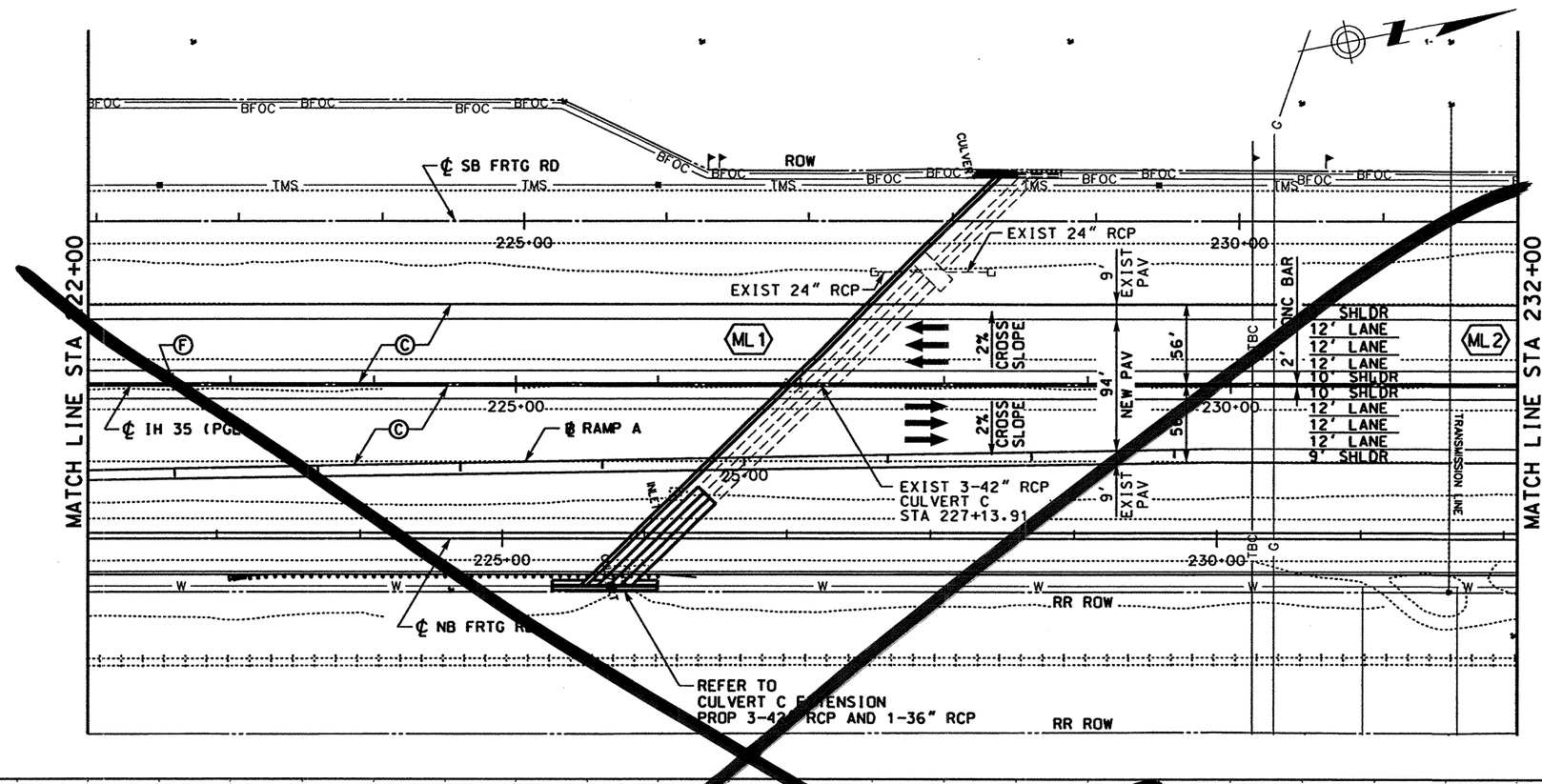
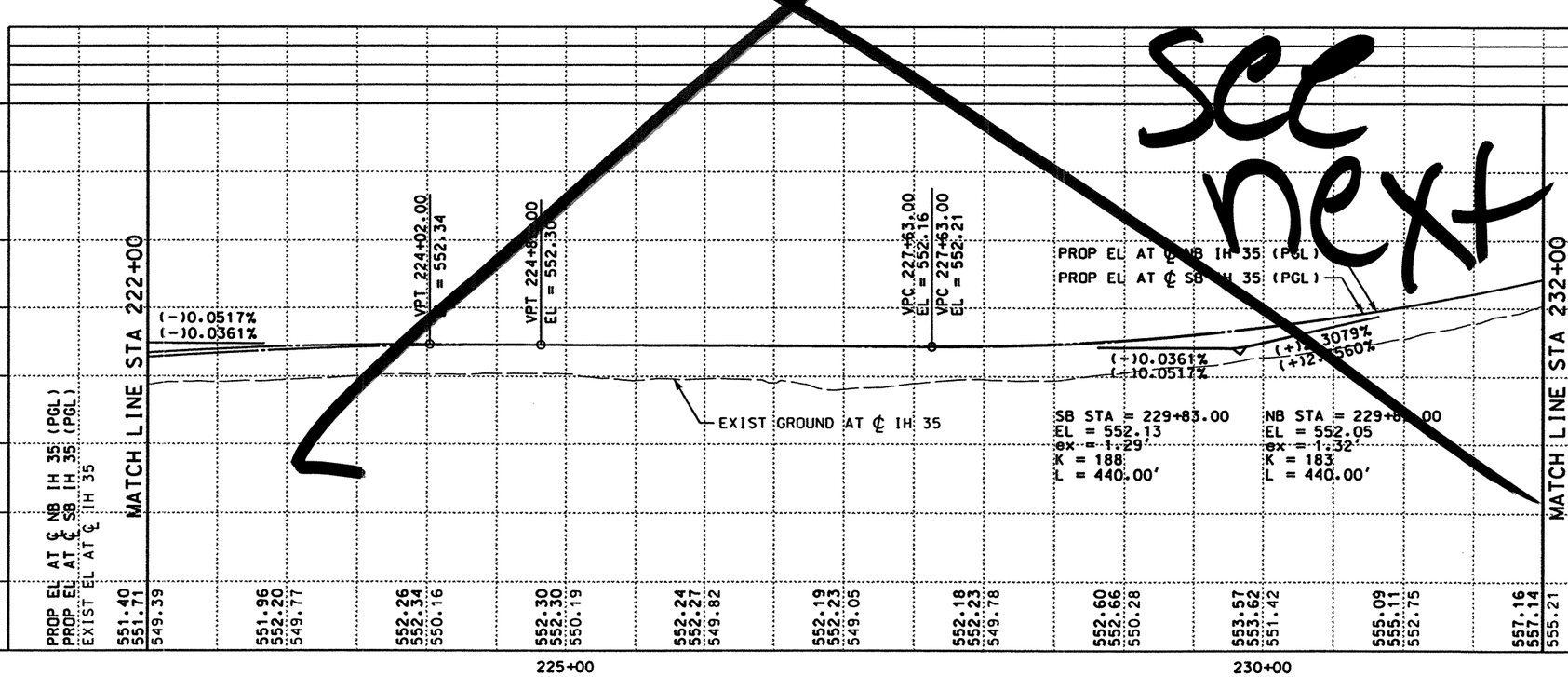


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 222+00 TO
STA 232+00

SHEET 6 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	289
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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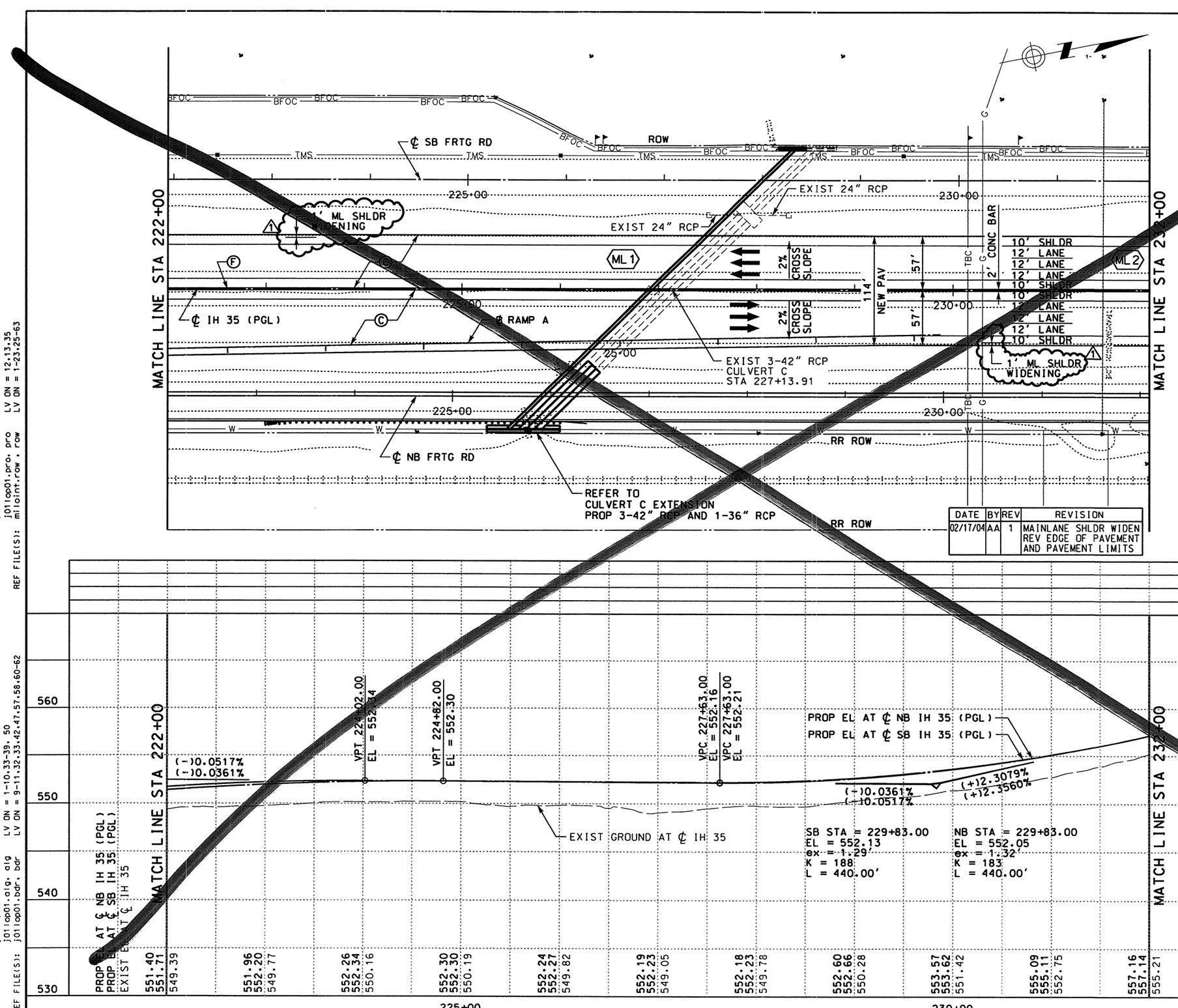

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)( )
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 222+00 TO
STA 232+00
SHEET 6 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	289
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

3/5/2004
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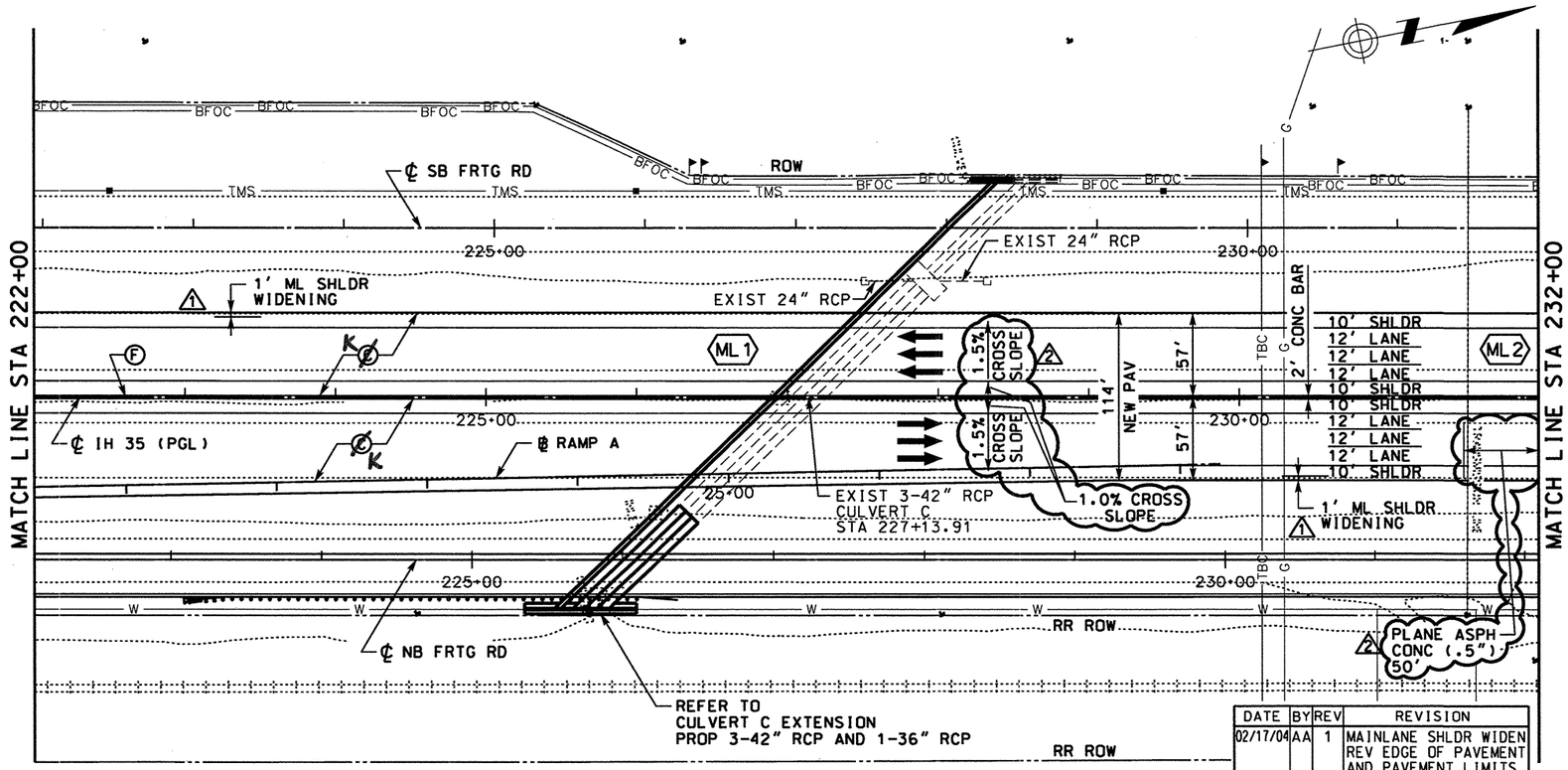


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

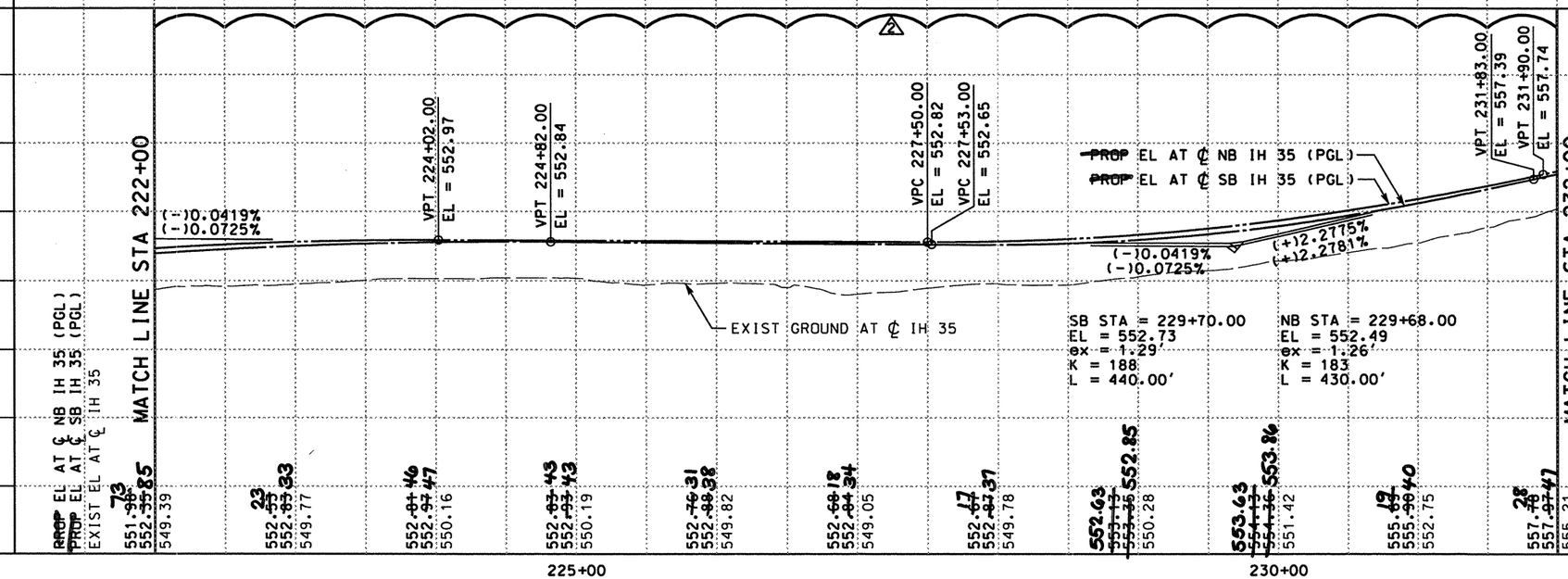
LEGEND

- (A) ASPH CONC PAV (TY C) (SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY SIDNEY S. AFONSO PE 88055, ON SEPTEMBER 10, 2007

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 222+00 TO
STA 232+00

SHEET 6 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	289
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

9/11/2007

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j011op01.alg, alg LV ON = 1-10.33-39, 50
j011op01.bdr, bdr LV ON = 9-11.32.33.42.47.57.58.60-62
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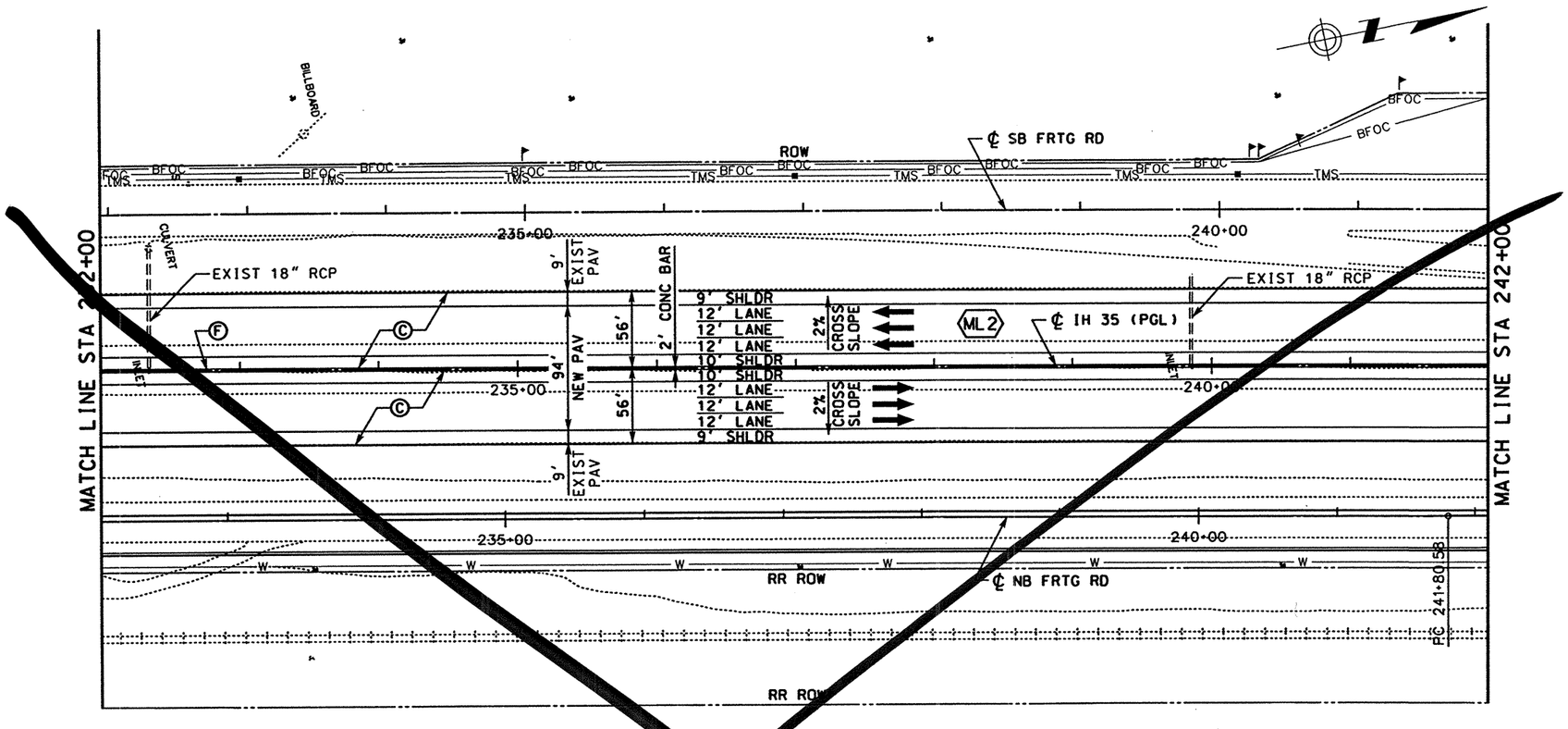

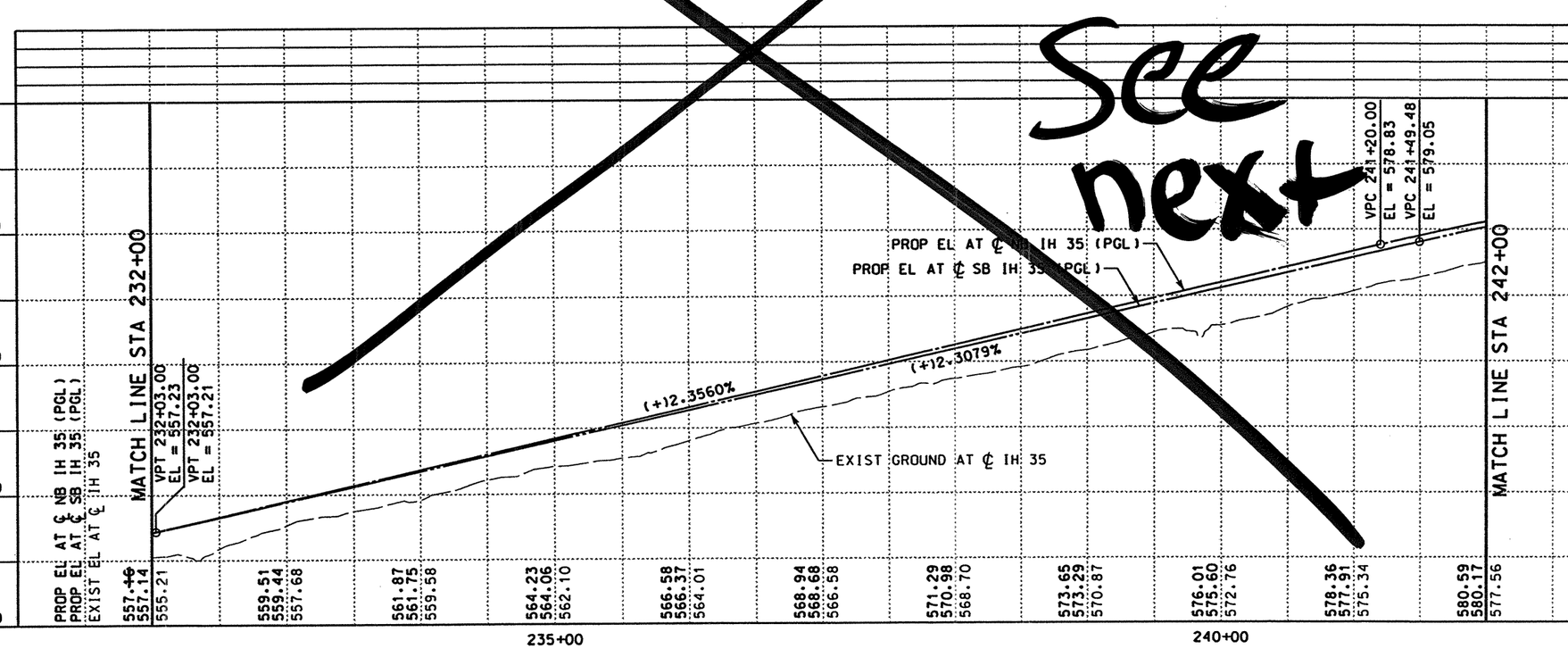

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 232+00 TO
STA 242+00

SHEET 7 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	290
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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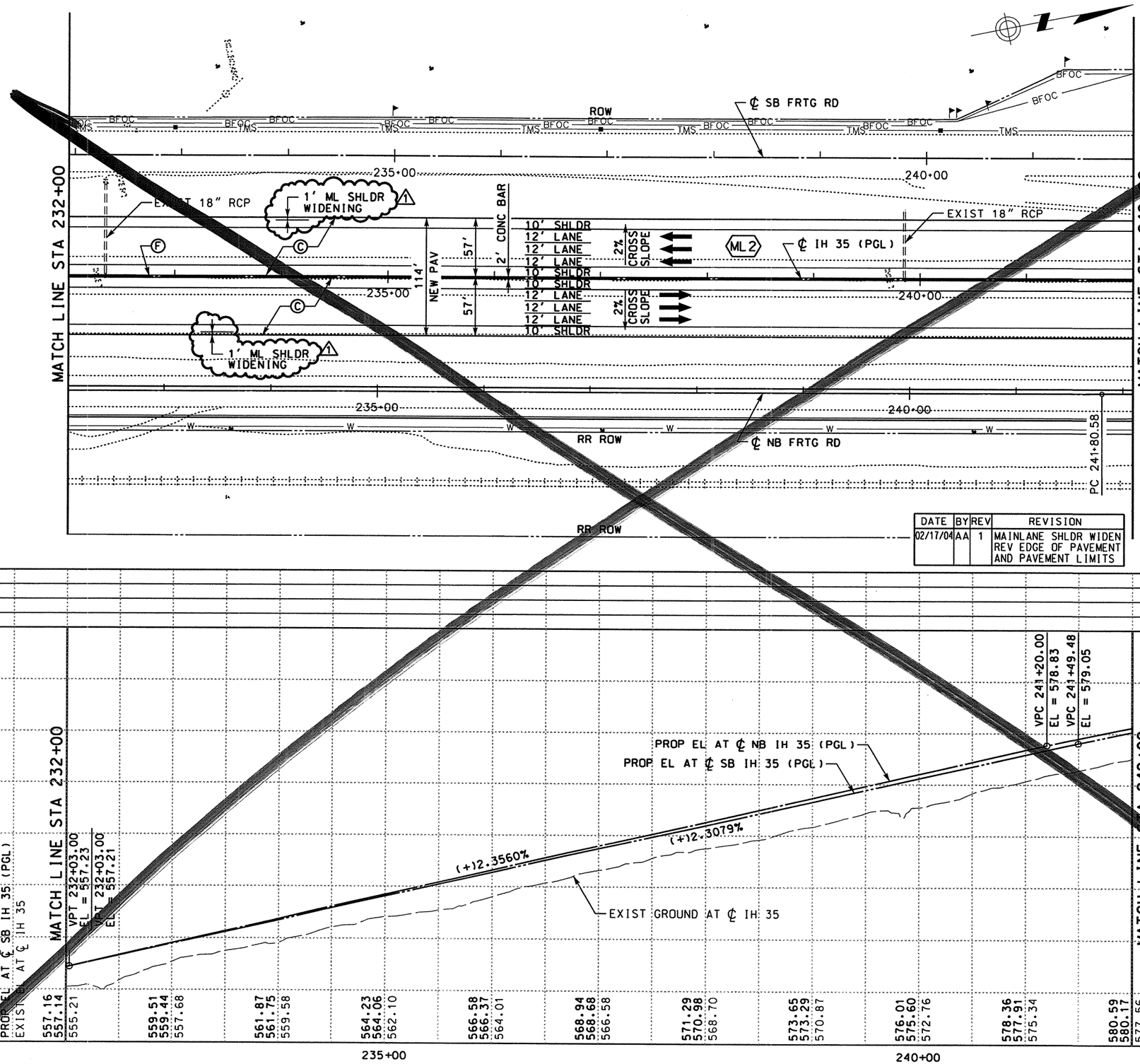

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (8")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 232+00 TO
STA 242+00

SHEET 7 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	290
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

3/5/2004

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j011op01.bdr, bdr LV ON = 9-11.32.33.42.47.57.58.60-62

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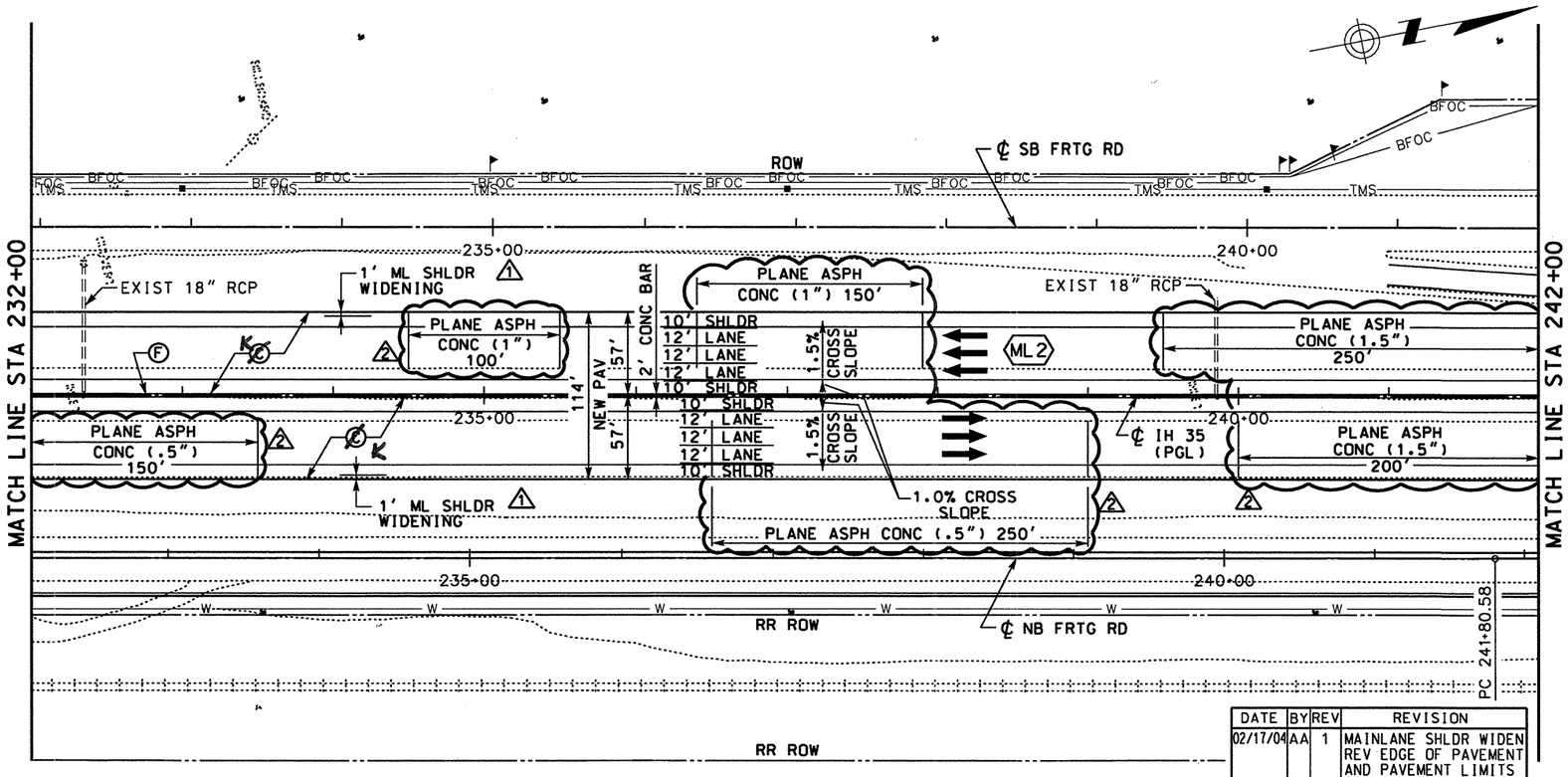


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

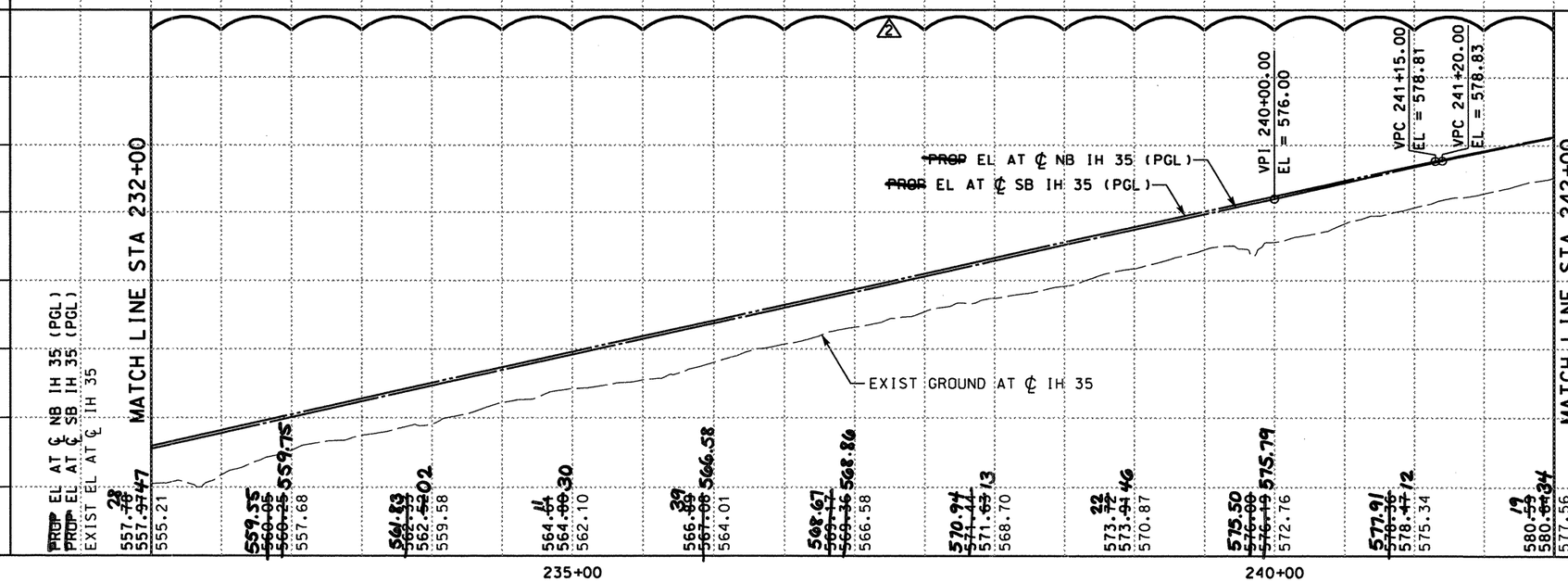
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. (2) CROSS SLOPE TRANSITION BETWEEN STA 240+00.00 AND STA 242+00.00

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · SIDNEY S. AFONSO · 88055 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY SIDNEY S. AFONSO PE 88055, ON SEPTEMBER 10, 2007

Sidney Afonso

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 232+00 TO
STA 242+00

SHEET 7 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	290
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

9/11/2007

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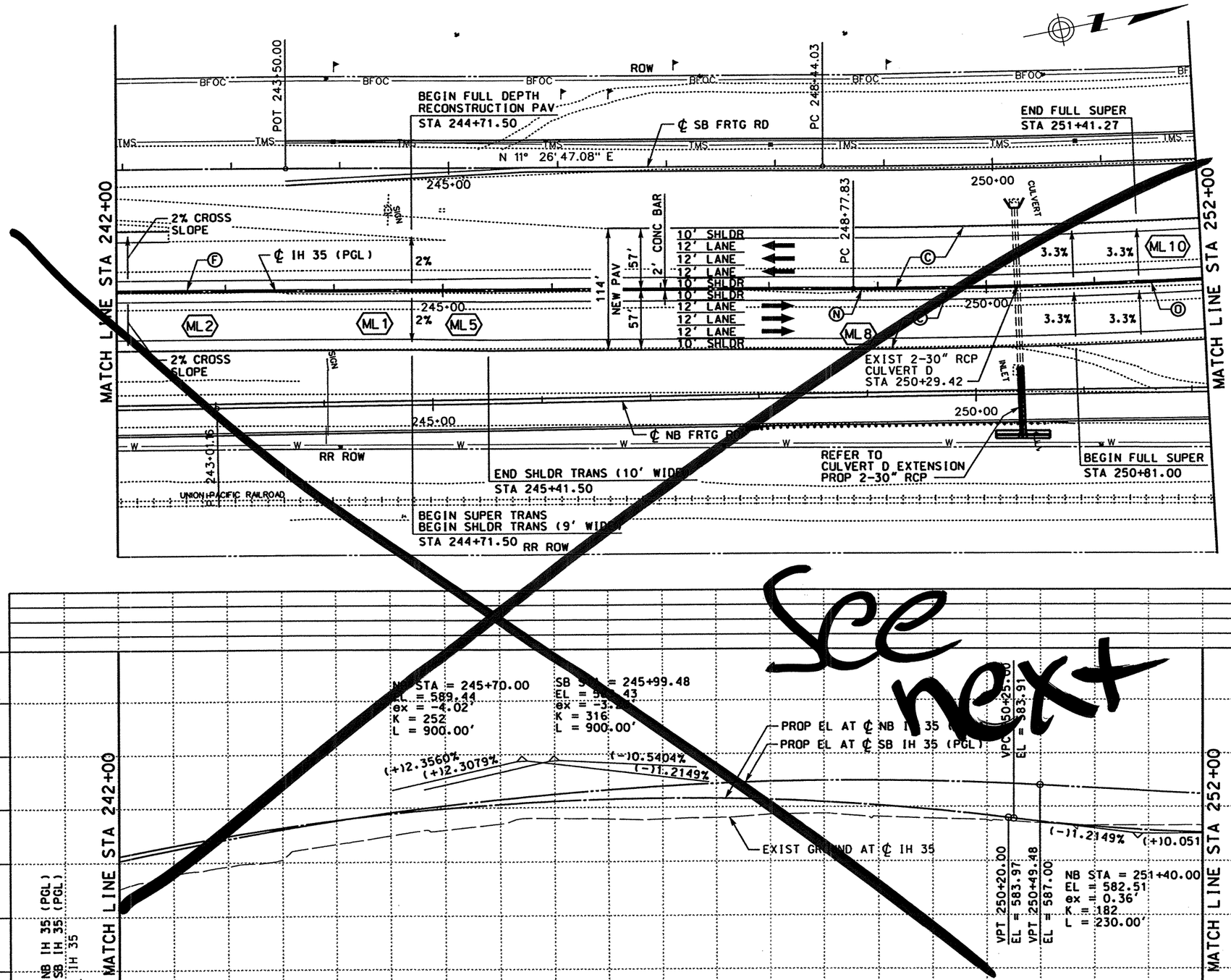

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 242+00 TO
STA 252+00

SHEET 8 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	291
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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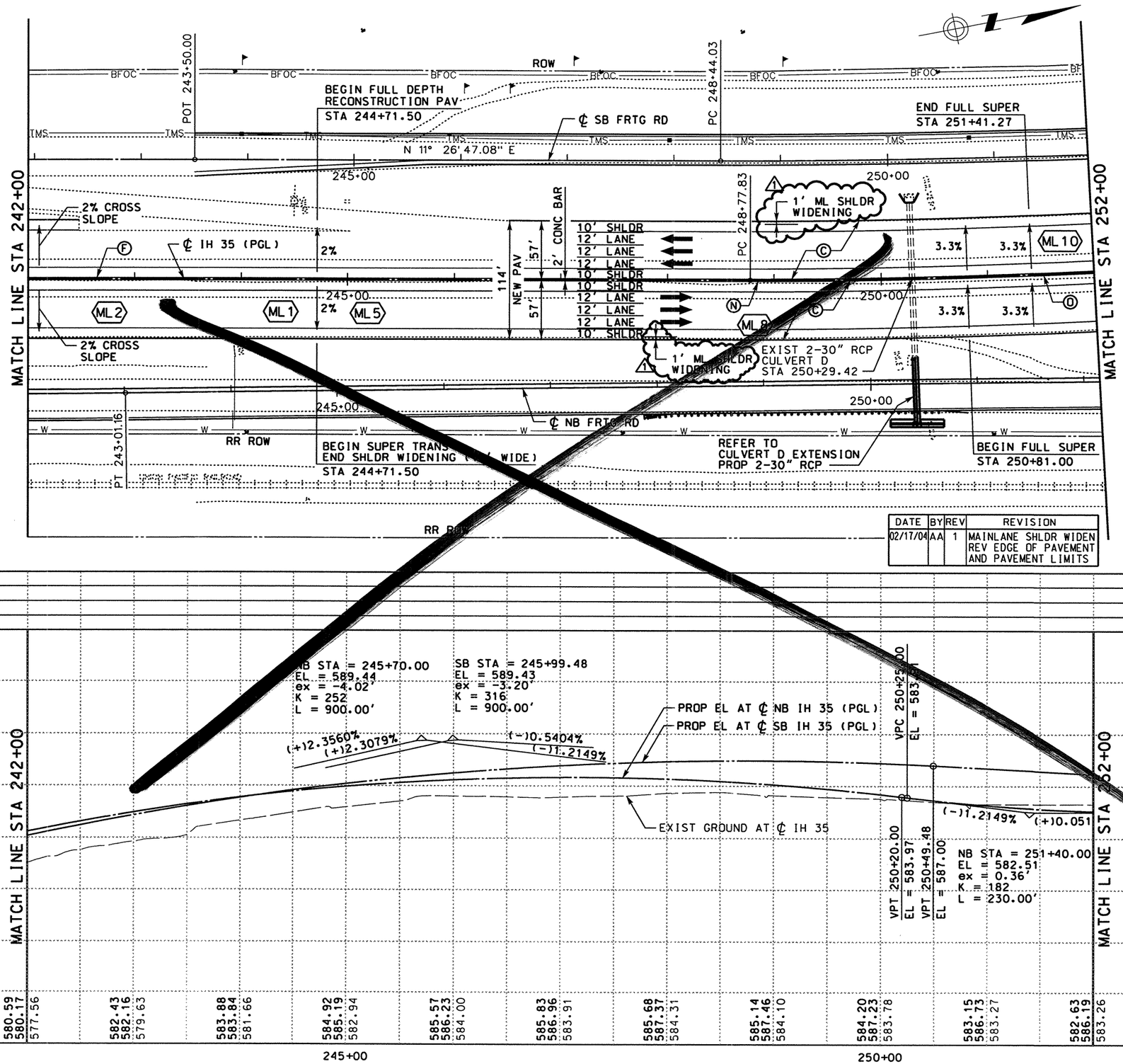

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 242+00 TO
STA 252+00

SHEET 8 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	291
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

3/5/2004

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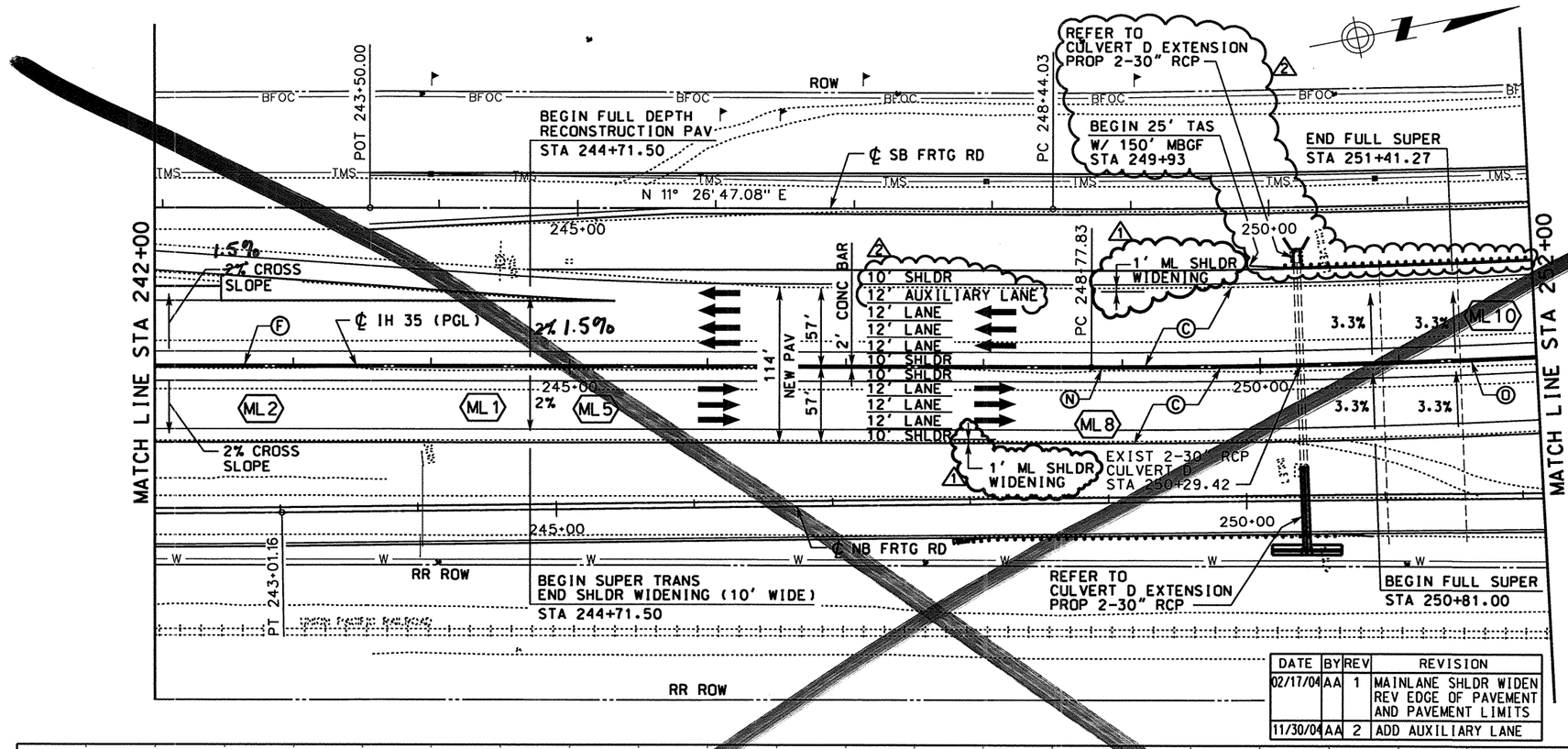

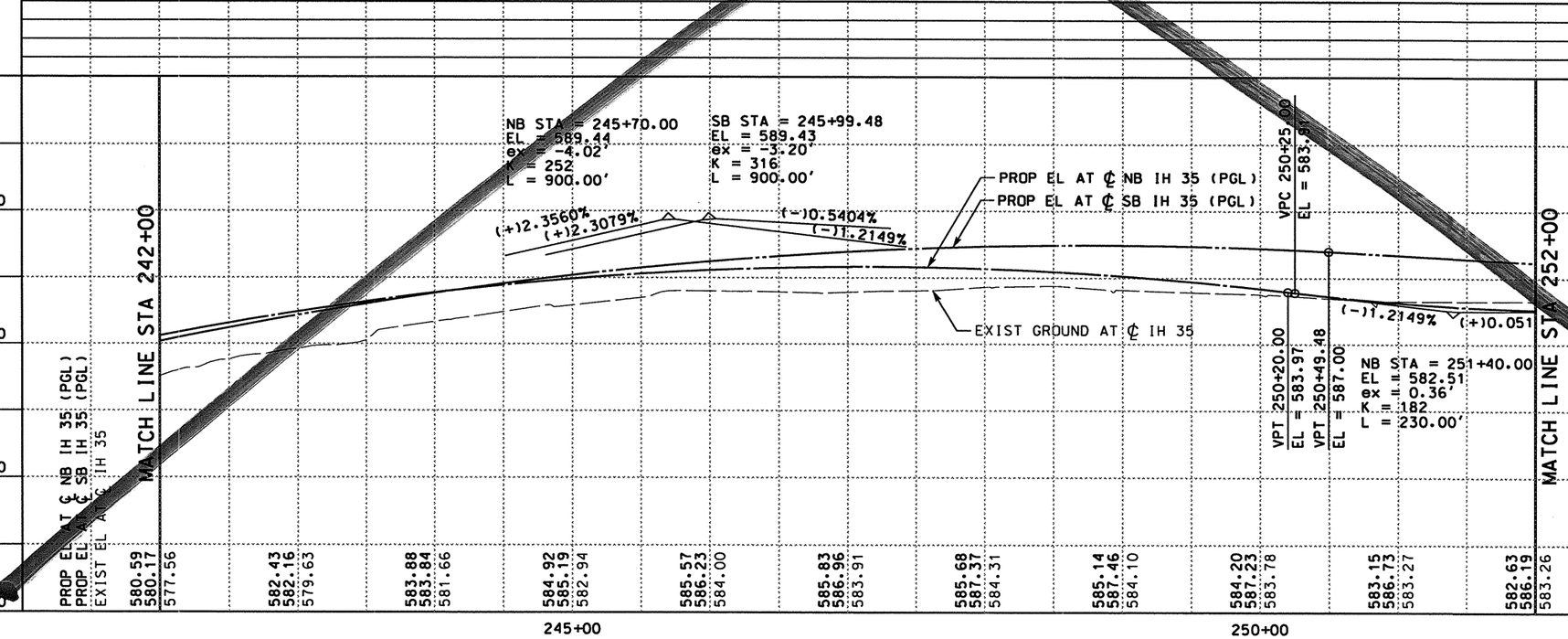

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C)(LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON FEBRUARY 10, 2005

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 242+00 TO
STA 252+00

SHEET 8 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	291
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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LV ON = 12-13.35
LV ON = 1-23.25-63
LV ON = 1-63
LV ON = 1-17.19-63
LV ON = 2.3.9.10.14.17.20-21.25.28
LV ON = 1-10.33-39.50
LV ON = 9-11.30.32.42.47.57.58.60-62

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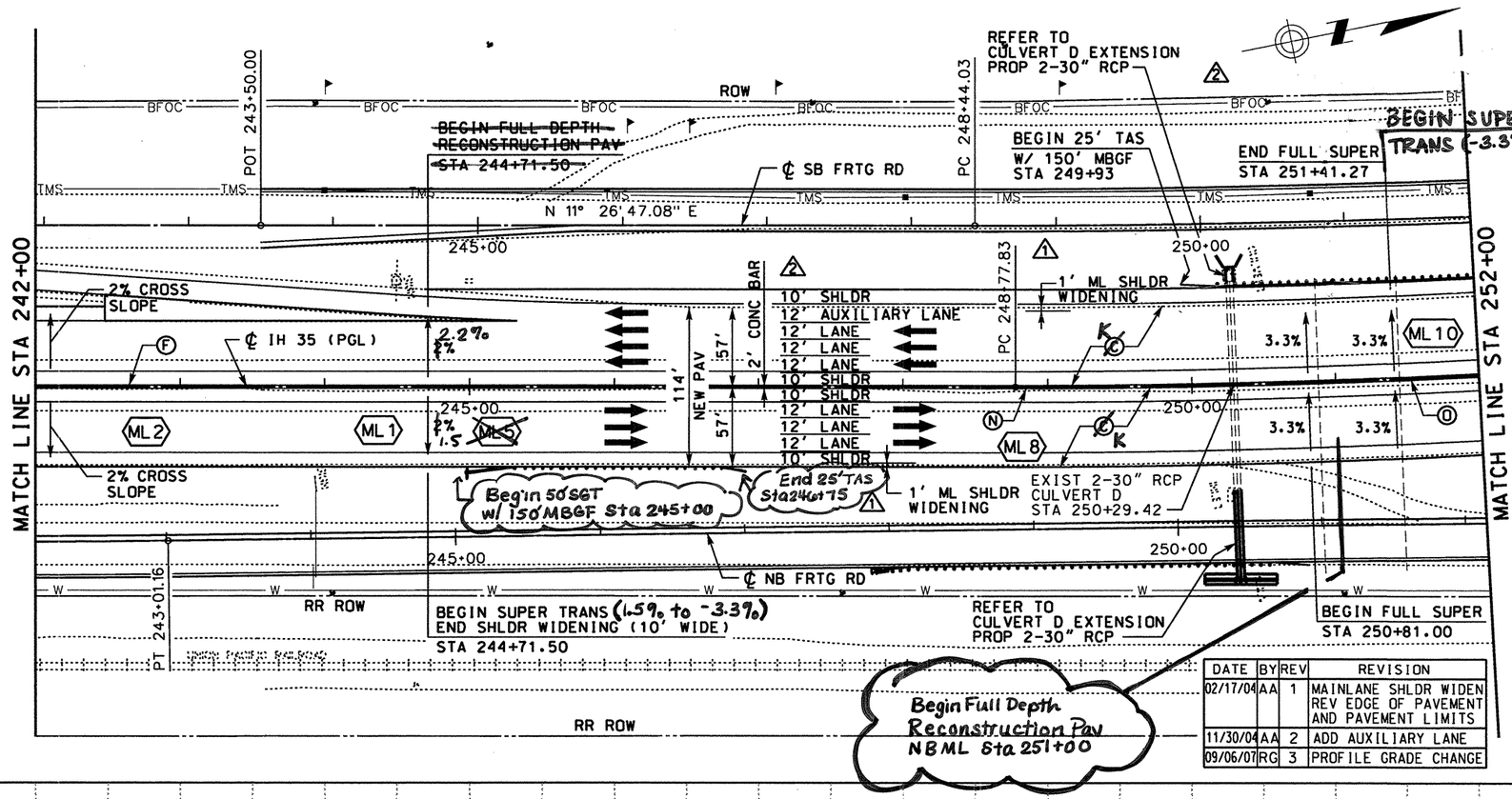


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE
09/06/07	RG	3	PROFILE GRADE CHANGE

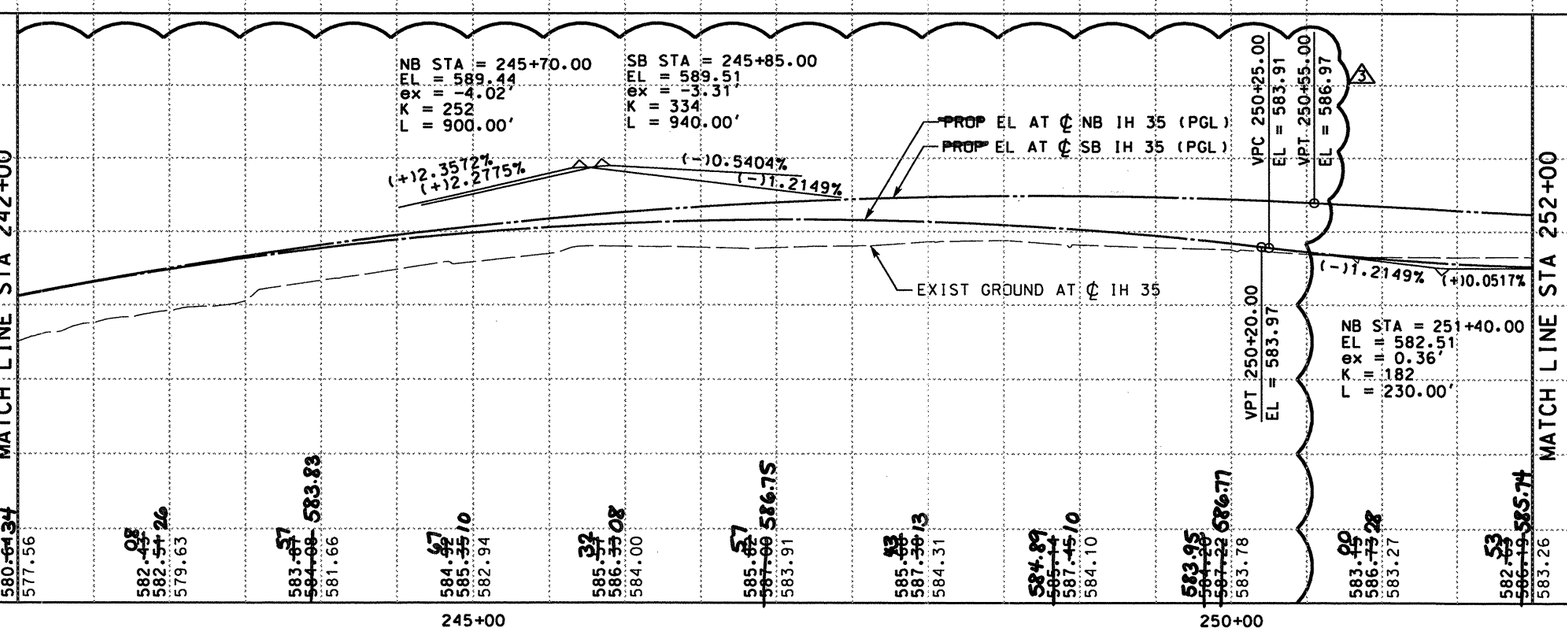
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED"~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY SIDNEY S. AFONSO PE 88055, ON SEPTEMBER 10, 2007

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 242+00 TO
STA 252+00

SHEET 8 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	291
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

9/11/2007
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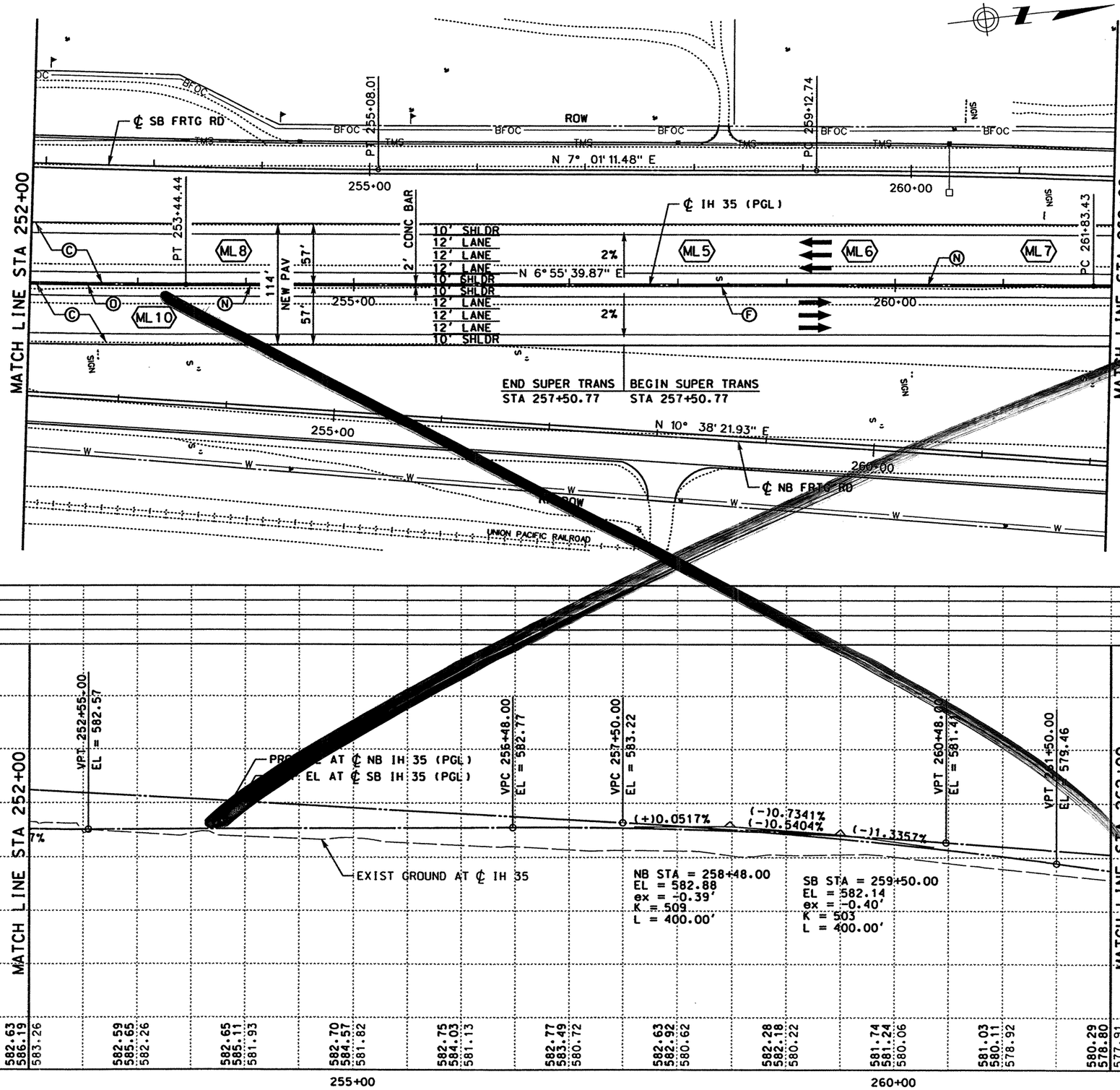

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 252+00 TO
STA 262+00

SHEET 9 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	292
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
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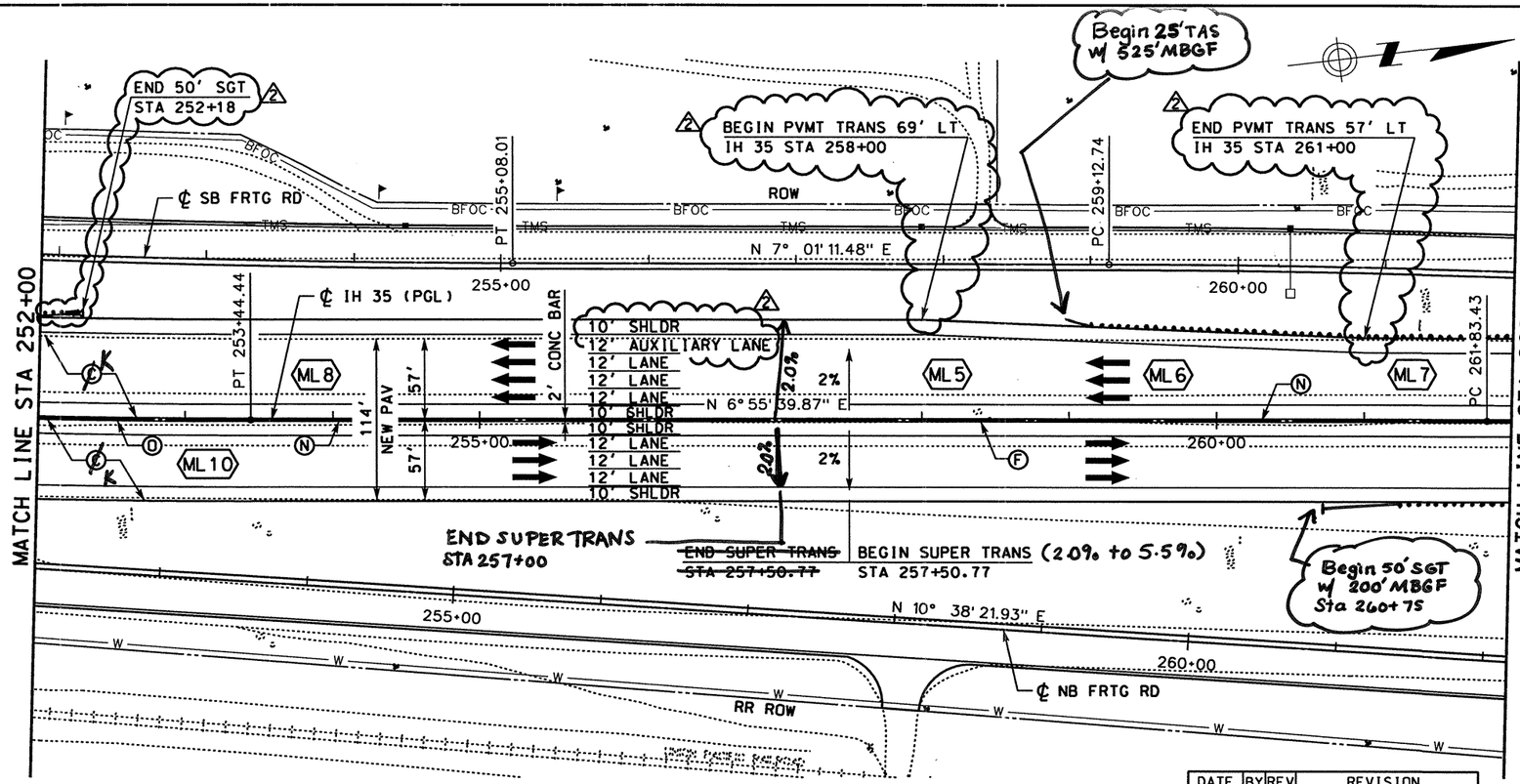


DATE	BY	REV	REVISION
11/30/04	AA	2	ADD AUXILIARY LANE

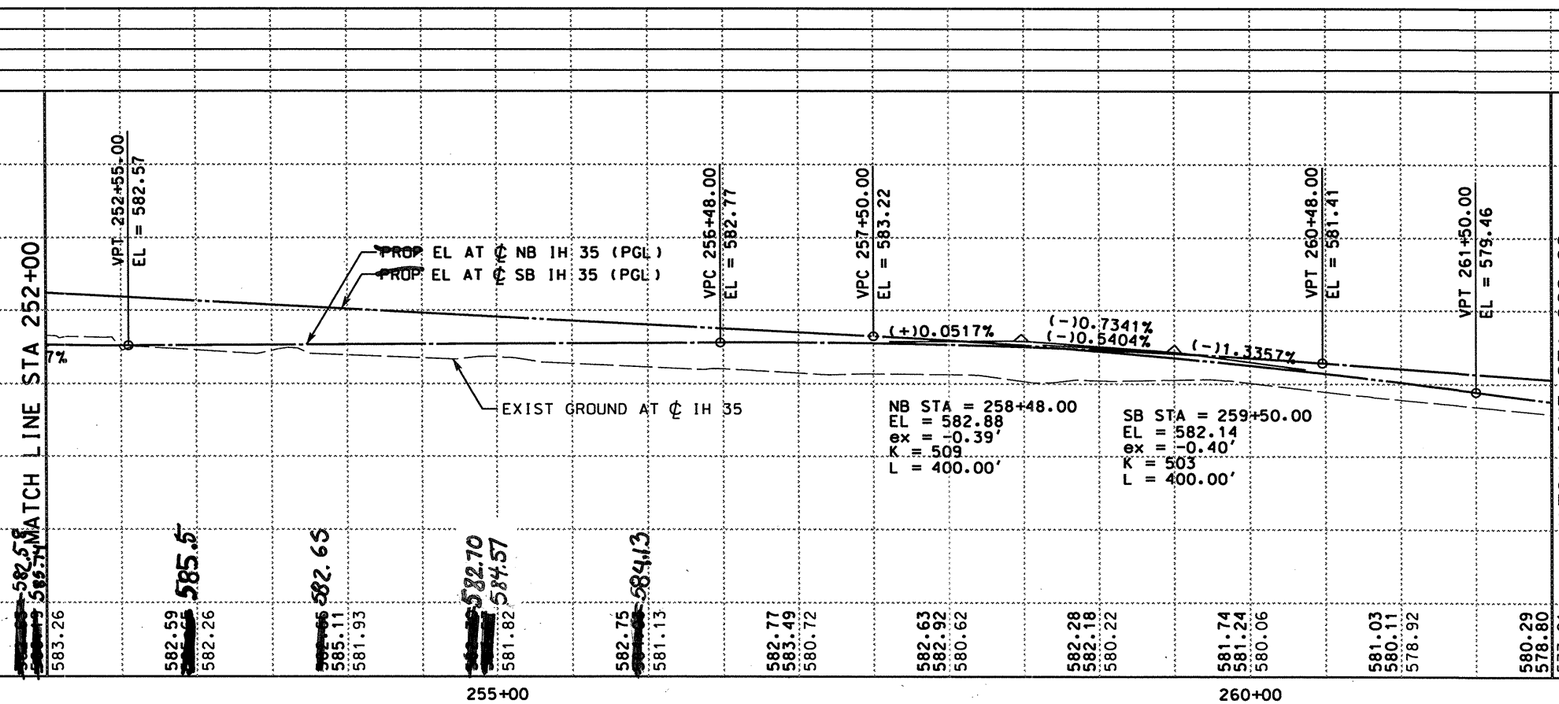
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON FEBRUARY 10, 2005

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 252+00 TO
STA 262+00

SHEET 9 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	292
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

2/10/2005

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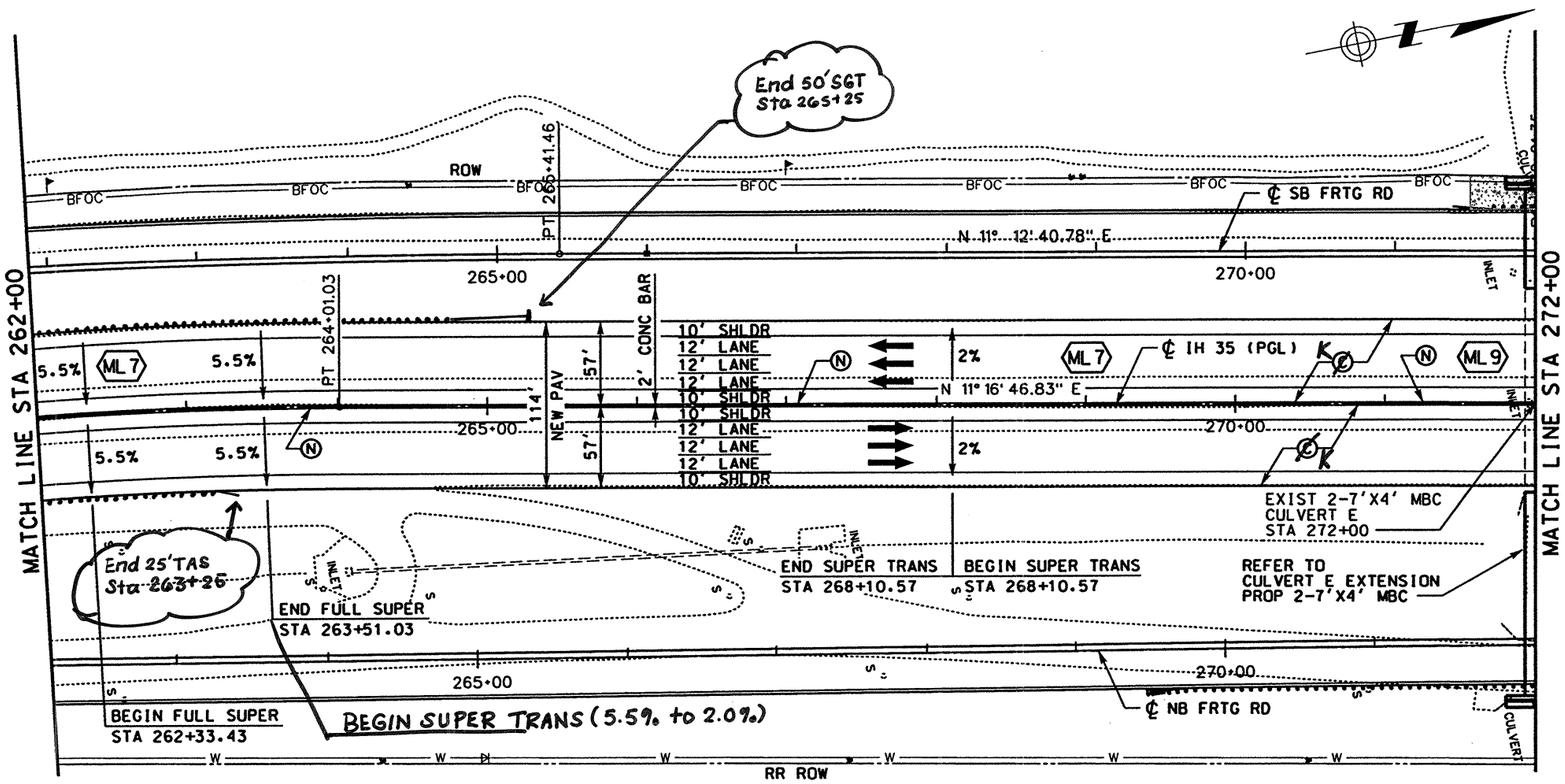
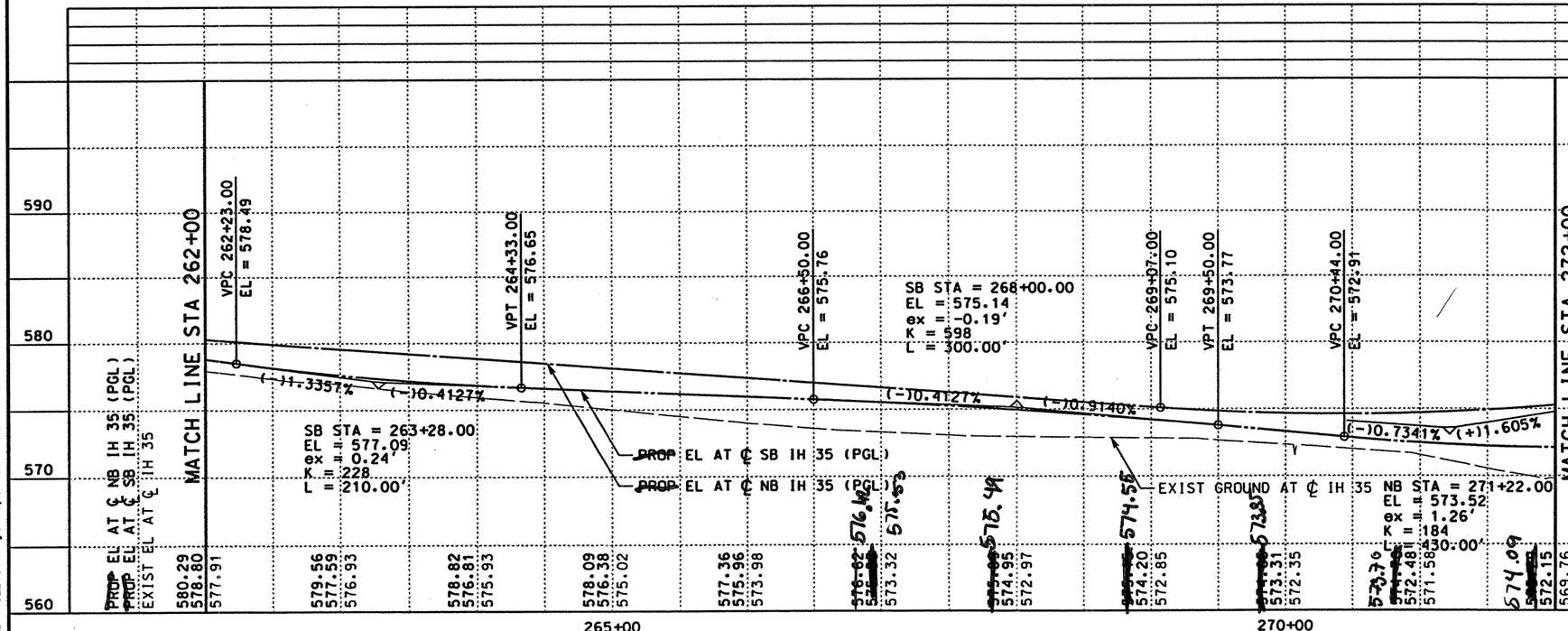


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED"~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 262+00 TO
STA 272+00
SHEET 10 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	293
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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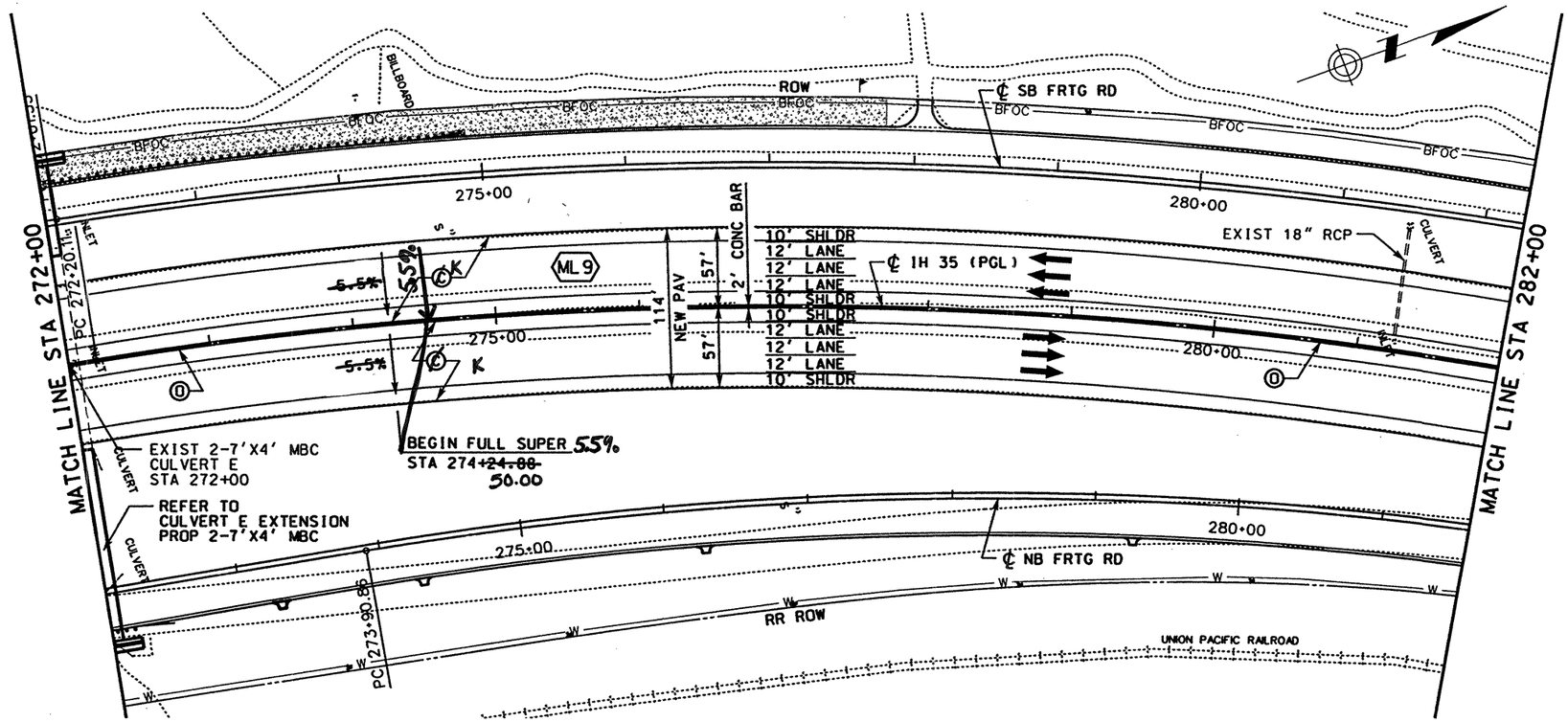
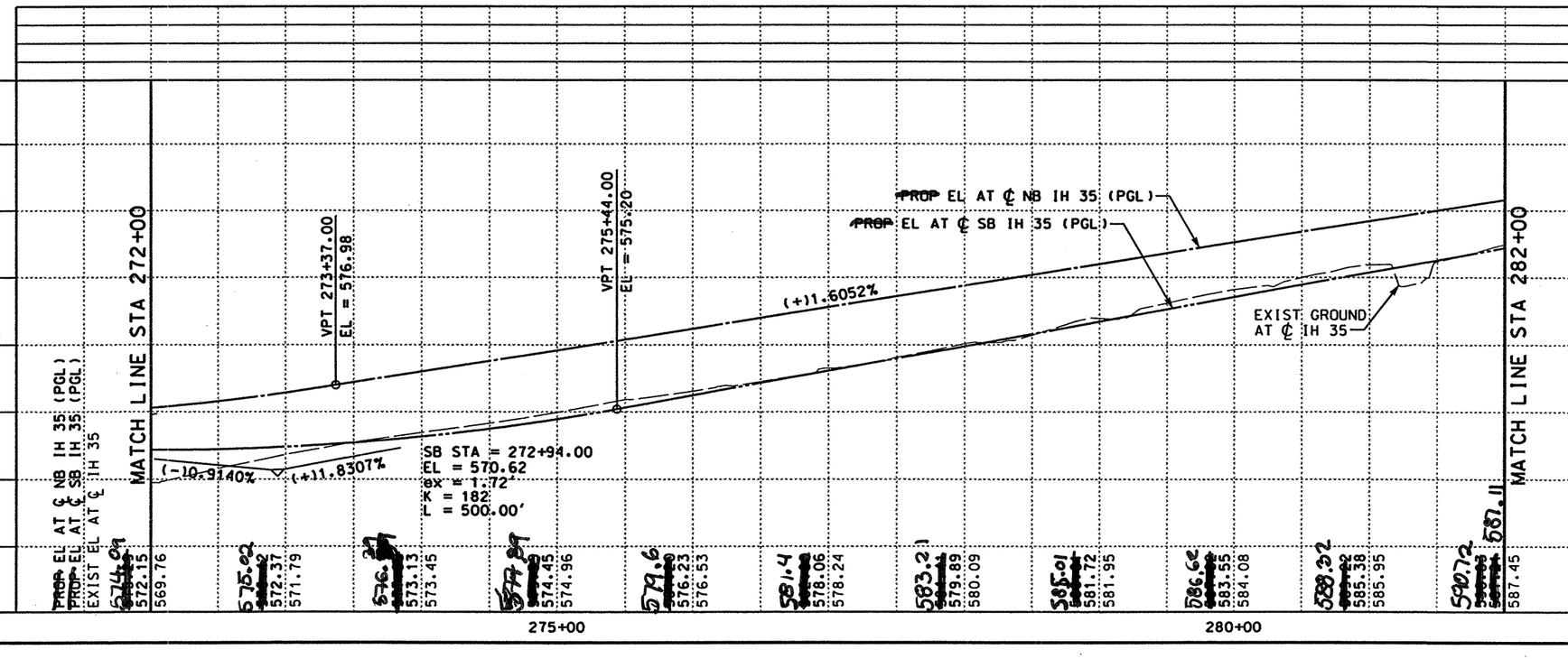
b03ppp10.dgn-17 HOUFILE023 \hcivil\c10130\ 4/18/2003





LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED"~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 272+00 TO
STA 282+00

SHEET 11 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	294
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

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j011op01.bck, bck LV ON = 2.3.9.10.14.17.20.21.25.28
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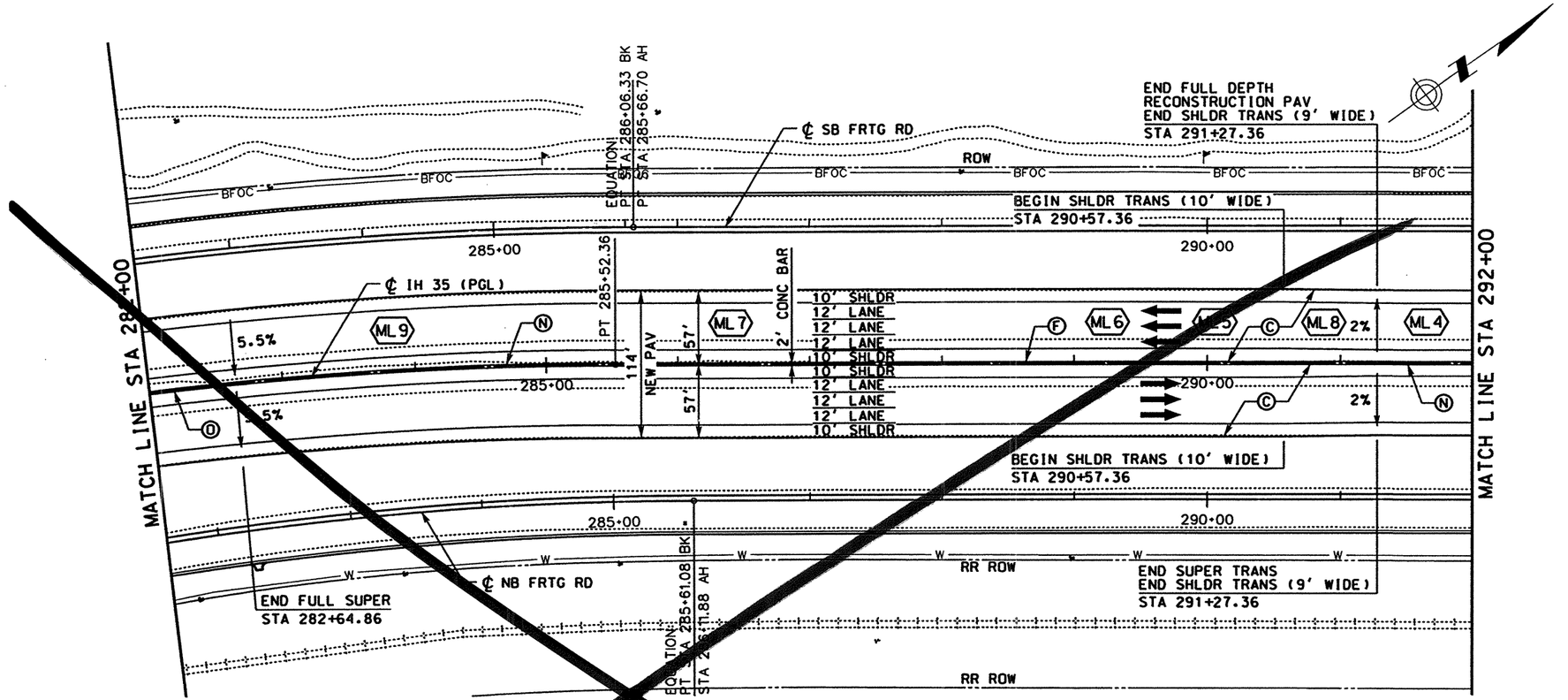

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
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- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 282+00 TO
STA 292+00

SHEET 12 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	295
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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j011op01.uti, uti LV ON = 1-63
j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2.3.9.10.14.17.20.21.25.28
j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bdr, bdr LV ON = 9-11.30.33.42.47.57.58.60-62
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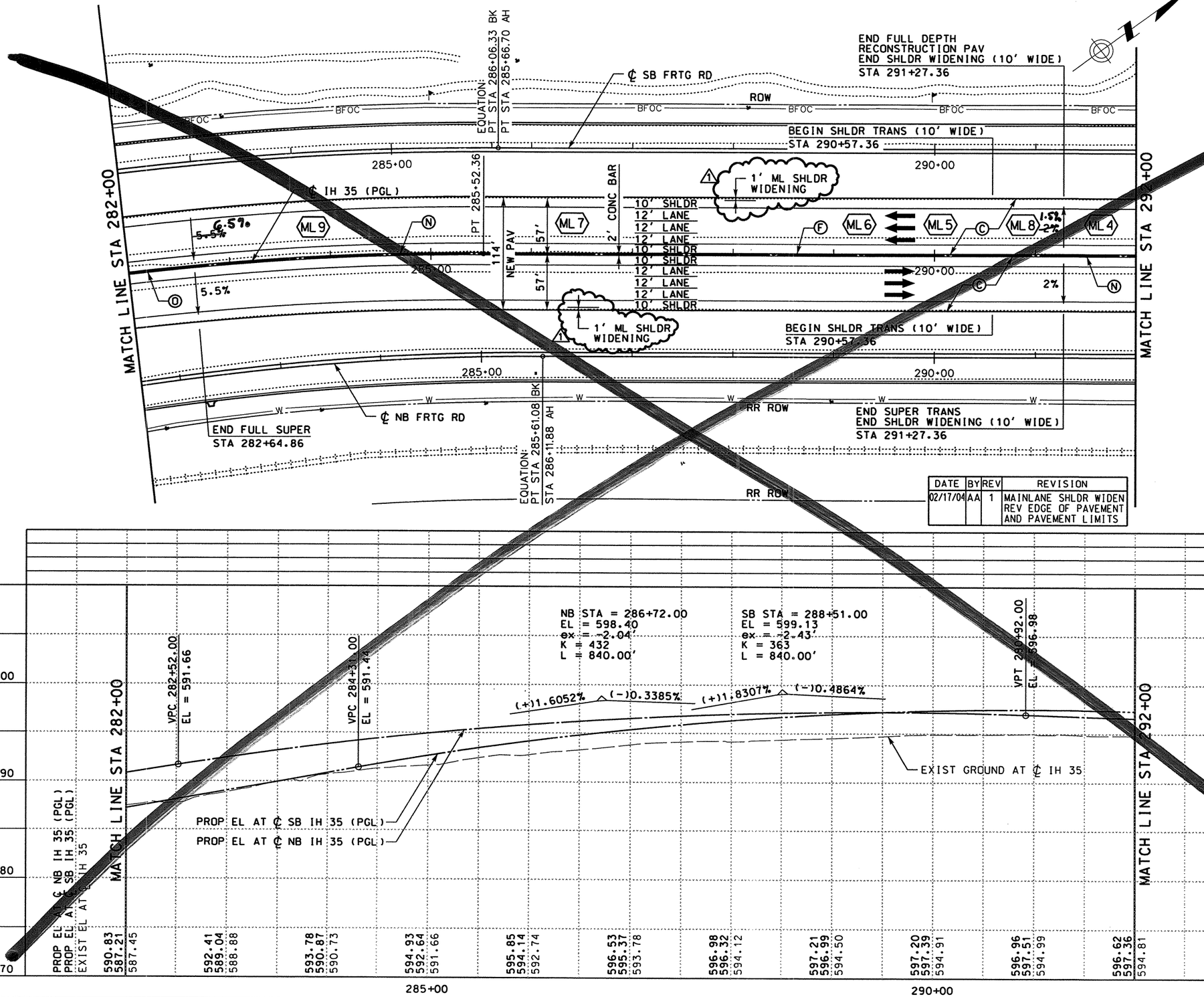

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
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- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

Alwan Abugattas

3/5/2004

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 282+00 TO STA 292+00

SHEET 12 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	295
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.drn, LV ON = 8.28
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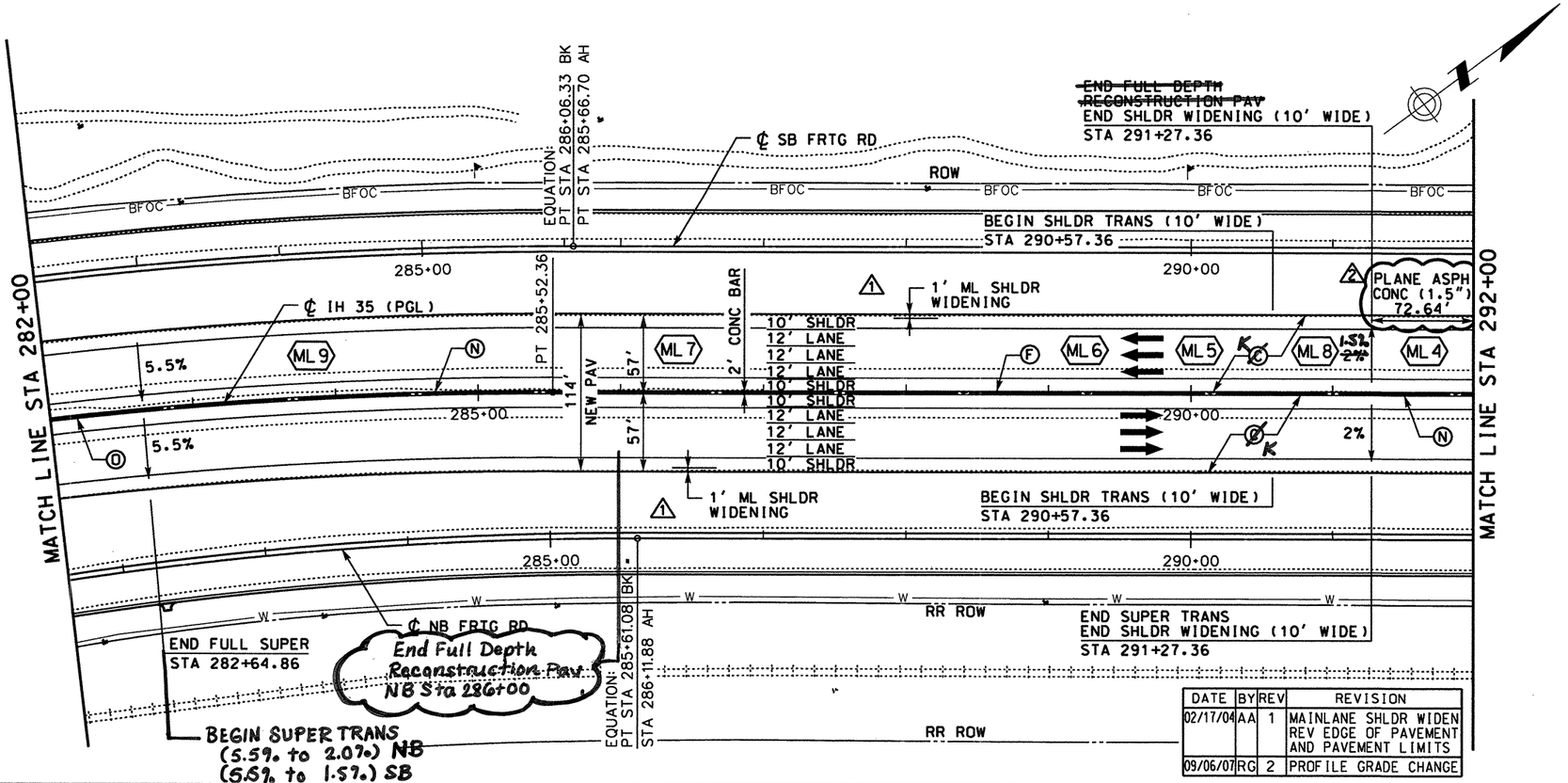


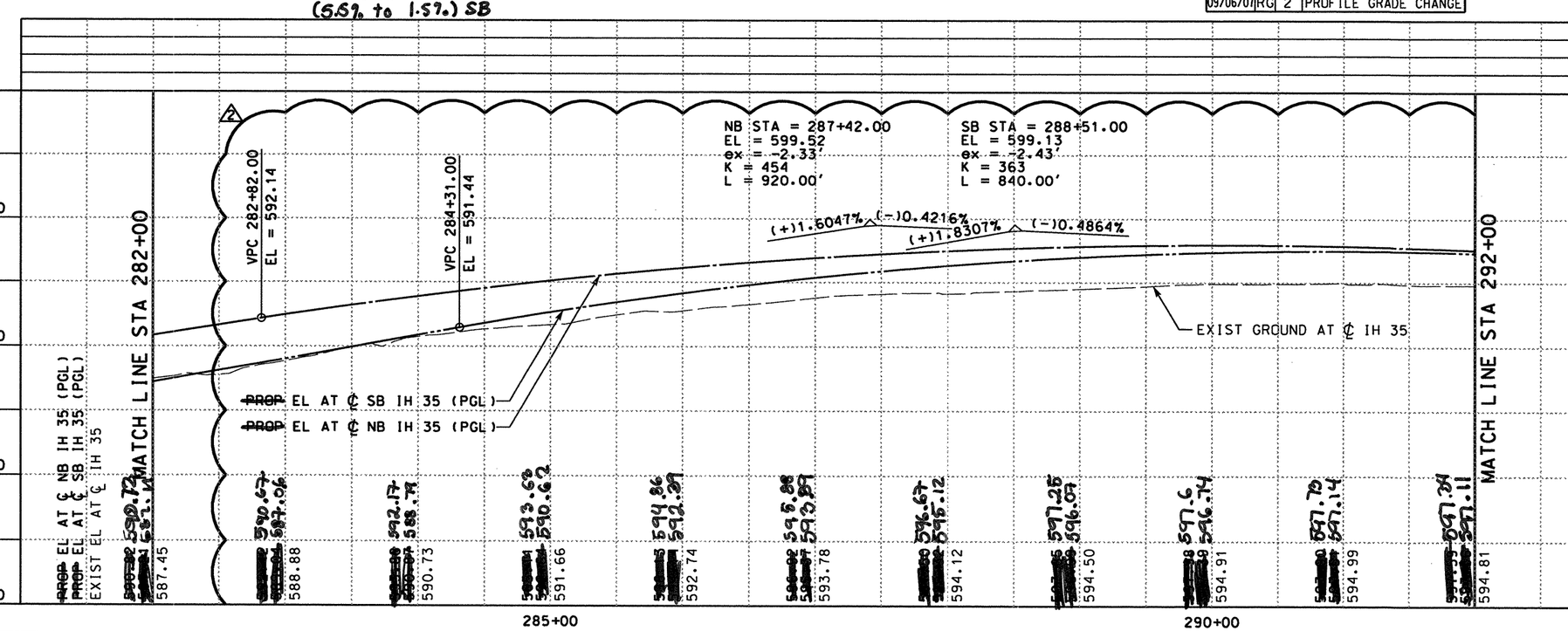
DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (J) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED"~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. CROSS SLOPE TRANSITION BETWEEN STA 291+27.26 AND STA 293+30.00



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON SEPTEMBER 10, 2007

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 282+00 TO
STA 292+00

SHEET 12 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	295
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

9/11/2007

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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j011op01.bck, bck LV ON = 2.3.9.10.14.17.20.21.25.28
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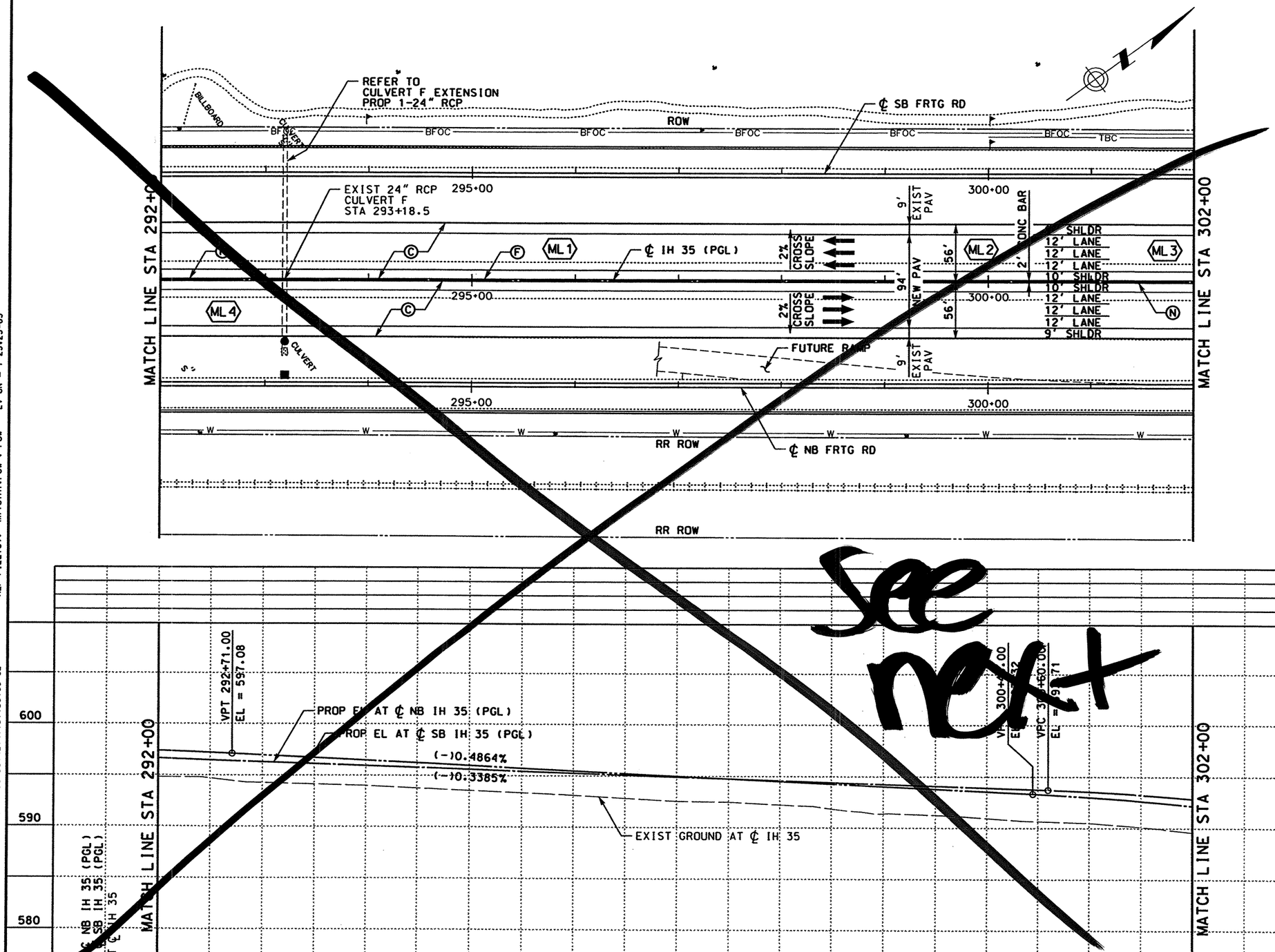

See next

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 292+00 TO
STA 302+00

SHEET 13 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	296
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cf0130\

b03ppp13.dgn-16

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j011op01.alg, alg LV ON = 9-11,30,33,42,47,57,58,60-62
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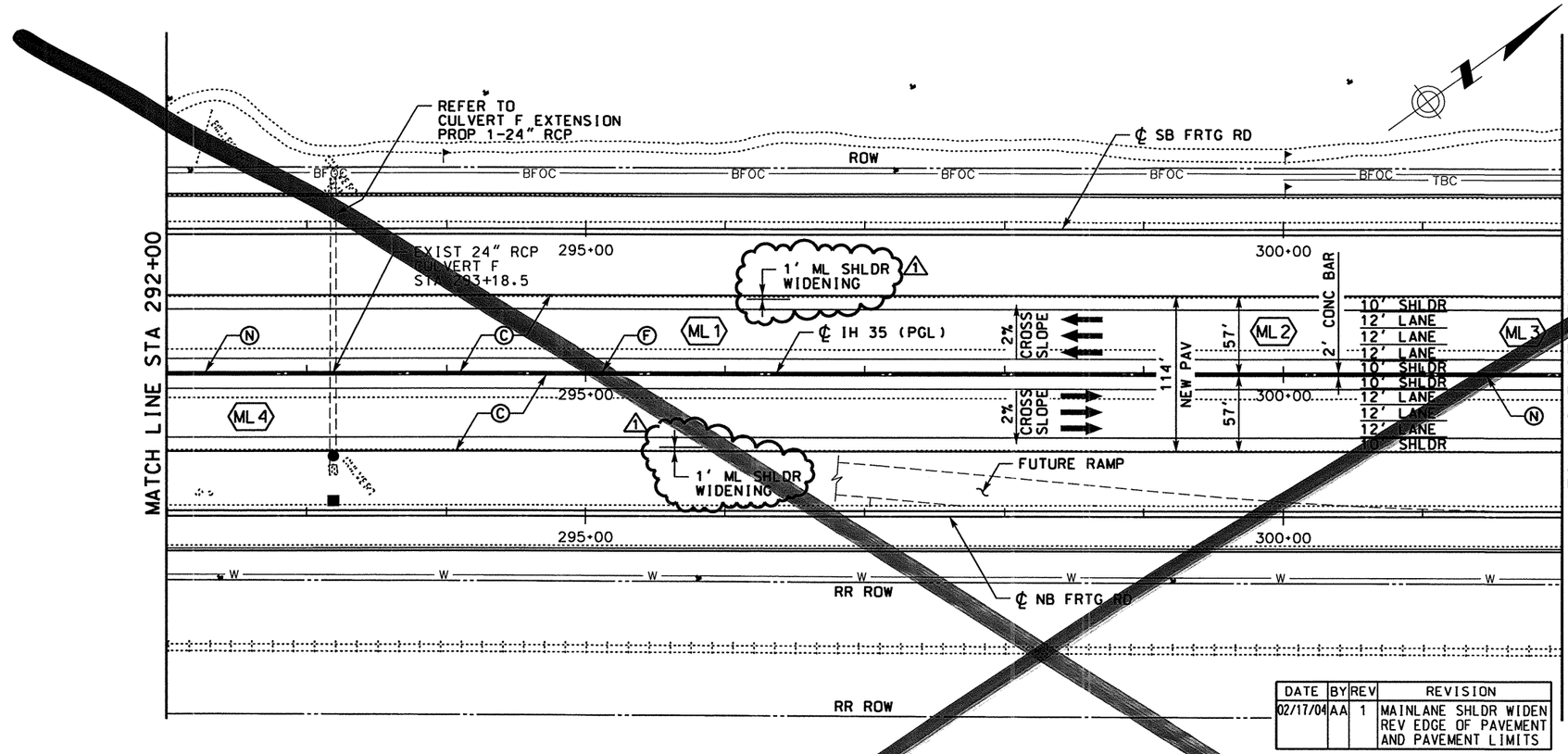

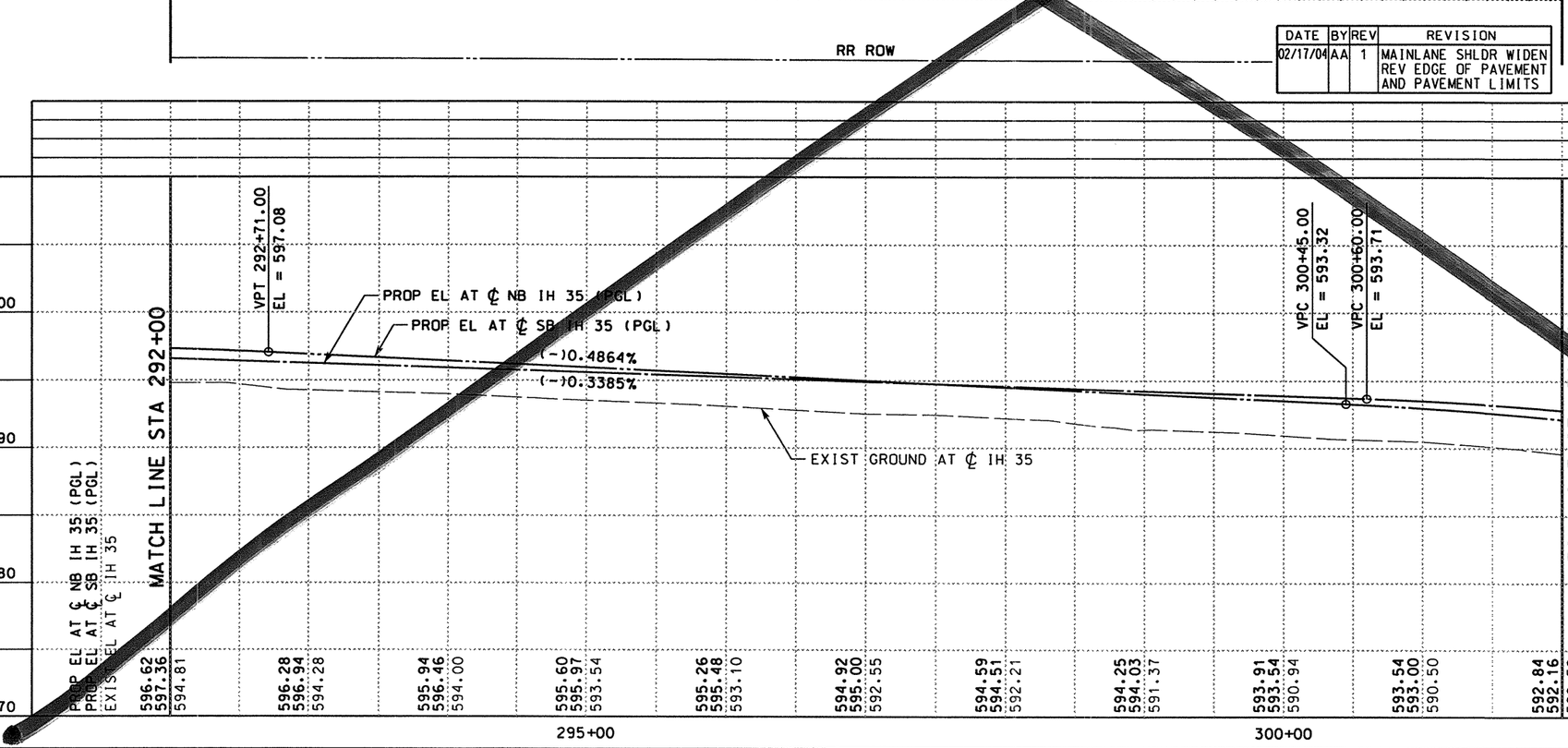

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C
- (F) SINGLE SLOPE CONCRE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB GUTTER (6")
- (H) SINGLE SLOP TRAFFIC RAIL (SSTR)
- (I) TYPE II MED CURB (6")
- (J) RET NING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 292+00 TO
STA 302+00

SHEET 13 OF 29

FED RD DIV NO	FEDERAL PROJECT NO	SHEET NO
6	NH-2002(279)	296
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/5/2004

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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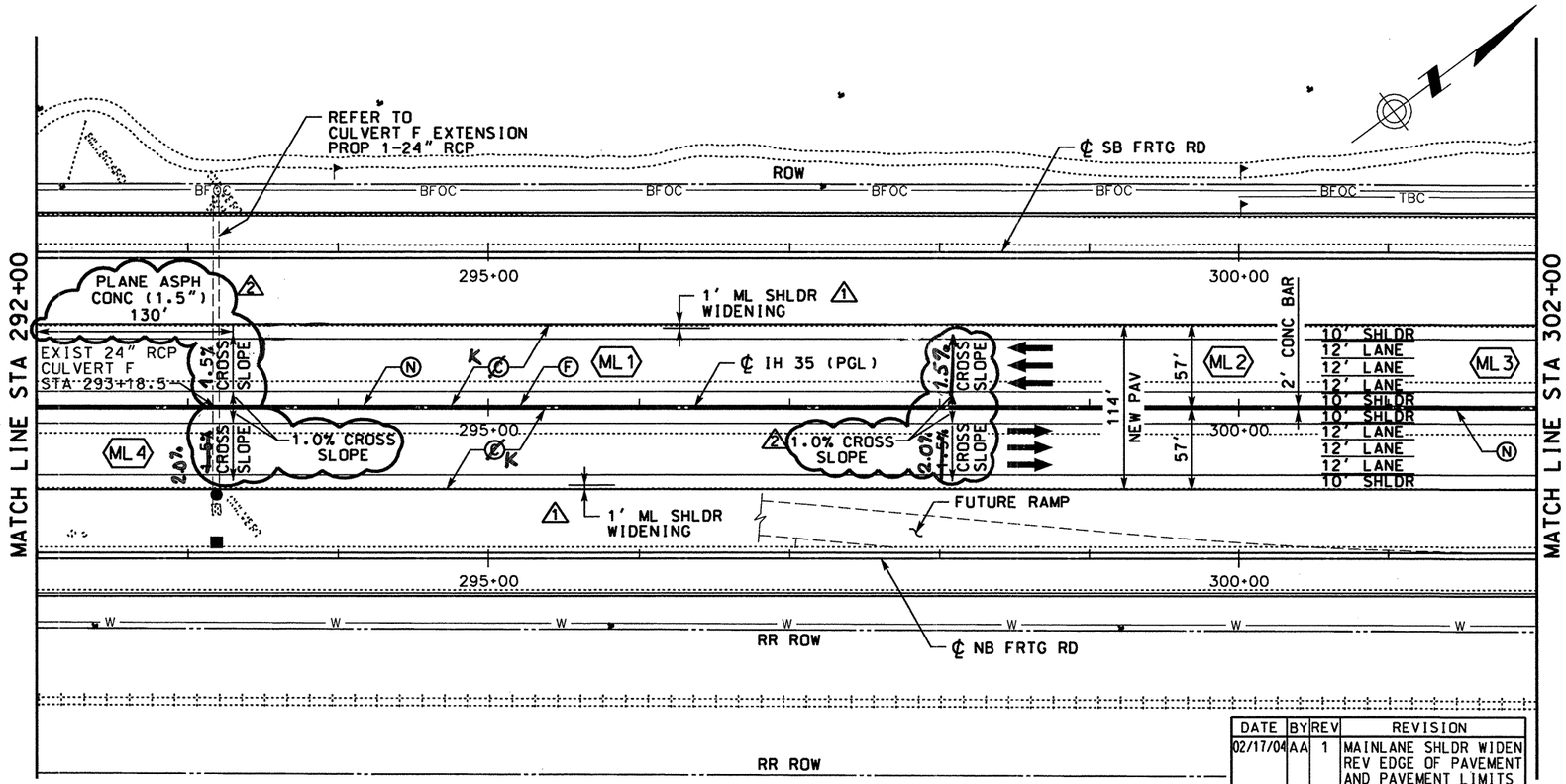
j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bdr, bdr LV ON = 9-11.30.33.42.47.57.58.60-62

b03pp13.dgn-16 HOUFILE023 \hcivil\cf0130\



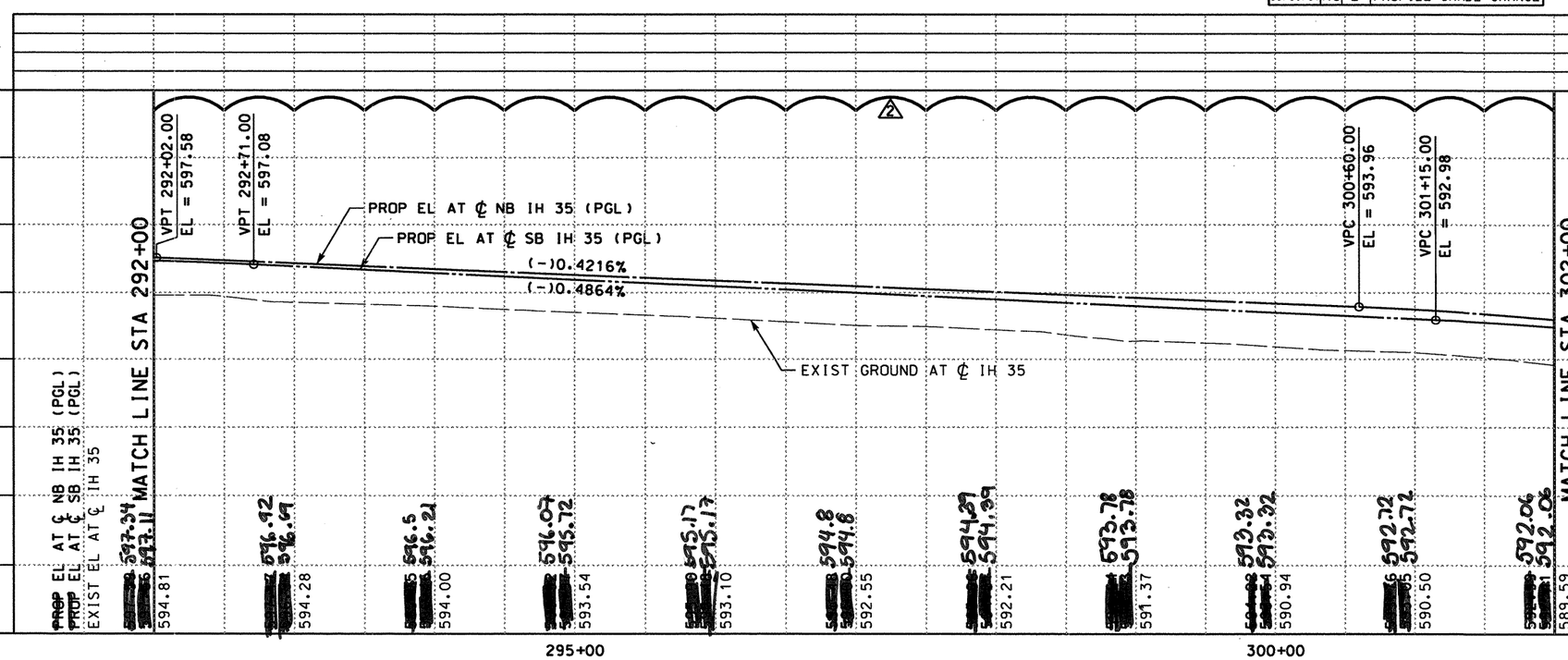
DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) ~~POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. CROSS SLOPE TRANSITION BETWEEN STA 291+27.26 AND STA 293+30.00



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON SEPTEMBER 10, 2007

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 292+00 TO
STA 302+00

SHEET 13 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	296
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

9/11/2007

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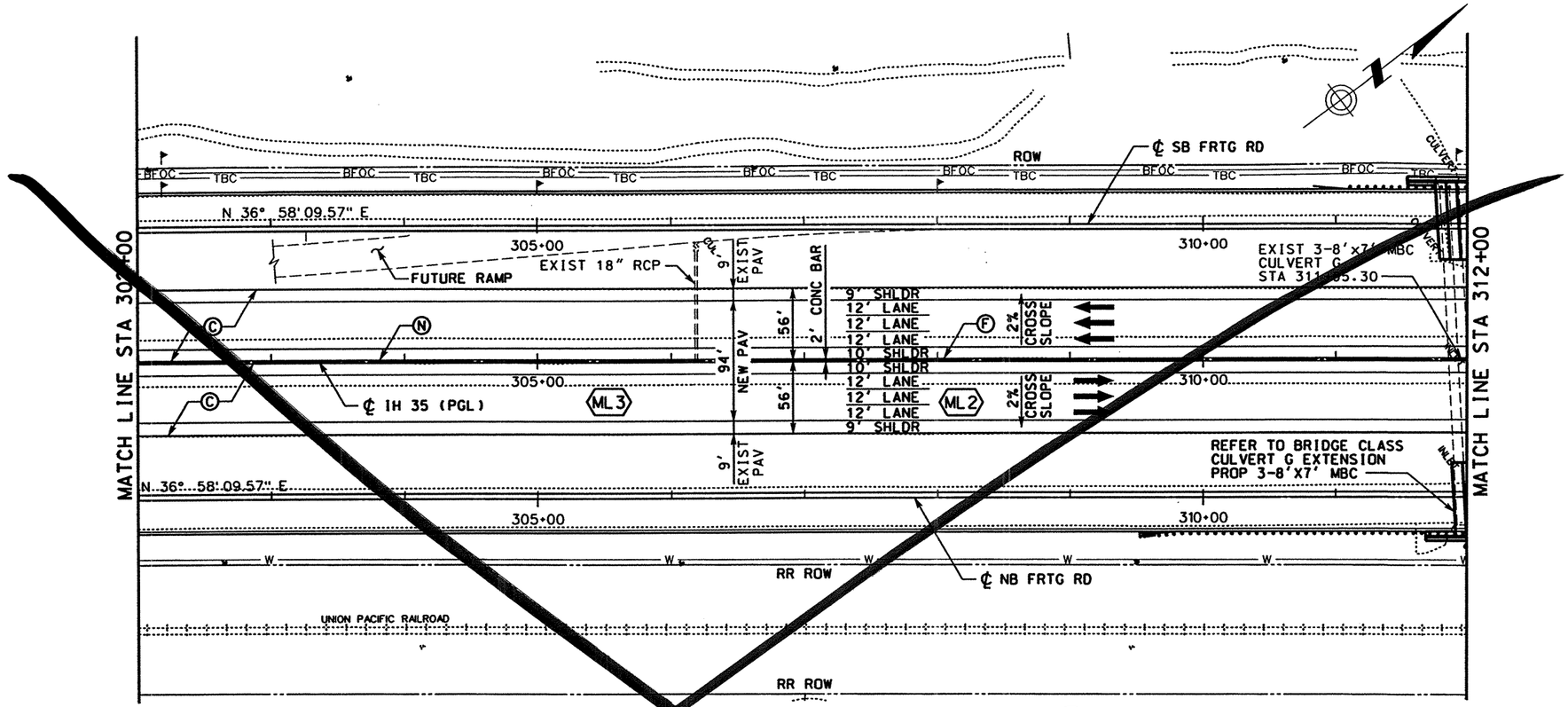
j011op01.alg LV ON = 1-10.33-39.50
j011op01.bdr LV ON = 9-11,30,33,42,47,57,58,60-62
b03ppp13.dgn-16 HOUFILE023 \hciviil\cf0130\



LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 302+00 TO
STA 312+00
SHEET 14 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	297
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

See next

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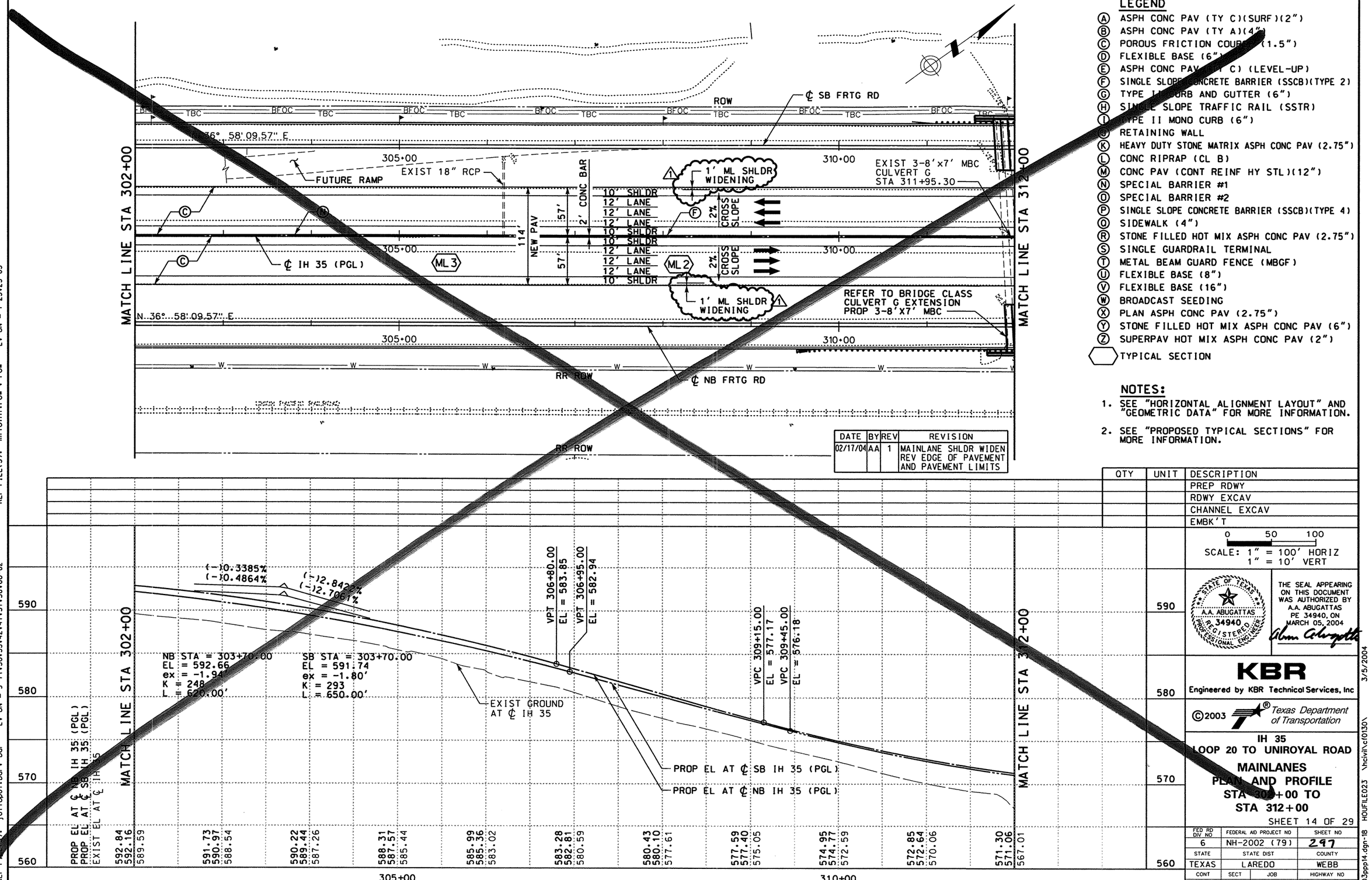
REF FILE(S): j011op01.utl, utl LV ON = 1-63
j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2-3.9.10.14.17.20.21.25.28
j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bdr, bdr LV ON = 9-11.30.33.42.47.57.58.60-62



LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 302+00 TO STA 312+00

SHEET 14 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	297
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

3/5/2004

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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j011op01.uti, uti LV ON = 1-63
j011op01.eap, eap LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2.3.9.10.14.17.20.21.25.28
j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bdr, bdr LV ON = 9-11.30.33.42.47.57.58.60-62
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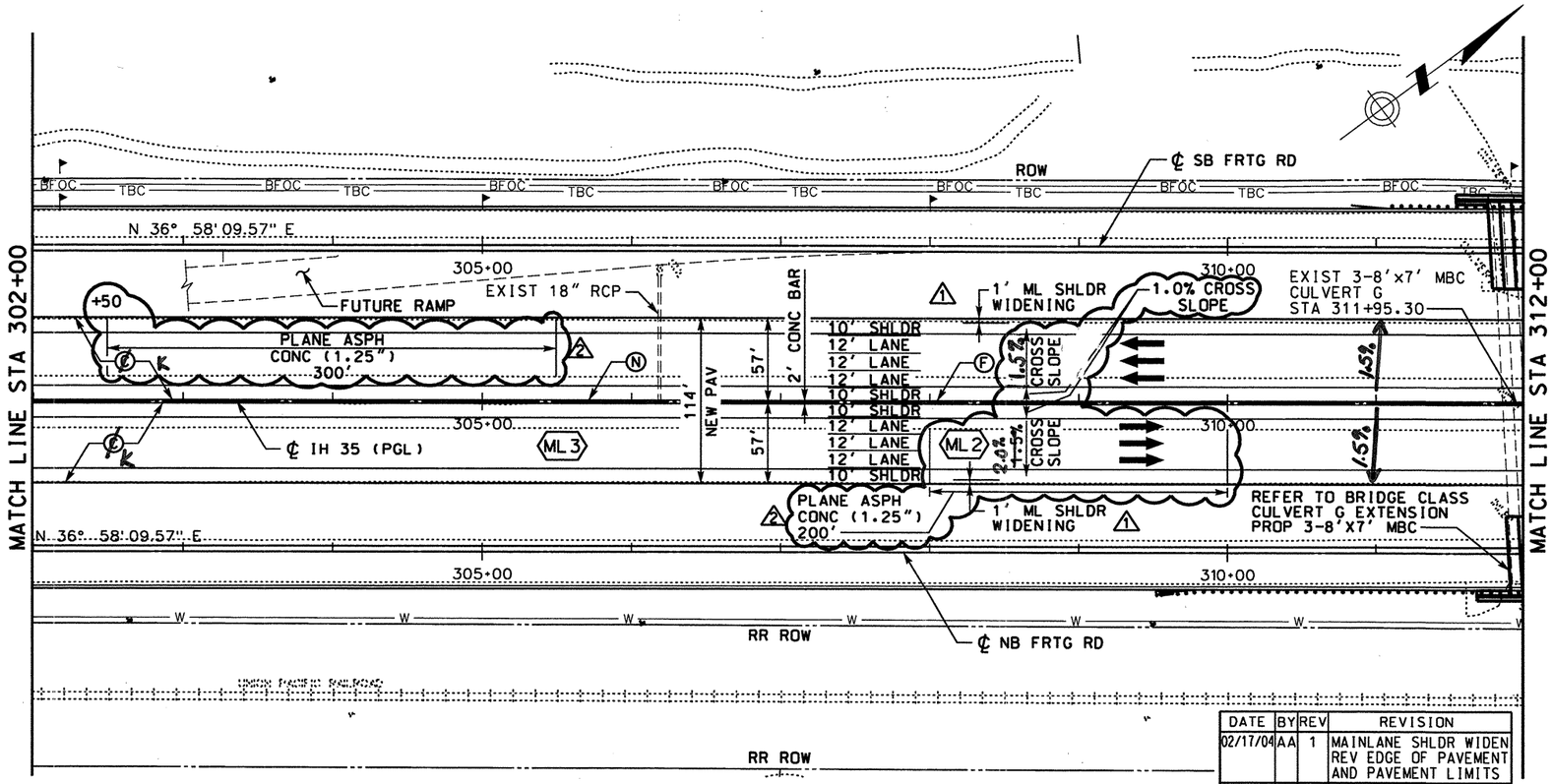


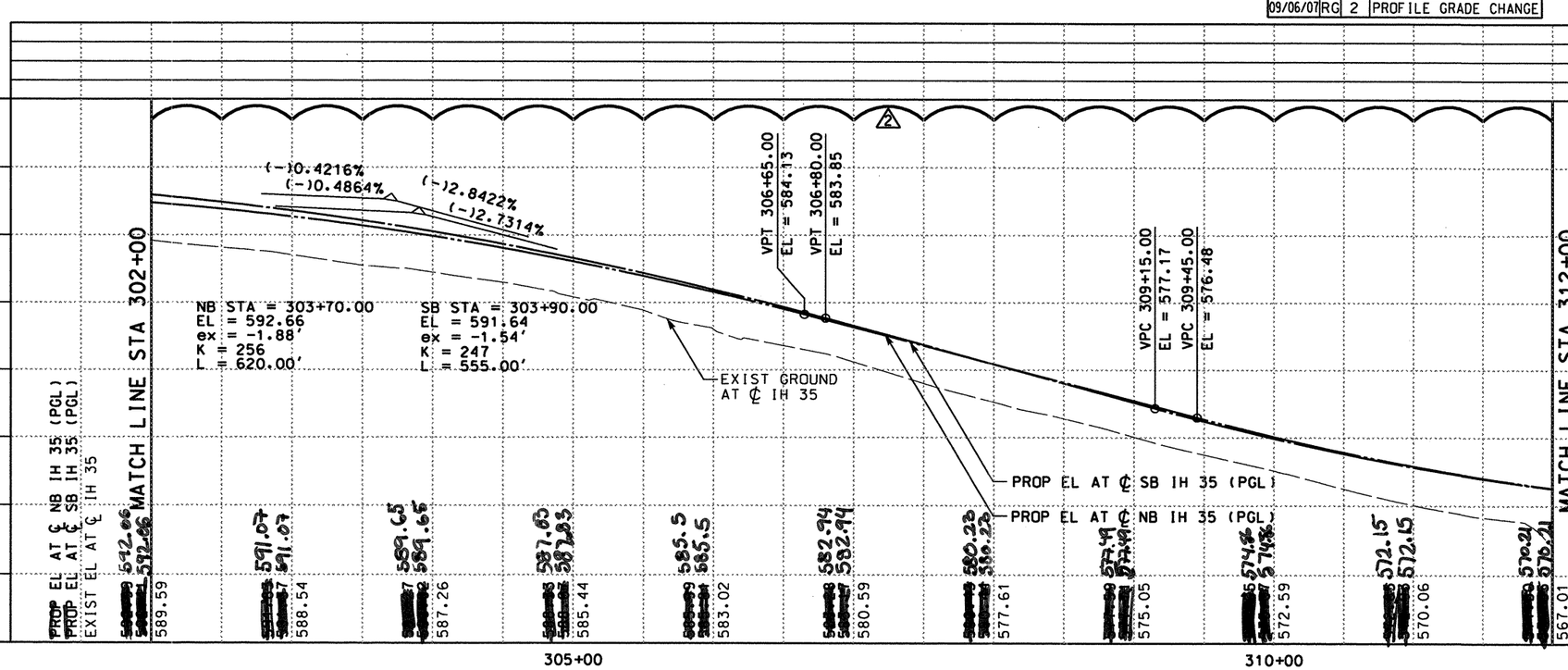
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) ~~POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ P.E. 58664, ON SEPTEMBER 10, 2007

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 302+00 TO
STA 312+00

SHEET 14 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	297
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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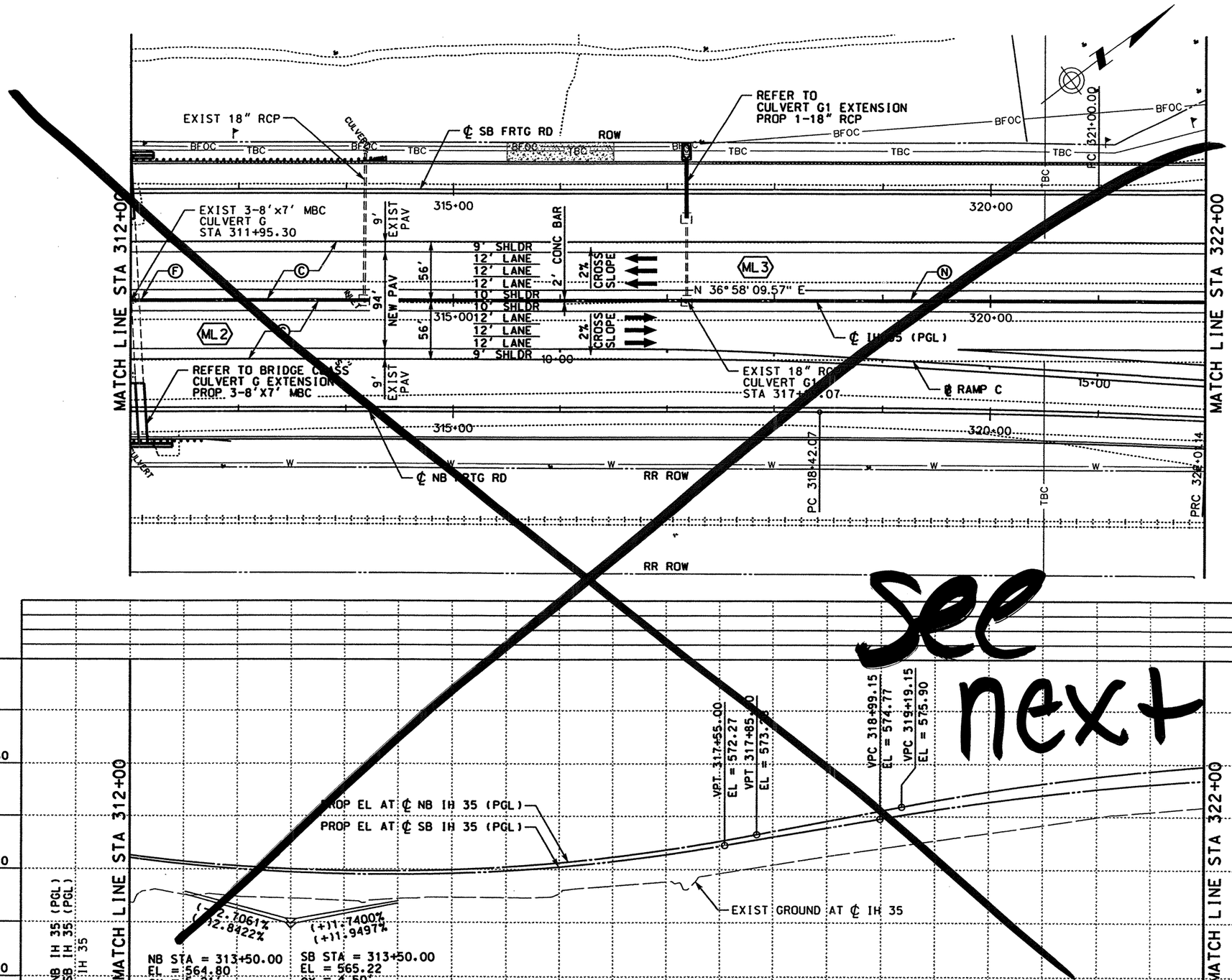
j011op01.bck, bck LV ON = 2,3,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-10,33-39,50
j011op01.bdr, bdr LV ON = 9-11,30,33,42,47,57,58,60-62
b03ppp14.dgn-18 HOUFILE023 \hcivil\cf0130\ 9/11/2007



LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 312+00 TO
STA 322+00
SHEET 15 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		298
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b03ppp15.dgn-17

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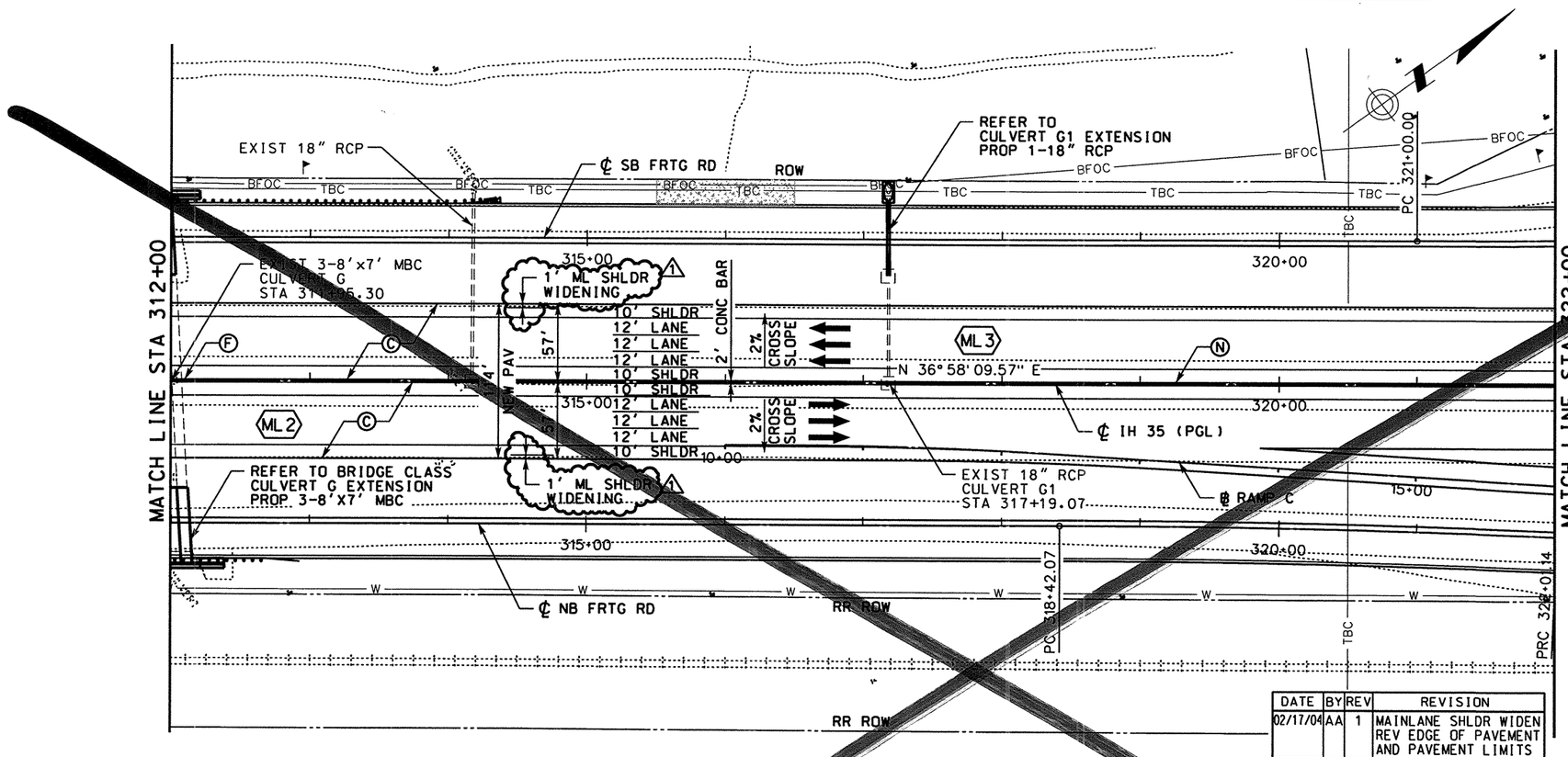

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY [illegible])(LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE [illegible] MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 312+00 TO
STA 322+00
SHEET 15 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	298
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

3/5/2004

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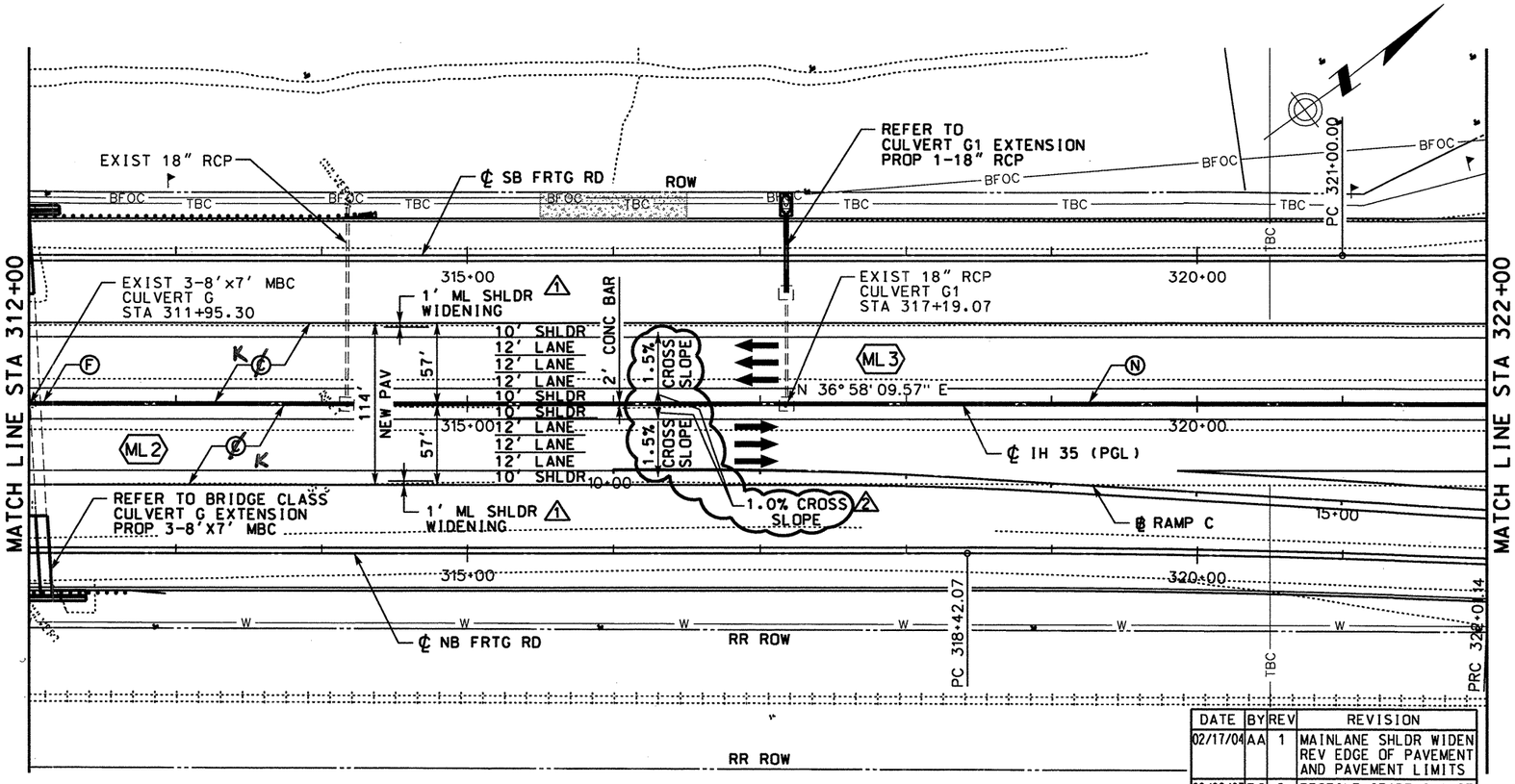


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

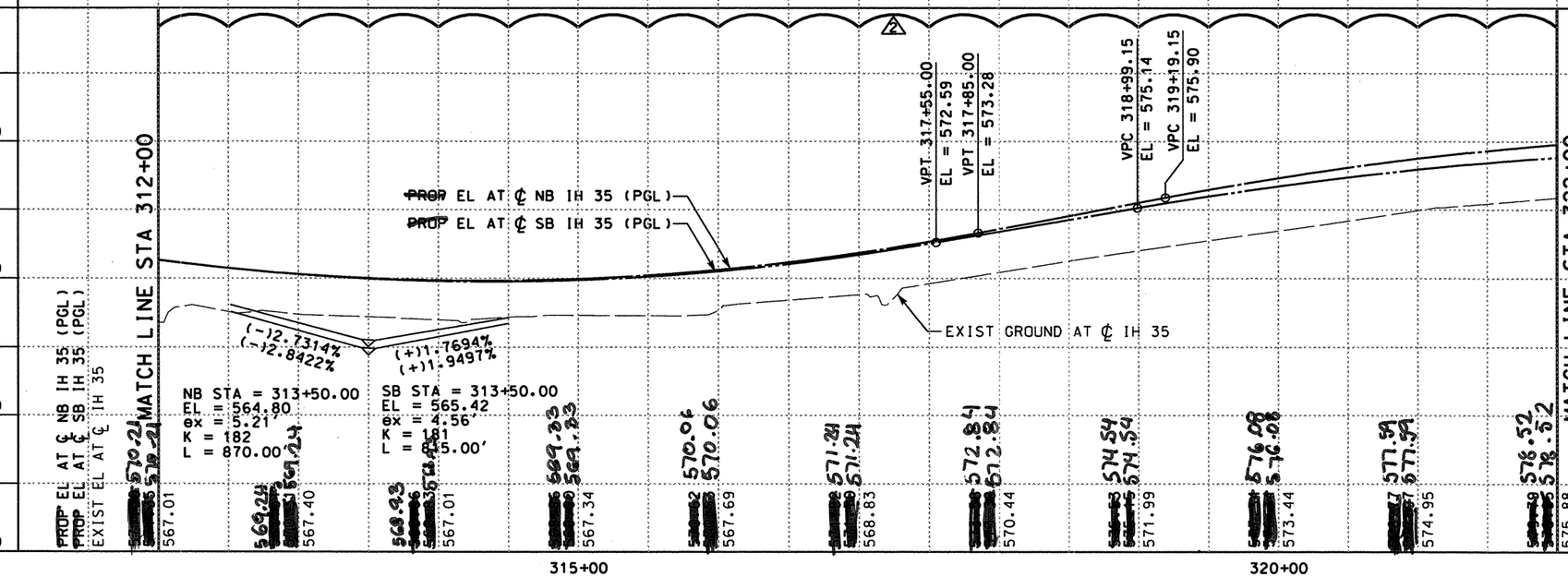
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED"~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON SEPTEMBER 10, 2007

Rudy L. Gomez

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 312+00 TO
STA 322+00

SHEET 15 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	298
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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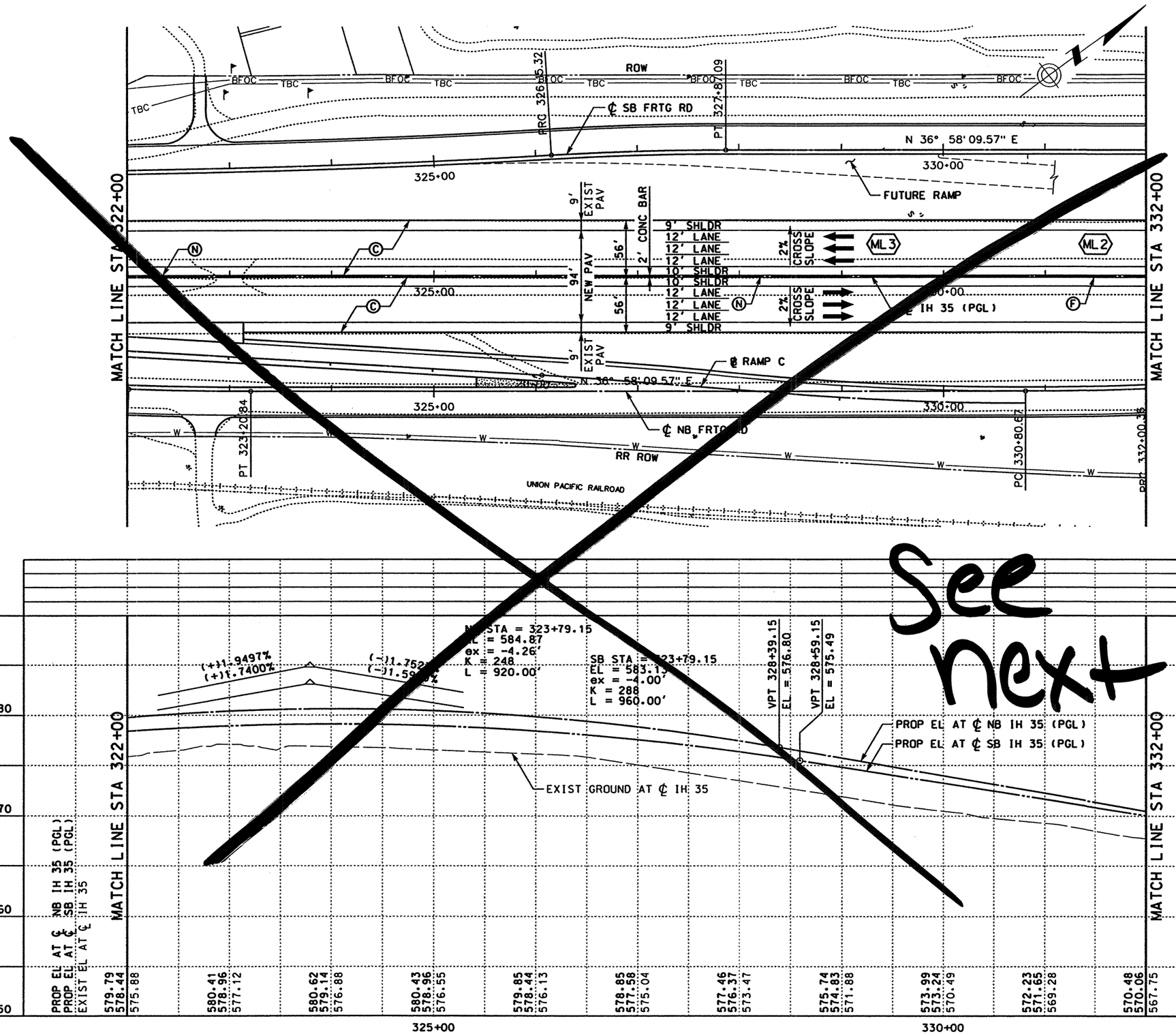

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 322+00 TO
STA 332+00

SHEET 16 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	299
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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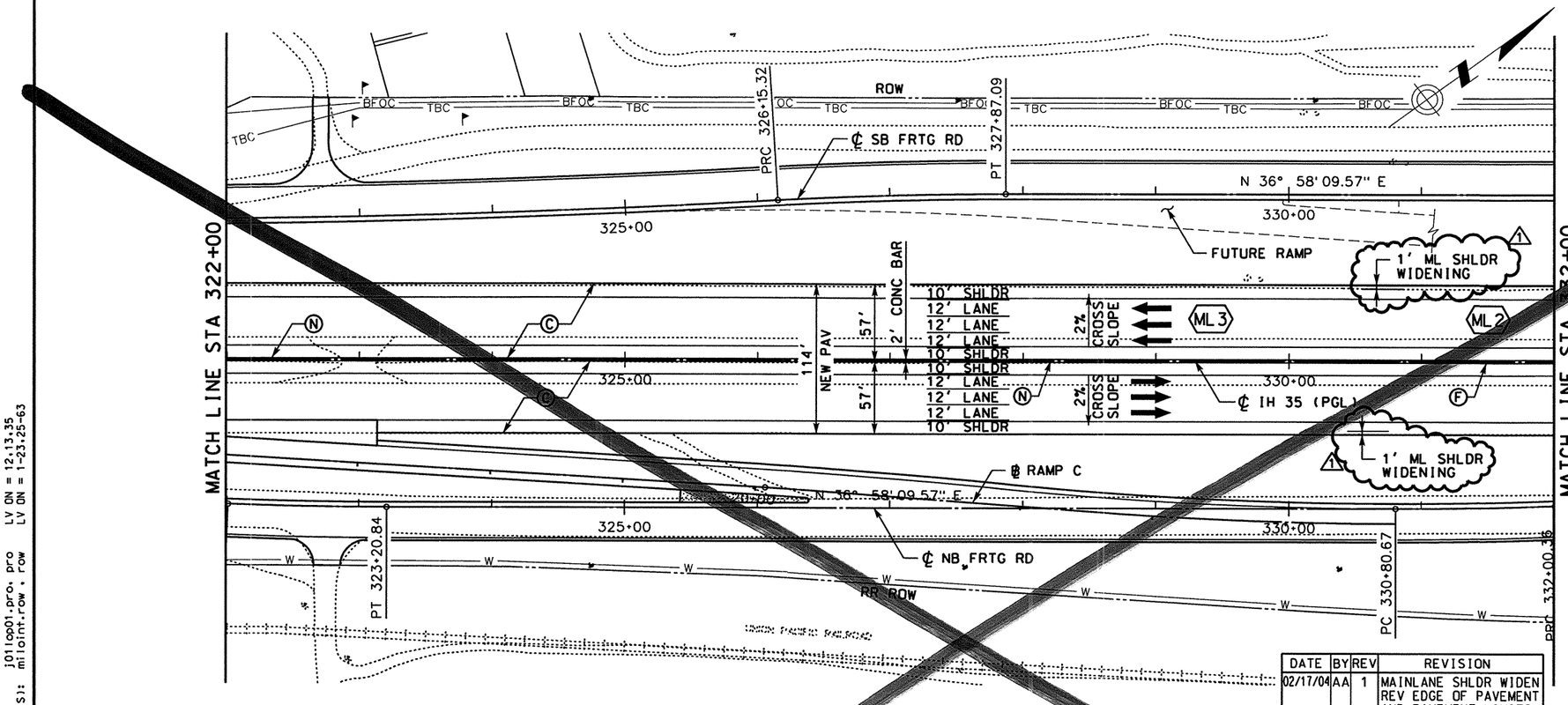

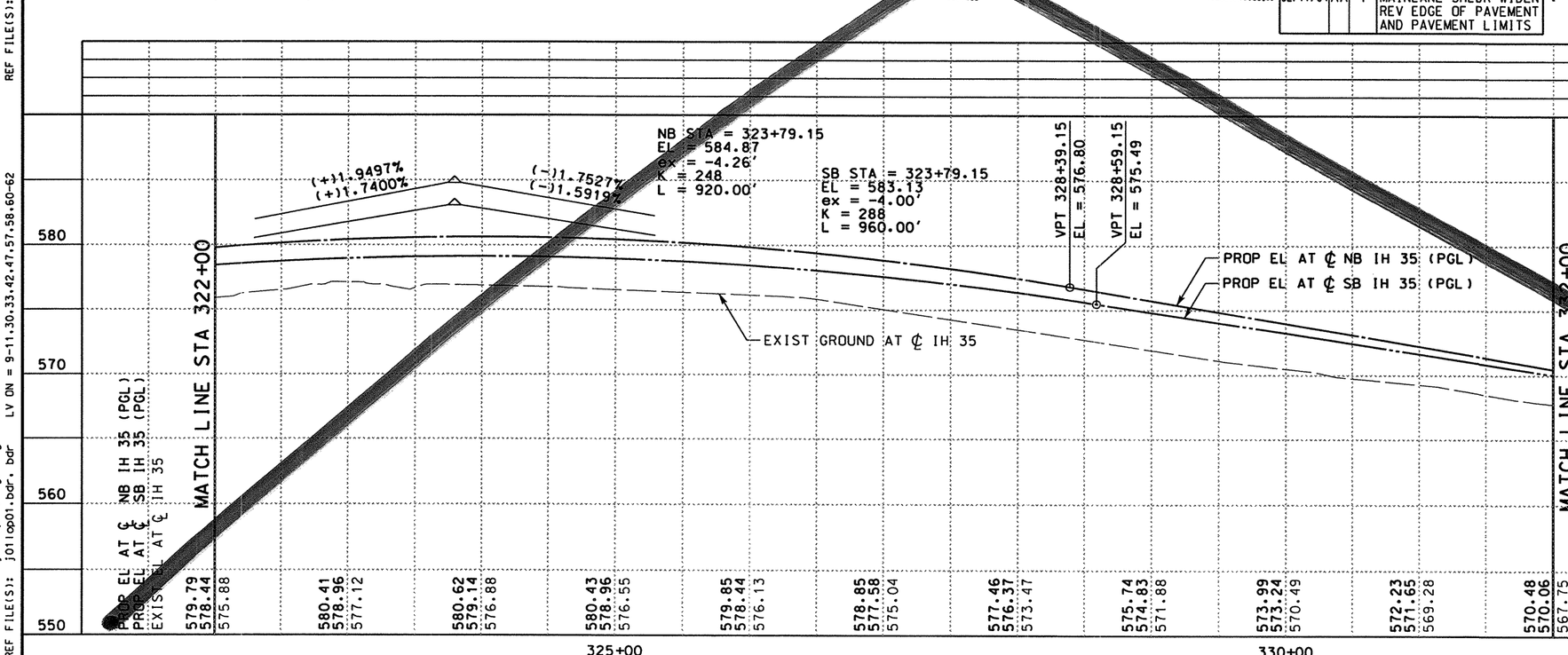

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C)(LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

3/5/2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 322+00 TO STA 332+00
SHEET 16 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	299
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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j0110p01.eap, eap LV ON = 1-17,19-63
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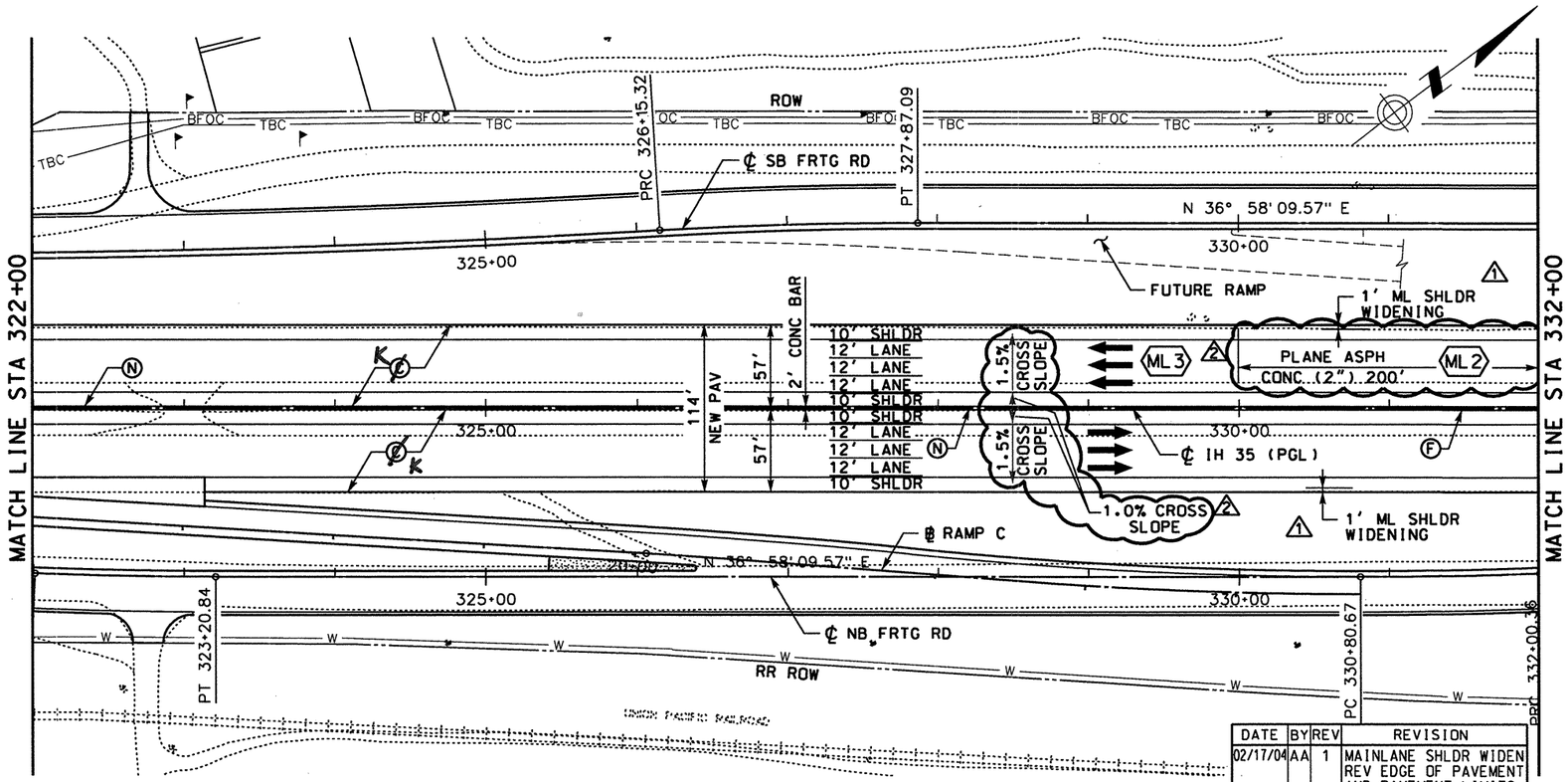
j0110p01.alg, alg LV ON = 1-10,33-39,50
j0110p01.bdr, bdr LV ON = 9-11,30,33,42,47,57,58,60-62

b03ppp16.dgn-17 HOUFILE023 \hcivil\cf0130\



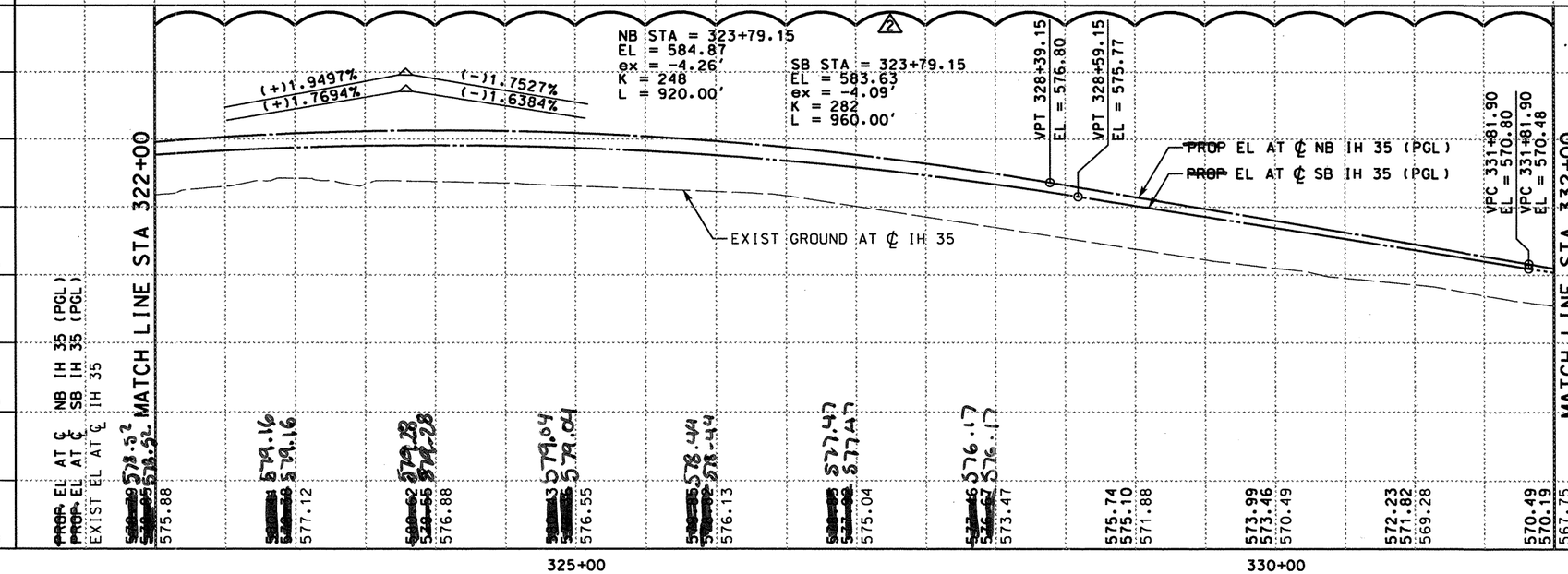
DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON SEPTEMBER 10, 2007

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 322+00 TO
STA 332+00

SHEET 16 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	299
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

9/11/2007

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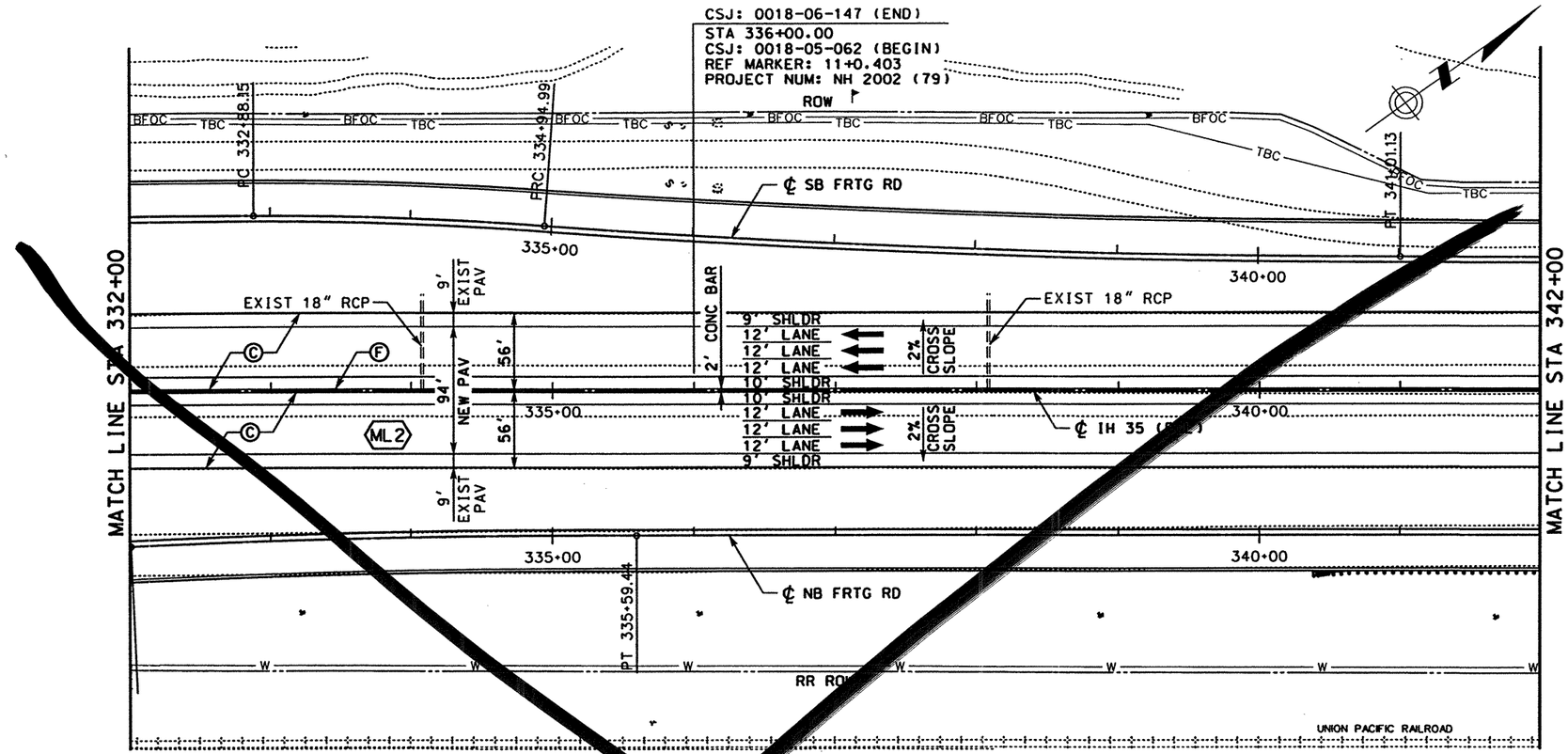

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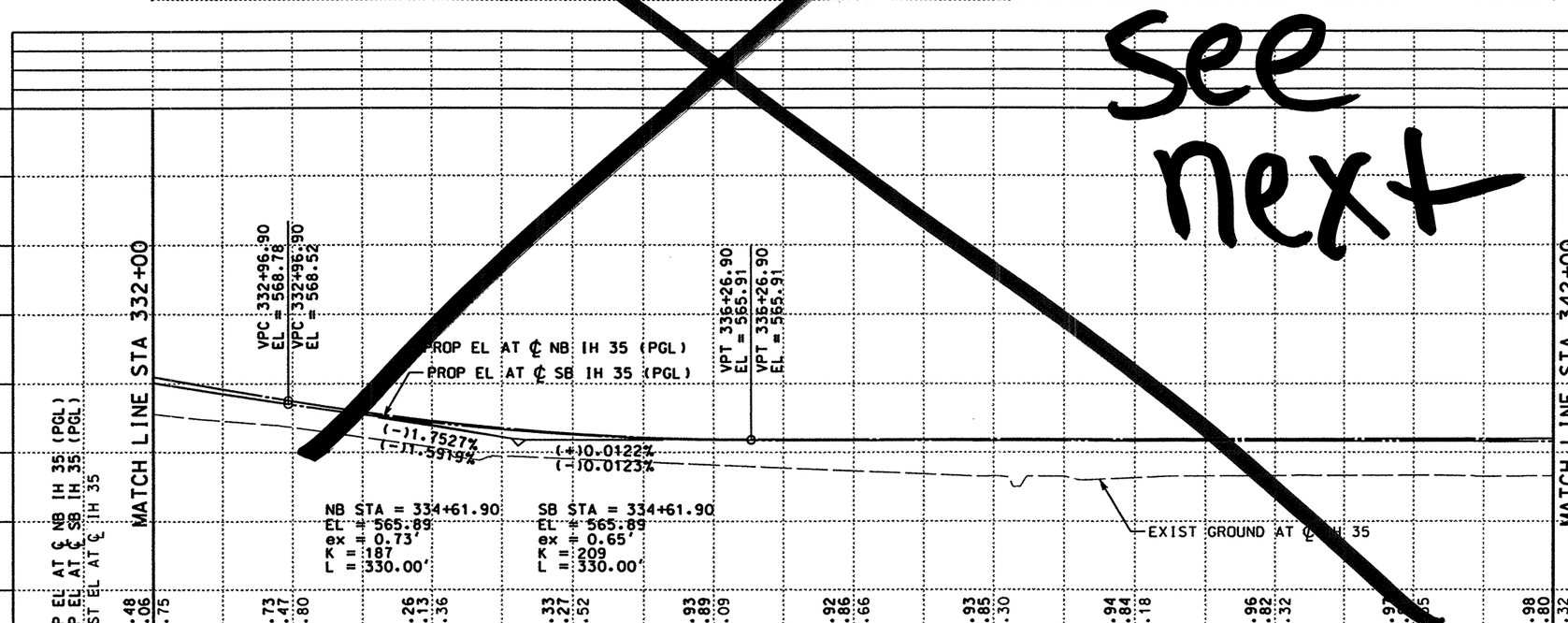

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 332+00 TO
STA 342+00

SHEET 17 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	300
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
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b03ppp17.dgn-15

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CSJ: 0018-06-147 (END)
STA 336+00.00
CSJ: 0018-05-062 (BEGIN)
REF MARKER: 11+0.403
PROJECT NUM: NH 2002 (79)

MATCH LINE STA 332+00

MATCH LINE STA 342+00

ROW

BFOC TBC BFOC TBC BFOC TBC BFOC TBC BFOC TBC BFOC TBC

PC 332+88.15

PRC 334+94.99

PT 341+01.13

℄ SB FRTG RD

335+00

340+00

EXIST 18" RCP

EXIST 18" RCP

2' CONC BAR

10' SHLDR
12' LANE
12' LANE
12' LANE
10' SHLDR
10' SHLDR
12' LANE
12' LANE
12' LANE
10' SHLDR

2% CROSS SLOPE

2% CROSS SLOPE

1' ML SHLDR WIDENING

1' ML SHLDR WIDENING

Ⓒ Ⓕ Ⓒ

ML 2

114'

NEW PVMT

57'

57'

335+00

340+00

℄ IH 35 (PGL)

℄ NB FRTG RD

PT 335+59.44

W W W W W W W W W W

RR ROW

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

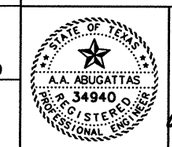
- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C)(LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 332+00 TO
STA 342+00

SHEET 17 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	300
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

3/5/2004

b03ppp17.dgn-16 HOUFILE023 \hciwil\c\0130\

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j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bdr, bdr LV ON = 9-11.30.33.42.47.57.58.60-62

PROP EL AT ℄ NB IH 35 (PGL)
PROP EL AT ℄ SB IH 35 (PGL)
EXIST EL AT ℄ IH 35

MATCH LINE STA 332+00

VPC 332+96.90
EL = 568.78
VPC 332+96.90
EL = 568.52

VPT 336+26.90
EL = 565.91
VPT 336+26.90
EL = 565.91

PROP EL AT ℄ NB IH 35 (PGL)
PROP EL AT ℄ SB IH 35 (PGL)

(-)1.7527%
(-)1.5919%
(+)0.0122%
(+)0.0123%

NB STA = 334+61.90
EL = 565.89
ex = 0.73'
K = 187
L = 330.00'

SB STA = 334+61.90
EL = 565.89
ex = 0.65'
K = 209
L = 330.00'

EXIST GROUND AT ℄ IH 35

MATCH LINE STA 342+00

580
570
560
550

570.48 570.06 567.75
568.73 568.47 566.80
567.26 567.13 565.36
566.33 566.27 564.52
565.93 565.89 564.09
565.92 565.86 563.66
565.93 565.85 563.30
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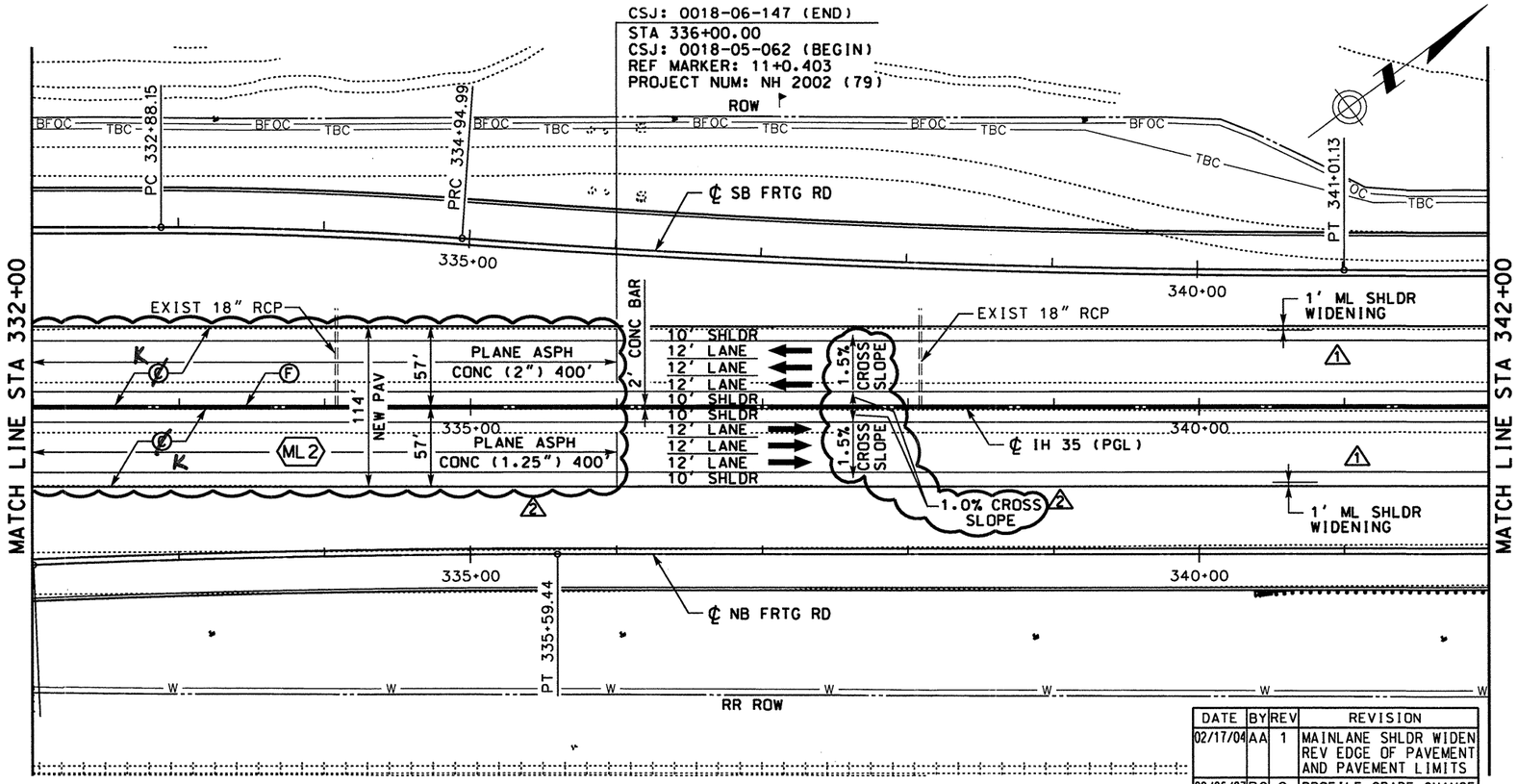
335+00

340+00



DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

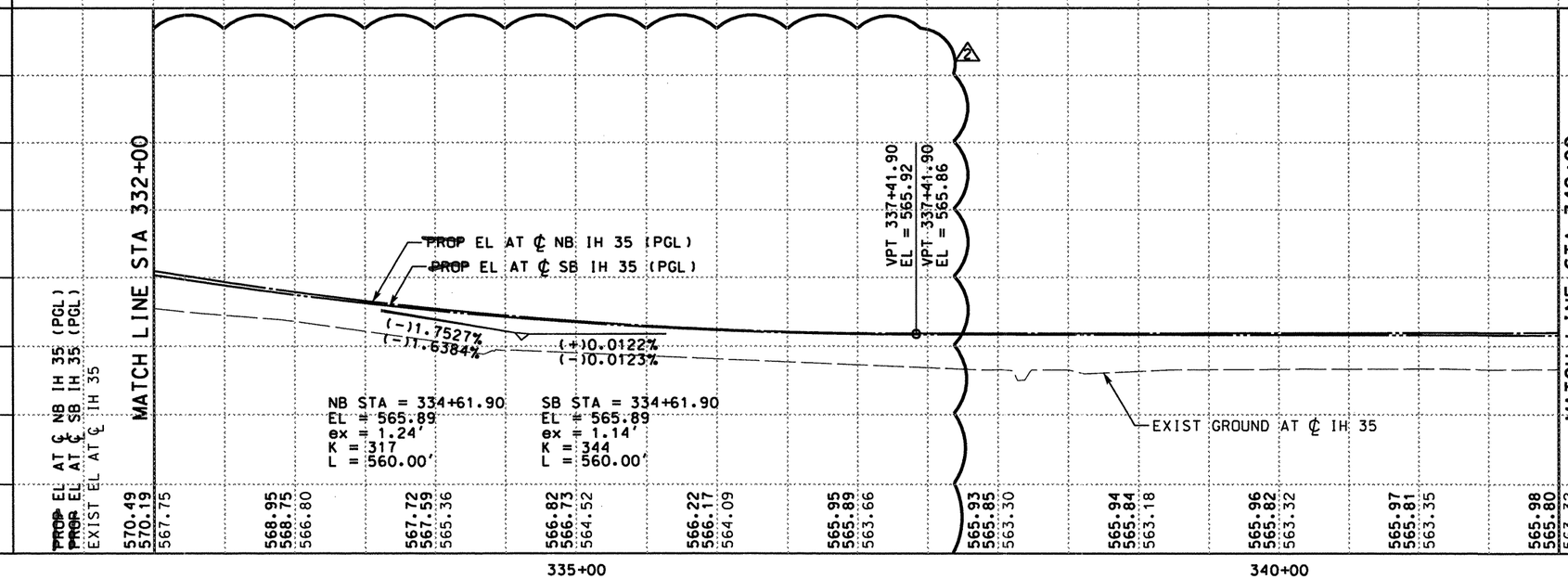
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON SEPTEMBER 10, 2007

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 332+00 TO
STA 342+00
SHEET 17 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	300
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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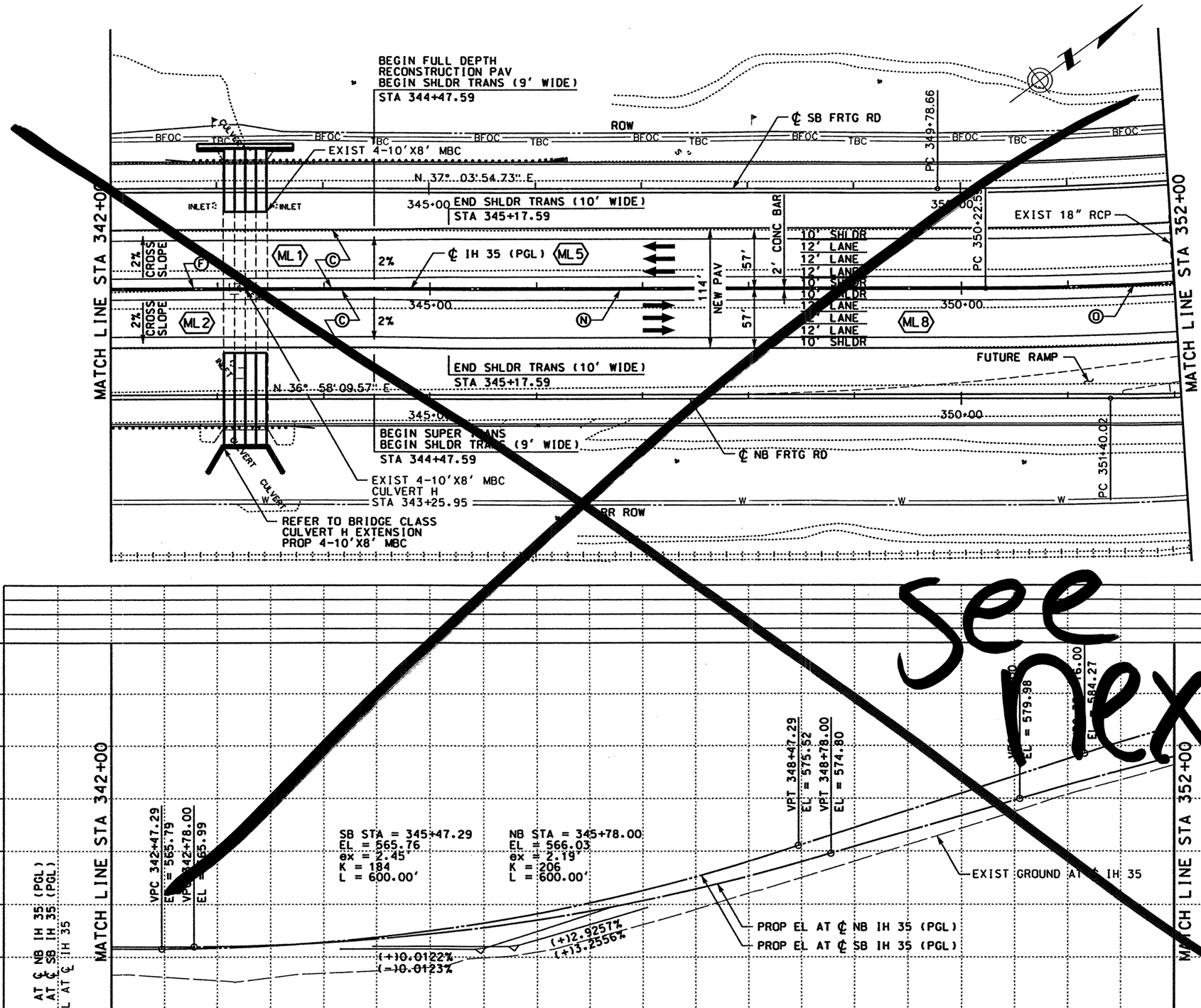

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 342+00 TO
STA 352+00

SHEET 18 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	301
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

see next

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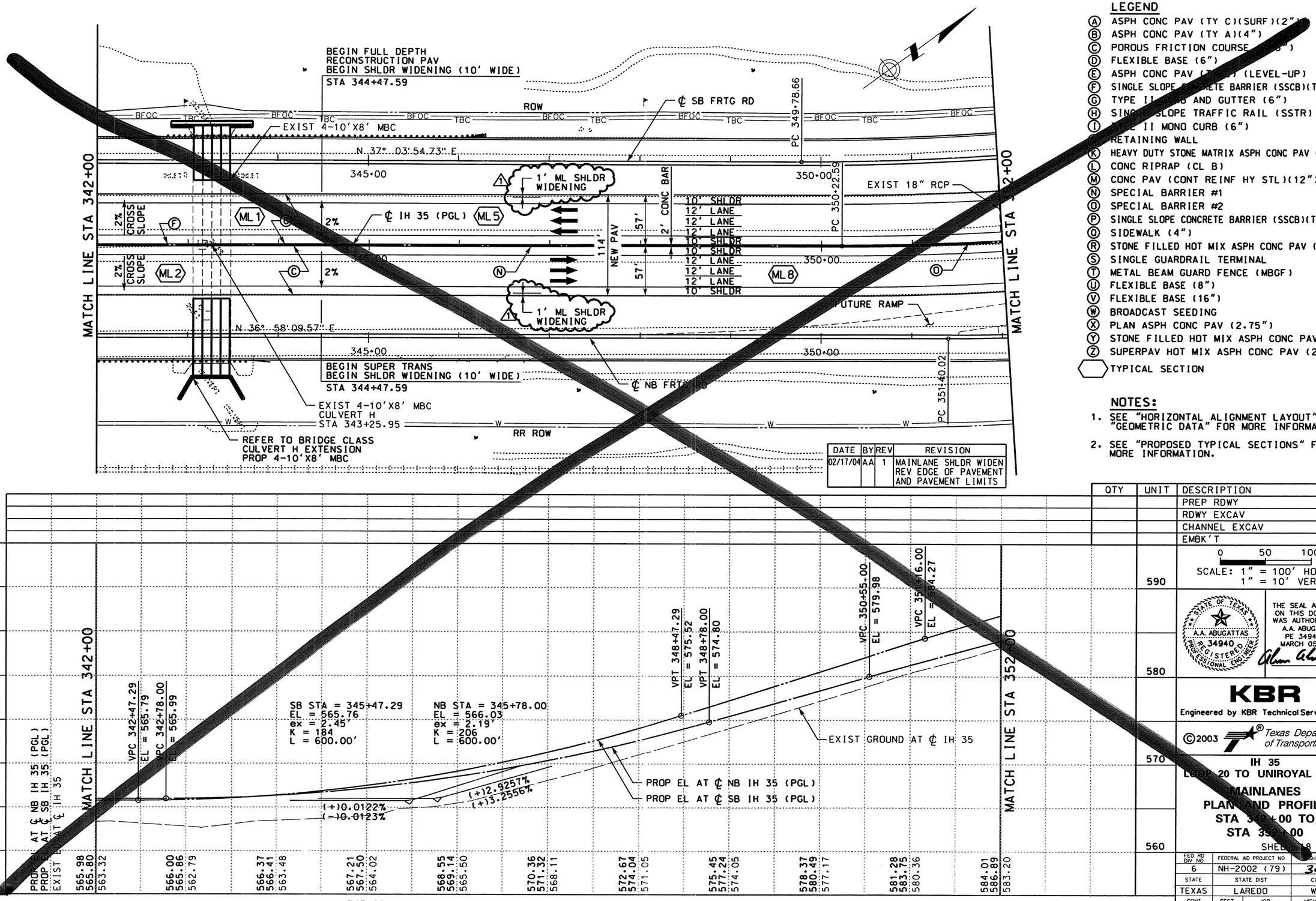

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (2")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
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- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 342+00 TO
STA 352+00
SHEET 18 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	301
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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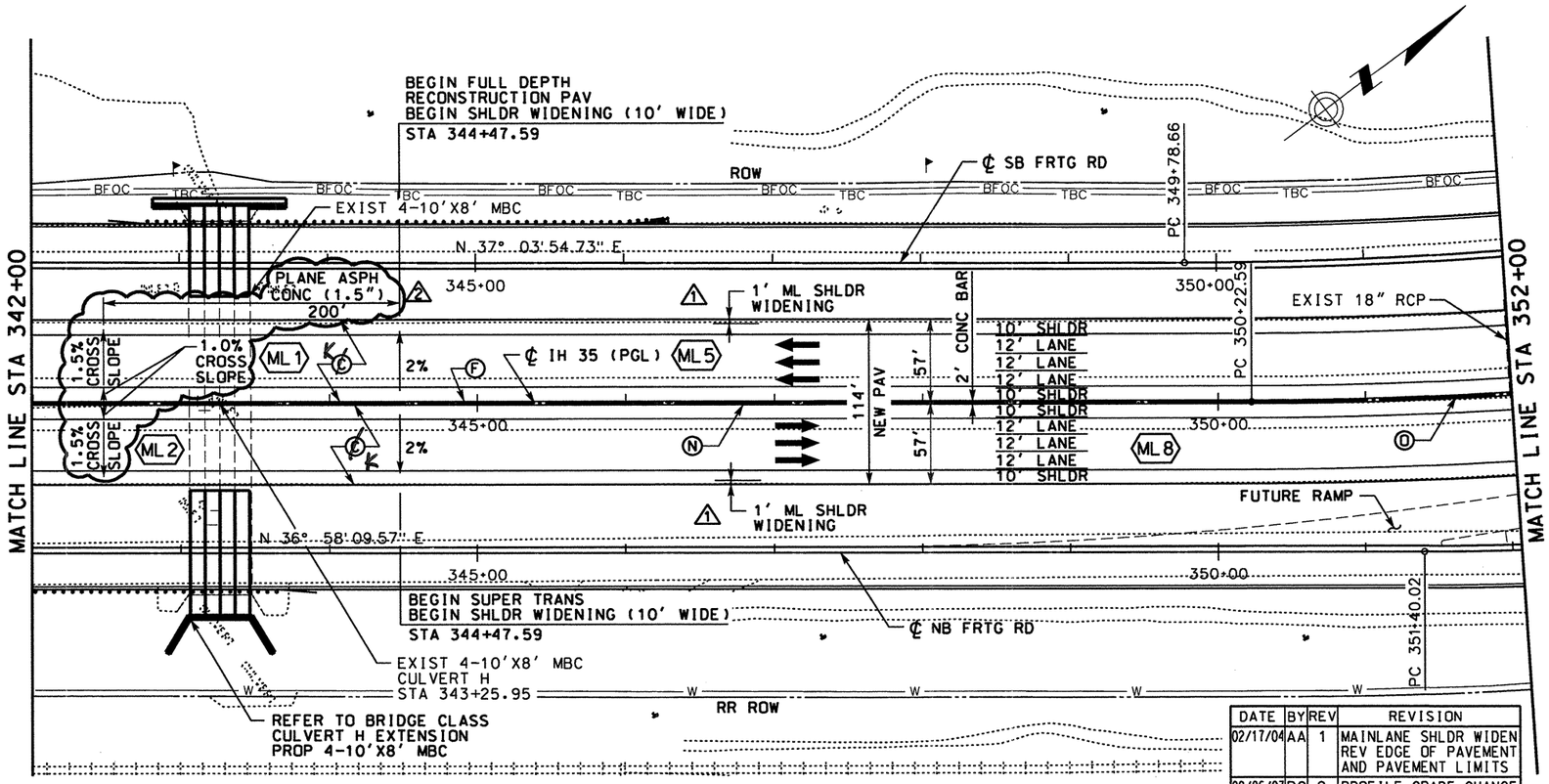


LEGEND

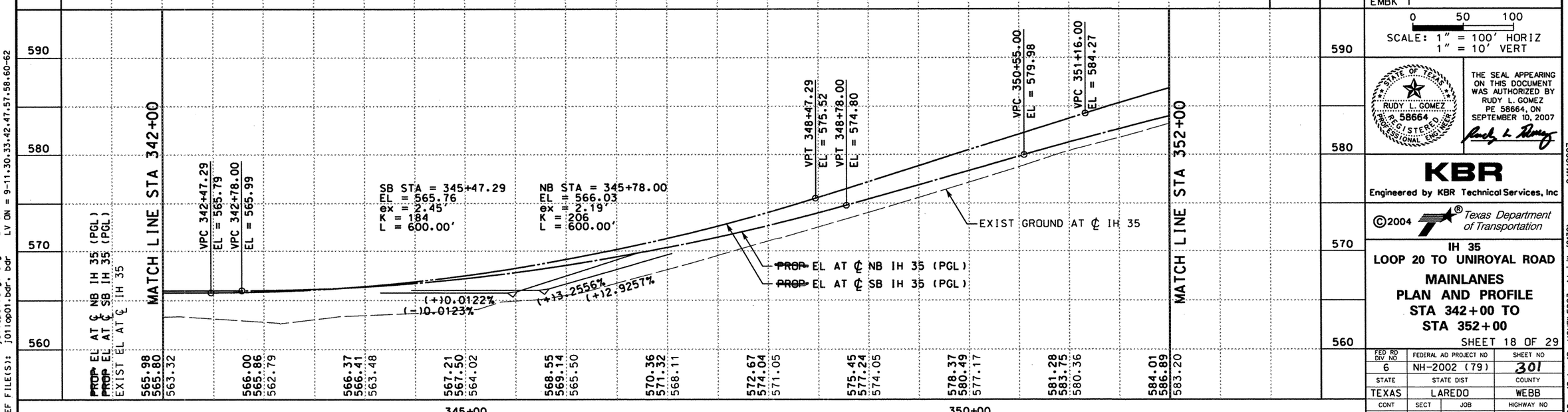
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) ~~POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. CROSS SLOPE TRANSITION BETWEEN STA 342+47.59 AND STA 344+47.59

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
09/06/07	RG	2	PROFILE GRADE CHANGE

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON SEPTEMBER 10, 2007

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 342+00 TO
STA 352+00
SHEET 18 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	301
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

9/11/2007

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LV ON = 1-23.25-63
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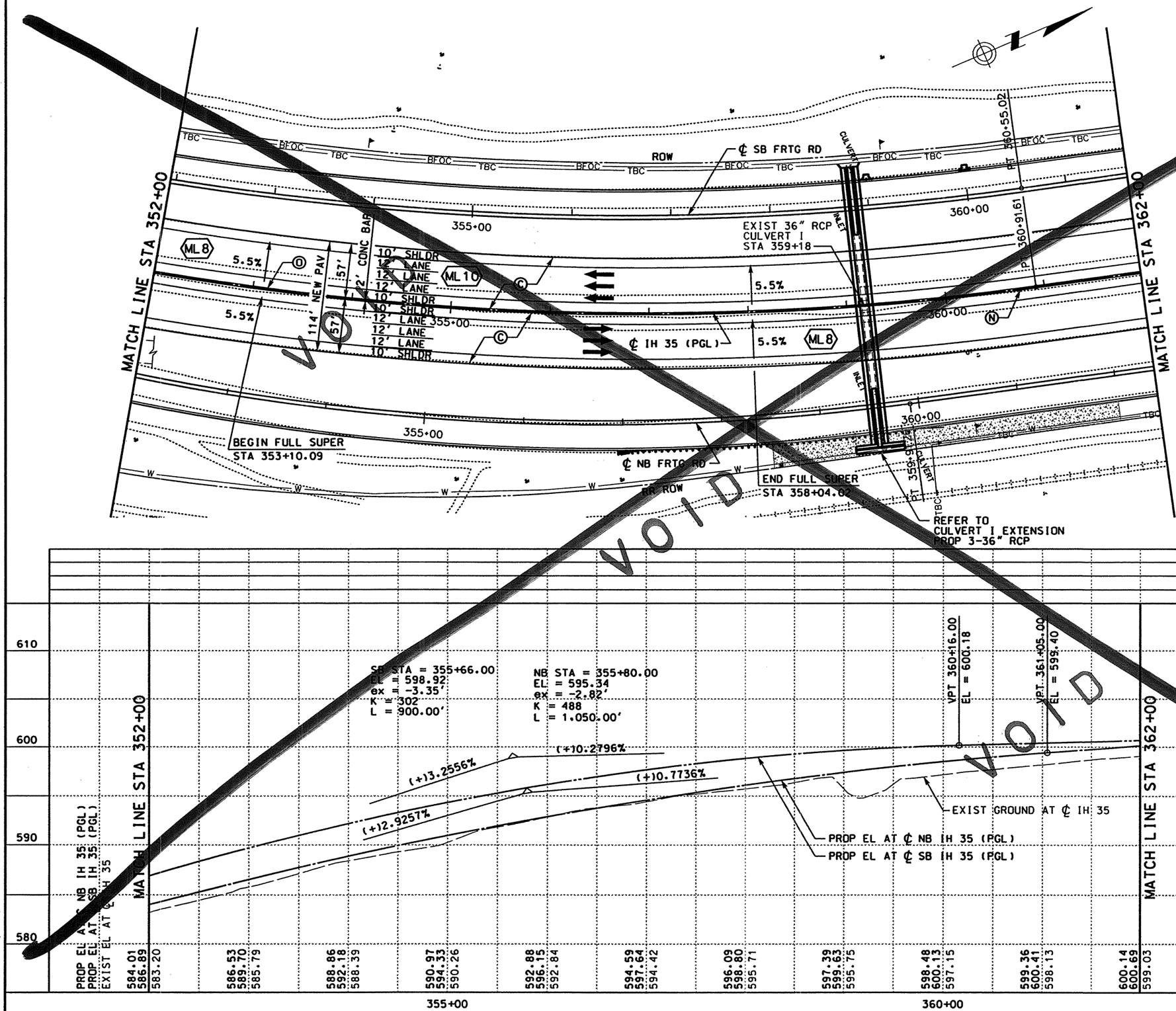
b03pp18.dgn-18 HOUFILE023 \hcivil\cf0130\



LEGEND

- (A) ASPH CONC PAV (TY C) (SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

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RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 352+00 TO STA 362+00

SHEET 19 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	302
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/18/2003

REF FILE(S):
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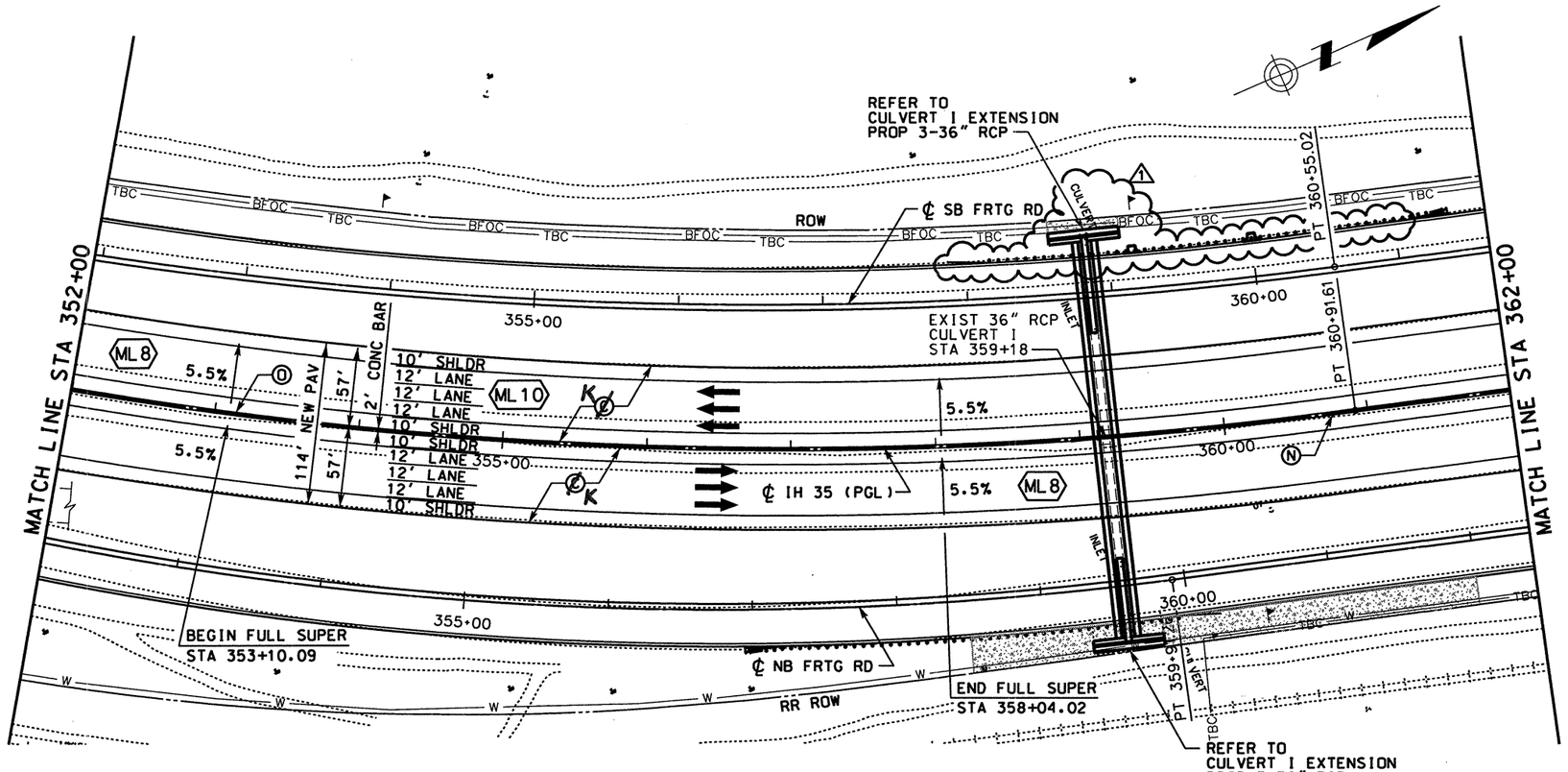


LEGEND

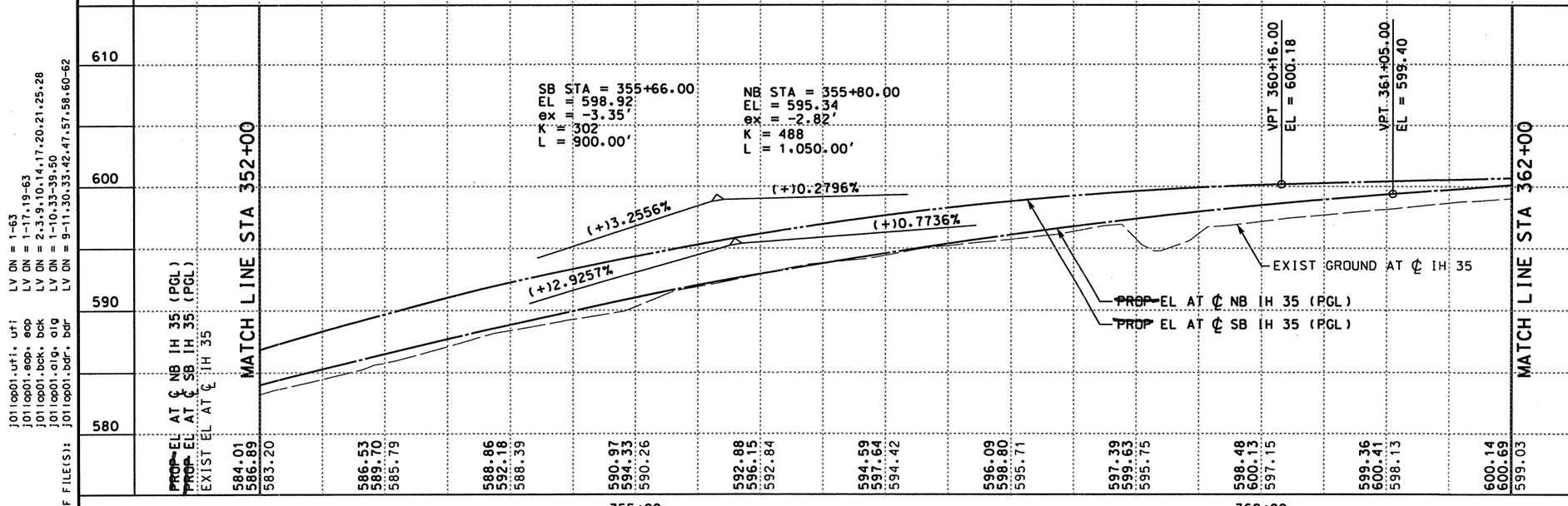
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED"~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
01/04/05	AA	1	WINGWALL MODIFICATIONS FOR CULVERT I

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



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SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JANUARY 04, 2005

Aa Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 352+00 TO
STA 362+00

SHEET 19 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	302
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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j011op01.eop, eop LV ON = 1-17.19-63
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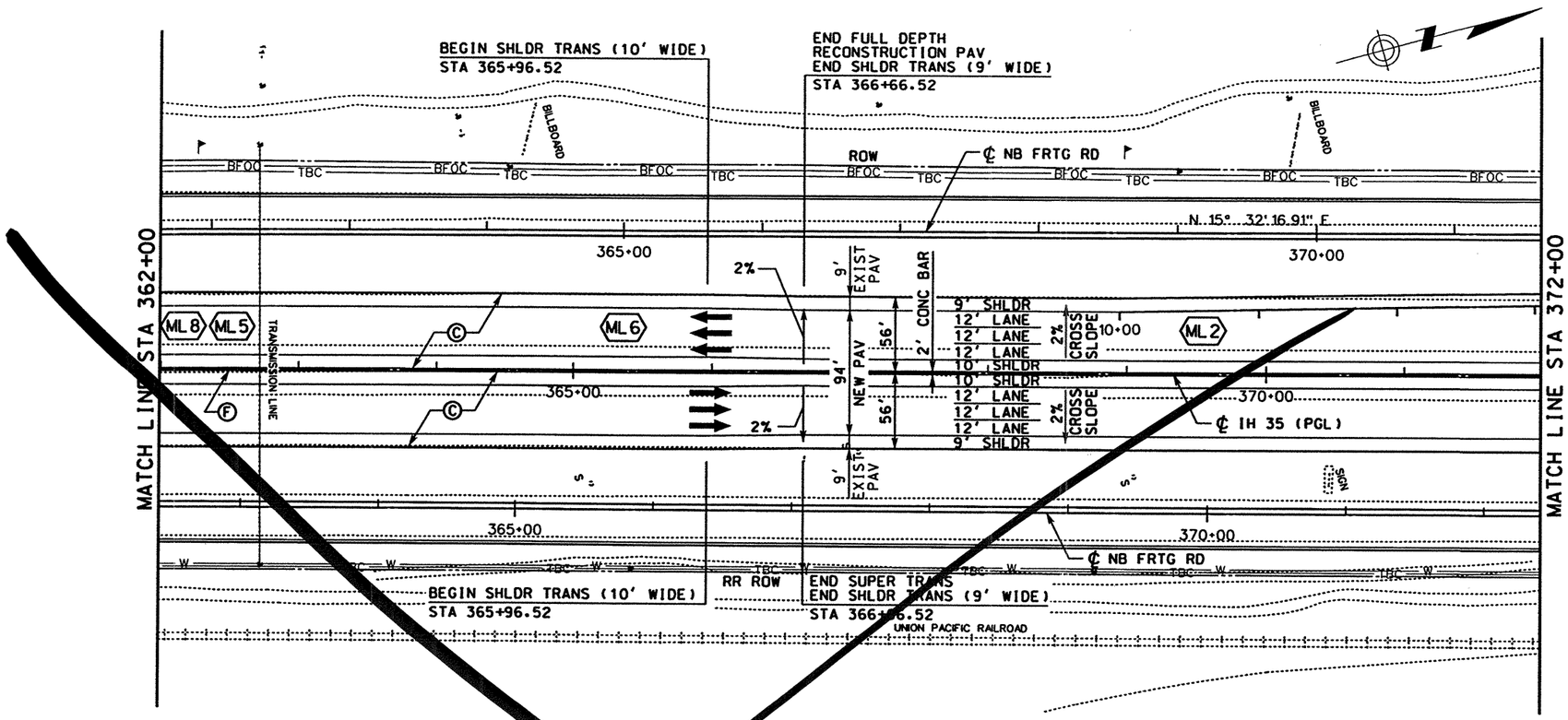

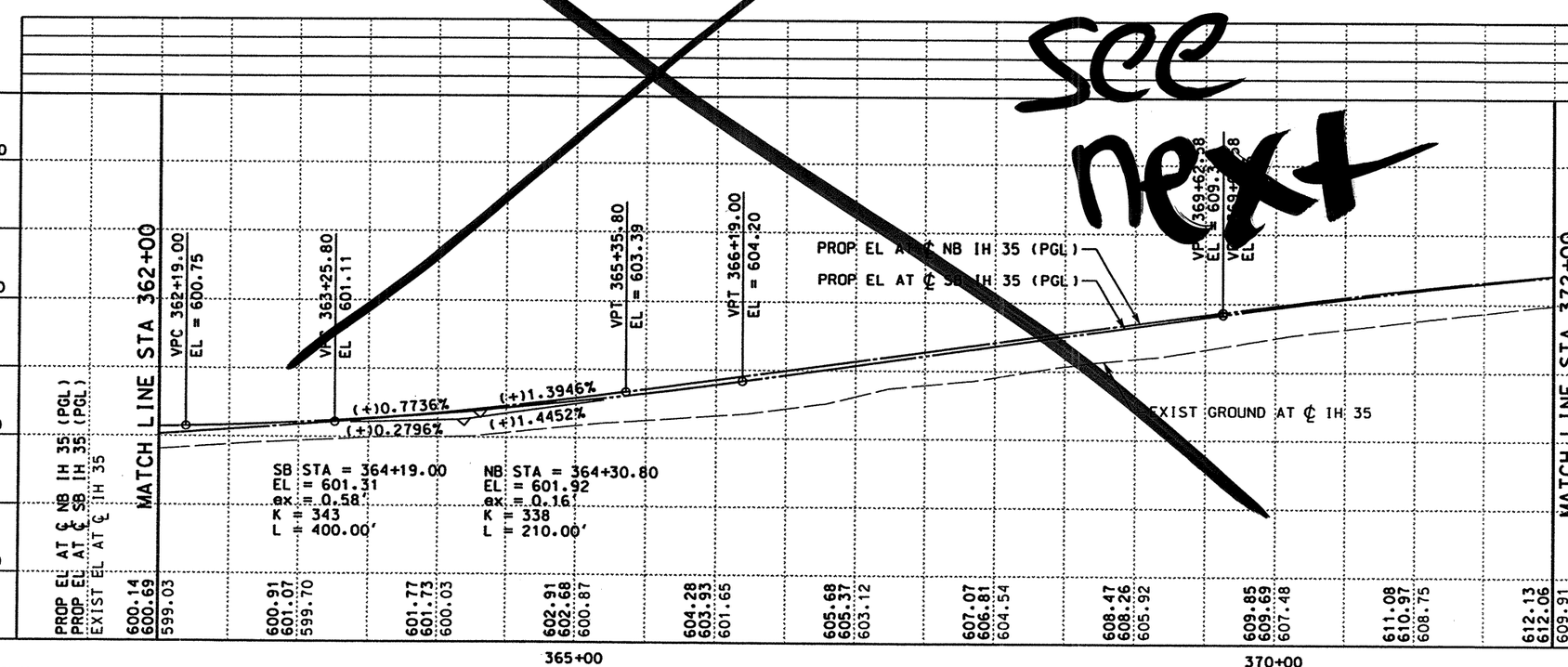

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 362+00 TO
STA 372+00
SHEET 20 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	3003
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

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j011op01.bck. bck LV ON = 2-3.9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-10.33-39.50
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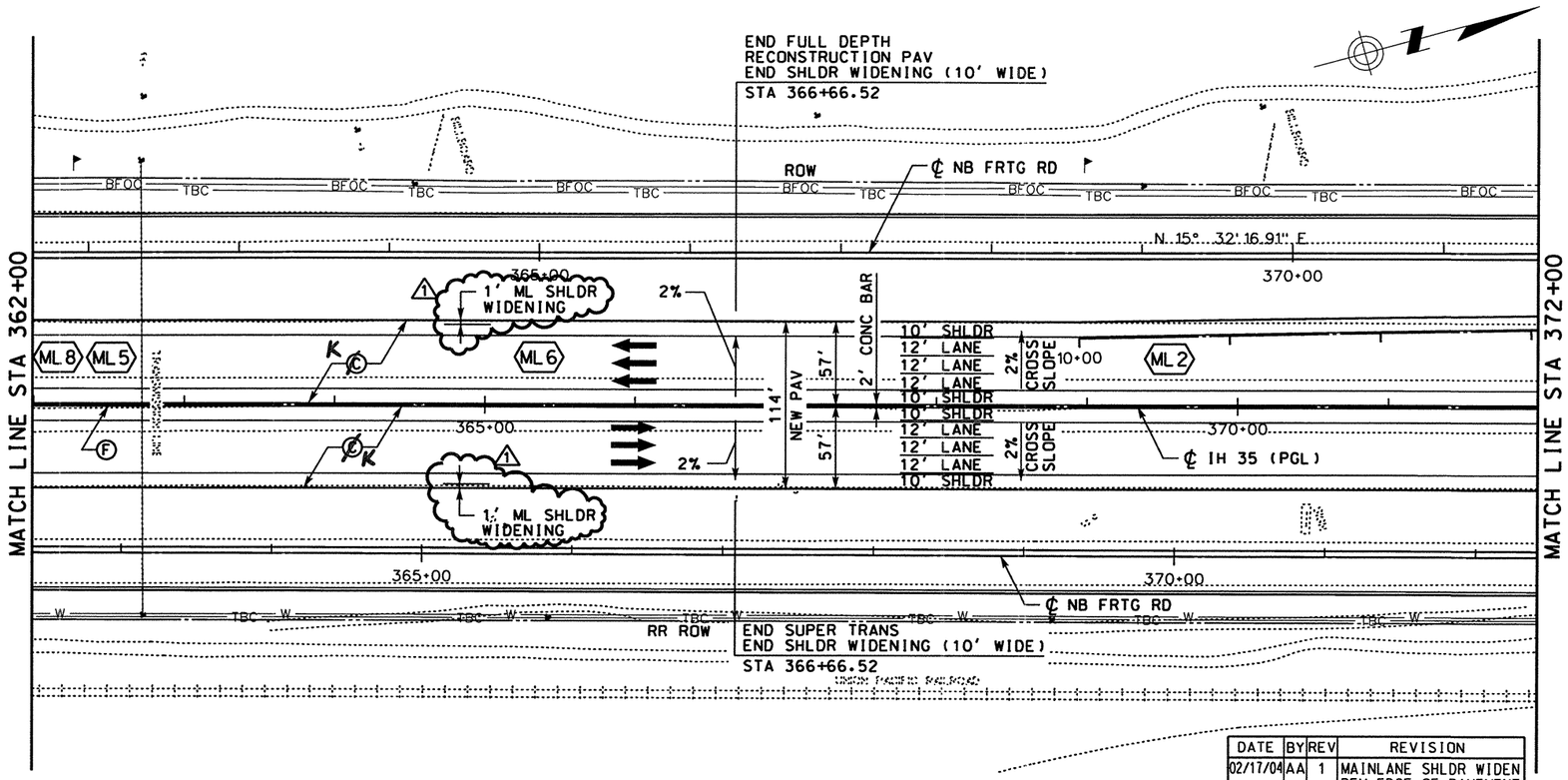


LEGEND

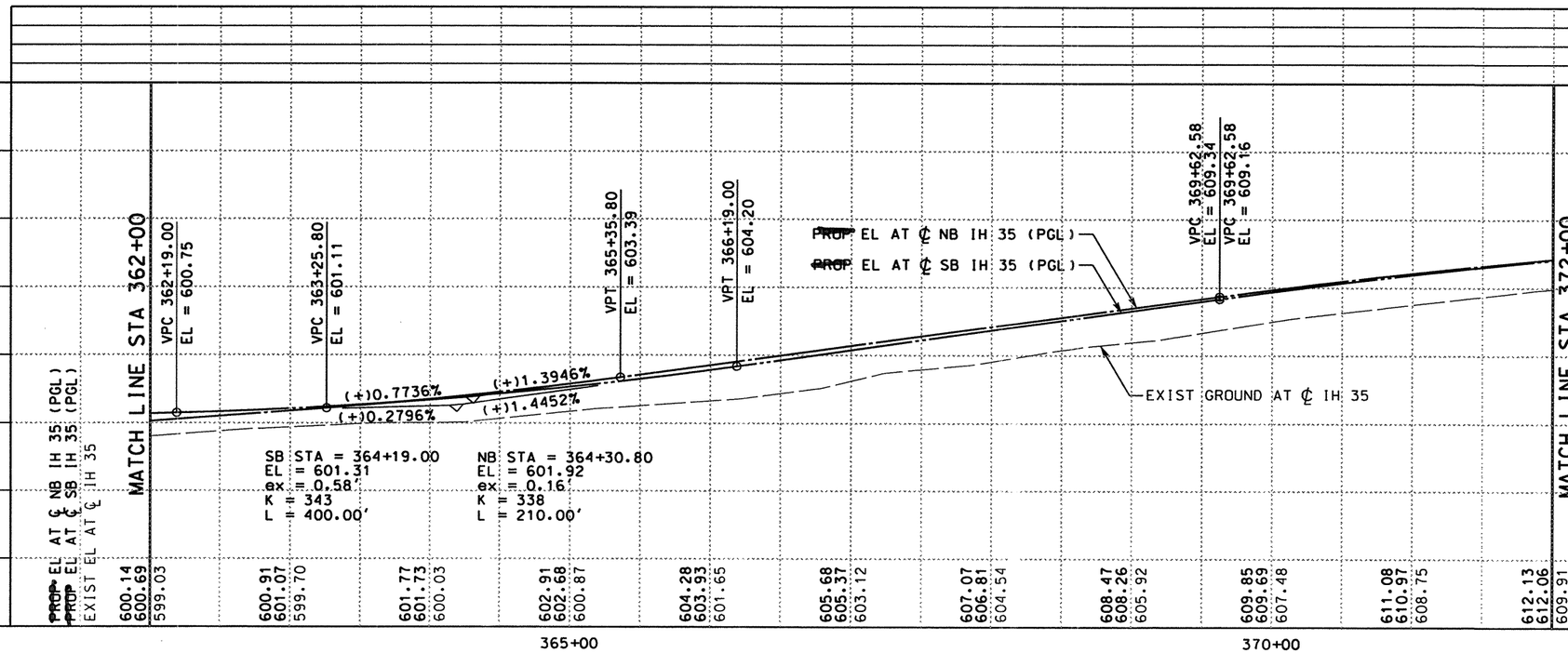
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 362+00 TO
STA 372+00
SHEET 20 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	303
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

3/5/2004

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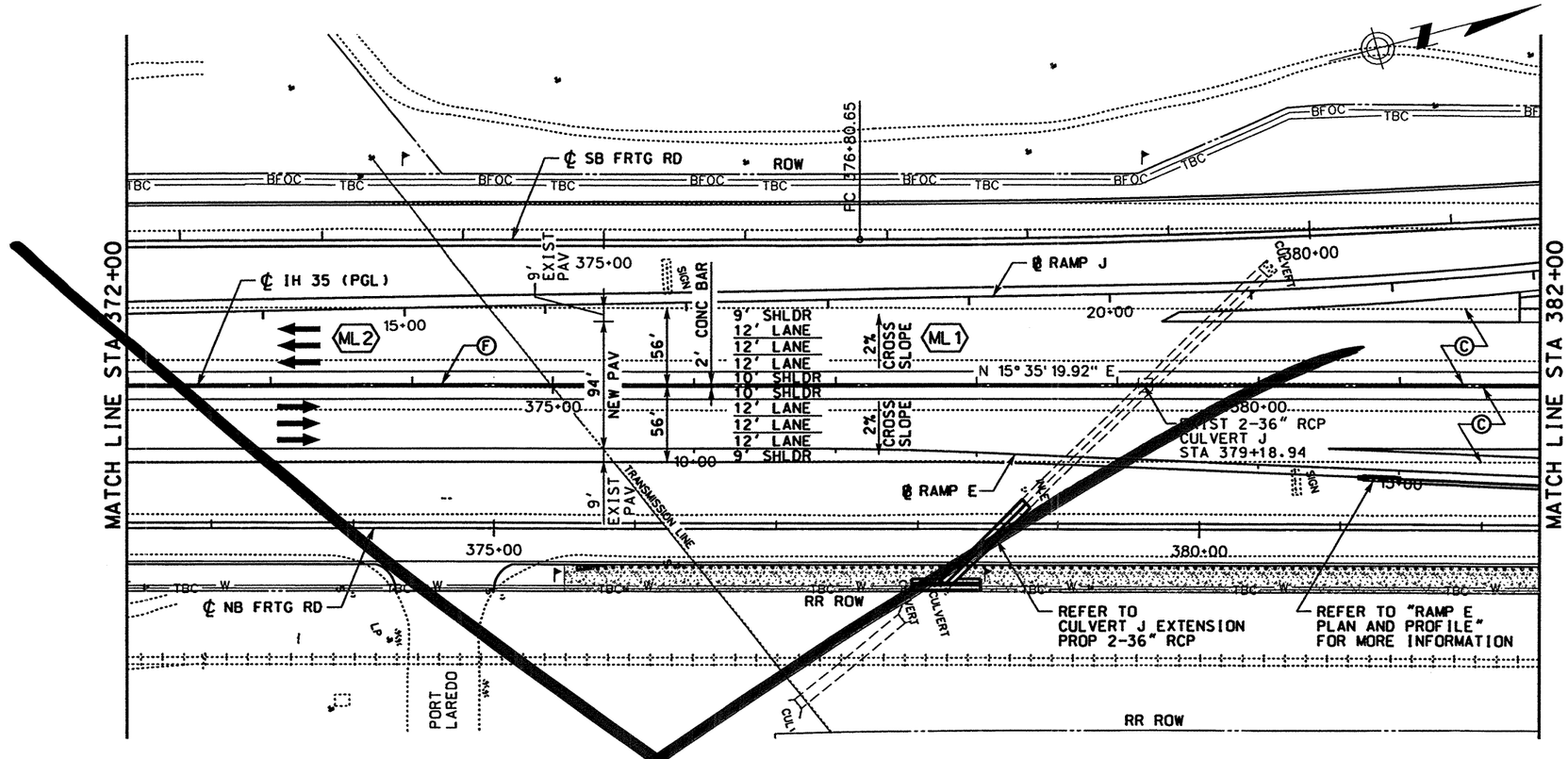
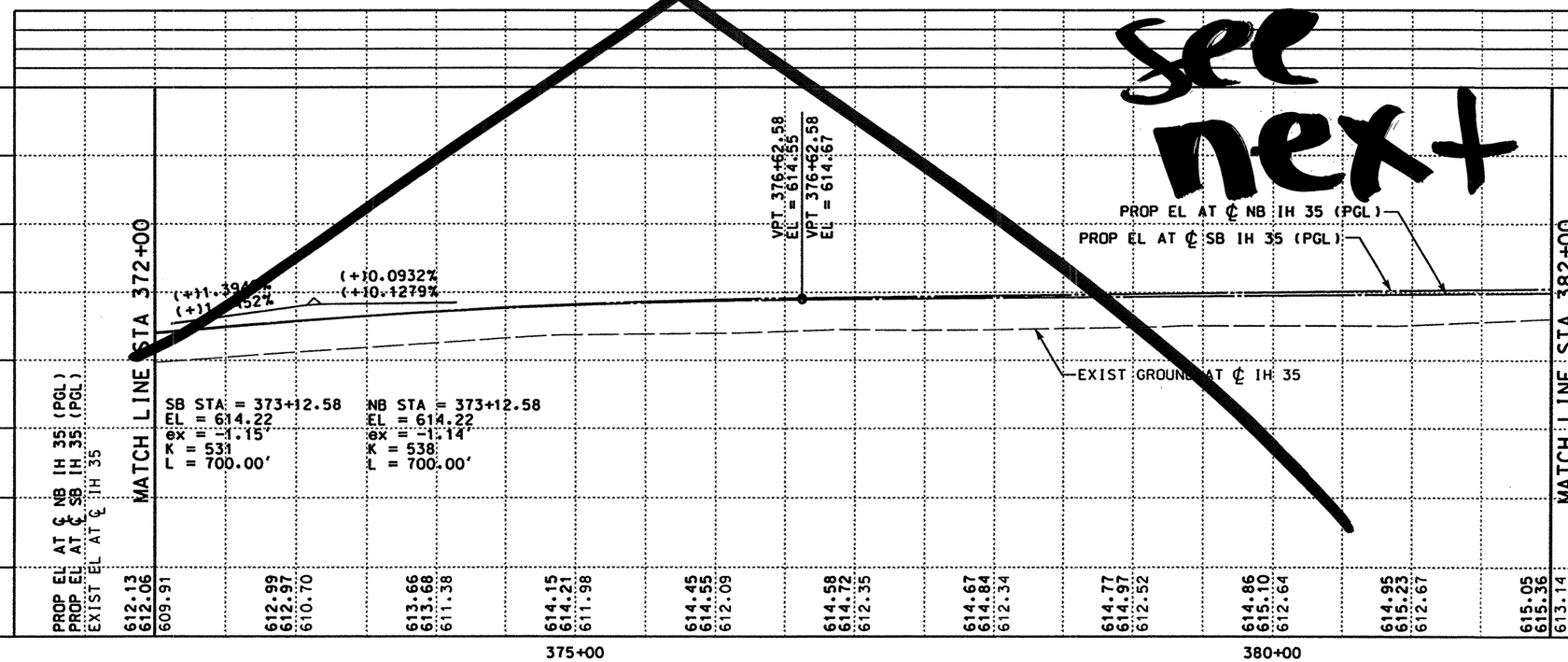


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 372+00 TO STA 382+00

SHEET 21 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	304
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

REF FILE(S): j011op01.drn, j011op01.pro, j011op01.bak, j011op01.alg, j011op01.bdr, j011op01.url, j011op01.eop, milo1nt.row + row
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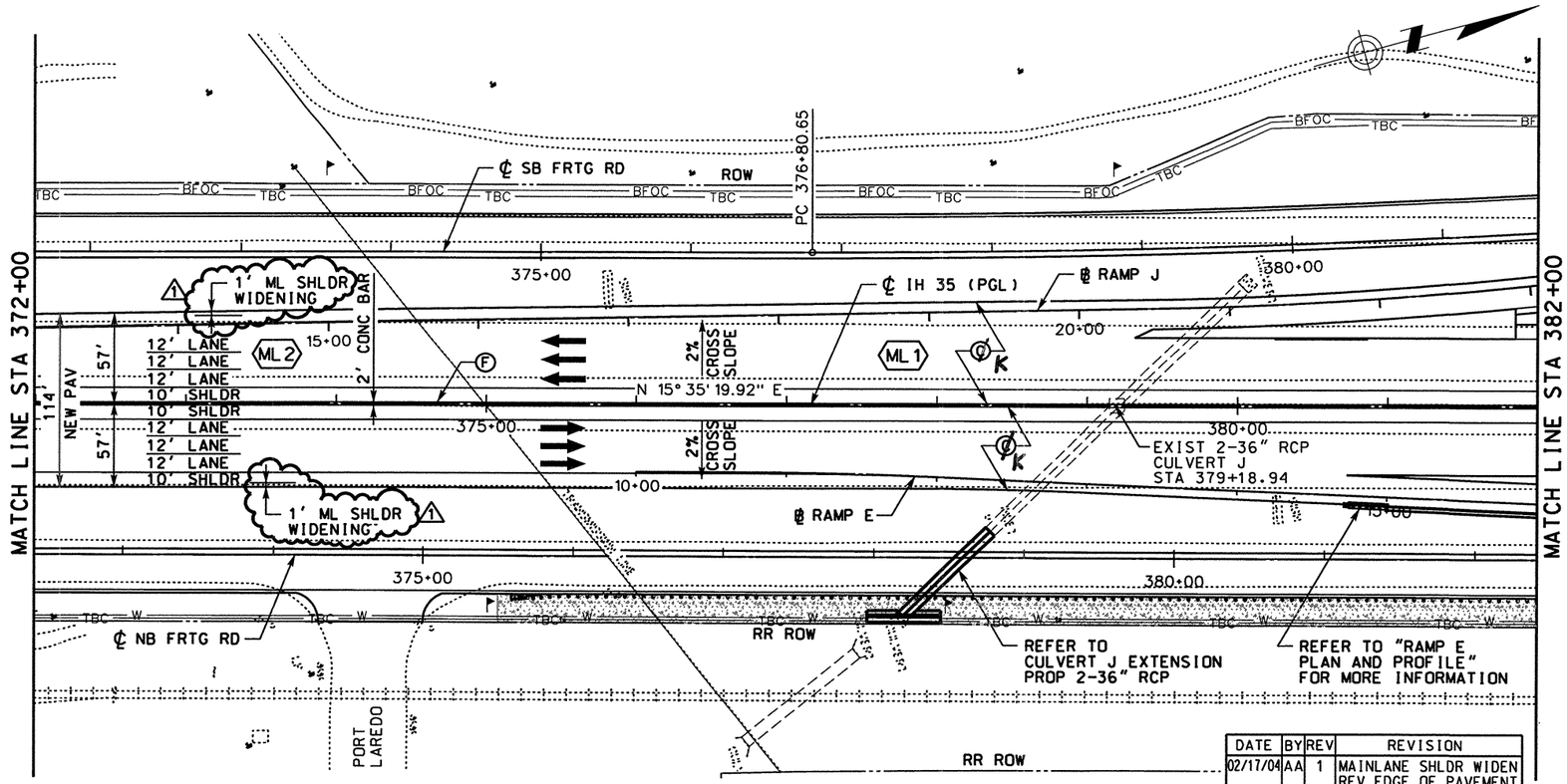


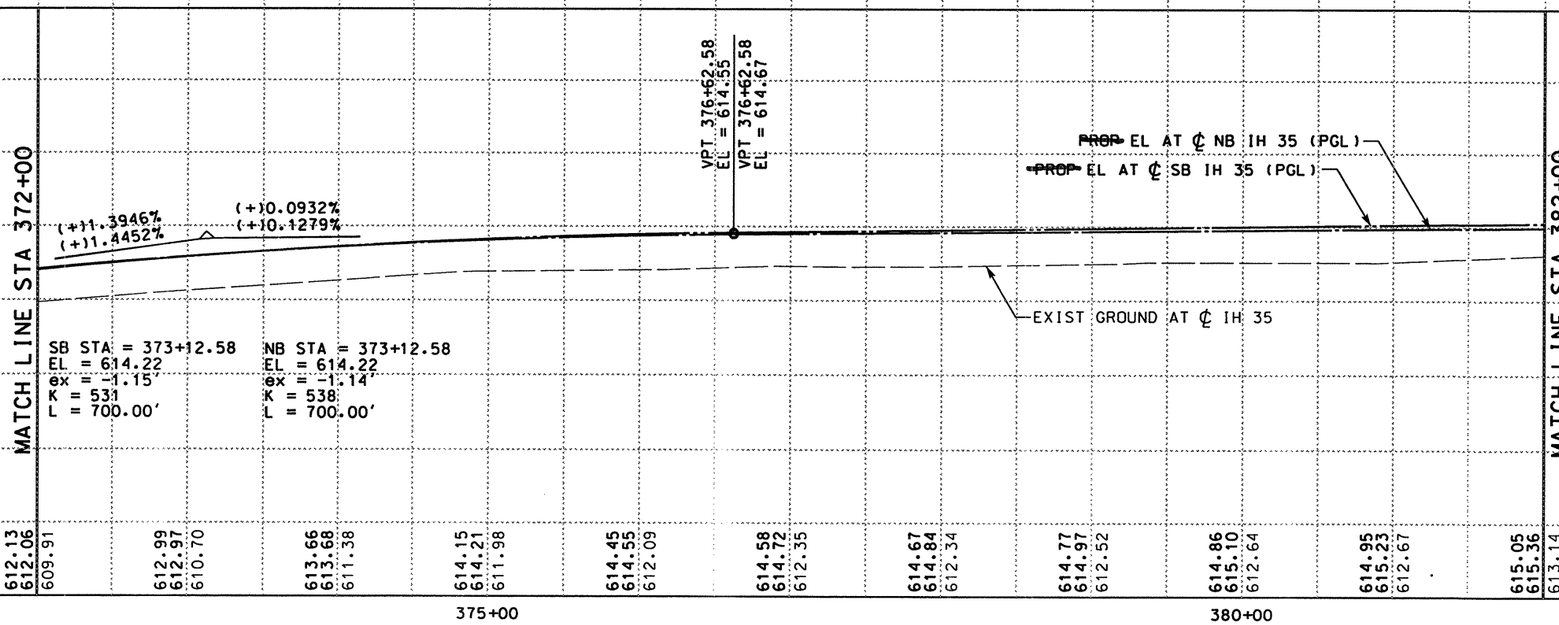
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 372+00 TO
STA 382+00

SHEET 21 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	304
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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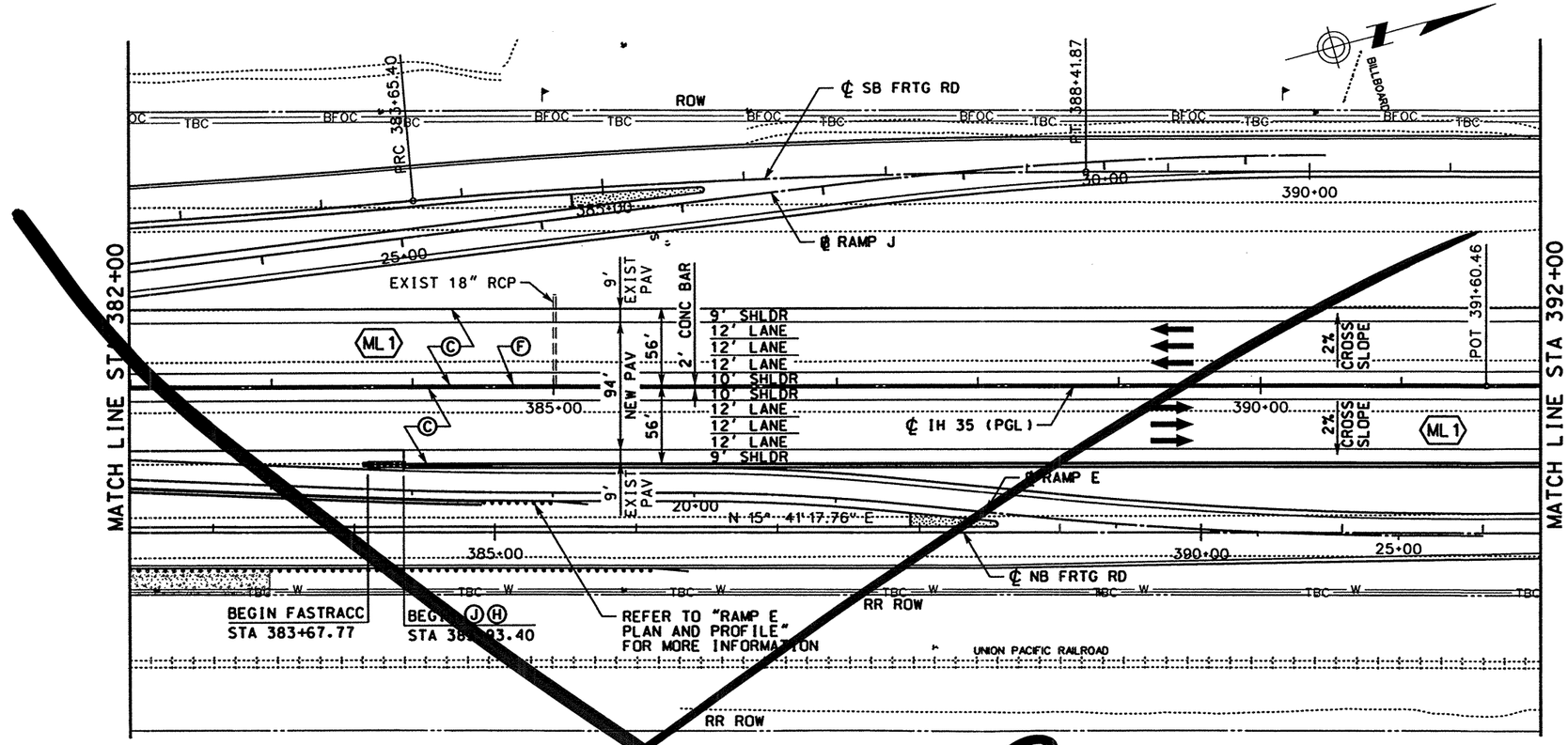
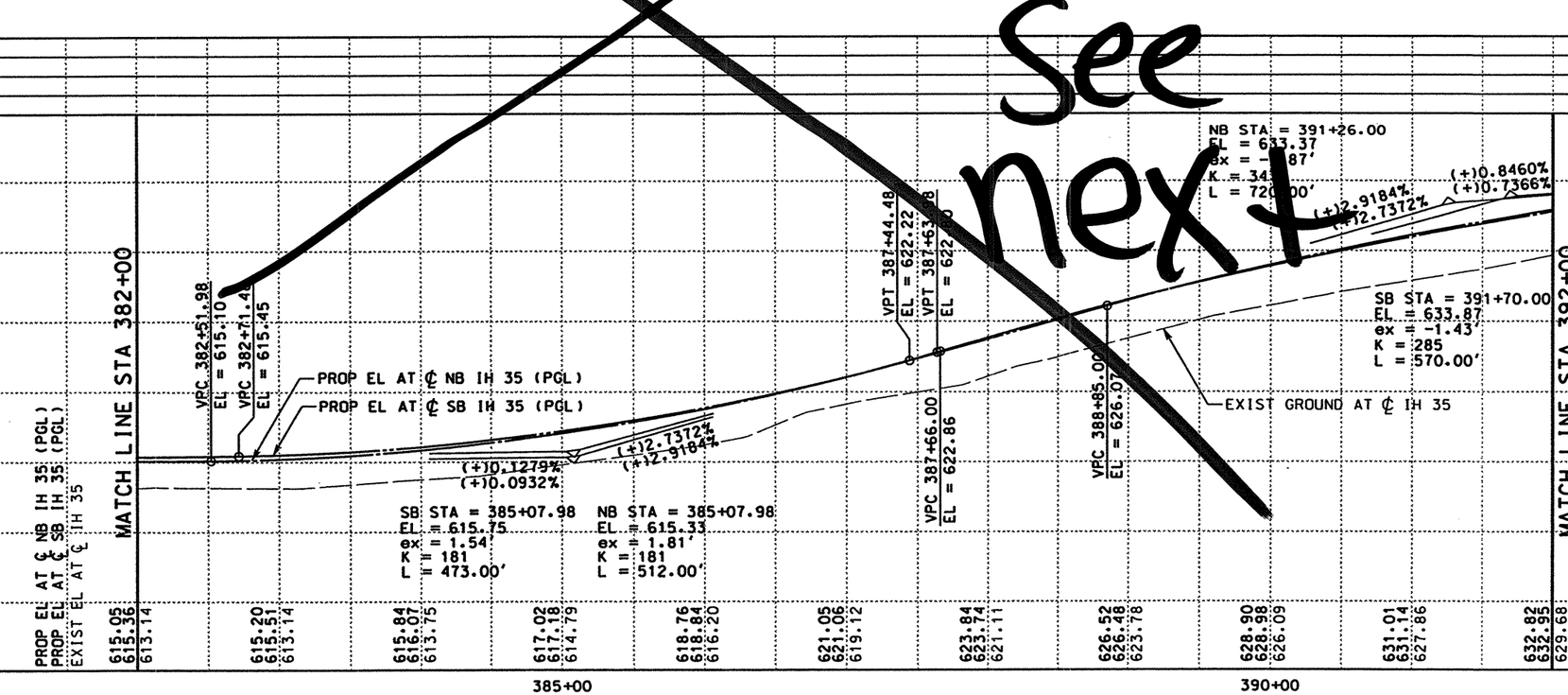


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



See next

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 382+00 TO
STA 392+00

SHEET 22 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	305
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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J011op01.bck. bck LV ON = 2.3.9.10.14.17.20.21.25.28
J011op01.alg. alg LV ON = 1-10.33-39.50
J011op01.bdr. bdr LV ON = 9-11.30.33.42.47.57.58.60-62

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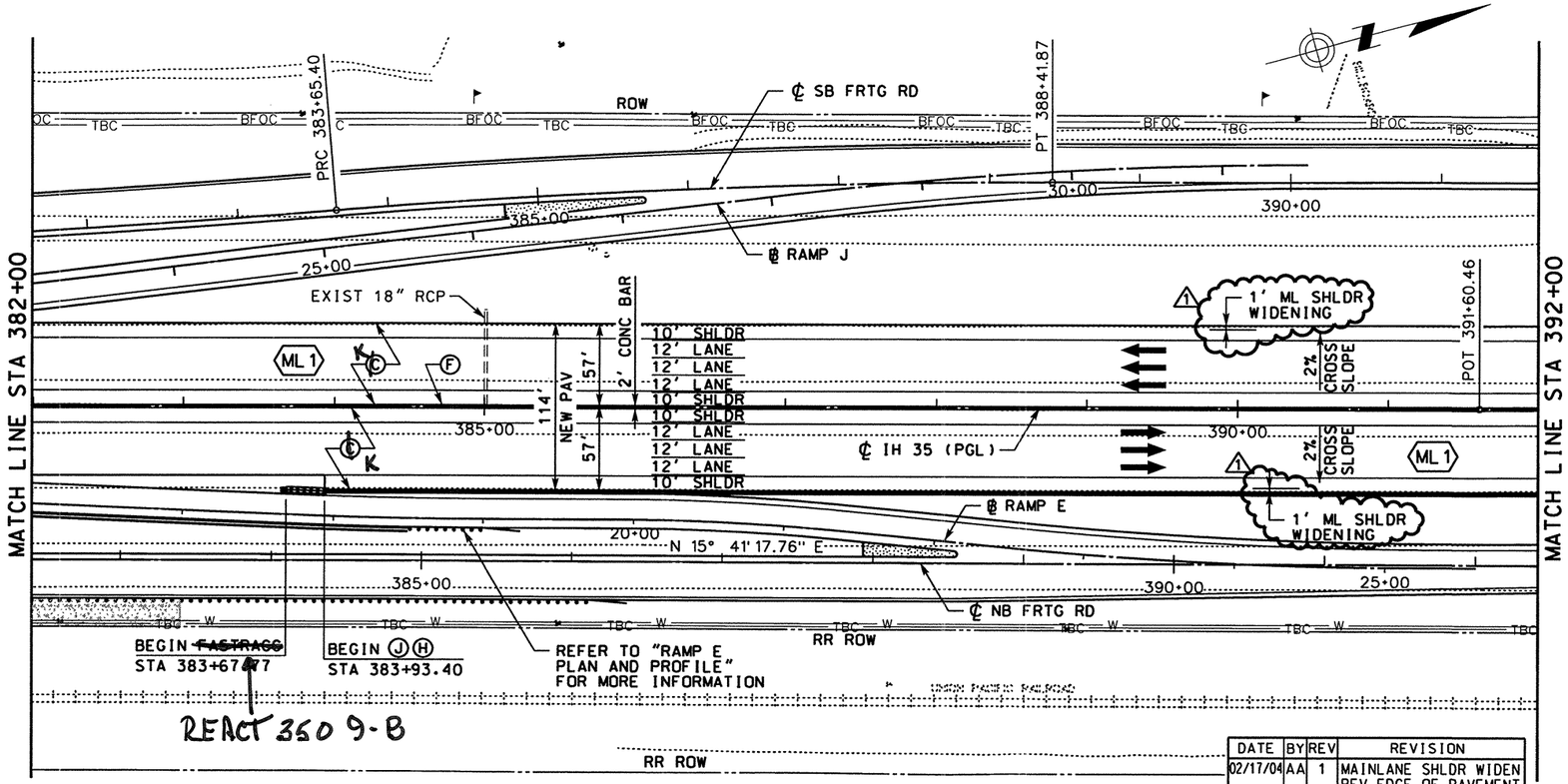


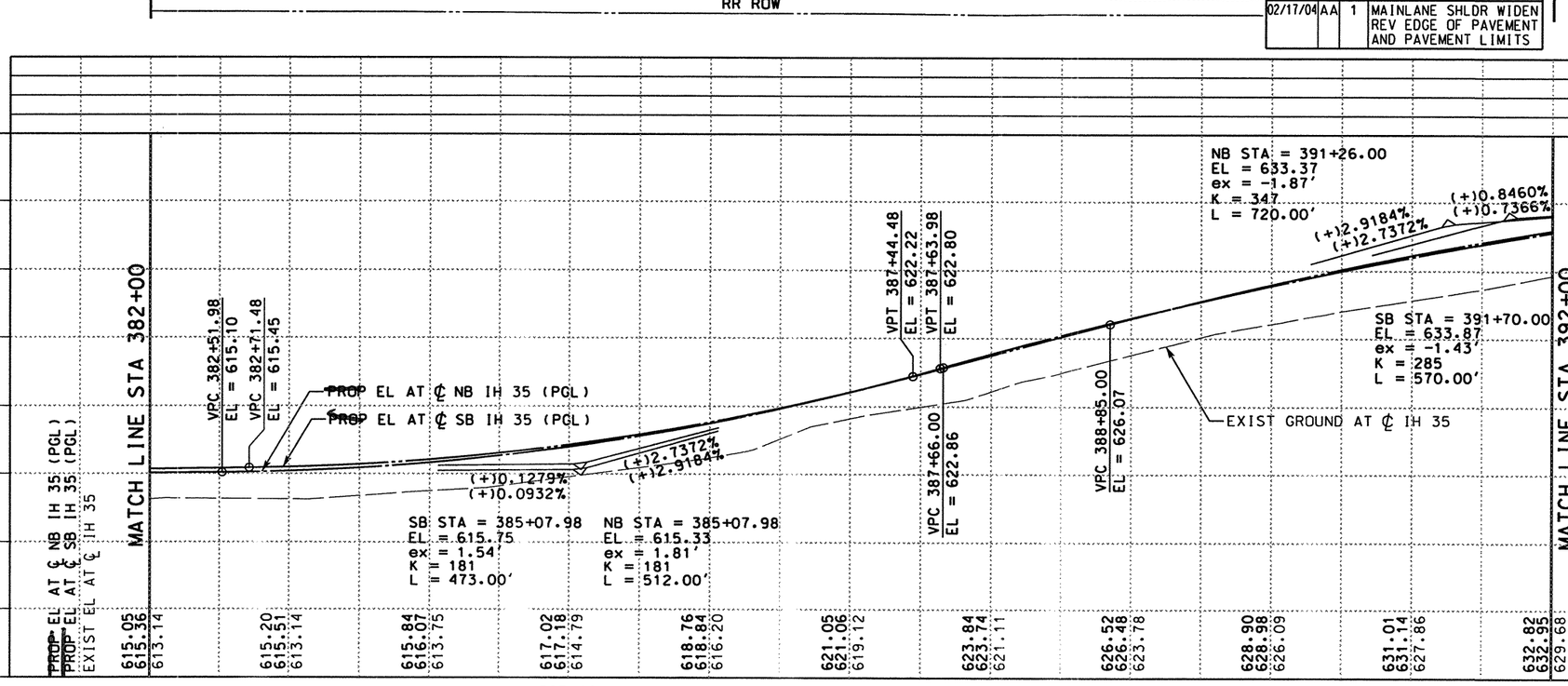
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 382+00 TO
STA 392+00

SHEET 22 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		305
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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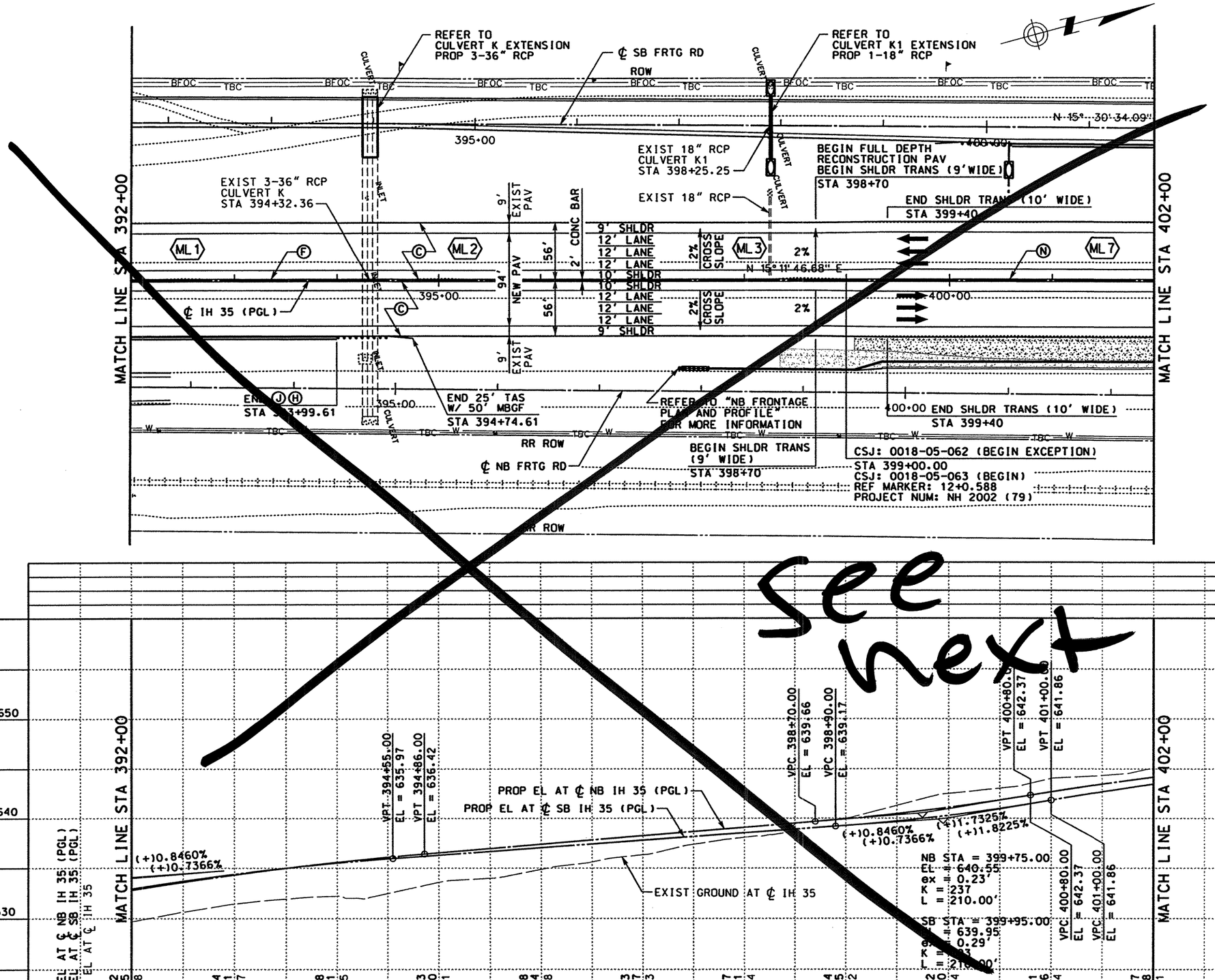

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

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RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 392+00 TO
STA 402+00

SHEET 23 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	306
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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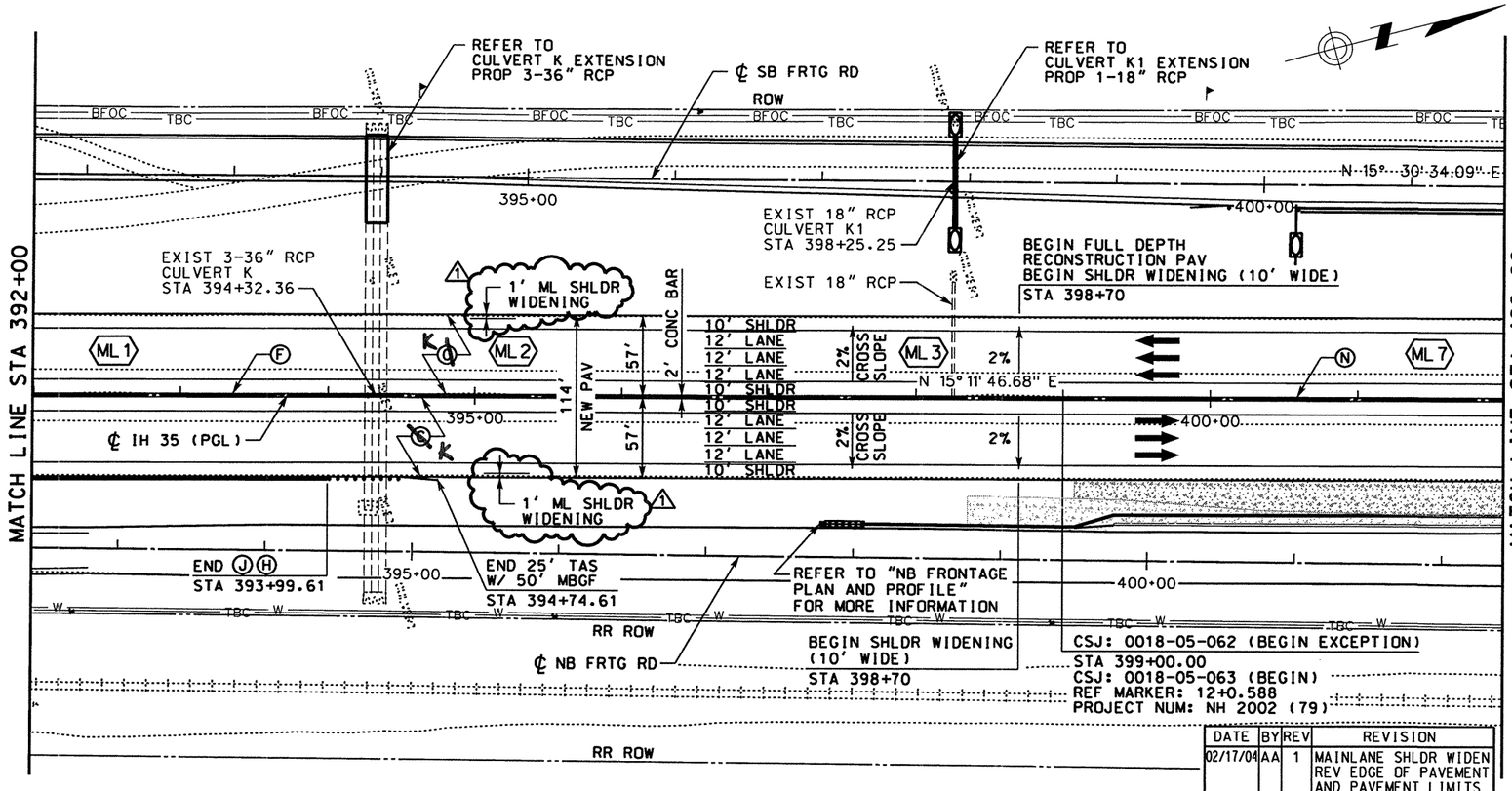


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

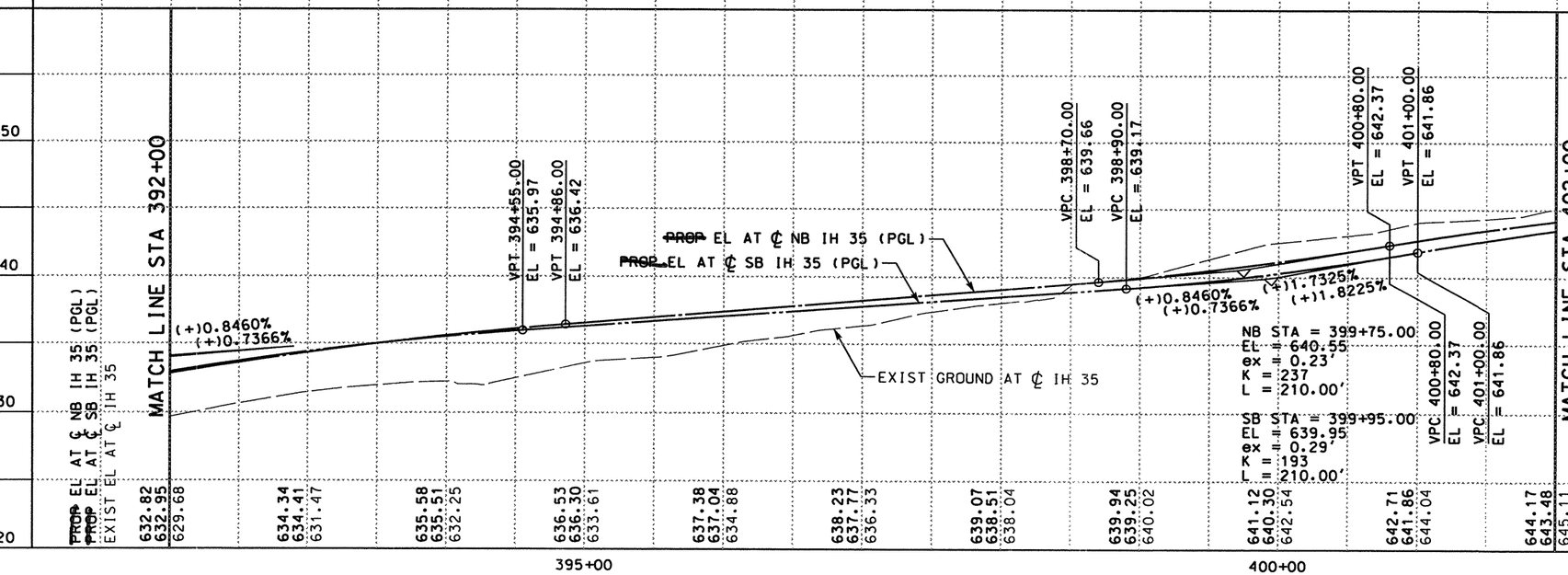
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



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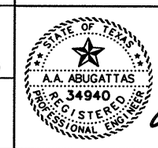
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 392+00 TO
STA 402+00

SHEET 23 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	306
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/5/2004

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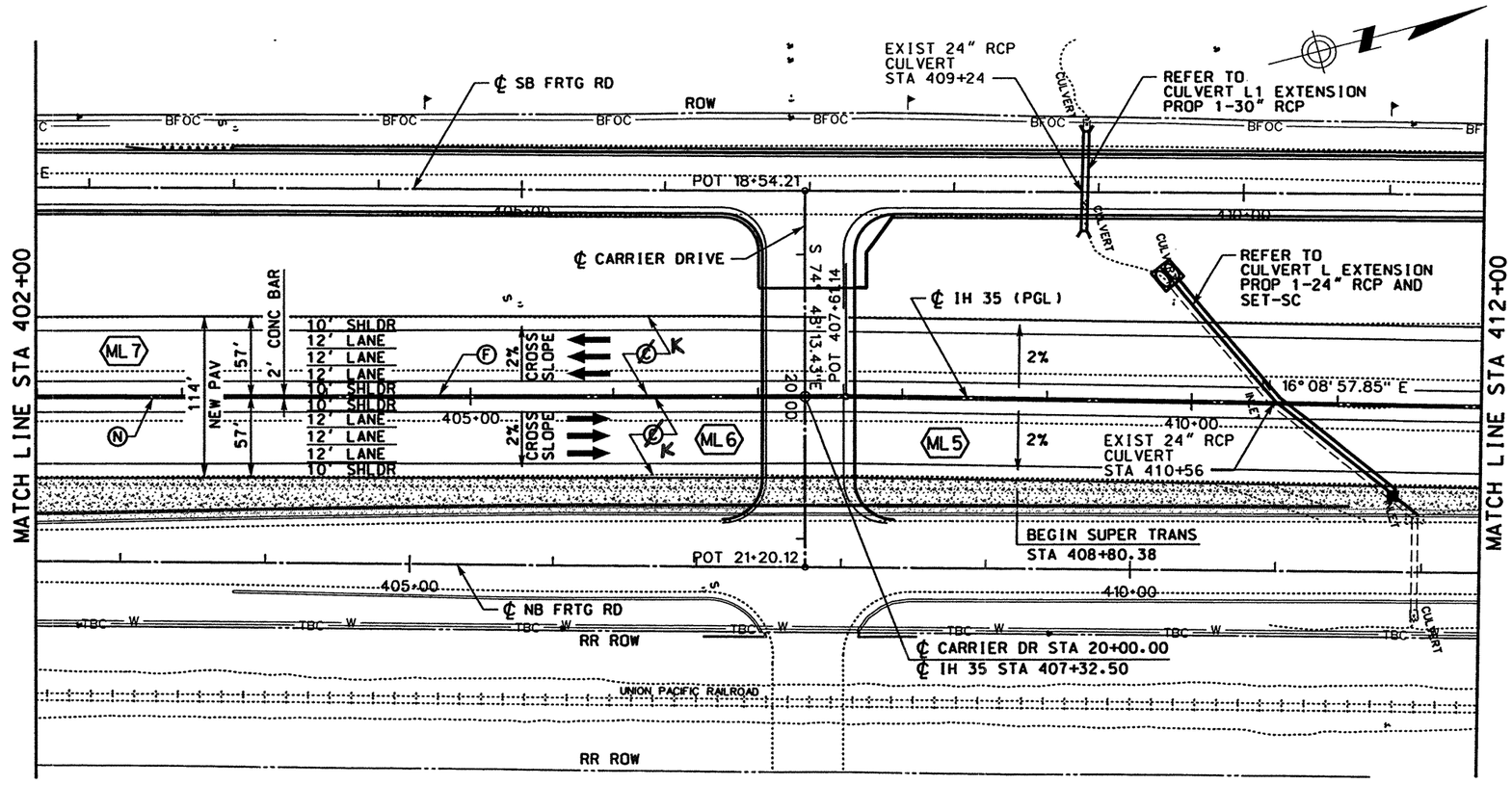

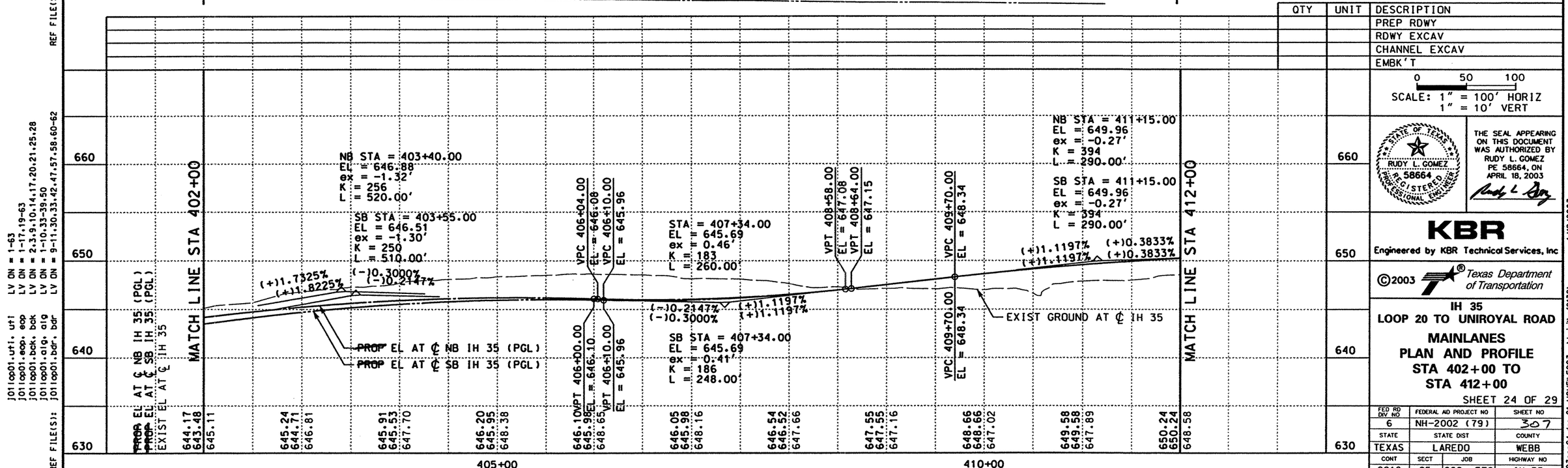

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
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- (Q) SIDEWALK (4")
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- (T) METAL BEAM GUARD FENCE (MBGF)
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- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE CARRIER DR "BRIDGE LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 402+00 TO
STA 412+00

SHEET 24 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	307
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

4/18/2003

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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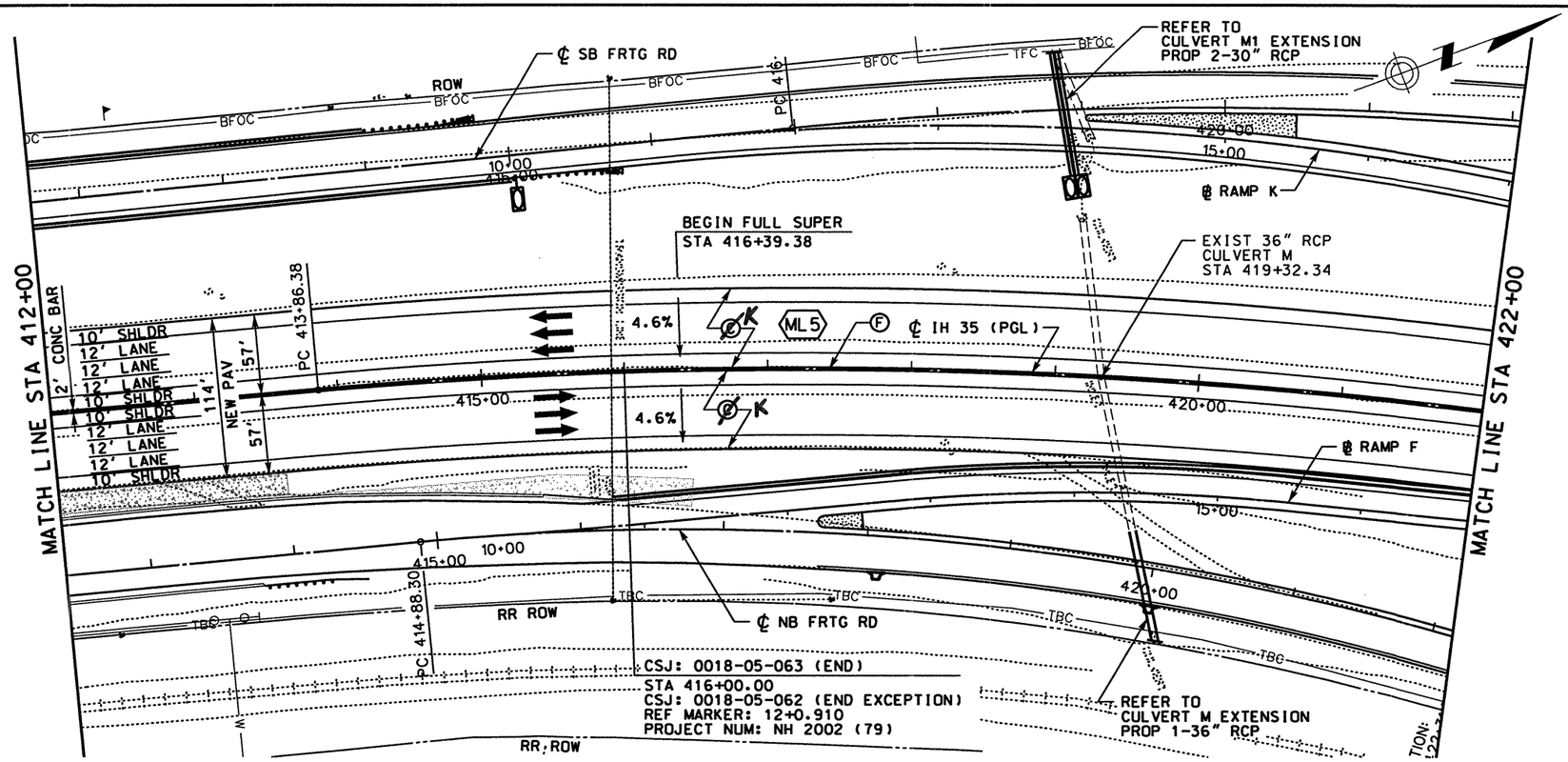
REF FILE(S): j011op01.utl, utl LV ON = 1-63
j011op01.eap, eap LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2.3.9.10.14.17.20.21.25.28
j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bar, bar LV ON = 9-11.30.33.42.47.57.58.60-62

\hcivil\cf0130\b03ppp24.dgn-21 HOUFILE023

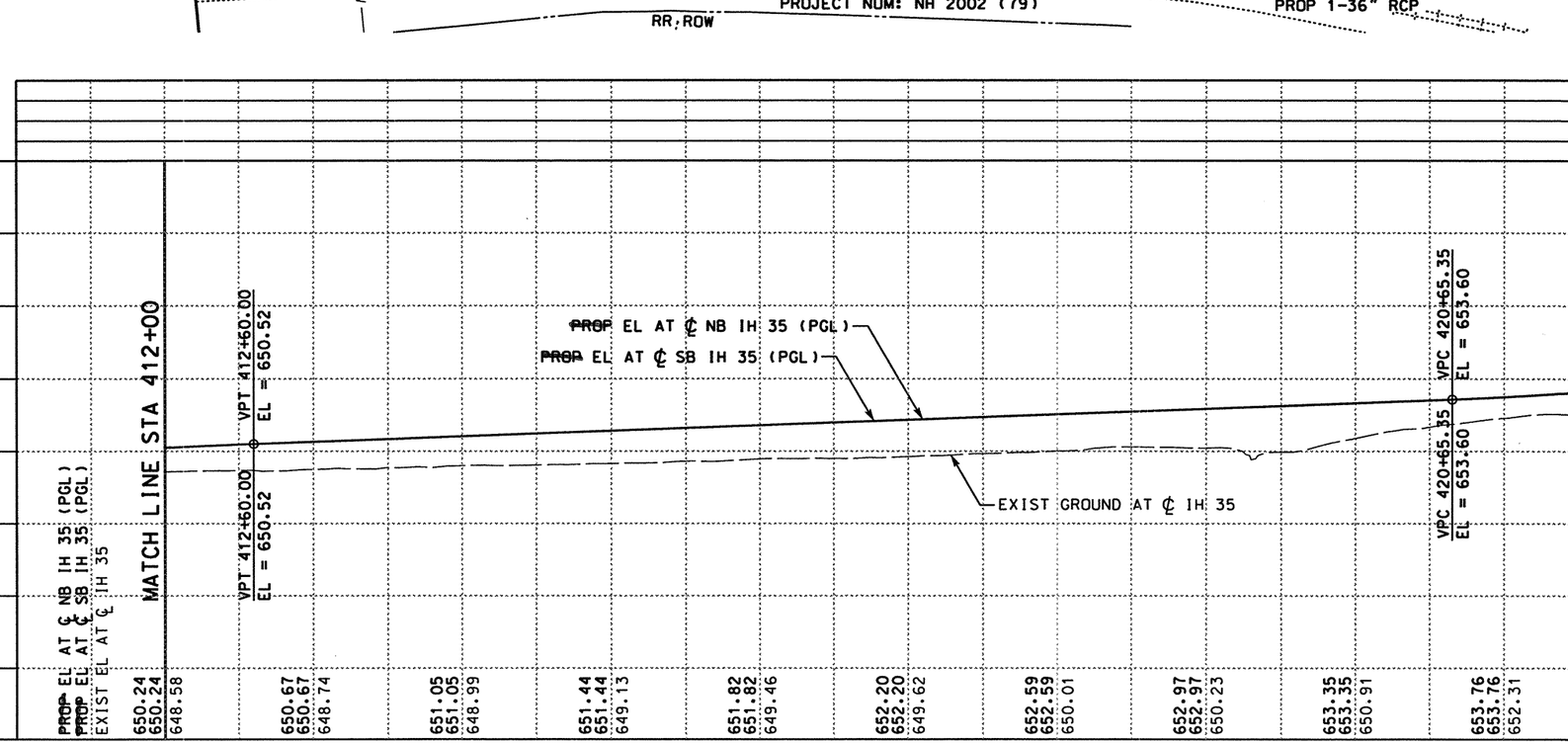


LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- ~~Ⓒ POROUS FRICTION COURSE (1.5")~~
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 02, 2003

Alan Abugattas

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 412+00 TO
STA 422+00

SHEET 25 OF 29

FED RD DIV. NO.	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	308
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003

REF FILE(S): j011op01.drn, drn LV ON = 8.28
j011op01.epp, epp LV ON = 12.13.35
j011op01.pro, pro LV ON = 1-23.25-63
j011op01.row, row
milofnt.row

REF FILE(S): j011op01.utl, utl LV ON = 1-63
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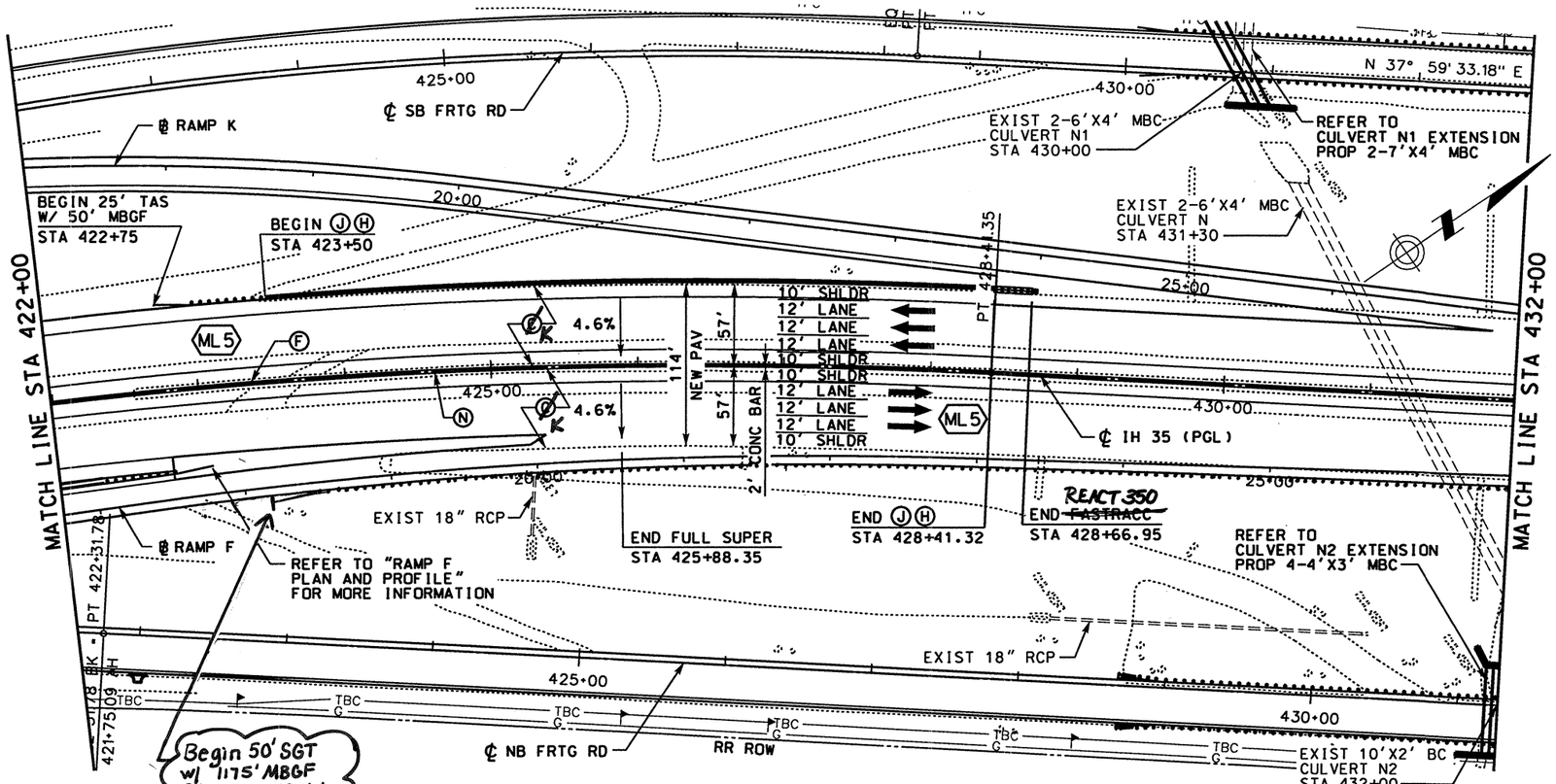


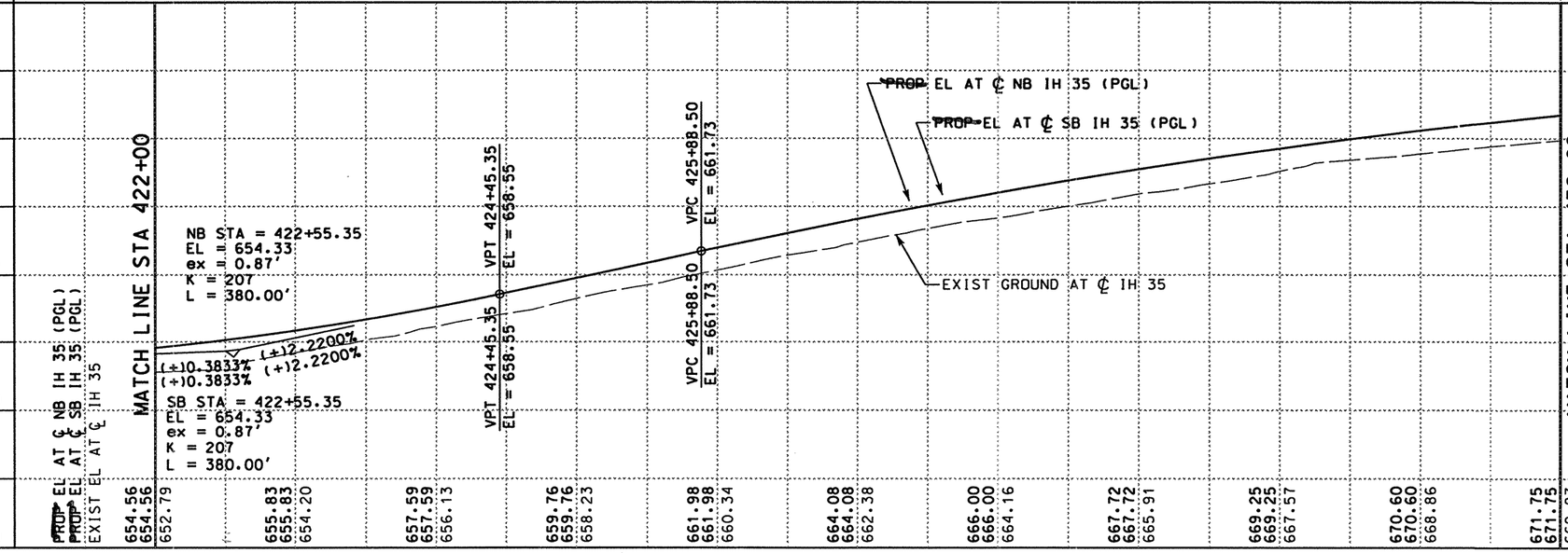
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) ~~POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED"~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
P. 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 02, 2003

Alan Abugattas

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6/4/2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 422+00 TO
STA 432+00

SHEET 26 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	309
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

\\civil\c\0130\03pp26.dgn-21 HOUFILE023

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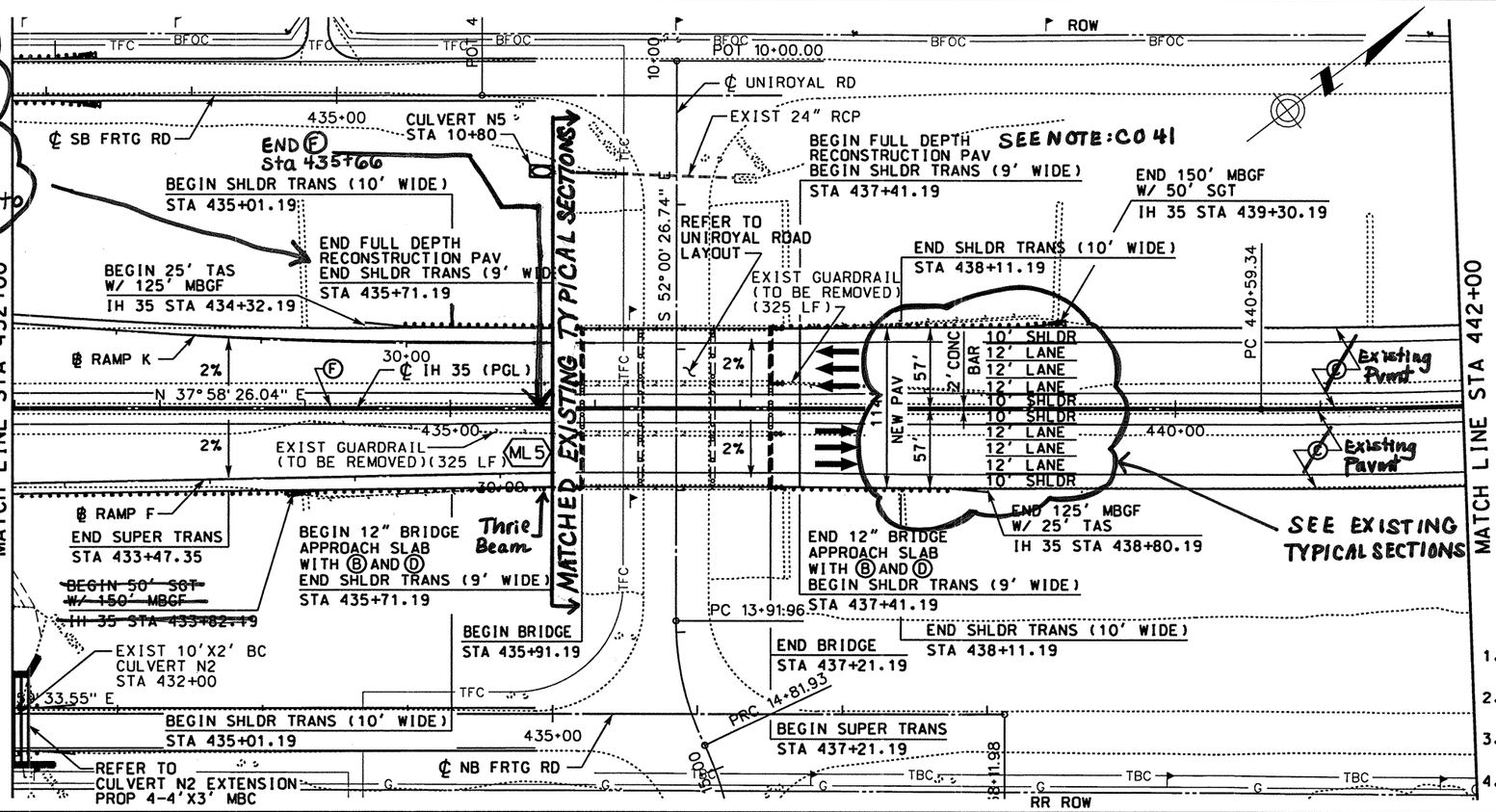
LV ON = 1-63, 1-17.19-63, 2.3-9.10.14.17.20.21-25.28, 1-10.33-39.50, 9-11.30.33-42.47.57.58.60-62
LV ON = 8.28, 12-13.35, 1-23.25-63

NOTE:
CHANGE ORDER #41 stops the Main Lane Reconstruction Limits at Sta 435+71.19 to match existing rdwy.



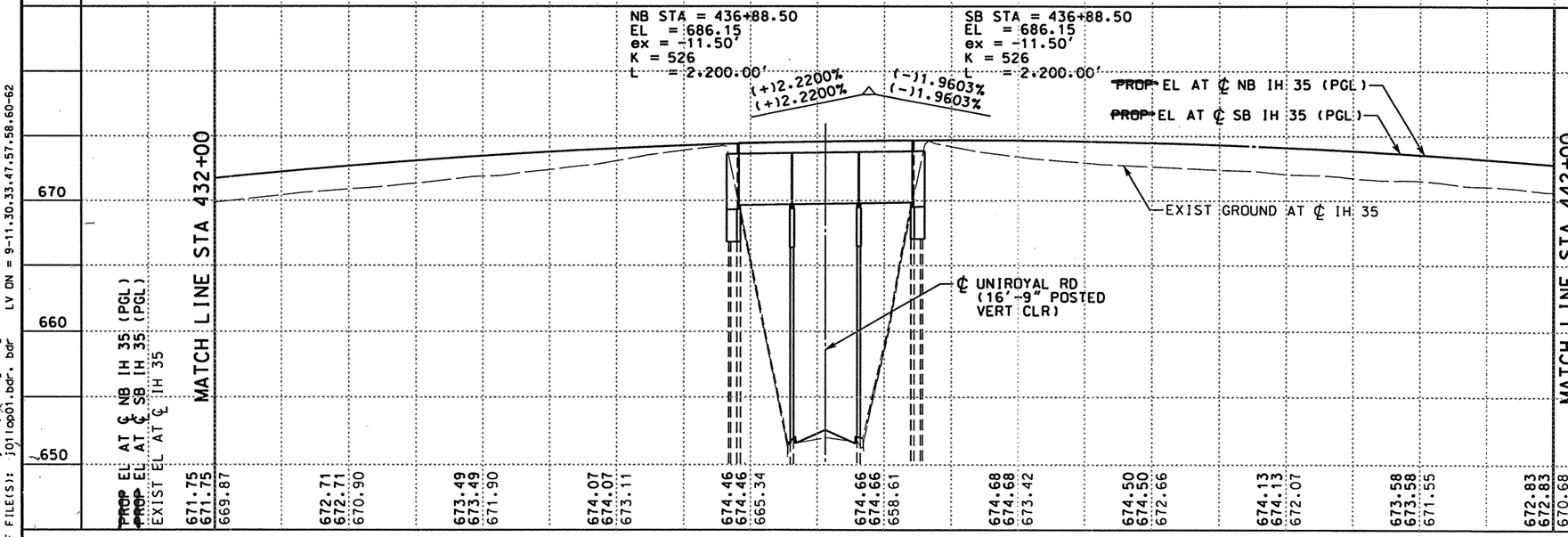
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) ~~POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE UNIROYAL RD "CONTOUR GRADING PLAN" AND "PLAN AND PROFILE" FOR MORE INFORMATION.
4. SEE UNIROYAL ROAD "BRIDGE LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



SCALE: 1" = 100' HORIZ
1" = 10' VERT

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A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 432+00 TO
STA 442+00
SHEET 27 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	310
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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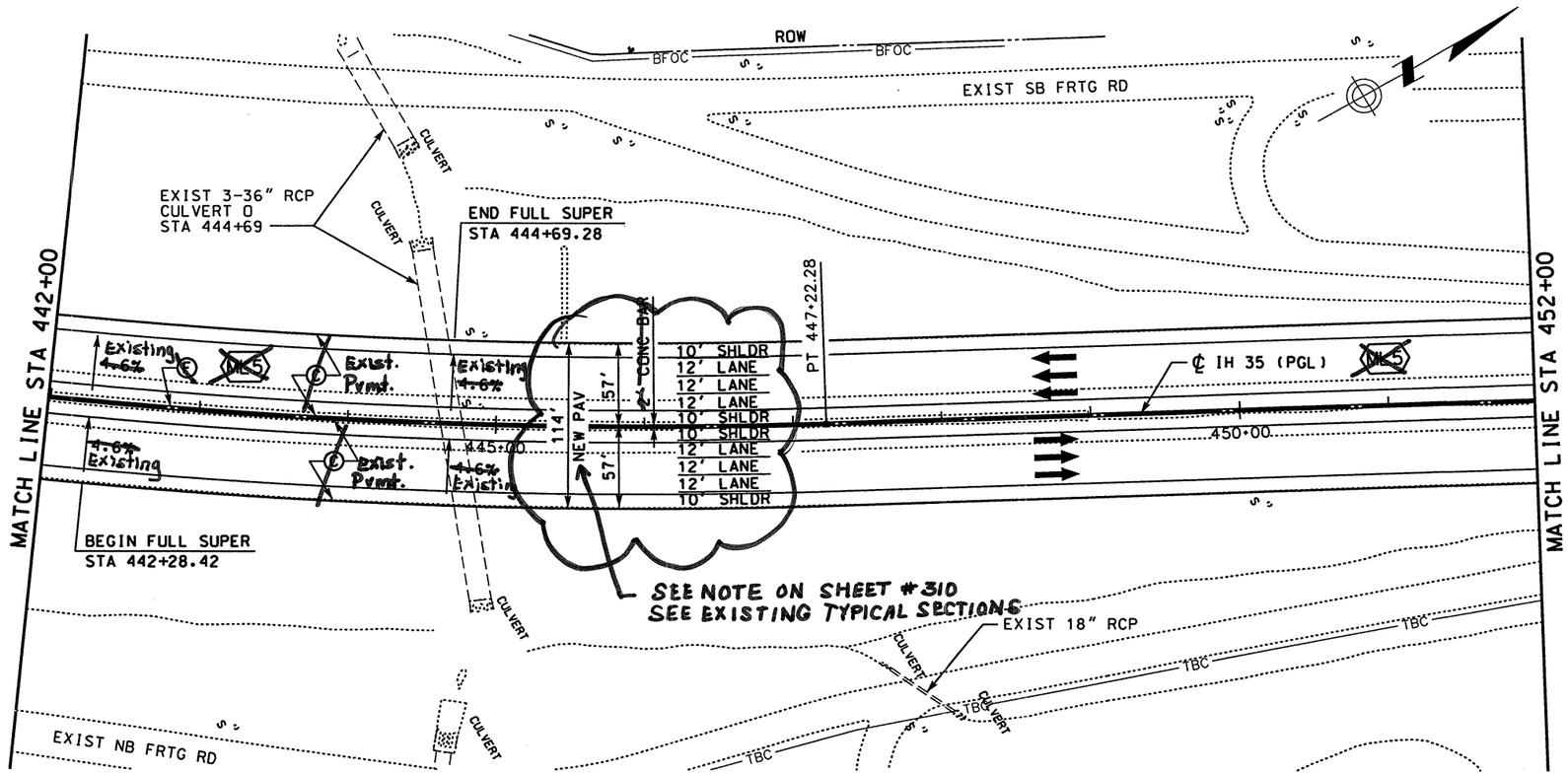
j011op03pp27.dgn-23 \houfile023\civil\vol30\ 6/4/2003

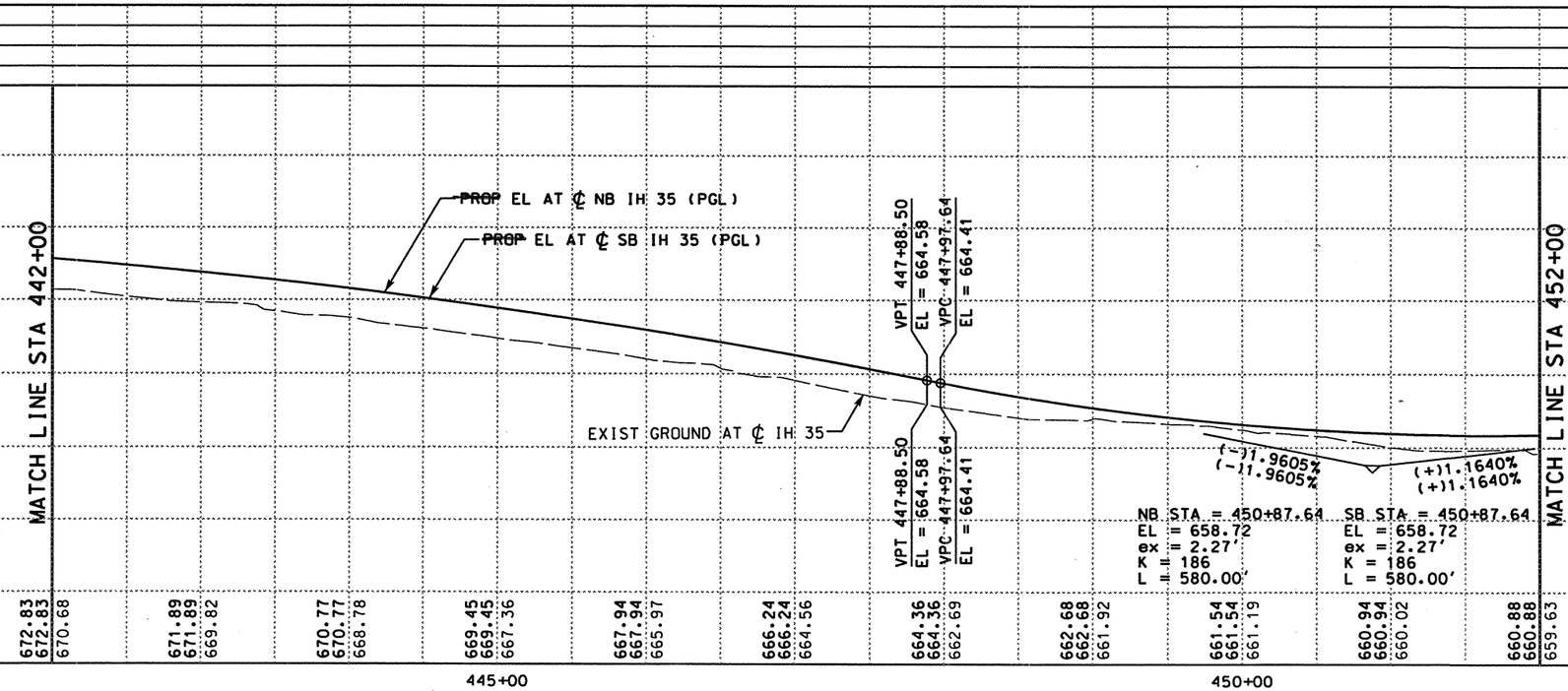


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE (1.5")~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 02, 2003

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 442+00 TO
STA 452+00

SHEET 28 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	311
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

6/4/2003

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j011op01.bck. bck LV ON = 2.3.9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-10.33-39.50
j011op01.bdr. bdr LV ON = 9-11.30.33.42.47.57.58.60-62
REF FILE(S):
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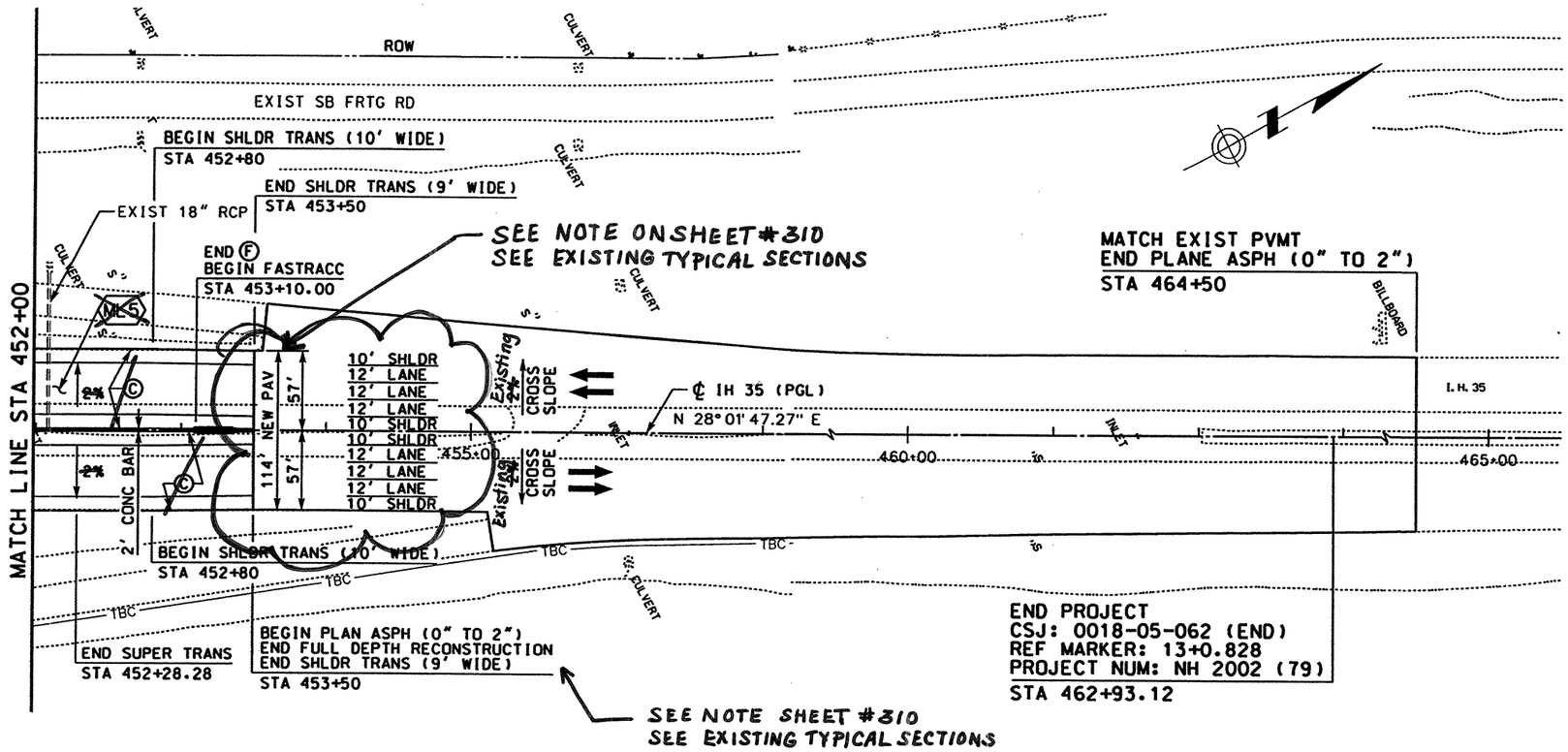
b03ppp28.dgn-17

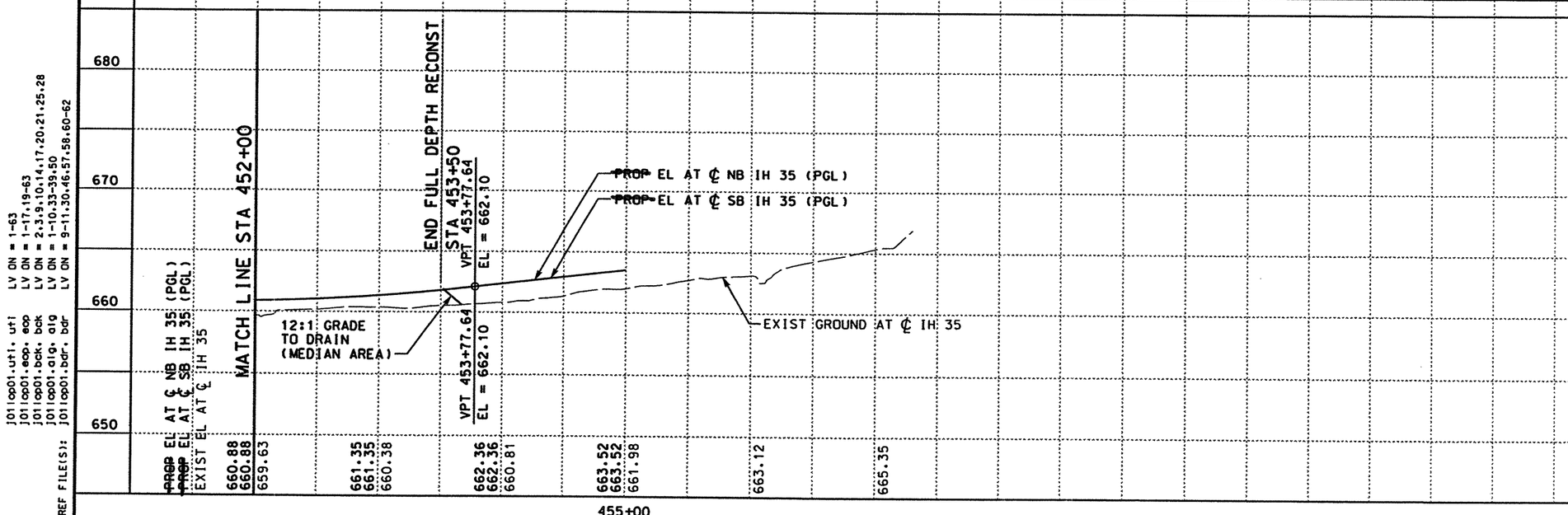


LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- ~~Ⓒ POROUS FRICTION COURSE (1.5")~~
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
MAINLANES
PLAN AND PROFILE
STA 452+00 TO
STA 464+50

SHEET 29 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	312
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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milolnh.row, row LV ON = 1-23.25-63

REF FILE(S): j011op01.url, url LV ON = 1-63
j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bak, bak LV ON = 2.3.9.10.14.17.20.21.25.28
j011op01.alg, alg LV ON = 1-10.33-39.50
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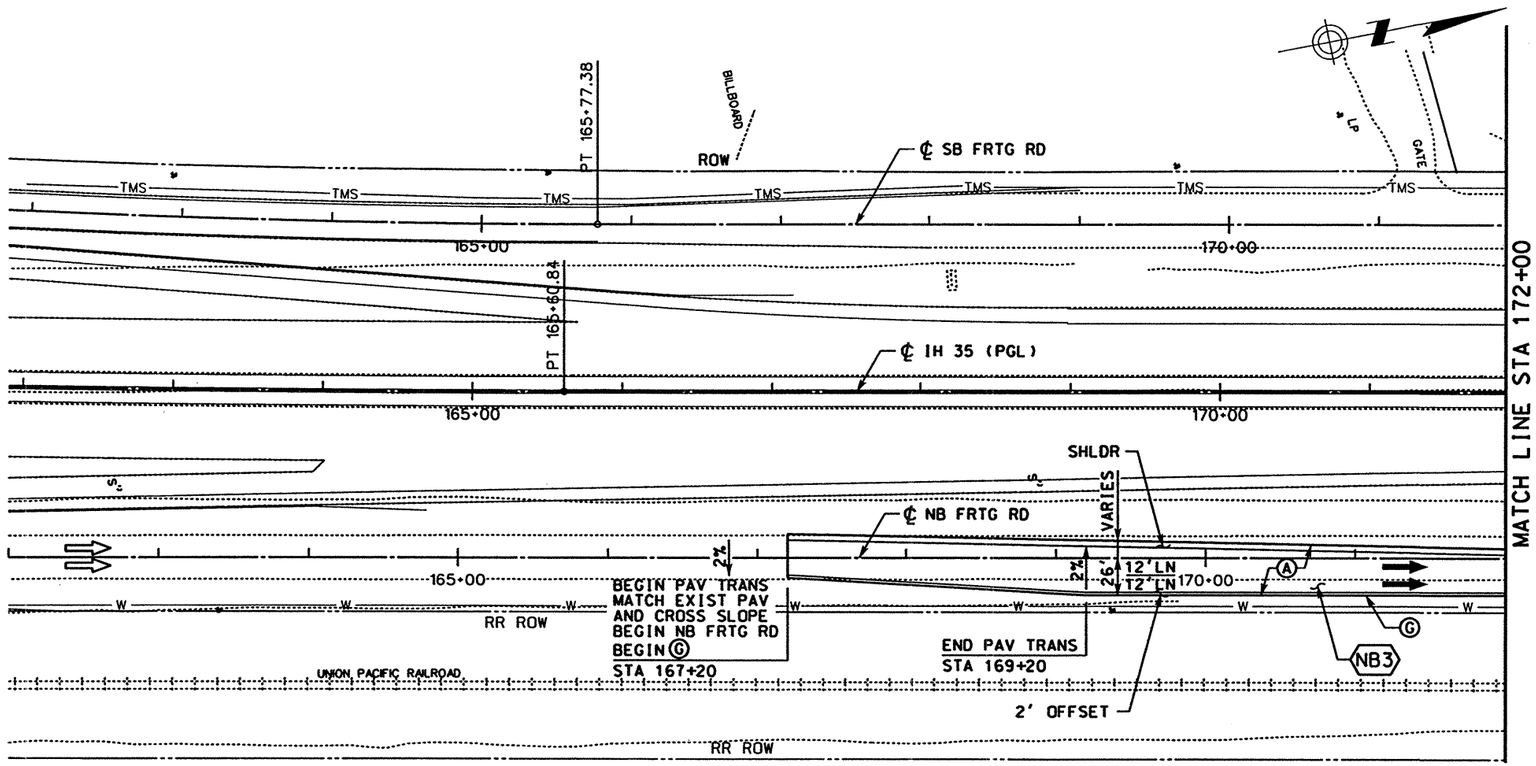
b03pp29.dgn-19 HOUFILE023 \hcivil\c0130\ 4/18/2003

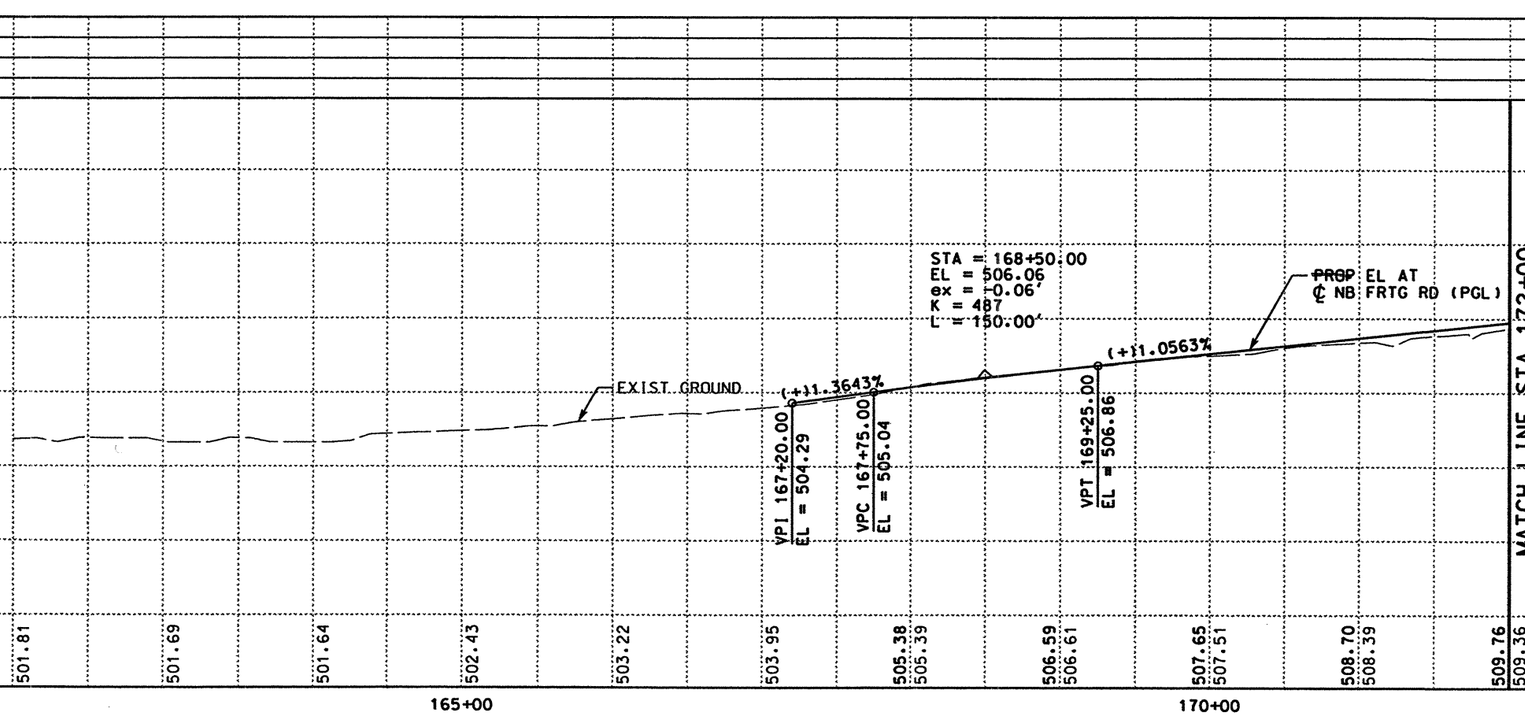


LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 162+00 TO
STA 172+00

SHEET 1 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	3/3
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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j011op01.clg, LV ON = 1-10,33-39,50
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j011op01.utl, utl LV ON = 1-63
REF FILE(S): j011op01.pro, LV ON = 1-63
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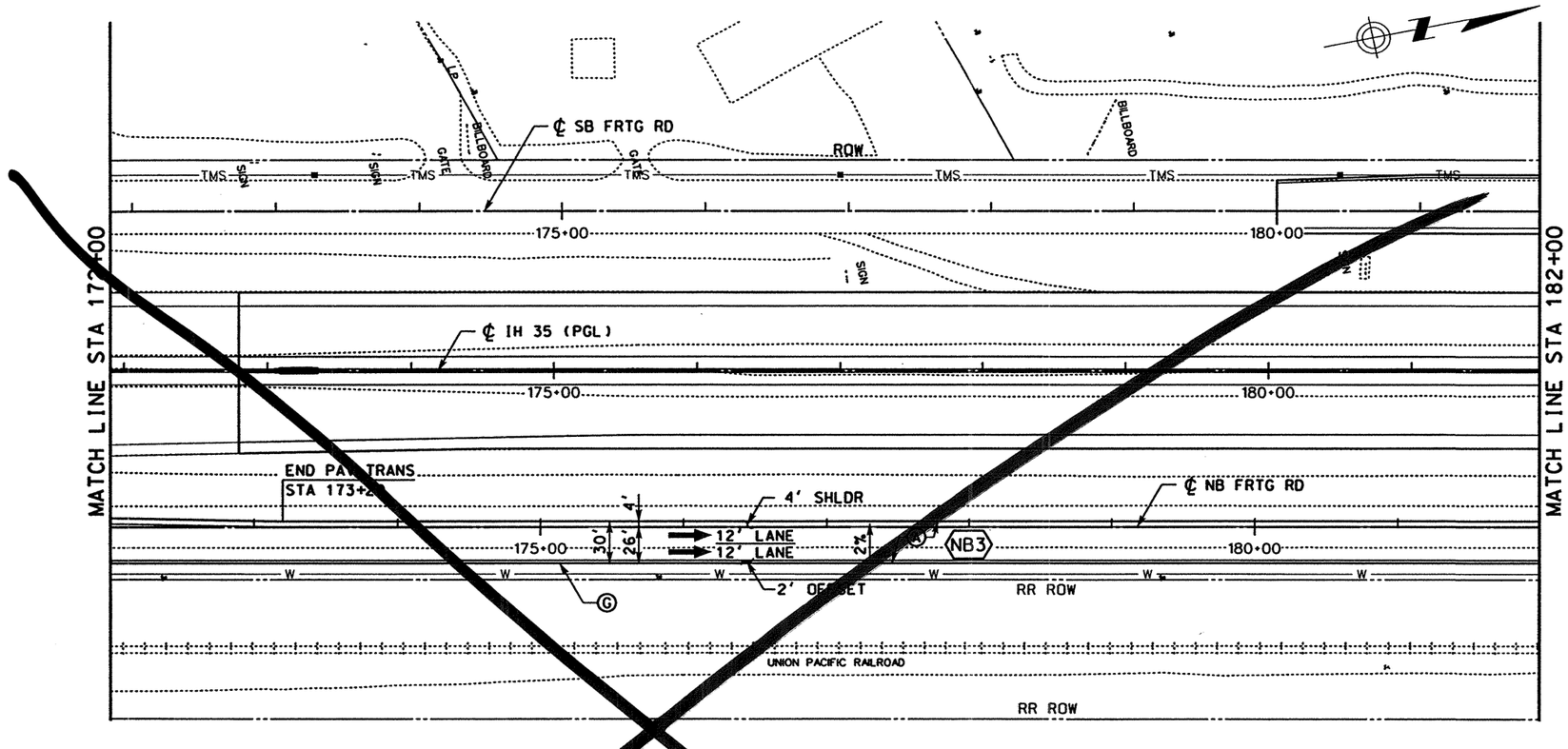


LEGEND

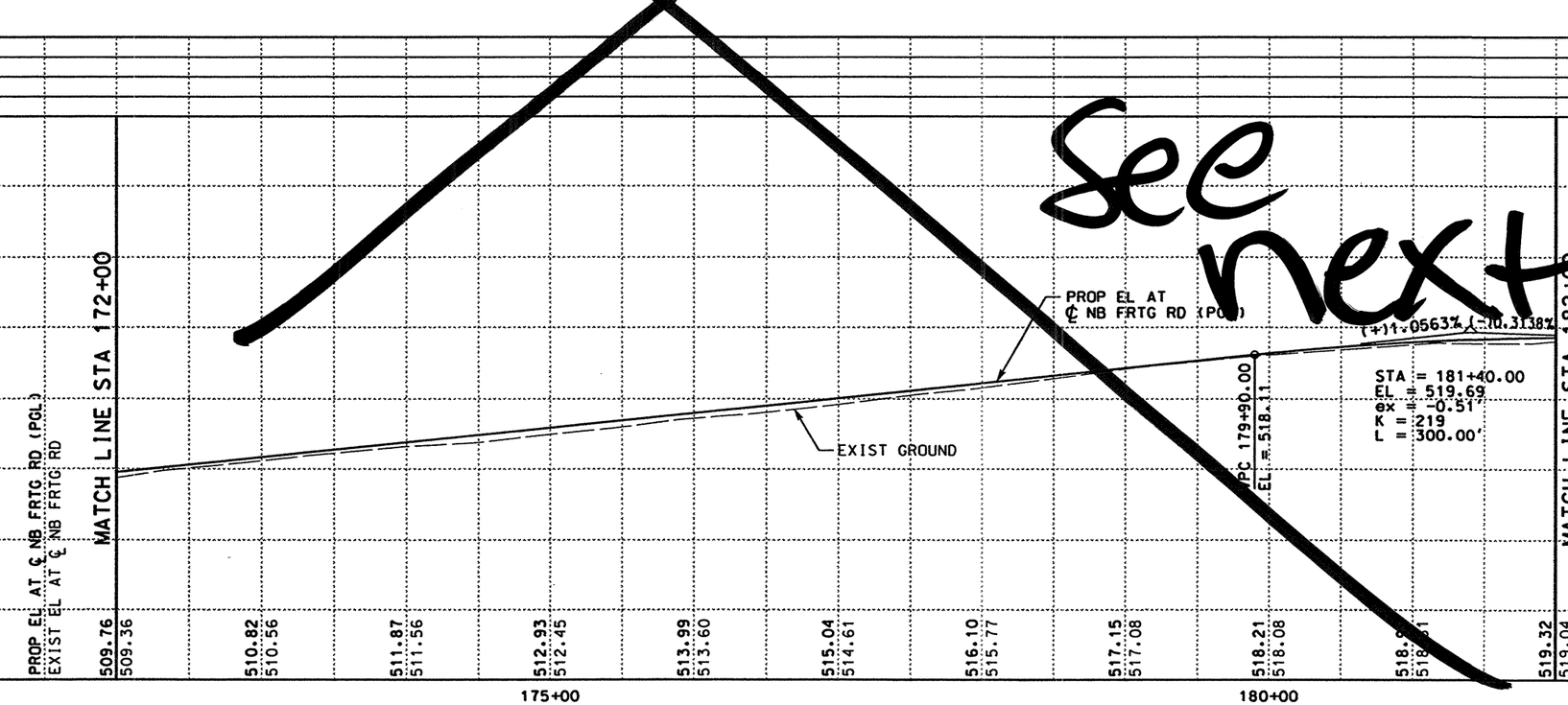
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT



See next

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 172+00 TO
STA 182+00

SHEET 2 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	314
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003
HOUFILE023 \hchivi\cf0130\
b03ppp31.dgn-06

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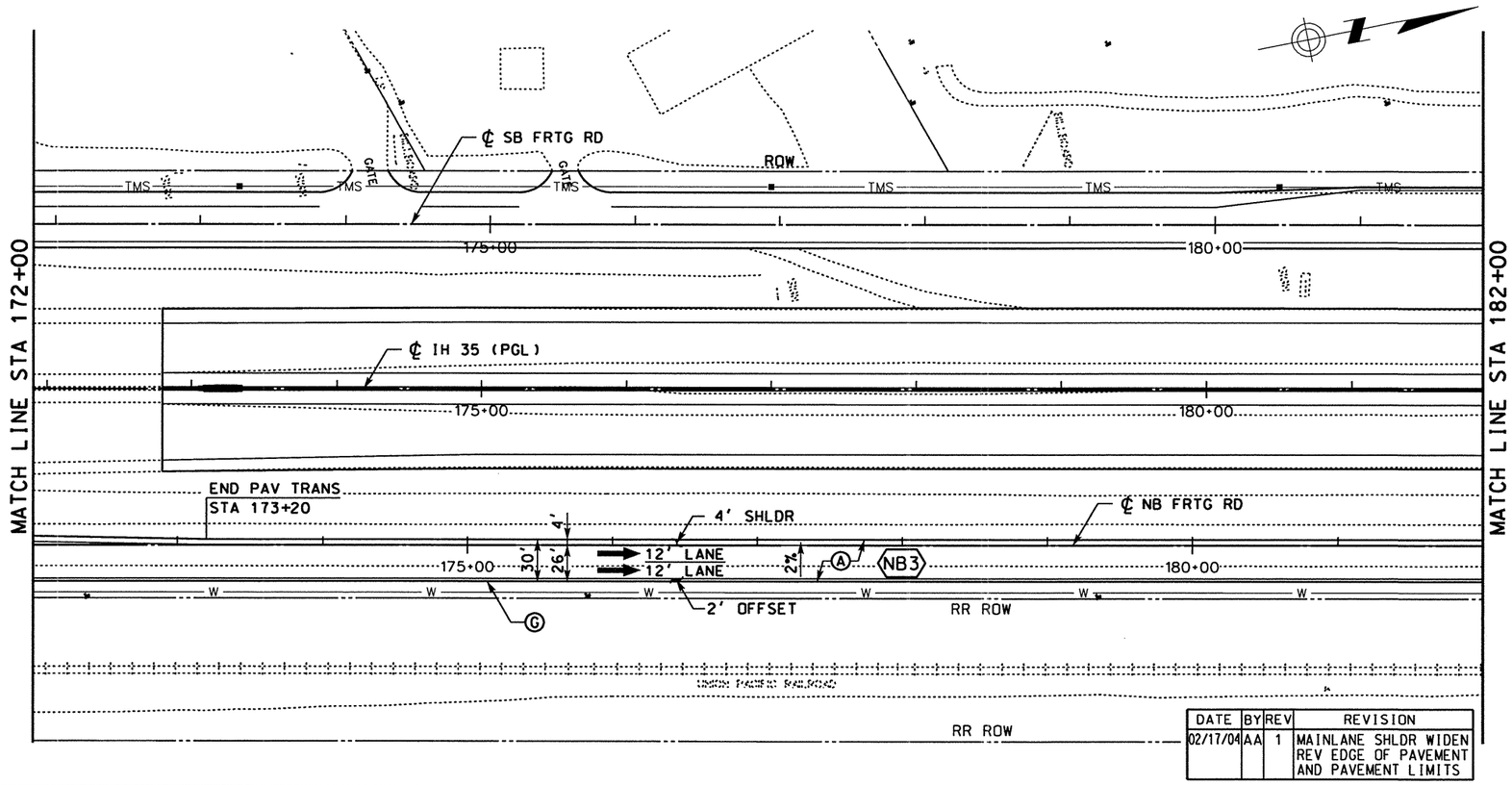


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

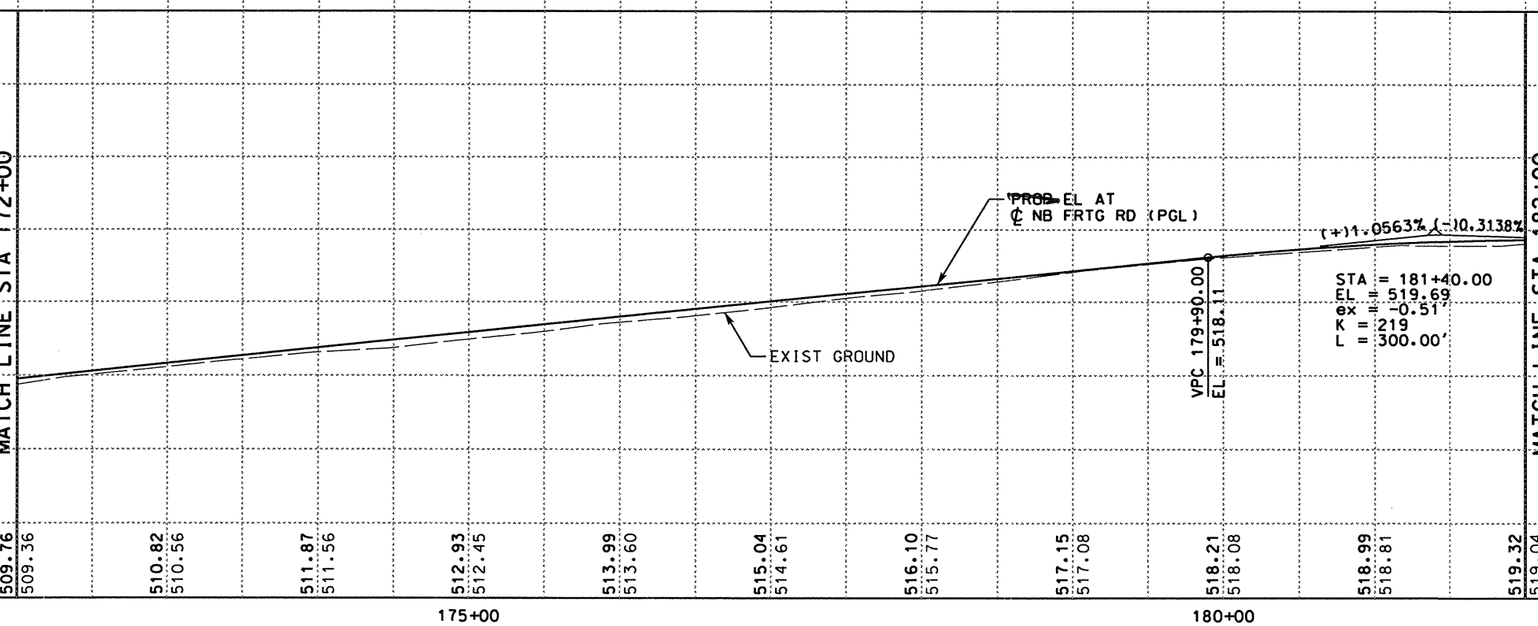
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
94940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 172+00 TO
STA 182+00

SHEET 2 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	314
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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j011op01.dgn-06 HOUFILE023 \hcivil\c\0130\
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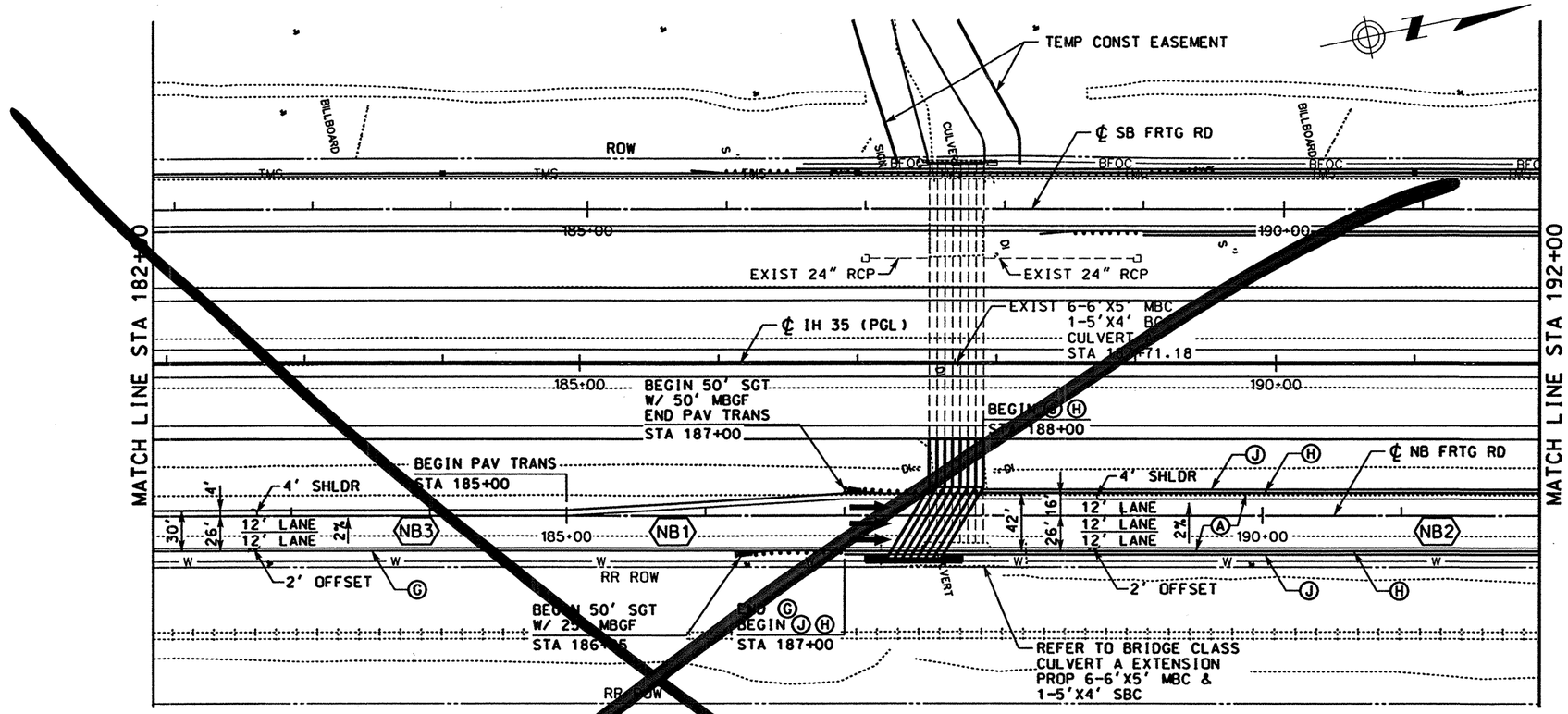

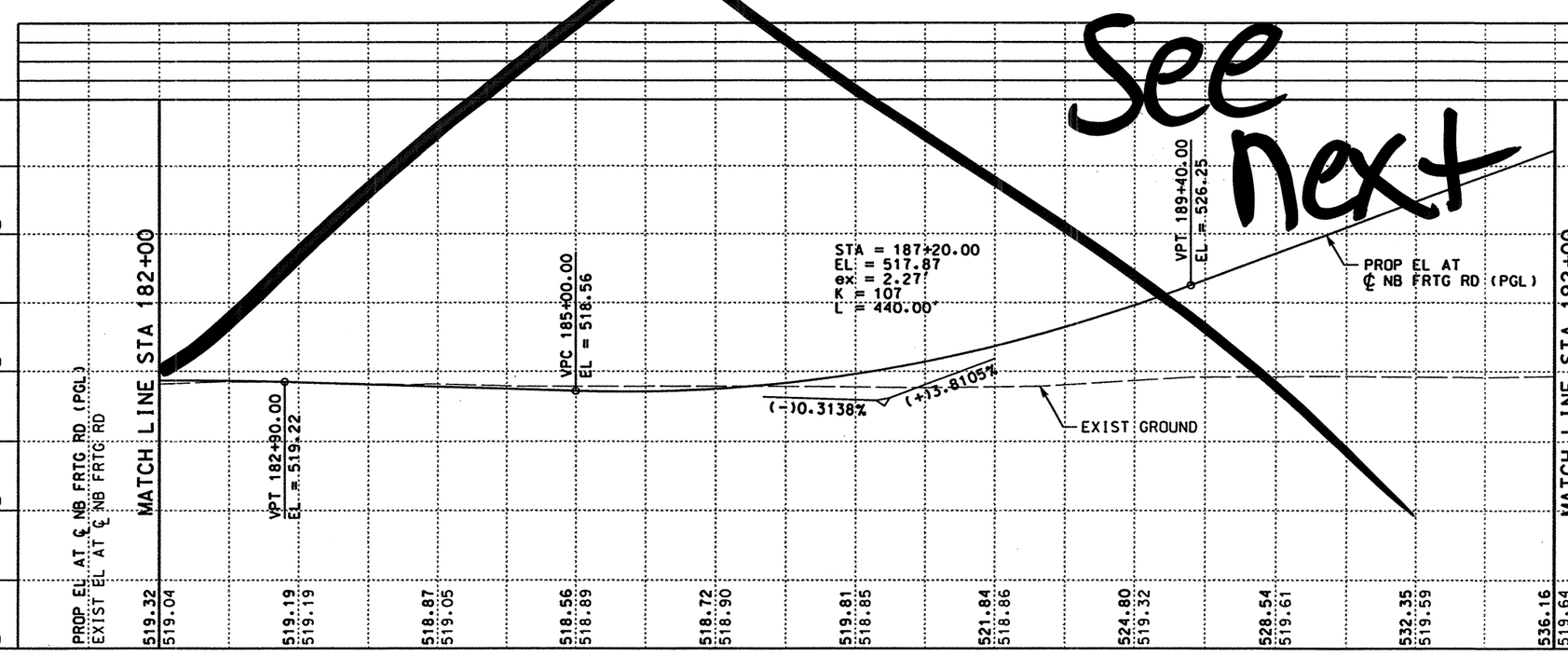

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")

⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "RETAINING WALL LAYOUT" FOR MORE DETAILS.
4. SEE "CHANNEL EXCAVATION" PLAN SHEET FOR TEMP CONST EASEMENT INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 182+00 TO
STA 192+00

SHEET 3 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	315
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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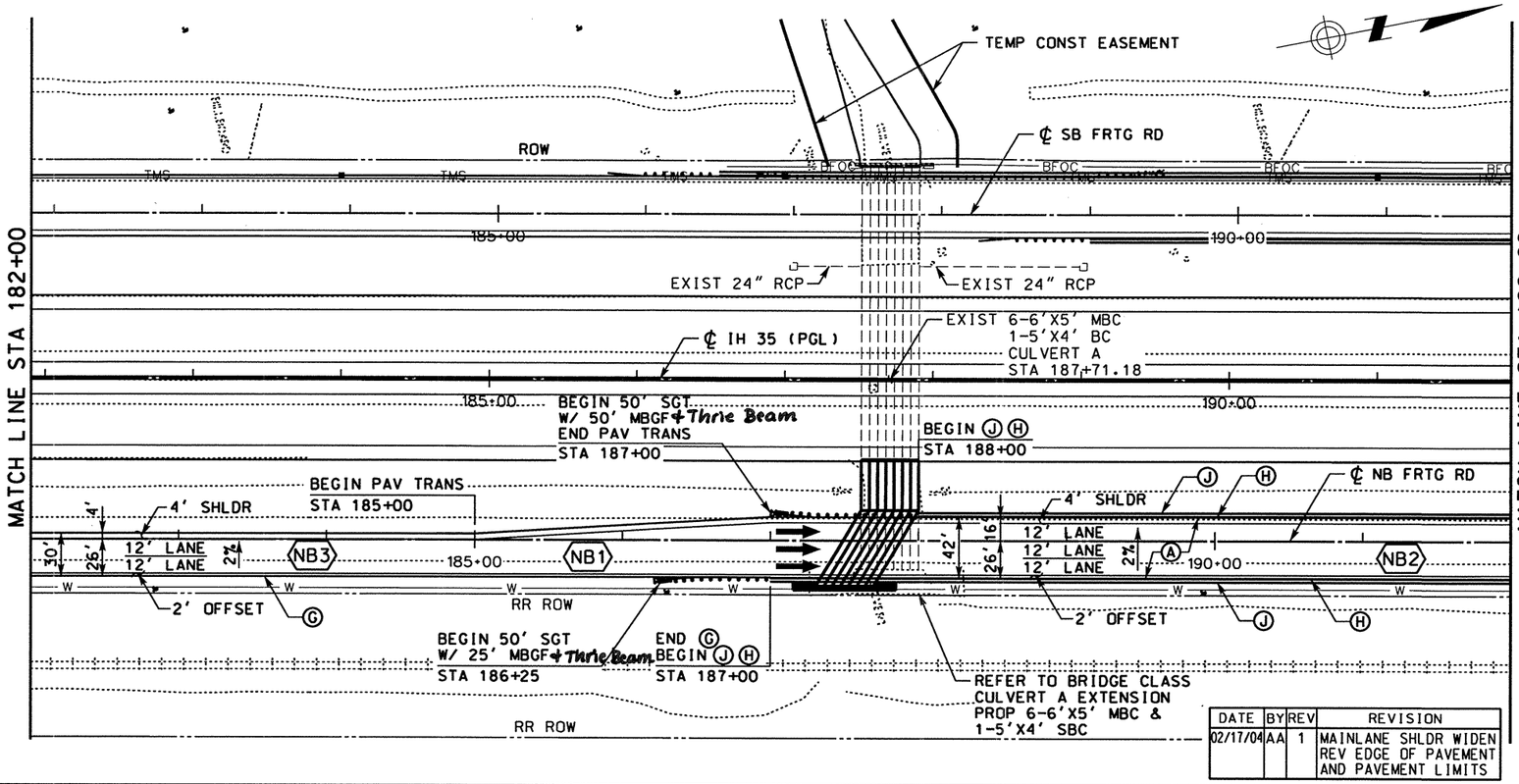


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

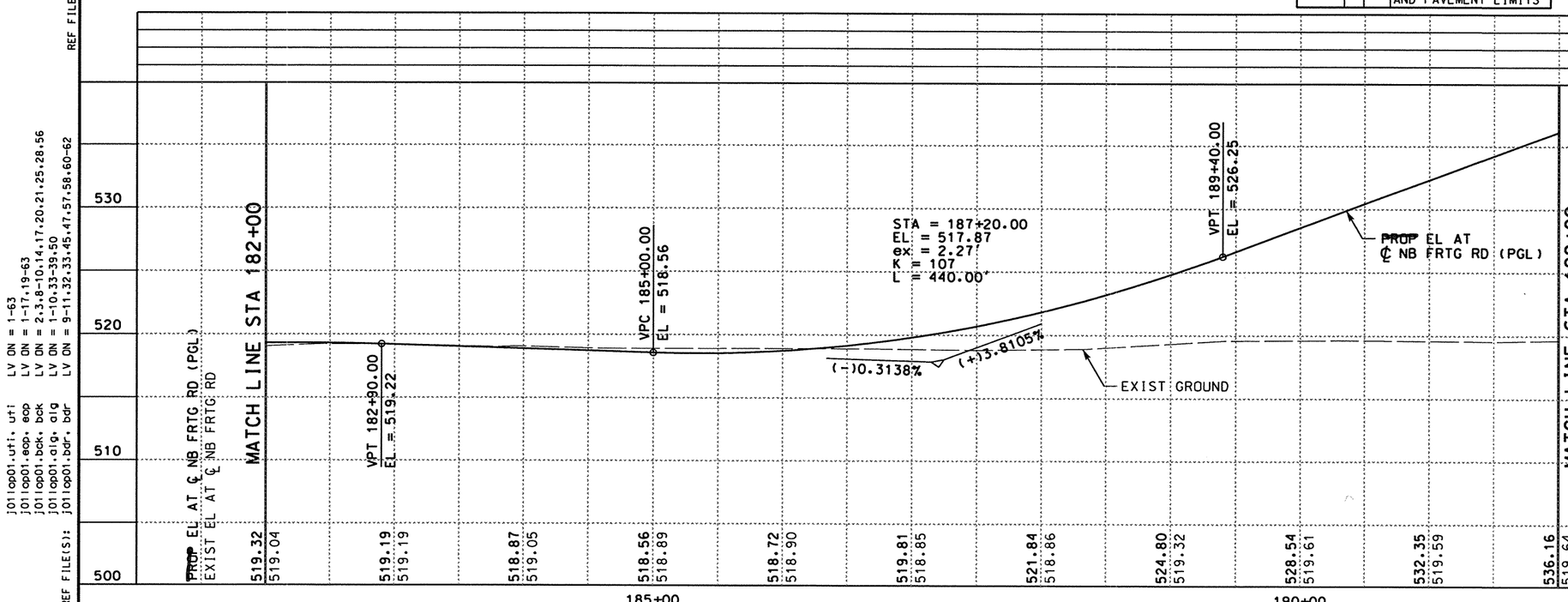
- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "RETAINING WALL LAYOUT" FOR MORE DETAILS.
4. SEE "CHANNEL EXCAVATION" PLAN SHEET FOR TEMP CONST EASEMENT INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 182+00 TO
STA 192+00

SHEET 3 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	315
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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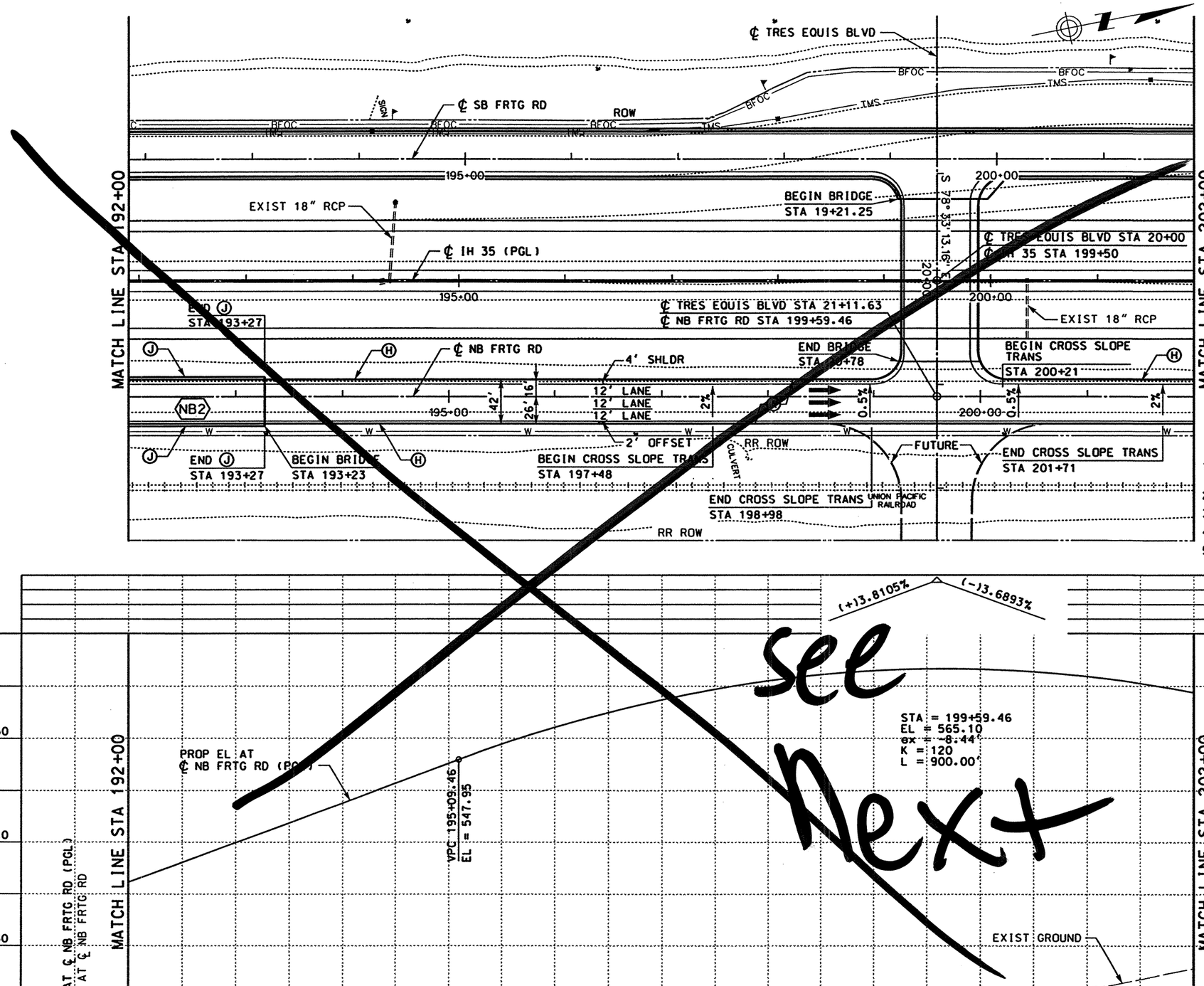

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE TRES EQUIS BLVD "BRIDGE LAYOUT" FOR MORE DETAILS.
4. SEE NB FRTG RD "BRIDGE LAYOUT" FOR MORE DETAILS.
5. SEE "RETAINING WALL LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 192+00 TO
STA 202+00

SHEET 4 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		316
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b03ppp33.dgn-07

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LV ON = 9-11.32.33.45.47.57.58.60-62

j011op01.utl. utl
j011op01.eop. eop
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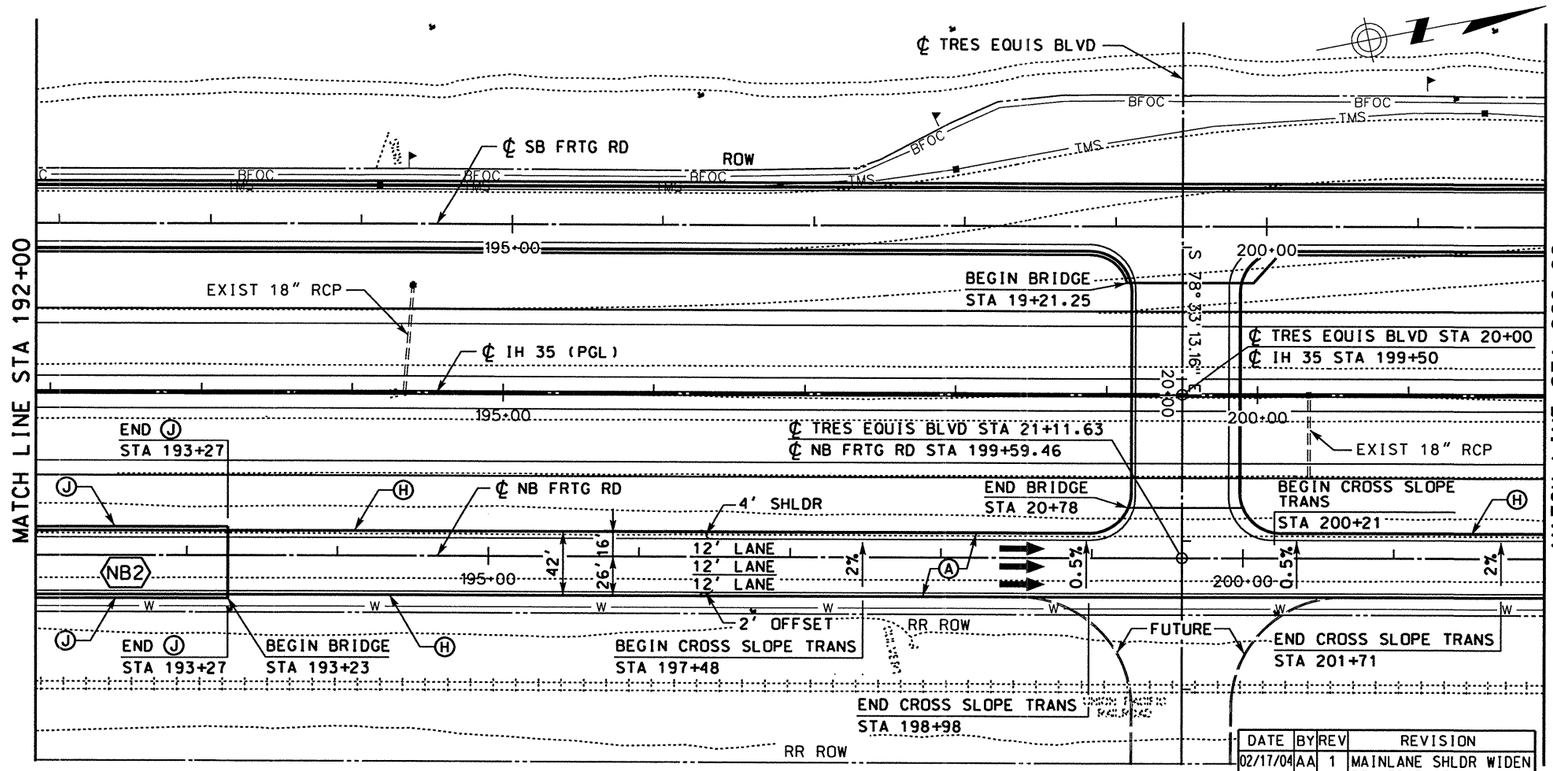
j011op01.dlg. dlg
j011op01.bdr. bdr



LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
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- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
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- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
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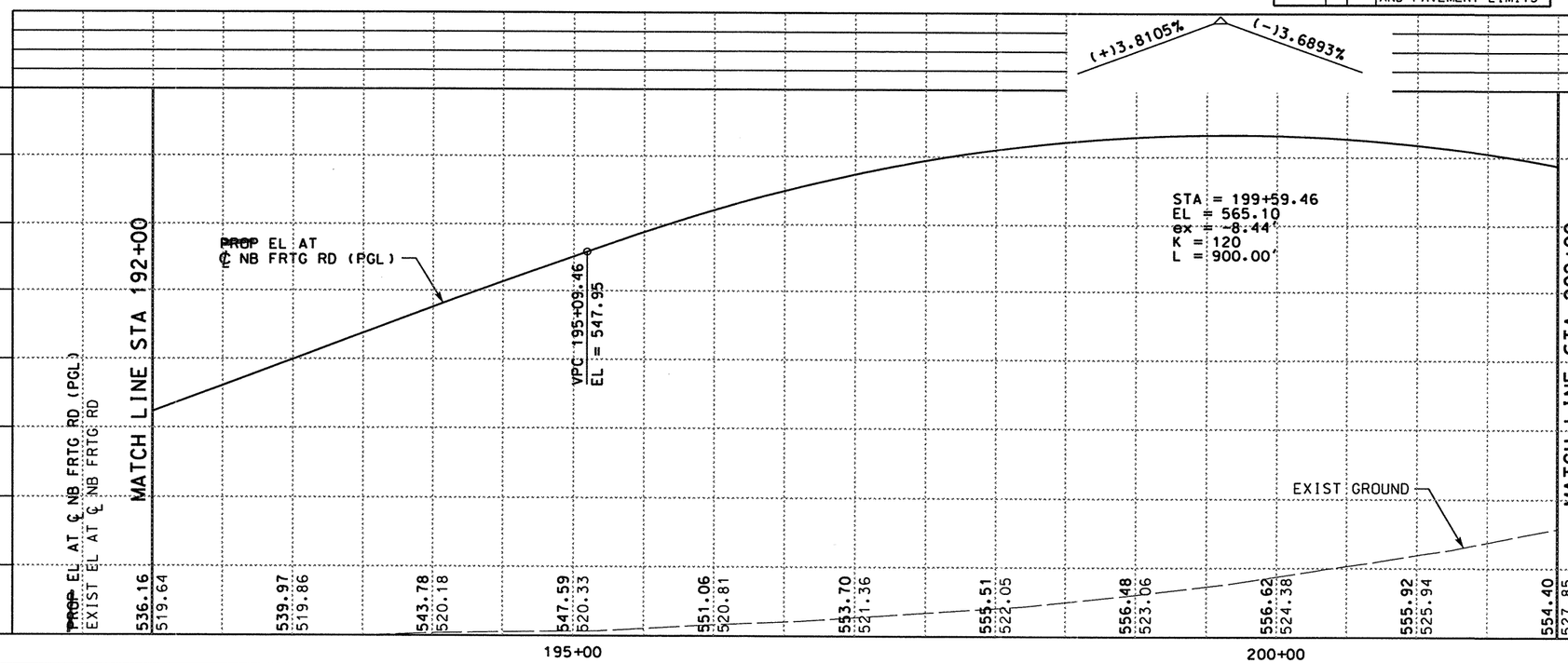
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE TRES EQUIS BLVD "BRIDGE LAYOUT" FOR MORE DETAILS.
4. SEE NB FRTG RD "BRIDGE LAYOUT" FOR MORE DETAILS.
5. SEE "RETAINING WALL LAYOUT" FOR MORE DETAILS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 192+00 TO
STA 202+00

SHEET 4 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	316
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.uti, uti LV ON = 1-63
j011op01.eop, eop LV ON = 1-17,19-63
j011op01.bck, bck LV ON = 2,3,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-10,33-39,50
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

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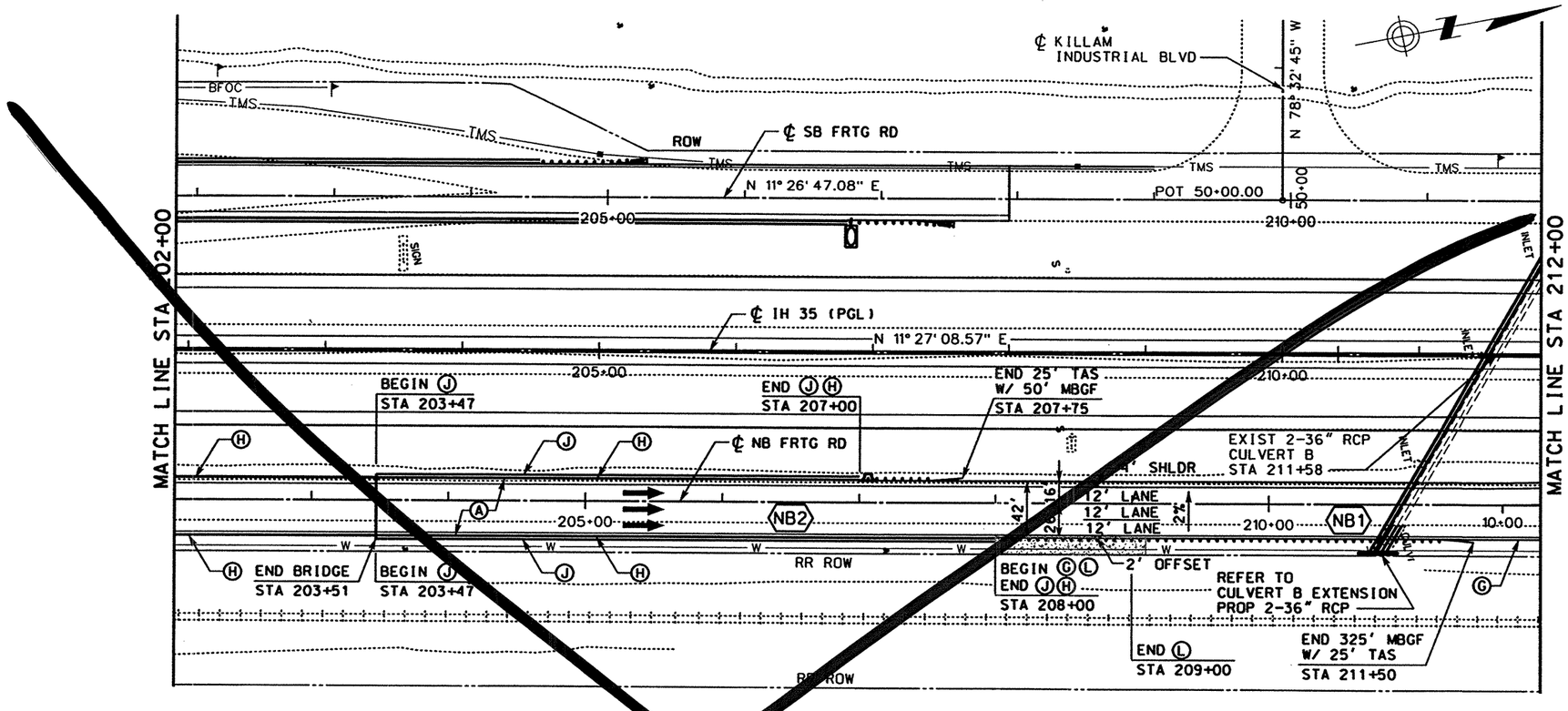


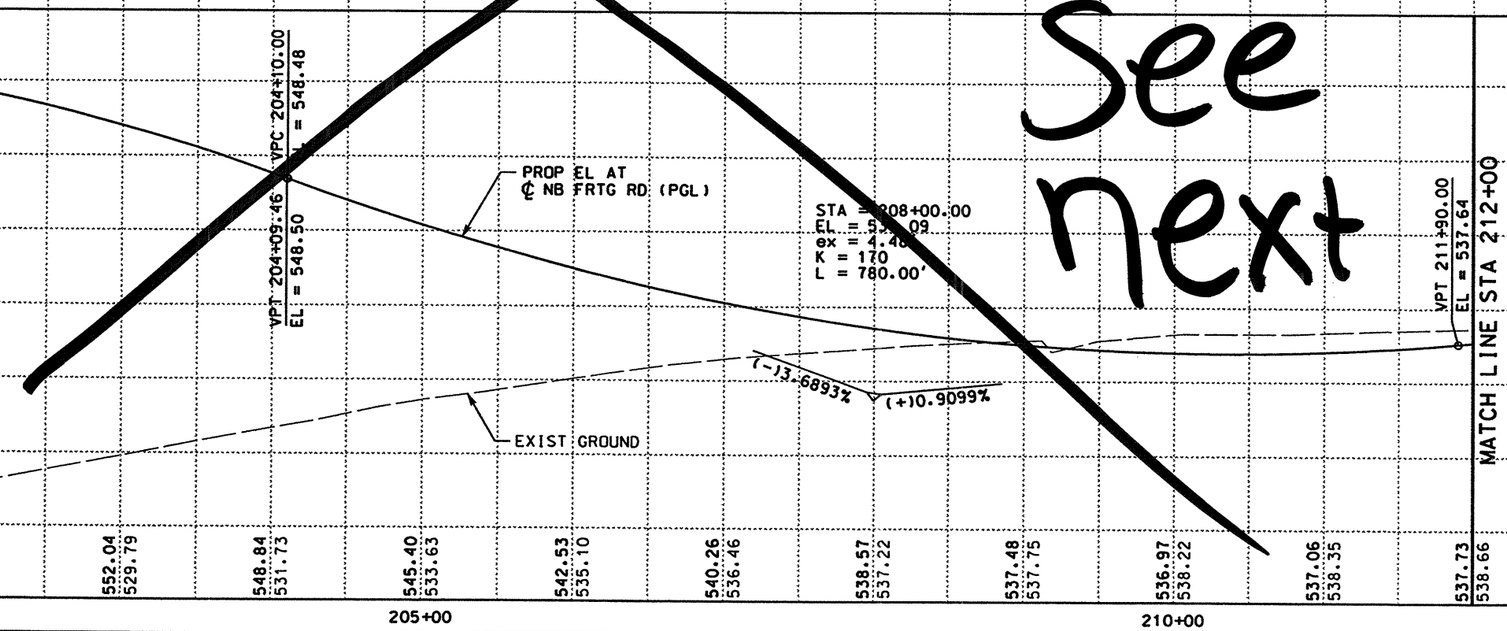
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



See next

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 202+00 TO
STA 212+00

SHEET 5 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	317
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

4/18/2003

HOUFILE023 \hciwil\c0130\

b03ppp34.dgn-10

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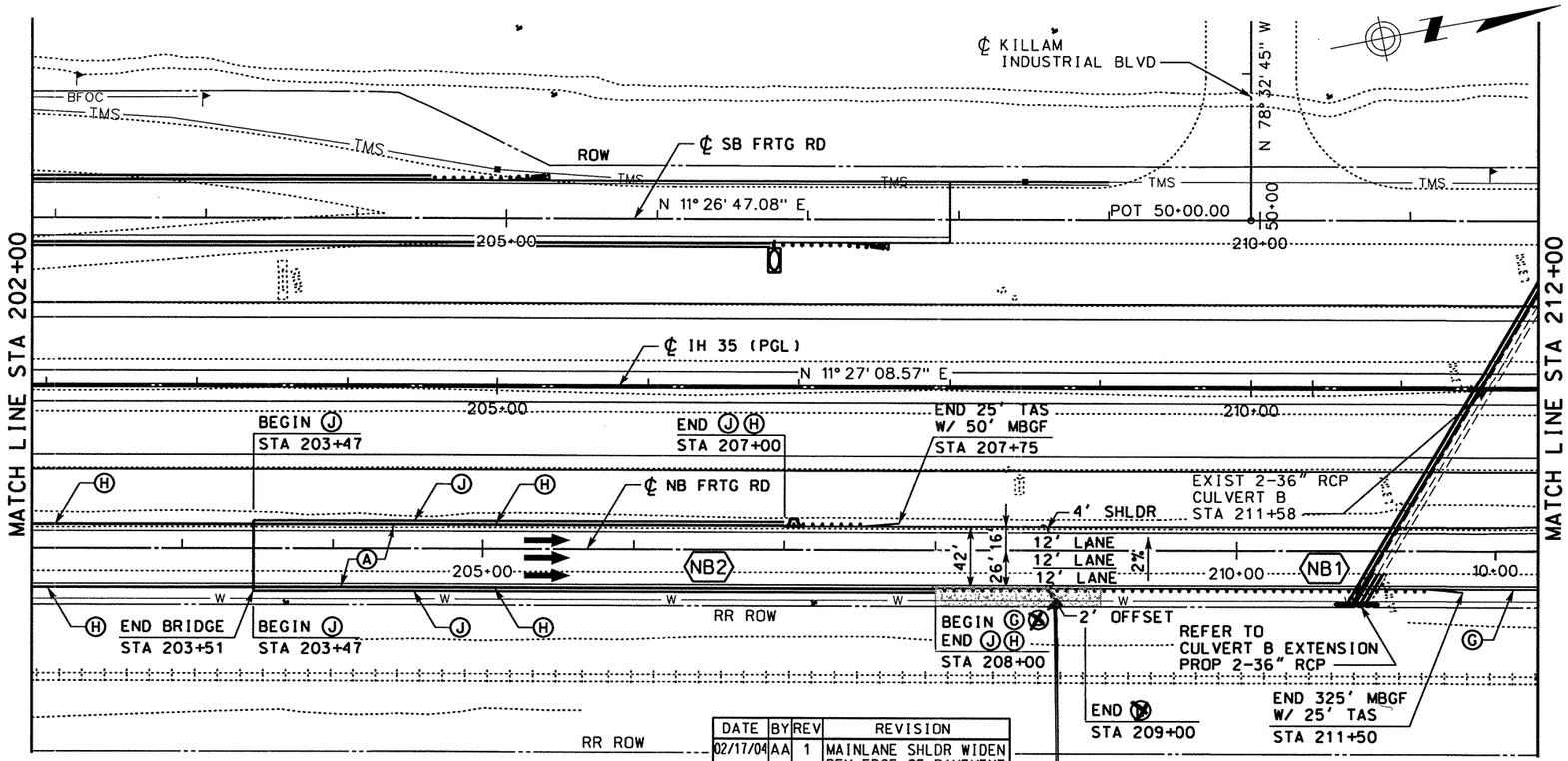
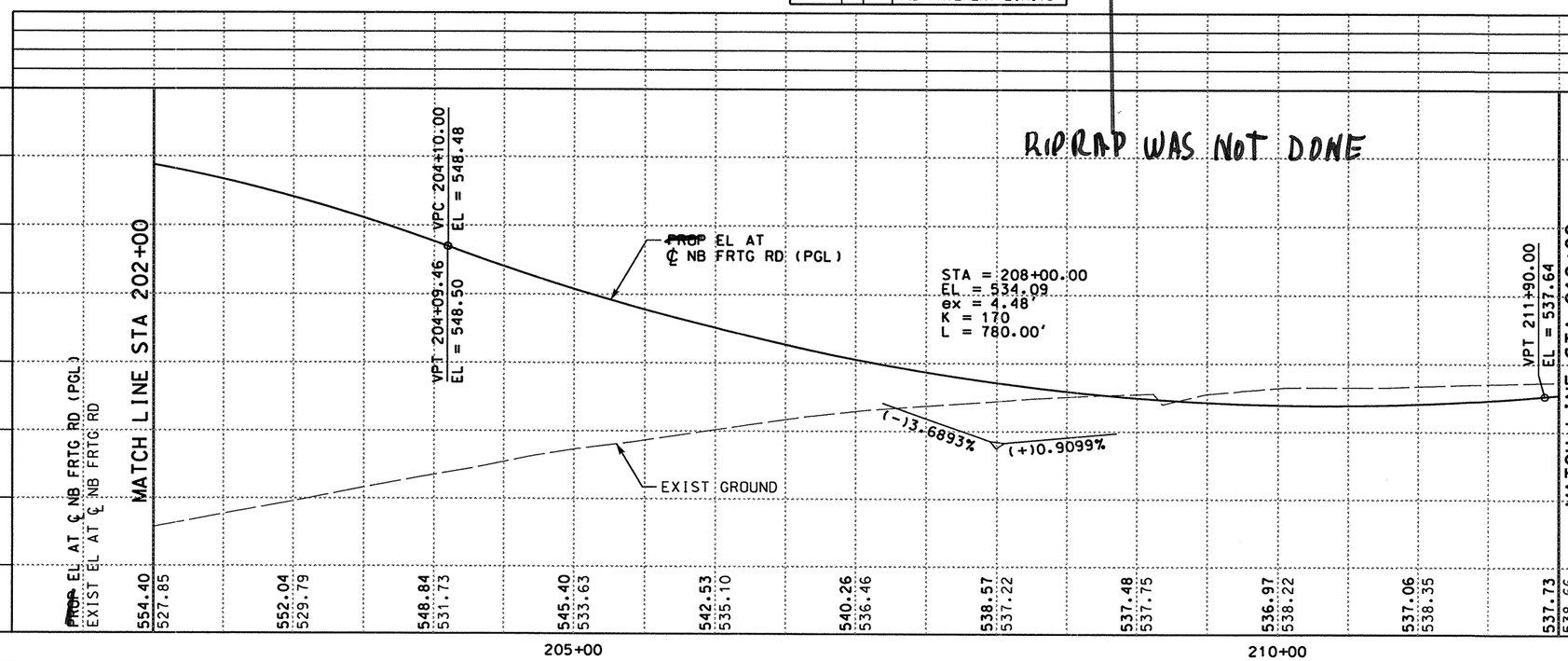


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS



LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 202+00 TO
STA 212+00

SHEET 5 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	317
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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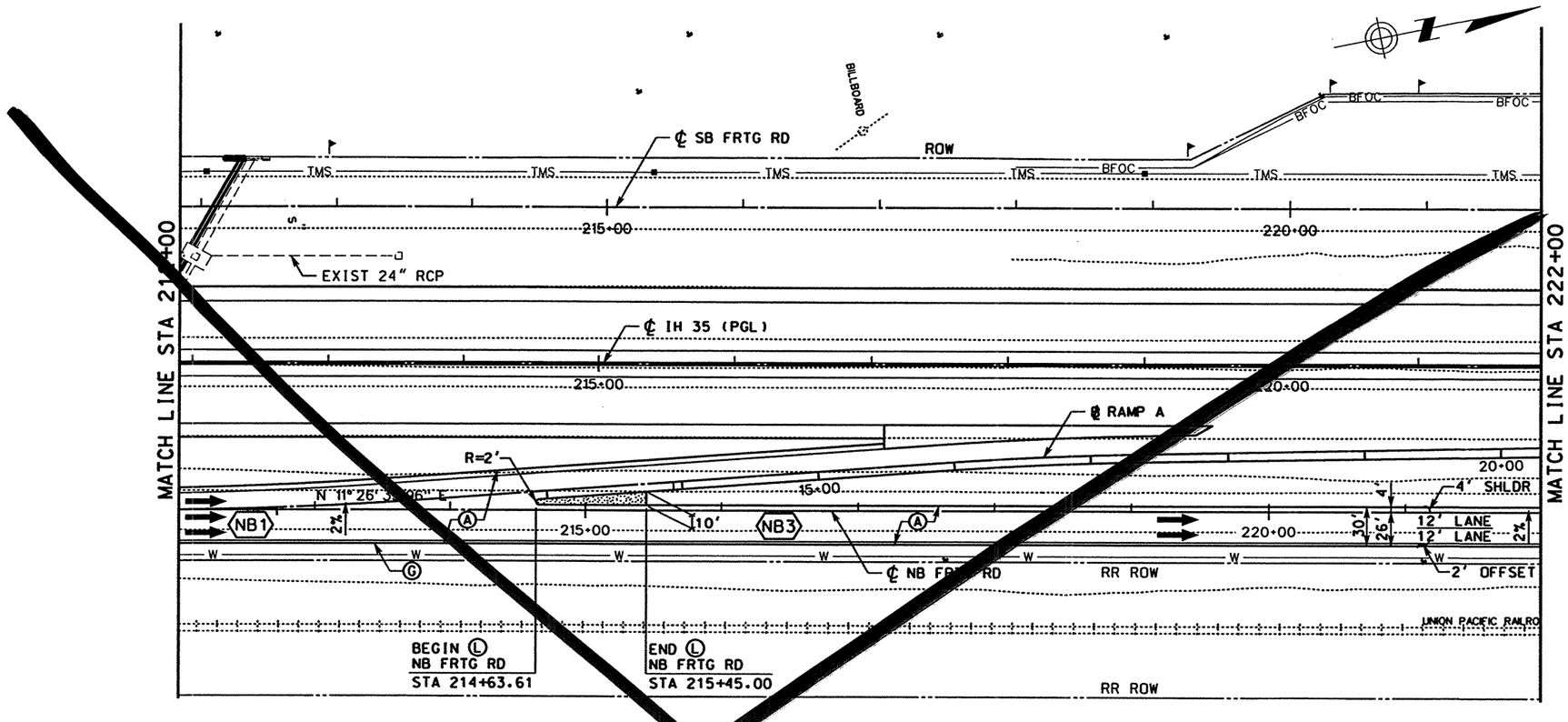

See next

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 212+00 TO
STA 222+00

SHEET 6 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	318
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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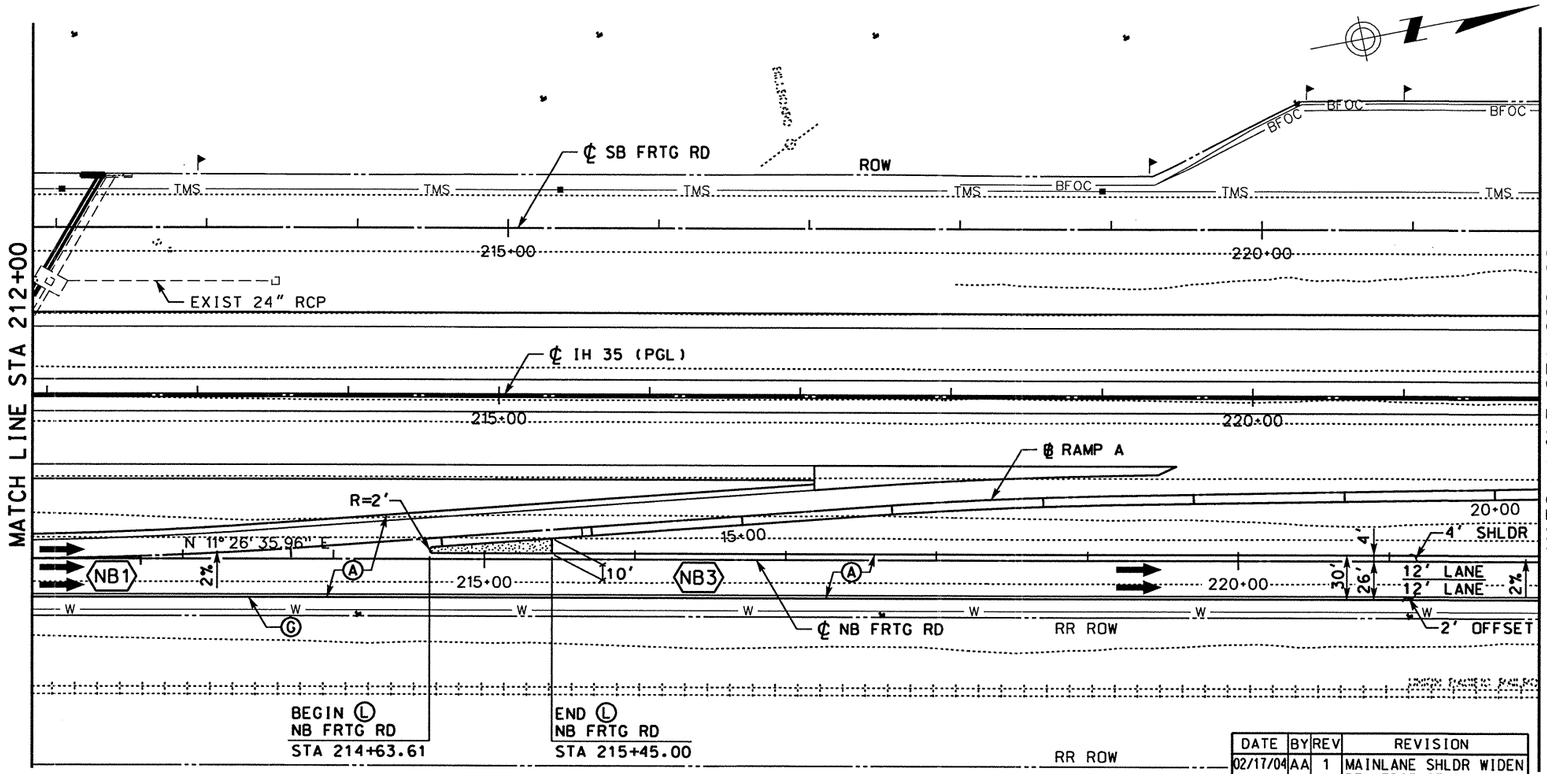


LEGEND

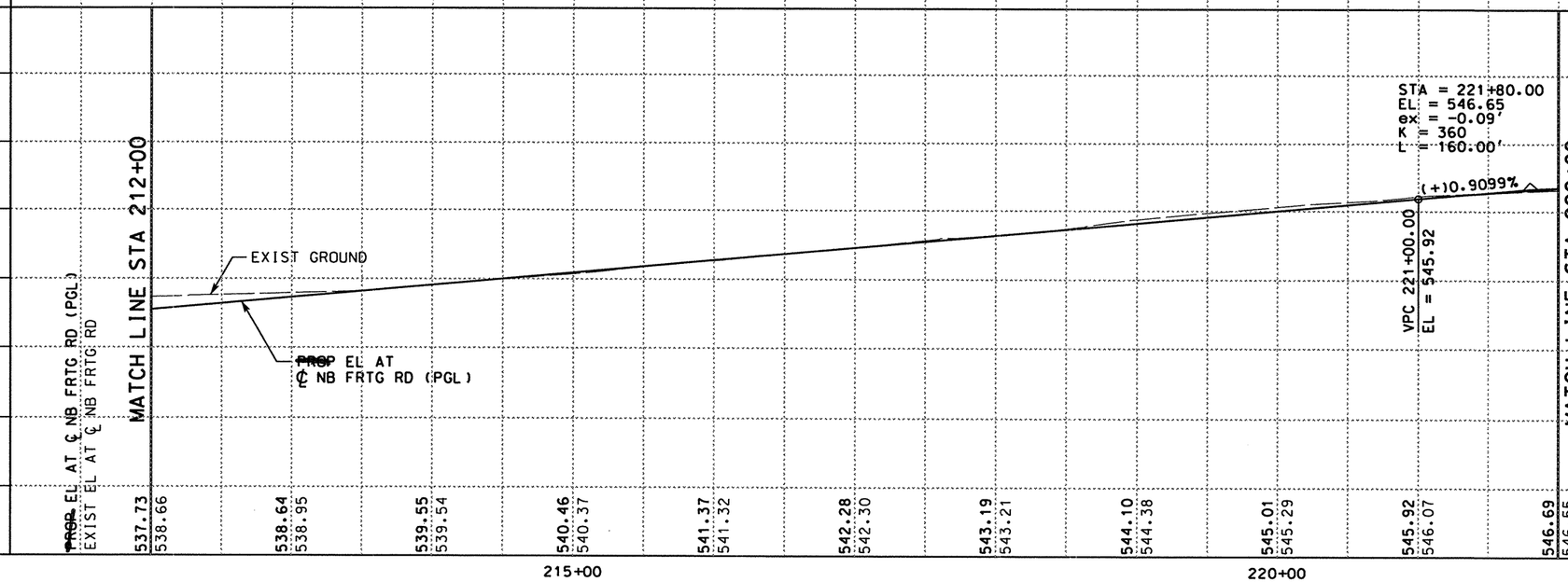
- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 212+00 TO
STA 222+00

SHEET 6 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	318
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j011op01.alg, alg LV ON = 1-10,33-39,50
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

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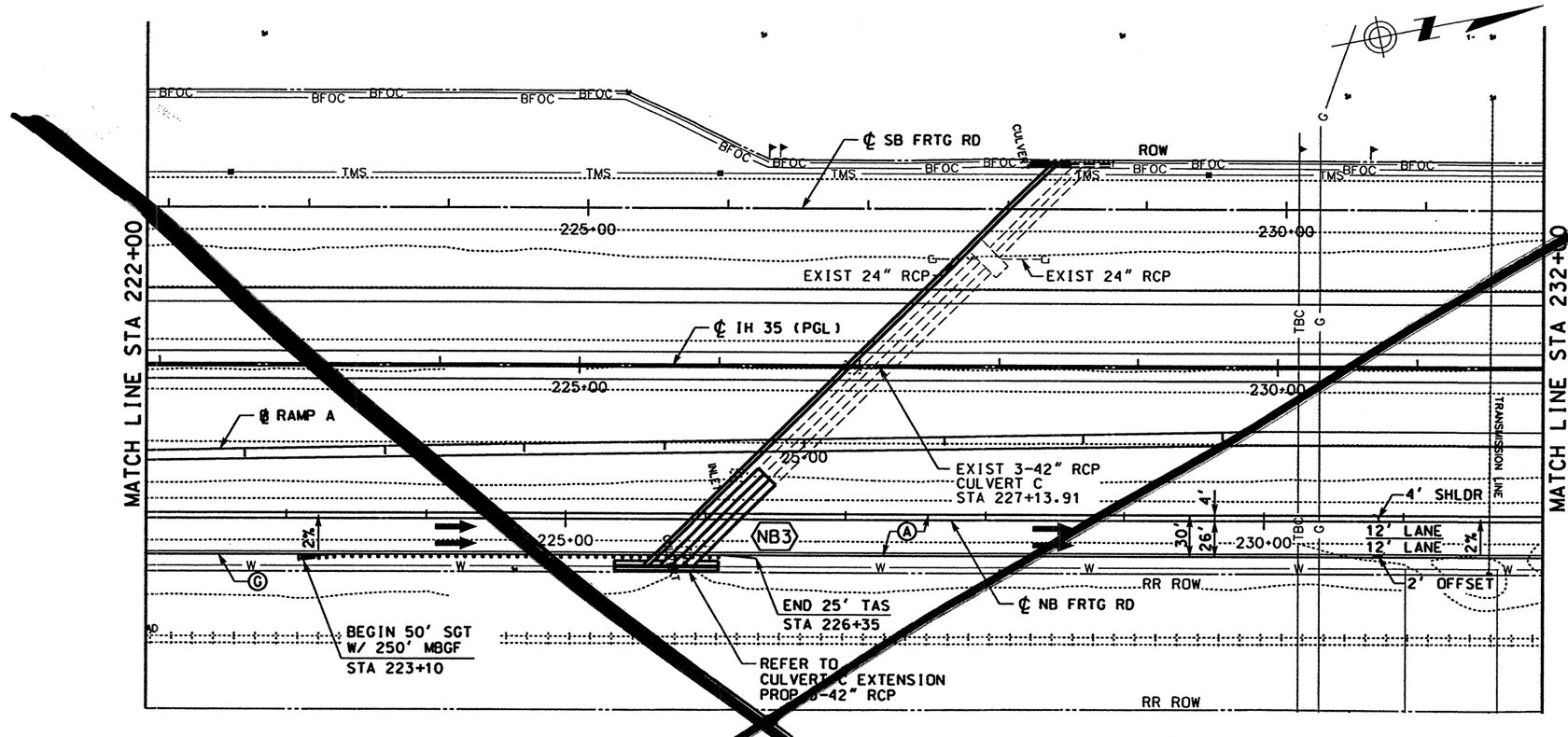


LEGEND

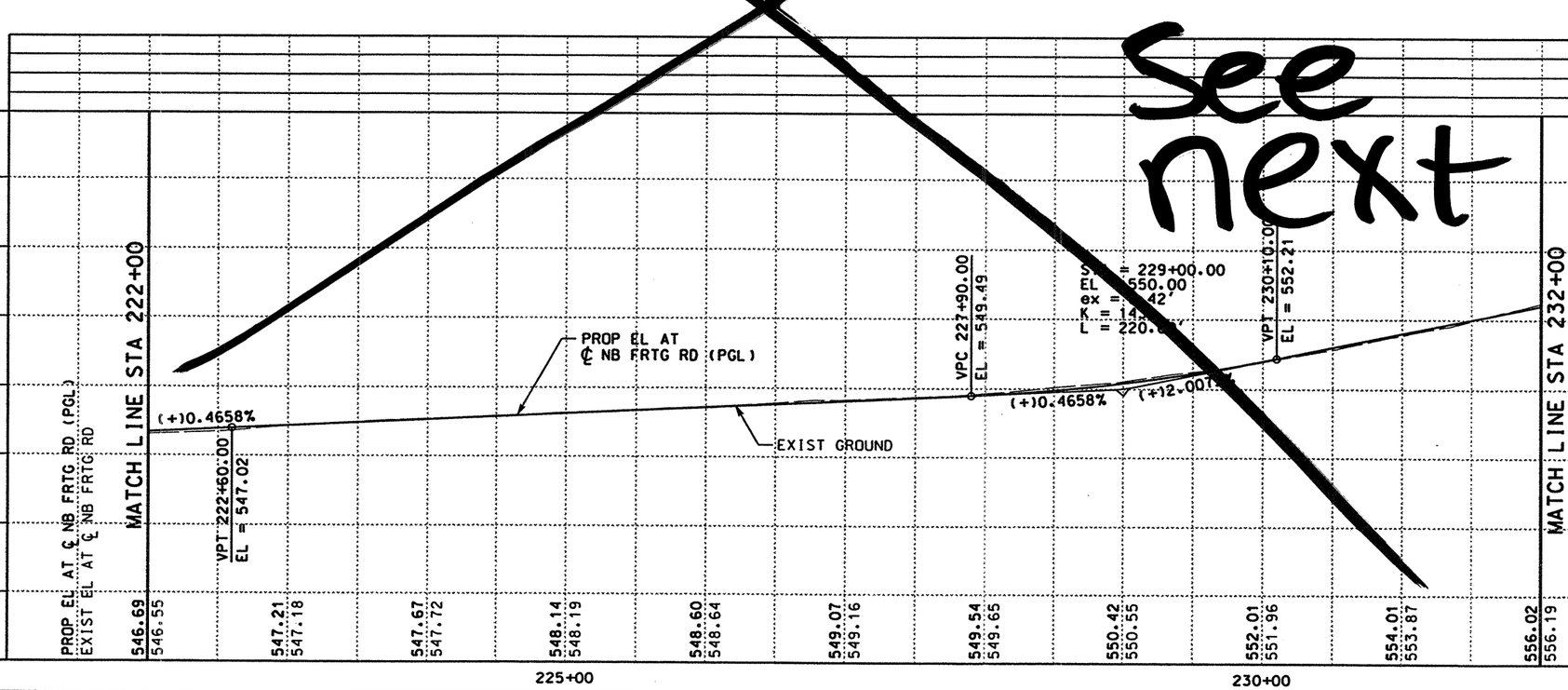
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 222+00 TO
STA 232+00

SHEET 7 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	319
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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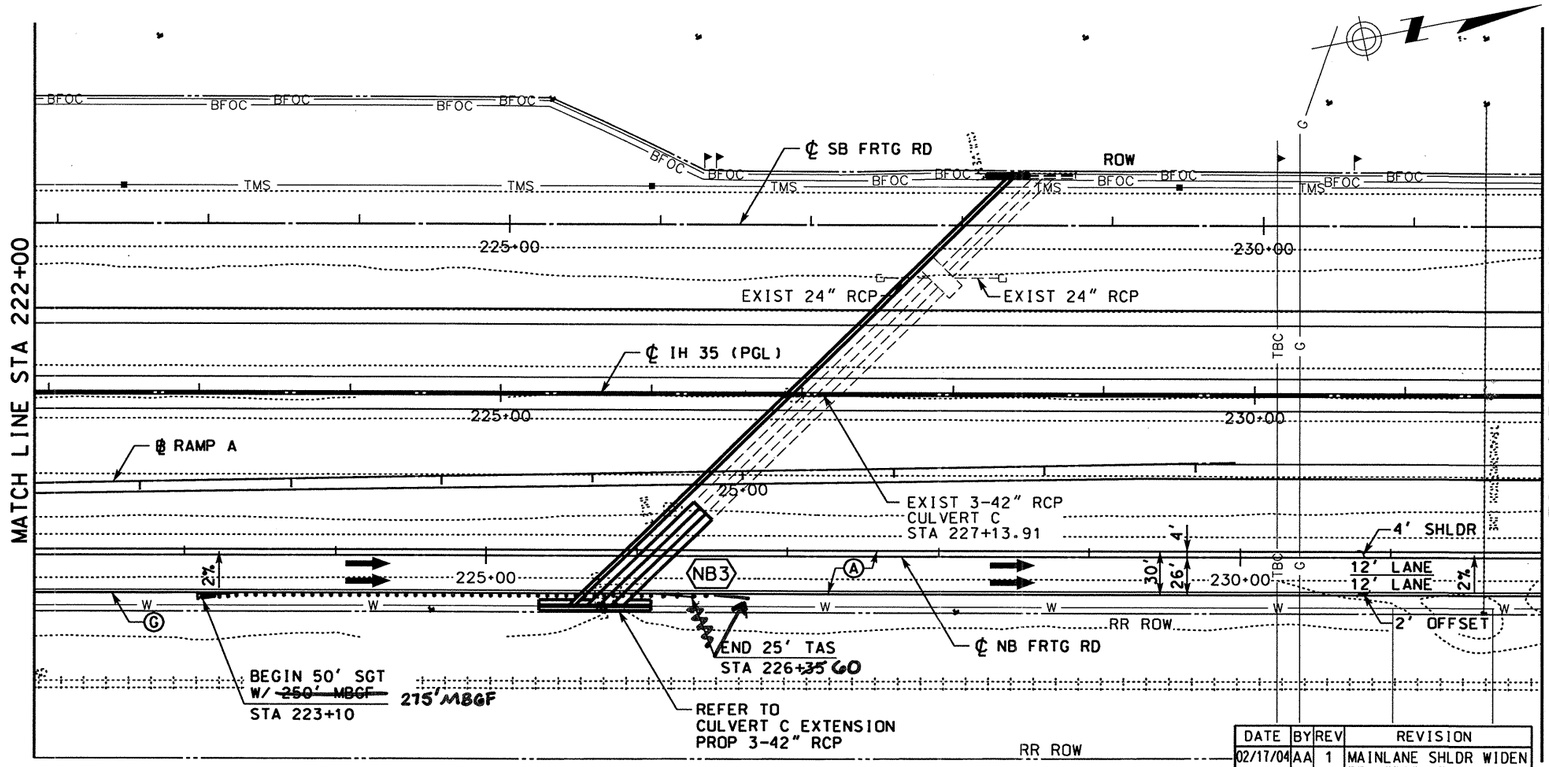


LEGEND

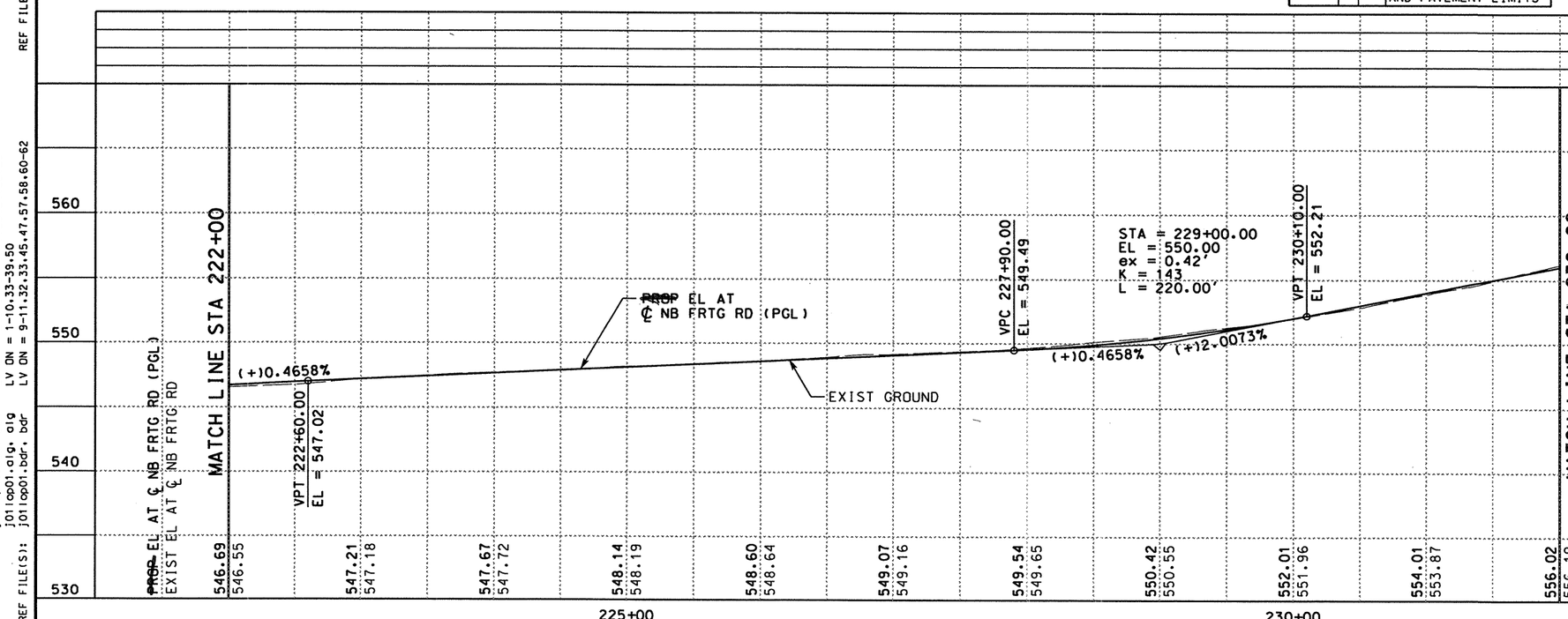
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 222+00 TO
STA 232+00

SHEET 7 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	319
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

3/4/2004

REF FILE(S): j01lop01.utl, utl LV ON = 1-63
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j01lop01.alg, alg LV ON = 1-10,33-39,50
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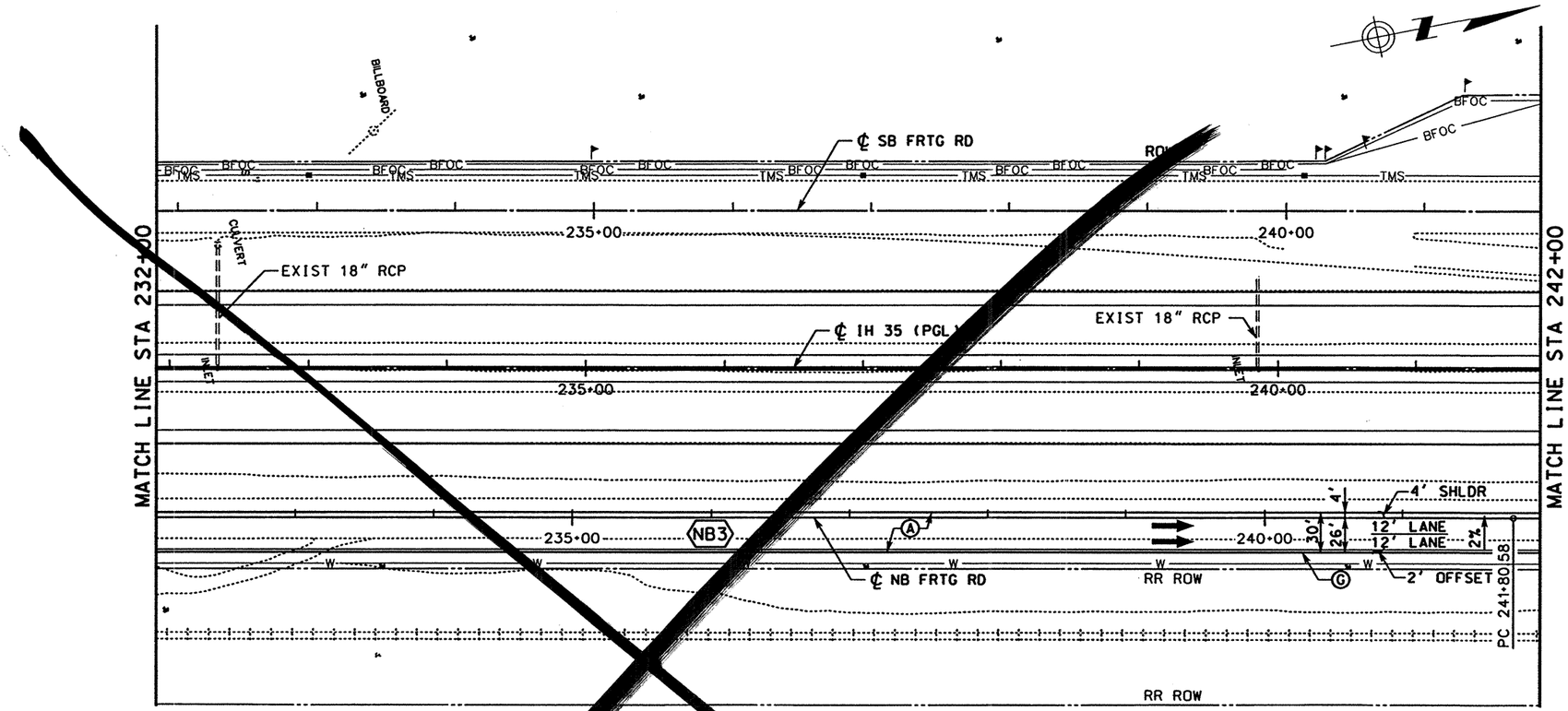


LEGEND

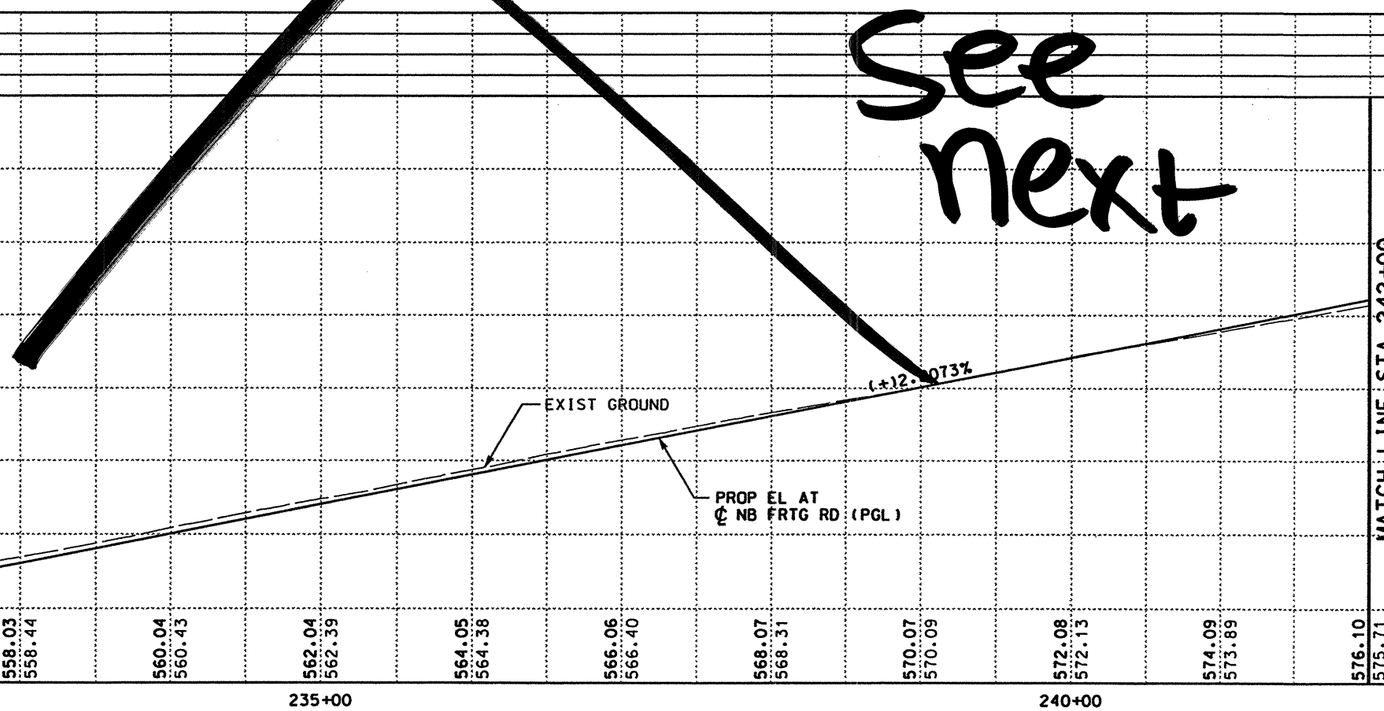
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT



STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 232+00 TO
STA 242+00

SHEET 8 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	320
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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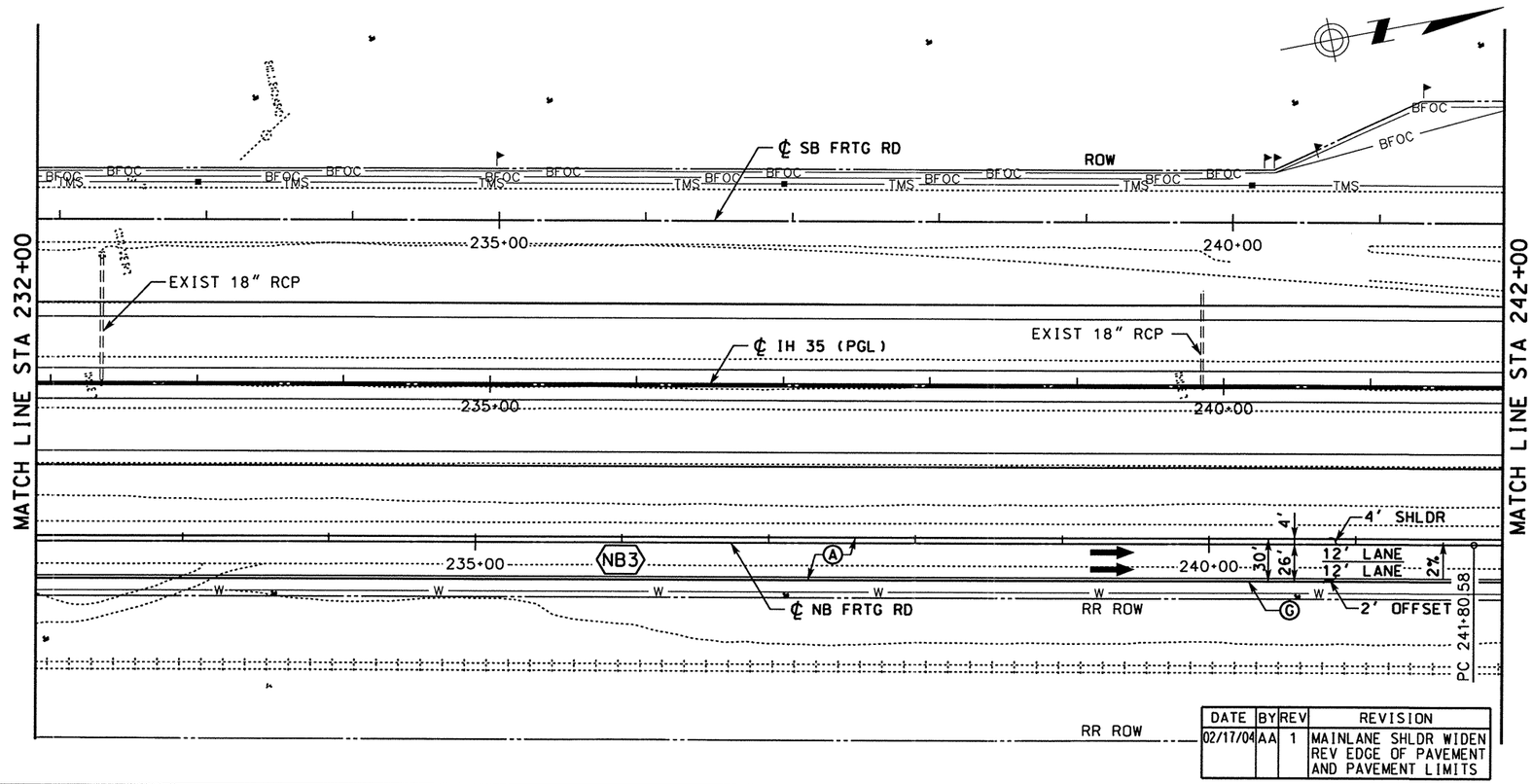


LEGEND

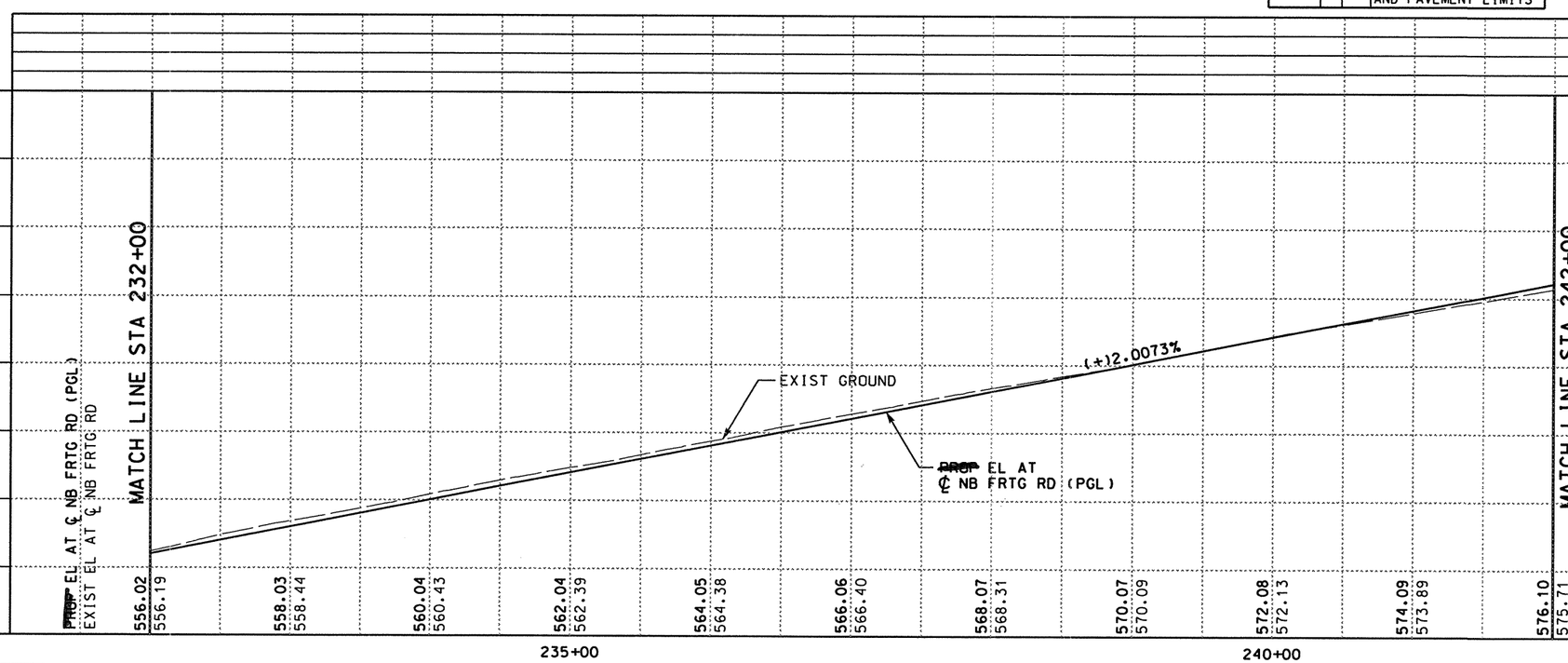
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 232+00 TO
STA 242+00

SHEET 8 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	320
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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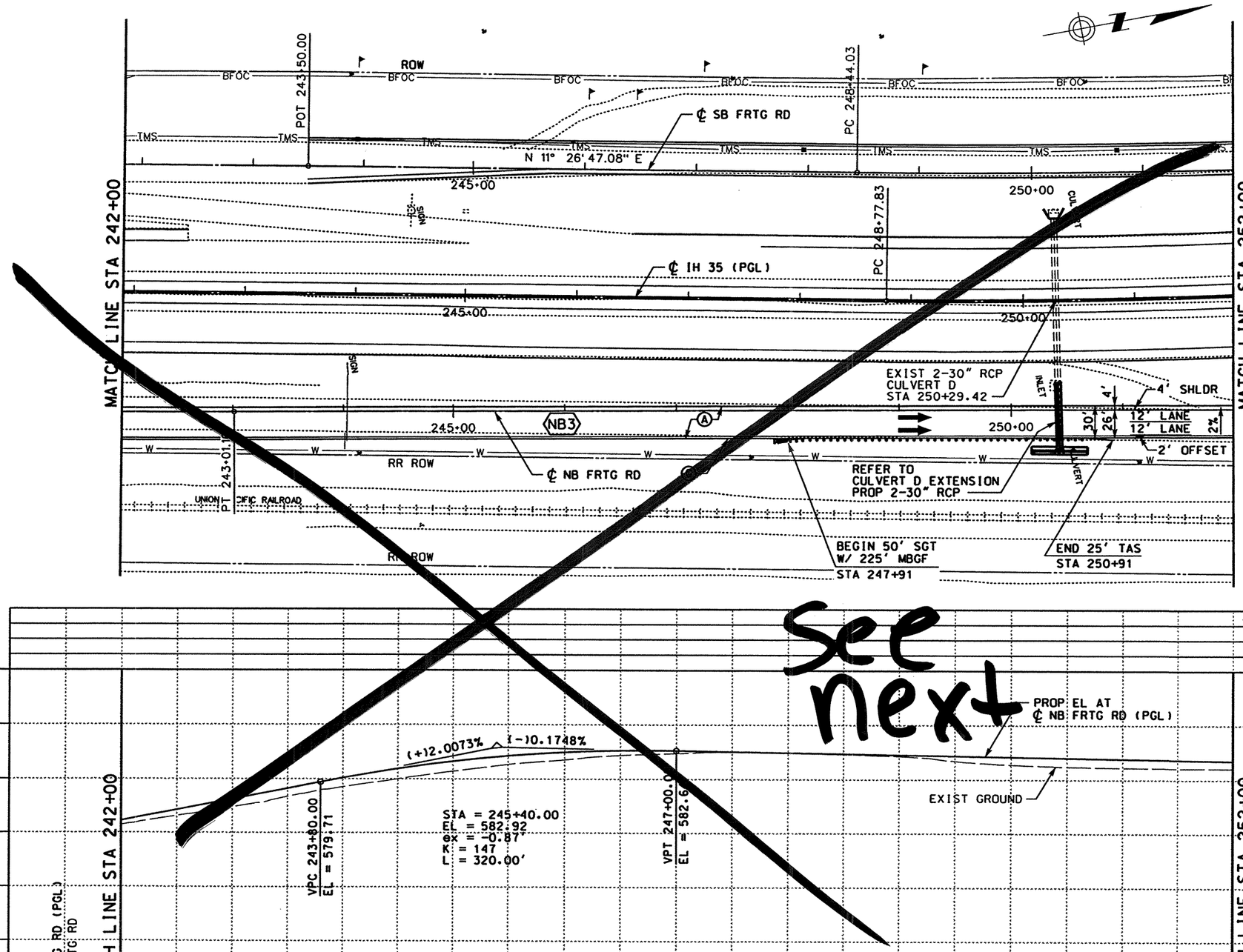

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 242+00 TO
STA 252+00

SHEET 9 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	321
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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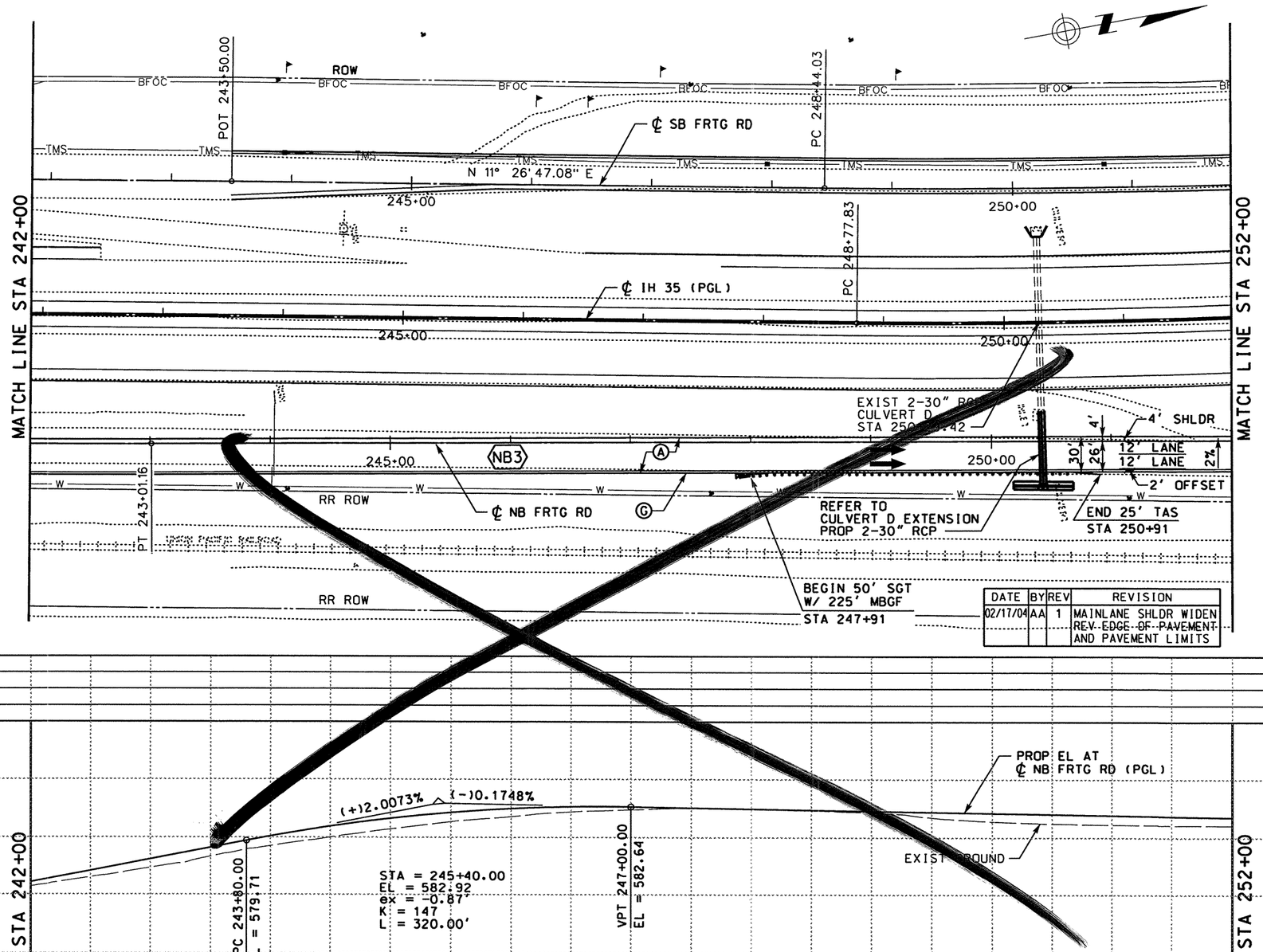

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 242+00 TO
STA 252+00

SHEET 9 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	321
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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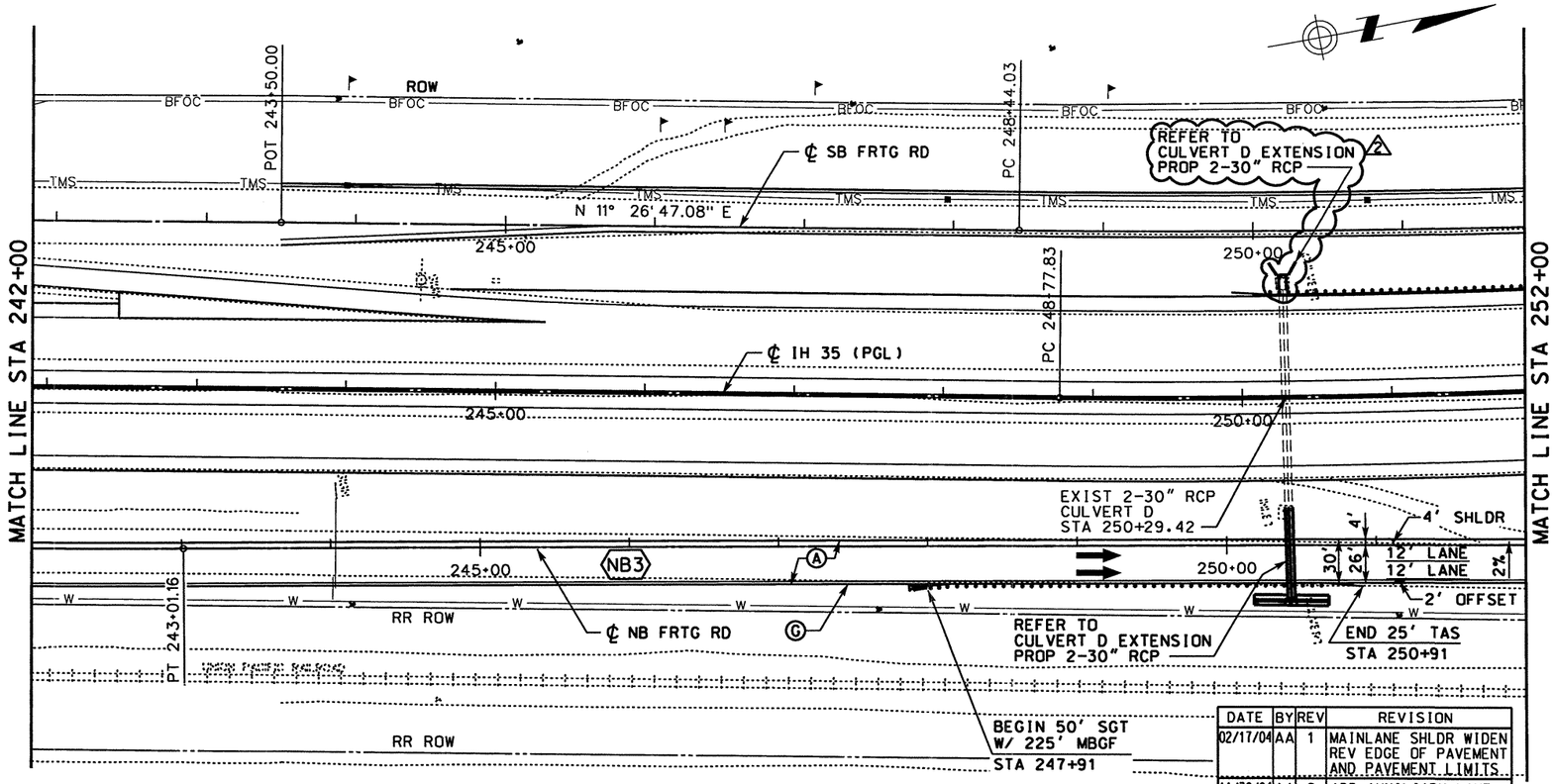


LEGEND

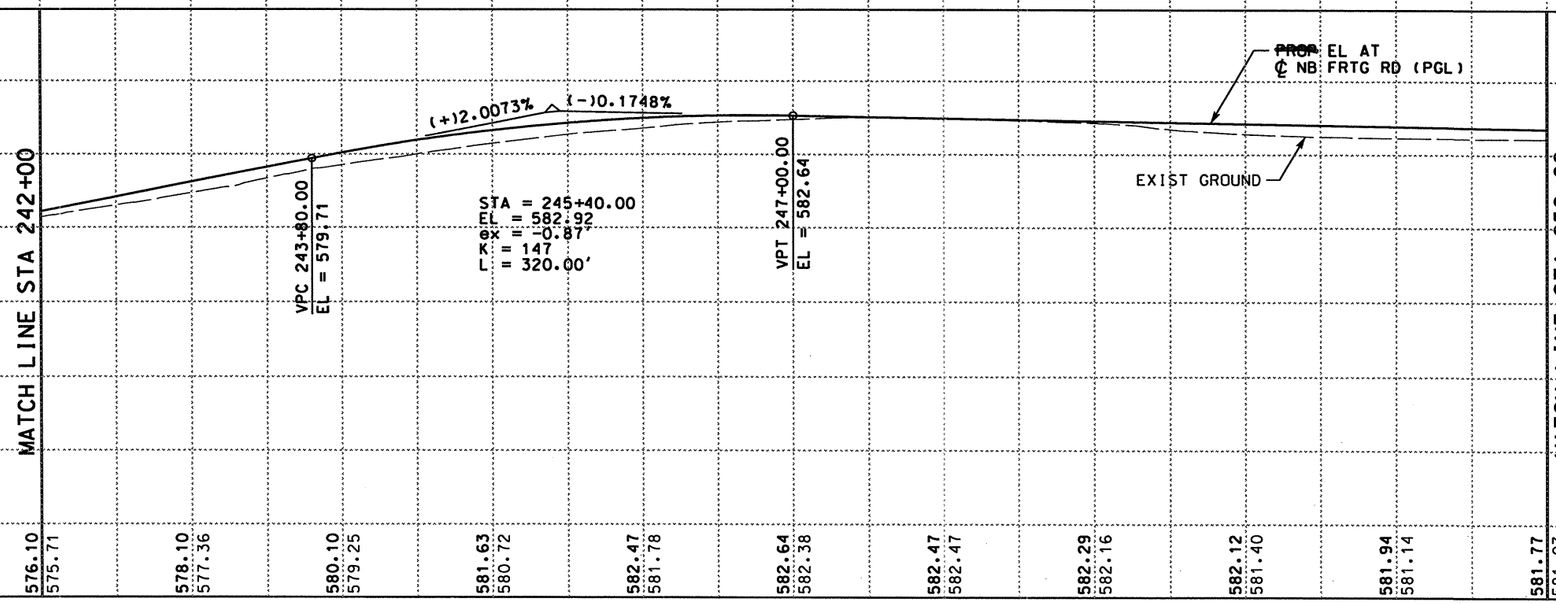
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD PLAN AND PROFILE STA 242+00 TO STA 252+00

SHEET 9 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		321
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

2/10/2005

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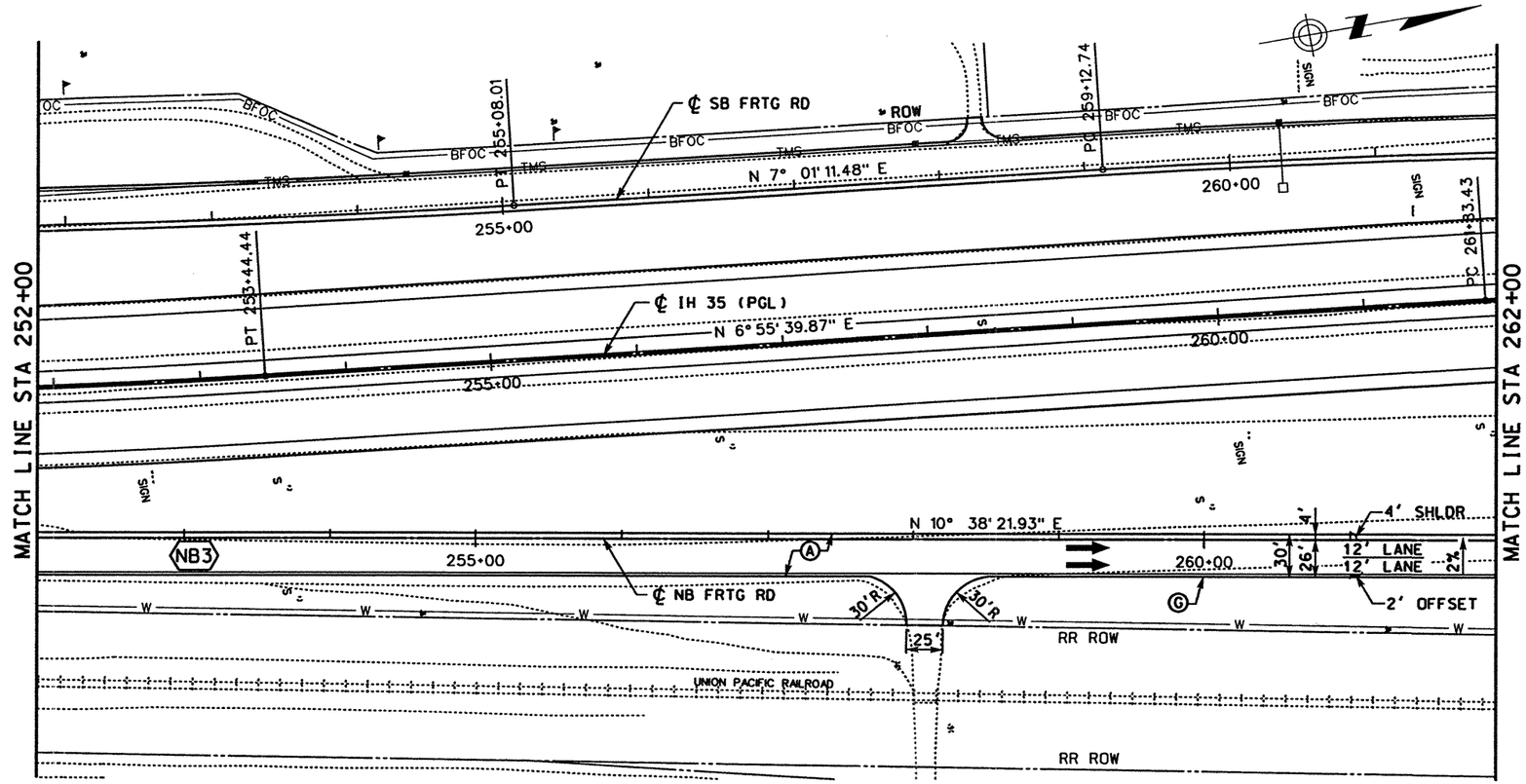
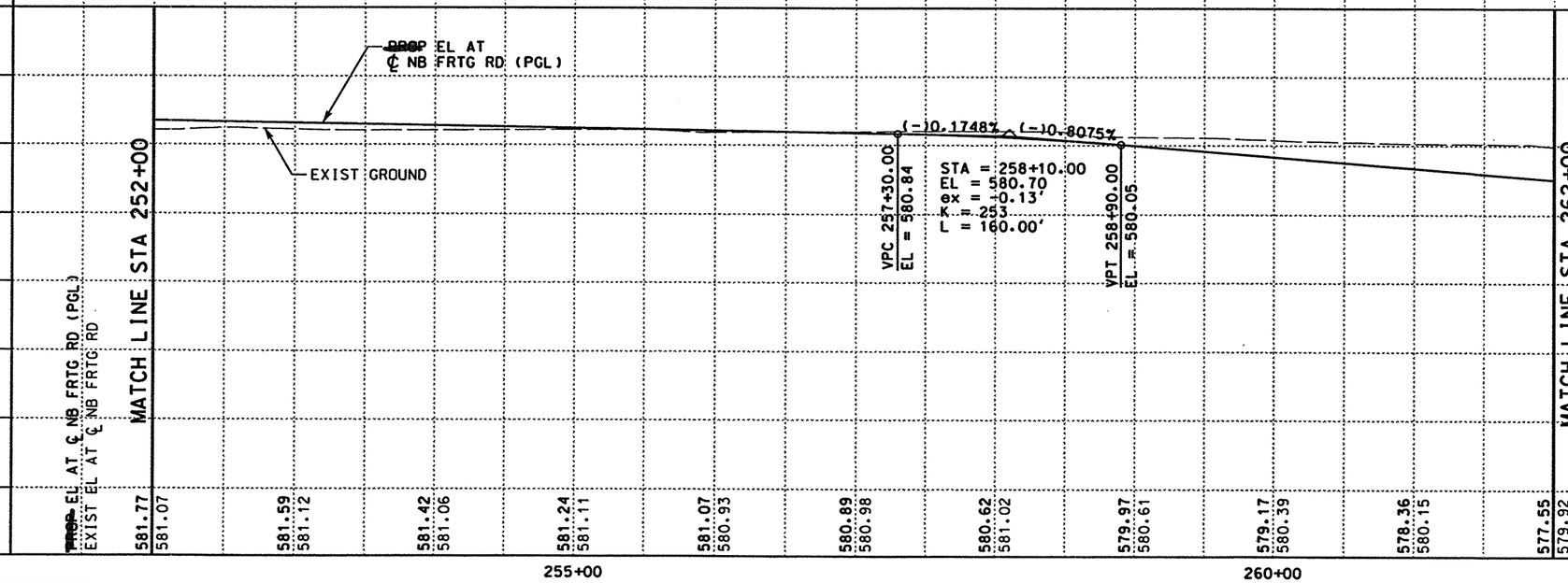


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "DRIVEWAY DETAIL" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 252+00 TO
STA 262+00

SHEET 10 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	322
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62
j011op01.utl, utl LV ON = 1-63
REF FILE(S): milolnh.row, row LV ON = 1-23.25-63
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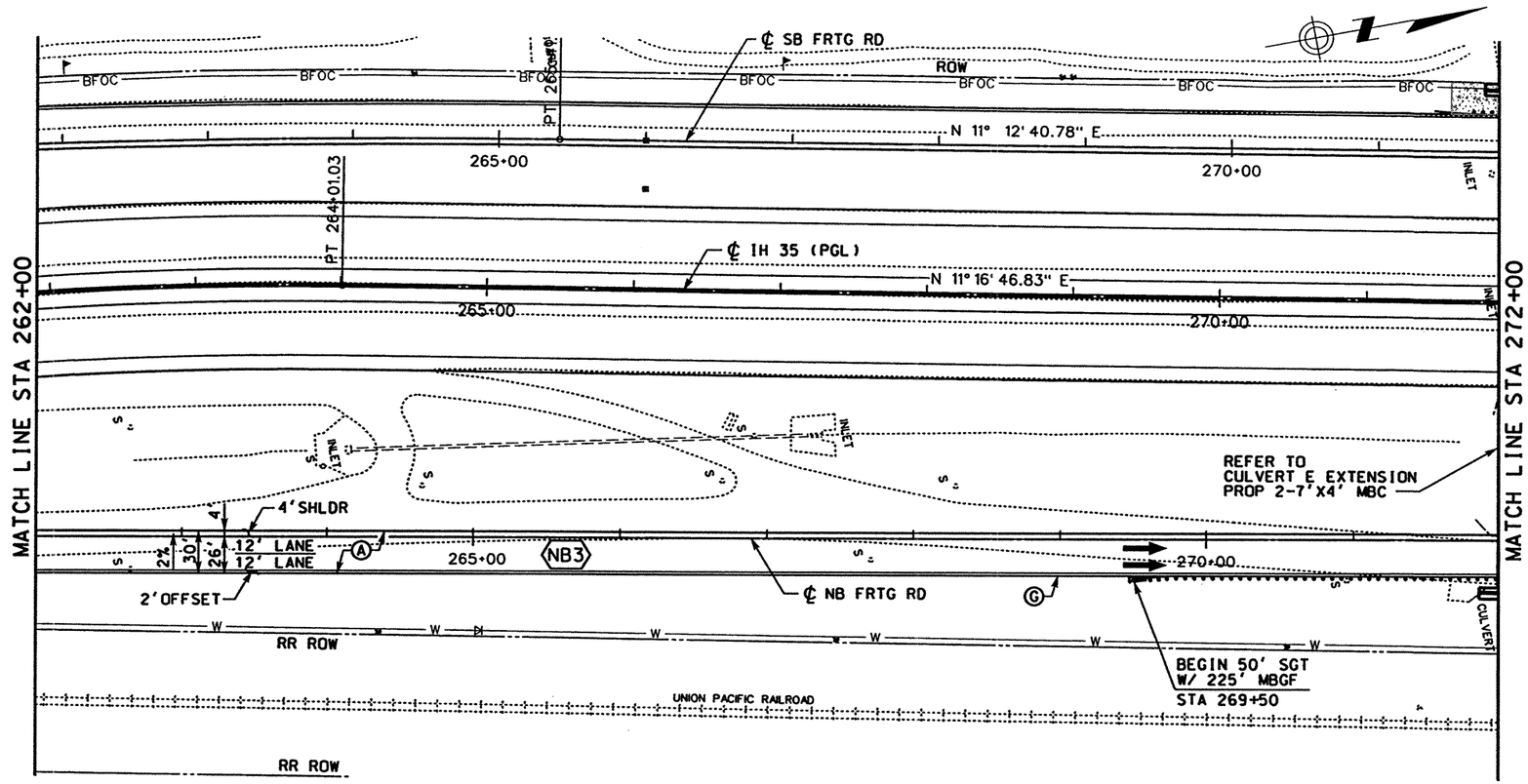
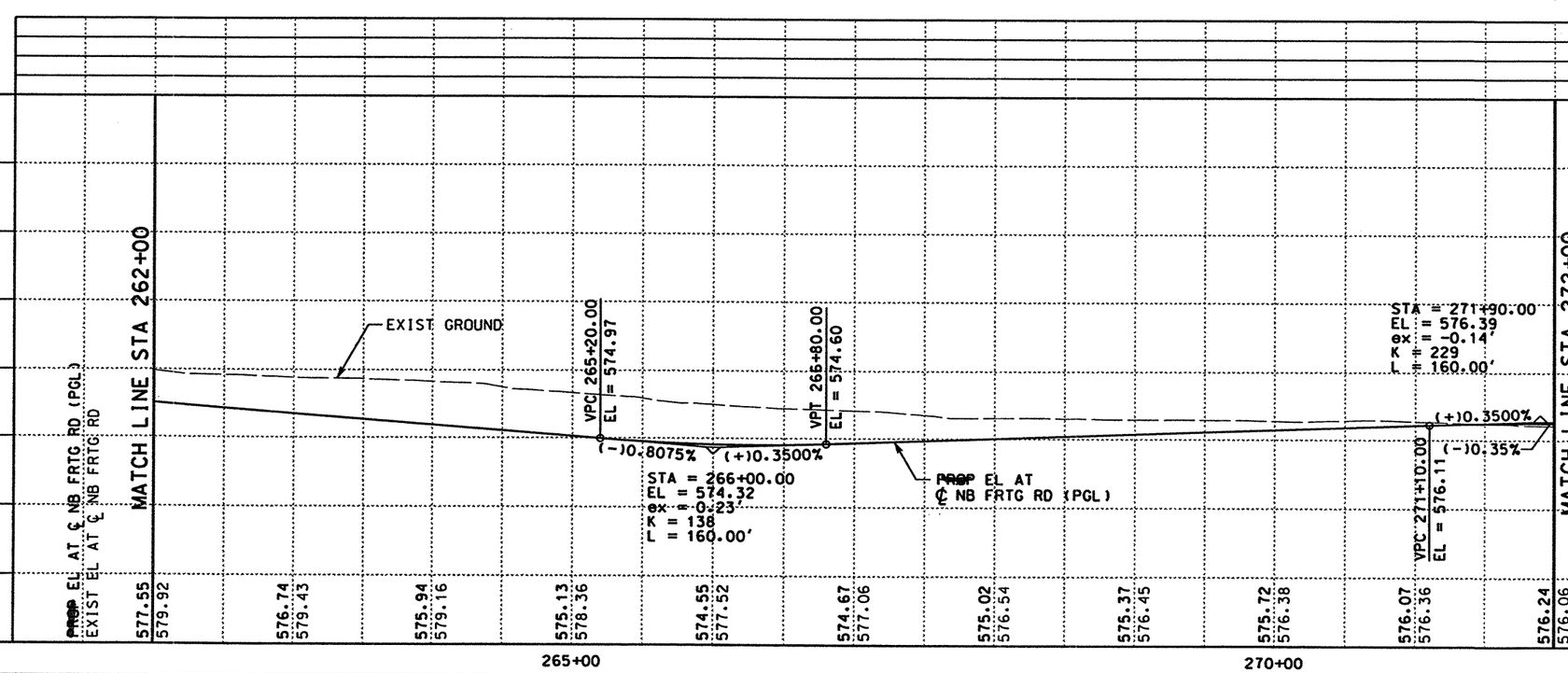


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER — STATE OF TEXAS

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 262+00 TO
STA 272+00

SHEET 11 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	323
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/18/2003

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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j011op01.bck, bck LV ON = 2-3,9,10,14,17,20,21,25-28
j011op01.alg, alg LV ON = 1-10,33-39,50
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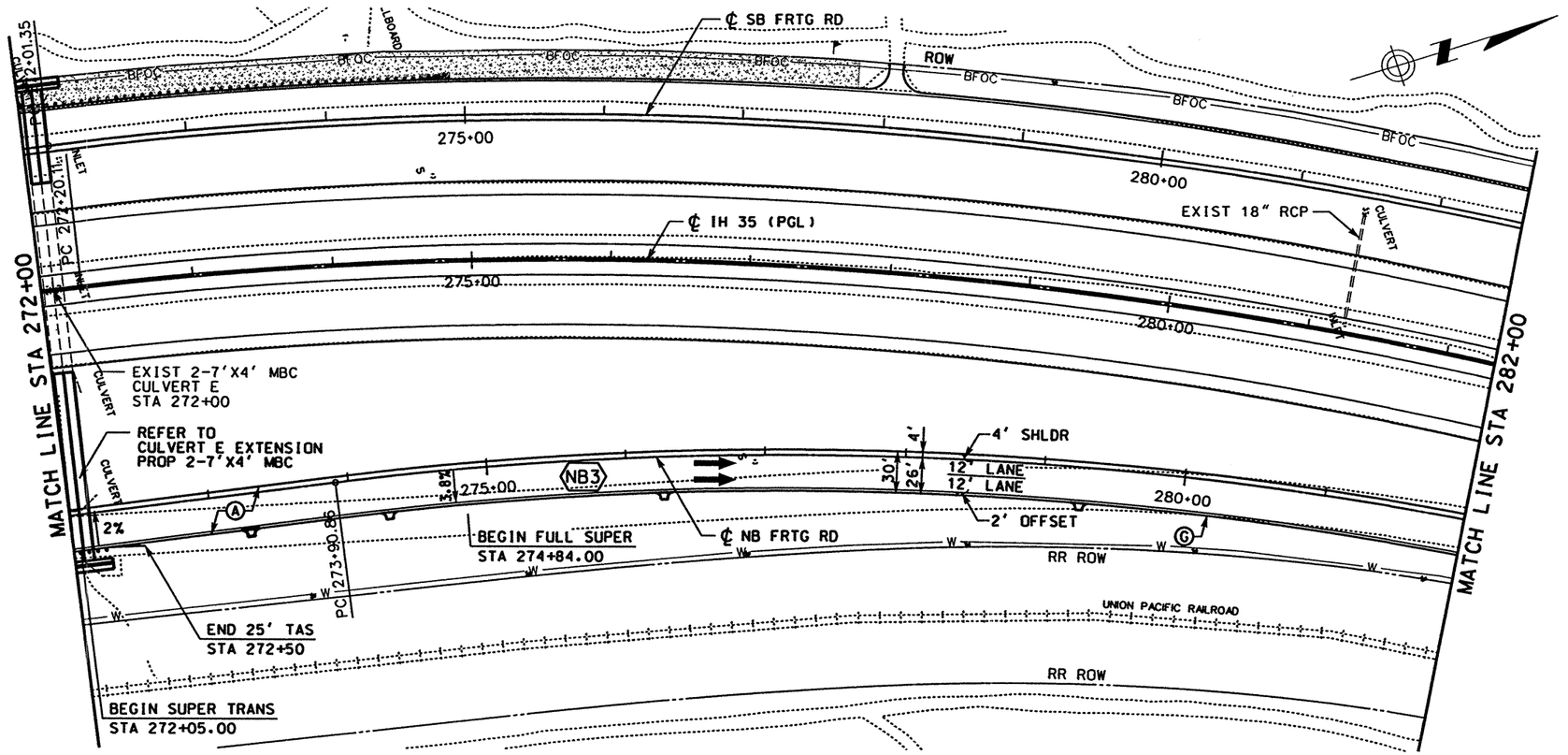
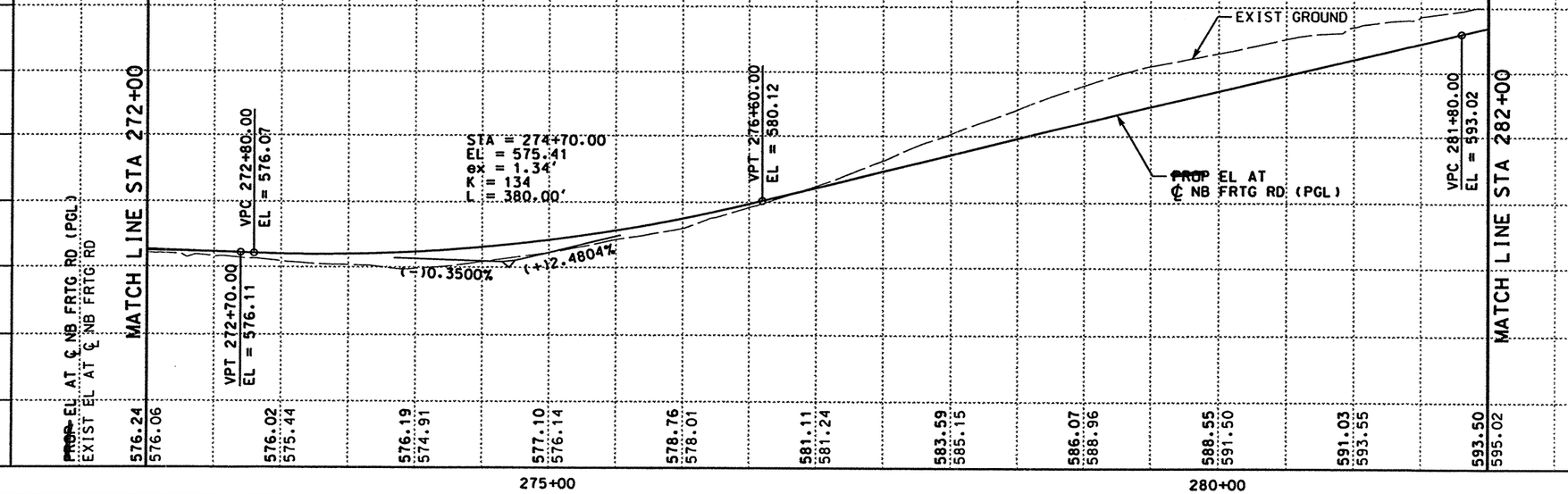


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 272+00 TO
STA 282+00

SHEET 12 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	324
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

REF FILE(S): j011op01.pro. pro LV ON = 1-63
j011op01.eop. eop LV ON = 1-17.19-63
j011op01.bck. bck LV ON = 2.3.9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-10.33-39.50
j011op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62
j011op01.utl. utl LV ON = 1-63
REF FILE(S): j011op01.pro. pro LV ON = 1-23.25-63
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4/18/2003
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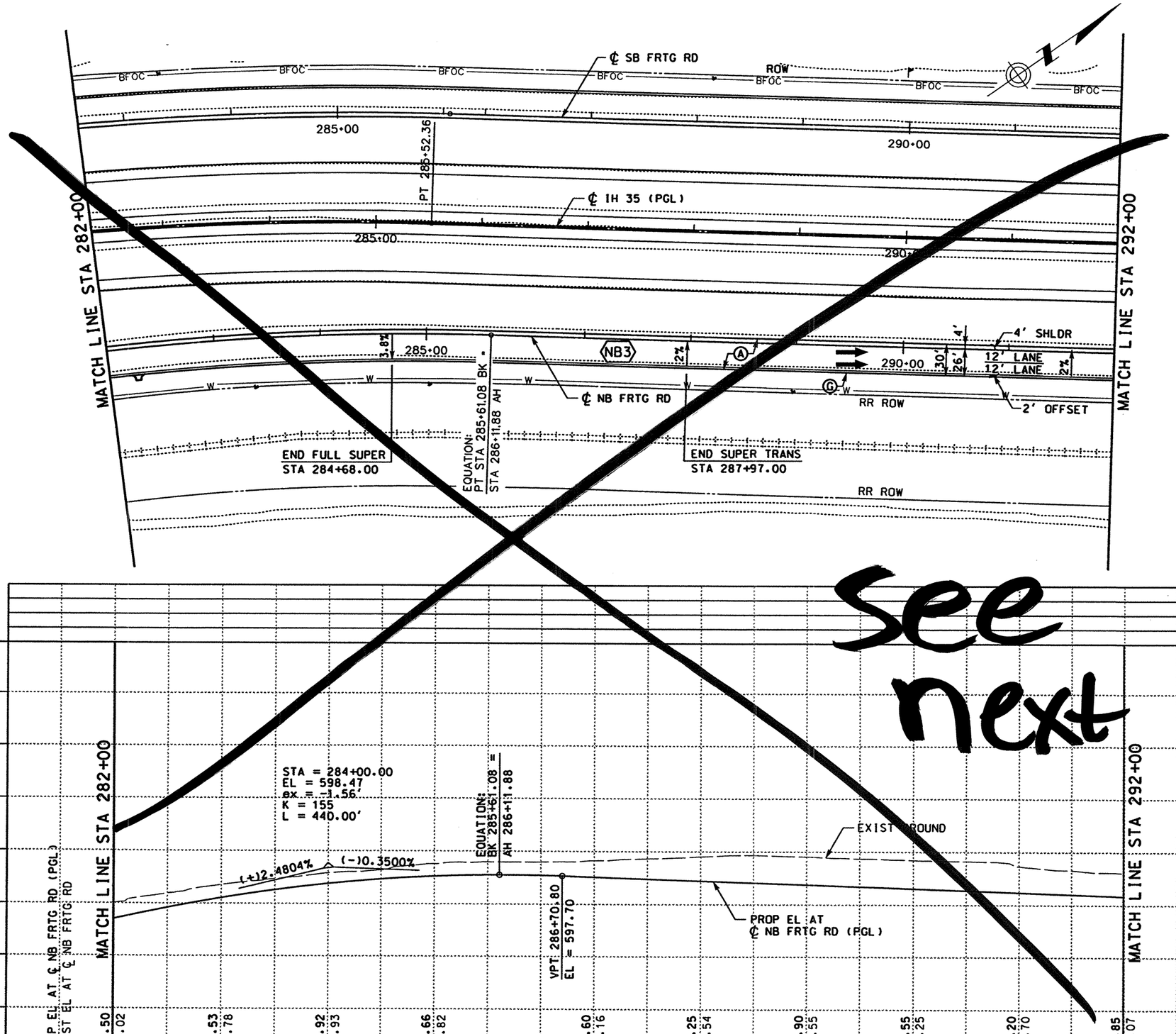

see next

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 282+00 TO
STA 292+00

SHEET 13 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	325
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): J011op01.pro, pro LV ON = 1-63
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J011op01.alg, alg LV ON = 1-10,33-39,50
J011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
REF FILE(S): J011op01.utl, utl LV ON = 1-63
J011op01.eop, eop LV ON = 1-17.19-63
J011op01.bck, bck LV ON = 2,3,9,10,14,17,20,21,25-28
J011op01.alg, alg LV ON = 1-10,33-39,50
J011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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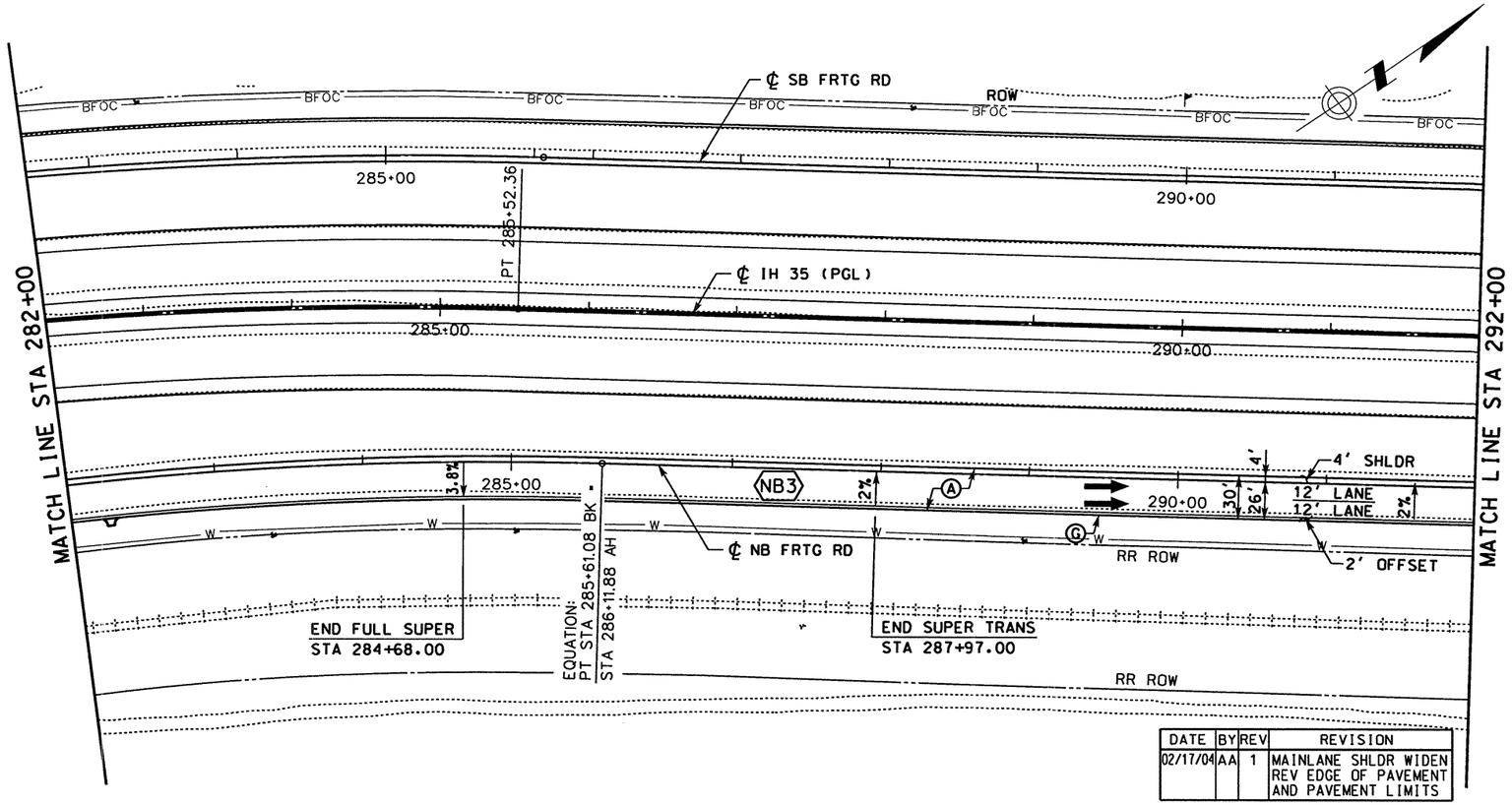


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

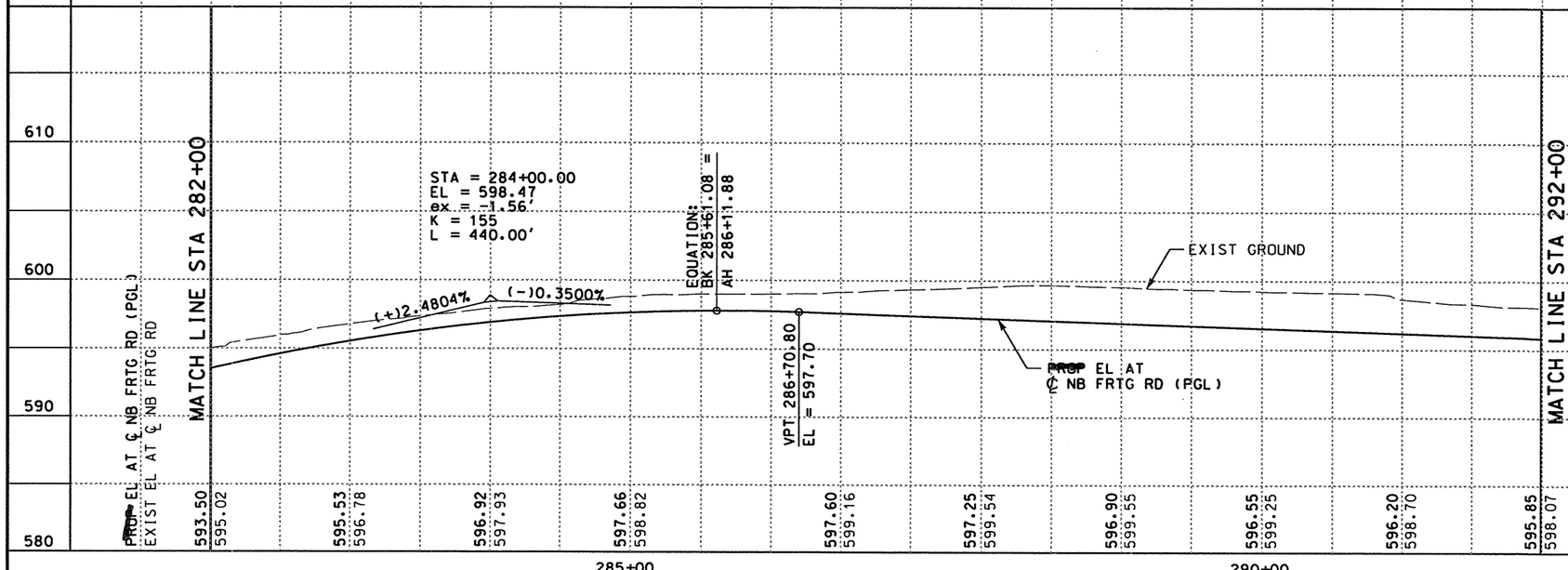
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) ~~POROUS~~ FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) ~~FLEXIBLE~~ BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 282+00 TO
STA 292+00

SHEET 13 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	325
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.pro, pro LV ON = 1-63
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j01lop01.bdr, bdr LV ON = 9-11,32-33,45,47,57,58,60-62
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REF FILE(S): milo1nr.row, row LV ON = 1-23,25-63

b03ppp42.dgn-07 HOUFILE023 \hciv1\c\f0130\ 3/4/2004

REFER TO
CULVERT F EXTENSION
PROP 1-24" RCP

℄ SB FRTG RD

EXIST 24" RCP
CULVERT F
STA 293+18.5

℄ IH 35 (PGL)

FUTURE RAMP

4' SHLDR
12' LANE
12' LANE
2' OFFSET

℄ NB FRTG RD

RR ROW

MATCH LINE STA 292+00

MATCH LINE STA 302+00

295+00

300+00

NB3

BFOC

CULVERT

LBOARD

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

STA = 293+50.00
EL = 595.33
ex = -0.05'
K = 601
L = 160.00'

EXIST GROUND

(-)0.3500%

(+)0.6163%

PROP EL AT
℄ NB FRTG RD (PGL)

VPC 292+70.00
EL = 595.6

VPT 294+30.00
EL = 594.83

MATCH LINE STA 292+00

MATCH LINE STA 302+00

PROP EL AT ℄ NB FRTG RD (PGL)
EXIST EL AT ℄ NB FRTG RD

595.85	595.49	595.01	594.40	593.79	593.17	592.55	591.94	591.32	590.70	590.09
598.07	597.19	597.04	596.72	596.62	596.40	596.05	595.25	594.26	592.94	591.35

600
590
580
570

295+00

300+00

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 292+00 TO
STA 302+00

SHEET 14 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	326
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cf0130\

b03pp43.dgn-09

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J011op01.bck, bck LV DN = 2.3.9.10.14.17.20.21.25.28
J011op01.alg, alg LV DN = 1-10.33-39.50
J011op01.bdr, bdr LV DN = 9-11.32.33.45.47.57.58.60-62
J011op01.utl, utl LV DN = 1-63
J011op01.eop, eop LV DN = 1-17.19-63
J011op01.bck, bck LV DN = 2.3.9.10.14.17.20.21.25.28
J011op01.alg, alg LV DN = 1-10.33-39.50
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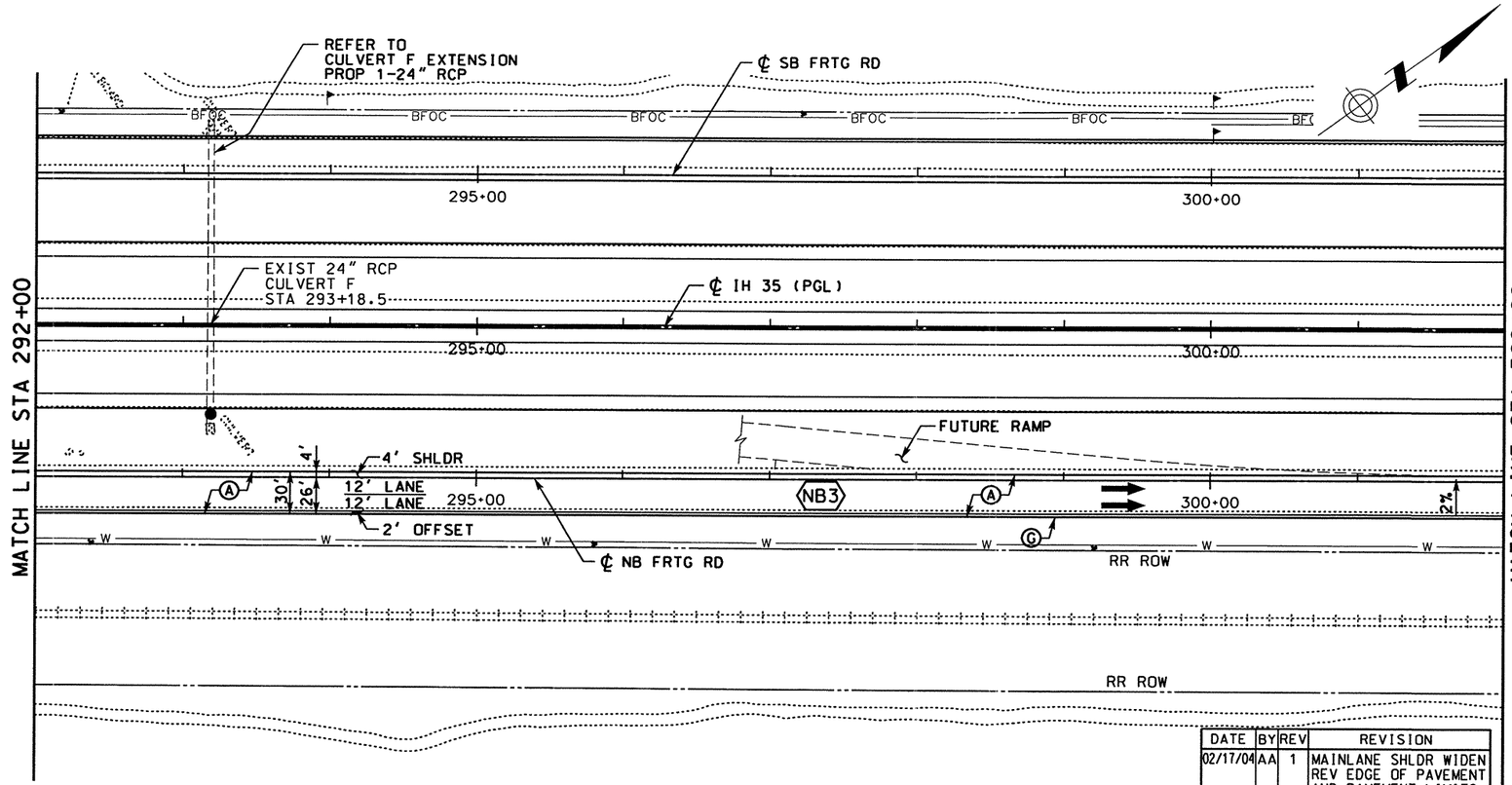

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
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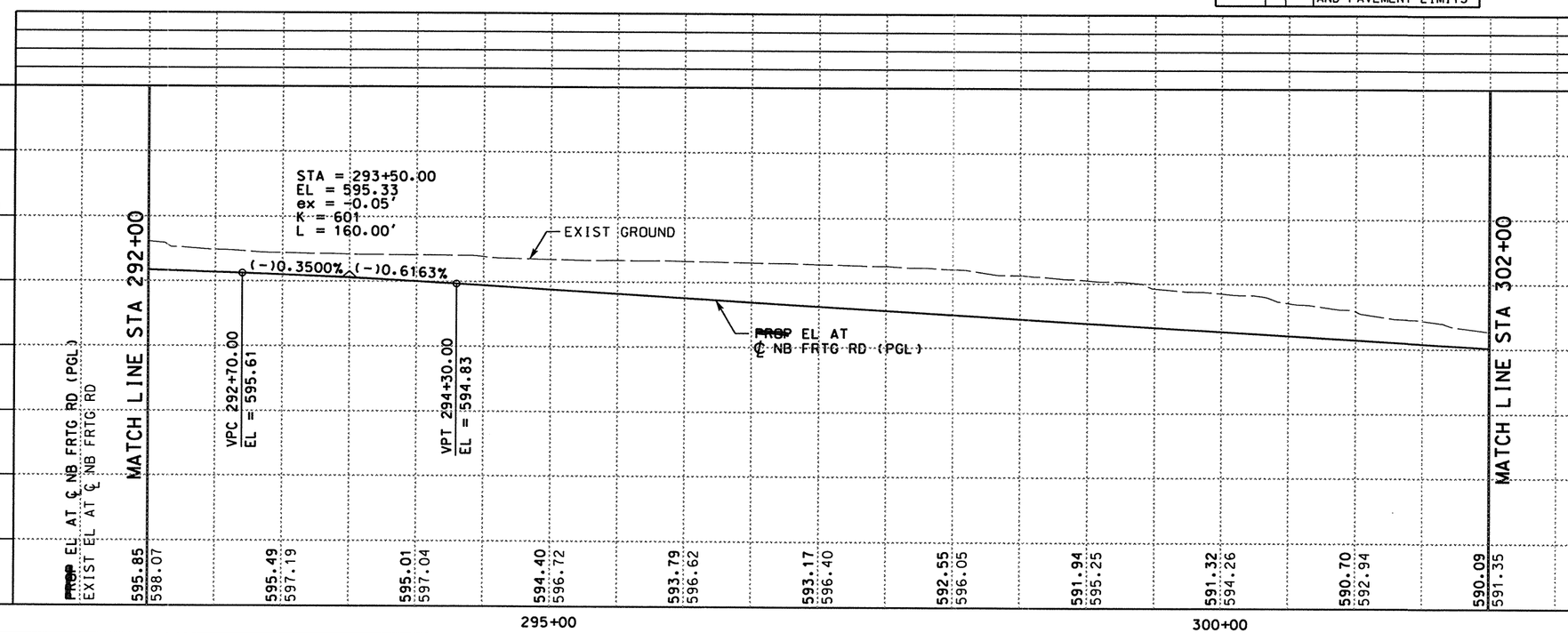
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 292+00 TO
STA 302+00

SHEET 14 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	326
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.pro, pro LV ON = 1-23.25-63
REF FILE(S): j011op01.row, row
REF FILE(S): j011op01.utl, utl LV ON = 1-63
j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2.3.9.10.14.17.20.21.25.28
j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62
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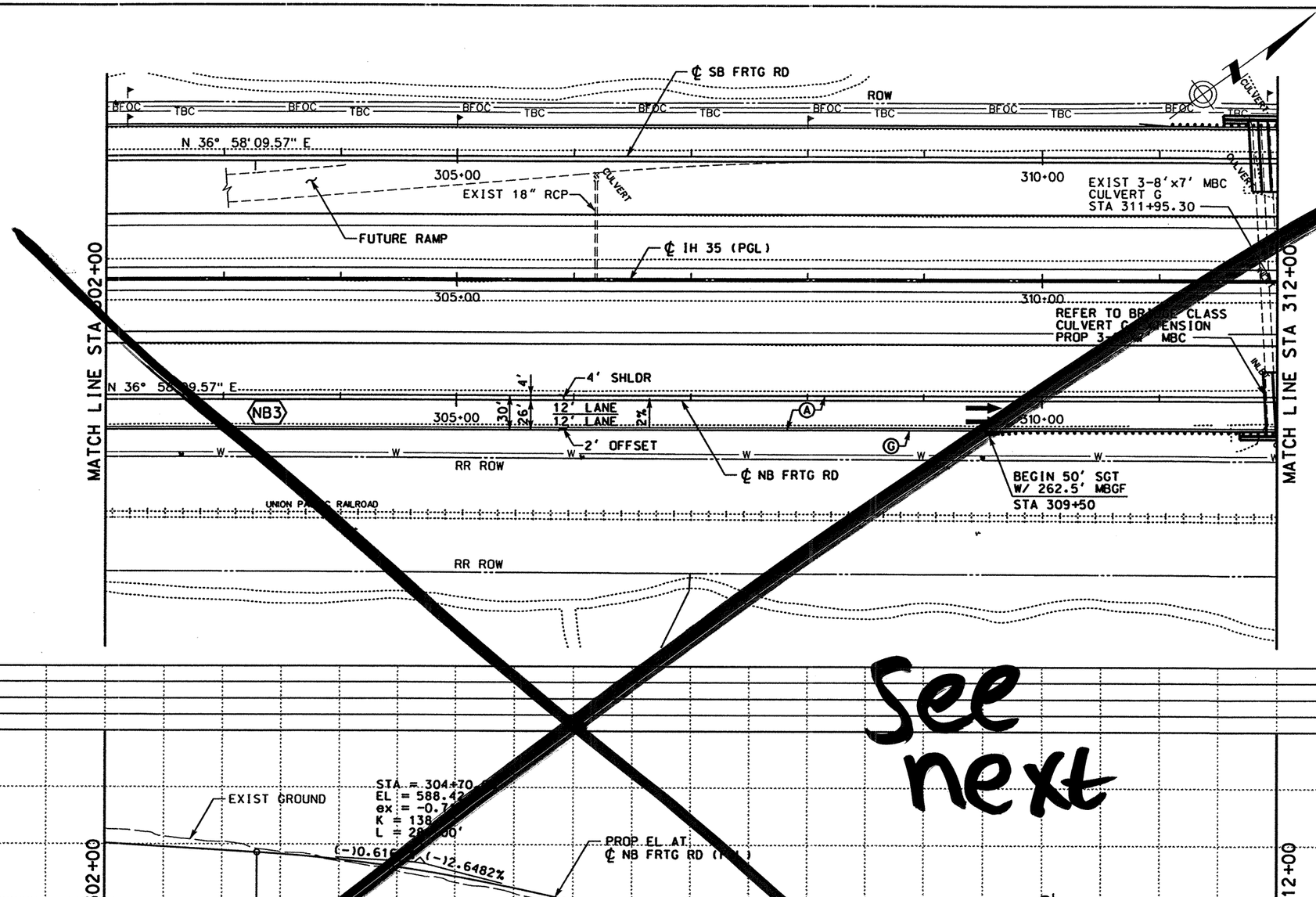
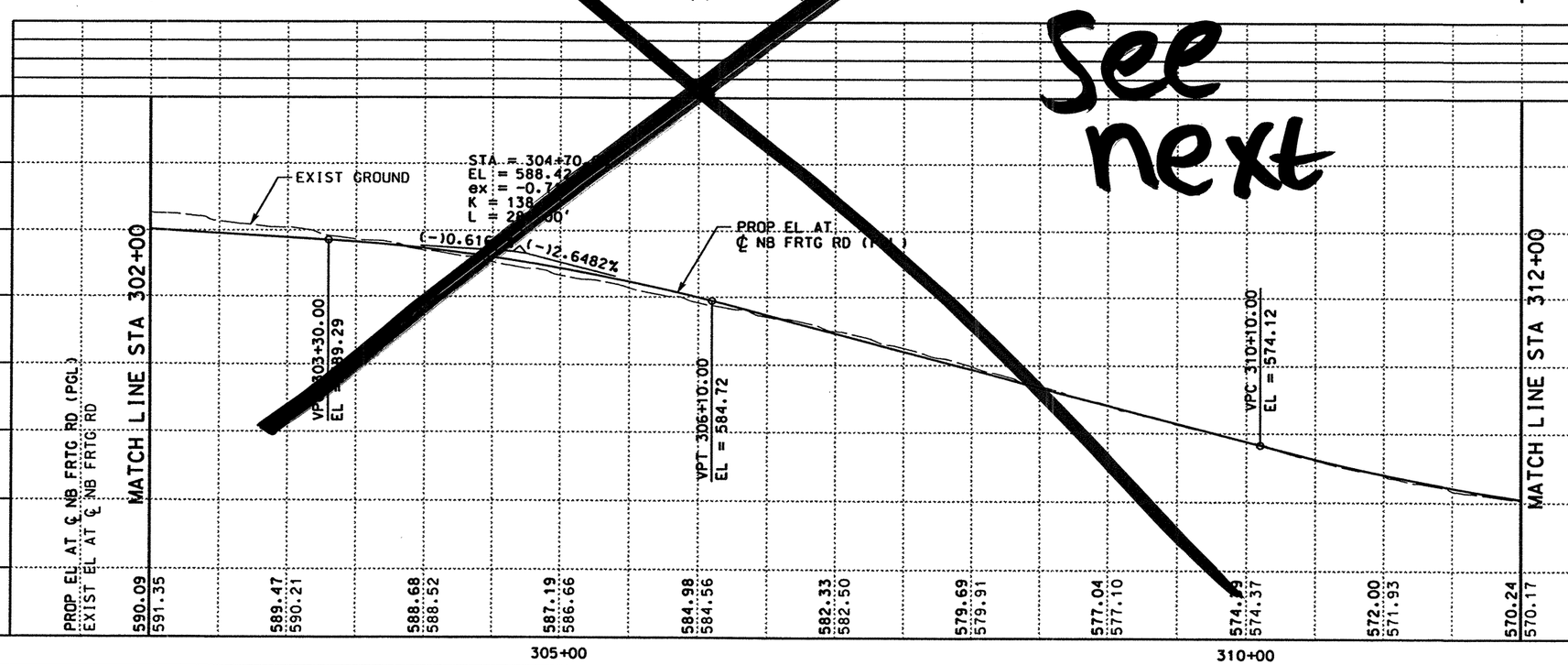


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



See next

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 302+00 TO
STA 312+00

SHEET 15 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		327
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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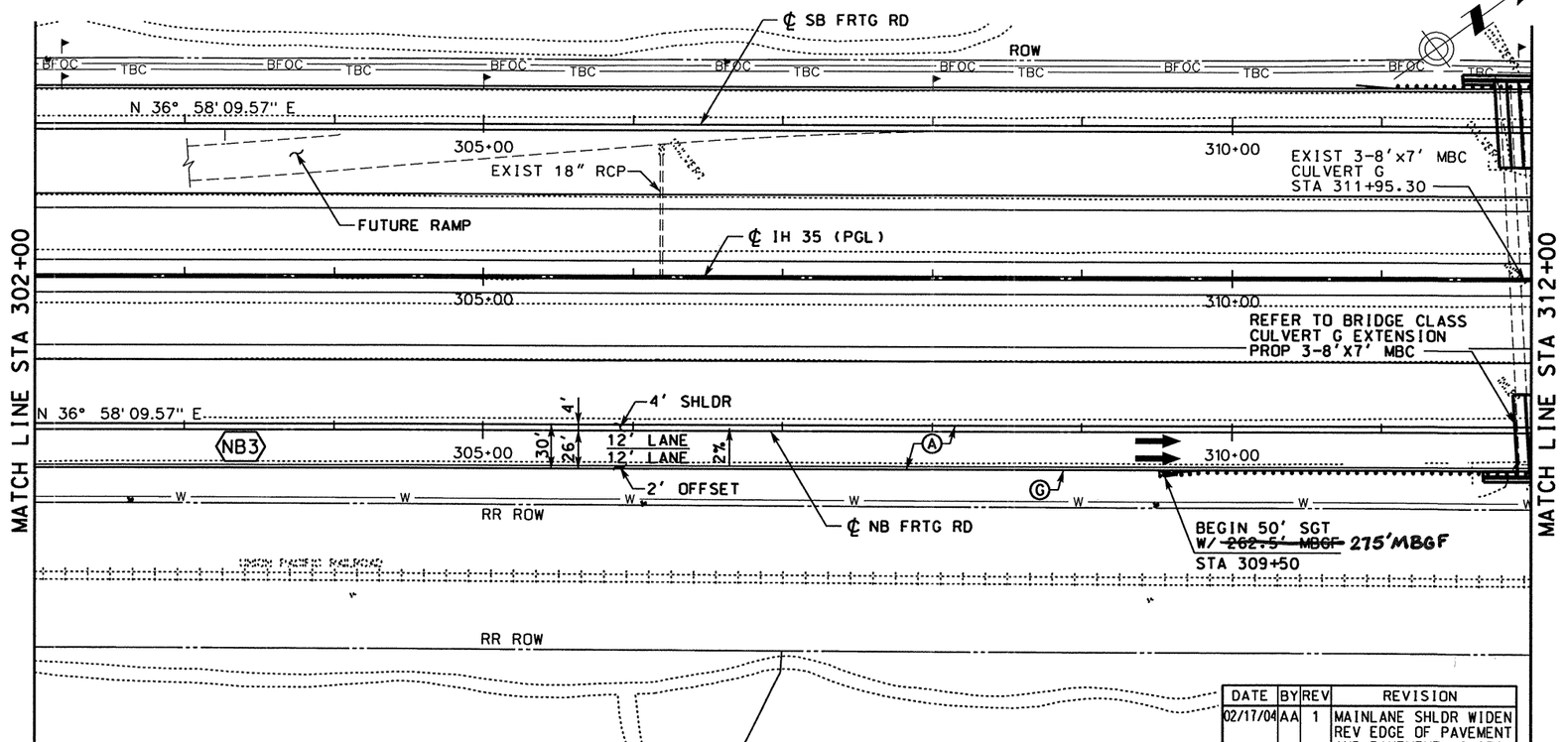


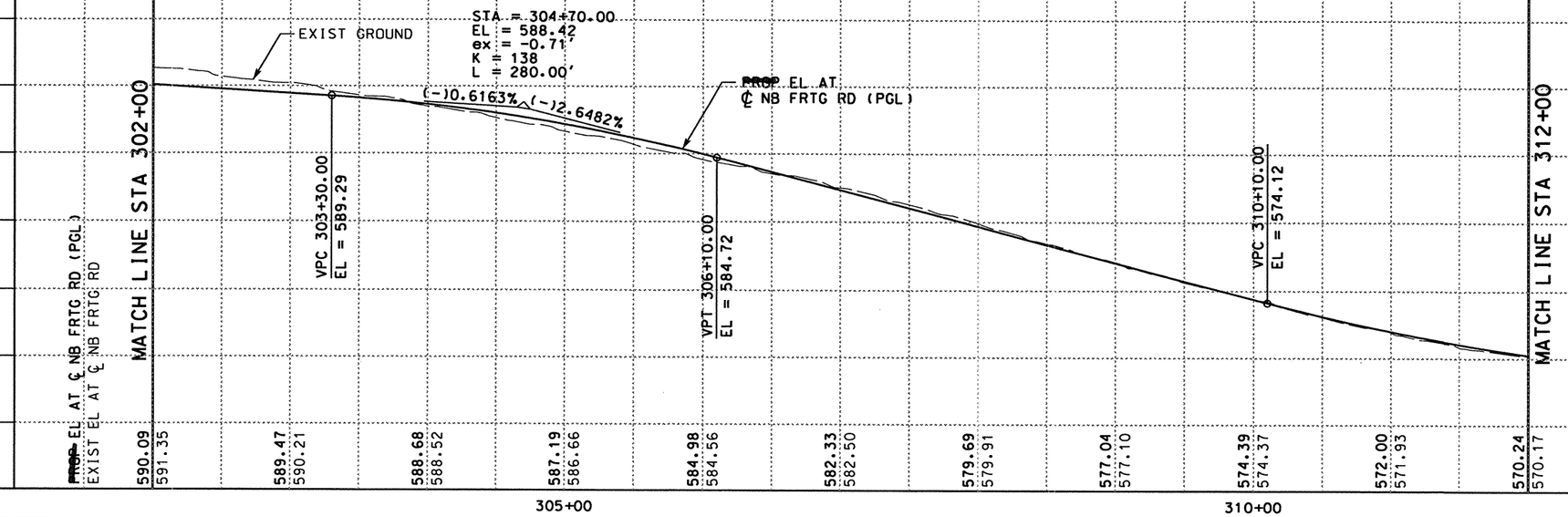
DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 302+00 TO
STA 312+00

SHEET 15 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	327
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

3/4/2004

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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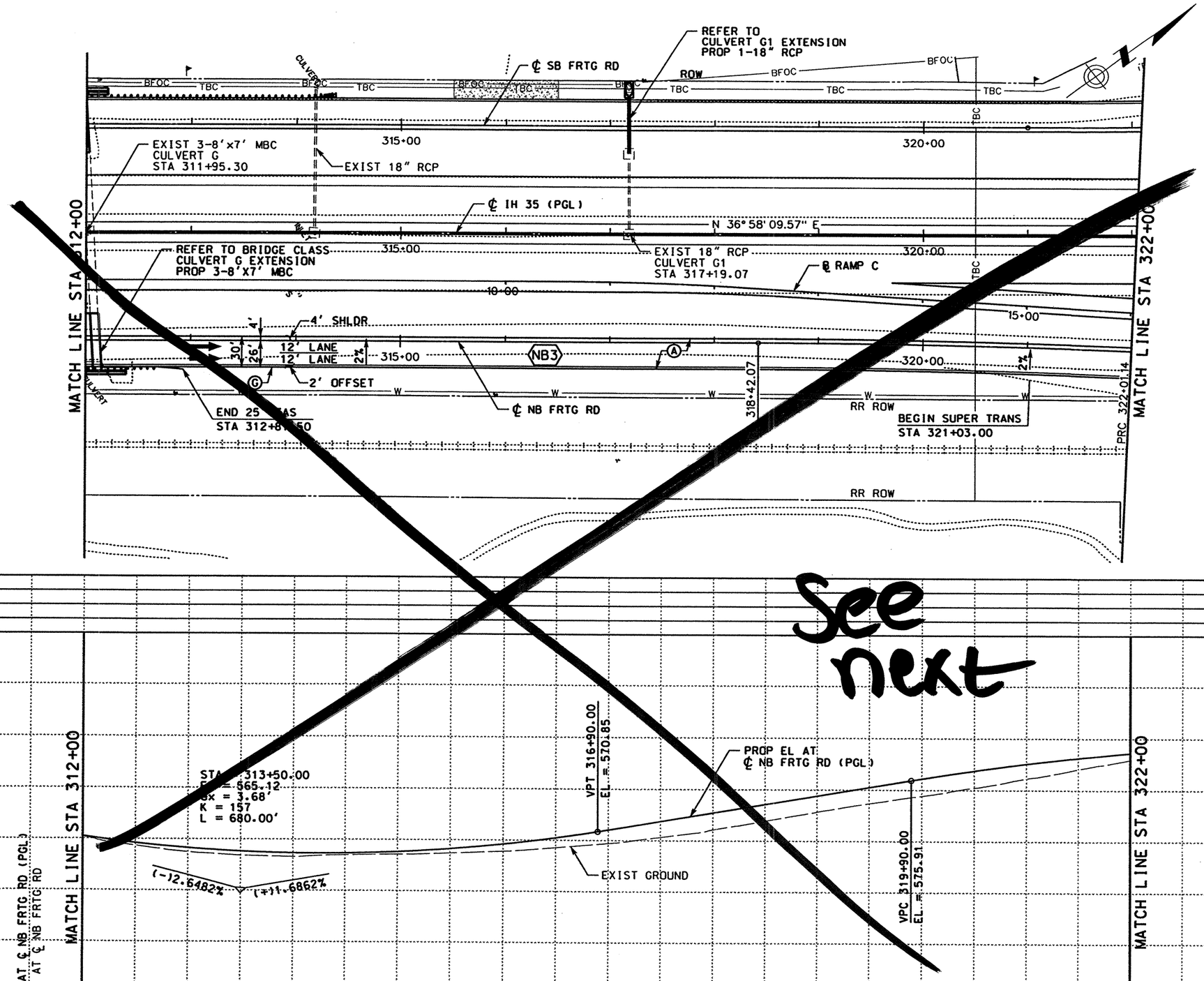

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 312+00 TO
STA 322+00

SHEET 16 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	328
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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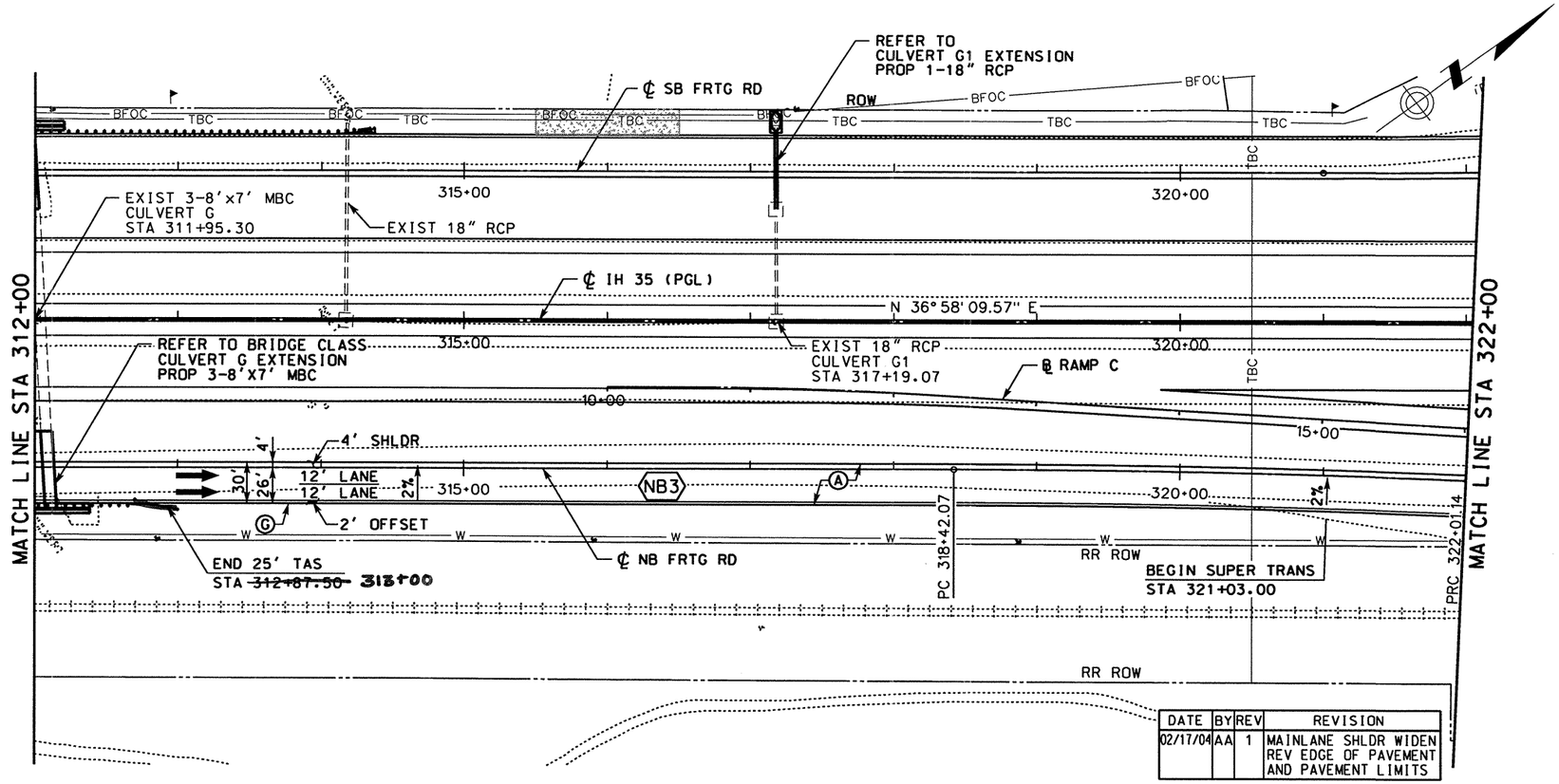

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
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- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
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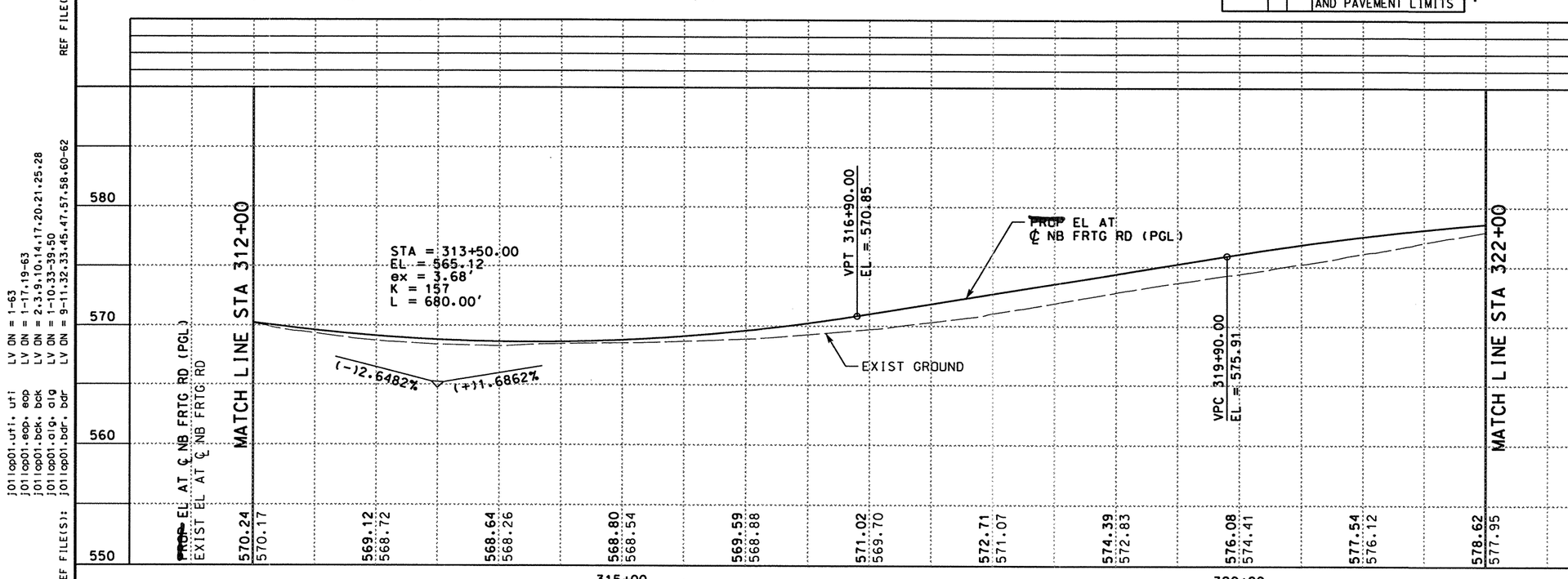
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 312+00 TO
STA 322+00

SHEET 16 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		328
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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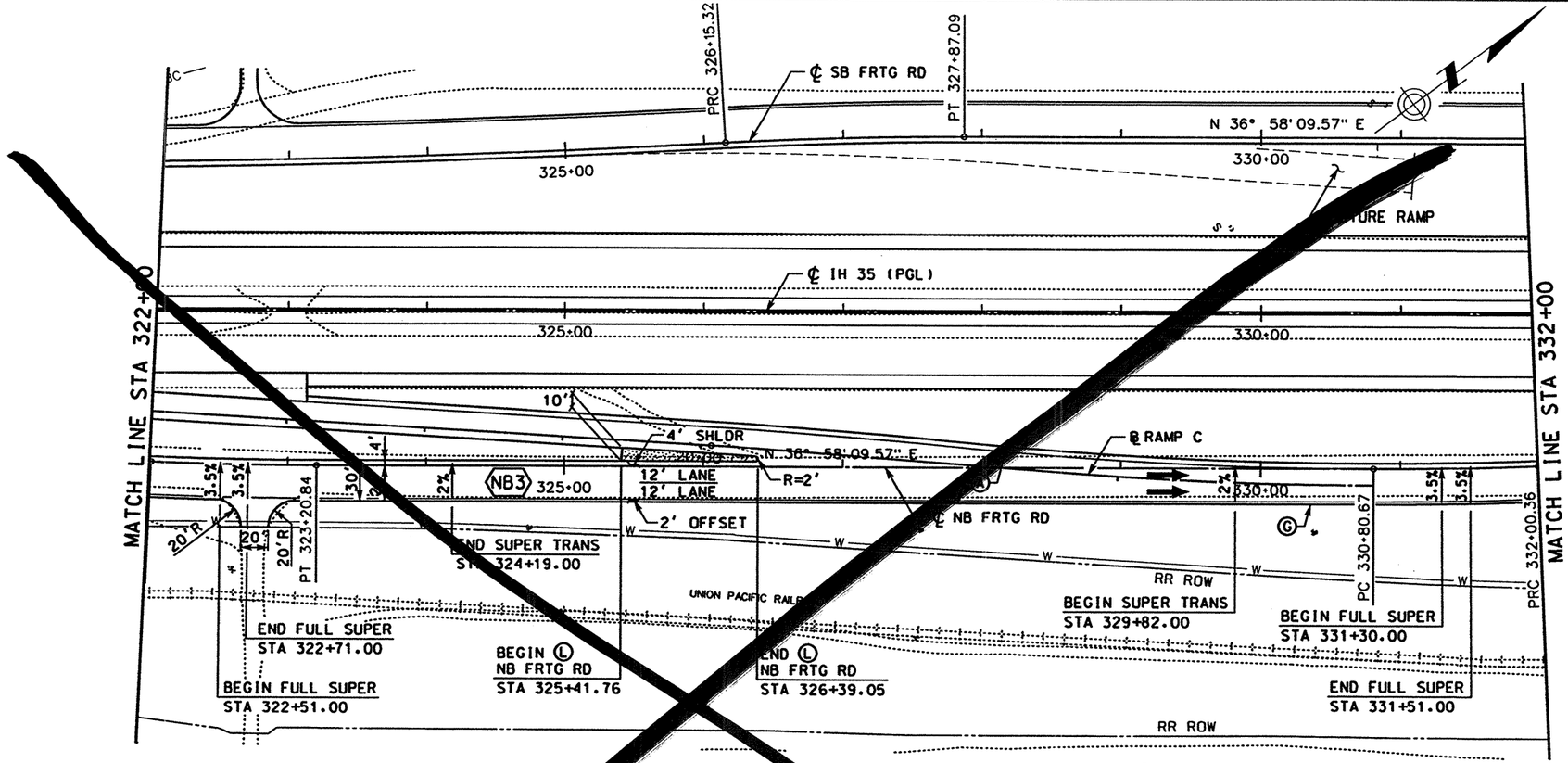


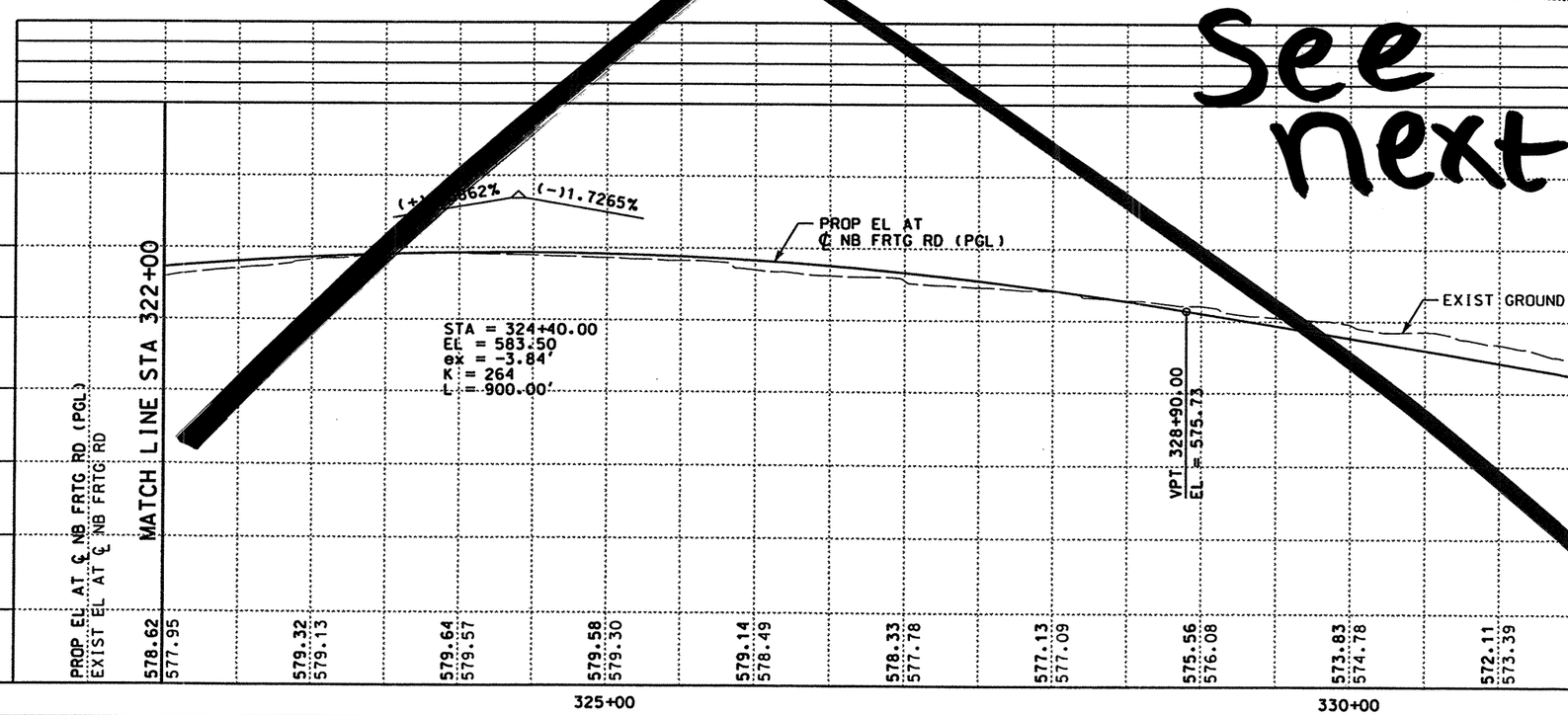
LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "DRIVEWAY DETAIL" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

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Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 322+00 TO
STA 332+00

SHEET 17 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	329
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

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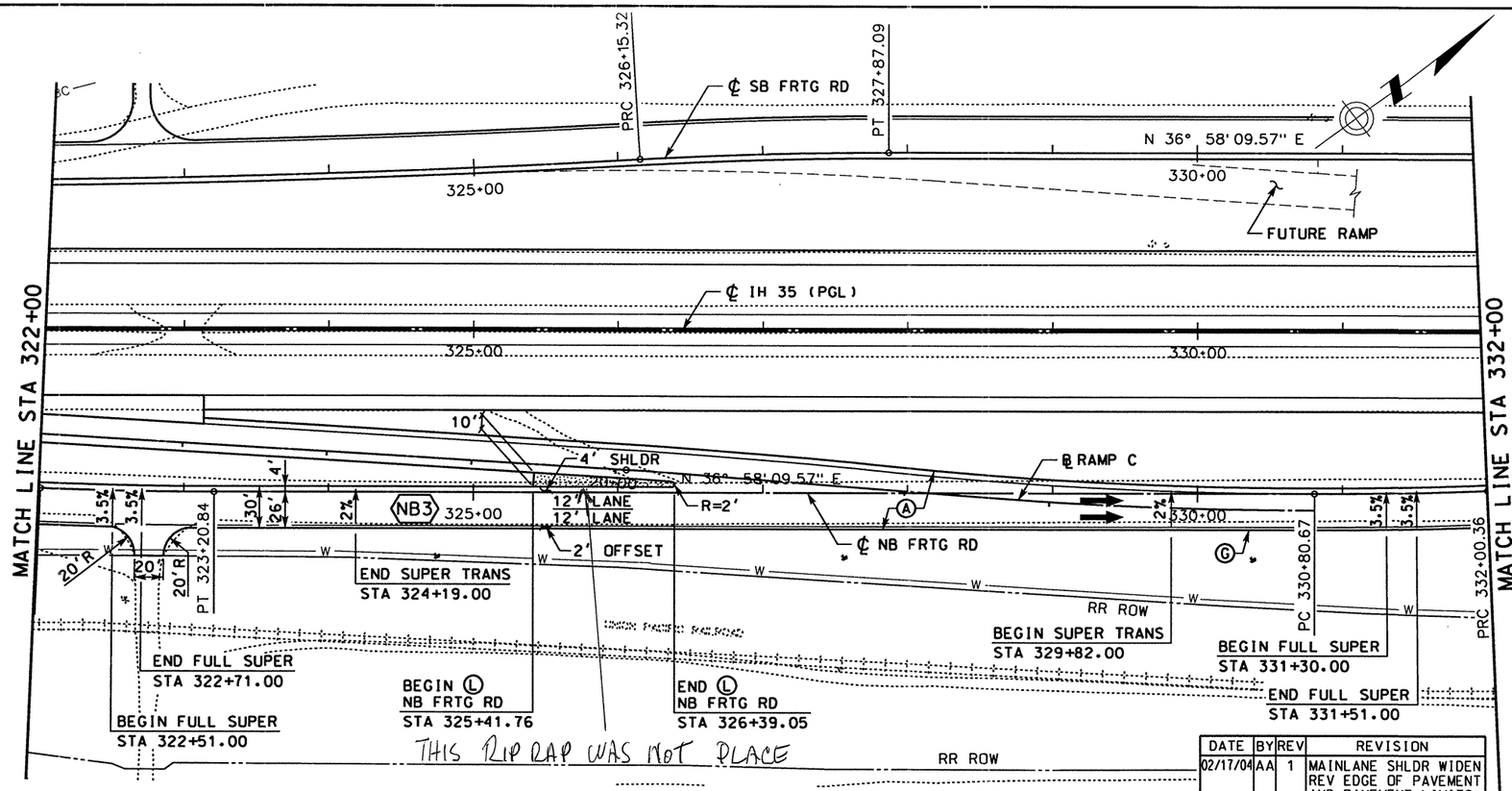

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
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- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
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- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
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- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
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- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
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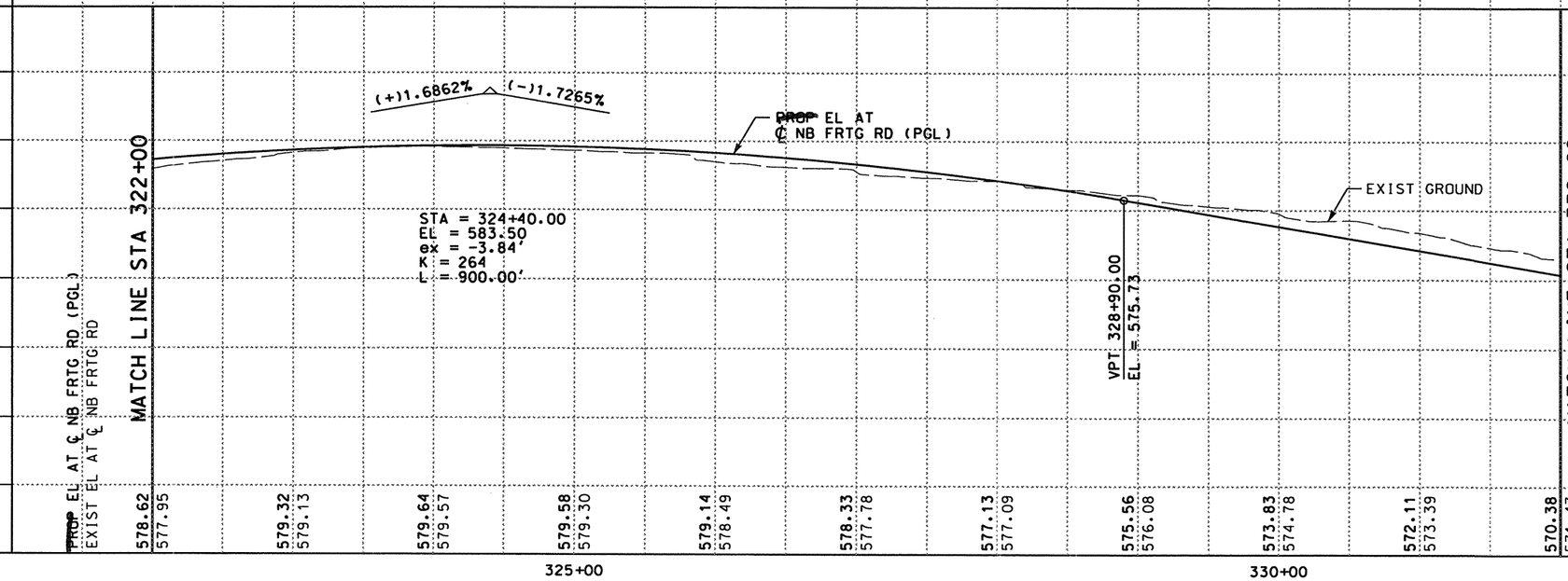
3. SEE "DRIVEWAY DETAIL" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
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STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 322+00 TO
STA 332+00

SHEET 17 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	329
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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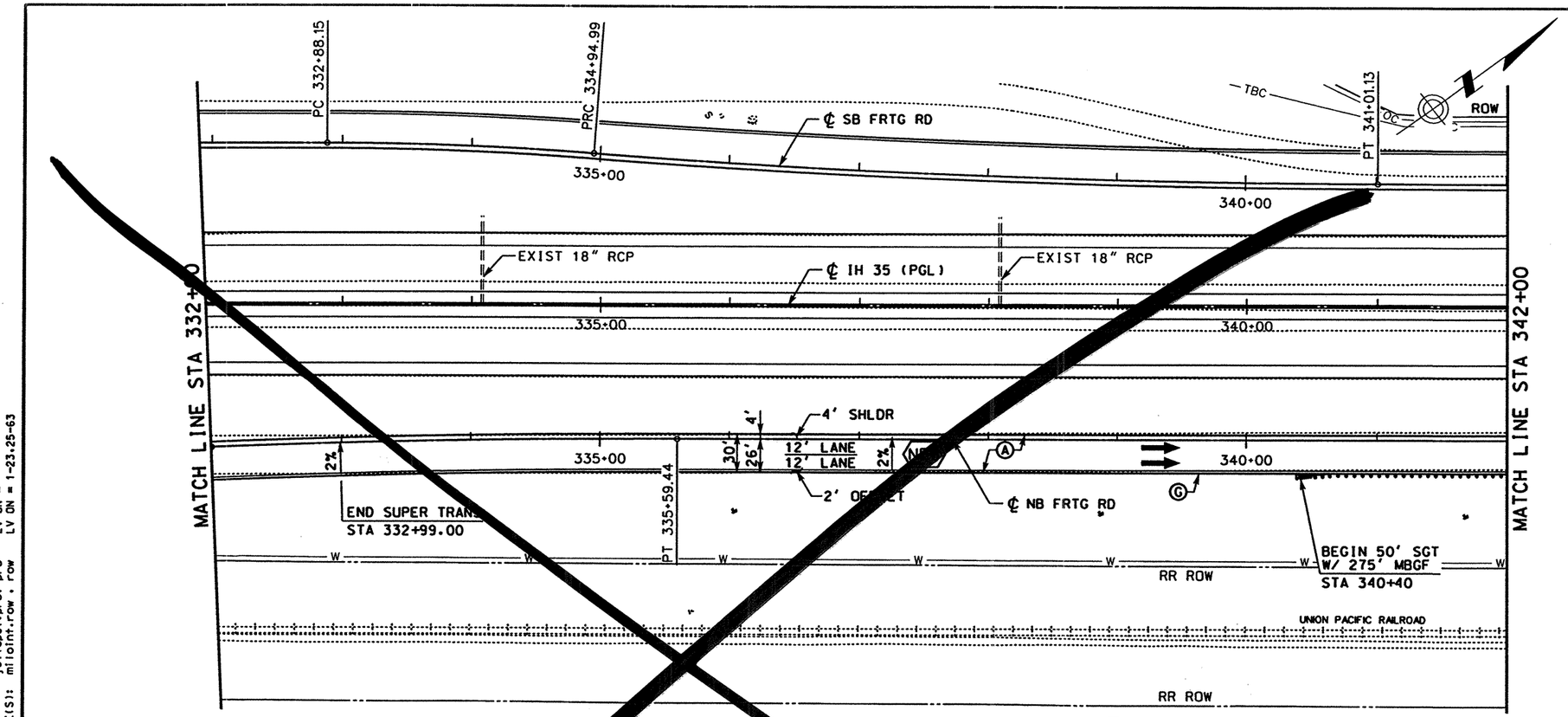

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
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- (N) SPECIAL BARRIER #1
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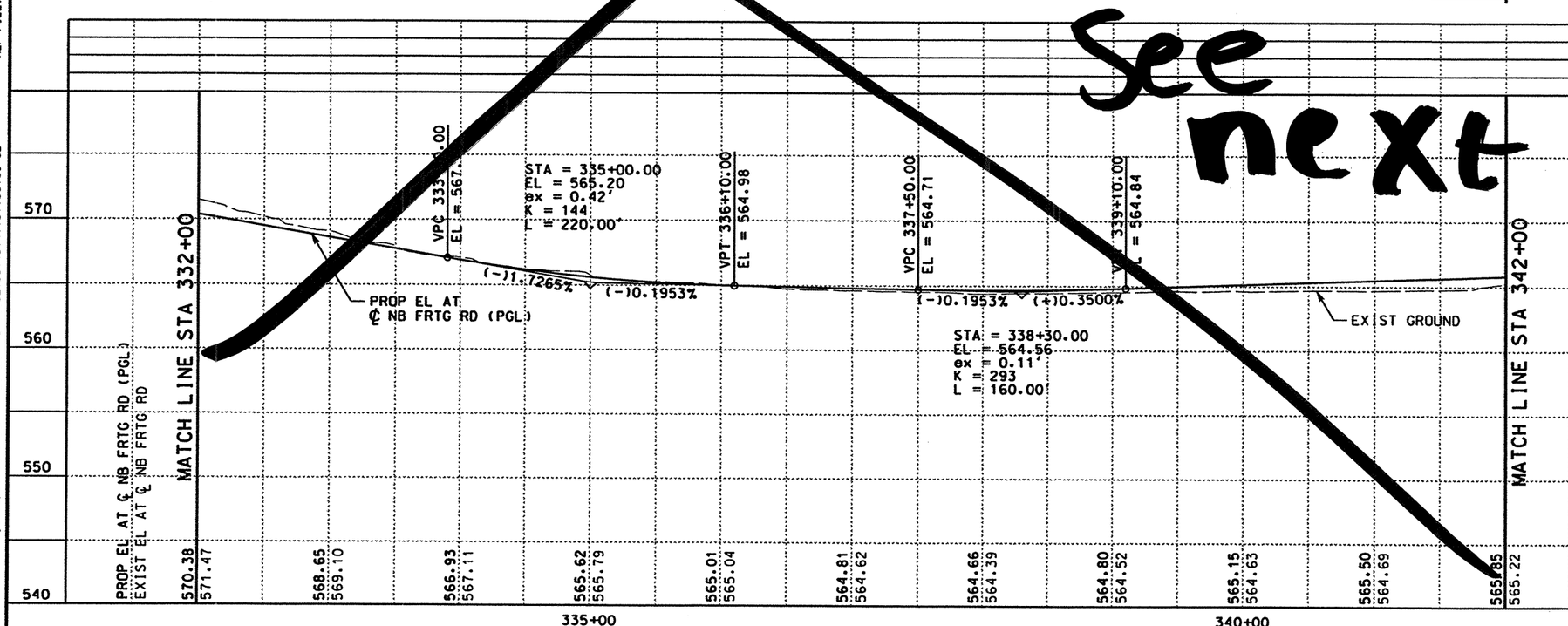
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



See next

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 332+00 TO
STA 342+00

SHEET 18 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	330
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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4/18/2003
HOUFILE023 \hchivil\cf0130\
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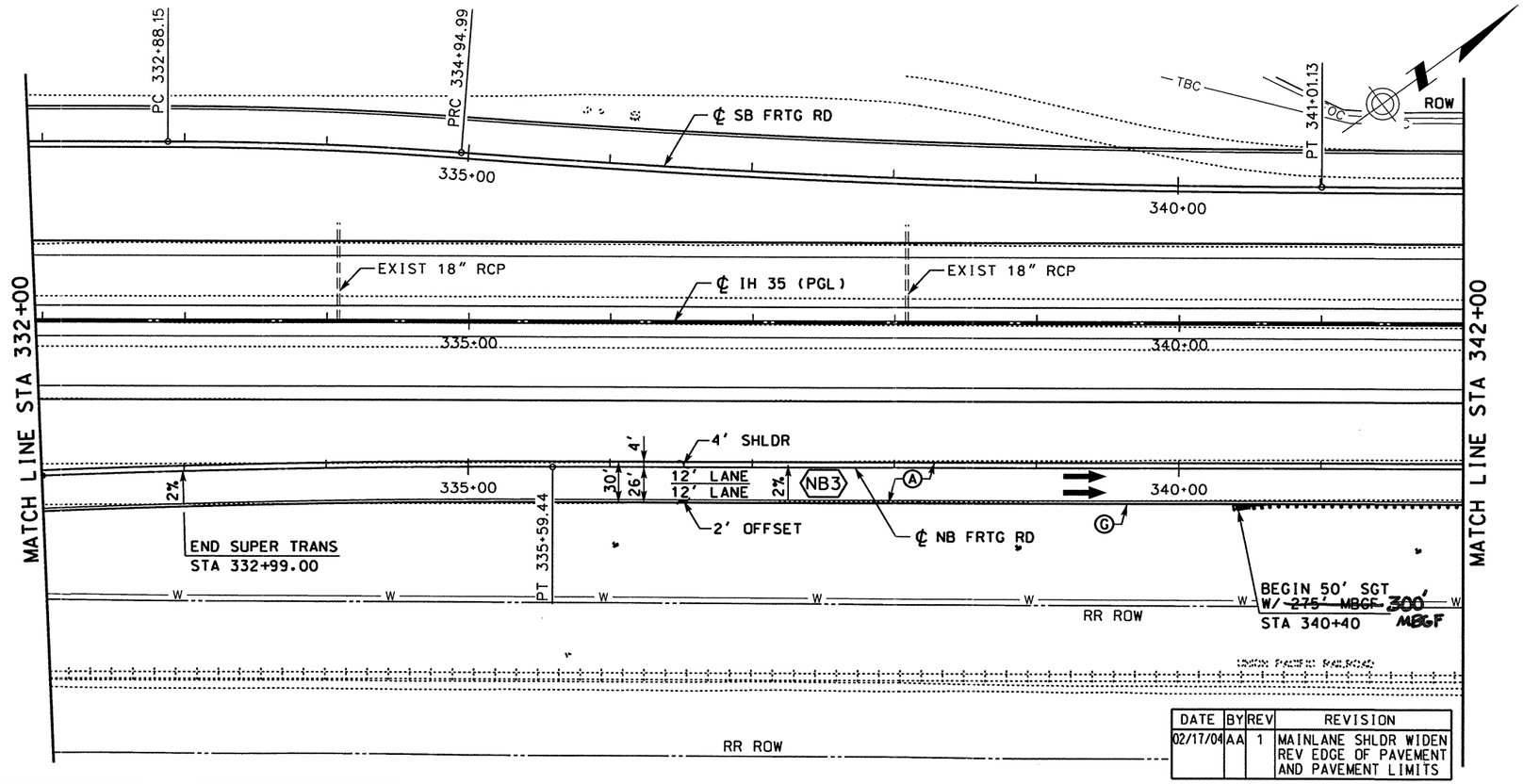


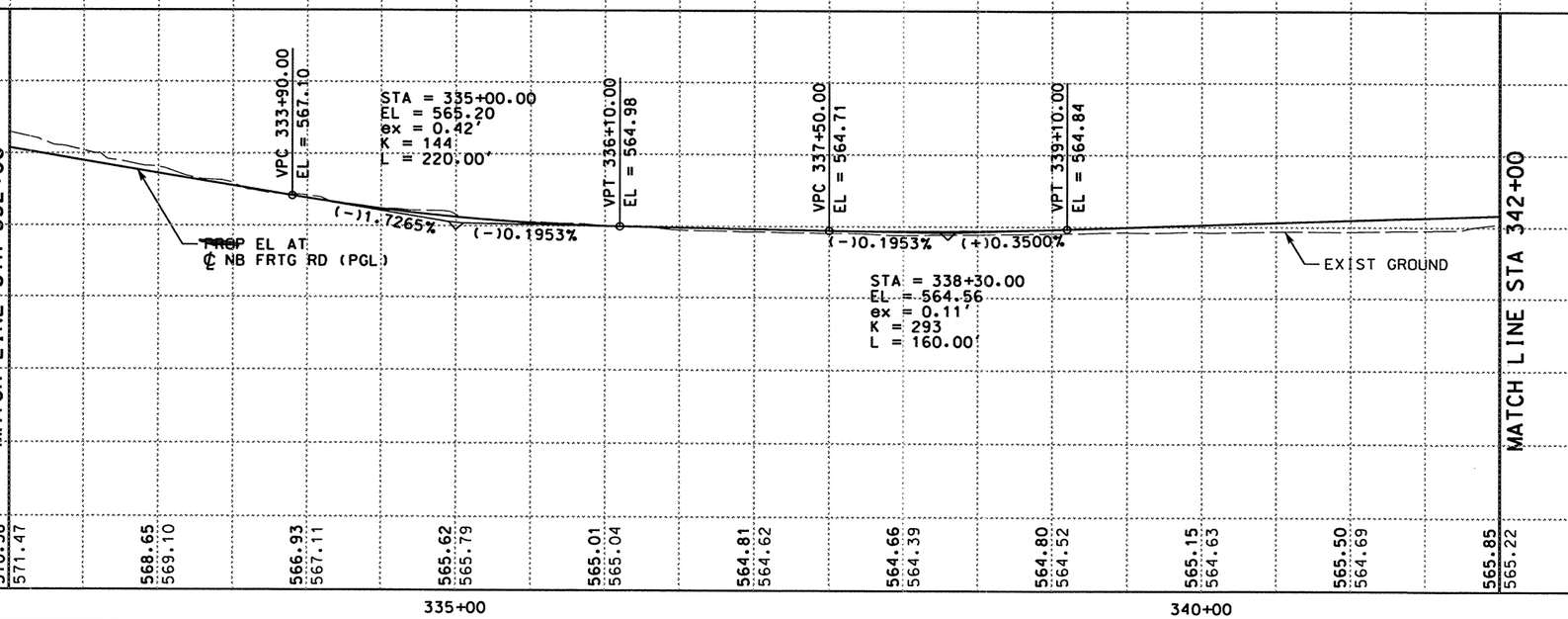
DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD PLAN AND PROFILE STA 332+00 TO STA 342+00

SHEET 18 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	330
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

3/4/2004

REF FILE(S): j01lop01.pro, miloint.row
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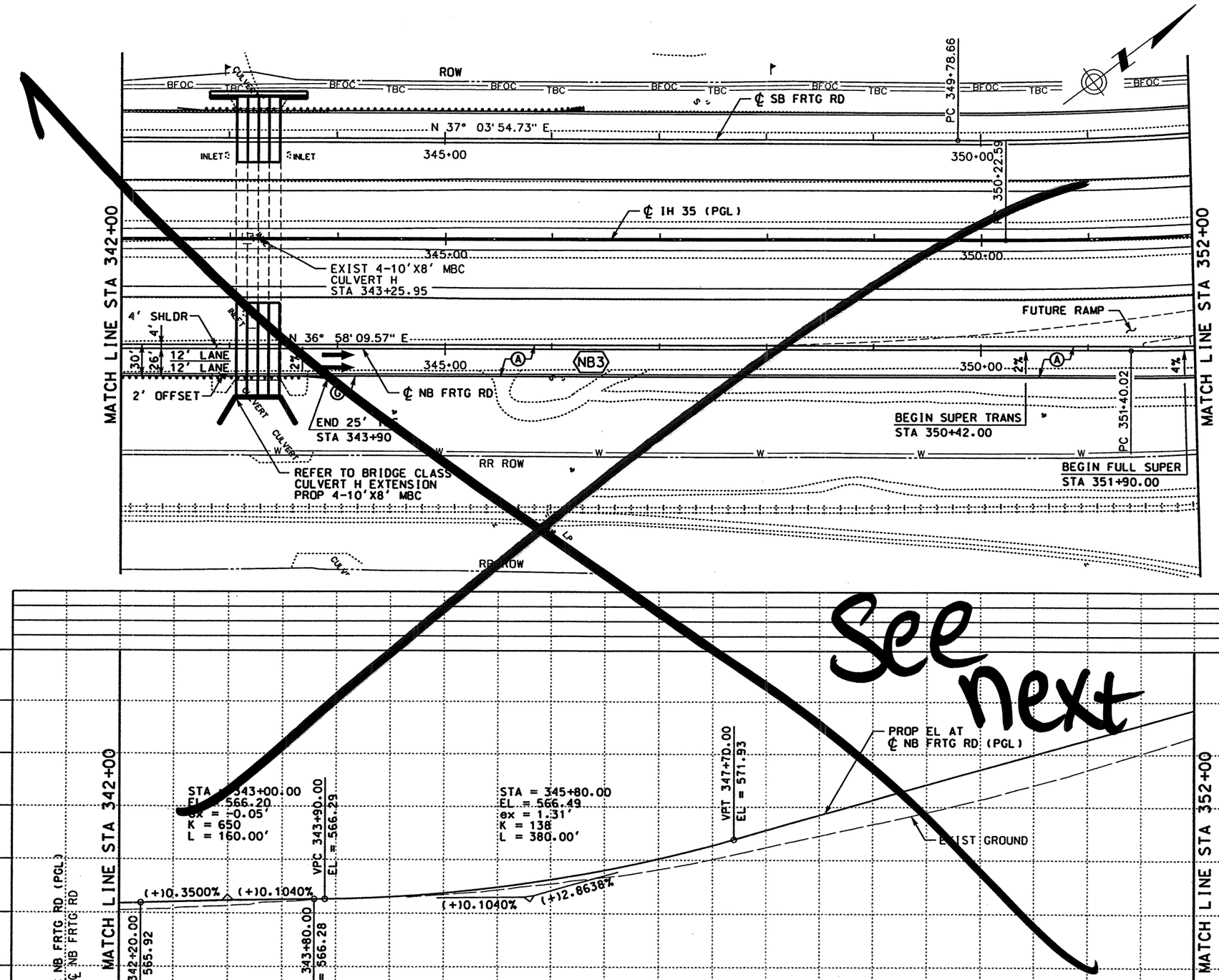

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 342+00 TO
STA 352+00

SHEET 19 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	331
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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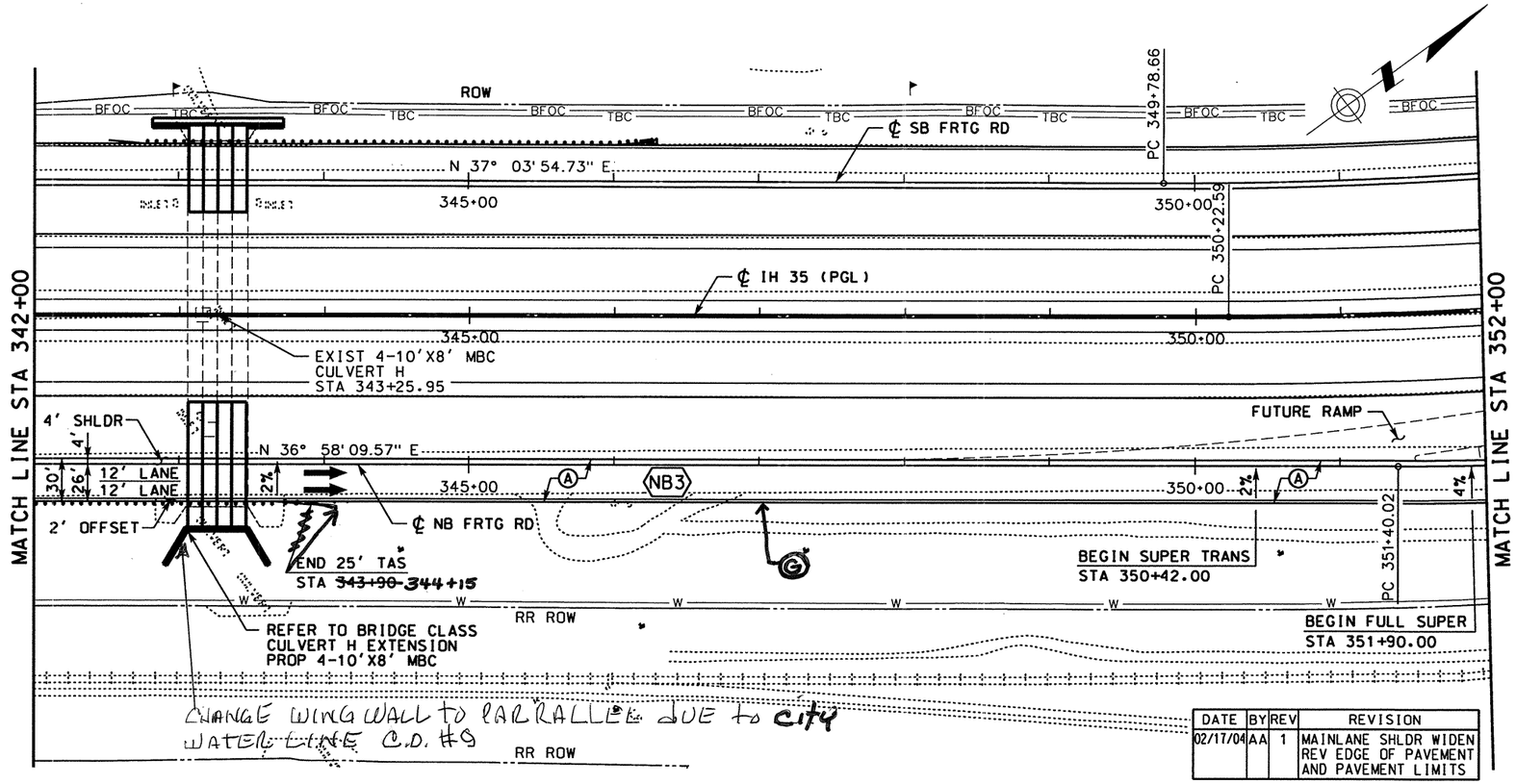


LEGEND

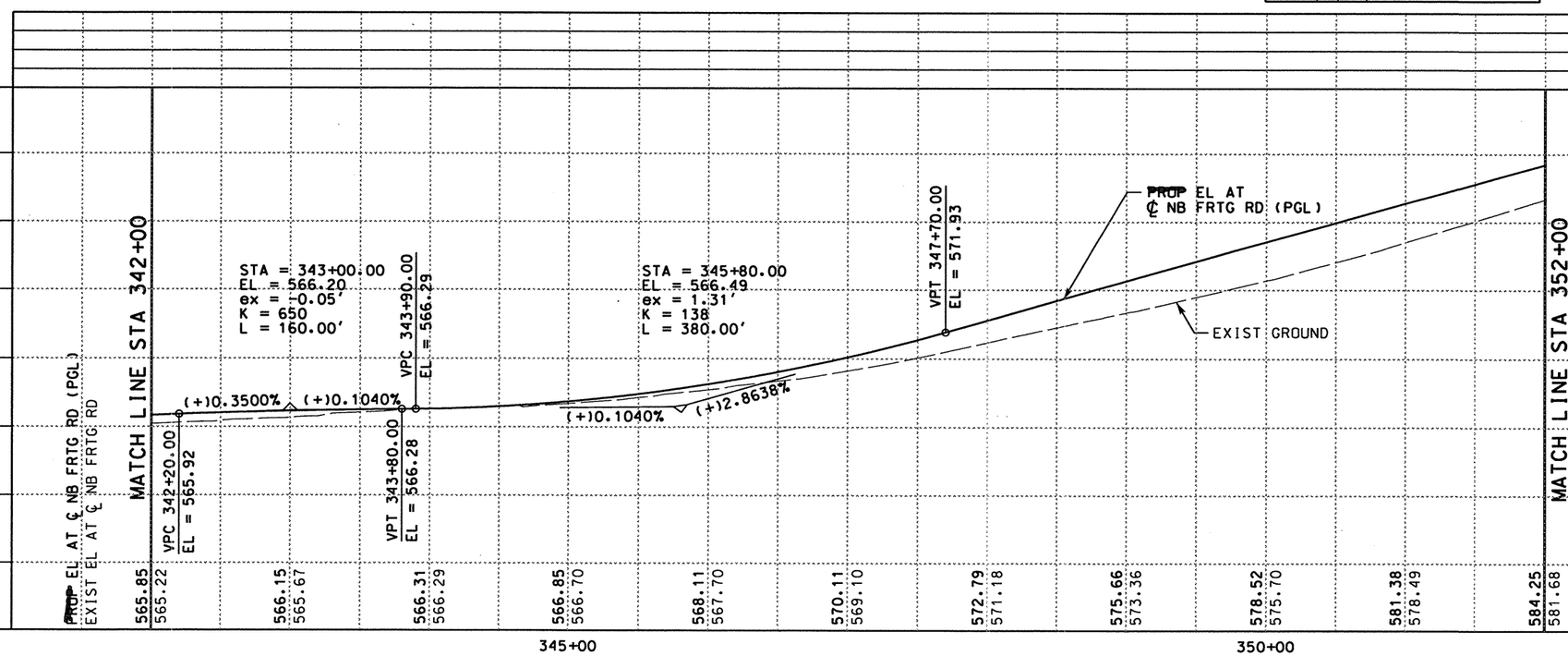
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 342+00 TO
STA 352+00

SHEET 19 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	331
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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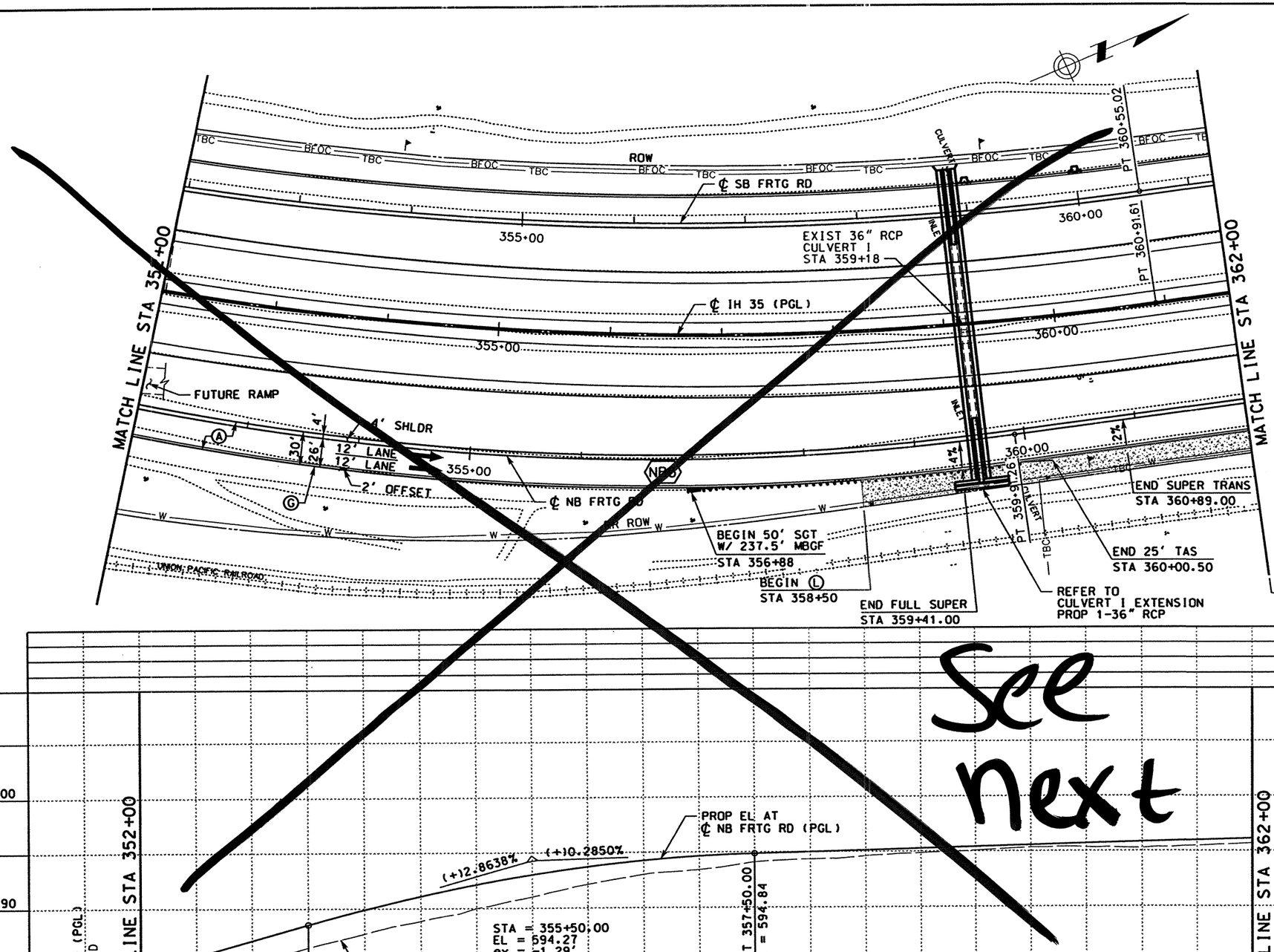

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

See next

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STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 352+00 TO
STA 362+00

SHEET 20 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	332
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

HOUFILE023 \hcivil\cf0130\ 4/18/2003
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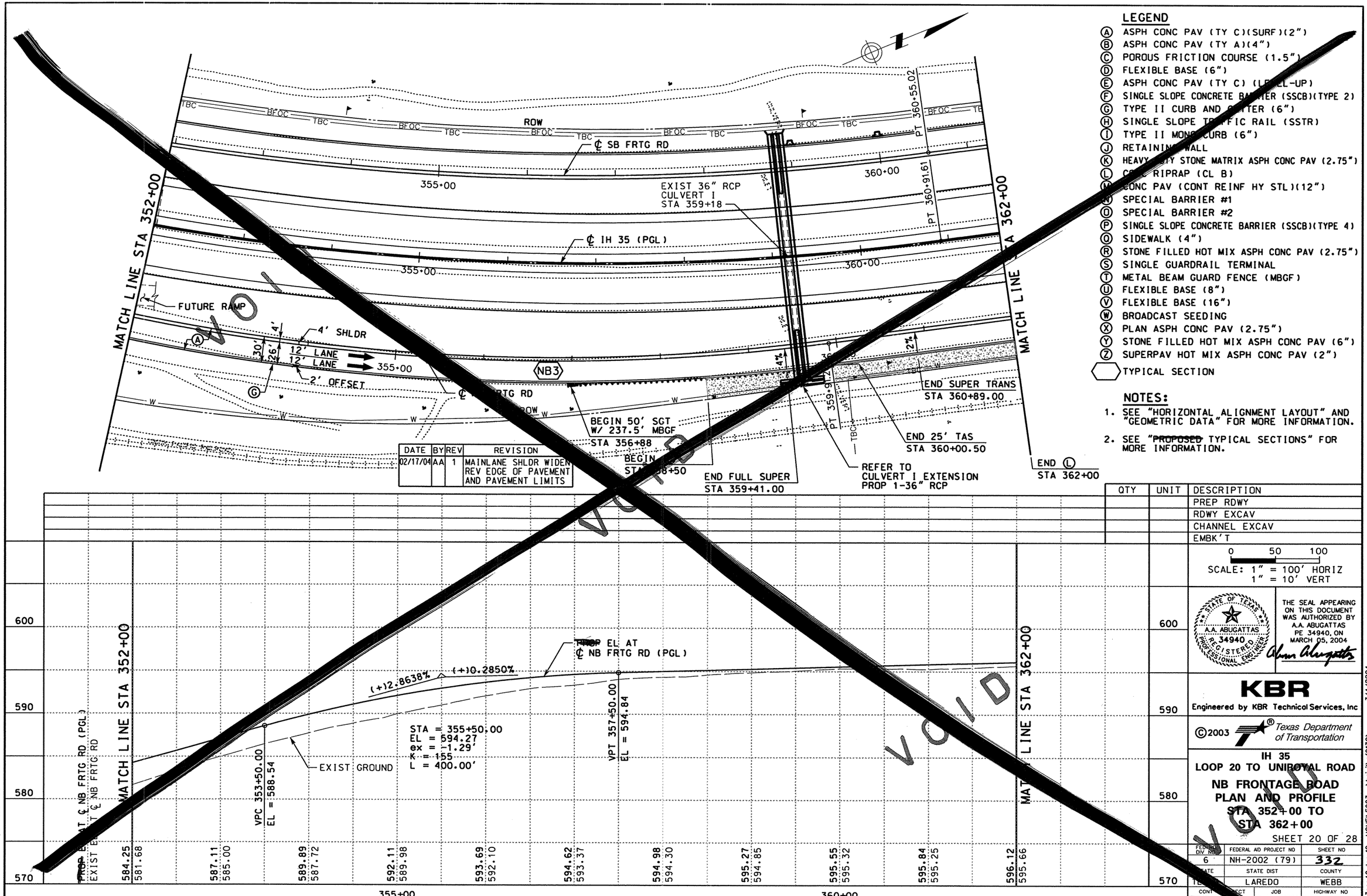

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CL B RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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Ahmad Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 352+00 TO
STA 362+00

SHEET 20 OF 28

FED.RD DIV NO.	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	332
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	062. ETC	IH 35

3/4/2004
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j0110p01.alg. alg LV ON = 1-10.33-39.50
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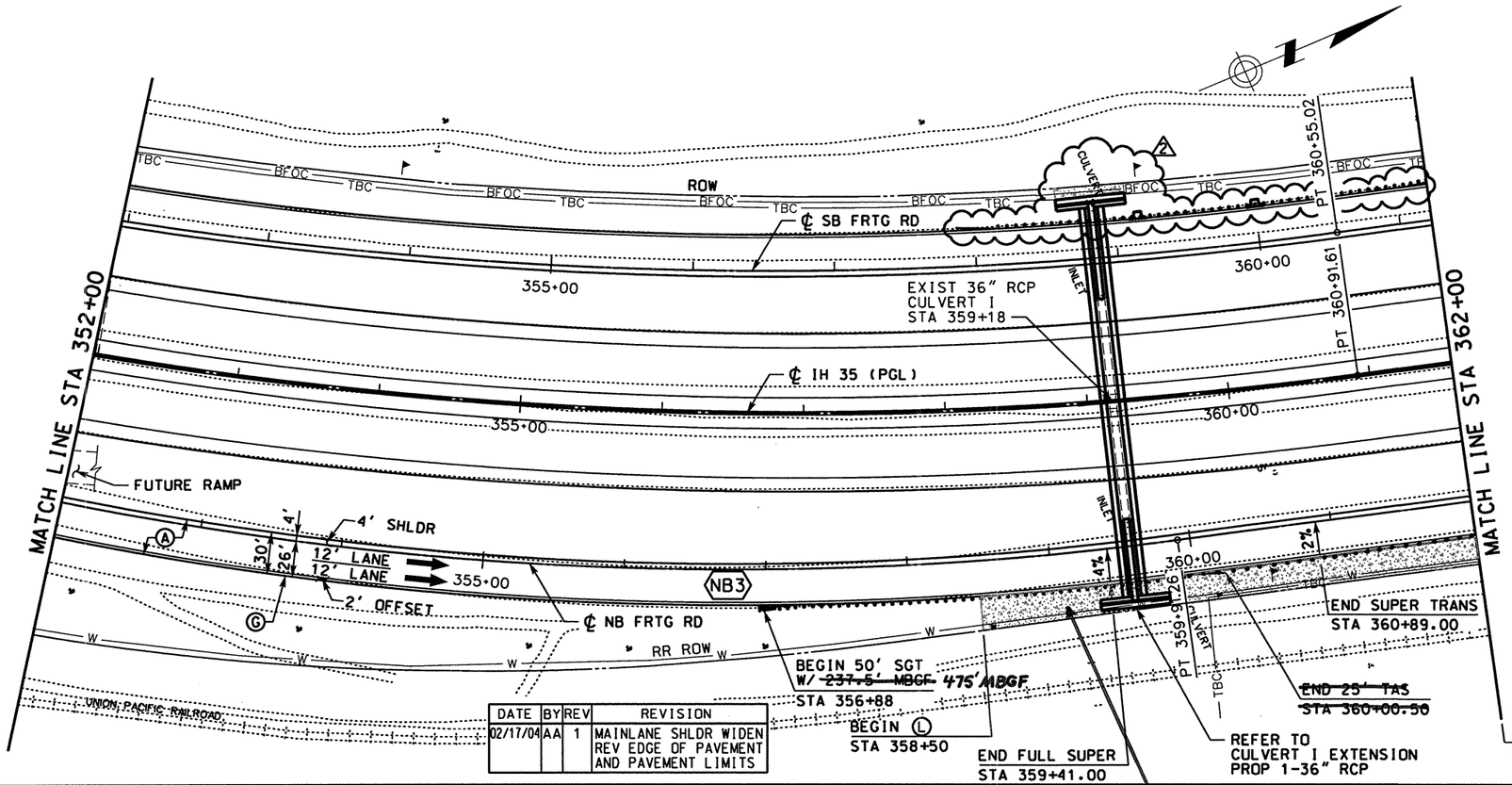


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

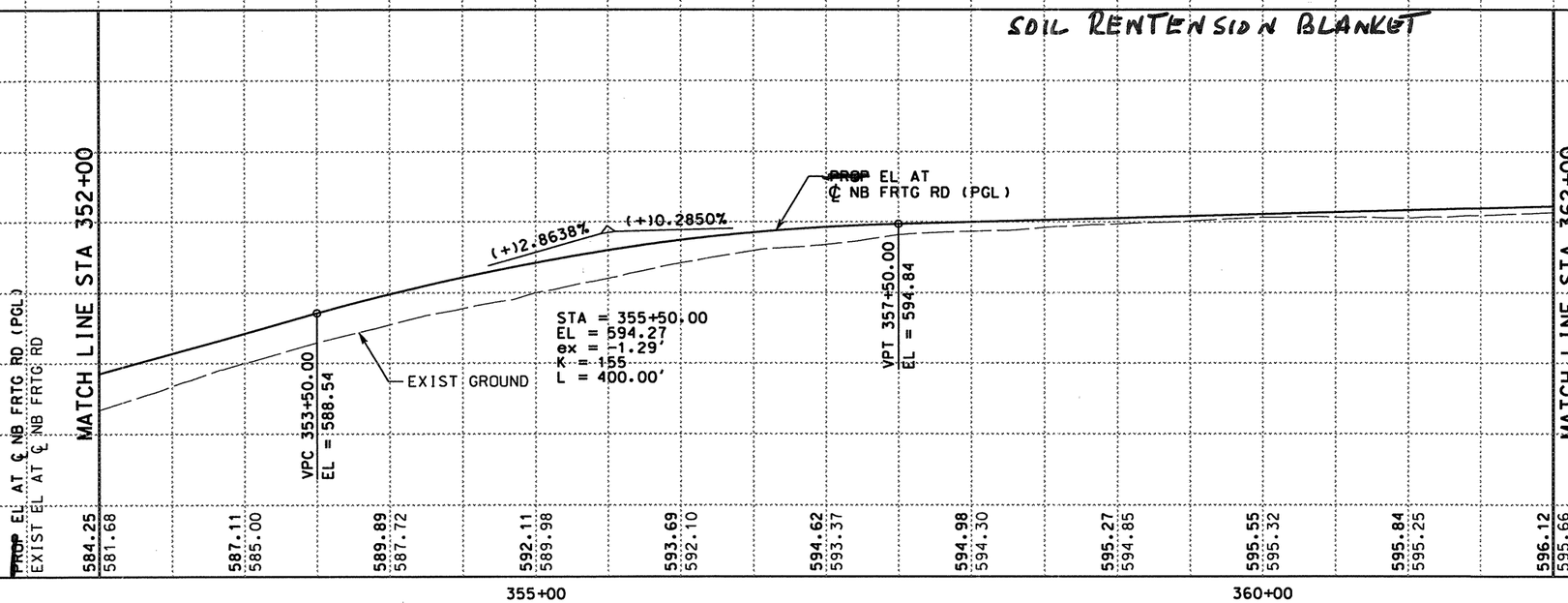
1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
01/04/05	AA	2	WINGWALL MODIFICATIONS FOR CULVERT I

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

CHANGE FROM RIPRAP TO SOIL RENTENSION BLANKET



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JANUARY 04, 2005

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 352+00 TO
STA 362+00

SHEET 20 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	332
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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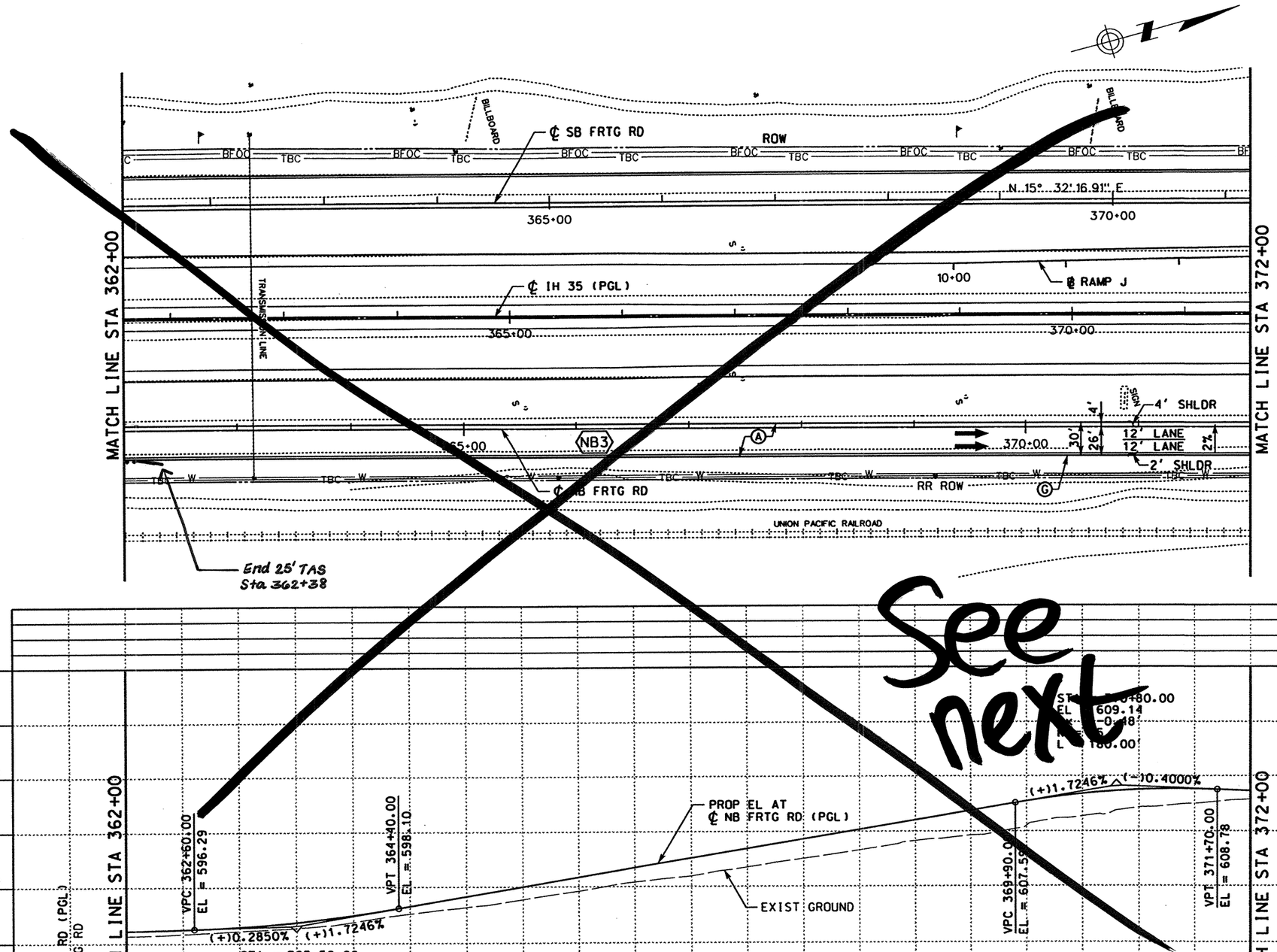

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 362+00 TO
STA 372+00

SHEET 21 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	333
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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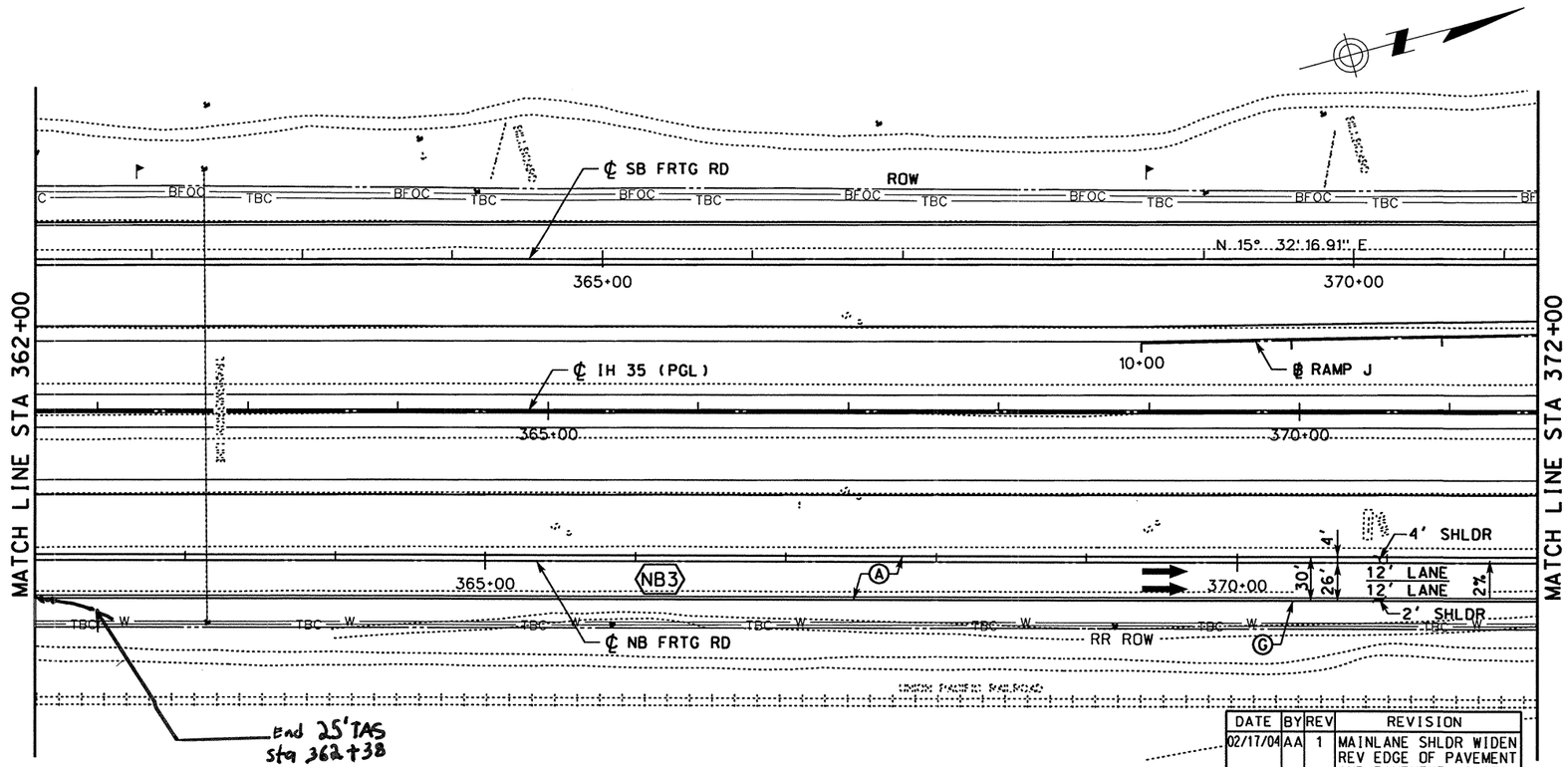


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

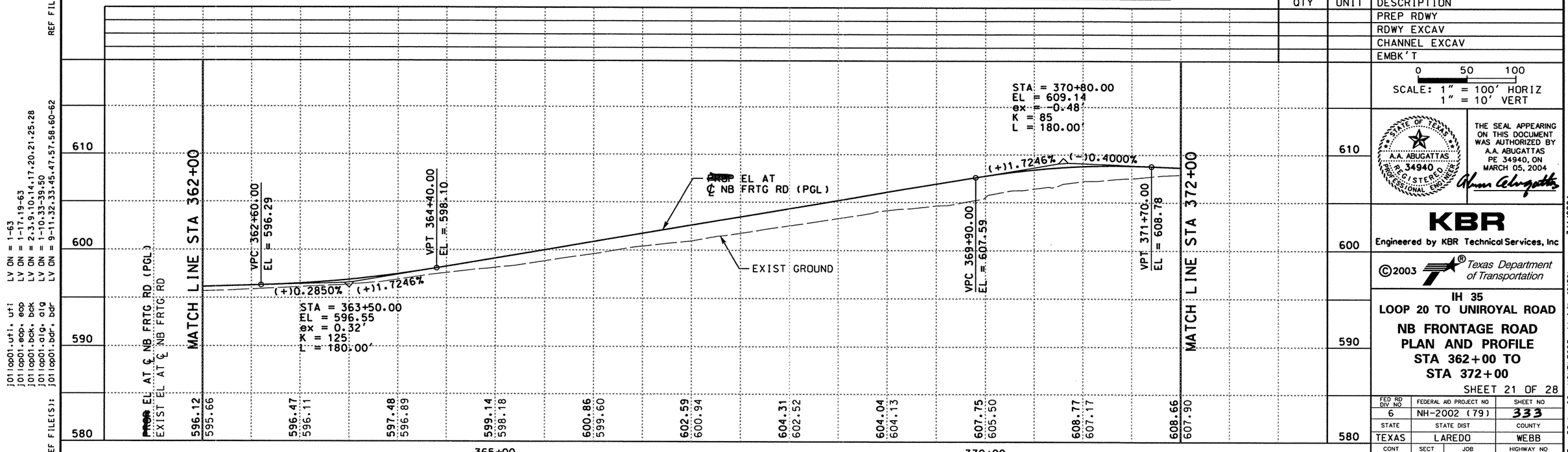
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 362+00 TO
STA 372+00

SHEET 21 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	333
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

3/4/2004

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j01lop01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62
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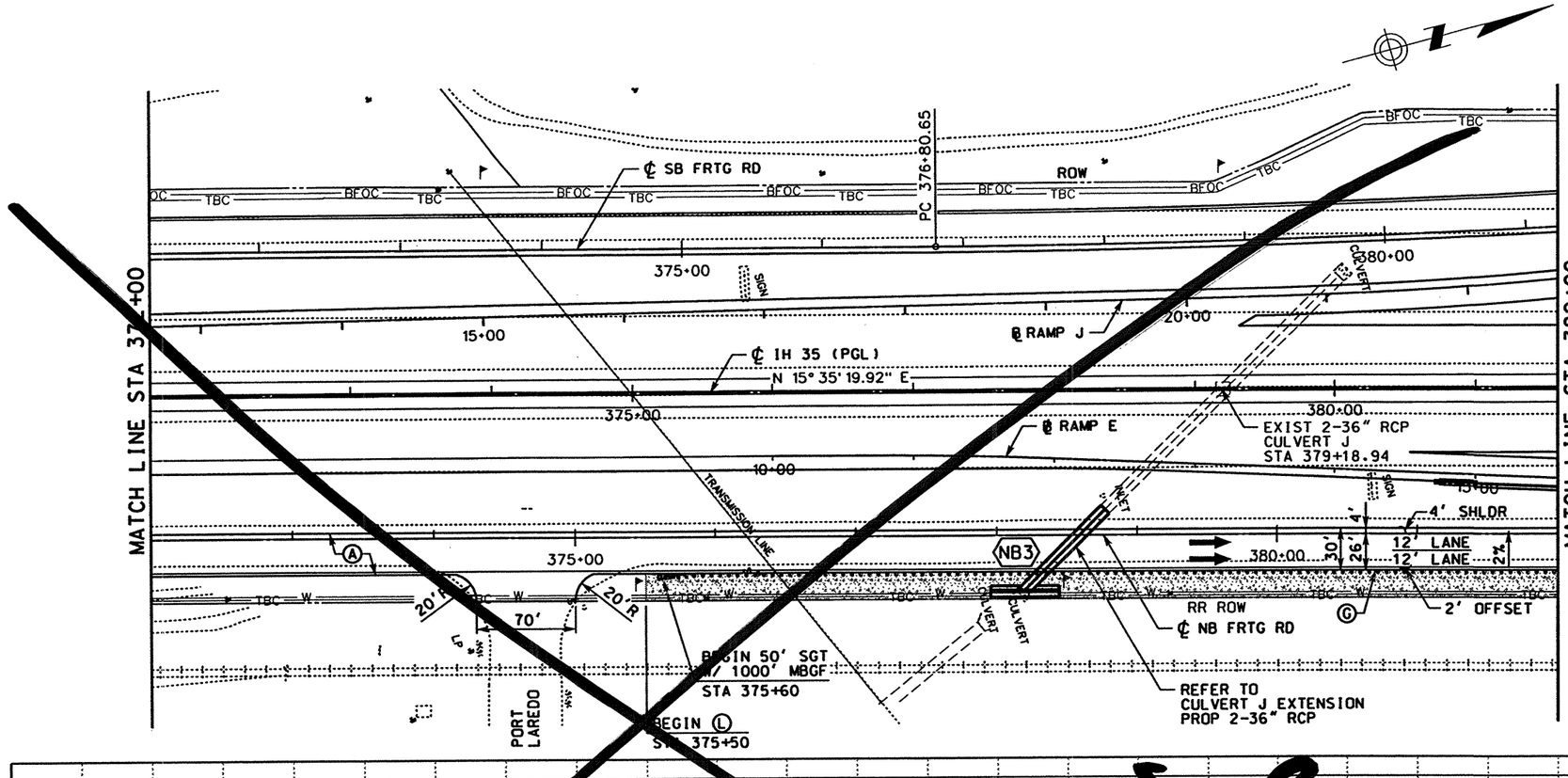

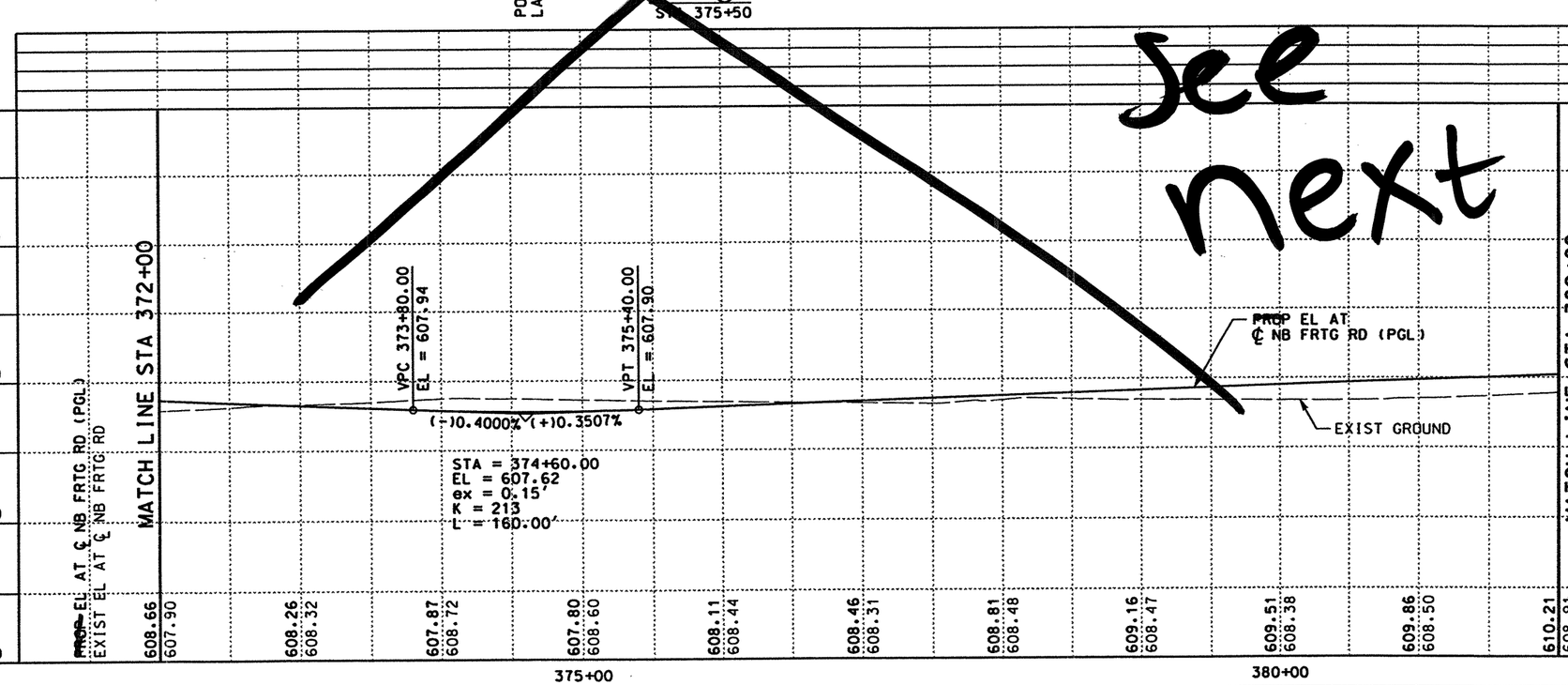

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "DRIVEWAY DETAIL" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · R. 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 372+00 TO
STA 382+00

SHEET 22 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	334
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j011op01.bak, bak LV ON = 2,3,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-10,33-39,50
j011op01.bdr, bdr LV ON = 9-11,32-33,45,47,57,58,60-62
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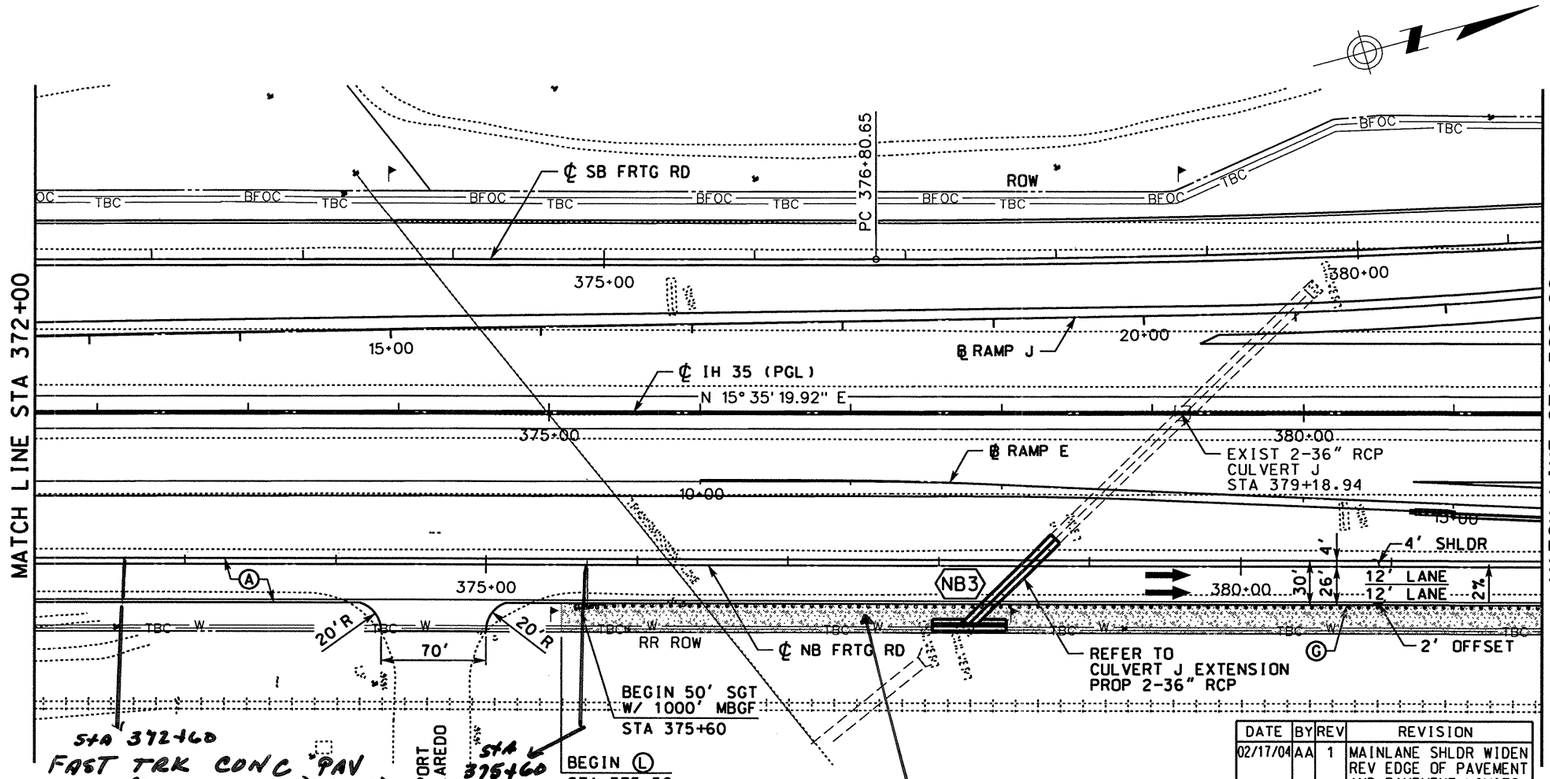

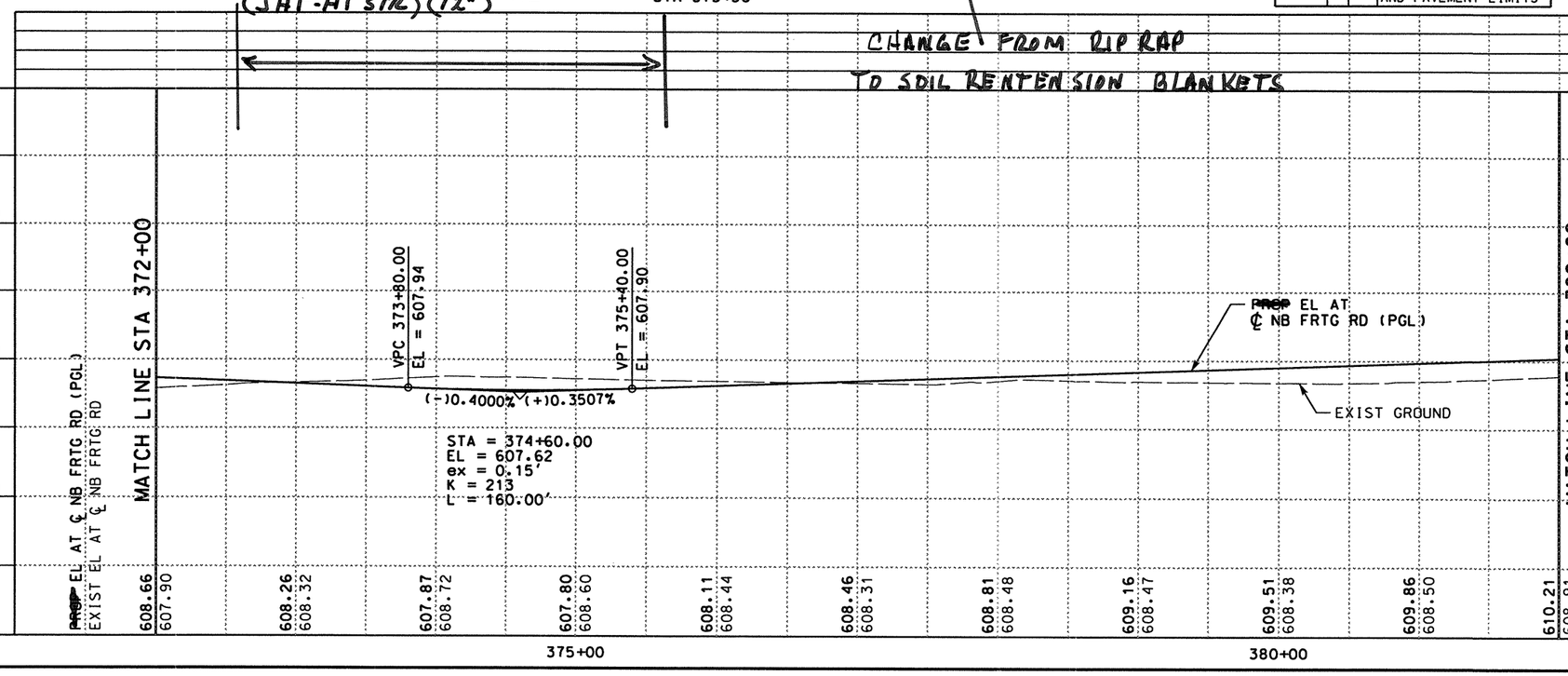

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
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- Ⓓ FLEXIBLE BASE (6")
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- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
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- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
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- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "DRIVEWAY DETAIL" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS A.A. ABUGATTAS 94940 REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

Abuga Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 372+00 TO
STA 382+00

SHEET 22 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	334
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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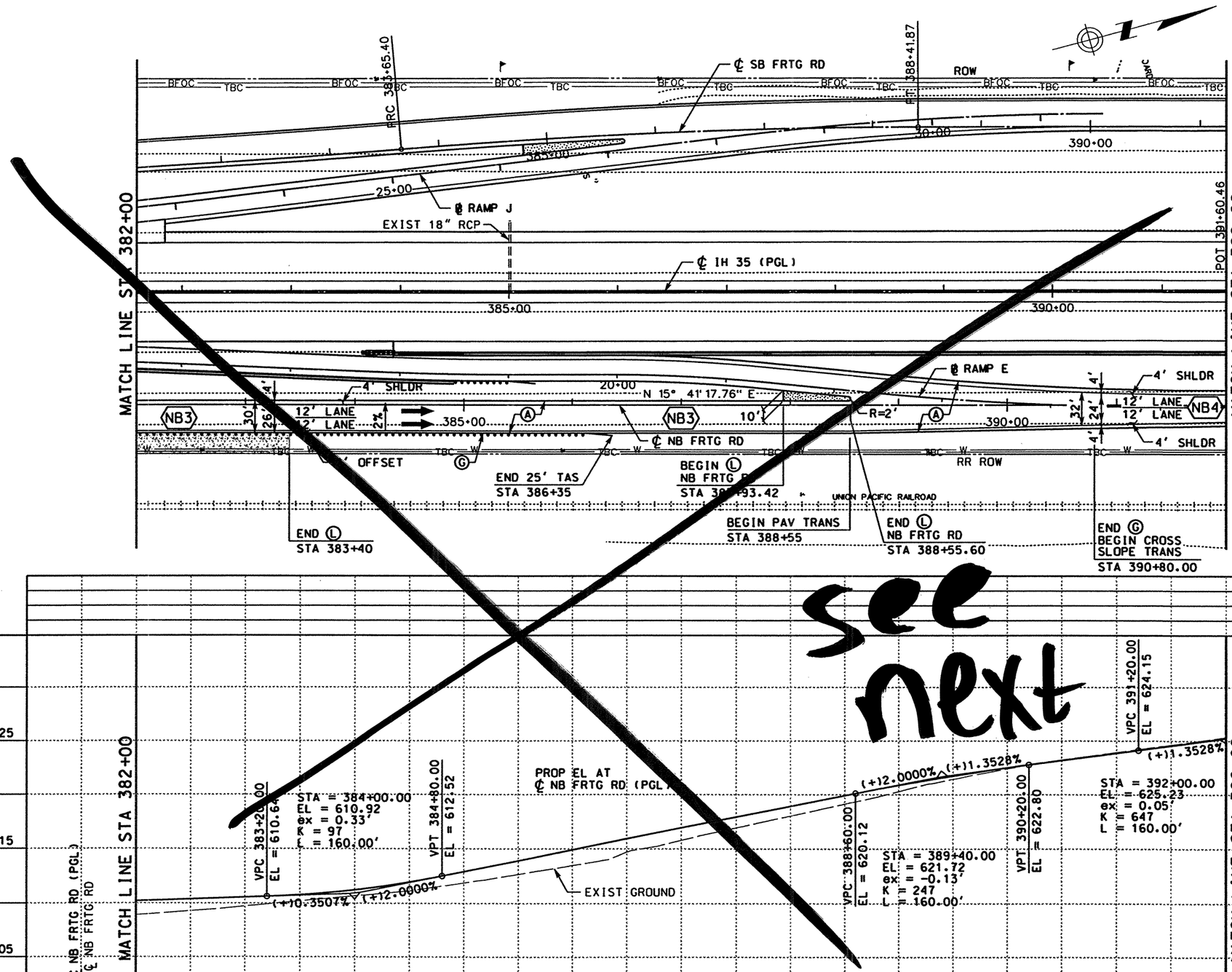

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
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NOTES:

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2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — P.E. STERED — PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 382+00 TO
STA 392+00

SHEET 23 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	335
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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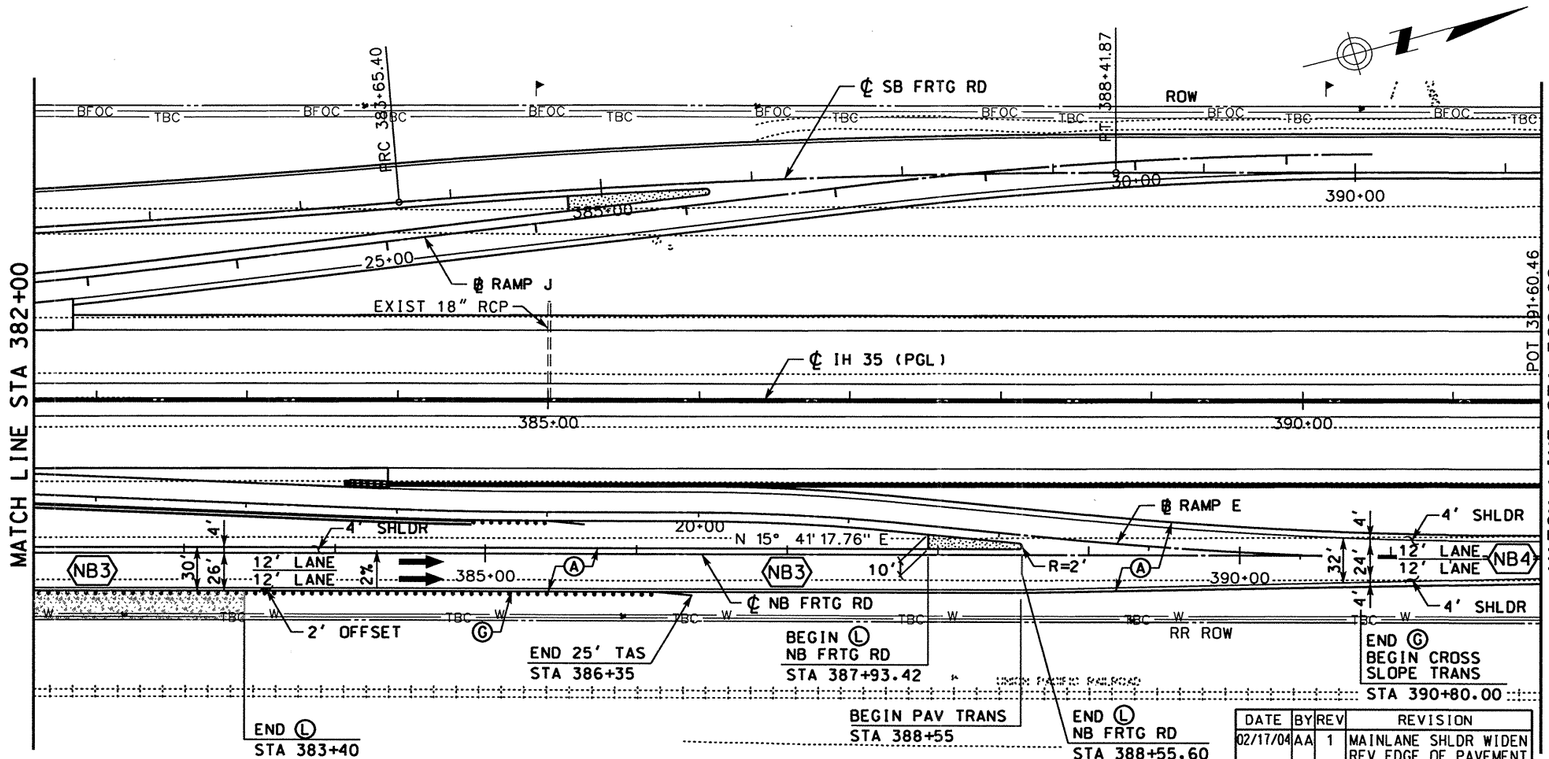

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
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- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
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- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
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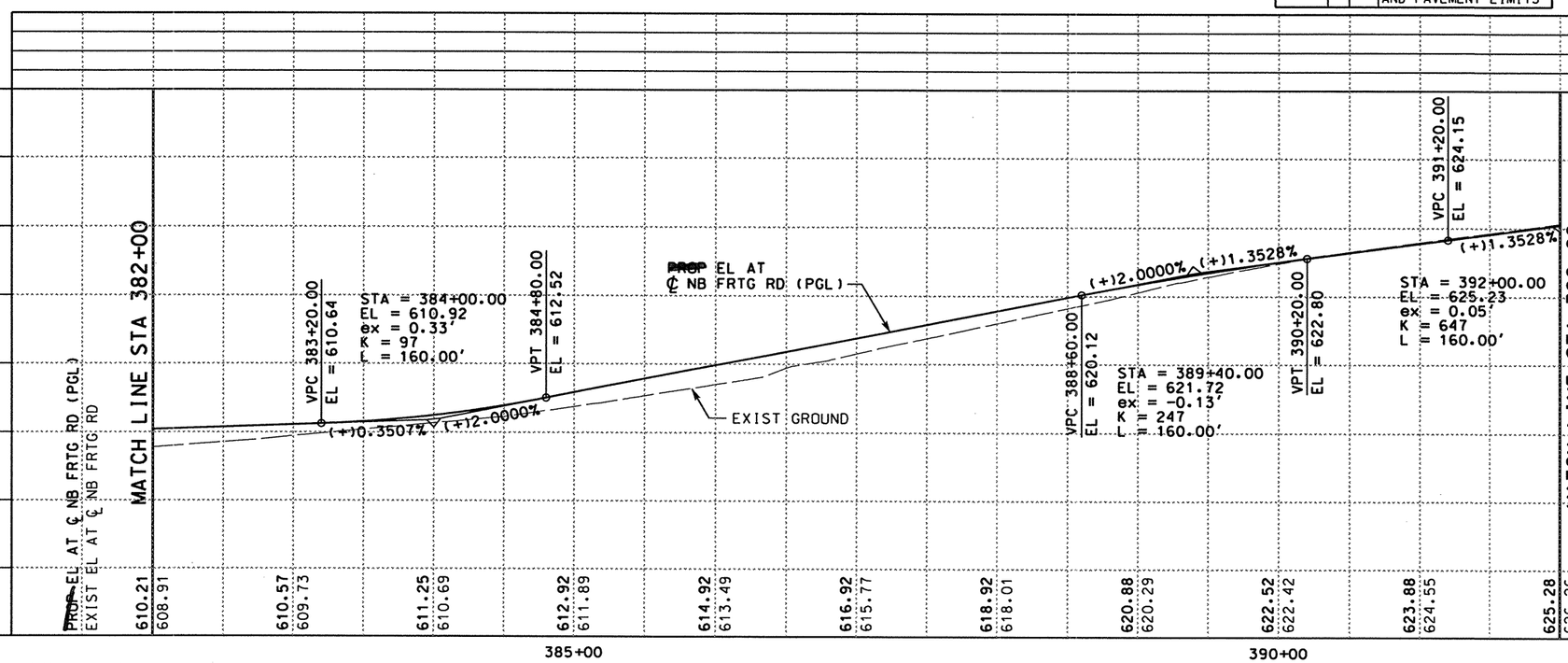
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 382+00 TO
STA 392+00

SHEET 23 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		335
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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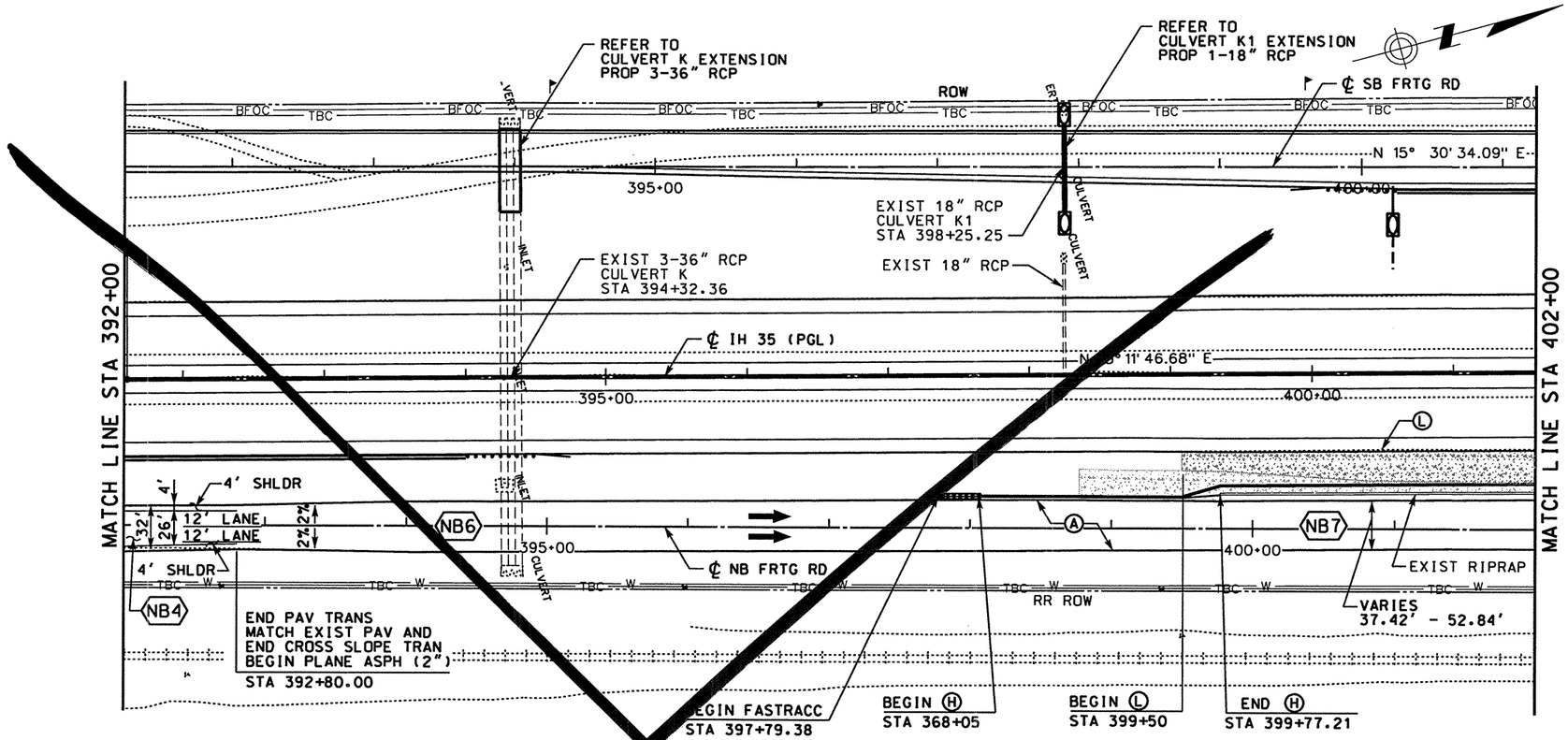


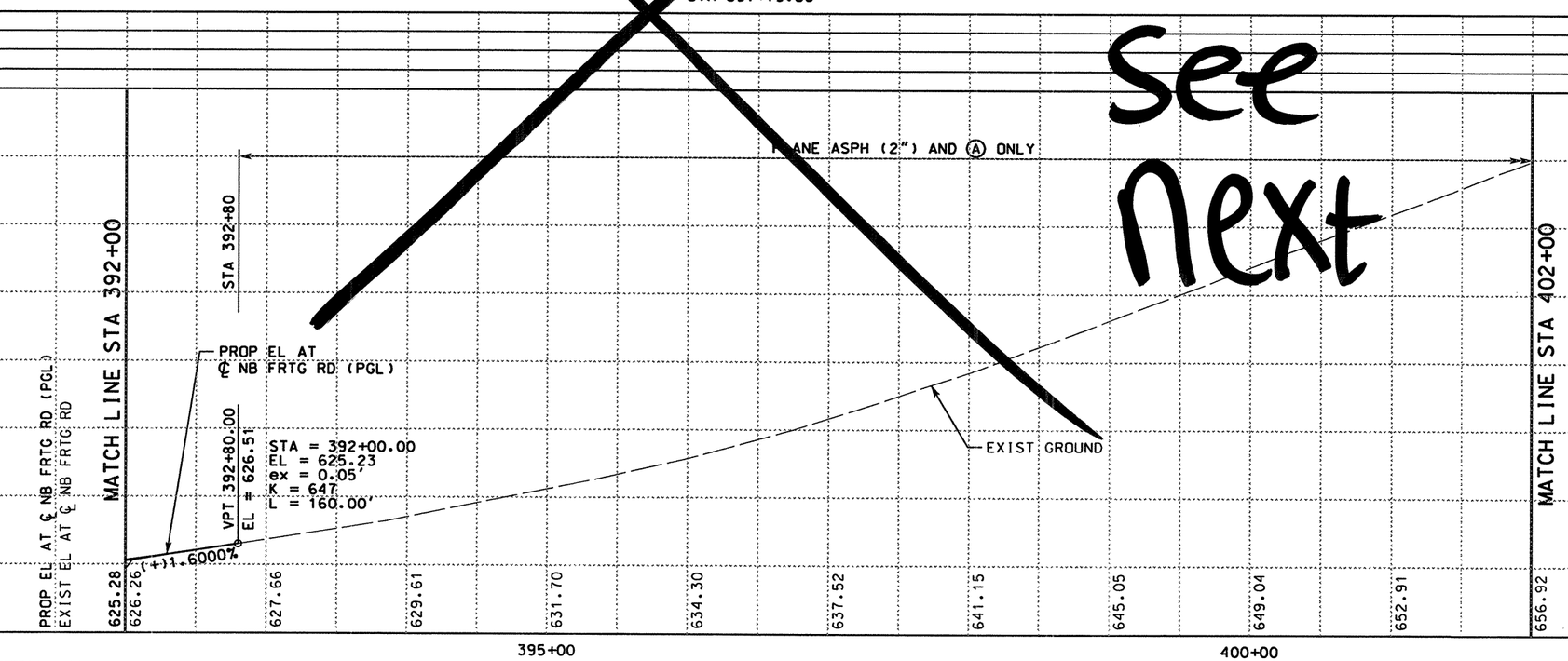
LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



See Next

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 392+00 TO
STA 402+00

SHEET 24 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	336
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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\hciwlvc0130\HOUFILE023\b03ppp53.dgn-12 5/8/2003

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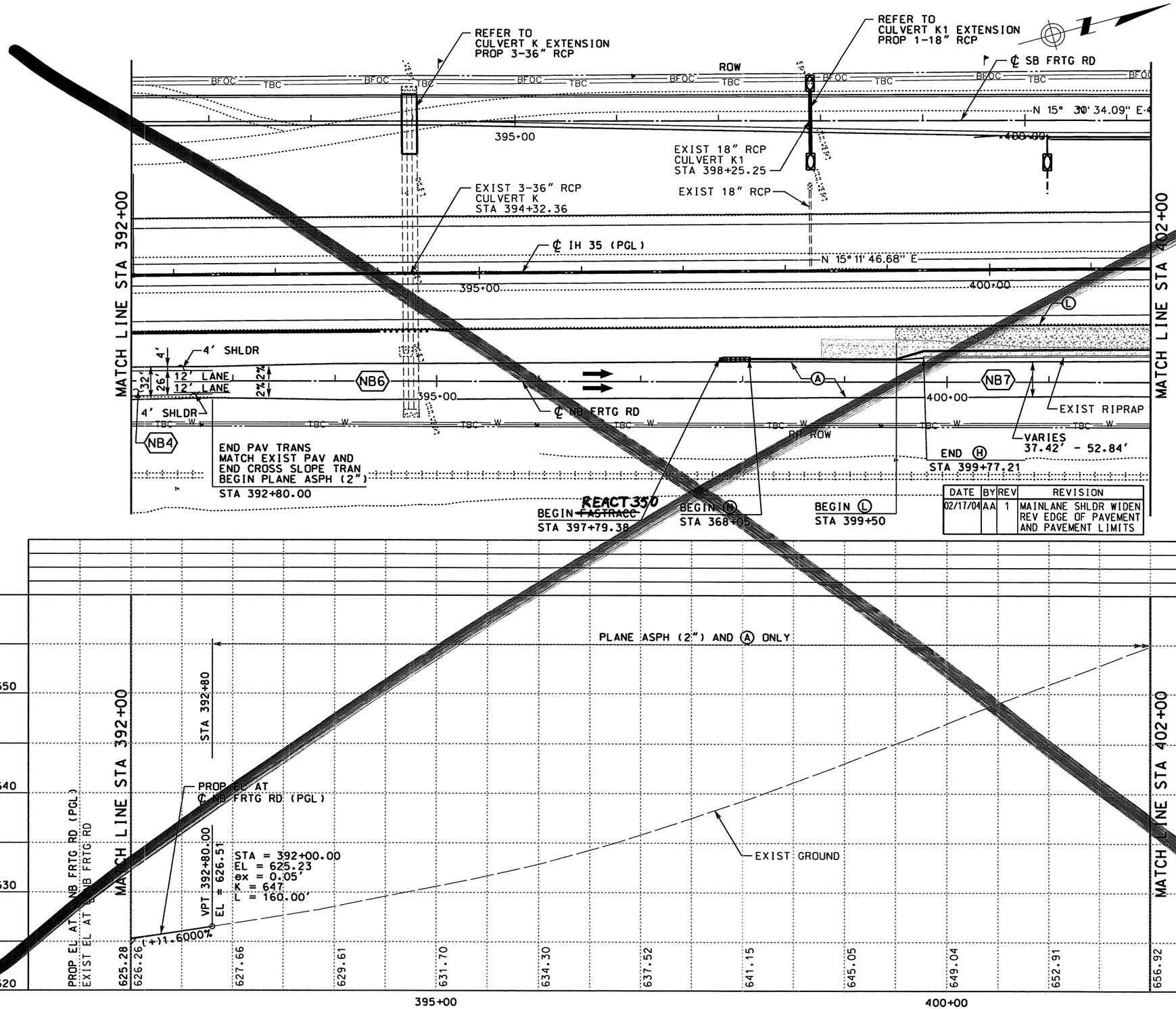


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

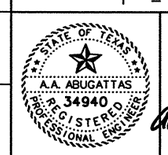
- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT



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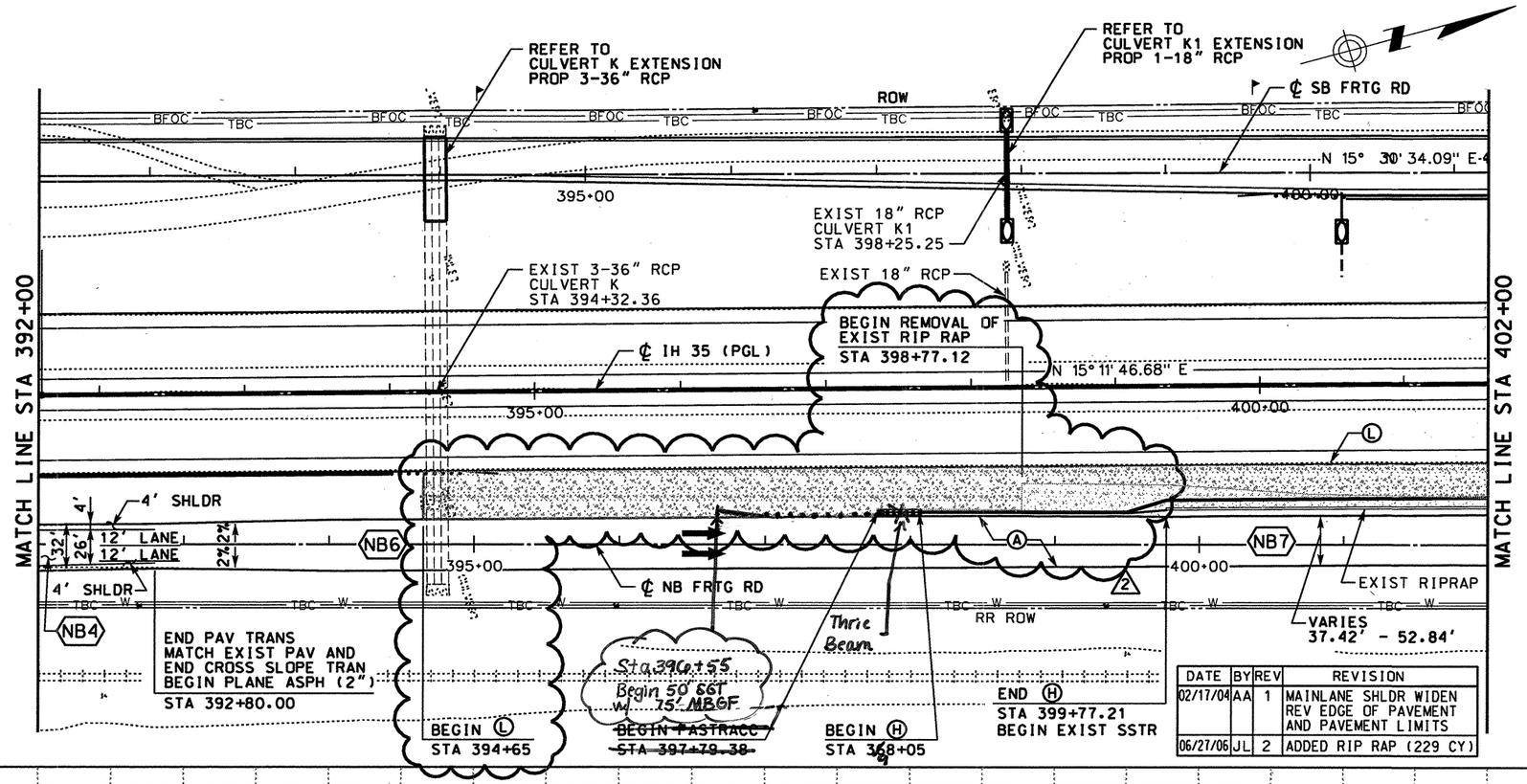
IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 392+00 TO
STA 402+00

SHEET 24 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	336
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

3/4/2004
b03spp53.dgn-12 HOUFILE023 \hciwi\c\0130\



DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
06/27/06	JL	2	ADDED RIP RAP (229 CY)

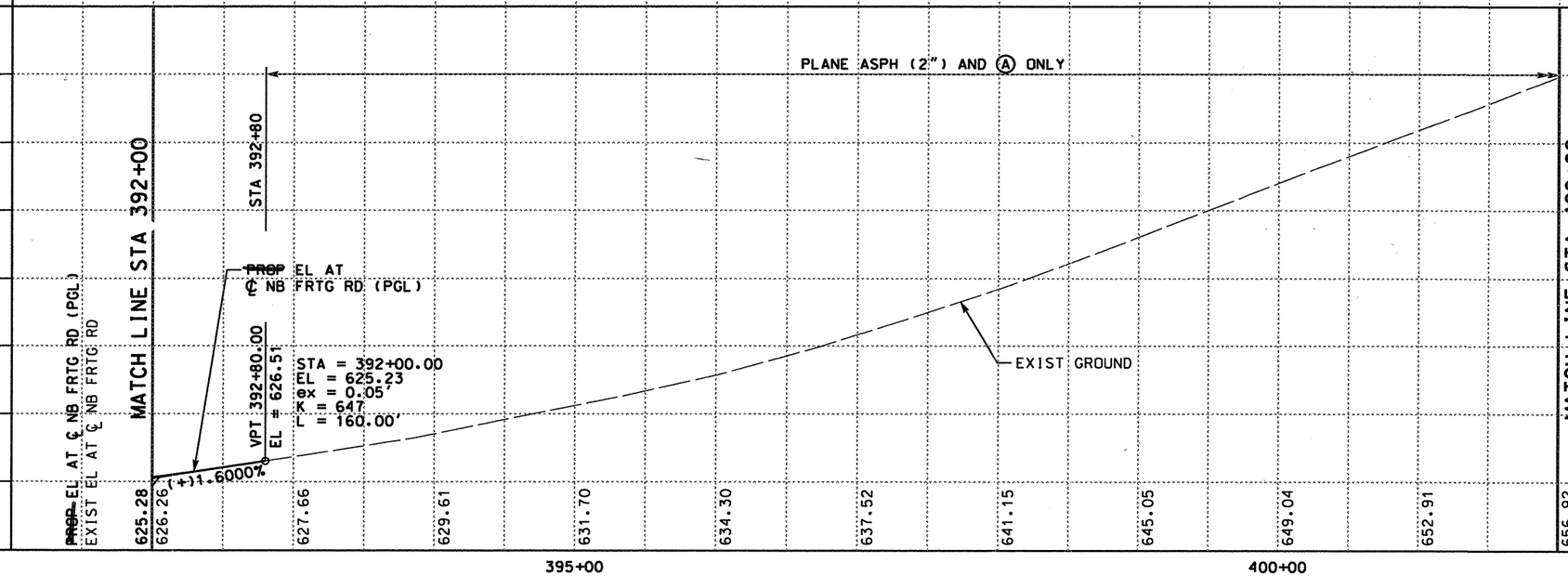
LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



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SCALE: 1" = 100' HORIZ
1" = 10' VERT

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A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER — STATE OF TEXAS

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 392+00 TO
STA 402+00
SHEET 24 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	336
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

7/14/2006
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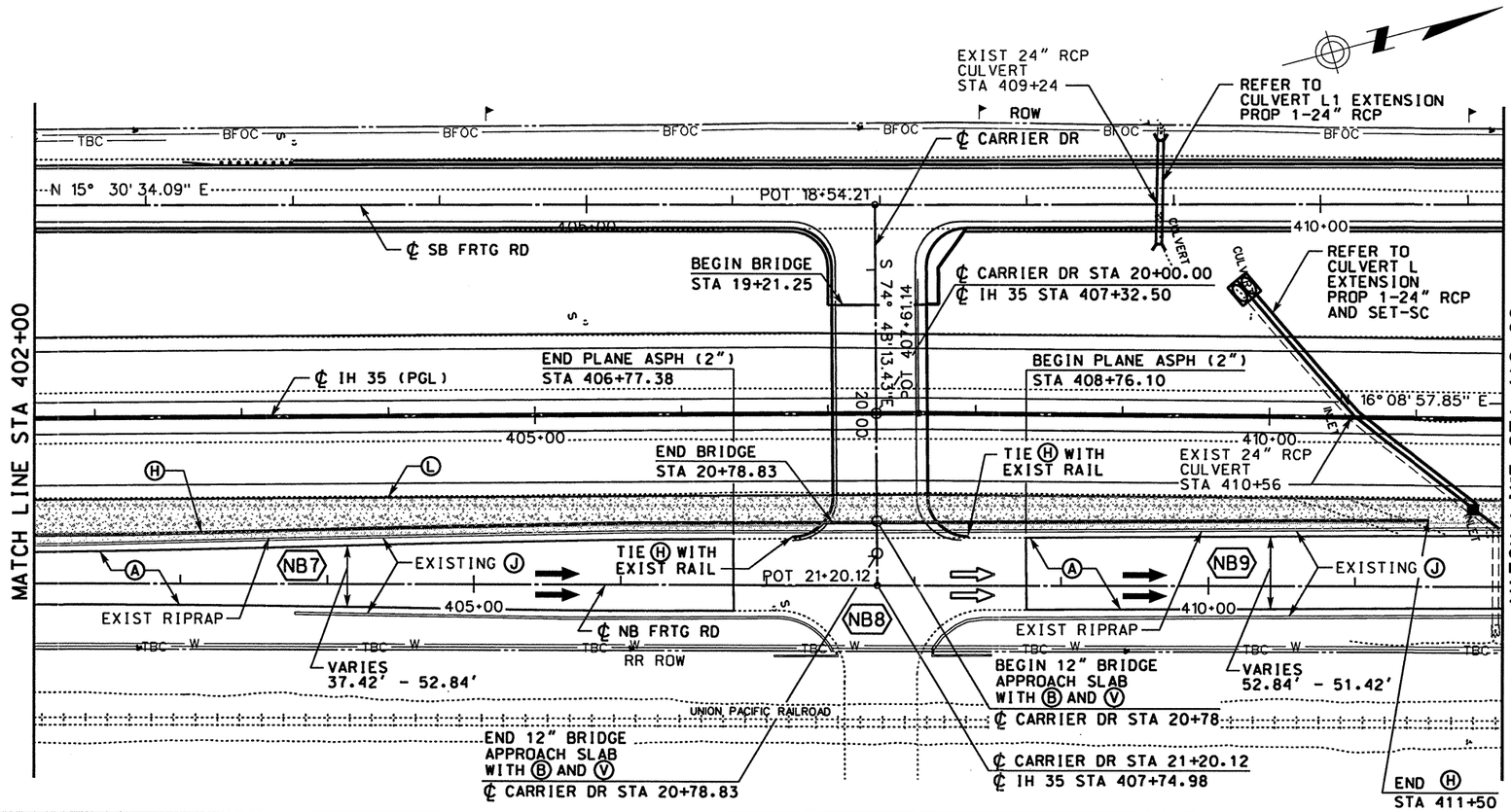


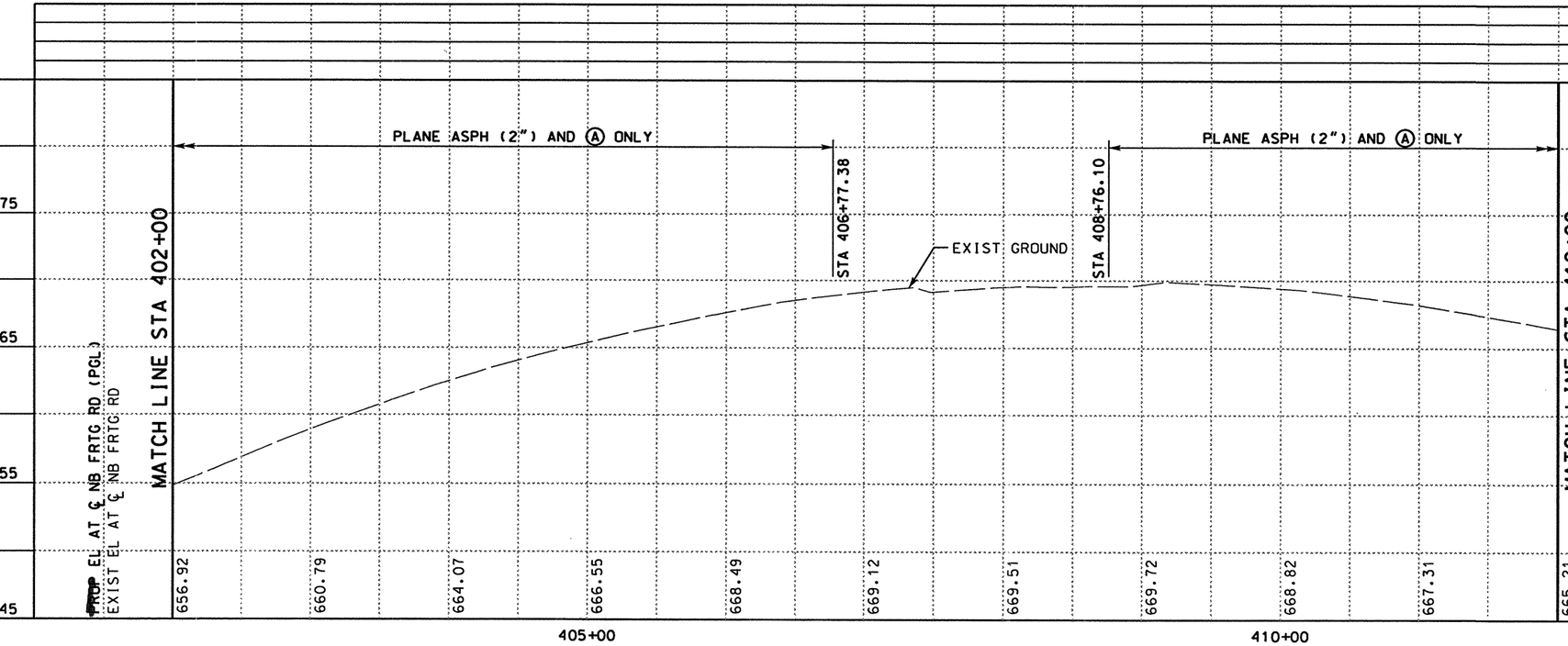
LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE CARRIER DR "BRIDGE LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



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SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 402+00 TO
STA 412+00
SHEET 25 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	337
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62
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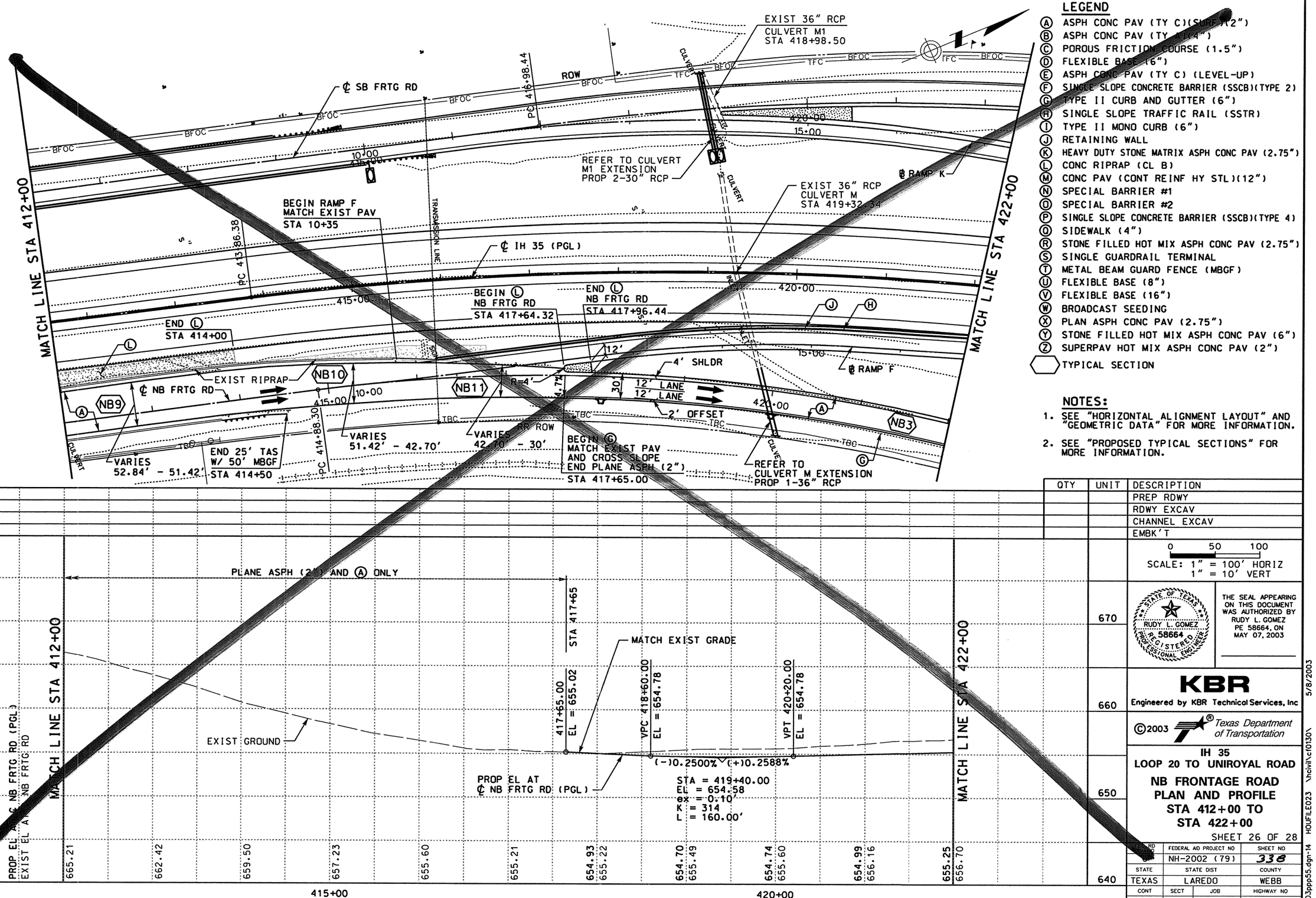

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 412+00 TO
STA 422+00

SHEET 26 OF 28

RD	FEDERAL AID PROJECT NO	SHEET NO
	NH-2002 (79)	338
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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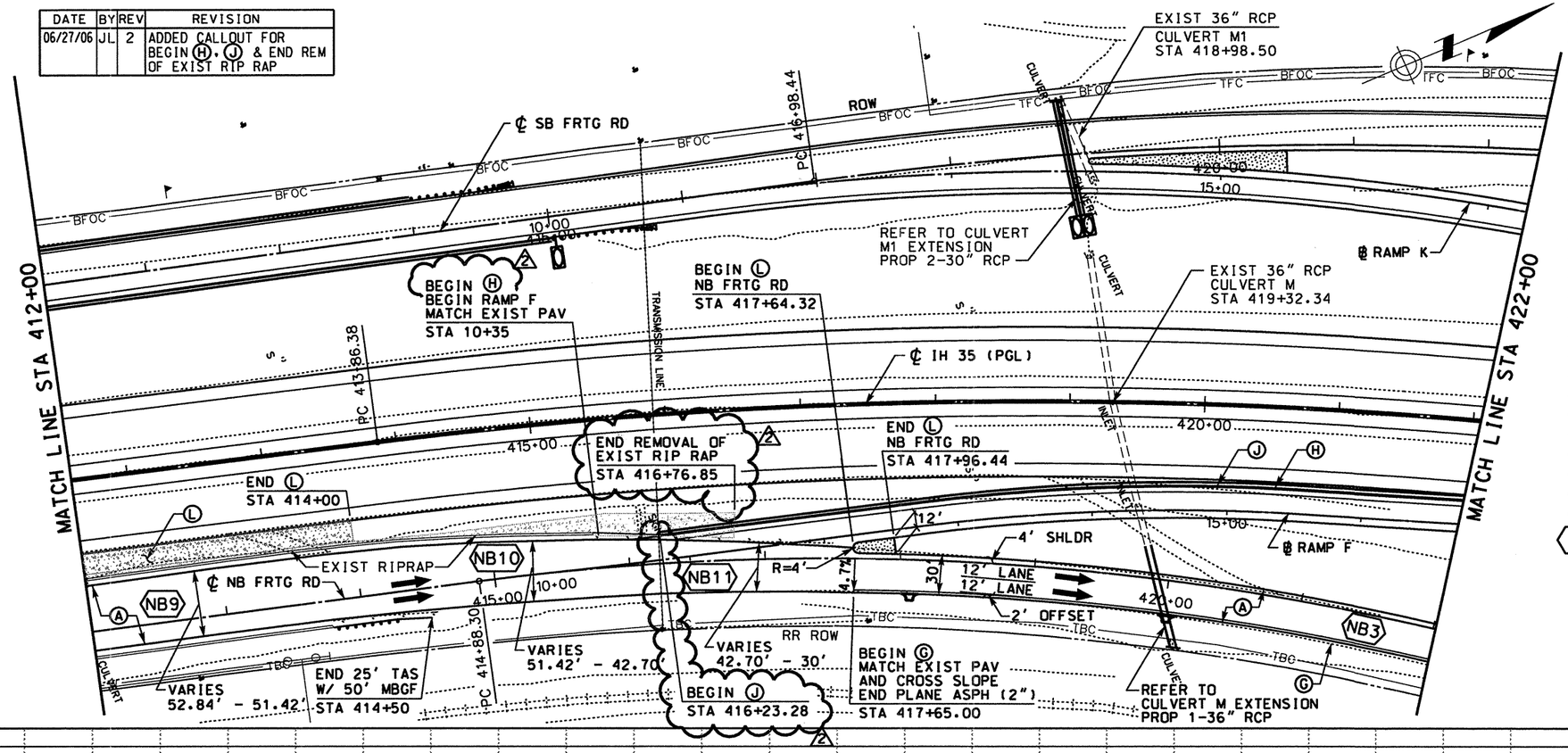
j011op01.alg LV ON = 1-10.33-39.50
j011op01.bdr LV ON = 9-11.32.33.45.47.57.58.60-62

b03pp55.dgn-14 HOUFILE023 \hcivil\cf0130\ 5/8/2003

DATE	BY	REV	REVISION
06/27/06	JL	2	ADDED CALLOUT FOR BEGIN Ⓗ, Ⓙ & END REM OF EXIST RIP RAP



LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
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- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
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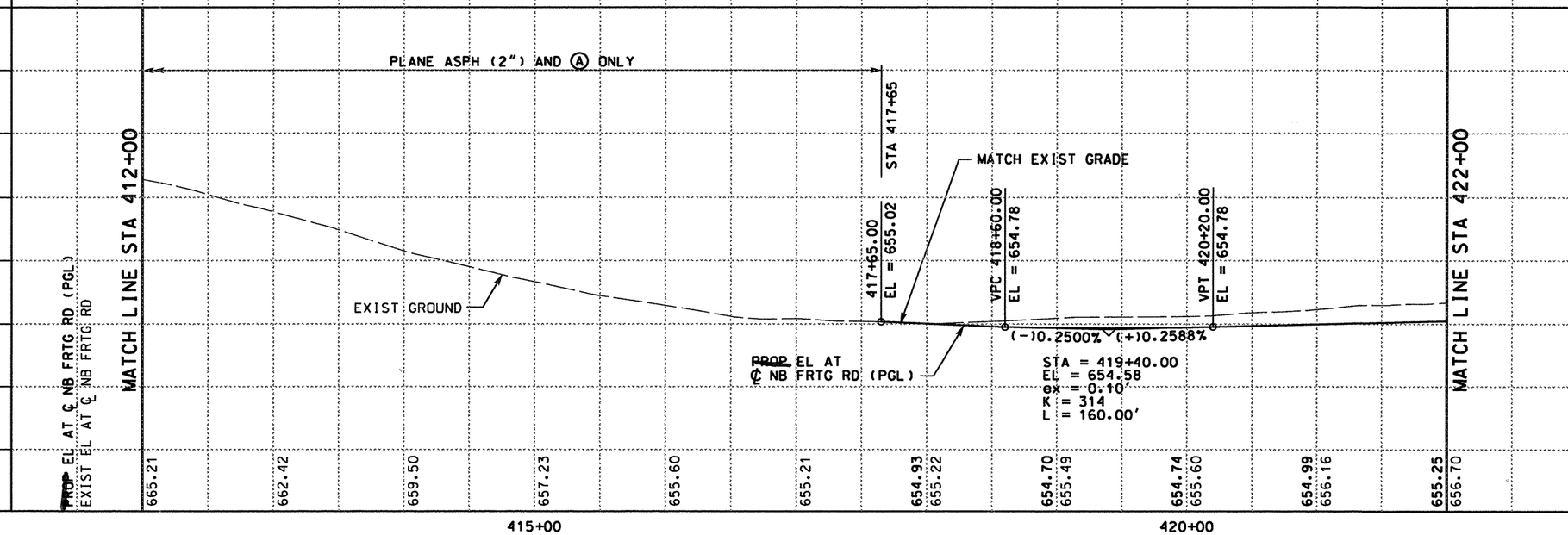
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JULY 14, 2006

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 412+00 TO
STA 422+00

SHEET 26 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		338
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j0110p01.pro, j0110p01.eop, j0110p01.bck, j0110p01.alg, j0110p01.bdr, milolnt.row
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LV ON = 1-63
LV ON = 1-17.19-63
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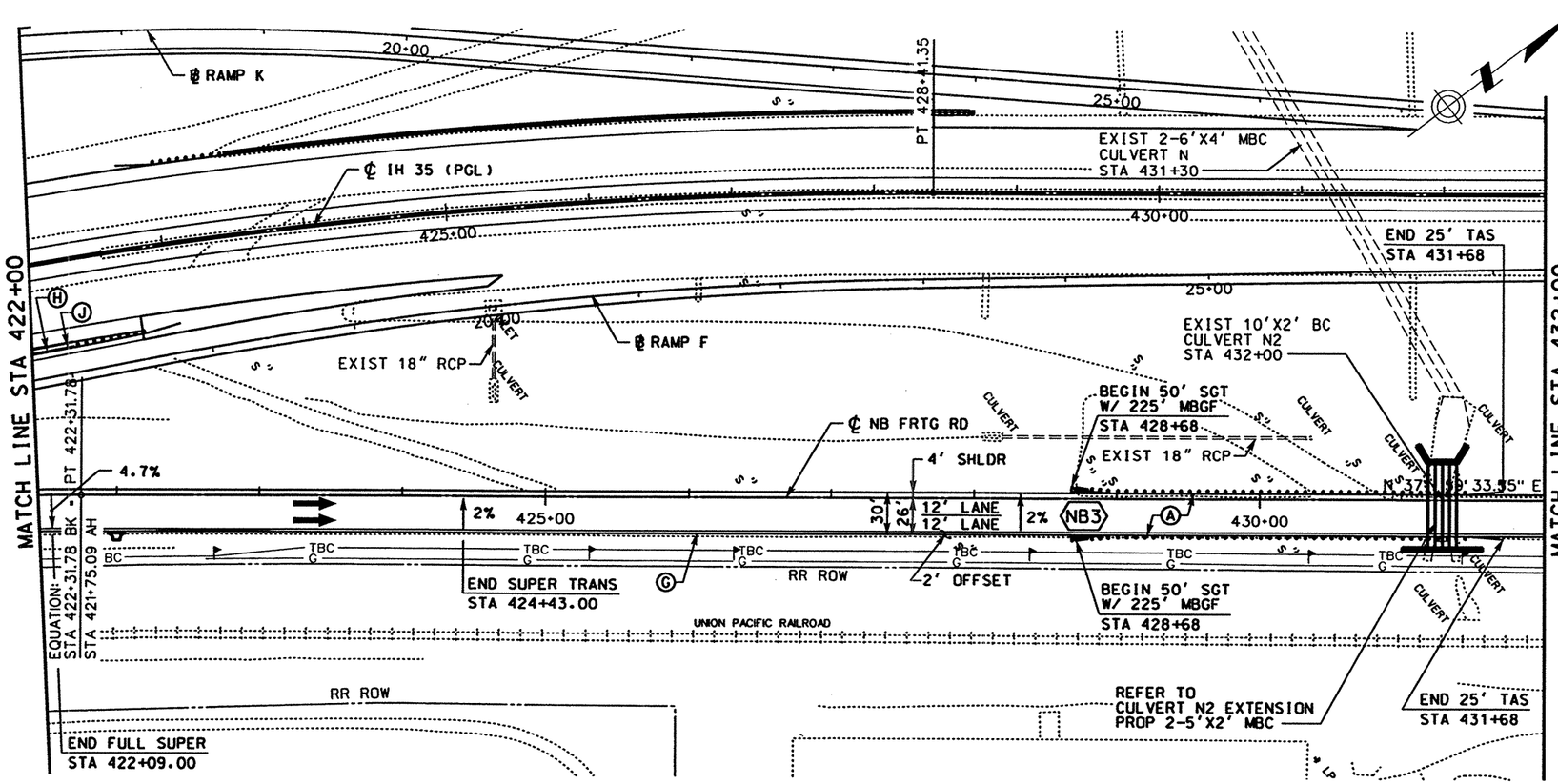
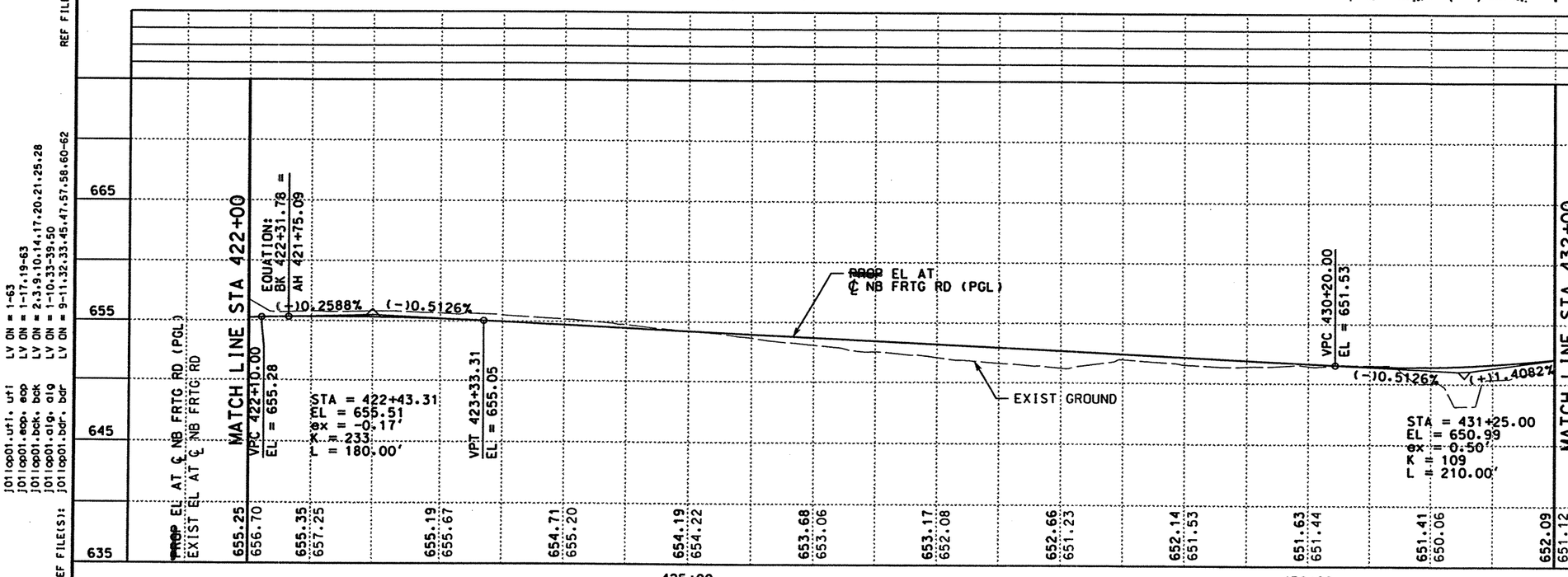


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
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		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

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SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 422+00 TO
STA 432+00
SHEET 27 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	339
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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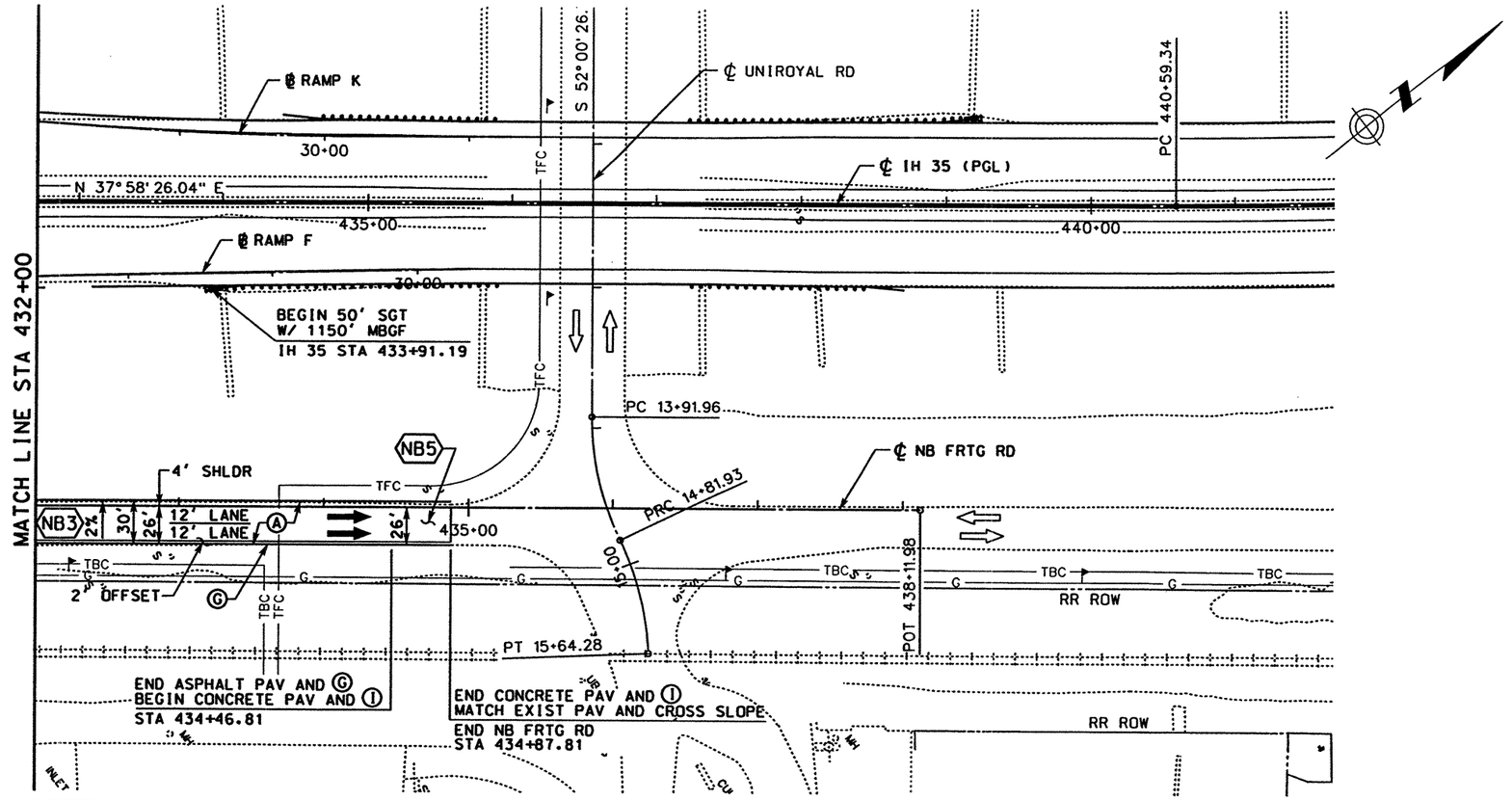


LEGEND

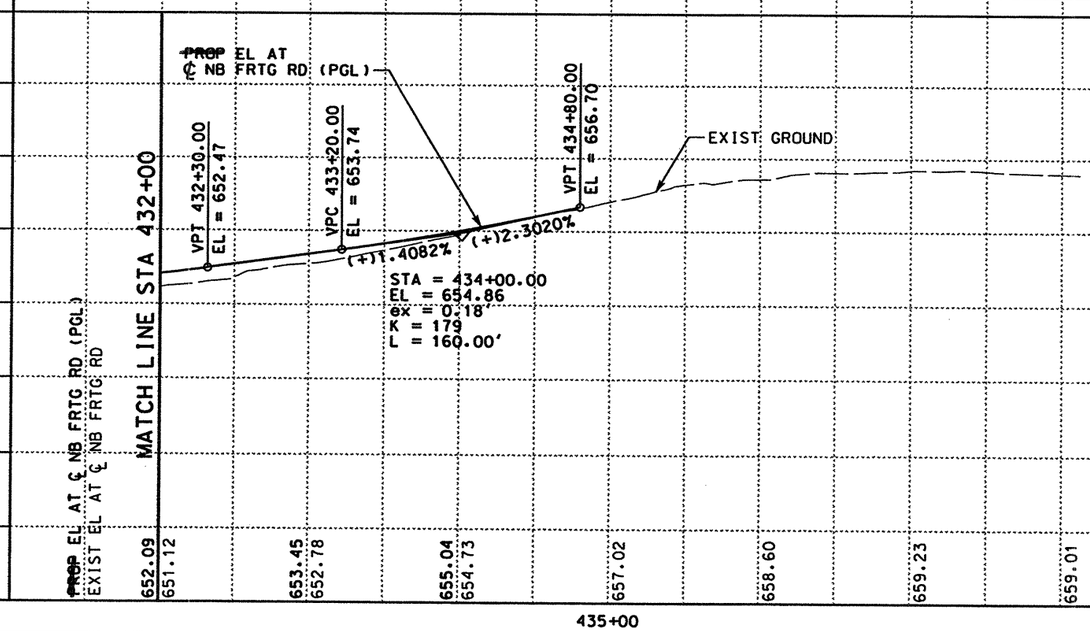
- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "UNIROYAL ROAD TURNAROUND" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT



STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
NB FRONTAGE ROAD
PLAN AND PROFILE
STA 432+00 TO
STA 434+87.01

SHEET 28 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		340
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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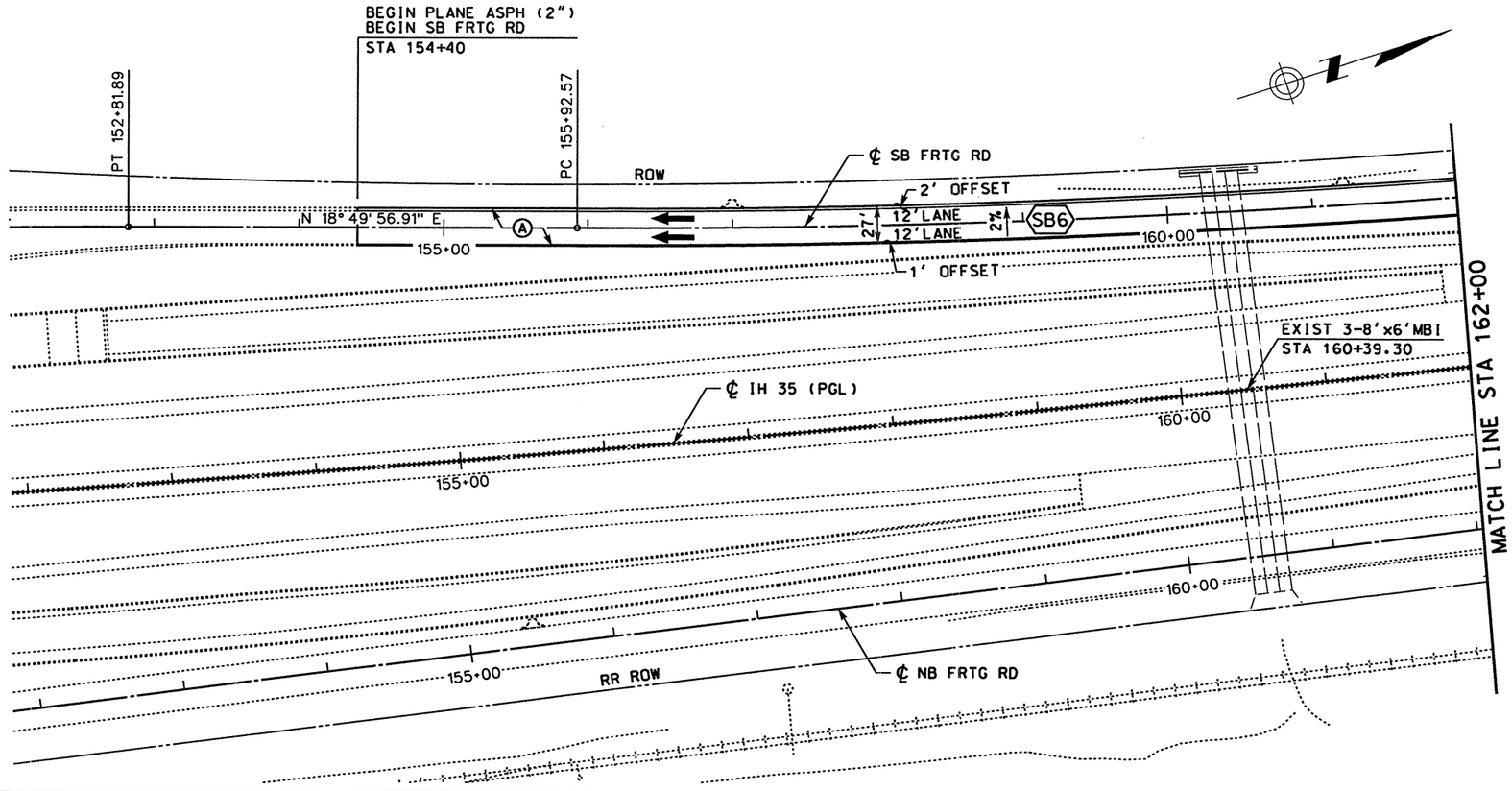

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
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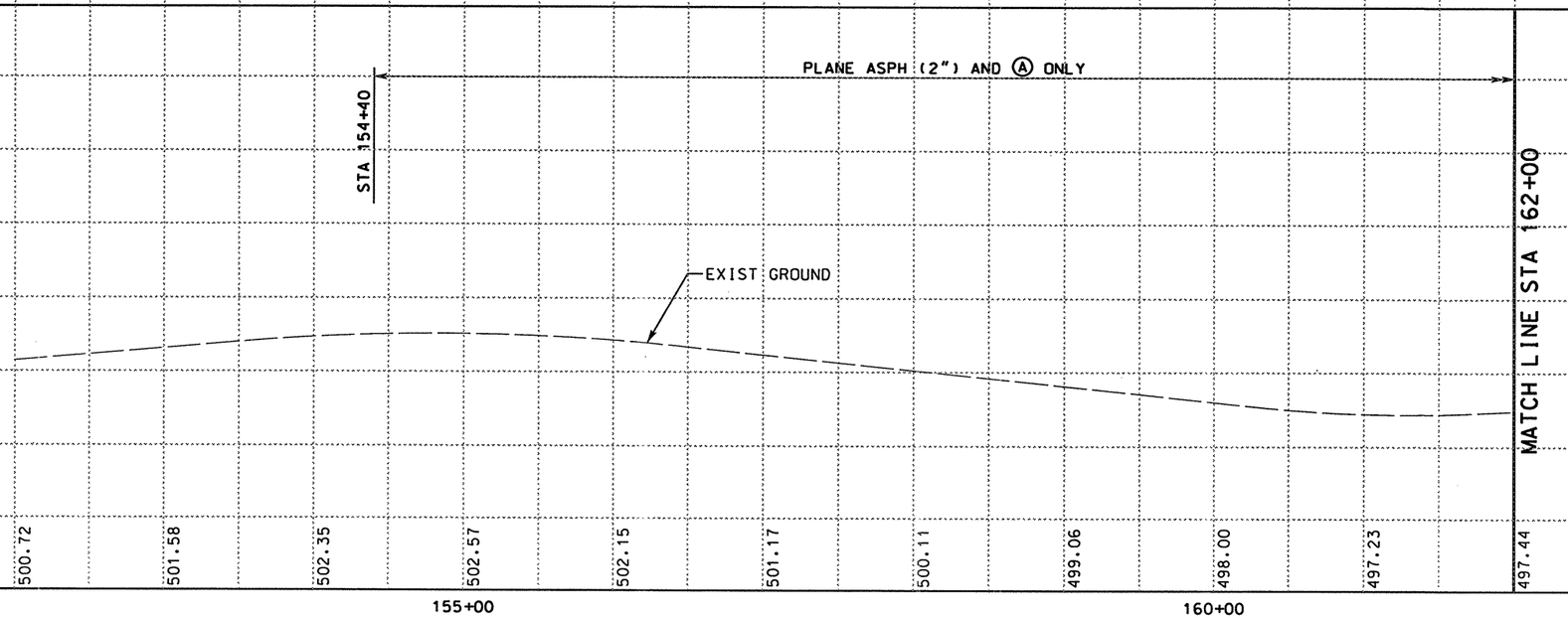
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 152+00 TO
STA 162+00

SHEET 1 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	341
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

5/8/2003
HOUFILE023 \hcivil\cf0130\
b03ppp86.dgn-04

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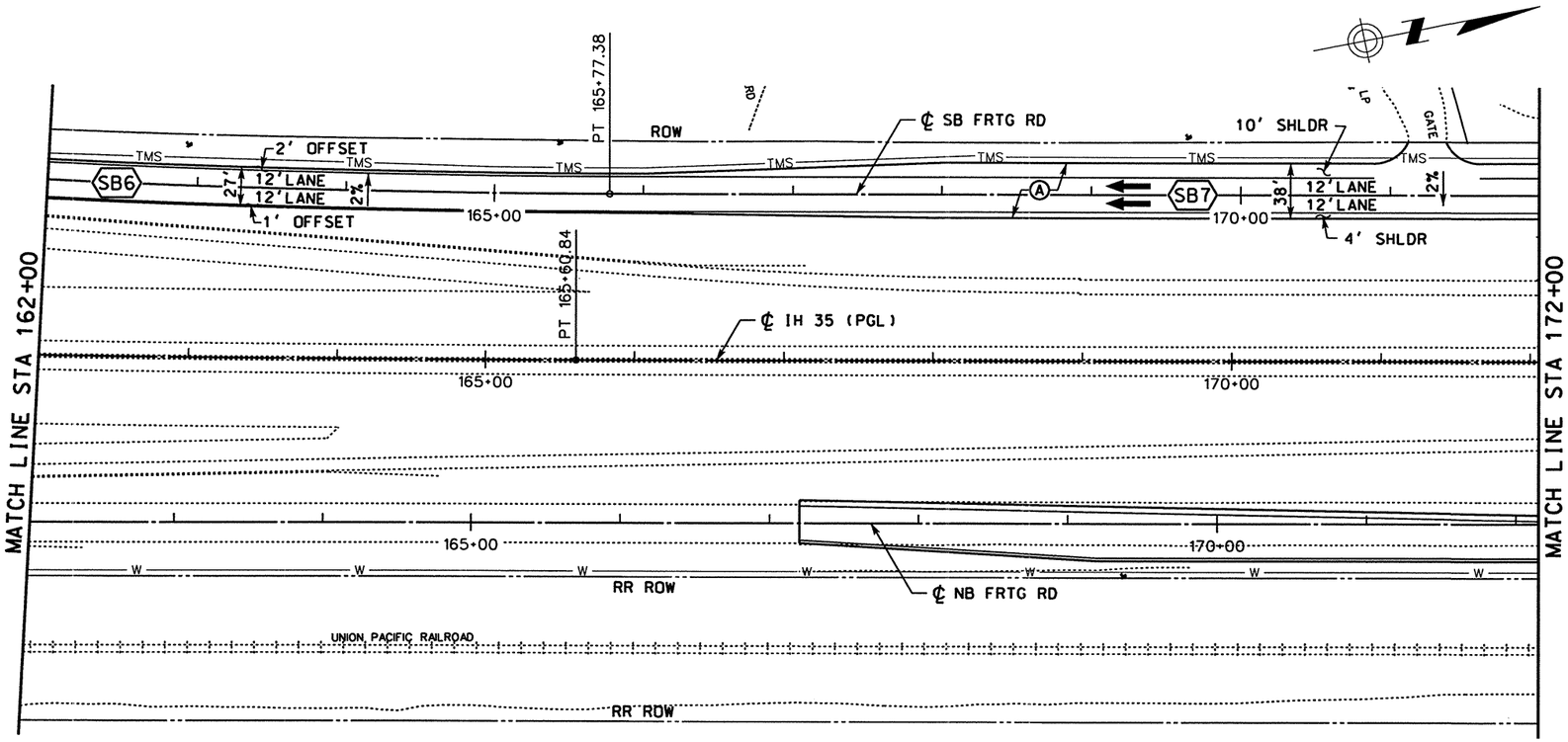

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
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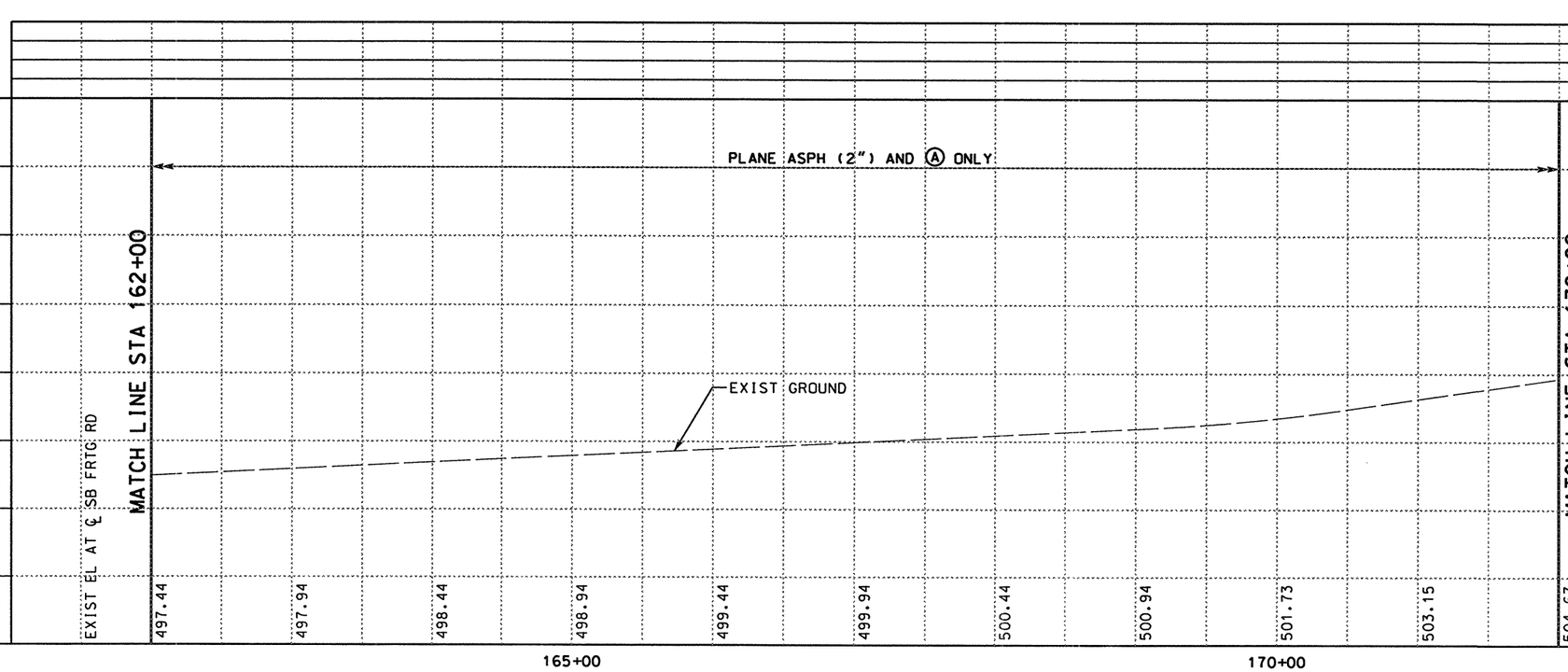
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



SCALE: 1" = 100' HORIZ
1" = 10' VERT

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RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 162+00 TO
STA 172+00

SHEET 2 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	342
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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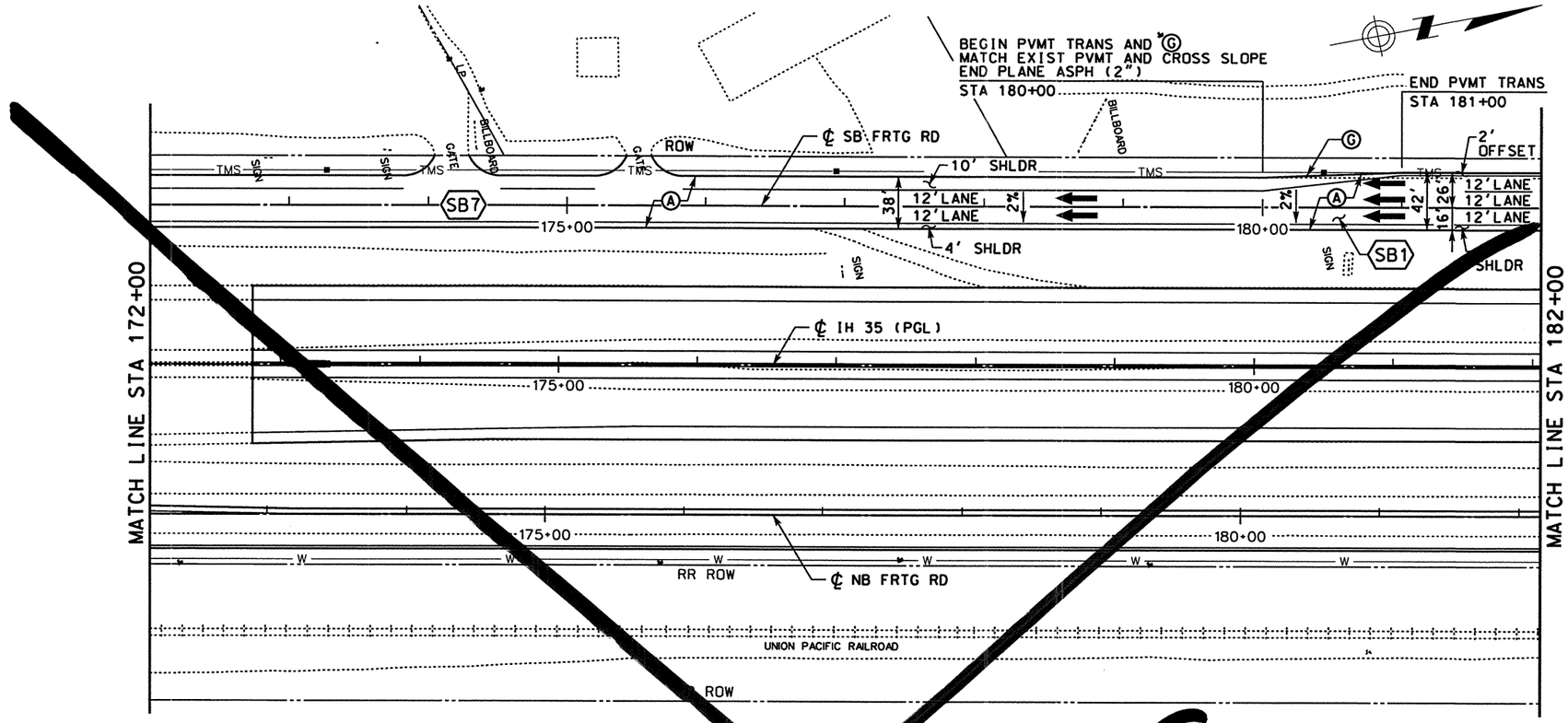
HOUFILE023 \hcivil\cf0130\ 5/8/2003
b03ppp85.dgn-04



LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 172+00 TO
STA 182+00

SHEET 3 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	343
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

5/8/2003
HOUFILE023 \hciwil\c\0130\
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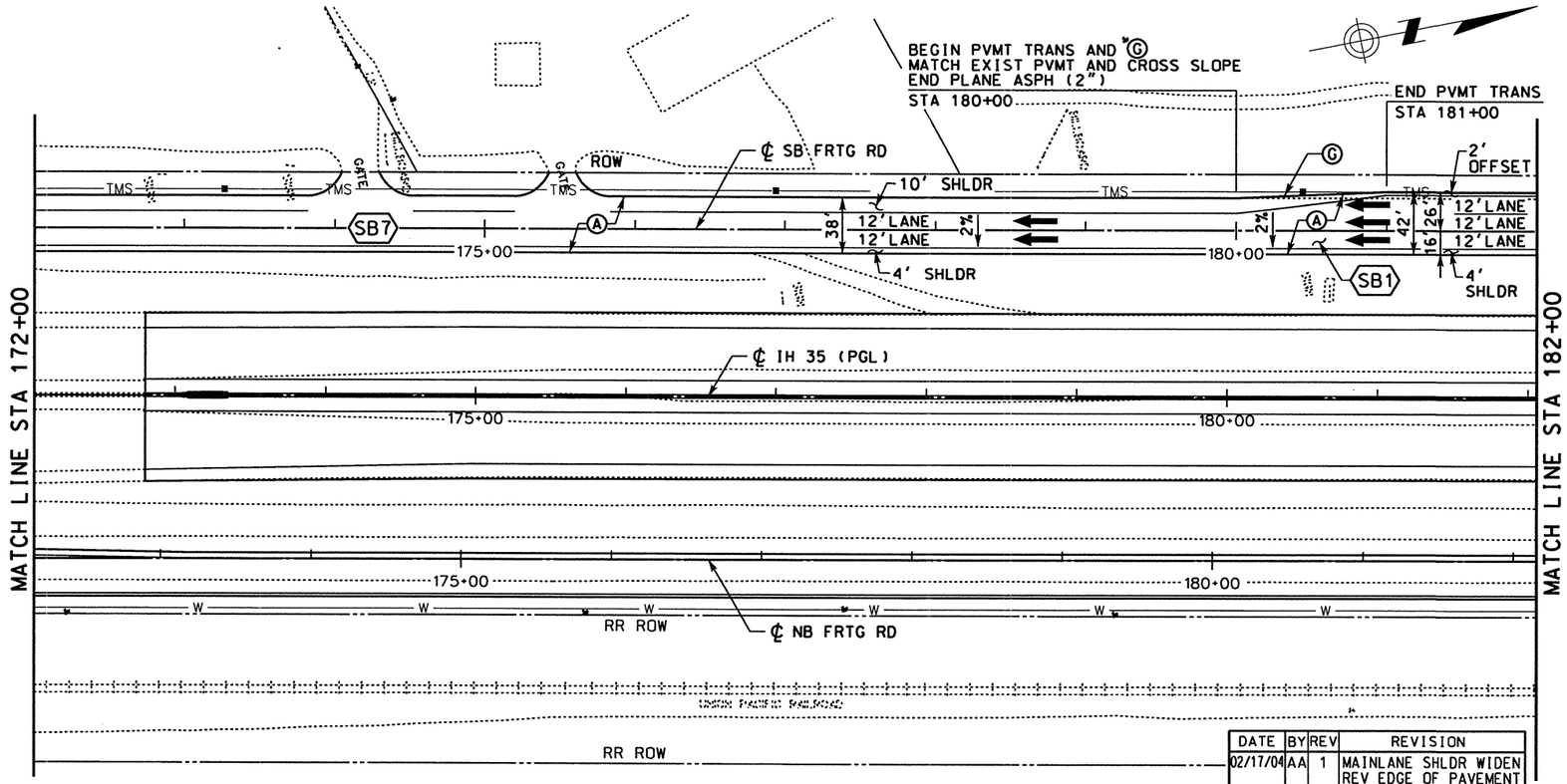

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
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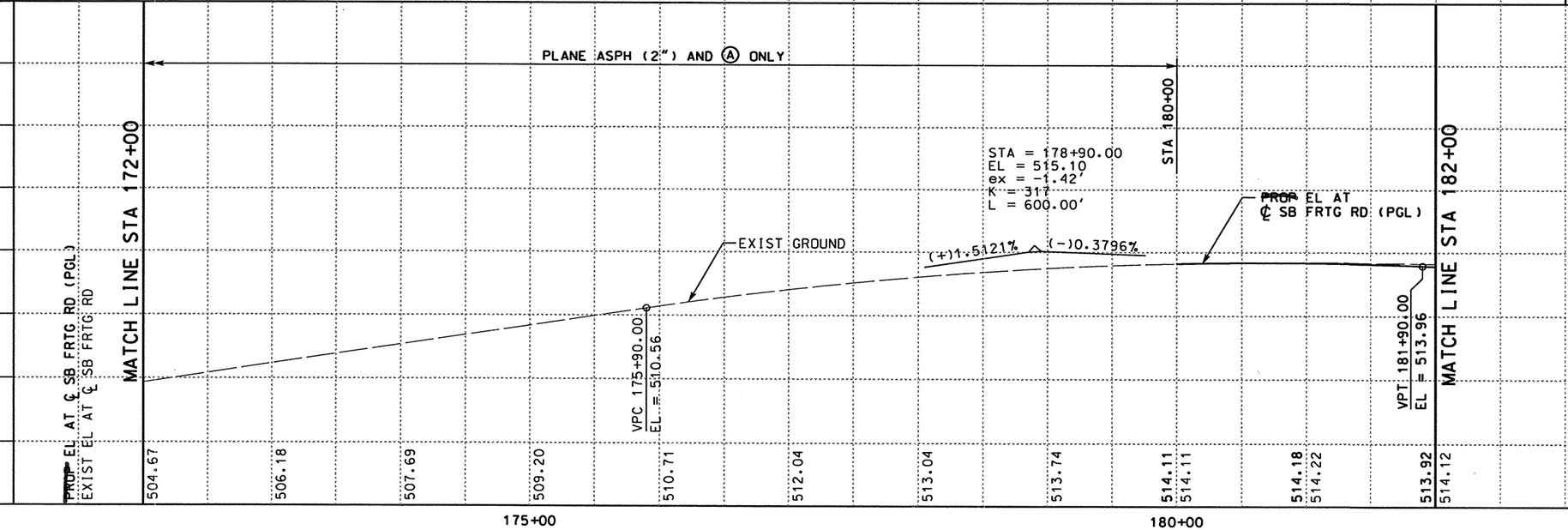
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

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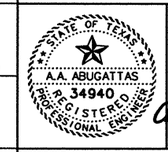
SCALE: 1" = 100' HORIZ
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 172+00 TO
STA 182+00

SHEET 3 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	343
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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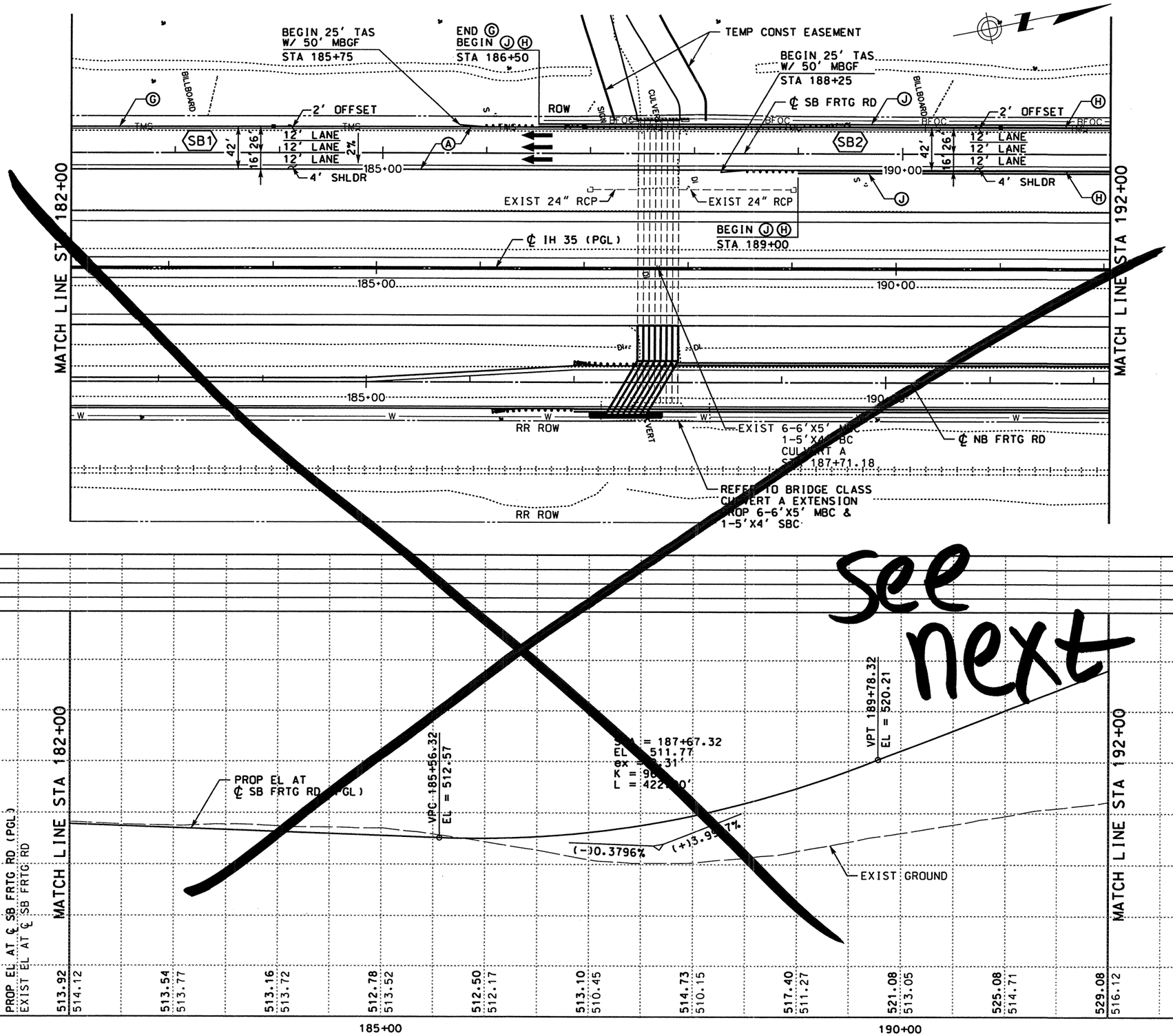

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "RETAINING WALL LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 182+00 TO
STA 192+00

SHEET 4 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	344
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/8/2003

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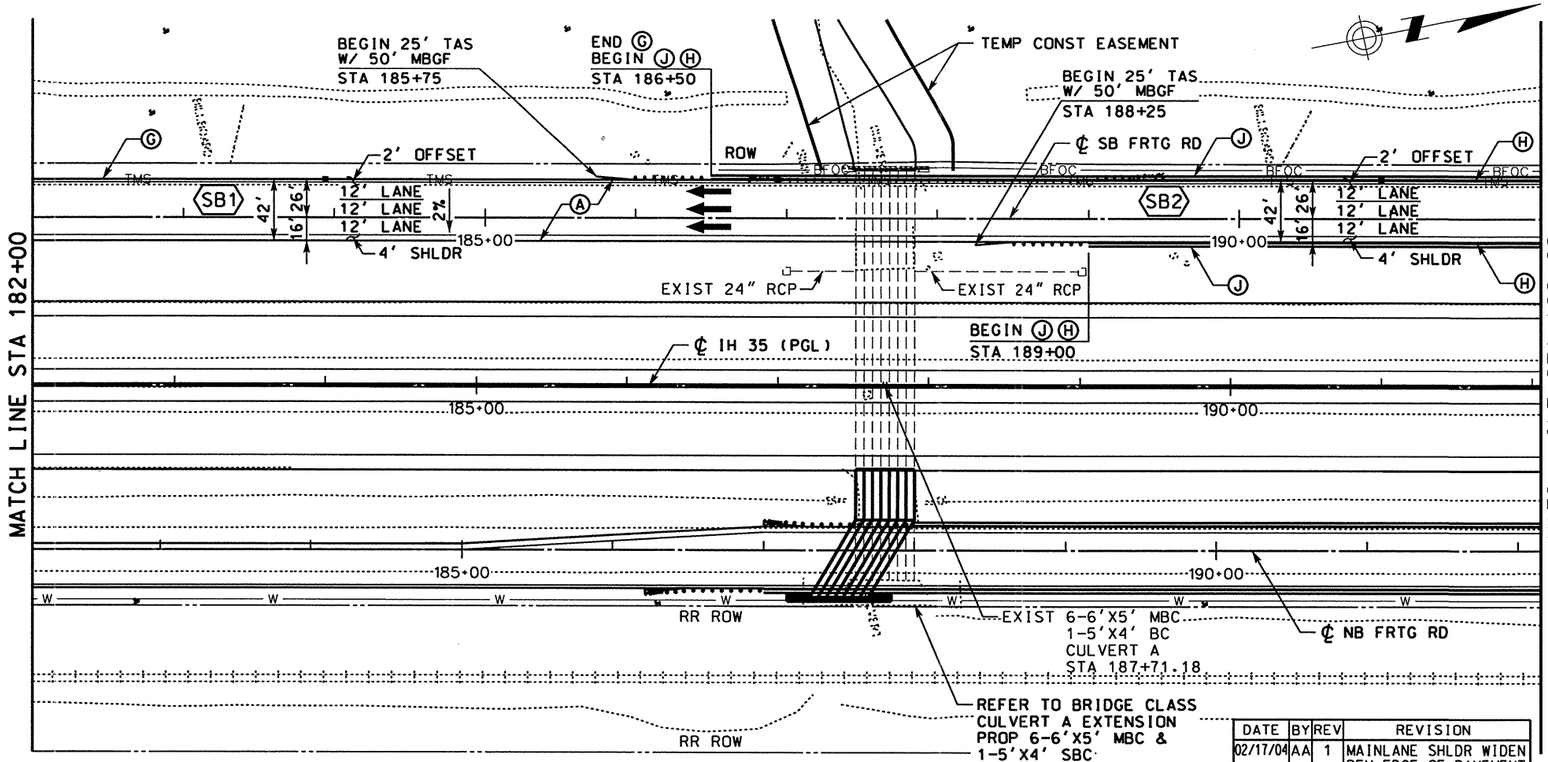

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
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- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
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- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
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- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
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- Ⓢ SINGLE GUARDRAIL TERMINAL
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- Ⓧ PLAN ASPH CONC PAV (2.75")
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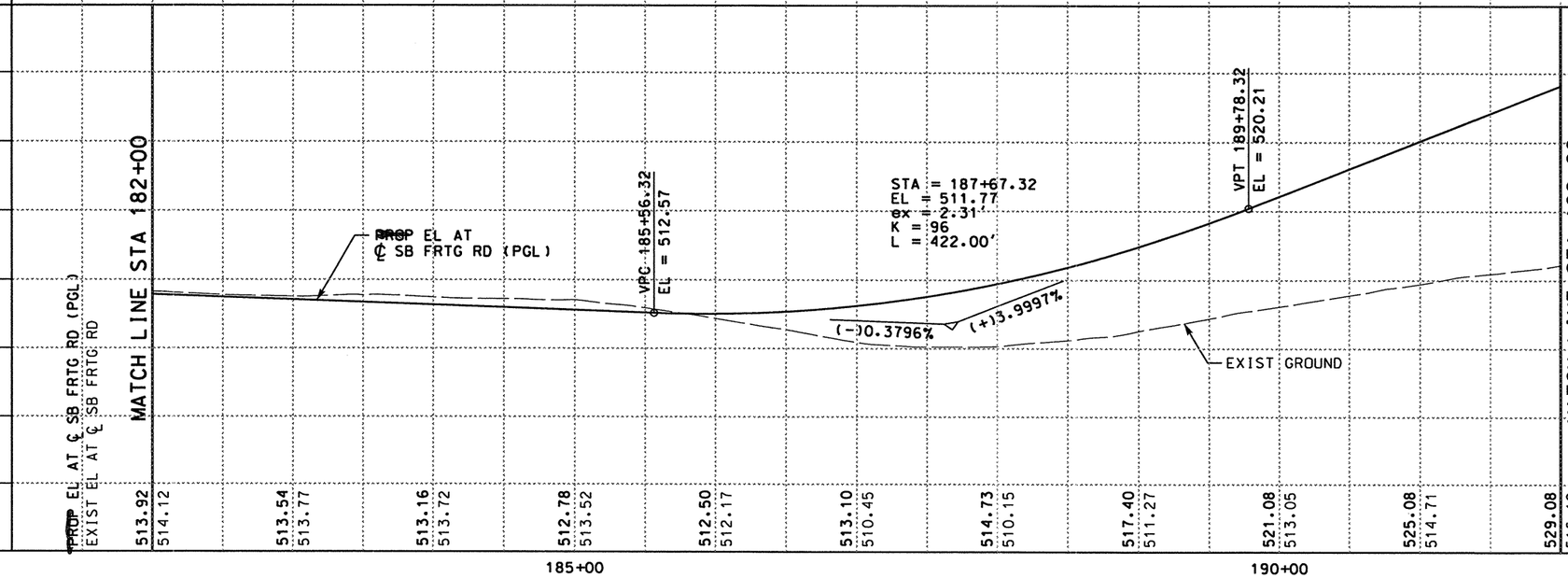
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "RETAINING WALL LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



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SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 182+00 TO
STA 192+00

SHEET 4 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	344
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

3/4/2004
\hchivilc\f0130\
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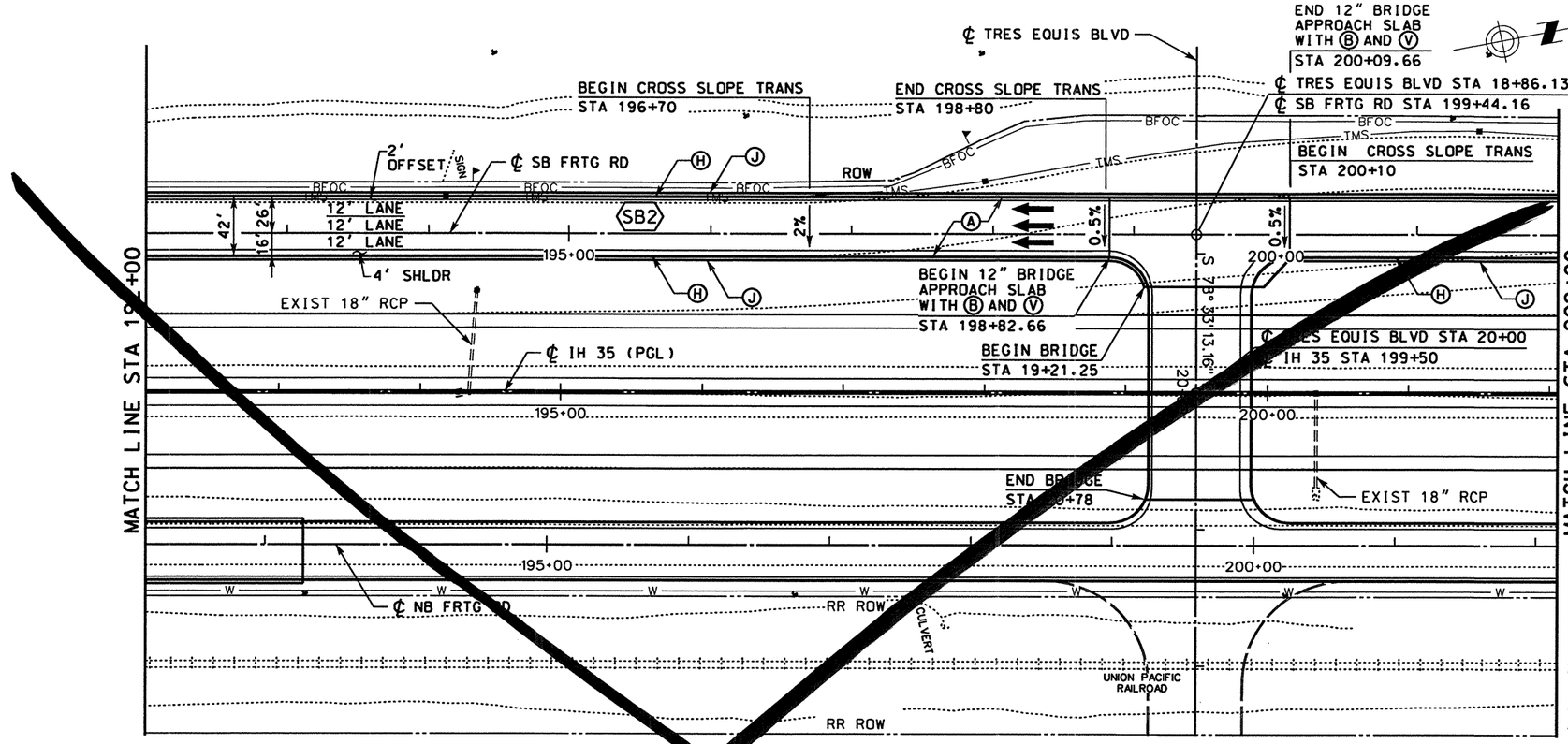
jollop01.bck. bck LV ON = 2.3.8-10.14.17.20.21.25.28.56
jollop01.alg. alg LV ON = 1-10.33-39.50
jollop01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62



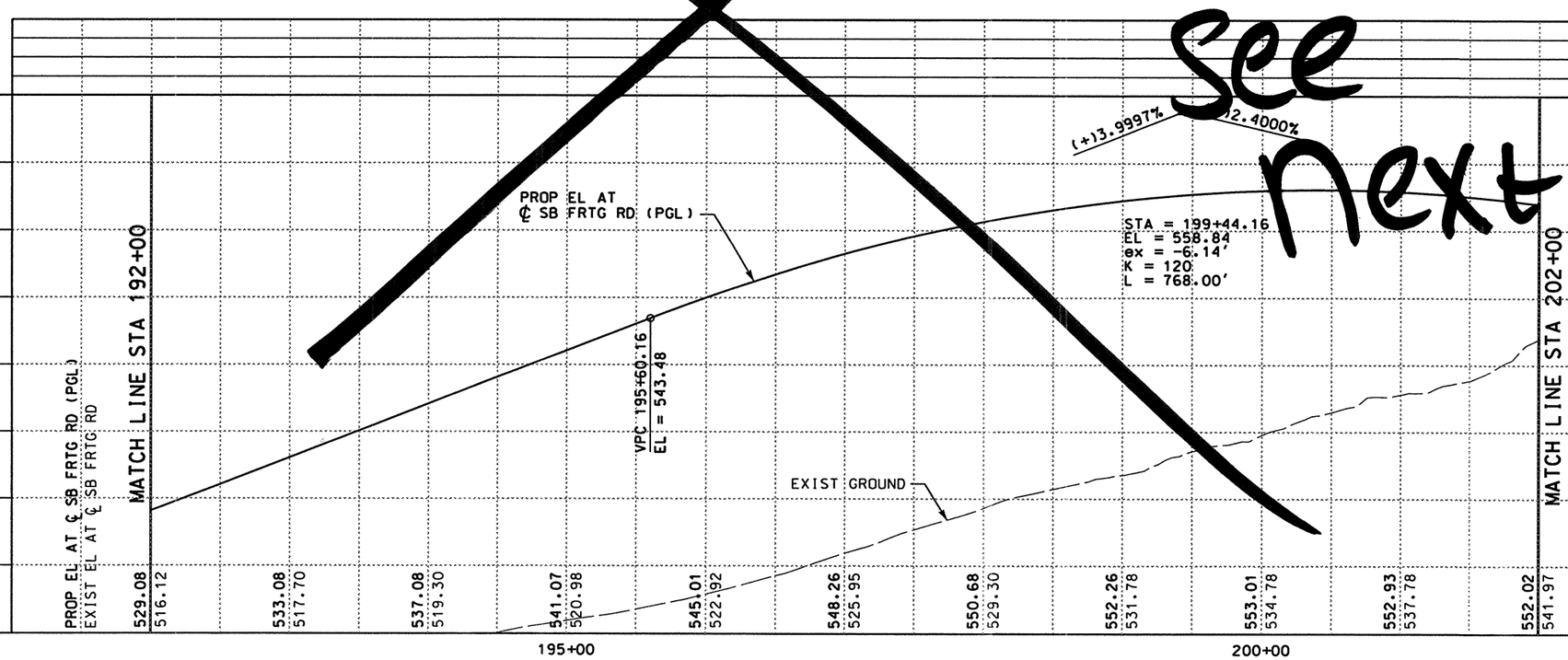
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE TRES EQUIS BLVD "BRIDGE LAYOUT" FOR MORE DETAILS.
4. SEE NB FRTG RD "BRIDGE LAYOUT" FOR MORE DETAILS.
5. SEE "RETAINING WALL LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD PLAN AND PROFILE STA 192+00 TO STA 202+00
SHEET 5 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	345
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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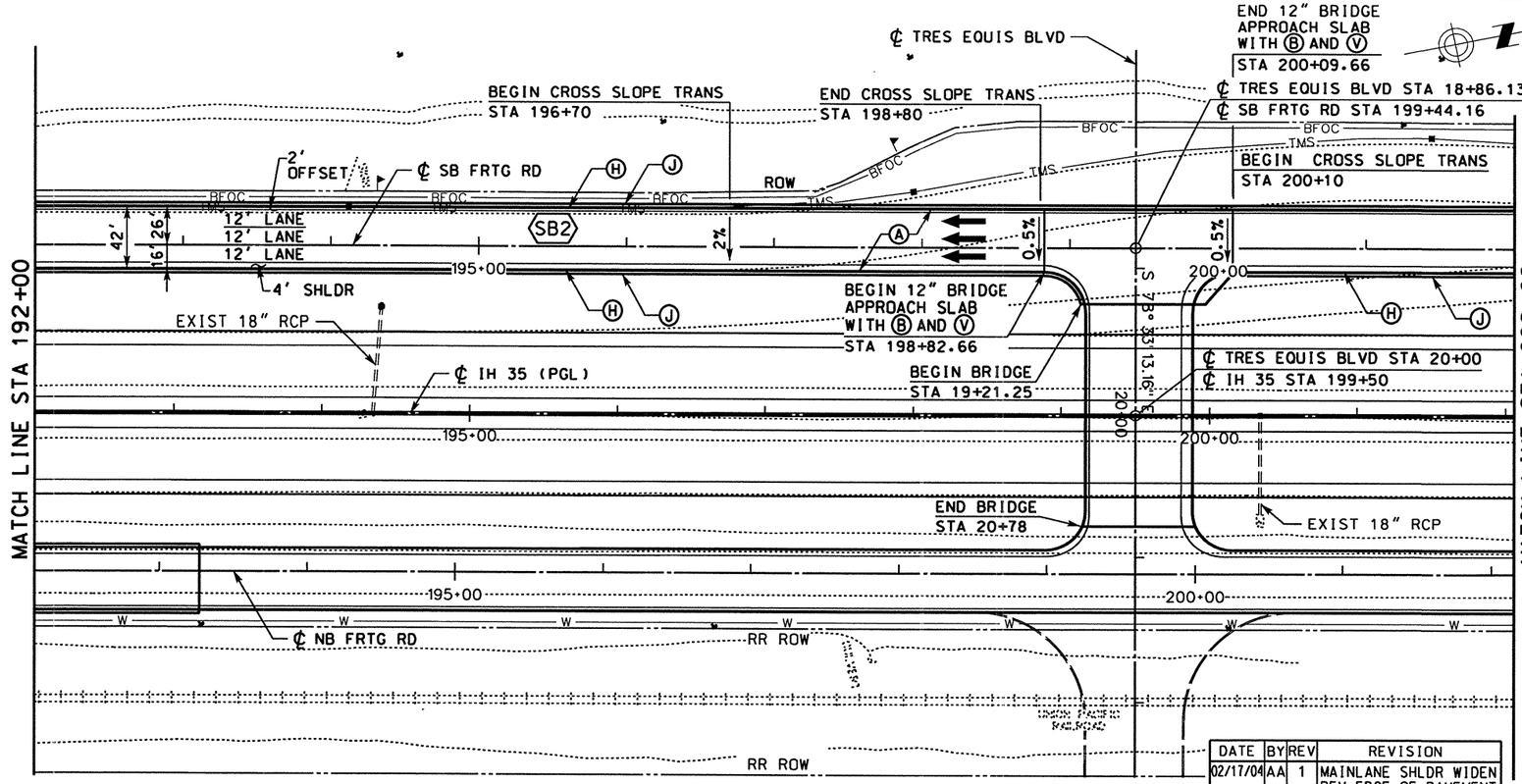


LEGEND

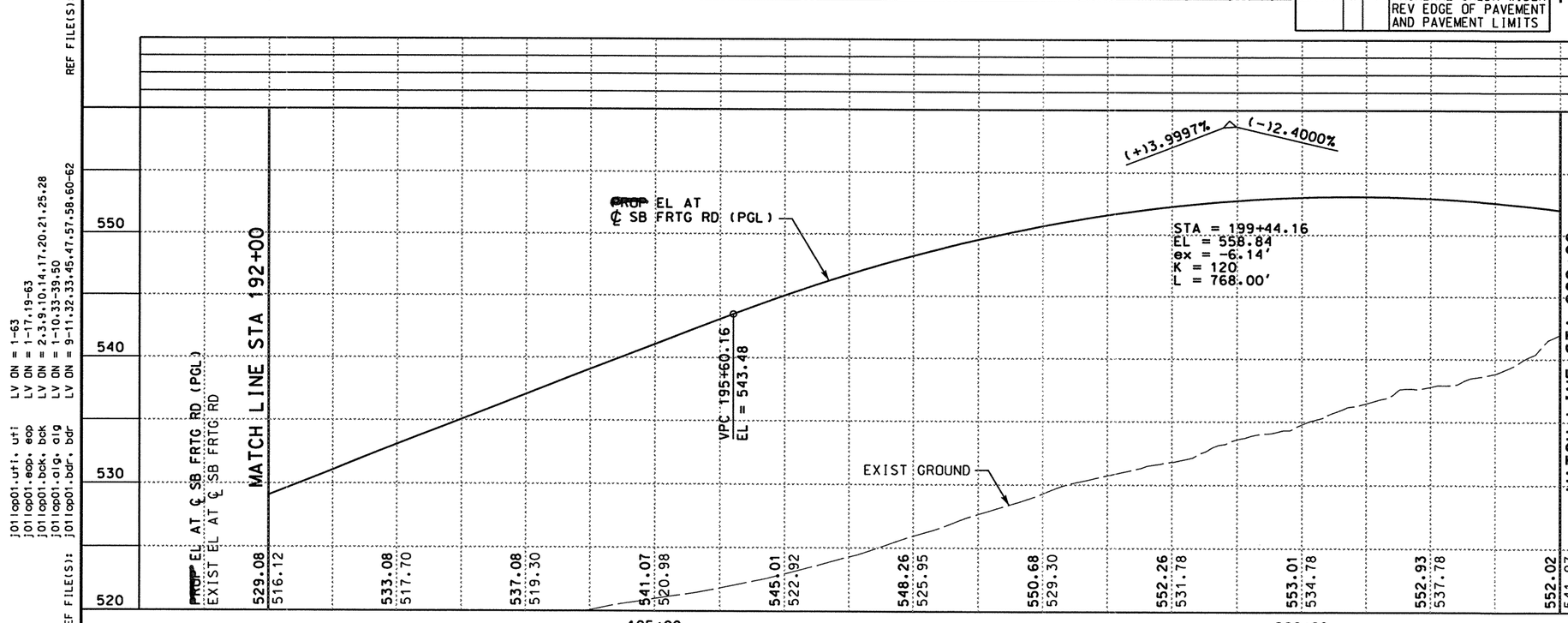
- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE TRES EQUIS BLVD "BRIDGE LAYOUT" FOR MORE DETAILS.
4. SEE NB FRTG RD "BRIDGE LAYOUT" FOR MORE DETAILS.
5. SEE "RETAINING WALL LAYOUT" FOR MORE DETAILS.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

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Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 192+00 TO
STA 202+00

SHEET 5 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	345
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62
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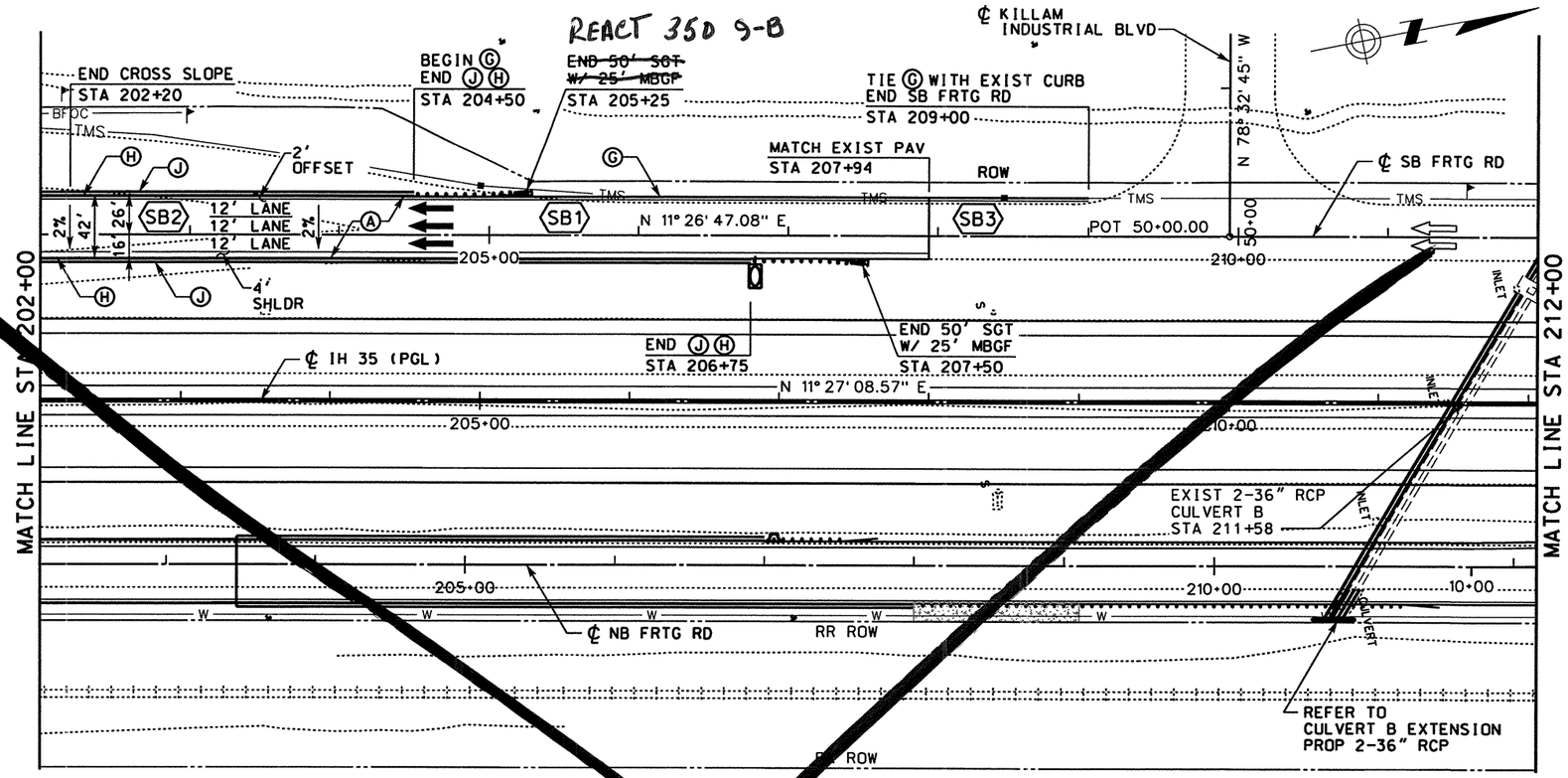

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
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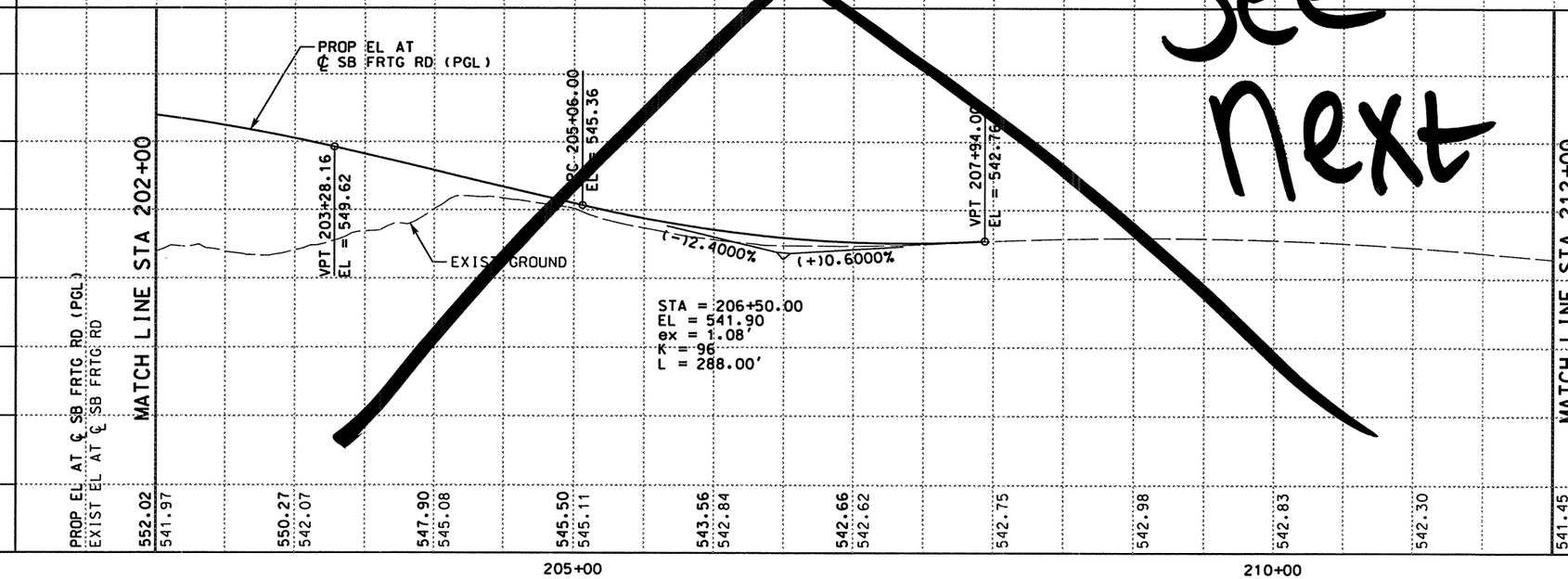
NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "RETAINING WALL LAYOUT" FOR MORE DETAILS.



See next

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER — STATE OF TEXAS

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 202+00 TO
STA 212+00

SHEET 6 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		346
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j011op01.alg, alg LV ON = 9-11,32,33,45,47,57,58,60-62
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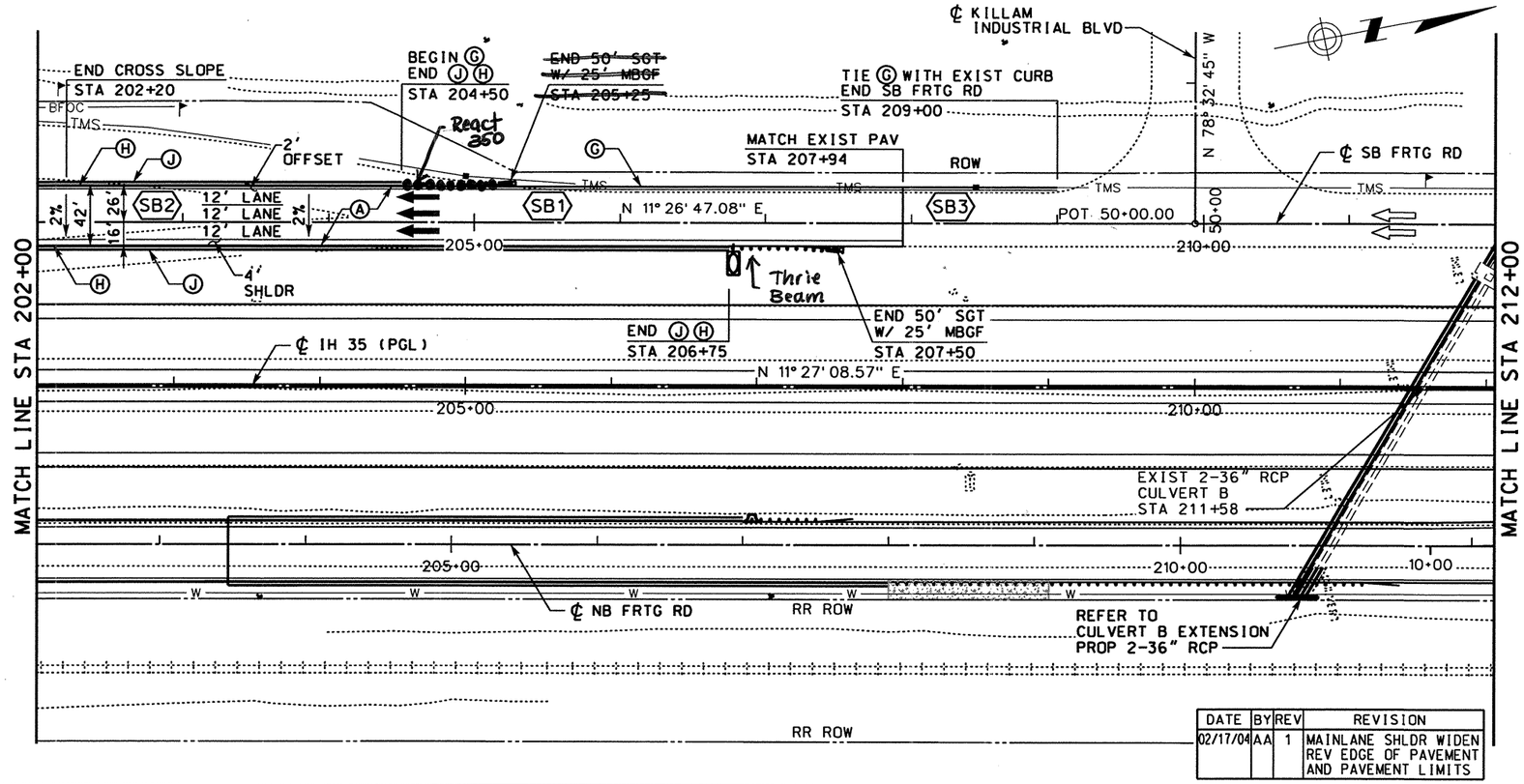

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
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- Ⓙ RETAINING WALL
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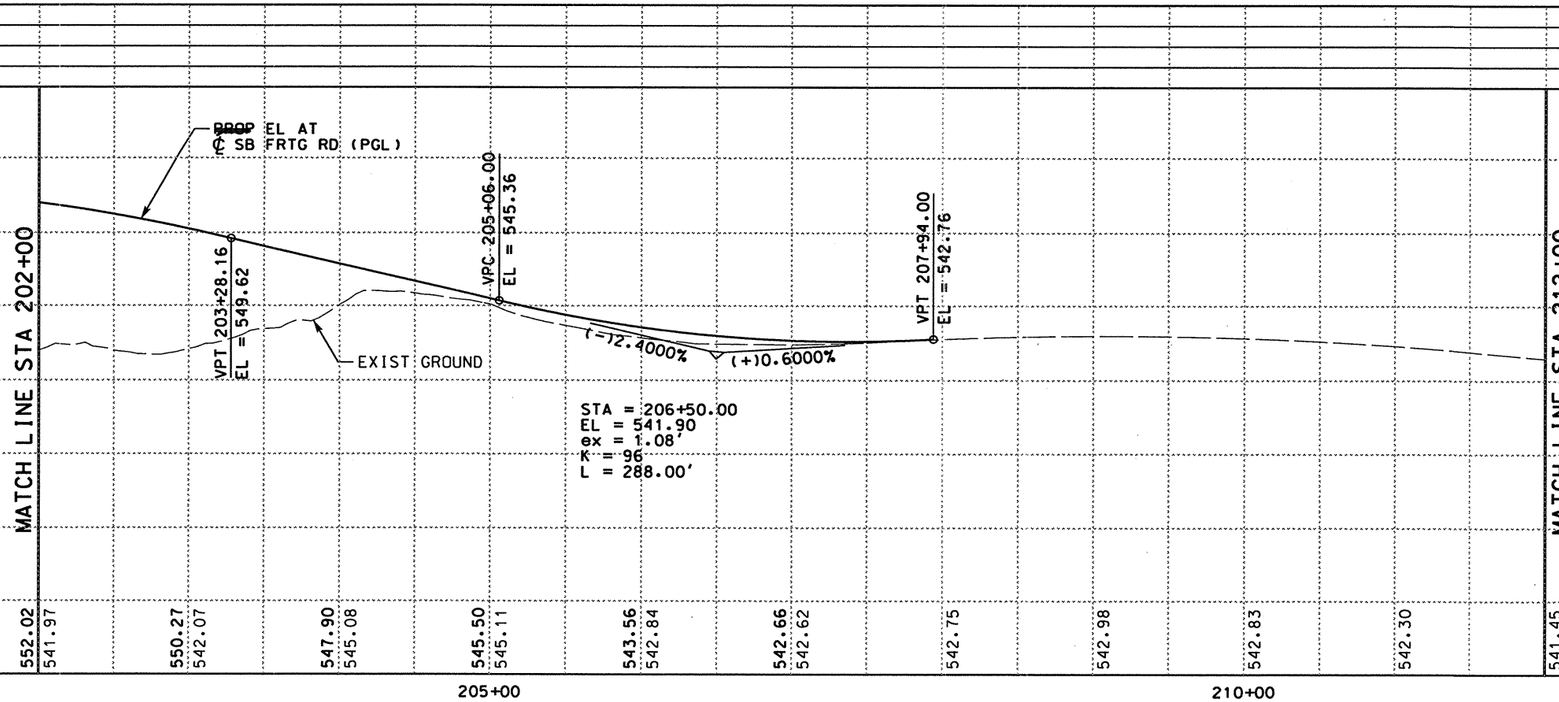
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "RETAINING WALL LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
NO. 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

Alan Abugattas

KBR
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3/4/2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 202+00 TO
STA 212+00

SHEET 6 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	346
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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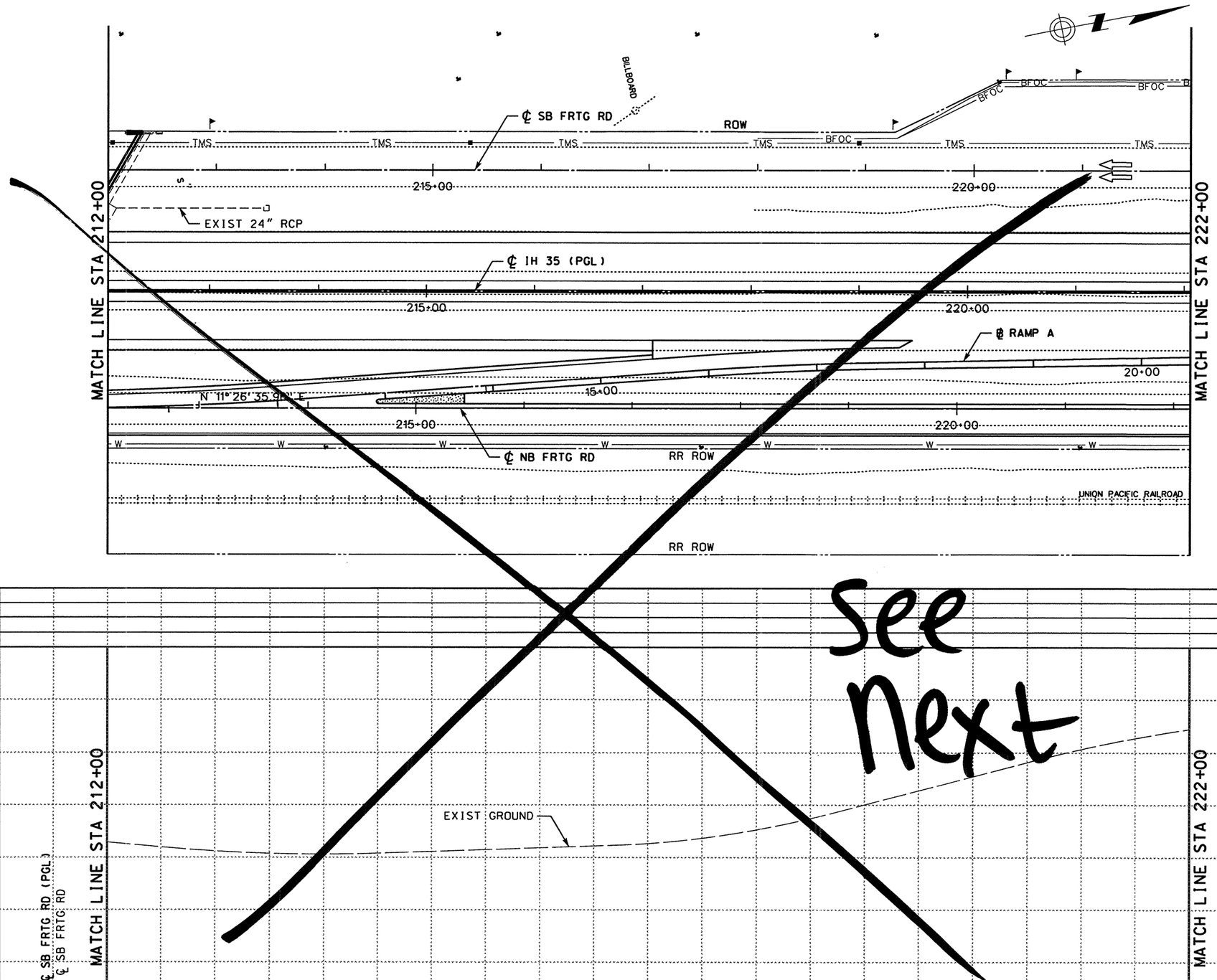

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 212+00 TO
STA 222+00

SHEET 7 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	347
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

REF FILE(S): j0110p01.uti. uti LV ON = 1-63
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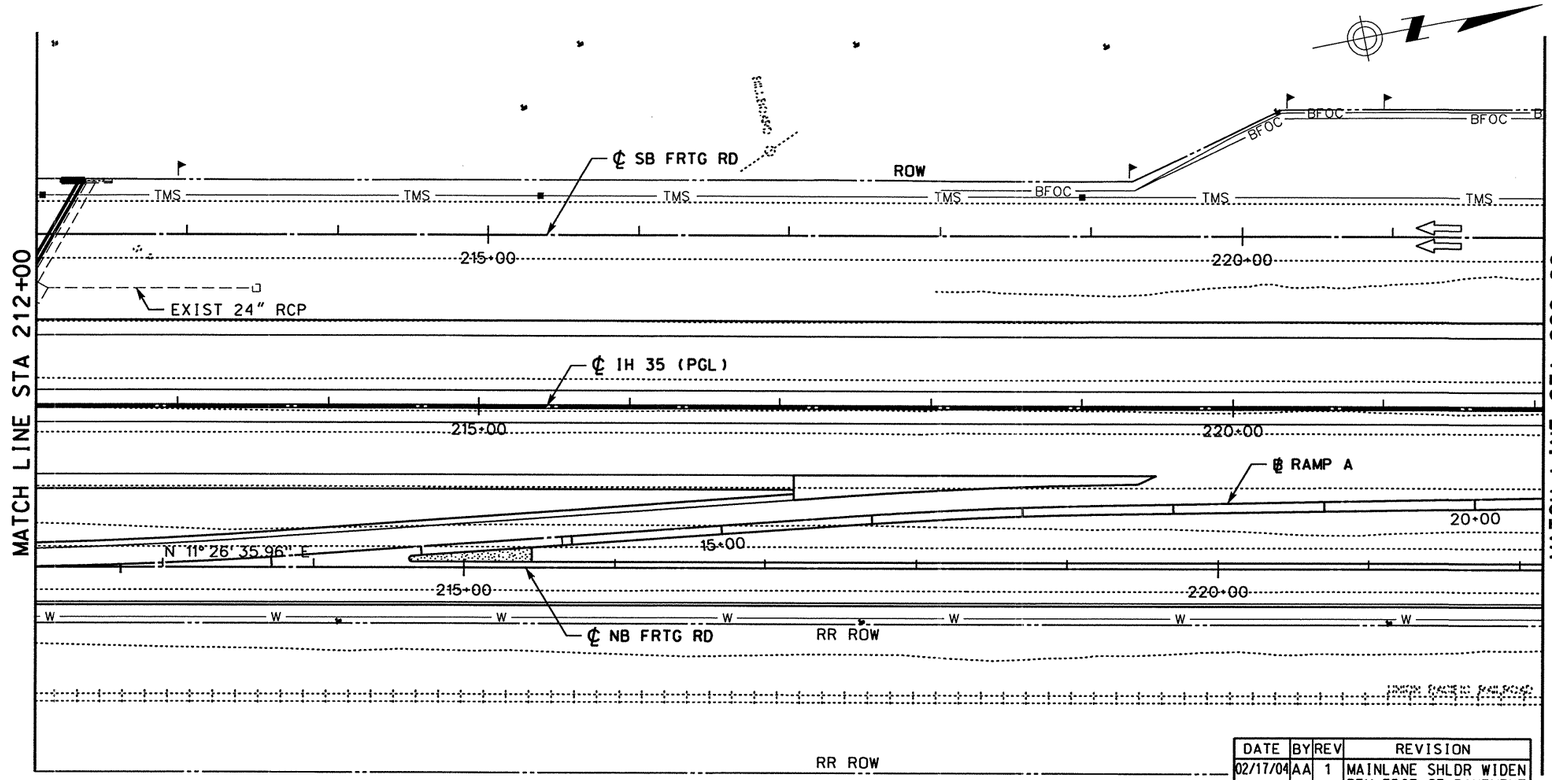

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
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- (X) PLAN ASPH CONC PAV (2.75")
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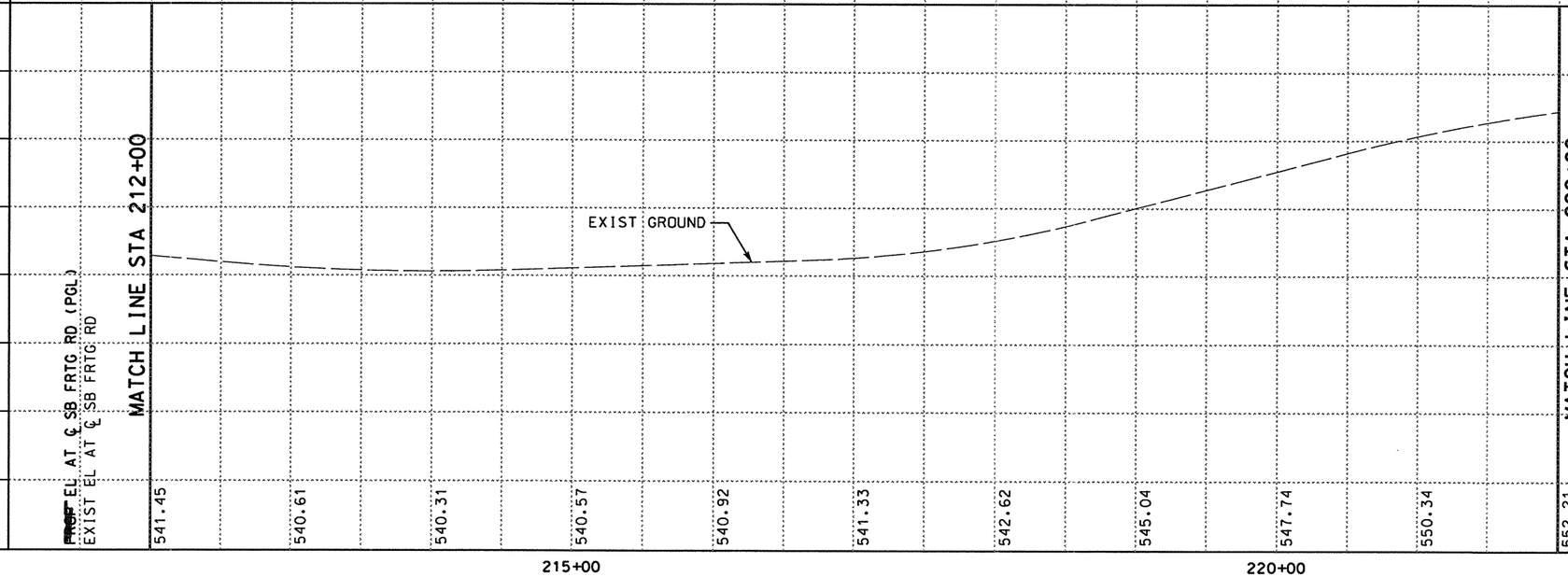
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 212+00 TO
STA 222+00

SHEET 7 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	347
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

REF FILE(S): j0110p01.pro, pro LV ON = 1-63
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REF FILE(S): milolnt.row, row
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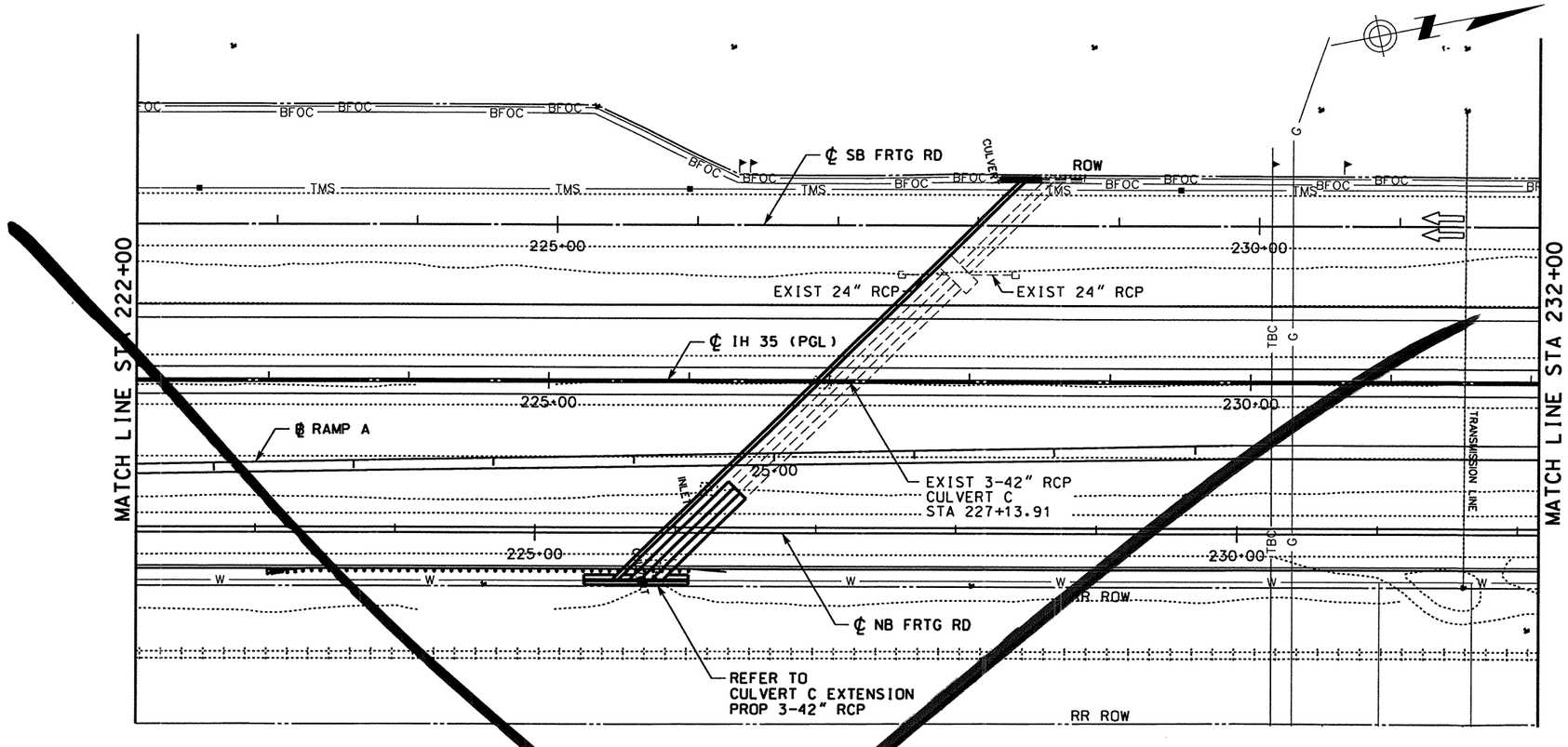
j0110p01.eop, eop LV ON = 1-17,19-63
j0110p01.bck, bck LV ON = 2,3,9,10,14,17,20,21,25,28
j0110p01.alg, alg LV ON = 1-10,33-39,50
j0110p01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

b03ppp62.dgn-04 HOUFILE023 \hcivil\cf0130\ 3/4/2004



LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 222+00 TO
STA 232+00

SHEET 8 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	348
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

See Next

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j011op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62

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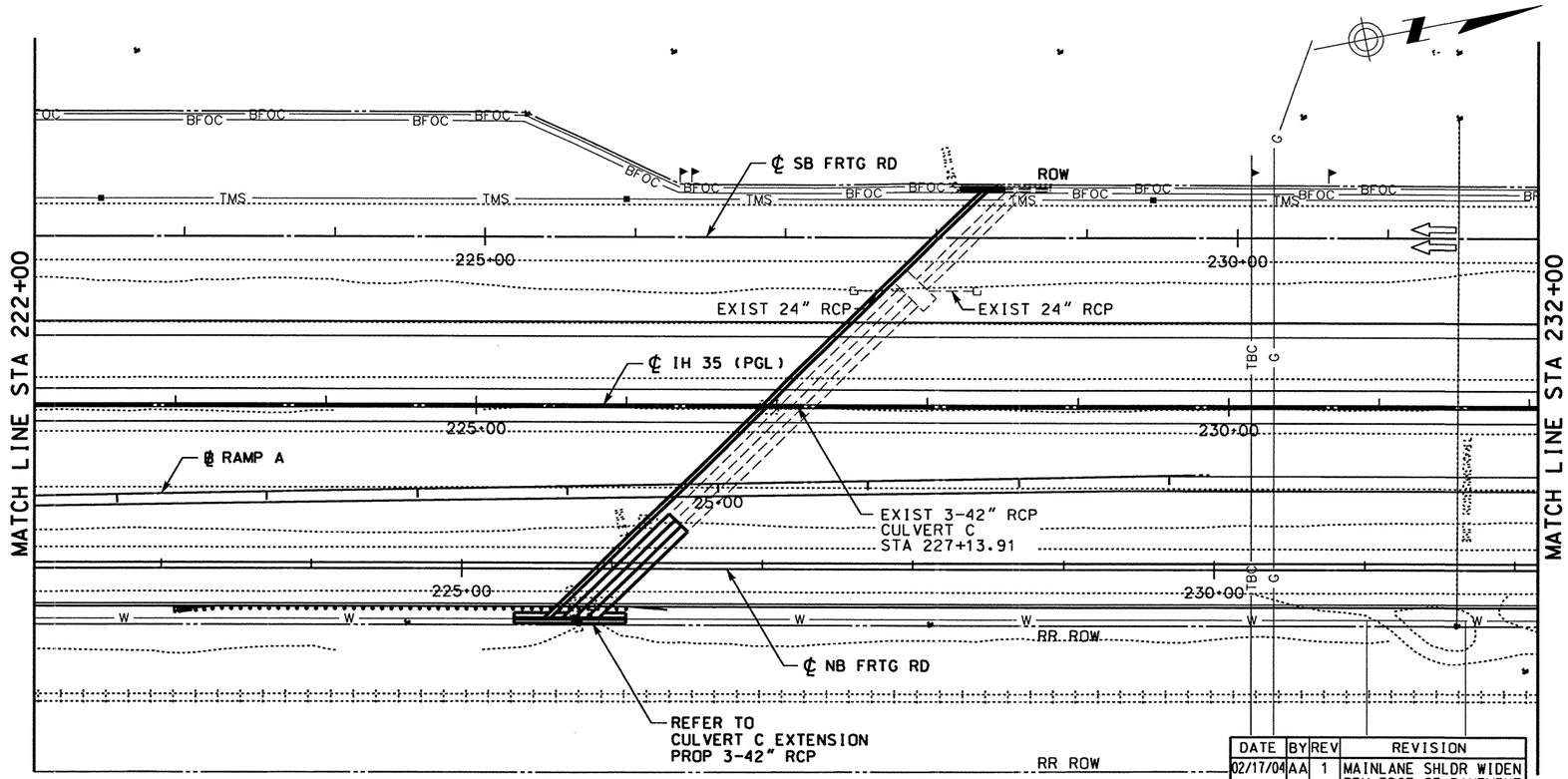

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
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- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
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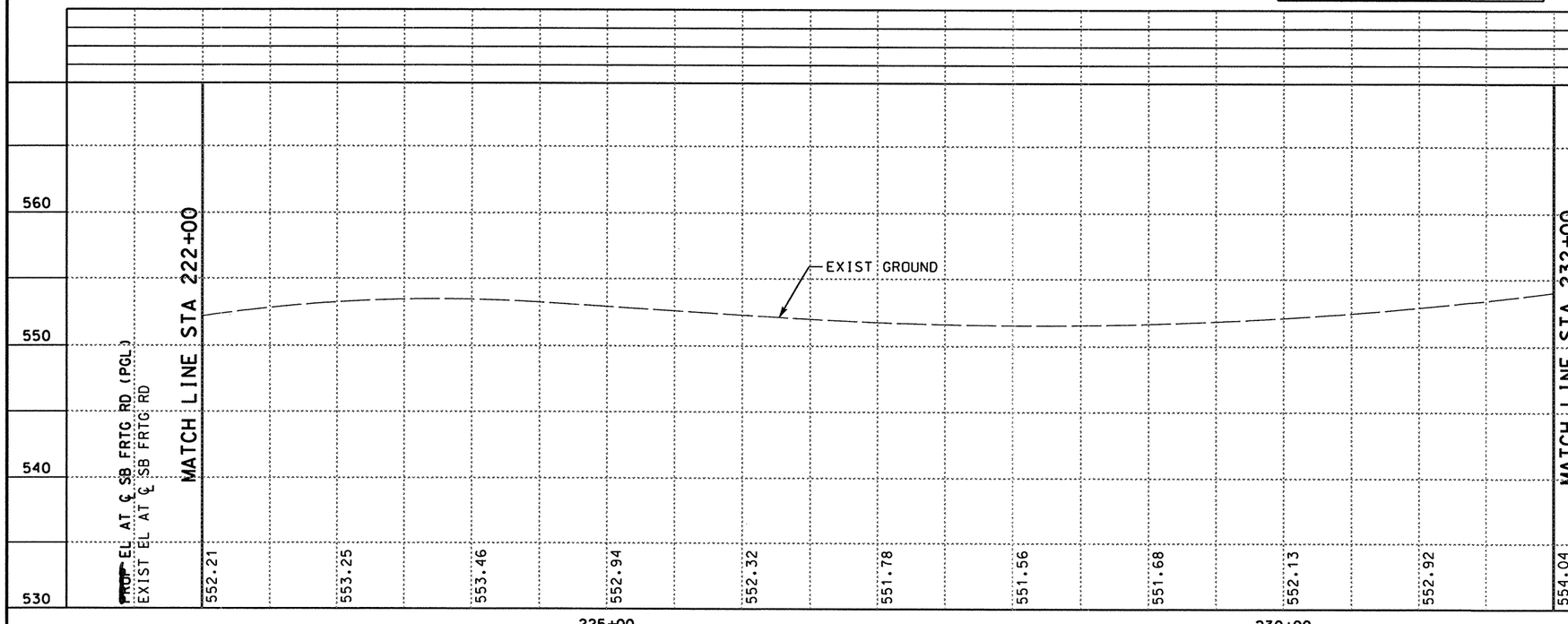
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 222+00 TO
STA 232+00

SHEET 8 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	348
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

3/4/2004

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j01lop01.utl, utl LV ON = 1-63
j01lop01.eop, eop LV ON = 1-17.19-63
j01lop01.bck, bck LV ON = 2,3,9,10,14,17,20,21,25,28
j01lop01.alg, alg LV ON = 1-10,33-39,50
j01lop01.bdr, bdr LV ON = 9-11,32,33,45,47-57,58,60-62
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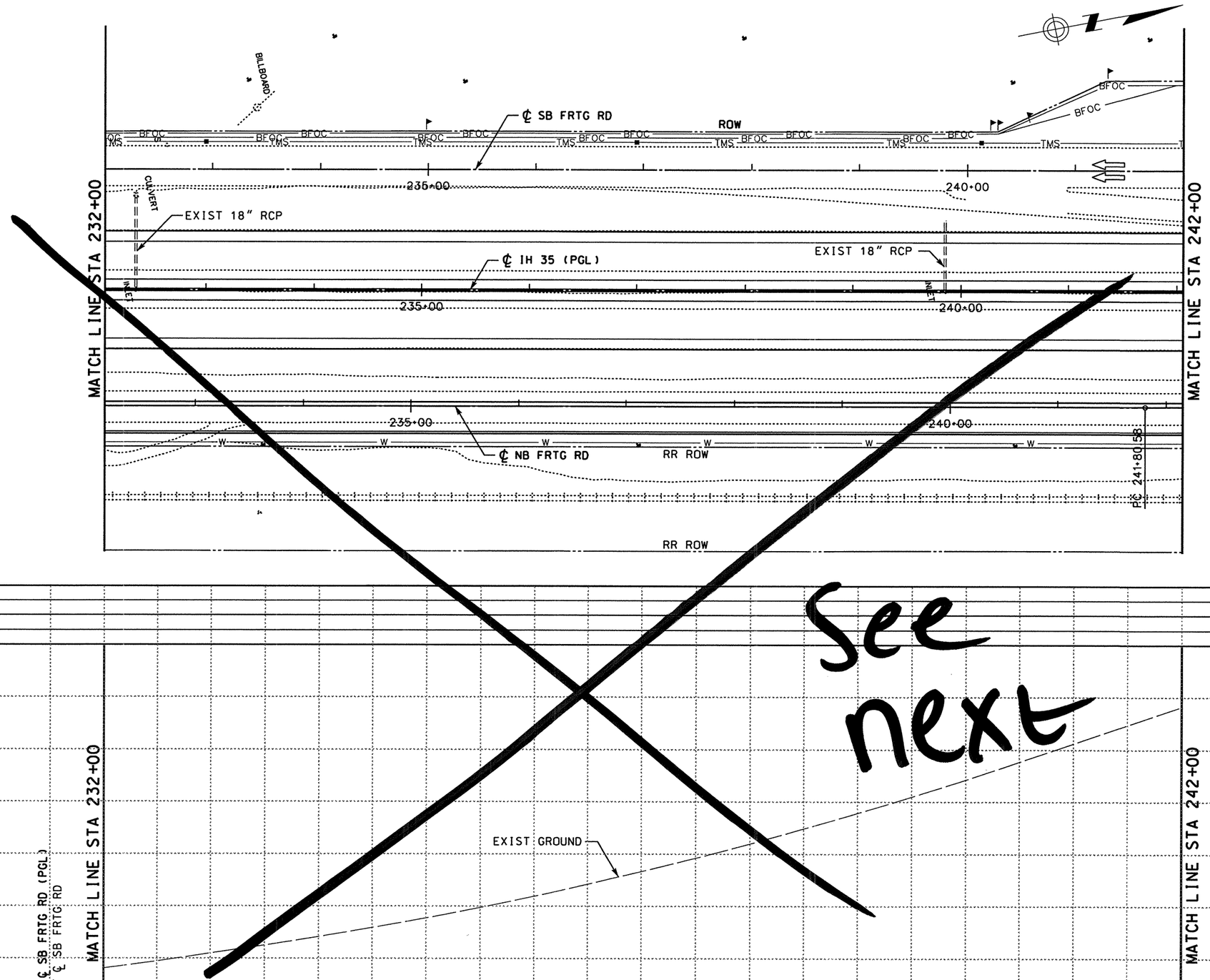

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
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- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
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- (S) SINGLE GUARDRAIL TERMINAL
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- (U) FLEXIBLE BASE (8")
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- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

PROP EL AT ℄ SB FRTG RD (PGL)
EXIST EL AT ℄ SB FRTG RD

MATCH LINE STA 232+00: 554.04, 555.49, 557.05, 558.86, 560.95, 563.33, 565.98, 568.92, 572.14, 575.60

MATCH LINE STA 242+00: 579.10

575 / 565 / 555 / 545

235+00 240+00

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 232+00 TO
STA 242+00

SHEET 9 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	349
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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j011op01.bck, bck LV ON = 2,3,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-10,33-39,50
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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j011op01.eop, eop LV ON = 2,3,9,10,14,17,20,21,25,28
j011op01.bck, bck LV ON = 1-10,33-39,50
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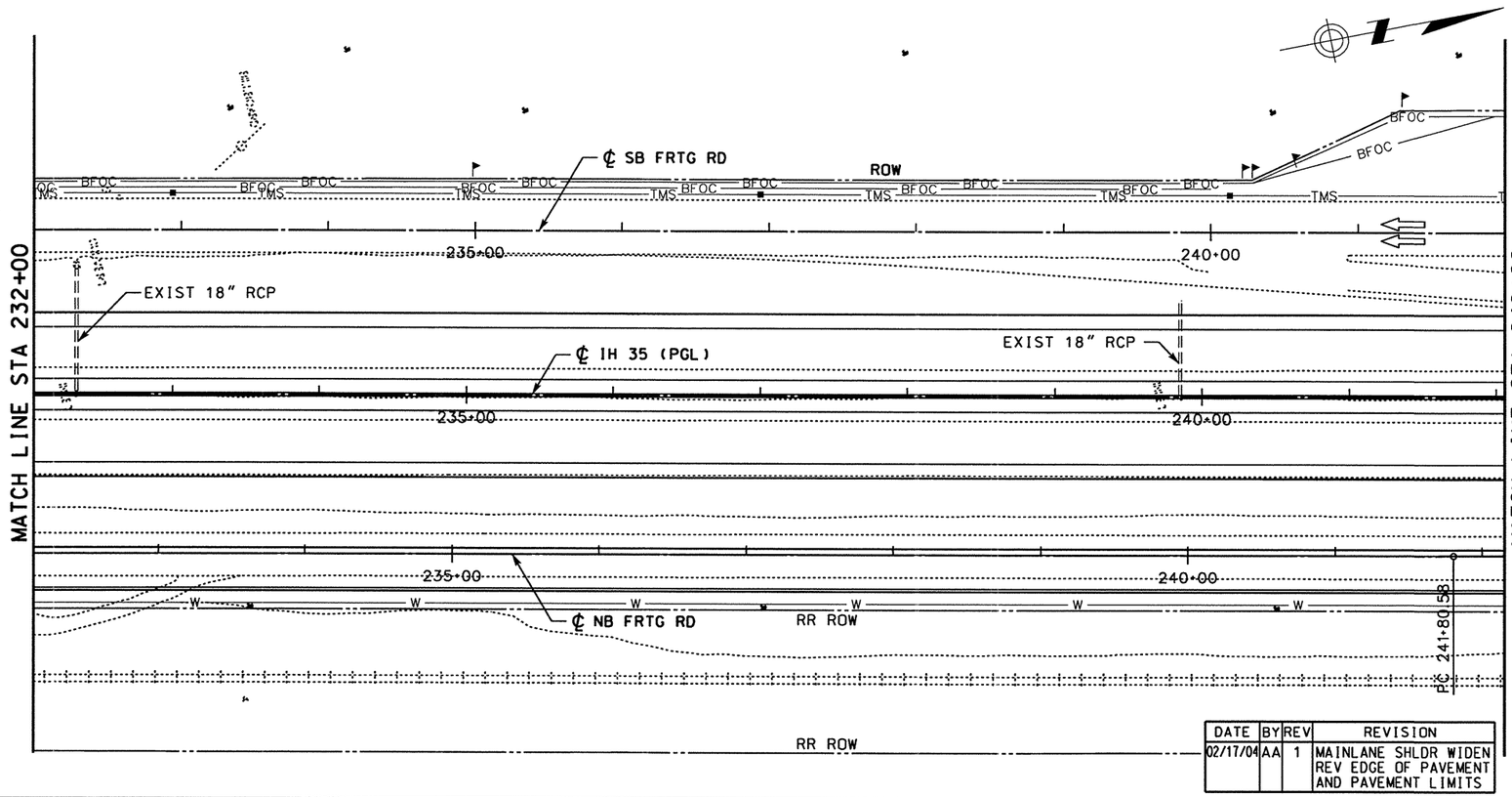

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) ~~POROUS~~ FRICTION COURSE (1.5")
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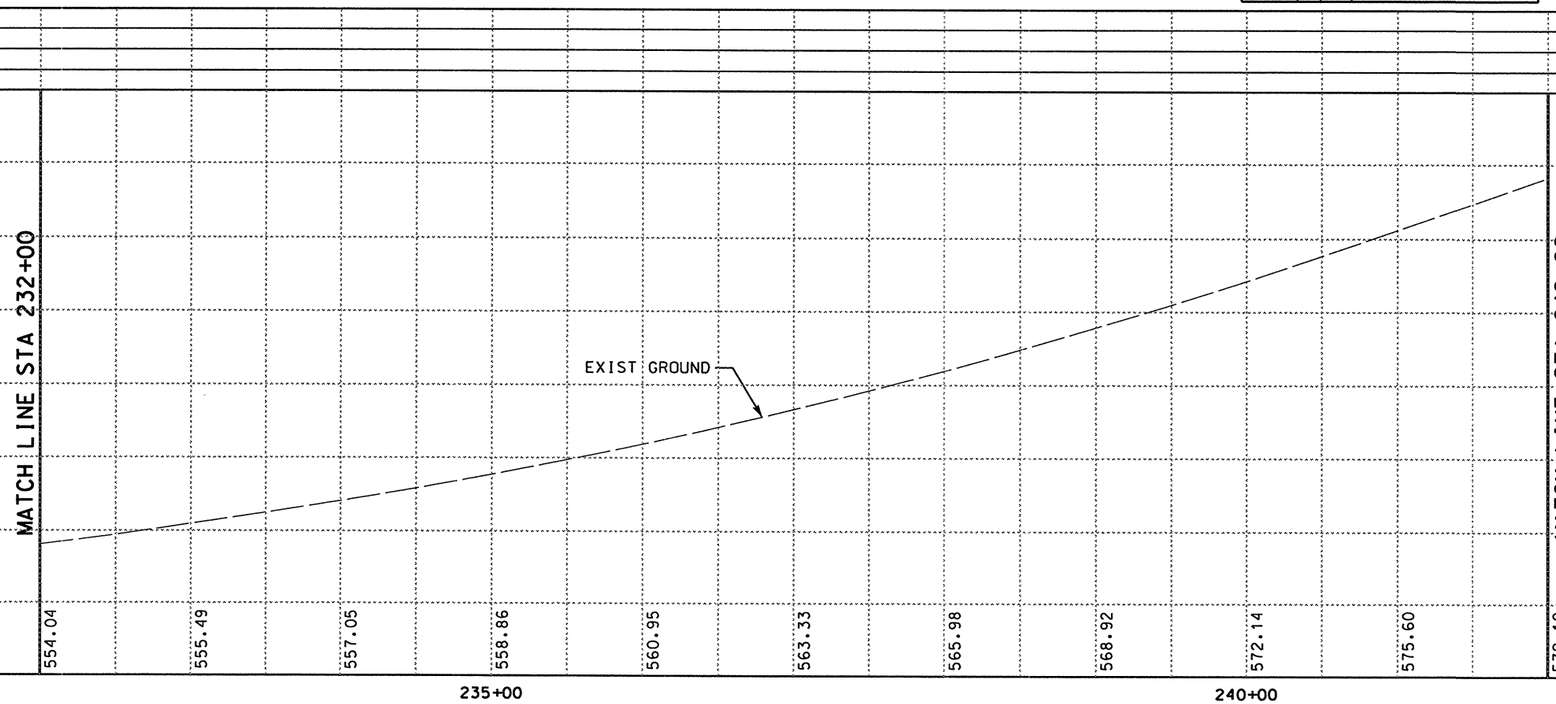
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 232+00 TO
STA 242+00

SHEET 9 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	349
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j0110p01.pro, pro LV ON = 1-63
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j0110p01.alg. alg LV ON = 1-10.33-39.50
j0110p01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62
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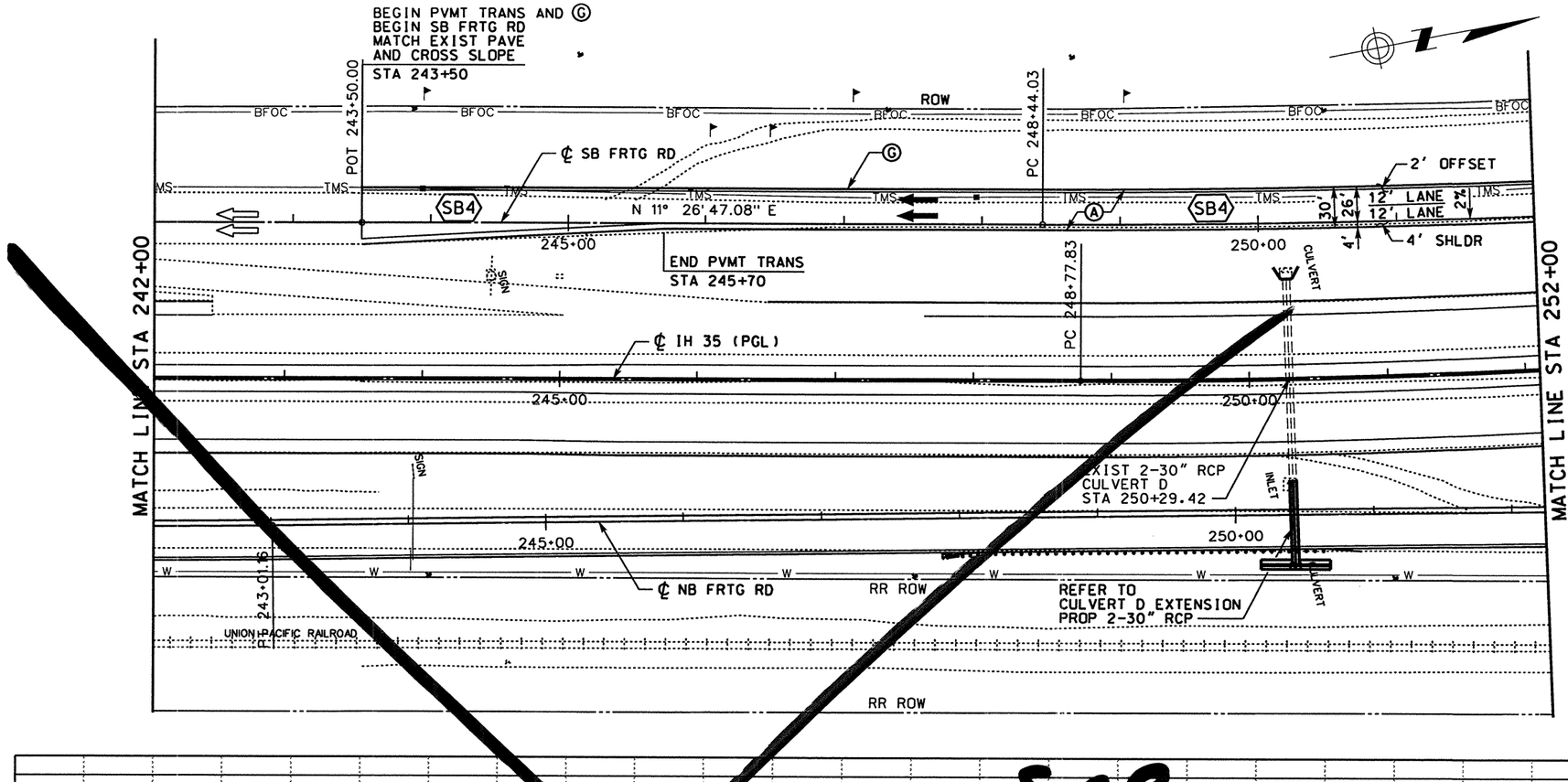
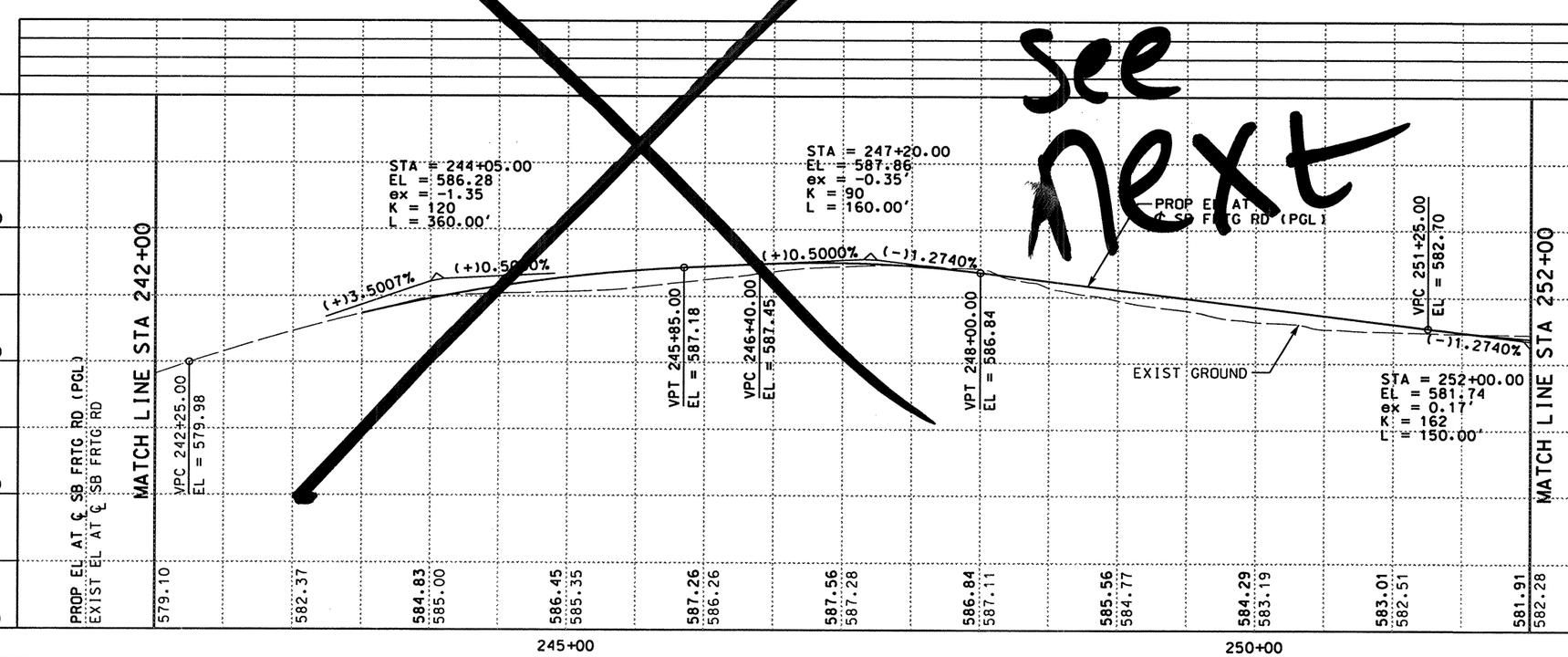


LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 242+00 TO
STA 252+00

SHEET 10 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	350
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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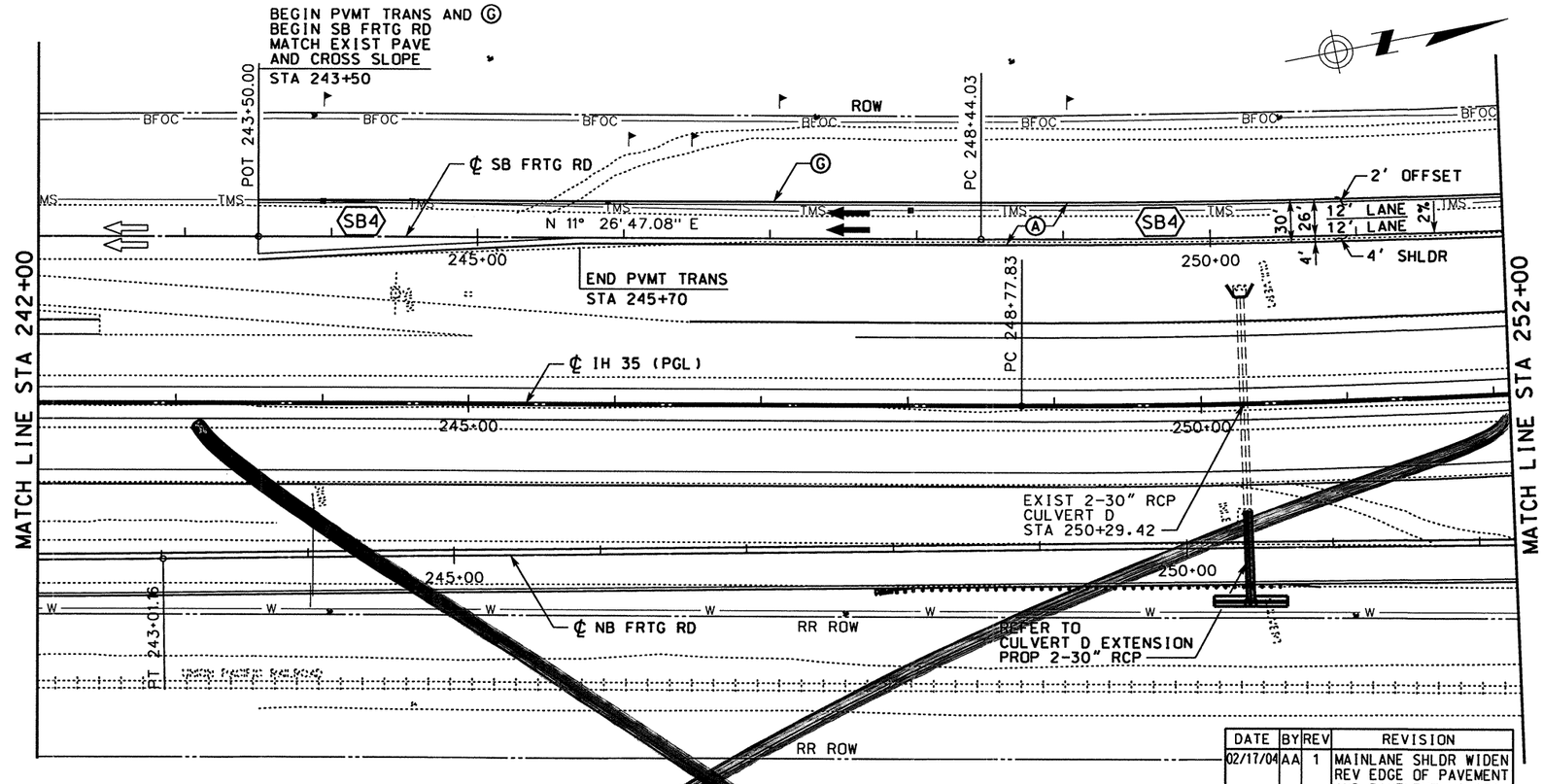
b03ppp65.dgn-04 HOUFILE023 \hcivil\cf0130\ 5/8/2003



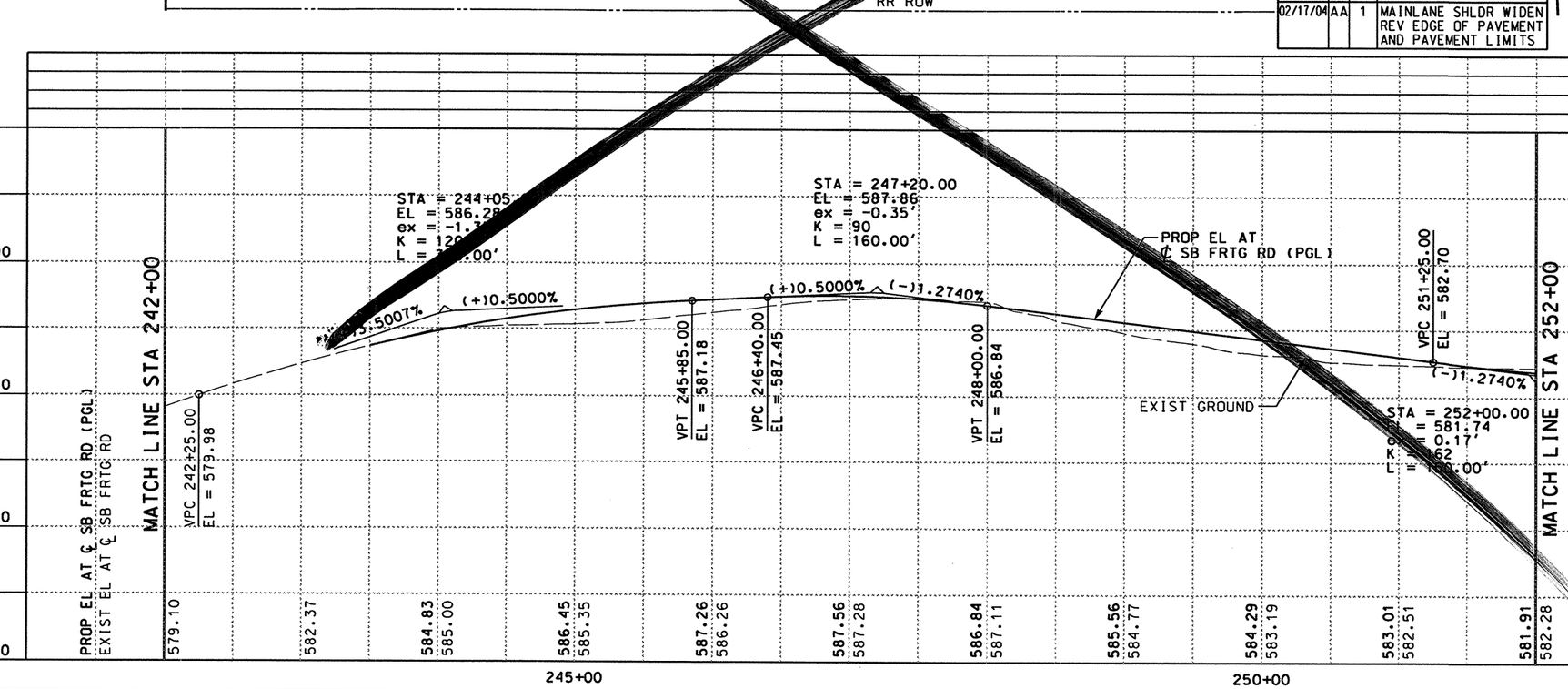
DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 242+00 TO
STA 252+00

SHEET 10 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		350
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004
HOUFILE023 \hcivil\cf0130\
b03ppp65.dgn-04

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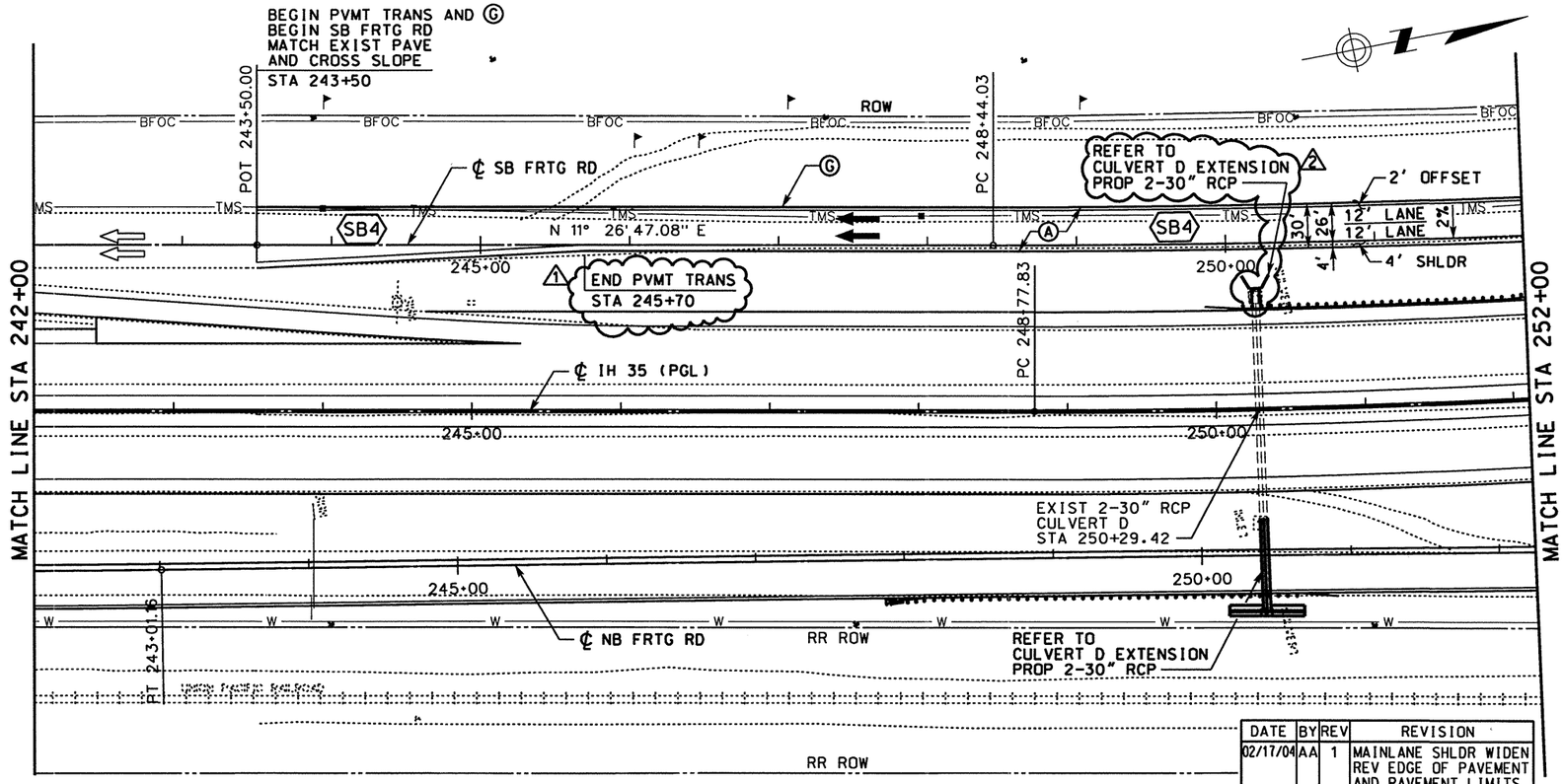


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
11/30/04	AA	2	ADD AUXILIARY LANE

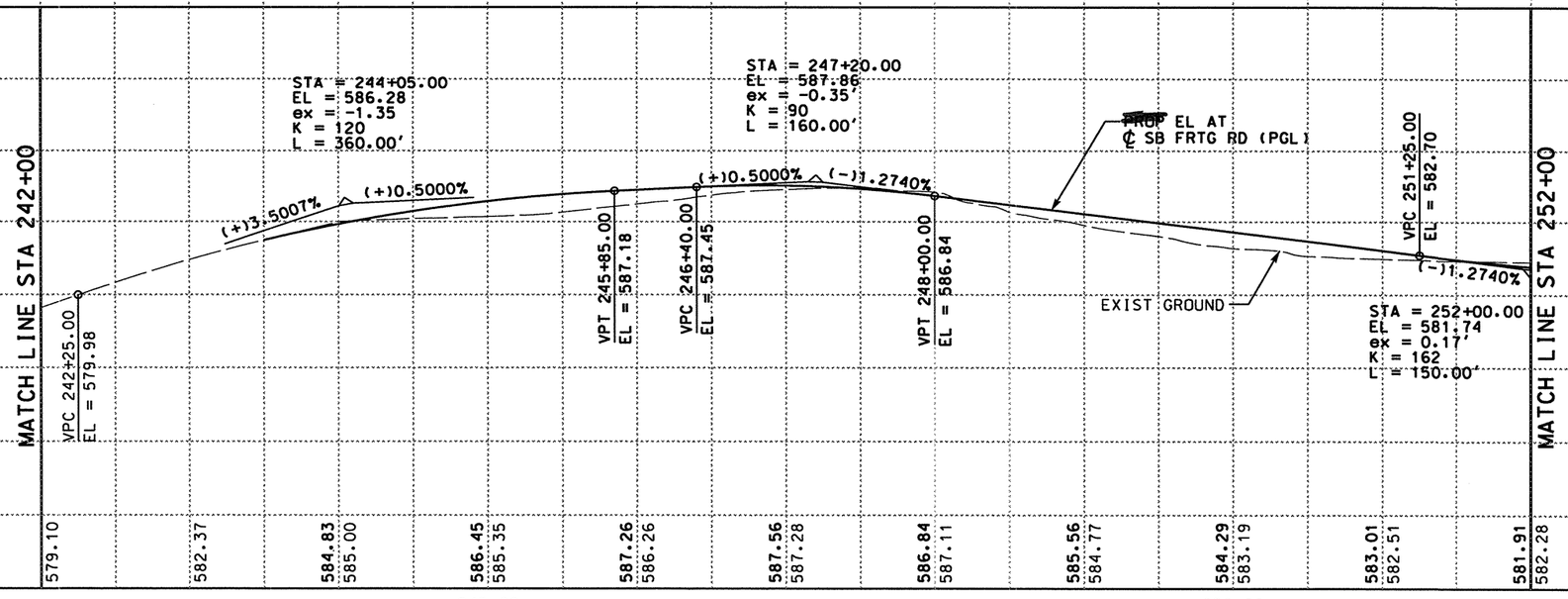
LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



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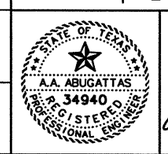
SCALE: 1" = 100' HORIZ
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 242+00 TO
STA 252+00

SHEET 10 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	~~350~~
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

2/10/2005

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j01lop01.eop, eop LV ON = 1-17,19-63
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j01lop01.alg, alg LV ON = 1-10,33-39,50
j01lop01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

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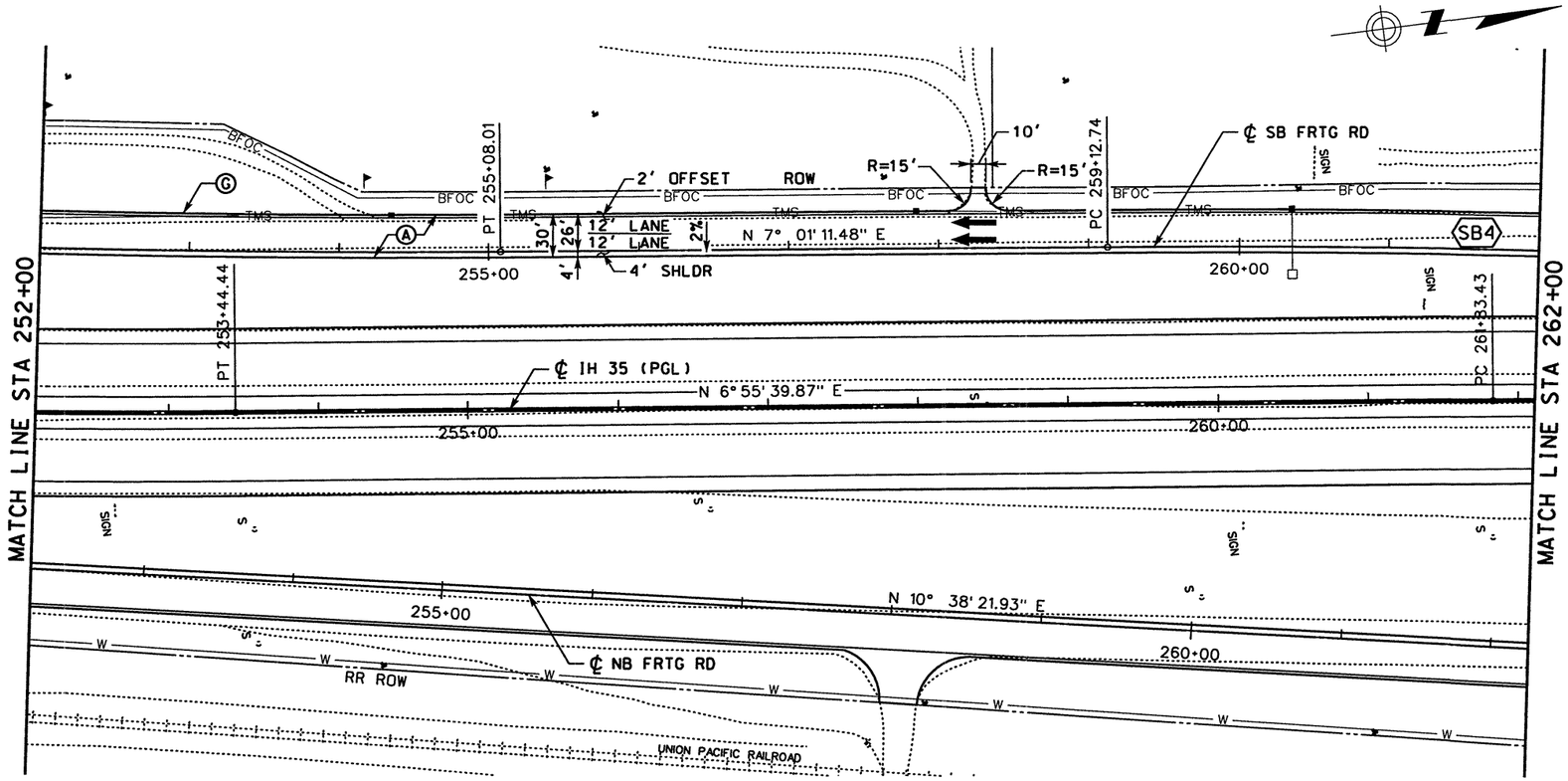

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "DRIVEWAY DETAIL" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
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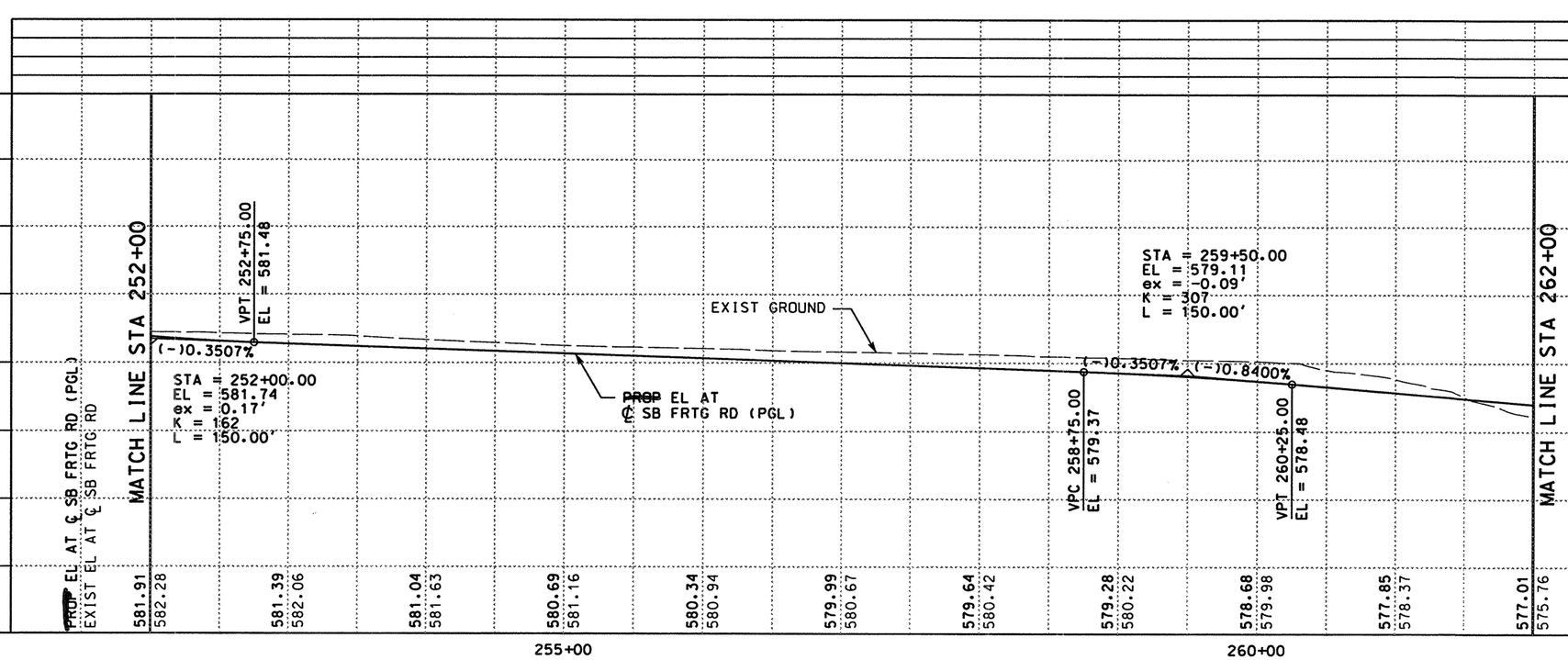
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 252+00 TO
STA 262+00

SHEET 11 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		351
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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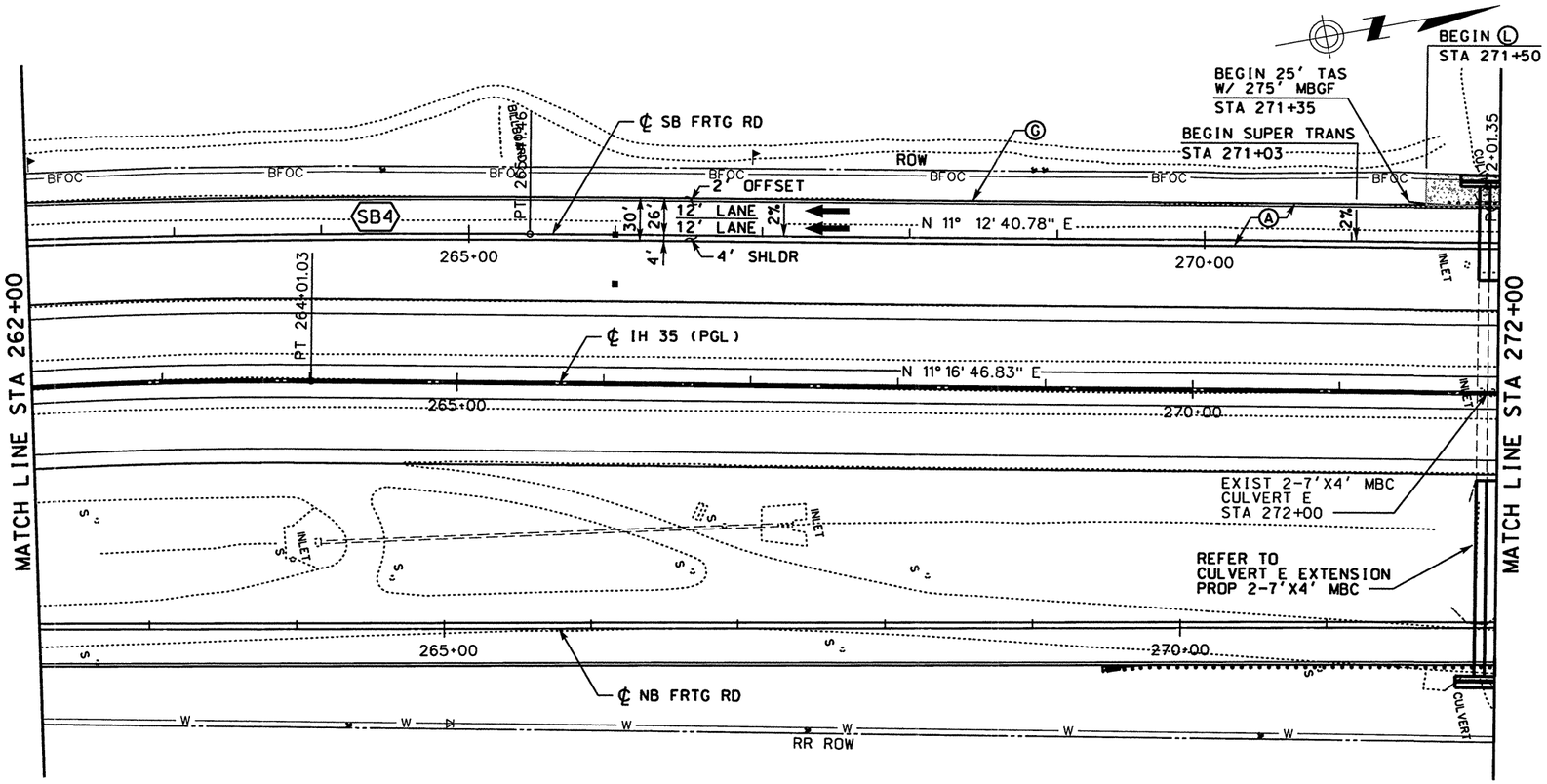
5/8/2003 HOUFILE023 \hcivil\cf0130\ b03ppp66.dgn-05



LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
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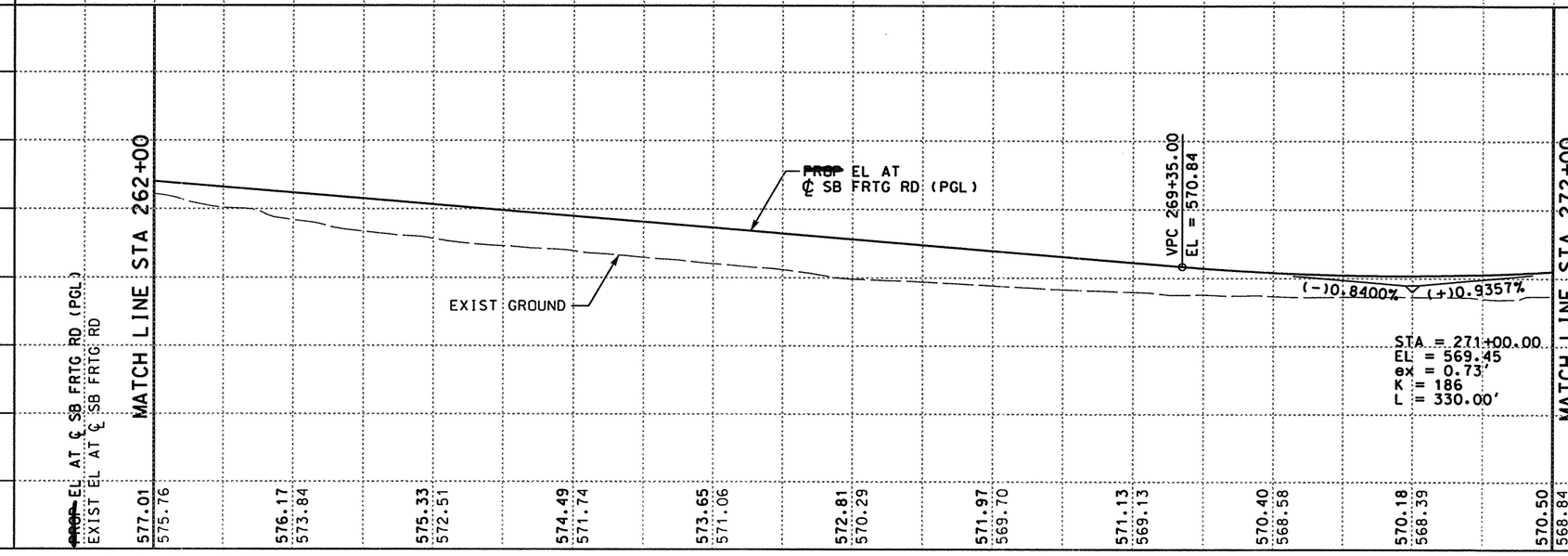
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 262+00 TO
STA 272+00

SHEET 12 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	352
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

5/8/2003
HOUFILE023 \hcivil\cf0130\
b03ppp67.dgn-08

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j011op01.bck, bck LV ON = 1-10,33-39,50
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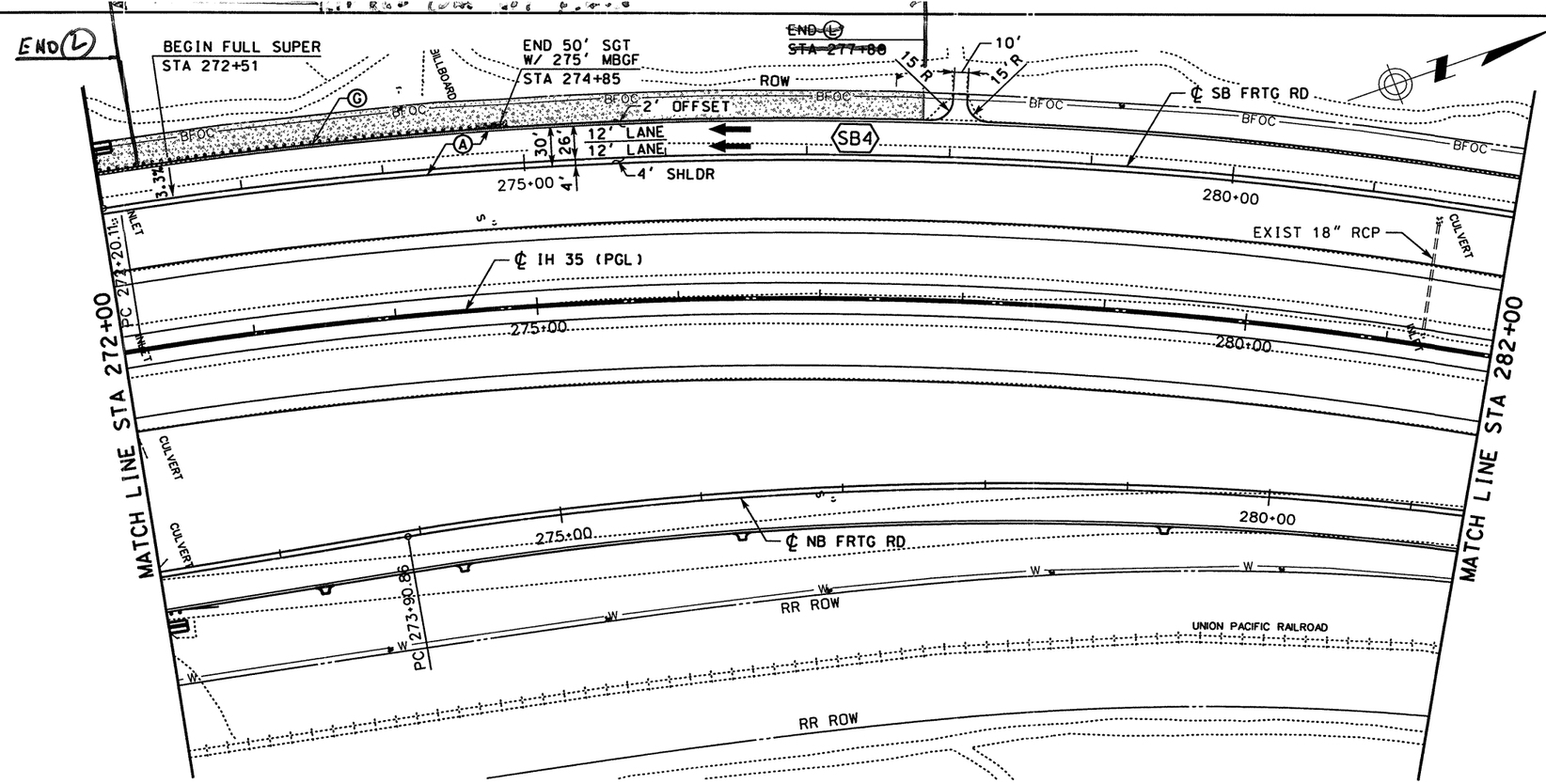


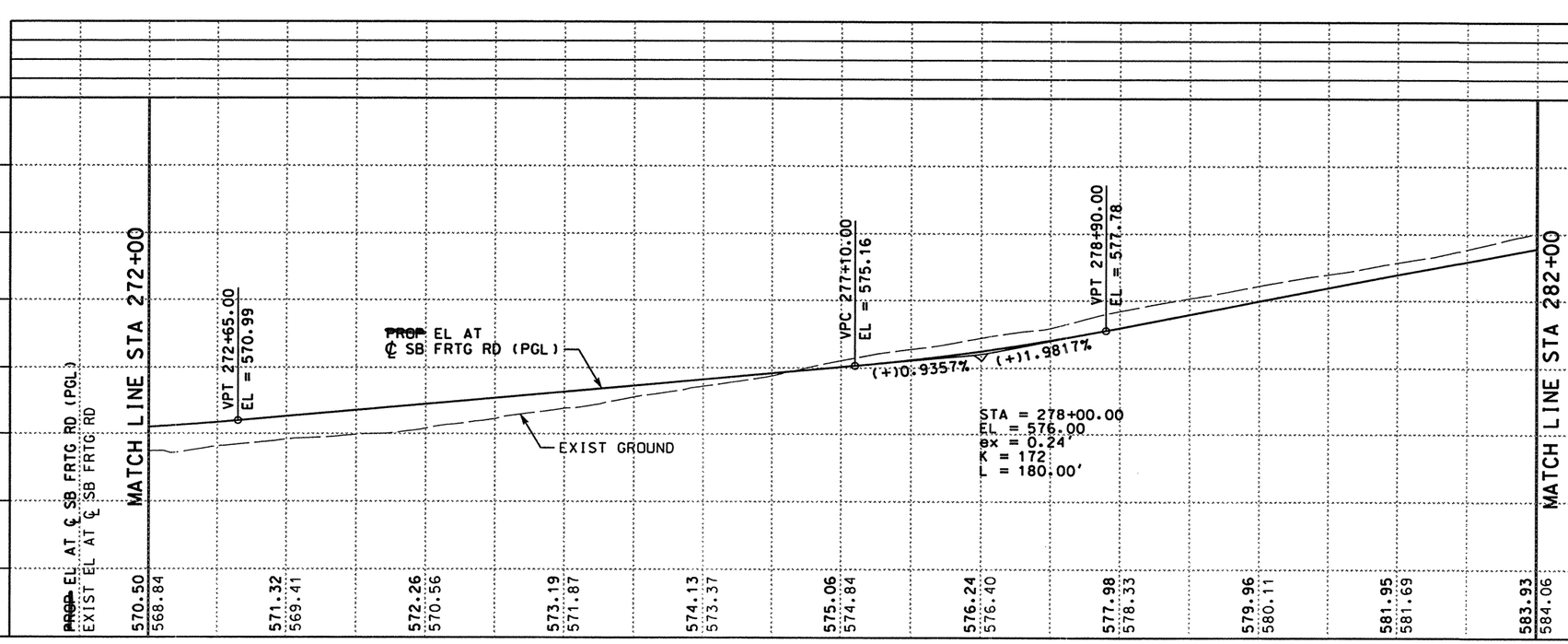
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "DRIVEWAY DETAIL" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 272+00 TO
STA 282+00

SHEET 13 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	353
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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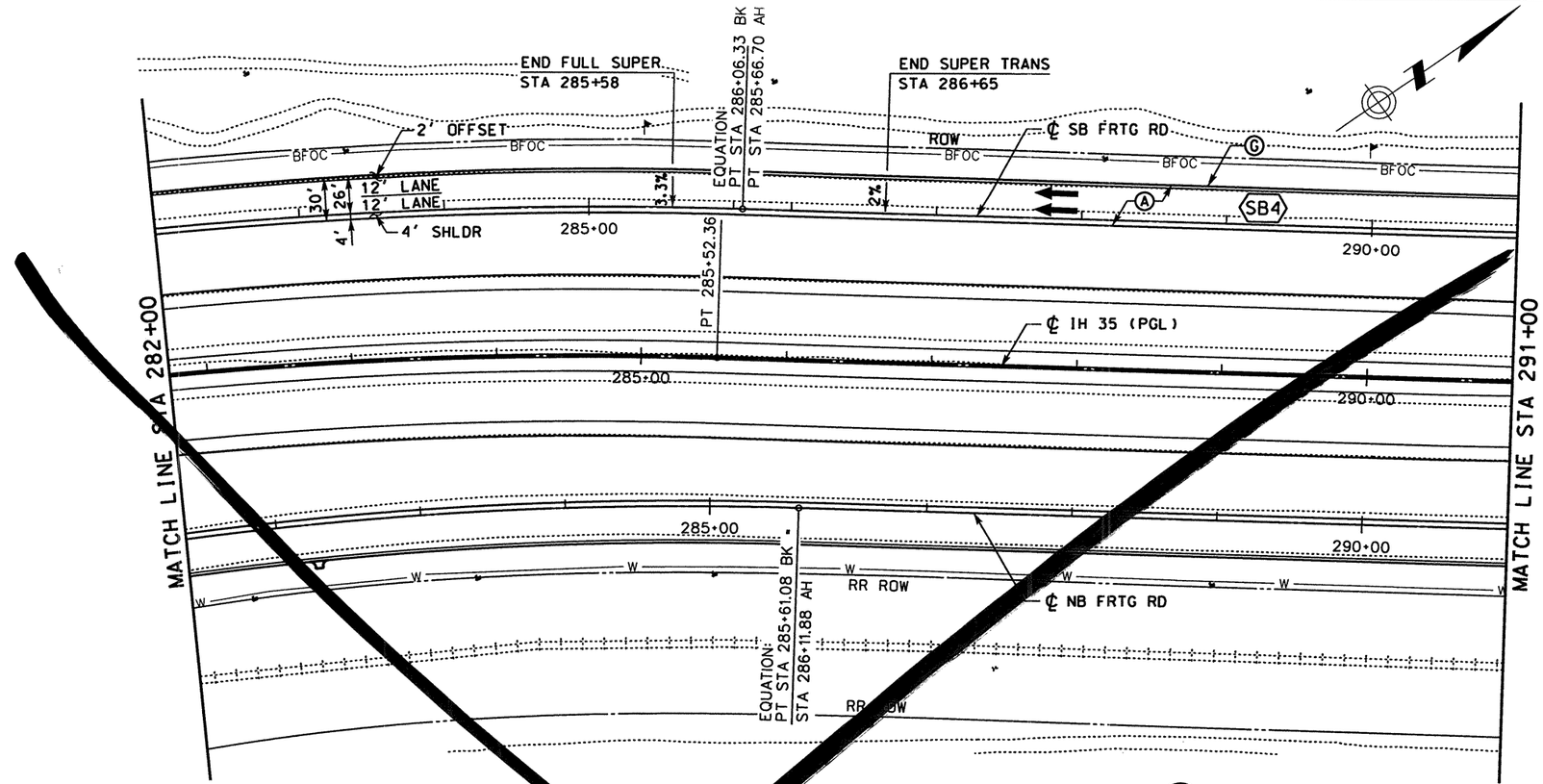
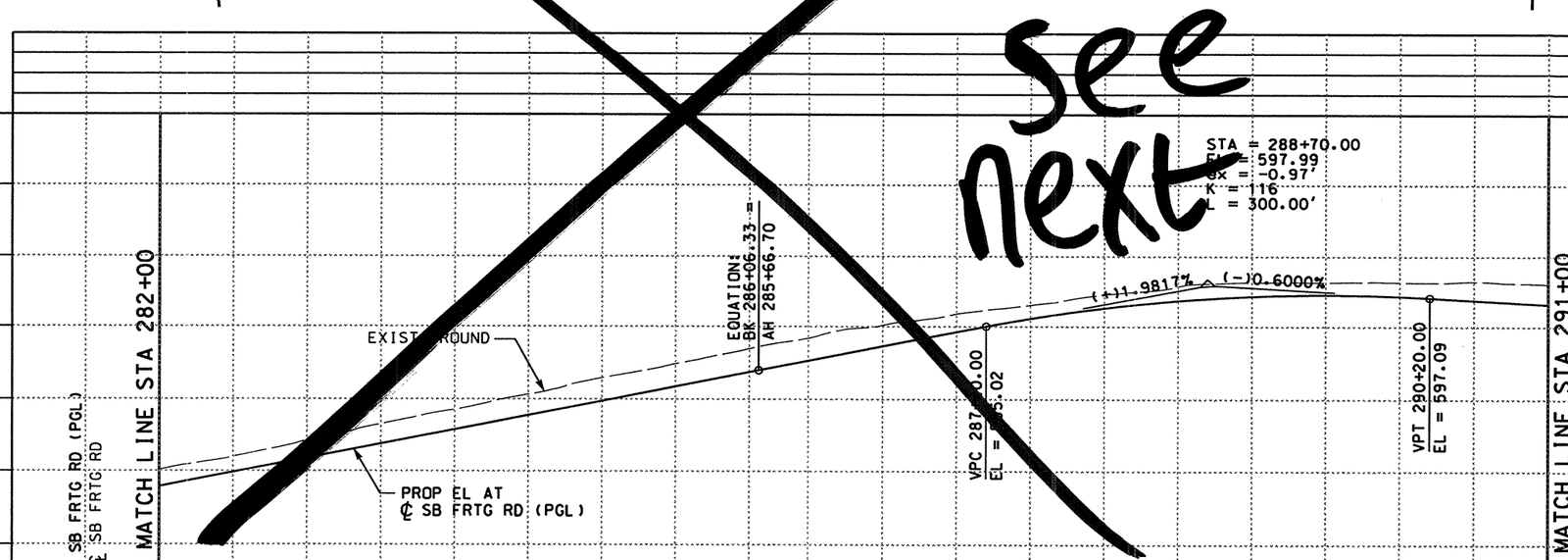
REF FILE(S): j011op01.utl, utl LV ON = 1-63
j011op01.eop, eop LV ON = 1-17,19-63
j011op01.bck, bck LV ON = 2-3,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-10,33-39,50
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

b03ppp68.dgn-08 HOUFILE023 \hchiv\cf0130\ 5/8/2003





See next

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERTS

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 282+00 TO
STA 291+00

SHEET 14 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	354
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

REF FILE(S): j011op01.uti, uti LV ON = 1-63
j011op01.eop, eop LV ON = 1-17.19-63
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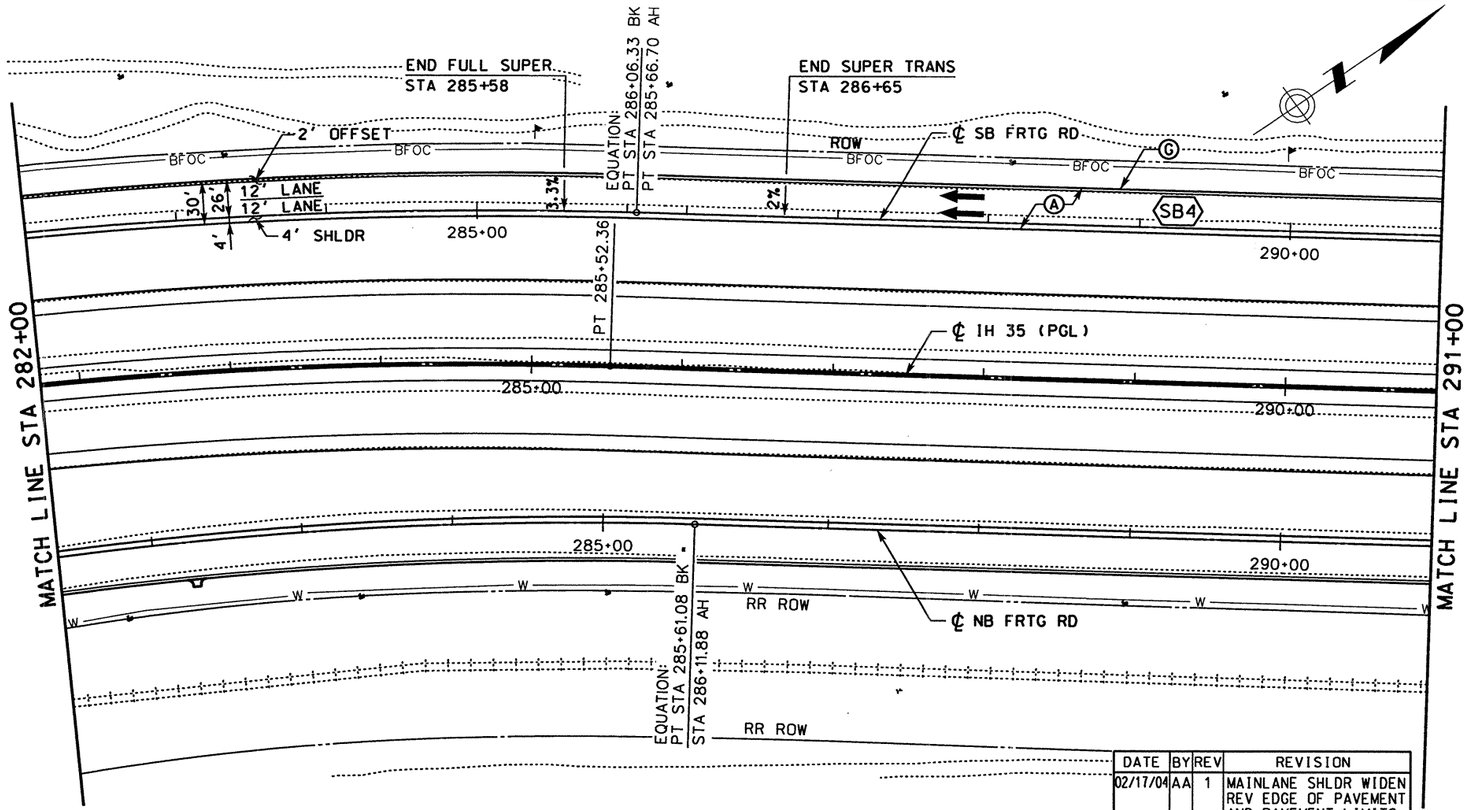


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

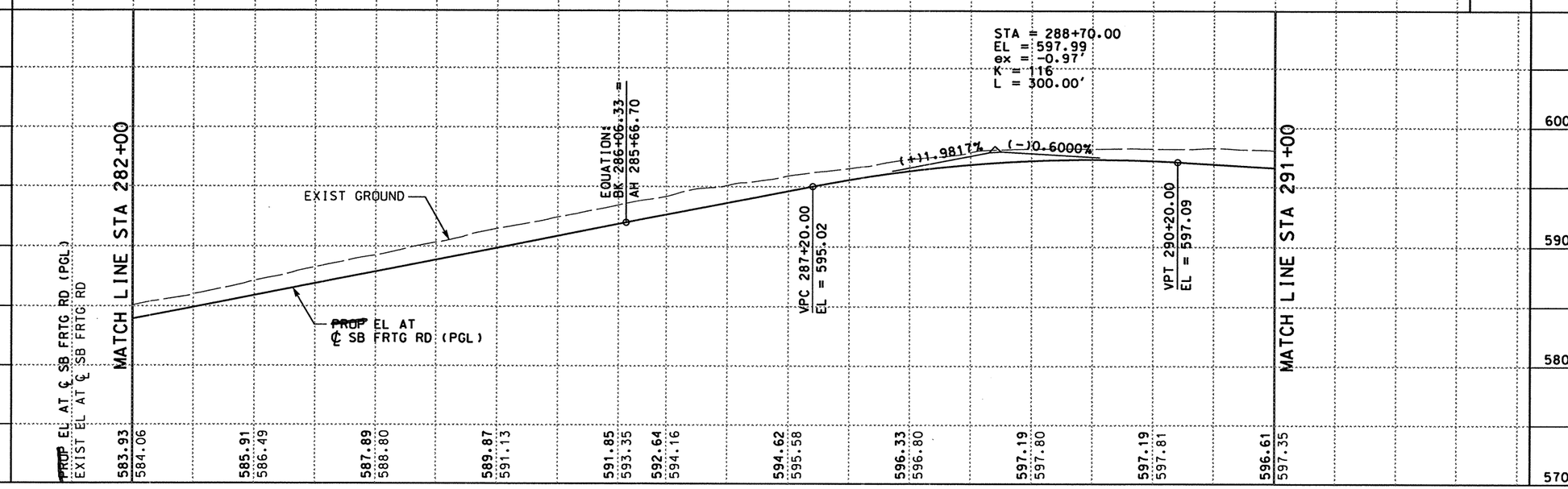
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

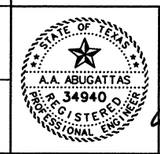
NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



SCALE: 1" = 100' HORIZ
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 282+00 TO
STA 291+00

SHEET 14 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	354
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j0110p01.utl, utl LV ON = 1-63
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j0110p01.bck, bck LV ON = 2-3,9,10,14,17,20,21,25,28
j0110p01.alg, alg LV ON = 1-10,33-39,50
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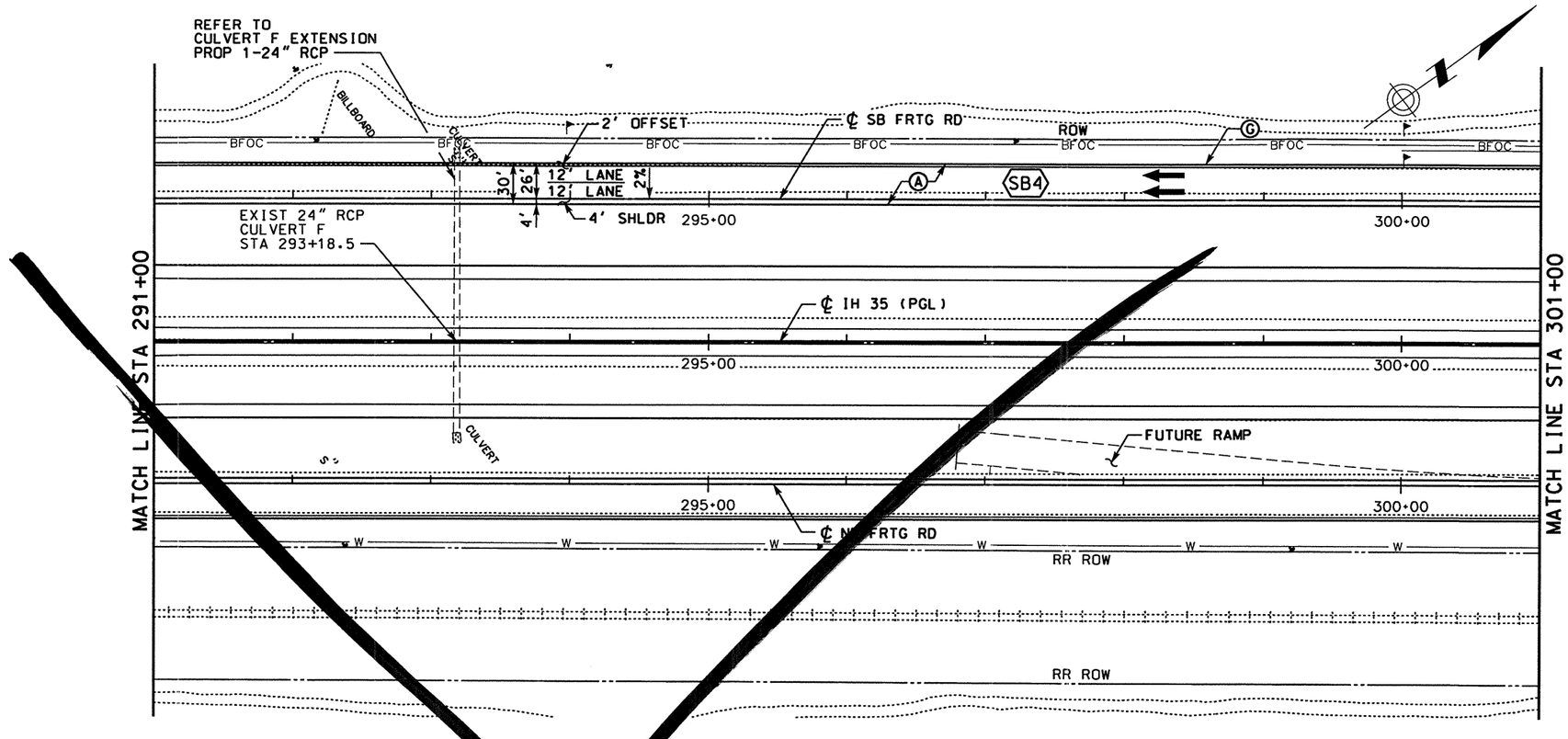
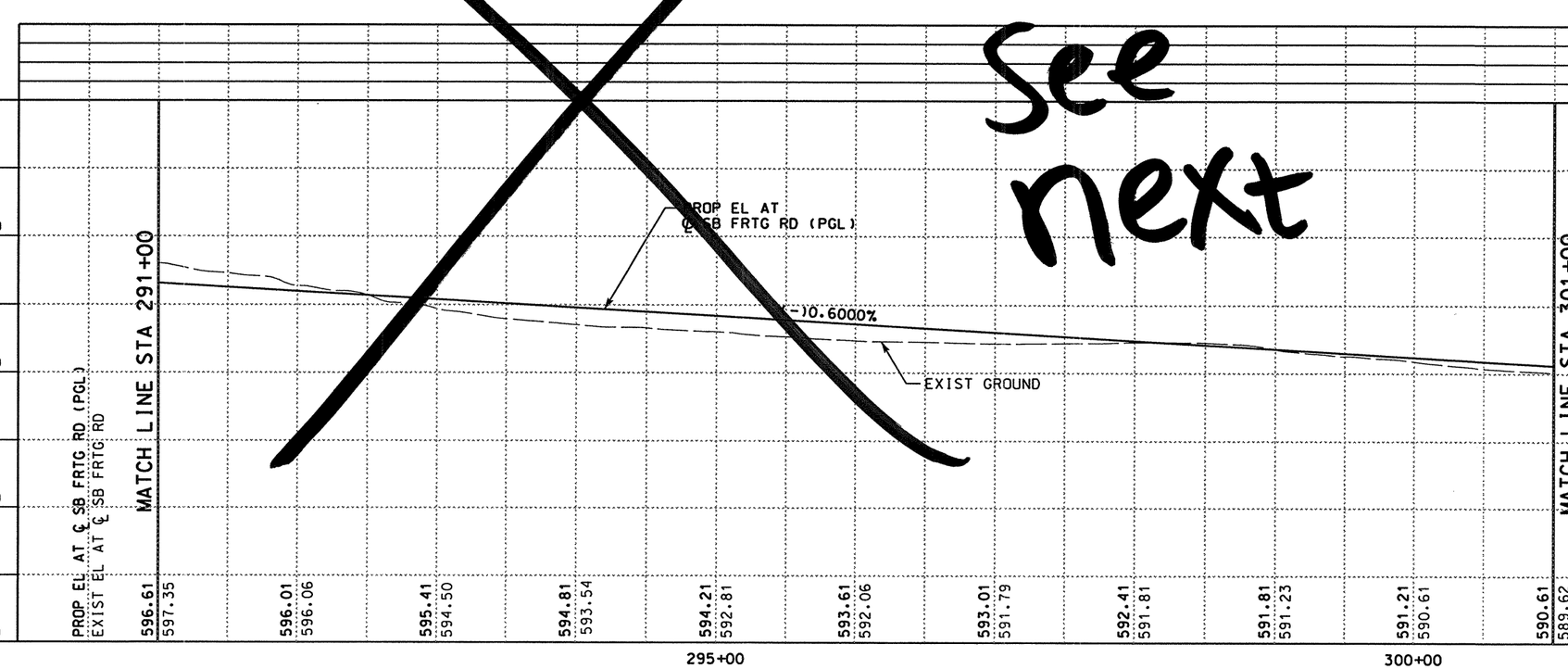


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



See next

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 291+00 TO
STA 301+00

SHEET 15 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	355
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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REF FILE(S): j01lop01.uti, uti LV ON = 1-63
LV ON = 1-17,19-63
LV ON = 2-3,9,10,14,17,20,21,25,28
LV ON = 1-10,33-39,50
LV ON = 9-11,32,33,45,47,57,58,60-62
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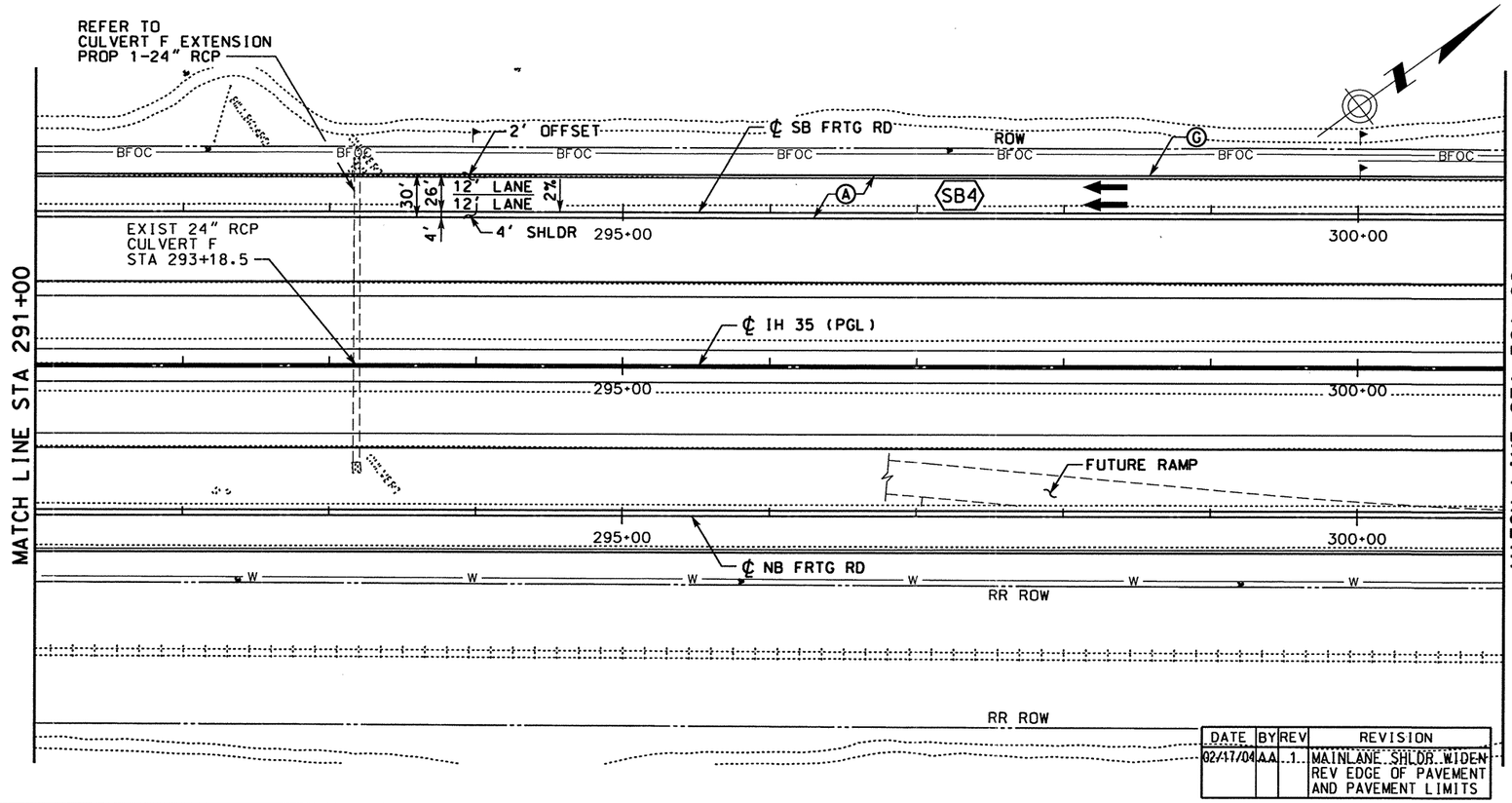


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

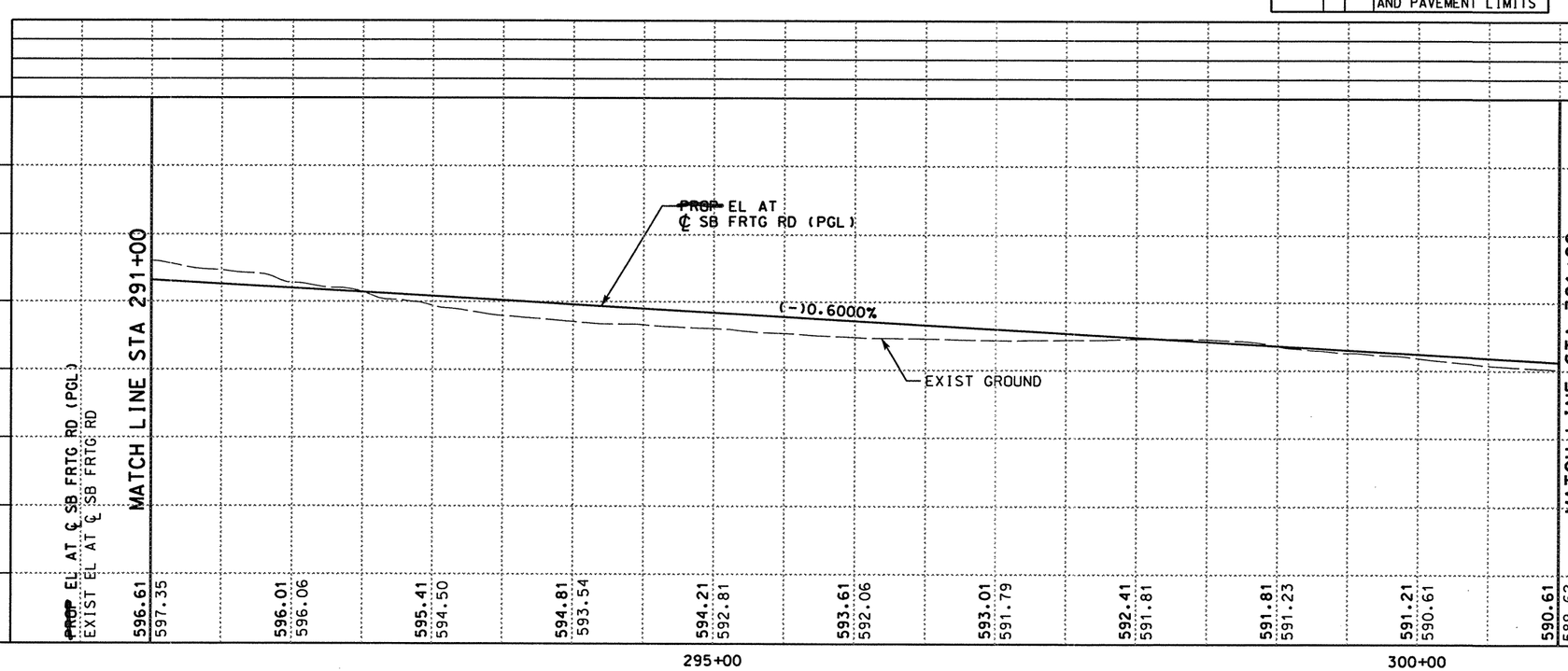
LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 291+00 TO
STA 301+00

SHEET 15 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	355
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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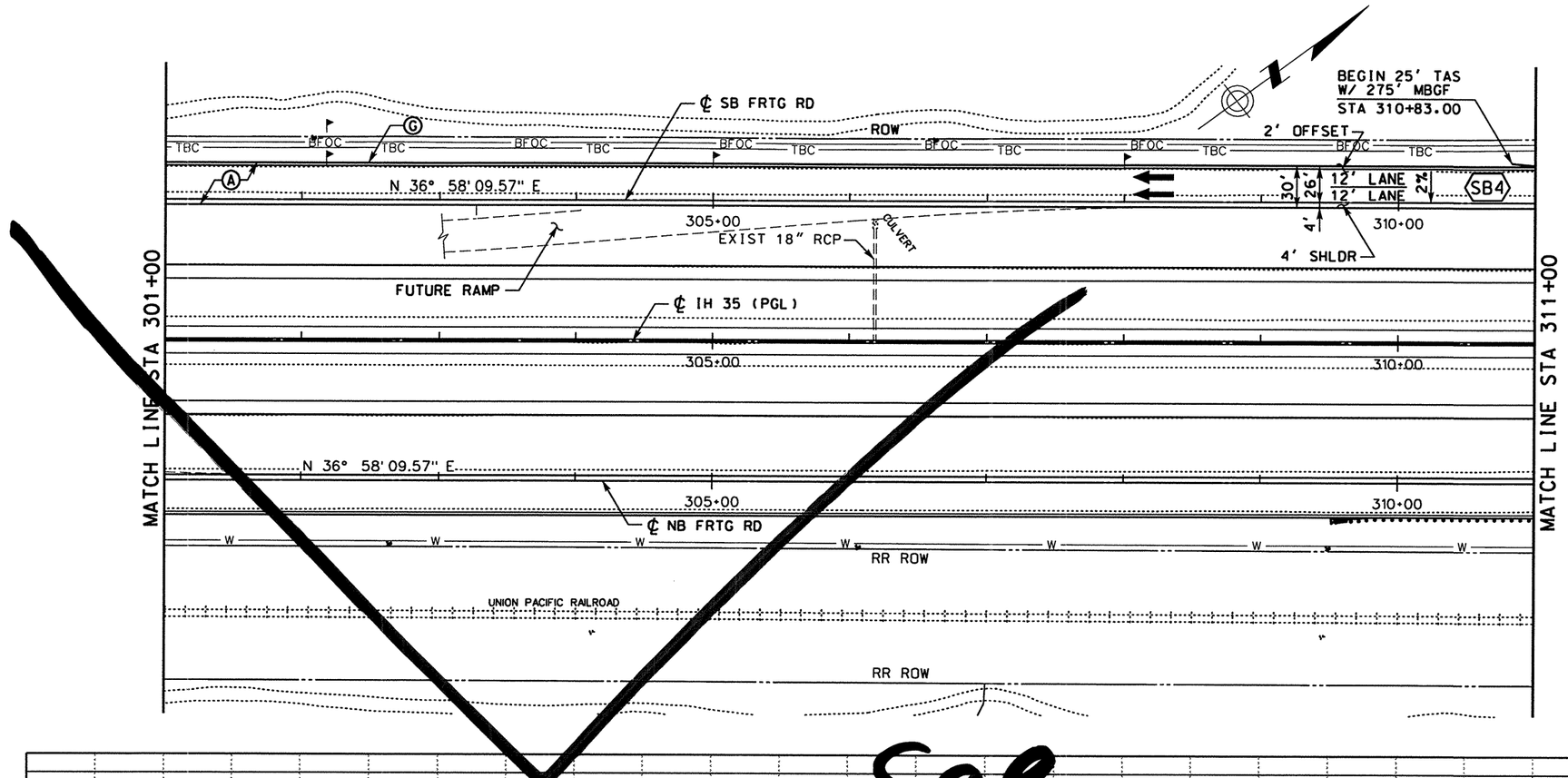
j01lop01.alg, alg LV ON = 1-10,33-39,50
j01lop01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

b03ppp70.dgn-05 HOUFILE023 \hciwil\c0130\ 3/4/2004

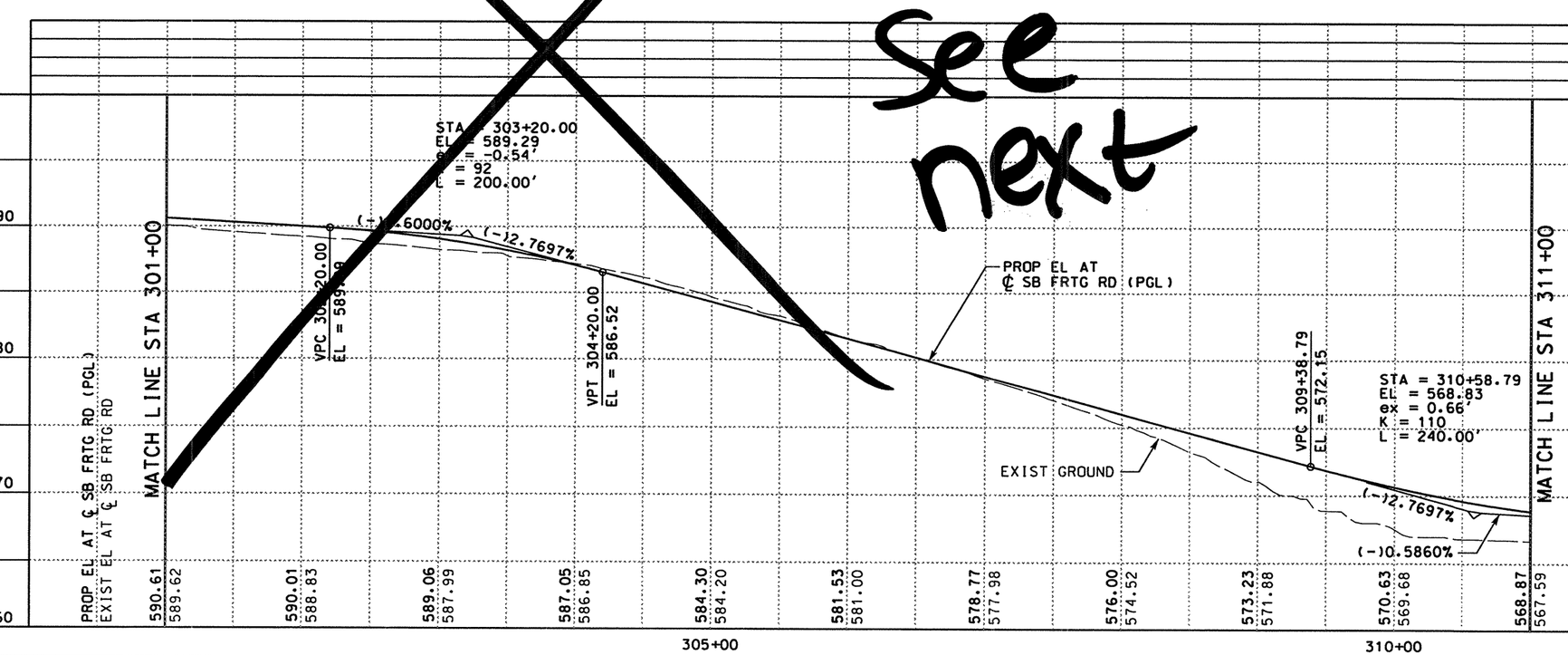


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.



See next

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 301+00 TO
STA 311+00

SHEET 16 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	356
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

5/8/2003

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j01lop01.bdr, bdr
REF FILE(S): milojnt.row, row

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j01lop01.alg, alg LV ON = 1-10.33-39.50
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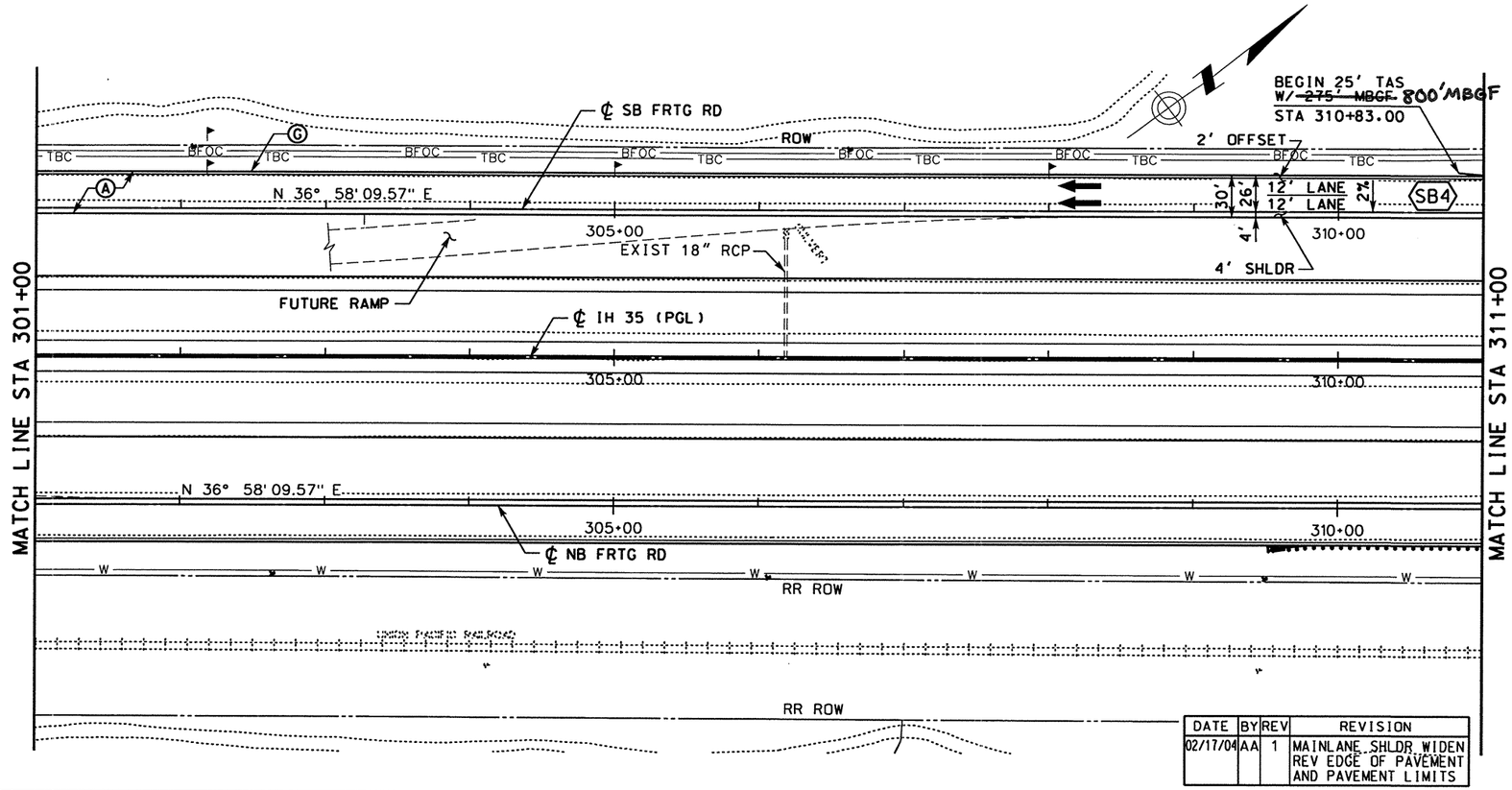


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

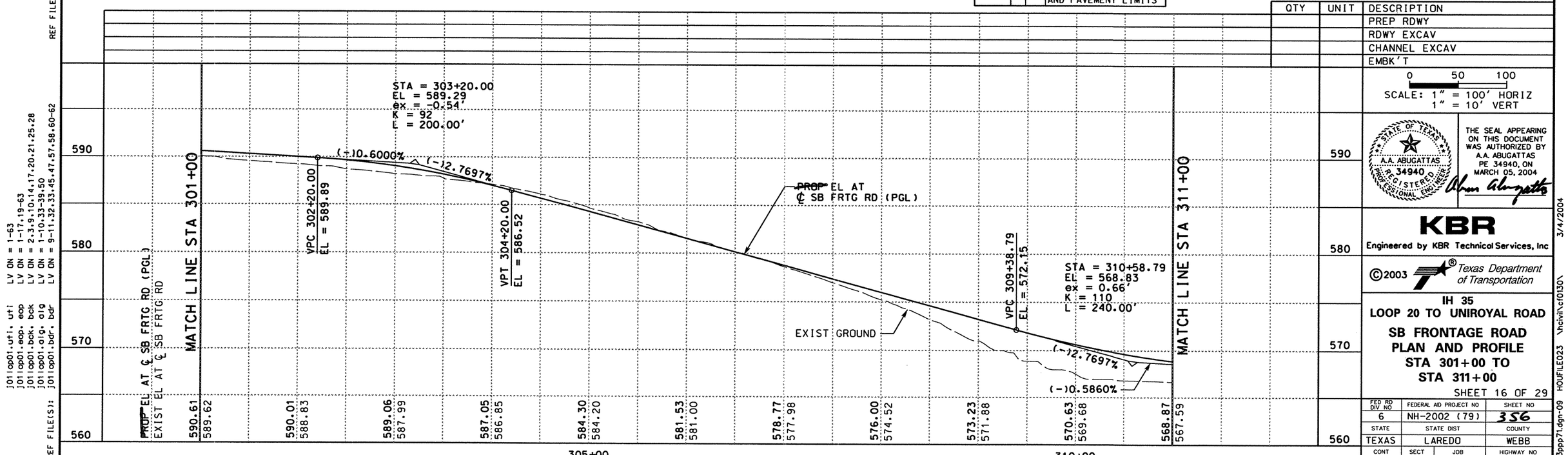
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 301+00 TO
STA 311+00

SHEET 16 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	356
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j011op01.uti; uti LV ON = 1-63
j011op01.eop; eop LV ON = 1-17,19-63
j011op01.bck; bck LV ON = 2-3,9,10,14,17,20,21,25,28
j011op01.alg; alg LV ON = 1-10,33-39,50
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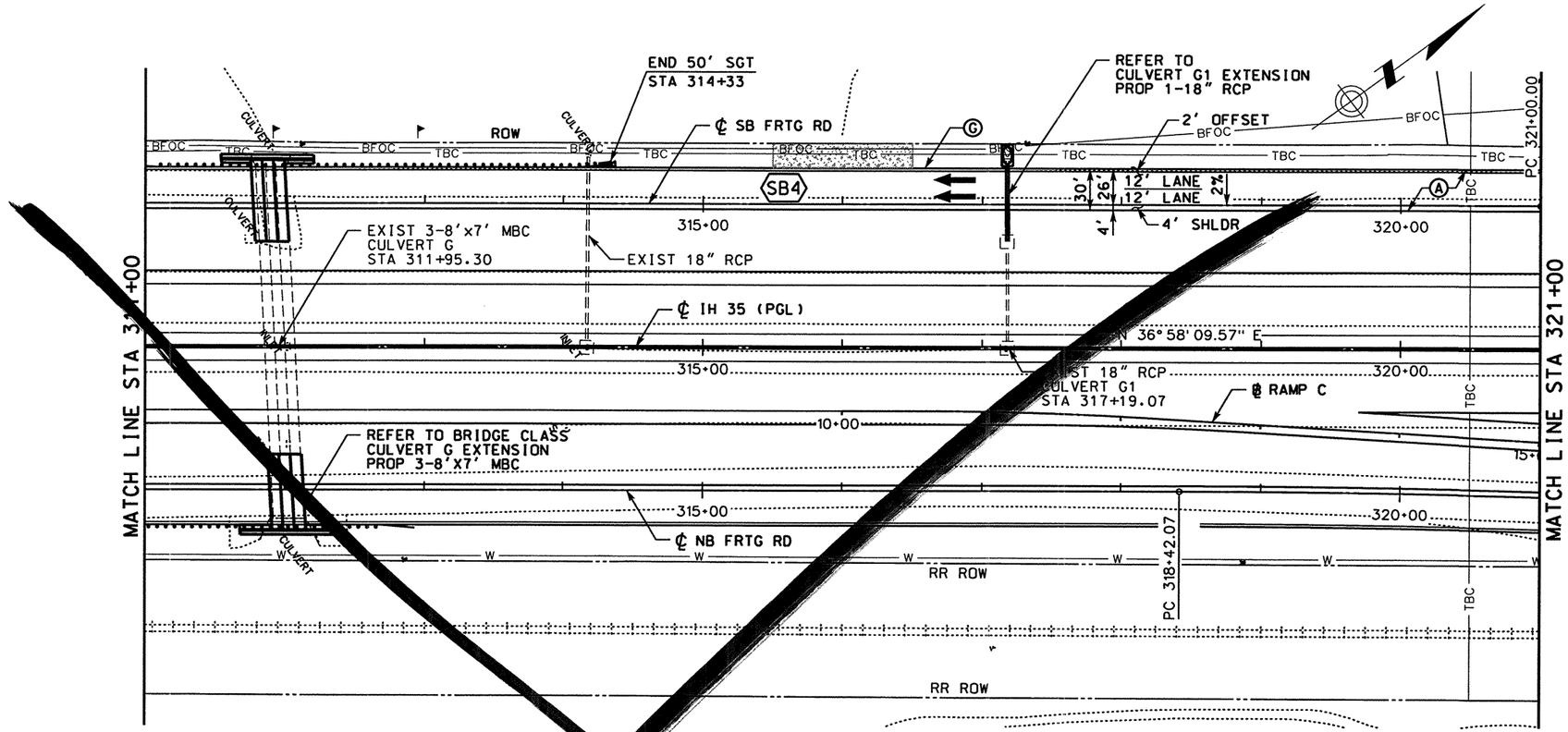
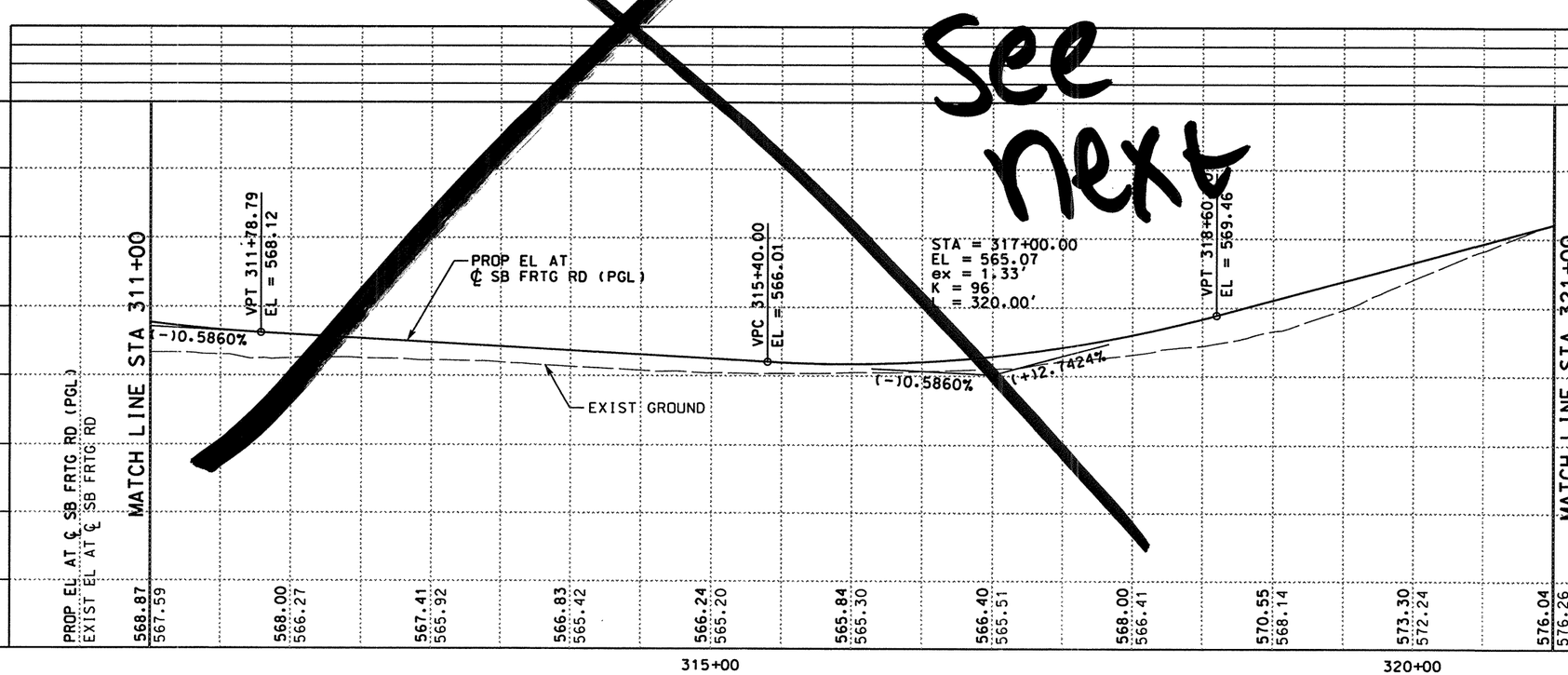


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



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QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 311+00 TO
STA 321+00
SHEET 17 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		357
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.pro, pro LV ON = 1-63
j011op01.eop, eop LV ON = 1-17,19-63
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5/8/2003
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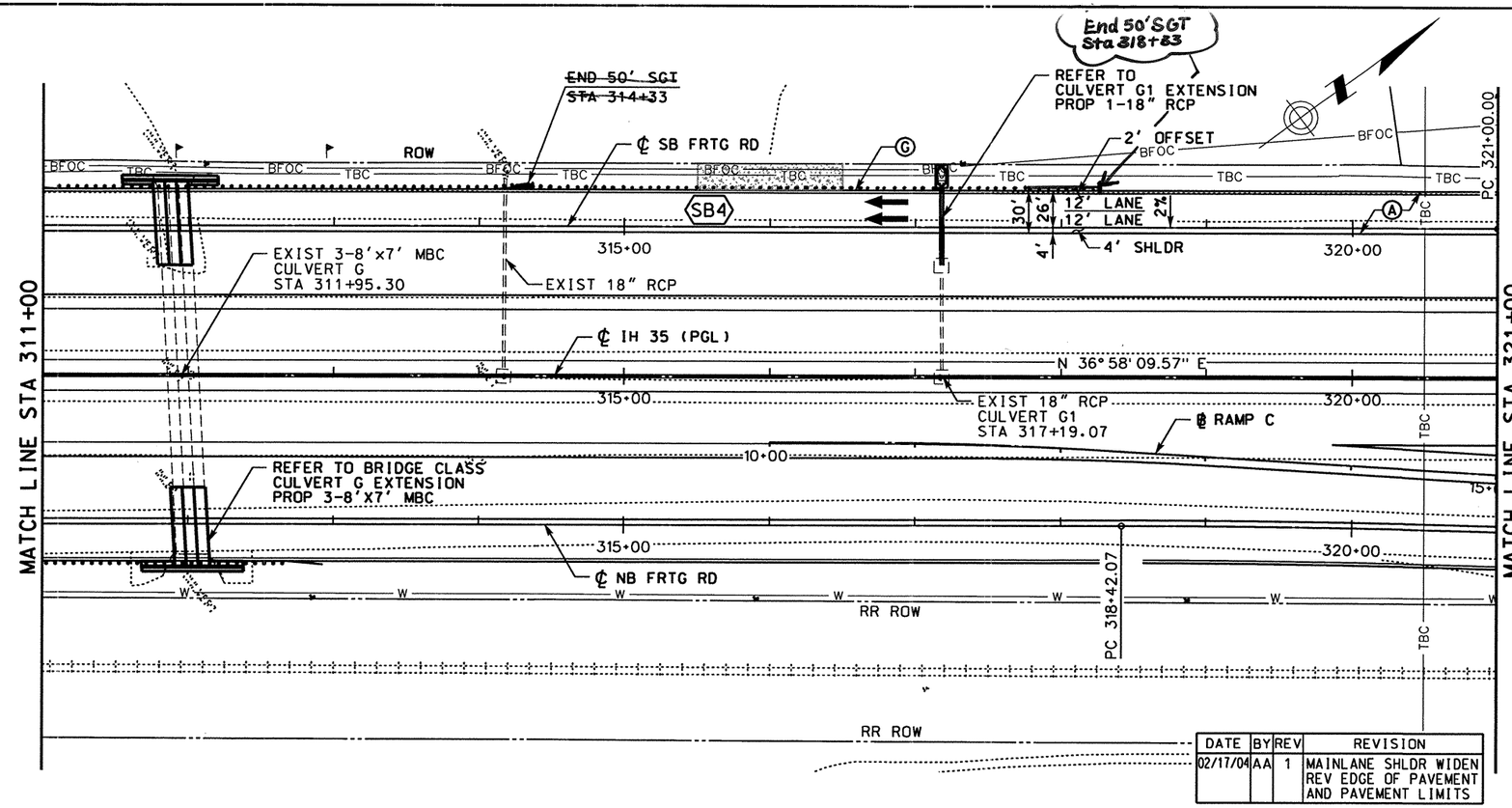


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

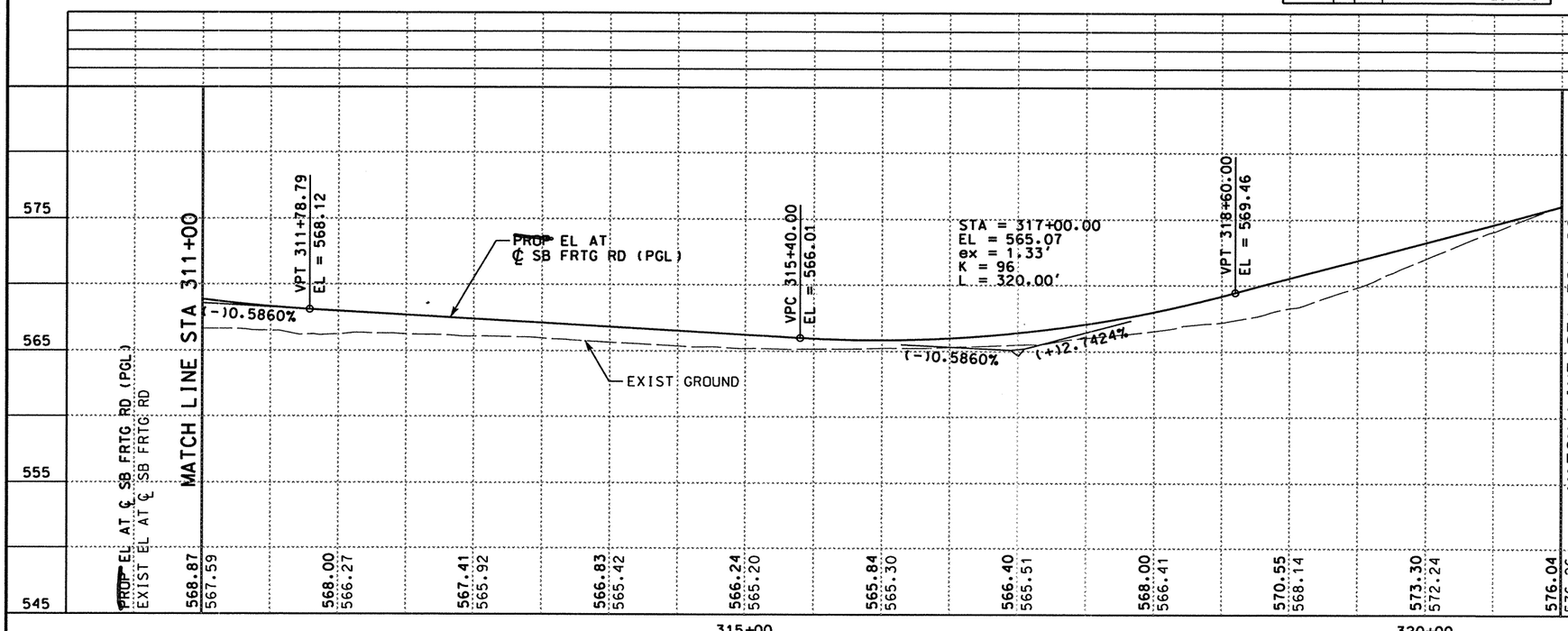
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE ~~"PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 311+00 TO
STA 321+00

SHEET 17 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		357
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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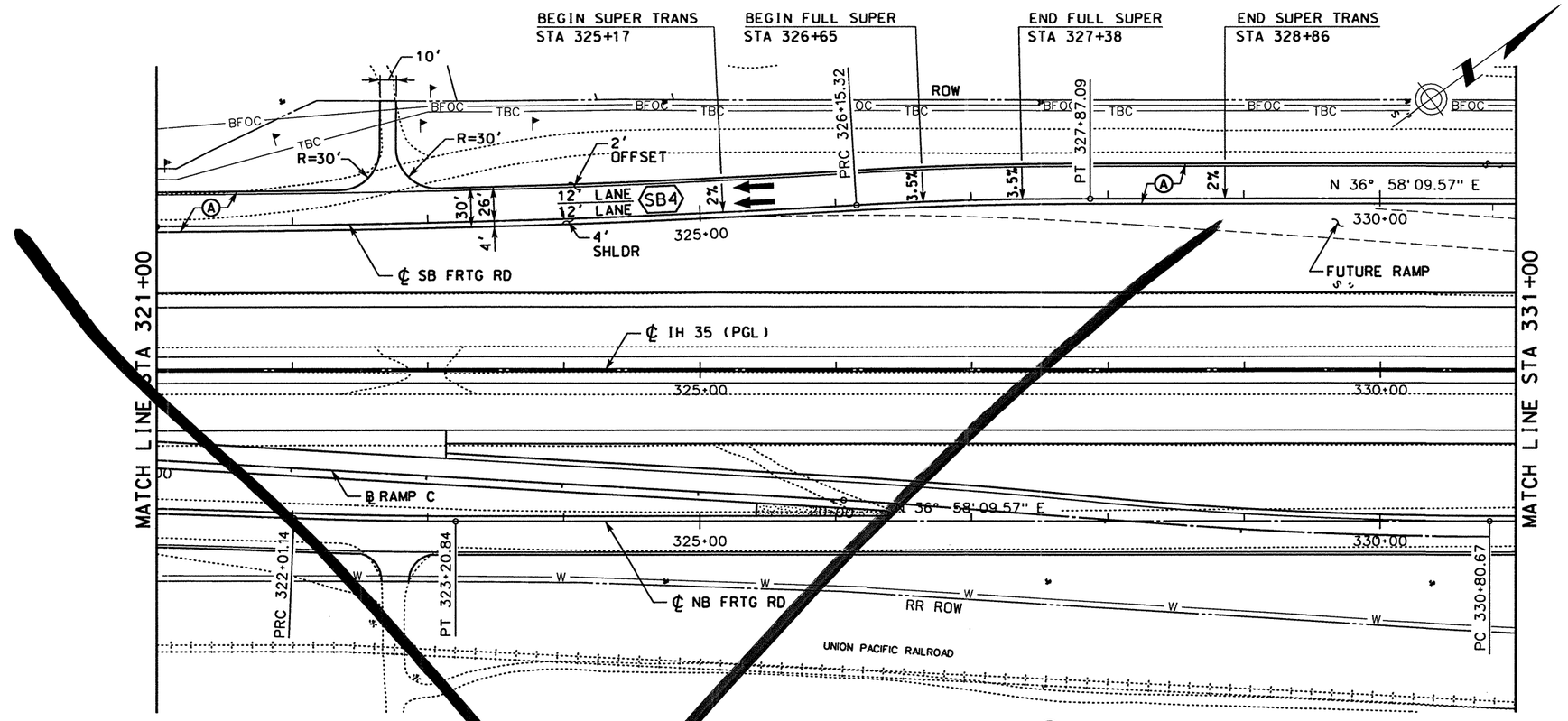

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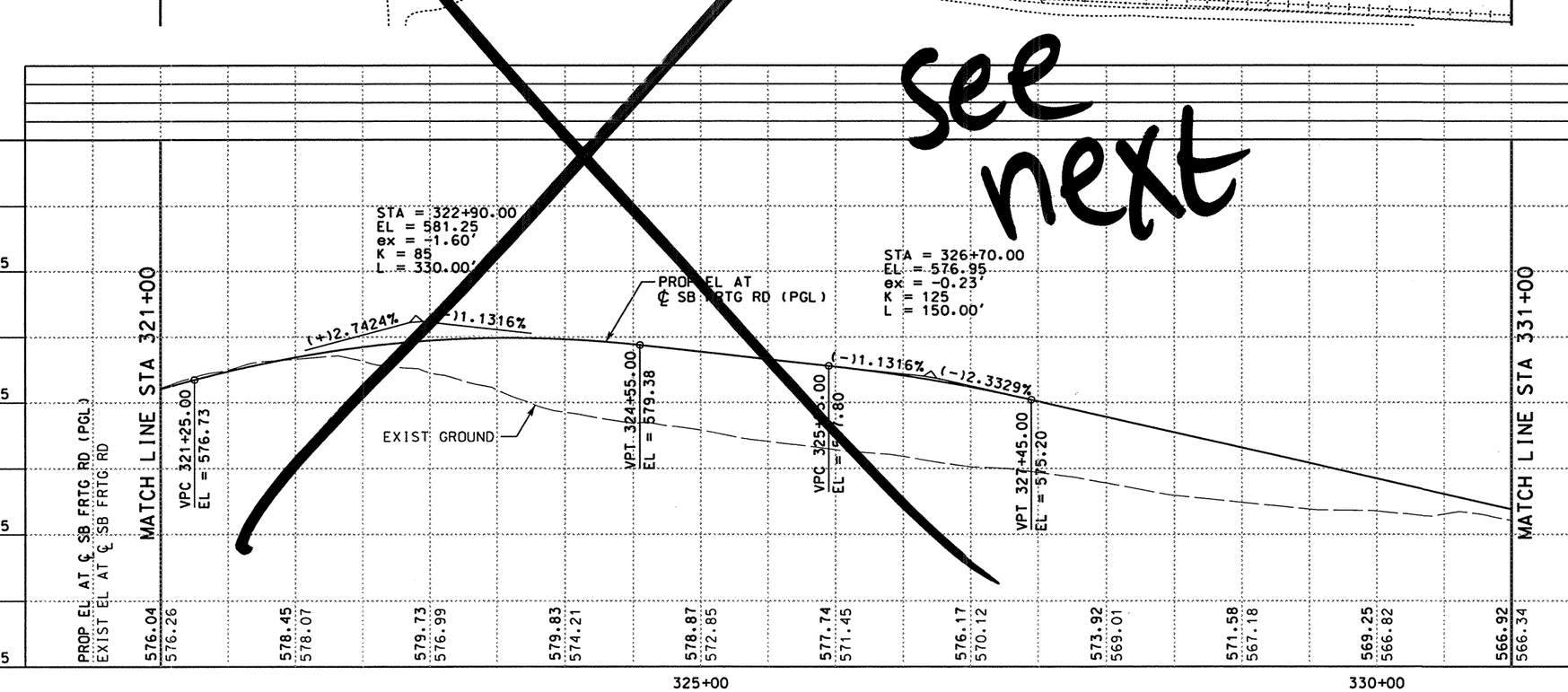

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "DRIVEWAY DETAIL" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 321+00 TO
STA 331+00

SHEET 18 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	358
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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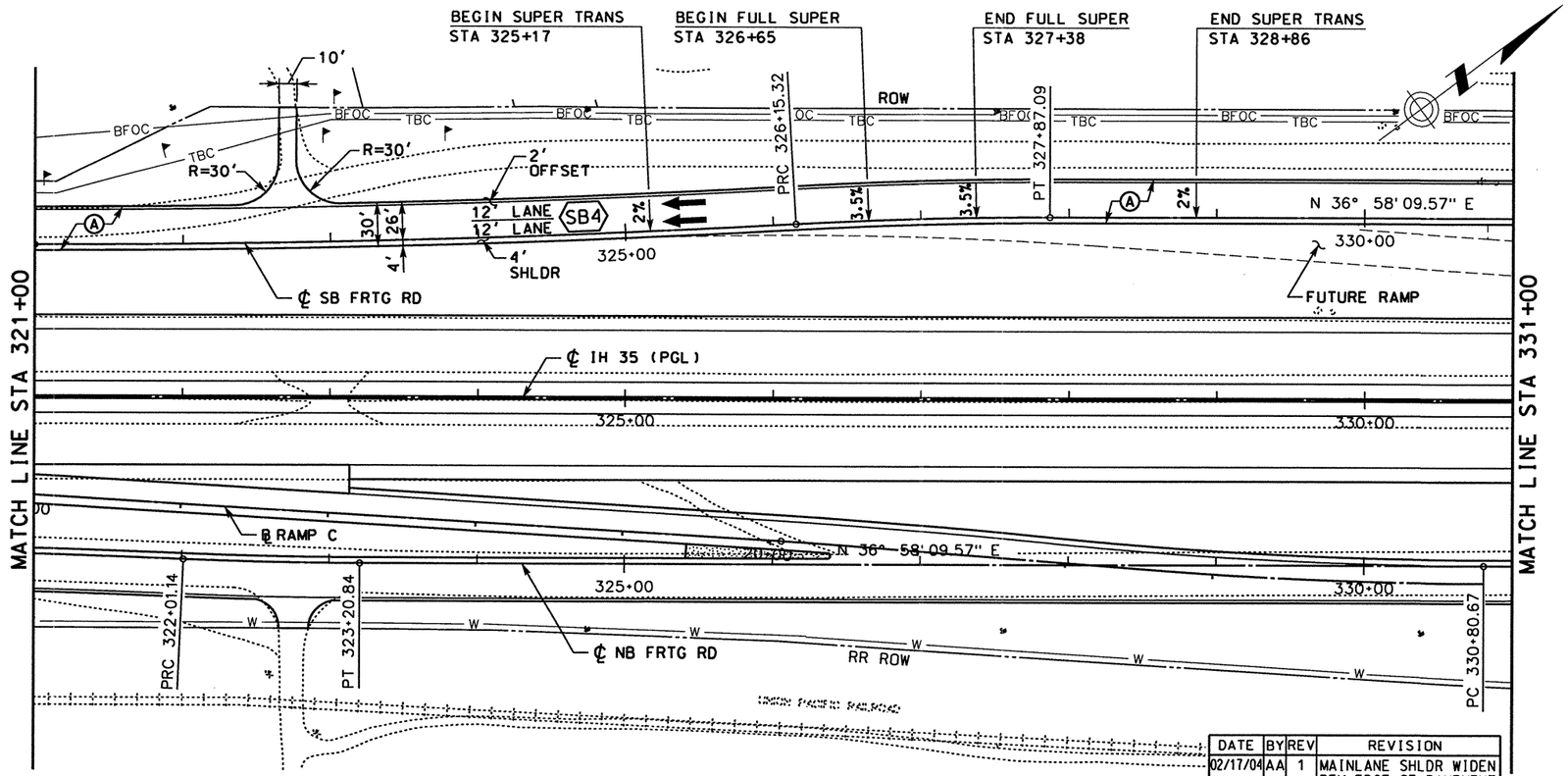


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

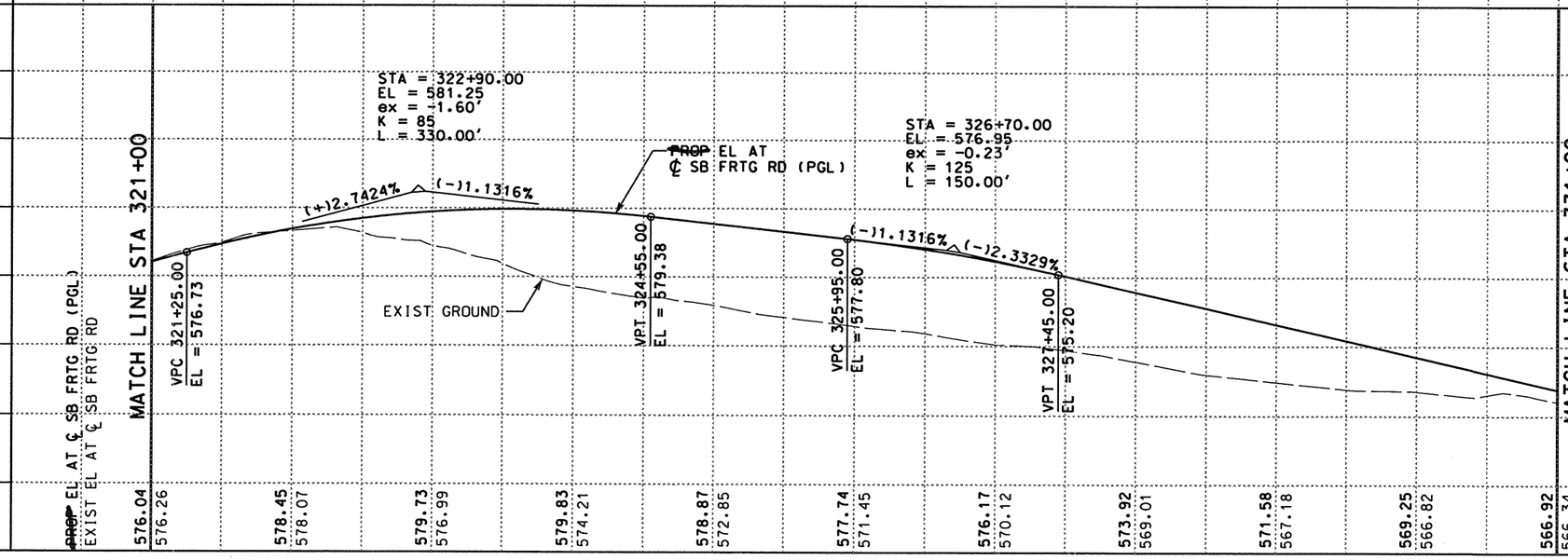
LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "DRIVEWAY DETAIL" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 321+00 TO
STA 331+00

SHEET 18 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	358
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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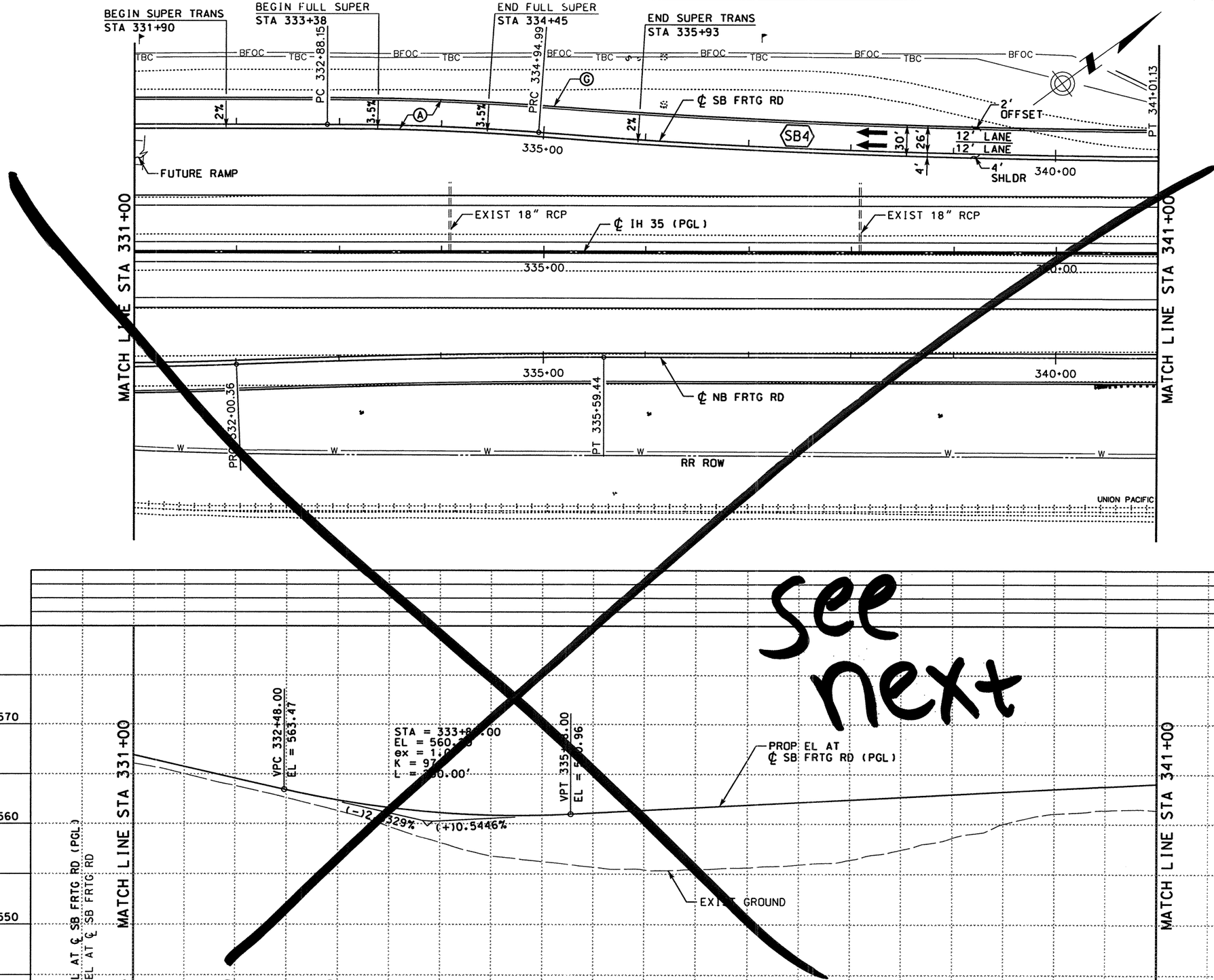

see next

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 331+00 TO
STA 341+00

SHEET 19 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	359
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

5/8/2003
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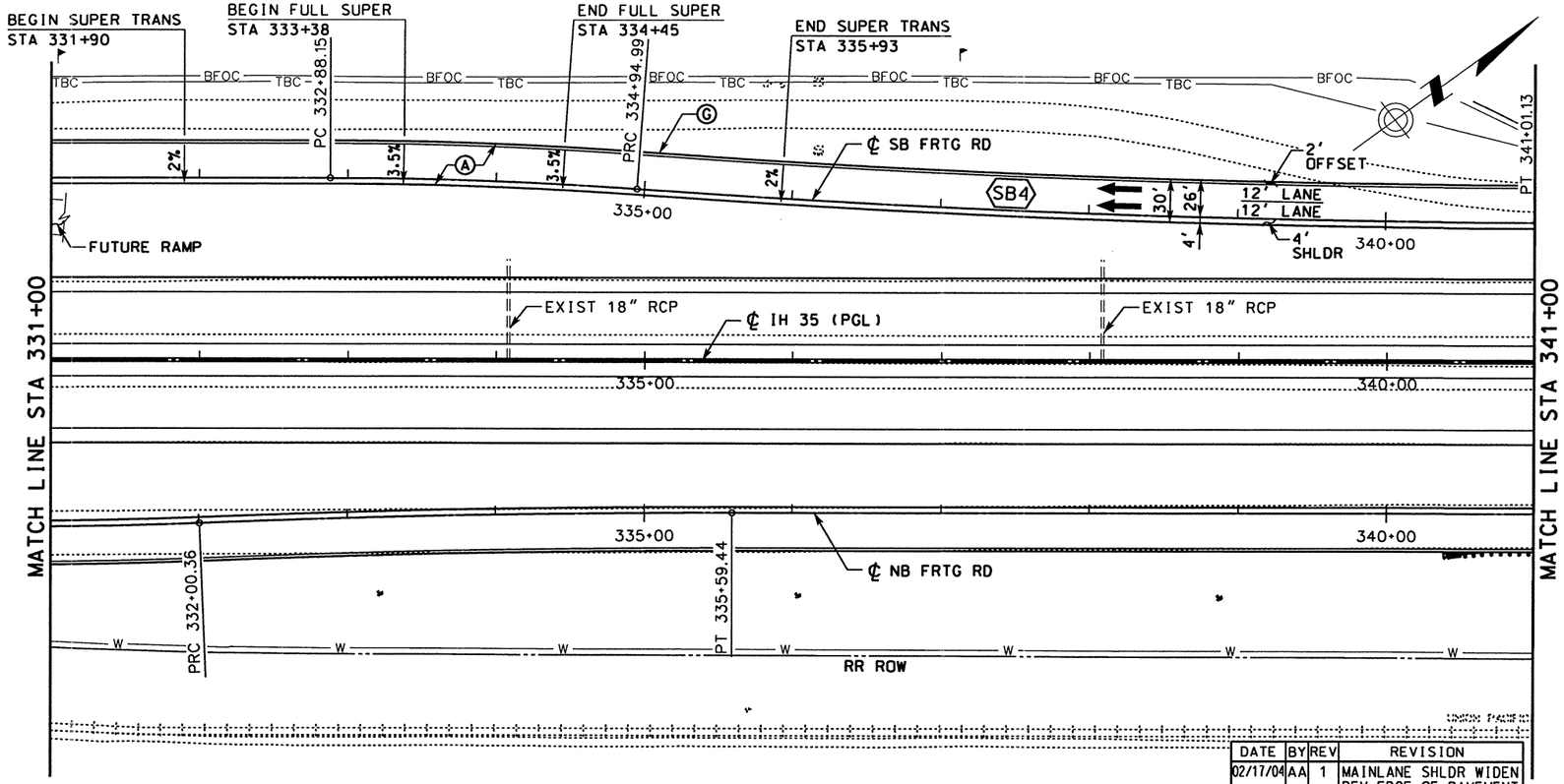

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
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- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
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- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
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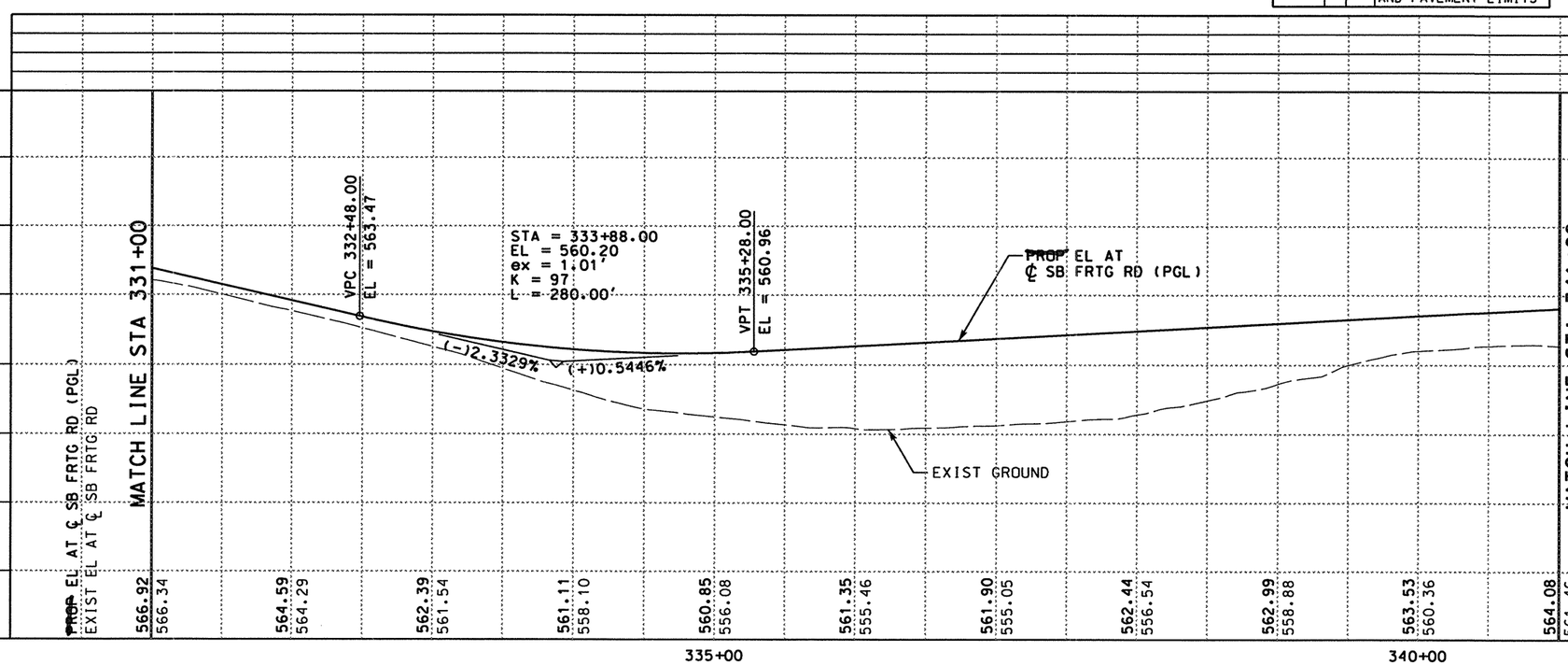
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 331+00 TO
STA 341+00

SHEET 19 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	359
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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j011op01.eop, eop LV ON = 1-17,19-63
j011op01.bck, bck LV ON = 2-3,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-10,33-39,50
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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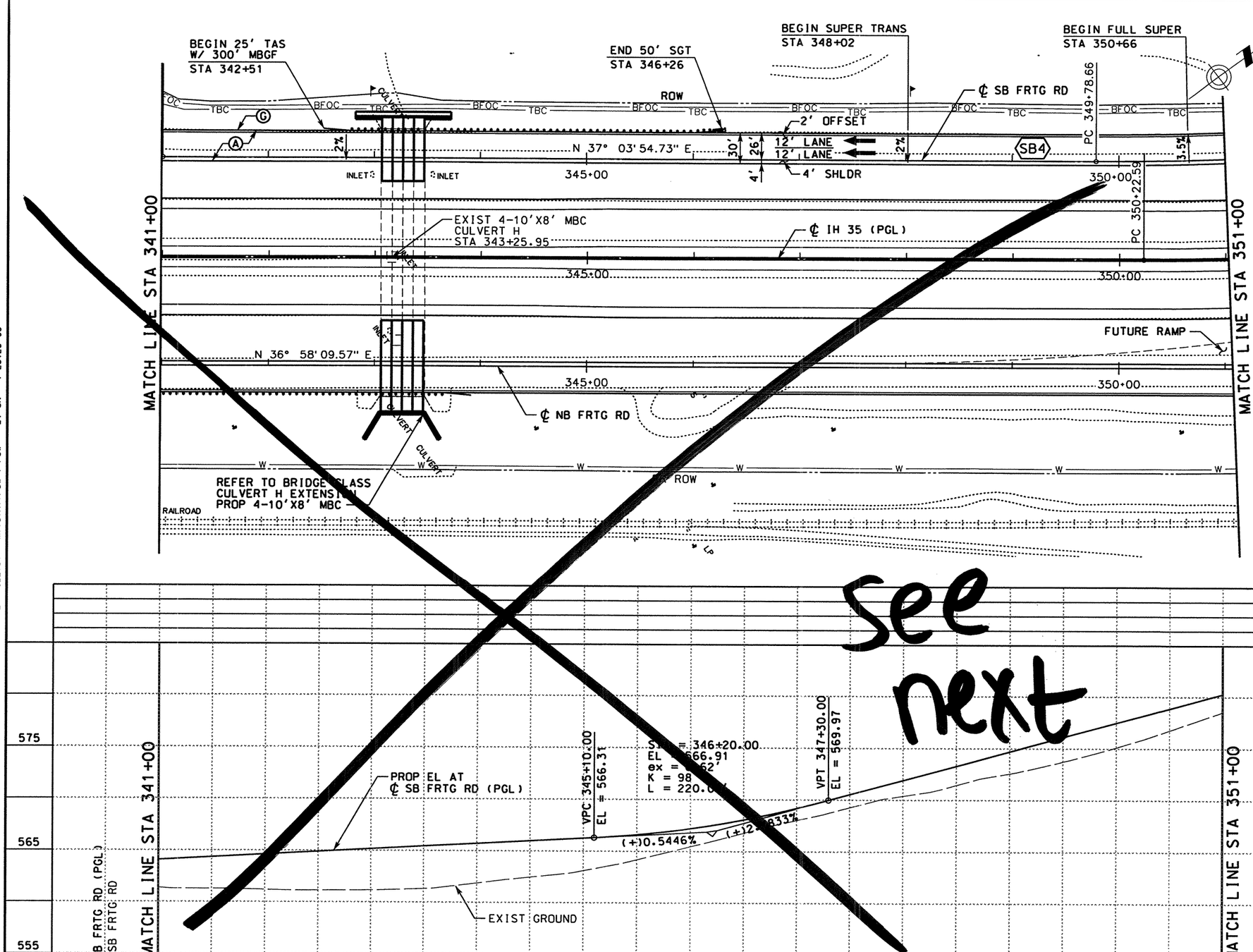

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 341+00 TO
STA 351+00

SHEET 20 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	360
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

5/8/2003

REF FILE(S): j01lop01.uti, uti LV ON = 1-63
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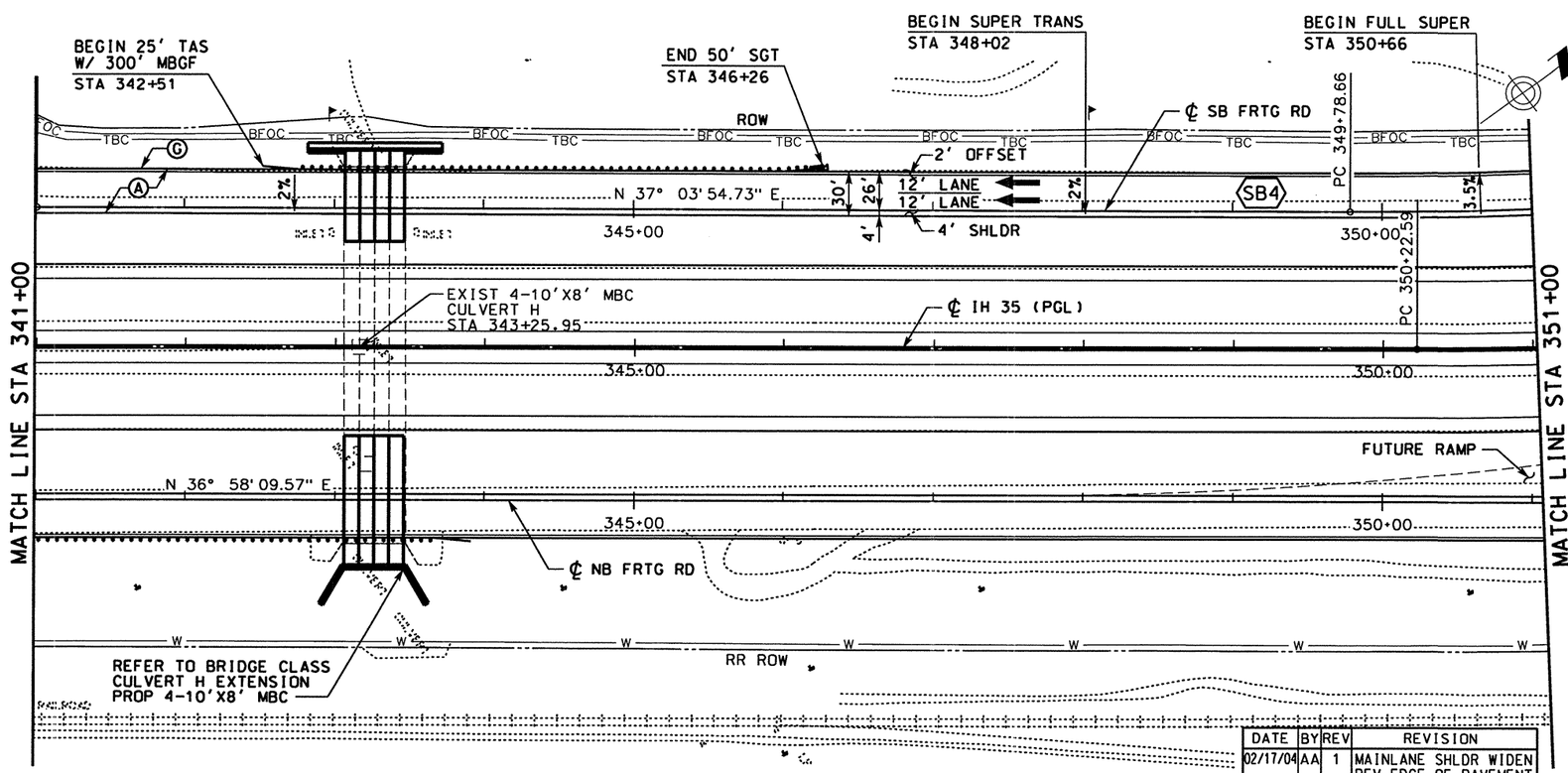


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

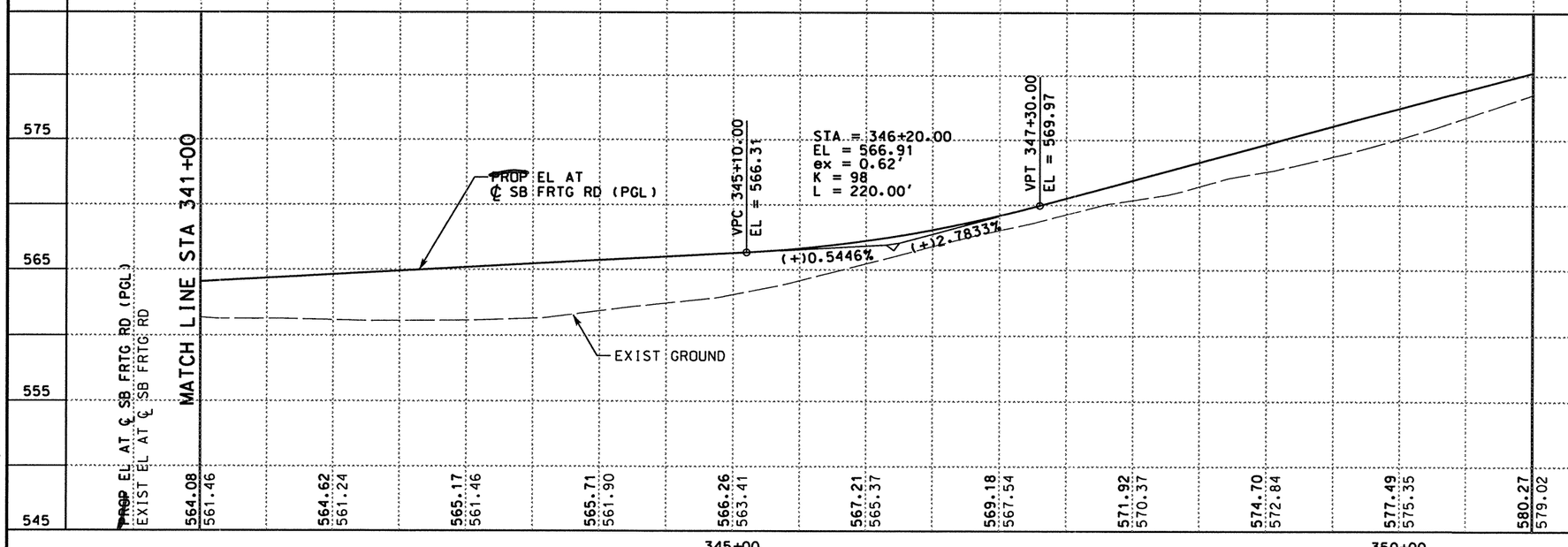
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

Abm Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 341+00 TO
STA 351+00

SHEET 20 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	360
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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j011op01.bck, bck LV ON = 2,3,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-10,33-39,50
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
REF FILE(S): j011op01.utl, utl
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3/4/2004
HOUFILE023 \hciviI\c(0130\
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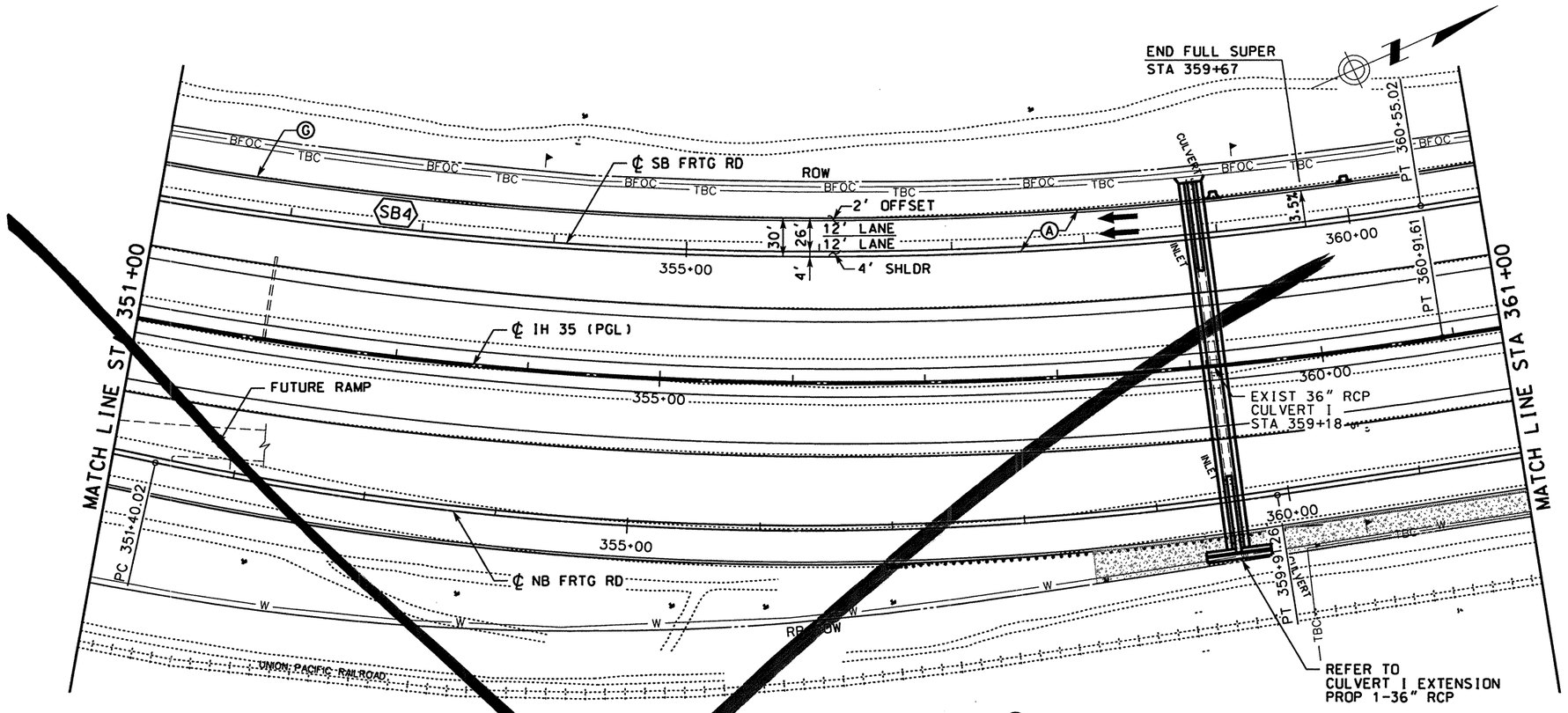
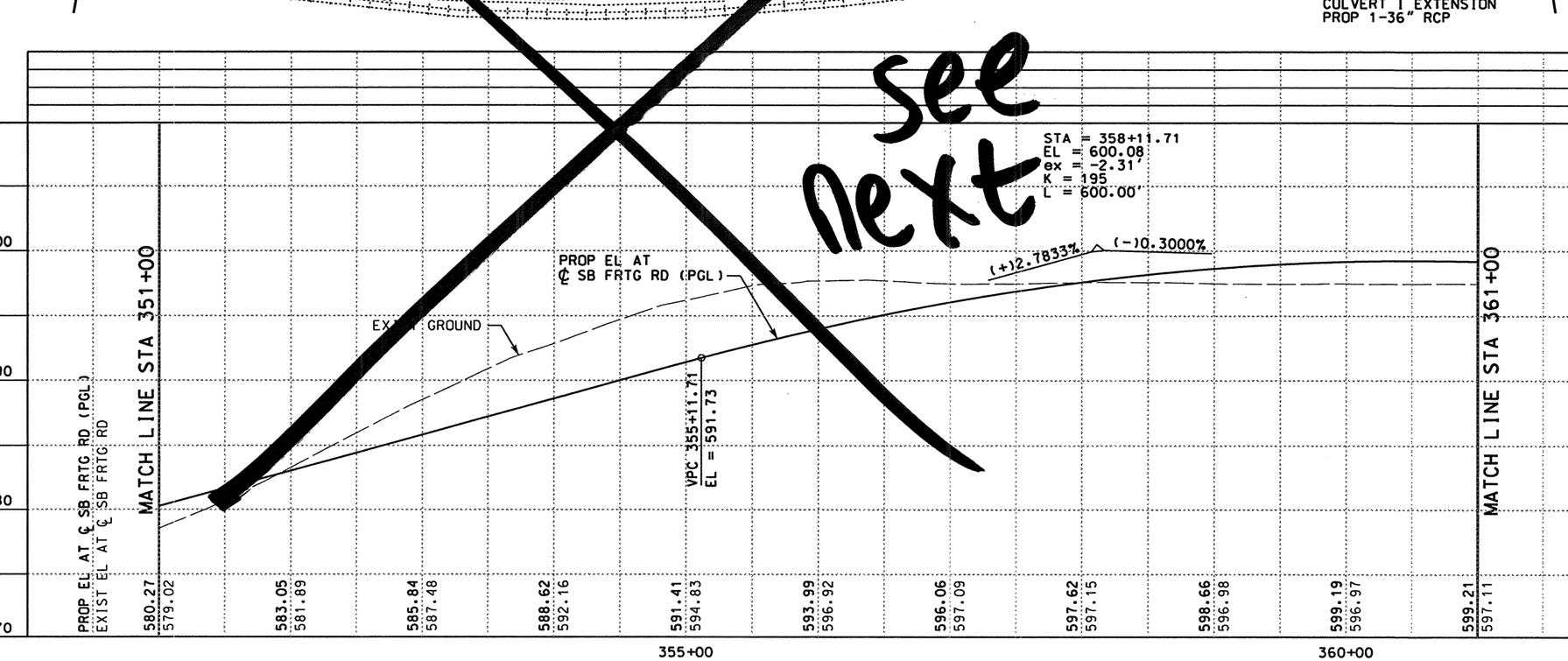


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
R 58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 351+00 TO
STA 361+00

SHEET 21 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	361
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

5/8/2003

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REF FILE(S): j0110p01.uti; uti LV DN = 1-63
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j0110p01.bck. bck LV DN = 2.3.9.10.14.17.20.21.25.28
j0110p01.alg. alg LV DN = 1-10.33-39.50
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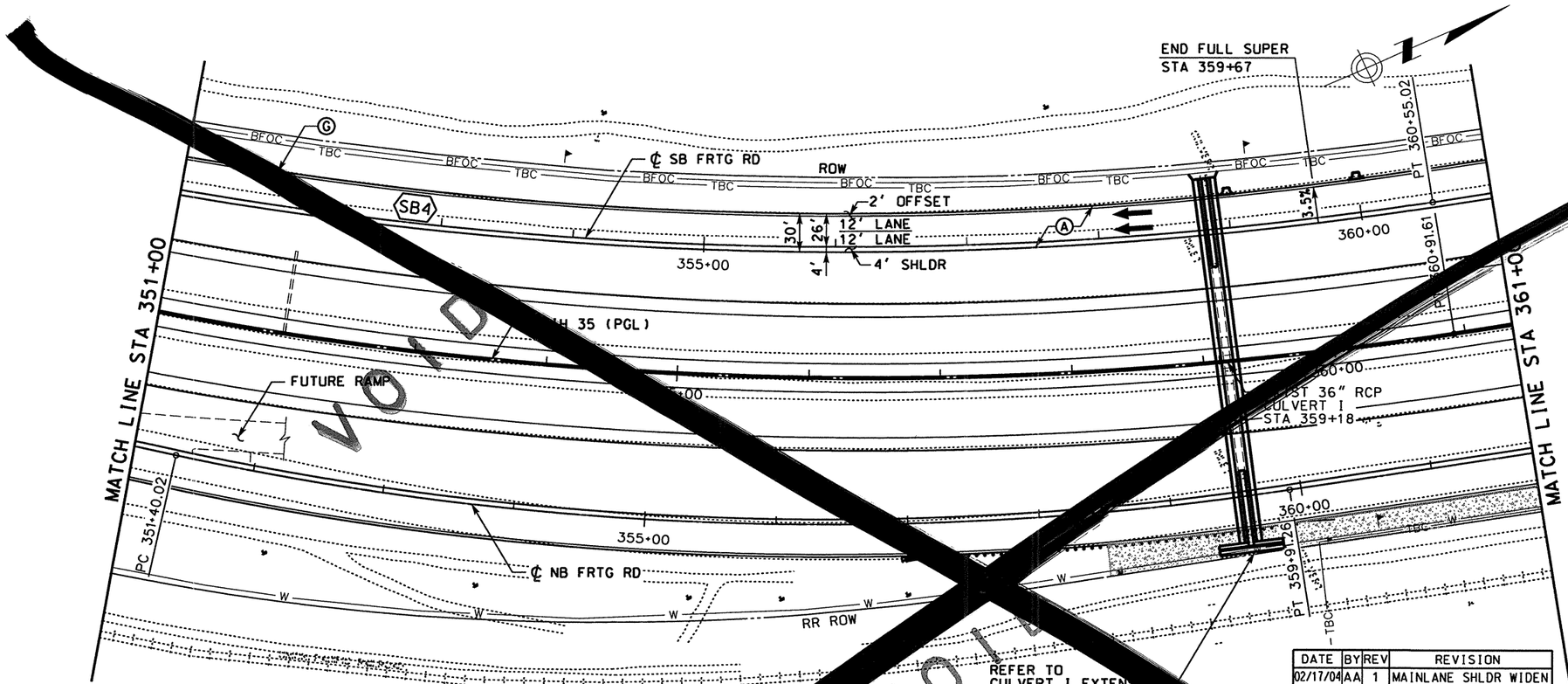


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

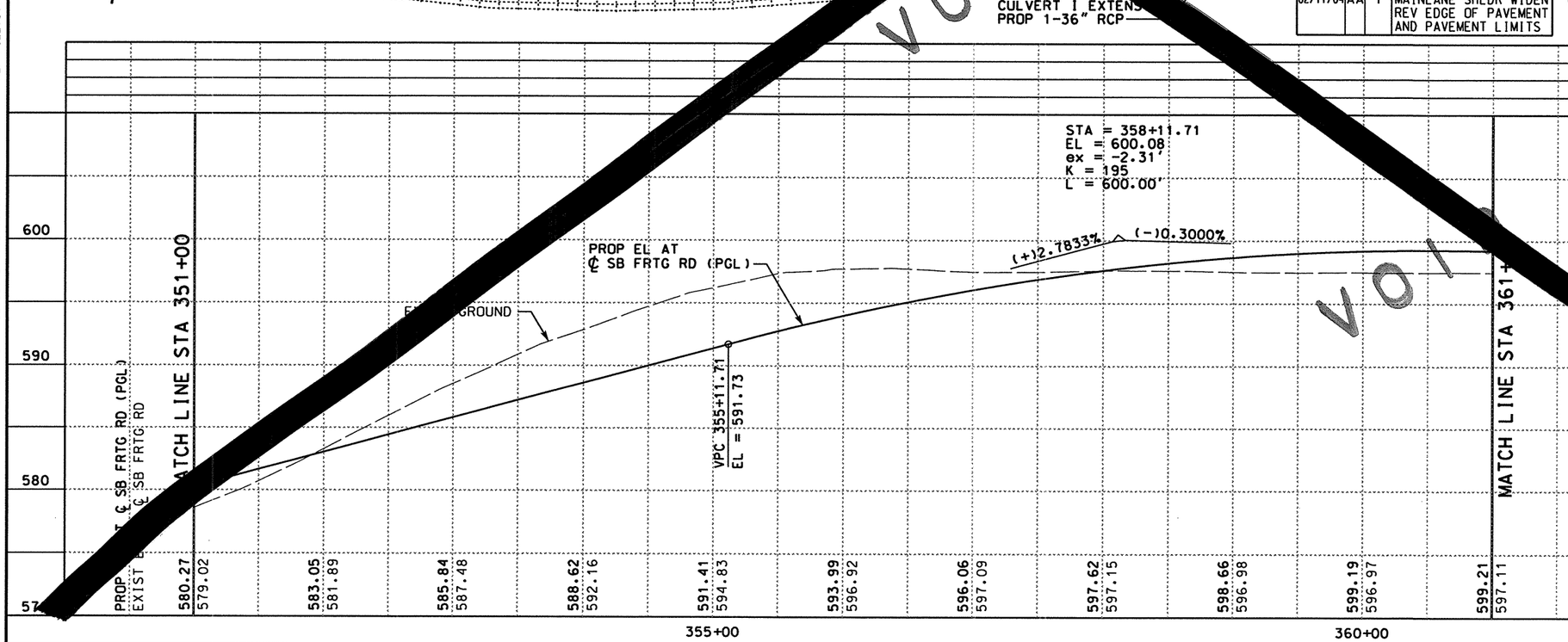
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE I CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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Engineered by KBR Technical Services, Inc

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IH 35
LOOP TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 351+00 TO
STA 361+
SHEET [illegible] OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	361
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

VOID

3/4/2004

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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j011op01.bck, bck LV ON = 2.3.9.10.14.17.20.21.25.28
j011op01.alg, alg LV ON = 1-10.33-39.50
j011op01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62

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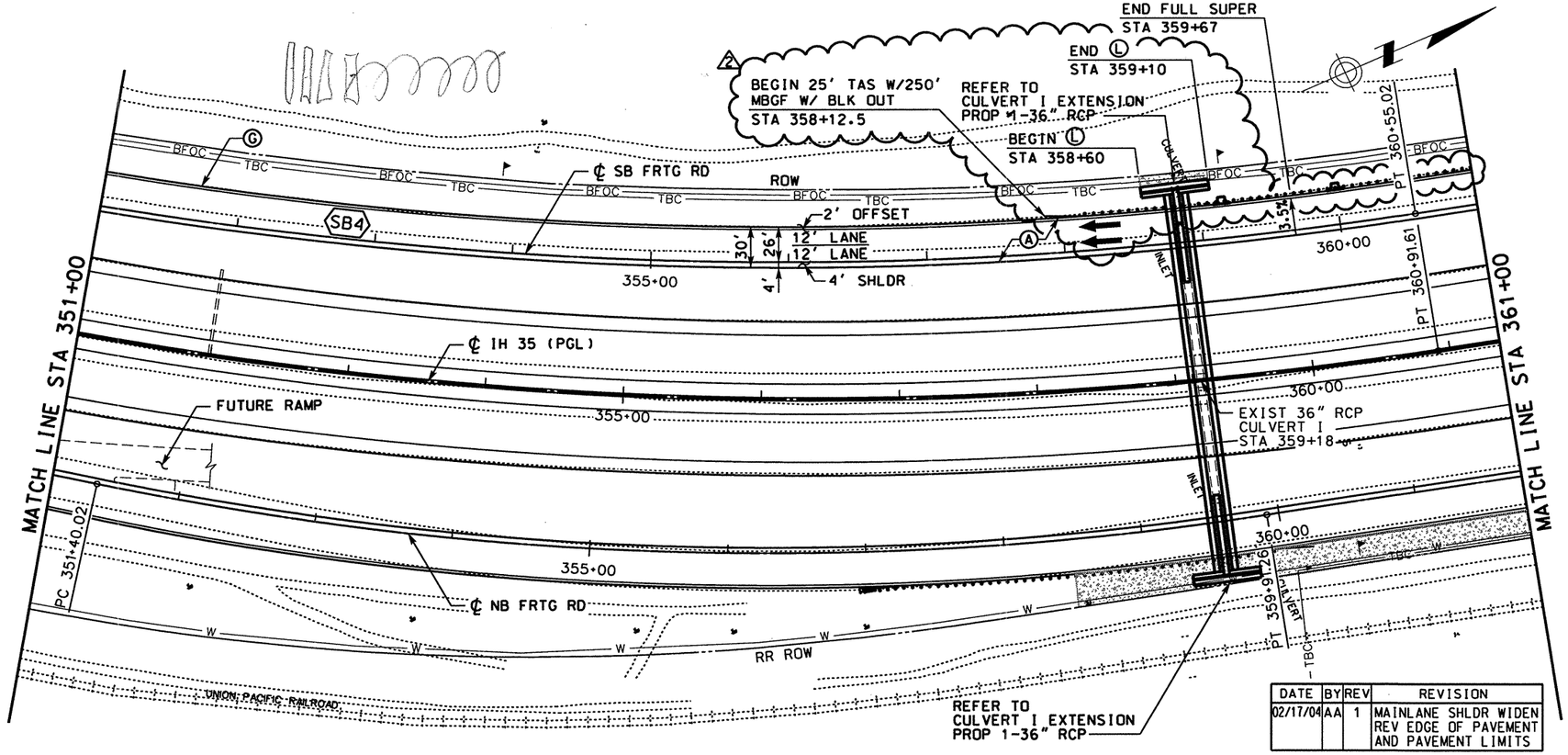


DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

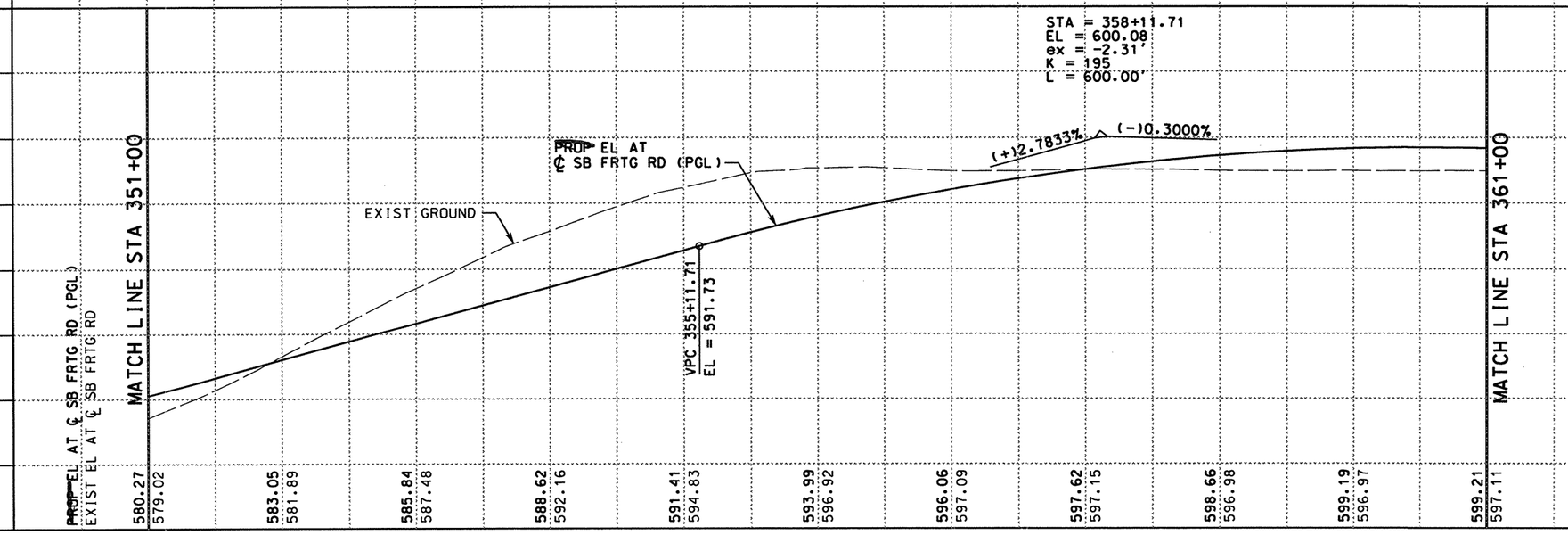
- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
01/04/05	AA	2	WINGWALL MODIFICATIONS FOR CULVERT I

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JANUARY 04, 2005

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 351+00 TO
STA 361+00

SHEET 21 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	361
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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j011op01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62
j011op01.uti, uti LV ON = 1-63
REF FILE(S): j011op01.row, row LV ON = 1-23.25-63
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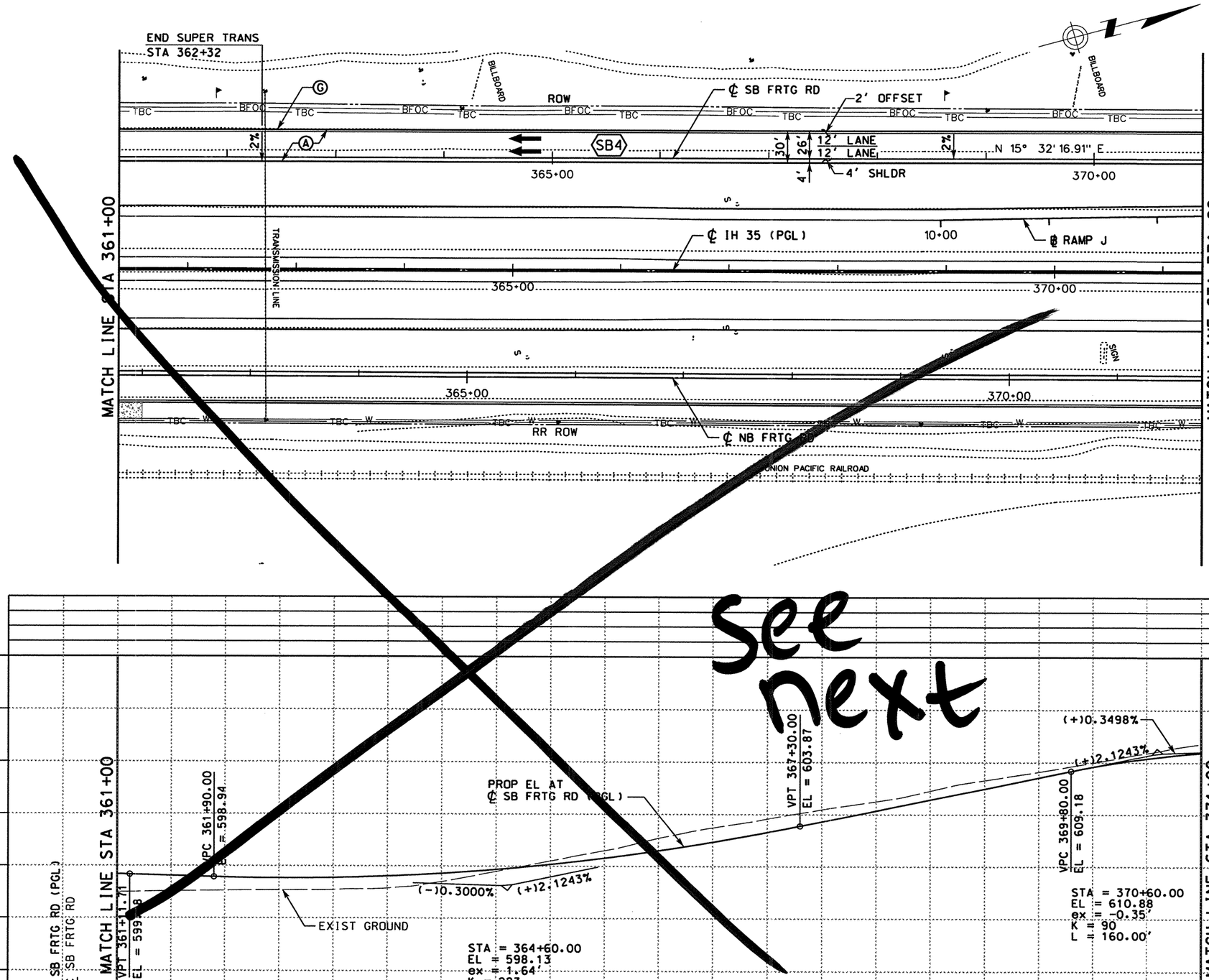
j011op01.row, row
milointr.row

b03ppp76.dgn-08 HOUFILE023 \hcivil\cf0130\ 1/4/2005



See next

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 361+00 TO
STA 371+00

SHEET 22 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	362
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

5/8/2003
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REF FILE(S): j01lop01.pro LV ON = 1-63
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j01lop01.alg, alg LV ON = 1-10,33-39,50
j01lop01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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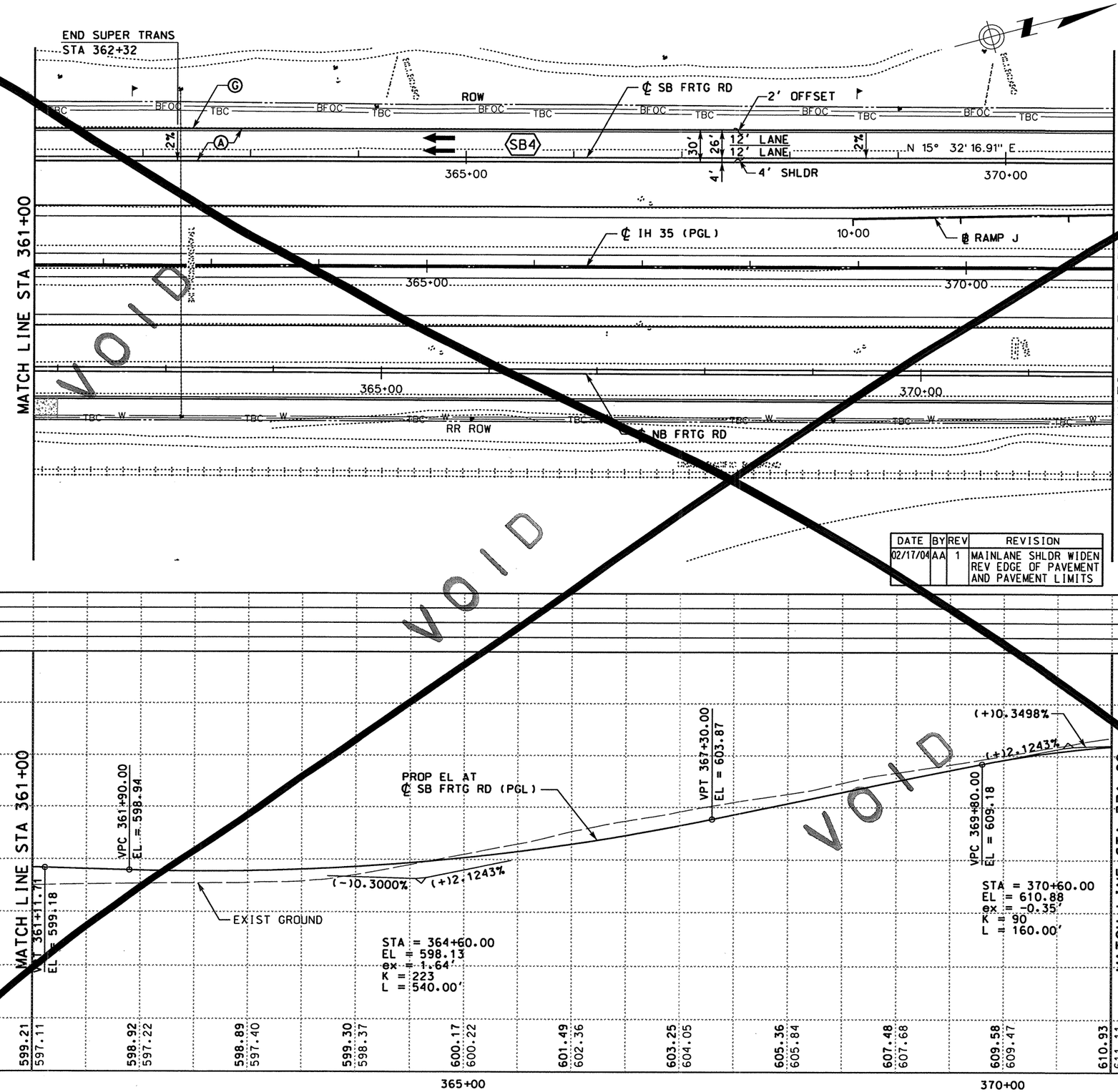

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 361+00 TO
STA 371+00
SHEET 22 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	362
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004
\\houfile023 \hciwil\c0130\
b03ppp77.dgn-06

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j0110p01.bck, bck LV ON = 1-10,33-39,50
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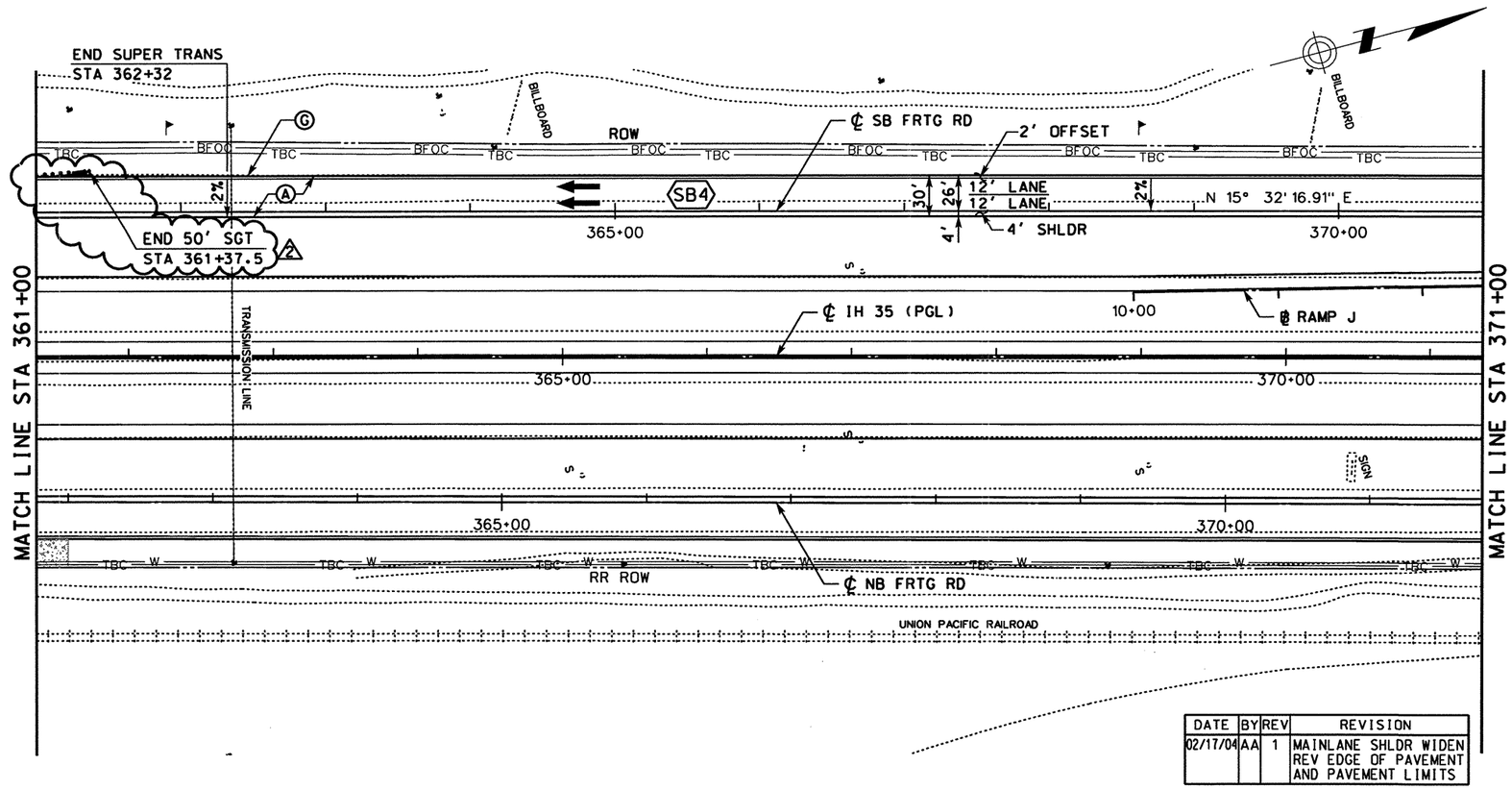

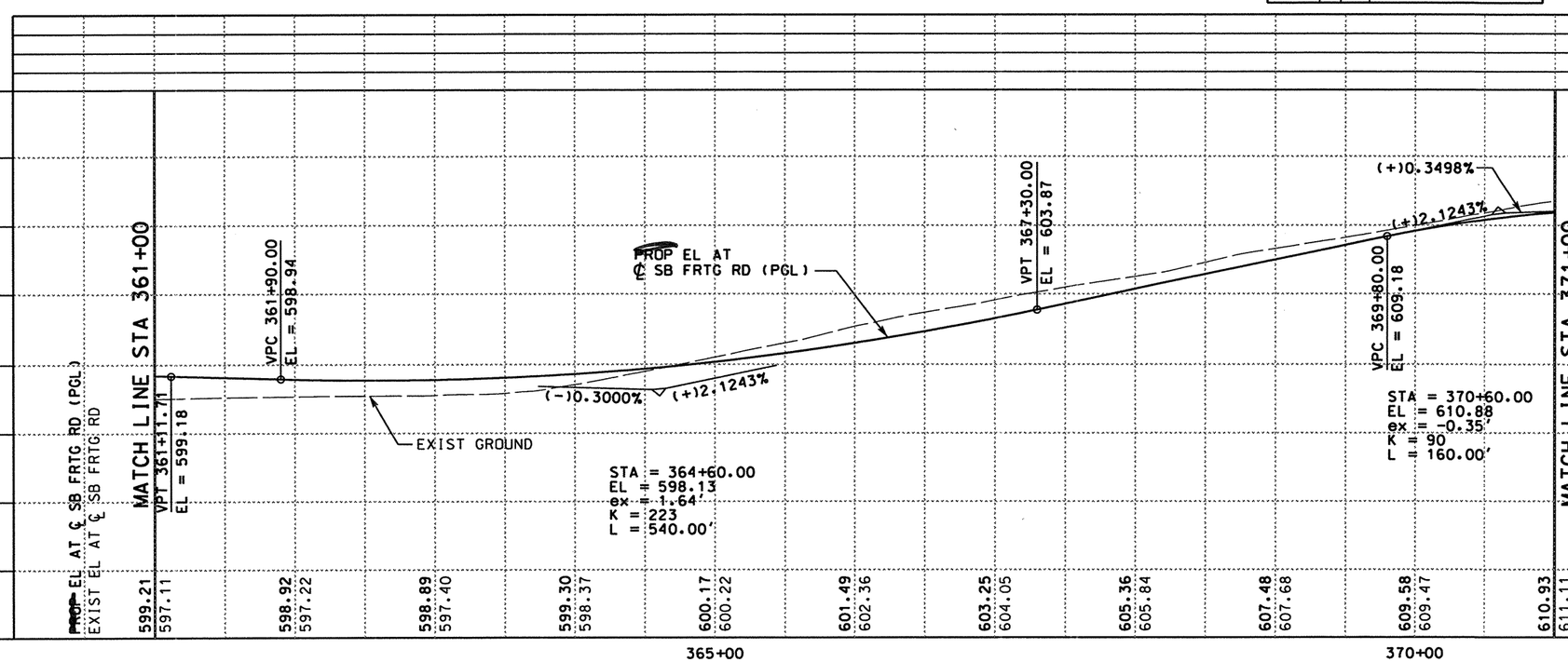

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS
01/04/05	AA	2	WINGWALL MODIFICATIONS FOR CULVERT I

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JANUARY 04, 2005

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 361+00 TO
STA 371+00

SHEET 22 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	362
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

1/4/2005

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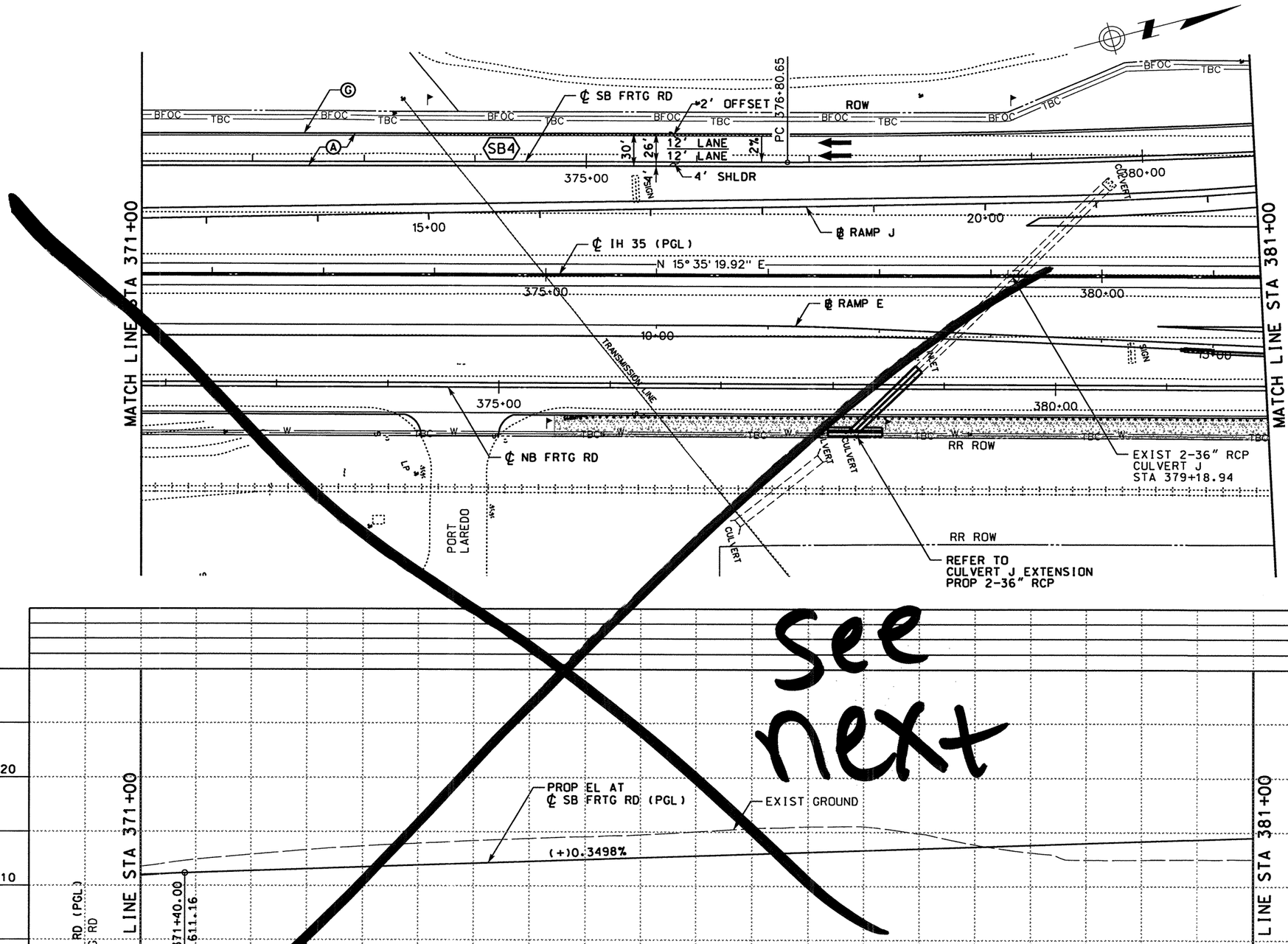


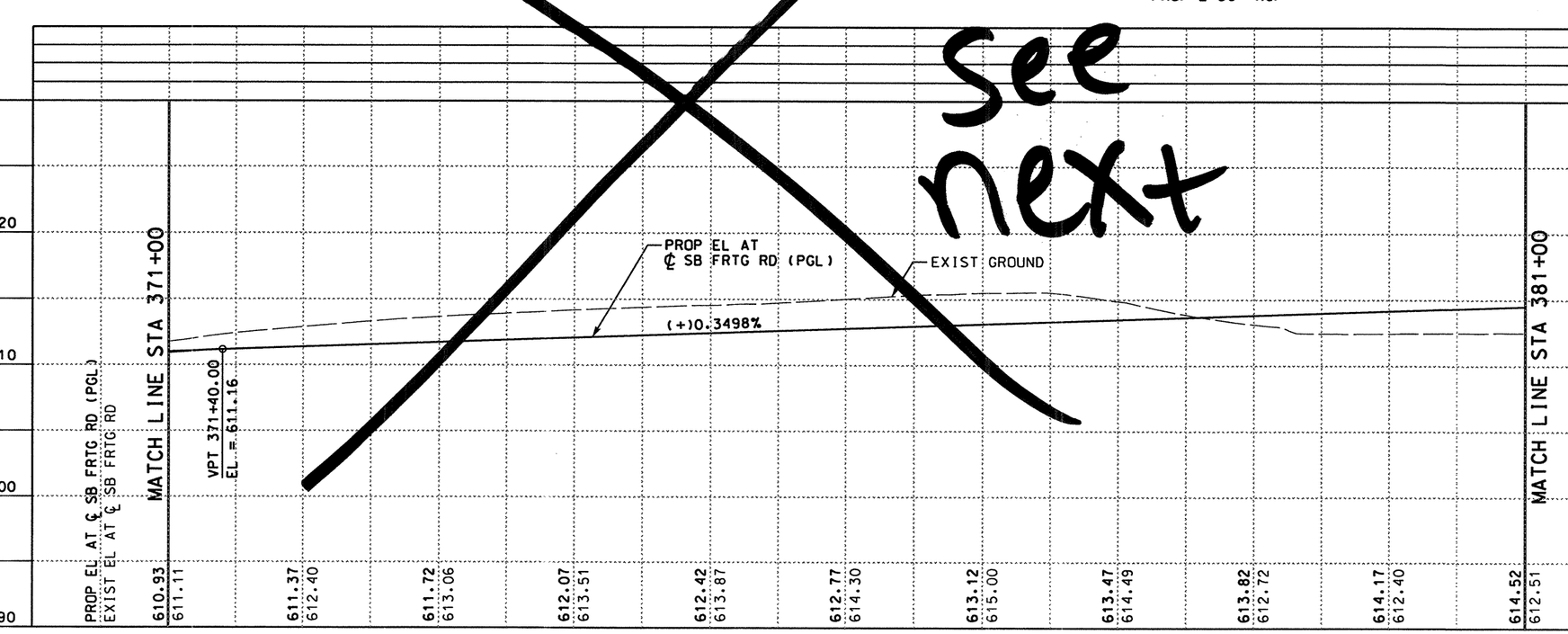
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 371+00 TO
STA 381+00

SHEET 23 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	363
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/8/2003

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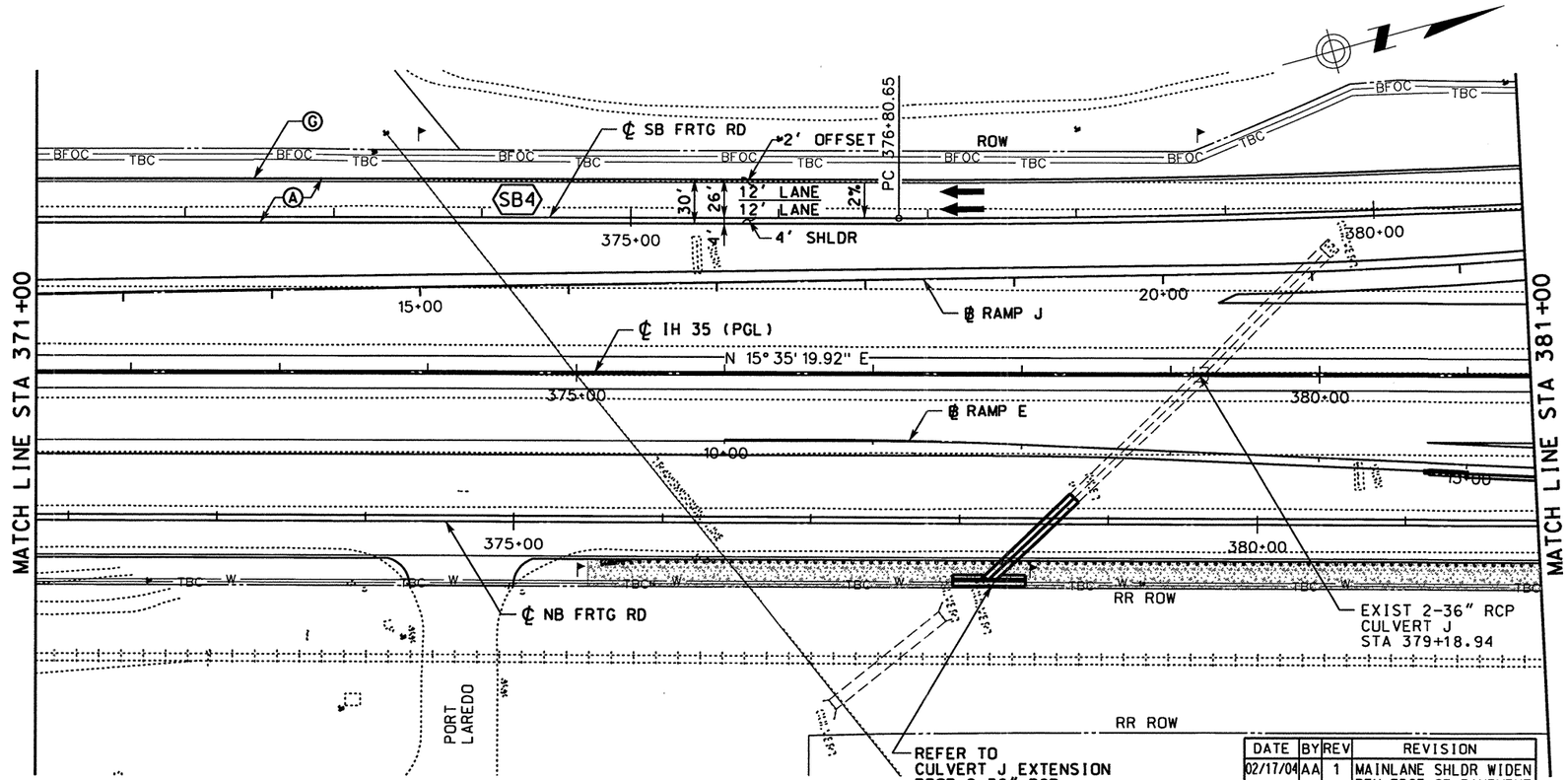


LEGEND

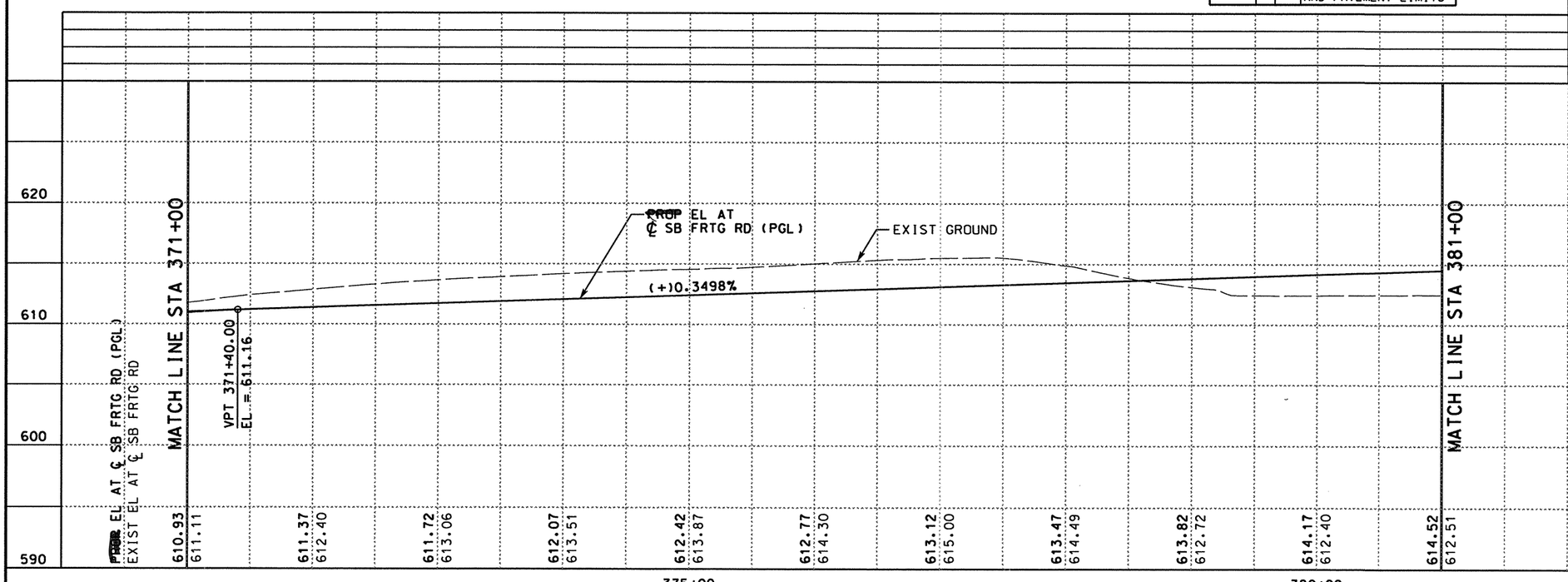
- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 371+00 TO
STA 381+00

SHEET 23 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	363
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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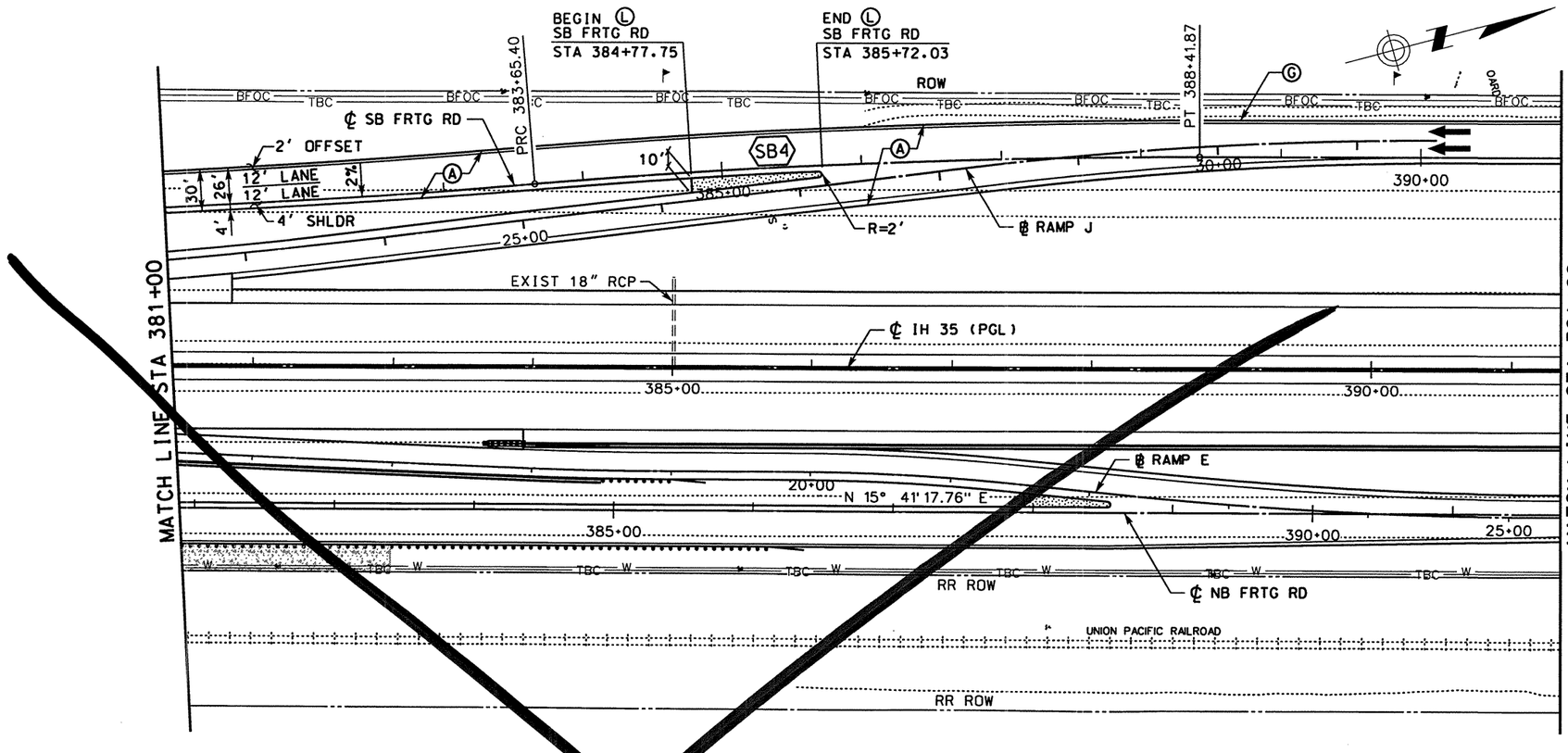
b03ppp78.dgn-04 HOUFILE023 \hcivil\cf0130\ 3/4/2004



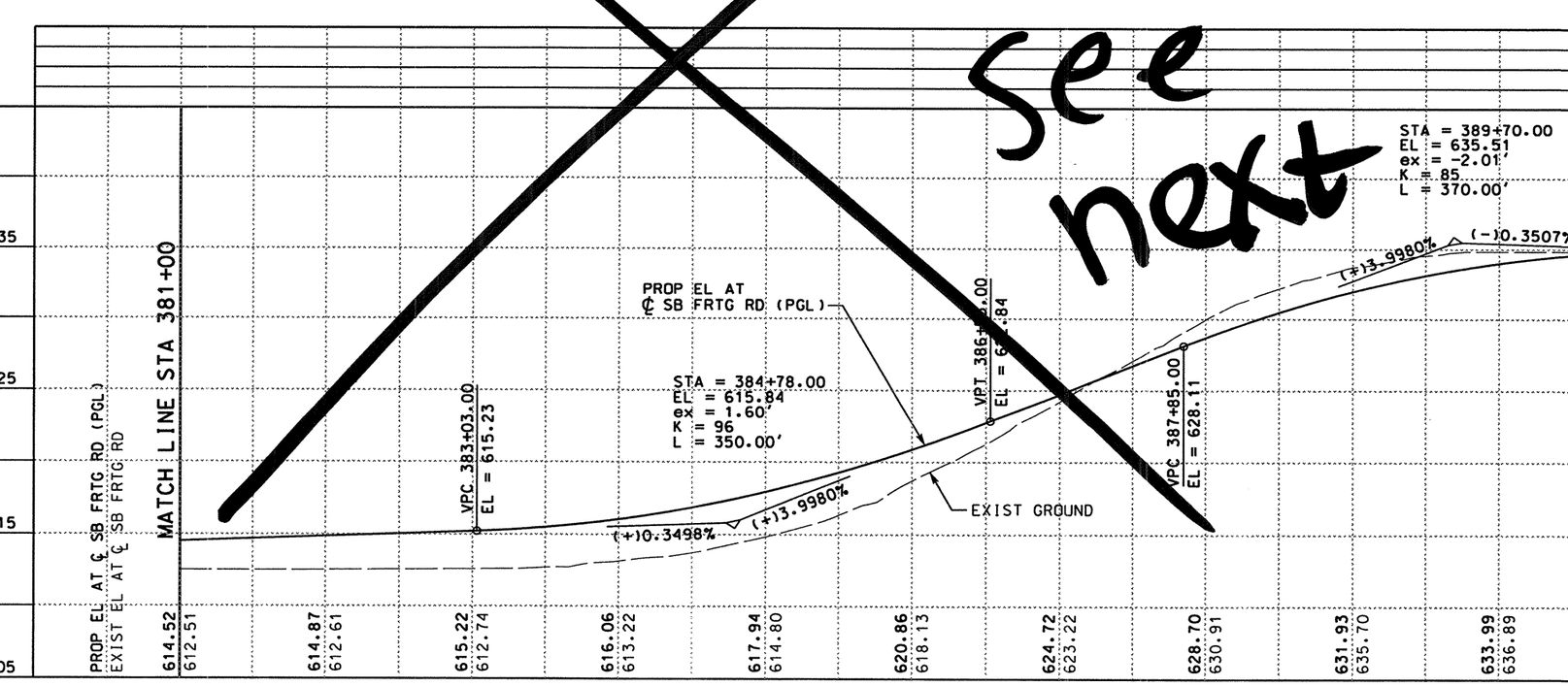
LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



See next

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 381+00 TO
STA 391+00
SHEET 24 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	364
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/8/2003

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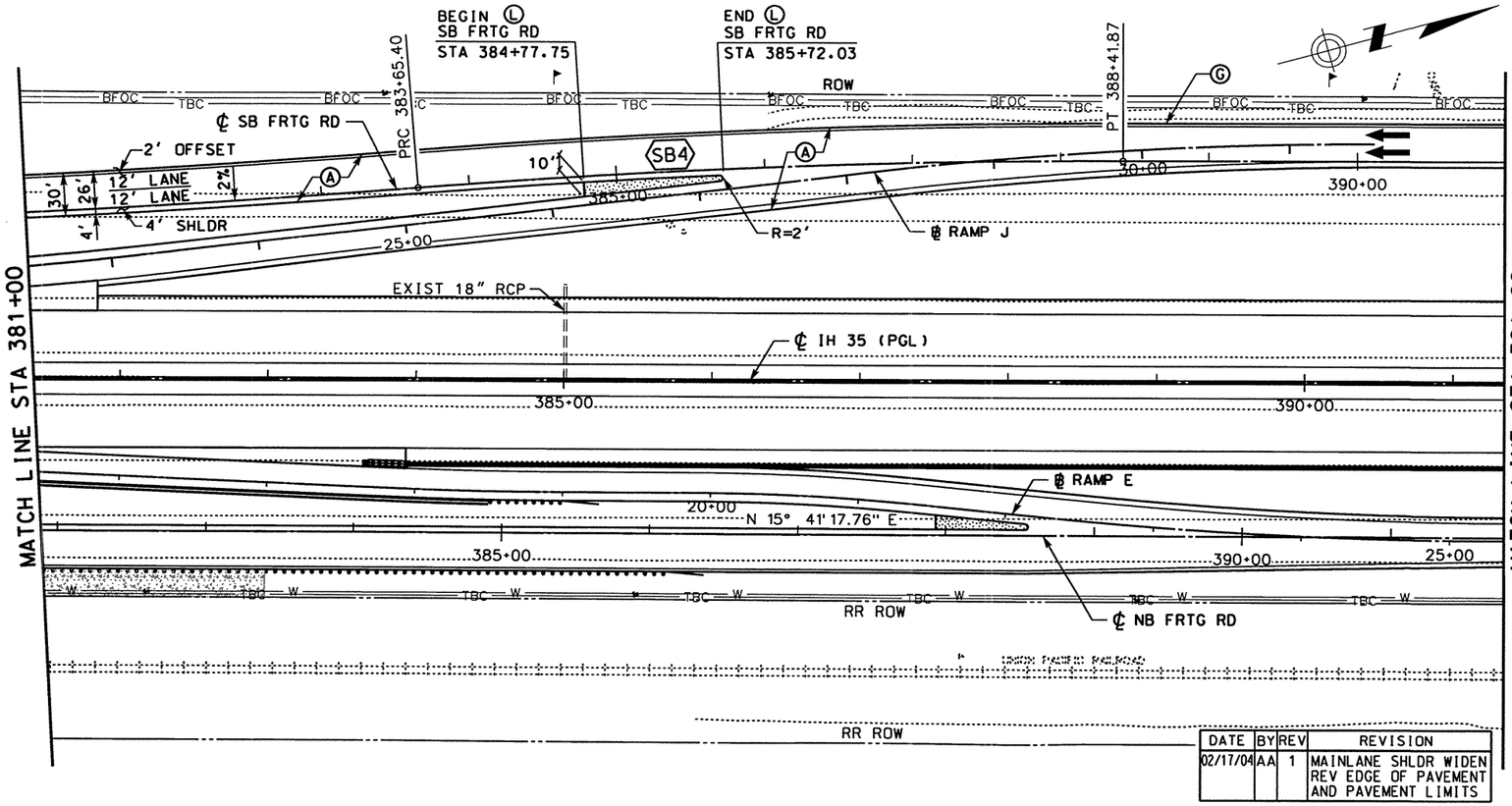


LEGEND

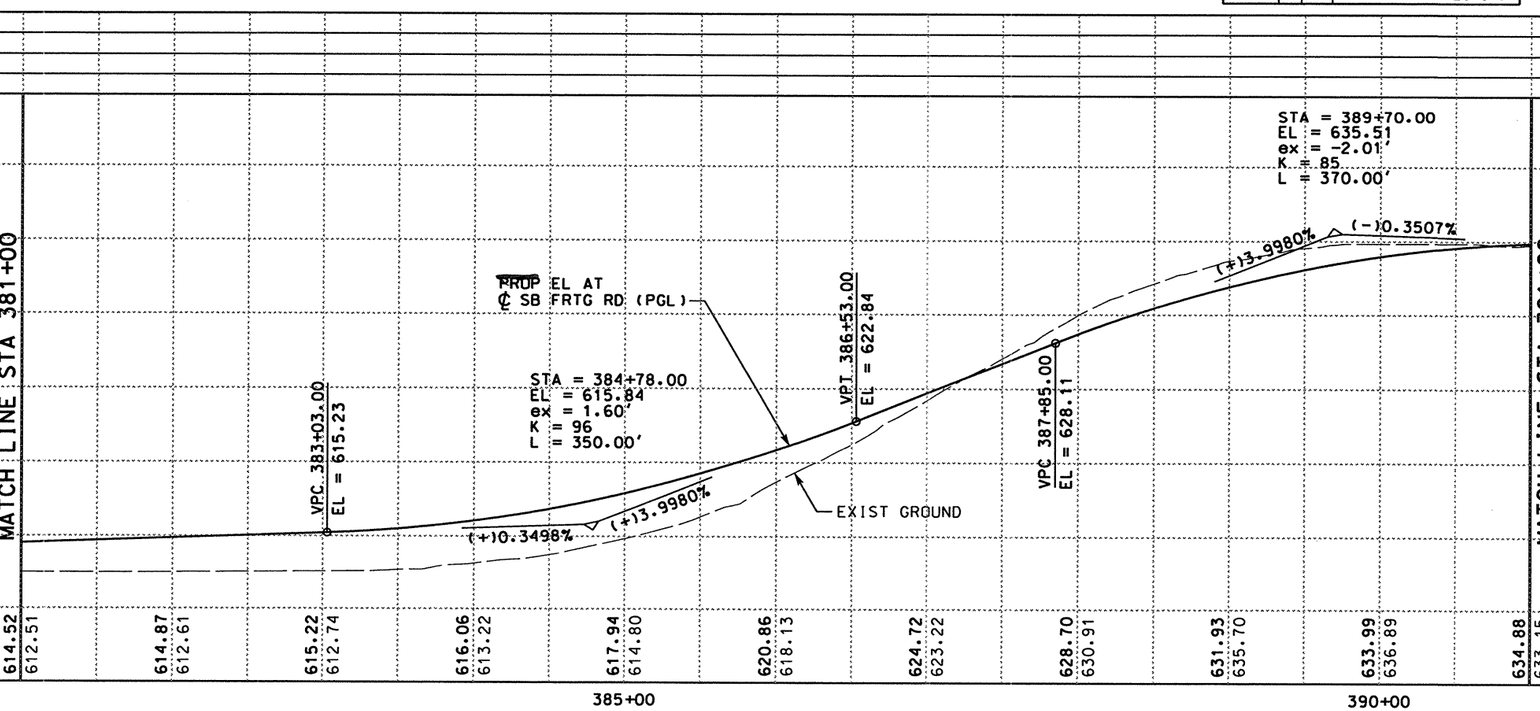
- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
94940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 381+00 TO
STA 391+00

SHEET 24 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	364
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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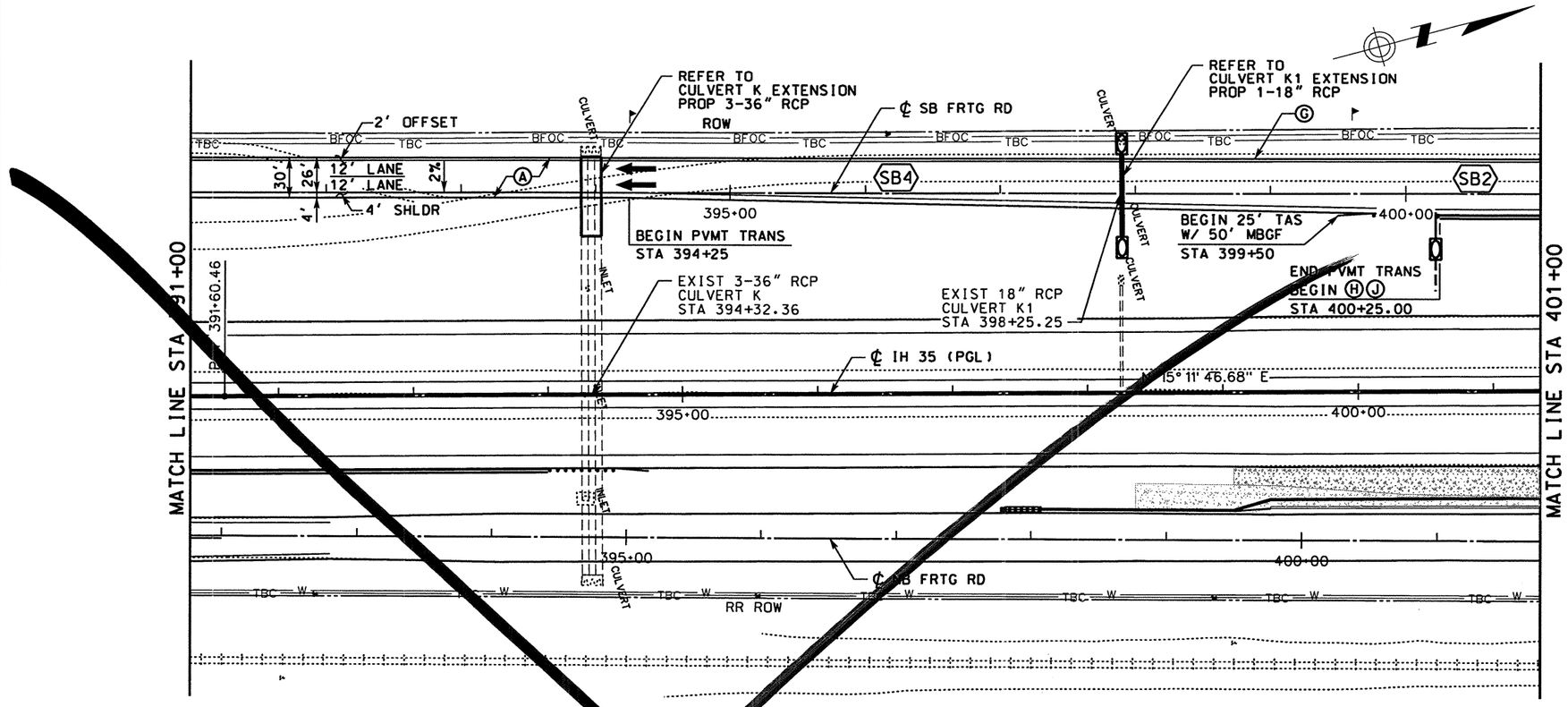

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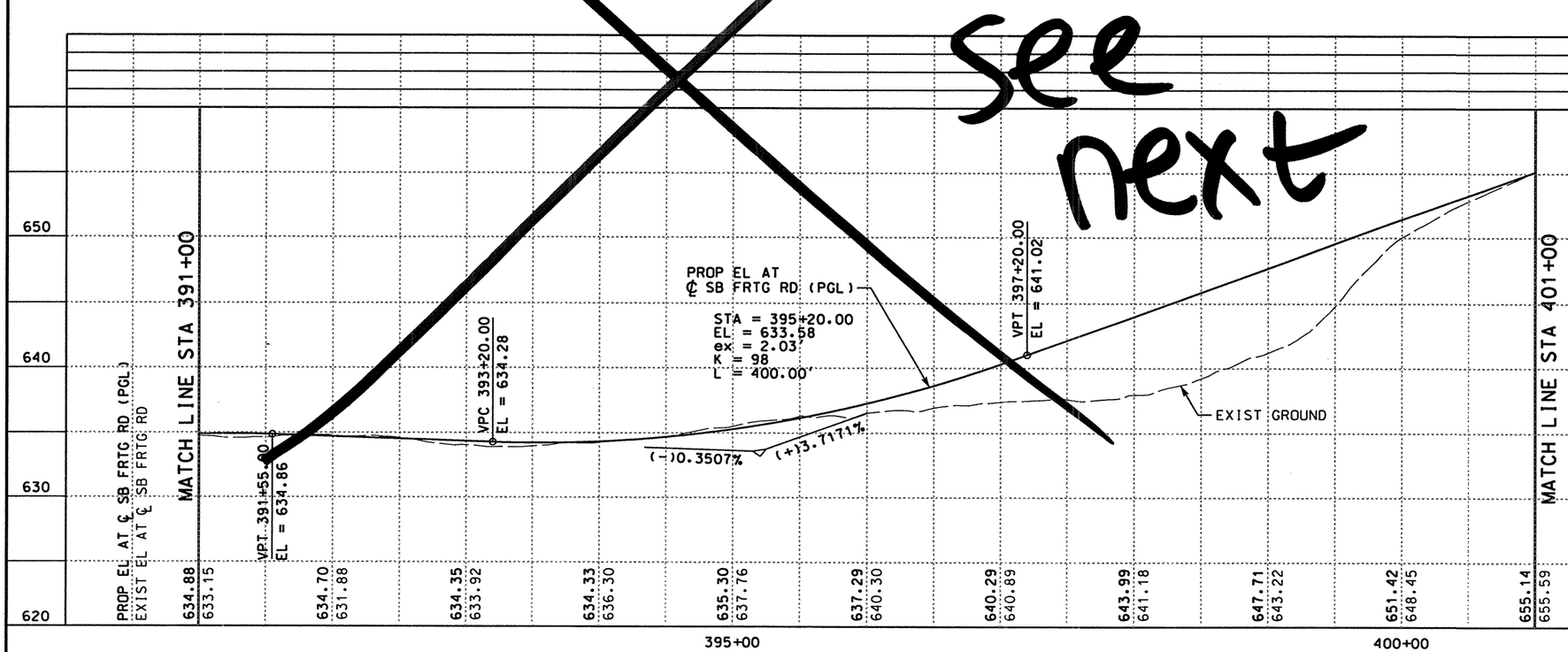

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON MAY 07, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 391+00 TO
STA 401+00

SHEET 25 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	365
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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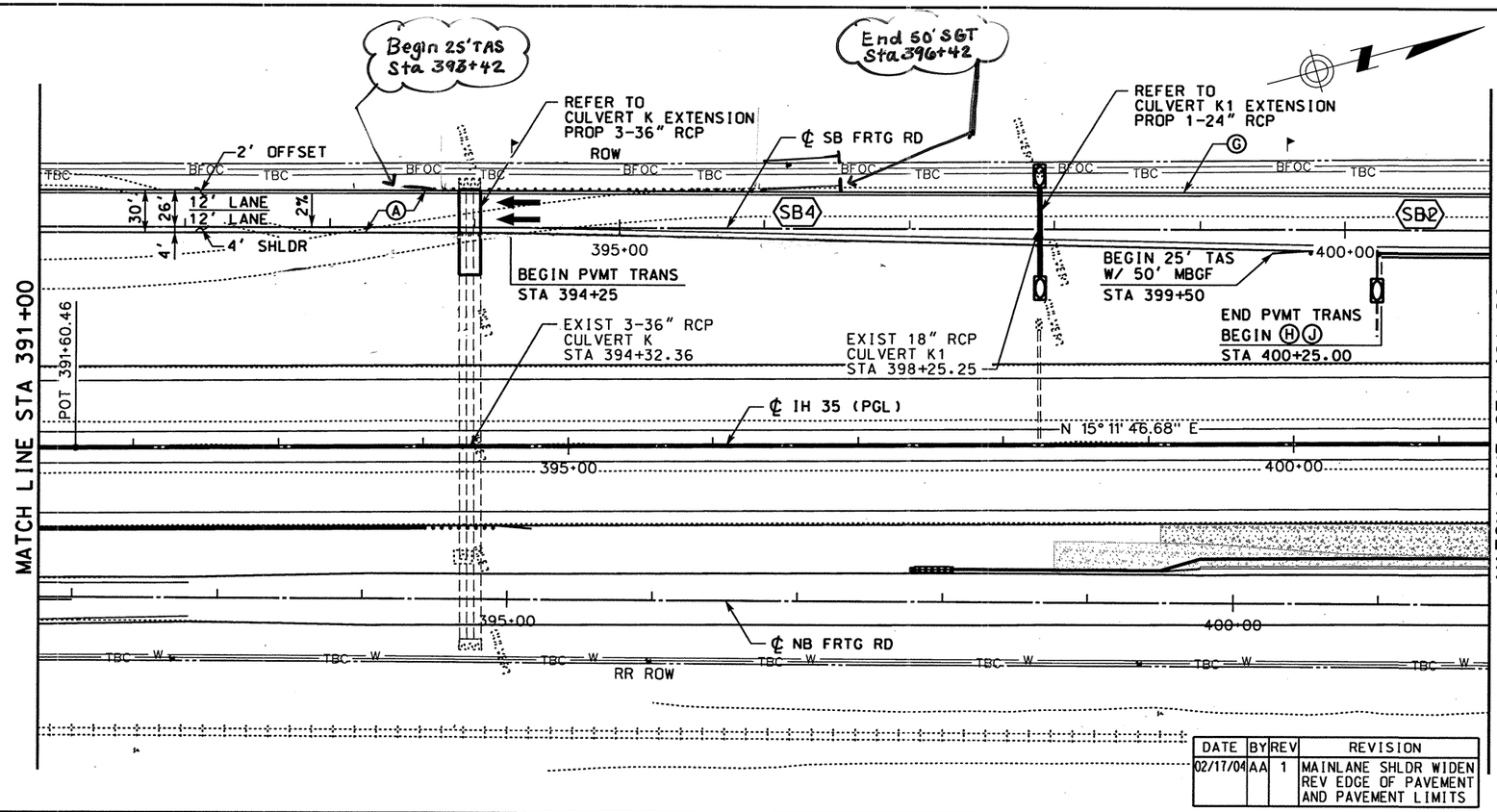

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
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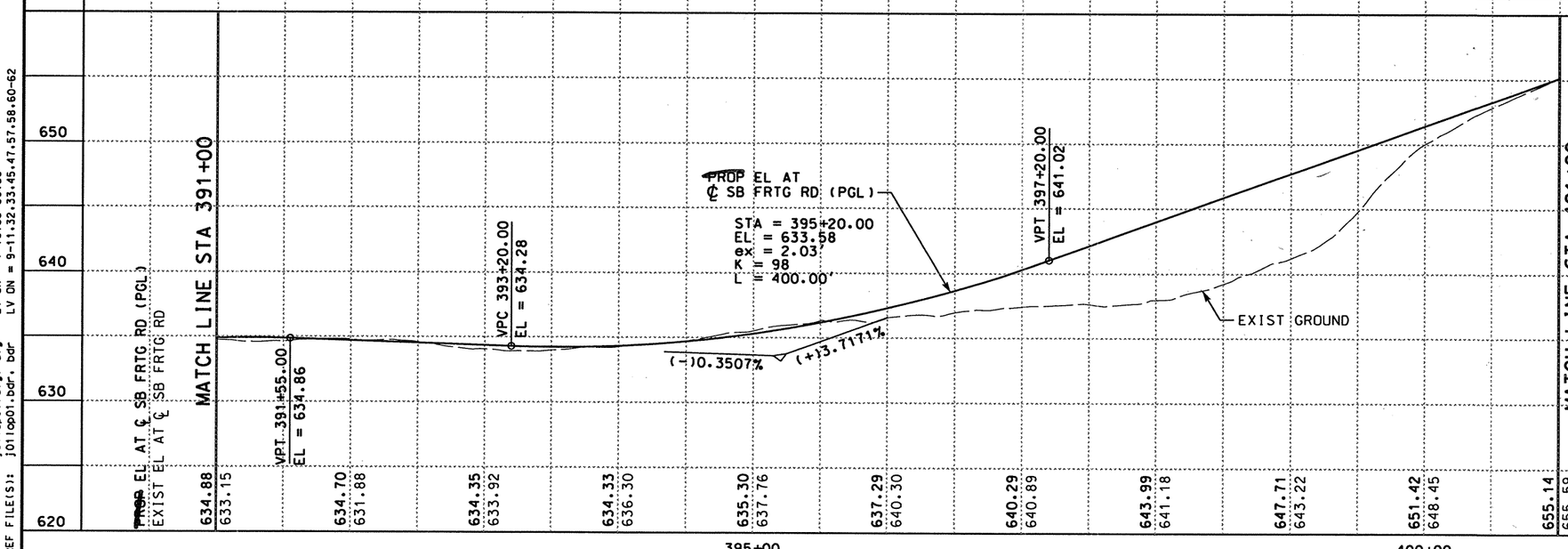
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



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SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

Alan Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 391+00 TO
STA 401+00
SHEET 25 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	365
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

3/4/2004

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j0110p01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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~~PROP~~ EL AT ℄ SB FRTG RD
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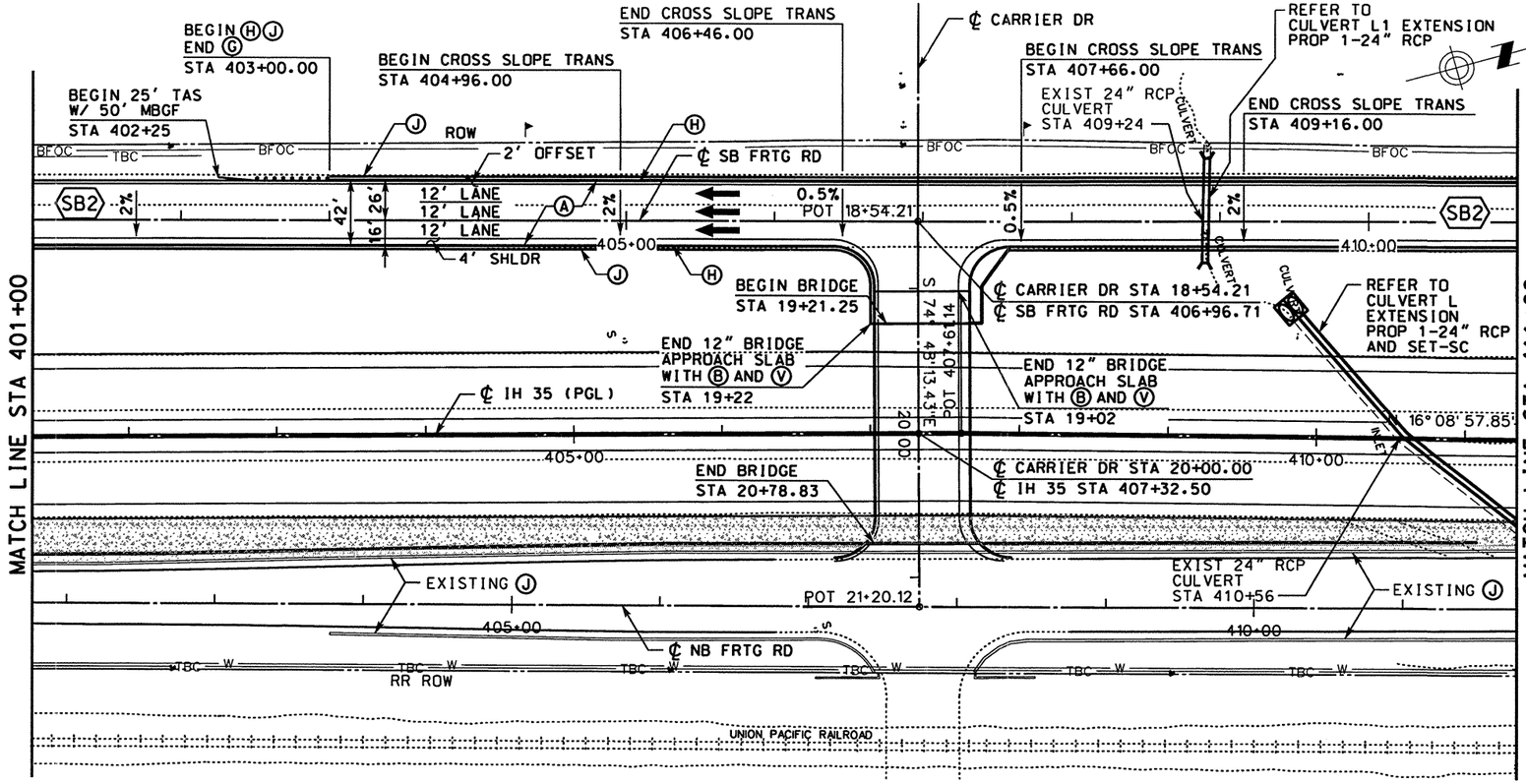

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE CARRIER DR "BRIDGE LAYOUT" FOR MORE DETAILS.

QTY	UNIT	DESCRIPTION
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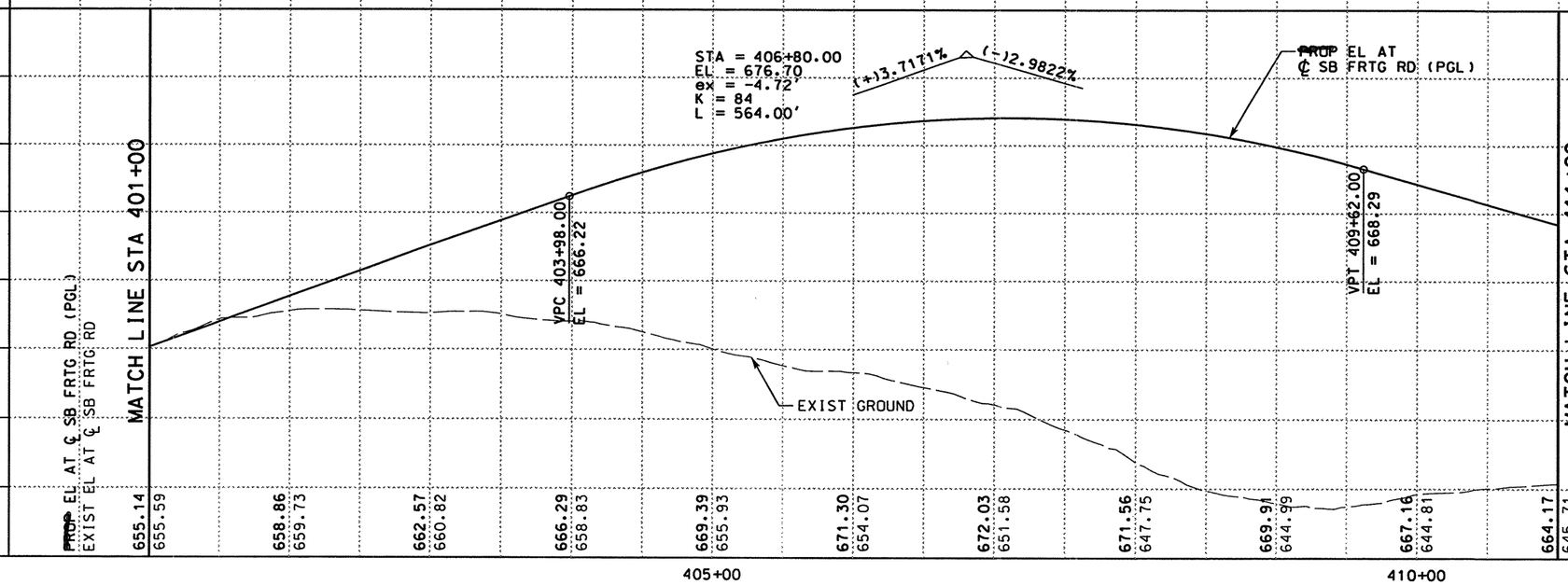
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
R. 58664
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 401+00 TO
STA 411+00

SHEET 26 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	366
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/8/2003
\hcivil\c10130\HOUFILE023 b03pp81.dgn-09

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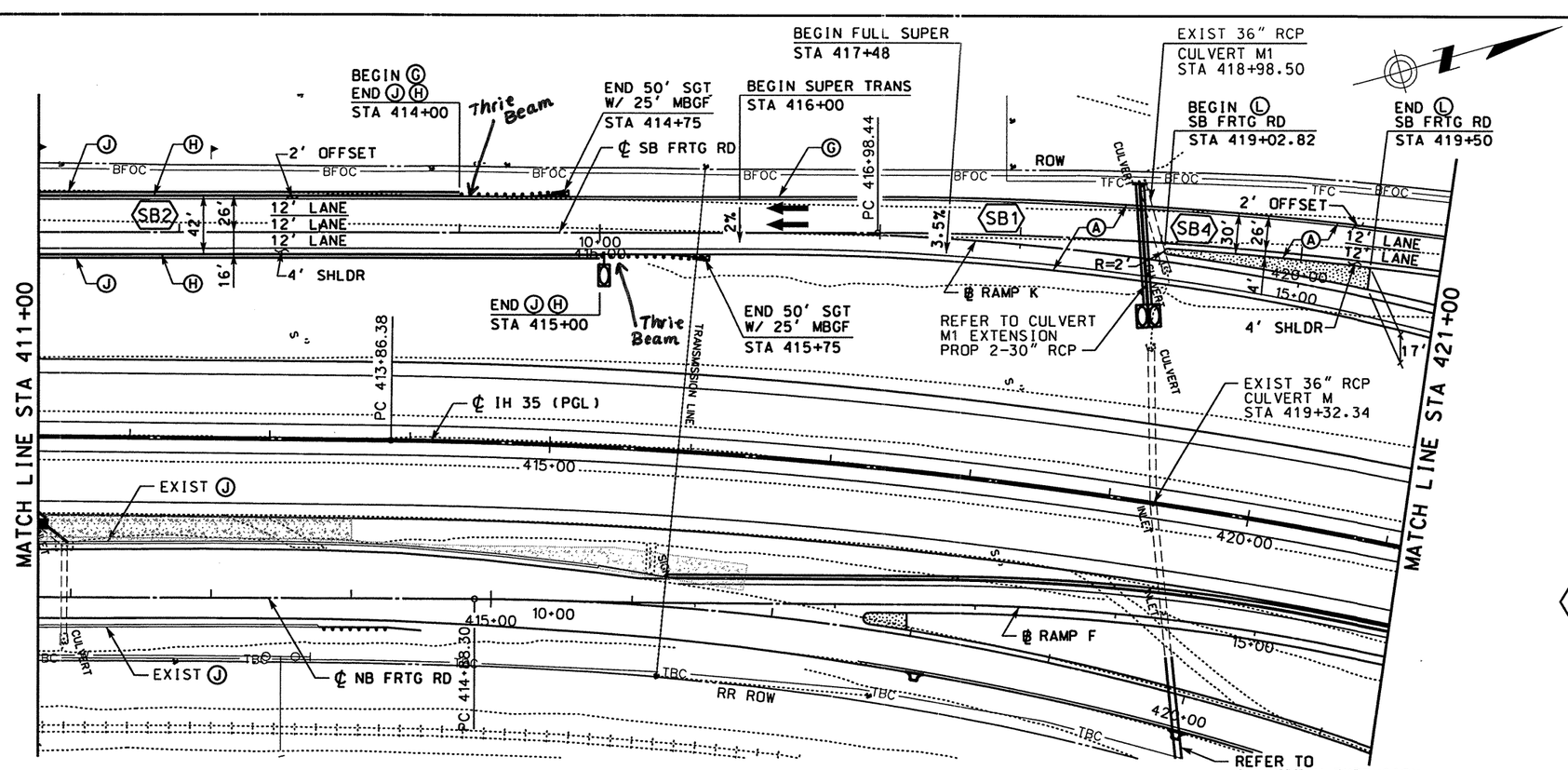

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "PROPOSED TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
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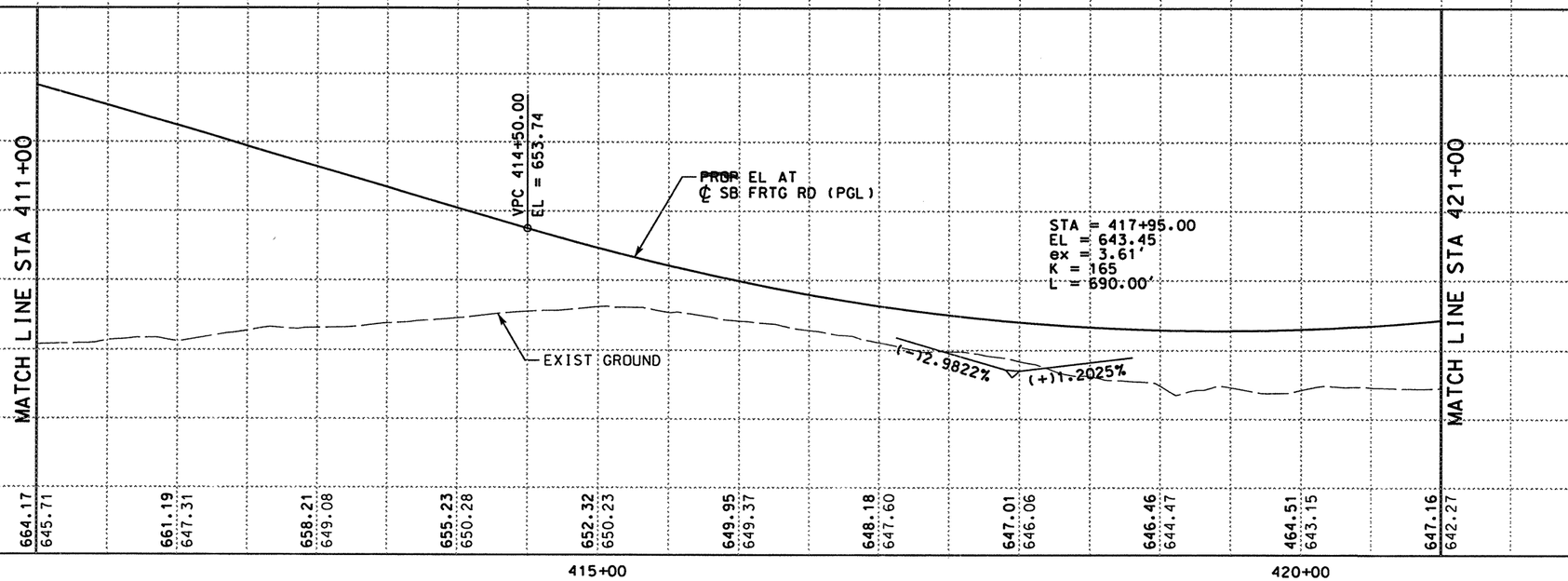
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



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SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 411+00 TO
STA 421+00

SHEET 27 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	367
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/8/2003

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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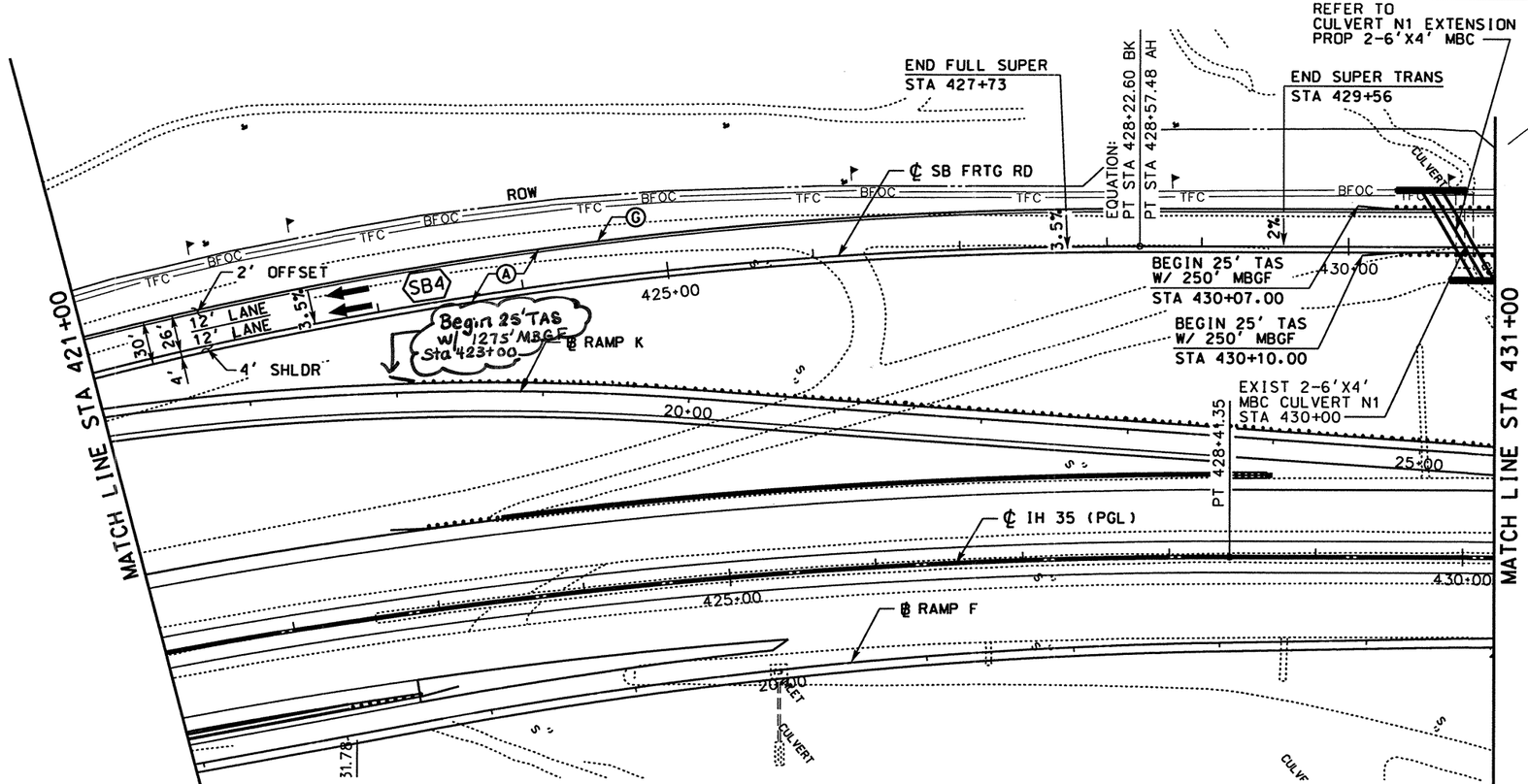
b03ppp82.dgn-09 HOUFILE023 \hciwil\cf0130\



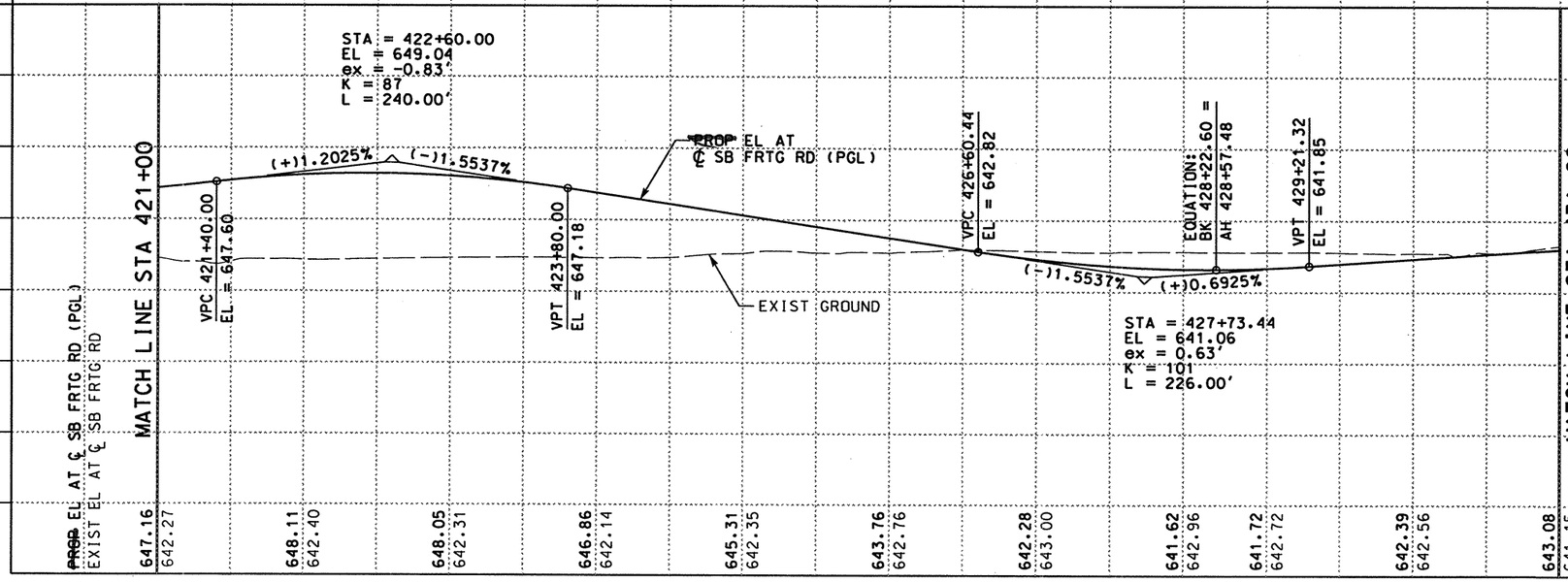
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 421+00 TO
STA 431+00

SHEET 28 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	367A
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

5/8/2003

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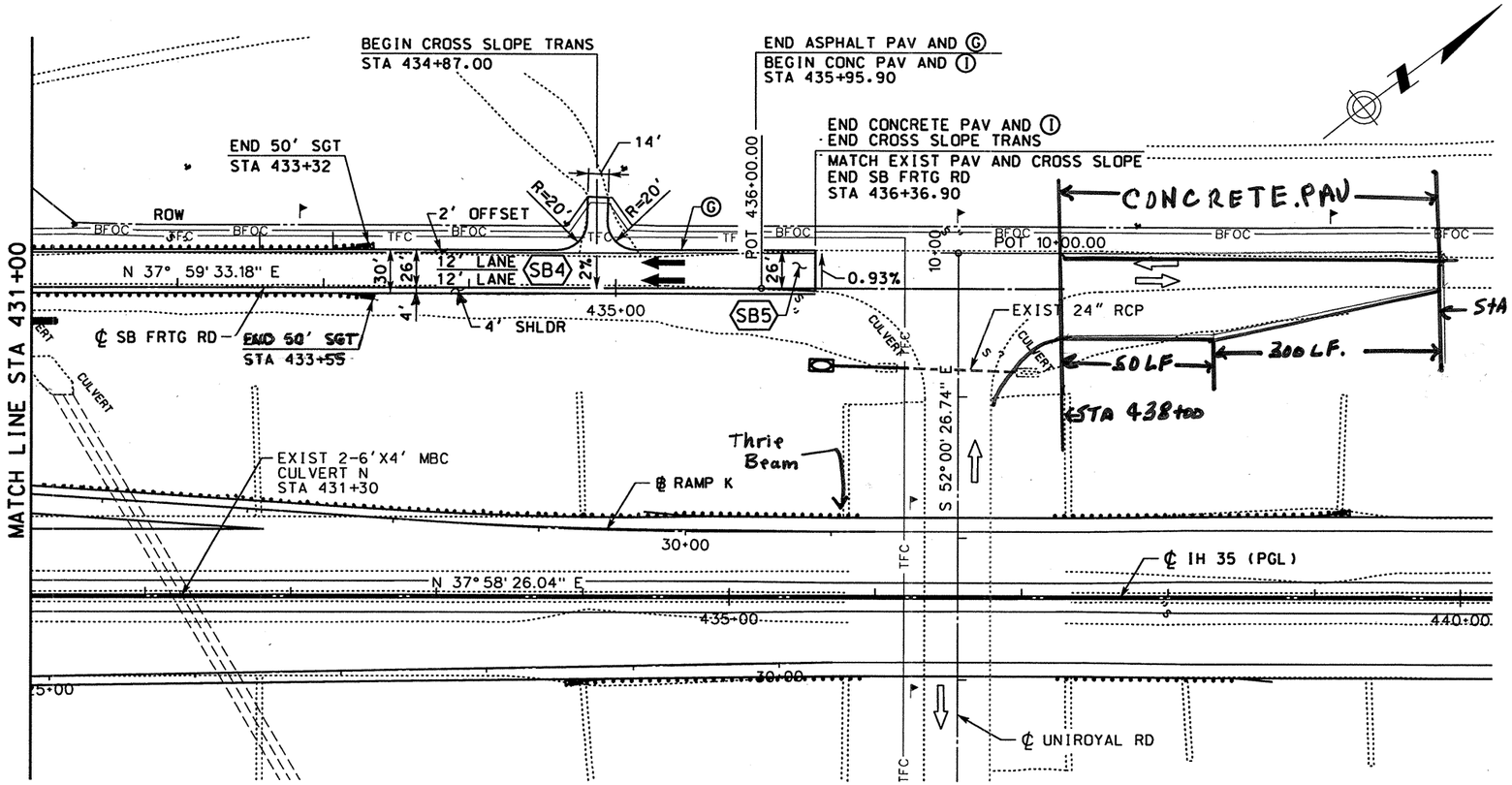

LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "~~PROPOSED~~ TYPICAL SECTIONS" FOR MORE INFORMATION.
3. SEE "DRIVEWAY DETAIL" FOR MORE INFORMATION.

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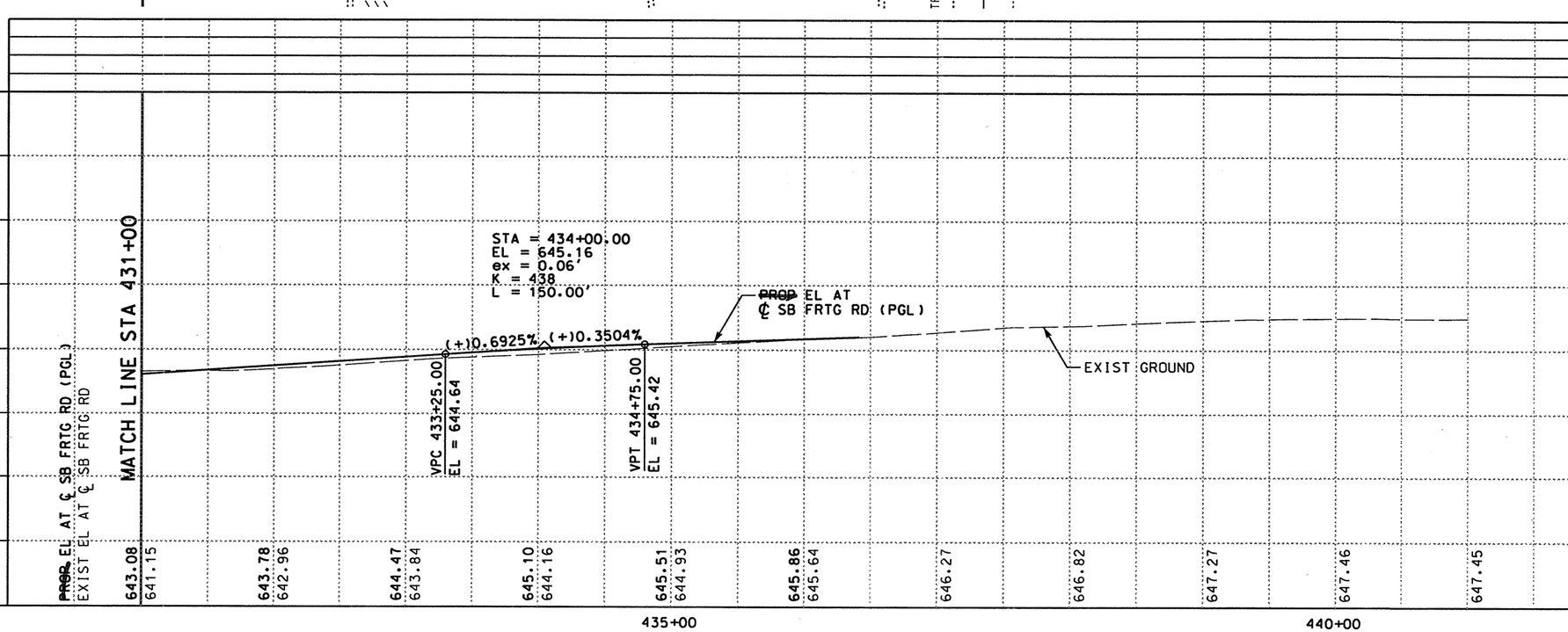

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
SB FRONTAGE ROAD
PLAN AND PROFILE
STA 431+00 TO
STA 436+36.90

SHEET 29 OF 29

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	367B
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

5/8/2003

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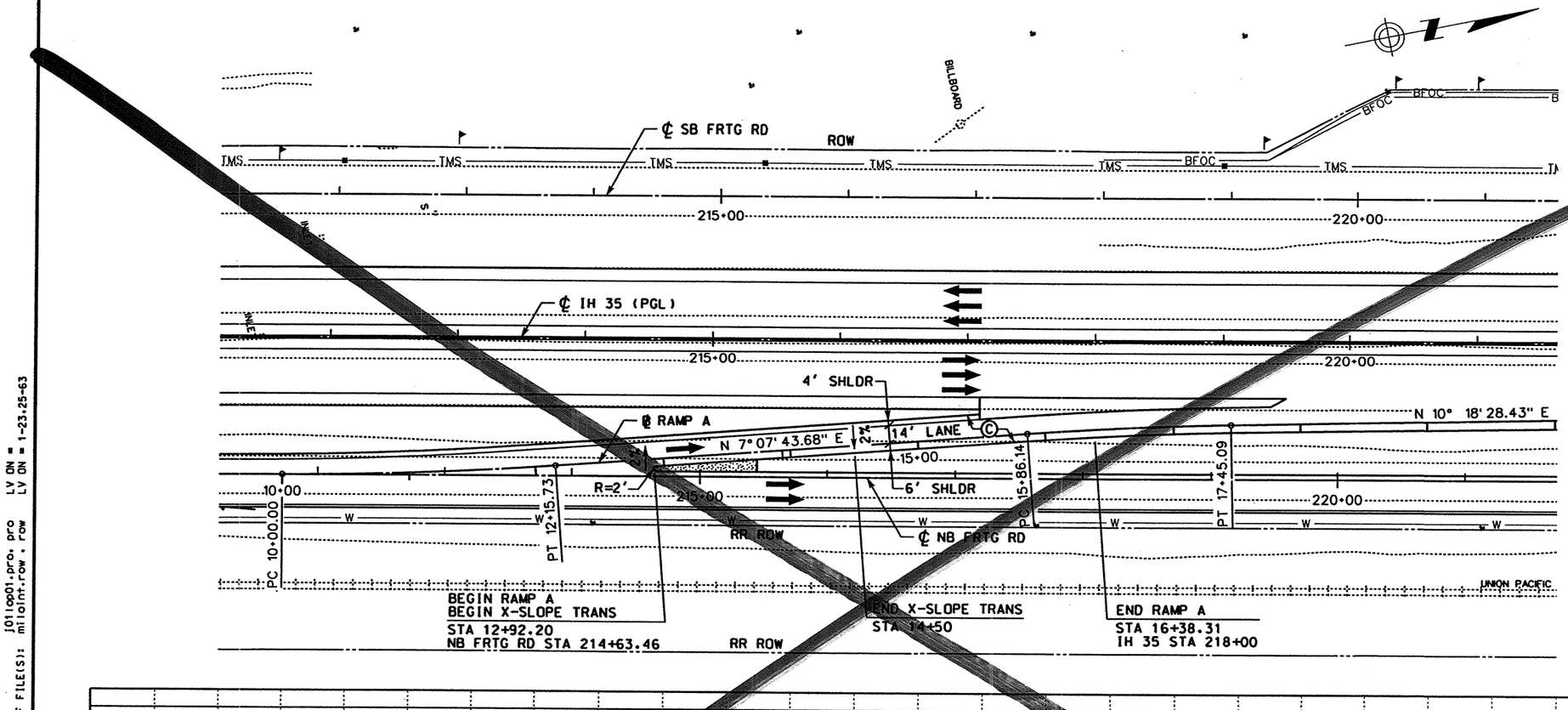
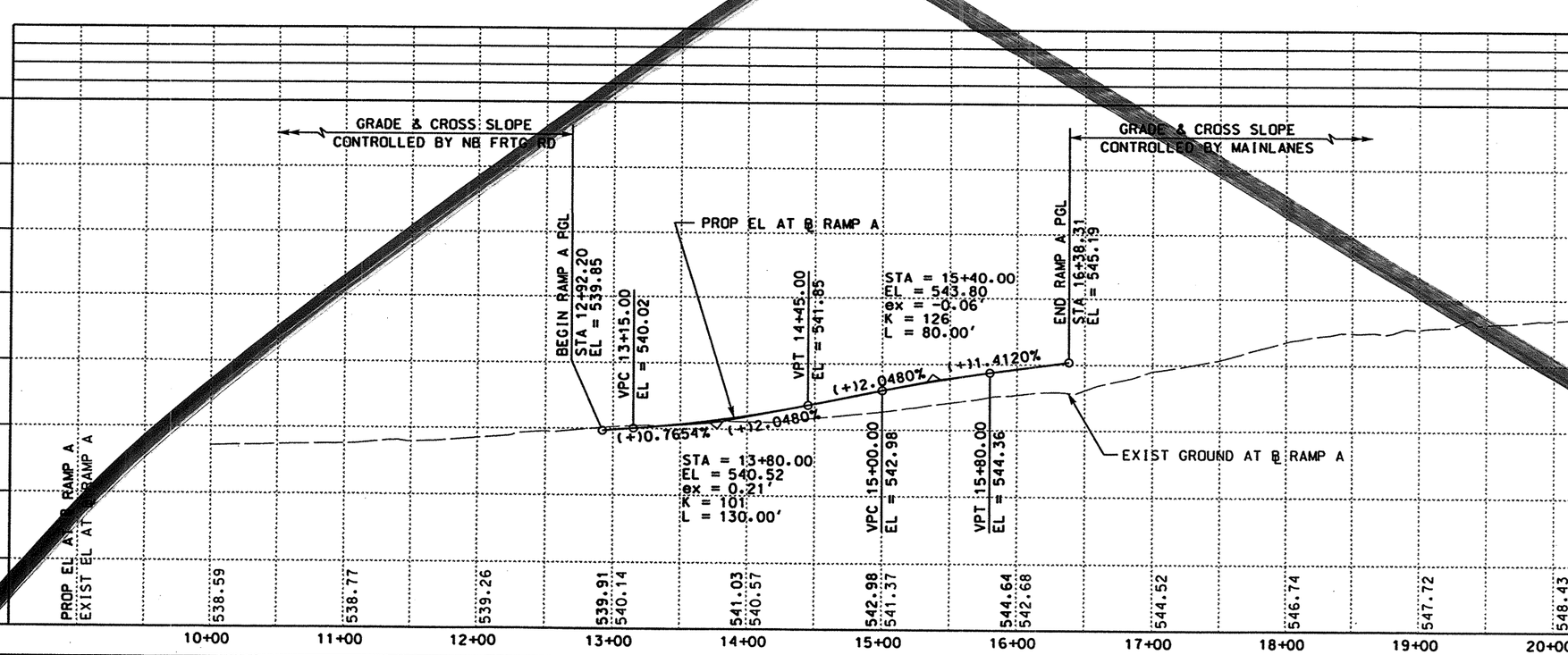


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- TYPICAL SECTION



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		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RAMP A
PLAN AND PROFILE
STA 12+92.20 TO
STA 16+38.31
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	368
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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4/18/2003
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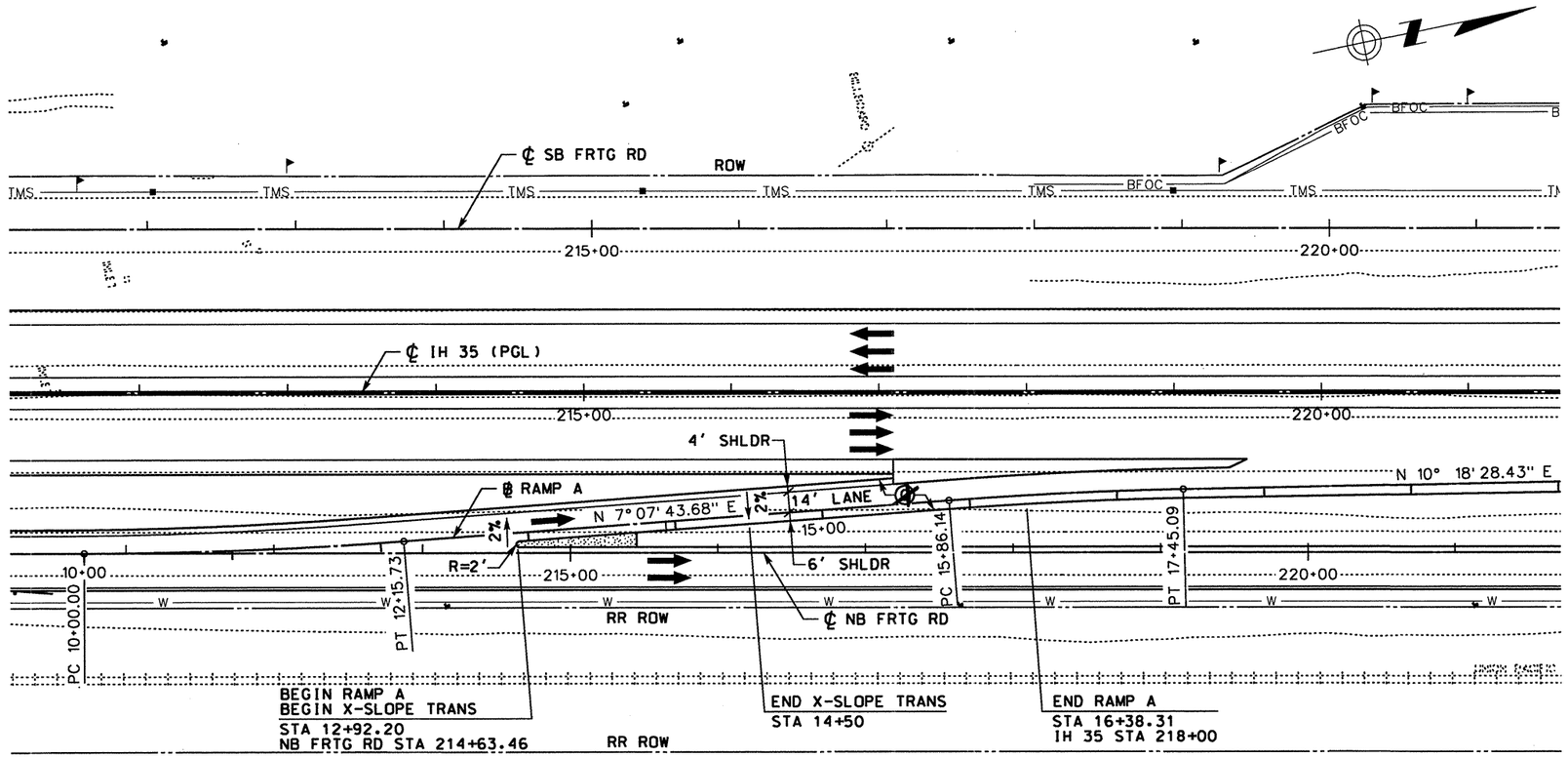

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

DATE	BY	REV	REVISION
09/06/07	RG	1	PROFILE GRADE CHANGE

QTY	UNIT	DESCRIPTION
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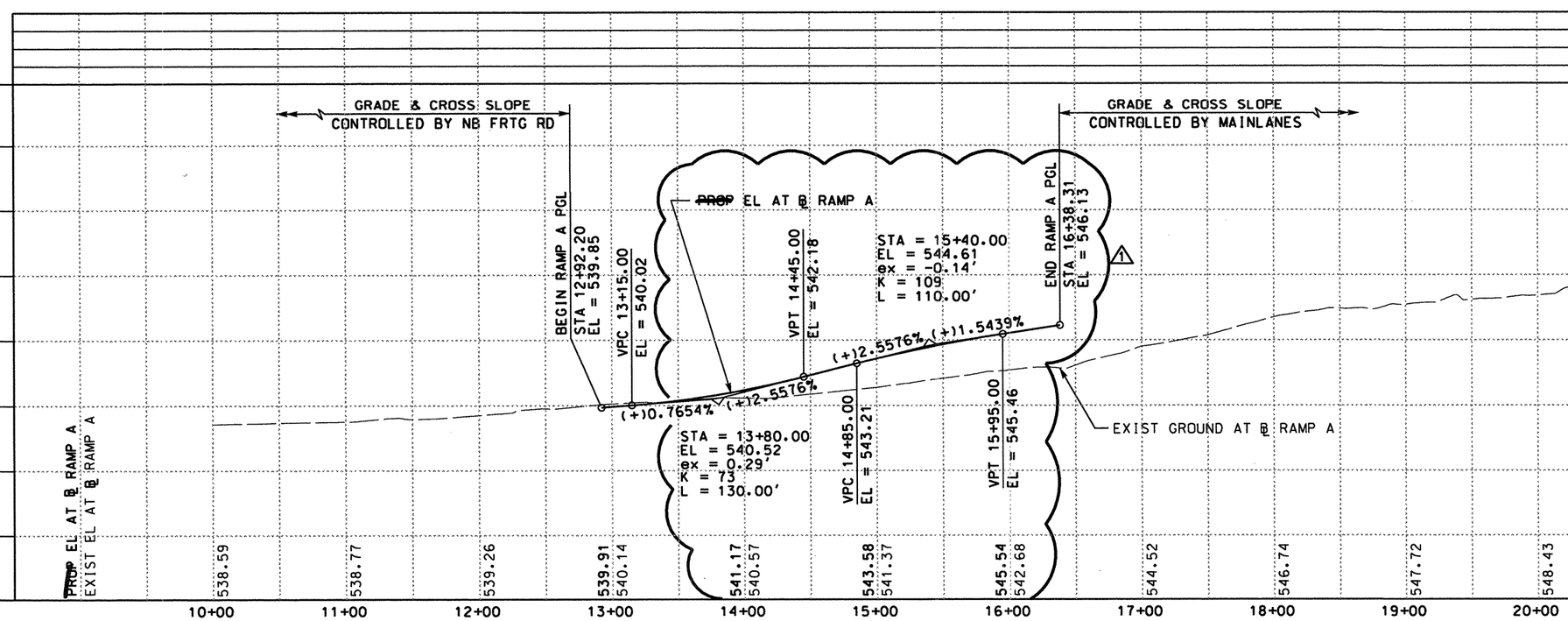
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RAMP A
PLAN AND PROFILE
STA 12+92.20 TO
STA 16+38.31

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	368
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j01lop01.alg, alg LV ON = 1-6,35-39
j01lop01.bar, bar LV ON = 9-11,32,33,45,47,57,58,60-62
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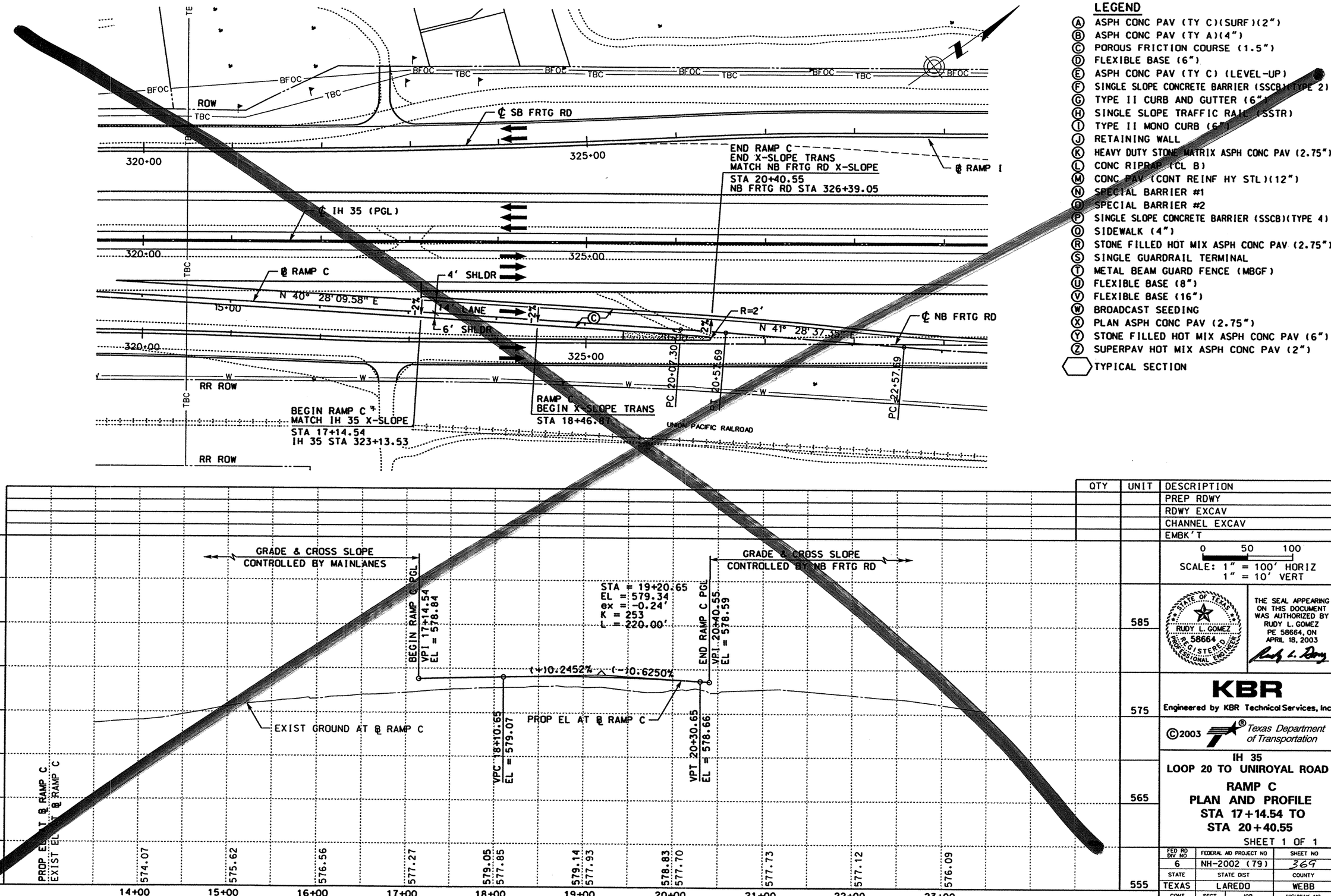
b03rop01.dgn-04 HOUFILE023 \hcivil\cf0130\ 9/11/2007



LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
RAMP C
PLAN AND PROFILE
STA 17+14.54 TO
STA 20+40.55
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	369
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
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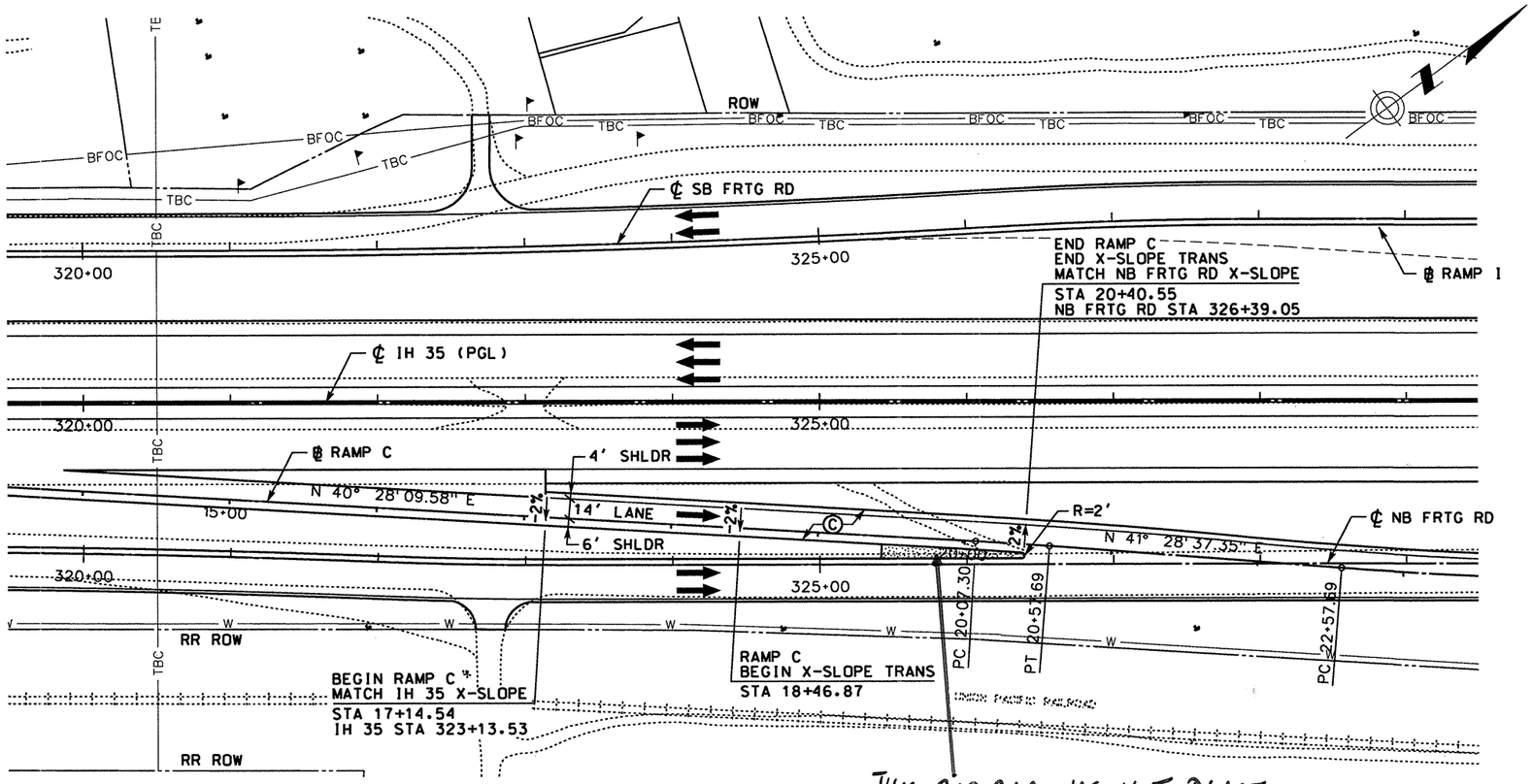
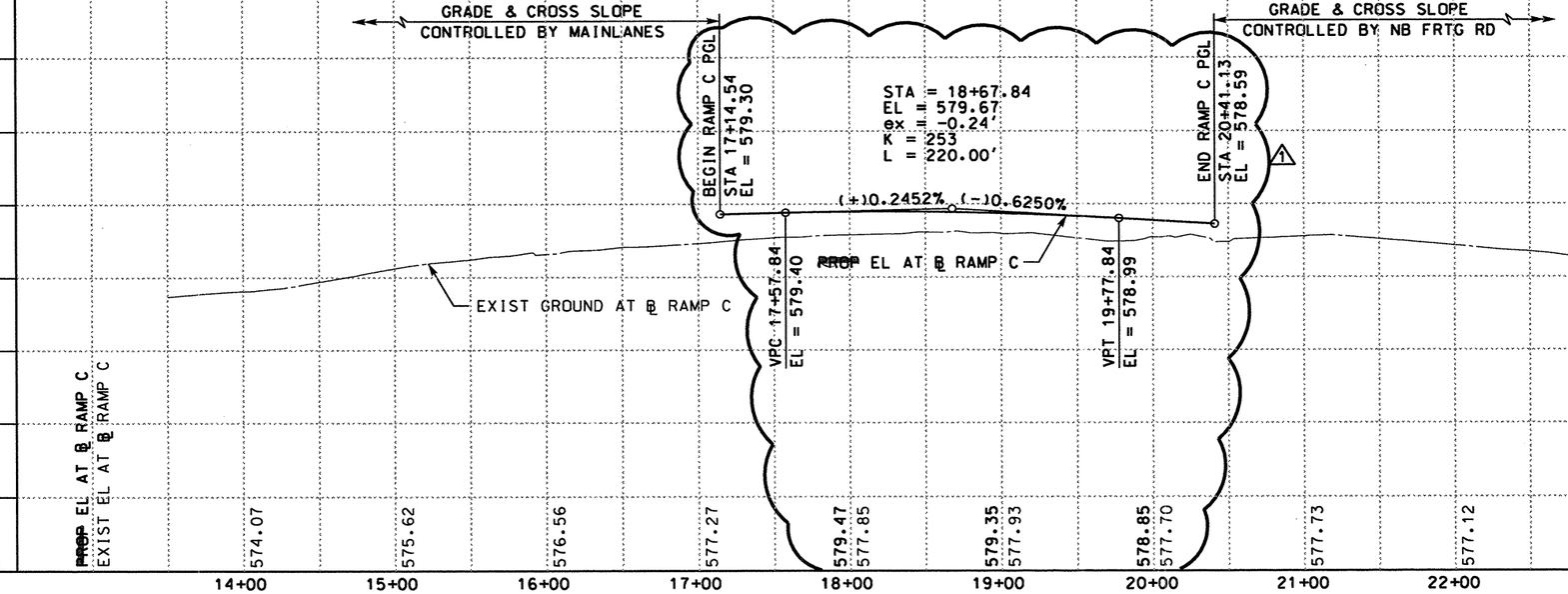
j0110p01.alg. alg LV ON = 1-6.35-39
j0110p01.bdr. bdr LV ON = 9-11.30.33.42.47.57.58.60-62





LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

DATE	BY	REV	REVISION
09/06/07	RG	1	PROFILE GRADE CHANGE

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON SEPTEMBER 10, 2007

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IH 35
LOOP 20 TO UNIROYAL ROAD
RAMP C
PLAN AND PROFILE
STA 17+14.54 TO
STA 20+40.55

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	369
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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LV ON = 1-17,19-63
LV ON = 2-9,10,14-17,20-21,25-28
LV ON = 1-6,35-39
LV ON = 9-11,30-33,42,47-57,58,60-62
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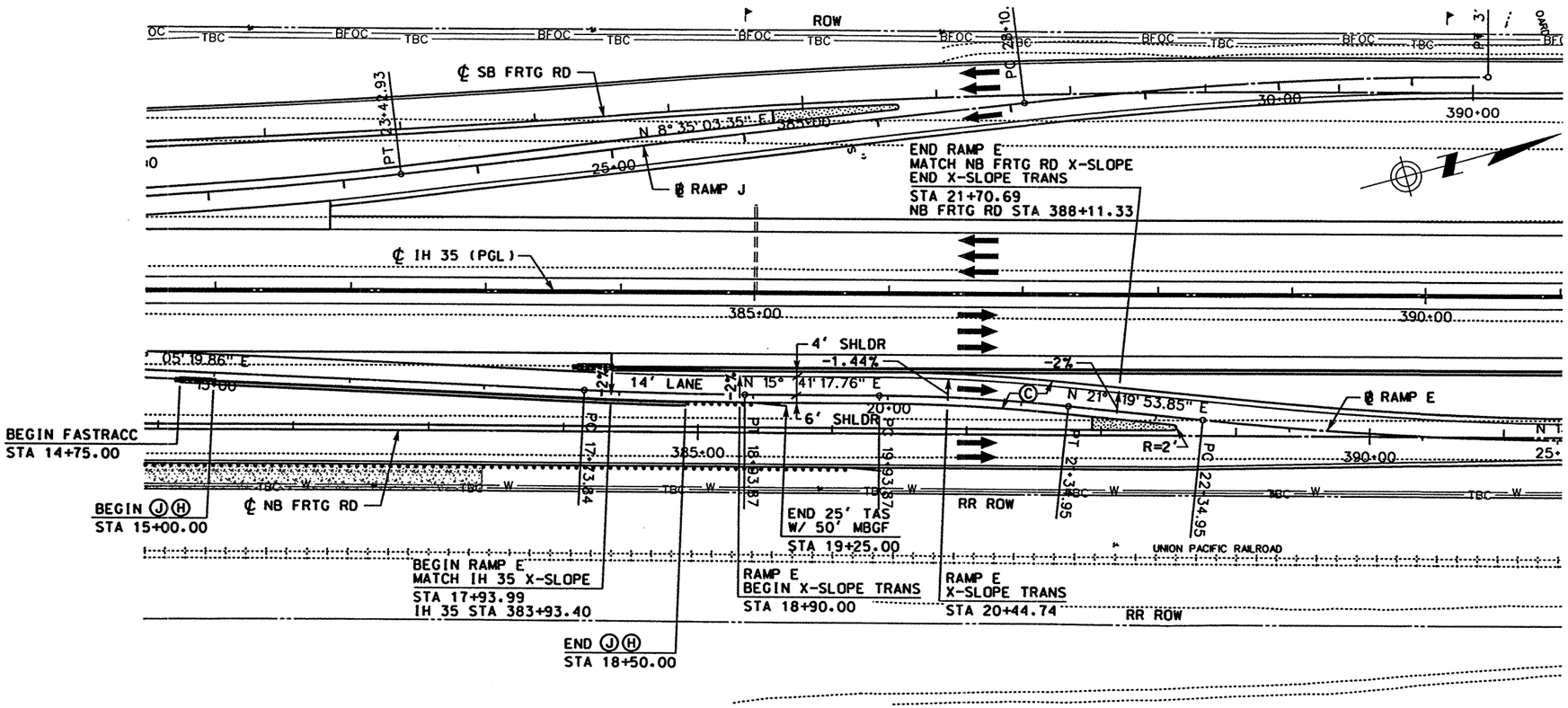
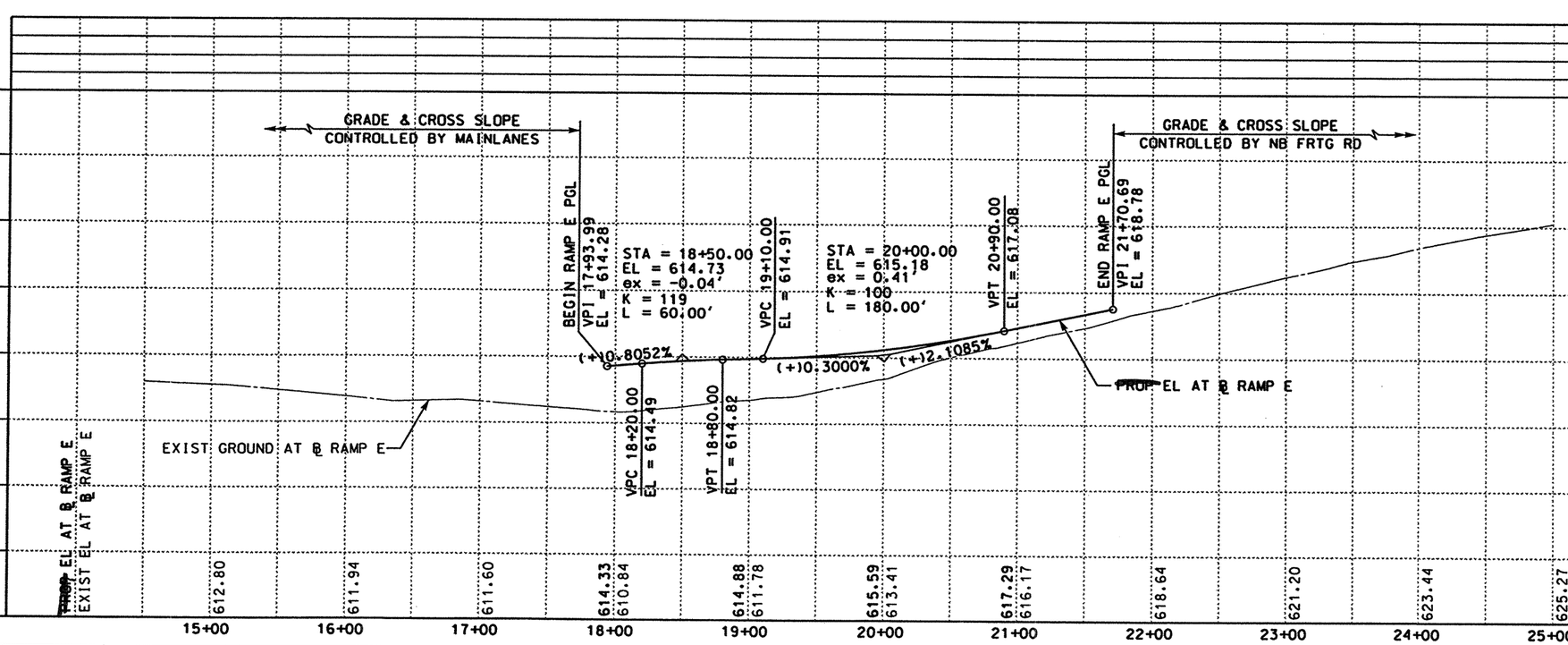
j011op01.eap, eap
j011op01.bck, bck
j011op01.dlg, dlg
j011op01.bdr, bdr
b03rop03.dgn-07 HOUFILE023 \hcivil\c0130\ 9/11/2007



LEGEND

- Ⓐ ASPH CONC PAV (TY C)(SURF)(2")
- Ⓑ ASPH CONC PAV (TY A)(4")
- Ⓒ POROUS FRICTION COURSE (1.5")
- Ⓓ FLEXIBLE BASE (6")
- Ⓔ ASPH CONC PAV (TY C) (LEVEL-UP)
- Ⓕ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- Ⓖ TYPE II CURB AND GUTTER (6")
- Ⓗ SINGLE SLOPE TRAFFIC RAIL (SSTR)
- Ⓘ TYPE II MONO CURB (6")
- Ⓙ RETAINING WALL
- Ⓚ HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- Ⓛ CONC RIPRAP (CL B)
- Ⓜ CONC PAV (CONT REINF HY STL)(12")
- Ⓝ SPECIAL BARRIER #1
- Ⓞ SPECIAL BARRIER #2
- Ⓟ SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- Ⓠ SIDEWALK (4")
- Ⓡ STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- Ⓢ SINGLE GUARDRAIL TERMINAL
- Ⓣ METAL BEAM GUARD FENCE (MBGF)
- Ⓤ FLEXIBLE BASE (8")
- Ⓥ FLEXIBLE BASE (16")
- Ⓦ BROADCAST SEEDING
- Ⓧ PLAN ASPH CONC PAV (2.75")
- Ⓨ STONE FILLED HOT MIX ASPH CONC PAV (6")
- Ⓩ SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
RAMP E
PLAN AND PROFILE
STA 17+93.99 TO
STA 21+70.69
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	376
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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j011op01.bck, bck LV ON = 1-23.25-63
j011op01.dlg, dlg
j011op01.bar, bar
REF FILE(S): j011op01.uti, uti LV ON = 1-63
j011op01.eqp, eqp LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2-9.10.14.17.20.21.25.28
j011op01.dlg, dlg LV ON = 1-6.35-39
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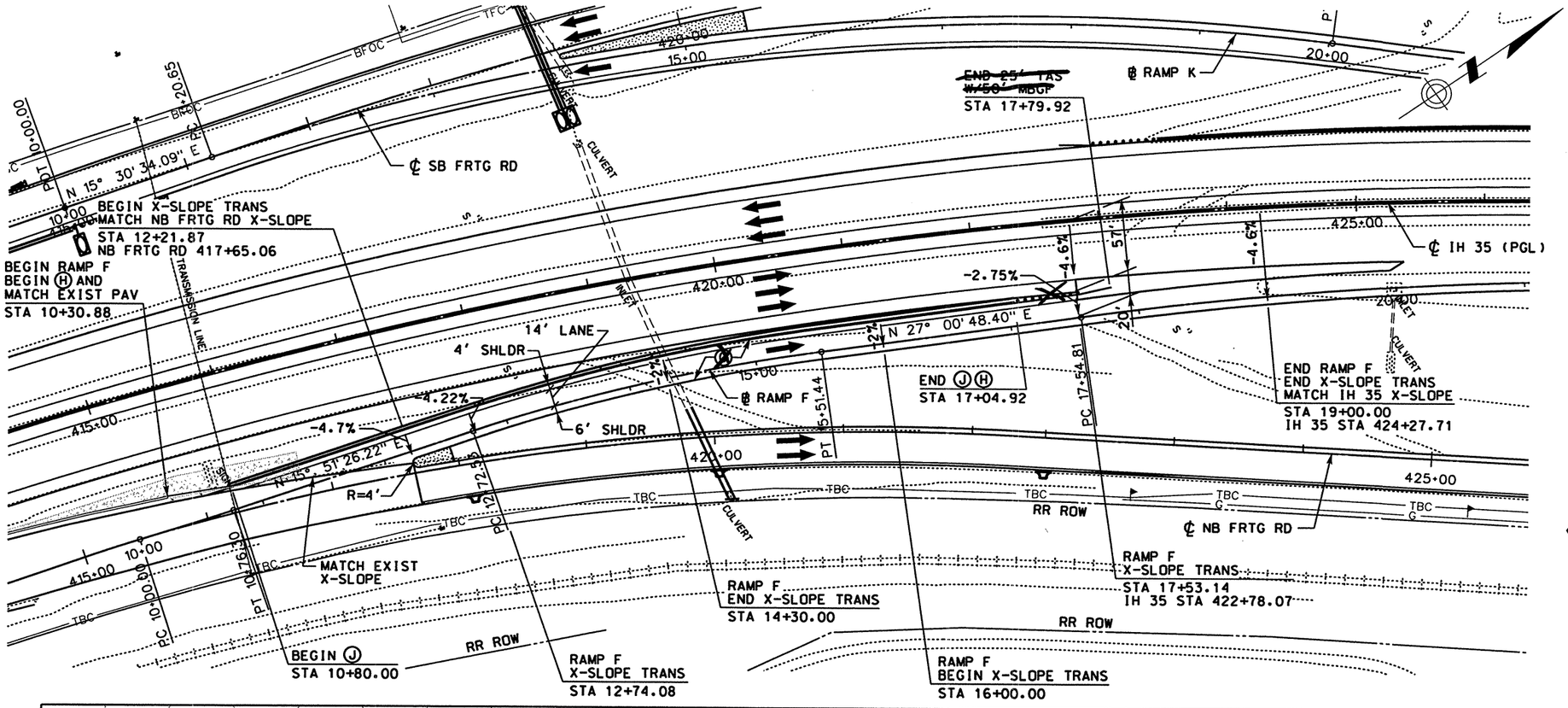
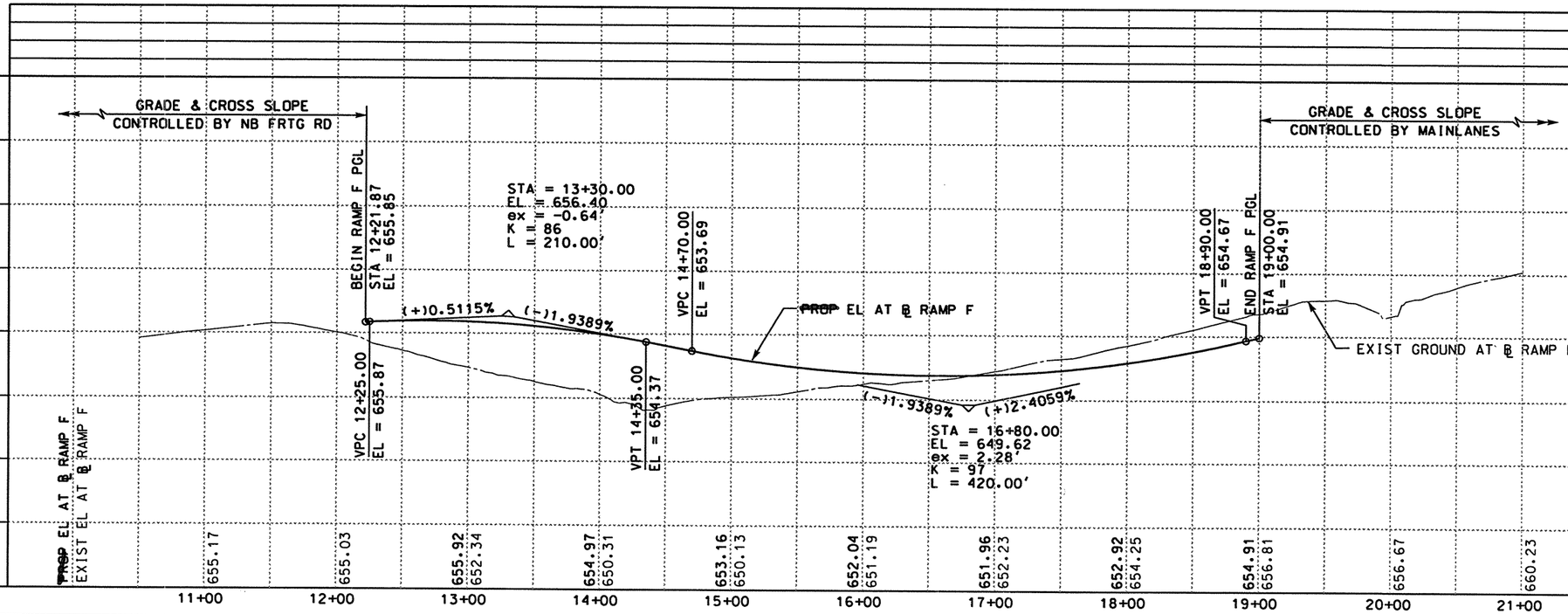
b03rap05.dgn-04 HOUFILE023 \hchiv1\c10130\ 4/18/2003



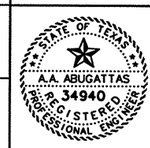
LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- ~~(C) POROUS FRICTION COURSE~~ (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 02, 2003

Alan Abugattas

6/4/2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
RAMP F
PLAN AND PROFILE
STA 10+30.38 TO
STA 19+00.00

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	371
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.drn, drn LV ON = 8.28
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j01lop01.bck, bck LV ON = 2-9.10.14.17.20.21.25.28
j01lop01.alg, alg LV ON = 1-6.35-39
j01lop01.bdr, bdr LV ON = 9-11.30.33.42.47.57.58.60-62

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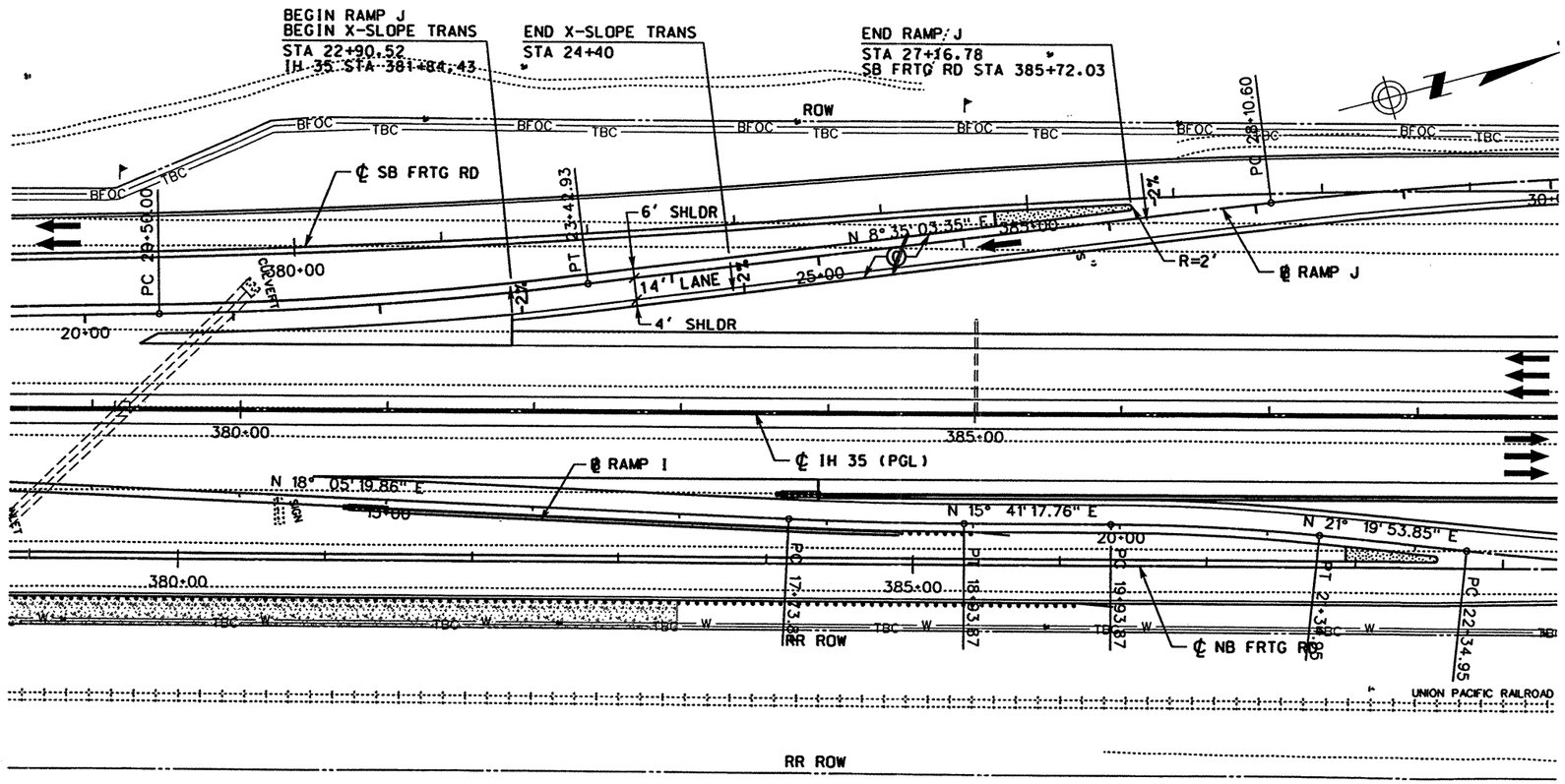

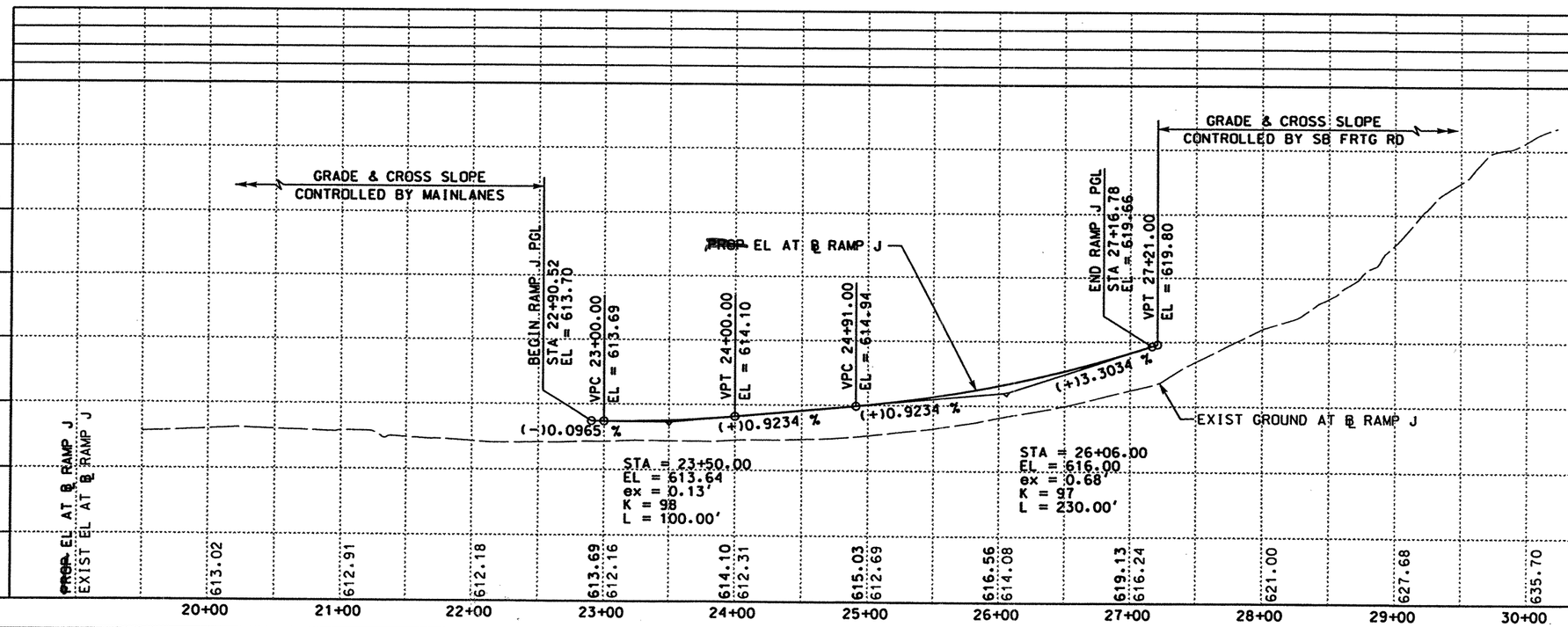

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) ~~POROUS FRICTION COURSE~~ (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
RAMP J
PLAN AND PROFILE
STA 22+90.52 TO
STA 27+16.78

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	372
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j011op01.drn, drn LV ON = 8.28
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j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,30,33,42,47,57,58,60-62

4/18/2003
\\houfile023 \hciv\lvl\c0130\
b03rop09.dgn-06

RAMP K
BEGIN X-SLOPE TRANS
STA 15+37.16

RAMP K
END X-SLOPE TRANS
STA 16+85.00

ROW

℄ SB FRTG RD

TFC BFOC TFC BFOC TFC BFOC TFC BFOC TFC BFOC TFC

CULVERT

-3.5%

R=2'

420.00

15.00

-3.5%

-4.44%

℄ RAMP K

-4.44%

425.00

PT 20+02.80

END RAMP K
MATCH MAINLANE X-SLOPE
STA 23+70.18
IH 35 STA 428+41.34

-2.4%

20.00

6' SHLDR

14' LANE

N 41° 58' 26.08" E

-2.4%

4' SHLDR

BEGIN RAMP K
MATCH SB FRTG RD X-SLOPE
STA 14+02.97
SB FRTG RD STA 419+03.07

RAMP K
BEGIN X-SLOPE TRANS
STA 19+50.00

RAMP K
END X-SLOPE TRANS
STA 21+00.00

420.00

425.00

℄ IH 35 (PGL)

N 27° 00' 48.40" E

℄ RAMP F

20.00

CULVERT

15.00

PT 15+51.44

PC 17+54.81

℄ NB FRTG RD

PT 22+90.23

N 36° 4

420.00

PC 12+72.56

TBC

RR ROW

425.00

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) ~~POROUS FRICTION COURSE~~ (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

GRADE & CROSS SLOPE
CONTROLLED BY SB FRTG RD

GRADE & CROSS SLOPE
CONTROLLED BY MAINLANES

660
650
640
630

675
665
655
645

BEGIN RAMP K PGL
STA 14+02.97
EL = 645.96

VPC 14+28.00
EL = 645.84

PROP EL AT ℄ RAMP K

EXIST GROUND AT ℄ RAMP K

VPT 18+60.00
EL = 653.43

(-)0.4863%

(+)4.0000%

STA = 16+44.00
EL = 644.79
ax = 2.42'
K = 96
L = 432.00'

VPC 20+60.00
EL = 661.43

(+)4.0000%

(+)1.0000%

STA = 22+00.00
EL = 667.03
ax = -1.05'
K = 93
L = 280.00'

VPT 23+40.00
EL = 668.43

END RAMP K PGL
VPT 23+70.18
EL = 668.73

PROP EL AT ℄ RAMP K
EXIST EL AT ℄ RAMP K

644.24	645.76	646.54	648.36	651.22	655.03	659.03	662.95	665.98	667.95	659.24
641.89	641.61	642.36	643.25	645.46	652.57	653.86	652.24	655.96	
14+00	15+00	16+00	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 02, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
RAMP K
PLAN AND PROFILE
STA 14+02.97 TO STA 23+70.18

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	373
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003

REF FILE(S): j011op01.drn. drn LV ON = 8.28
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j011op01.pro. pro LV ON = 1-23.25-63
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j011op01.eop. eop LV ON = 1-17.19-63
j011op01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-6.35-39
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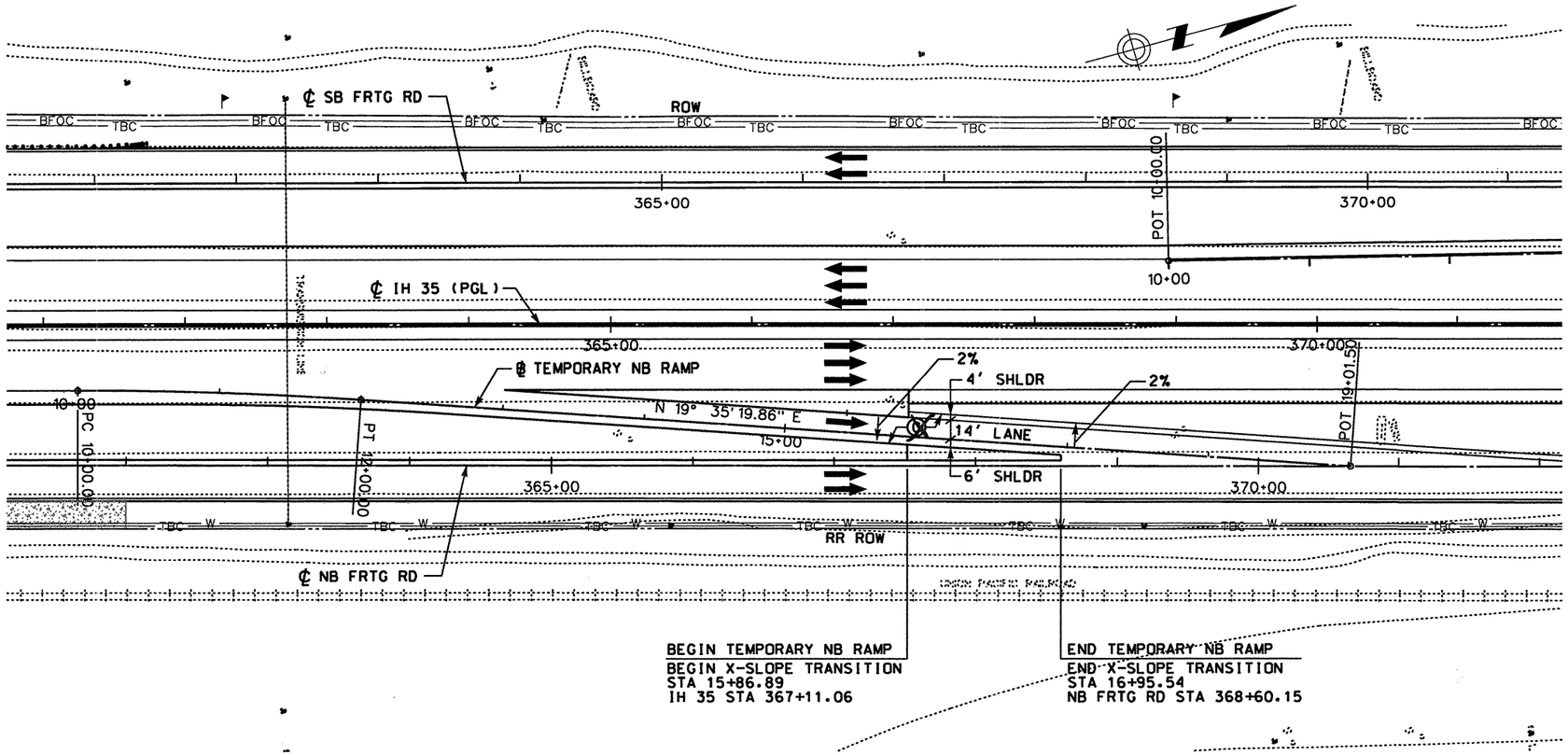
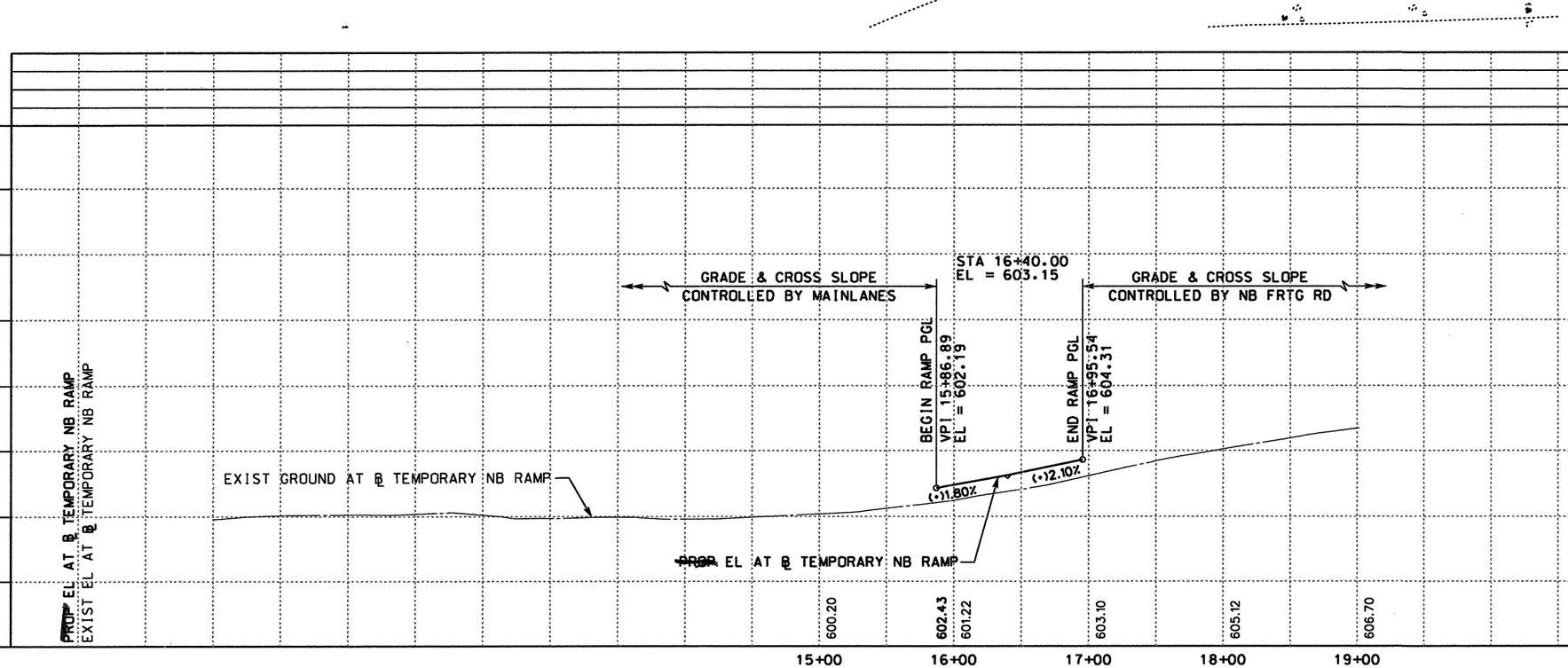


LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) ~~POROUS FRICTION COURSE~~ (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
TEMPORARY NB RAMP
PLAN AND PROFILE
STA 10+00.00 TO
STA 19+01.50

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	373A
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.uti, uti LV ON = 1-63; j011op01.eop, eop LV ON = 1-17,19-63; j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28; j011op01.alg, alg LV ON = 1-6,35-39; j011op01.bdr, bdr LV ON = 9-11,30,33,42,47,57,58,60-62

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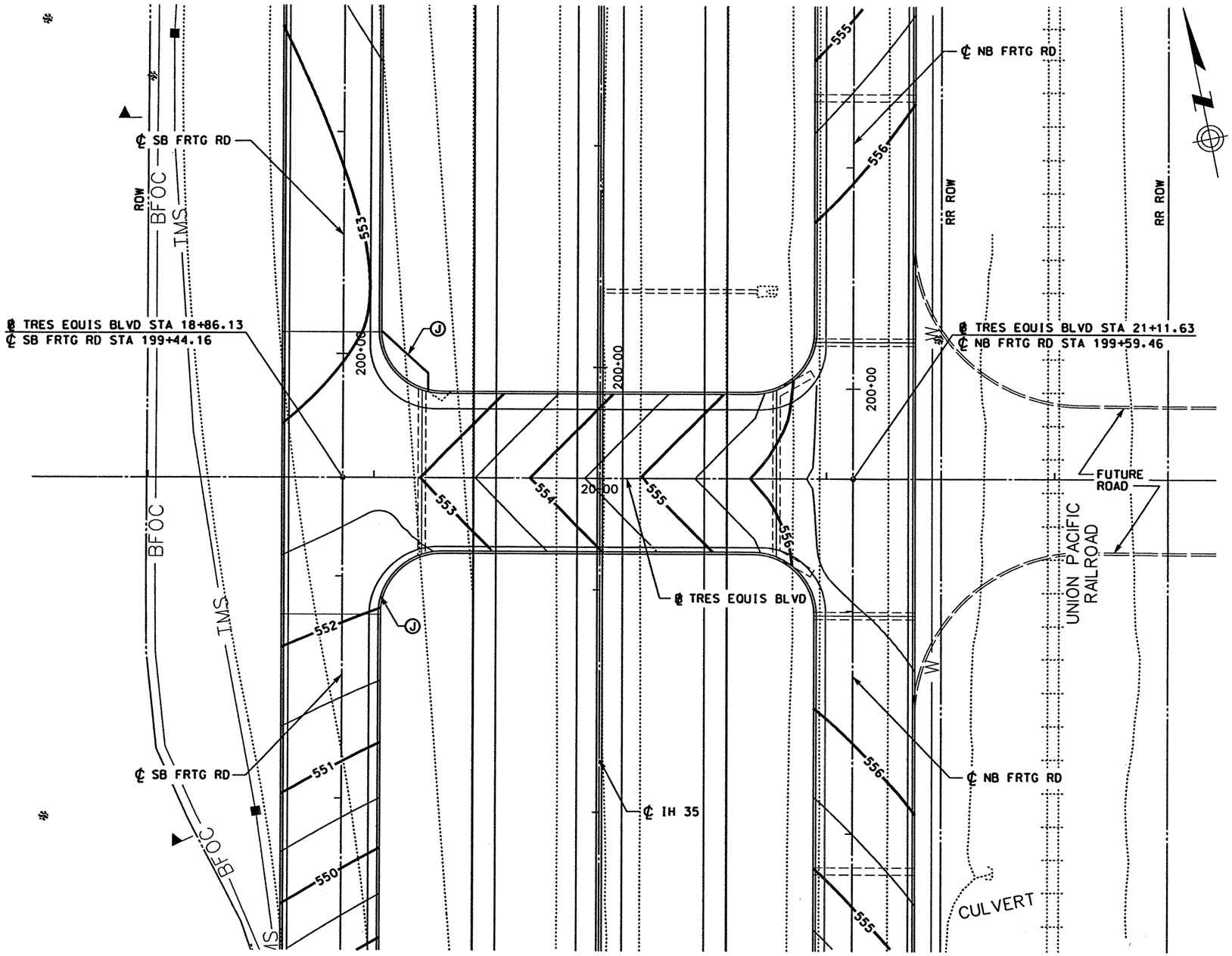
b03rop11.dgn-02 HOUFILE023 \hcivil\cf0130\ 5/5/2005



LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "RETAINING WALL LAYOUT" FOR MORE INFORMATION.
3. DIMENSIONS ARE TO FACE OF CURB.
4. SEE "TRES EQUIS BLVD UNDERPASS BRIDGE LAYOUT" FOR MORE INFORMATION.
5. SEE "NB FRTG RD @ TRES EQUIS BLVD BRIDGE LAYOUT" FOR MORE INFORMATION.
6. SEE "SOUTHBOUND FRONTAGE ROAD "PLAN AND PROFILE" FOR MORE INFORMATION.

0 25 50
SCALE: 1" = 50'

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

TRES EQUIS BLVD
CONTOUR GRADING PLAN

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		374
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

\hchwlh\c\0130\HOUFILE023\b04top03.dgn-07

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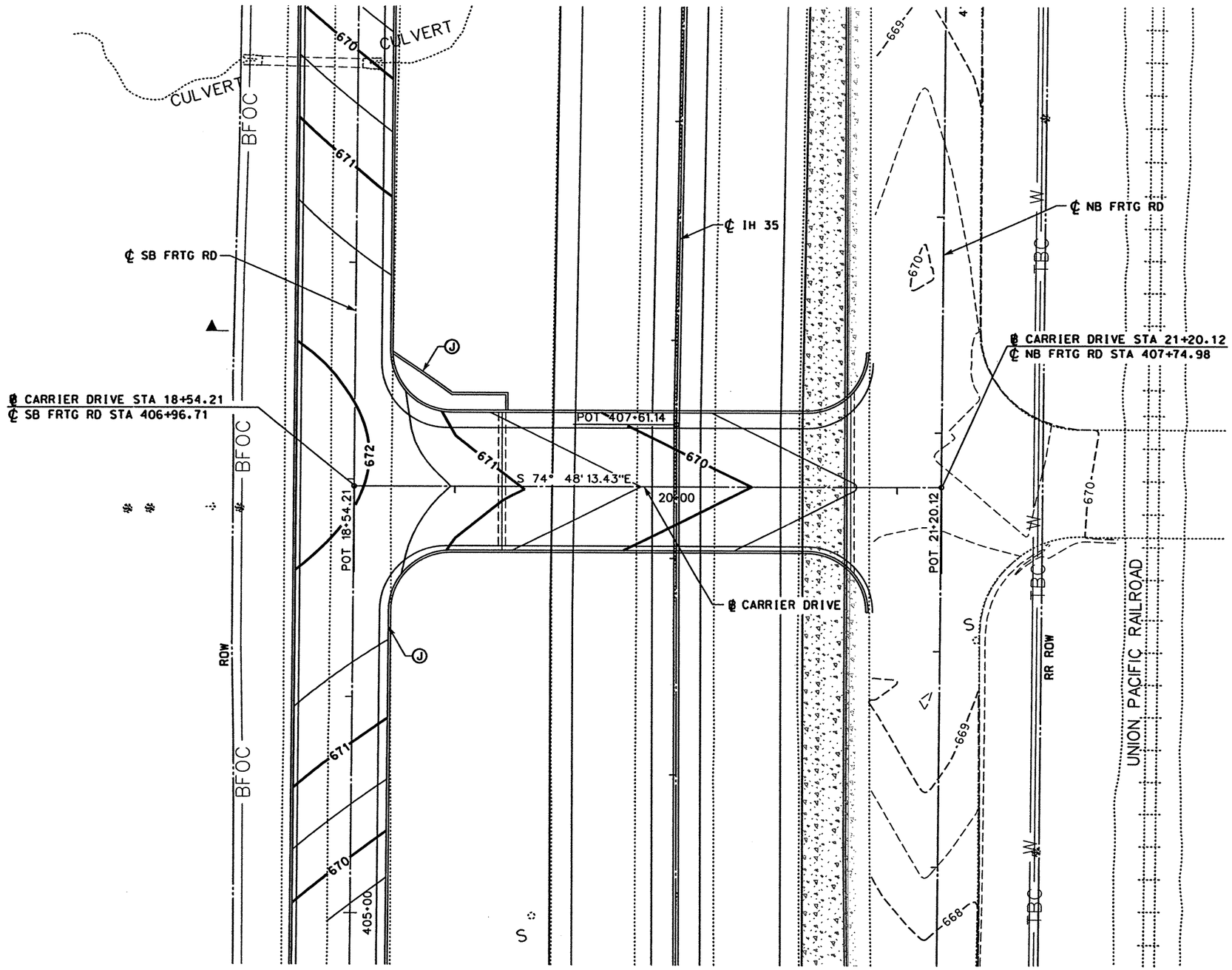

LEGEND

- (A) ASPH CONC PAV (TY C)(SURF)(2")
- (B) ASPH CONC PAV (TY A)(4")
- (C) POROUS FRICTION COURSE (1.5")
- (D) FLEXIBLE BASE (6")
- (E) ASPH CONC PAV (TY C) (LEVEL-UP)
- (F) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 2)
- (G) TYPE II CURB AND GUTTER (6")
- (H) SINGLE SLOPE TRAFFIC RAIL (SSTR)
- (I) TYPE II MONO CURB (6")
- (J) RETAINING WALL
- (K) HEAVY DUTY STONE MATRIX ASPH CONC PAV (2.75")
- (L) CONC RIPRAP (CL B)
- (M) CONC PAV (CONT REINF HY STL)(12")
- (N) SPECIAL BARRIER #1
- (O) SPECIAL BARRIER #2
- (P) SINGLE SLOPE CONCRETE BARRIER (SSCB)(TYPE 4)
- (Q) SIDEWALK (4")
- (R) STONE FILLED HOT MIX ASPH CONC PAV (2.75")
- (S) SINGLE GUARDRAIL TERMINAL
- (T) METAL BEAM GUARD FENCE (MBGF)
- (U) FLEXIBLE BASE (8")
- (V) FLEXIBLE BASE (16")
- (W) BROADCAST SEEDING
- (X) PLAN ASPH CONC PAV (2.75")
- (Y) STONE FILLED HOT MIX ASPH CONC PAV (6")
- (Z) SUPERPAV HOT MIX ASPH CONC PAV (2")
- ⬡ TYPICAL SECTION

NOTES:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.
2. SEE "RETAINING WALL LAYOUT" FOR MORE INFORMATION.
3. DIMENSIONS ARE TO FACE OF CURB.
4. SEE "CARRIER DRIVE UNDERPASS BRIDGE LAYOUT" FOR MORE INFORMATION.
5. SEE "SOUTHBOUND FRONTAGE ROAD PLAN AND PROFILE" FOR MORE INFORMATION.
6. SEE "NORTHBOUND FRONTAGE ROAD PLAN AND PROFILE" FOR MORE INFORMATION.

0 25 50
SCALE: 1" = 50'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD

CARRIER DRIVE
CONTOUR GRADING PLAN

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	375
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\vcf0130\
b04lop02.dgn-07

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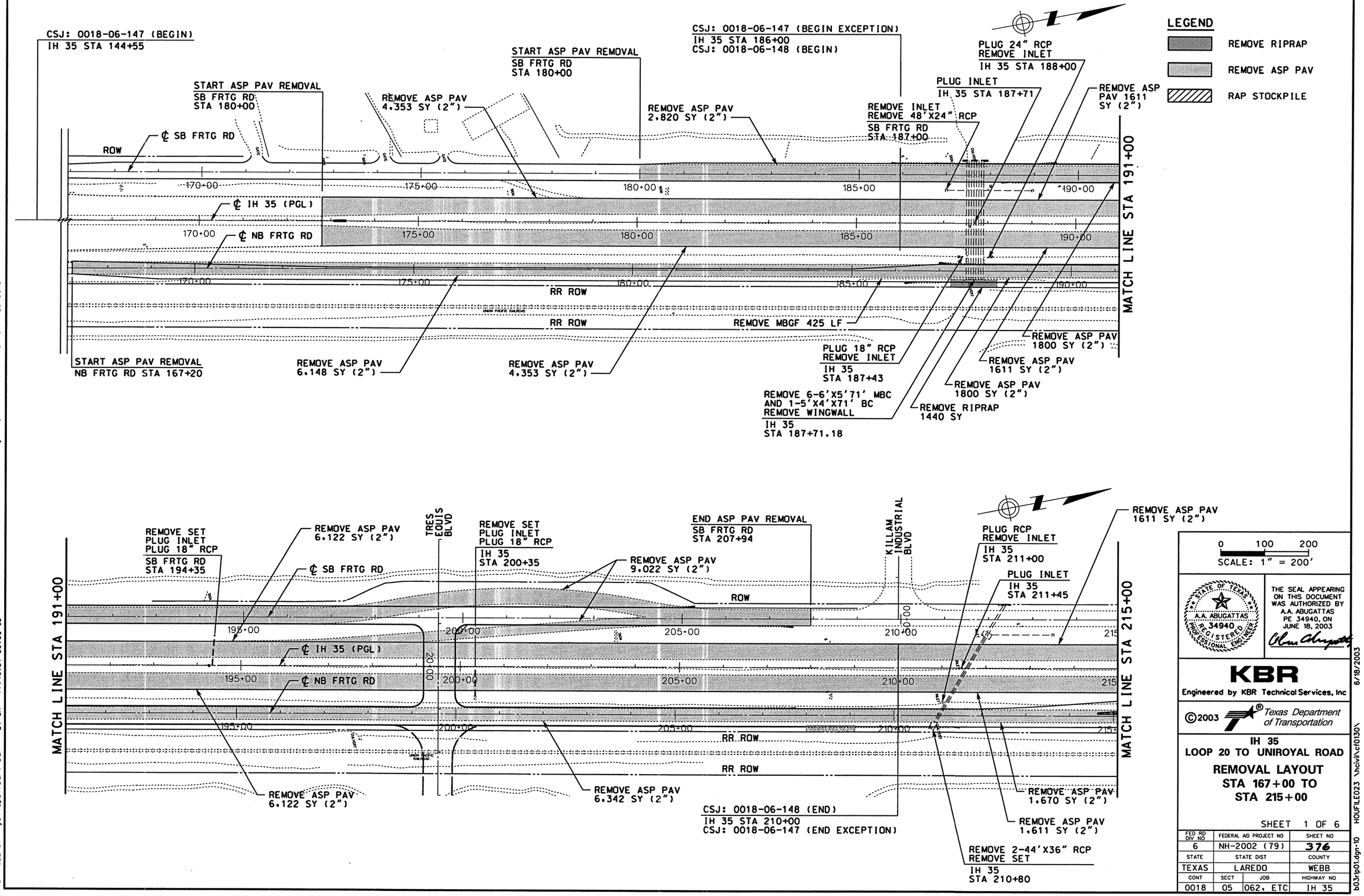

0 100 200
SCALE: 1" = 200'

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
REMOVAL LAYOUT
STA 167+00 TO
STA 215+00

SHEET 1 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	376
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/18/2003

HOUFILE023 \hciviv\c0130\

b03rp01.dgn-10

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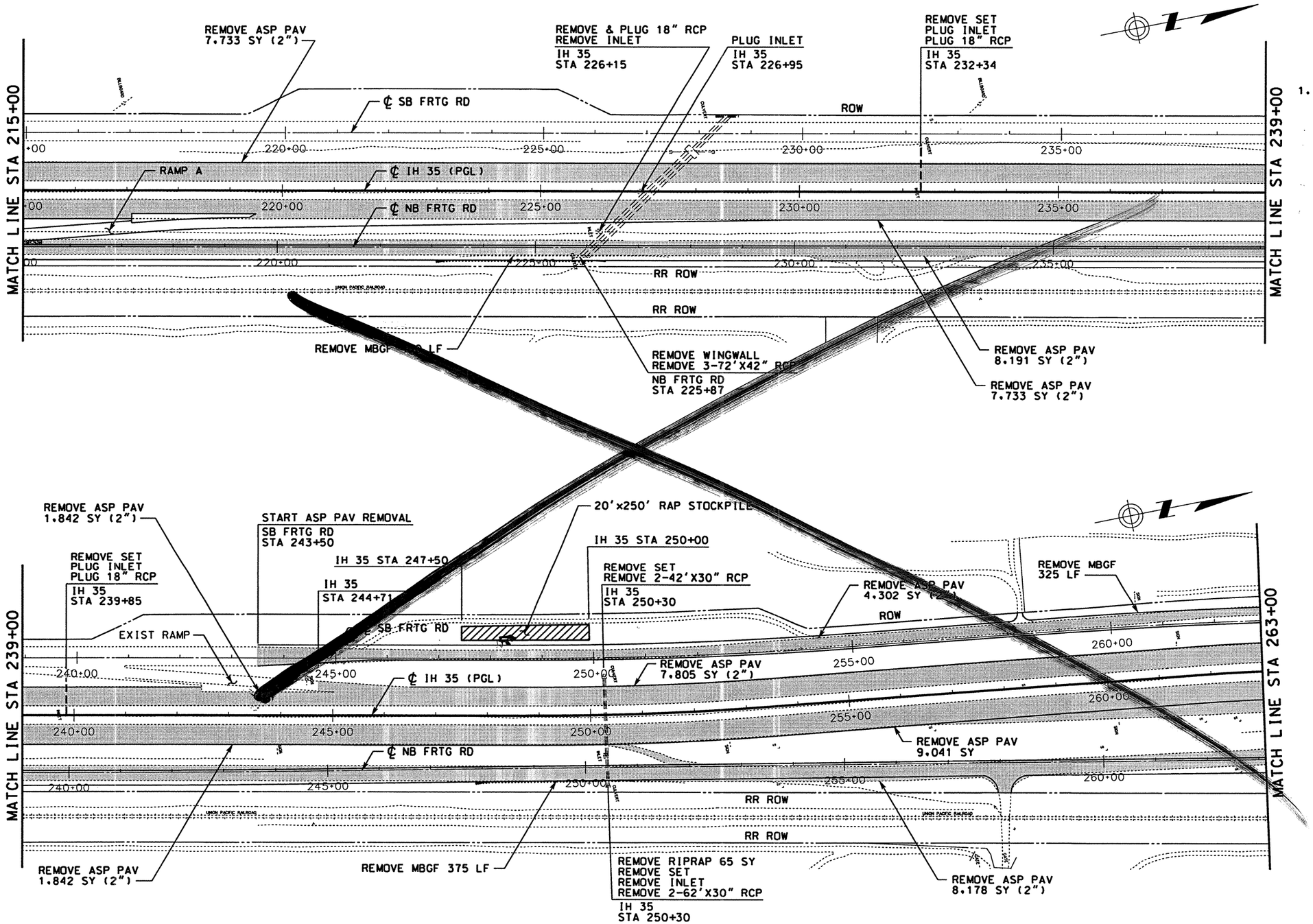
LV ON = 2,9-10,14,17,21,25,28
LV ON = 1-6,35-39
LV ON = 17,46,57-58,60-63
LV ON = 1-22,24-63
LV ON = 10,12
LV ON = 28,50,51



LEGEND

- REMOVE RIPRAP
- REMOVE ASP PAV
- RAP STOCKPILE

NOTE:

1. RAP STOCKPILE LOCATION CAN BE CHANGED AS DIRECTED BY THE ENGINEER.

0 100 200
SCALE: 1" = 200'

STATE OF TEXAS
A.A. ABUGATTAS
NO. 34940
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
REMOVAL LAYOUT
STA 215+00 TO STA 263+00

SHEET 2 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		377
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/18/2003

HOUFILE023 \hciwin\c(0130)\

b03rip02.dgn-07

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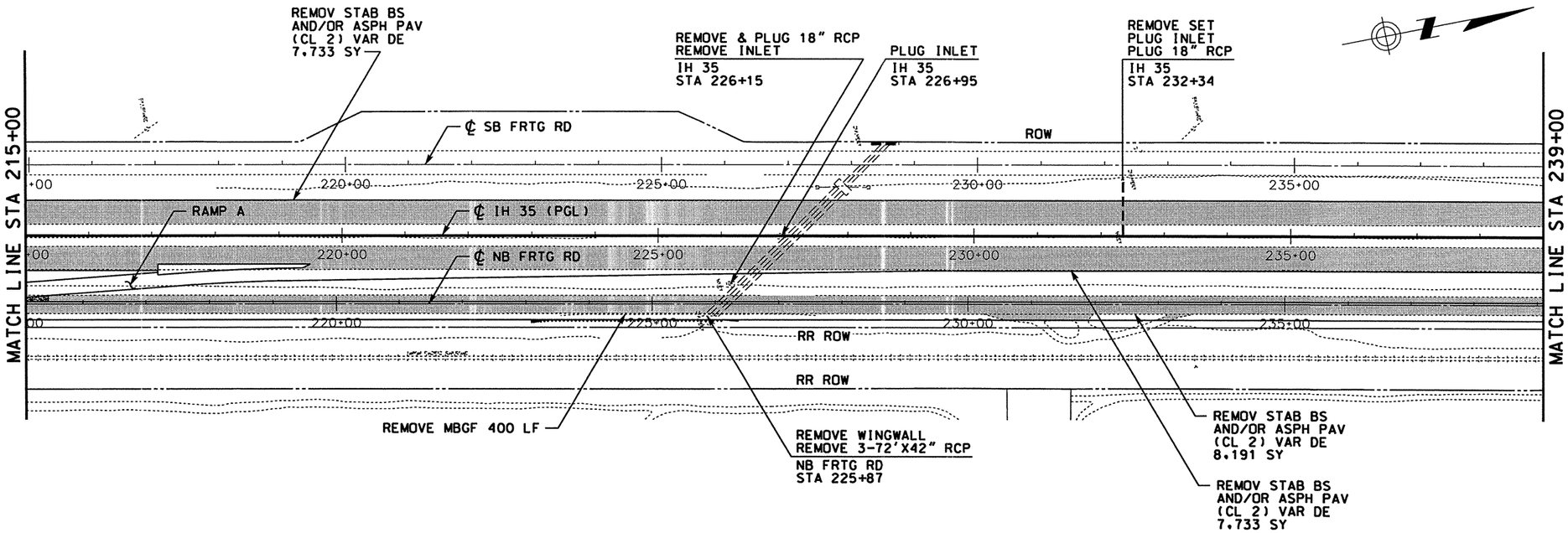

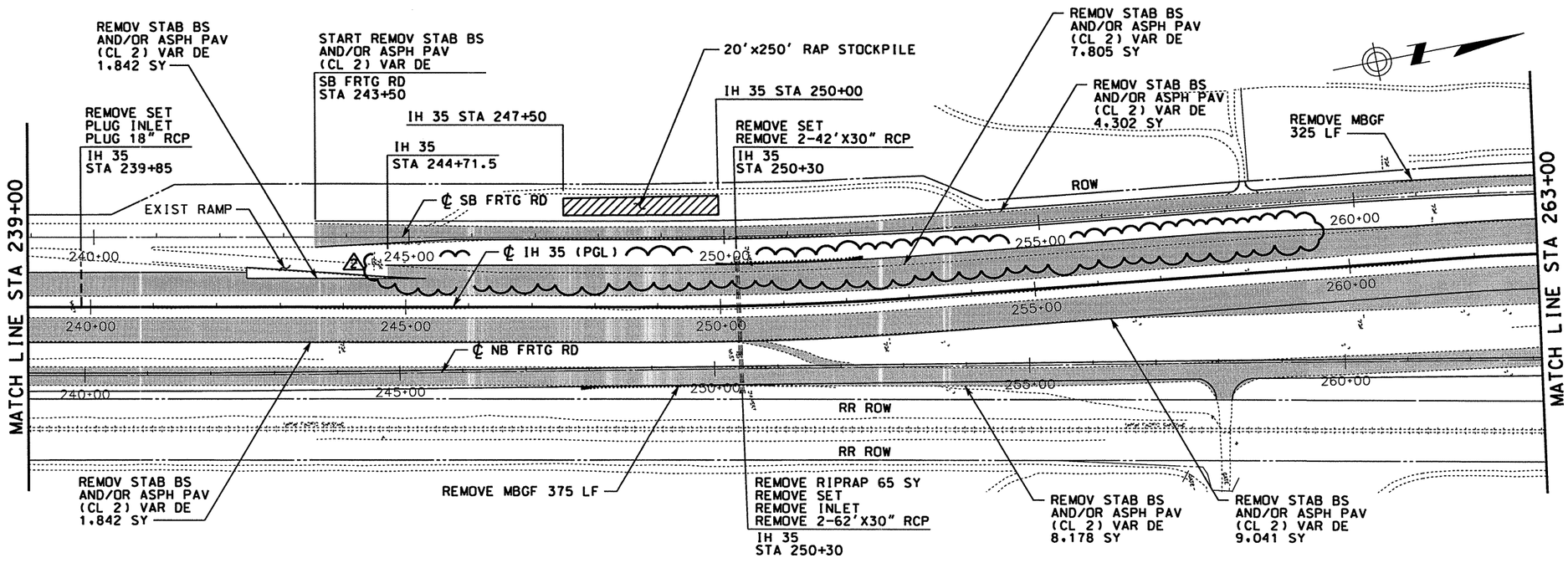

LEGEND

- REMOVE RIPRAP
- REMOVE ASP PAV
- RAP STOCKPILE

NOTE:

1. RAP STOCKPILE LOCATION ~~CAN BE~~ CHANGED AS DIRECTED BY THE ENGINEER.

DATE	BY	REV	REVISION
11/30/04	AA	2	ADD AUXILIARY LANE

0 100 200
SCALE: 1" = 200'

STATE OF TEXAS
A.A. ABUGATTAS
R. 34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
REMOVAL LAYOUT
STA 215+00 TO
STA 263+00

SHEET 2 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	377
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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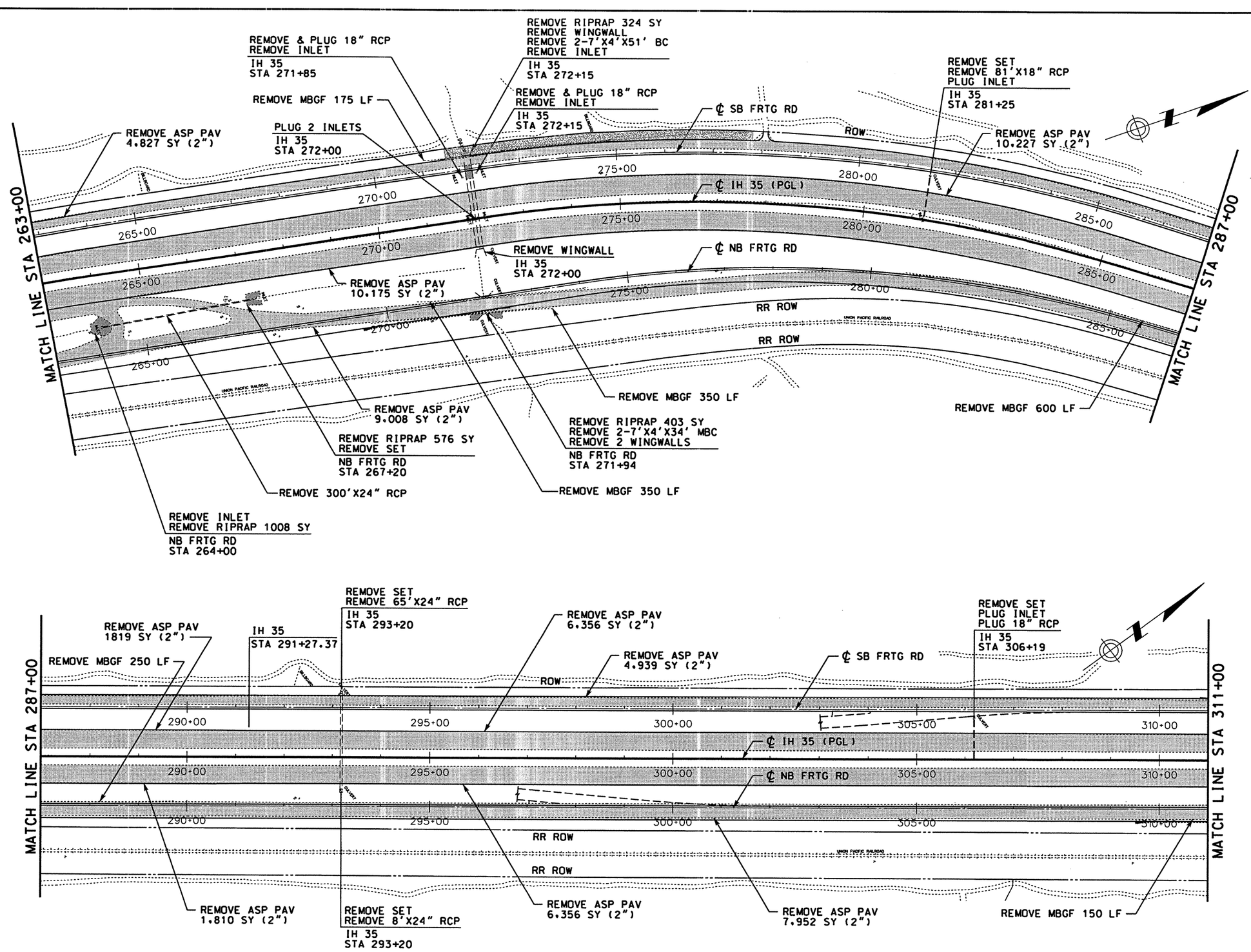
b03rp02.dgn-08 HOUFILE023 \hcivil\cd\0130\ 2/10/2005



0 100 200
SCALE: 1" = 200'

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED
PROFESSIONAL ENGINEER

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Abu Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD
REMOVAL LAYOUT
STA 263+00 TO
STA 311+00

SHEET 3 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		378
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/18/2003

HOUFILE023 \hciwl\c10130\

b03rlp03.dgn-06

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REF FILE(S): j01lop01.drn, drn LV ON = 28.50.51

REMOVE MBGF 175 LF
REMOVE RIPRAP 749 SY
REMOVE INLET
REMOVE 3-8'X7'X55' MBC
REMOVE WINGWALL
REMOVE & PLUG 24" RCP
IH 35
STA 312+00
REMOVE SET
REMOVE 70'X18" RCP
IH 35
STA 314+18
PLUG INLET
IH 35
STA 314+18
REMOVE ASP PAV
7.733 SY (2")
℄ SB FRTG RD
REMOVE ASP PAV
5.149 SY (2")
REMOVE SET
PLUG INLET
PLUG 18" RCP
IH 35
STA 334+08
IH 35 STA 334+00
30'x200' RAP STOCKPILE
IH 35 STA 332+00
ROW
MATCH LINE STA 311+00
315+00
320+00
325+00
330+00
335
℄ IH 35 (PGL)
REMOVE ASP PAV
190 SY (2")
℄ NB FRTG RD
RR ROW
PLUG INLET
IH 35
STA 312+00
RR ROW
UNION PACIFIC RAILROAD
RAMP C
REMOVE ASP PAV
8.133 SY (2")
REMOVE ASP PAV
7.733 SY (2")
MATCH LINE STA 335+00
REMOVE RIPRAP 850 SY
REMOVE INLET
REMOVE 3-8'X7'X48' MBC
REMOVE WINGWALL
IH 35
STA 312+00
REMOVE MBGF 250 LF
REMOVE SET
PLUG INLET
REMOVE 61'X18" RCP
REMOVE INLET
PLUG 18" RCP
IH 35
STA 317+18

LEGEND

- REMOVE RIPRAP
- REMOVE ASP PAV
- RAP STOCKPILE

NOTE:

1. RAP STOCKPILE LOCATION ~~CAN BE~~ CHANGED AS DIRECTED BY THE ENGINEER.

REMOVE
ASP PAV
260 SY
(2")
REMOVE
ASP PAV
322 SY
(2")
CSJ: 0018-06-147 (END)
IH 35 STA 336+00
CCSJ: 0018-05-062 (BEGIN)
REMOVE SET
PLUG INLET
PLUG 18" RCP
IH 35
STA 338+08
REMOVE 2 INLETS W/ 6'X18" RCP
REMOVE 4-10'X8'X50' MBC
REMOVE WINGWALL
IH 35
STA 343+26
REMOVE ASP PAV
2.731 SY (2")
REMOVE MBGF 200 LF
IH 35
STA 344+47.59
REMOVE ASP PAV
4.783 SY (2")
REMOVE SET
REMOVE 78.71'X18" RCP
REMOVE INLET
IH 35
STA 352+00
REMOVE ASP PAV
6.136 SY (2")
ROW
MATCH LINE STA 335+00
340+00
345+00
350+00
355+00
℄ SB FRTG RD
℄ IH 35 (PGL)
℄ NB FRTG RD
RR ROW
RAMP I
REMOVE ASP PAV
2.731 SY (2")
UNION PACIFIC RAILROAD
MATCH LINE STA 359+00
REMOVE MBGF 180 LF
REMOVE MBGF 900 LF
REMOVE ASP PAV
322 SY (2")
REMOVE ASP PAV
260 SY (2")
PLUG INLET
IH 35
STA 343+16
REMOVE RIPRAP 965 SY
REMOVE INLET
REMOVE 4-10'X8'X73.7' MBC
REMOVE WINGWALL
IH 35
STA 343+26
REMOVE ASP PAV
7.867 SY (2")
REMOVE ASP PAV
6.218 SY (2")

0 100 200
SCALE: 1" = 200'

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
REMOVAL LAYOUT
STA 311+00 TO
STA 359+00

SHEET 4 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		379
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/18/2003

HOUFILE023 \hcivil\cf0130\

b03rp04.dgn-09

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j011op01.rml . rml
j011op01.drn . drn

REF FILE(S): j011op01.eop . eop LV ON = 1-11.13-17.19-63
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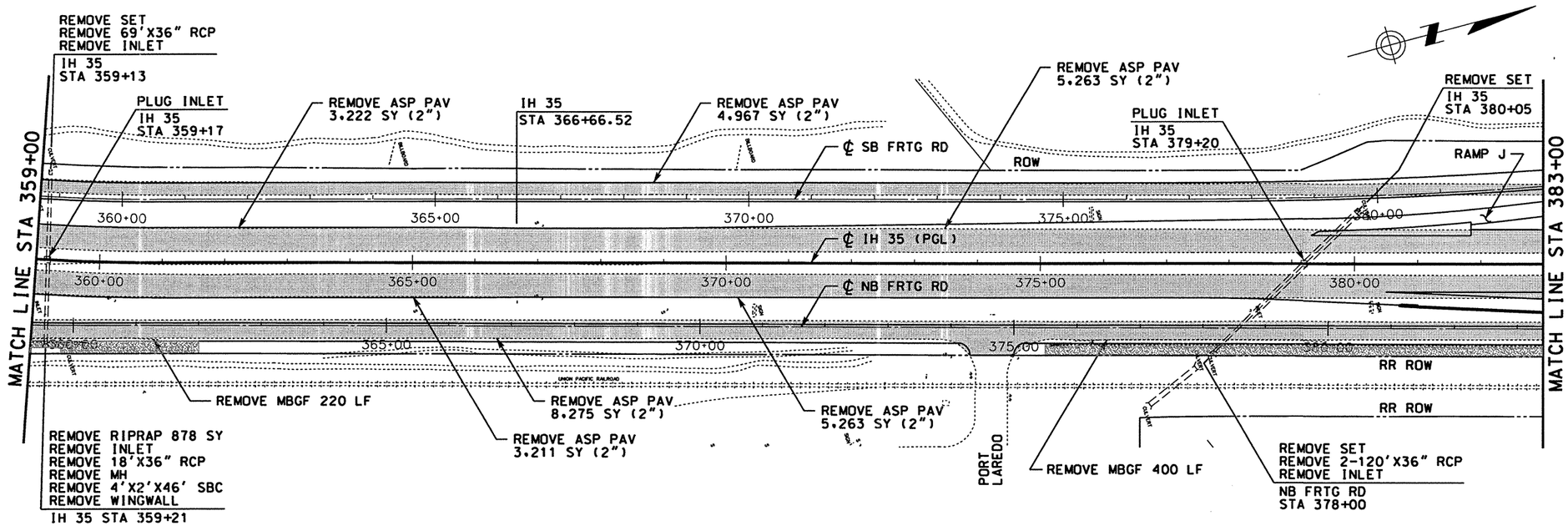
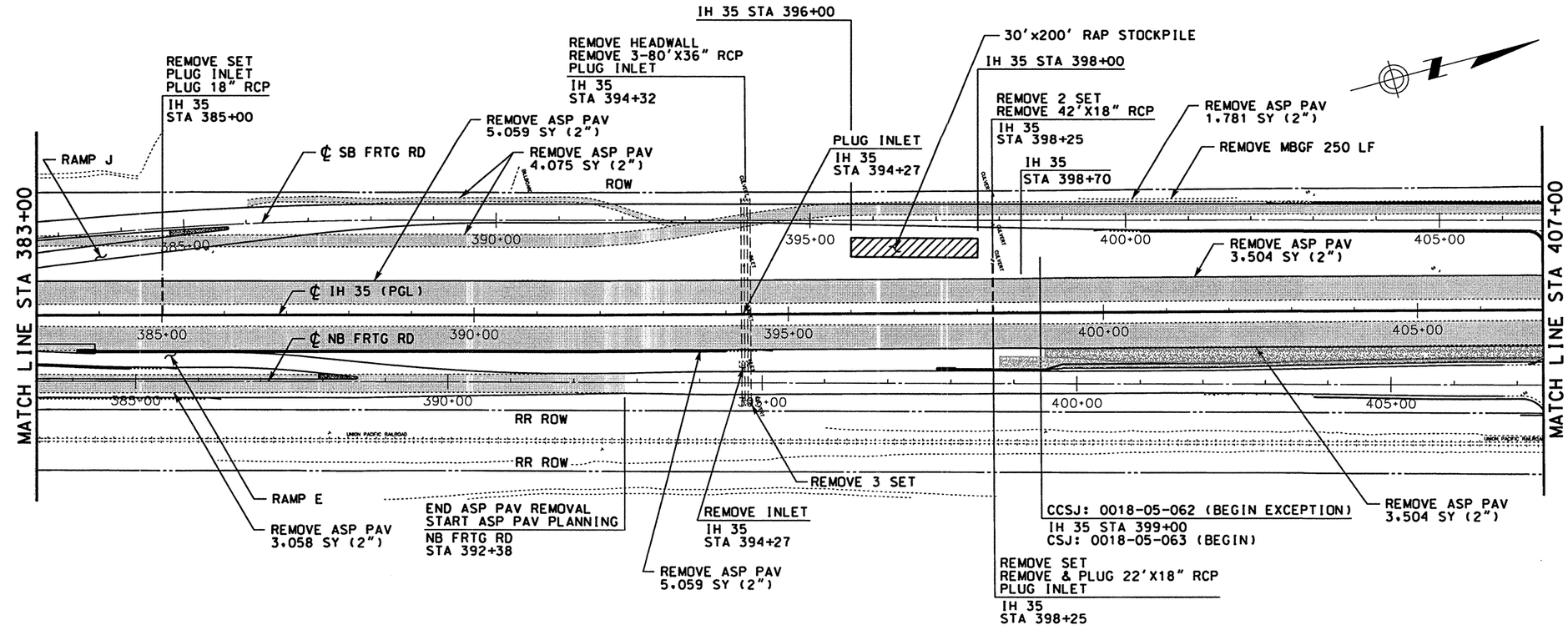
j011op01.bdr . bdr LV ON = 17.46-57.58.60-62





LEGEND

- REMOVE RIPRAP
- REMOVE ASP PAV
- RAP STOCKPILE

NOTE:

1. RAP STOCKPILE LOCATION ~~CAN BE~~ CHANGED AS DIRECTED BY THE ENGINEER.

0 100 200
SCALE: 1" = 200'

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
REMOVAL LAYOUT STA 359+00 TO STA 407+00

SHEET 5 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		380
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/18/2003

HOUFILE023 \hchivil\cf0130\

b03rip05.dgn-08

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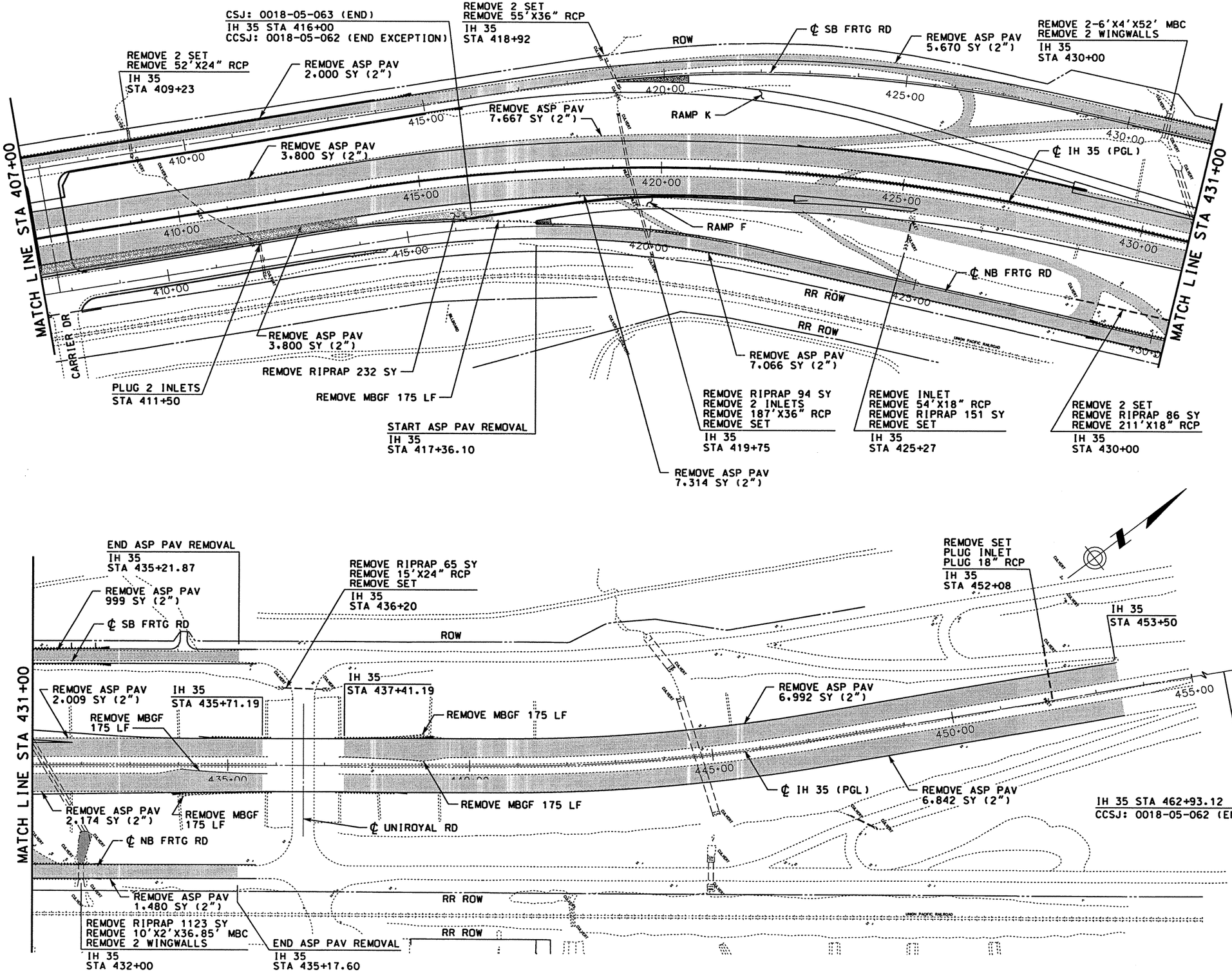

0 100 200
SCALE: 1" = 200'

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 18, 2003

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
REMOVAL LAYOUT
STA 407+00 TO STA 453+50

SHEET 6 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		381
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/18/2003

REF FILE(S): j0110p01.eop, j0110p01.bck, j0110p01.olg, j0110p01.bdr, j0110p01.drn, miloint.row
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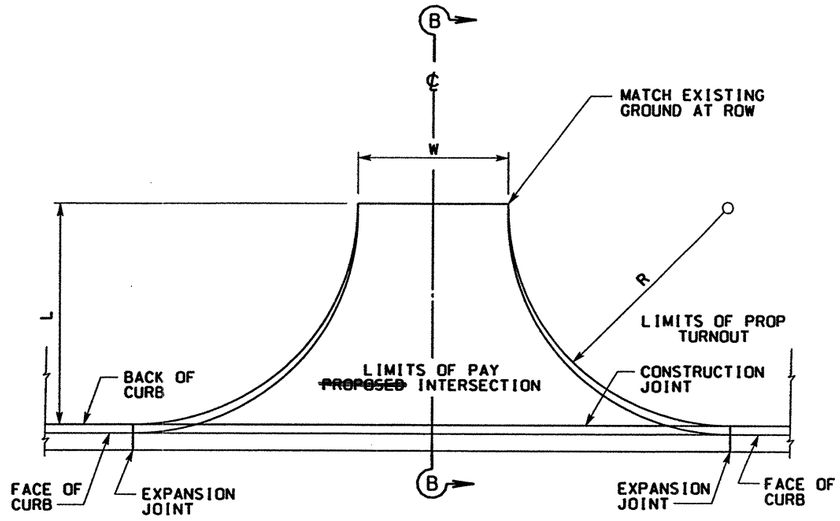
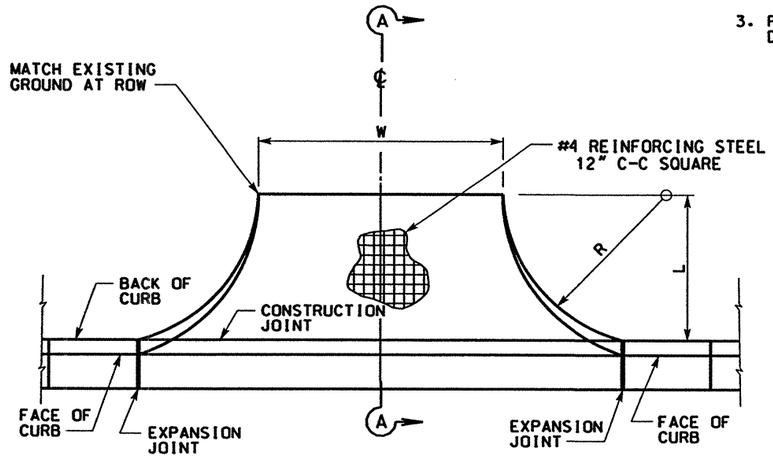
b03rp06.dgn-11 HOUFILE023 \hciv\c0130\

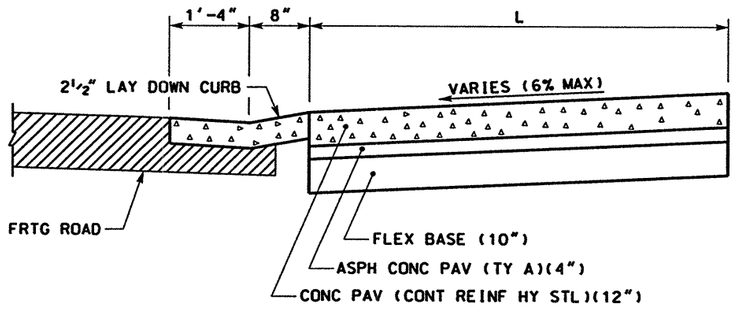


PLAN VIEW OF INTERSECTION
NTS



PLAN
NTS

TYPICAL DRIVEWAY DETAIL
IN CURB & GUTTER SECTION



SECTION B-B
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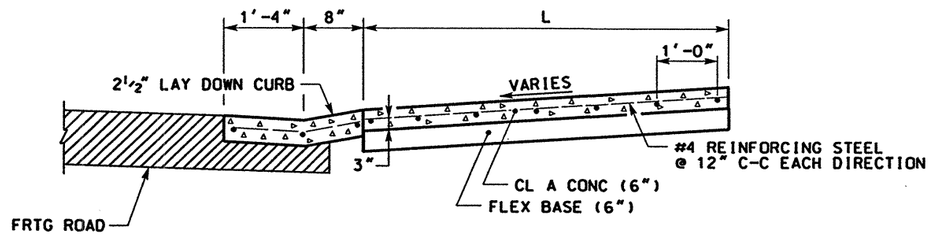

SECTION A-A
NTS

NOTES:

1. EXCAVATION AND EMBANKMENT FOR DRIVEWAYS ~~WILL NOT BE~~ PAID FOR DIRECTLY, BUT ~~SHALL BE~~ CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
2. QUANTITIES FOR DRIVEWAYS ~~SHALL BE~~ PAID FOR UNDER THE ROADWAY ITEMS.
3. FOR ADDITIONAL INFORMATION REFER TO "TYPICAL DRIVEWAY DETAIL" STANDARD SHEETS.

SUMMARY OF DRIVEWAYS

STATION		INTERSECTION	DRIVEWAY	OFFSET	WIDTH "W"	"R" FT		L
NB FTRG RD STA	SB FTRG RD STA				FT	LT	RT	FT
258+07.90		✓		RT	25	30	30	36
	258+26.80		✓	LT	10	15	15	16
	278+06.50		✓	LT	10	15	15	20
	322+72.34		✓	LT	12	30	30	66
322+76.70		✓		RT	20	20	20	20
374+65.10		✓		RT	70	20	20	20
	434+87.80		✓	LT	14	20	20	38

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

INTERSECTION, DRIVEWAY DETAILS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	382
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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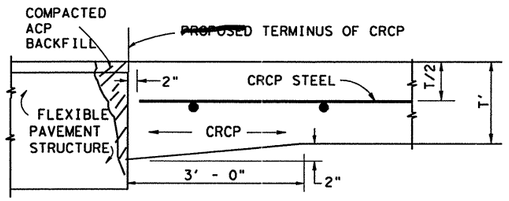
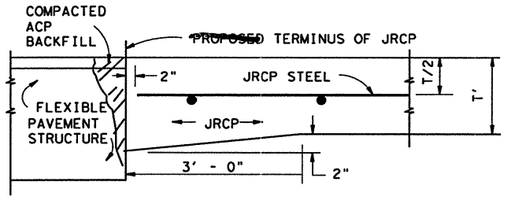


DETAIL FOR JUNCTURE WITH FLEXIBLE TYPE PAVEMENT STRUCTURE

NOTE: ADDITIONAL CONCRETE FOR THICKENED EDGE ~~SHALL~~ BE CONSIDERED INCIDENTAL TO VARIOUS BID ITEMS, DISTURBED MATERIAL IN THE FLEXIBLE PAVEMENT ~~WILL BE~~ BACKFILLED WITH ACP. THIS ACP ~~WILL~~ BE CONSIDERED INCIDENTAL TO VARIOUS BID ITEMS.

JUNCTURE A- CRCP WITH FLEXIBLE PAV.



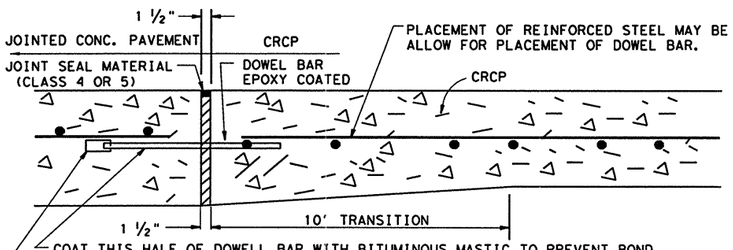
DETAIL FOR JUNCTURE WITH FLEXIBLE TYPE PAVEMENT STRUCTURE

NOTE: ADDITIONAL CONCRETE FOR THICKENED EDGE ~~SHALL BE~~ CONSIDERED INCIDENTAL TO VARIOUS BID ITEMS, DISTURBED MATERIAL IN THE FLEXIBLE PAVEMENT ~~WILL BE~~ BACKFILLED WITH ACP. THIS ACP ~~WILL BE~~ CONSIDERED INCIDENTAL TO VARIOUS BID ITEMS.

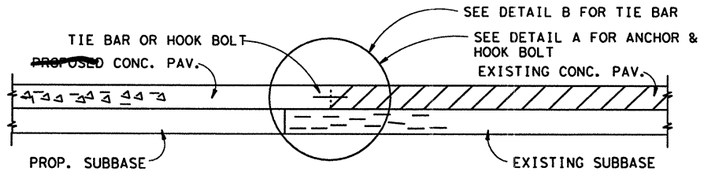
JUNCTURE B - JRCP WITH FLEXIBLE PAV.

DOWEL BAR DATA			
SLAB THICKNESS	8"	9"	10" THRU 15'
DOWEL SIZE	1"	1 1/8"	1 1/4"
DOWEL LENGTH	18"	20"	22"
DOWEL BAR SPACING	12"	12"	12"

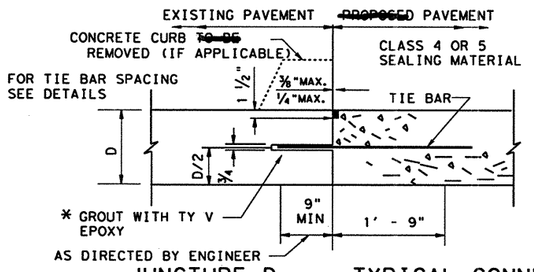
TABLE A - DOWEL BAR DATA



DETAIL "B" - DOWEL ASSEMBLY AT EXPANSION JOINT

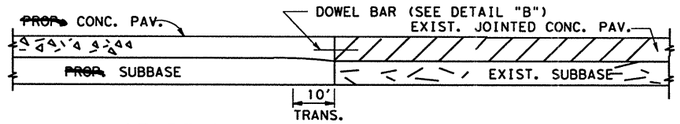


JUNCTURE C - UNIFORM DEPTH CONCRETE CRCP WITH CRCP (HOOK BOLT) OR CRCP WITH JRCP OR JRCP WITH JRCP

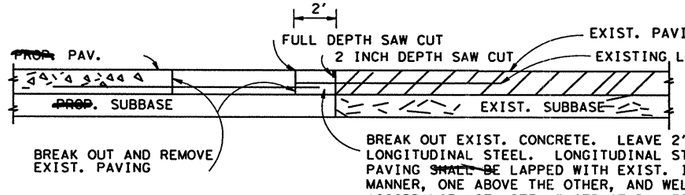


JUNCTURE D - TYPICAL CONNECTION TO EXISTING CONCRETE

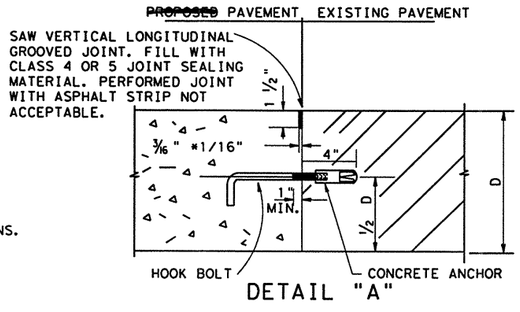
* TY VII EPOXY MAY BE REQUIRED IF, IN THE OPINION OF THE ENGINEER, TY V IS TOO FLUID



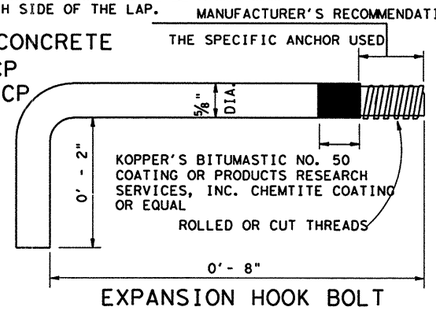
JUNCTURE E - VARIABLE DEPTH CONCRETE CRCP WITH JRCP



JUNCTURE F - "BREAK BACK" CONCRETE CRCP WITH CRCP OR JRCP WITH JRCP



DETAIL "A"



EXPANSION HOOK BOLT

GENERAL NOTES

1. FOR FURTHER INFORMATION REGARDING THE PLACEMENT OF CONCRETE AND REINFORCEMENT REFER TO THE GOVERNING SPECIFICATION FOR CONCRETE PAVEMENT.
2. THE DESIGN REQUIREMENTS FOR THE PAVEMENT STRUCTURE, I.E. BAR SPACING, BAR SIZE LAP REQUIREMENTS, ETC., ~~SHALL~~ BE AS SHOWN ON THE APPROPRIATE PAVEMENT DESIGN DETAIL.
3. SLEEPER SLAB AND ADDITIONAL REINFORCING REQUIRED HEREON ~~SHALL~~ BE CONSIDERED INCIDENTAL TO THE VARIOUS BID ITEMS.
4. WHERE USED THE SIZE, SPACING AND LENGTH OF DOWEL BARS ~~SHALL~~ BE AS SHOWN IN TABLE "A".
5. WHERE THERE IS TO BE A JUNCTURE AND ADDITIONAL JRCP PAVING IS ~~TO BE~~ PLACED AT A FUTURE DATE, MULTIPLE PIECE DOWEL WILL BE PERMITTED AT THE JUNCTURE. THE MULTIPLE PIECE DOWEL BAR ASSEMBLIES ~~SHALL~~ HAVE A MINIMUM ULTIMATE TENSILE STRENGTH OF 50.0 KIPS AND ~~SHALL~~ BE SMOOTH EPOXY COATED BARS. THE MULTIPLE PIECE DOWEL BAR ASSEMBLIES ~~SHALL~~ HAVE A STOP TYPE COUPLINGS AND ~~SHALL~~ HAVE ROLLED THREADS ON THE BARS. THE BAR ~~SHALL~~ BE DISMANTLED AND THE COUPLING PORTION USED IN CONSTRUCTION ~~SHALL~~ BE FITTED WITH A PLASTIC CAP. THE REMAINING PORTION OF THE BAR ~~SHALL~~ BE FURNISHED TO THE ENGINEER.
6. WHERE THE PAVING IS CRCP AND A RAMP COMPOSED OF A FLEXIBLE PAVEMENT IS ~~TO BE~~ USED AT THE JUNCTURE UNTIL FUTURE PAVING IS CONSTRUCTED, MULTIPLE PIECE TIE BARS ~~MAY BE~~ USED IF PERMITTED BY THE ENGINEER. IF USED, THE MULTIPLE PIECE TIE BAR ASSEMBLIES ~~SHALL~~ HAVE STOP TYPE COUPLINGS AND ~~SHALL~~ HAVE ROLLED THREADS ON THE BARS. THE MULTIPLE PIECE TIE BAR ASSEMBLIES ~~SHALL~~ DEVELOP A MINIMUM ULTIMATE TENSILE STRENGTH EQUAL TO 1-1/2 TIMES THE YIELD STRENGTH OF THE TRANSVERSE BARS BEING JOINED. TIE BARS ~~SHALL~~ BE DEFORMED, REINFORCING BARS. TIE BAR ASSEMBLIES MADE FROM STEELS OTHER THAN ASTM GRADE 60 AND WITH DEFORMATIONS OTHER THAN ASTM STD. ~~MAY BE~~ USED PROVIDED THEY ~~CAN BE~~ PROVEN TO THE SATISFACTION OF THE ENGINEER THAT THEY ARE IN EVERY RESPECT THE EQUAL OF THE ASSEMBLIES SPECIFIED. LABORATORY TESTING OF THE PROPOSED ASSEMBLIES, AT THE CONTRACTOR'S EXPENSE, ~~MAY BE~~ REQUIRED. ONE PORTION OF THE TIE BAR ASSEMBLY(S) ~~SHALL~~ BE LAPPED AND WELDED TO EACH LONGITUDINAL BAR IN ACCORDANCE WITH ITEM "STRUCTURAL FIELD WELDING," THE OTHER PORTION INTO THE COUPLING PRIOR TO PAVING. MULTIPLE PIECE TIE BAR LENGTHS ~~SHALL~~ CONFORM TO THE TIE BAR LENGTHS SHOWN ELSEWHERE IN THE PLANS. ADDITIONAL "SHEAR STEEL" ~~WILL~~ ALSO BE REQUIRED AND ~~MAY BE~~ USED WITH MULTIPLE PIECE ASSEMBLIES AS PREVIOUSLY DESCRIBED. THE ADDITIONAL STEEL BARS ~~WILL BE~~ OF EQUAL DIAMETER AT A SPACING, DOUBLE THAT OF THE LONGITUDINAL STEEL AND THE LONGITUDINAL STEEL AND THE LENGTH ~~SHALL~~ BE 66 TIMES THE TIE BAR DIAMETER
7. SHEAR CUTTING DOWEL BARS IS PROHIBITED.
8. DOWEL BAR EPOXY COATING ~~SHALL~~ CONFORM TO ARTICLE 440.9 "EPOXY COATING OF REINFORCING STEEL."
9. ANY LONGITUDINAL REINFORCING WHICH IS OR HAS BEEN BENT ~~SHALL~~ BE REPLACED. IF THERE IS NOT SUFFICIENT EXPOSED REINFORCING TO PROVIDE A MINIMUM OF A 33 BAR DIAMETER LAP THAN THE EXISTING PAVEMENT ~~SHALL BE~~ REMOVED AND THE EXISTING REINFORCING SUFFICIENTLY EXPOSED TO PROVIDE A 33 BAR DIAMETER LAP ANY SHEAR BARS THAT ARE DISTURBED ~~SHALL BE~~ REPLACED BY DRILLING AND GROUTING AS REQUIRED BY NOTE 12 ON SHEET BELOW. THE CONTRACTOR ~~SHALL~~ BEAR THE ENTIRE EXPENSE FOR THIS CORRECTIVE ACTION.
10. TIE BARS AND DOWEL BARS OMITTED, LOST OR DAMAGED ~~SHALL BE~~ REPLACED BY DRILLING AND EPOXY GROUTING AT THE CONTRACTOR'S EXPENSE.
11. JUNCTURES A & B ARE ONLY SUITABLE FOR MINOR STREETS WITH LOW ADT'S, OTHERWISE THE ~~PROPOSED~~ CONCRETE PAVEMENT MUST BE ANCHORED PRIOR TO THE TERMINUS.
12. ADDITIONAL SHEAR BARS (DIAMETER "D") ~~SHALL BE~~ THE SAME SIZE AS LONGITUDINAL BARS AND ~~SHALL BE~~ SPACED MIDWAY BETWEEN ALTERNATE LONGITUDINAL BARS ALONG THE TRANSVERSE CONSTRUCTION JOINT FORMED AT THE LEAVE-OUT.

STATE OF TEXAS — A. A. ABUGATTAS — 34940 — REGISTERED — PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A. A. ABUGATTAS PE 34940, ON JUNE 18, 2003

Alan Abugattas

REVISIONS
REV. 6/9 NOTE 7
REV. 5/98 GROUT
REV. 11/93 UPDATED TO REF SPECS. AND ADD REVISION BLOCK
REV. 11/92 ADDED CLASS OR 6 JT. SEAL, DOWEL CAP, BIT. MASTIC COATING AND NOTES 8,9,10,& 11 REVISE JUNCTURE D
REV. 6/98 ADDED COPYRIGHT INFORMATION TO THE TITLE BLOCK.

TEXAS DEPARTMENT OF TRANSPORTATION

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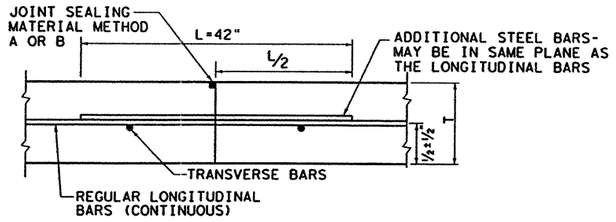
CONCRETE PAVEMENT JUNCTURES

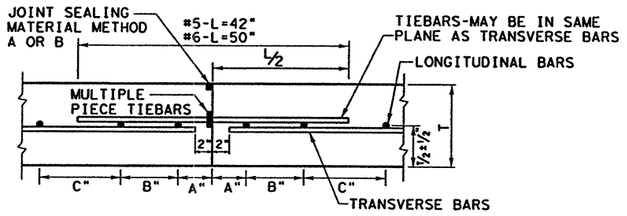
DN		DRAWING	DATE	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.		HIGHWAY NO.
CK DN				6	TEXAS	NH-2002 (79)		383
DW				STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK DW				22	WEBB	0018	05	062, ETC	IH 35
TR								
CK TR								

6/18/2003

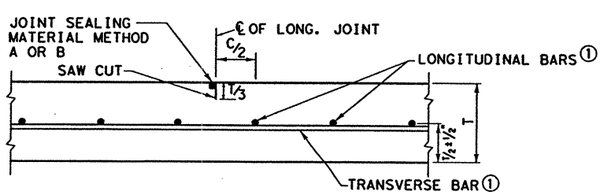
STD B - 7 b34mp116.dgn-01 HOUFILE023 \\chiv1\cf0130\



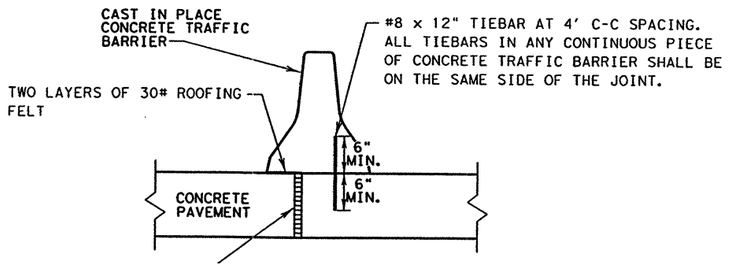
TRANSVERSE CONSTRUCTION JOINT
SECTION X - X



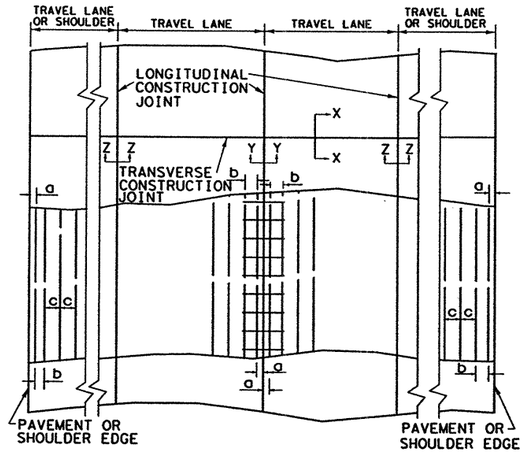
LONGITUDINAL CONSTRUCTION JOINT
SECTION Y - Y



LONGITUDINAL CONTRACTION JOINT
SECTION Z - Z



FREE LONGITUDINAL JOINT DETAIL



TYPICAL PAVEMENT LAYOUT

TABLE NO. 1 LONGITUDINAL STEEL

LONGITUDINAL STEEL SIZE AND SPACINGS						
SLAB THICKNESS AND BAR SIZE		REGUALAR REINFORCEMENT	FIRST SPACING AT EDGE OR JOINT	SECOND SPACING FROM EDGE OR JOINT	ADDITIONAL REINFORCEMENT AT TRANSVERSE CONST. JOINT	
T INCHES	BAR NUMBER	SPACING "C" INCHES	SPACING "A" INCHES	SPACING "B" INCHES	SPACING 2 x C INCHES	LENGTH "L" INCHES
8	5	9	3 TO 4	3 TO 9	18	42
9	5	7.5	3 TO 4	3 TO 7.5	15	42
10	6	8.5	3 TO 4	3 TO 8.5	NONE	-
11	6	7	3 TO 4	3 TO 7	NONE	-
12	6	6	3 TO 4	3 TO 6	NONE	-
13	6	5.5	3 TO 4	3 TO 5.5	NONE	-

TABLE NO. 2 ALLOWABLE PAVEMENT WIDTH (W) IN FT.
FOR TRANSVERSE BAR SPACING (Bs) NOT SHOWN USE FORMULAE.

SLAB THICKNESS	8"	9"	10"	11"	12"	13"
#5 BAR AT 36"	62	55	50	45	41	38
#5 BAR AT 24"	93	83	74	68	62	57
#6 BAR AT 36"	88	78	70	64	59	54
#6 BAR AT 24"	126	117	105	96	88	81

TRANSVERSE STEEL AND TIEBAR SPACINGS SHALL BE BASED ON THE FOLLOWING FORMULAE.

FOR #5 BARS $W = \frac{17857\ N}{T\ Bs}$ FOR #6 BARS $W = \frac{25346\ N}{T\ Bs}$

W - ALLOWABLE WIDTH OF PAVEMENT SLAB WIDTH IN FEET (MEASURED EDGE TO EDGE OR EDGE TO UNTIED JOINT)
N - NUMBER OF LAYERS OF STEEL (1 OR 2)
T - THICKNESS OF SLAB IN INCHES
Bs - BAR SPACING IN INCHES

MAXIMUM Bs = 36"
MINIMUM Bs = 12"

GENERAL NOTES

1. FOR FURTHER INFORMATION REGARDING THE PLACEMENT OF CONCRETE AND REINFORCEMENT, REFER TO THE GOVERNING SPECIFICATIONS FOR "CONCRETE" AND "REINFORCING STEEL."
2. LONGITUDINAL AND TRANSVERSE BARS SHALL BE DEFORMED STEEL CONFORMING TO ASTM A-615 (GRADE 60) OR ASTM A-616 (GRADE 60).
3. DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS AND THE CROWN CROSS-SLOPE SHALL BE SHOWN ELSEWHERE IN THE PLANS.
4. SPLICES SHALL BE A MINIMUM OF 33 TIMES THE NOMINAL STEEL DIAMETER.
5. CONSOLIDATION WITH HAND-MANIPULATED MECHANICAL VIBRATORS IS REQUIRED ADJACENT TO ALL TRANSVERSE CONSTRUCTION JOINTS.
6. THE DETAIL FOR THE JOINT SEALANT AND RESERVOIR WILL BE SHOWN IN CONCRETE PAVEMENT DETAIL, JOINT SEALANT.
7. PAVEMENT WIDTHS OF MORE THAN 16' SHALL HAVE A LONGITUDINAL JOINT (SECTION Z-Z OR Y-Y). THESE JOINTS SHALL BE LOCATED WITHIN 6" OF THE LANE LINE UNLESS THE JOINT LOCATION IS SHOWN ELSEWHERE ON THE PLANS.
8. THE SAW CUT FOR THE LONGITUDINAL JOINT SHALL BE ONE FOURTH THE SLAB THICKNESS WHEN CRUSHED LIMESTONE IS USED AS THE COARSE AGGREGATE.
9. WITHIN ANY AREA BOUNDED BY TWO FEET OF PAVEMENT LENGTH MEASURED PARALLEL TO THE CENTERLINE AND TWELVE FEET OF WIDTH MEASURED PERPENDICULAR TO THE PAVEMENT CENTERLINE, NOT OVER 33% OF THE REGULAR LONGITUDINAL STEEL SHALL BE SPLICED.
10. MULTIPLE PIECE TIEBARS SHALL BE USED AT LONGITUDINAL CONSTRUCTION JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS.
11. FOR THE 13" SLAB THICKNESS, WHEN STANDARD DETAIL CPCR(1)-94 IS INCLUDED IN THE PLANS, THE CONTRACTOR MAY CHOOSE EITHER THE ONE OR TWO LAYER PLACEMENT OF REINFORCING STEEL UNLESS OTHERWISE SPECIFIED.

FOOTNOTE:
① WHEN MACHINE PLACING OF THE STEEL REINFORCEMENT IS USED, THE USE OF CHAIRS WILL NOT BE REQUIRED AND THE TRANSVERSE STEEL MAY BE PLACED ABOVE OR BELOW THE LONGITUDINAL STEEL. THE VERTICAL LOCATION OF THE BARS WILL BE APPROVED BY THE ENGINEER.

Texas Department of Transportation
Design Division (Pavement)

CONCRETE PAVEMENT DETAILS
CONTINUOUSLY REINFORCED STEEL BARS
ONE LAYER PLACEMENT
T-8, 9, 10, 11, 12, & 13 INCHES

CPCR(1)-94

© TxDOT SEPTEMBER 1994	DN: LJB	CK: LJB	DW: BGD	CK: GLG	REG NO.: R0000
MODIFICATIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT #		SHEET
	22	6	NH-2002 (79)		334
	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
	WEBB		0018	05	062, ETC	IH 35

LEVELS USED
1 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 45 56 63 73 83 94 04 14 24 34 44 45 46 47 48
(95 05 16 25 35 45 56 66 76 85 96 06 16 26 63

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4/18/2003
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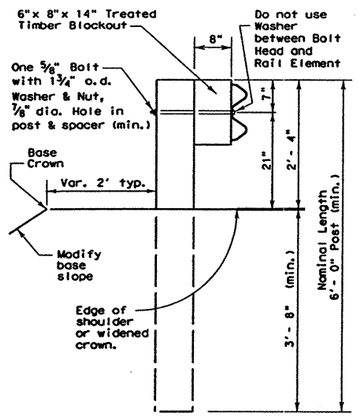
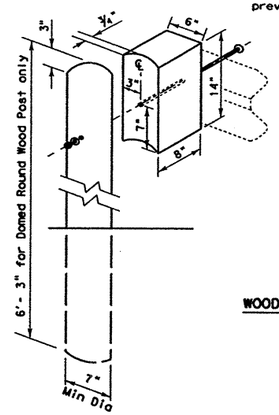
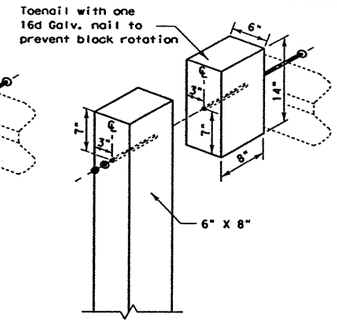


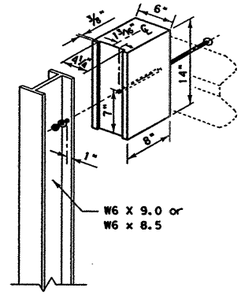
TYPICAL POST



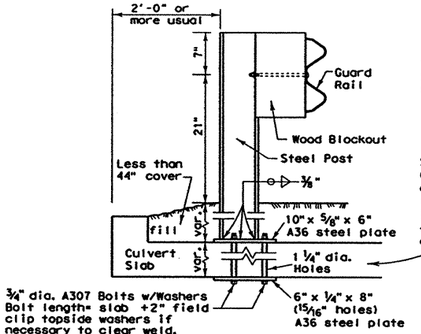
WOOD BLOCKOUT TO ROUND WOOD POST DETAIL



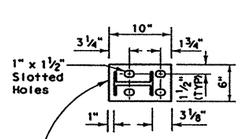
WOOD BLOCKOUT TO RECTANGULAR WOOD POST DETAIL

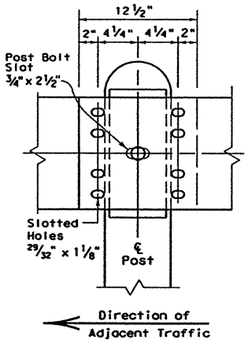


WOOD BLOCKOUT TO STEEL POST DETAIL

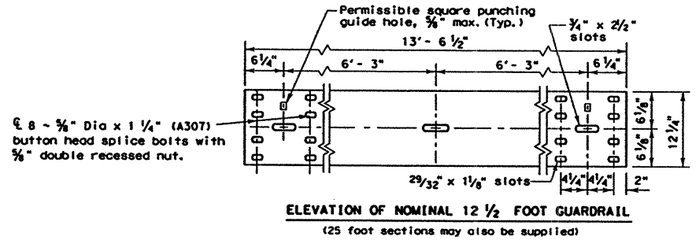


LOW FILL CULVERT POST MOUNTING OPTION





RAIL SPLICE

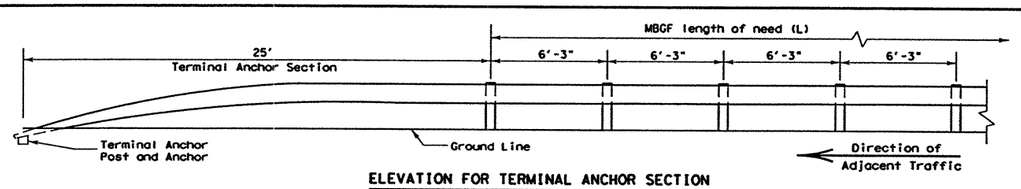


ELEVATION OF NOMINAL 12 ½ FOOT GUARDRAIL

(25 foot sections may also be supplied)

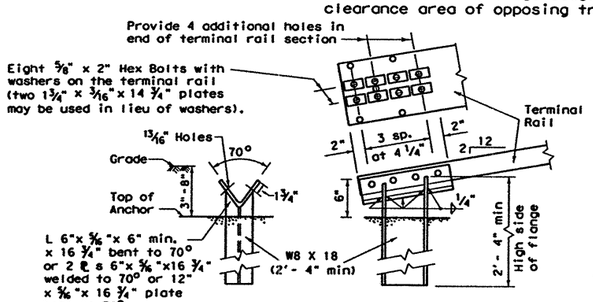
GENERAL NOTES

1. The exact position of guard fence shall be as shown elsewhere on the plans or as directed by the Engineer. Guard fence shall be transitioned to a smooth connection with other guard fence or structure railing as shown elsewhere on plans.
2. Rail element shall meet all requirements of AASHTO M-180 except as modified on the plans. The terminal connectors shall be of the same material, but shall not be less than 10 gauge.
   Contractor shall verify that the locations of bolt holes match those in the Terminal Connector prior to ordering of materials.
3. Unless otherwise shown in the plans, guard fence placed in the vicinity of curbs shall be blocked out so that the face of curb is located directly below or behind the face of the blockout. Rail placed over curbs shall be installed so that the post bolt is located approximately 21-inches above the gutter pan or roadway surface.
4. Unless otherwise shown in the plans, MBGF shall be placed with the face of rail directly above the shoulder edge (or curbface) except for upstream end treatments.
5. At the option of the Contractor, the rail elements for the guard fence may be furnished in either 12 ½ or 25 foot nominal lengths with post bolt slots for connection to posts.
6. The terminal anchor post shall be set in Class "A" concrete in (unless otherwise shown on plans) in accordance with Item, "Portland Cement Concrete". Concrete shall be subsidiary to the bid item requiring construction of the terminal rail section and anchorage system.
7. An anchor other than to a terminal anchor post shall consist of a connection similar to the rail splice or similar to the terminal connector.
8. Galvanized washers used with the eight ⅝" splice bolts and nuts that are provided for terminal connectors and/or terminal anchor posts shall be 1 ¾"x 3"x ⅜", or 1" i.d. and 2" o.d. x 0.134" (ANSI B27.2) narrow Type A plain washers.
9. Special fabrication will be required at installations having a curvature of less than 150' radius.
10. Button head post bolts (A307) shall be of sufficient length to extend through the full thickness of the nut and no more than ¾" beyond it. Button head splice bolts (A307) are ⅝"x 1 ¼" with a ⅝" double recessed nut. Fittings (bolts, nuts, and washers) shall be in accordance with Item, Metal for Structures". Fittings shall be subsidiary.
11. Crown will be widened to accommodate guard fence.
12. If guardrail is placed on a side slope away from the pavement edge, then the slope rate between the edge of the pavement and the face of the barrier will be 1V:10H or flatter.
13. Posts shall not be set full depth in concrete.
14. Where solid rock is encountered or where shown on the plans, the diameter of the holes shall be approximately 12 inches, the backfilling shall be with a cohesionless material, and embedment depth shall be 1'-6" or more as directed by the Engineer.
15. Unless otherwise directed by the Engineer, a composite material post and/or blockout from the Department approved list of suppliers may be substituted for a post and/or blockout of similar dimensions. The list of approved suppliers of posts and blockouts will be maintained by the Construction Division, TxDOT.

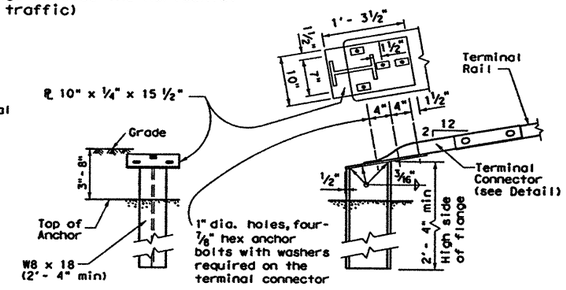


ELEVATION FOR TERMINAL ANCHOR SECTION

(Terminal anchor sections are only for downstream guardrail end anchorage usage outside the horizontal clearance area of opposing traffic)

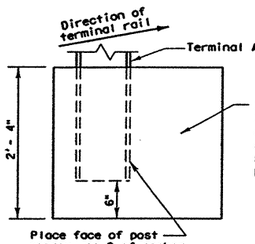


Note: This post requires four additional holes (shop or field) in the terminal rail member with eight ⅝" bolts and washer plates as shown for attachment.



Note: This optional post requires the use of the 10 ga. terminal connector with four ⅞" hex bolts for attachment to the anchor post.

TERMINAL ANCHOR POST OPTIONS

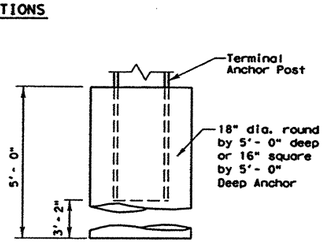


Notes:
Either post may be used with either anchor.

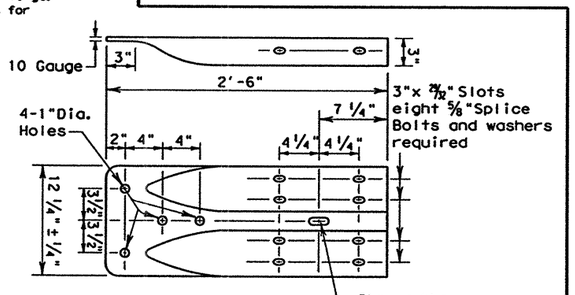
No construction joint is allowed in the concrete anchor.

Terminal rail may be bolted to post and in twist position prior to placing concrete anchor.

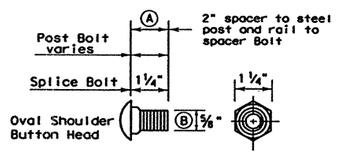
If concrete anchor is precast, the area should be compacted as directed by the Engineer, when placed in the field.



TERMINAL CONCRETE ANCHOR OPTIONS



TERMINAL CONNECTOR



CONNECTOR DETAIL

Ⓐ 1 ¼" spacer to steel post hex bolt. 2" rail to spacer button head bolt.

Ⓑ (⅞" hex bolts required for terminal connector)

R = Radius
D = Diameter

Texas Department of Transportation
Design Division (Roadway)

METAL BEAM GUARD FENCE

MBGF-03

FILE: mbgf03.dgn	DN: MAM	CK: MAM	DW: RAR	CK: MAM	REQ:	
©TxDOT JULY 1994	DIST	FED REG	FEDERAL AID PROJECT #			SHEET
REVISIONS	22	6	NH-2002 (79)			385
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	WEBB		0018	05	062, ETC	IH 35

4/18/2003

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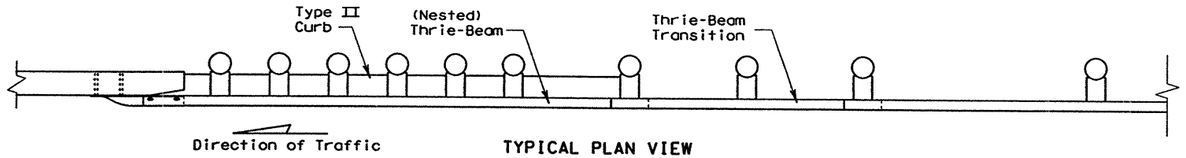
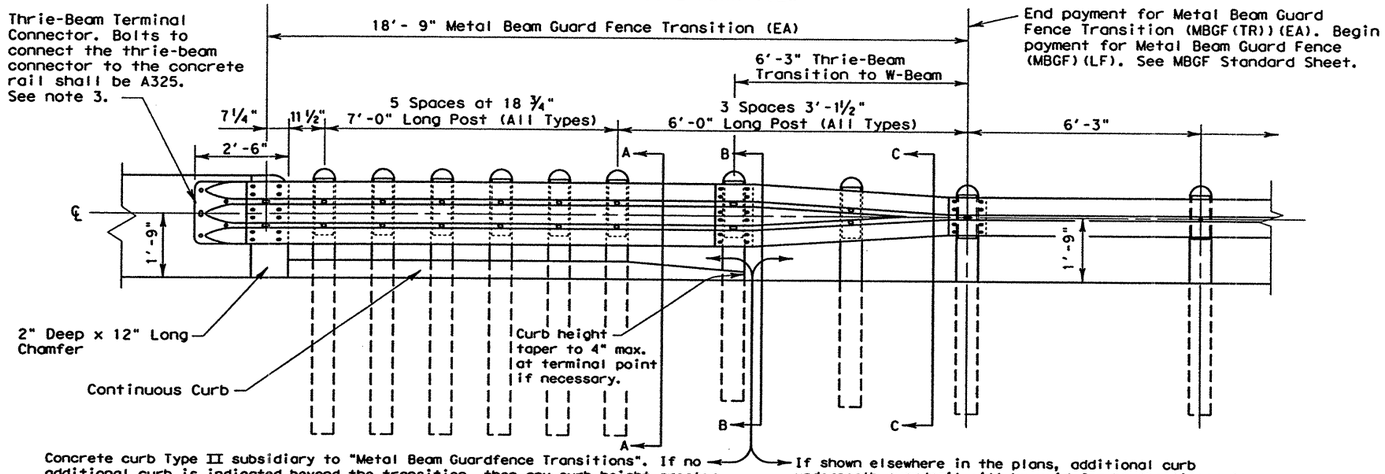
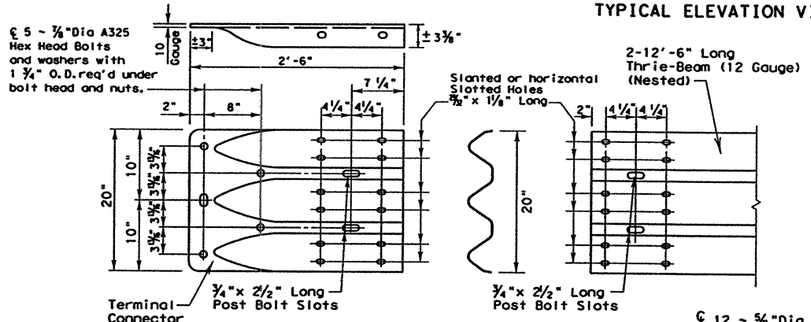
LEVELS DISPLAYED



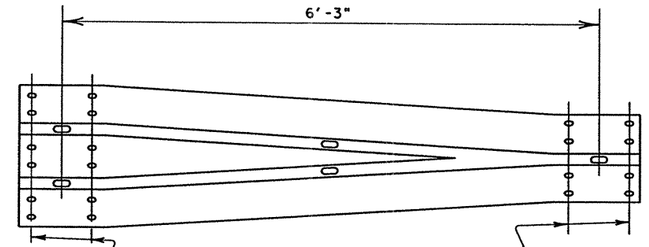
TYPICAL PLAN VIEW



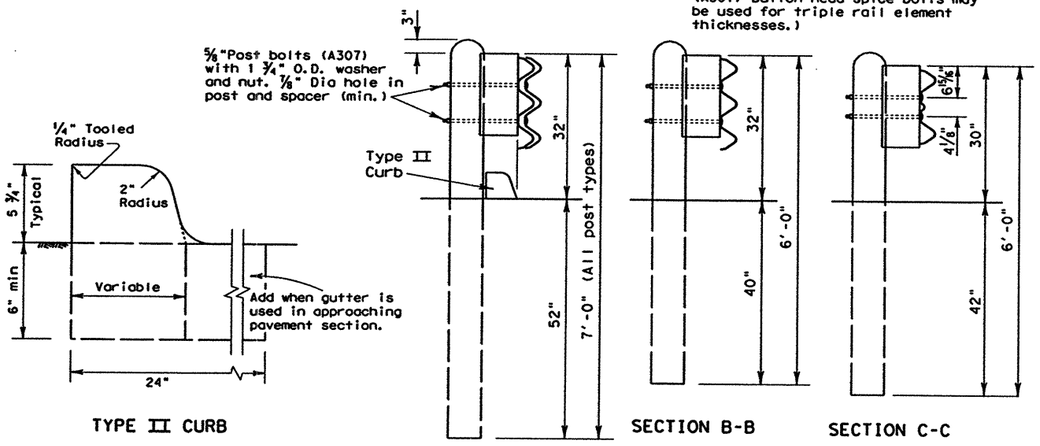
TYPICAL ELEVATION VIEW



THRIE-BEAM TERMINAL CONNECTION



THRIE-BEAM TRANSITION TO W-BEAM (10 Gauge)



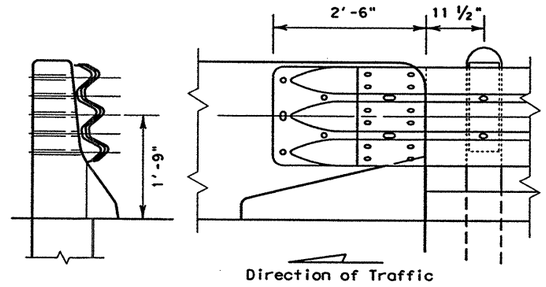
TYPE II CURB

SECTION A-A

SECTION B-B

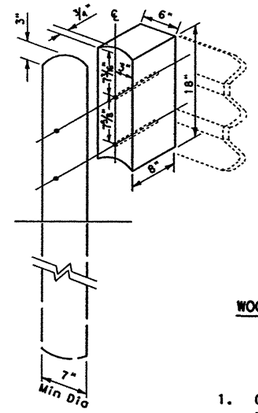
SECTION C-C

TRANSITION SECTIONS

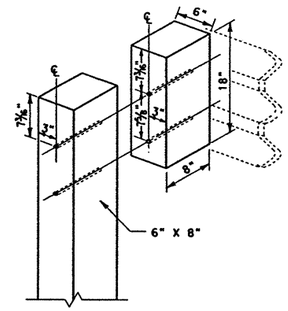


CONNECTION TO T5, SSTR, & HT SERIES BRIDGE RAILS AND CTB & SSCB TRAFFIC BARRIERS

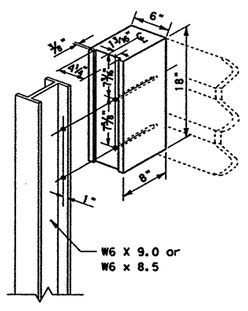
Washers (FWR03)(3"x 1 3/4"x 3/16" with 1"x 3/4" slotted hole) under the head and nut will be required for the terminal connector to nested thrie beam splice bolts for these series rails.
See typical views and T5, SSTR, HT, CTB & SSCB Series Standard Sheets for additional details.



WOOD BLOCKOUT TO ROUND WOOD POST DETAIL



WOOD BLOCKOUT TO RECTANGULAR WOOD POST DETAIL



WOOD BLOCKOUT TO STEEL POST DETAIL

GENERAL NOTES

1. Concrete curbs used in conjunction with thrie-beam guardfence transitions shall be Type II (typically 5 3/4" height above surface; see CCCG standard sheet) unless otherwise shown in the plans. If other curb heights are shown in the plans in conjunction with the transition, this curb height may be from 4" to 8" with a relatively vertical face. Concrete curbs shall be continuous to the seventh post. Any drainage cuts must be located past this post.
2. The type of post (round wood post, rectangular wood post, or steel post) will be shown elsewhere in the plans. The exact position of transitions shall be shown elsewhere in the plans or as directed by the Engineer. See MBGF standard sheet for additional details and information.
3. Rail element shall meet all requirements of AASHTO M-180 except as modified on the plans. The terminal connector and the thrie-beam transition to w-beam shall be of the same material, but shall not be less than 10 gauge.

   Contractor shall verify that the locations of bolt holes match those in the Terminal Connector prior to ordering of materials.
4. Unless otherwise shown in the plans, transitions shall be placed with the blockout face in front of or directly above the curbface.
5. Galvanized washers used with the 5/8" splice bolts and nuts that are provided for terminal connectors shall be (FWR03)(3"x 1 3/4"x 3/16" with 1"x 3/4" slotted hole).
6. Button head post bolts (A307) shall be of sufficient length to extend through the full thickness of the nut and no more than 3/4" beyond it. Button head spice bolts (A307) are 5/8" x 1 1/4" with a 5/8" double recessed nut. Galvanized fittings (bolts, nuts, and washers) shall be in accordance with Item, "Metal For Structures". Fittings shall be subsidiary to the bid item requiring construction of transition.
7. Crown will be widened to accommodate transitions.
8. Where solid rock is encountered or where shown on the plans, the diameter of the holes shall be approximately 12 inches, the backfilling shall be with a cohesionless material, and embedment depth shall be 1'- 6" or more as directed by the Engineer.
9. Posts shall not be set full depth in concrete.
10. Unless otherwise directed by the Engineer, a composite material post and/or blockout from the Department approved list of suppliers may be substituted for a post and/or blockout of similar dimensions. The list of approved suppliers of posts and blockouts will be maintained by the Construction Division, TxDOT.
11. Refer to MBGF Standard Sheet for additional details.

Texas Department of Transportation
Design Division (Roadway)

METAL BEAM GUARD FENCE TRANSITION

MBGF(TR)-03

FILE: mbgftr03.dgn	DN: MAM	CK: MAM	DW: BGD	CK:	
©TxDOT DECEMBER 2001	DIST	FED REG	FEDERAL AID PROJECT •		SHEET
REVISIONS	22	6	NH-2002 (79)		386
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	WEBB		0018	05	062, ETC	IH 35

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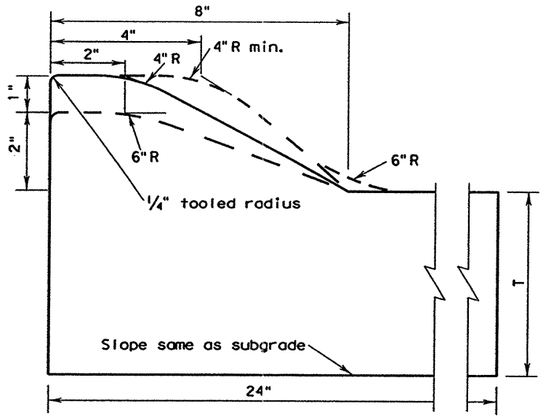
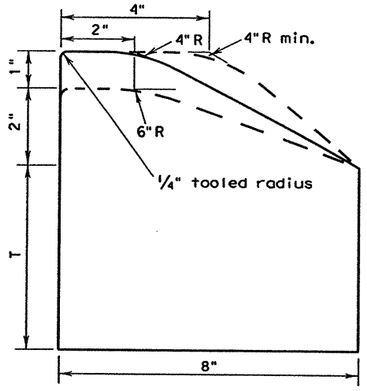


TYPE I CURB AND GUTTER



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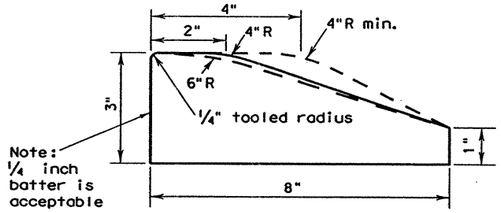

TYPE I MONO CURB OR
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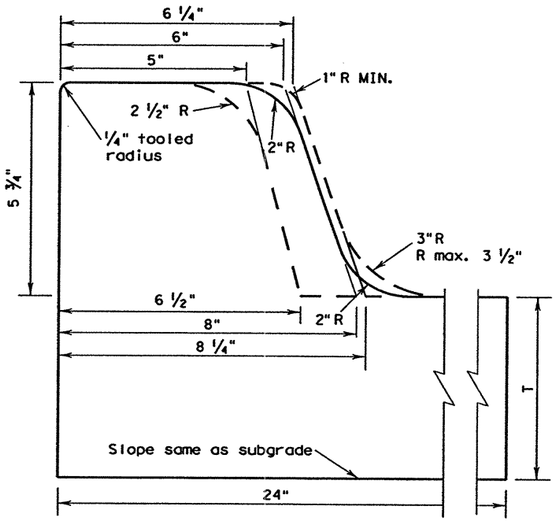
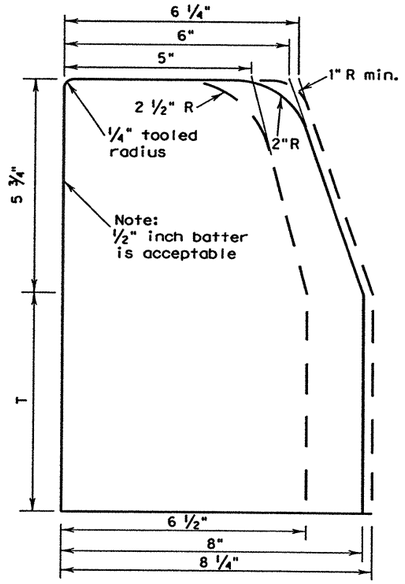
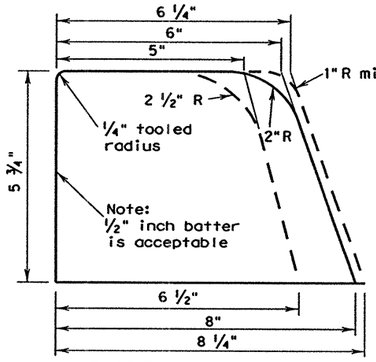


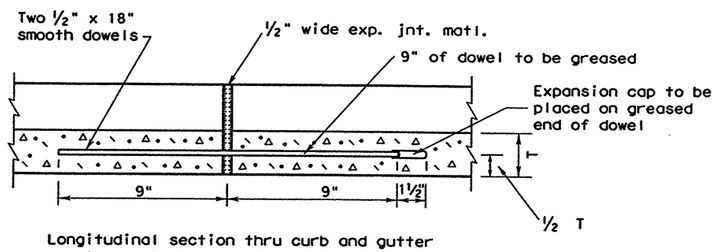
TYPE II CURB AND GUTTER



TYPE II CURB



TYPE II MONO CURB OR
CURB PLACED ON PAVEMENT



Longitudinal section thru curb and gutter showing typical expansion joint details.

Reinforcing steel (when used) shall not cross expansion joints. Steel shall be terminated 3" ± 1" from face of the joint.

GENERAL NOTES

1. Contractor may use existing forms if the cross section lies within the band shown by dotted lines. If new forms are to be purchased, leased, or constructed they shall conform to the solid line.
2. When reinforcing steel is required or placed at contractor's option, one of the following schemes of reinforcement shall be required. The manner of placement and location shall be to the satisfaction of the Engineer.
   a. Type I, or Type II, curb and gutter reinforcement shall have longitudinal reinforcing bars as follows: Three #3, two #4, two #5, or one #6.
   b. All types of curb (reinf.) shall have one #3 or #4 bar for for longitudinal reinforcement.
3. Reinforcing bars shall be lapped a minimum of 15".
4. When curb or curb and gutter is placed by a separate pour adjacent to or atop concrete pavement, curb or curb and gutter shall be tied to pavement in a manner satisfactory to the engineer with 8-inch long #3 or #4 bars spaced at 5 feet and expansion and/or contraction joints of curb or curb and gutter shall match those of pavement.

   When curb and curb and gutter is not constructed adjacent to concrete pavement, the following shall govern:
   a. Reinforced curb or curb and gutter shall have no contraction joints.
   b. Non-reinforced curb or curb and gutter shall have formed, tooled or sawed contraction joints at 10'±. The depth of these joints shall be sufficient to ensure cracking at the joints.
   c. Reinforcing curb or curb and gutter shall have expansion joints at points of curvature and at intervals no greater than 120' in all curves and at structures such as bridges, box culverts, curb inlets, etc.
   d. Non-reinforced curb or curb and gutter shall have expansion joints at points of curvature on curves of radius less than 25' and at structures such as bridges, box culverts, curb inlets, etc.
5. One-half inch expansion joint material shall be provided where curb or curb gutter is adjacent to sidewalk or riprap.
6. Unless otherwise shown, transitions between curbs or curbs and gutters of differing cross section shall be accomplished over a 20 foot length or as approved by the Engineer.
7. At contractor's option, dimension "T" may be thickness of pavement structure. In no case shall it be less than 6".
8. See the RAMP standard sheet for information on curb ramps and sidewalks crossing driveways.

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33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48
49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63

Texas Department of Transportation
Design Division (Roadway)

CONCRETE CURB AND CURB AND GUTTER

CCCG-01

FILE: ~~cccg01.dgn~~	DN: MAM	CK: RAR	DW: RAR	CK: MAM	NEG:	
© TxDOT 1995	DIST	FED REG	FEDERAL AID PROJECT #			SHEET
REVISIONS	22	6	NH-2002 (79)			387
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	WEBB		0018	05	062, ETC	IH 35

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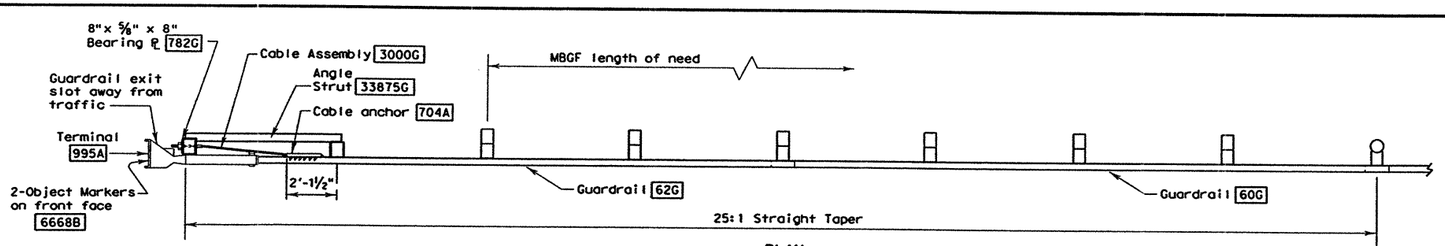
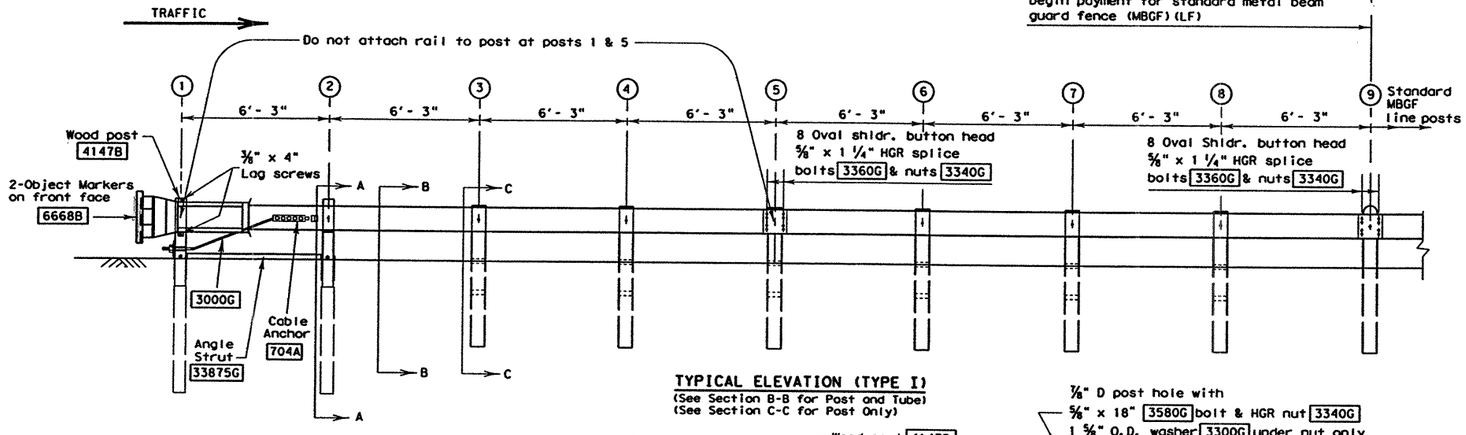
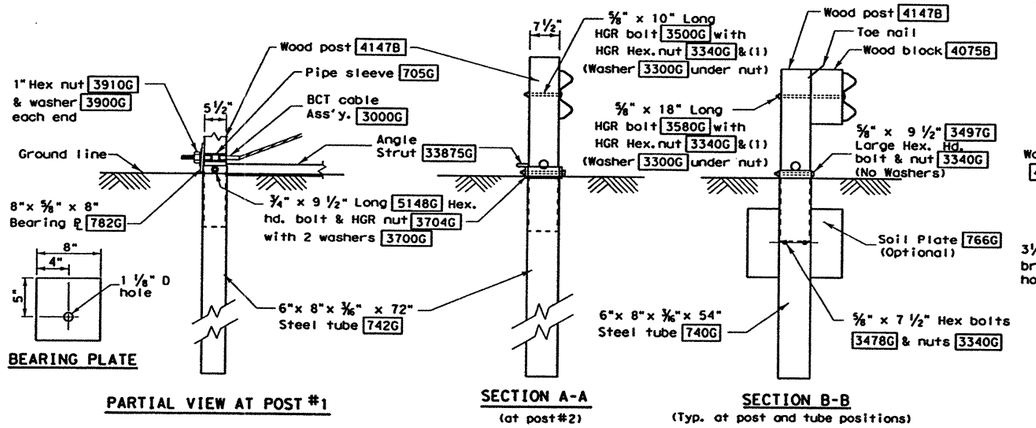


PLAN



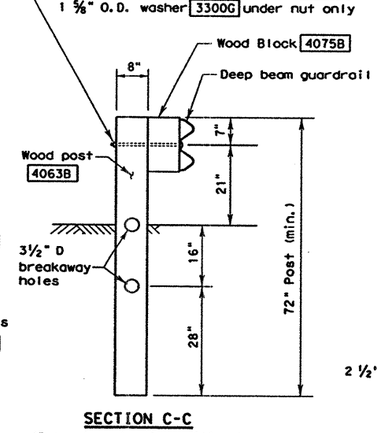
TYPICAL ELEVATION (TYPE I)
(See Section B-B for Post and Tube)
(See Section C-C for Post Only)



BEARING PLATE

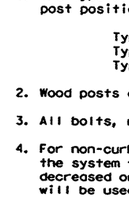
PARTIAL VIEW AT POST #1

SECTION A-A
(at post #2)

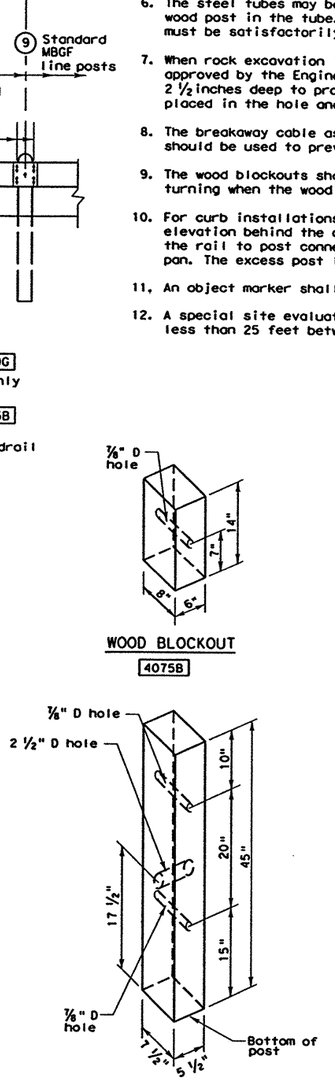


SECTION B-B
(Typ. at post and tube positions)

SECTION C-C
(Typ. at post only positions)

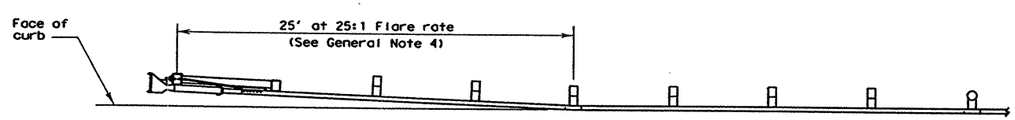


WOOD BLOCKOUT
4075B

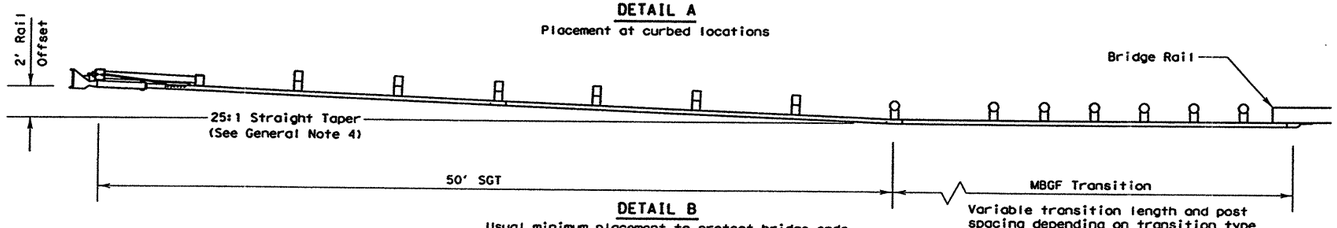


All measurements should be taken from bottom of posts.

POST & TUBE OPTIONS			
Type I	Posts	①	thru ②
Type II	Posts	①	thru ④
Type III	Posts	①	thru ⑧



DETAIL A
Placement at curbed locations



DETAIL B
Usual minimum placement to protect bridge ends

Variable transition length and post spacing depending on transition type

R = Radius
D = Diameter

GENERAL NOTES

1. The type of SGT unit will be specified elsewhere in the plans. (Numbers in circles indicate post position.)

Post & Tube Options				Post Only			
Type I	Posts	①	thru ②	Posts	③	thru	⑧
Type II	Posts	①	thru ④	Posts	⑤	thru	⑧
Type III	Posts	①	thru ⑧	None			

2. Wood posts are required with this guardrail end treatment.
3. All bolts, nuts, cable assemblies, cable anchors, steel tubes & bearing plates shall be galvanized.
4. For non-curb installations, the MBGF will be flared at a rate of 25:1 over the first 50 foot of the system to prevent the terminal head from encroaching on the shoulder. The flare may be decreased or eliminated for specific installations if directed by the Engineer. A 25:1 flare rate will be used at curb sections, beginning at post number 5 and ending at post number one.
5. The steel tubes shall not protrude more than 4 inches above ground. Site grading may be necessary to meet this requirement.
6. The steel tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the steel tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent tube settlement.
7. When rock excavation is encountered, a 12 inch diameter post hole, 20 inches deep may be used if approved by the Engineer. Granular material will be placed in the bottom of the hole approximately 2 ½ inches deep to provide drainage. The steel tube sleeves will be field cut to 20 inches in length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
8. The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening the nuts.
9. The wood blockouts shall be "toe nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks.
10. For curb installations, the soil tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will then require field drilling new holes to accommodate the rail to post connection bolt to maintain the proper height of the rail above the gutter pan. The excess post length above the rail will be removed if directed by the Engineer.
11. An object marker shall be installed on the front of the impact head as detailed on D&OM(VIA).
12. A special site evaluation should be considered, prior to using this end treatment where there is less than 25 feet between the extrusion side of the end treatment and any adjacent driving lane.

BILL OF MATERIAL

Code #	POST & TUBE OPTIONS Type I Qty.	Type II Qty.	Type III Qty.	DESCRIPTION
62G	1	1	1	#1 Deep Beam Guardrail (12 Ga) at 25'
60G	1	1	1	#2 Deep Beam Guardrail (12 Ga) at 25'
742G	2	2	2	Steel Tube - 6"x 8"x 72"x 3/16"
740G	0	2	6	Steel Tube - 6"x 8"x 54"x 3/16"
766G	0	2	6	Soil Plate - 18"x 24"x 1/4" - Optional
4147B	2	4	8	Wood Posts - 5 1/2" x 7 1/2" x 45"
4063B	6	4	0	Wood CRT Posts - 6"x 8"x 72"
4075B	6	6	6	Wood Block - 6"x 8"x 14"
705G	1	1	1	Pipe Sleeve - 2" std. pipe x 5 1/2"
782G	1	1	1	Bearing Plate - 8"x 8"x 5/8"
704A	1	1	1	Cable Anchor
3000G	1	1	1	Cable Assembly (3/4" x 78")
33875G	1	1	1	Angle Strut
995A	1	1	1	ET-2000 Plus Guardrail Terminal
				HARDWARE
5148G	2	2	2	3/4" x 9 1/2" Hex Hd (Top of tubes 1&2) A325
3300G	7	7	7	5/8" Washers
3478G	2	14	14	5/8" x 7 1/2" Hex Bolt
3500G	1	1	1	5/8" x 10" Post Bolt (Post 2 of LET)
3580G	6	6	6	5/8" x 18" HGR Post Bolt (posts ③ thru ⑧)
3360G	16	16	16	5/8" x 1 1/4" HGR Splice Bolt
3340G	25	43	43	5/8" HGR Nut (16-spl, 7-posts, 2 each at tube ③ thru ⑧)
4228G	2	2	2	3/8" x 4" Lag Screw
3910G	2	2	2	1" Hex Nut (Anchor Cable)
3900G	2	2	2	1" Washer (Anchor Cable)
6668B	2	2	2	Object Marker (12" x 12")
3700G	4	4	4	3/4" Washer
3704G	2	2	2	3/4" Heavy Hex Nut
3497G	0	6	6	5/8" x 9 1/2" Hex Hd (Top of Tubes 3-8) A307

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LEVELS DISPLAYED

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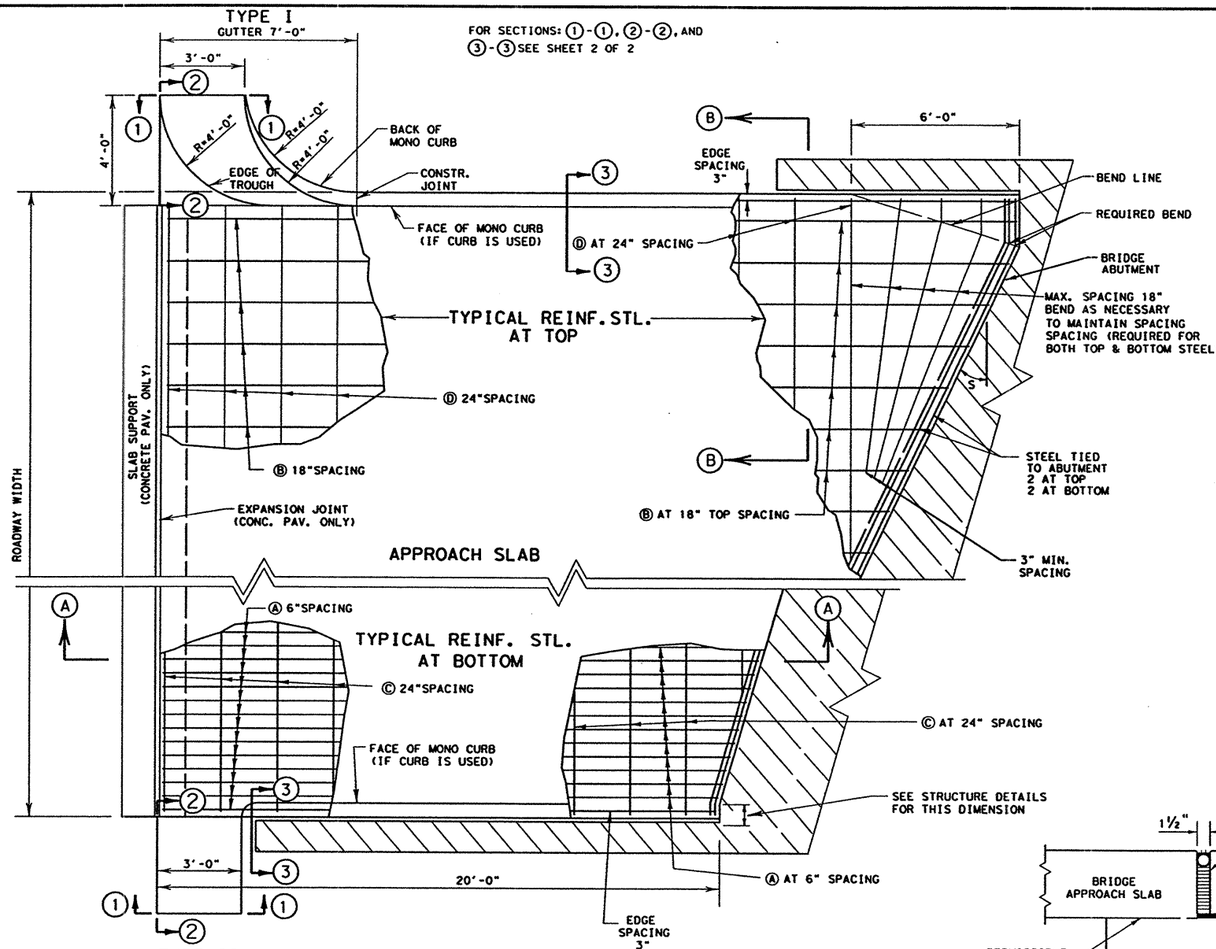
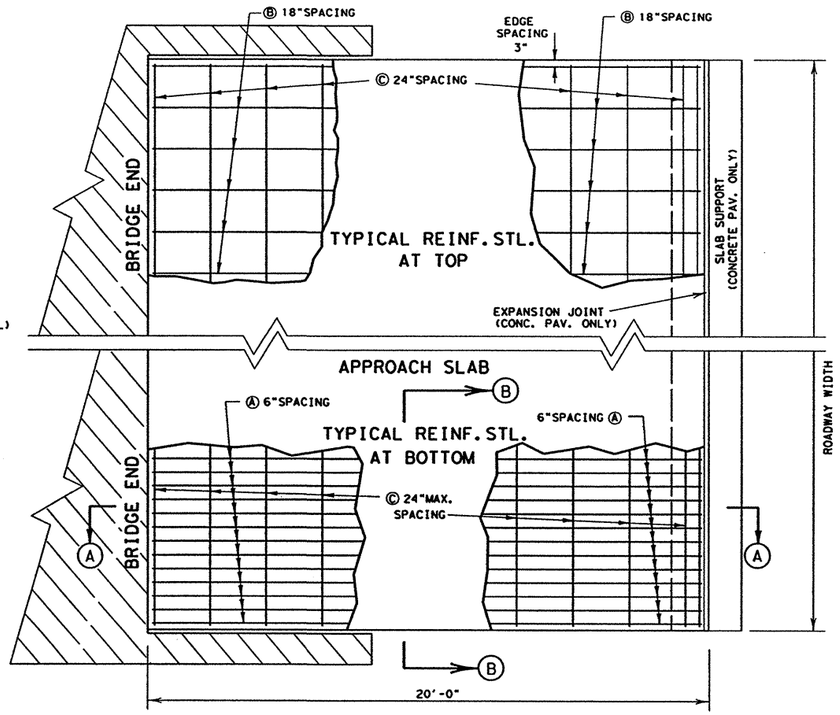
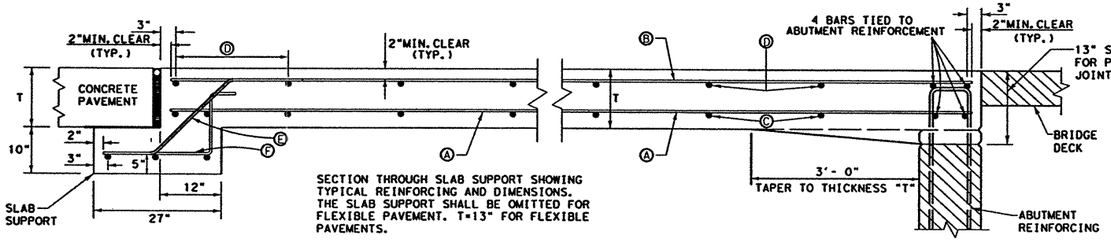
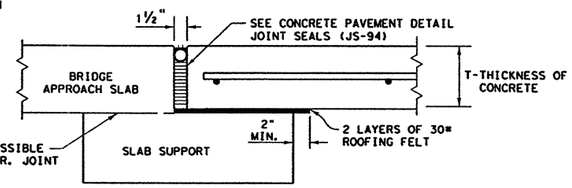








EXPANSION JOINT DETAIL A

FOR THE CONTRACTOR INFORMATION QUANTITIES WERE CALCULATED USING THE FOLLOWING :

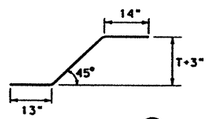
DEFINITION OF TERMS

W = THE WIDTH OF THE SLAB IN FEET
S = ANGLE OF SKEW IN DEGREES

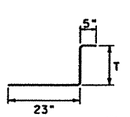
A_{BAS} = AREA OF BRIDGE APPROACH SLAB (S.Y.)

$$A_{BAS} = \frac{20W + \frac{W^2 \tan S}{2}}{9}$$

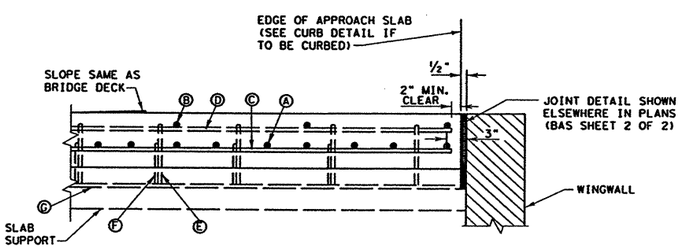
TABLE FOR STEEL QUANTITIES
STEEL POUNDS
38.0/S.Y. OF BAS
9.5/FT. OF SUPPORT SLAB



BAR DETAIL Ⓔ



BAR DETAIL Ⓕ



TYPICAL SECTION B-B

GENERAL NOTES

1. THE APPROACH SLAB SHALL HAVE THE SAME TRANSVERSE CROWN THROUGHOUT ITS LENGTH AS THE STRUCTURE WHICH IT ADJOINS.
2. ALL REINFORCEMENT BARS ON THIS STANDARD SHALL BE NUMBER 5 BARS. REINFORCING STEEL SHALL CONFORM TO ASTM DESIGNATION A-615, GRADE 60 OR A-616, GRADE 60. WHERE BENDING OF THE STEEL IS REQUIRED A-615, GRADE 60 SHALL BE USED.
3. ADDITIONAL DETAILS FOR POSSIBLE CURB AND GUTTER AND LONGITUDINAL JOINTS ARE SHOWN ON SHEET 2 OF 2 OF THIS STANDARD DRAWING.

Texas Department of Transportation
Design Division (Pavement)

BRIDGE APPROACH SLAB
FOR USE WITH ASPHALT AND CONCRETE PAVEMENTS NORMAL OR SKEW

BAS-94

SHEET 1 OF 2

© TxDOT SEPTEMBER 1994

DW: LJB	CK: LJB	DW: BGD	CK: GLG	REG NO.: R0000
MODIFICATIONS				

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
22	6	NH-2002 (79)	389
COUNTY		CONTROL SECT JOB	HIGHWAY
WEBB		0018 05 062, ETC	IH 35

LEVELS DISABLED
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ACC: /usc/d481303
FILE: BAS94.DGN

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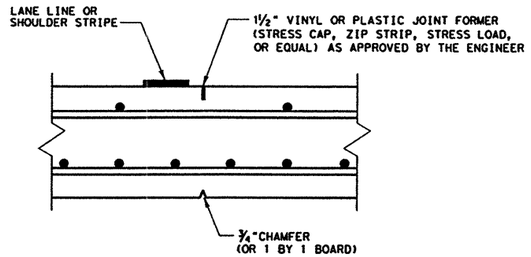
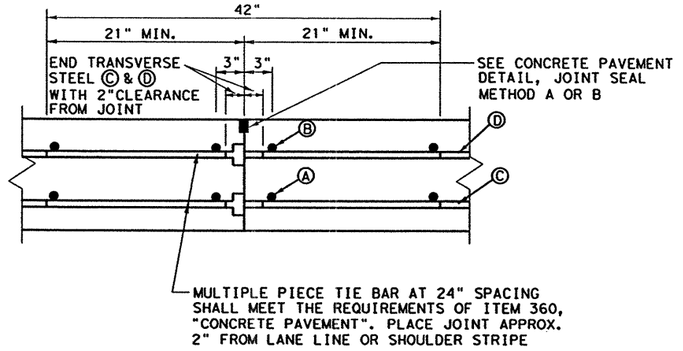


CONTROLLED LONGITUDINAL JOINT DETAIL

THE TOP JOINT MAY BE SAWED PROVIDED A LIGHT WEIGHT SAW IS USED WITHIN 6 HOURS OF PLACEMENT. A DRY SAWING OPERATION SHALL BE USED. THE SAW CUT SHALL BE LESS THAN 3/16" WIDE.

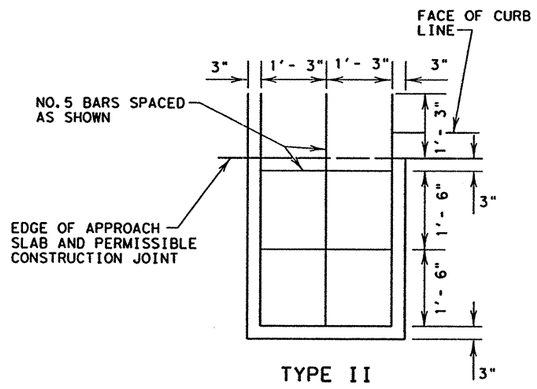
THE CHAMFER SHALL BE PLACED TO BE APPROXIMATELY MIDWAY BETWEEN THE LONGITUDINAL BOTTOM-STEEL. A REFERENCE LINE SHALL BE ESTABLISHED TO INSURE THAT THE INSERT OR SAW CUT IS DIRECTLY ABOVE THE CHAMFER. MINOR ADJUSTMENT IN THE A AND B BARS SPACINGS MAY BE REQUIRED TO INSURE THAT THE JOINT WILL BE APPROXIMATELY 2" FROM THE LANE LINE AND NOT ABOVE A REINFORCING BAR.



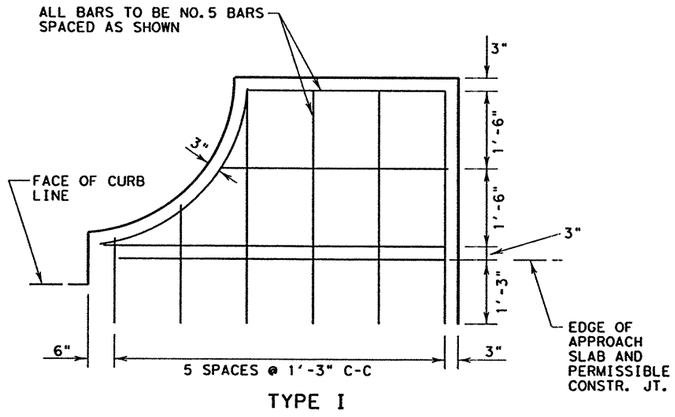
LONGITUDINAL CONSTRUCTION JOINT DETAIL

GENERAL NOTES

1. TIEBARS AT CONSTRUCTION JOINTS SHALL MEET THE REQUIREMENTS OF ITEM 360, "CONCRETE PAVEMENT."
2. IF A CURB IS USED ON THE STRUCTURE, A CURB WITH HEIGHT AND INSIDE FACE MATCHING THE STRUCTURE CURB SHALL BE USED ON THE APPROACH SLAB. THE CURB SHOULD TAPER TO A TWO INCH HEIGHT AND BE TERMINATED AT THE END OF THE SLAB OR AT THE DRAINAGE GUTTER, IF A DRAINAGE GUTTER IS USED.
3. DETAILS AND QUANTITIES FOR CURB ARE TO BE AS SHOWN ELSEWHERE IN THE PLANS.
4. TYPE I GUTTER SHOULD BE USED IN LIEU OF TYPE II GUTTER WHEN SPACE PERMITS.
5. WHEN STAGE CONSTRUCTION IS USED TO BUILD A PORTION OF A BRIDGE, THE LONGITUDINAL CONSTRUCTION JOINTS OF THE APPROACH SLAB SHALL ALIGN WITH THE LONGITUDINAL CONSTRUCTION JOINTS OF OF THE BRIDGE STRUCTURE.
6. ALL REINFORCEMENT STEEL ON THIS STANDARD SHEET SHALL BE NUMBER 5 (#5) BARS.

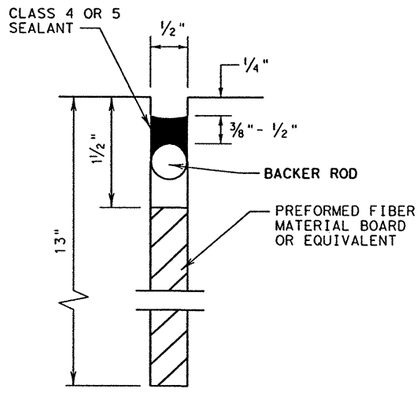


TYPE II



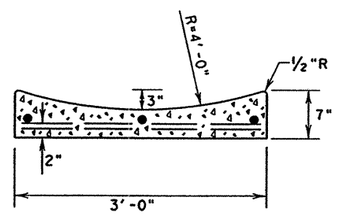
TYPE I

REINFORCING LAYOUT FOR GUTTER

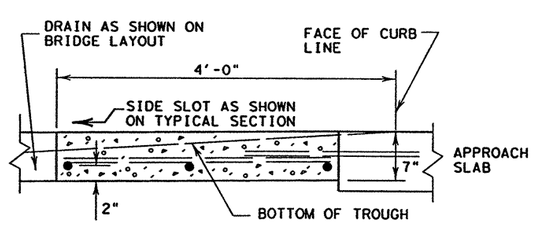


EXPANSION JOINT
BETWEEN SLAB AND WINGWALL

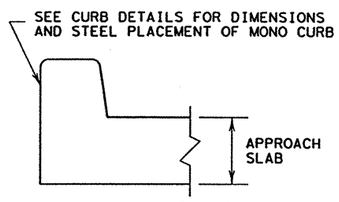
PLACE IN ACCORDANCE WITH ITEM 438 "CLEANING AND/OR SEALING JOINTS AND CRACKS".



SECTION AT ① - ①
TYPES I & II GUTTER



SECTION AT ② - ②



SECTION AT ③ - ③
SHOWING MONO CURB

LEVELS USED
1 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC: /usr/d481303
FILE: BAS94.DGN

Texas Department of Transportation
Design Division (Pavement)

BRIDGE APPROACH SLAB

FOR USE WITH ASPHALT AND CONCRETE PAVEMENTS NORMAL OR SKEW

BAS-94

SHEET 2 OF 2

© TxDOT SEPTEMBER 1994	DN: LJB	CK: LJB	DW: BCD	CK: GLG	REG NO.: R0000
MODIFICATIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT #		SHEET
	22	6	NH-2002 (79)		390
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	WEBB		0018	05	062, ETC	IH 35

4/18/2003
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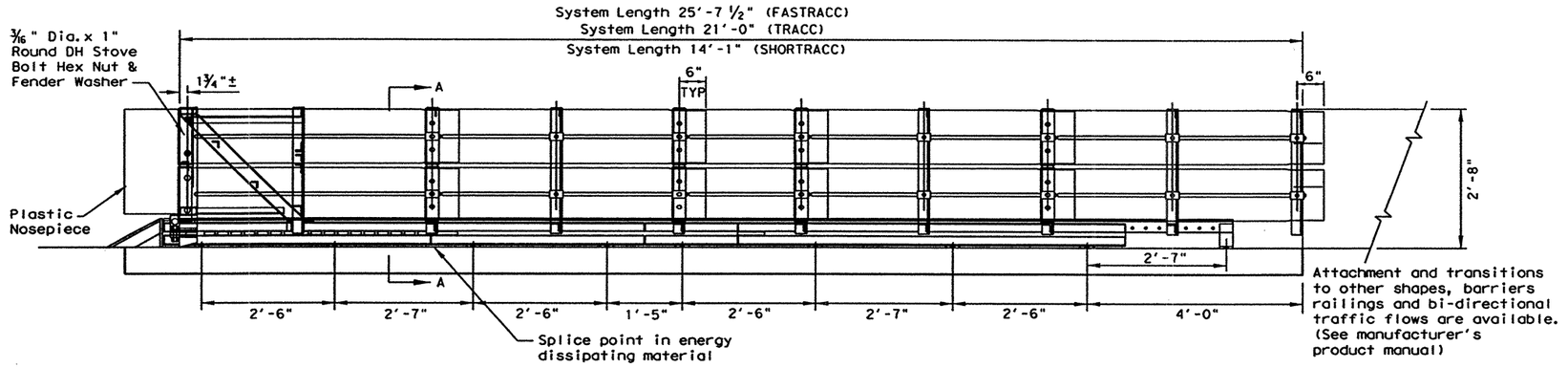
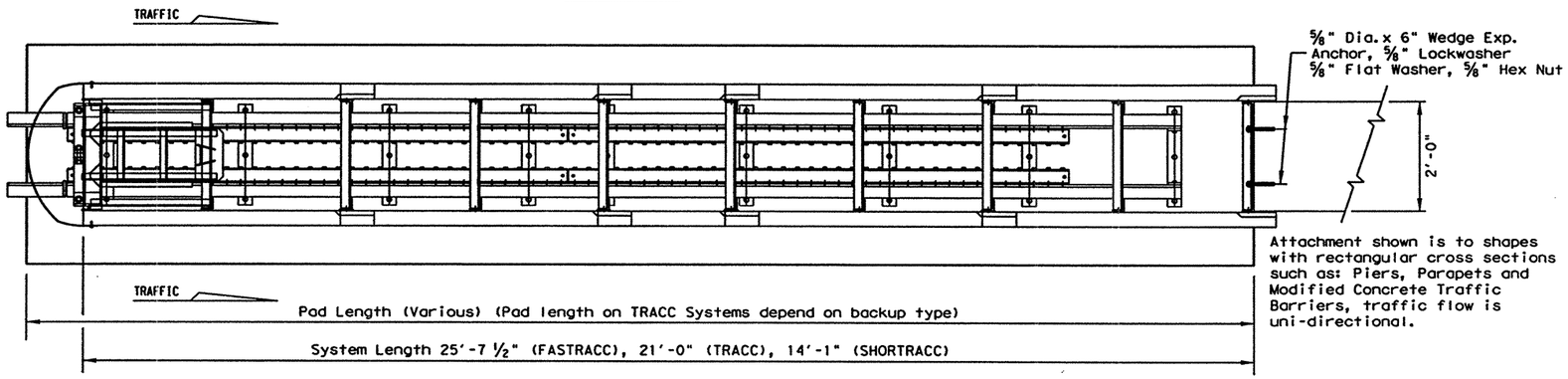
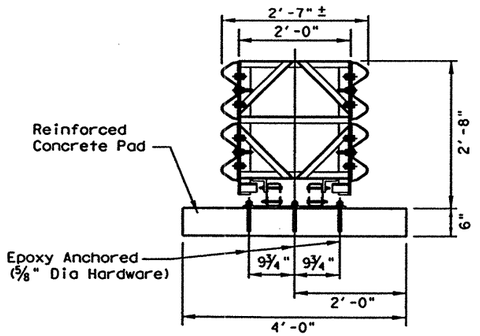


ELEVATION



PLAN



SECTION A-A

TYPE	DESIGN SPEED (mph)	SYSTEM LENGTH	PAD LENGTHS
FASTRACC	70	25'-7½"	26'-7½"
TRACC	50 or greater	21'-0"	22'-0" 23'-0" 24'-0"
SHORTRACC	45 or less	14'-1"	15'-1" 16'-1" 17'-1"

Concrete pad length on TRACC & SHORTRACC depends on backup type.

FOUNDATION OPTIONS
6" Reinforced Concrete
8" Unreinforced Concrete
3" Min. Asphalt over 3" Min. Concrete
6" Asphalt over 6" Compact Subbase
8" Minimum Asphalt

For steel placement in concrete foundations (See manufacturer's product manual)

BACKUP SUPPORT OPTIONS
Square Concrete Backup
Concrete Barrier (CTB) Backup
Single Slope Concrete Barrier (SSCB)
Guardrail Backup (Base-Plated Post)
Guardrail Backup (Driven Post)
TRANSITION OPTIONS
Vertical Wall
Modified (CTB) to Vertical Wall
Concrete Barrier (CTB)
Guardrail (W-Beam)
Guardrail (Thrie-Beam)

For bi-directional transition panel details (See manufacturer's product manual)

GENERAL NOTES

1. For bi-directional traffic, appropriate transition panels will be required.
2. Details of components for the TRACC and backups and reinforcing details will be shown on the manufacturer's shop drawings furnished to the Engineer.
3. Concrete shall be class "S" with a minimum compressive strength of 4,000 p.s.i.
4. If the cross-slope varies more than 2% over the length of the system, the concrete pad will require leveling. Maximum permissible cross-slope is 8%.
5. The installation area should be free from curbs, elevated objects, or depressions.
6. The TRACC system should be approximately parallel with the barrier or ℄ of merging barriers.

BILL OF MATERIAL

PRODUCT CODE	FAST TRACC QTY	TRACC QTY	SHORT TRACC QTY	DESCRIPTION
917A	1			FASTRACC Unit Assembly
970A		1		TRACC Unit Assembly
935A			1	SHORTRACC Unit Assembly
3310G	4	4	4	⅝" Lockwasher
4451G	4	4	4	⅝" Dia x 6" Wedge Exp. Anchor
6707G	8	8	8	3/16"Dia x 1" Rnd. HD Stove Bolt
6708G	8	8	8	3/16" Hex Nut
6709G	8	8	8	3/16" Fender Washer ¾" OD
6825B	4	4	4	Reflective Tape
6826B	1	1	1	Plastic Nosepiece
✱ ANCHOR HARDWARE (CONCRETE BASE)				
6352G	33	27	18	⅝"Dia x 7½" All Thd. Rod
3310G	33	27	18	⅝" Lockwasher
3361G	33	27	18	⅝" Hex Nut
3300G	33	27	18	⅝" Flat Washer
4747G	3	2	2	Kelken Epoxy (Quart can)
✱ ANCHOR HARDWARE (ASPHALT BASE)				
6380G	33	27	18	⅝" Dia x 18" All Thd. Rod
3310G	33	27	18	⅝" Lockwasher
3361G	33	27	18	⅝" Hex Nut
3300G	33	27	18	⅝" Flat Washer
4747G	7	6	4	Kelken Epoxy (Quart can)

✱ See manufacturer's product manual

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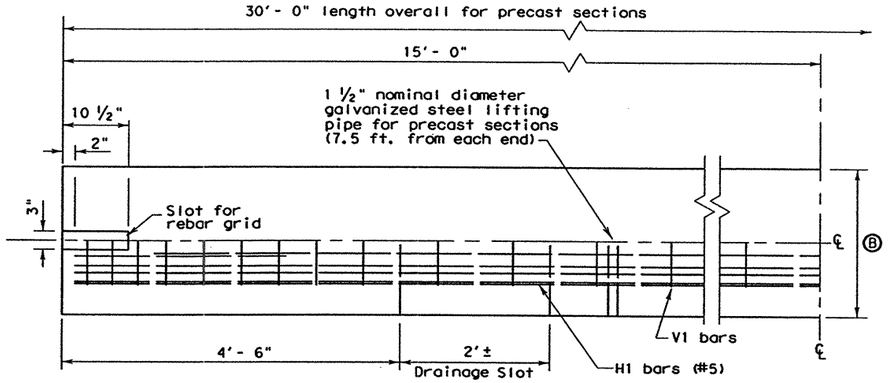
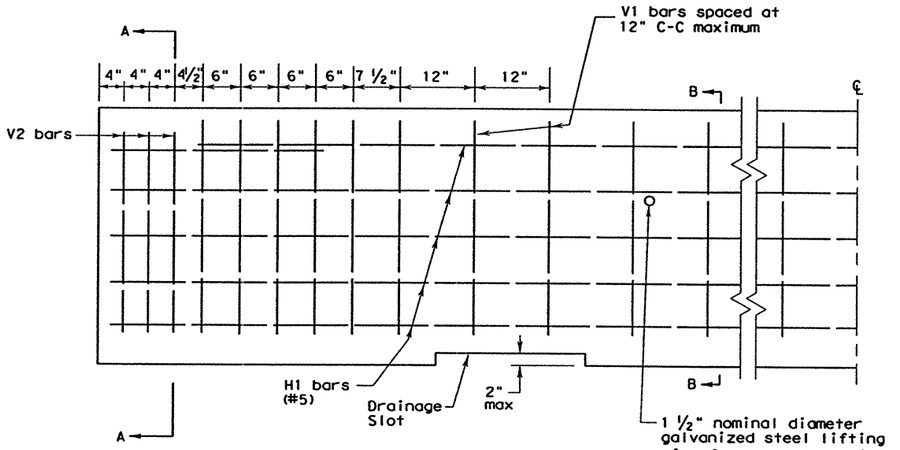
LEVELS D... SAVED

| | | | |



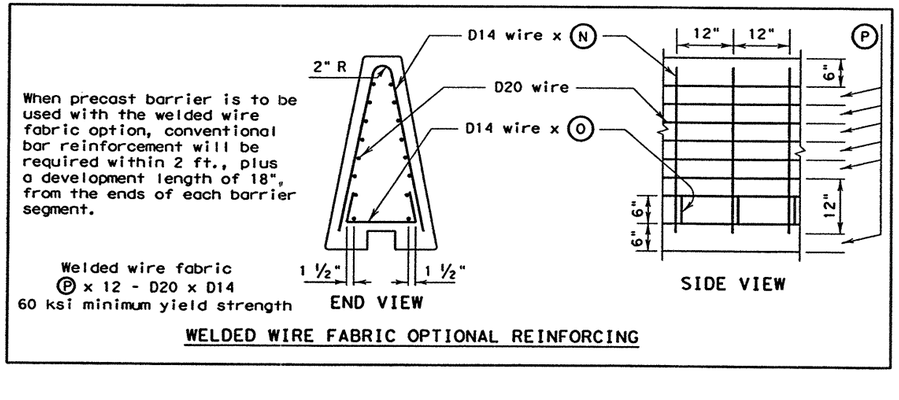
PLAN VIEW

(SYMMETRICAL ABOUTCENTER LINE)



ELEVATION

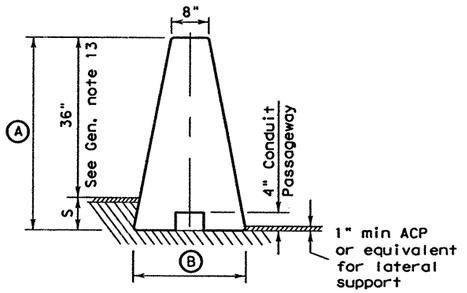
(SYMMETRICAL ABOUT CENTERLINE)



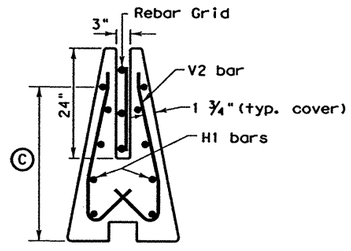
WELDED WIRE FABRIC OPTIONAL REINFORCING

GENERAL NOTES

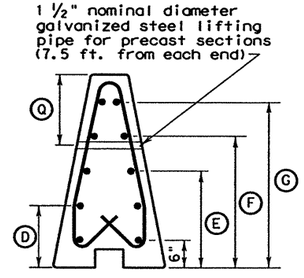
1. Precast barrier length shall be 30 feet (±1") unless otherwise specified in the plans. Cast-in-place or slip-formed barrier shall have an intermediate barrier joint at a maximum spacing of 100 feet unless otherwise directed by the Engineer. Refer to the intermediate barrier joint detail. Cast-in-place or slip-formed barrier will have the vertical V1 bars placed at 12" C-C maximum except near joints. The narrower vertical bar spacing at the ends of each barrier segment, as shown in the elevation view, will be required at the joints. The V2 bars shown in the elevation view will be replaced by V1 bars for cast-in-place or slip-form construction.
2. The usual temporary installation will require the placement of the rebar grid in the ungrouted slot. The usual permanent installation using precast barrier will connect the barrier segments with the rebar grid placed in the slot and grouted in place.
3. When installed in a permanent roadway location, the end connections of the precast barrier shall be grouted with a mixture of two parts sand and one part cement with enough water to make the mixture plastic. Grouting shall be done in a manner that will assure a smooth surface at the joint.
4. All concrete shall be class C or H, unless otherwise specified.
5. All reinforcing steel shall be Grade 60, unless otherwise specified.
6. Each precast barrier to be installed in a temporary location shall be delivered with a rebar grid.
7. Chamfer top and end edges ¾ inch.
8. Unless otherwise shown in the plans, the Contractor has the option of placing either precast or cast-in-place permanent concrete barrier. Cast-in-place barrier may be slip-formed. Additional reinforcement may be tack welded to the upper two-thirds of the reinforcing cage to provide bracing. Lifting pipe, rebar grid and slot shall be omitted for cast-in-place or slip-form construction.
9. Bar splices for roadway barrier shall be a minimum of 24 times the nominal diameter of the bar.
10. Welded wire fabric may be used as an option to conventional reinforcement for precast or cast-in-place barrier. Welded wire fabric shall be made in accordance with ASTM A 497.
11. Conduit will be provided only when called for elsewhere in the plans. The position of the conduit or conduit passageway may be adjusted to facilitate construction, subject to approval of the Engineer.
12. Transitions to barrier height, as needed, shall be determined by the Engineer. Changes in barrier height should not normally exceed 2 inches per 30 foot. Vertical steel shall be uniformly transitioned throughout the variation in barrier height as directed by the Engineer.
13. A 36 inch minimum height differential between top of barrier and top of ACP shall be required at placement in order to allow for up to 6 inches of future overlays while maintaining a 30 inch minimum future effective height of barrier. Total minimal barrier height for design is therefore dictated by allowance for future overlays plus existing stairstep dimension "S". Minimums typically rounded to 42", 48" or 54" to facilitate precasting.



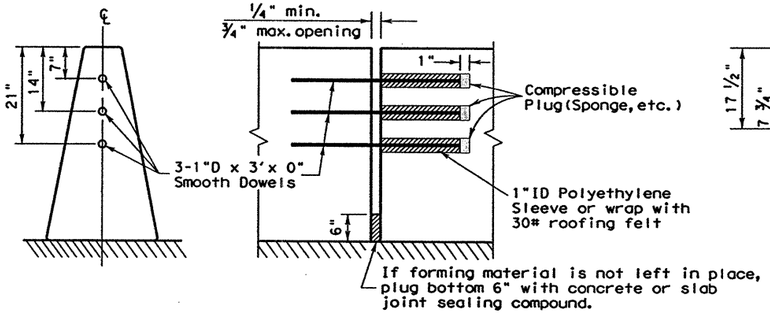
TYPICAL SECTION



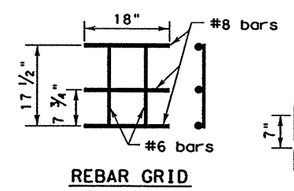
SECTION A-A



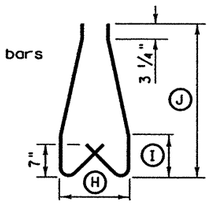
SECTION B-B



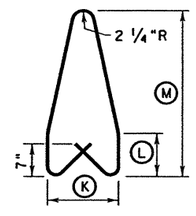
INTERMEDIATE BARRIER JOINT DETAIL (cast-in-place or slip-formed sections)



REBAR GRID



V2 BAR (#4)



V1 BAR (#4)

REINFORCING DETAILS

R = Radius
D = Diameter

Barrier Height	DIMENSIONS (inches)															
Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	Ⓘ	Ⓙ	Ⓚ	Ⓛ	Ⓜ	Ⓝ	Ⓞ	Ⓟ	Ⓠ
42	24	33 ½	13 ½	21	28 ½	36	15	9 ¼	33 ¼	15	9 ¼	36	72	28	4	15 ½
48	26 ⁹⁄₃₂	39 ½	15	24	33	42	17 ¼	10 ¾	39 ¼	17 ¼	10 ¾	42	84	31 ½	5	17
54	28 ⁹⁄₁₆	45 ½	16 ½	27	37 ½	48	19 ½	12 ¼	45 ¼	19 ½	12 ¼	48	96	34 ¾	6	18 ½

Texas Department of Transportation
Design Division (Roadway)

SINGLE SLOPE CONCRETE BARRIER TYPE 2

SSCB(2)-00A

FILE: ~~sscb200a.dgn~~	DN: GTH	CK: GTH	DW: BGD	CK: TGM	NEG:	
© TxDOT MAY 1992	DIST	FED REG	FEDERAL AID PROJECT #			SHEET
REVISIONS	22	6	NH-2002 (79)			392
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	WEBB		0018	05	062, ETC	IH 35

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LEVELS D... ...rFD

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17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
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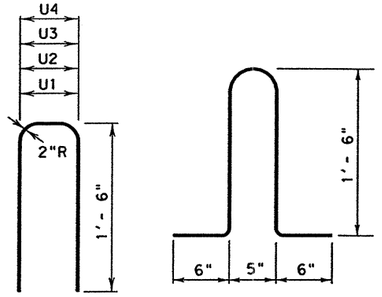
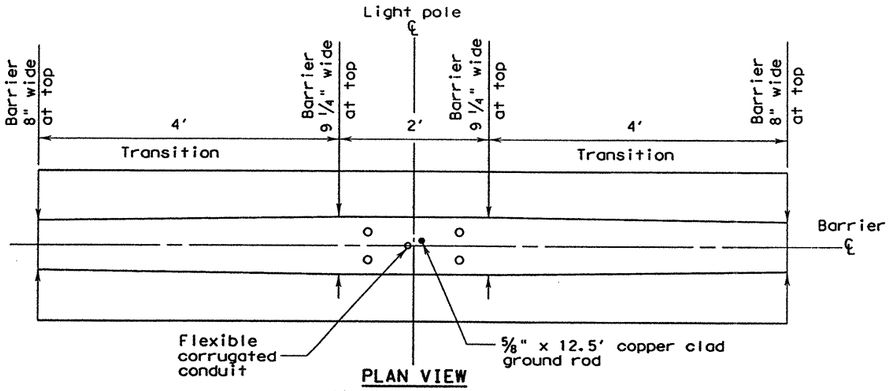


BARS U(1-4)#4

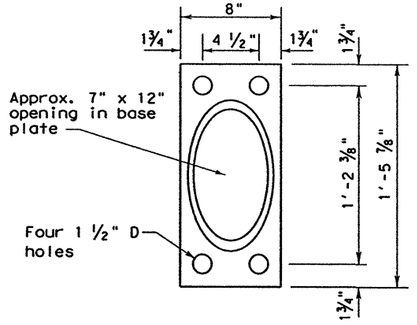
BARS M(#4)

* See SSCB(1) for reinforcement details and placement on bridge sections. See SSCB(2) for reinforcement details and placement on roadway sections.



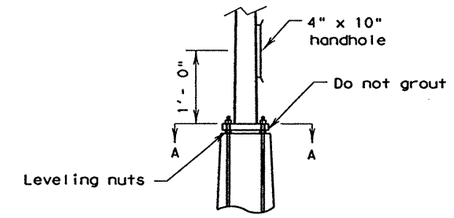
PLAN VIEW

10'-0" Cast-In-Place SSCB with anchor



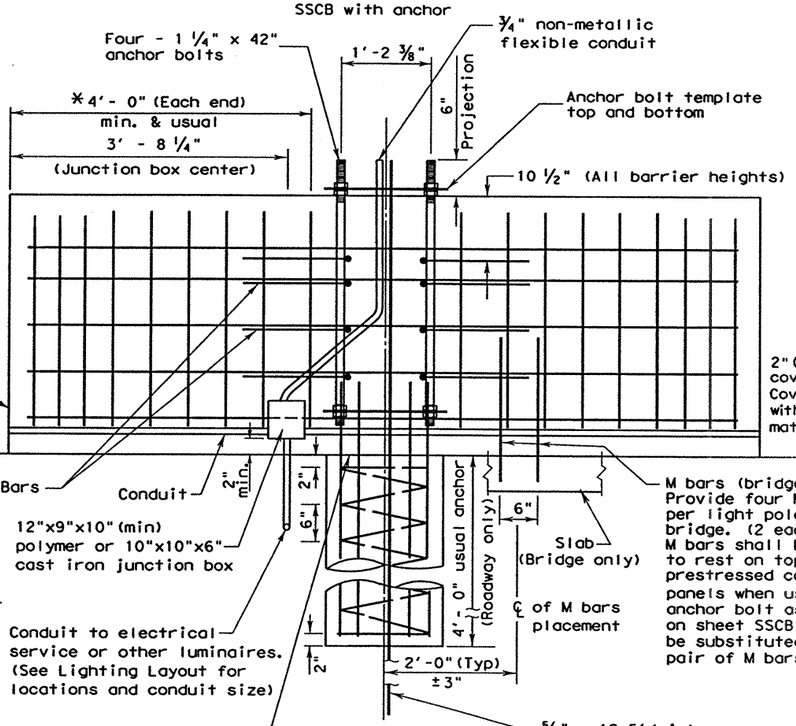
SECTION A-A

Shape of pole may be elliptical or polygonal



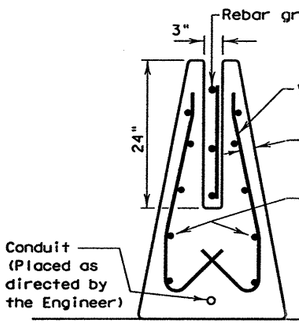
POLE DETAIL

Four 1¼" anchor bolts (ASTM A193 Grade B7 with the top threaded not less than 6 inches) or anchor rods (ASTM A321). The top end of the bolts or rods shall be galvanized not less than 8 inches and furnished with nuts (ASTM A563, Grade DH, galvanized, heavy hex) and flat and lock washers and templates. The length of the bolt or rod is specified in the table below.



ELEVATION

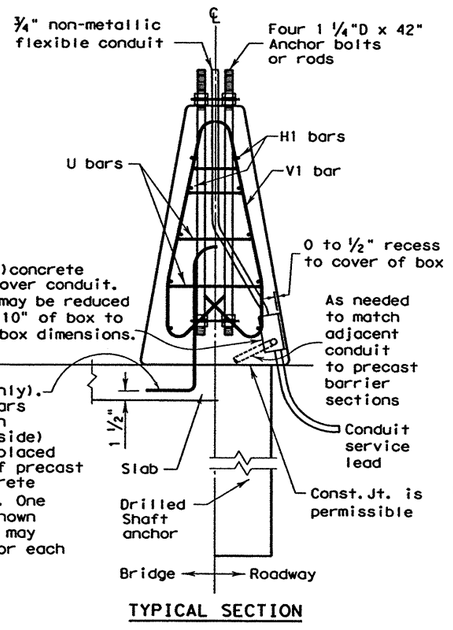
10'-0" Cast-In-Place SSCB with anchor



END SECTION

(ADJACENT TO PRECAST ROADWAY SECTIONS ONLY)

Each end of cast-in-place luminaire section shall be formed to mate with the precast concrete barrier. The cast-in-place section shall be connected at each end to the precast sections as shown above. Rebar grid and slot will be omitted when this barrier is placed on bridge or adjacent to cast-in-place roadway barrier.



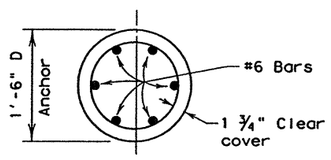
TYPICAL SECTION

GENERAL NOTES

1. Poles on bridge barrier shall be grounded using a ground rod near the wing wall and grounding conductor to each pole. The 1'-6" diameter anchor shall be omitted on bridge barrier. Anchorage on bridges shall be provided using four M bars as detailed hereon.
2. Anchor bolts, ground rods, drilled shaft anchor, junction box and rigid metal conduit as shown shall not be paid for directly, but will be considered subsidiary to the various bid items.
3. Use special pole designation Roadway Illumination Assemblies. Example: (TY SP48S-8-8)(.4kW), where length of arm is 8 feet. (See RID standard)
4. All conduit bends shall be in accordance with the National Electric Code.
5. Junction box shall be cast iron or polymer concrete, and shall be mounted flush (-0,+½") with concrete surface of CTB. Cast iron boxes shall have a grounding stud or lug and shall be grounded. See ED(1) standard for types.
6. Alternate forming methods may be used only with the prior approval of the Engineer.

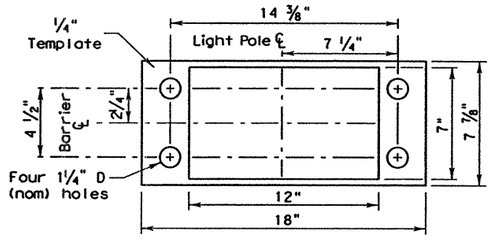
Barrier height (in.)	Dimensions (in.)				
	U1	U2	U3	U4	Anchor Bolts
42	6 ¼	7 ½	10 ¾	14	42
48	6 ¼	8 ¼	12	16 ¼	48
54	6 ¼	8 ⅞	13 ⅜	18 ½	54

For other barrier requirements and reinforcement dimensions see SSCB(2)



MW 30 spiral at 6" pitch (One flat turn top and bottom.)

ANCHOR SECTION



ANCHOR BOLT TEMPLATE DETAIL

R = Radius
D = Diameter

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LEVELS DISPLAYED
1 | 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

Texas Department of Transportation
Design Division (Roadway)

SINGLE SLOPE CONCRETE BARRIER
TYPE 4
CAST-IN-PLACE
(BRIDGE AND ROADWAY WITH ILLUMINATION)

SSCB(4)-00

FILE: ~~ssob400.dgn~~	DN: GTH	CK: GTH	DW: BGD	CK:	NEG:	
©TxDOT MAY 1992	DIST	FED REG	FEDERAL AID PROJECT •			SHEET
REVISIONS	22	6	NH-2002 (79)			393
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	WEBB		0018	05	062, ETC	TH 35

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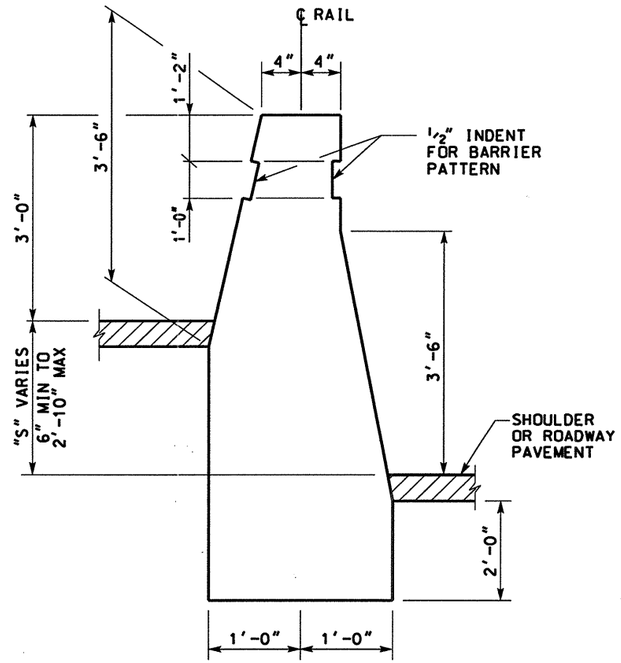
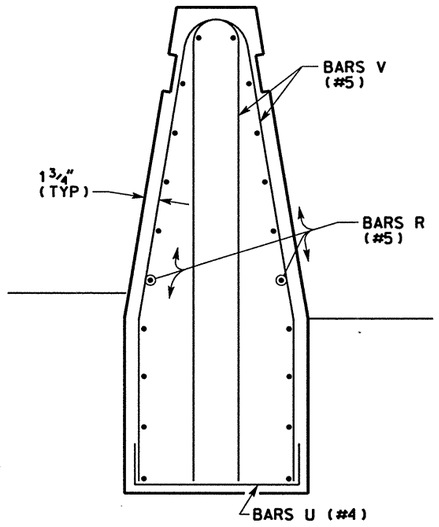
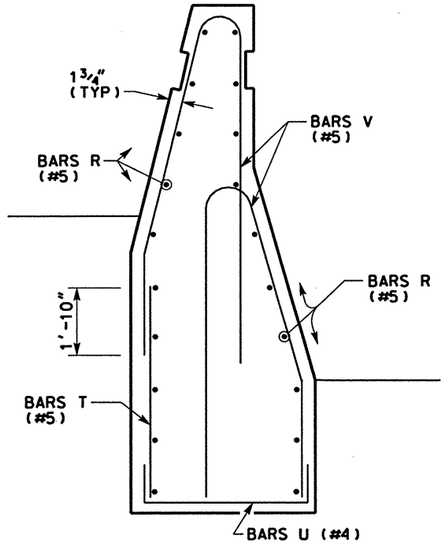


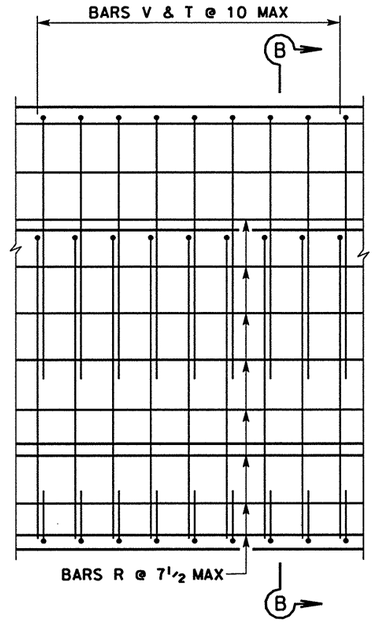
TYPICAL SECTION
NTS



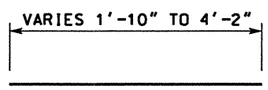
SECTION B-B
WITH S=6"
NTS



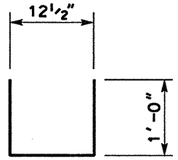
SECTION B-B
WITH S=2'-10"
NTS



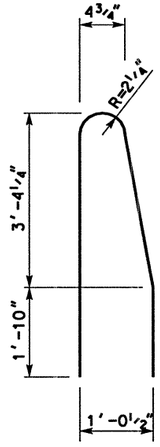
ROADWAY ELEVATION OF LOWER RAIL



BAR T



BAR U



BAR V

NOTES:

1. SEE "BARRIER PATTERN SHEET" FOR DETAILS OF BARRIER INDENT.
2. BARS N & M ~~MAY BE~~ FIELD BENT.
3. ALL CONCRETE ~~SHALL~~ BE CLASS C OR H. UNLESS OTHERWISE SPECIFIED.
4. ALL REINFORCING STEEL ~~SHALL~~ BE GRADE 60. UNLESS OTHERWISE SPECIFIED.

STATE OF TEXAS
RAYMOND C. BARKER
44988
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RAYMOND C. BARKER PE 44988, ON JUNE 18, 2003

Raymond C. Barker

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD

SPECIAL BARRIER #1 DETAILS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		394
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,48,57,58,60-62
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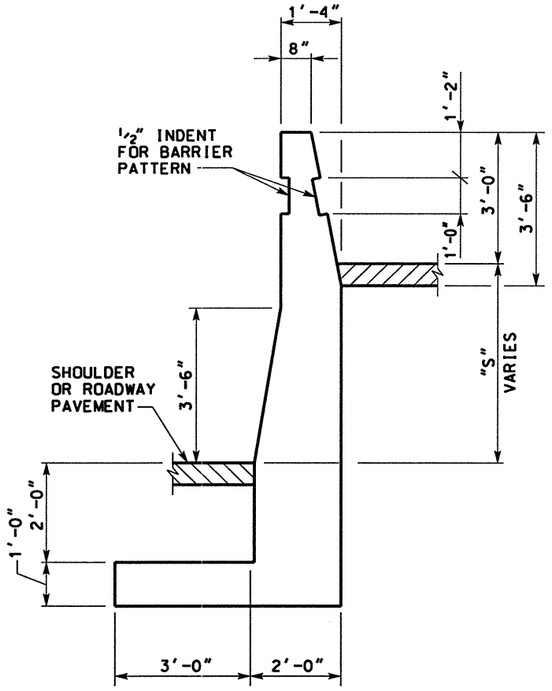
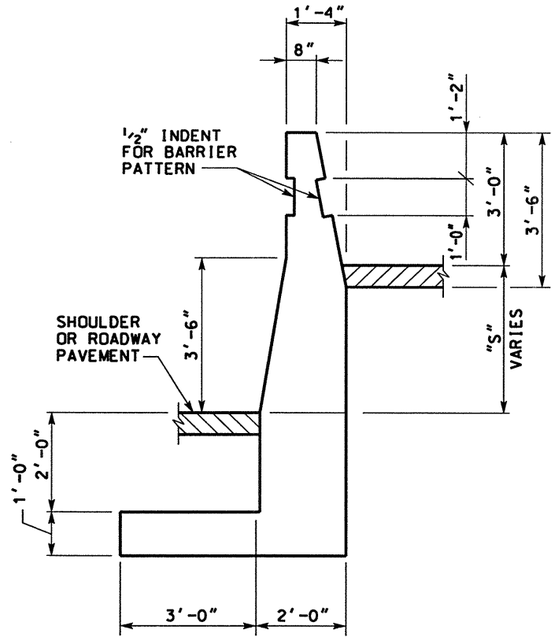
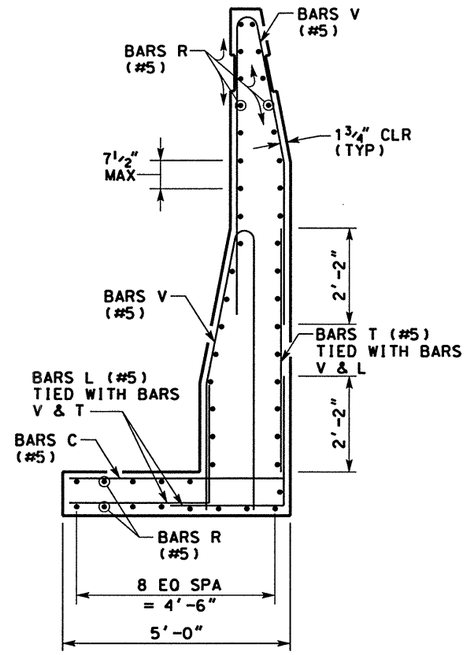


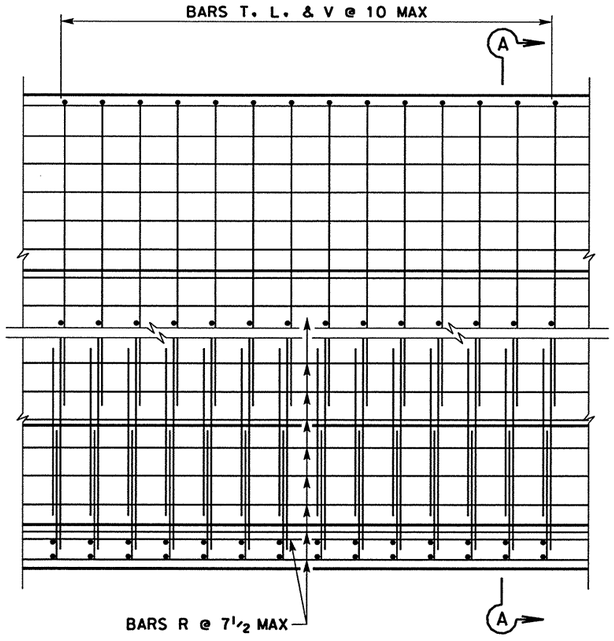
TYPICAL SECTION
NTS
WHEN "S" IS GREATER THAN 3'-6"
MAXIMUM "S" = 5'-6"



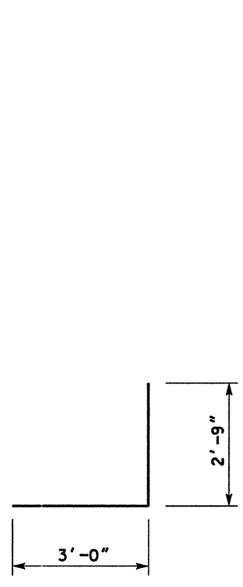
TYPICAL SECTION
NTS
WHEN "S" VARIES
FROM 2'-10" TO 3'-6"



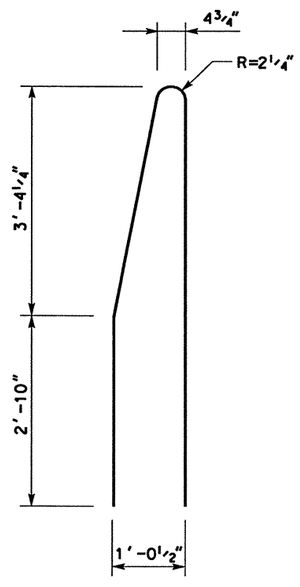
SECTION A-A
NTS



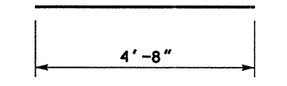
ROADWAY ELEVATION OF RAIL
NTS



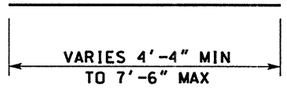
BAR L



BAR V



BAR C



BAR T

NOTES:

1. SEE "BARRIER PATTERN SHEET" FOR DETAILS OF BARRIER INDENT.
2. ALL CONCRETE ~~SHALL BE~~ CLASS C OR H, UNLESS OTHERWISE SPECIFIED.
3. ALL REINFORCING STEEL ~~SHALL BE~~ GRADE 60, UNLESS OTHERWISE SPECIFIED.

STATE OF TEXAS
RAYMOND C. BARKER
44988
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RAYMOND C. BARKER PE 44988, ON JUNE 18, 2003

Raymond C. Barker

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IH 35
LOOP 20 TO UNIROYAL ROAD

SPECIAL BARRIER #2 DETAILS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		395
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32.48.57.58.60-62

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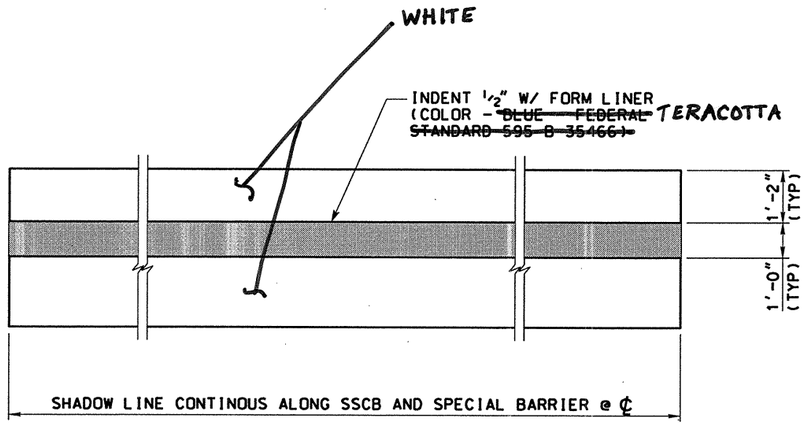

CONCRETE TRAFFIC BARRIER PATTERN

NTS

NOTE:

1. AFTER REMOVAL OF THE FORM LINER AND CURING OF THE CONCRETE. THE PATTERNS ~~SHALL BE~~ WATERBLASTED TO CLEAN THE SURFACE. FOLLOWING THE WATERBLAST THE PATTERN SURFACE ~~SHALL BE~~ TREATED BY APPLICATION OF A WATER BASED. WATER REPELLENT SEALER THAT WILL LEAVE THE SURFACE APPEARANCE UNCHANGED AFTER APPLICATION. SUCH AS "REPELLO WATER REPELLANT"MANUFACTURED BY L.M. SCOFIELD CO. LOS ANGLES. CA OR AN APPROVED EQUAL. APPLICATION OF THE SEALER ~~SHALL BE~~ IN ACCORDANCE WITH THE MANUFACTURES INSTRUCTIONS.

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY PE 81485, ON MAY 07, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD

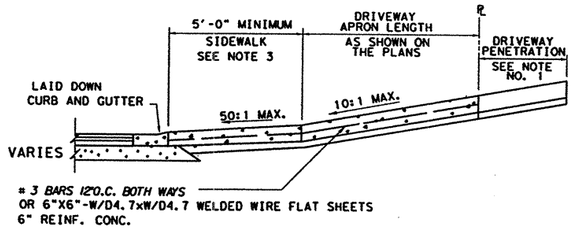
BARRIER PATTERN DETAILS

SHEET 1 OF 1

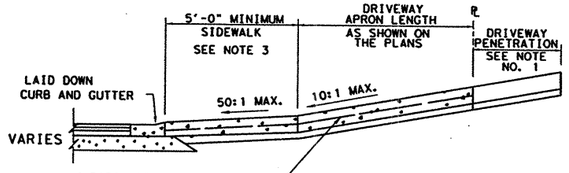
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		396
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62

b03sdp02.dgn-01 HOUFILE023 \hciwlvc0130\ 5/7/2003



TYPICAL PRIVATE DRIVEWAY SECTION
WHERE SIDEWALK ABUTS CURB



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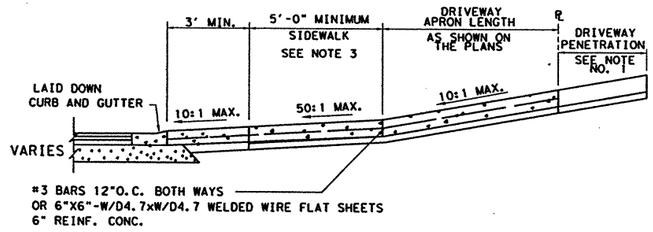
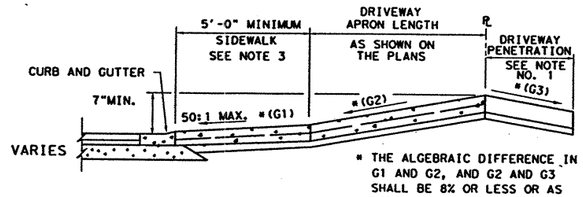
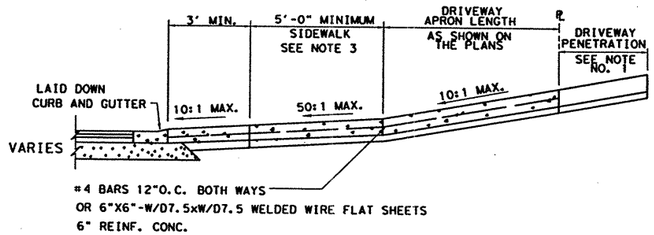
WHERE SIDEWALK ABUTS CURB



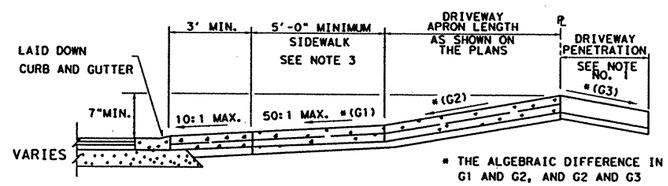
TYPICAL PRIVATE DRIVEWAY SECTION
WHERE SIDEWALK IS SEPARATED FROM CURB



TYPICAL PRIVATE/COMMERCIAL DRIVEWAY SECTION
WHERE SIDEWALK ABUTS CURB
(WHERE PROPERTY IS LOWER THAN THE STREET)



TYPICAL COMMERCIAL DRIVEWAY SECTION
WHERE SIDEWALK IS SEPARATED FROM CURB



TYPICAL PRIVATE/COMMERCIAL DRIVEWAY SECTION
WHERE SIDEWALK IS SEPARATED FROM CURB
(WHERE PROPERTY IS LOWER THAN THE STREET)

DRIVEWAY NOTES:

1) DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT ~~MAY BE~~ NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE.
2) THE SIDEWALK ~~WILL BE~~ PLACED A MINIMUM OF 3-FT FROM THE CURB FOR ROADWAYS HAVING A SPEED OF 50 MPH OR MORE.
3) THE SIDEWALK WIDTH ~~MAY BE~~ REDUCED TO 4-FT WITH A MAXIMUM CROSS SLOPE OF 2 PERCENT WHEN CROSSING A DRIVEWAY WITH THE APPROVAL OF THE ENGINEER.
4) REFER TO THE TXDOT'S "REGULATION FOR ACCESS DRIVEWAY TO STATE HIGHWAYS" PUBLICATION MANUAL FOR ADDITIONAL DETAILS REGARDING THE DESIGN, CONSTRUCTION, AND MAINTENANCE OF DRIVEWAYS.

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LEVELS USED AS CREATED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

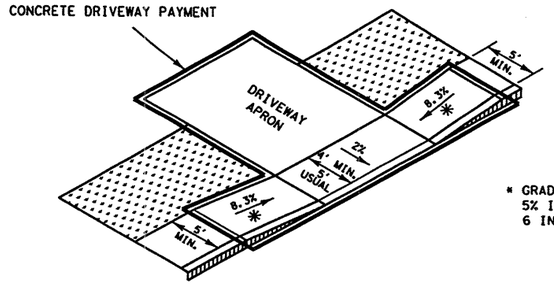
Texas Department of Transportation
LAREDO DISTRICT

TYPICAL DRIVEWAY DETAIL
CURB AND GUTTER

SHEET 1 OF 3

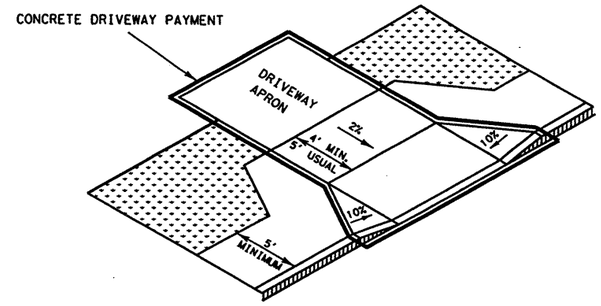
b34mp174.dgn	DN: AR	CK: AR	DW: FDL	CK:	
©TxDOT APR. 2002	DISTRICT	FEDERAL AID PROJECT			SHEET
REVISIONS	22	NH-2002 (79)			397
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

b34mp174.dgn -01 HOUFILE023 \hci\il\cf0130\ 4/18/2003

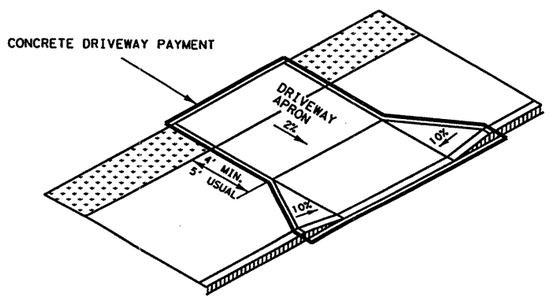


* GRADE LESS THAN OR EQUAL TO 5% IF CURB HEIGHT GREATER THAN 6 INCHES. HANDRAIL IS NOT REQUIRED

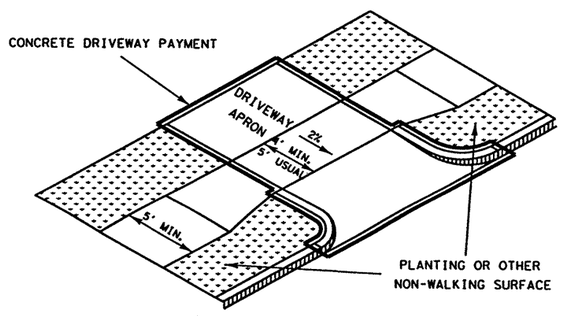
RAMP SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK



SETBAK SIDEWALK

DRIVEWAY NOTES:

1) PROPOSED DRIVEWAYS ARE TO MATCH EXISTING SIZES OR AS DIRECTED BY THE ENGINEER. SEE TYPICAL DRIVEWAY DETAIL NON CURB AND GUTTER NOTES SHEET 3 OF 3 FOR PRIVATE AND COMMERCIAL DRIVEWAY WIDTHS.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Texas Department of Transportation
LAREDO DISTRICT

TYPICAL DRIVEWAY DETAIL
CURB AND GUTTER

SHEET 2 OF 3

b34mp175.dgn	DN: AR	CK: AR	DW: FDL	CK:	
©TxDOT APR. 2002	DISTRICT	FEDERAL AID PROJECT			SHEET
REVISIONS	22	NH-2002 (79)			398
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

4/18/2003
HOUFILE023 \hou1\cad\b34mp175.dgn-01

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LEVELS USED ACC:

| | | | | |

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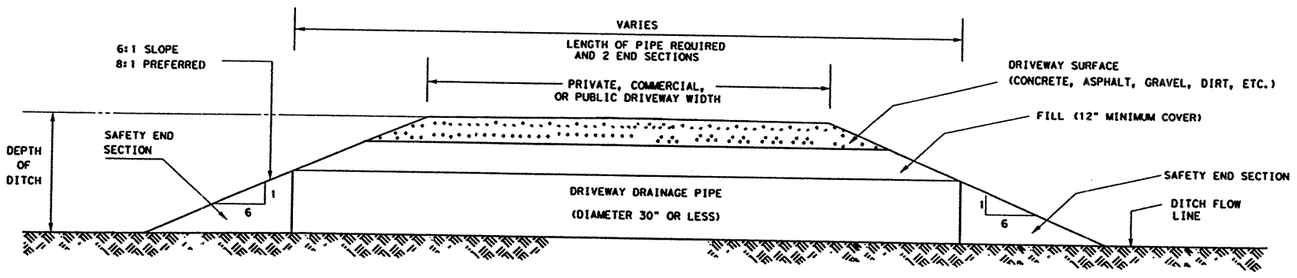
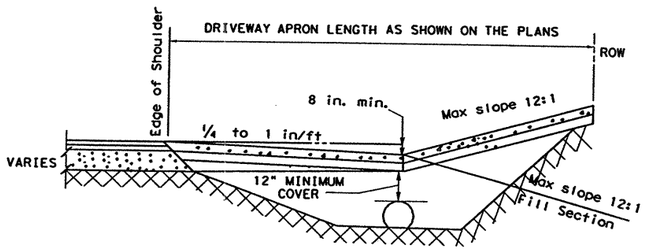
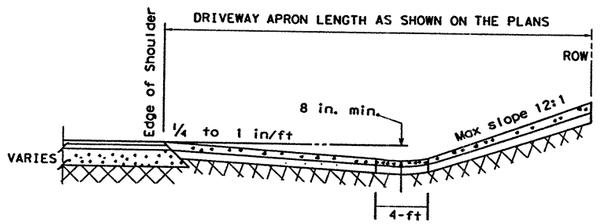


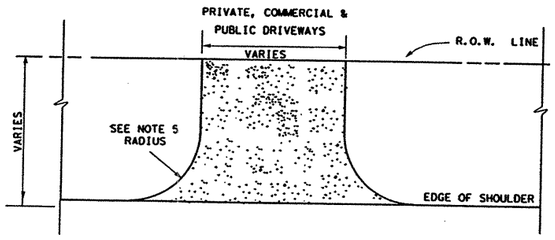
TYPICAL DRIVEWAY SECTION
TYPICAL COMMERCIAL DRIVEWAY SECTION



PROFILE DRIVEWAY SECTION



PROFILE DRIVEWAY SECTION (VALLEY GUTTER)



TYPICAL DRIVEWAY PLAN VIEW

DRIVEWAY NOTES:

1) A PRIVATE DRIVEWAY IS AN ENTRANCE TO AND/OR EXIT FROM A RESIDENTIAL DWELLING, FARM, OR RANCH TO A STATE HIGHWAY FOR THE EXCLUSIVE USE AND BENEFIT OF THE GRANTEE.
   A) THE WIDTH ~~SHALL~~ NOT EXCEED TWENTY-FOUR FEET MEASURED AT RIGHT ANGLES TO THE CENTERLINE OF THE DRIVEWAY, EXCEPT AS INCREASED BY PERMISSIBLE RADII. THE MINIMUM DRIVEWAY WIDTH AT ROW LINE IS 12-FT.
   B) THE ANGLE OF THE ACCESS DRIVEWAY FROM THE HIGHWAY PAVEMENT ~~SHALL BE~~ SIXTY TO NINETY DEGREES, EXCEPT THAT ONE-WAY FORTY-FIVE DEGREE ANGLE DRIVEWAYS ~~WILL BE~~ PERMITTED.
2) A COMMERCIAL DRIVEWAY IS AN ENTRANCE TO AND/OR EXIT FROM ANY COMMERCIAL, BUSINESS, OR SIMILAR TYPE ESTABLISHMENT ADJACENT TO A STATE HIGHWAY.
   A) THE WIDTH OF ACCESS DRIVEWAYS ~~SHALL NOT~~ EXCEED FORTY-FIVE FEET MEASURED AT RIGHT ANGLES TO THE CENTERLINE OF THE DRIVEWAYS, EXCEPT AS INCREASED BY PERMISSIBLE RADII. THE MINIMUM DRIVEWAY WIDTH AT ROW LINE IS 12-FT.
   B) THE ANGLE OF THE ACCESS DRIVEWAY FROM THE HIGHWAY PAVEMENT ~~SHALL BE~~ SIXTY TO NINETY DEGREES, EXCEPT THAT ONE-WAY ENTRANCES FROM DIVIDED LANE HIGHWAY OR ONE-WAY FRONTAGE ROADS ~~MAY BE~~ THIRTY DEGREES TO NINETY DEGREES.
3) PUBLIC ACCESS DRIVEWAYS ARE APROACHES TO A STATE HIGHWAY FROM COUNTY OR CITY MAINTAINED ROADS AND STREETS, AND APPROACHES TO SCHOOL, CHURCHES, CEMENTERIES, AND OTHER PUBLIC PLACES OR BUILDINGS OF A LIKE CHARACTER.
   A) THE WIDTH AND ANGLE OF PUBLIC ACCESS DRIVEWAYS (CITY STREETS, COUNTY ROADS, SUBDIVISION STREETS, ETC.) ~~MAY~~ VARY DEPENDING ON LOCAL CONDITIONS AND ARE SUBJECT TO REVIEW AND APPROVAL OF TXDOT.
4) THE GRADE ON THE DRIVEWAY ~~SHALL BE~~ SO CONSTRUCTED AS TO CONFORM TO THE SLOPE OF THE ROADWAY SHOULDER FROM THE EDGE OF THE TRAVELWAY TO THE SHOULDER LINE AND HENCE ~~SHALL BE~~ SLOPED DOWNWARD AT APPROXIMATELY ONE QUATER TO ONE INCH PER FOOT FOR A DISTANCE NECESSARY TO PLACE THE LOW POINT OF THE DRIVEWAY NOT LESS THAN EIGHT INCHES BELOW THE SHOULDER ELEVATION. IF VALLEY GUTTERS ARE USED, THE LOWEST POINT OF THE GUTTER ~~SHALL BE~~ A MINIMUM OF EIGHT INCHES BELOW THE SHOULDER ELEVATION AND A VALLEY GUTTER OF AT LEAST FOUR FEET IN WIDTH MAINTAINED.
5) RADII FOR ALL ACCESS DRIVEWAYS IN URBAN AREAS ~~SHALL BE~~ NOT LESS THAN TWO AND ONE-HALF FEET, AND IN RURAL AREAS IT ~~SHALL BE~~ NOT LESS THAN TEN FEET.
6) FOR DRIVEWAYS BEING CONSTRUCTED WITHIN THE CLEAR ZONE, ALL DRAINAGE STRUCTURES (PIPE, BOX, PAVED, DIP, ETC.) SHALL BE DESIGNED ~~TO BE~~ TRAVERSABLE BY A COLLIDING VEHICLE WITHOUT ABRUPT CHANGE IN SPEED OR ROLLOVER.
   A) THERE ~~SHALL BE~~ NO CULVERT HEADWALLS OR SIMILAR VERTICAL ENDS.
   B) ENDS ~~SHALL BE~~ SLOPED AT 6:1 (6 HORIZONTAL TO 1 VERTICAL) OR FLATTER, WITH RIPRAP OR OTHER STABILIZING MATERIAL ADDED WHERE REQUIRED TO PREVENT EROSION AND/OR PROTECT THE END. THE SLOPING END ~~MAY BE~~ TERMINATED AND A VERTICAL END INTRODUCED AT THE TOP AND BOTTOM OF THE PARTIAL PIPE SECTION.
   C) THE DRIVEWAY EMBANKMENT SLOPE ~~SHALL BE~~ 6:1 MAXIMUM, WITH 8:1 PREFERRED.
   D) FOR PIPES GREATER THAN 30 INCHES IN DIAMETER OR MULTIPLE PIPES WITH INDIVIDUAL DIAMETERS GREATER THAN 24 INCHES, GRATES ~~WILL BE~~ PROVIDED WITH MAXIMUM SLOPE OF 6:1 OR A PREFERRED SLOPE OF 8:1. GRATES ARE NOT REQUIRED ON SMALL (INDIVIDUAL PIPES HAVING 30 INCHES OR LESS DIAMETER) STRUCTURES REGARDLESS OF END LOCATION WITH RESPECT TO THE CLEAR ZONE REQUIREMENTS; HOWEVER, THE ENDS OF SMALL STRUCTURES ~~SHALL BE~~ SLOPED AND RIPRAPPED AS DESCRIBED IN (B) ABOVE.
7) FOR PROPER BACKFILL REFER TO TXDOT'S STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES ITEM NO. 400 "EXCALVATION AND BACKFILL FOR STRUCTURES".
8) REFER TO TXDOT'S "REGULATION FOR ACCESS DRIVEWAY TO STATE HIGHWAYS" PUBLICATION FOR ADDITIONAL DETAILS REGARDING THE DESIGN, CONSTRUCTION, AND MAINTENANCE OF DRIVEWAYS.

LEVELS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

AVED

ACC:

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Texas Department of Transportation
LAREDO DISTRICT

TYPICAL DRIVEWAY DETAIL
NON CURB AND GUTTER

SHEET 3 OF 3

b34mp176.dgn	DN: AR	CK: AR	DW: FDL	CK:
©TxDOT APR. 2002	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		399
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

4/18/2003
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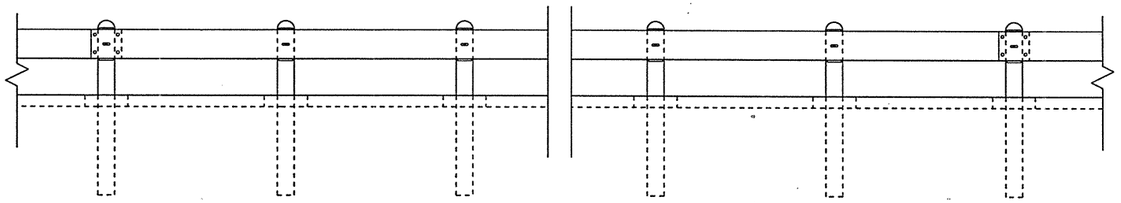
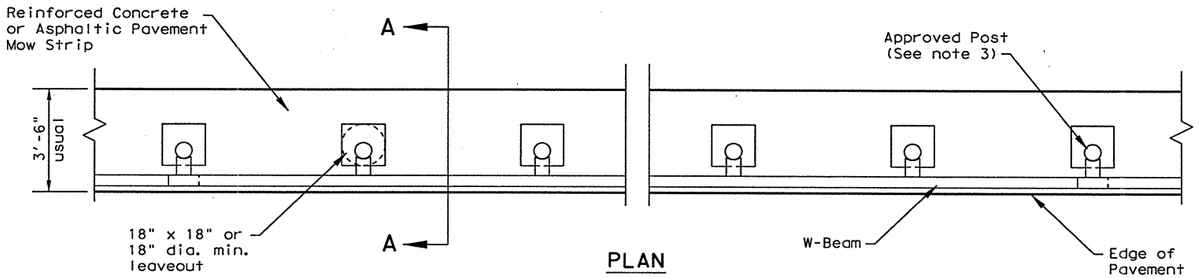
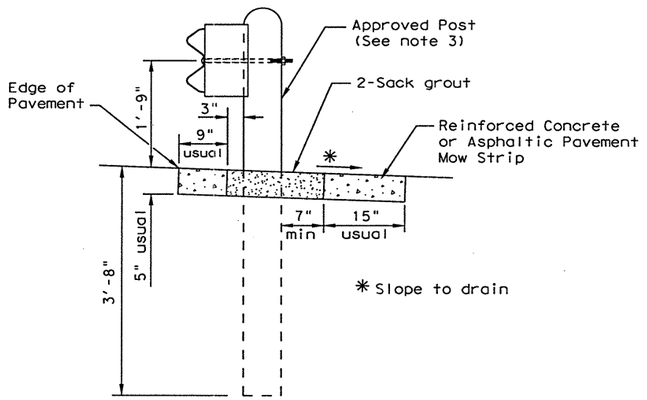


ELEVATION

TRAFFIC

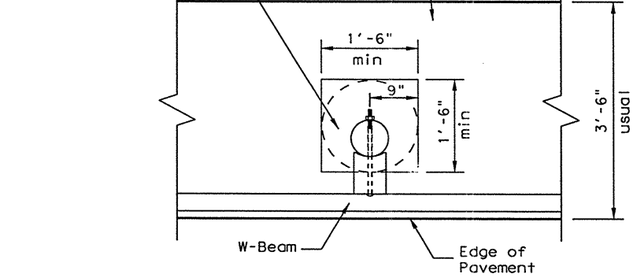


PLAN



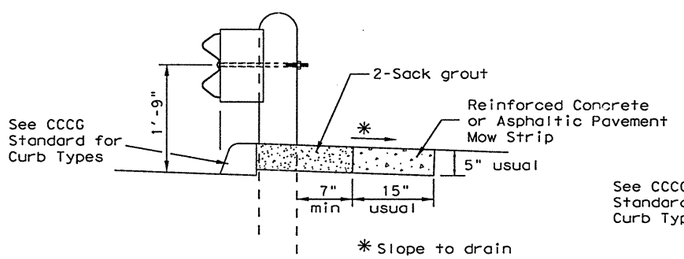
SECTION A-A

Typical



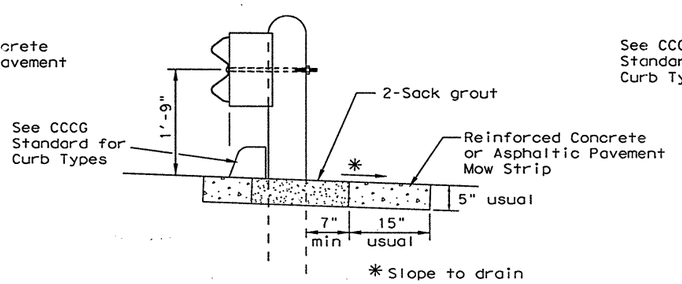
MOW STRIP DETAIL

Reinforced Concrete or Asphaltic Pavement Mow Strip with 18" x 18" or 18" dia. minimum leaveout.



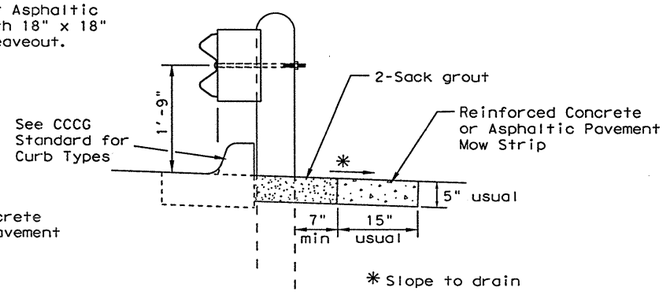
CURB OPTION (1)

Shown at curbed location



CURB OPTION (2)

Curb shown on top of mow strip



CURB OPTION (3)

GENERAL NOTES

1. Mow strips shall be asphaltic pavement or concrete riprap as shown on the plans and will be paid for under the pertinent bid item of work. Asphaltic payment shall meet the requirements of and be placed in accordance with the pertinent bid item as shown on the plans. Concrete riprap shall be placed in accordance with Item 432, "Riprap".
2. The leaveout behind the post shall be a minimum of 7".
3. The type of approved post will be shown elsewhere in the plans. See the applicable standard sheets for additional details and information.
4. Other curb placement options may be used. Curbs are not considered part of the mow strip and will be paid for under other pertinent bid item.
5. Depth of mow strip may vary, (5" usual, 8" maximum).
6. The limits of payment for asphaltic pavement or concrete riprap will include leaveouts for post.
7. The leave outs shall be filled with no more than a 2-sack grout mixture and placed in accordance with Section 421.2(8), "Mortar and Grout". Payment for furnishing and placing the grout mixture will be considered subsidiary to the pay item of asphaltic pavement or concrete riprap.

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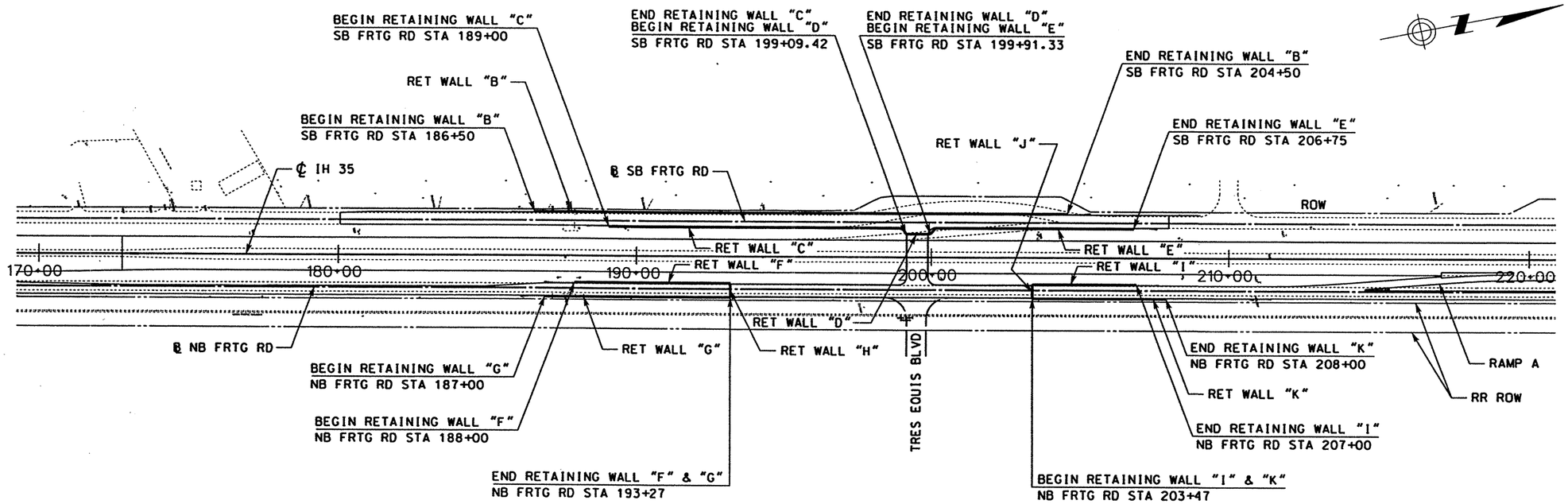
Texas Department of Transportation
Design Division (Roadway)

MOW STRIP

MS-03

FILE: ms03.dgn	DN: AM	CK: AM	DW: BGD	CK:	NEG:	
©TxDOT April 2003	DIST	FED REG	FEDERAL AID PROJECT •			SHEET
REVISIONS	22	6	NH-2002 (79)			400
	COUNTY			CONTROL	SECT	JOB	HIGHWAY
	WEBB			0018	05	062	IH 35



0 200 400
SCALE: 1" = 400'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL KEY PLAN

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		401
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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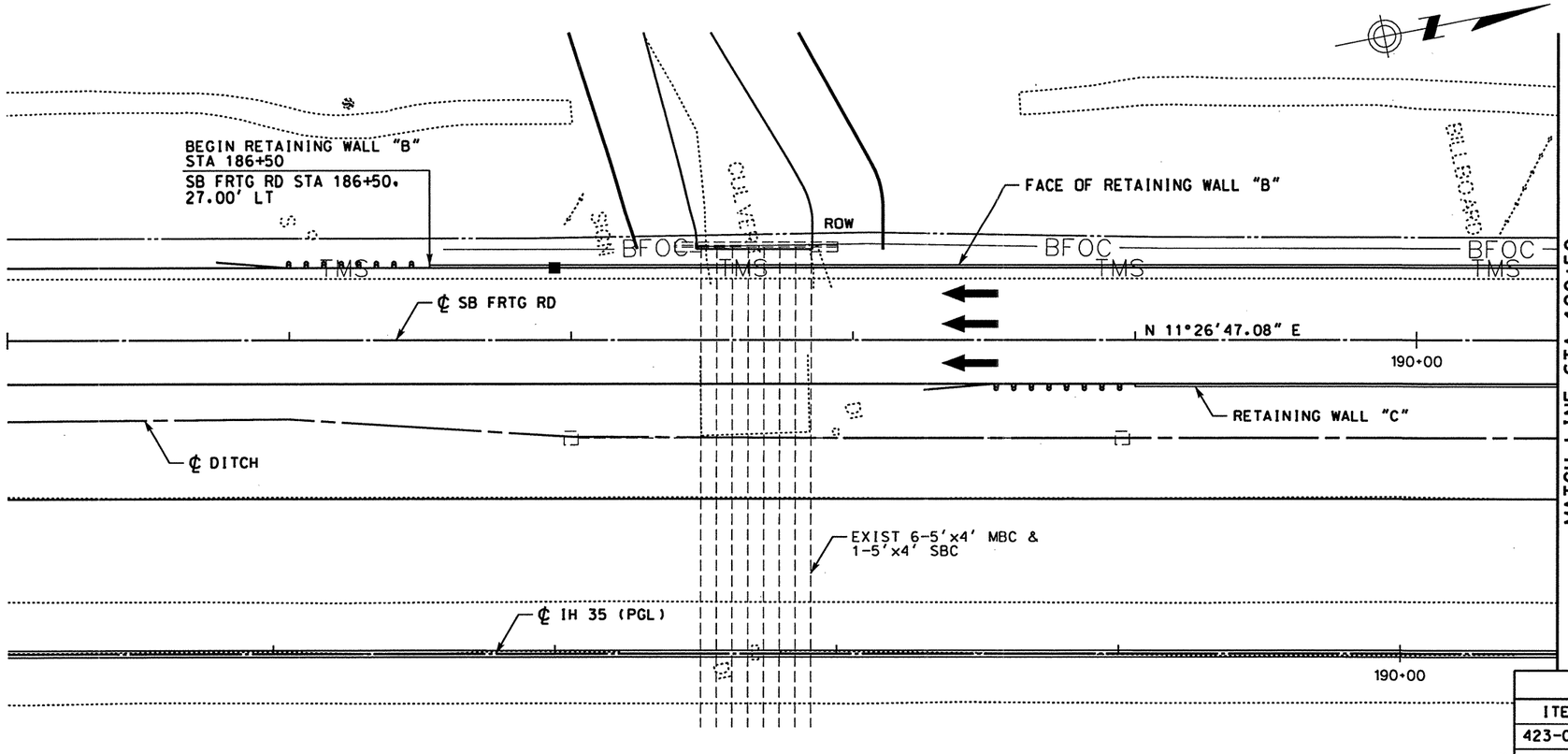
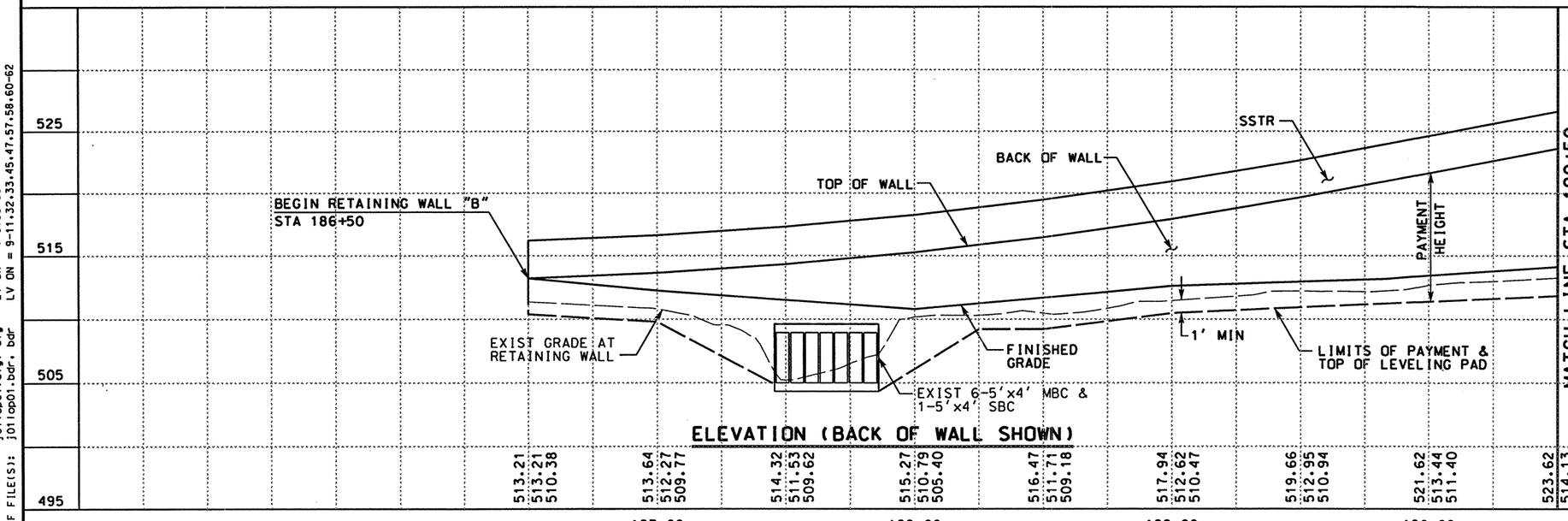


PLAN



ELEVATION (BACK OF WALL SHOWN)

NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. FOR TYPICAL SECTION SEE SHEET 2 OF 4.
4. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	423-0501	RETAINING WALL (MSE)	SF	3037
*		CONC STAIN FINISH	SY	456
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	9.9
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	1920

* FOR CONTRACTOR'S INFORMATION ONLY

SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALL "B"

SHEET 1 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	402
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

6/4/2003
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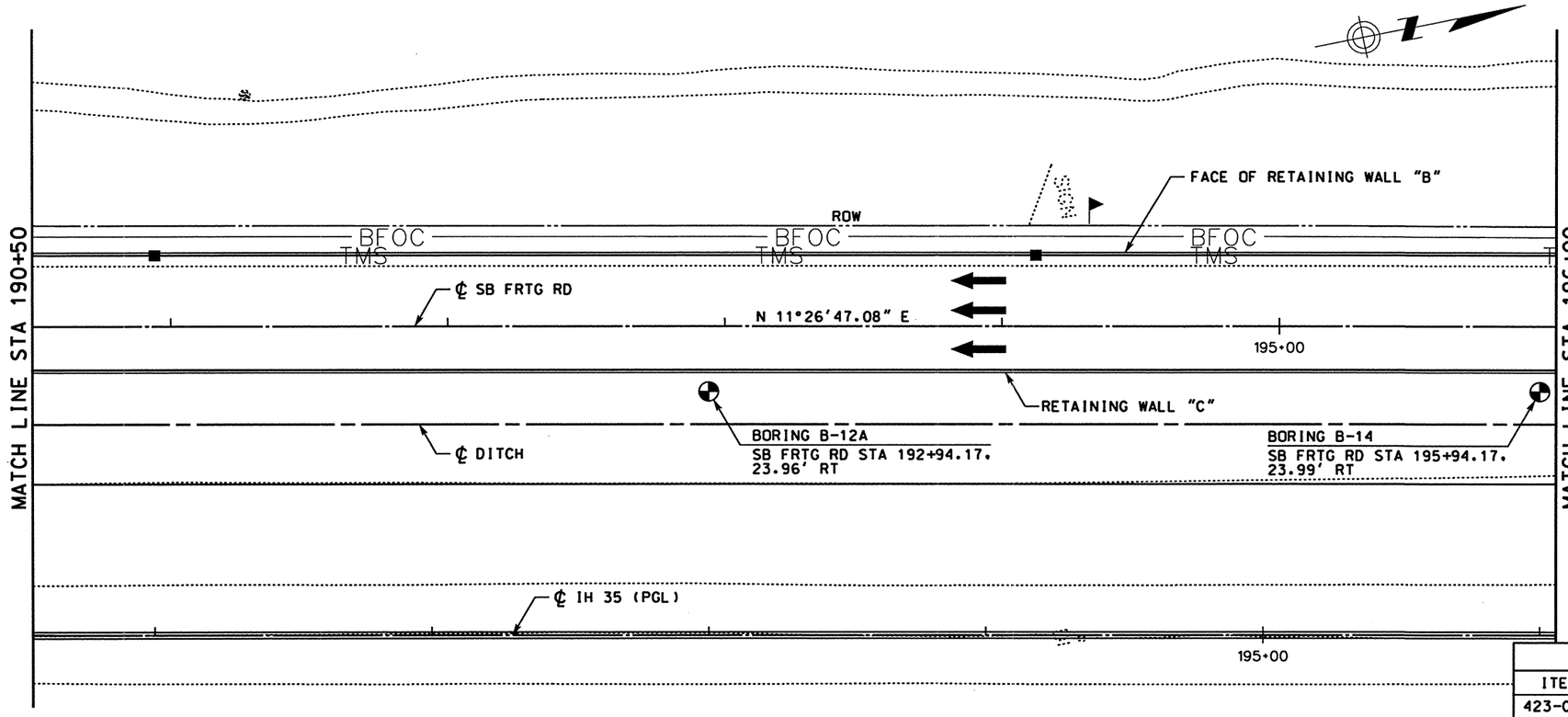
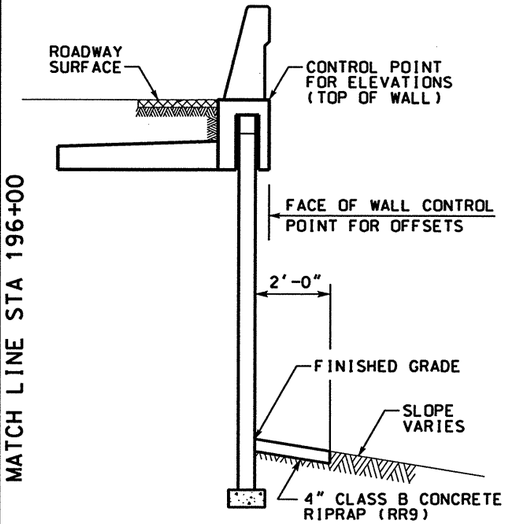


PLAN

NOTE:

1. FOR NOTES, SEE SHEET 1 OF 4.

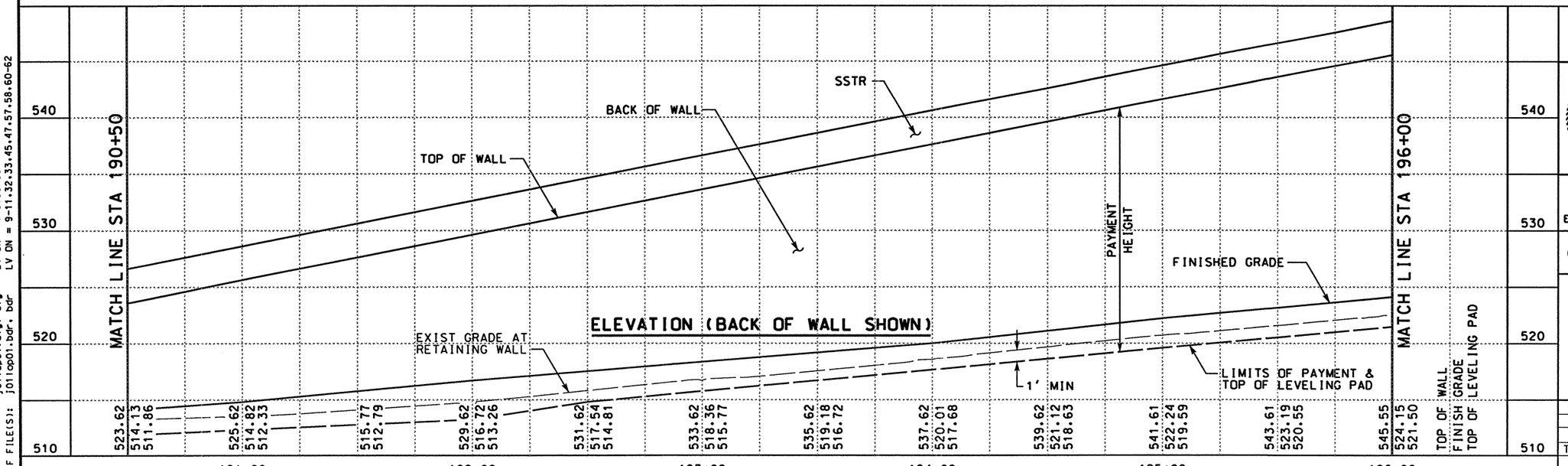


TYPICAL WALL SECTION

NTS

ESTIMATED QUANTITY FOR THIS SHEET			
ITEM	DESCRIPTION	UNIT	TOTAL
423-0501	RETAINING WALL (MSE)	SF	10096
*	CONC STAIN FINISH	SY	1305
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	13.6
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	8633

* FOR CONTRACTOR'S INFORMATION ONLY



0 25 50

SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
R. 81485
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL
LAYOUT
WALL "B"

SHEET 2 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	403
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003 \hchivil\cf0130\ HOUFILE023 b31ppp03.dgn-07

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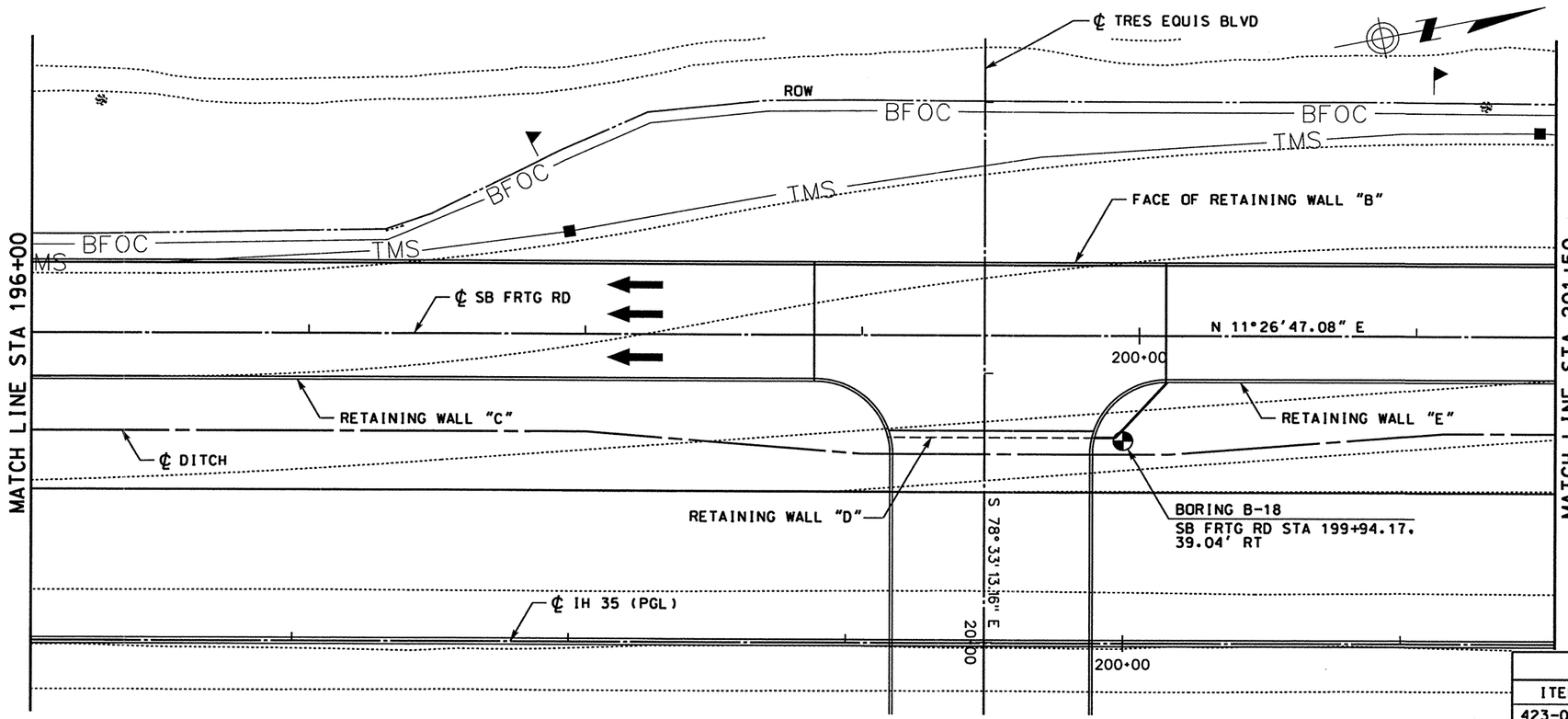


PLAN

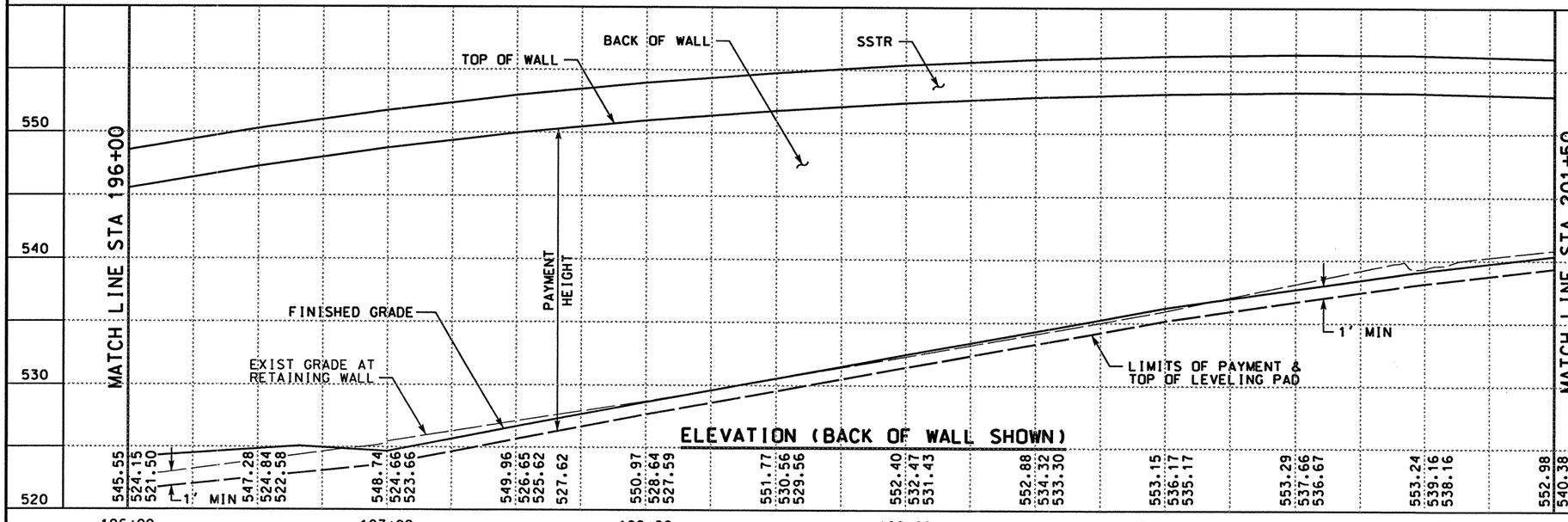
NOTES:

1. FOR NOTES, SEE SHEET 1 OF 4.
2. FOR TYPICAL SECTION, SEE SHEET 2 OF 4.

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	423-0501	RETAINING WALL (MSE)	SF	11431
*		CONC STAIN FINISH	SY	1453
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	13.6
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	10770

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION (BACK OF WALL SHOWN)

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j0110p01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

SCALE: 1" = 50' HORIZ
1" = 10' VERT

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JAMES B. HORNSBY 81485 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALL "B"

SHEET 3 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	404
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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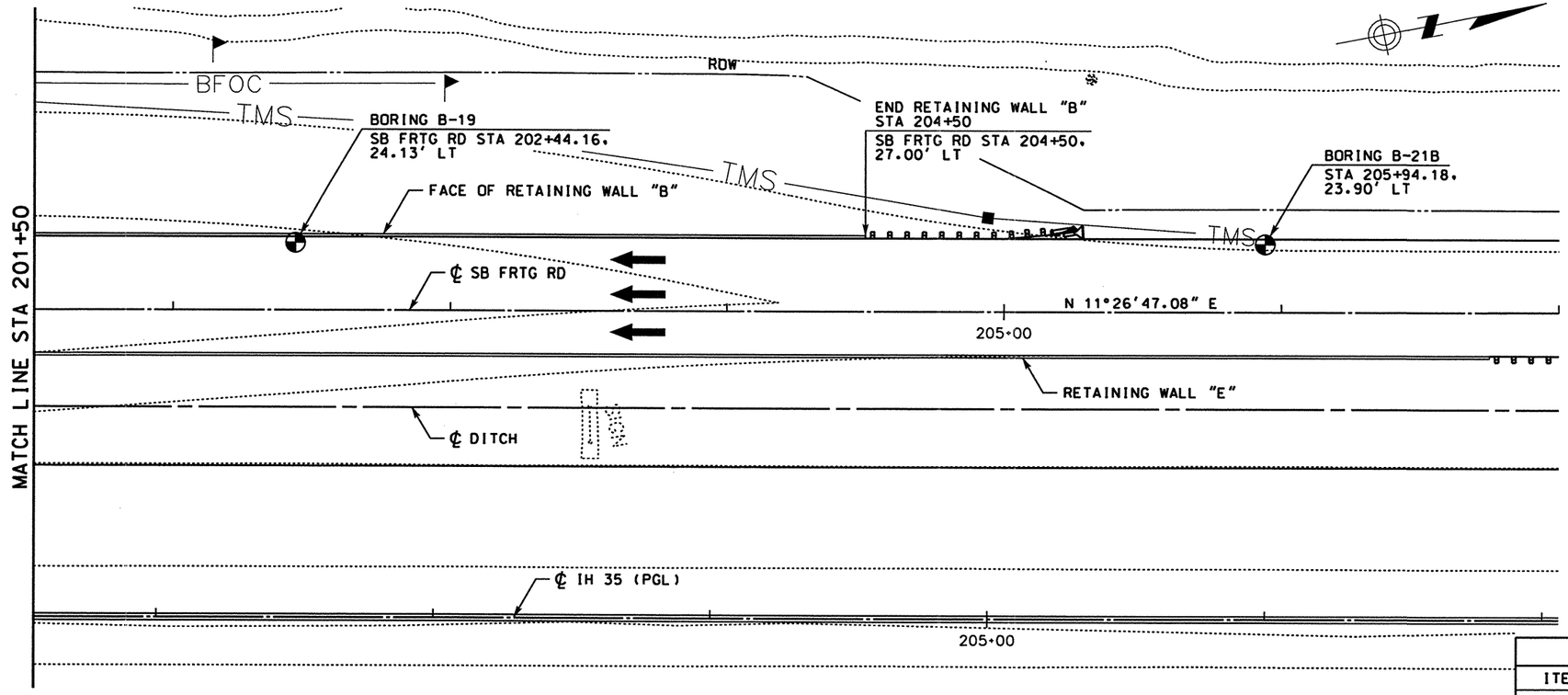
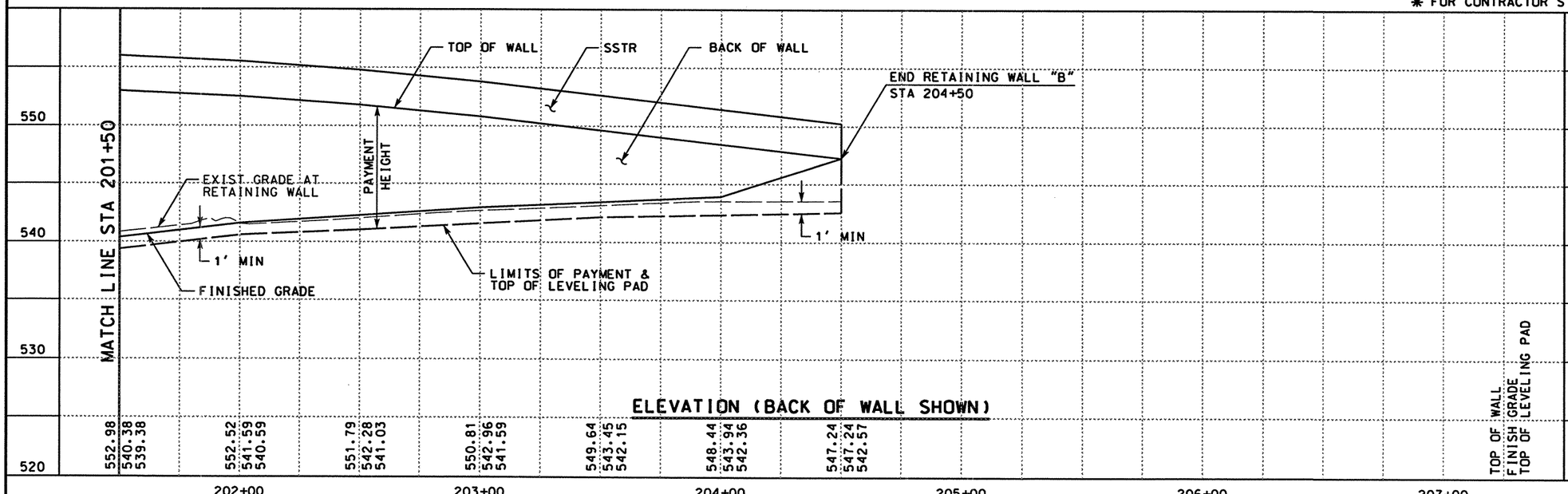


PLAN



ELEVATION (BACK OF WALL SHOWN)

NOTES:

1. FOR NOTES, SEE SHEET 1 OF 4.
2. FOR TYPICAL SECTION, SEE SHEET 2 OF 4.

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	423-0501	RETAINING WALL (MSE)	SF	2730
*		CONC STAIN FINISH	SY	403
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	7.4
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	2264

* FOR CONTRACTOR'S INFORMATION ONLY

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL
LAYOUT
WALL "B"

SHEET 4 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	405
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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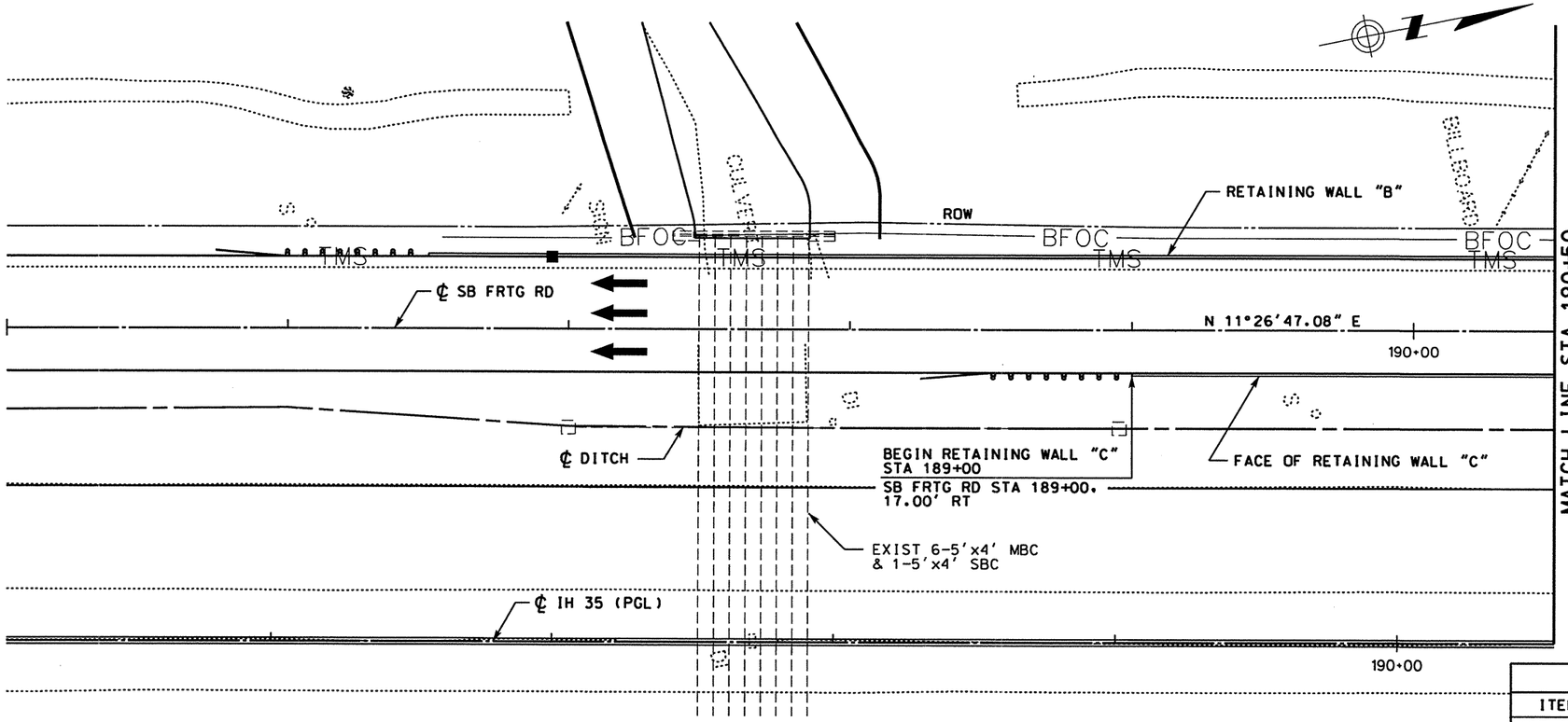
b31pp05.dgn-08 HOUFILE023 \hcivil\c0130\ 6/4/2003

NOTES:

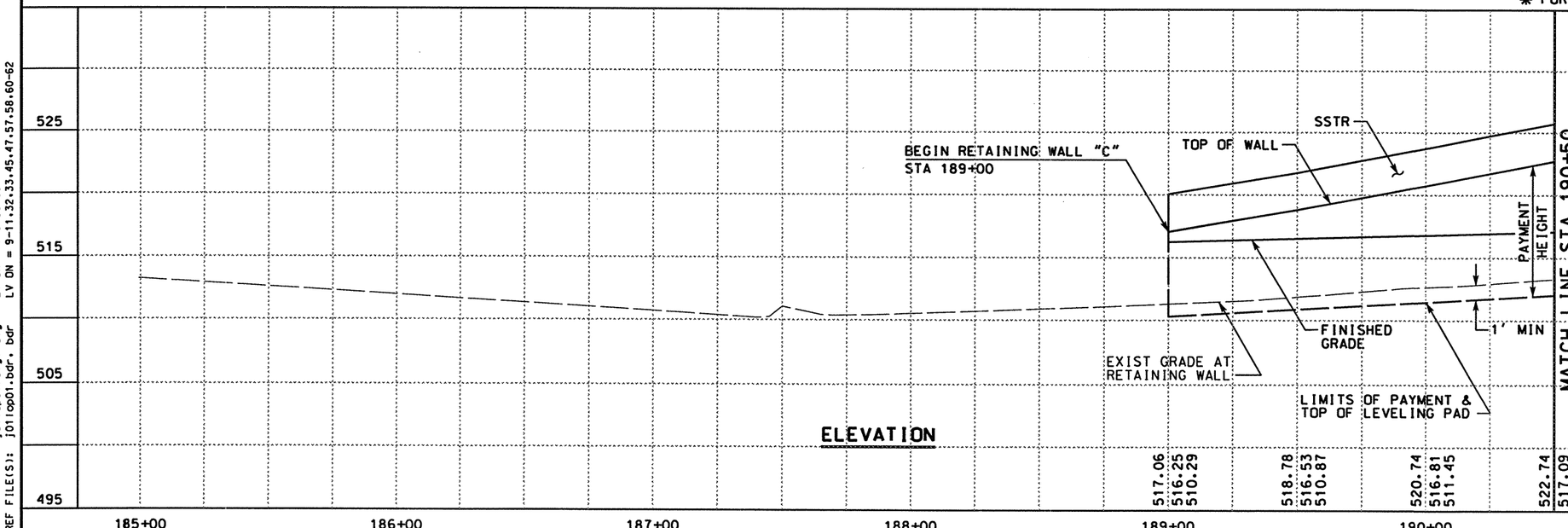
1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. FOR TYPICAL SECTION SEE SHEET 2 OF 3.
4. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.



PLAN

ESTIMATED QUANTITY FOR THIS SHEET			
ITEM	DESCRIPTION	UNIT	TOTAL
423-0501	RETAINING WALL (MSE)	SF	1297
*	CONC STAIN FINISH	SY	194
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	3.7
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	470

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALL "C"

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	406
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003
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b31ppp06.dgn-07

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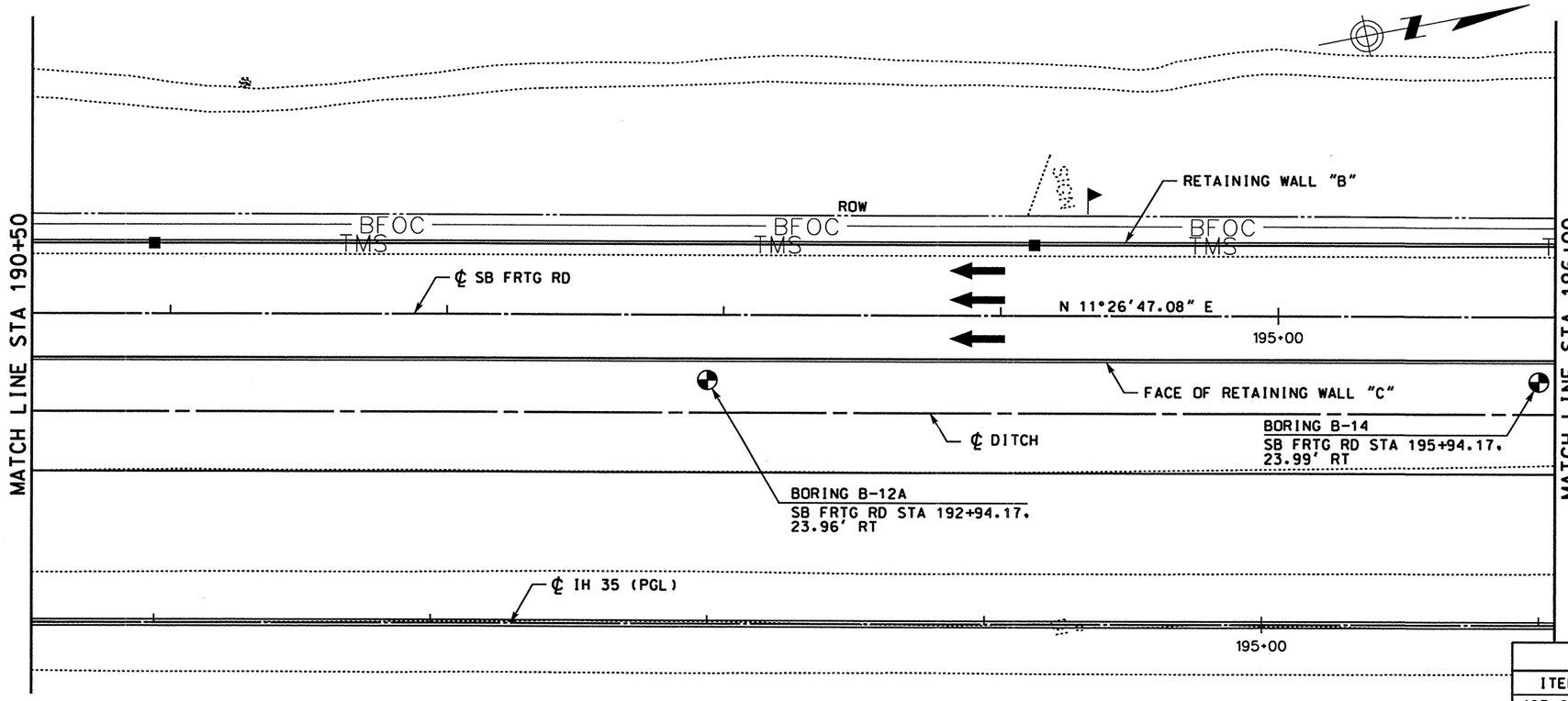
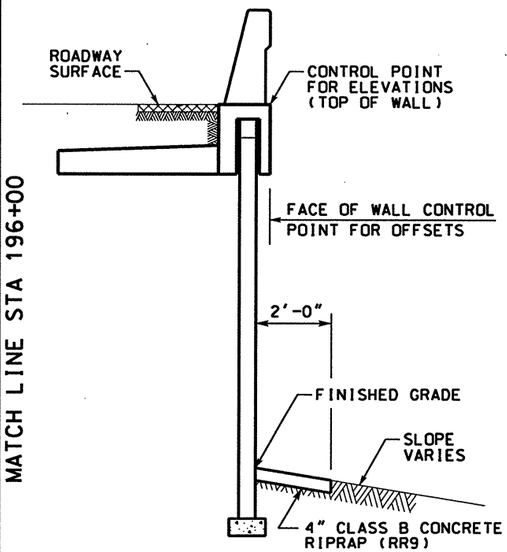


PLAN

NOTE:

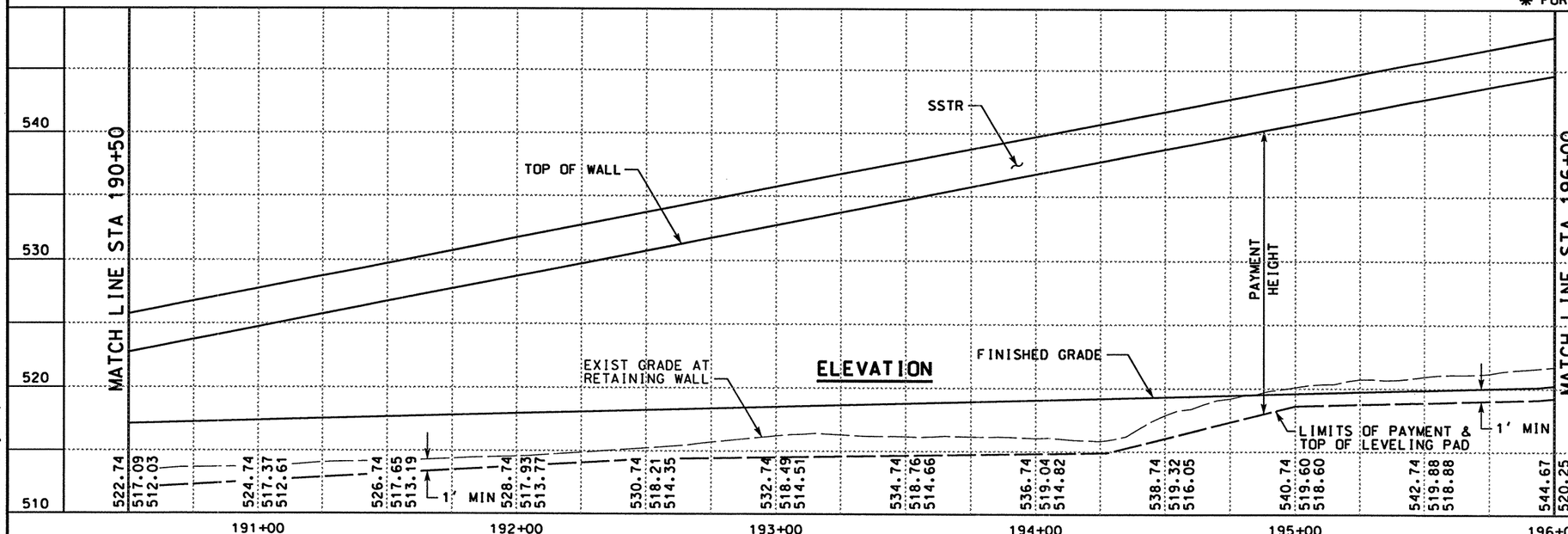
1. FOR NOTES, SEE SHEET 1 OF 3.



TYPICAL WALL SECTION
NTS

ESTIMATED QUANTITY FOR THIS SHEET			
ITEM	DESCRIPTION	UNIT	TOTAL
423-0501	RETAINING WALL (MSE)	SF	10217
*	CONC STAIN FINISH	SY	1319
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	13.6
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	8311

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALL "C"

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	407
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

b3ppo07.dgn-06 HOUFILE023 \hcivil\cf0130\ 6/4/2003

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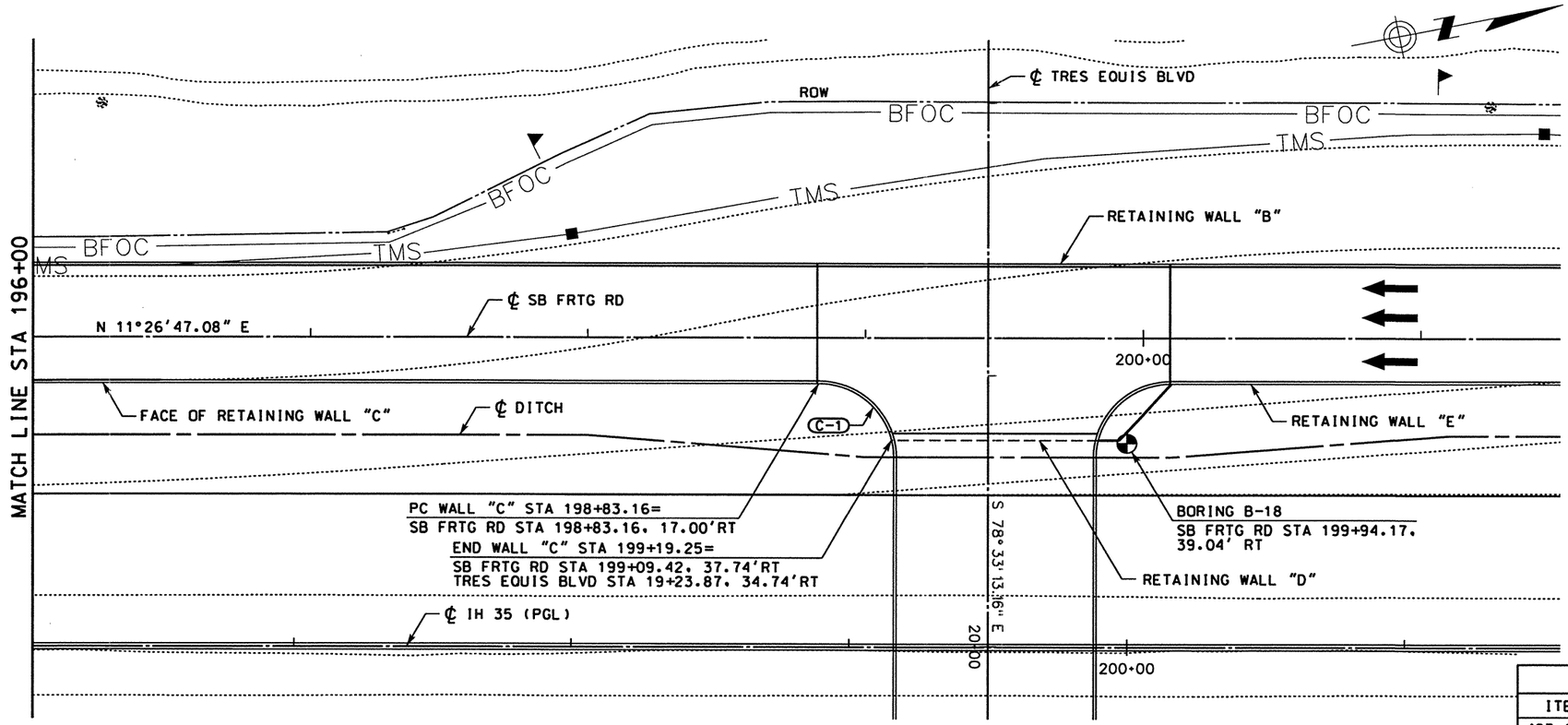

PLAN

NOTES:

1. FOR NOTES, SEE SHEET 1 OF 3.
2. FOR TYPICAL SECTION, SEE SHEET 2 OF 3.

CURVE (C-1)
PI STA 199+04.48
Δ = 76°35'49.05"RT
T = 21.32'
L = 36.10'
R = 27.00'
PC STA 198+83.16
PT STA 199+19.25

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	423-0501	RETAINING WALL (MSE)	SF	8424
*		CONC STAIN FINISH	SY	1042
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	7.9
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	8102

* FOR CONTRACTOR'S INFORMATION ONLY

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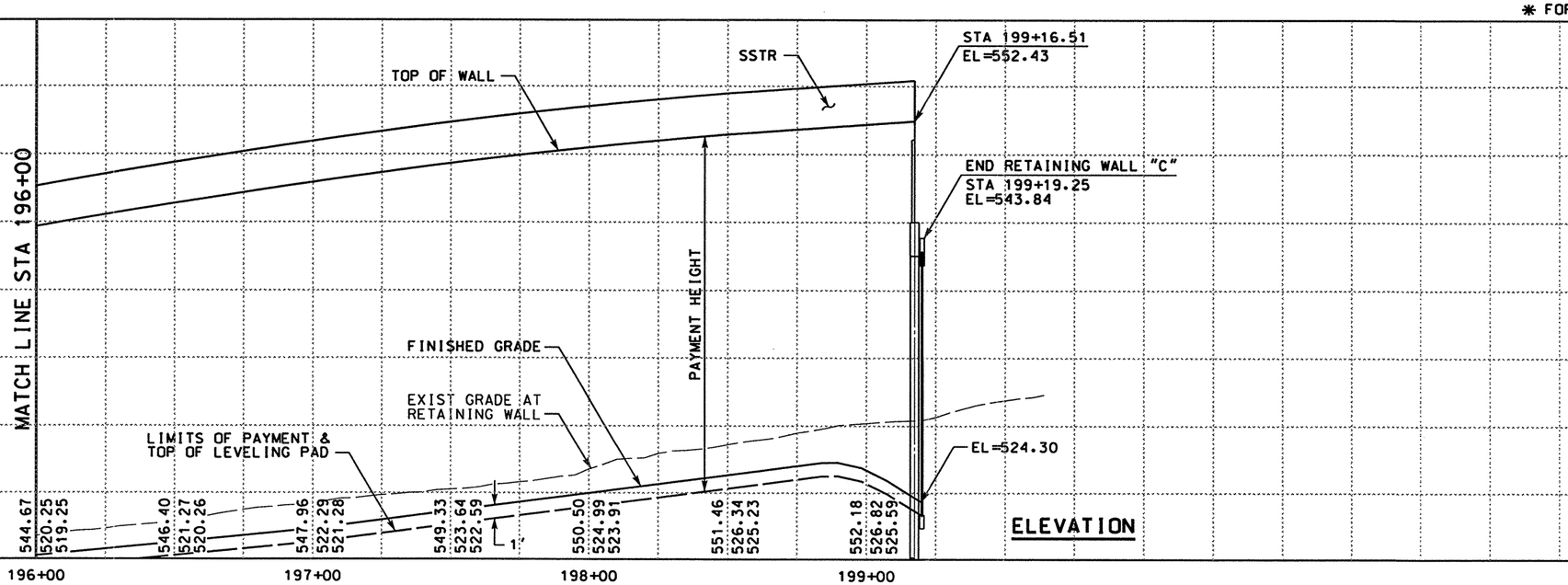

ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL
LAYOUT
WALL "C"

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	408
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

b31pp08.dgn-06 HOUFILE023 \hcivil\c0130\ 6/4/2003

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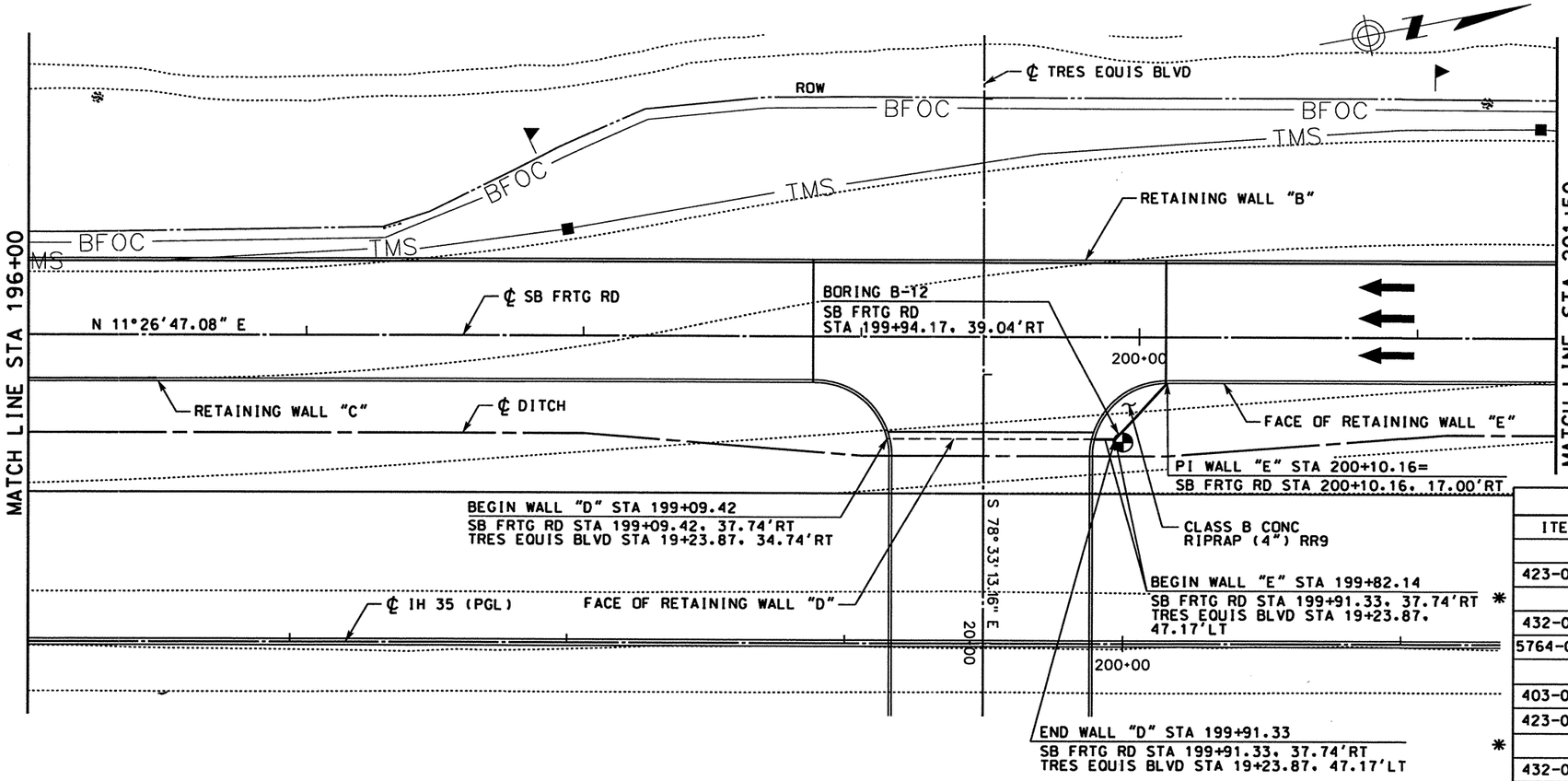


PLAN

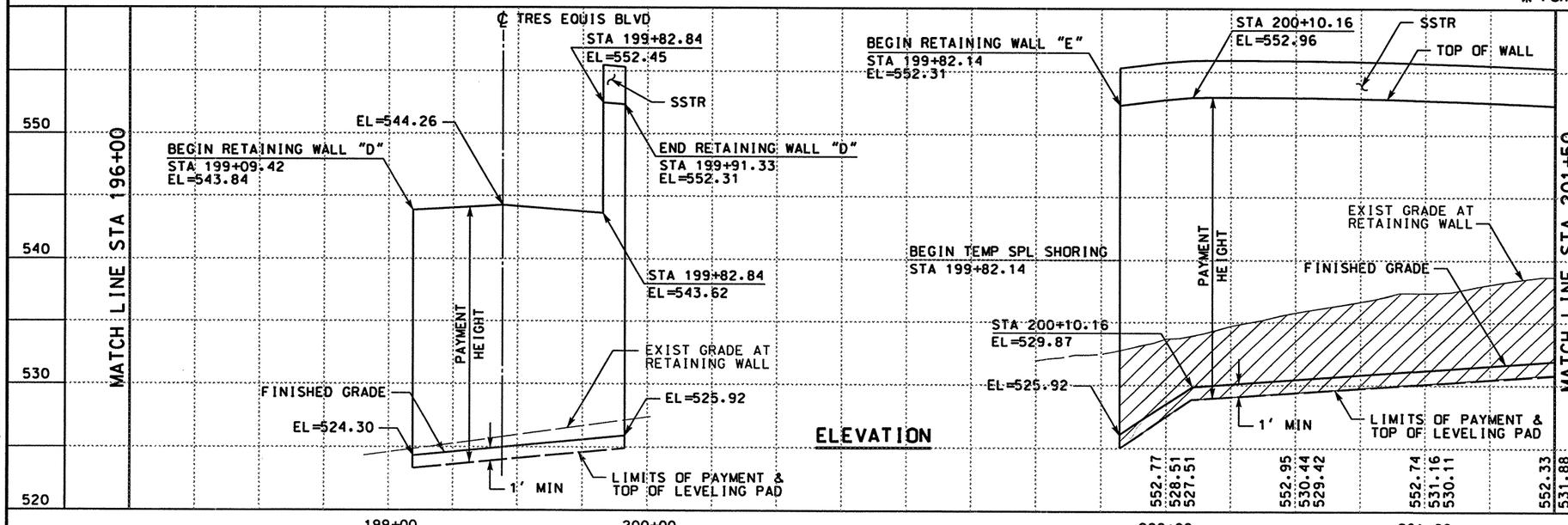
NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. FOR TYPICAL SECTION SEE SHEET 2 OF 2.
4. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.

ESTIMATED QUANTITY FOR THIS SHEET

ITEM	DESCRIPTION	UNIT	TOTAL
	WALL "D"		
423-0501	RETAINING WALL (MSE)	SF	1675
	CONC STAIN FINISH	SY	213
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	2.0
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	1593
	WALL "E"		
403-0501	TEMPORARY SPL SHORING	SF	1131
423-0501	RETAINING WALL (MSE)	SF	3928
	CONC STAIN FINISH	SY	492
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	4.1
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	3754

* FOR CONTRACTOR'S INFORMATION ONLY



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j0110p01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALLS "D" & "E"

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	409
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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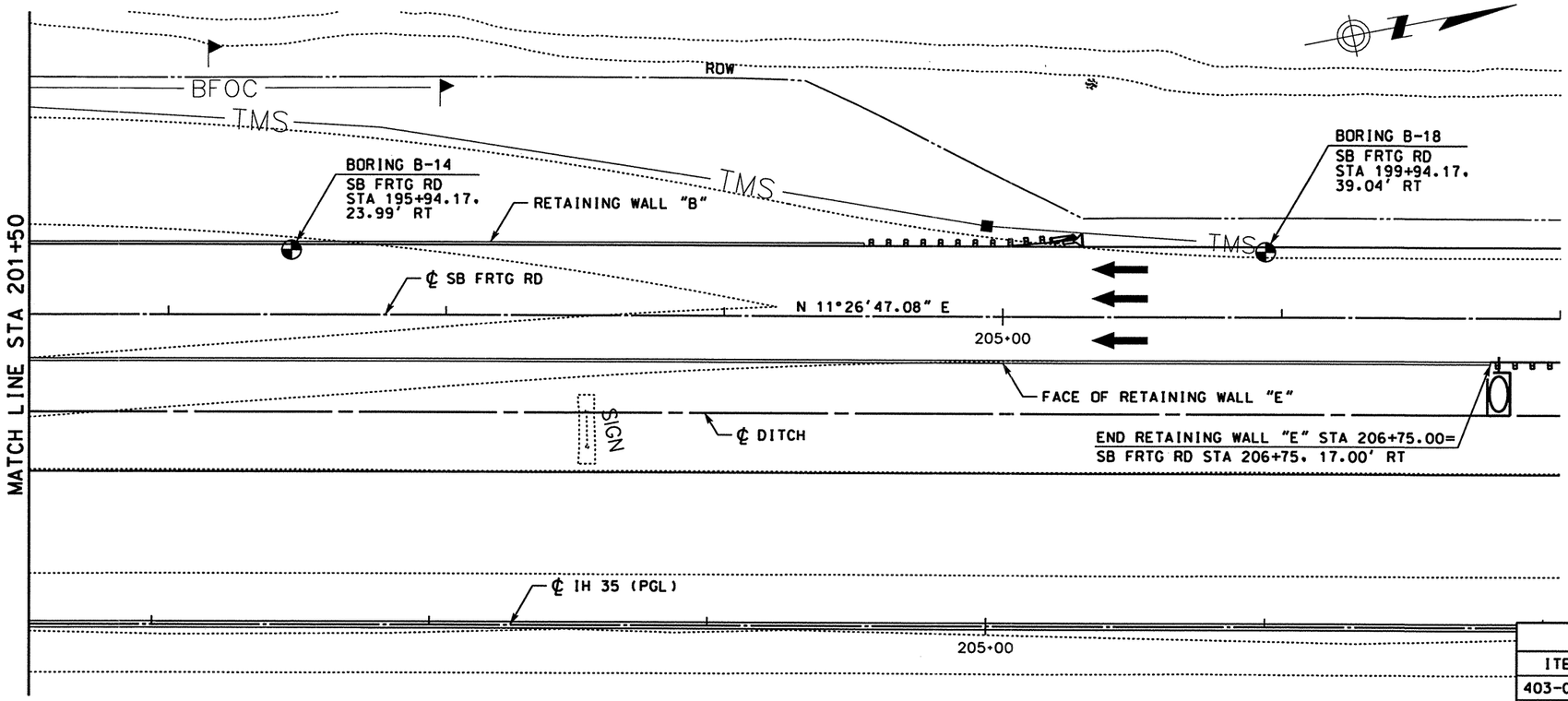
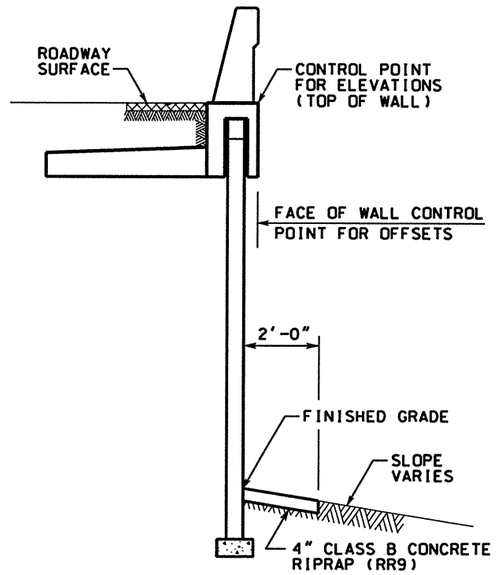


NOTE:

1. FOR NOTES, SEE SHEET 1 OF 2.

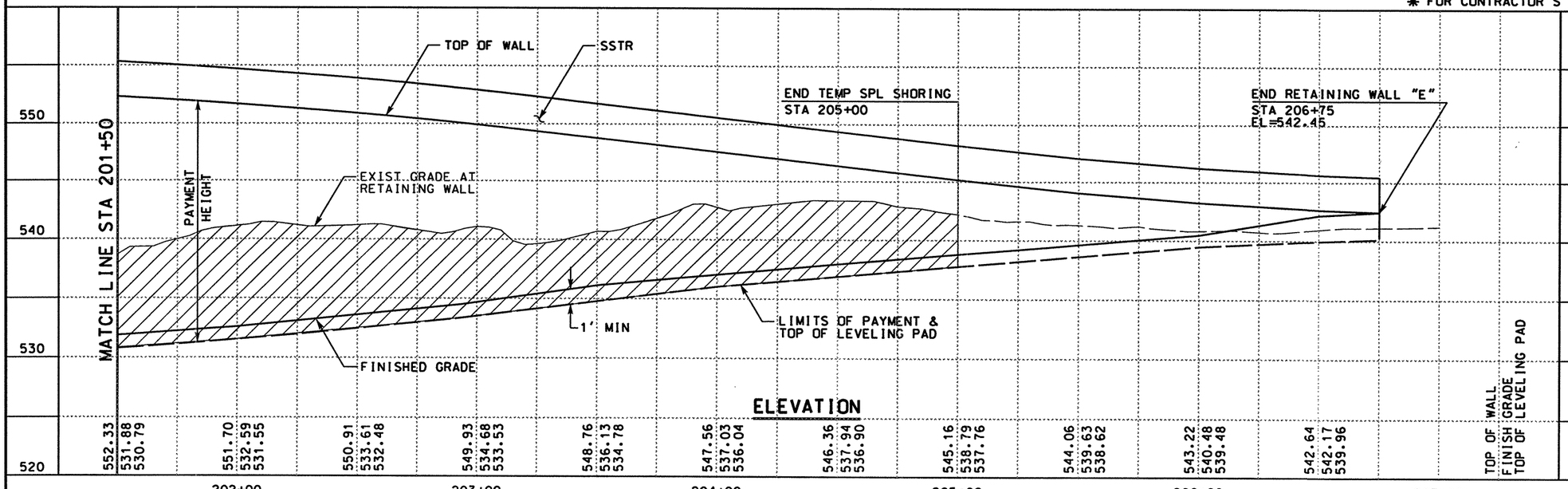


TYPICAL WALL SECTION
NTS

PLAN

ESTIMATED QUANTITY FOR THIS SHEET			
ITEM	DESCRIPTION	UNIT	TOTAL
403-0501	TEMPORARY SPL SHORING	SF	2534
423-0501	RETAINING WALL (MSE)	SF	6000
*	CONC STAIN FINISH	SY	842
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	13.0
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	5371

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
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81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALLS "D" & "E"

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	4-10
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/5/2003
HOUFILE023 \hchivil\cf0130\
b3lppp09.dgn-10

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REF FILE(S): j0110p01.utl, utl LV ON = 1-63
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j0110p01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
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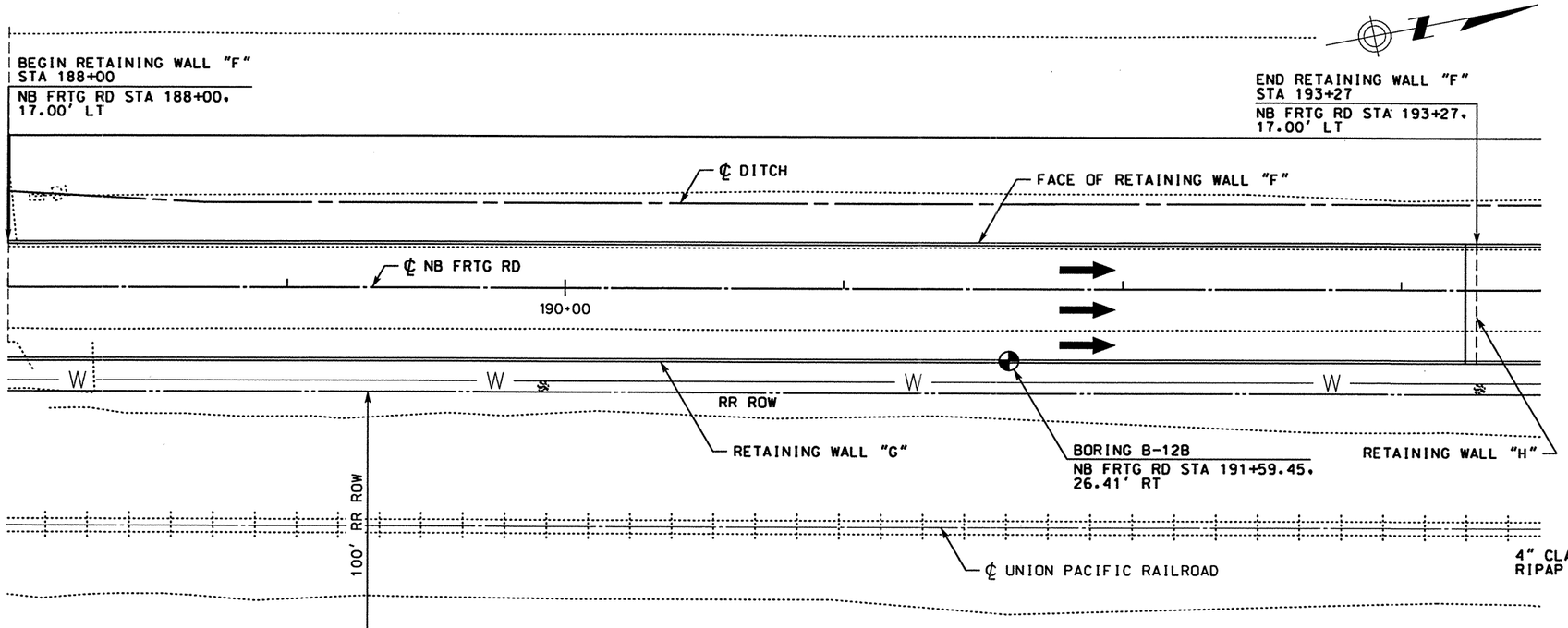
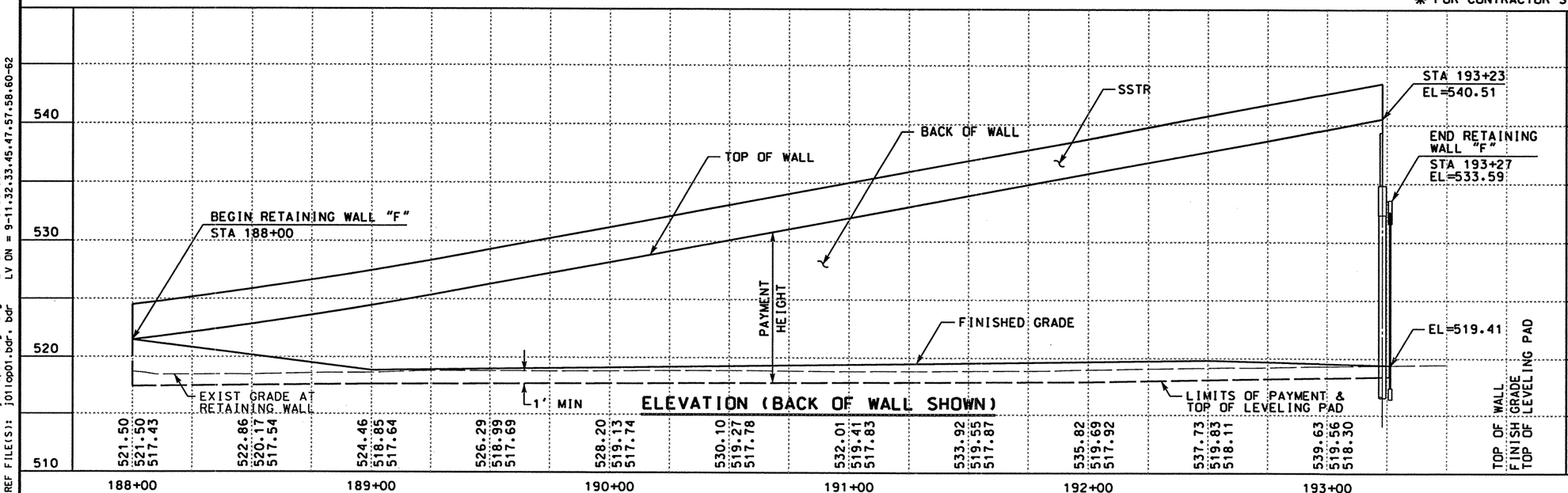
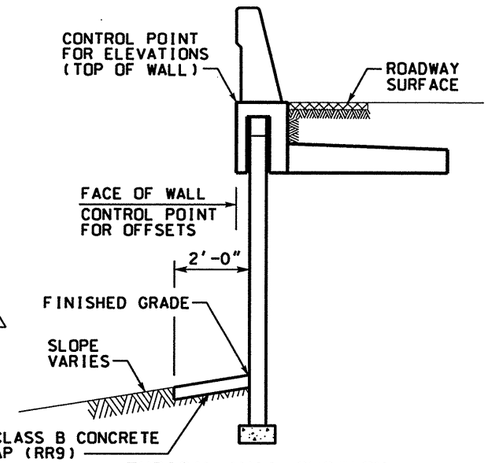


PLAN



NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. ALL EXPOSED CONCRETE SURFACES ~~SHALL~~ BE STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.



TYPICAL WALL SECTION
NTS

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	423-0501	RETAINING WALL (MSE)	SF	6742
*		CONC STAIN FINISH	SY	749
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	13.0
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	5840

* FOR CONTRACTOR'S INFORMATION ONLY

SCALE: 1" = 50' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY PE 81485, ON JUNE 02, 2003

JAMES B. HORNSBY 81485 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL
LAYOUT
WALL "F"

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	411
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003

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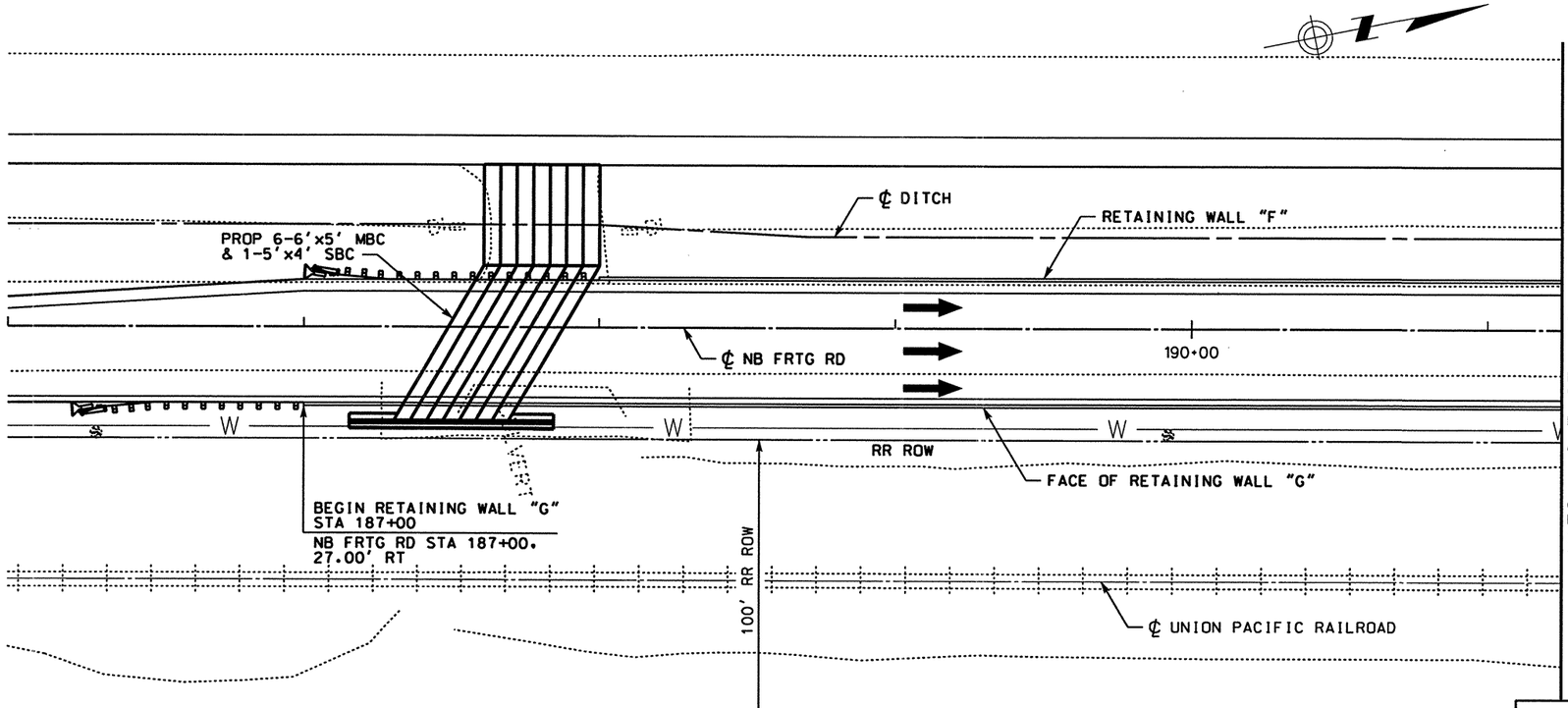
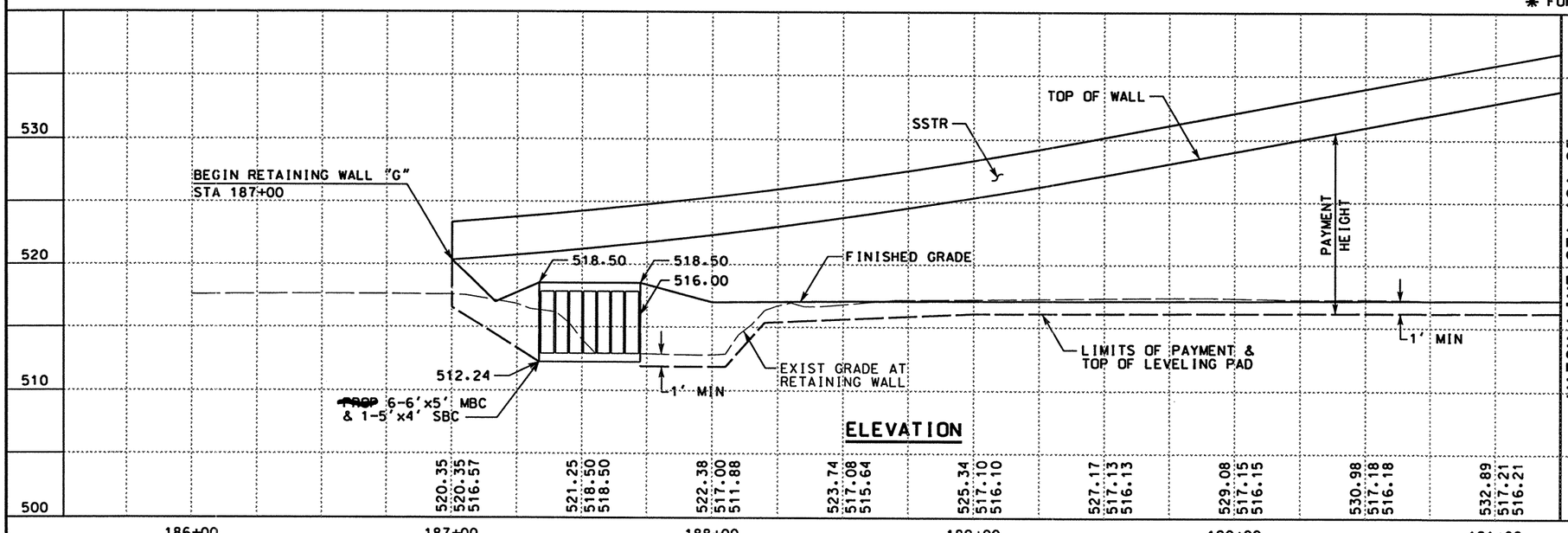


PLAN



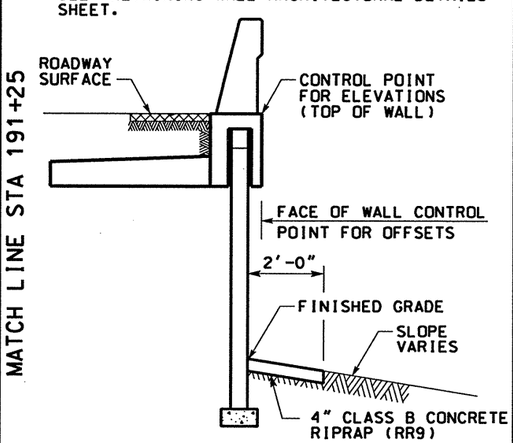
ELEVATION

MATCH LINE STA 191+25

TOP OF WALL
FINISH GRADE
TOP OF LEVELING PAD

NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.



TYPICAL WALL SECTION
NTS

ESTIMATED QUANTITY FOR THIS SHEET

ITEM	DESCRIPTION	UNIT	TOTAL
423-0501	RETAINING WALL (MSE)	SF	4381
*	CONC STAIN FINISH	SY	622
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	10.5
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	3687

* FOR CONTRACTOR'S INFORMATION ONLY

SCALE: 1" = 50' HORIZ
1" = 10' VERT

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JAMES B. HORNSBY 81485 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALLS "G" & "H"

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	412
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

6/4/2003

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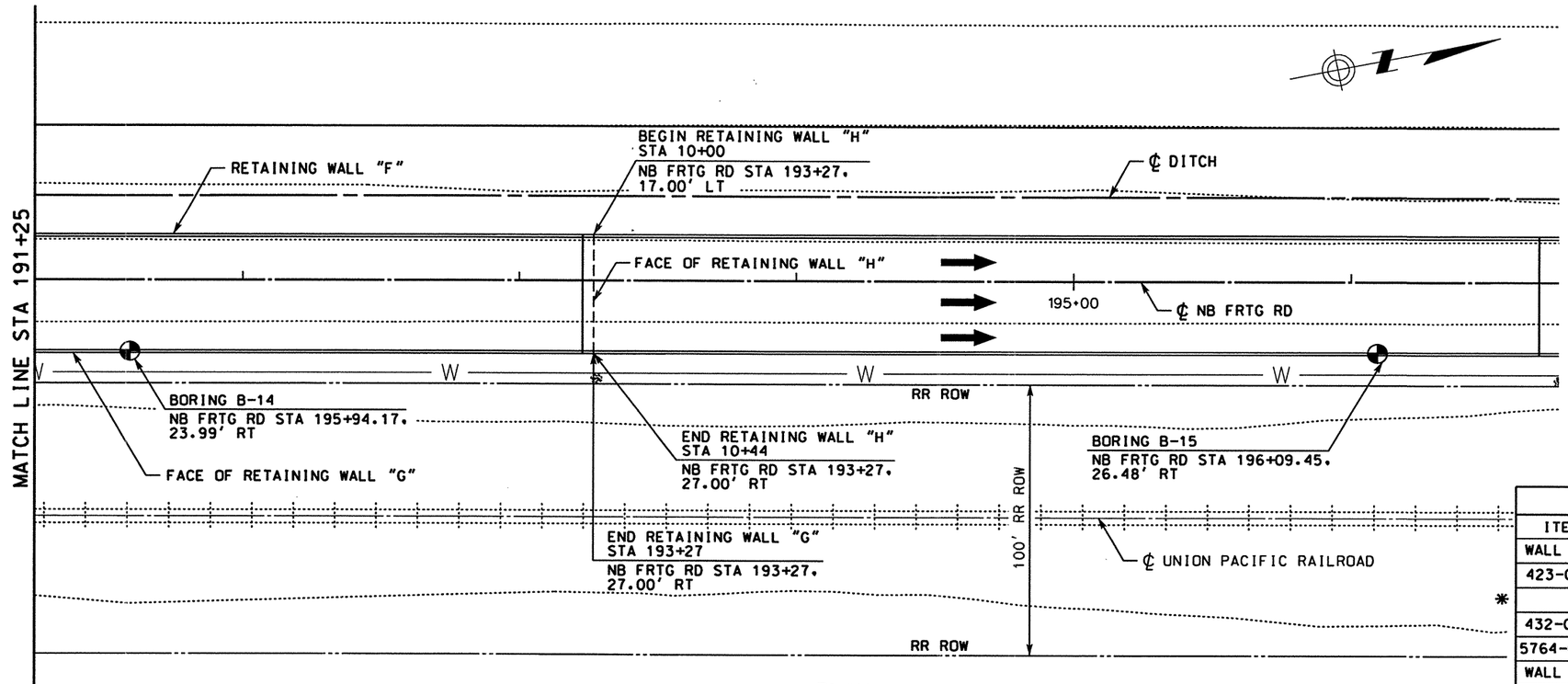


PLAN

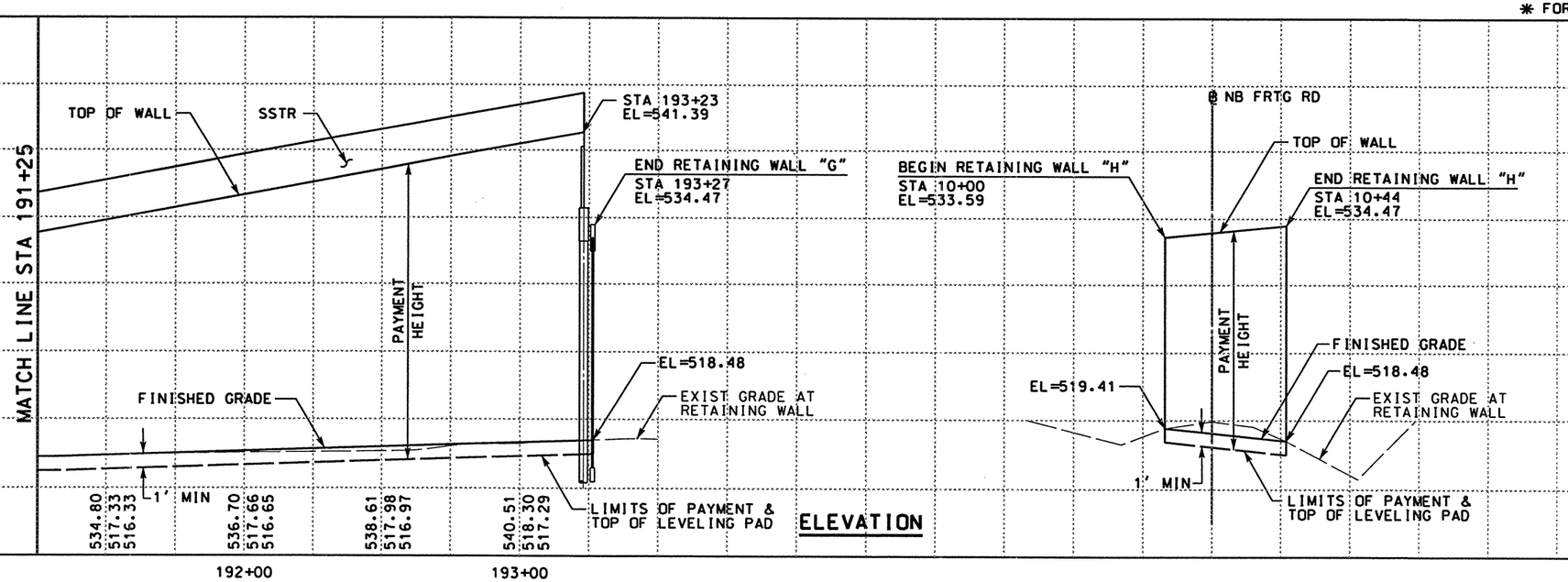
NOTE:

1. FOR NOTES. SEE SHEET 1 OF 2.

ESTIMATED QUANTITY FOR THIS SHEET

ITEM	DESCRIPTION	UNIT	TOTAL
WALL "G"			
423-0501	RETAINING WALL (MSE)	SF	4267
	CONC STAIN FINISH	SY	541
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	5.0
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	4060
WALL "H"			
423-0501	RETAINING WALL (MSE)	SF	708
*	CONC STAIN FINISH	SY	79
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	1.1
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	664

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER
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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALL "G" & "H"

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	413
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB

CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003

HOUFILE023 \hcivil\cf0130\ b31pp12.dgn-07

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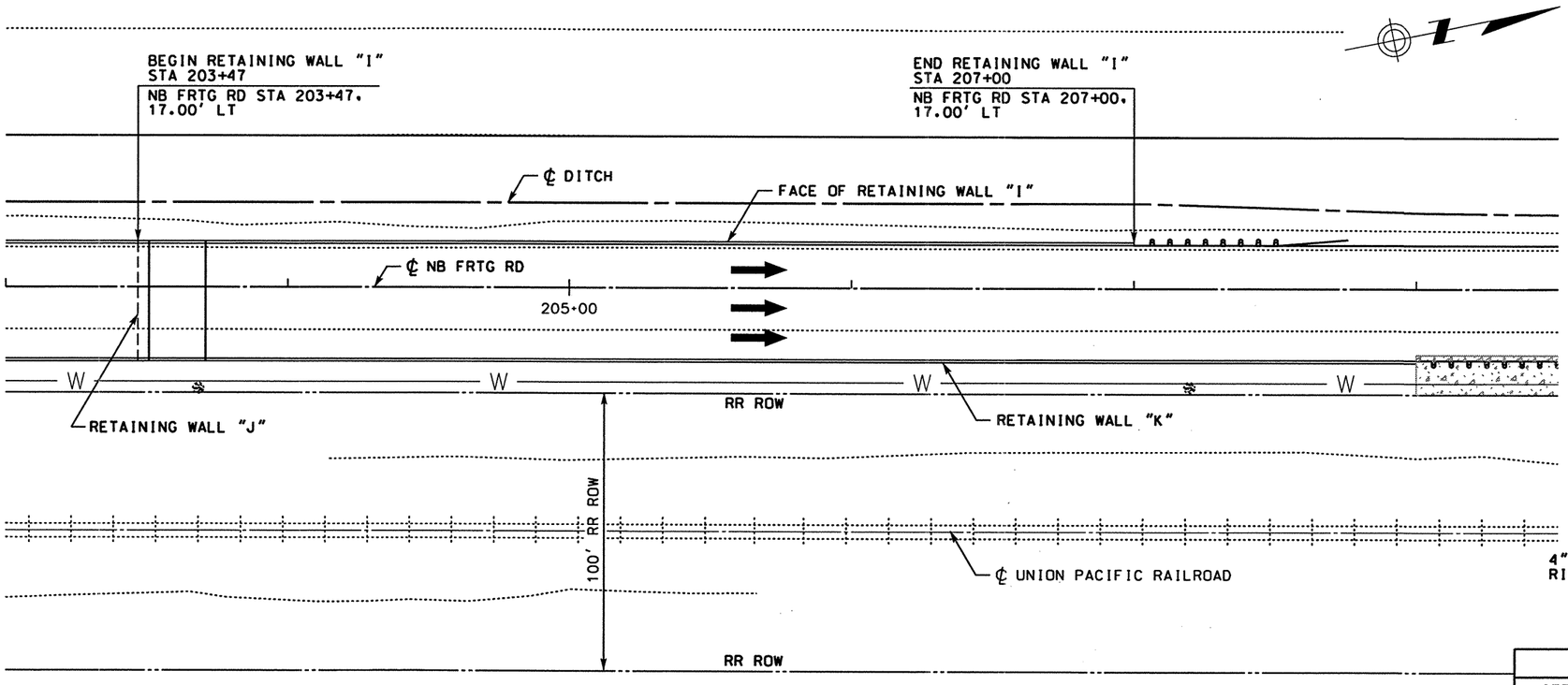
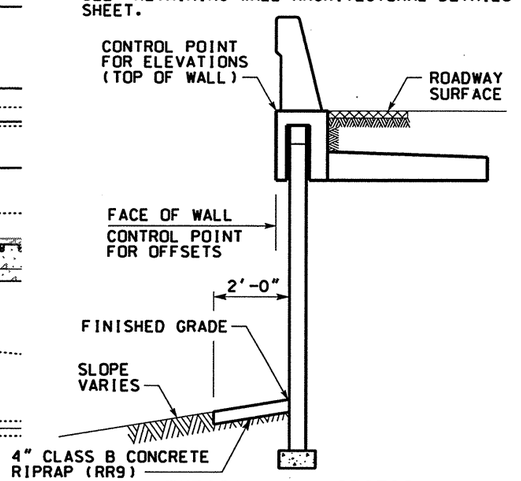


PLAN

NOTES:

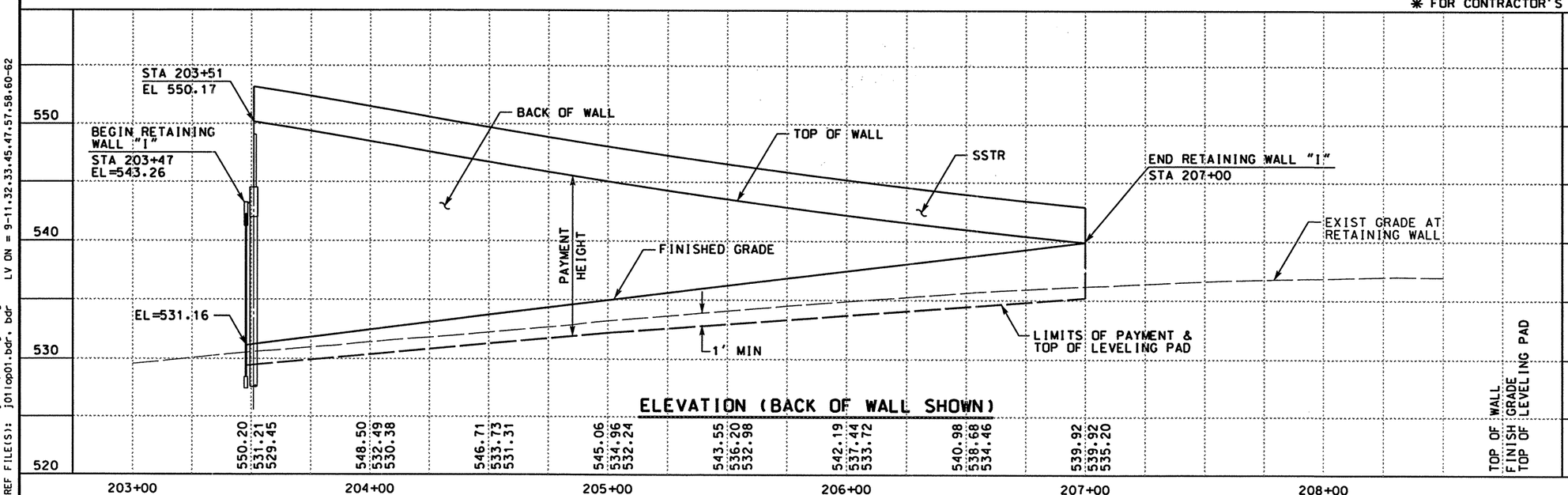
1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. ALL EXPOSED CONCRETE SURFACES ~~SHALL~~ BE STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.



TYPICAL WALL SECTION
NTS

ESTIMATED QUANTITY FOR THIS SHEET			
ITEM	DESCRIPTION	UNIT	TOTAL
423-0501	RETAINING WALL (MSE)	SF	4250
*	CONC STAIN FINISH	SY	590
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	8.7
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	3163

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION (BACK OF WALL SHOWN)

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LV ON = 1-6,35-39
LV ON = 9-11,32,33,45,47,57,58,60-62

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALL "I"

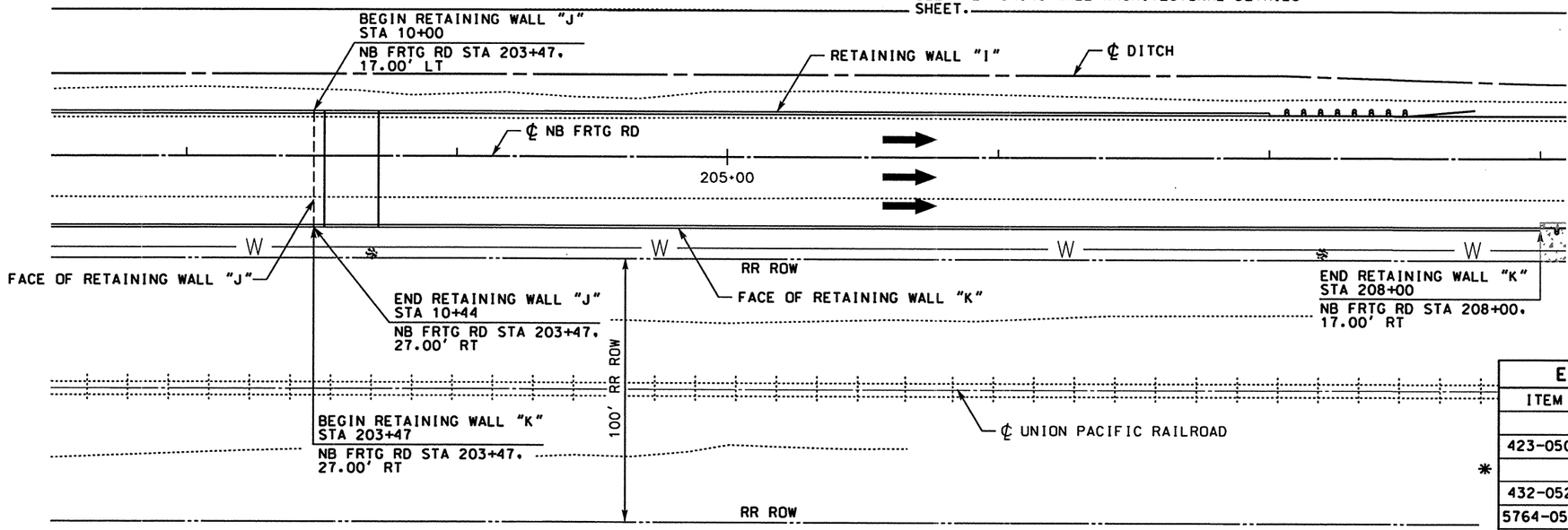
SHEET 1 OF 1

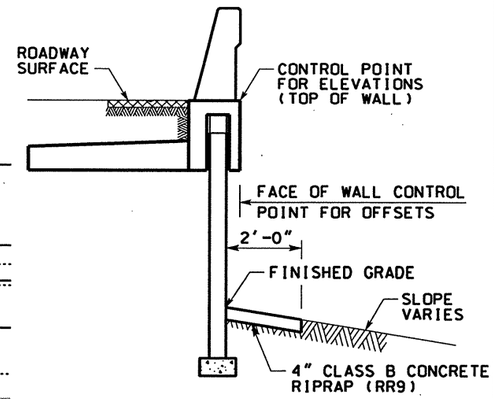
FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	414
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003
HOUFILE023 \hchiwlvc0130\
b3lppl3.dgn-07

NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.





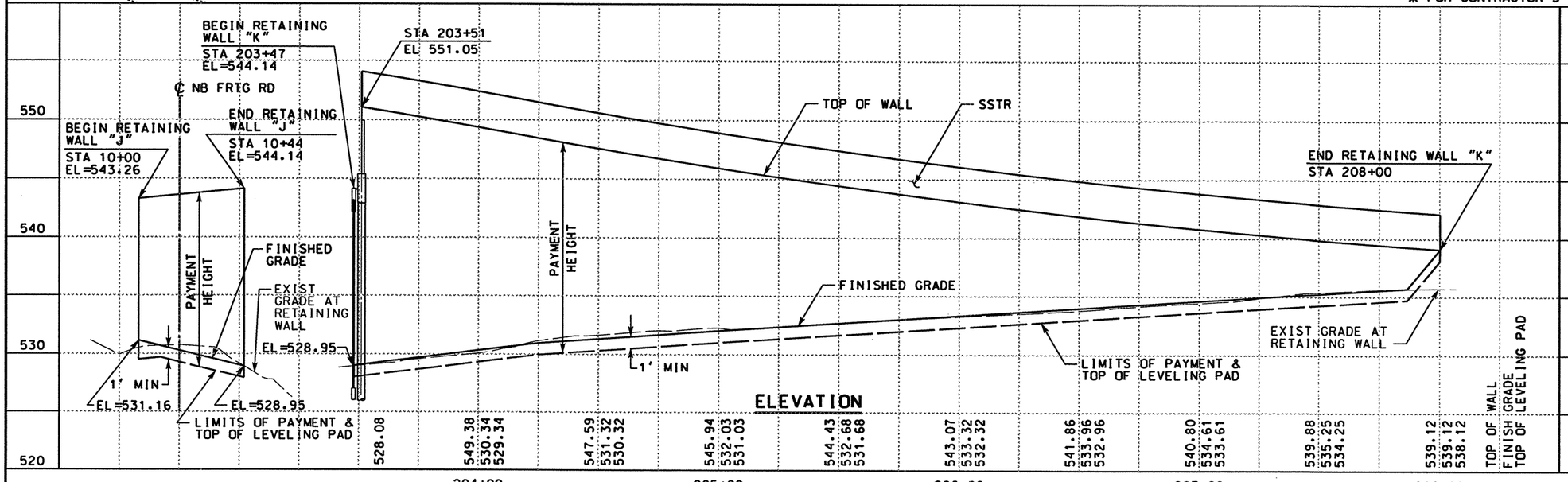
TYPICAL WALL SECTION
NTS

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
		WALL "J"		
	423-0501	RETAINING WALL (MSE)	SF	647
		CONC STAIN FINISH	SY	72
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	1.1
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	600
		WALL "K"		
	423-0501	RETAINING WALL (MSE)	SF	5548
*		ARCH CONC STAIN FINISH	SY	767
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	11.2
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	5115

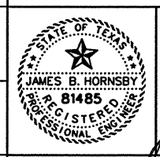
* FOR CONTRACTOR'S INFORMATION ONLY

PLAN



ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALLS "J" & "K"

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	415
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/4/2003

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j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
REF FILE(S): milpp14.dgn-09 HOUFILE023 \hciwi\cf0130\

BEGIN RETAINING WALL "L"
STA 403+00

SB FRTG RD STA 403+00.
27.00' LT

ROW

BFOC — BFOC — BFOC

FACE OF RETAINING WALL "L"

℄ SB FRTG RD

POT 18+54.21

405+00

RETAINING WALL "M"

RETAINING WALL "N"

RETAINING WALL "O"

℄ DITCH

S 74° 48' 13.43"E

POT 407+61.14

MATCHLINE STA 408+50

℄ IH 35 (PGL)

405+00

20:00

℄ CARRIER DRIVE

BORING B-73
NB FRTG RD STA 407+40.00,
75.00' LT

PLAN

NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. FOR TYPICAL SECTION SEE SHEET 2 OF 2.
4. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.

ESTIMATED QUANTITY FOR THIS SHEET

ITEM	DESCRIPTION	UNIT	TOTAL
423-0501	RETAINING WALL (MSE)	SF	9243
	CONC STAIN FINISH	SY	1210
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	13.6
5764-0502	ANTI GRAFFITI COATING (TY II)	SF	8665

* FOR CONTRACTOR'S INFORMATION ONLY

BEGIN RETAINING WALL "L"
STA 403+00

SSTR

BACK OF WALL

TOP OF WALL

PAYMENT HEIGHT

1' MIN

1' MIN

FINISHED GRADE

EXIST GRADE AT RETAINING WALL

LIMITS OF PAYMENT & TOP OF LEVELING PAD

MATCH LINE STA 408+50

TOP OF WALL
FINISH GRADE
TOP OF LEVELING PAD

	403+00	404+00	405+00	406+00	407+00	408+00	
670	663.11	664.97	666.83	668.53	669.92	670.89	671.56
660	663.12	661.28	659.44	657.61	655.77	653.93	652.88
650	661.03	660.28	658.44	656.61	654.77	652.93	651.88
640							

	408+00					
670	671.95	672.16	672.08	671.79	671.25	670
660	651.82	650.43	649.05	647.66	646.27	660
650	650.82	649.43	648.05	646.66	645.27	650
640						640

ELEVATION (BACK OF WALL SHOWN)

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL
LAYOUT
WALL "L"

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	416
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003
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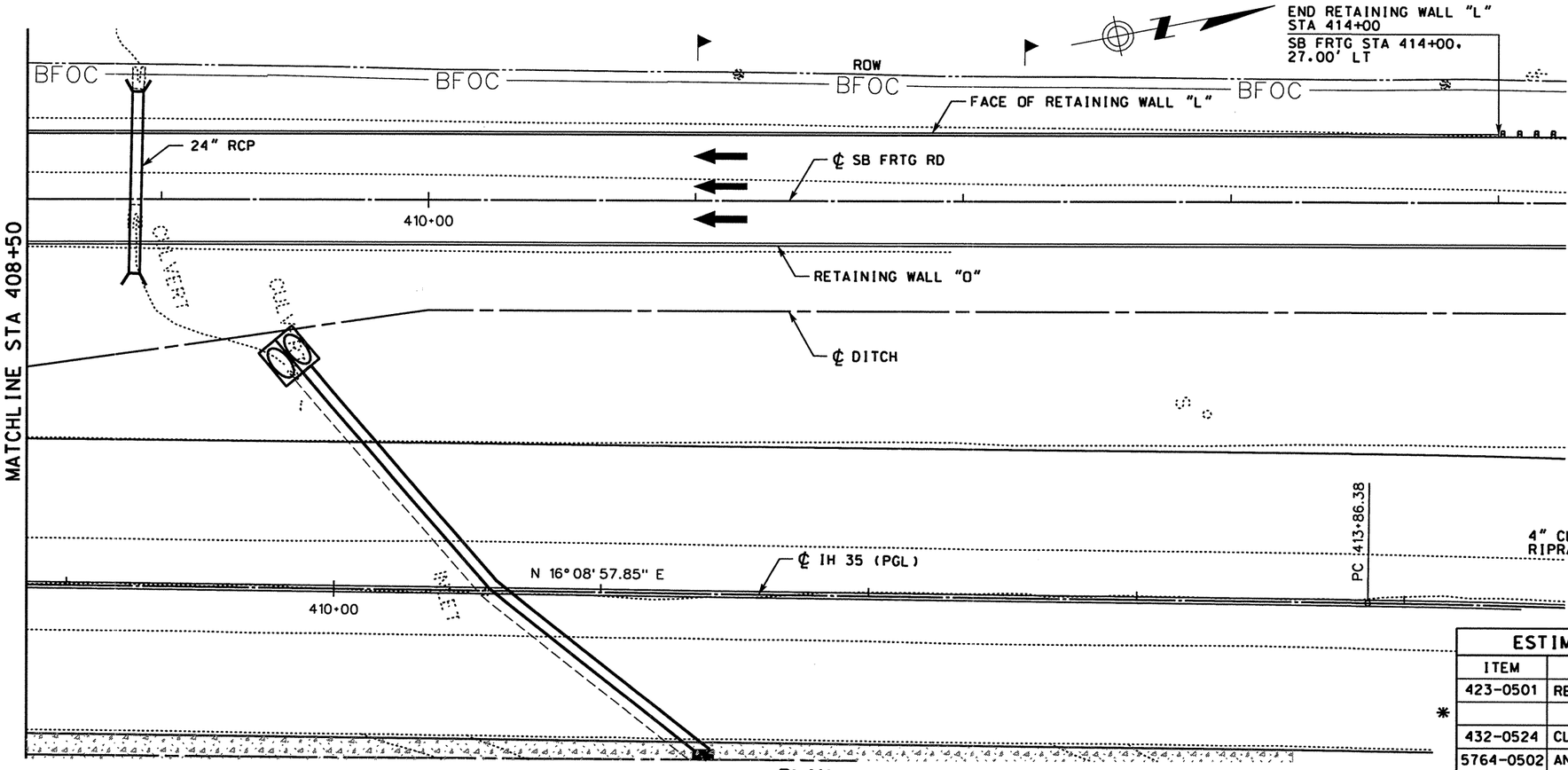
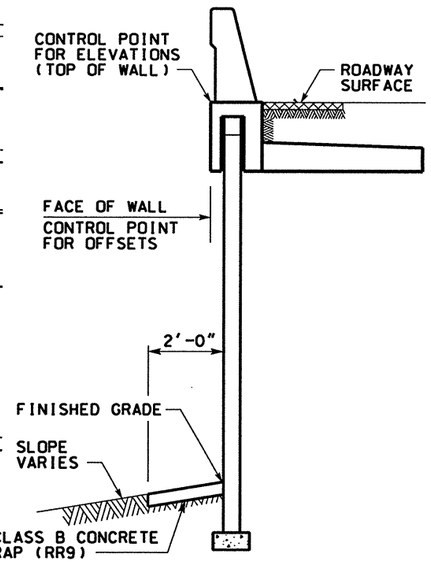


PLAN

NOTE:

1. FOR NOTES. SEE SHEET 1 OF 2.

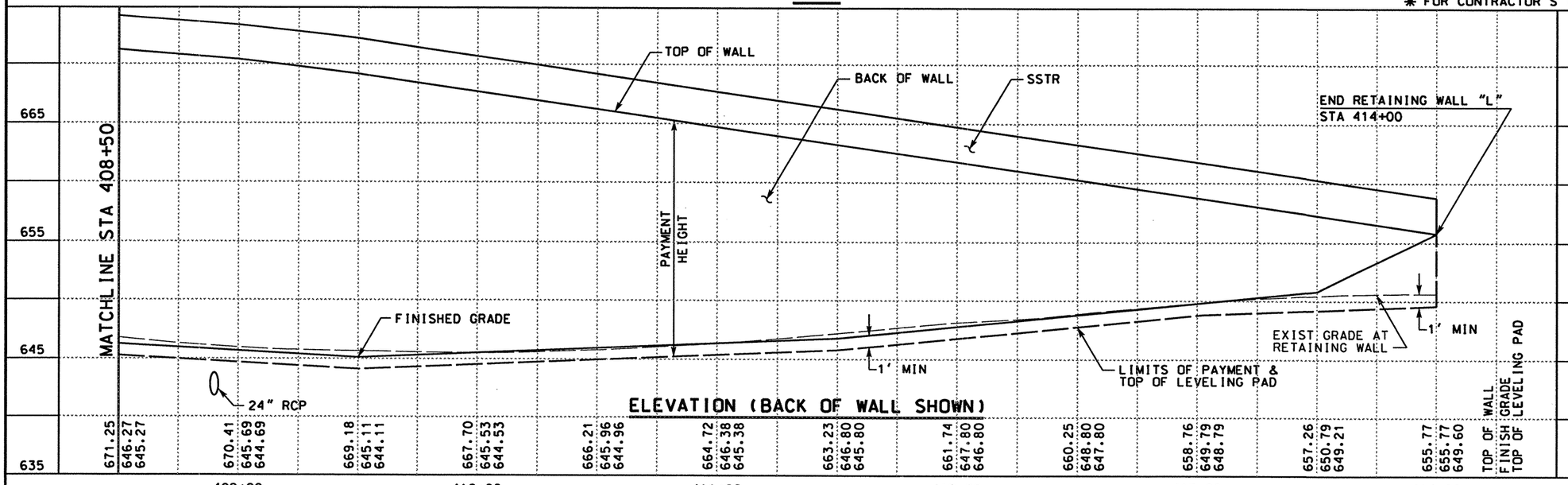


TYPICAL WALL SECTION
NTS

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	423-0501	RETAINING WALL (MSE)	SF	9671
*		CONC STAIN FINISH	SY	1258
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	13.6
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	8964

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION (BACK OF WALL SHOWN)

SCALE: 1" = 50' HORIZ
1" = 10' VERT

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL
LAYOUT
WALL "L"

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		417
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

6/4/2003

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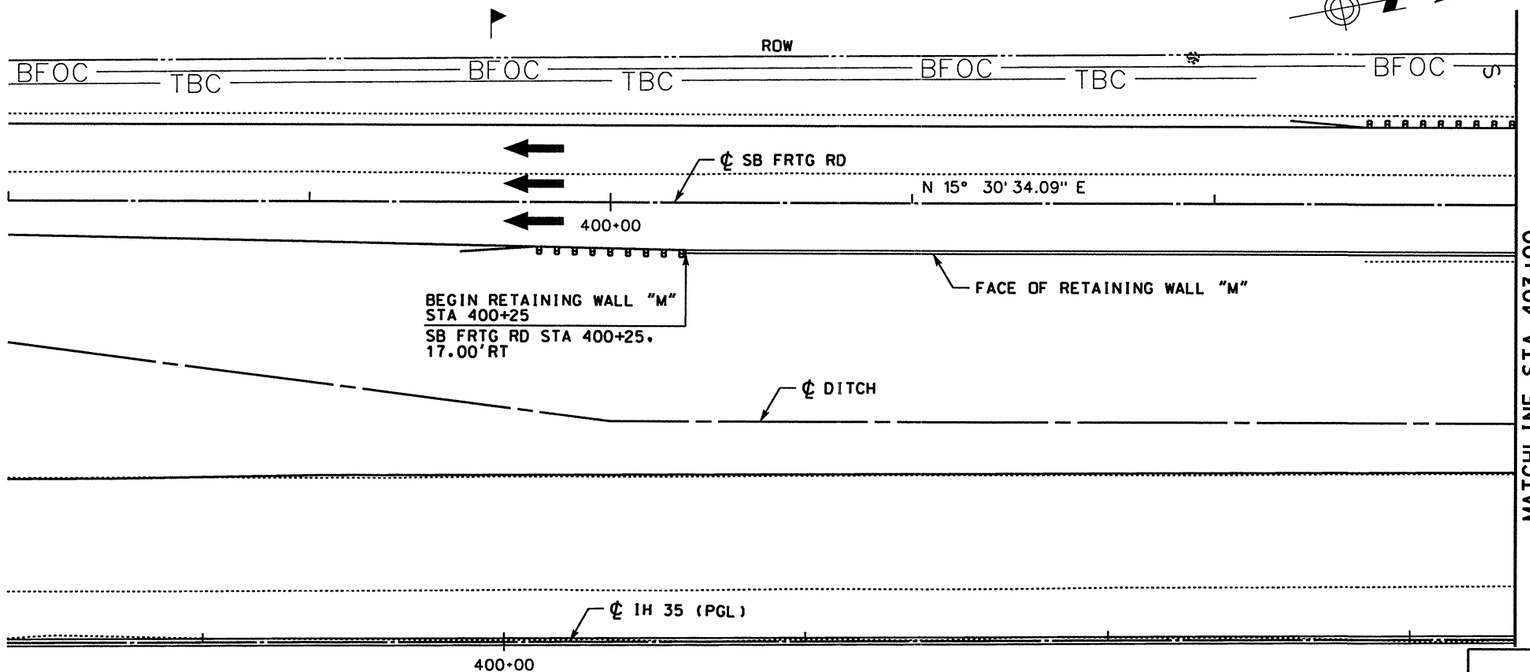


NOTES:

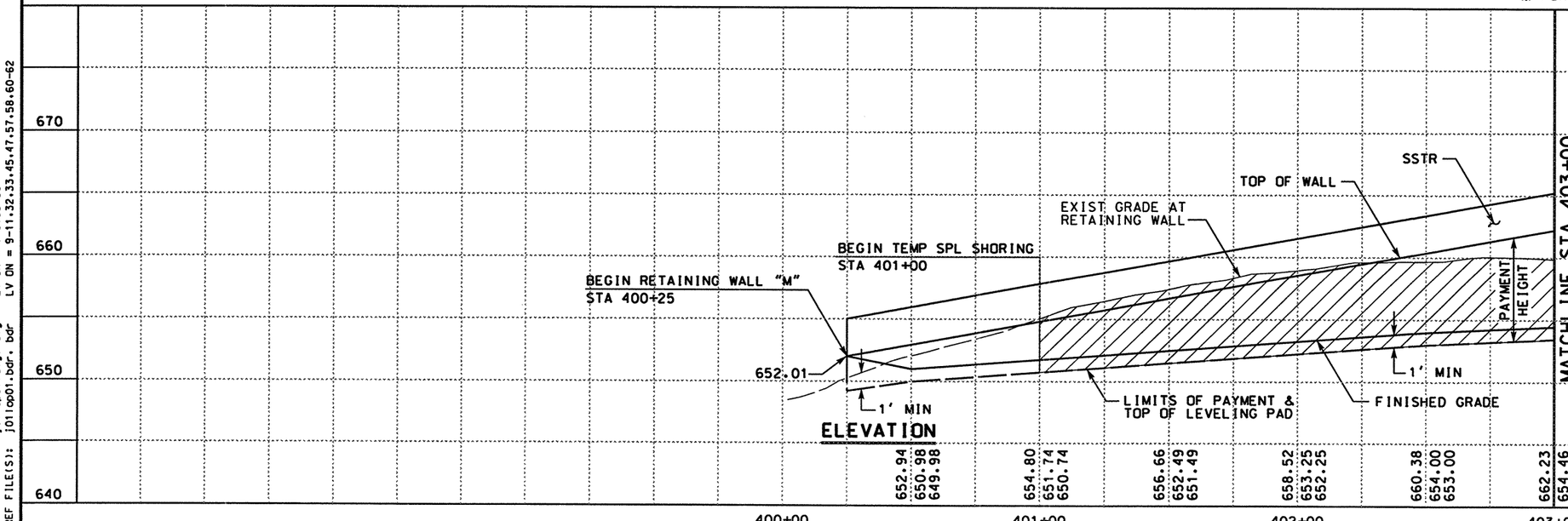
1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. FOR TYPICAL SECTION SEE SHEET 2 OF 2.
4. ALL EXPOSED CONCRETE SURFACES ~~SHALL~~ BE STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.

ESTIMATED QUANTITY FOR THIS SHEET

ITEM	DESCRIPTION	UNIT	TOTAL
403-0501	TEMPORARY SPL SHORING	SF	1259
423-0501	RETAINING WALL (MSE)	SF	1509
*	CONC STAIN FINISH	SY	259
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	6.8
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	1212

* FOR CONTRACTOR'S INFORMATION ONLY

PLAN



ELEVATION

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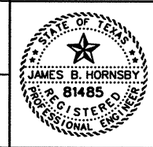
SCALE: 1" = 50' HORIZ
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALL "M"

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	418
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/5/2003

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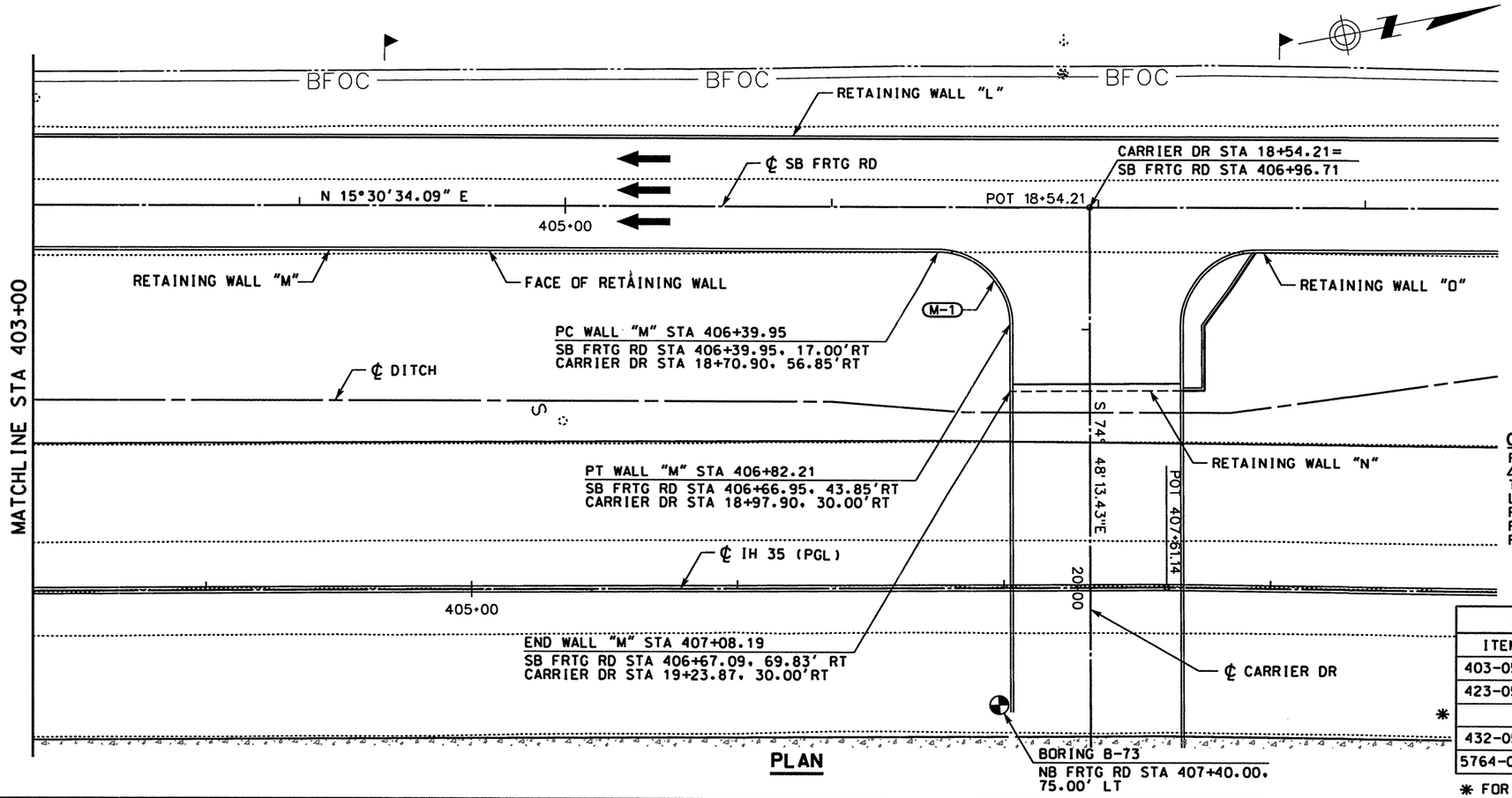
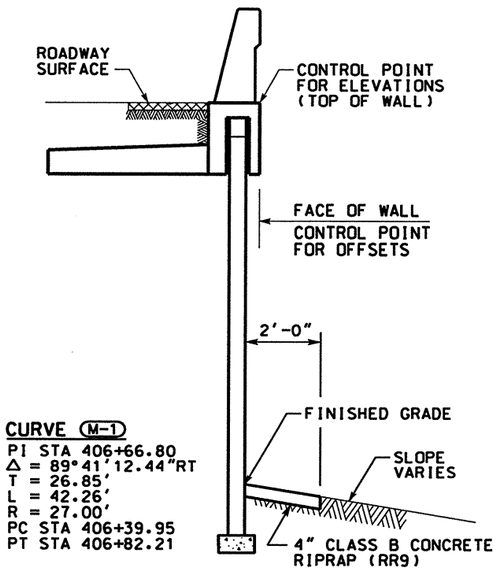


NOTES:

1. FOR NOTES, SEE SHEET 1 OF 2.

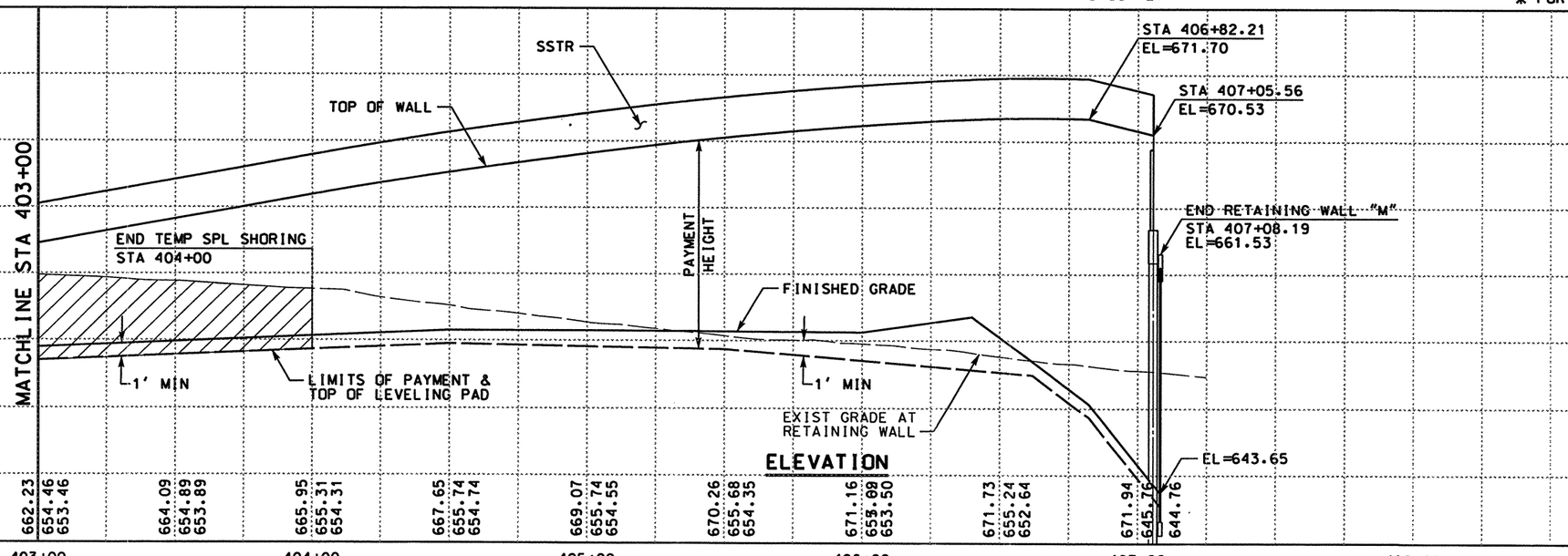


TYPICAL WALL SECTION
NTS

CURVE (M-1)
PI STA 406+66.80
Δ = 89°41'12.44"RT
T = 26.85'
L = 42.26'
R = 27.00'
PC STA 406+39.95
PT STA 406+82.21

ESTIMATED QUANTITY FOR THIS SHEET			
ITEM	DESCRIPTION	UNIT	TOTAL
403-0501	TEMPORARY SPL SHORING	SF	548
423-0501	RETAINING WALL (MSE)	SF	6123
	CONC STAIN FINISH	SY	816
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	10.1
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	5546

✱ FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS · JAMES B. HORNSBY · 81485 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALL "M"

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	419
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

6/5/2003
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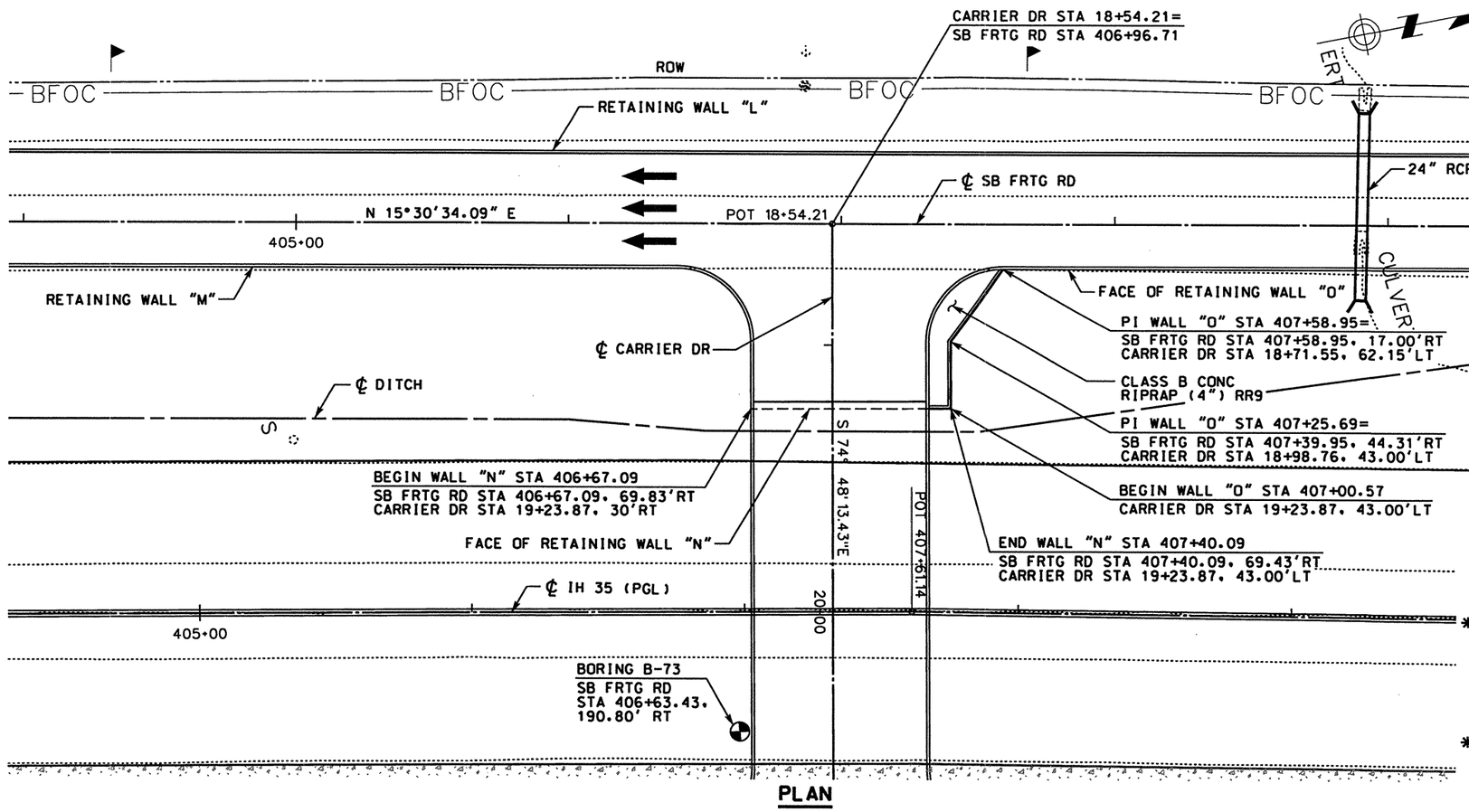


PLAN

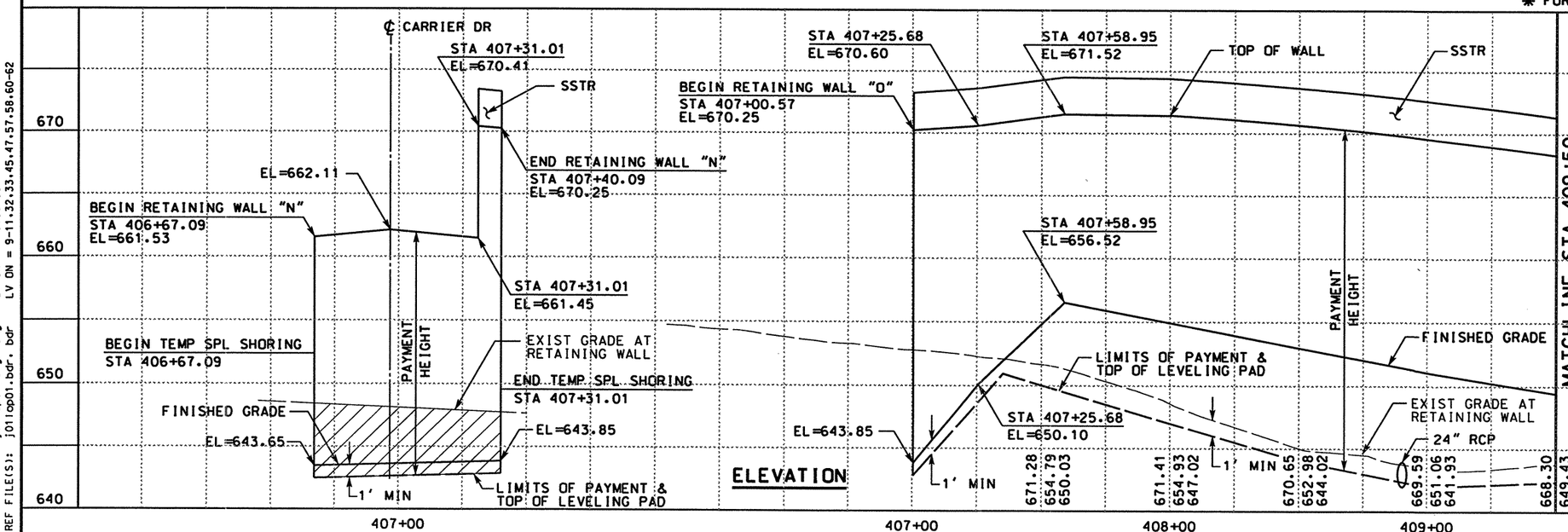
NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. FOR TYPICAL SECTION SEE SHEET 2 OF 2.
4. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.

ESTIMATED QUANTITY FOR THIS SHEET

ITEM	DESCRIPTION	UNIT	TOTAL
	WALL "N"		
403-0501	TEMPORARY SPL SHORING	SF	398
423-0501	RETAINING WALL (MSE)	SF	1459
	CONC STAIN FINISH	SY	162
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	1.8
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	1386
	WALL "O"		
423-0501	RETAINING WALL (MSE)	SF	6248
	CONC STAIN FINISH	SY	777
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	6.2
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	4525

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL
LAYOUT
WALL "N" & "O"

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	420
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/5/2003

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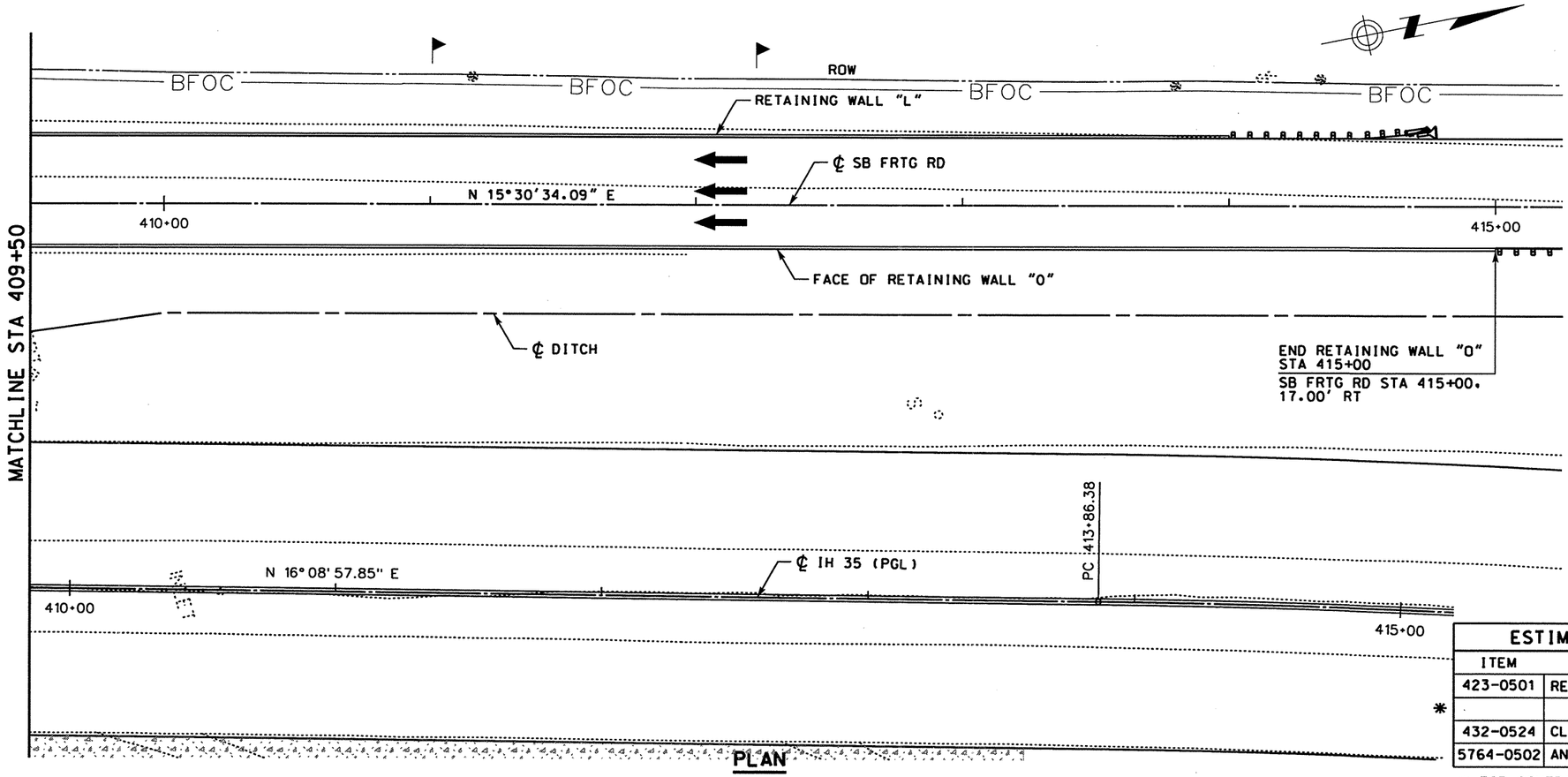
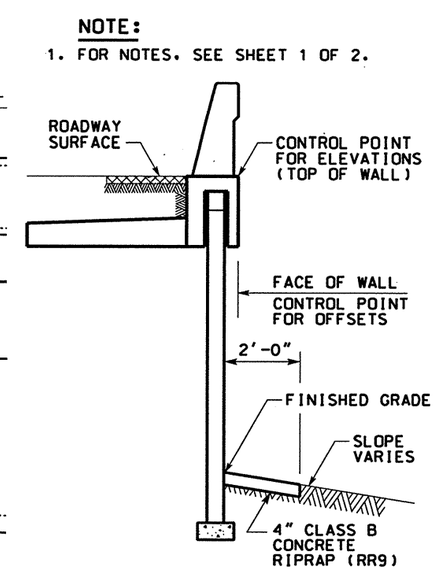


PLAN



TYPICAL WALL SECTION
NTS

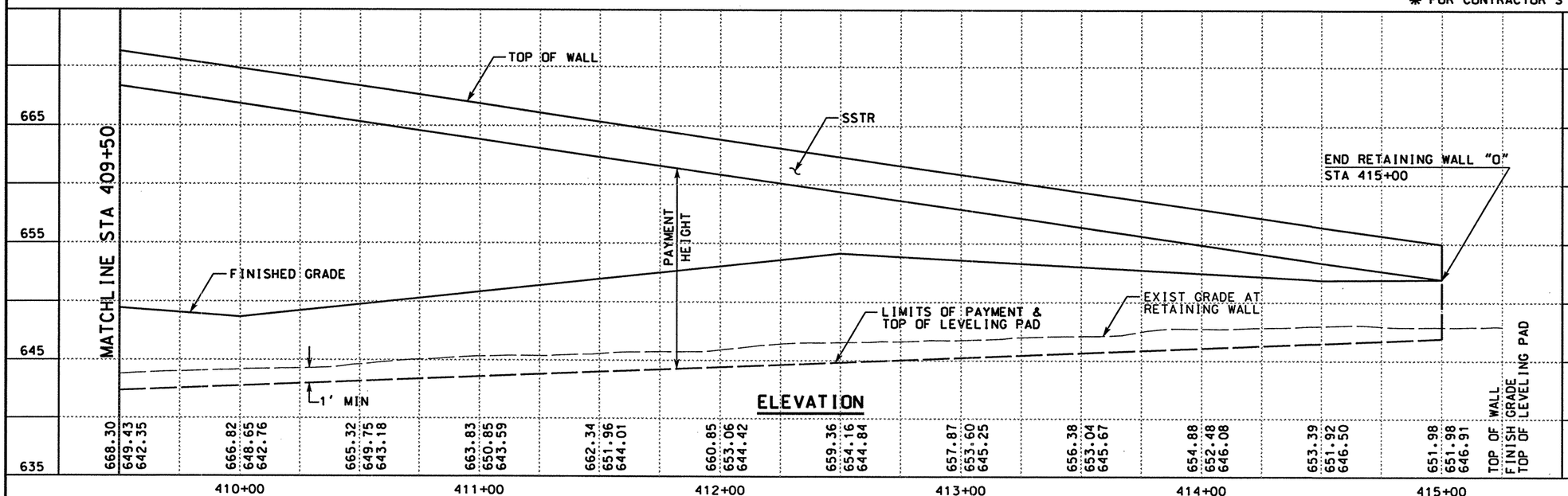
NOTE:

1. FOR NOTES, SEE SHEET 1 OF 2.

ESTIMATED QUANTITY FOR THIS SHEET

ITEM	DESCRIPTION	UNIT	TOTAL
423-0501	RETAINING WALL (MSE)	SF	8512
*	CONC STAIN FINISH	SY	1129
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	13.6
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	4551

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

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JAMES B. HORNSBY 81485 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALL "N" & "O"

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	421
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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j011op01.alg, alg LV ON = 1-6,35-39
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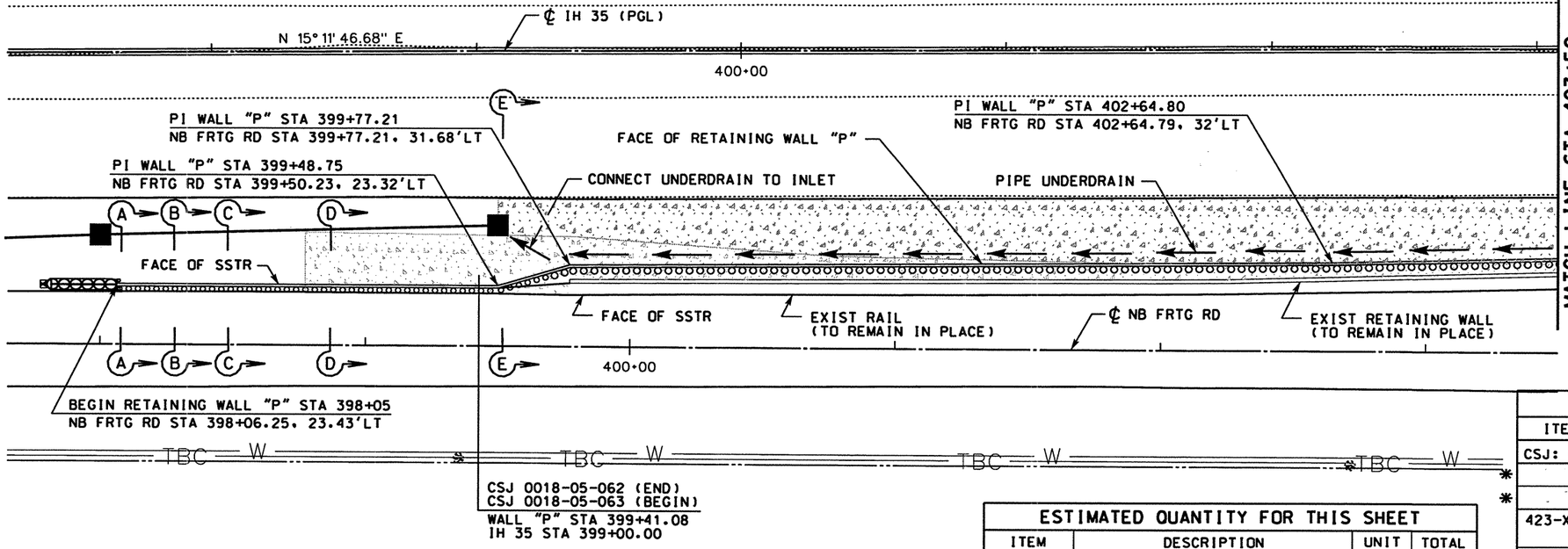
6/4/2003 \hcivil\cf0130\HOUFILE023 b31opp18.dgn-07



NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHTECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET
4. DRILL SHAFT LENGTH L IS MEASURED FROM EXISTING GRADE.
5. FOR DETAILS ON DRILL SHAFTS UNDER CARRIER DR SEE CARRIER ABUTMENT 2 SHEETS.
6. FOR SECTIONS DETAILS ON DRILL SHAFTS SEE "CANTILEVER DRILLED SHAFT RETAINING WALL DETAILS".
7. FOR DETAILS AT ABUTMENT SEE "RETAINING WALL "P" DETAILS" AT CARRIER ABUTMENT.
8. FOR TYPICAL SECTION SEE SHEET 2 OF 3.

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	CSJ: 0018-05-062			
*	416-0521	DRILL SHAFT (24 IN)	LF	624
	423-XXXX	RETAINING WALL (CANTILEVER DRILL SHAFT)(24 IN)	SF	828
*		CONC STAIN FINISH	SY	137
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	3.4
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	691

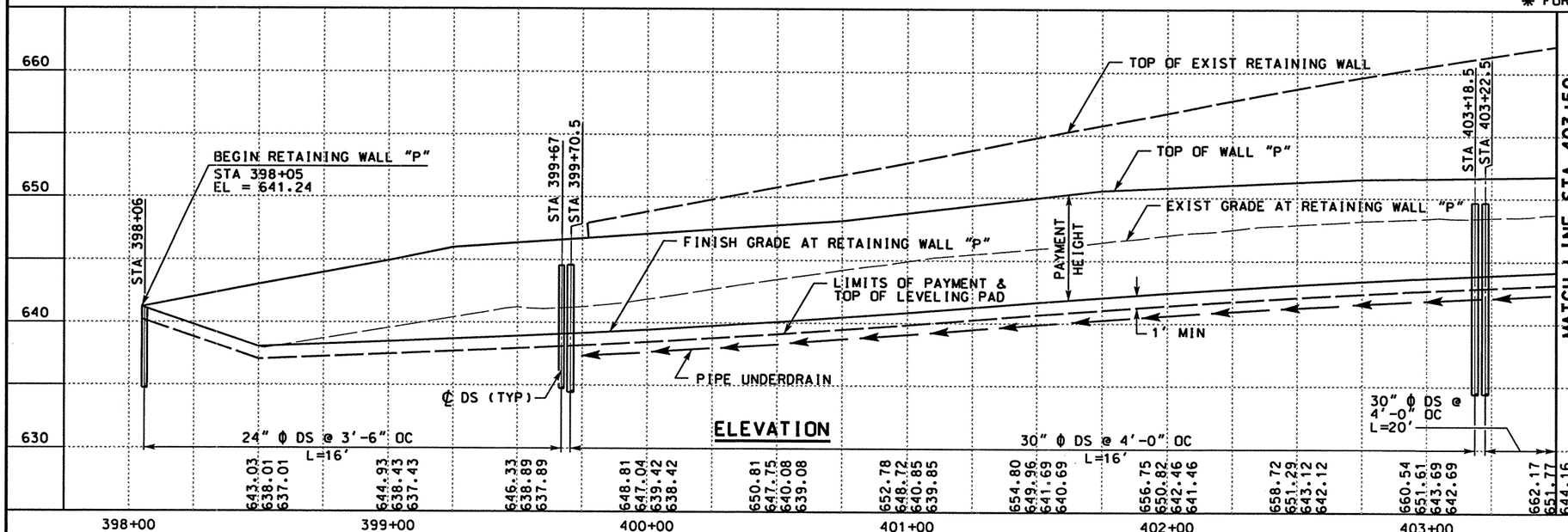
ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	CSJ: 0018-05-063			
*		DRILL SHAFT (30 IN)	LF	1548
*		DRILL SHAFT (24 IN)	LF	128
	423-XXXX	RETAINING WALL (CANTILEVER DRILL SHAFT)(24 IN)	SF	234
	423-XXXX	RETAINING WALL (CANTILEVER DRILL SHAFT)(30 IN)	SF	3415
*		CONC STAIN FINISH	SY	405
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	10.1
	481-514	PVC PIPE (SCH 40)(6 IN)	LF	30
	556-0506	6" PVC UNDERDRAIN	LF	374
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	3240

* FOR CONTRACTOR'S INFORMATION ONLY

PLAN

ELEVATION



0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALL "P"

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	422
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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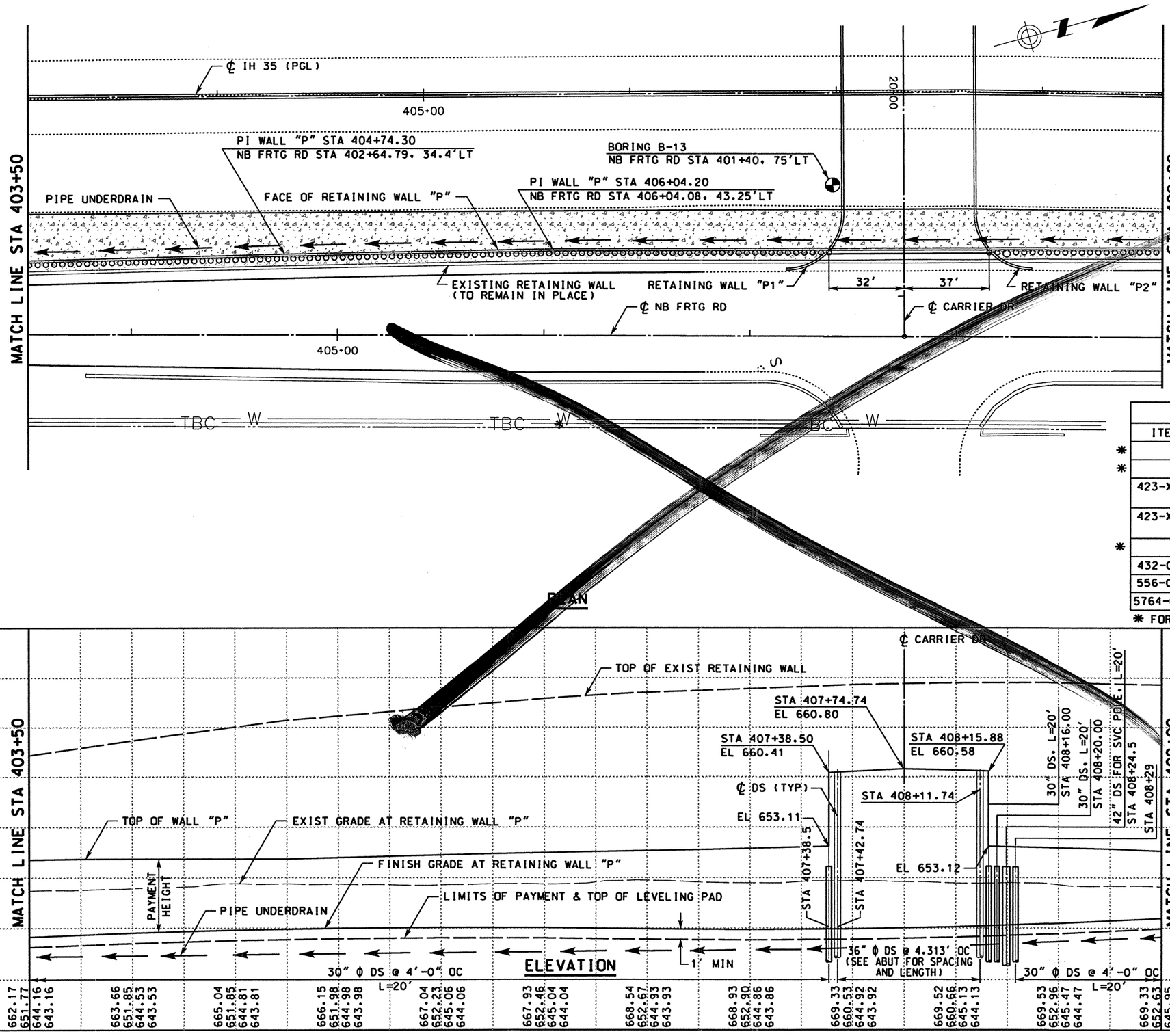
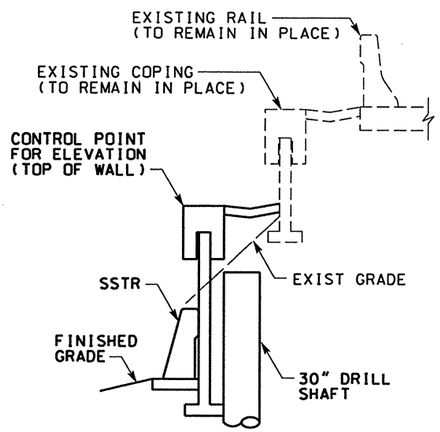


NOTES:

1. FOR NOTES SEE SHEET 1 OF 3.



TYPICAL WALL SECTION

NTS

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
*		DRILL SHAFT (30 IN)	LF	2360
*		DRILL SHAFT (36 IN)	LF	527
	423-XXXX	RETAINING WALL (CANTILEVER DRILL SHAFT)(30 IN)	SF	4046
	423-XXXX	RETAINING WALL (CANTILEVER DRILL SHAFT)(36 IN)	SF	1217
*		CONC STAIN FINISH	SY	585
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	13.6
	556-0506	6" PVC PIPE UNDERDRAIN	LF	550
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	4717

* FOR CONTRACTOR'S INFORMATION ONLY

0 25 50

SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL
LAYOUT
WALL "P"

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	423
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

6/4/2003

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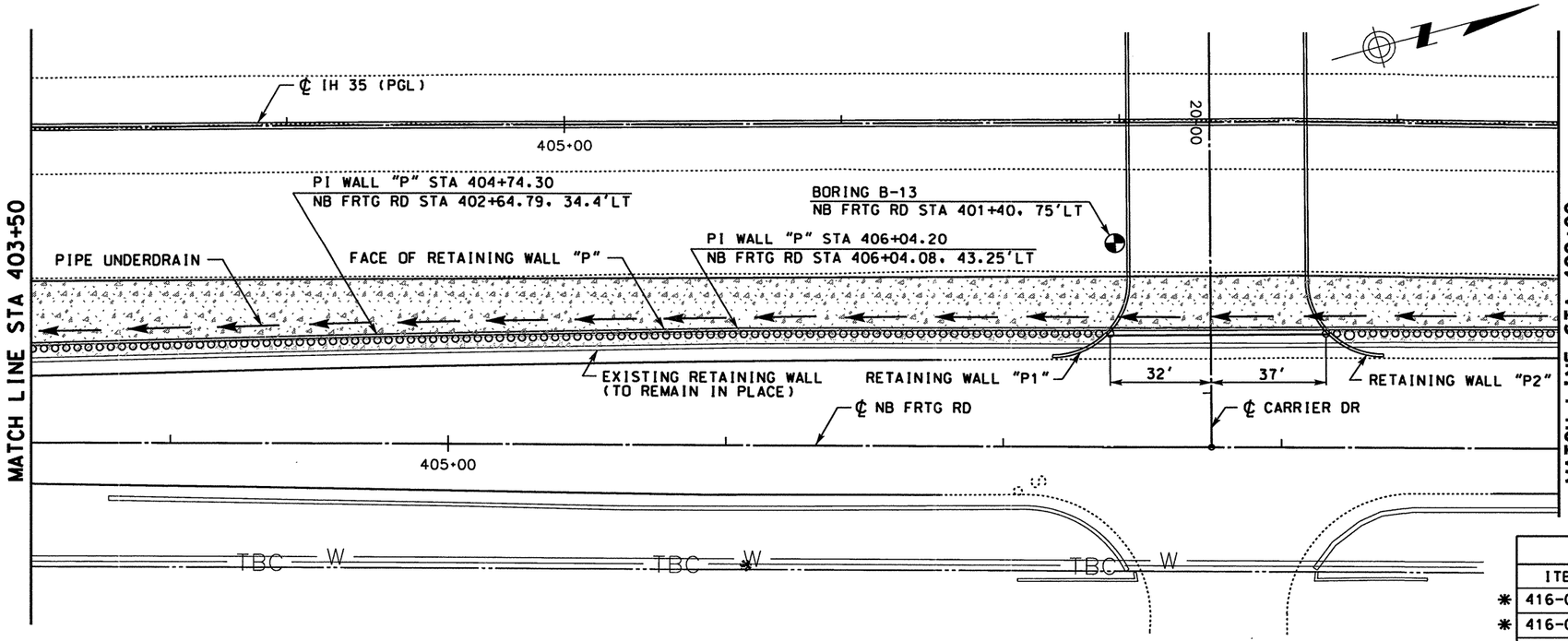
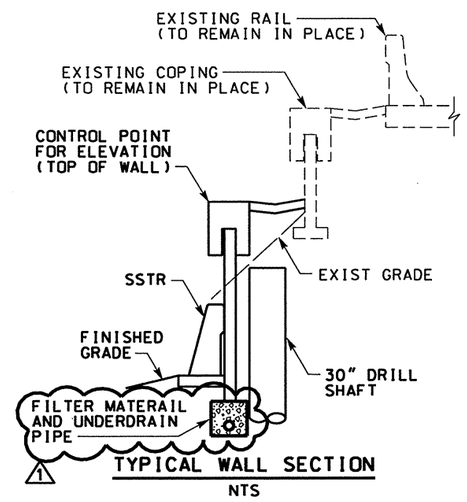


NOTES:

1. FOR NOTES SEE SHEET 1 OF 3.



TYPICAL WALL SECTION

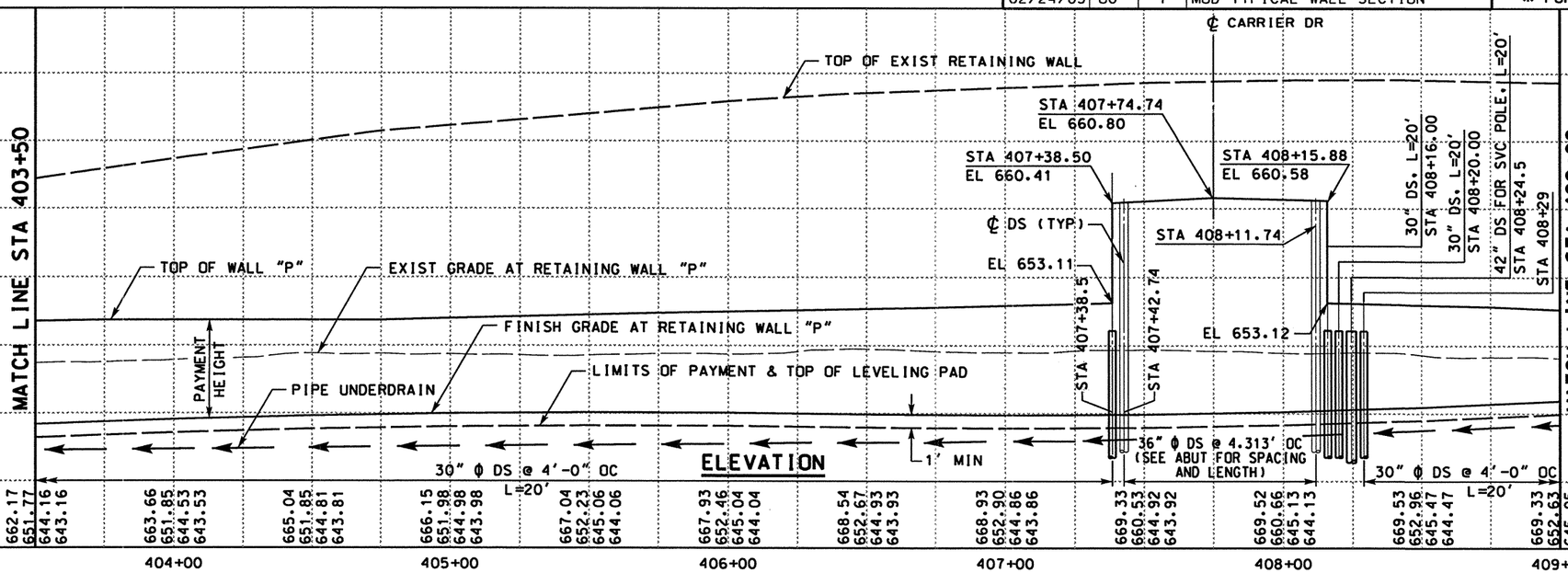
NTS

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
*	416-0504	DRILL SHAFT (30 IN)	LF	2360
*	416-0506	DRILL SHAFT (36 IN)	LF	527
	423-XXXX	RETAINING WALL (CANTILEVER DRILL SHAFT)(30 IN)	SF	4046
	423-XXXX	RETAINING WALL (CANTILEVER DRILL SHAFT)(36 IN)	SF	1217
*		ARCH CONC STAIN FINISH	SY	585
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	13.6
	556-0506	6" PVC PIPE UNDERDRAIN	LF	550
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	4717

* FOR CONTRACTOR'S INFORMATION ONLY

PLAN



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SCALE: 1" = 50' HORIZ
1" = 10' VERT

DATE	BY	REV	REVISION
02/24/05	OG	1	MOD TYPICAL WALL SECTION

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALL "P"

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	423
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

2/24/2005

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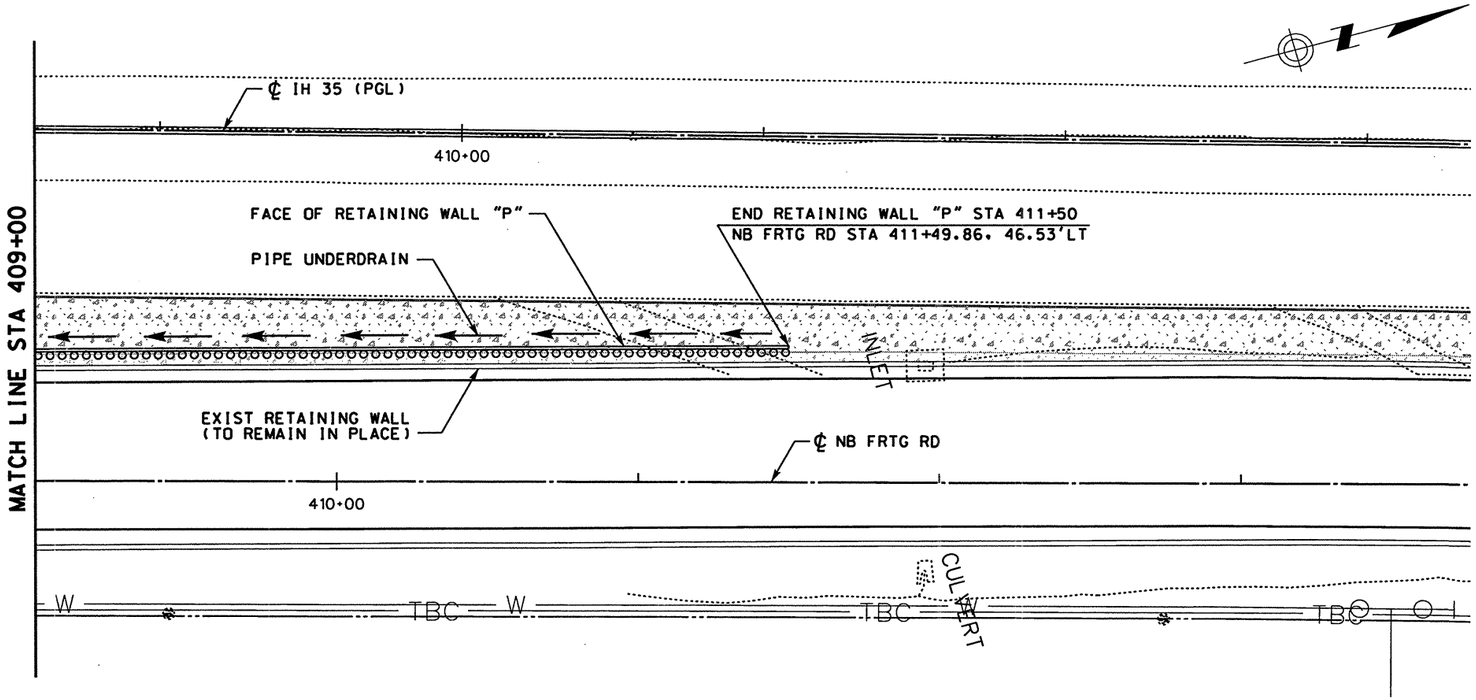

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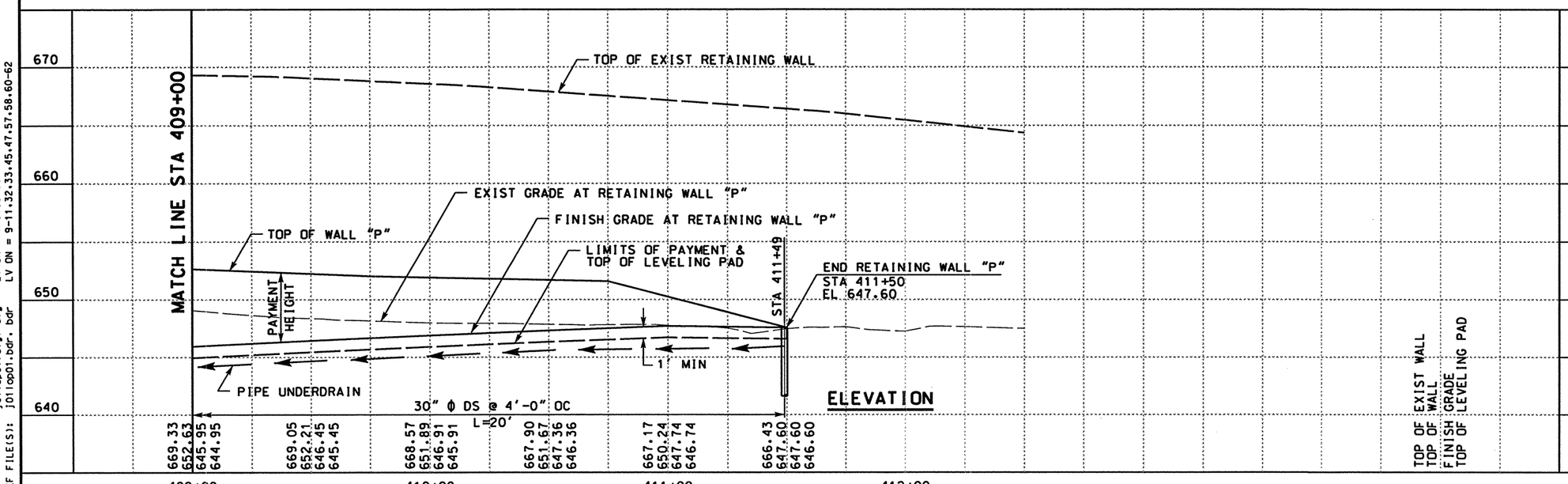

ELEVATION

NOTES:

1. FOR NOTES SEE SHEET 1 OF 3.
2. FOR TYPICAL SECTIONS SEE SHEET 2 OF 3.

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
*		DRILL SHAFT (30 IN)	LF	1260
	423-XXXX	RETAINING WALL (CANTILEVER DRILL SHAFT)(30 IN)	SF	1308
*		CONC STAIN FINISH	SY	145
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	6.2
	556-0506	6" PVC PIPE UNDERDRAIN	LF	250
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	1058

* FOR CONTRACTOR'S INFORMATION ONLY

SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY PE 81485, ON JUNE 02, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALL "P"

SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	424
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

6/4/2003

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j0110p01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62

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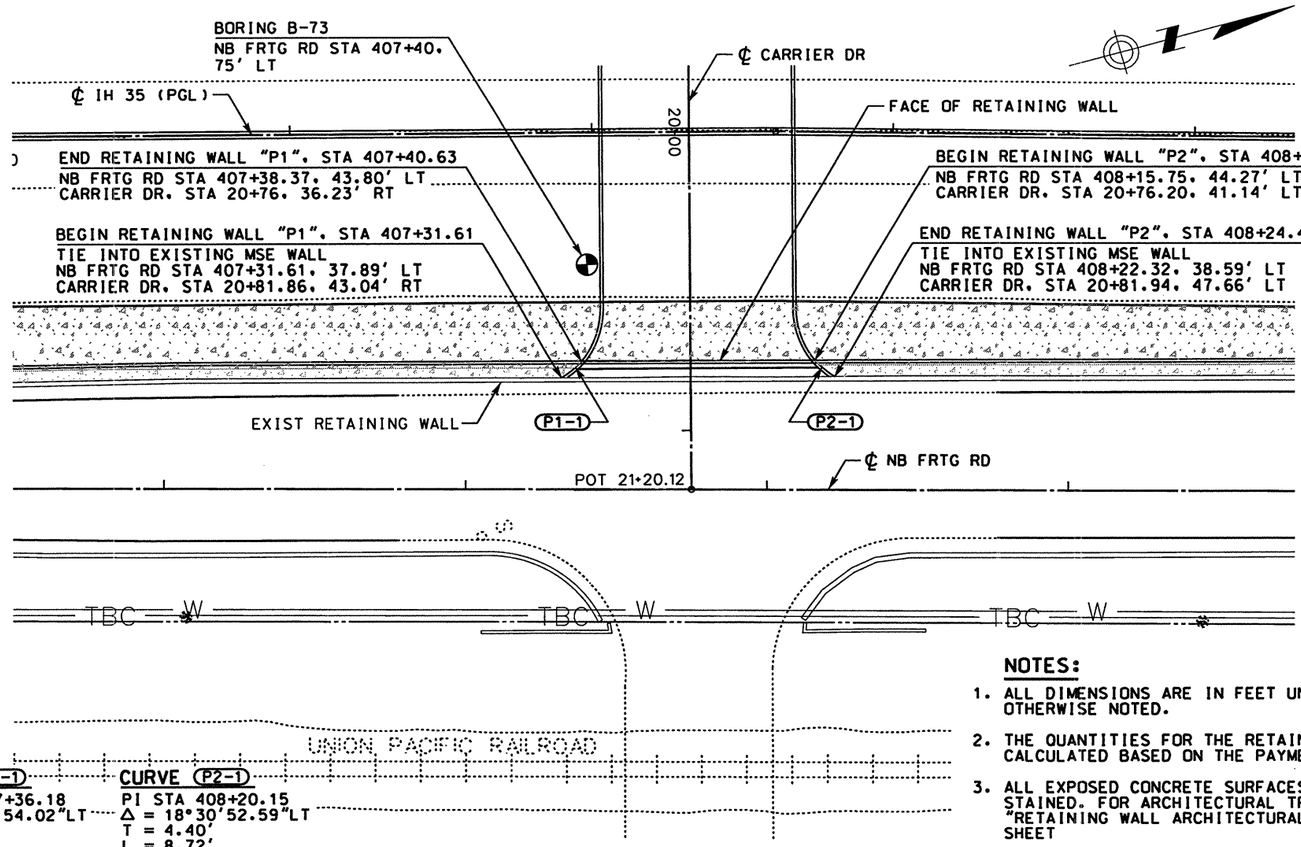


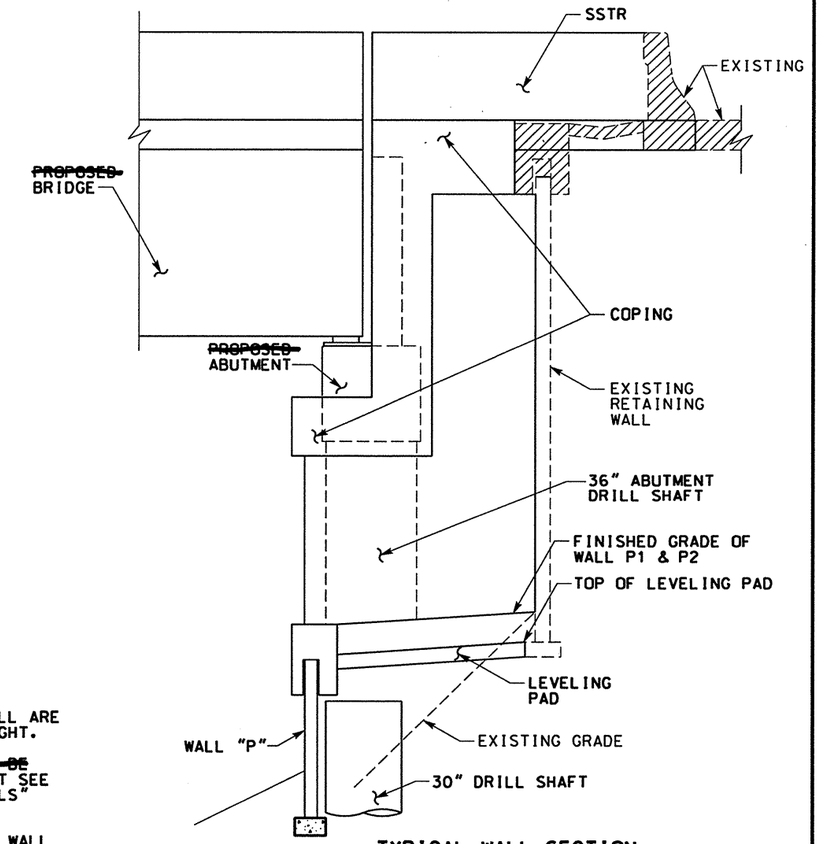
CURVE (P1-1)
PI STA 407+36.18
Δ = 19°08'54.02"LT
T = 4.55'
L = 9.02'
R = 27.00'
PC STA 407+31.61
PT STA 407+40.63

CURVE (P2-1)
PI STA 408+20.15
Δ = 18°30'52.59"LT
T = 4.40'
L = 8.72'
R = 27.00'
PC STA 408+15.75
PT STA 408+24.48

PLAN

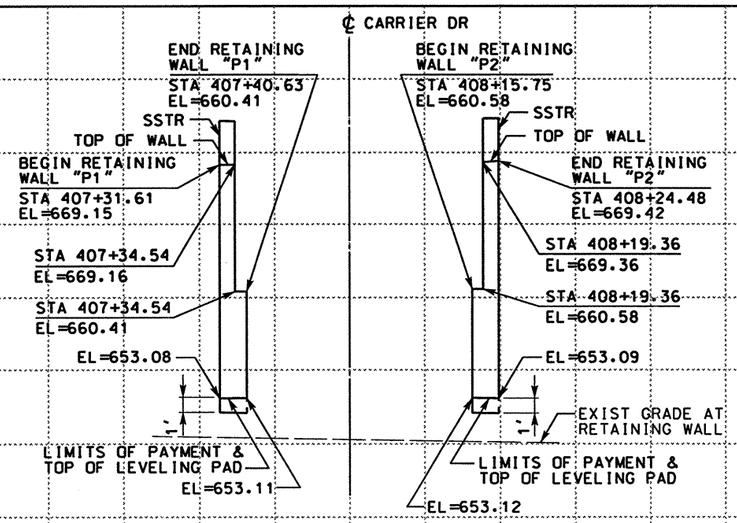
NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET
4. FOR MORE INFORMATION SEE "RETAINING WALL "P" DETAILS".



TYPICAL WALL SECTION

NTS



ELEVATION

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	WALL "P1"			
	423-0501	RETAINING WALL (MSE)	SF	118
*		CONC STAIN FINISH	SY	13
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	109
	WALL "P2"			
	423-0501	RETAINING WALL (MSE)	SF	120
*		CONC STAIN FINISH	SY	13
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	111

* FOR CONTRACTOR'S INFORMATION ONLY

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALL "P1" & "P2"

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		425
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bnt, j011op01.row, j011op01.tri, j011op01.eop, j011op01.bck, j011op01.alg, j011op01.bdr, b31pp22.dgn-08 HOUFILE023 \hcivil\c\f0130\ 6/4/2003

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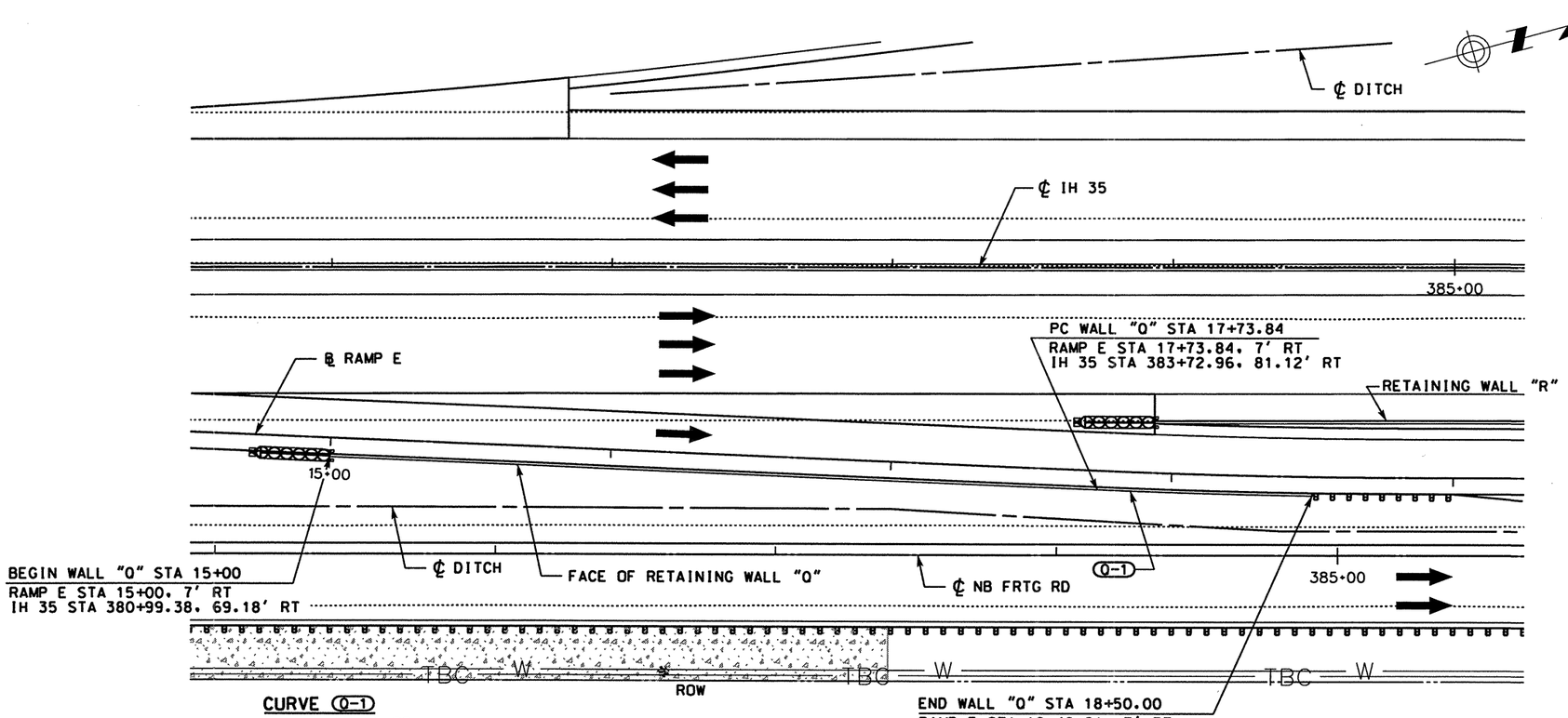
LV ON = 1-22.25-63
LV ON = 1-63
LV ON = 1-5.7-11.13-17.19-63
LV ON = 2.9.10.14.17.20.21.25.28
LV ON = 1-6.35-39
LV ON = 9-11.32.33.45.47.57.58.60-62

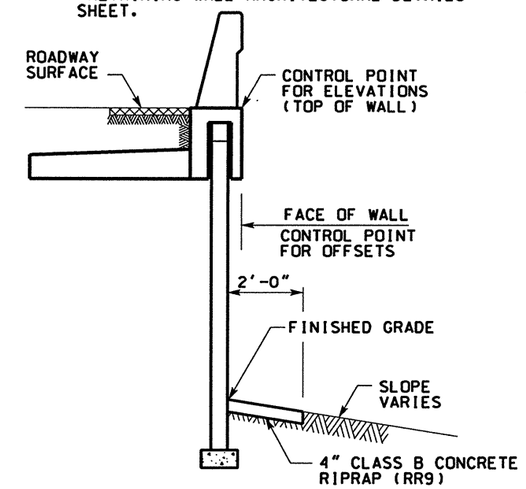


CURVE Q-1
PI STA 18+11.92
Δ = 1°31'10.68"LT
T = 38.09'
L = 76.17'
R = 2,871.79'
PC STA 17+73.84
PT STA 18+50.00

PLAN

NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.

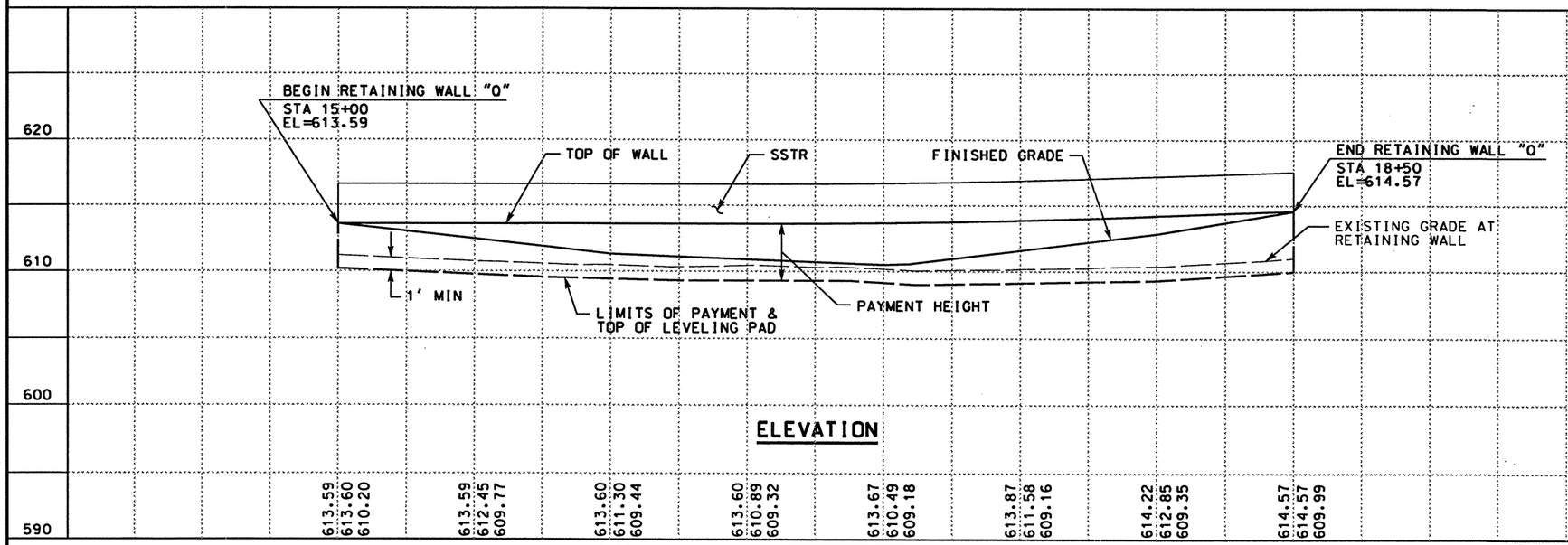


TYPICAL WALL SECTION
NTS

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	423-0501	RETAINING WALL (MSE)	SF	1518
*		CONC STAIN FINISH	SY	285
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	8.6
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	651

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
R. 81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALL "Q"

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		426
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003

REF FILE(S): j011op01.drn, j011op01.pro, j011op01.row, j011op01.mjt, j011op01.eop, j011op01.bck, j011op01.alg, j011op01.bdr, j011op01.urf, b31ppp27.dgn-04 HOUFILE023 \hciwil\cf0130\

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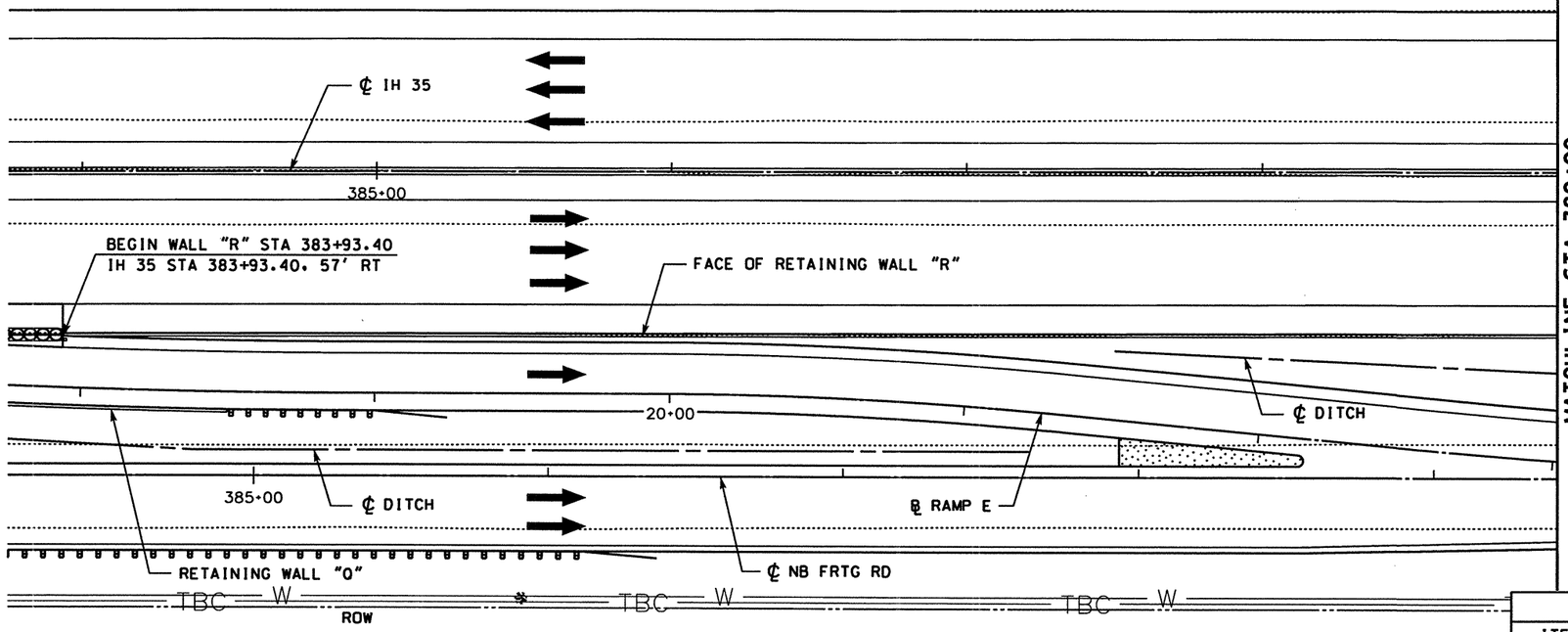


PLAN

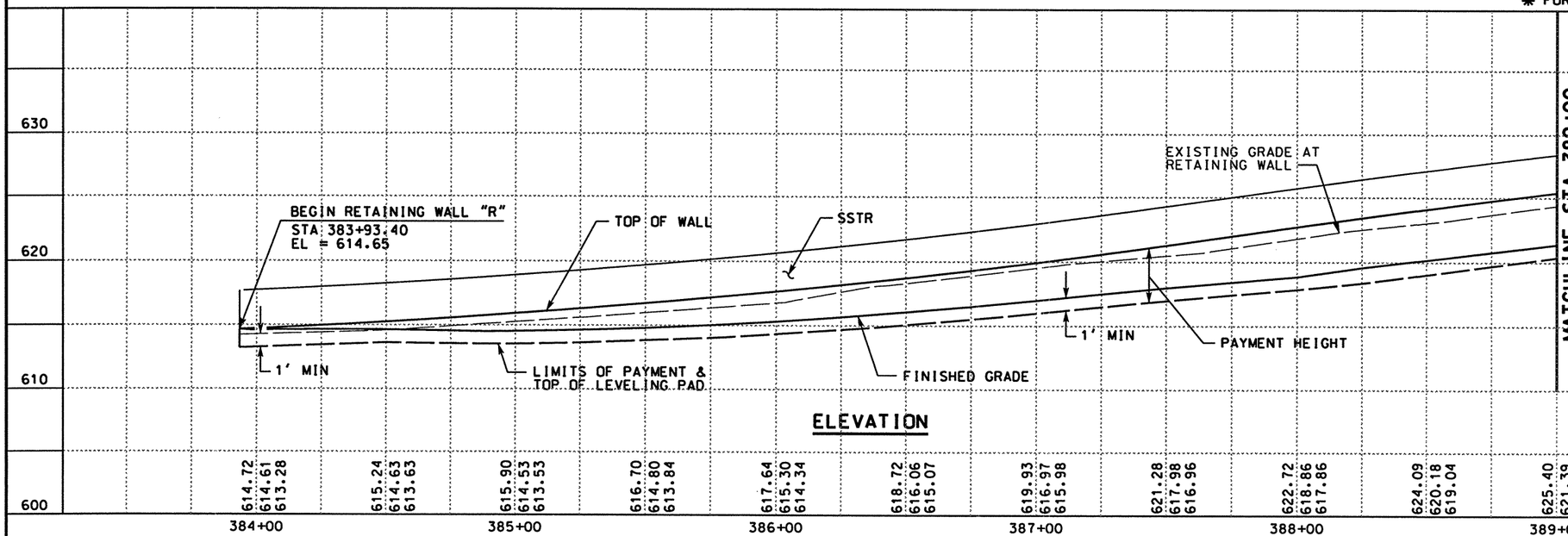
NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. SEE SHT 2 OF 2 FOR TYPICAL WALL SECTION.
4. ALL EXPOSED CONCRETE SURFACES SHALL BE STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	423-0501	RETAINING WALL (MSE)	SF	1270
*		CONC STAIN FINISH	SY	277
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	10.0
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	857

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALL "R"

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	427
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/4/2003

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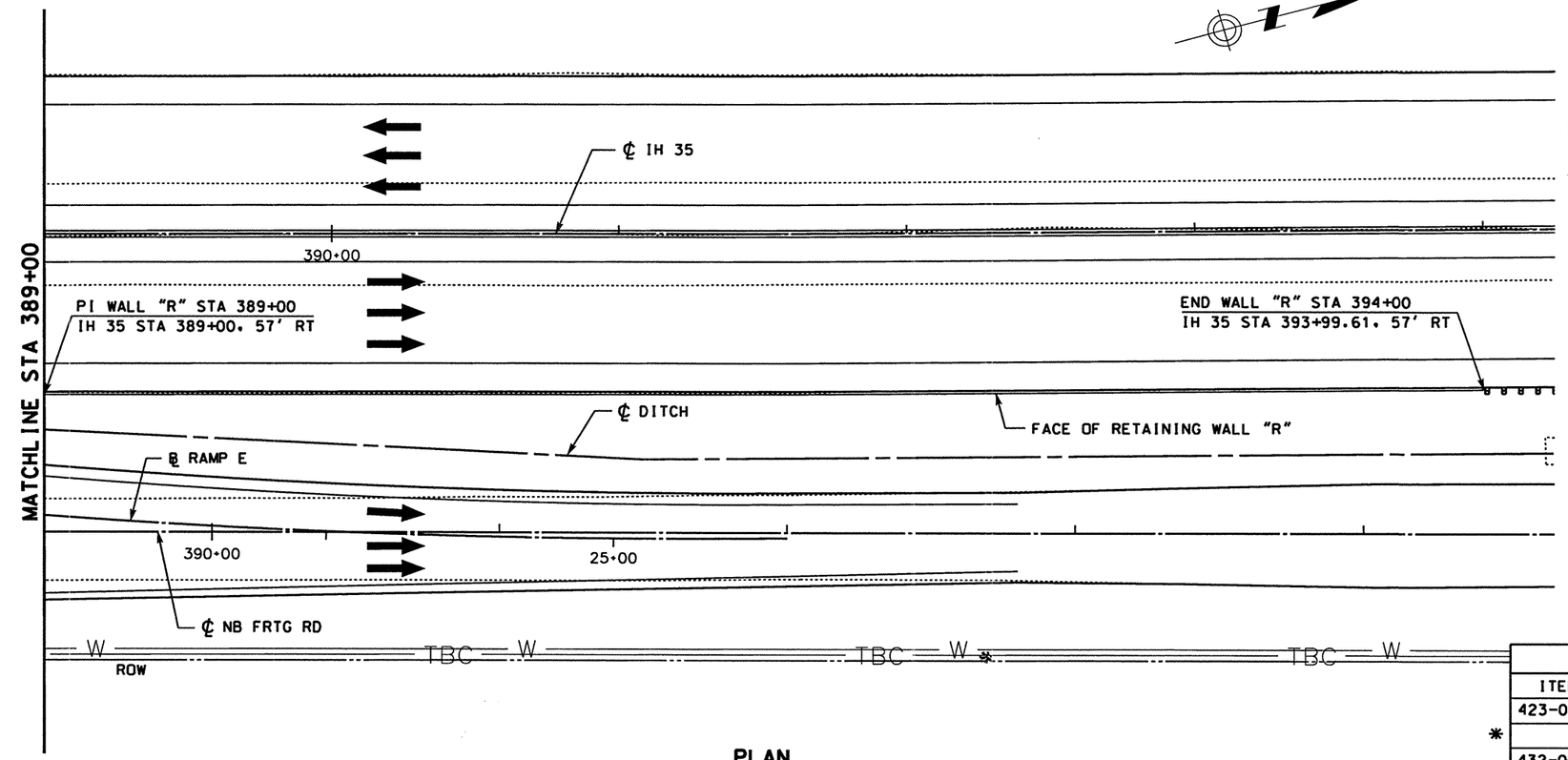
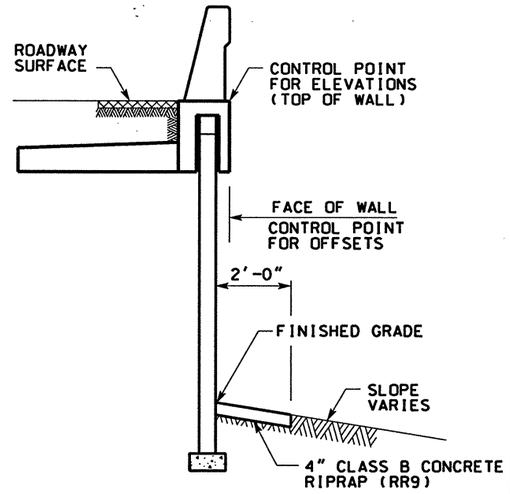


PLAN

NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.

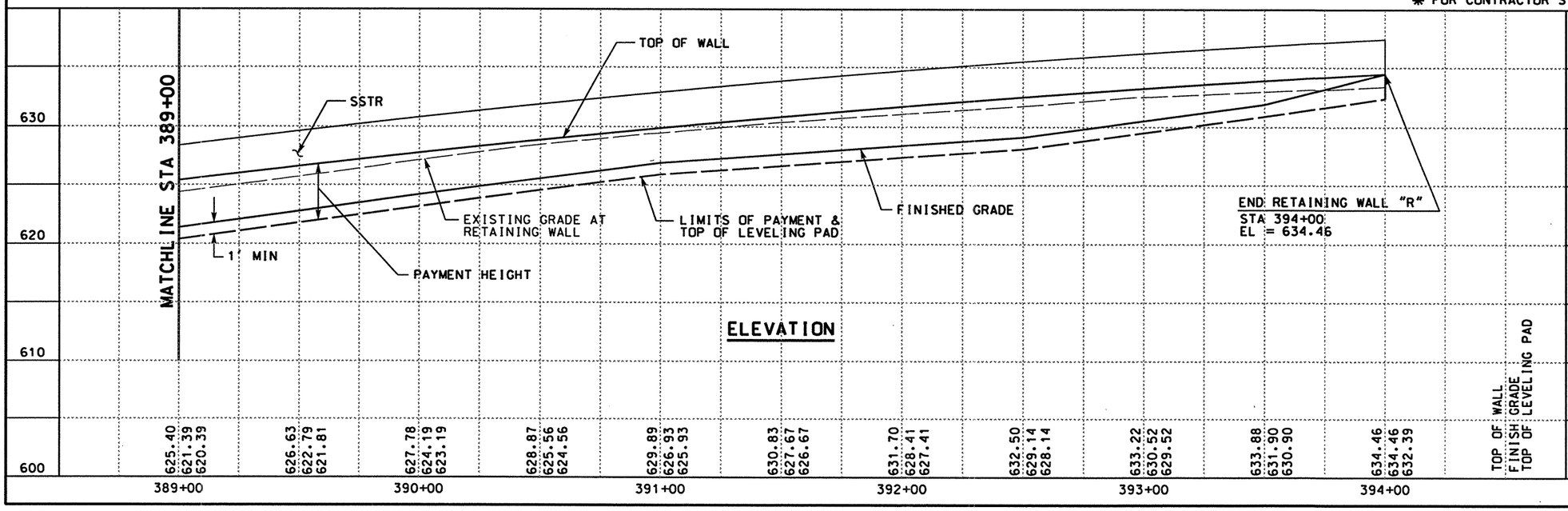


TYPICAL WALL SECTION
NTS

ESTIMATED QUANTITY FOR THIS SHEET

ITEM	DESCRIPTION	UNIT	TOTAL
423-0501	RETAINING WALL (MSE)	SF	2540
*	CONC STAIN FINISH	SY	482
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	14.8
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	1903

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

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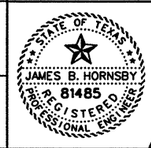
SCALE: 1" = 50' HORIZ
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALL "R"

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	428
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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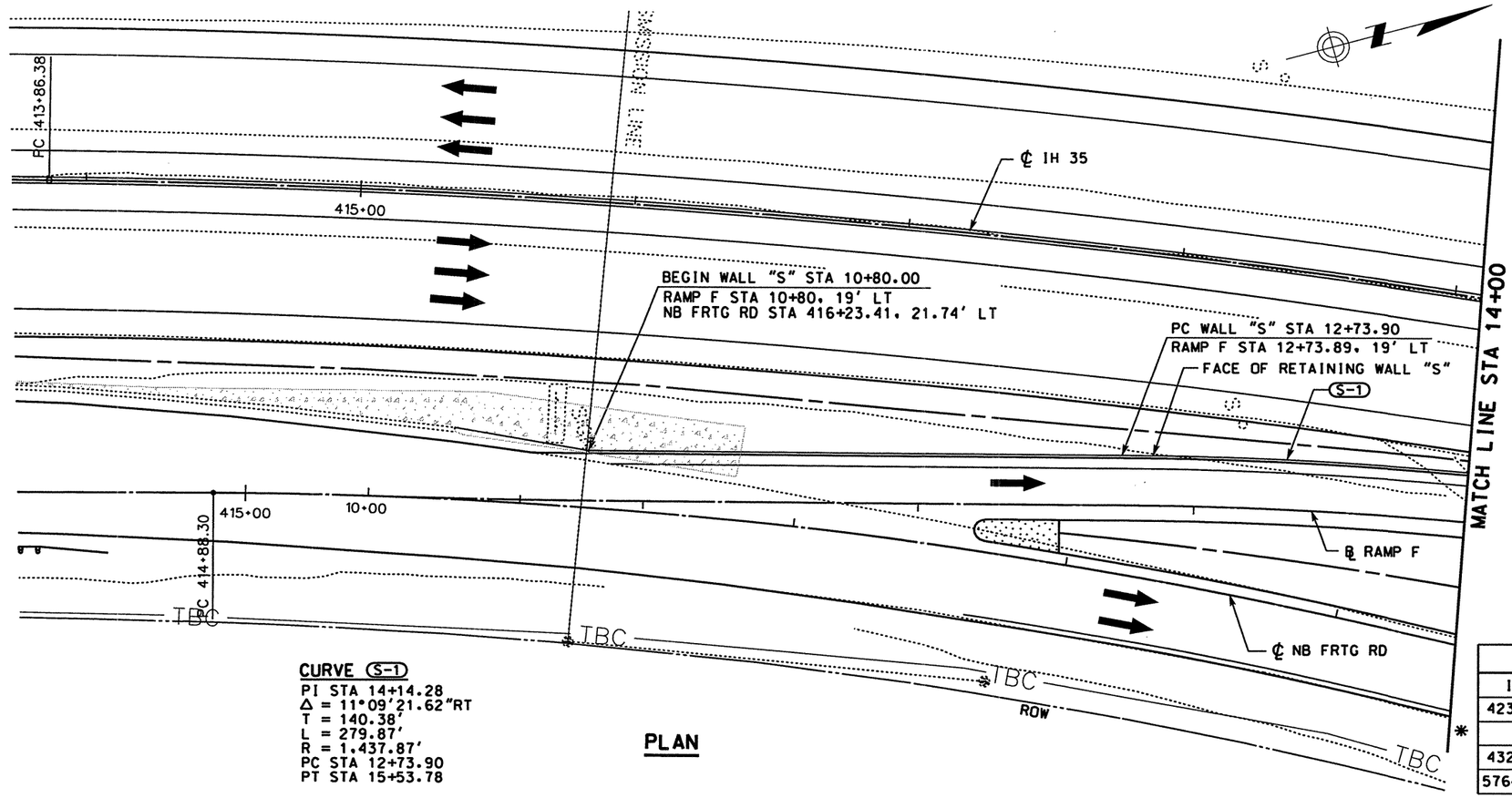


CURVE (S-1)
PI STA 14+14.28
Δ = 11°09'21.62"RT
T = 140.38'
L = 279.87'
R = 1,437.87'
PC STA 12+73.90
PT STA 15+53.78

PLAN

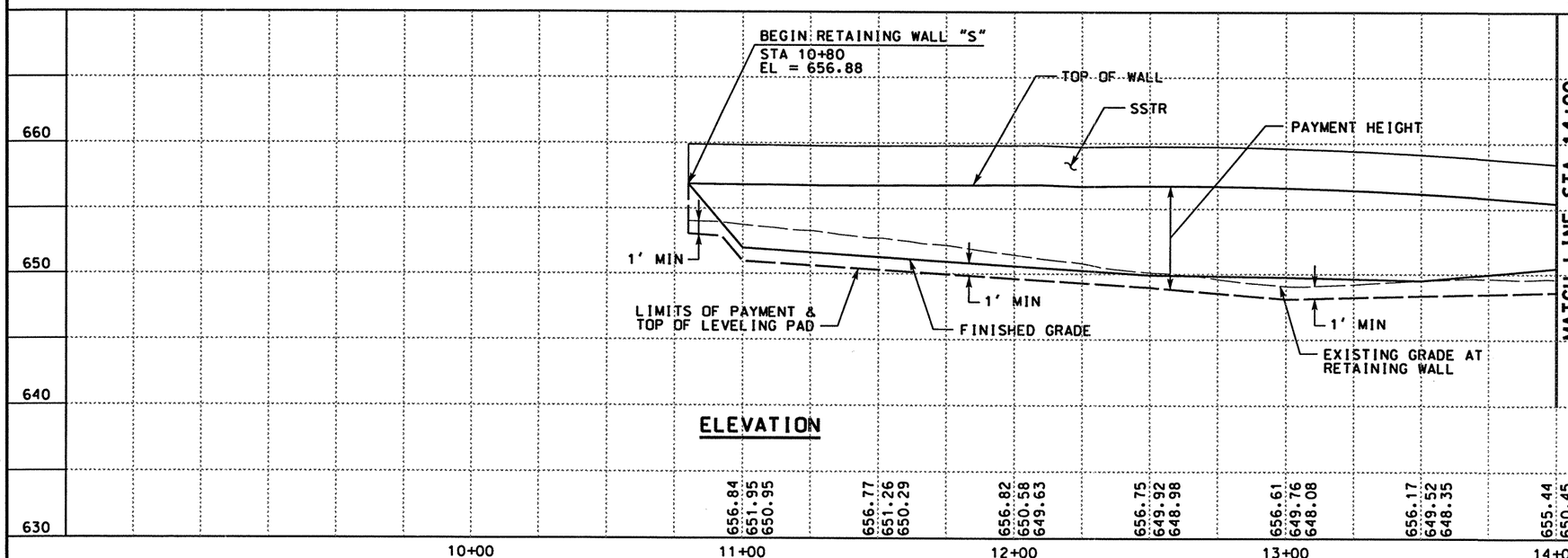
NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. FOR TYPICAL WALL SECTION SEE SHEET 2 OF 2.
4. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.

ESTIMATED QUANTITY FOR THIS SHEET

ITEM	DESCRIPTION	UNIT	TOTAL
423-0501	RETAINING WALL (MSE)	SF	2295
	CONC STAIN FINISH	SY	362
432-0524	CLASS B CONC RIPRAP (4") RR9	CY	7.9
5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	1902

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT
WALL "S"

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	429
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/4/2003
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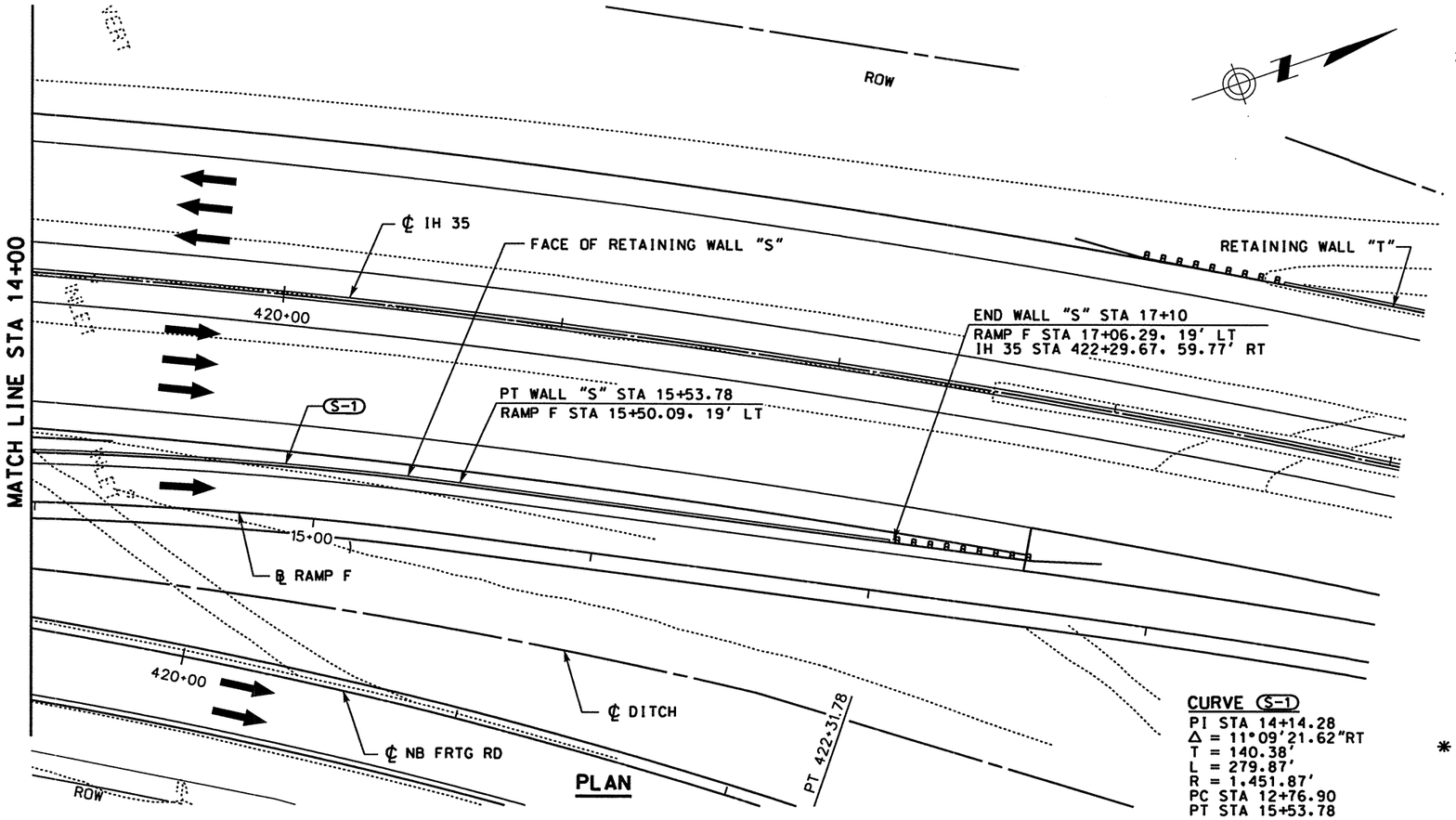
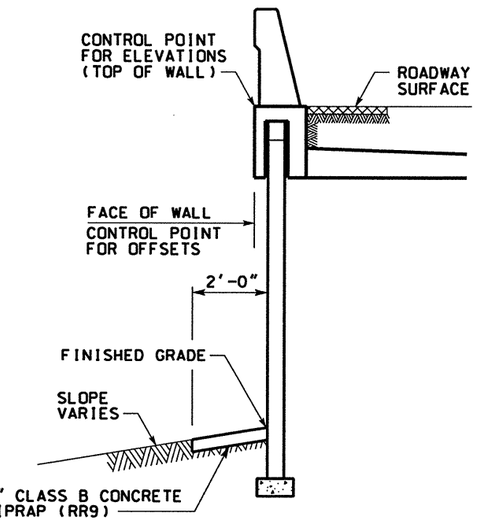


CURVE (S-1)
PI STA 14+14.28
Δ = 11°09'21.62"RT
T = 140.38'
L = 279.87'
R = 1,451.87'
PC STA 12+76.90
PT STA 15+53.78

NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.

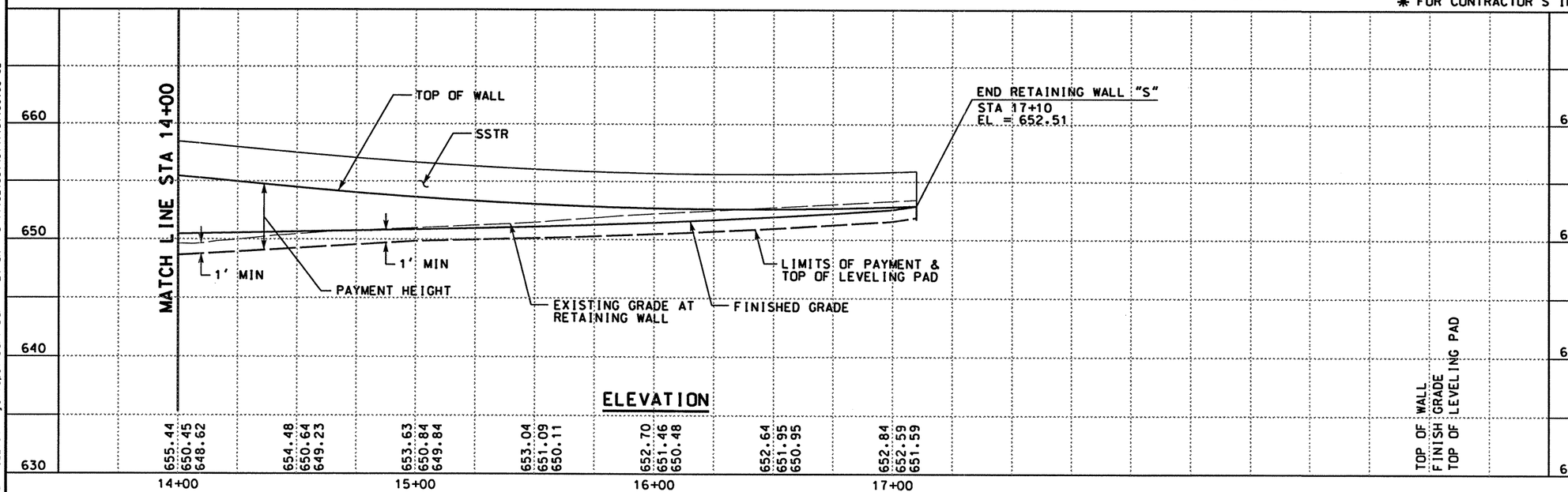


TYPICAL WALL SECTION
NTS

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	423-0501	RETAINING WALL (MSE)	SF	1004
*		CONC STAIN FINISH	SY	215
	432-0524	CLASS B CONC RIPRAP (4") RR9	CY	7.7
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	654

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION

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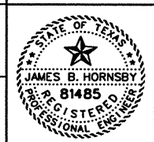
SCALE: 1" = 50' HORIZ
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL
LAYOUT
WALL "S"

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	430
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

6/4/2003
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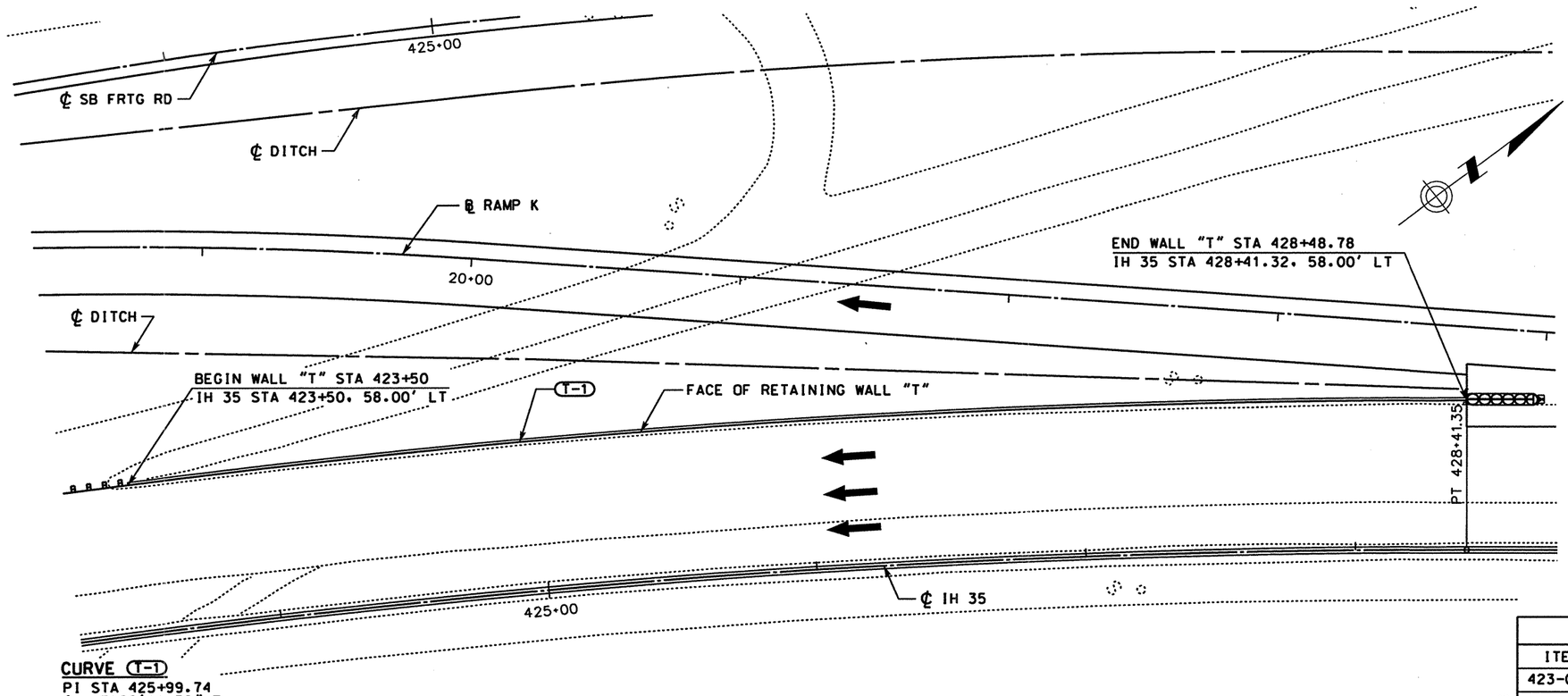
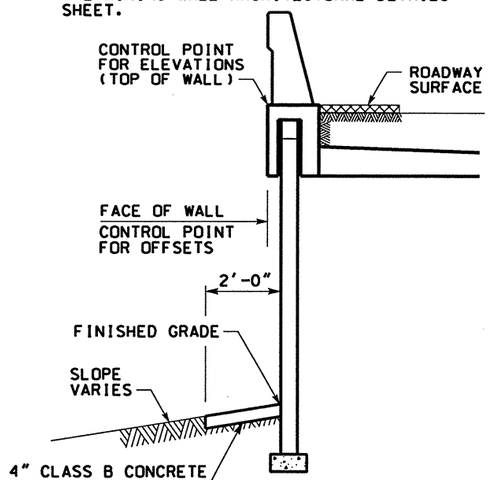


CURVE (T-1)
PI STA 425+99.74
Δ = 7°22'11.38"LT
T = 249.74'
L = 498.78'
R = 3,877.72'
PC STA 423+50.00
PT STA 428+48.78

PLAN

NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. THE QUANTITIES FOR THE RETAINING WALL ARE CALCULATED BASED ON THE PAYMENT HEIGHT.
3. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ STAINED. FOR ARCHITECTURAL TREATMENT SEE "RETAINING WALL ARCHITECTURAL DETAILS" SHEET.

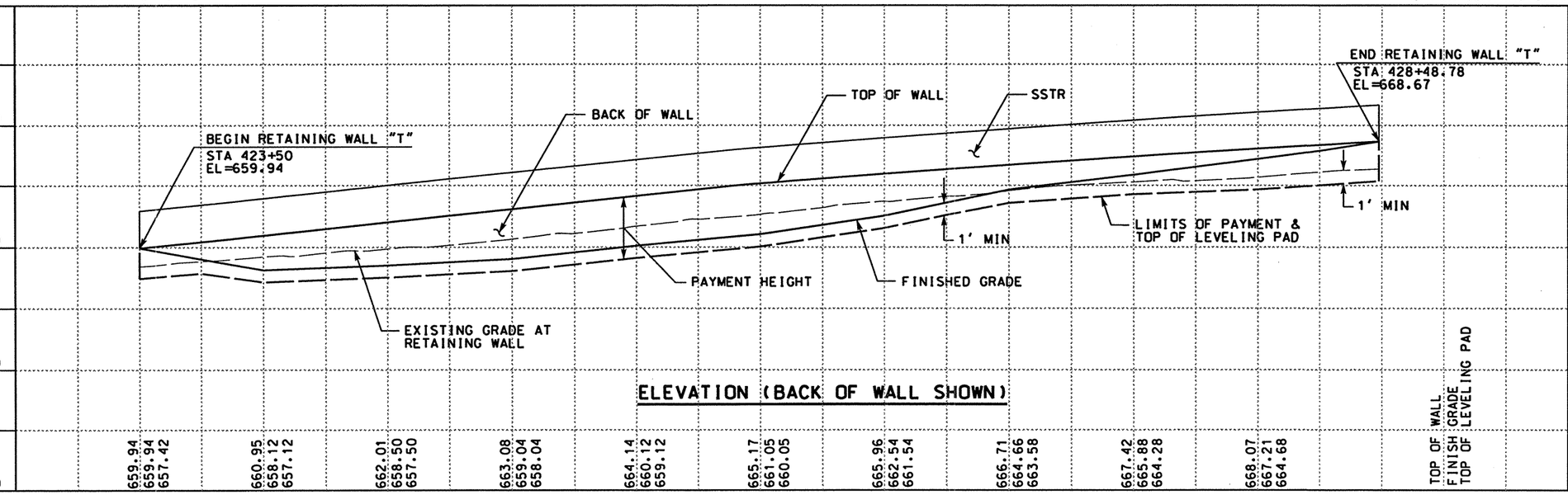


TYPICAL WALL SECTION
NTS

ESTIMATED QUANTITY FOR THIS SHEET

	ITEM	DESCRIPTION	UNIT	TOTAL
	423-0501	RETAINING WALL (MSE)	SF	2008
*		CONC STAIN FINISH	SY	389
	432-524	CLASS B CONC RIPRAP (4") RR9	CY	12.3
	5764-0502	ANTI-GRAFFITI COATING (TY II)	SF	1322

* FOR CONTRACTOR'S INFORMATION ONLY



ELEVATION (BACK OF WALL SHOWN)

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY PE 81485, ON JUNE 02, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL LAYOUT WALL "T"

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	431
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

6/4/2003

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j011op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62

b31pp32.dgn-06 HOUFILE023 \hciwi\cf0130\

The Reinforced Earth Company

CENTRAL DIVISION

1331 Airport Freeway , Suite 302 Euless , Texas 76040 (817) 283–5503 Metro (817) 267–1755 Fax (817) 283–6931

WWW.REINFORCEDEARTH.COM

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N	WALL C,D & E @ ABUTMENT & P.I. DETAILS
P	SECTIONS & DETAILS

RECEIVED
AUG 16 2005
LAREDO AREA OFFICE

RECEIVED
AUG 31 2005
LAREDO AREA OFFICE

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: [signature] Date: 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
8/10/05

STATE CONTROL NO. 0018-05-062

REV.	DATE	DESCRIPTION
5	08/10/05	ADDED DRAWINGS NO. 24,25,26,27,28,29 30,31,N & P REVISED DRAWING NO. 10
4	04/25/05	ADDED DRAWINGS NO. 21,22,23,G,H,J,K L & M
3	09/16/04	ADDED DRAWINGS NO. 10,11,12,13,14,15, 16,17,18,19,20
2	08/16/04	REVISED DRAWINGS NO. 3,4,5,6,7,8,9 A,B & C
1	5/13/04	REVISED DRAWING NO. 7

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

DESIGNED BY:	J.D.T.
PROJECT ENGR:	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	DLH
PROJECT NAME	I.H. 35
LOCATION	WEBB COUNTY
OWNER	TEXAS D.O.T.
DRAWING COVERS	COVER SHEET
DATE	2/26/04
CONTRACT NO.	10718
DRAWING NO.	1
SCALE	AS SHOWN

D:\10718\COVER.DWG

SHEET NO. 431A

GENERAL NOTES – MSE WALL

DESIGN CRITERIA

1. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE REINFORCED EARTH VOLUME , METHODS OF CONSTRUCTION AND QUALITY OF PREFABRICATED MATERIALS ~~SHALL~~ CONFORM TO THE CONTRACTING AGENCY'S TECHNICAL SPECIFICATIONS.

2. SOILS CHARACTERISTICS ASSUMED FOR DESIGN:

   SELECT BACKFILL

   $\varnothing$ = 34 degrees, c = 0 p.s.f., unit weight = 125 p.c.f.

   RANDOM BACKFILL

   $\varnothing$ = 30 degrees, c = 0 p.s.f., unit weight = 125 p.c.f.

   FOUNDATION MATERIAL

   $\varnothing$ = 30 degrees, c = 0 p.s.f.

3. THE MAXIMUM APPLIED BEARING PRESSURE AT THE FOUNDATION LEVEL IS AS SHOWN ON THE WALL ELEVATION FOR EACH DESIGN CASE. IT IS THE RESPONSIBILITY OF THE OWNER TO DETERMINE THAT THIS APPLIED BEARING PRESSURE IS ALLOWABLE FOR THAT LOCATION.

4. ANY UNSUITABLE FOUNDATION MATERIAL BELOW THE REINFORCED EARTH VOLUME, AS DETERMINED BY THE ENGINEER, ~~SHALL BE~~ EXCAVATED AND REPLACED WITH SUITABLE MATERIAL OR OTHERWISE STABILIZED AS DIRECTED BY THE ENGINEER.

5. REINFORCING STRIPS FOR REINFORCED EARTH WALLS ~~SHALL BE~~ 50mm WIDE AND 4mm THICK, AND ~~SHALL~~ CONFORM TO THE PHYSICAL AND MECHANICAL PROPERTIES OF ASTM A-572 GRADE 65. GALVANIZATION ~~SHALL BE~~ APPLIED IN ACCORDANCE WITH ASTM A-123 OR AASHTO M111 ($2oz/ft^2$).

WALL CONSTRUCTION

6. STATIONS SHOWN ARE ALONG ALIGNMENTS.

7. REINFORCED EARTH WALLS IN CURVES WILL FORM A SERIES OF SHORT CHORDS OF 9.84' EACH TO MATCH DESIRED WALL ALIGNMENT.

8. FOR LOCATION AND ALIGNMENT OF THE REINFORCED EARTH WALLS, SEE CONTRACT DRAWINGS. SEE SECTIONS & DETAILS FOR THE OFF-SET BETWEEN THE CONTROL LINE AND THE FACE OF PANEL.

9. IF MANHOLES AND/OR DROP INLETS ARE PRESENT, THEY ~~SHALL BE~~ LOCATED AS SHOWN ON WALL ELEVATIONS.

10. IF PILES ARE LOCATED WITHIN THE REINFORCED EARTH VOLUME, THEY ~~SHALL BE~~ DRIVEN PRIOR TO CONSTRUCTION OF THE REINFORCED EARTH WALL UNLESS A METHOD TO PROTECT THE STRUCTURE, WHICH IS ACCEPTABLE TO THE ENGINEER AND THE REINFORCED EARTH COMPANY, AND IS PROPOSED AND APPROVED IN WRITING.

11. BACKFILL MATERIAL ~~SHALL BE~~ COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR REINFORCED EARTH WALLS TO A LEVEL OF 6" (±) ABOVE THE TIE STRIPS EMBEDDED IN THE PANELS. INSTALLATION OF REINFORCING STRIPS ~~SHALL BE~~ PERMITTED ONLY AFTER PLACEMENT AND COMPACTION OF THE BACKFILL MATERIAL HAS REACHED THE REQUIRED LEVEL.

12. COMPACTION AND OPERATION EQUIPTMENT ~~SHALL BE~~ KEPT A MINIMUM DISTANCE OF 3'-0" FROM THE BACK FACE OF THE REINFORCED EARTH PANELS. COMPACTION WITHIN 3'-0" OF THE REINFORCED EARTH PANELS ~~SHALL BE~~ ACHIEVED WITH AT LEAST THREE (3) PASSES OF A LIGHTWEIGHT MECHANICAL TAMPER, ROLLER OR VIBRATORY SYSTEM.

13. IF STRUCTURES IN EXCESS OF 20' IN HEIGHT OCCUR, THE FINISHED GRADE IN FRONT OF THE WALL ~~SHALL BE~~ PLACED AND COMPACTED BEFORE WALL CONSTRUCTION EXCEEDS A HEIGHT OF 20'. FINISHED GRADE BACKFILL ~~SHALL BE~~ COMPACTED TO 95% OF ASTM D-698, METHODS "C" OR "D", UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

14. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF ANY GUARDRAIL POSTS BEHIND THE REINFORCED EARTH PANELS. PRIOR TO PLACEMENT OF THE TOP LAYER OF REINFORCING STRIPS. INDIVIDUAL STRIPS MAY BE SKEWED TO AVOID THE POST LOCATIONS IF AUTHORIZED BY THE REINFORCED EARTH COMPANY. ANY DAMAGE DONE TO THE REINFORCING STRIPS DUE TO THE INSTALLATION OF THE GUARDRAIL ~~SHALL BE~~ REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

WALL CONSTRUCTION (CON'T.)

15. IF EXISTING OR FUTURE STRUCTURES, PIPES, FOUNDATIONS OR GUARDRAIL POSTS WHICH ARE WITHIN THE REINFORCED EARTH VOLUME INTERFERE WITH THE NORMAL PLACEMENT OF REINFORCING STRIPS AND SPECIFIC DIRECTION HAS NOT BEEN PROVIDED ON THE PLANS, THE CONTRACTOR ~~SHALL~~ NOTIFY THE REINFORCED EARTH COMPANY TO DETERMINE WHAT COURSE OF ACTION SHOULD BE TAKEN.

16. ALL DETAILING AND CHECKING OF REINFORCING STEEL FOR ANY C.I.P. CONCRETE WORK IS THE RESPONSIBILITY OF THE CONTRACTOR.

17. TOP PANELS BENEATH COPING SHALL HAVE #4 DOWELS PROTRUDING FROM THEIR TOP EDGE.

18. FOR OTHER INFORMATION PERTAINING TO WALL CONSTRUCTION PLEASE REFER TO THE REINFORCED EARTH CONSTRUCTION MANUAL.

MATERIALS NOTES

19. THE CONTRACTOR IS RESPONSIBLE FOR GRADUALLY DEFLECTING UPPER REINFORCING STRIPS DOWNWARD TO AVOID CONFLICTS WITH PAVING AND SUBGRADE PREPARATION. THE CONTRACTOR'S ATTENTION IS DIRECTED ESPECIALLY TO SITUATIONS WHERE ROADWAY SUPER ELEVATION AND/OR SOIL MIXING ARE ANTICIPATED.

20. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING STORM WATER DRAINAGE IN THE VICINITY OF THE WALL DURING CONSTRUCTION. STORM WATER RUNOFF IS ~~TO BE~~ COLLECTED AND DISCHARGED AWAY FROM THE WALL AND REINFORCED BACKFILL.

21. NOMINAL STRIPS LENGTHS

    THE REINFORCING STRIP LENGTHS SHOWN ON THE PLANS, MEASURED FROM THE BACK FACE OF THE PANEL, ARE THE NOMINAL LENGTHS REQUIRED BY CALCULATION. THE ACTUAL FABRICATED STRIP LENGTHS ARE OFTEN LONGER (UP TO 6") DUE TO MANUFACTURING TOLERANCES. THE REQUIRED HORIZONTIAL LIMIT OF GRANULAR BACKFILL IS EQUAL TO THE NOMINAL STRIP LENGTH. ADDITIONAL GRANULAR BACKFILL BEYOND THE NOMINAL STRIP LENGTH IS NOT REQUIRED BY CALCULATION.

22. SELECT BACKFILL QUANTITY

    THE SELECT BACKFILL QUANTITY INDICATED BY THE REINFORCED EARTH COMPANY IS CALCULATED BY MULTIPLYING THE NOMINAL STRIP LENGTHS SHOWN ON THE PLANS (PLUS 0 ft) BY THEIR TRIBUTARY WALL SURFACE AREA AND CONVERTING THE RESULT TO A NEATLINE CUBIC YARD QUANTITY. THIS INFORMATION IS FURNISHED FOR THE CONTRACTOR'S INFORMATION ONLY AND IS NOT INTENDED TO REPRESENT THE ACTUAL QUANTITIES REQUIRED TO COMPLETE THE WORK. THE CONTRACTOR MUST CALCULATE HIS OWN EXCAVATION AND BACKFILL QUANTITIES BASED UPON THE SPECIFIC CONDITIONS OF THE PROJECT.

23. PANEL FINISH

    PRECAST PANELS FOR THIS PROJECT ~~SHALL~~ HAVE A PLAIN SMOOTH FINISH WITH ARCHES AND A FRACTURED FIN FORMLINER FINISH.
    PRECAST CORNER ELEMENTS SHALL HAVE A PLAIN SMOOTH FINISH.

24. NOTE TO CONTRACTOR

    ONLY THE FOLLOWING MATERIALS ARE SUPPLIED BY THE REINFORCED EARTH COMPANY:
    - PRECAST CONCRETE FACING PANELS
    - REINFORCING STRIPS
    - BOLT SETS (FOR ATTACHING REINFORCING STRIPS TO PANELS)
    - BEARING BLOCKS
    - RUBBER SHIMS
    - FILTER CLOTH AND ADHESIVE (FOR PANEL JOINTS)

    ANY OTHER MATERIALS CALLED FOR IN THE CONTRACT PLANS OR SPECIFICATIONS ARE TO BE SUPPLIED BY THE CONTRACTOR. ANY JOINT MATERIALS SHOWN AT THE INTERFACE OF PRECAST PANELS AND CAST-IN-PLACE CONCRETE STRUCTURES ARE ~~TO BE~~ SUPPLIED BY THE ERECTION CONTRACTOR. ALL SANDBLASTING, PAINTING, SEALERS OR OTHER SPECIAL APPLIED COATINGS ARE ALSO SUPPLIED/INSTALLED BY THE CONTRACTOR IN THE FIELD FOLLOWING PANEL ERECTION.

25. CONTRACTOR RESPONSIBILITY

    THE REINFORCED EARTH COMPANY SUPPLIES PRECAST CONCRETE FACING PANELS AND ACCESSORIES ~~TO BE~~ USED IN CONJUNCTION WITH OTHER MATERIALS IN THE CONSTRUCTION OF THE REINFORCED EARTH® RETAINING WALLS DETAILED HEREIN. THE "CONSTRUCTION AND QUALITY CONTROL PROCEDURES MANUAL" FURNISHED BY THE REINFORCED EARTH COMPANY IS INTENDED TO PROVIDE A GENERAL EXPLANATION OF THE SYSTEM. IT IS THE CONTRACTOR'S OBLIGATION TO DEVISE AND EXECUTE A PROJECT SPECIFIC ERECTION SEQUENCE, PANEL UNLOADING, HANDLING AND BRACING SYSTEM, AND FALL PROTECTION SYSTEM. THE BRACING SYSTEM SHOWN IN THE "CONSTRUCTION AND QUALITY CONTROL PROCEDURES MANUAL" IS GENERAL IN NATURE AND DOES NOT ACCOUNT FOR PROJECT SPECIFIC CRITERIA. COMPLIANCE WITH THE GUIDELINES IN THIS MANUAL DOES NOT RELIEVE THE CONTRACTOR OF ITS RESPONSIBILITY TO ADHERE TO THE PROJECT PLANS, SPECIFICATIONS AND CONTRACT DOCUMENTS OR COMPLIANCE WITH ALL FALL PROTECTION, SAFETY, LAWS, STANDARDS AND PROCEDURES AT THE JOBSITE. CONTRACTORS SHOULD TAKE SPECIAL PRECAUTIONS TO PREVENT THE PANELS FROM SHIFTING OR FALLING DURING THE ERECTION PROCESS.

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

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By: _____ Date: 3/12/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
2/26/04

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

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DESIGNED BY:	J.D.T.
PROJECT ENGR	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	

REV.	DATE	DESCRIPTION

PROJECT NAME	I.H. 35
LOCATION	WEBB COUNTY
OWNER	TEXAS D.O.T.
DRAWING COVERS	GENERAL NOTES

DATE	2/26/04
CONTRACT NO	10718
DRAWING NO.	2
SCALE	AS SHOWN

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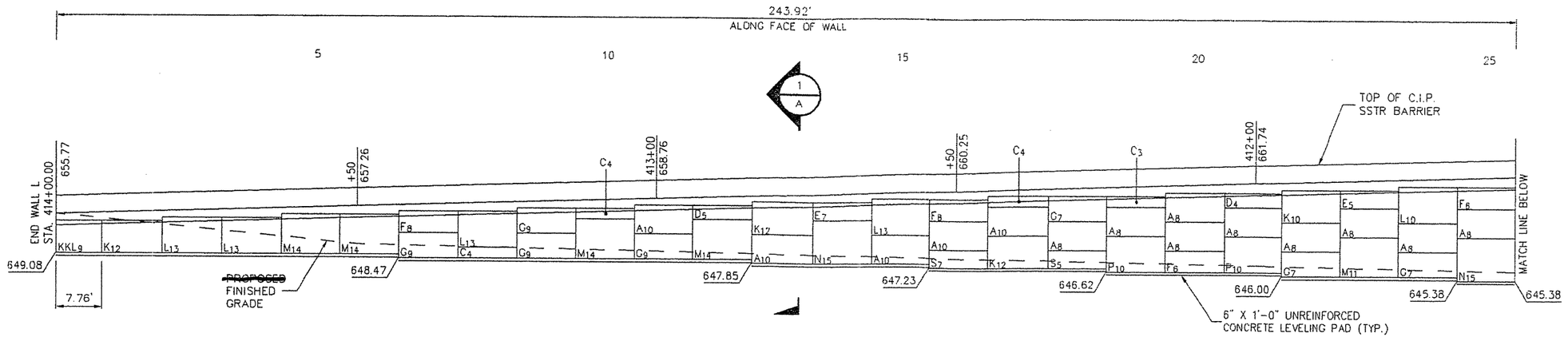
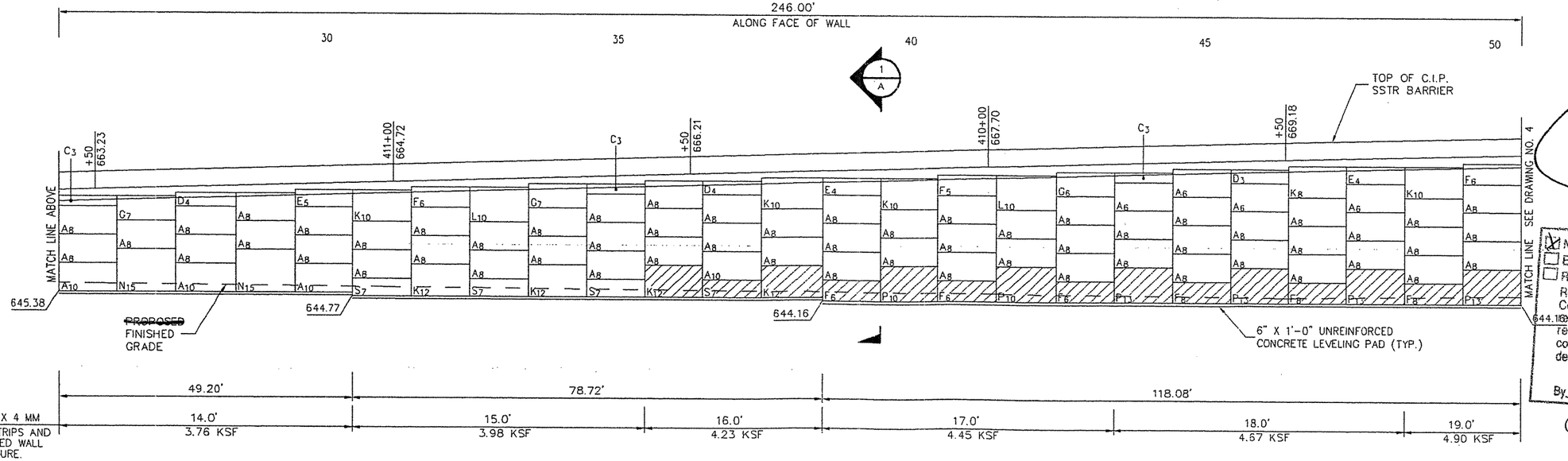


ELEVATION – FRONT FACE WALL L

SCALE : 1" = 20'

▨ – DESIGNATES R6 REINFORCEMENT



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STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED
PROFESSIONAL ENGINEER
2/26/04

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KBR

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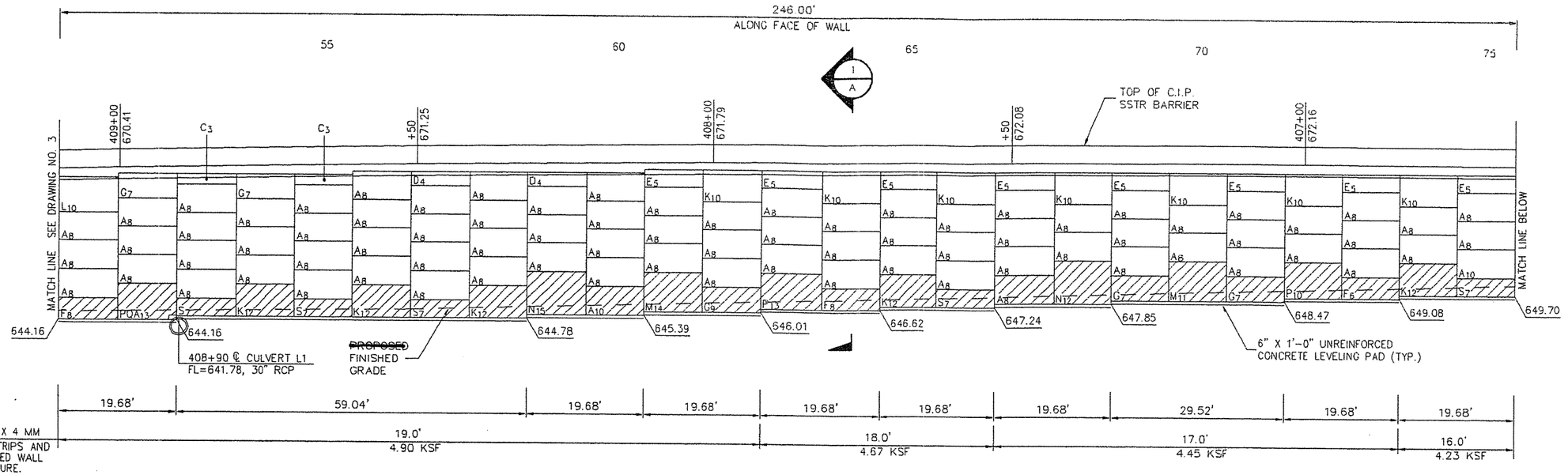
DESIGNED BY: J.D.T.				PROJECT NAME	I.H. 35	DATE	2/26/04
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO.	10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO.	3
ENG. MANAGER	REV.	DATE	DESCRIPTION	DRAWING COVERS	ELEVATION – WALL L	SCALE	AS SHOWN

P:\10718\WALL_L_A.DWG



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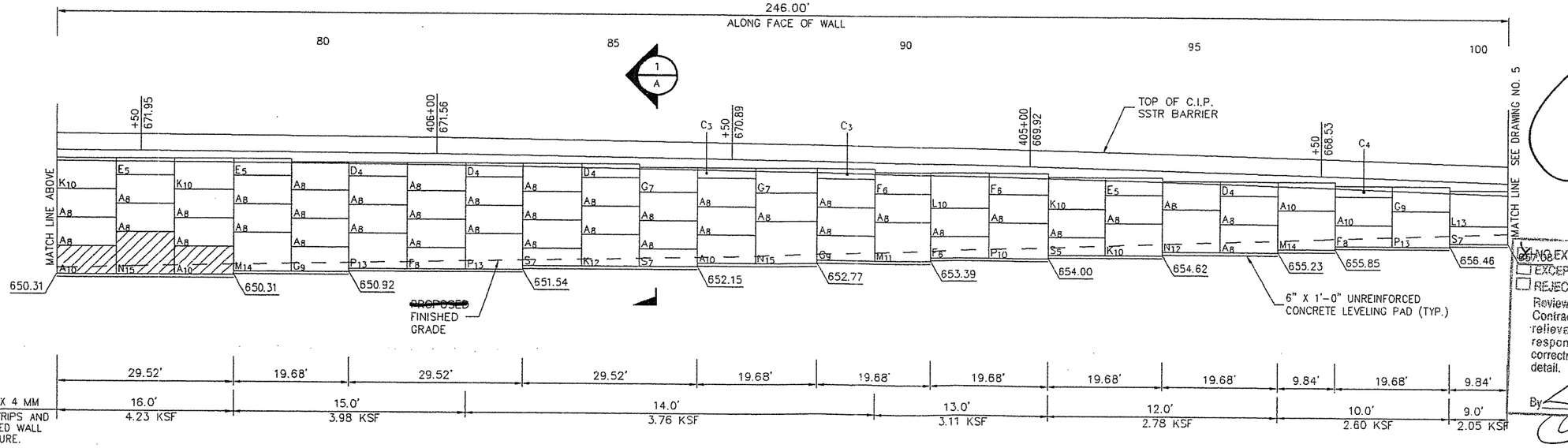
ELEVATION – FRONT FACE WALL L

SCALE : 1" = 20'



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DAVID L. HUTCHINSON
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REGISTERED PROFESSIONAL ENGINEER
2/26/04

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DESIGNED BY:	REV	DATE	DESCRIPTION
J.D.T.			
PROJECT ENGR: D.L.H.			
CHECKED BY: DLH			
ENG. MANAGER			

PROJECT NAME	I.H. 35	DATE	2/26/04
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	4
DRAWING COVERS	ELEVATION – WALL L	SCALE	AS SHOWN

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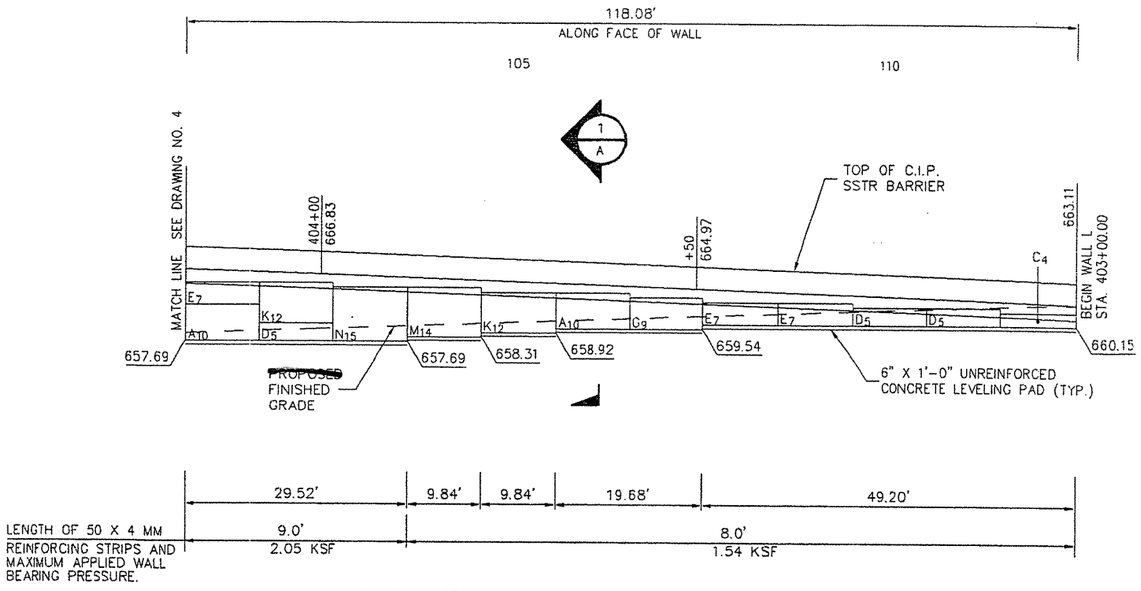

ELEVATION – FRONT FACE WALL L

SCALE : 1" = 20'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT
KBR

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PROJECT ENGR:	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	

REV.	DATE	DESCRIPTION

PROJECT NAME	I.H. 35	DATE 2/26/04
LOCATION	WEBB COUNTY	CONTRACT NO. 10718
OWNER	TEXAS D.O.T.	DRAWING NO. 5
DRAWING COVERS	ELEVATION – WALL L	SCALE AS SHOWN

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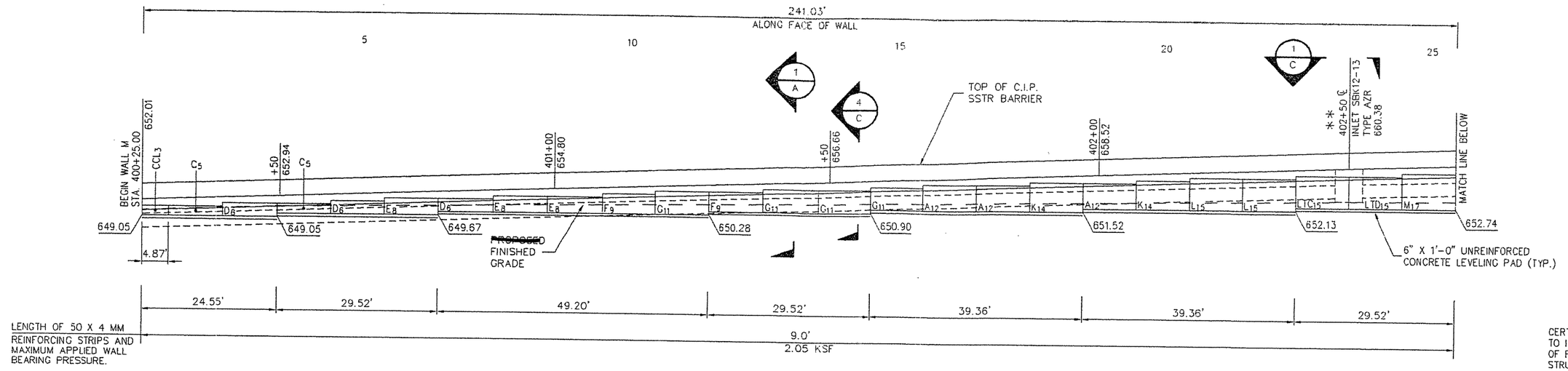
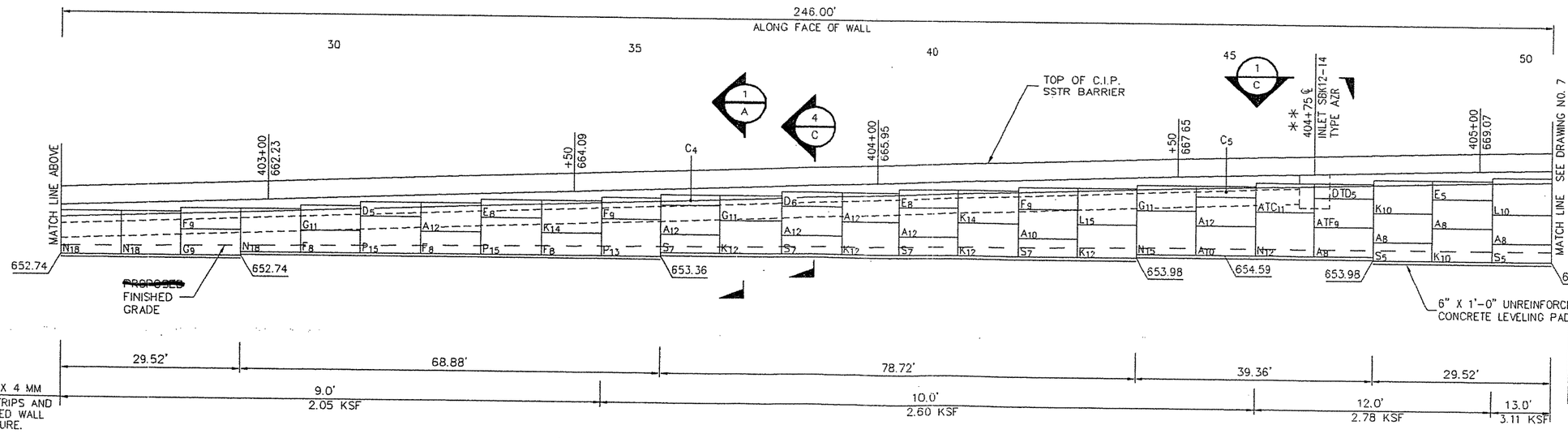


ELEVATION – FRONT FACE WALL M

SCALE : 1" = 20'

** – RELOCATE ℄ INLET TO ℄ PANEL JOINT.



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STATE OF TEXAS
DAVID L. HUTCHINSON
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2/26/04

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☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design, correctness of dimensions, and accuracy of detail.

By: _____ Date: 3/11/04

STATE CONTROL NO. 0018-05-062

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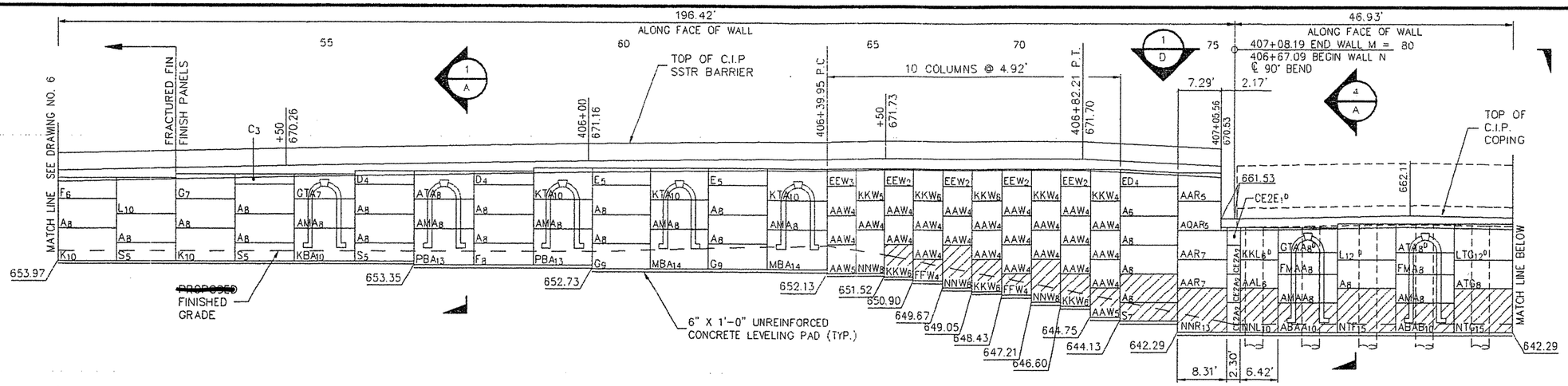
The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

DESIGNED BY:	REV	DATE	DESCRIPTION
J.D.T.			
PROJECT ENGR D.L.H.			
CHECKED BY: DLH			
ENG. MANAGER			

PROJECT NAME	I.H. 35	DATE	2/26/04
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	6
DRAWING COVERS	ELEVATION – WALL M	SCALE	AS SHOWN

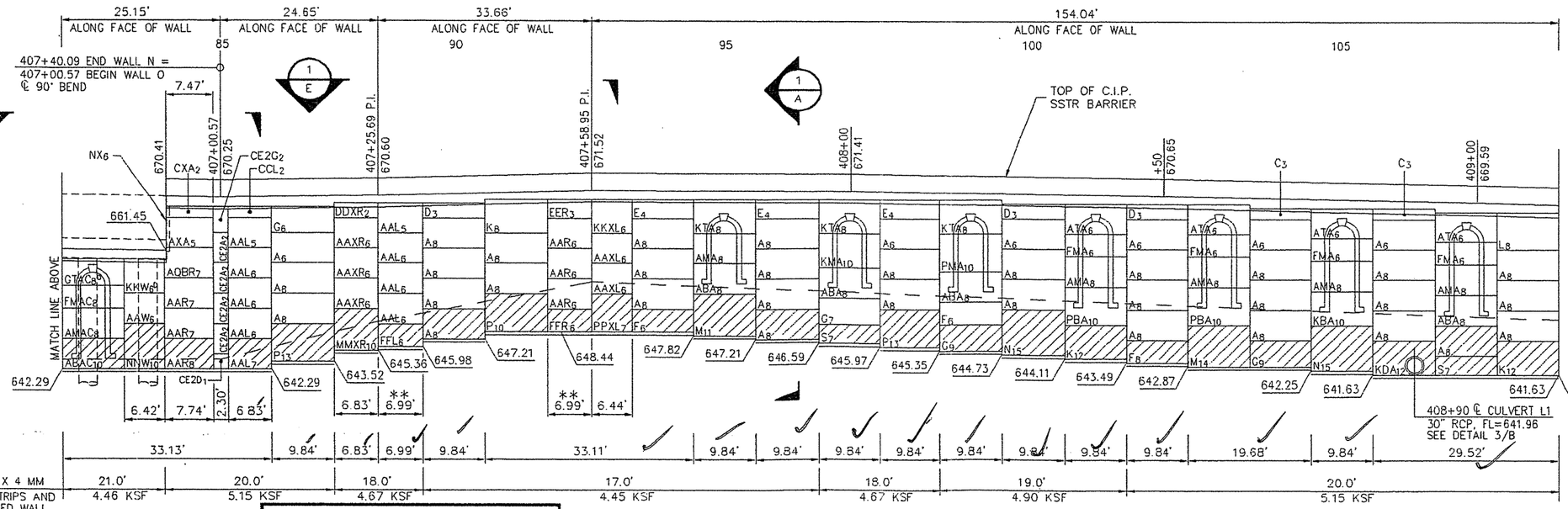
P:\10718\MNO_A.DWG



ELEVATION – FRONT FACE WALL M & N

SCALE : 1" = 20'

▨ – DESIGNATES R6 REINFORCEMENT



**– THE 6.99' DIMMENSION IS THE EXPOSED FACE DIMENSION. THE ACTUAL PANEL WIDTH IS 8.50'. SEE DETAIL 1/E.

ELEVATION – FRONT FACE WALL N & O

SCALE : 1" = 20'

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
2/26/04

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

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By: Date: 3/12/04

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

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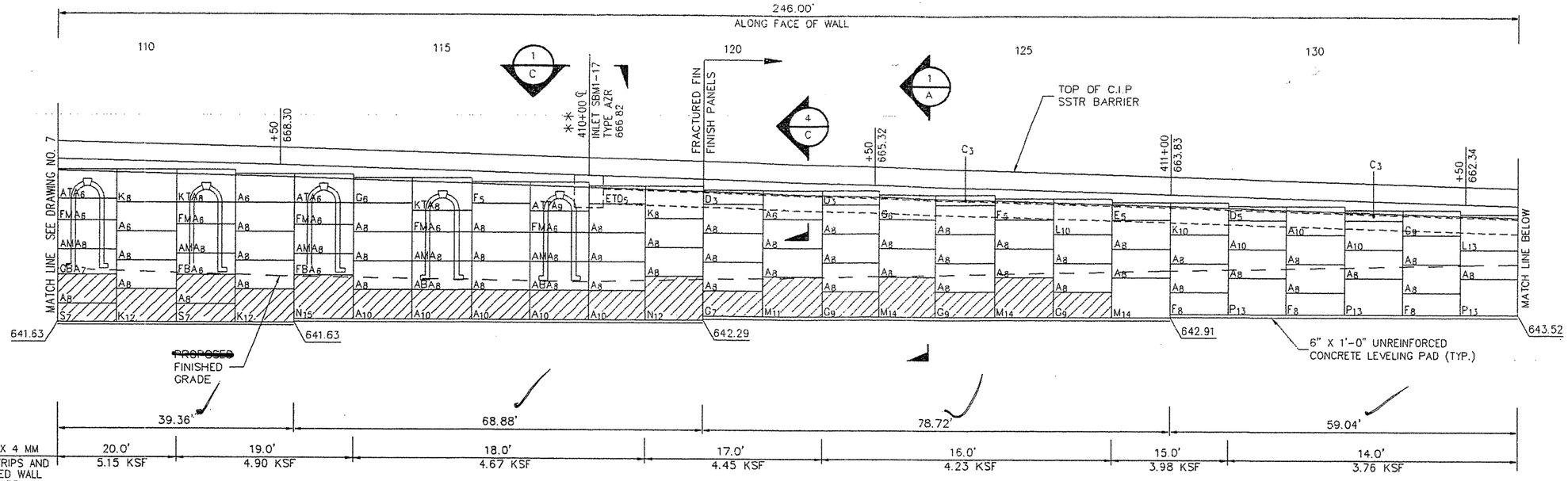
DESIGNED BY:	REV.	DATE	DESCRIPTION	PROJECT NAME	I.H. 35	DATE
J.D.T.						2/26/04
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO. 10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO. 7
ENG. MANAGER				DRAWING COVERS	ELEVATION – WALL M	SCALE AS SHOWN

P:\10718\MNO_B.DWG

SHEET NO. 43/6

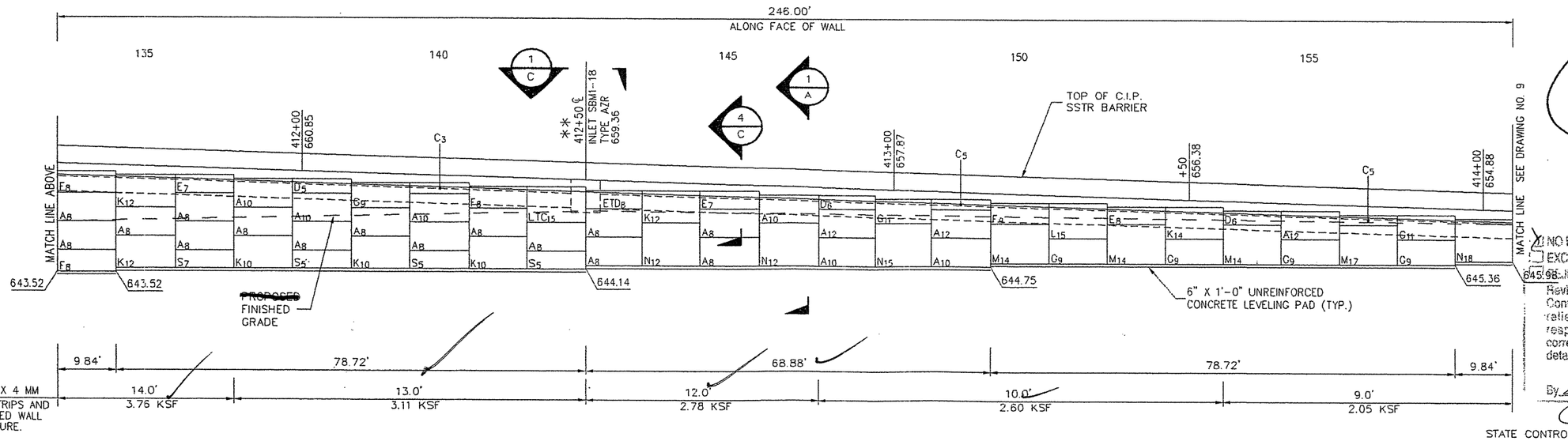


— DESIGNATES R6 REINFORCEMENT

ELEVATION — FRONT FACE WALL O

SCALE : 1" = 20'

** — RELOCATE ℄ INLET TO ℄ PANEL JOINT.



CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
2/26/04

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

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By: Date: 2/26/04

STATE CONTROL NO. 0018-05-062

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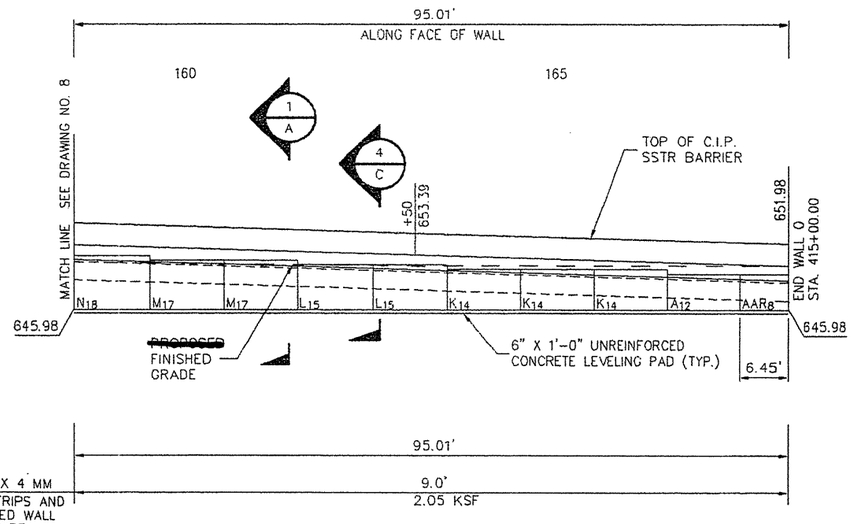
DESIGNED BY:	J.D.T.
PROJECT ENGR	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	

REV	DATE	DESCRIPTION

PROJECT NAME	I.H. 35	DATE	2/26/04
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	8
DRAWING COVERS	ELEVATION - WALL O	SCALE	AS SHOWN

P:\10718\MNO_C.DWG



ELEVATION – FRONT FACE WALL 0

SCALE : 1" = 20'

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By _____ Date: 3/12/04

CERTIFIED WITH RESPECT
TO INTERNAL STABILITY
OF REINFORCED EARTH
STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED
PROFESSIONAL ENGINEER
2/26/04

STATE CONTROL NO. 0018-05-062

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1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

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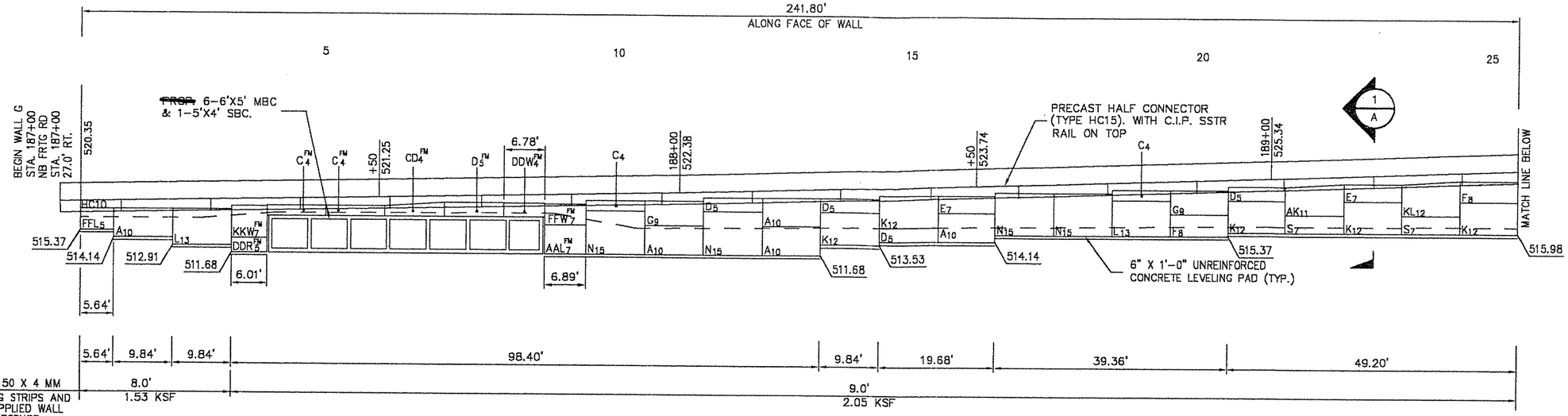
DESIGNED BY:	REV.	DATE	DESCRIPTION
J.D.T.			
PROJECT ENGR D.L.H.			
CHECKED BY: DLH			
ENG. MANAGER			

PROJECT NAME	I.H. 35	DATE	2/26/04
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	9
DRAWING COVERS	ELEVATION - WALL 0	SCALE	AS SHOWN

P:\10718\MNO_D.DWG



ELEVATION – FRONT FACE WALL G

SCALE : 1" = 20'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: _____ Date: 10/6/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
9/16/04

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

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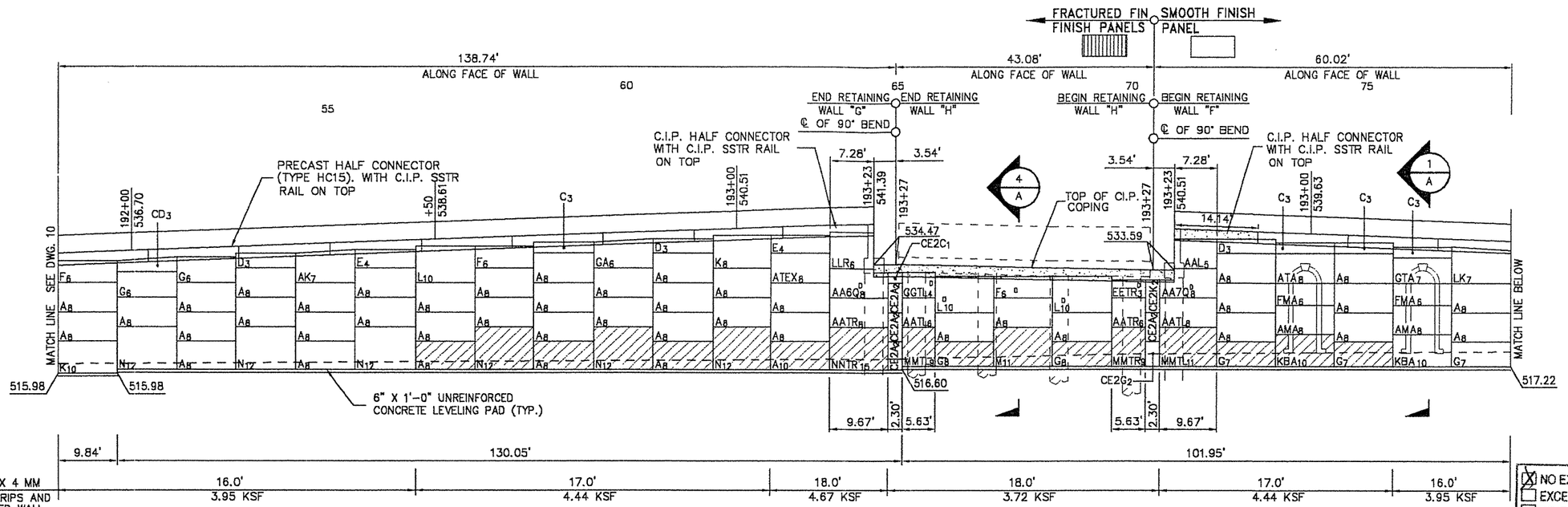
DESIGNED BY:	REV.	DATE	DESCRIPTION
A.R.O.			
PROJECT ENGR: D.L.H.			
CHECKED BY: DLH			
ENG. MANAGER			

PROJECT NAME	I.H. 35	DATE 09/16/04
LOCATION	WEBB COUNTY	CONTRACT NO. 10718
OWNER	TEXAS D.O.T.	DRAWING NO. 10
DRAWING COVERS	ELEVATION – WALL G	SCALE AS SHOWN

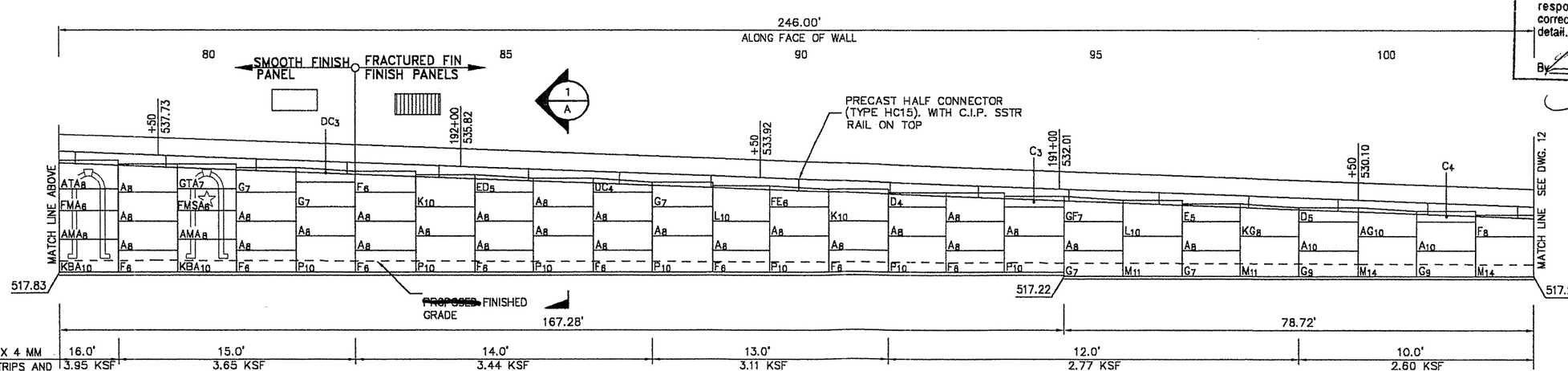
P:\10718\FDH & DWG

SHEET NO. 431J



ELEVATION – FRONT FACE WALLS G, H, & F

SCALE : 1" = 20'



ELEVATION – FRONT FACE WALL F

SCALE : 1" = 20'

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

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By: Date: 10/6/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
9/16/04

STATE CONTROL NO. 0018-05-062

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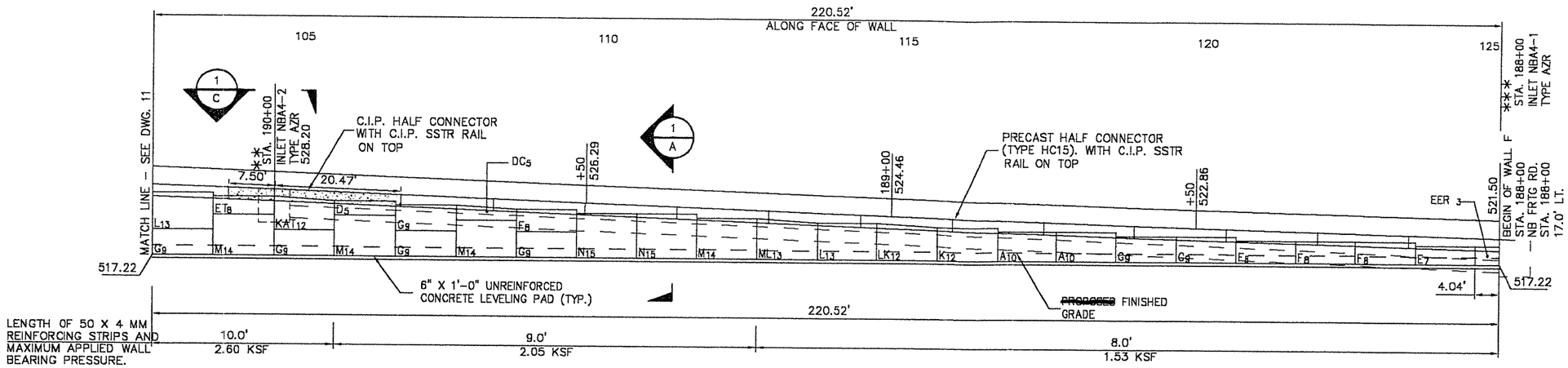
DESIGNED BY:	REV.	DATE	DESCRIPTION	PROJECT NAME		DATE
J.D.T.					I.H. 35	09/16/04
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO. 10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO. 11
ENG. MANAGER				DRAWING COVERS	ELEVATION – WALLS G, H, & F	SCALE AS SHOWN

SHEET NO. 431K

P:\10718\FSH_R.DWG



** — RELOCATE ℄ INLET TO ℄ PANEL JOINT.

*** — RELOCATE ℄ INLET OUTSIDE MSE WALL

ELEVATION — FRONT FACE WALL F

SCALE : 1" = 20'

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

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By _____ Date: 10/6/04

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STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER

9/16/04

STATE CONTROL NO. 0018-05-062

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DESIGNED BY:	A.R.O.
PROJECT ENGR:	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	

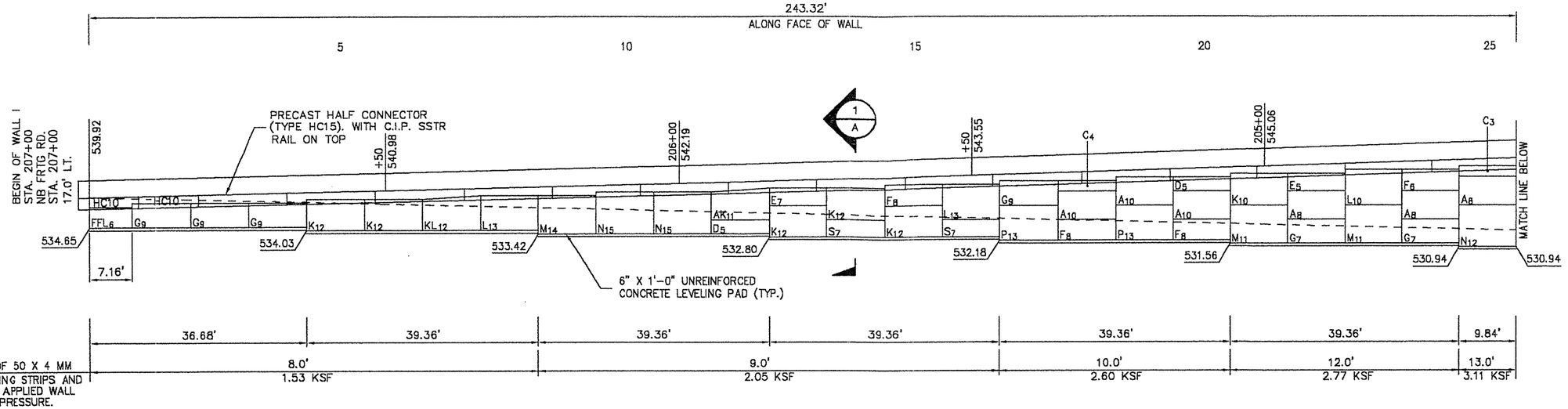
REV.	DATE	DESCRIPTION

PROJECT NAME	I.H. 35
LOCATION	WEBB COUNTY
OWNER	TEXAS D.O.T.
DRAWING COVERS	ELEVATION — WALL F

DATE	09/16/04
CONTRACT NO.	1071B
DRAWING NO.	12
SCALE	AS SHOWN

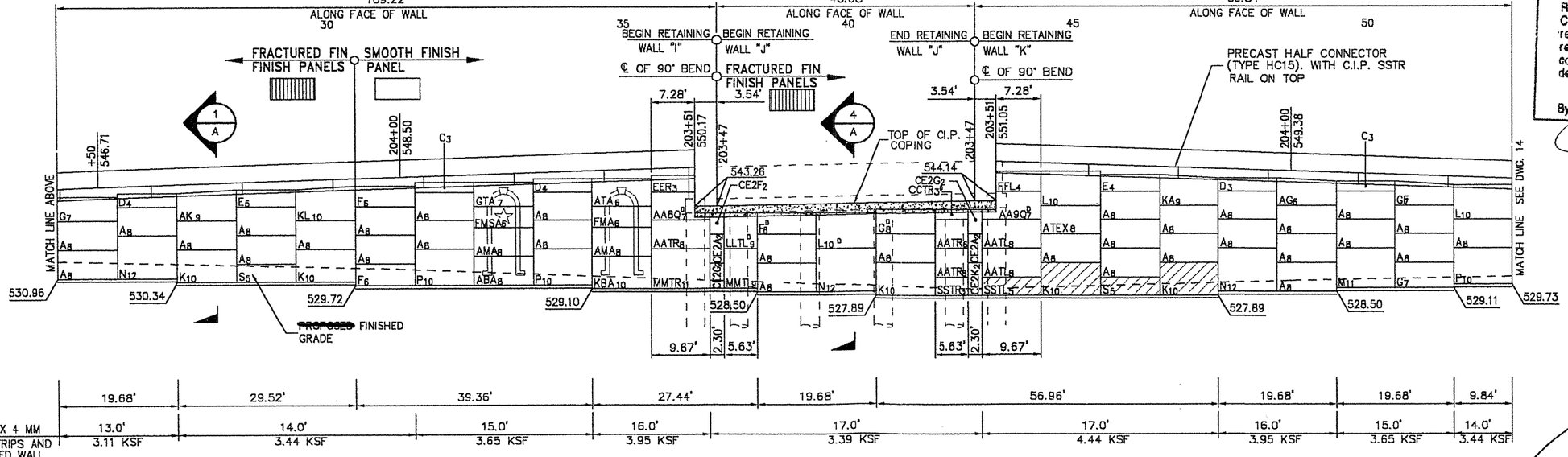
P:\1071B\FDH_F.DWG

SHEET NO. 431 L



ELEVATION – FRONT FACE WALL I

SCALE : 1" = 20'



ELEVATION – FRONT FACE WALLS I, J, & K

SCALE : 1" = 20'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

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By _____ Date: 10/6/04

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STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
9/16/04

STATE CONTROL NO. 0018-05-062 HC10

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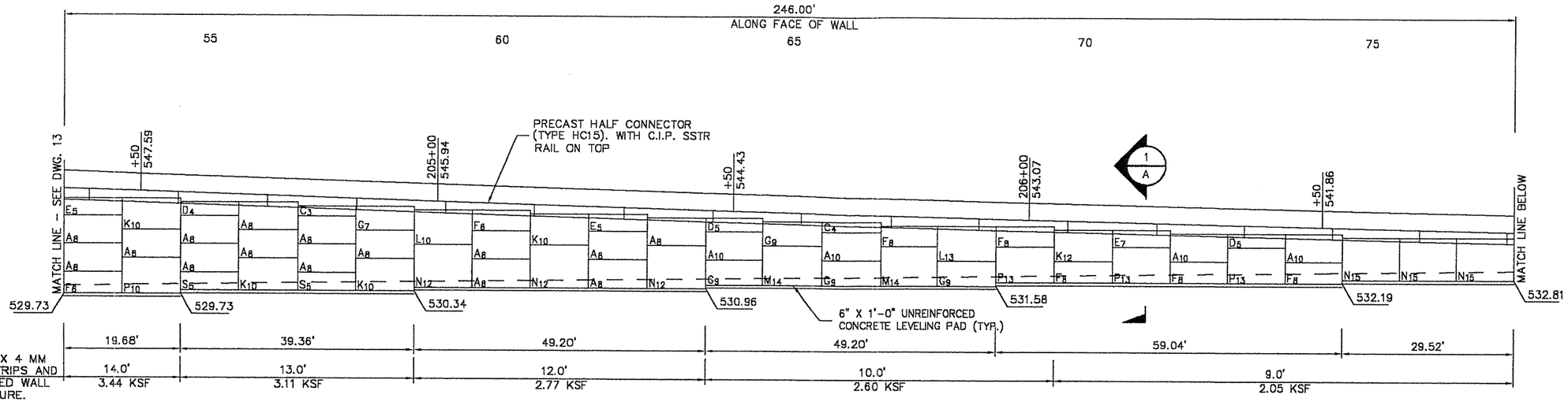
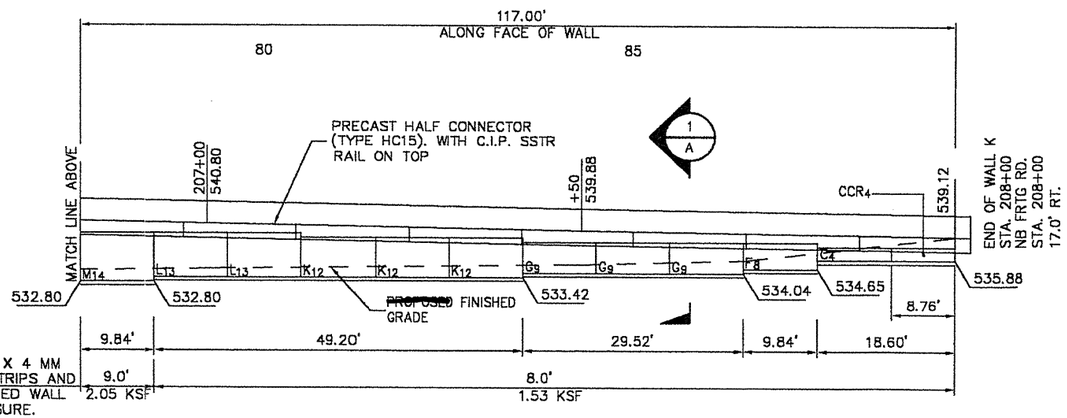
DESIGNED BY:	REV.	DATE	DESCRIPTION	PROJECT NAME	I.H. 35	DATE
A.R.O.						09/16/04
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO. 10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO. 13
ENG. MANAGER				DRAWING COVERS	ELEVATION – WALLS I, J, & K	SCALE AS SHOWN

SHEET NO. 431M

P:\10718\LIK A.DWG





ELEVATION – FRONT FACE WALL K

SCALE : 1" = 20'

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

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By: _____ Date: 10/6/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
9/16/04

STATE CONTROL NO. 0018-05-062

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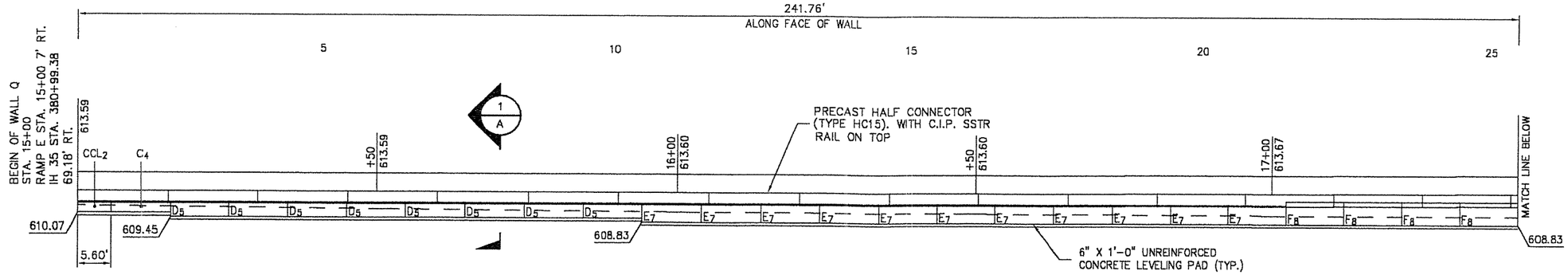
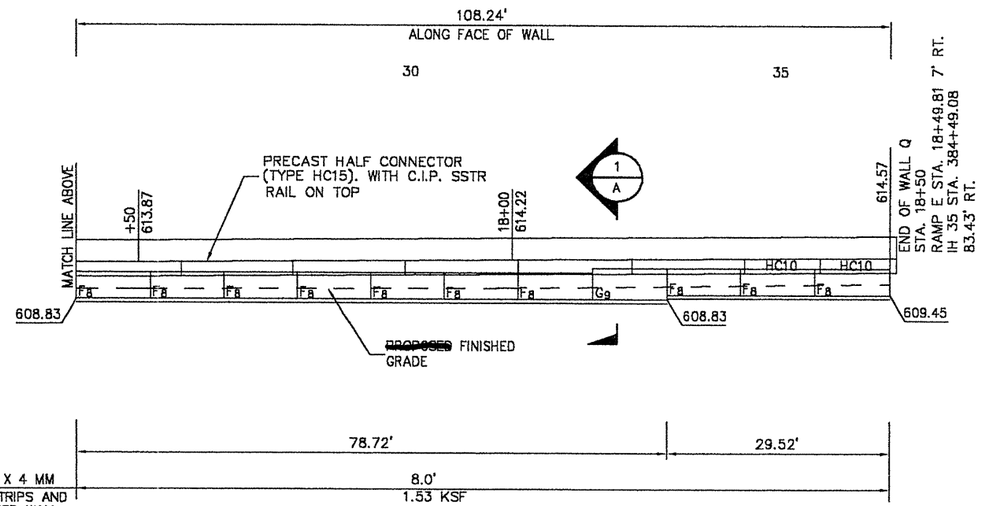
DESIGNED BY: A.R.O.				PROJECT NAME	I.H. 35	DATE 09/16/04
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO. 10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO. 14
ENG. MANAGER	REV.	DATE	DESCRIPTION	DRAWING COVERS	ELEVATION – WALL K	SCALE AS SHOWN

SHEET NO. 431N

P:\10718\LIK R.DWG





ELEVATION – FRONT FACE WALL Q

SCALE : 1" = 20'

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

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By _____ Date: 9/16/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED
PROFESSIONAL ENGINEER
9/16/04

STATE CONTROL NO. 0018-05-062 HC10

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

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DESIGNED BY:	A.R.O.
PROJECT ENGR:	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	

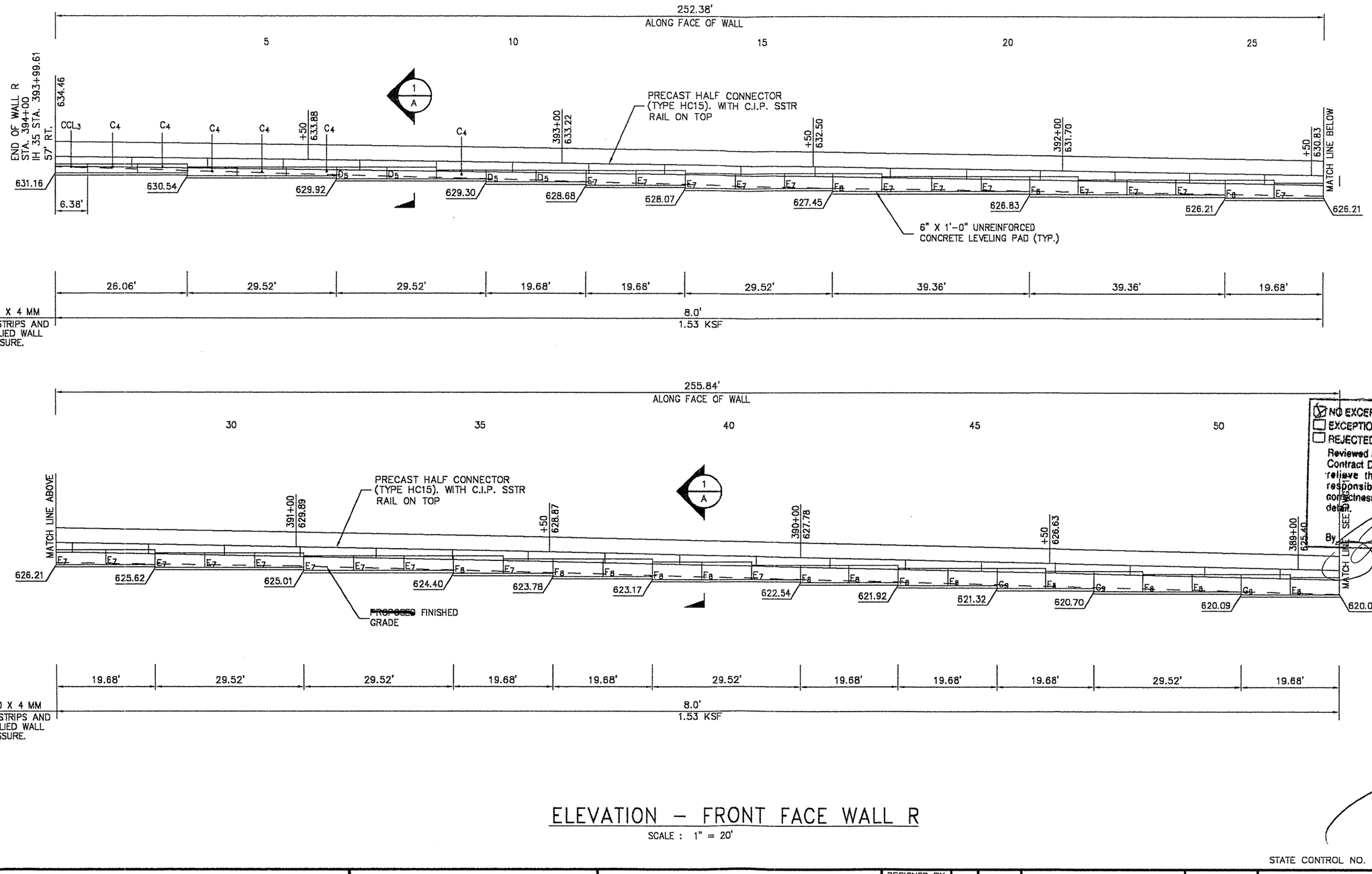
REV.	DATE	DESCRIPTION

PROJECT NAME	I.H. 35
LOCATION	WEBB COUNTY
OWNER	TEXAS D.O.T.
DRAWING COVERS	ELEVATION – WALL Q

DATE	09/16/04
CONTRACT NO.	10718
DRAWING NO.	15
SCALE	AS SHOWN

P:\10718\WALL Q.DWG

SHEET NO. 4310



NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

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By: Date: 10/6/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED
PROFESSIONAL ENGINEER
9/16/04

ELEVATION – FRONT FACE WALL R

SCALE : 1" = 20'

STATE CONTROL NO. 0018-05-062

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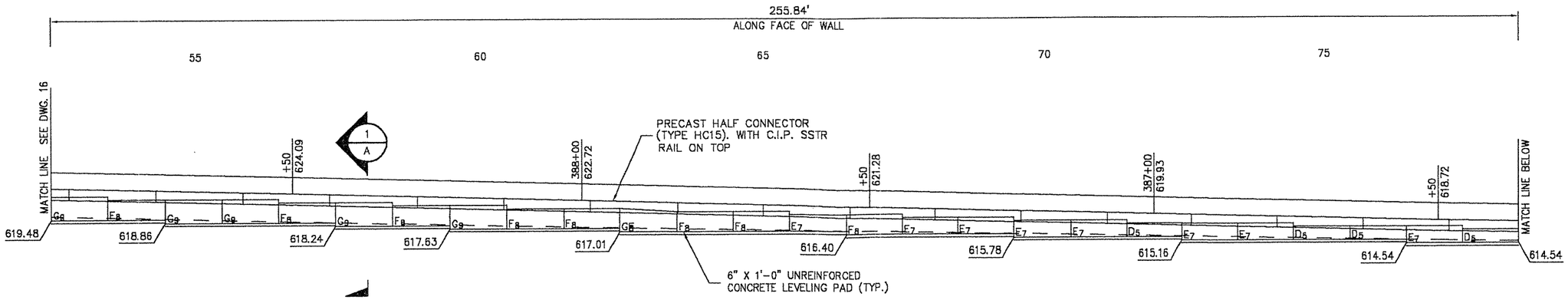
The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

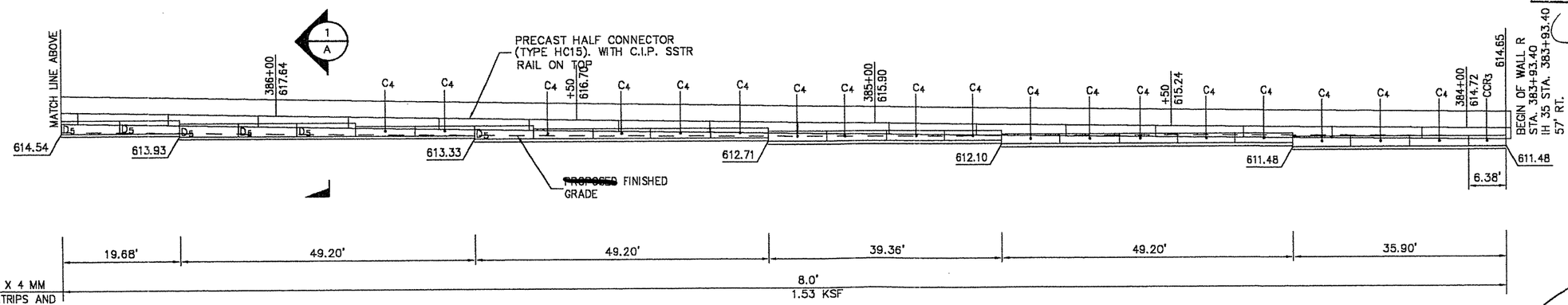
"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

DESIGNED BY: J.D.T.				PROJECT NAME	I.H. 35	DATE	09/16/04
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO.	10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO.	16
ENG. MANAGER	REV.	DATE	DESCRIPTION	DRAWING COVERS	ELEVATION – WALL R	SCALE	AS SHOWN

P:\10718\WALL R A.DWG

SHEET NO. 431P





ELEVATION – FRONT FACE WALL R

SCALE : 1" = 20'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By _____ Date: 06/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
9/16/04

STATE CONTROL NO. 0018-05-062

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1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

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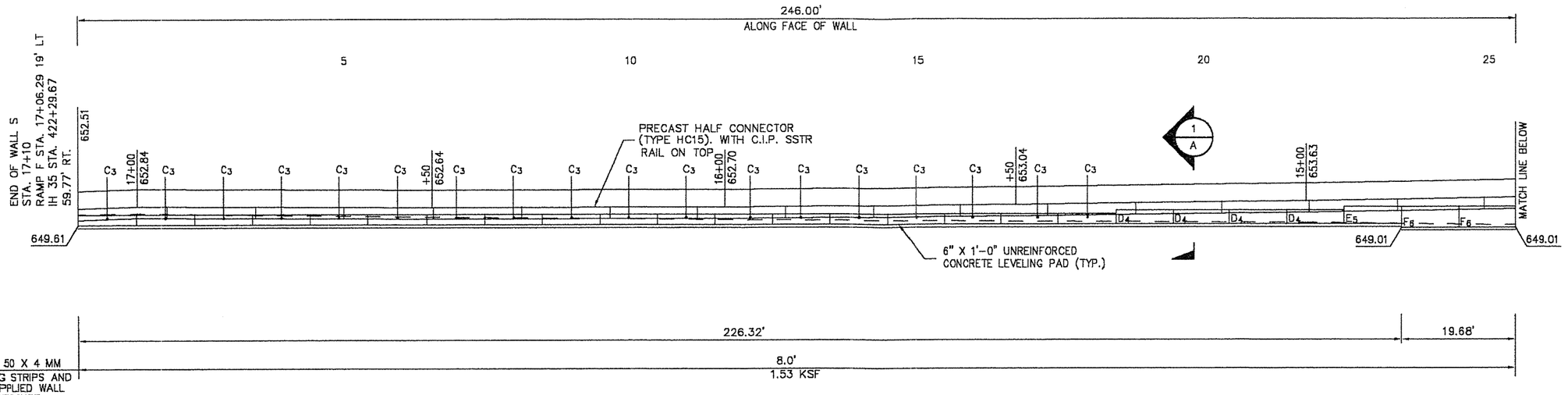
DESIGNED BY: J.D.T.				PROJECT NAME	I.H. 35	DATE	09/16/04
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO.	10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO.	17
ENG. MANAGER	REV.	DATE	DESCRIPTION	DRAWING COVERS	ELEVATION – WALL R	SCALE	AS SHOWN

P:\10718\WALL R.DWG

SHEET NO. 431 Q



ELEVATION – FRONT FACE WALL S

SCALE : 1" = 20'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By _____ Date: 01/04

SEE DWG. 19

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED
PROFESSIONAL ENGINEER
9/16/04

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

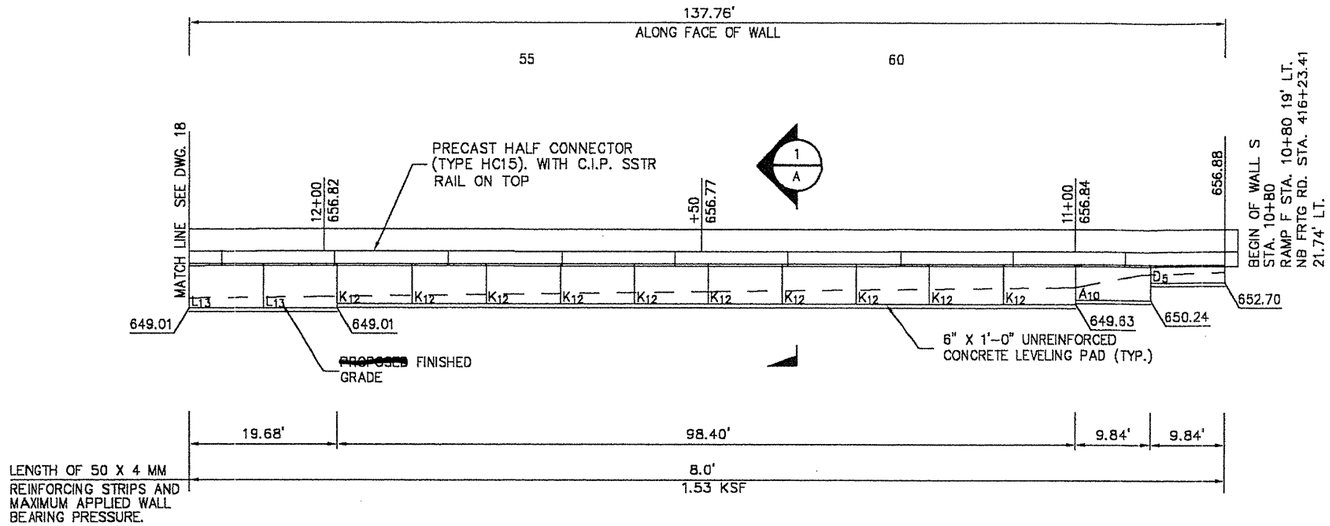
DESIGNED BY:	A.R.O.	PROJECT NAME	I.H. 35
PROJECT ENGR:	D.L.H.	LOCATION	WEBB COUNTY
CHECKED BY:	DLH	OWNER	TEXAS D.O.T.
ENG. MANAGER		DRAWING COVERS	ELEVATION – WALL S

REV.	DATE	DESCRIPTION

DATE	09/16/04
CONTRACT NO.	10718
DRAWING NO.	18
SCALE	AS SHOWN

P:\10718\WALL S A.DWG

SHEET NO. 431R



ELEVATION – FRONT FACE WALL S

SCALE : 1" = 20'

☑ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: _____ Date: 10/6/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
9/16/04

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

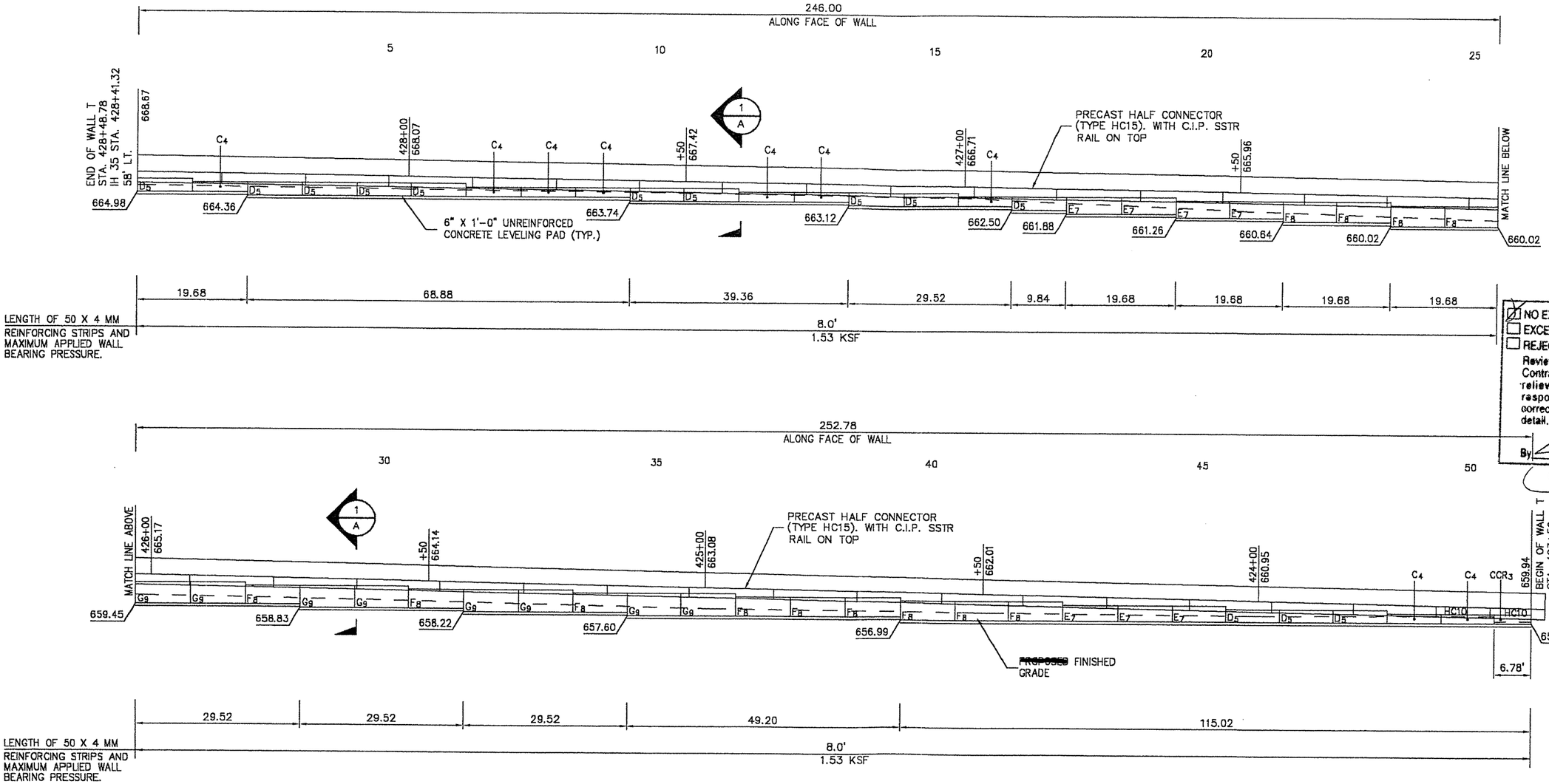
"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

DESIGNED BY: A.R.O.				PROJECT NAME	I.H. 35
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY
CHECKED BY: DLH				OWNER	TEXAS D.O.T.
ENG. MANAGER	REV.	DATE	DESCRIPTION	DRAWING COVERS	ELEVATION – WALL S

DATE 09/16/04
CONTRACT NO. 10718
DRAWING NO. 19
SCALE AS SHOWN

P:\10718\WALL S.DWG

SHEET NO. 431 S



ELEVATION – FRONT FACE WALL T

SCALE : 1" = 20'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: _____ Date: 10/6/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED
PROFESSIONAL ENGINEER
9/16/04

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

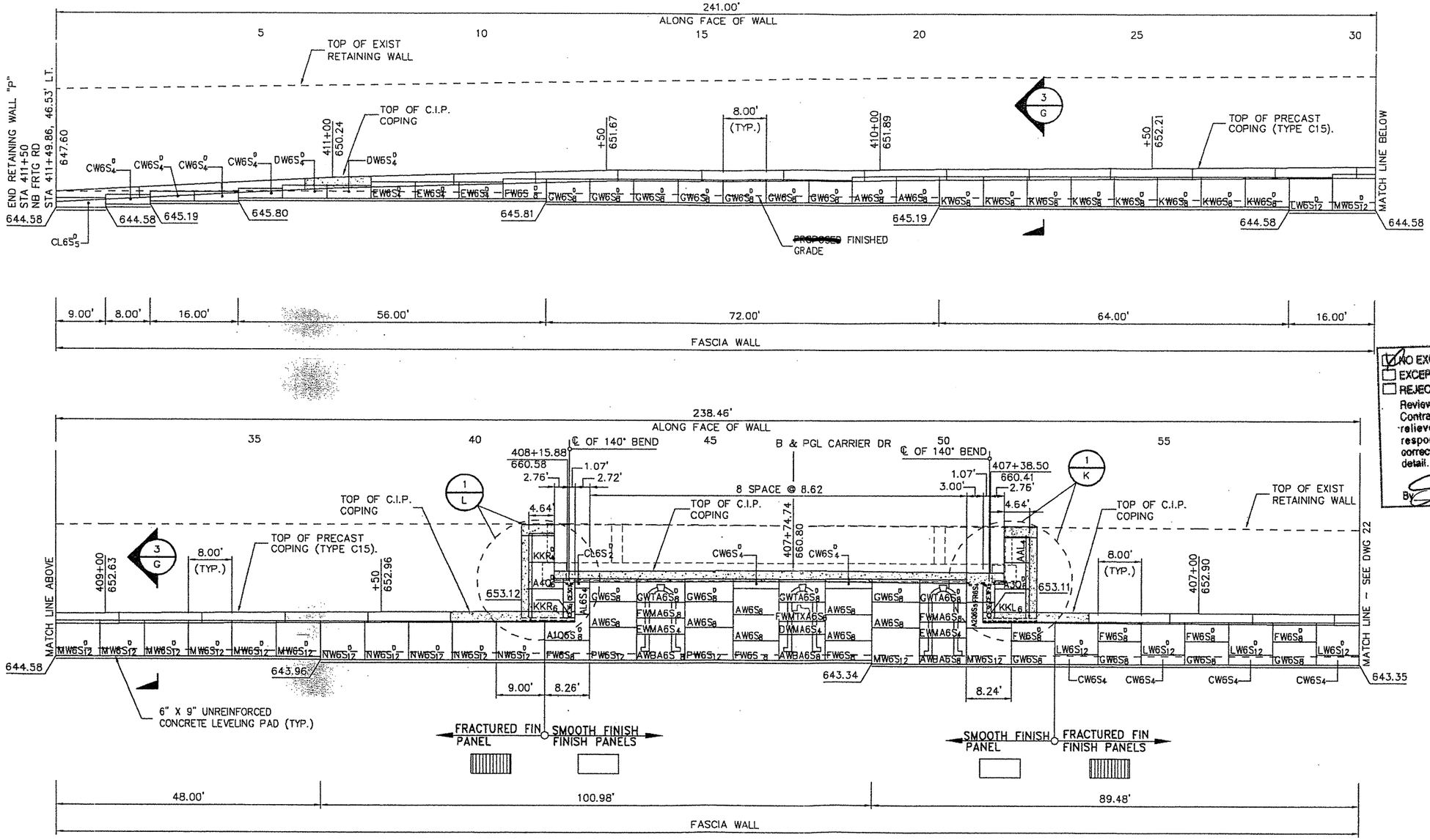
DESIGNED BY:	A.R.O.
PROJECT ENGR:	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	

REV.	DATE	DESCRIPTION

PROJECT NAME	I.H. 35	DATE 09/16/04
LOCATION	WEBB COUNTY	CONTRACT NO. 10718
OWNER	TEXAS D.O.T.	DRAWING NO. 20
DRAWING COVERS	ELEVATION – WALL T	SCALE AS SHOWN

P:\10718\WALL T.DWG

SHEET NO. 431 T



ELEVATION – FRONT FACE WALL P

SCALE : 1" = 20'

☑ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By S. Trevino Date: 6/20/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
4/25/05

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

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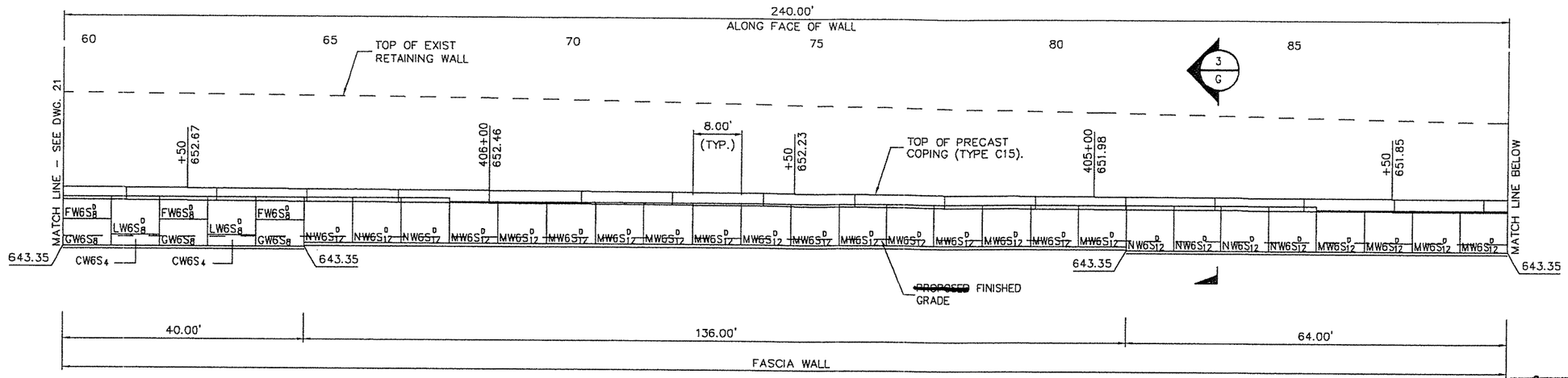
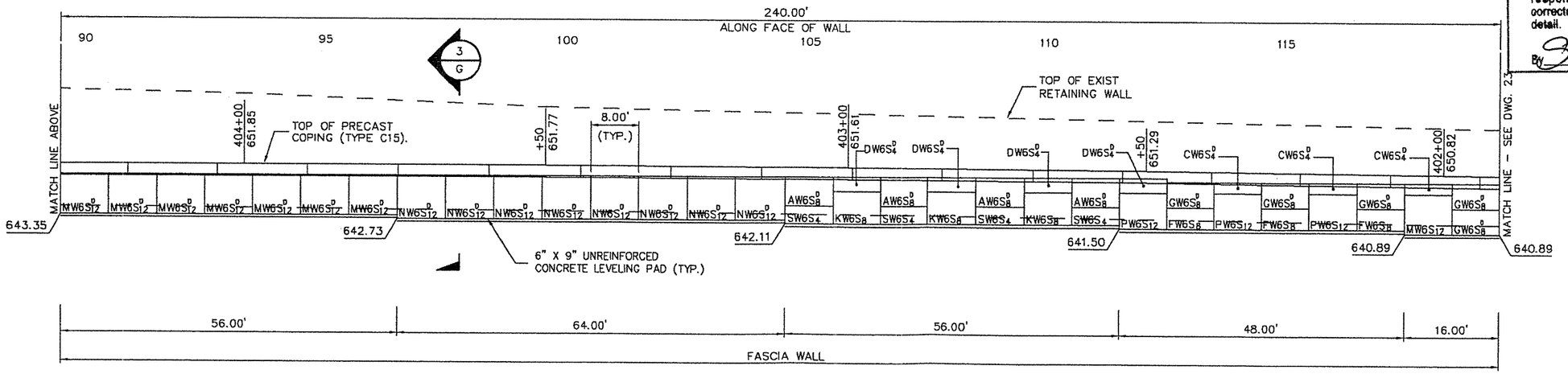
DESIGNED BY: A.R.O.				PROJECT NAME	I.H. 35
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY
CHECKED BY: DLH	4	04/25/2005	ADDED DRAWING	OWNER	TEXAS D.O.T.
ENG. MANAGER	REV.	DATE	DESCRIPTION	DRAWING COVERS	ELEVATION – WALL P

DATE 09/10/04 | CONTRACT NO. 10718 | DRAWING NO. 21 | SCALE AS SHOWN

P:\10718\WALL P.DWG

SHEET NO. 431 U





ELEVATION – FRONT FACE WALL P

SCALE : 1" = 20'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By B. Trew Date 4/25/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
4/25/05

STATE CONTROL NO. 0918-05-062

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DESIGNED BY:	A.R.O.
PROJECT ENGR.	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	

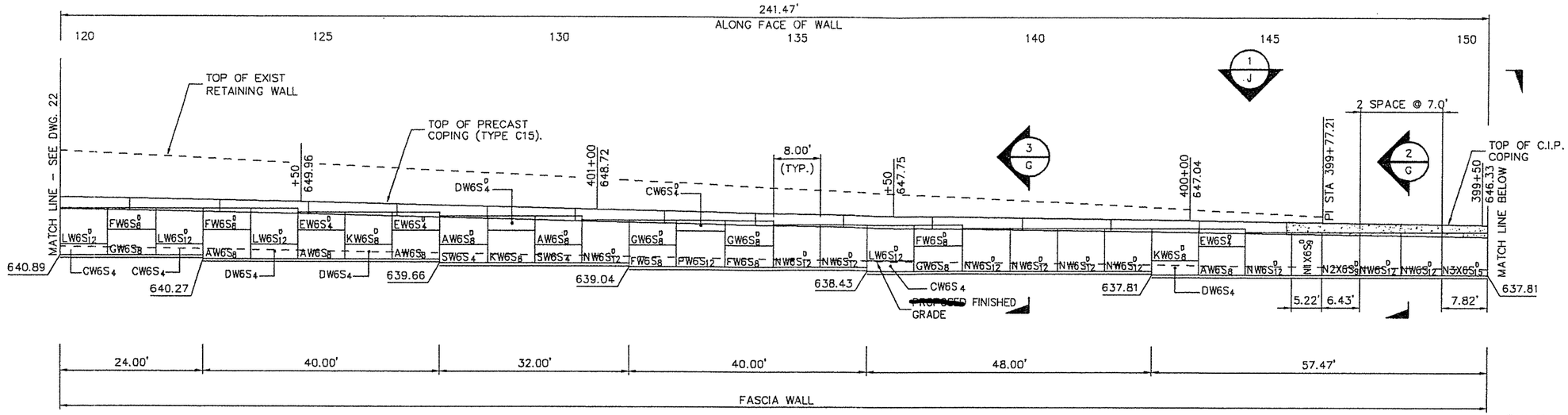
REV.	DATE	DESCRIPTION
4	04/25/2005	ADDED DRAWING

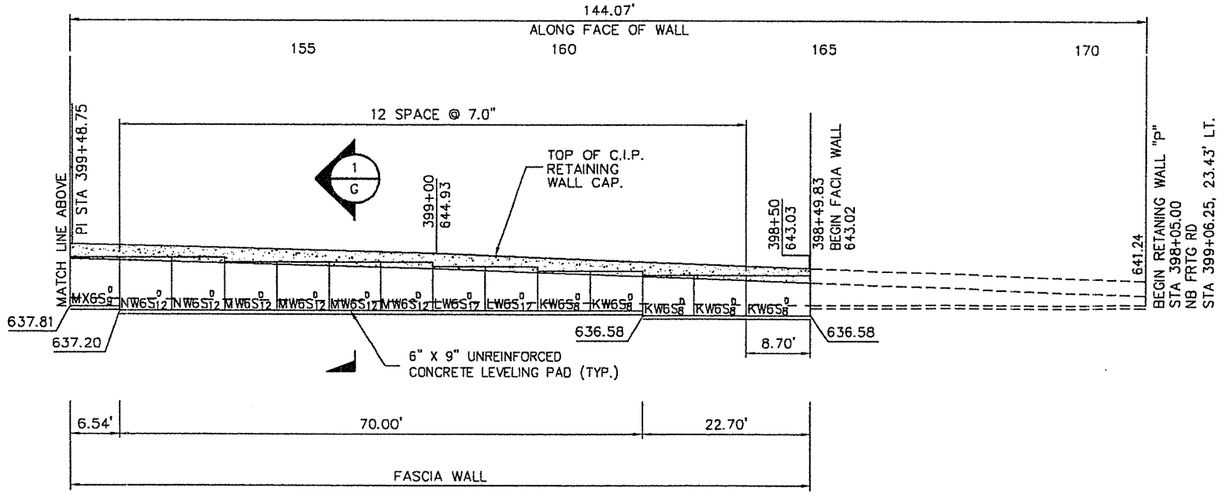
PROJECT NAME	I.H. 35
LOCATION	WEBB COUNTY
OWNER	TEXAS D.O.T.
DRAWING COVERS	ELEVATION – WALL P

DATE	09/10/04
CONTRACT NO.	10718
DRAWING NO.	22
SCALE	AS SHOWN

P:\10718\Wall P.DWG

SHEET NO. 431 V





ELEVATION – FRONT FACE WALL P

SCALE : 1" = 20'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By [signature] Date 4/22/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
4/25/05

STATE CONTROL NO. 0018-05-062

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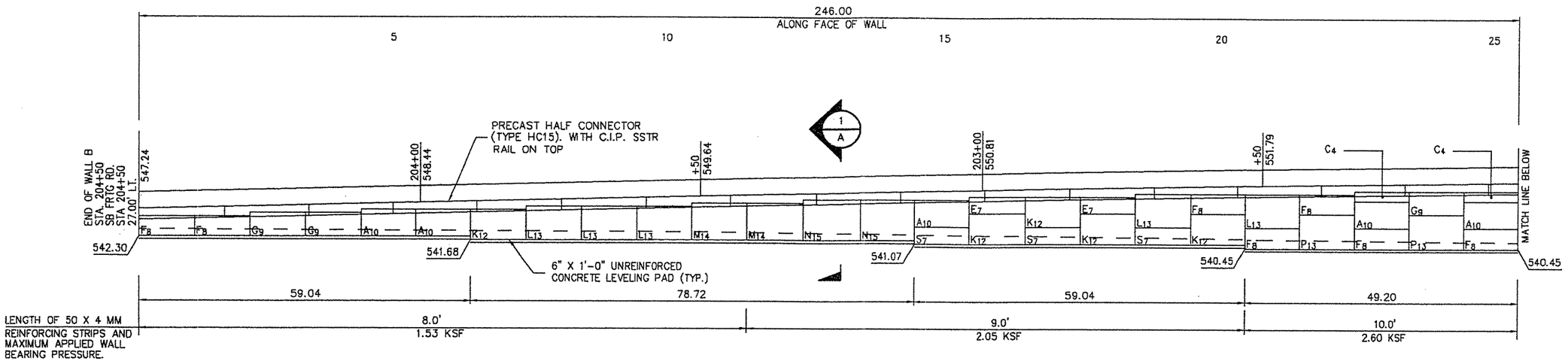
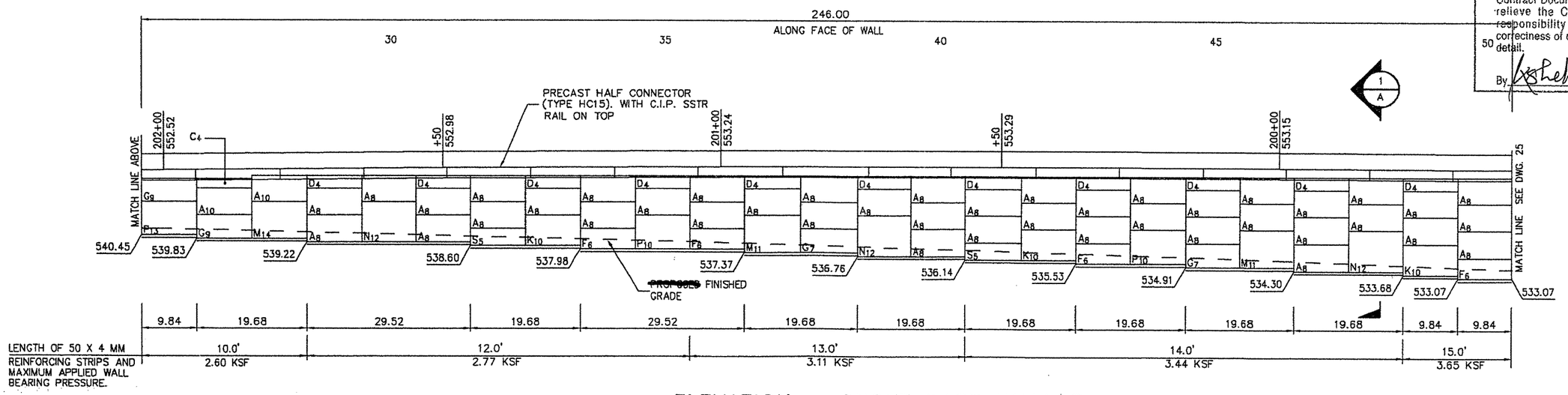
DESIGNED BY: A.R.O.				PROJECT NAME	I.H. 35	DATE 04/20/05
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO. 10718
CHECKED BY: DLH	4	04/25/2005	ADDED DRAWING	OWNER	TEXAS D.O.T.	DRAWING NO. 23
ENG. MANAGER	REV.	DATE	DESCRIPTION	DRAWING COVERS	ELEVATION – WALL P	SCALE AS SHOWN

D:\10718\WALL P.DWG

SHEET NO. 431 W





ELEVATION – FRONT FACE WALL B

SCALE : 1" = 20'

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: KSheb sapal Date: 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
8/10/05

STATE CONTROL NO. 0018-05-062

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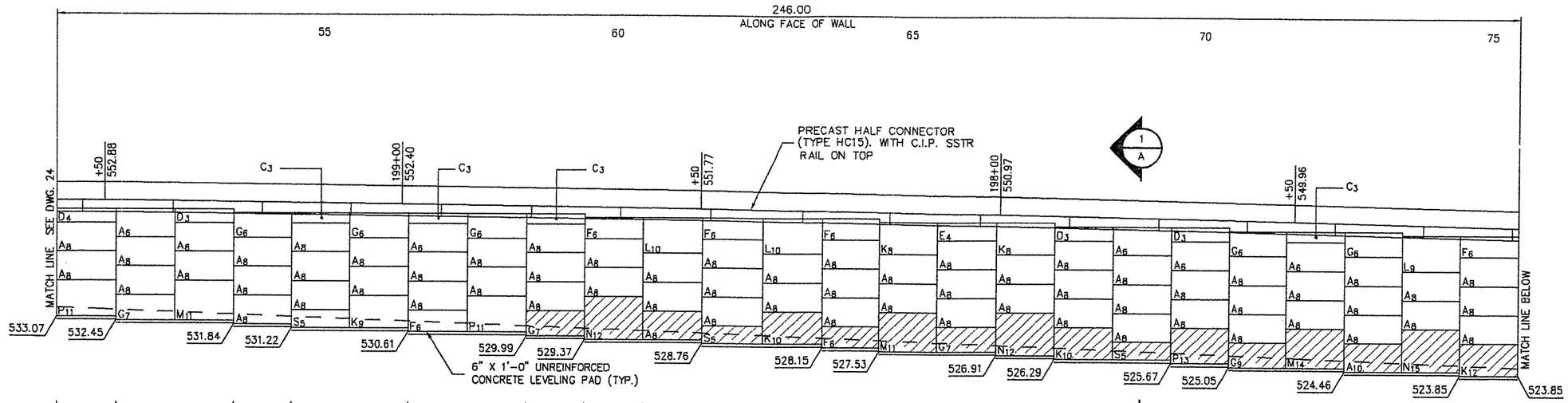
DESIGNED BY: A.R.O.				PROJECT NAME	I.H. 35	DATE 08/10/05
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO. 10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO. 24
ENG. MANAGER DLH	5	08/10/05	ADDED DRAWING	DRAWING COVERS	ELEVATION – WALL B	SCALE AS SHOWN
	REV.	DATE	DESCRIPTION			

SHEET NO. 431 ×

D:\10718\WALL B A.DWG



ELEVATION – FRONT FACE WALL B

SCALE : 1" = 10'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

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By _____ 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
8/10/05

STATE CONTROL NO. 0018-05-062

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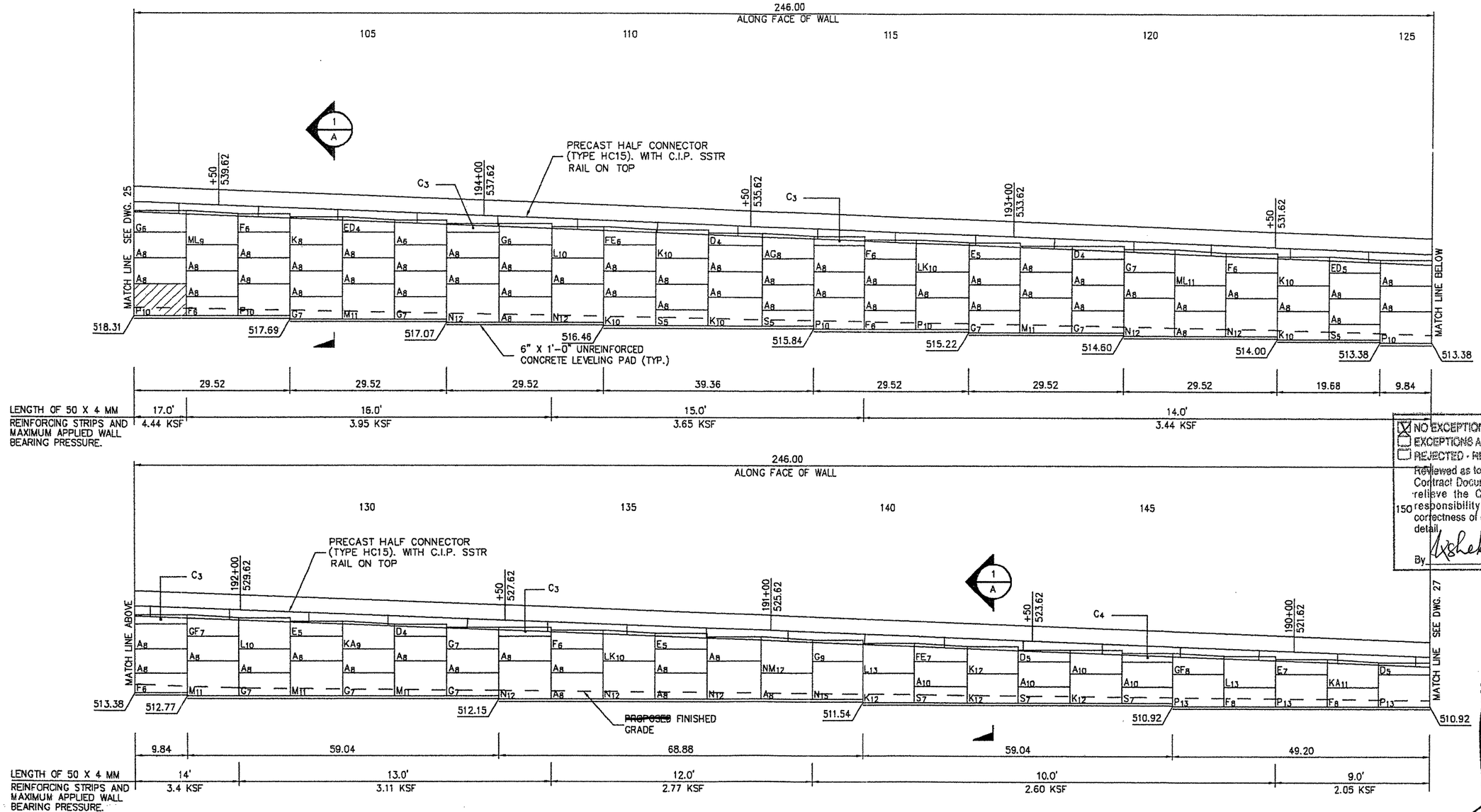
DESIGNED BY: A.R.O.				PROJECT NAME	I.H. 35	DATE 08/10/05
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO. 10718
CHECKED BY: DLH	5	08/10/05	ADDED DRAWING	OWNER	TEXAS D.O.T.	DRAWING NO. 25
ENG. MANAGER DLH	REV.	DATE	DESCRIPTION	DRAWING COVERS	ELEVATION – WALL B	SCALE AS SHOWN

SHEET NO. 431 Y

D:\10718\WALL B.DWG



ELEVATION – FRONT FACE WALL B

SCALE : 1" = 20'

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: [signature] Date: 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
8/19/05

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

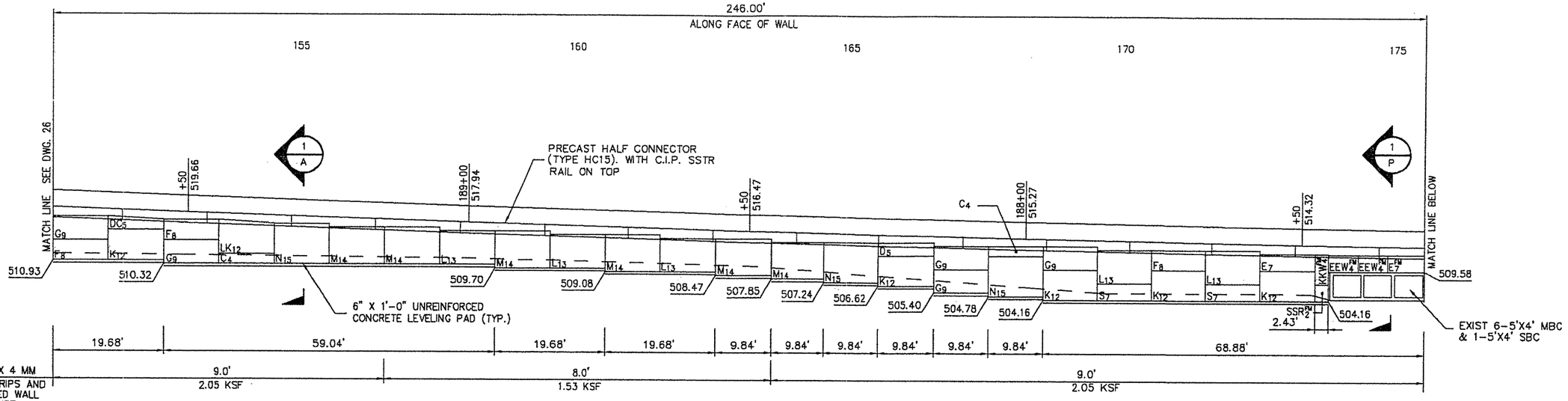
DESIGNED BY:	A.R.O.
PROJECT ENGR:	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	DLH

REV.	DATE	DESCRIPTION
5	08/10/05	ADDED DRAWING

PROJECT NAME	I.H. 35	DATE	08/10/05
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	26
DRAWING COVERS	ELEVATION – WALL B	SCALE	AS SHOWN

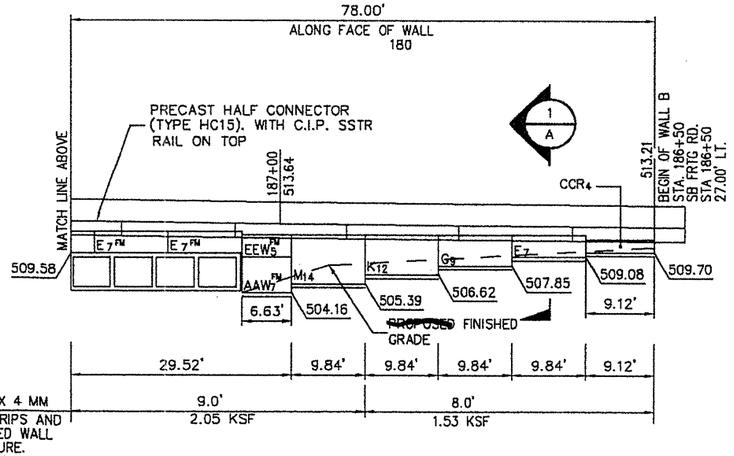
SHEET NO. 431 2

D:\10718\WALL B.DWG



ELEVATION – FRONT FACE WALL B

SCALE : 1" = 20'



The location of MBC & SBC does not agree with construction documents. Has the location as shown on this sheet been field checked?

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT
KBR
Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.
By _____ Date: 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
8/10/05

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

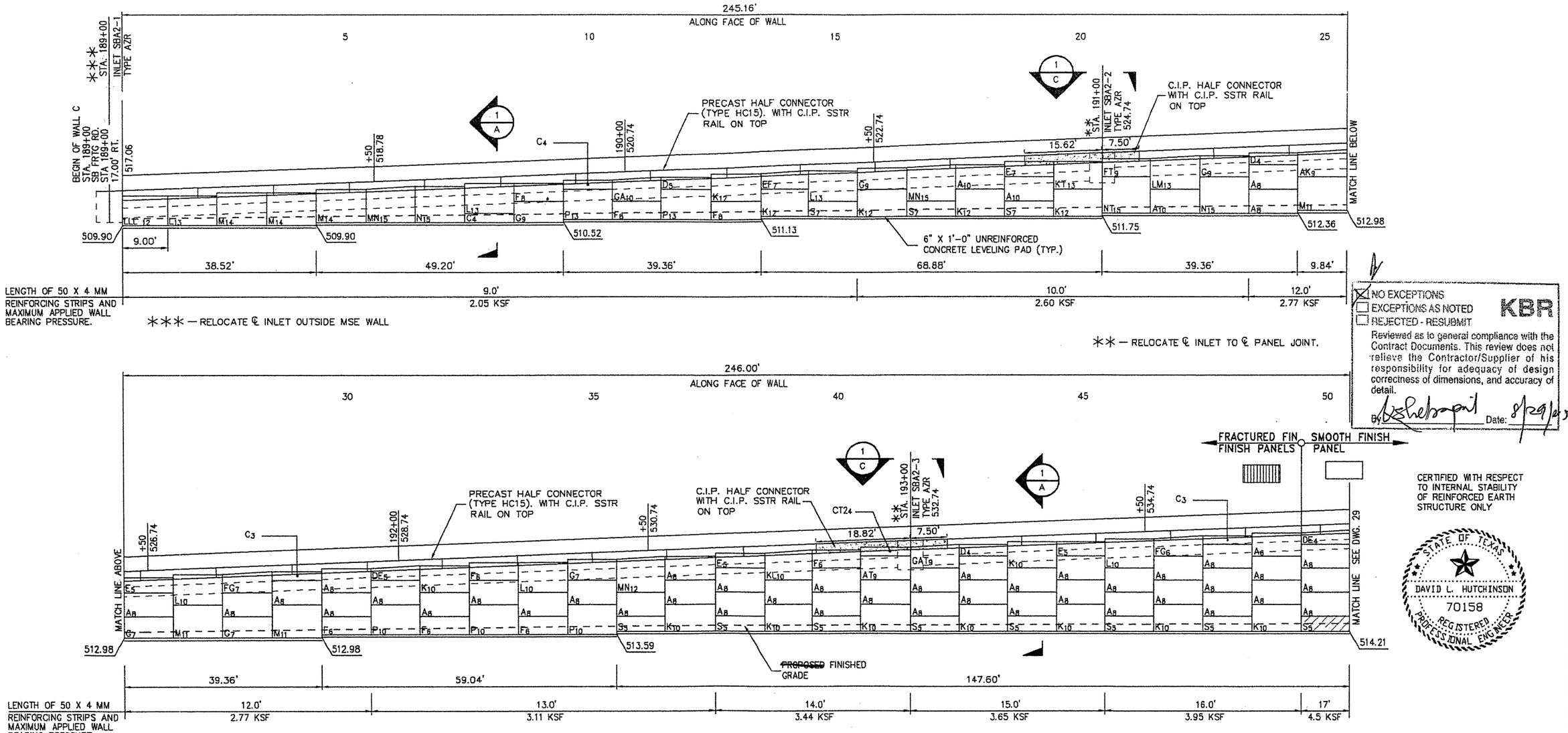
"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

DESIGNED BY:	REV.	DATE	DESCRIPTION
A.R.O.			
PROJECT ENGR: D.L.H.			
CHECKED BY: DLH	5	08/10/05	ADDED DRAWING
ENG. MANAGER DLH			

PROJECT NAME	I.H. 35	DATE	08/10/05
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	27
DRAWING COVERS	ELEVATION – WALL B	SCALE	AS SHOWN

D:\10718\WALL B.DWG

SHEET NO. 431AA



NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: _____ Date: 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER

ELEVATION – FRONT FACE WALL C

SCALE : 1" = 20'

STATE CONTROL NO. 0018-05-062

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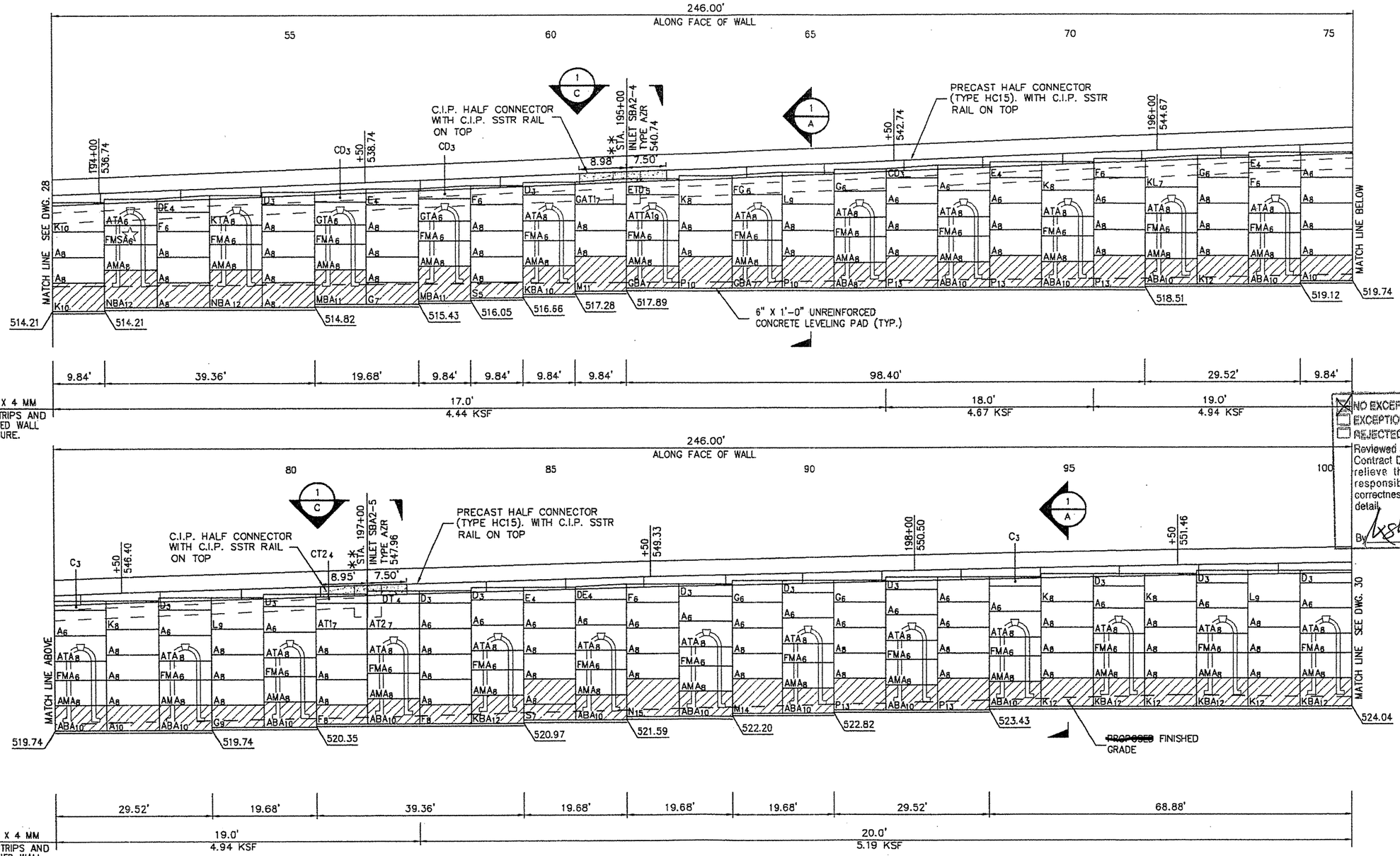
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

DESIGNED BY: J.D.T.				PROJECT NAME: I.H. 35 — DATE: 08/10/05
PROJECT ENGR: D.L.H.				LOCATION: WEBB COUNTY — CONTRACT NO.: 10718
CHECKED BY:				OWNER: TEXAS D.O.T. — DRAWING NO.: 28
ENG. MANAGER	5	08/10/05	ADDED DRAWING	DRAWING COVERS: ELEVATION – WALL C — SCALE: AS SHOWN
	REV.	DATE	DESCRIPTION	

SHEET NO. 431 BB

D:\10718\DWG\28.dwg



** — RELOCATE ℄ INLET TO ℄ PANEL JOINT.

ELEVATION — FRONT FACE WALL C

SCALE : 1" = 20'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: [illegible] Date: 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
8/10/05

STATE CONTROL NO. 0018-05-062

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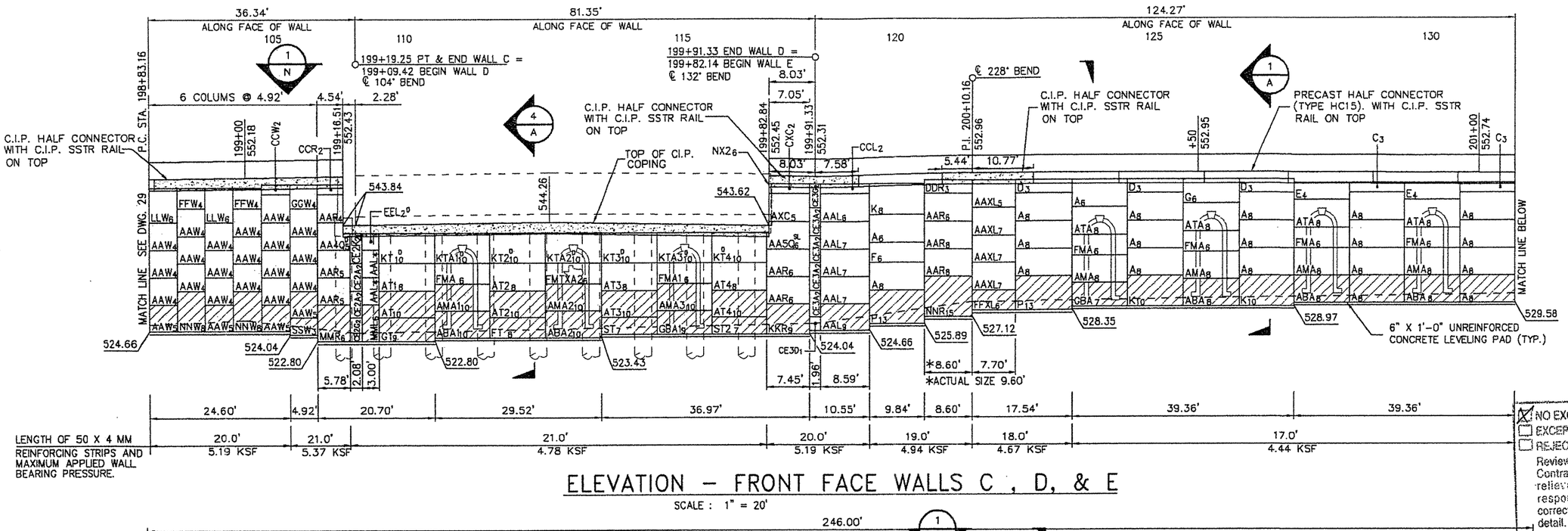
DESIGNED BY: J.D.T.			
PROJECT ENGR: D.L.H.			
CHECKED BY:			
ENG. MANAGER	5	08/10/05	ADDED DRAWING
	REV.	DATE	DESCRIPTION

PROJECT NAME	I.H. 35	DATE	08/10/05
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	29
DRAWING COVERS	ELEVATION — WALL C	SCALE	AS SHOWN

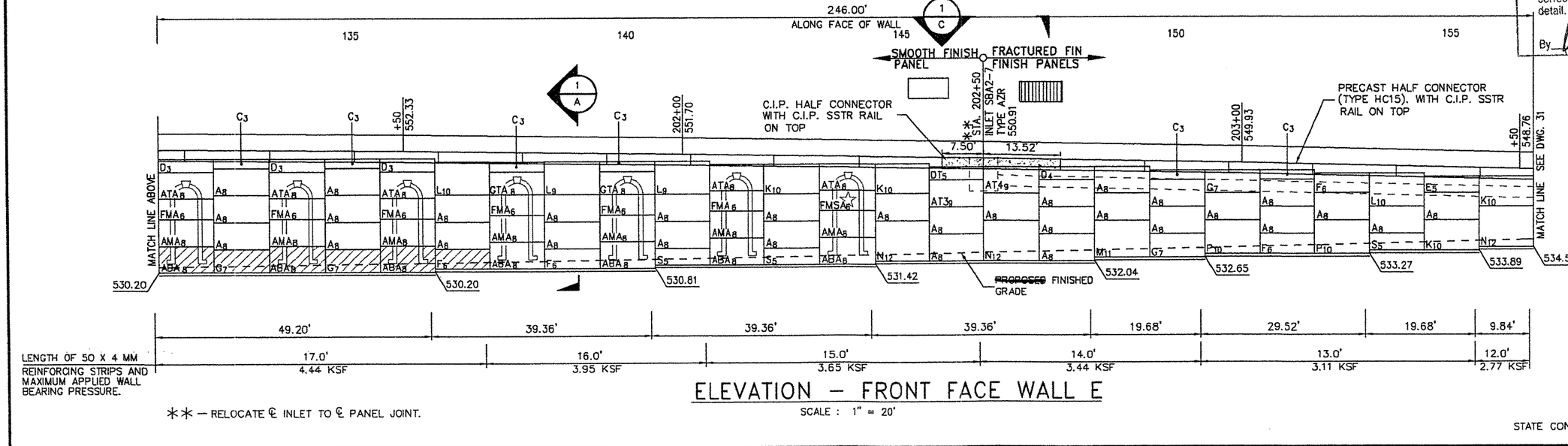
SHEET NO. 431CC

D:\10718\DWG\29.DWG



ELEVATION – FRONT FACE WALLS C , D, & E

SCALE : 1" = 20'



** – RELOCATE ℄ INLET TO ℄ PANEL JOINT.

ELEVATION – FRONT FACE WALL E

SCALE : 1" = 20'

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: KSHebbron Date: 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
8/12/05

STATE CONTROL NO. 0018-05-062

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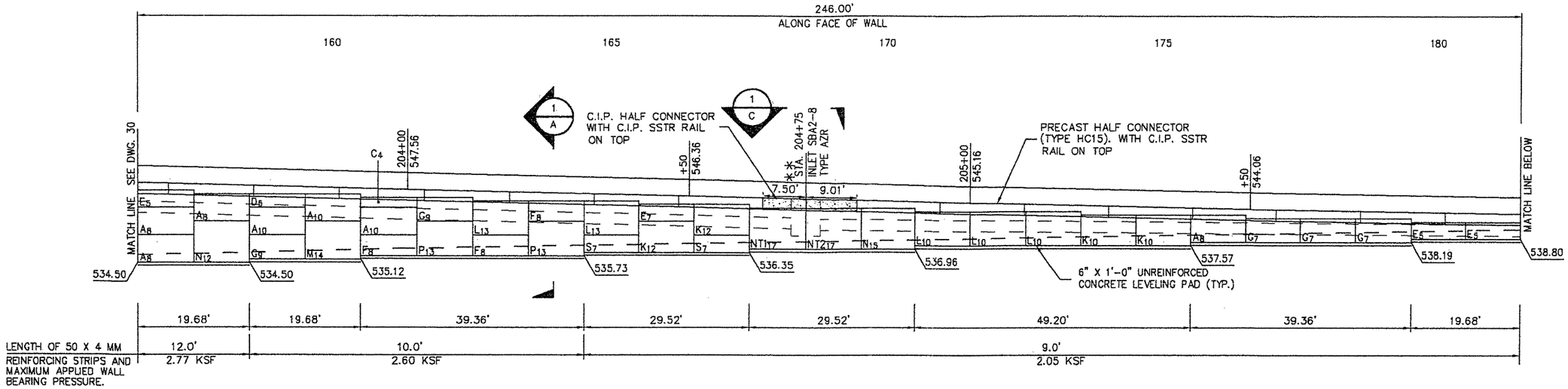
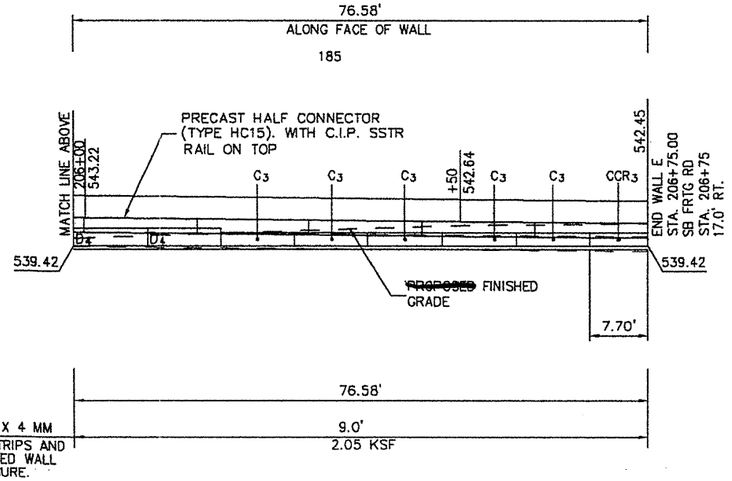
DESIGNED BY: A.R.O.				PROJECT NAME	I.H. 35	DATE	08/10/05
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO.	10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO.	30
ENG. MANAGER: DLH	5	08/10/05	ADDED DRAWING	DRAWING COVERS	ELEVATION – WALLS C, D, & E	SCALE	AS SHOWN
	REV.	DATE	DESCRIPTION				

SHEET NO. 431 DD



** — RELOCATE ℄ INLET TO ℄ PANEL JOINT.



ELEVATION – FRONT FACE WALL E

SCALE : 1" = 20'

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: _____ Date: 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER

STATE CONTROL NO. 0018-05-062

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1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

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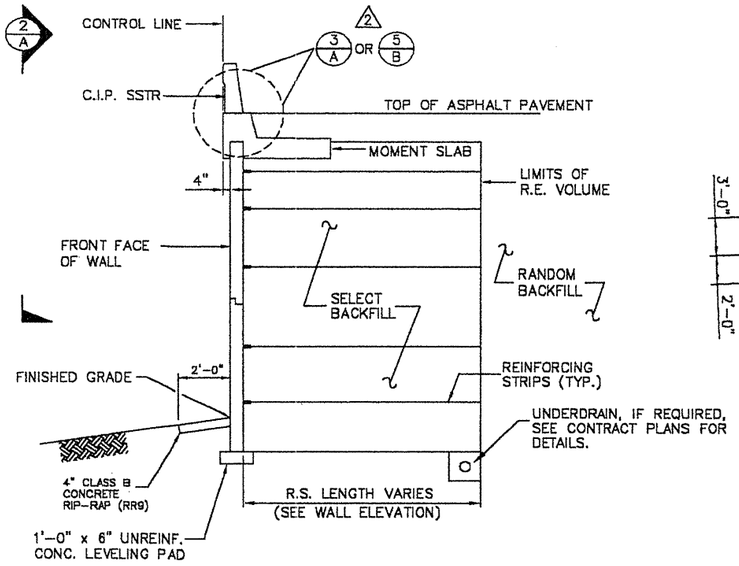
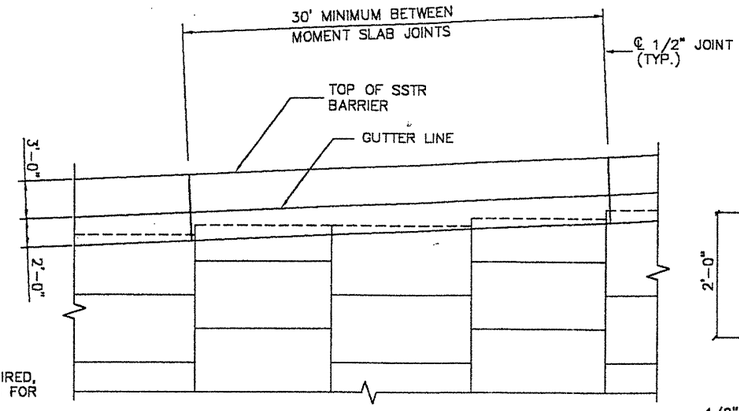
DESIGNED BY: A.R.O.				PROJECT NAME: I.H. 35 — DATE: 08/10/05
PROJECT ENGR: D.L.H.				LOCATION: WEBB COUNTY — CONTRACT NO.: 10718
CHECKED BY:				OWNER: TEXAS D.O.T. — DRAWING NO.: 31
ENG. MANAGER	5	08/10/05	ADDED DRAWING	DRAWING COVERS: ELEVATION – WALL E — SCALE: AS SHOWN
	REV.	DATE	DESCRIPTION	

SHEET NO. 431 EE



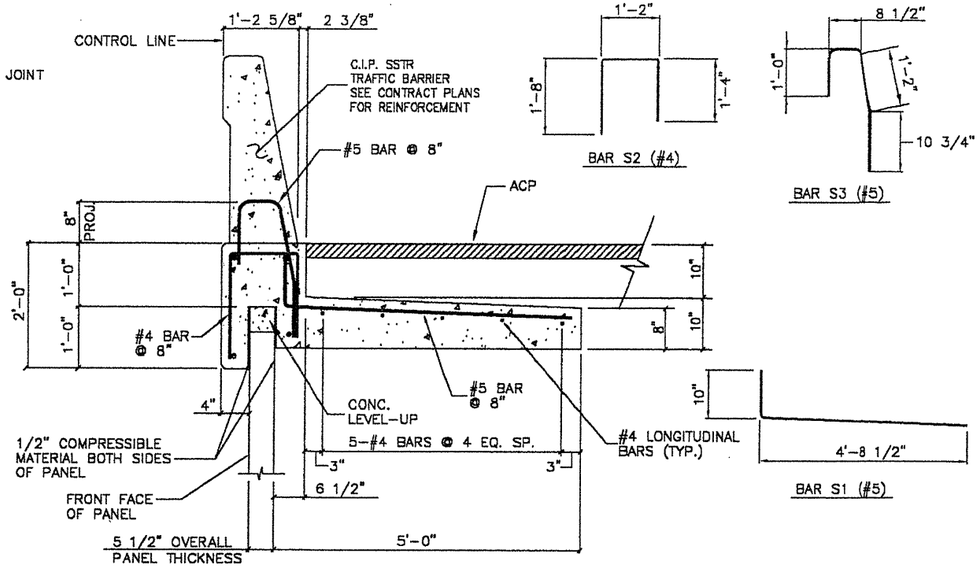
TYPICAL SECTION WITH MOMENT SLAB

(1/A) NOT TO SCALE



PARTIAL ELEVATION C.I.P. SSTR BARRIER

(2/A) NOT TO SCALE



TYPICAL SECTION - C.I.P. SSTR RAIL

(3/A) NOT TO SCALE

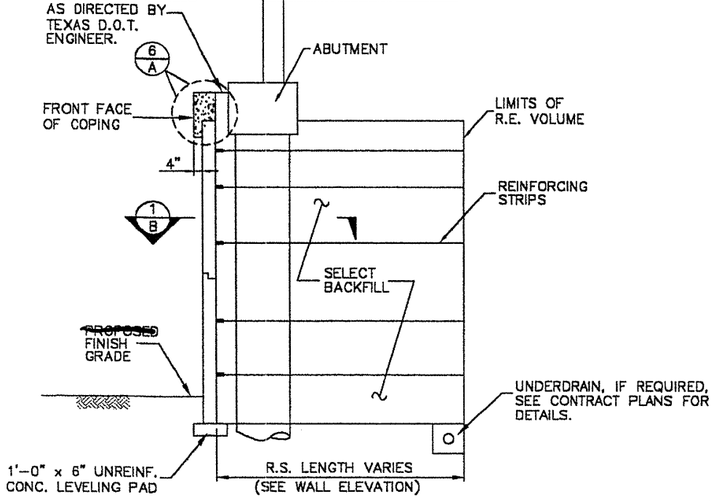
NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

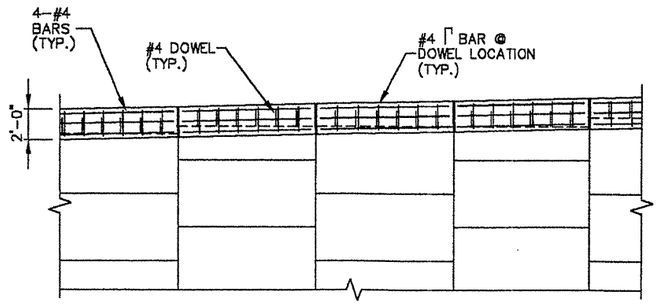
By: lschalozpal Date: 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY



TYPICAL SECTION @ ABUTMENT

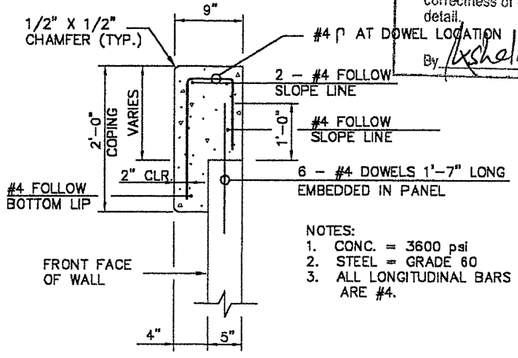
(4/A) NOT TO SCALE



NOTE:
ALL JOINTS IN C.I.P. COPING SHALL ALIGN WITH PANEL JOINTS

PARTIAL ELEVATION C.I.P. COPING

(5/A) NOT TO SCALE



NOTES:
1. CONC. = 3600 psi
2. STEEL = GRADE 60
3. ALL LONGITUDINAL BARS ARE #4.

C.I.P. COPING DETAIL

(6/A) NOT TO SCALE

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER

9/2/04

STATE CONTROL NO. 0018-05-062

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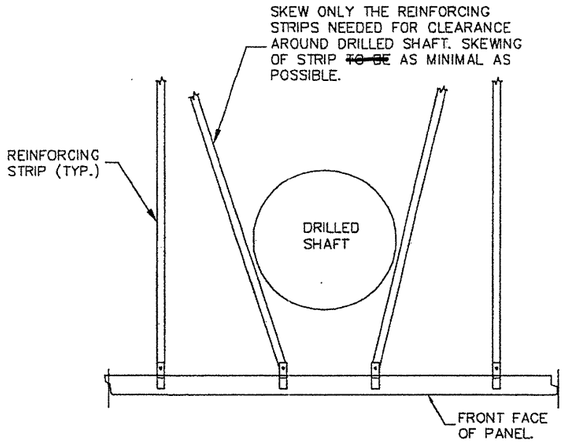
DESIGNED BY:	REV.	DATE	DESCRIPTION
J.D.T.			
PROJECT ENGR: D.L.H.			
CHECKED BY: DLH	2	09/02/2004	REVISED DETAIL 1/A
ENG. MANAGER			

PROJECT NAME	I.H. 35	DATE	2/26/04
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	A
DRAWING COVERS	SECTIONS & DETAILS	SCALE	AS SHOWN

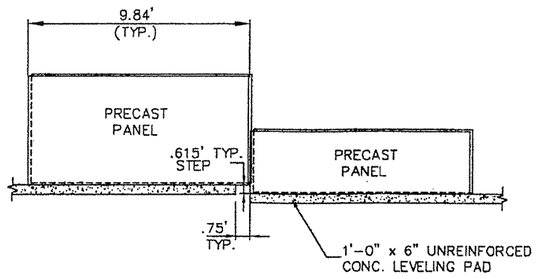
P:\10718\DETA DWG

SHEET NO. 431 FF



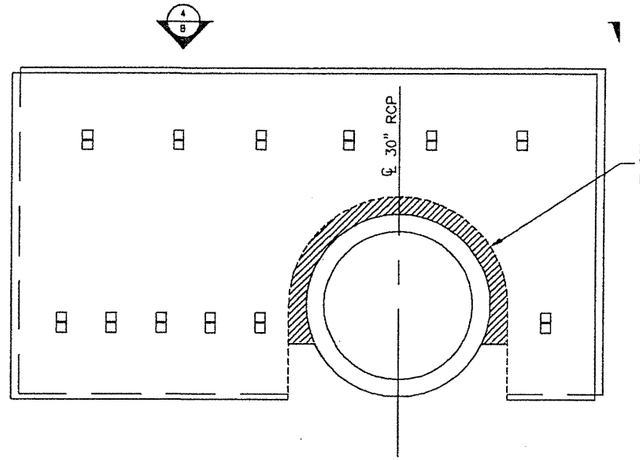
PLAN SKEWING REINFORCING STRIP @ DRILLED SHAFT

1/B NOT TO SCALE



2/B TYPICAL LEVELING PAD STEP DETAIL

NOT TO SCALE



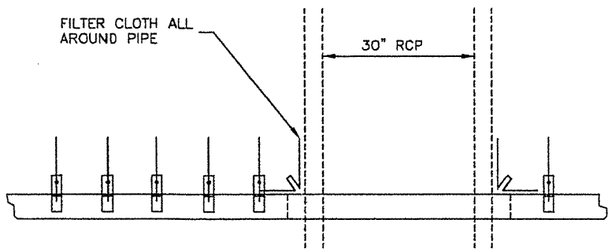
SECTION STROM SEWER HEADWALL WALL 0 CULVERT L1 – 30" RCP

3/B NOT TO SCALE

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT
KBR
Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.
By: [signature] Date: 8/29/05

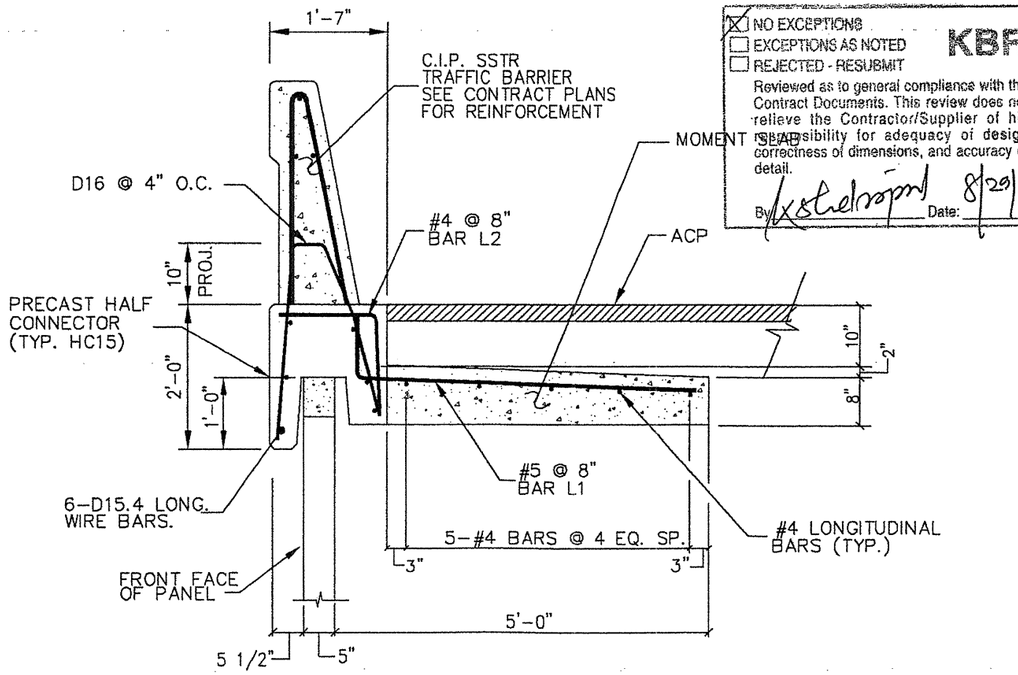
CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
4/25/05



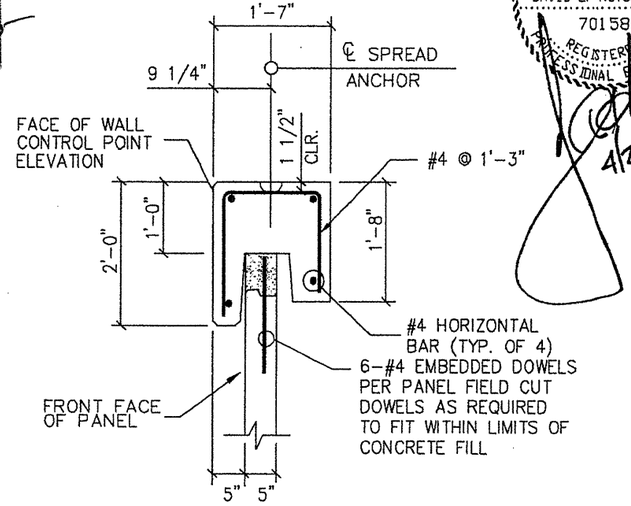
PLAN STROM SEWER HEADWALL WALL 0 CULVERT L1 – 30" RCP

4/B NOT TO SCALE



2/5/B SECTION–PRECAST HALF CONNECTOR (TYP. HC15) OPTION WITH MOMENT SLAB & SSTR RAIL

NOT TO SCALE



4/6/B PRECAST COPING DETAIL

NOT TO SCALE

STATE CONTROL NO. 0018-05-062

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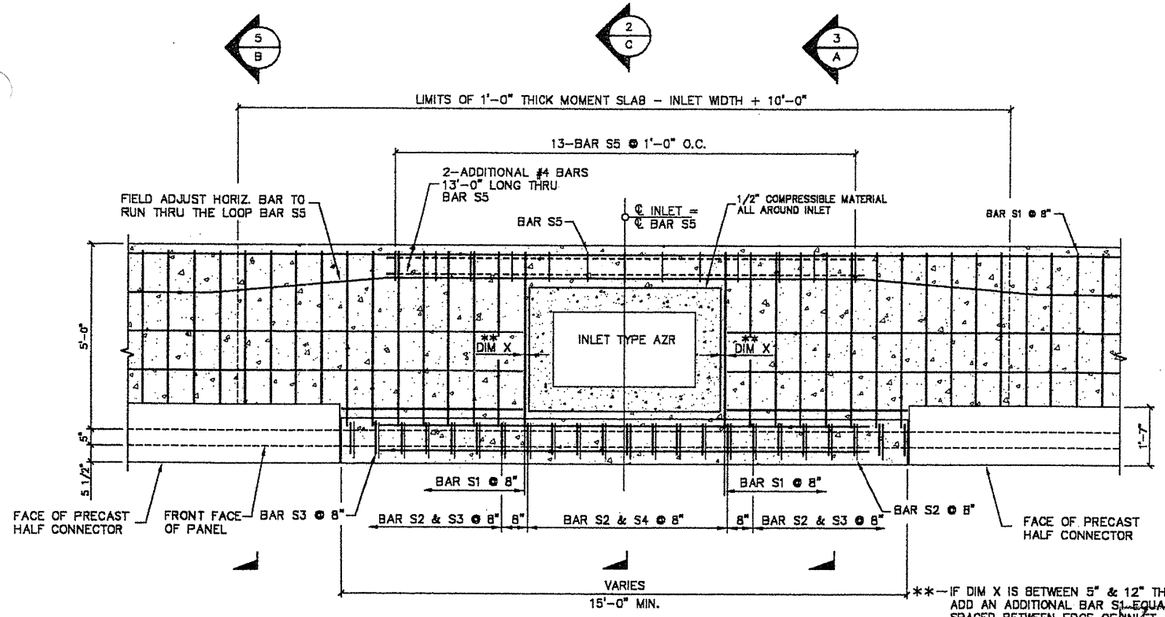
DESIGNED BY: J.D.T.				PROJECT NAME	I.H. 35
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY
CHECKED BY: DLH	4	04/25/2005	ADDED DETAIL 6/B	OWNER	TEXAS D.O.T.
ENG. MANAGER	2	09/02/2004	ADDED DETAIL 5/B	DRAWING COVERS	SECTIONS & DETAILS
	REV.	DATE	DESCRIPTION		

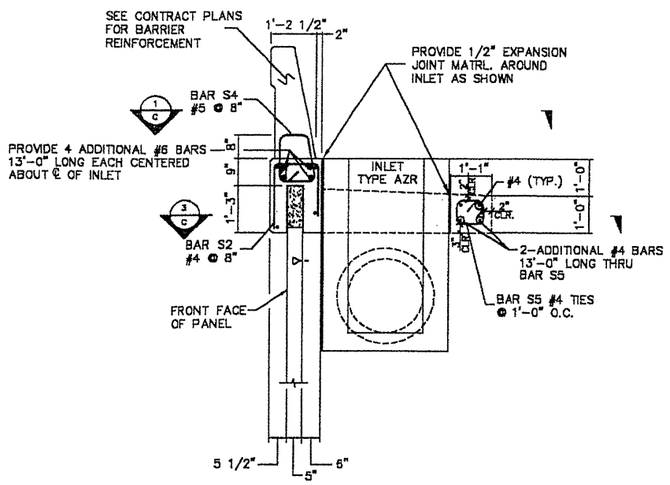
DATE 2/26/04 | CONTRACT NO. 10718 | DRAWING NO. B | SCALE AS SHOWN

SHEET NO. 431 GG

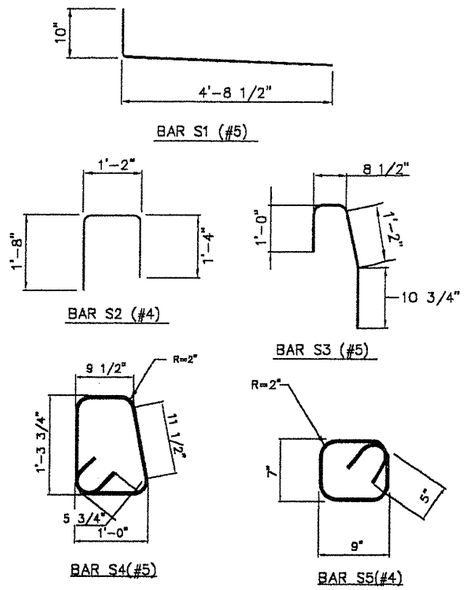


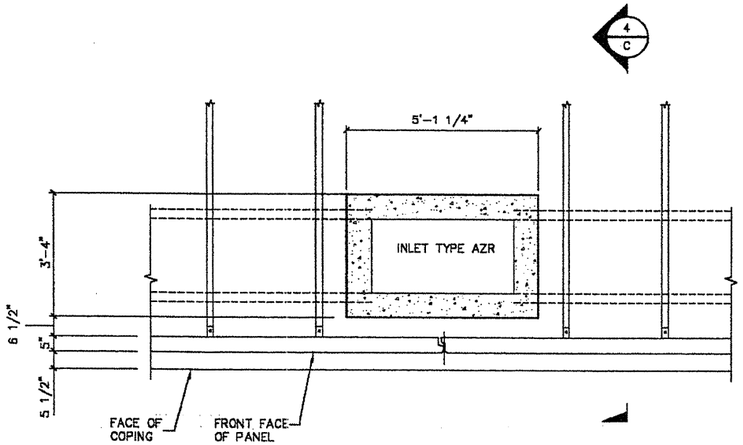
** IF DIM X IS BETWEEN 5" & 12" THEN ADD AN ADDITIONAL BAR S1 EQUALLY SPACED BETWEEN EDGE OF INLET AND BAR S1

PLAN – C.I.P. SSTR RAIL @ INLET
NOT TO SCALE

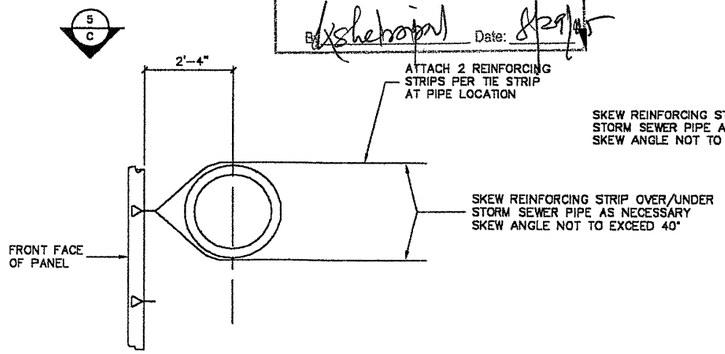


SECTION – C.I.P. SSTR RAIL @ INLET
NOT TO SCALE

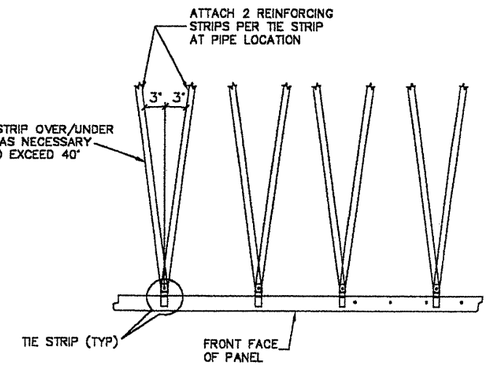




PLAN @ INLET
NOT TO SCALE



SECTION – SKEW REINFORCING STRIP @ STORM SEWER PIPE
NOT TO SCALE



PLAN – SKEW REINFORCING STRIP @ STORM SEWER PIPE
NOT TO SCALE

KBC 2/06

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By: [signature] Date: 8/29/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
9/2/04

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283–5503

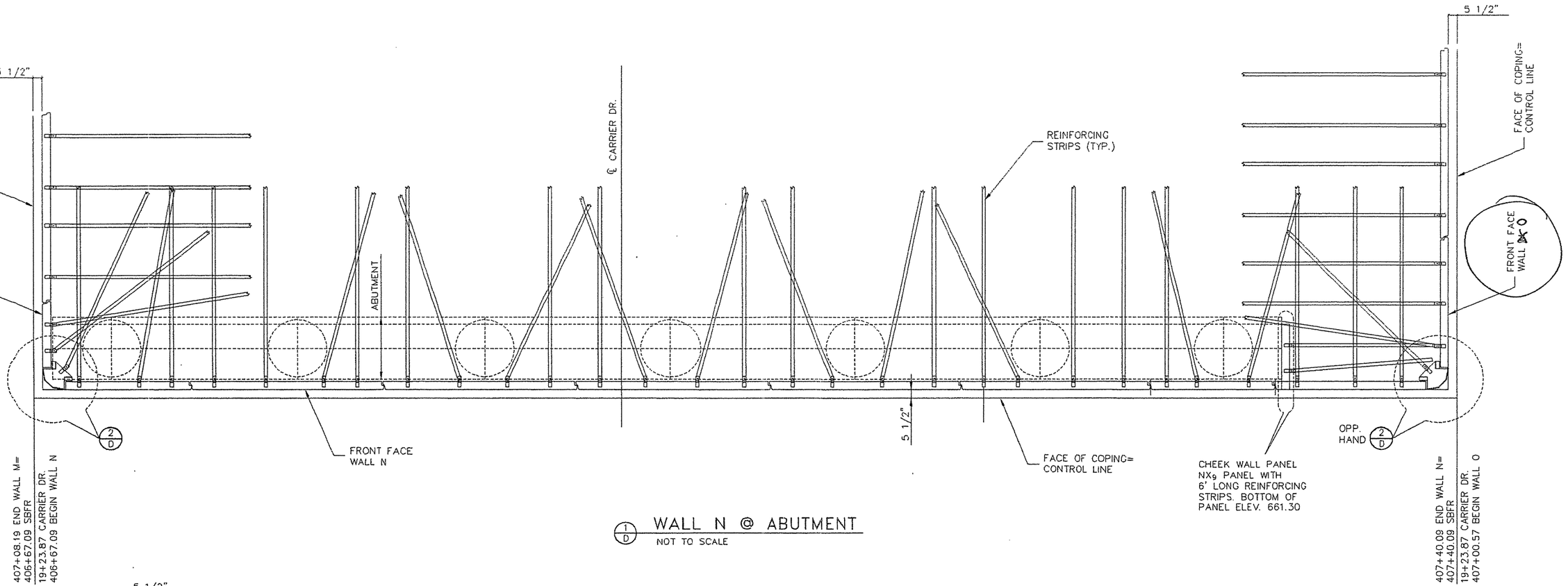
"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

DESIGNED BY: J.D.T.				PROJECT NAME: I.H. 35
PROJECT ENGR: D.L.H.				LOCATION: WEBB COUNTY
CHECKED BY: DLH				OWNER: TEXAS D.O.T.
ENG. MANAGER	2	09/02/2004	REVISED DETAIL 1/C	DRAWING COVERS: INLET DETAILS
	REV.	DATE	DESCRIPTION	

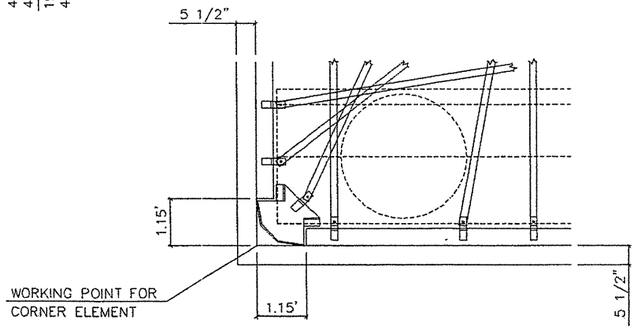
DATE 2/27/04 | CONTRACT NO. 10718 | DRAWING NO. C | SCALE AS SHOWN

SHEET NO. 431 H H

D:\10718\INLET DET.DWG



1/D WALL N @ ABUTMENT
NOT TO SCALE



2/D WALL N @ CORNER DETAIL
NOT TO SCALE

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT
KBR
Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.
By _____ Date: 3/12/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
2/26/04

STATE CONTROL NO. 0018-05-062

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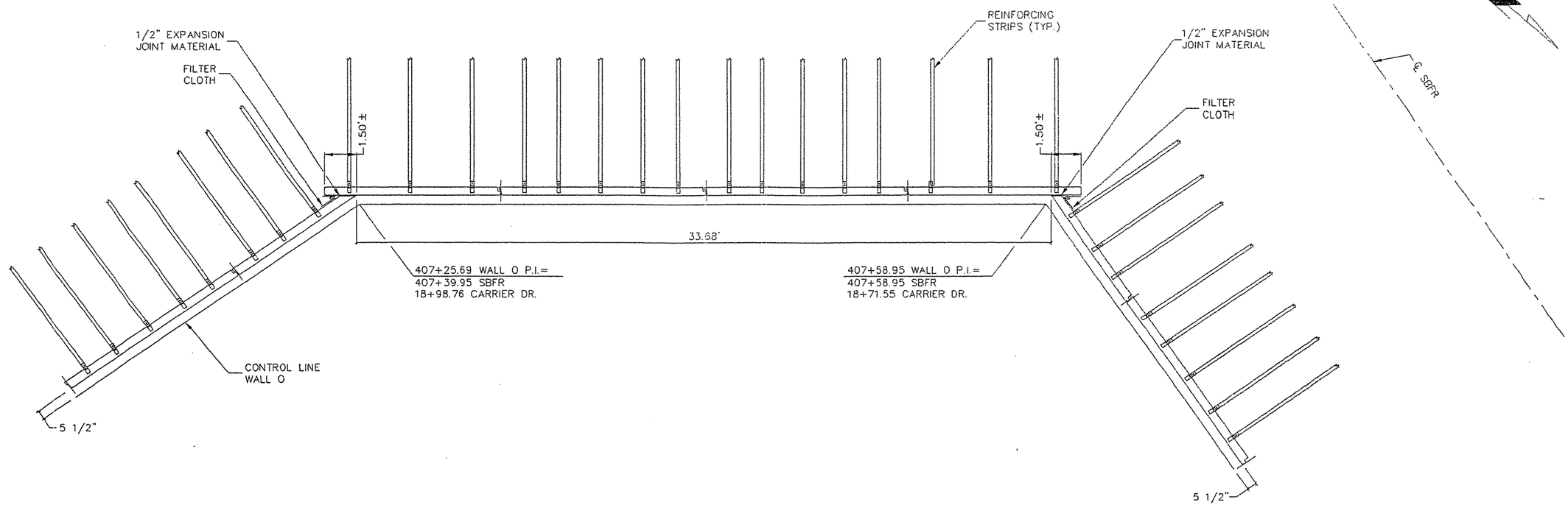
DESIGNED BY:	J.D.T.
PROJECT ENGR	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	

REV	DATE	DESCRIPTION

PROJECT NAME	I.H. 35	DATE 2/26/04
LOCATION	WEBB COUNTY	CONTRACT NO. 10718
OWNER	TEXAS D.O.T.	DRAWING NO. D
DRAWING COVERS	WALL N ABUTMENT DETAILS	SCALE AS SHOWN

P:\10718\WALL_N_ABUT.DWG

SHEET NO 43 OF 77



(1/E) PLAN – WALL O P.I. DETAIL

NOT TO SCALE

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
2/26/04

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

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By: _____ Date: 3/1/04

STATE CONTROL NO. 0018-05-062

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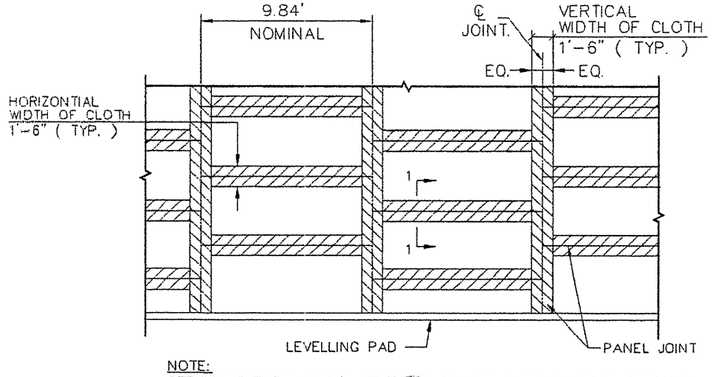
DESIGNED BY:	J.D.T.
PROJECT ENGR	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	

REV	DATE	DESCRIPTION

PROJECT NAME	I.H. 35	DATE 2/26/04
LOCATION	WEBB COUNTY	CONTRACT NO. 10718
OWNER	TEXAS D.O.T.	DRAWING NO. E
DRAWING COVERS	WALL O P.I. DETAIL	SCALE AS SHOWN

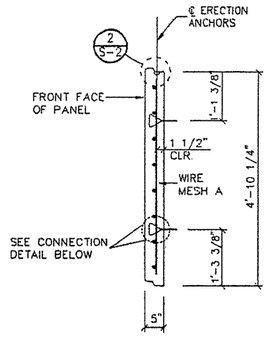
P:\10718\WALL_O_PI.DWG

SHEET NO. 42 of 44

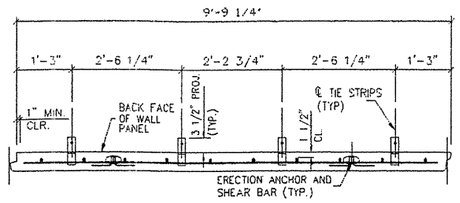


NOTE:
STRIPS OF FILTER CLOTH ~~SHALL BE~~ PLACED ON BACK FACE OF PANEL, OVER PANEL JOINTS. FILTER CLOTH ~~SHALL BE~~ ADHERED TO BACK FACE OF PANELS USING AN ADHESIVE COMPOUND SUPPLIED BY THE REINFORCED EARTH COMPANY.

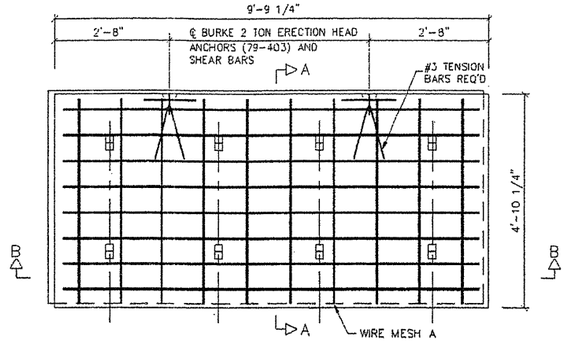
FILTER CLOTH DETAIL
PARTIAL ELEVATION – BACK FACE
SCALE: N.T.S.



SECTION A–A



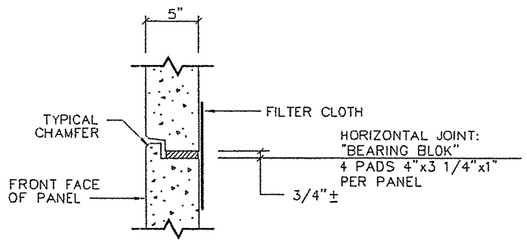
SECTION B–B



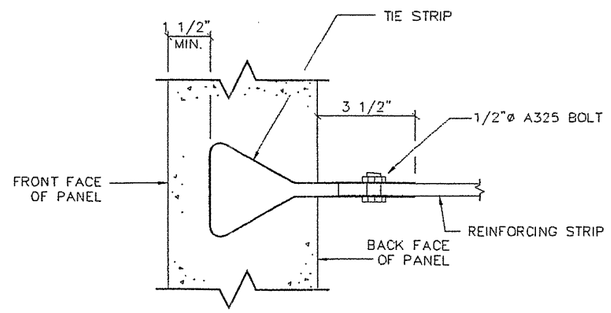
ELEVATION – BACK FACE OF PANEL

NOTES:

1. REINFORCING STEEL ~~TO BE~~ A615 GRADE 60. WIRE MESH SHALL ASTM A185 GRADE 70
2. 3/8" x 3/8" CHAMFER ~~SHALL BE~~ PROVIDED ON ALL EXPOSED EDGES (FRONT FACE ONLY).
3. ALL PANEL TYPES AND OTHER RELATED ELEMENTS ~~WILL BE~~ DETAILED ON SHOP DRAWINGS.
4. ALL PANELS ~~SHALL~~ HAVE TWO LIFTING INSERTS OF ONE TON CAPACITY EACH.
5. PANEL DESIGN THICKNESS IS 5". THICKNESS OF CONCRETE MUST INCREASE TO ACCOMODATE ANY ARCHITECTURAL SURFACE FINISH THAT ~~MAY BE~~ SPECIFIED.



SECTION 1–1



CONNECTION DETAIL
NO SCALE

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT
KBR
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By _____ Date: 3/12/04

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
2/26/04

STATE CONTROL NO. 0018-05-062

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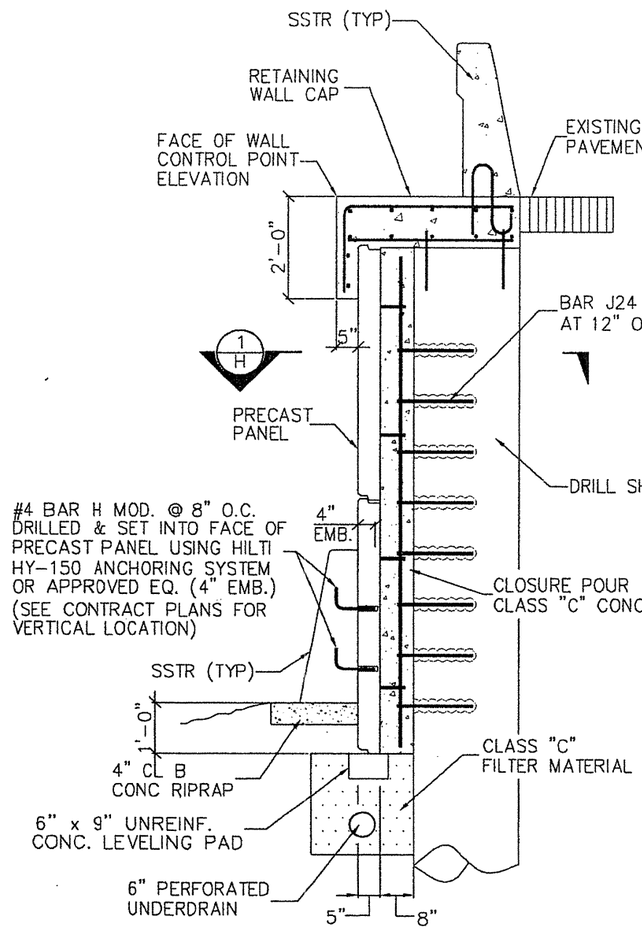
DESIGNED BY:	REV	DATE	DESCRIPTION	PROJECT NAME	I.H. 35	DATE
J.D.T.						2/26/04
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO. 10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO. F
ENG. MANAGER				DRAWING COVERS	STANDARD PANEL DETAILS	SCALE AS SHOWN

P:\10718\STDDET.DWG

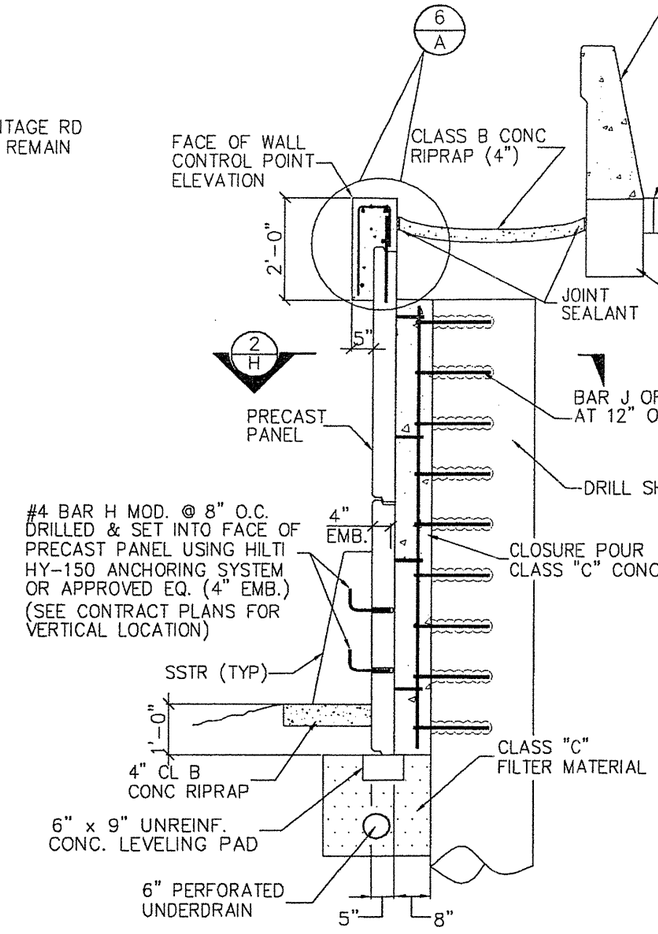
SHEET NO. 131 KK



1/G TYPICAL SECTION

NOT TO SCALE

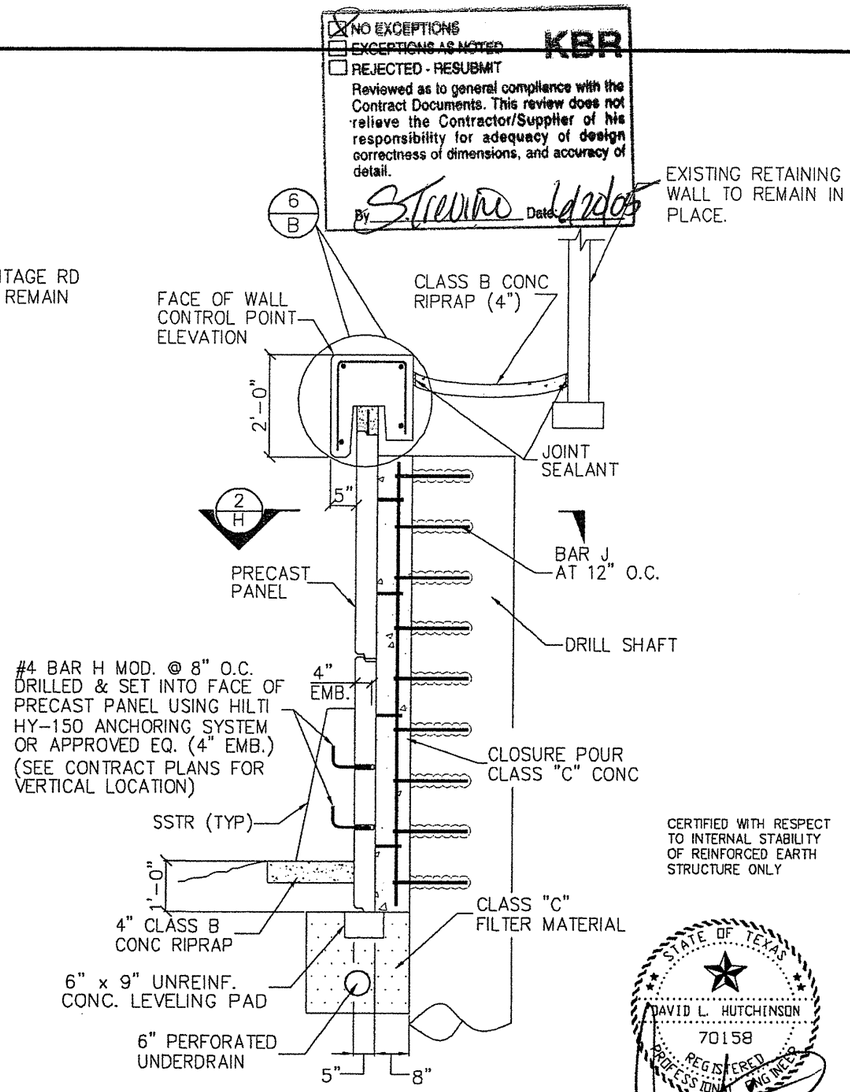
STA. 398+49.83 TO
STA. 399+50.23



2/G TYPICAL SECTION

NOT TO SCALE

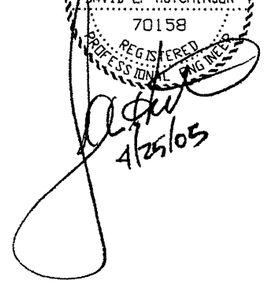
STA. 399+50.23 TO
STA. 399+77.21



3/G TYPICAL SECTION

NOT TO SCALE

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY



STATE CINTROL NO. 0018-05-062

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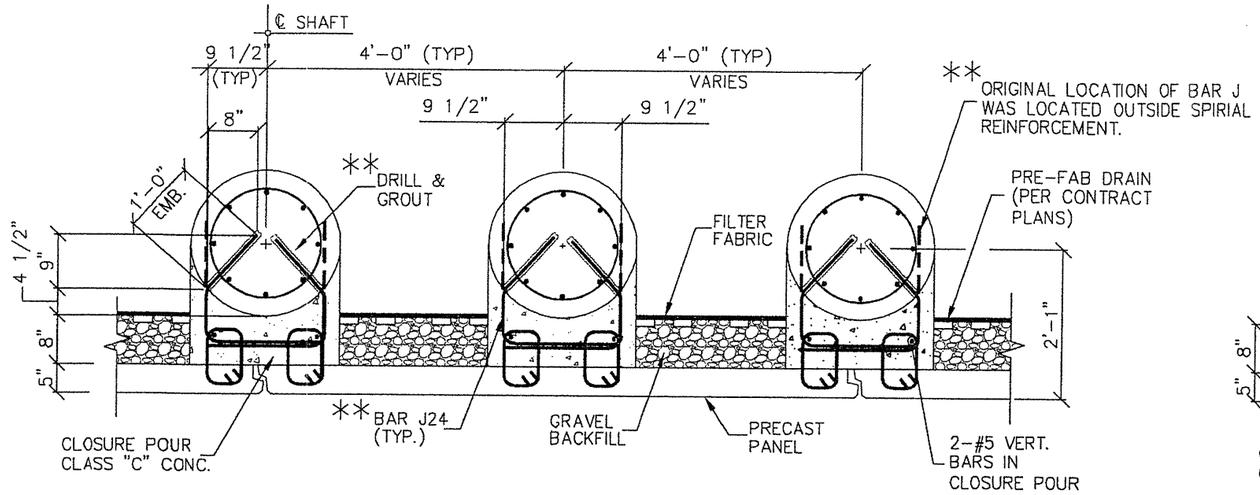
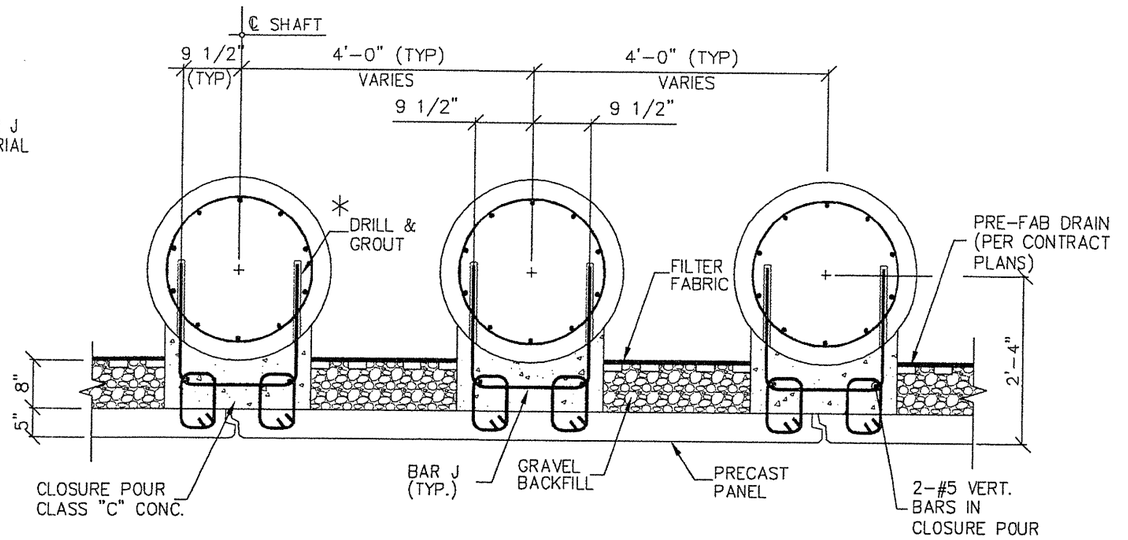
DESIGNED BY:	REV.	DATE	DESCRIPTION
A.R.O.			
PROJECT ENGR: D.L.H.			
CHECKED BY: DLH			
ENG. MANAGER	4	04/25/2005	ADDED DRAWING

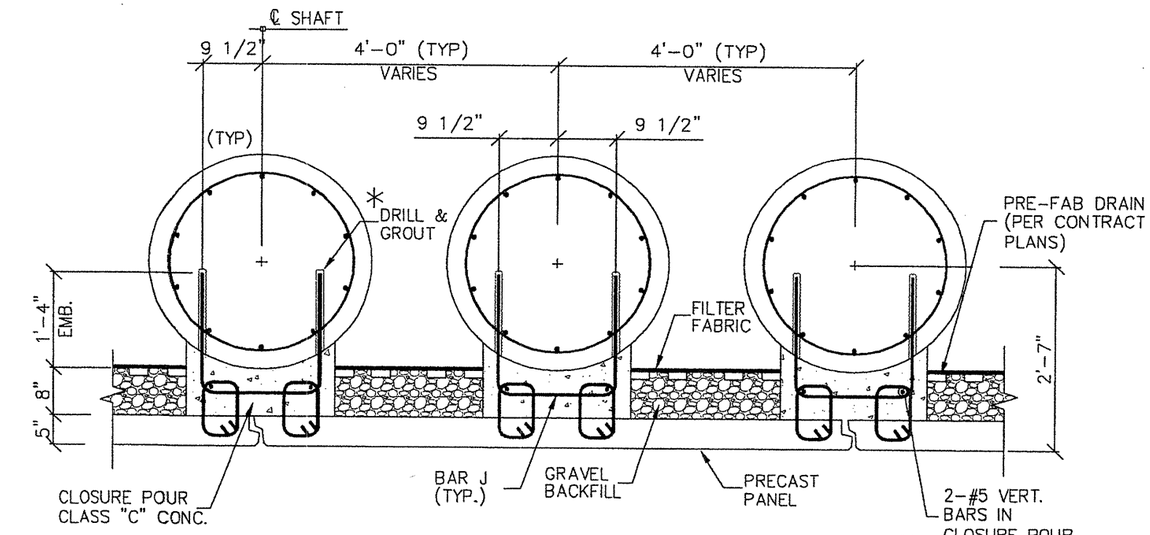
PROJECT NAME	I.H. 35	DATE	12/19/03
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	G
DRAWING COVERS	SECTION & DETAILS	SCALE	AS SHOWN



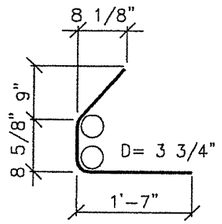
1 H PLAN-DRILLED SHAFT 24"
NOT TO SCALE



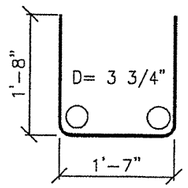
2 H PLAN-DRILLED SHAFT 30"
NOT TO SCALE



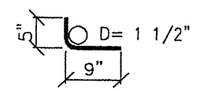
3 H PLAN-DRILLED SHAFT 36"
NOT TO SCALE



BAR J24 (#5)



BAR J (#5)



BAR H MOD (#4)

* -DRILL & GROUT BAR J OR J24 INTO DRILLED SHAFT. CONNECTION OF BAR J INTO DRILLED SHAFT WAS DESIGNED BY OTHERS.

** -BAR J WAS MODIFIED FOR 24" DRILLED SHAFT TO HAVE A BETTER STRUCTURAL CONNECTION. (ORIGINAL LOCATION OF BAR J WAS LOCATED OUTSIDE SPIRIAL REINFORCEMENT.)

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
4/25/05

☒ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

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By S. Trevino Date 4/20/05

STATE CINTROL NO. 0018-05-062

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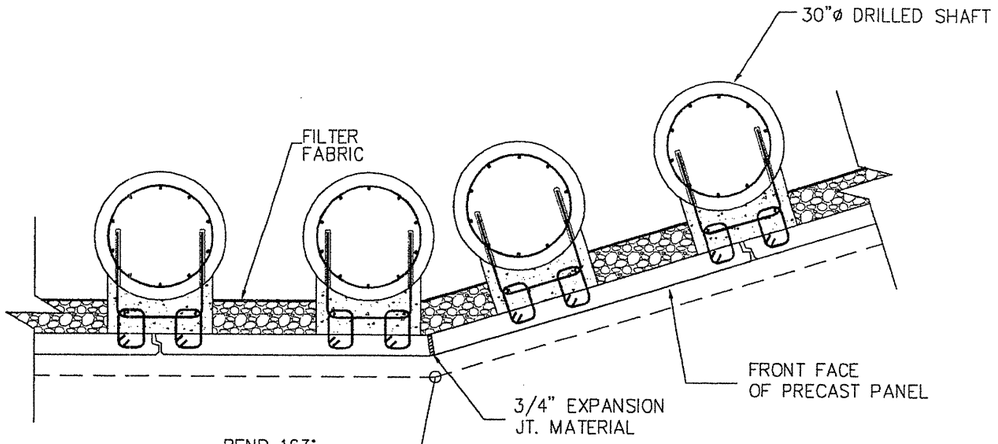
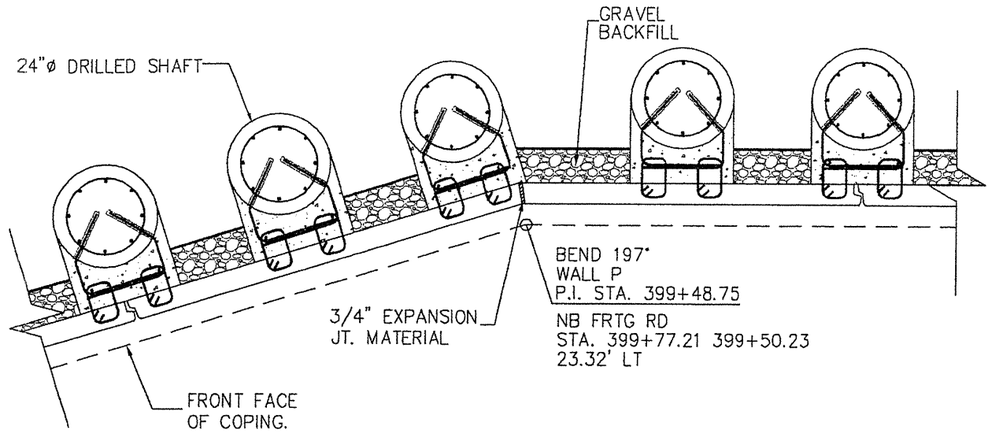
DESIGNED BY: A.R.O.				
PROJECT ENGR: D.L.H.				
CHECKED BY: DLH				
ENG. MANAGER	4	04/25/2005	ADDED DRAWING	
	REV.	DATE	DESCRIPTION	

PROJECT NAME	I.H. 35	DATE	12/19/03
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	H
DRAWING COVERS	SECTION & DETAILS	SCALE	AS SHOWN





1/J PLAN – MSE WALL @ P.I.

NOT TO SCALE

☑ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

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By S. Trevino Date 4/20/05

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DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
4/25/05

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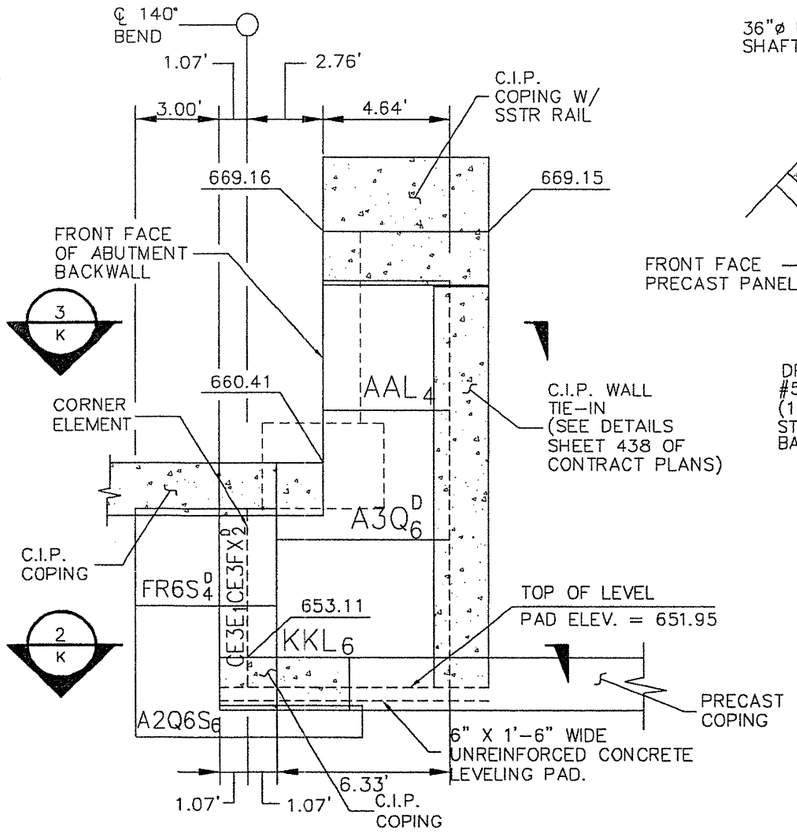
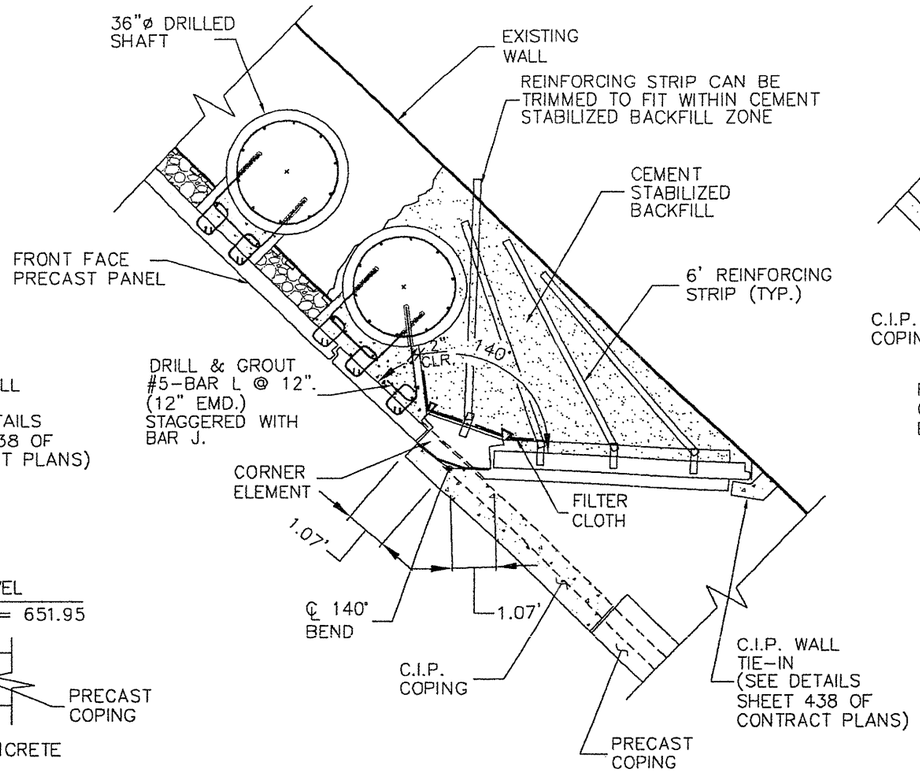
DESIGNED BY:			
A.R.O.			
PROJECT ENGR: D.L.H.			
CHECKED BY: DLH			
ENG. MANAGER	4	04/25/2005	ADDED DRAWING
	REV.	DATE	DESCRIPTION

PROJECT NAME	I.H. 35	DATE 12/19/03
LOCATION	WEBB COUNTY	CONTRACT NO. 10718
OWNER	TEXAS D.O.T.	DRAWING NO. J
DRAWING COVERS	SECTION & DETAILS	SCALE AS SHOWN



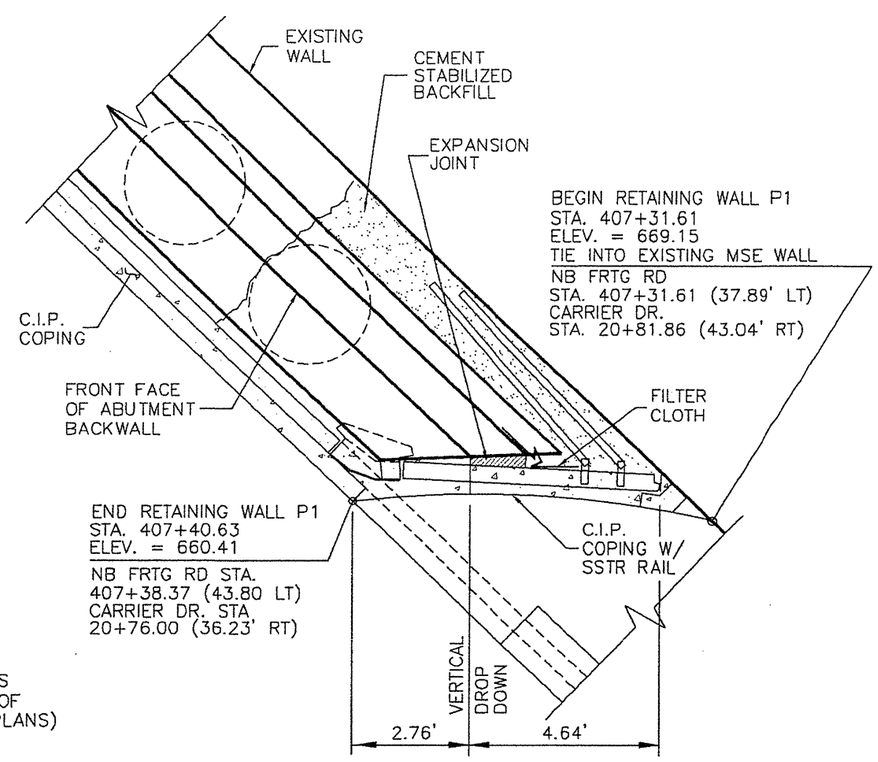
1 K ELEVATION – FRONT FACE WALL P1

NOT TO SCALE



2 K DETAIL @ WALL P1

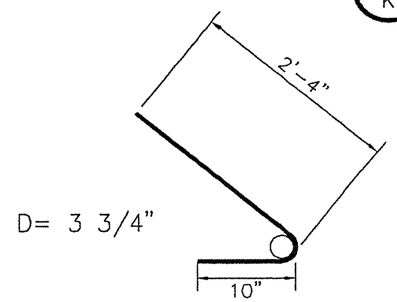
NOT TO SCALE



3 K DETAIL @ WALL P1

NOT TO SCALE

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY



BAR L (#5)

☑ NO EXCEPTIONS
☐ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

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By S. Trevino Date: 12/20/05

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
4/25/05

STATE CONTROL NO. 0918-05-062

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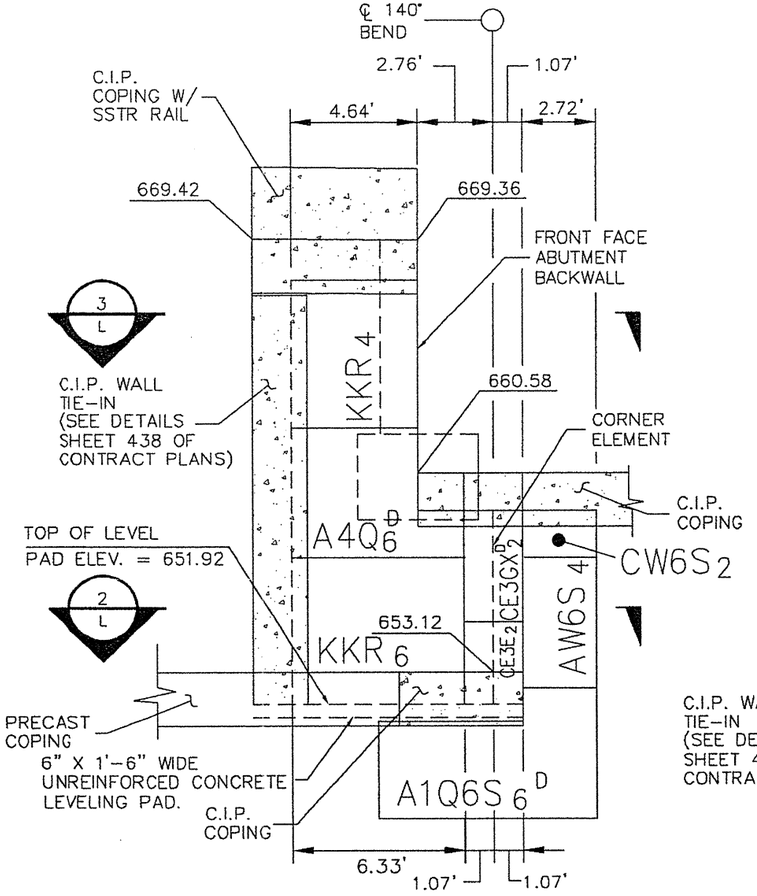
The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

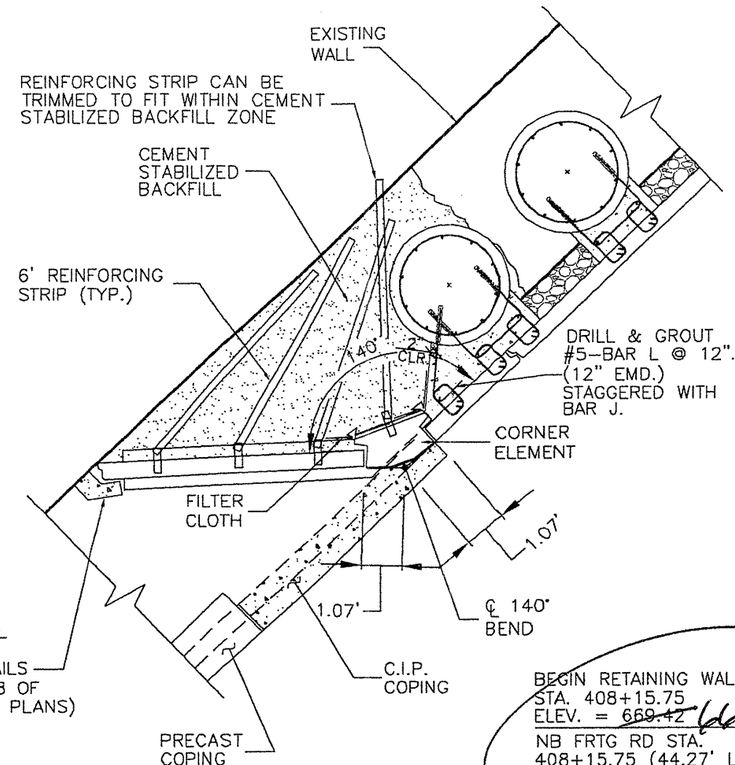
DESIGNED BY:	REV.	DATE	DESCRIPTION
A.R.O.			
PROJECT ENGR: D.L.H.			
CHECKED BY: DLH	4	04/25/2005	ADDED DRAWING
ENG. MANAGER			

PROJECT NAME	I.H. 35	DATE	09/10/04
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	K
DRAWING COVERS	ELEVATION – WALL P1	SCALE	AS SHOWN

SHEET 44 OF 438

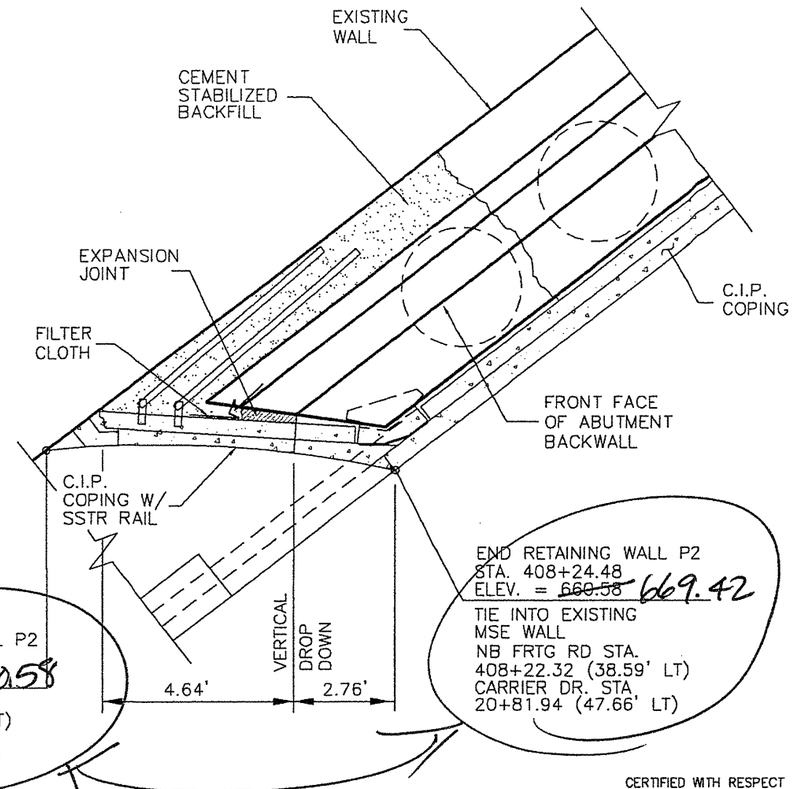


1 L ELEVATION – FRONT FACE WALL P2



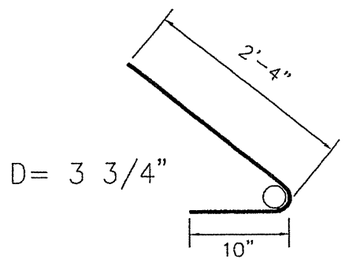
2 L DETAIL @ WALL P2

NOT TO SCALE



3 L DETAIL @ WALL P2

NOT TO SCALE



BAR L (#5)

☐ NO EXCEPTIONS
☒ EXCEPTIONS AS NOTED
☐ REJECTED - RESUBMIT

KBR

Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.

By S. Treviño Date: 6/22/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY

STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
4/25/05

STATE CONTROL NO. 0018-05-062

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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

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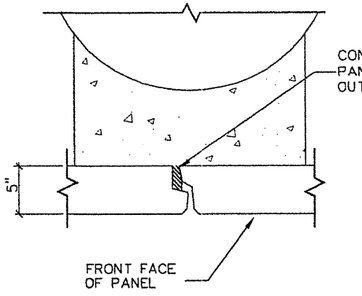
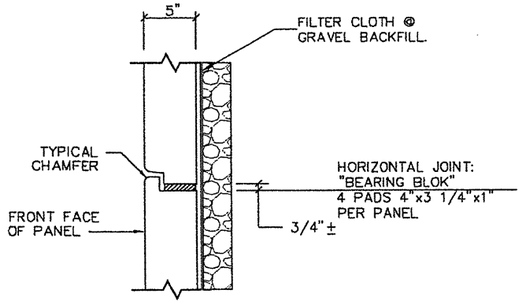
DESIGNED BY:				PROJECT NAME	I.H. 35	DATE
A.R.O.						09/10/04
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO. 10718
CHECKED BY: DLH	4	04/25/2005	ADDED DRAWING	OWNER	TEXAS D.O.T.	DRAWING NO. L
ENG. MANAGER	REV.	DATE	DESCRIPTION	DRAWING COVERS	ELEVATION – WALL P2	SCALE AS SHOWN

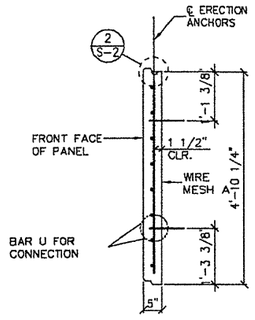


CONTRACTOR ~~SHALL~~ FILL JOINT BETWEEN VERTICAL PANELS JOINTS TO KEEP CONCRETE FROM SEEPING OUT THRU PANEL JOINTS. (VERT. & HORIZ.)

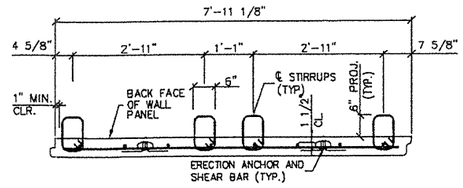
VERTICAL JOINT DETAIL
NO SCALE



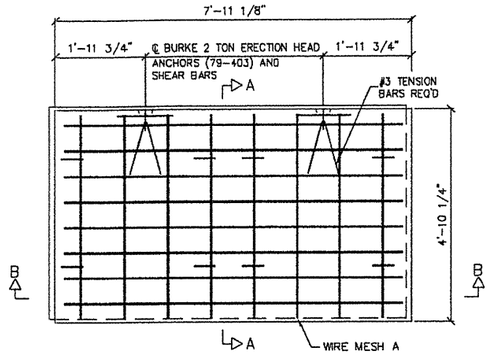
HORIZONTAL JOINT DETAIL
NO SCALE



SECTION A–A



SECTION B–B



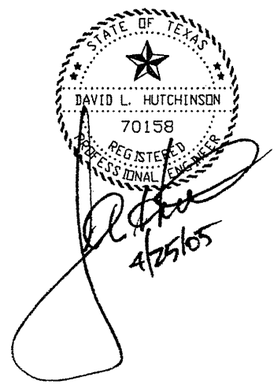
ELEVATION – BACK FACE

NOTES:

1. REINFORCING STEEL ~~TO BE~~ A615 GRADE 60.
   WIRE MESH SHALL ASTM A185 GRADE 70
2. 3/8" x 3/8" CHAMFER ~~SHALL BE~~ PROVIDED ON ALL EXPOSED EDGES (FRONT FACE ONLY).
3. ALL PANEL TYPES AND OTHER RELATED ELEMENTS ~~WILL BE~~ DETAILED ON SHOP DRAWINGS.
4. ALL PANELS ~~SHALL~~ HAVE TWO LIFTING INSERTS OF ONE TON CAPACITY EACH.
5. PANEL DESIGN THICKNESS IS 5". THICKNESS OF CONCRETE MUST INCREASE TO ACCOMODATE ANY ARCHITECTURAL SURFACE FINISH THAT ~~MAY BE~~ SPECIFIED.

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT
KBR
Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.
By S. Trevino Date 4/26/05

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY



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The Reinforced Earth Company
1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

"REINFORCED EARTH" is the registered trademark of The Reinforced Earth Company.

DESIGNED BY:	A.R.O.
PROJECT ENGR:	D.L.H.
CHECKED BY:	DLH
ENG. MANAGER	

REV.	DATE	DESCRIPTION
4	04/25/2005	ADDED DRAWING

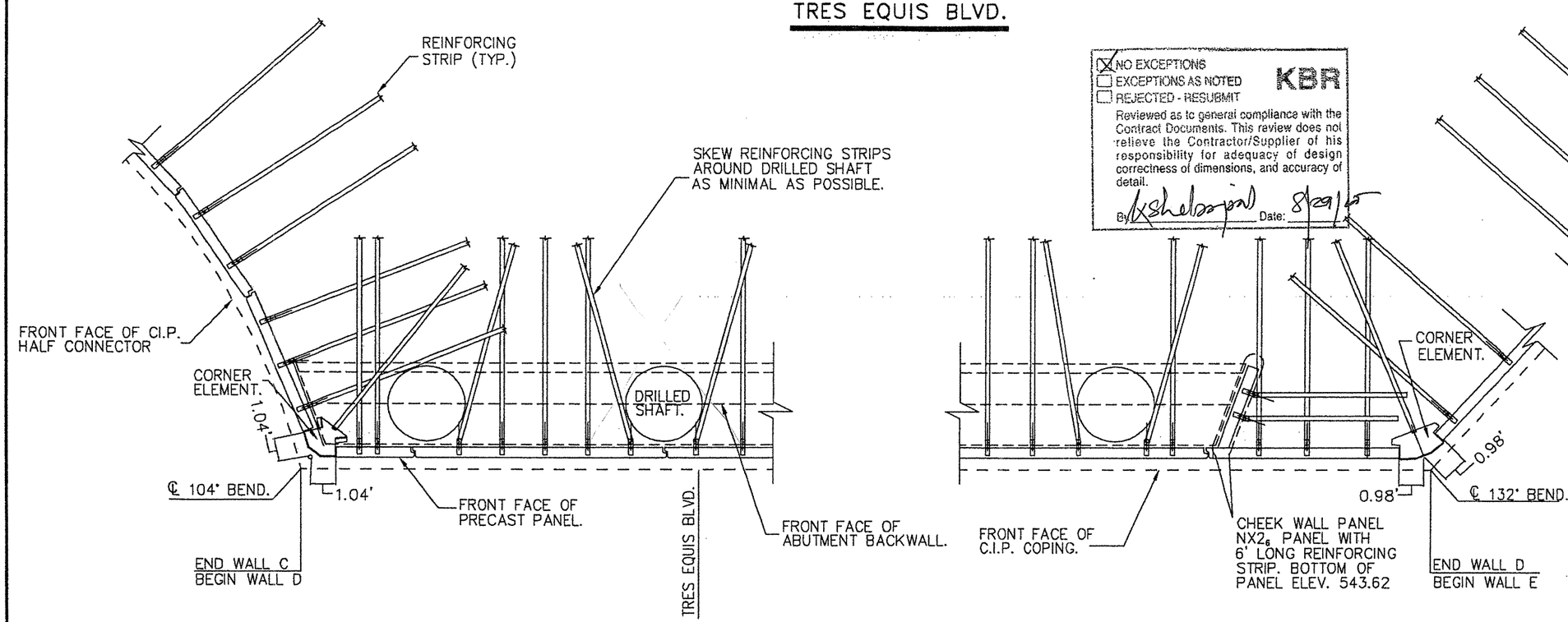
PROJECT NAME	I.H. 35
LOCATION	WEBB COUNTY
OWNER	TEXAS D.O.T.
DRAWING COVERS	STANDARD PANEL DETAILS FASCIA WALL

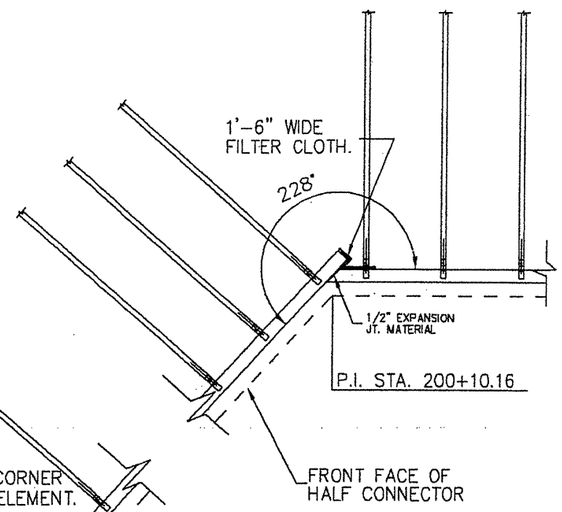
DATE	04/22/05
CONTRACT NO.	10718
DRAWING NO.	M
SCALE	AS SHOWN

SHEET NO 43 OF 90

C:\PROJ\10718\STDDET.DWG

TRES EQUIS BLVD.

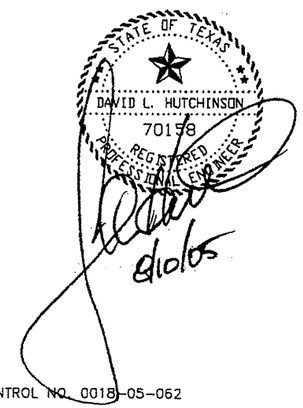




PLAN – WALL C,D & E @ ABUTMENT & P.I.

1/G NOT TO SCALE

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF REINFORCED EARTH STRUCTURE ONLY



STATE CINTROL NO. 0018-05-062

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1331 Airport Freeway Suite 302, Euless, Tx. 76040 (817) 283-5503

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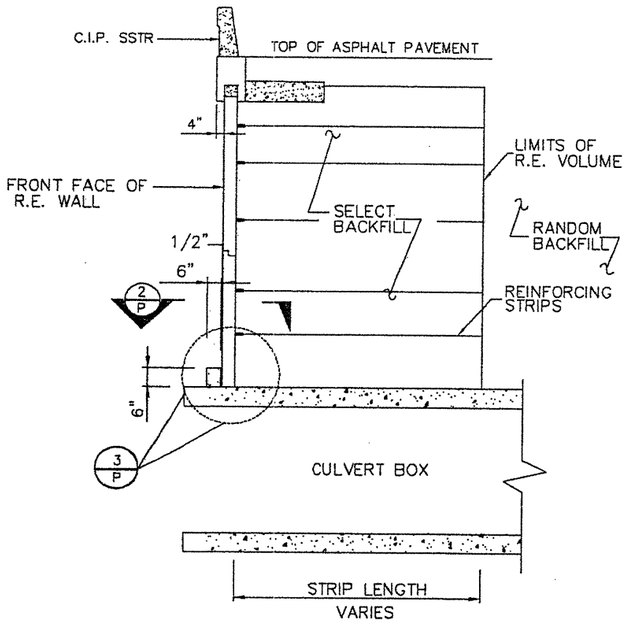
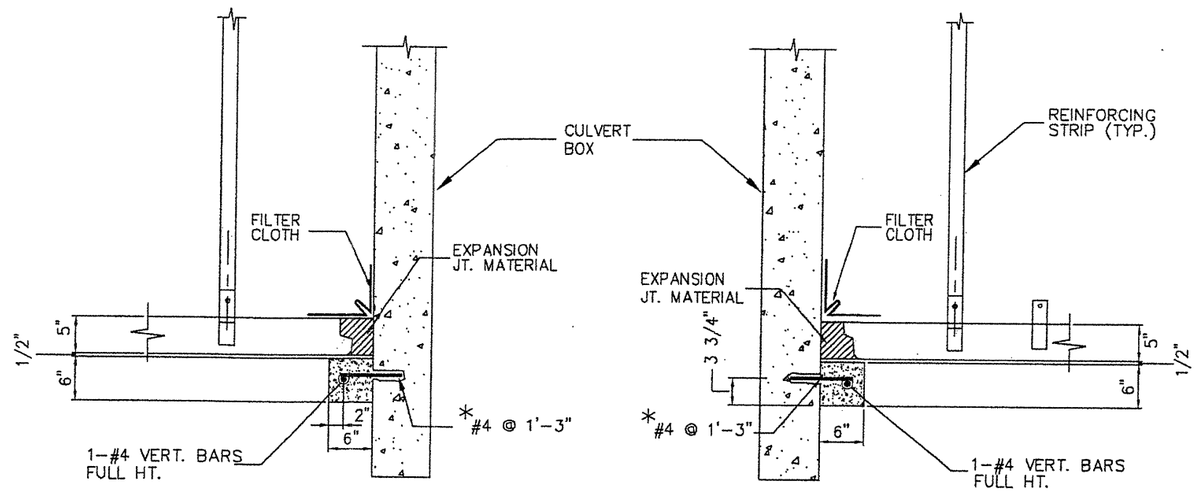
DESIGNED BY: A.R.O.				
PROJECT ENGR: D.L.H.				
CHECKED BY: DLH				
ENG. MANAGER: DLH	5	08/10/05	ADDED DRAWING	
	REV.	DATE	DESCRIPTION	

PROJECT NAME	I.H. 35	DATE	08/10/05
LOCATION	WEBB COUNTY	CONTRACT NO.	10718
OWNER	TEXAS D.O.T.	DRAWING NO.	N
DRAWING COVERS	WALL C,D & E @ ABUTMENT & P.I.	SCALE	AS SHOWN

SHEET NO. 431 RR

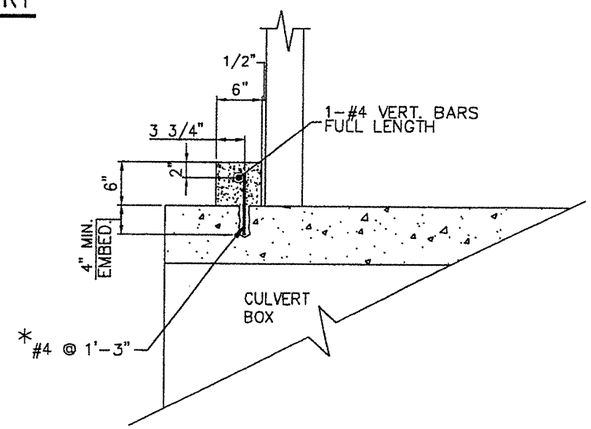


1 P TYPICAL SECTION @ CULVERT
NOT TO SCALE



* - DRILL & SET BAR INTO SIDE OF CULVERT USING HILTI HIT HY 150 INJECTION OR APPROVED EQUAL. (4" MIN. EMBED.)

2 P DETAIL - PANELS @ BOX CULVERT
NOT TO SCALE



3 P DETAIL - PANELS @ TOP OF BOX CULVERT
NOT TO SCALE

NO EXCEPTIONS
EXCEPTIONS AS NOTED
REJECTED - RESUBMIT
KBR
Reviewed as to general compliance with the Contract Documents. This review does not relieve the Contractor/Supplier of his responsibility for adequacy of design correctness of dimensions, and accuracy of detail.
By: _____ Date: 8/29/05

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STATE OF TEXAS
DAVID L. HUTCHINSON
70158
REGISTERED PROFESSIONAL ENGINEER
8/10/05

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DESIGNED BY:				PROJECT NAME		DATE
A.R.O.					I.H. 35	08/10/05
PROJECT ENGR: D.L.H.				LOCATION	WEBB COUNTY	CONTRACT NO. 10718
CHECKED BY: DLH				OWNER	TEXAS D.O.T.	DRAWING NO. P
ENG. MANAGER DLH	5	08/10/05	ADDED DRAWING	DRAWING COVERS	SECTIONS & DETAILS	SCALE AS SHOWN
	REV.	DATE	DESCRIPTION			

SHEET NO. 431 SS

PROJECT: IH-35 MAIN LANE WIDENING, LAREDO, TEXAS BORING B-12A

DATE 2/25/01 TYPE 4" FLIGHT AUGER LOCATION STA. 193+00:90'LT

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION Elevation:514.55'	THD 1st 6"	THD 2nd 6"	M.C. %	U.D.W. PCF	SHEAR STRENGTH, TSF ○ POCKET PENETROMETER △ CONFINED COMPRESSION ● UNCONFINED COMPRESSION □ TORVANE 0.5 1 1.5 2	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0			Hard, tan, Sandy Clay (CL), with ferrous & calcareous nodules -w/ roots @ surface			16	109		45	41	21	20
			-stiff @ 4'-6'			15	112					
				12	18	13			56	31	18	13
			-hard @ 6'-10'			13	99					
				39	47	12				49	19	30
			-gravel @ 7'-9'			18			87	46	19	27
12			-very hard @ 13'			19						
				50/ 3"	50/ 1"	18			71	44	20	24
			-sandstones @ 17'			11			72	37	18	19
				50/ 0"	50/ 0"							
			Bottom of hole @ 20'									
24												
36												
48												
60												
72												

BORING DRILLED TO 20 FEET (6.1) METER WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT - FEET (____ METER) WHILE DRILLING ▽

WATER LEVEL AT - FEET (____ METER) AFTER 1/2 HOURS ▽

DRILLED BY JH CHECKED BY PST LOGGED BY JH

PROJECT: IH-35 MAIN LANE WIDENING, LAREDO, TEXAS BORING B-12B

DATE 2/17/01 TYPE 4" FLIGHT AUGER LOCATION STA. 191+50:138'RT

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION Elevation:517.53'	THD 1st 6"	THD 2nd 6"	M.C. %	U.D.W. PCF	SHEAR STRENGTH, TSF ○ POCKET PENETROMETER △ CONFINED COMPRESSION ● UNCONFINED COMPRESSION □ TORVANE 0.5 1 1.5 2	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0			Stiff, reddish brown & tan, Sandy Clay (CL), with ferrous nodules & silty sand seams -very sandy @ 0'-2'			14			33	26	13	13
				7	4	17	104		45	31	15	16
			-w/gravel @ 2'-4'			18						
			-soft @ 4'-6'	10	12	15	113		41	27	15	12
			-tan @ 8'			12						
			-w/silty sand seams @ 8'-10'			10	104					
12				25	20	11	106		39	26	15	11
			-w/calcareous nodules @ 12'			12						
				43	50/ 4.5"	11	119		41	27	16	11
			-w/gravel @ 14'-16'			13						
			-w/silty sand seam @ 18'-20'			14	117		53			
24						11						
			-w/silty sand seams @ 22'-24'	50/ 2.5"	50/ 1"	10			74	36	17	19
			-cemented sand @ 24'-26'			15						
			-w/clayey sand seams @ 26'-28'	50/ 4"	50/ 2"	13			59	36	17	19
						11						
			Hard, gray Shale							31	15	16
36			-very hard @ 34'	50/ 0"	50/ 0"	9			58	35	18	17
						9						
				50/ 0"	50/ 0"							
			Bottom of hole @ 40'									
48												
60												
72												

BORING DRILLED TO 40 FEET (12.19) METER WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT - FEET (____ METER) WHILE DRILLING ▽

WATER LEVEL AT ____ FEET (____ METER) AFTER ____ HOURS ▽

DRILLED BY JH CHECKED BY PST LOGGED BY JH

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY PE 81485, ON APRIL 18, 2003

James B. Hornsby

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

RETAINING WALL
SOIL BORINGS

SHEET 1 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		432
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

4/18/2003

HOUFILE023 \hctivil\cf0130\ b70bbp06.dgn-02

REF FILE(S): j011op01.bdr. bdr LV ON = 5.45.57.60-63

PROJECT: IH-35 MAIN LANE WIDENING, LAREDO, TEXAS BORING B-14

DATE 2/25/01 TYPE 4" FLIGHT AUGER LOCATION STA. 196+00:90'LT

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION Elevation:522.36'	THD 1st 6"	THD 2nd 6"	M.C. %	U.D.W. PCF	SHEAR STRENGTH, TSF ○ POCKET PENETROMETER △ CONFINED COMPRESSION ● UNCONFINED COMPRESSION □ TORVANE 0.5 1 1.5 2	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0			Fill: Tan silty sand and gravel (45% gravel; 35% sand; 26% fines)			6			26	33	18	15
				41	50/ 4"	10			12			
			Tan Sandy Clay (CL), with silty sand seams			4						
				21	40	8			31	23	15	8
12			Dense, tan, Clayey Sand (SC), with gravel & sandstone fragments (66% gravel; 11% sand; 12% fines) (8% gravel; 61% sand; 31% fines) -compact @ 8'-10'			16			67	45	19	26
				42	50/ 4"	24						
						18			68	43	19	24
				50/ 5"	50/ 3"	16						
						17			80	44	18	26
24			Tan & gray Sandy Clay (CL), with ferrous nodules -hard @ 14'-16'	50/ 3.5"	50/ 2"	20			80	52	21	31
						18						
			Hard, tan, Clay with sand (CH), with ferrous nodules	50/ 1"	50/ 0.5"	18			60	33	18	15
						16						
36			Very hard, light gray & tan Shale	50/ 0.5"	50/ 0.5"	19				38	19	19
						18				40	19	21
				50/ 0"	50/ 0"	18						
						17						
				50/ 0"	50/ 0"	10				30	16	14
						12				29	17	12
48				50/ 0"	50/ 0"							
			Bottom of hole @ 50'									
60												
72												

BORING DRILLED TO 50 FEET (15.24) METER WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT - FEET (____ METER) WHILE DRILLING ▽

WATER LEVEL AT - FEET (____ METER) AFTER 5 HOURS ▽

DRILLED BY JH CHECKED BY PST LOGGED BY JH

PROJECT: IH-35 MAIN LANE WIDENING, LAREDO, TEXAS BORING B-15

DATE 2/13/01 TYPE 4" FLIGHT AUGER LOCATION STA. 196+00:138'RT

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION Elevation:519.16'	THD 1st 6"	THD 2nd 6"	M.C. %	U.D.W. PCF	SHEAR STRENGTH, TSF ○ POCKET PENETROMETER △ CONFINED COMPRESSION ● UNCONFINED COMPRESSION □ TORVANE 0.5 1 1.5 2	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0			Fill: Stiff, tan sandy clay with gravel			15						
						20	105		66	30	15	15
			Stiff, tan, Sandy Clay (CL), with ferrous nodules -soft @ 4'-6' -very stiff @ 6'-8' -stiff @ 8'-10' -w/gravel pockets @ 9' -w/calcareous nodules & gravel & chert @ 11'	6	6	15						
						10	113		38	32	16	16
12				13	14	19						
						20	106		84	61	22	39
				11	12	24				71	28	43
						24	100					
			Stiff, light gray & tan, Clay (CH), with calcareous nodules pockets	33	50	13						
						18			91	44	22	22
						19	112					
24				50/ 5"	50/ 4.5"	18				53	20	33
			Very stiff, light gray & tan, Sandy Clay (CL) w/ clayey sand seams			17				53	20	33
				50/ 2.5"	50/ 0.5"	16						
			Hard, light gray & tan, Silty Clay (CL), with calcareous nodules & sand partings			20			60	37	17	20
						17						
36				50/ 0.5"	50/ 0"	19				53	21	32
						17						
			Hard, tan & light gray, Clay (CH), with ferrous nodules	50/ 0"	50/ 0"	18				43	20	23
						12						
			Hard, gray Shale			9						
				50/ .5"	50/ 0"	11				36	17	19
			Hard, reddish brown, Sandy Clay (CL), with lenses of shale			13						
48				50/ 0"	50/ 0"	14						
			Tan Sandy Clay (CL)			17						
			Very hard, reddish brown & tan, Clay (CH) w/traces of shale	50/ 0"	50/ 0"	15				37	17	20
						21						
			Gray Shale, with sandy clay pockets & ferrous nodules -very hard @ 38' -very hard layer @ 42', switched to rock bit -switched back to normal bit @ 48' -hard layer @ 48'-49', switched back to rock bit @ 48'	50/ 0"	50/ 0"	15						
60						15						
				50/ 0"	50/ 0"	23				20	12	8
						23						
72				50/ 0"	50/ 0"							
			Bottom of hole @ 70'									

BORING DRILLED TO 70 FEET (21.34) METER WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT 32 FEET (9.75 METER) WHILE DRILLING ▽

WATER LEVEL AT caved FEET (____ METER) AFTER 3 HOURS ▽

DRILLED BY JH CHECKED BY PST LOGGED BY JH

STATE OF TEXAS JAMES B. HORNSBY 81485 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

RETAINING WALL SOIL BORINGS

SHEET 2 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	433
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cf0130\

b70blp07.dgn-02

REF FILE(S): j01lop01.bdr, bdr LV ON = 5,45,57,60-63

PROJECT: IH-35 MAIN LANE WIDENING, LAREDO, TEXAS BORING B-18

DATE 2/25/01 TYPE 4" FLIGHT AUGER LOCATION STA. 200+00:75'LT

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION Elevation:527.45'	THD 1st 6"	THD 2nd 6"	M.C. %	U.D.W. PCF	SHEAR STRENGTH, TSF (O POCKET PENETROMETER, Δ CONFINED COMPRESSION, ● UNCONFINED COMPRESSION, □ TORVANE; 0.5 1 1.5 2)	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0			Hard, tan, Sandy Clay (CL), with ferrous & calcareous nodules, sand seams -w/roots @ surface -w/gravel @ 0'-2'	17	40	15 31 18 19	104 88		79	72 37	30 17	42 20
12			Stiff to very stiff, Clay with sand (CH), with ferrous & calcareous nodules, sand seams	42	50/ 2.5"	17 18 18	105 100		54	37	17	20
24			Very stiff, tan, Sandy Clay (CL), with sand seams, calcareous nodules (0% gravel; 21% sand; 79% fines) -hard @ 6' -very stiff @ 12' -very hard @ 14'	50/ 3"	50/ 1"	18 16 17 17			86			
				50/ 2.5"	50/ 1.2"				91	61	23	38
				50/ 2.5"	50/ .5"	15 16						
			Gray Shale -very hard @ 18'	50/ 0"	50/ 0"	15 15			88	50	22	28
36				50/ 0"	50/ 0"	15 13			87	45	19	26
				50/ 0"	50/ 0"	14 16						
48				50/ 1"	50/ 0.5"	17 14			63	33	17	16
				50/ 0"	50/ 0"	16 14			97	39	17	22
				50/ 0"	50/ 0"	23 13			88	34	17	17
60				50/ 0.5"	50/ 0"	22			66	28	15	14
				50/ 0"	50/ 0"	17 15			28	17	11	
72			Bottom of hole @ 70'	50/ 0"	50/ 0"	19						

BORING DRILLED TO 70 FEET (21.34) METER WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT - FEET (____ METER) WHILE DRILLING ▽

WATER LEVEL AT - FEET (____ METER) AFTER 6 HOURS ▽

DRILLED BY JH CHECKED BY PST LOGGED BY JH

PROJECT: IH-35 MAIN LANE WIDENING, LAREDO, TEXAS BORING B-19

DATE 2/25/01 TYPE 4" FLIGHT AUGER LOCATION STA. 202+50:138'LT

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION Elevation:543.28'	THD 1st 6"	THD 2nd 6"	M.C. %	U.D.W. PCF	SHEAR STRENGTH, TSF (O POCKET PENETROMETER, Δ CONFINED COMPRESSION, ● UNCONFINED COMPRESSION, □ TORVANE; 0.5 1 1.5 2)	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0			Light tan & gray, Clay with sand (CH), with sand seams, ferrous & calcareous nodules -w/ roots @ surface -hard @ 2'-4' -stiff @ 4'-6' -reddish brown & light gray & tan @ 5' -hard @ 6'-8' -very stiff @ 8'-10' -tan & light gray, w/ calcareous nodules, quartz and sand seams	13	16	21 19 21	99		82 63	55	22	33
				21	39	22 21 20	106 107		89	59 64	21 26	38 38
12				50/ 0"	50/ 0"	22 7	107		49			
				50/ 0"	50/ 0"	9 9	114		53	30	17	13
				50/ 0"	50/ 0"	26 24				58	24	34
24			Hard, light tan, Sandy Clay (CL), with very hard sandstone seams -sandstone seams @ 17'-20'	50/ 3.5"	50/ 2"	18 17			64	40	17	23
				50/ 1.5"	50/ 1"	19 15				44	21	23
			Hard to very hard, light gray & tan, Clay (CH), with quartz and calcareous nodules	50/ 0"	50/ 0"	13 15			83	51	19	32
36			Very hard, gray Shale	50/ .5"	50/ 0"	24 26			86	56	21	35
				50/ 0"	50/ 0"	17 19			88 86	58 57	21 21	37 36
48				50/ 0"	50/ 0"							
60												
72			Bottom of hole @ 50'									

BORING DRILLED TO 50 FEET (15.24) METER WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT - FEET (____ METER) WHILE DRILLING ▽

WATER LEVEL AT - FEET (____ METER) AFTER 1/2 HOURS ▽

DRILLED BY JH CHECKED BY PST LOGGED BY JH

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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James B. Hornsby

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IH 35
LOOP 20 TO UNIROYAL ROAD

RETAINING WALL SOIL BORINGS

SHEET 3 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	434
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

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b70bip08.dgn-02

REF FILE(S): j011cp01.bdr, bdr LV ON = 5.45.57.60-63

PROJECT: IH-35 MAIN LANE WIDENING, LAREDO, TEXAS BORING B-21B

DATE 2/25/01 TYPE 4" FLIGHT AUGER LOCATION STA. 206+00:138'LT

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION Elevation:542.96'	THD 1st 6"	THD 2nd 6"	M.C. %	U.D.W. PCF	SHEAR STRENGTH, TSF (○ POCKET PENETROMETER △ CONFINED COMPRESSION ● UNCONFINED COMPRESSION □ TORVANE; 0.5 1 1.5 2)	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0			Fill: tan silty sand with gravel -w/roots @ surface			8			16			
						11						
			Soft, tan & light gray, Clay with sand (CH), with ferrous & calcareous nodules	8	11	23			84	60	24	36
			-very stiff @ 6'	50/ 1"	50/ 0"	20	100					
						14			59	38	19	19
12						19						
			Hard, tan, Sandy Clay (CL), with calcareous nodules & sandstone	10	12	20						
						29						
						25	90		70	39	19	20
			-very hard layer @ 8' & @ 10' to 10.5'	50/ .25"	50/ .5"	16						
			-stiff.w/calcareous nodules @ 14'-18'			19			75	46	21	25
24			-very hard, w/cemented sand @ 18'-20'	50/ 2"	50/ 1"	19			81	48	20	28
						18						
				50/ 1.5"	50/ 0.5"							
			Bottom of hole @ 30'									
36												
48												
60												
72												

BORING DRILLED TO 30 FEET (9.14) METER WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT - FEET (____ METER) WHILE DRILLING ▽

WATER LEVEL AT - FEET (____ METER) AFTER 1/2 HOURS ▽

DRILLED BY JH CHECKED BY PST LOGGED BY JH

PROJECT: IH-35 AT CARRIER DR., LAREDO, TEXAS. BORING B-73

DATE 5/22 & 6/13/02 TYPE 4" Flight Auger LOCATION Sta 407+40: 75' L. of SB frtg. rd.

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION Elevation:Ap. 649	THD 1st 6"	THD 2nd 6"	M.C. %	U.D.W. PCF	SHEAR STRENGTH, TSF (○ POCKET PENETROMETER △ CONFINED COMPRESSION ● UNCONFINED COMPRESSION □ TORVANE; 0.5 1 1.5 2)	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0			Very hard, tan, tan & light gray, Sandy Lean	37	45	4			84	37	17	20
						6			46	39	19	20
			Clay (CL), with ferrous &	50/3"	50/2"	8			93	33	16	17
			calcareous nodules,			6			96			
			reactive with hydrochloric	50/2"	50/1"	6			97	29	15	14
			acid (HCL),			5						
12			possible weathered limestone -w/calcareous nodules pockets	50/1"	50/1"	5						
			@ 1.5'-3'			9			98	42	19	23
			Very hard, tan & light gray, Silty Lean Clay	50/1"	50/1"	10						
			(CL), with calcareou nodules,									
24			reactive with	50/1"	50/1"	10			94	47	20	27
			HCL -very hard cemented sandstone layer @ 27'-28.5'	50/1"	50/1"	9			97	47	20	27
			-w/sandstone lenses below 27'			17			81	70	27	43
			Very hard, tan & light gray,	40	50/	14						
36			Sandy Fat Clay (CH), with		.75"	17			72	53	23	30
			sandstone fragments			15			66	43	20	23
			Very hard, tan & light gray,	50/ .75"	50/ 0.5"	16			59	40	18	22
			Sandy Lean Clay (CL), with			12						
			sandstone fragments	50/2"	50/ 0.5"	14						
48			Very hard, gray, Shale			9			60	37	18	19
				50/0"	50/0"	16						
						14						
				50/ 0.5"	50/0"	15						
				50/ .25"	50/0"	15			84	51	20	31
60						13						
				50/0"	50/0"							
						17						
				50/0"	50/0"				80	56	23	33
72			Bottom of hole @ 70'									
84												

BORING DRILLED TO 70 FEET (____) METER WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT - FEET (____ METER) WHILE DRILLING ▽

WATER LEVEL AT - FEET (____ METER) AFTER 3 HOURS ▽

DRILLED BY JH CHECKED BY PST LOGGED BY JH

STATE OF TEXAS JAMES B. HORNSBY 81485 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

RETAINING WALL SOIL BORINGS

SHEET 4 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		435
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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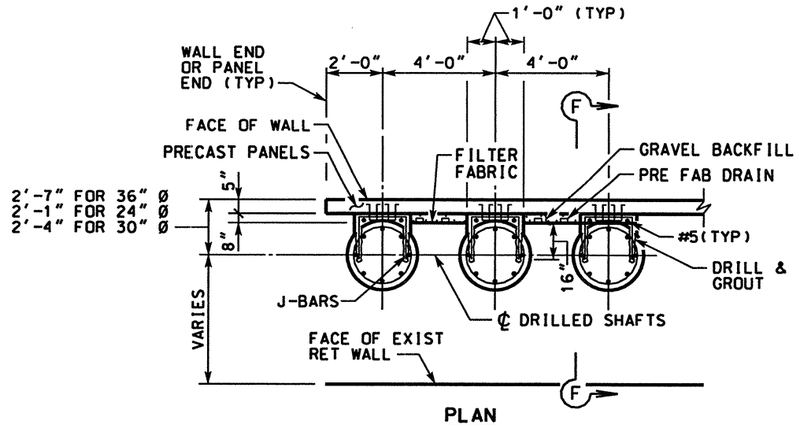
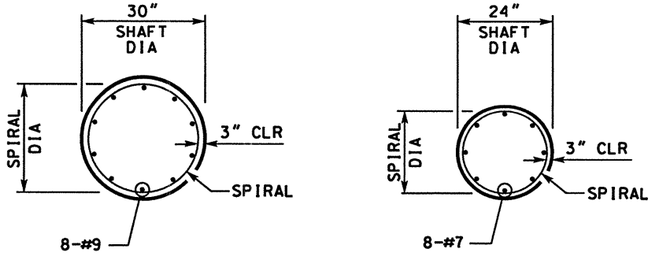
REF FILE(S): j011op01.bdr, bdr LV ON = 5,45,57,60-63



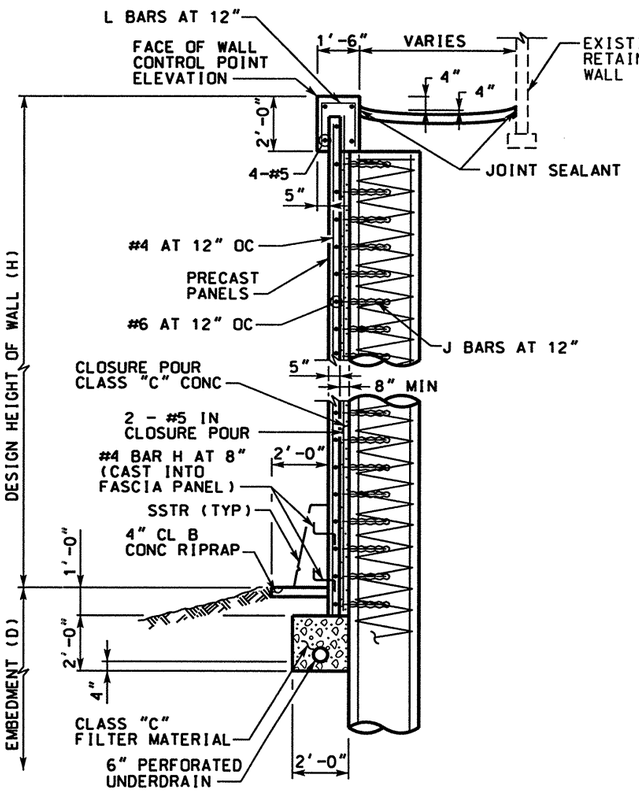
PLAN



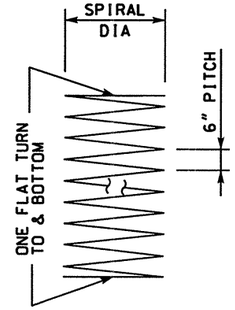
SECTION THRU SHAFT

GENERAL NOTES:

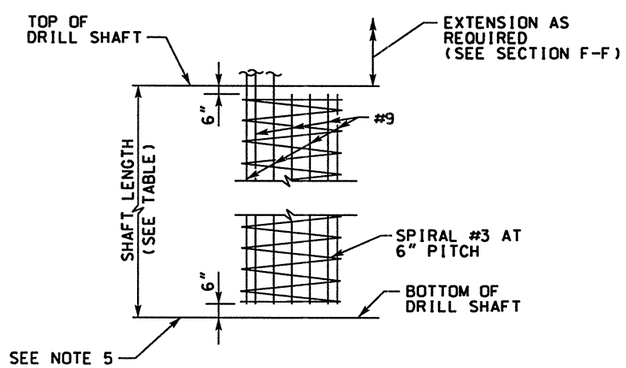
1. ALL CONCRETE ~~SHALL BE~~ CLASS "C", UNLESS OTHERWISE NOTED.
2. ALL REINFORCING STEEL ~~SHALL BE~~ GRADE 60.
3. CHAMFER ALL EXPOSED CORNERS $^{3}/_{4}$".
4. EXPANSION JOINTS IN THE CAP ~~SHALL BE~~ LOCATED AT 40' CENTER (MAX).
5. VERTICAL BARS ~~MAY BE~~ SUPPORTED ON BOTTOM OF DRILLED HOLE IF MATERIAL IS FIRM ENOUGH TO DO SO WHEN CONCRETE IS PLACED.
6. DRILLED SHAFT REINFORCING STEEL ~~SHALL BE~~ INCLUDED IN THE BID FOR THE RETAINING WALL.
7. NO LAP SPLICE IN THE VERTICAL REINFORCING ~~WILL BE~~ PERMITTED UNLESS APPROVED BY THE ENGINEER.
8. DRAINAGE SYSTEM ~~SHALL~~ CONSIST OF 1' PANELS OF PREFABRICATED SOIL DRAINAGE MATS EMPTYING INTO 6" Ø PERFORATED DRAIN. FILTER FABRIC ~~SHALL~~ MEET THE REQUIREMENTS OF D-9-6200. DRAINAGE SYSTEM ~~WILL NOT BE~~ PAID DIRECTLY BUT ~~WILL BE~~ CONSIDERED SUSIDIARY OF THE "RETAINING WALL".
9. THE PRICE BID PER SQUARE FOOT OF RETAINING WALL ~~SHALL~~ INCLUDE ALL CONCRETE REINFORCING, DRILLED SHAFTS, CONCRETE PANELS, CONRETE CAP, DRAINAGE MATERIAL AND ANY OTHER MATERIAL NECESSARY TO COMPLETE THE WALL.
10. PRECAST CONCRETE PANELS FOR CANTILEVERED SHAFT WALLS ~~SHALL BE~~ SIMILAR IN FINISH SURFACE TO THE PANELS USED FOR MECHANICALLY STABILIZED EARTH RETAINING WALLS FOR THIS PROJECT. SEE GENERAL NOTES IN RW (MSE) SHEET.
11. PRIOR TO BEGINING WORK, CONTRACTOR ~~SHALL~~ SUBMIT TO ENGINEER FOR APPROVAL PRECAST PANEL DETAILS AND PROCEDURES FOR PANEL/CLOSURE POUR CONNECTION.



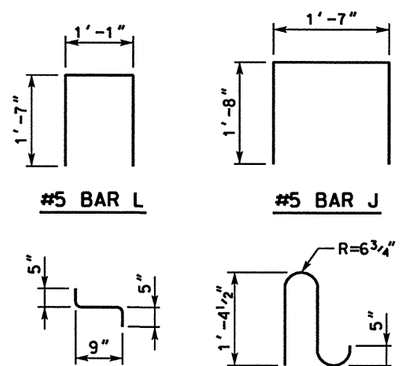
SECTION F-F



SPIRAL DETAILS



SHAFT REINFORCEMENT DETAIL



JAMES B. HORNSBY
R. 81485
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS

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IH 35
LOOP 20 TO UNIROYAL ROAD
CANTILEVER DRILL SHAFT RETAINING WALL DETAILS

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	436
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 5,45,57,60-63
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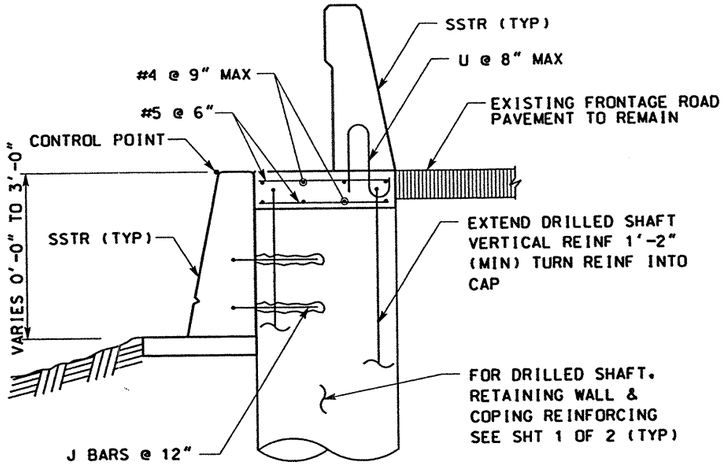
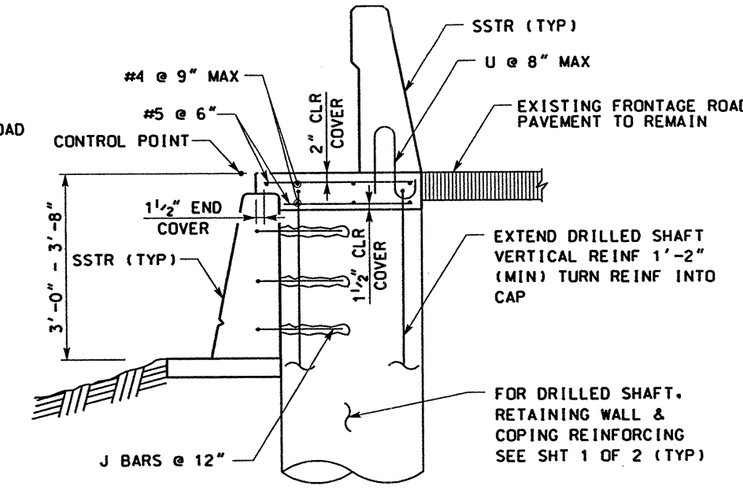


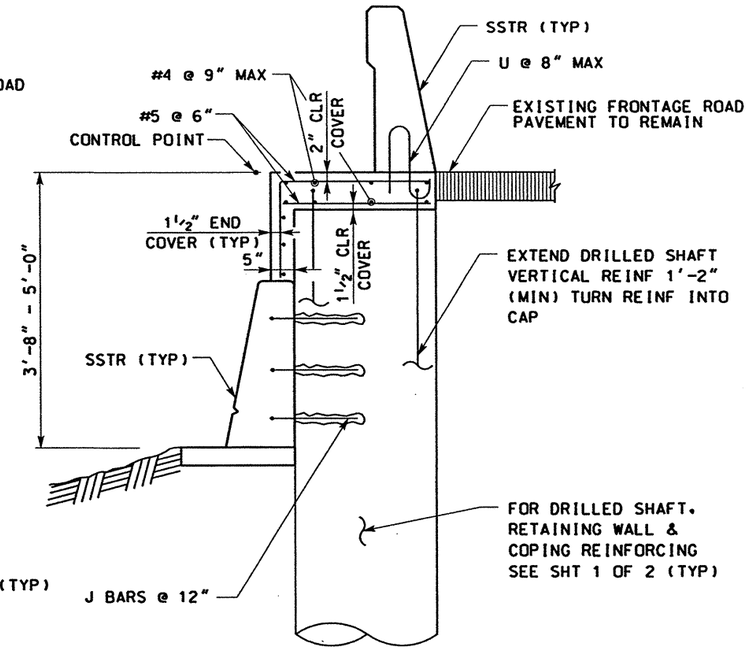
SECTION A-A

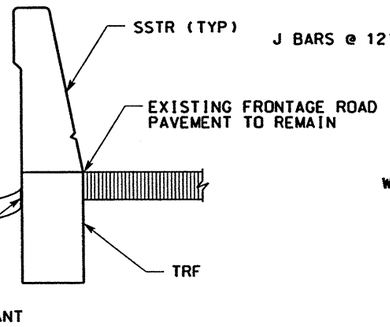
WALL "P" STA 398+05 TO 398+31.90



SECTION B-B

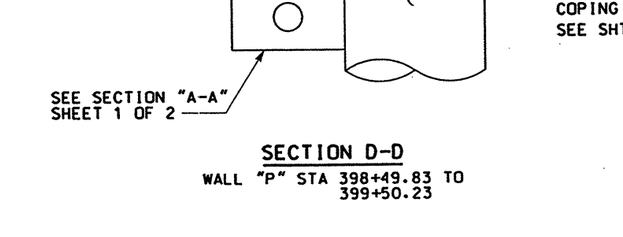
WALL "P" STA 398+31.90 TO 398+37.88





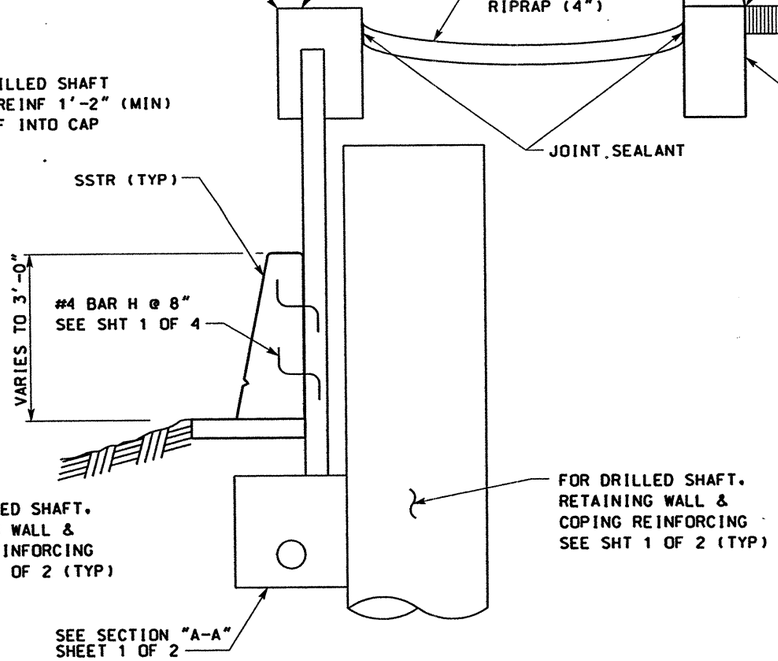
SECTION C-C

WALL "P" STA 398+37.88 TO 398+49.83



SECTION D-D

WALL "P" STA 398+49.83 TO 399+50.23



SECTION E-E

WALL "P" STA 399+50.23 TO 39977.21

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CANTILEVERED DRILLED SHAFT RETAINING WALL DETAILS

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		437
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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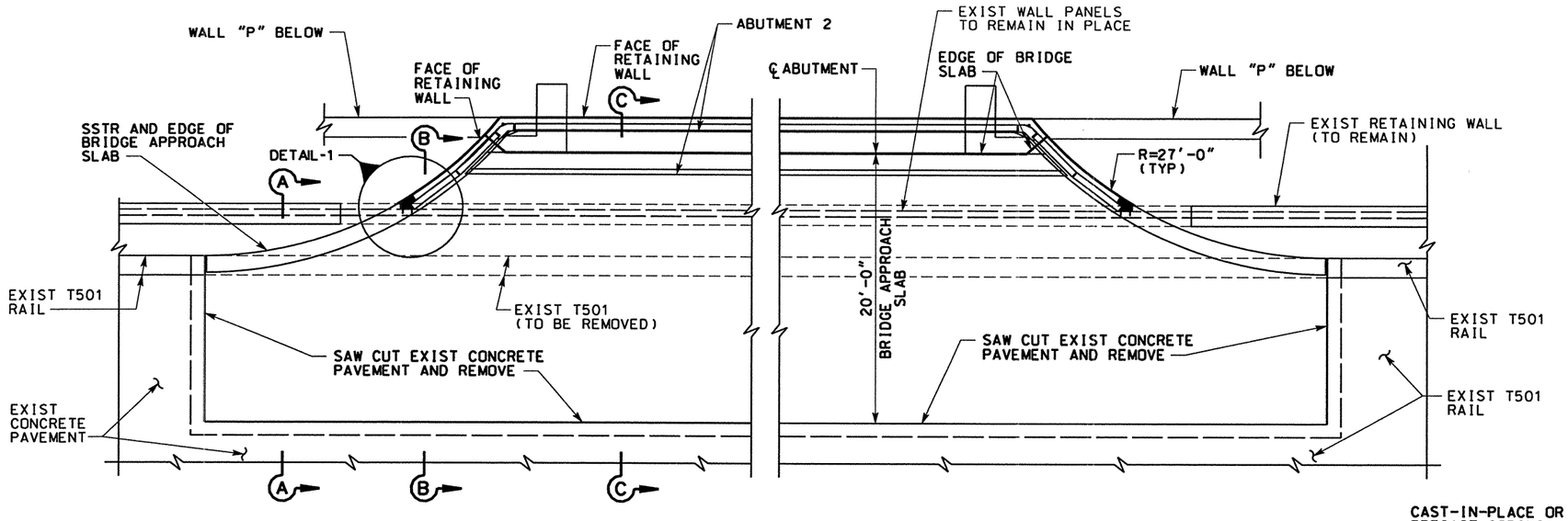
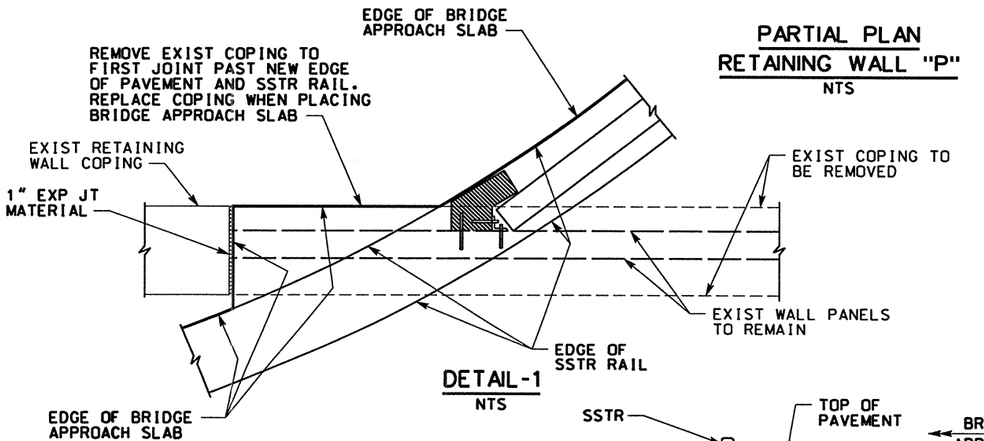


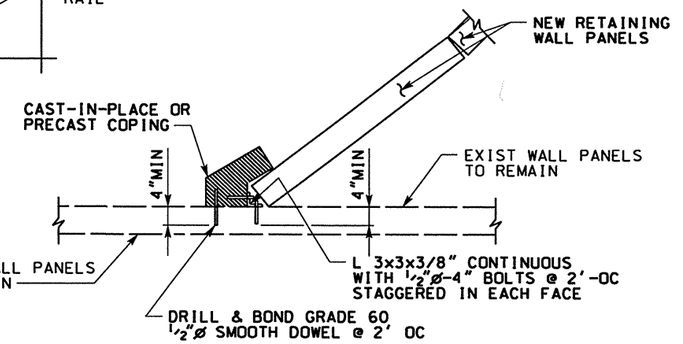
PARTIAL PLAN
RETAINING WALL "P"
NTS

NOTES:

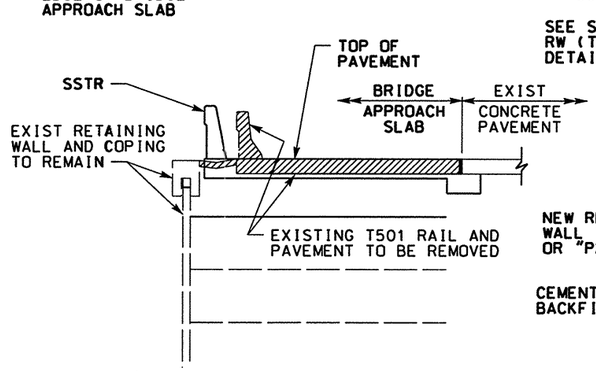
1. CONTRACTOR ~~MAY~~ SUBMIT AN ALTERNATE METHOD OF ATTACHMENT OF COPING TO EXIST PANELS.
2. THE COST FOR WORK REQUIRED TO RETROFIT THE NEW WALL TO THE EXIST WALL AS SHOWN ON THIS SHEET ~~SHALL BE~~ INCLUDED IN THE UNIT PRICE BID FOR ITEM RETAINING WALL (MSE).
3. FOR ADDITIONAL DETAILS SEE "RETAINING WALL LAYOUT" WALL "P" SHEET.
4. ~~PROPOSED~~ MSE WALL TO MATCH EXISTING WALL FACIA AND PATTERN.



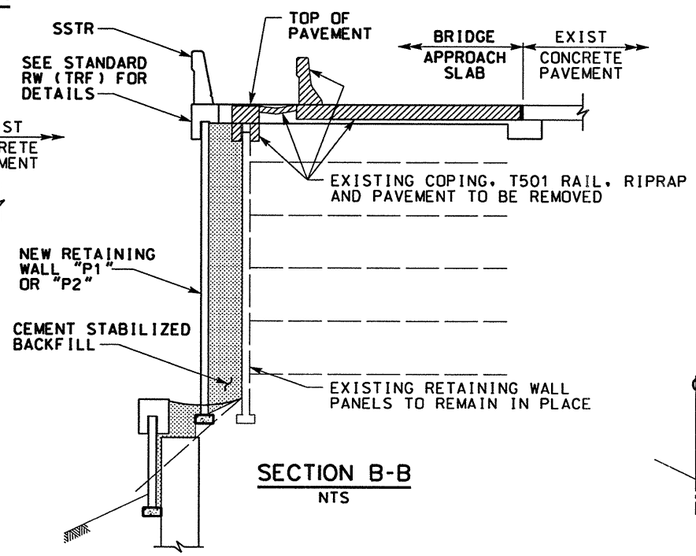
DETAIL-1
NTS



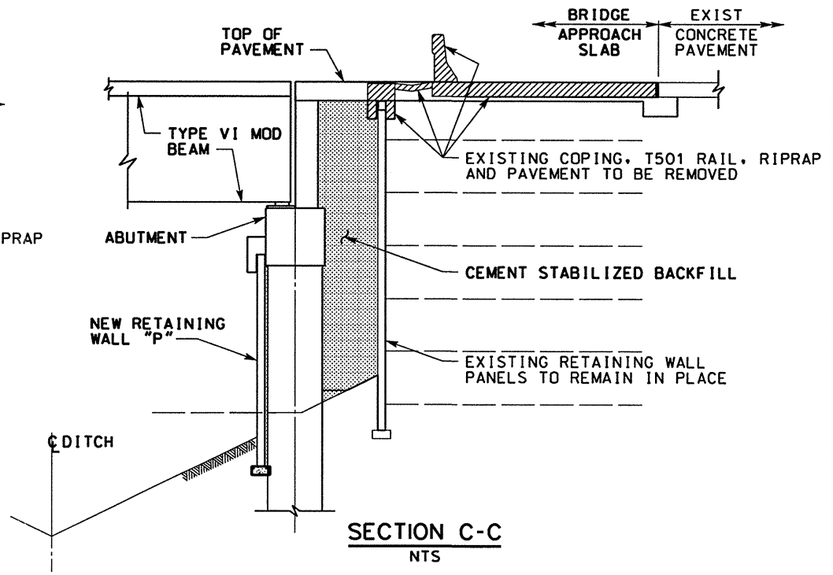
WALL TIE IN DETAIL
PLAN VIEW BELOW COPING
NTS



SECTION A-A
NTS



SECTION B-B
NTS



SECTION C-C
NTS

STATE OF TEXAS
JAMES B. HORNSBY
NO. 81485
REGISTERED PROFESSIONAL ENGINEER

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James B. Hornsby

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IH 35
LOOP 20 TO UNIROYAL ROAD
RETAINING WALL "P" DETAILS AT CARRIER ABUTMENT

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		~~438~~
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011cp01.bdr, bdr LV ON = 48,57,58,60-62

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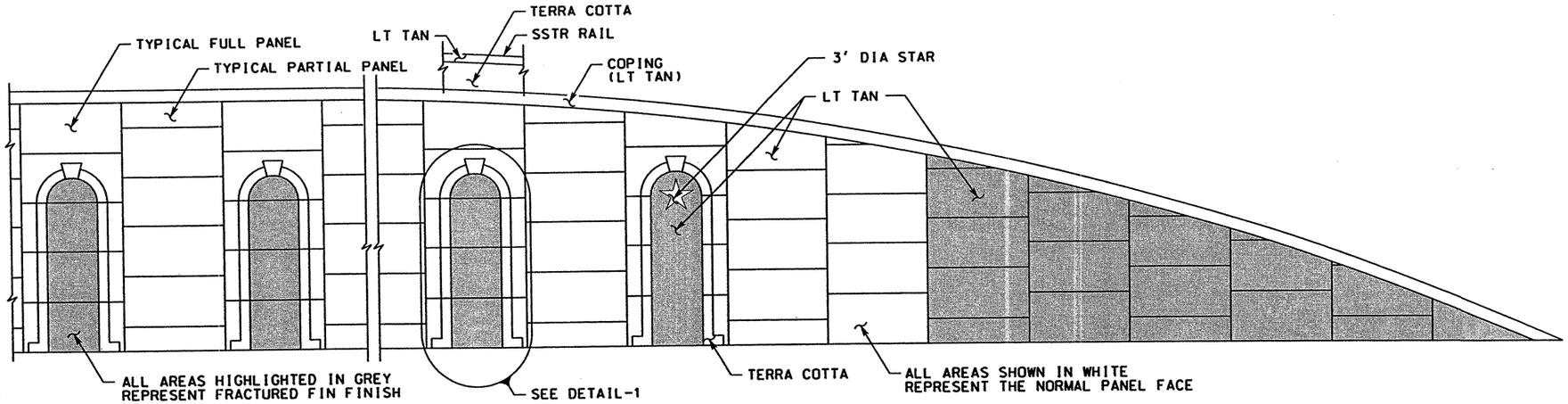
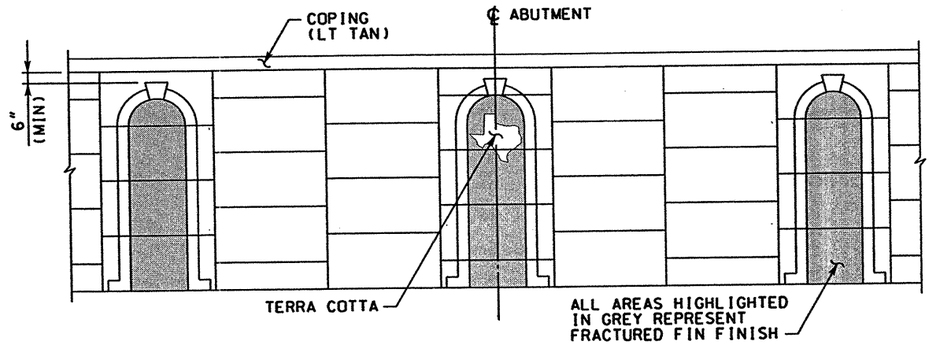


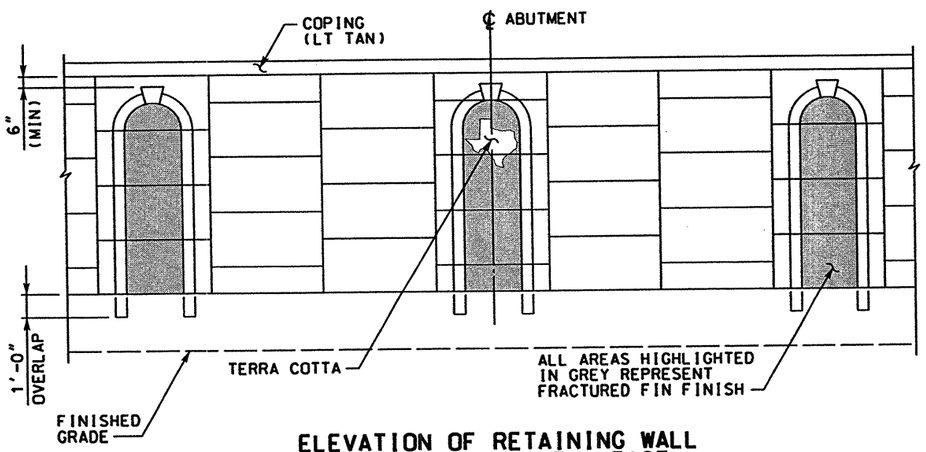
ELEVATION OF RETAINING WALLS (WALLS C, E, F, I, M & O)

NTS



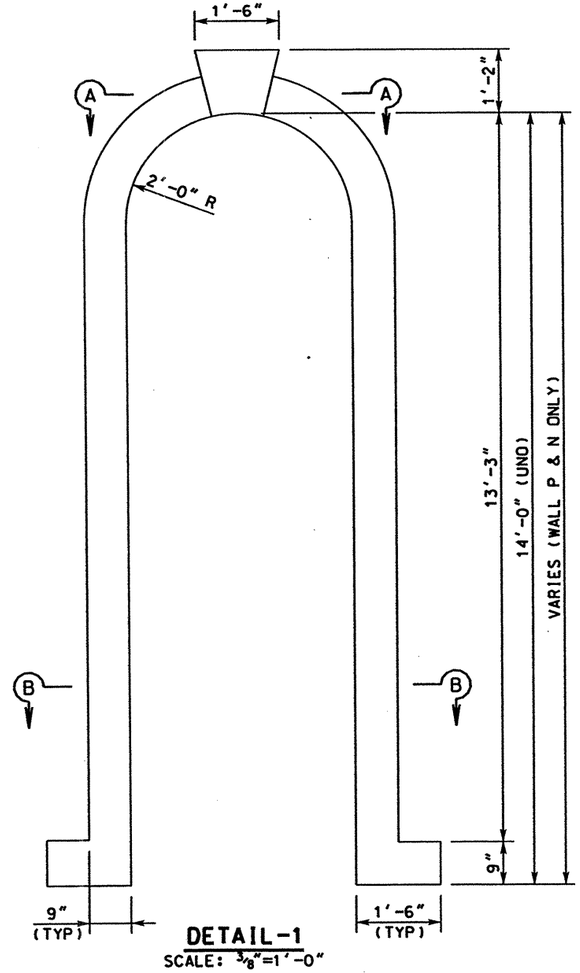
ELEVATION OF RETAINING WALLS AT ABUTMENTS (WALLS D & N)

NTS



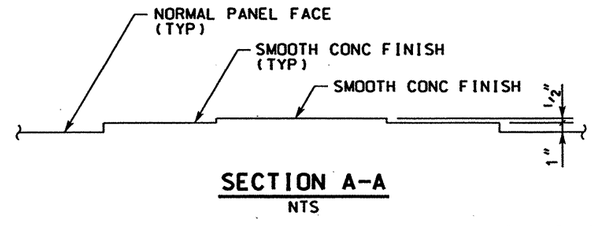
ELEVATION OF RETAINING WALL AT CARRIER DRIVE - EAST ABUTMENT (PORTION OF WALL P)

NTS



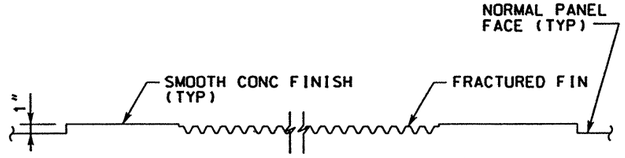
DETAIL-1

SCALE: 3/8"=1'-0"



SECTION A-A

NTS



SECTION B-B

NTS

GENERAL NOTES:

1. ALL EXPOSED CONCRETE SURFACES ~~SHALL BE~~ LIGHT TAN UNLESS OTHERWISEE INDICATED. INDICATED STAIN COLORS ARE H&C SILICON ACRYLIC CONCRETE STAINS MANUFACTURED BY FLR PAINTS, INC. AND DISTRIBUTED BY THE SHEWIN-WILLIAMS COMPANT. OR AN APPROVED EQUAL.
2. AREAS OF PROJECTION FROM THE NORMAL PANEL FACE ~~MAY BE~~ CAST AGAINST A WOODEN FORM FACE.
3. SPECIAL TREATMENT OF PANELS ~~WILL BE~~ SUBSIDIARY TO THE COST OF THE RETAINING WALL. ITEM 423.
4. PANELS ARE SHOWN WITH NOMINAL 4'x8' DIMENSIONS FOR ILLUSTATION PURPOSES ONLY.
5. ADD 10% DRAFT TO ALL DIMENSIONS.
6. ARCHES TO REPEAT ALONG WALL AS WALL HEIGHT PERMITS. FRACTURED FIN TO BEGIN 2 PANELS BEYOND LAST ARCH.
7. ALL WALLS NOT DETAILED WITH ARCHES ~~SHALL BE~~ FRACTURED FIN. WALLS B, G, H, J, K, L, REMAINDER OF P, O, R, S & T.
8. CONTRACTORS ~~SHALL~~ SUBMIT A COLORED 1'x1' CONCRETE PANEL FOR APPROVAL BY THE ENGINEER.

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY PE 81485, ON APRIL 18, 2003

James B. Hornsby

KBR

Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

RETAINING WALL ARCHITECTURAL DETAILS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	439
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): J011op01.bdr, bdr LV ON = 48,57,58,60-62

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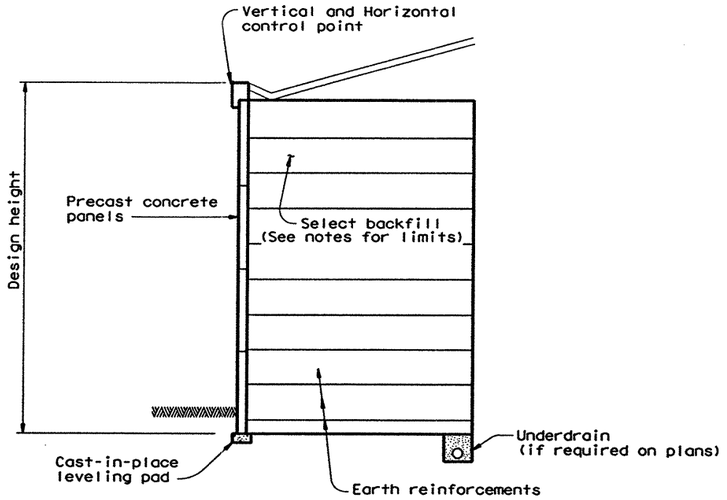
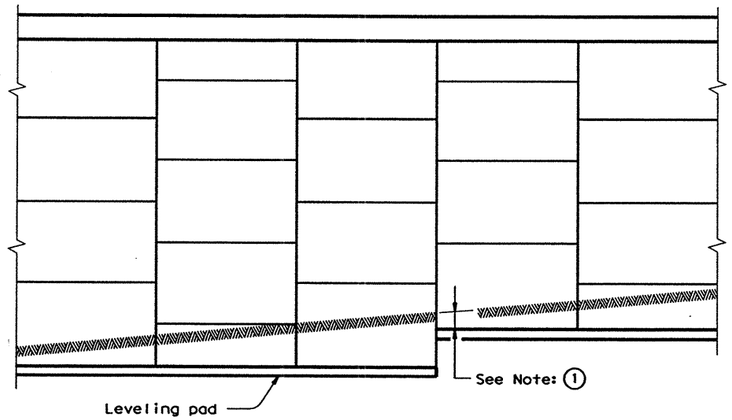


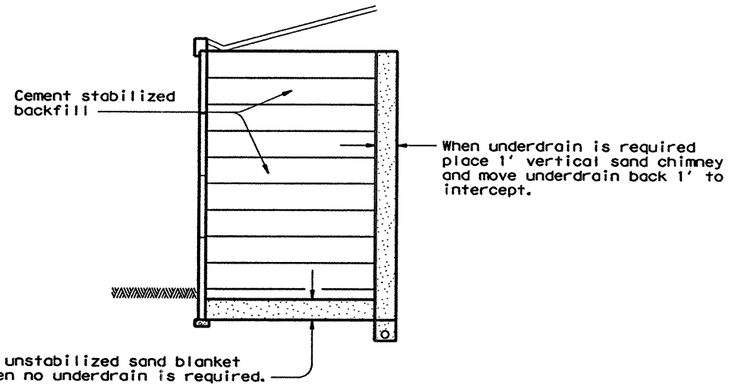
TYPICAL SECTION

(Wall at bottom of slope)



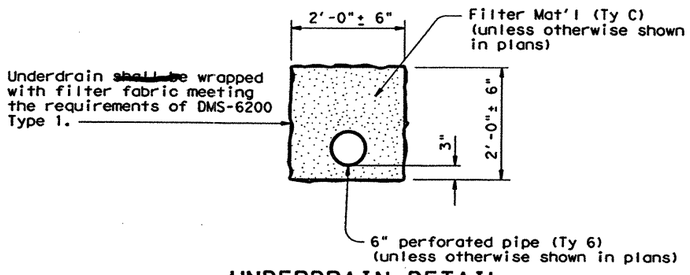
ELEVATION

① NOTE: Unless noted elsewhere in the plans, 1' minimum cover ~~shall be~~ provided from the top of leveling pad to finish grade.

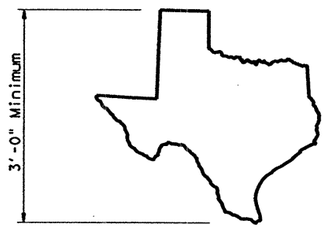


SPECIAL DRAINAGE PROVISIONS

(For use when cement stabilized backfill is used)



UNDERDRAIN DETAIL



MAP OF TEXAS EMBLEM

Map of Texas emblem ~~shall be~~ formed into a wall panel next to each bridge abutment. The exact location of each emblem ~~shall be~~ approved by the Engineer. The cost of forming the emblems ~~will not~~ be paid for directly, but ~~shall be~~ incidental to the Item "Retaining Wall".

The map of Texas ~~shall be~~ inset a minimum of ¾" into the face of the panel, and ~~shall~~ receive a smooth finish. The inset area shall be finished in a contrasting color as approved by the Engineer.

DESIGN PARAMETERS:

Design of retaining walls ~~shall be~~ based on the following design parameters:

Random Backfill (Embankment of Existing Soils)	unit weight = 125 pcf Ø = 30° c = 0 psf
Select Backfill	unit weight = 125 pcf Ø = 34° c = 0 psf
Cement Stabilized Select Backfill	unit weight = 125 pcf Ø = 45° c = 0 psf

Stress in steel and concrete shall be in accordance with current AASHTO Standard and Interim Specifications.

The minimum length of earth reinforcements shall be 8'-0".

STABILITY CRITERIA:

Factor of safety in sliding along the base of the structure shall be greater than or equal to 1.5.

Factor of safety in overturning shall be greater than or equal to 2.0.

The base pressure resultant shall fall within the middle third of the retaining wall.

The factor of safety against pullout of the earth reinforcements shall be greater than or equal to 1.5 at each level. Pullout resistance shall be determined from test data evaluated at ¾ inch strain.

CORROSION CRITERIA:

The earth reinforcement elements shall be designed to have a corrosion resistance - durability to ensure a minimum design life of 75 years. Maximum loss per side due to corrosion shall be computed by assuming a uniform loss model based on the following

Zinc corrosion rate (First 2 years) - 15 µm/yr.
Zinc corrosion rate (subsequent years) - 4 µm/yr.
Carbon steel corrosion rate - 12 µm/yr.

All stress and pullout calculations shall be done on the calculated earth reinforcement section remaining after 75 years.

GENERAL NOTES:

Section and elevation shown is for informational purposes only. Specific geometry is to be determined based on wall layouts and other plan information.

The select backfill specified for use within the mechanically stabilized earth volume shall extend horizontally from the back of the panels to the end of the earth reinforcements. The select backfill shall extend vertically from the top of the leveling pad or 4" below the lowest earth reinforcement, whichever is lower, to the top of panels.

The uppermost earth reinforcements shall be no more than 3.0' below the top of wall.

The lowest level of earth reinforcements shall be no more than 2.0' above the top of the leveling pad.

Minimum wire size for earth reinforcements shall be W7.0. If different longitudinal and cross wires are used in an earth reinforcement mesh, the smaller wire shall have at least 50% of the cross sectional area of the larger wire.

Standard precast concrete panels shall have a maximum height of 6', and a maximum surface area of 50 sq ft. Minimum panel thickness shall be 5". Panels shall be arranged to provide offset horizontal joints.

An open joint shall be provided around the perimeter of the concrete panels. The nominal joint opening shall be between ⅜" and ¾". The joint configuration shall be such that the filter fabric or pad materials are not exposed at the wall face.

A one-piece corner panel shall be provided for wall angle changes of greater than 30 degrees. Butting of chamfered panels will be allowed for angle changes of 30 degrees or less.

Concrete coping shall be provided along the top of wall, at the vertical steps at bridge backwalls, and at other vertical steps along the top of wall. The joints between all coping segments shall be sealed to prevent infiltration of water into the retaining wall backfill. Sealing shall be in accordance with the Item "Joint Sealants and Fillers", using Class 4 joint sealant.

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LEVELS 0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

PATH:

Texas Department of Transportation
Bridge Division

MECHANICALLY STABILIZED EARTH RETAINING WALL

RW(MSE)

FILE: ~~rwstde01.dgn~~	DN: TxDOT	CK: TxDOT	DW: GHO		CK: MPM		
©TxDOT April 2002	DISTRICT	FEDERAL AID PROJECT				SHEET	
REVISIONS	22	NH-2002 (79)				440	
	COUNTY		CONTROL	SECT	JOB	HIGHWAY	
	WEBB		0018	05	062, ETC	IH 35	

4/18/2003
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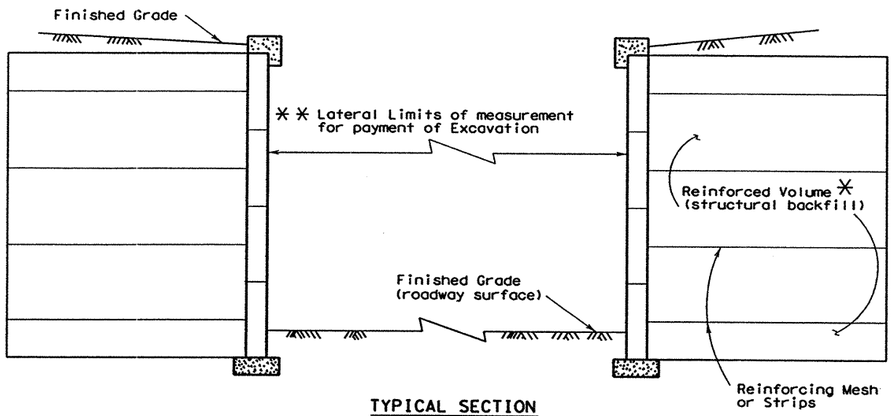
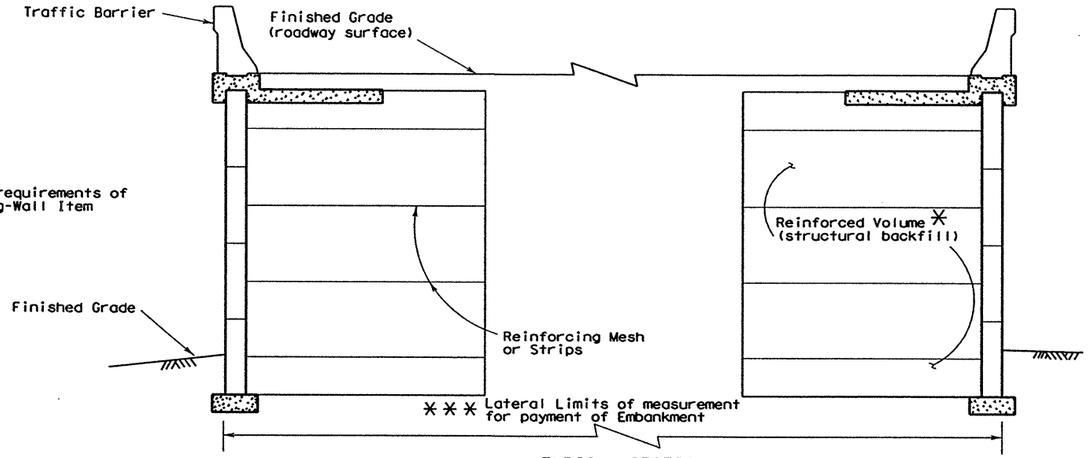


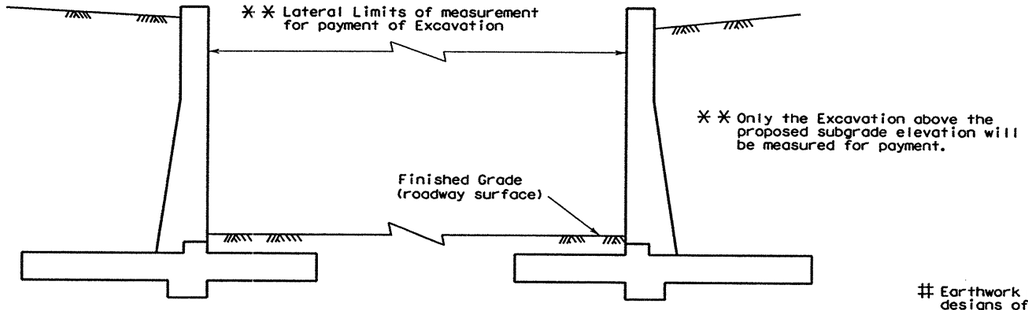
TYPICAL SECTION

Excavation Between Retained Earth or Reinforced Earth Retaining Walls



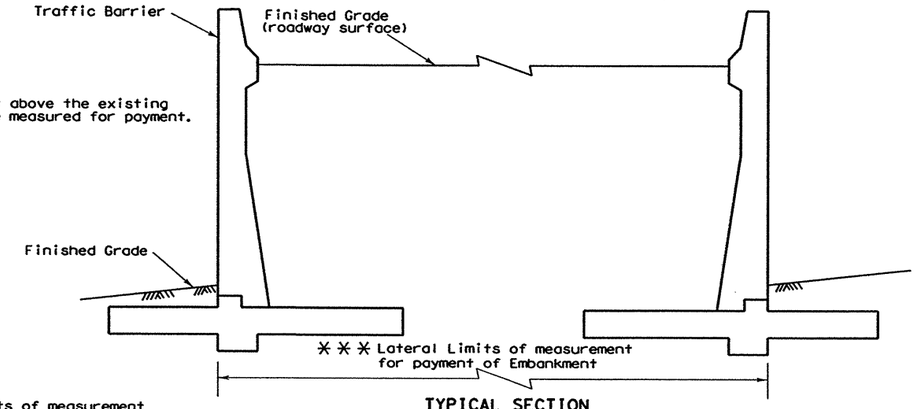
TYPICAL SECTION

Embankment Between Retained Earth or Reinforced Earth Retaining Walls



TYPICAL SECTION

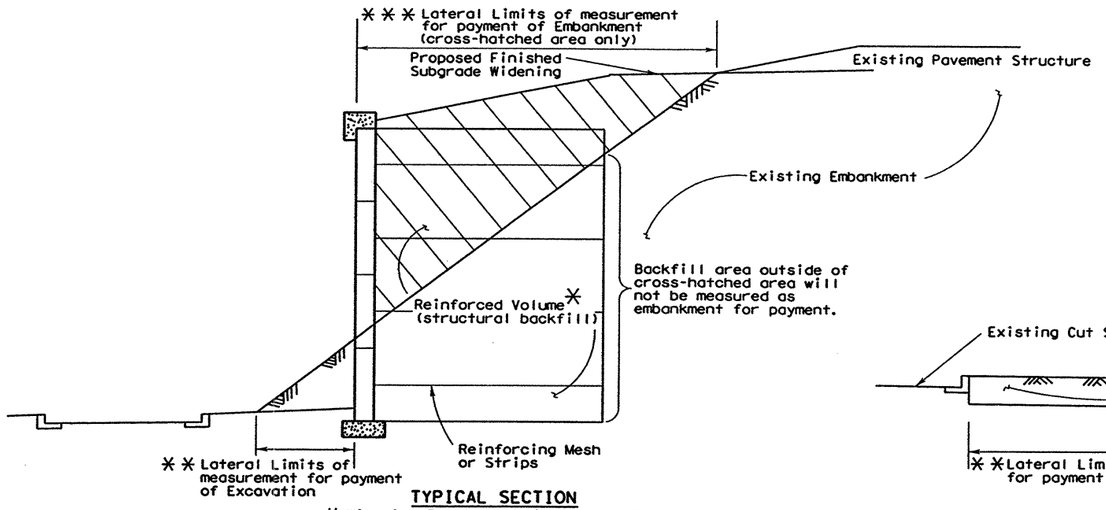
Excavation Between Conventional Retaining Walls



TYPICAL SECTION

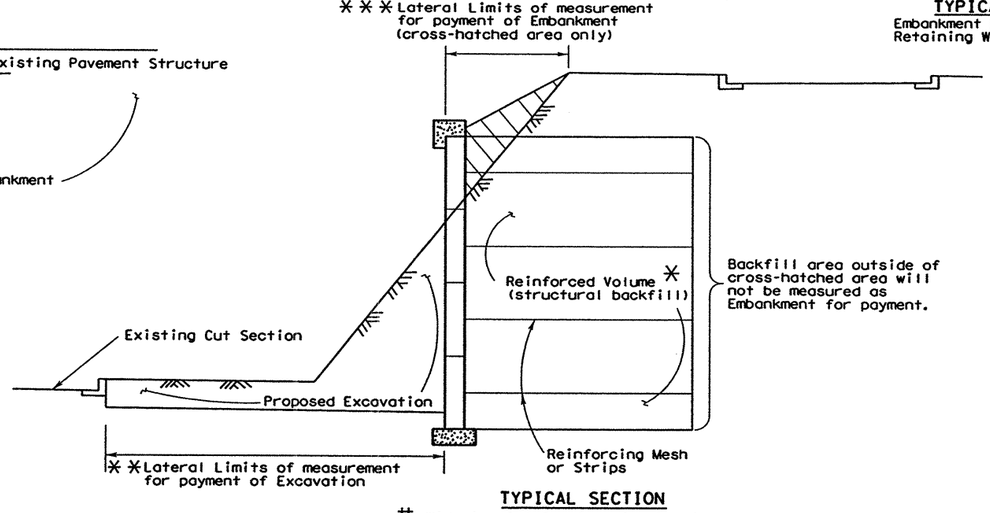
Embankment Between Conventional Retaining Walls

Earthwork measurement with other designs of retaining walls will be made to the outside finished face in the same manner.



TYPICAL SECTION

Widening Embankment with Retained Earth or Reinforced Earth Retaining Walls



TYPICAL SECTION

Widening Cut Section with Retained Earth or Reinforced Earth Retaining Walls

Texas Department of Transportation
Design Division (Roadway)

EARTHWORK MEASUREMENT AT RETAINING WALLS

EMRW-94

ORIG DRAW DATE: MARCH 1994	DW - TCM	CK - TCM	DW - BGD	CK -	MSG NO.	A12
© TxDOT 1994 MODIFICATIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT			SHEET
	22	6	NH-2002 (79)			441
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	WEBB		0018	05	062, ETC	IH 35

LEVELS DISPLAYED
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7 17 18 19 20 22 23 24 25 26 27 28 29 30 31 32
33 34 35 39 63 73 80 94 041 242 343 445 546 647 748
95 05 16 25 26 35 45 56 57 66 76 86 96 061 162 63

ACC: /usr/d481303
FILE: EMRW94.DGN

4/18/2003
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b34mp147.dgn-01

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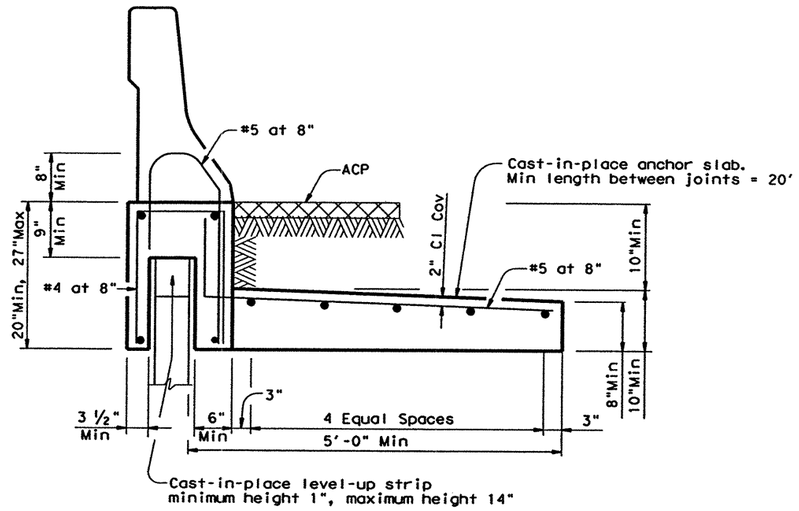
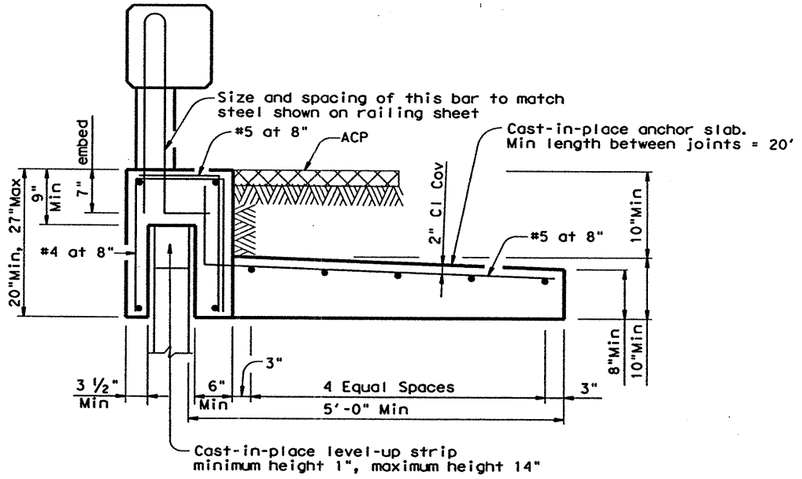
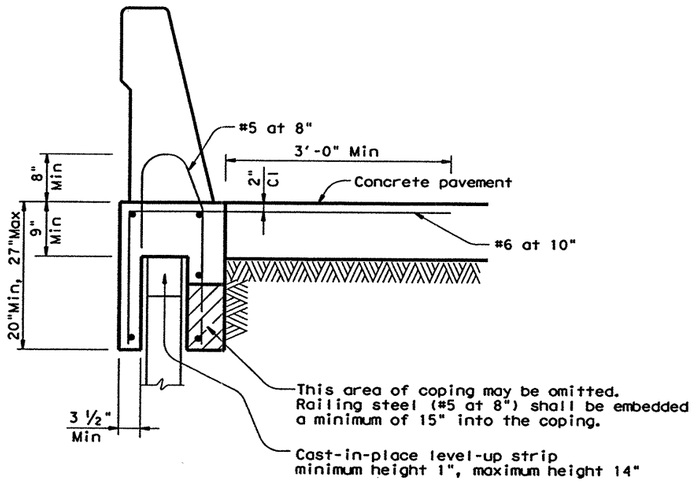


"WIDE BASED" RAILING
T501, T502, C501, C502 & SSTR
ADJACENT TO ACP

(SHOWING TYPE T501 RAIL)

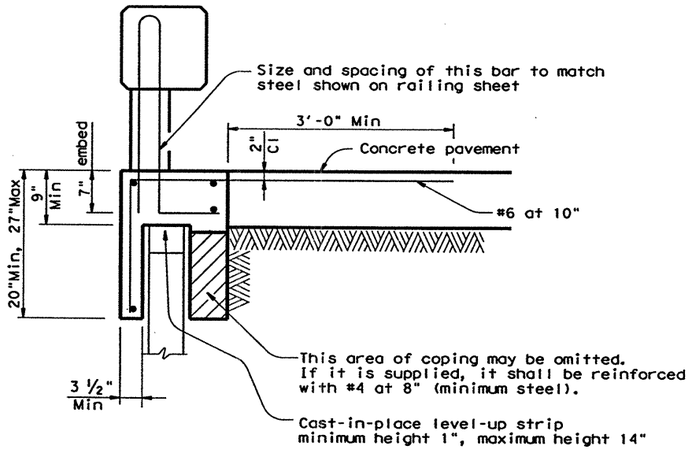


"NARROW BASED" RAILING
T201, T203, T4, T411, C201, C203, C4 & C411
ADJACENT TO ACP



"WIDE BASED" RAILING
T501, T502, C501, C502 & SSTR
ADJACENT TO CONCRETE PAVEMENT

(SHOWING SINGLE SLOPE RAIL - TYPE SSTR)



"NARROW BASED" RAILING
T201, T203, T4, T411, C201, C203, C4 & C411
ADJACENT TO CONCRETE PAVEMENT

CAST-IN-PLACE COPINGS:
Casting of the coping directly against the precast panel sides will not be permitted, as this may result in panel cracking. The contractor shall use a ¼" (Min) compressible material on both sides of the panel to isolate the coping from the precast panel.
When cast-in-place coping is anchored to reinforced concrete pavement, a smooth level-up strip shall be provided on the top of the precast panels. The purpose of the level-up is to allow the pavement and coping to move longitudinally relative to the wall without causing damage.
Railing and coping joints shall be provided at 33' maximum spacing. Railing and coping joints shall be placed to coincide with precast panel joints.

PRECAST COPINGS:
A smooth level-up strip shall be provided on top of the precast panels prior to installation of the coping. Shims may be used on top of the level-up strip to facilitate alignment.
Precast coping shall be provided in 10' minimum lengths.

JOINTED CONCRETE PAVEMENT:
When coping is adjacent to and anchored into jointed concrete pavement, the coping joints shall coincide with the pavement joints.

JOINT SEALER:
The joints between coping segments shall be sealed in accordance with the Item "Joint Sealants and Fillers", joint sealing material, Class 4. The joint shall be sealed 3" below and 6" above the adjoining pavement surface, or as directed by the Engineer. The purpose of the joint sealing is to contain surface drainage and prevent infiltration into the retaining wall backfill.

GENERAL NOTES:
Details on this sheet are to be used in development of specific details for mounting traffic railing on mechanically stabilized earth (MSE) walls.
The specific details proposed shall have strengths equivalent to those shown on this sheet. Areas of particular importance are the connection of the coping to the railing, the strength of the vertical coping leg connecting the railing to the anchor slab, and the connection of the coping to the anchor slab or concrete pavement.
Shop drawings for the traffic railing foundations shall be submitted to the Engineer in accordance with the Item "Retaining Wall". The shop drawings shall include bar bending details.
Precasting of the coping or coping and railing will be allowed. The anchor slab, when required, shall be cast-in-place.
The Contractor's attention is directed to the fact that various configurations of precast coping/railing combinations are covered by patent. The contractor shall provide for use of these systems in accordance with Article 7.3.
Concrete shall be Class "C".
All reinforcing steel shall be Grade 60.
Longitudinal bars shall be #4.
Coping and anchor slabs shall be considered subsidiary to the Item "Retaining Wall". The traffic railing will be paid for by the linear foot for the appropriate railing type.

Texas Department of Transportation
Bridge Division

RETAINING WALL TRAFFIC RAILING FOUNDATIONS

RW(TRF)

FILE: rwstde03.dgn	DN: TxDOT	CK: TxDOT	DW: GHO	CK: MPM
©TxDOT April 2002	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		4/42
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003

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LEVELS DI... AD PATH:

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17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63		

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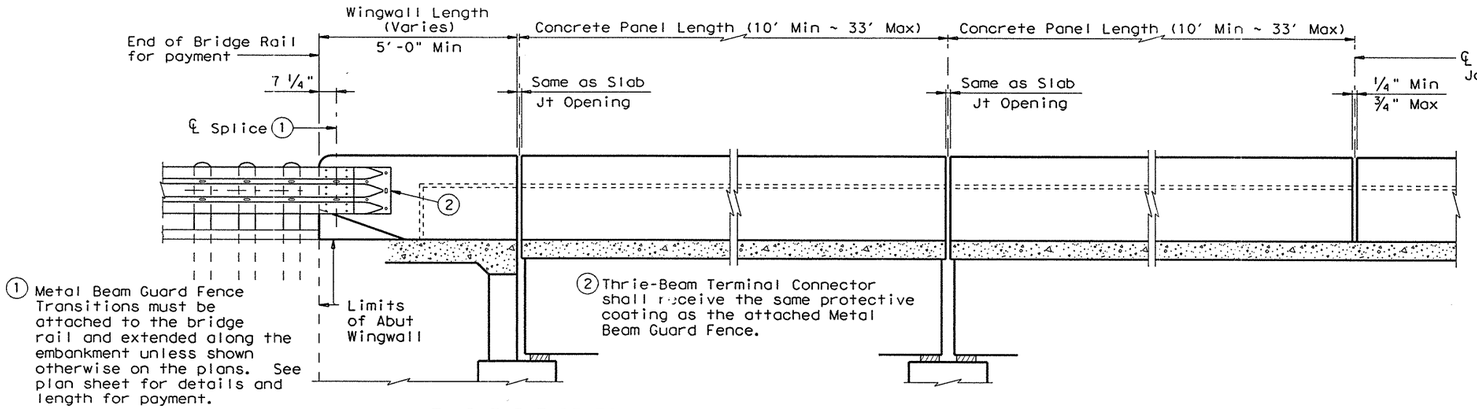
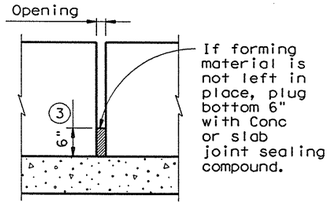


(1) Metal Beam Guard Fence Transitions must be attached to the bridge rail and extended along the embankment unless shown otherwise on the plans. See plan sheet for details and length for payment.

(2) Thrie-Beam Terminal Connector shall receive the same protective coating as the attached Metal Beam Guard Fence.

(3) Increase 2" for structures with Overlay.



INTERMEDIATE WALL JOINT DETAIL

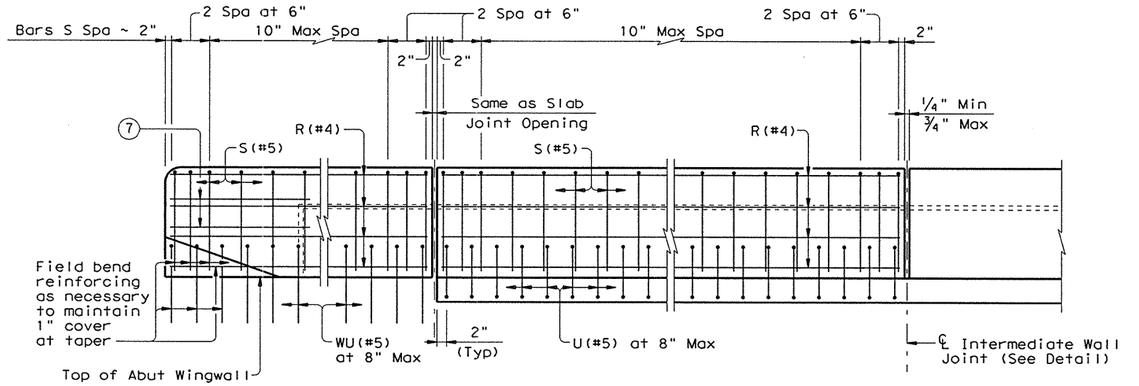
Note: Provide intermediate wall joints over all slab construction joints, over interior supports on continuous units, and at equal intervals in between as necessary to maintain a 33' maximum length of unbroken wall. Material used in forming joint may be left in place if it is compressible and light in color such as the following materials: polystyrene, molded cork granules, sponge rubber sheet, etc.

AT ABUTMENT BENTS

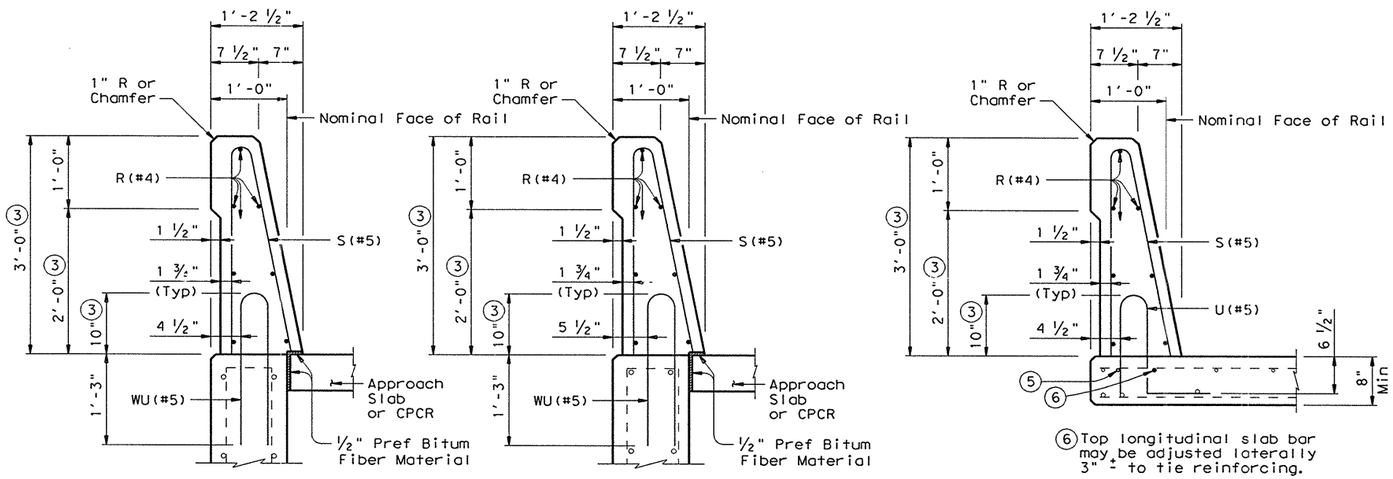
AT SLAB EXP JOINTS

ROADWAY ELEVATION OF RAIL

AT INTERMEDIATE WALL JOINTS



ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT



ON CANTILEVER ABUT WINGWALLS OR CIP RETAINING WALLS

ON FOUNDED ABUT WINGWALLS

ON BRIDGE SLAB

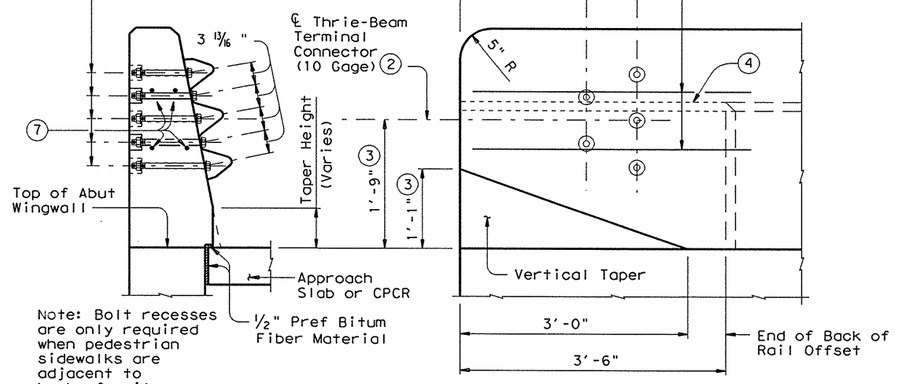
SECTIONS THRU RAIL

(5) As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars shall be furnished at the Contractors expense.

(6) Top longitudinal slab bar may be adjusted laterally 3" ± to tie reinforcing.

℄ 5 ~ 7/8" Dia A325 Hex Head Bolts with two 1 3/4" O.D. washers. Place washer under each head and nut. The 5 Terminal Connection Bolts shall be tightened in a well distributed pattern so to prevent damage or distortion of the Thrie-Beam Connection and the MBGF Transition. Bolts shall be cut off after installation so as to extend no more than 3/4" beyond nut. End of cut-off bolt shall be painted with Zinc-rich paint.

℄ 5 ~ 1" Dia holes and 2 1/2" Dia x 2" deep recesses. Holes and recesses must be formed or cored. Percussion drilling is not permitted. Adjust placement of reinforcing steel as necessary to avoid bolt holes and recesses.



SECTION

ELEVATION

TERMINAL CONNECTION DETAILS

(7) 4 additional Bars R(#4) 3'-8" in length shall be placed inside Bars S(#5) and centered 2'-0" from end of rail when Terminal Connections are required.

(4) Back of rail offset may, with Engineer's approval be continued to the end of the railing.

Texas Department of Transportation
Bridge Division

SINGLE SLOPE TRAFFIC RAILING

TYPE SSTR

FILE: rlstde37.dgn	DN: GHO	CK: TxDOT	DW: JTR	CK: DWM	
©TxDOT February 2003	DISTRICT	FEDERAL AID PROJECT			SHEET
REVISIONS	6	NH-2002(79)			583
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	WISE		008	06	065	NH

ACC:
AYED
LEVELS
1

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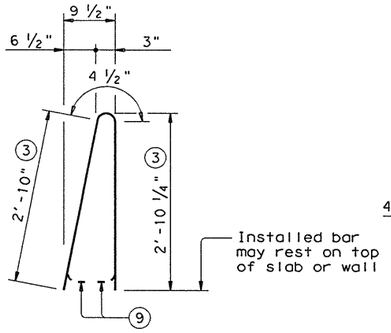

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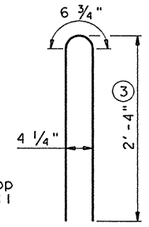

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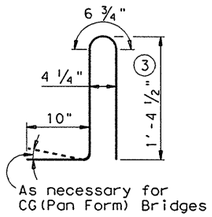

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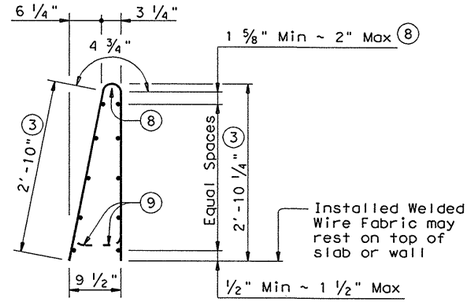


OPTIONAL WELDED WIRE FABRIC

DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	0.933 Sq In.	0.248 Sq In. per Ft
	No. of Wires	Spacing
Minimum	6	4"
Maximum	11	12"
Maximum Wire Size Differential	The smaller wire shall have an area of 40% or more of the larger wire.	

(3) Increase 2" for structures with Overlay.

(8) No longitudinal wires may be within upper bend.

(9) Bend or cut as required to clear drain slots.

GENERAL NOTES:

This rail has been evaluated and accepted to be of equal strength to other safety-shaped railings with like geometry, which have been crash tested to meet NCHRP Report 350 TL-4 criteria and can be used for design speeds of 50 mph and greater.

All parts of the railing including concrete parapet wall, reinforcing, MBGF connections, bolts, nuts and washers are included in the price bid per linear foot of rail.

All steel components except reinforcing shall be galvanized unless otherwise shown in plans.

All concrete for railing wall shall be Class "C".

All reinforcing steel shall be grade 60.

Shop drawings will not be required for this rail.

This railing may be constructed with slip-forms when shown on the plans or approved by the Engineer, with equipment approved by the Engineer. Sensor control for both line and grade must be provided. When slip-forming is used, the concrete may be cured with membrane curing compound.

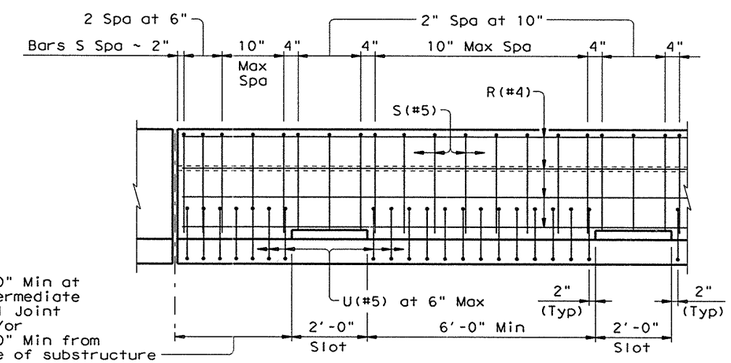
Additional reinforcing may be tack welded to the upper two thirds of the reinforcing cage to provide bracing when slip-forming is used. Additional anchorage devices may be added when welding is necessary in the lower one third of the cage. Do not weld to U or S bars in the lower one third of the cage.

The back of railing shall be vertical unless otherwise shown in the plans or approved by the Engineer.

Deformed welded wire fabric may be used as an option to conventional reinforcement and shall be made in accordance with ASTM A497 (Deformed Wire). Combinations of Reinforcing Steel and Welded Wire Fabric or configurations of Welded Wire Fabric other than shown will be permitted when the conditions in the table are satisfied and the dimension from end of section to first welded vertical wire does not exceed 3".

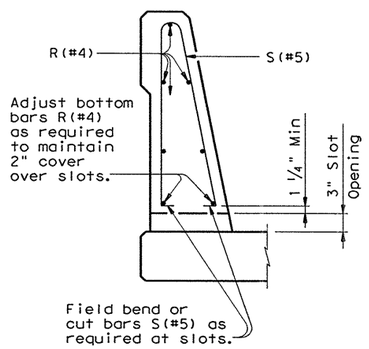
Epoxy coat bars U and WU if slab bars are epoxy coated.

Average weight of railing with no overlay is 376 plf.



OPTIONAL SIDE SLOT DRAIN DETAIL

Note: Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.



SECTION THRU OPTIONAL SIDE SLOT DRAIN

Texas Department of Transportation
Bridge Division

SINGLE SLOPE TRAFFIC RAILING

TYPE SSTR

FILE: rlstde37.dgn	DN: GHO	CK: TxDOT	DW: JTR	CK: DWM
©TxDOT February 2003	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	6	NH-2002(278)		009
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	VARIOUS	0918	05	068	VAR

LEVELS: ACC: AYED 1

DA-B
25.5 AC

DA-C
51.9 AC

DA-D
6.4 AC

DA-E
184.6 AC

DA-A
756.2 AC

DA-G
710.4 AC

DA-H
1243.1 AC

DA-I
45.8 AC

DA-K
7.9 AC

DA-K1
3.2 AC

DA-N
81.9 AC

KILLAM INDUSTRIAL BLVD

TRES EGUIS BLVD

℄ IH 35

PORT LAREDO

CARRIER DR

UNIROYAL RD

0 1000 2000
SCALE: 1" = 2000'

LEGEND

DRAINAGE BOUNDARY
DIRECTION OF FLOW

DA-ID
ACRES

NOTE: ALL ACREAGES SHOWN ARE OFF-SITE VALUES ONLY.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
OVERALL DRAINAGE AREA MAP

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	445
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/15/2003

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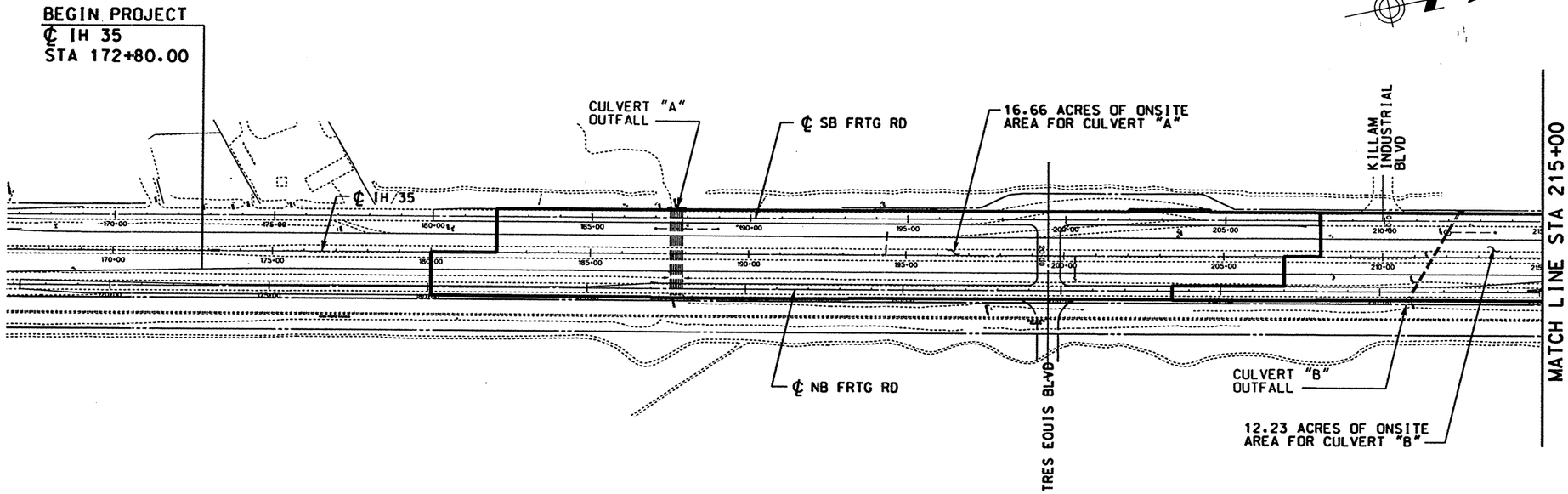

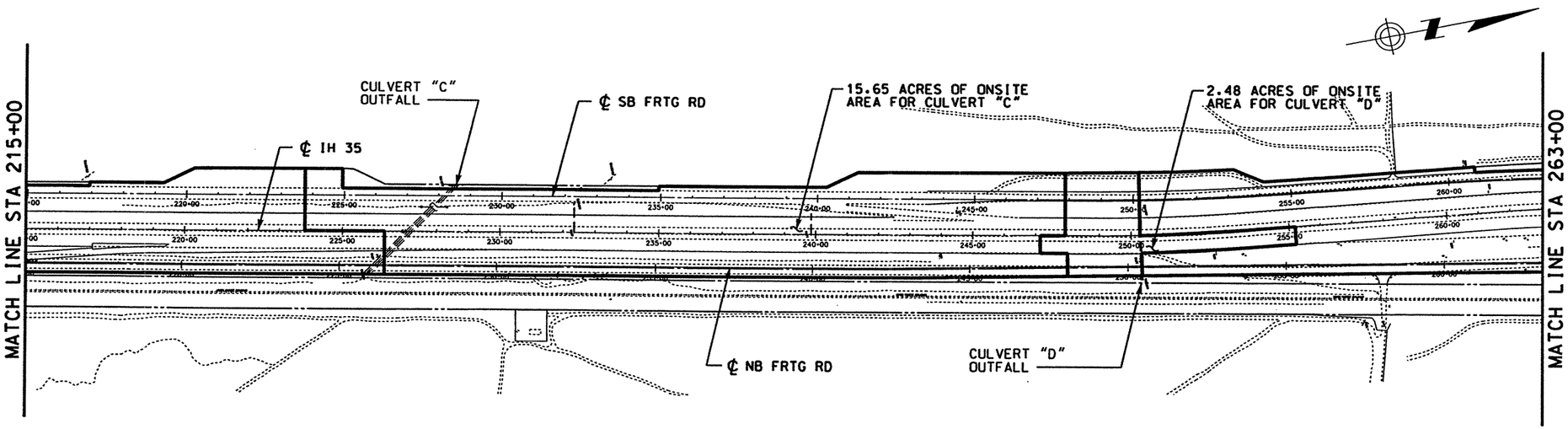

0 200 400
SCALE: 1" = 400'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE AREA MAP (GENERAL)
STA 172+80 TO STA 263+00

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	446
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/18/2003

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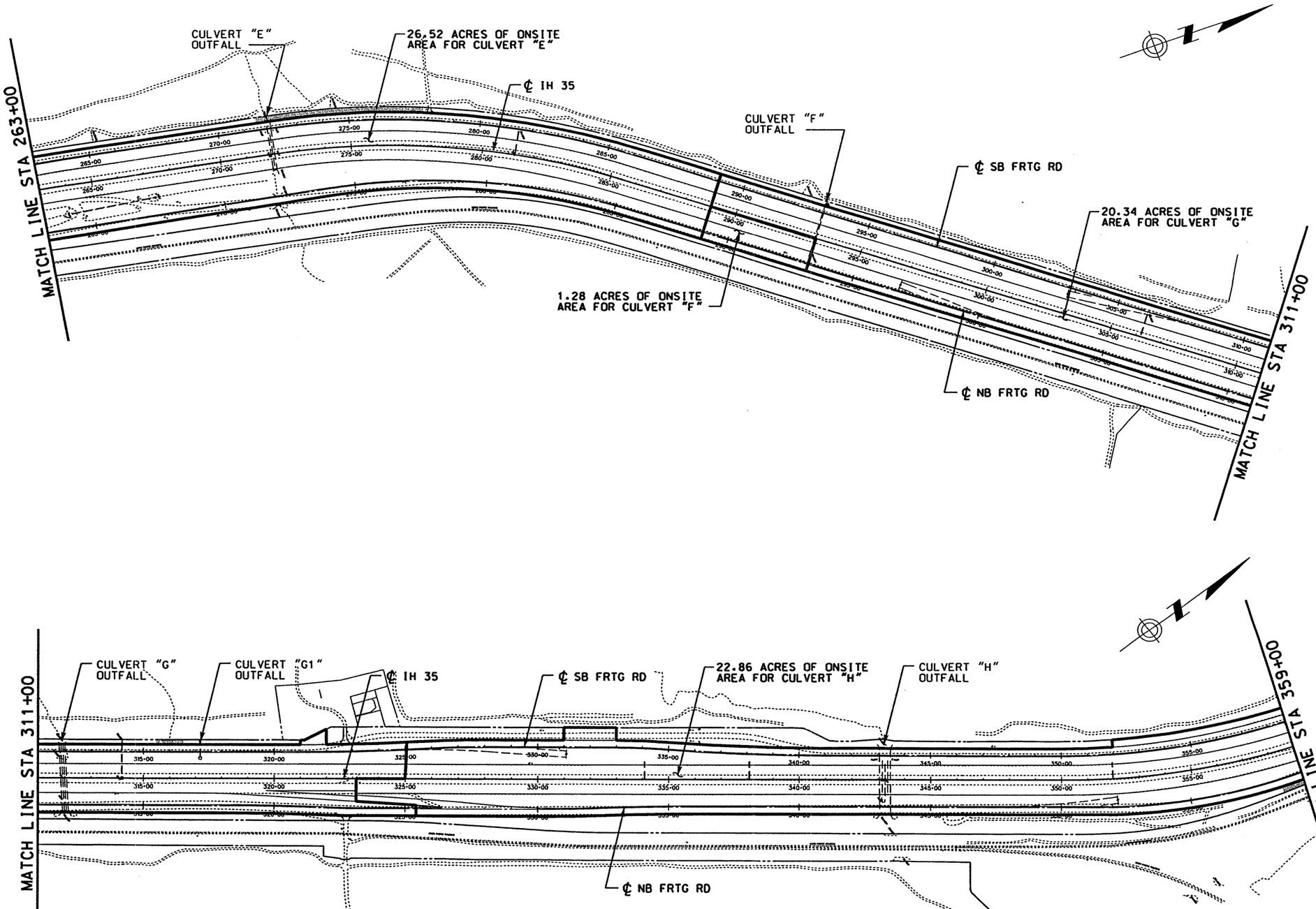

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0 200 400
SCALE: 1" = 400'

STATE OF TEXAS
RUDY L. GOMEZ
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REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE AREA MAP (GENERAL) STA 263+00 TO STA 359+00

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		447
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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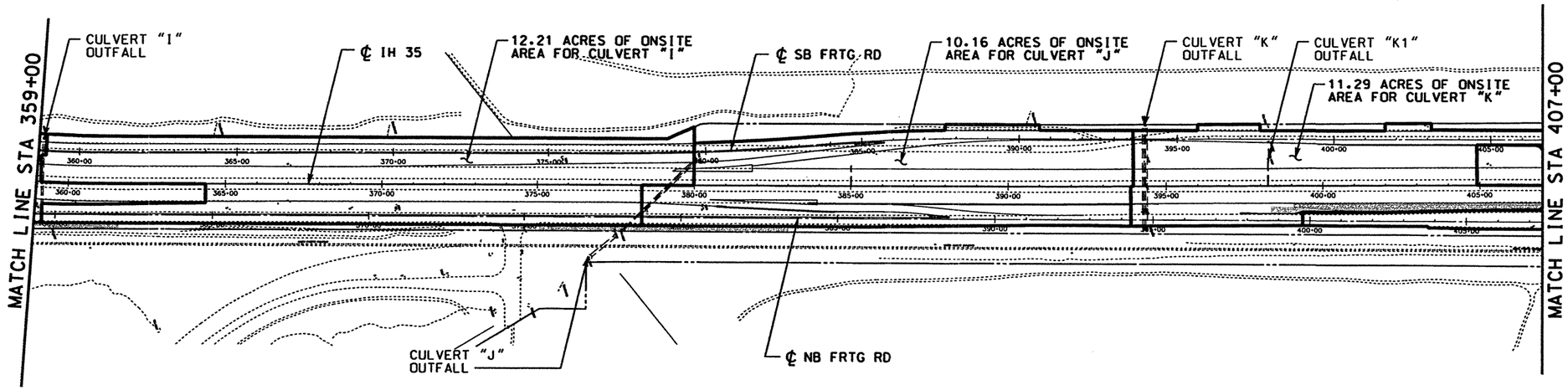

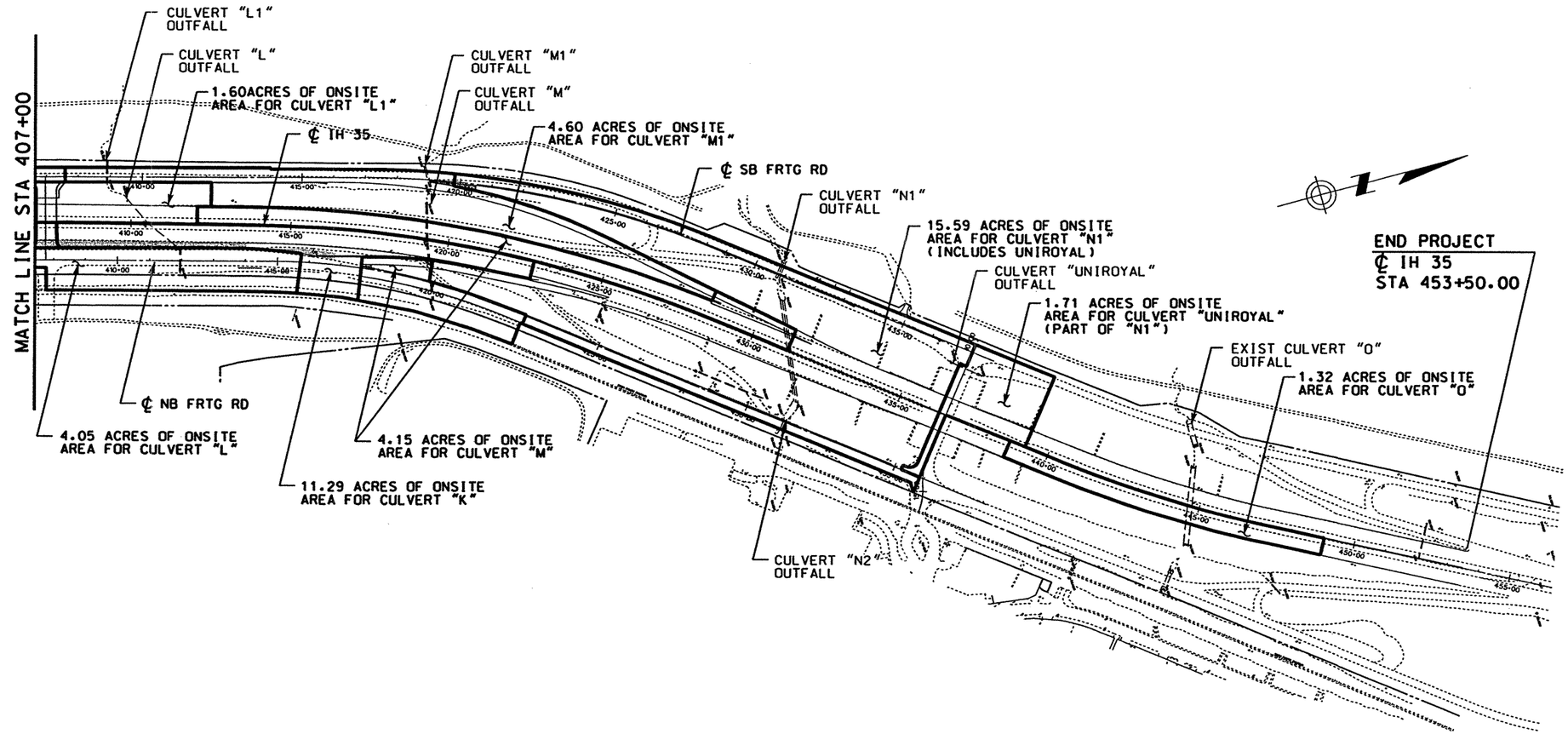

0 200 400
SCALE: 1" = 400'

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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE AREA MAP (GENERAL)
STA 359+00 TO STA 453+50
SHEET 3 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		448
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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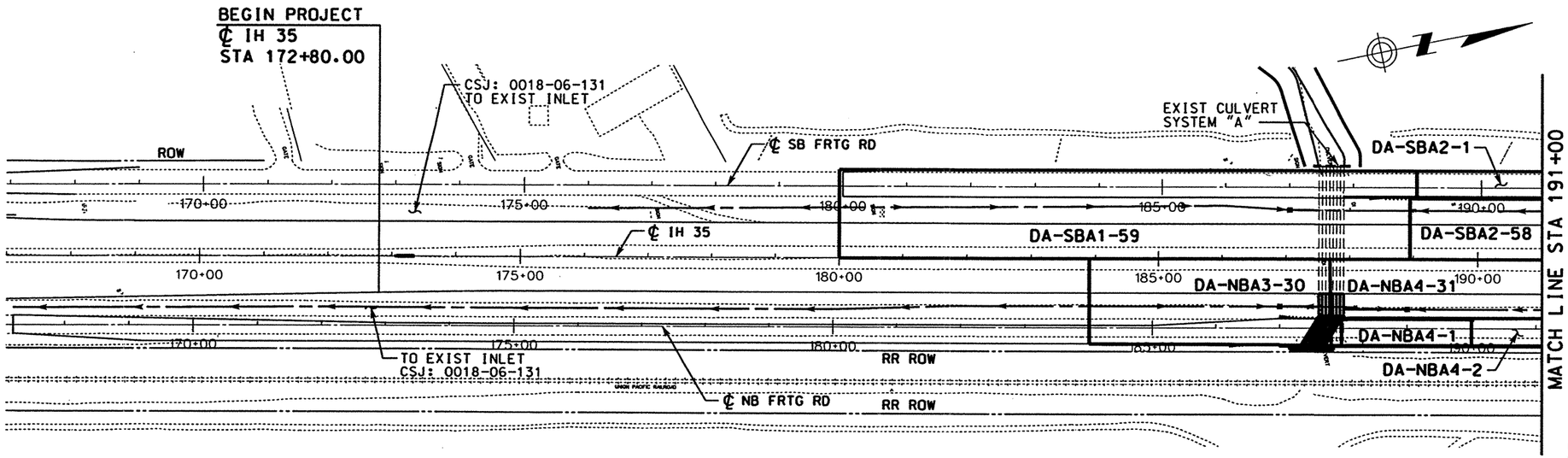

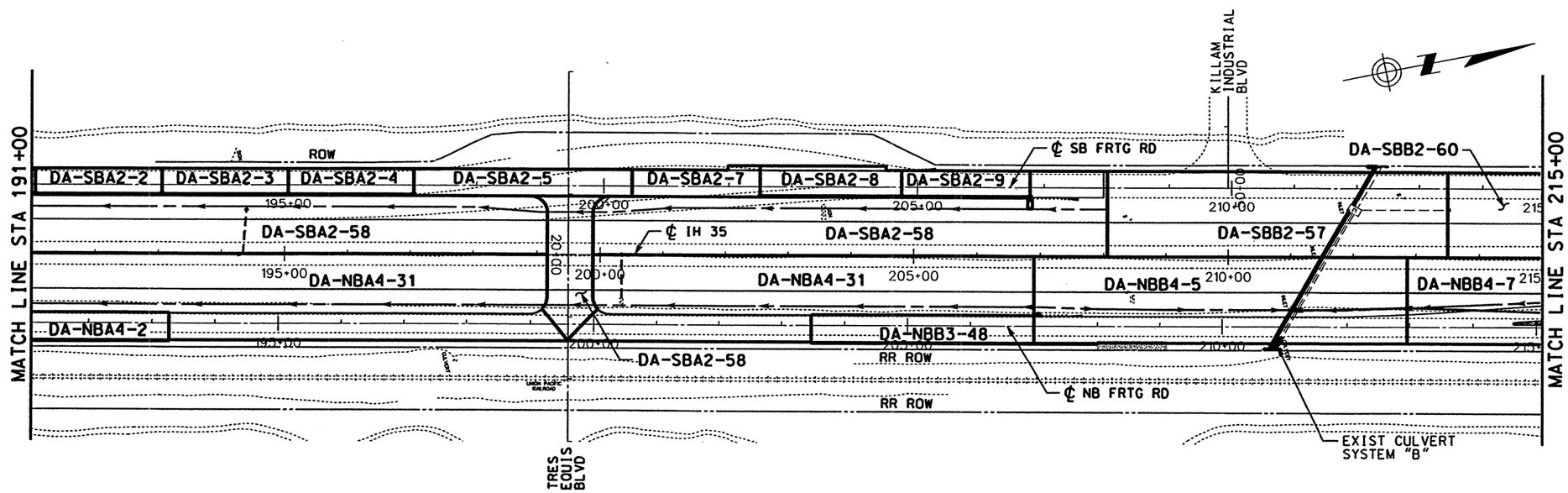

LEGEND

DITCH FLOW

GENERAL NOTES:

1. DESIGN FREQUENCY:

   A. ROADSIDE DITCH - 10 YEAR
   B. INLETS ON MAINLANES - 10 YEAR
   C. INLETS FOR FRONTAGE ROADS - 10 YEAR
   D. TRUNK SYSTEM - 10 YEAR

2. RUNOFF COEFFICIENTS (C)

   A. GRASS - 0.35
   B. PAVEMENT - 0.90

3. AREAS SHOWN FOR RUNOFF FACTOR C=0.90 INCLUDES ADDITIONAL PAVED AREA FOR RAMP AND FRONTAGE ROAD CONSTRUCTION.

0 100 200
SCALE: 1" = 200'

STATE OF TEXAS
RUDY L. GOMEZ
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REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE AREA MAP
STA 172+80 TO
STA 215+00

SHEET 1 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	449
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

4/18/2003

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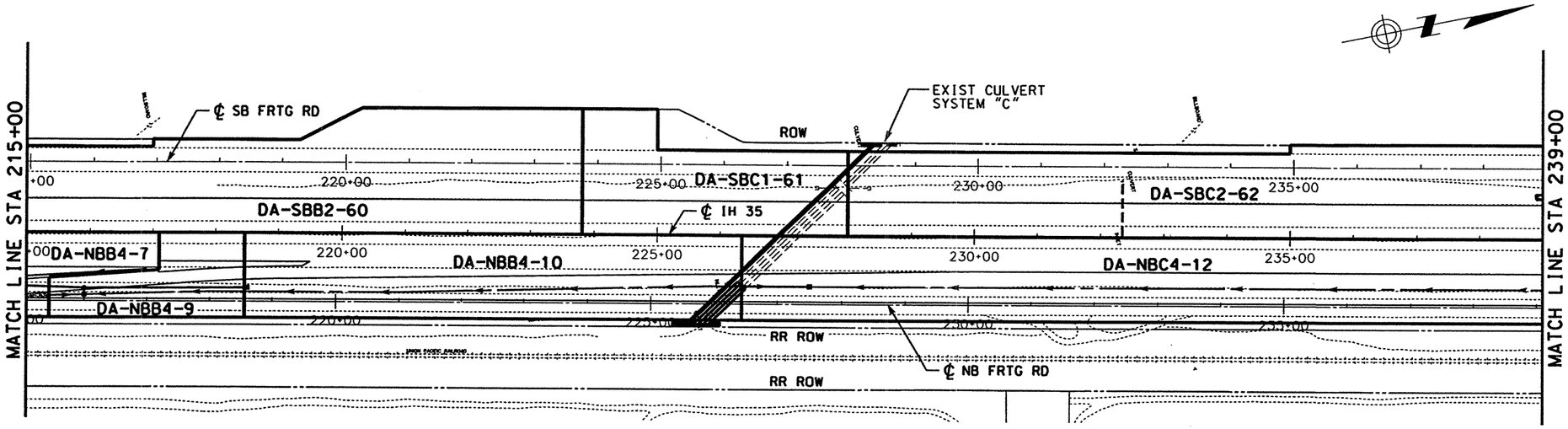

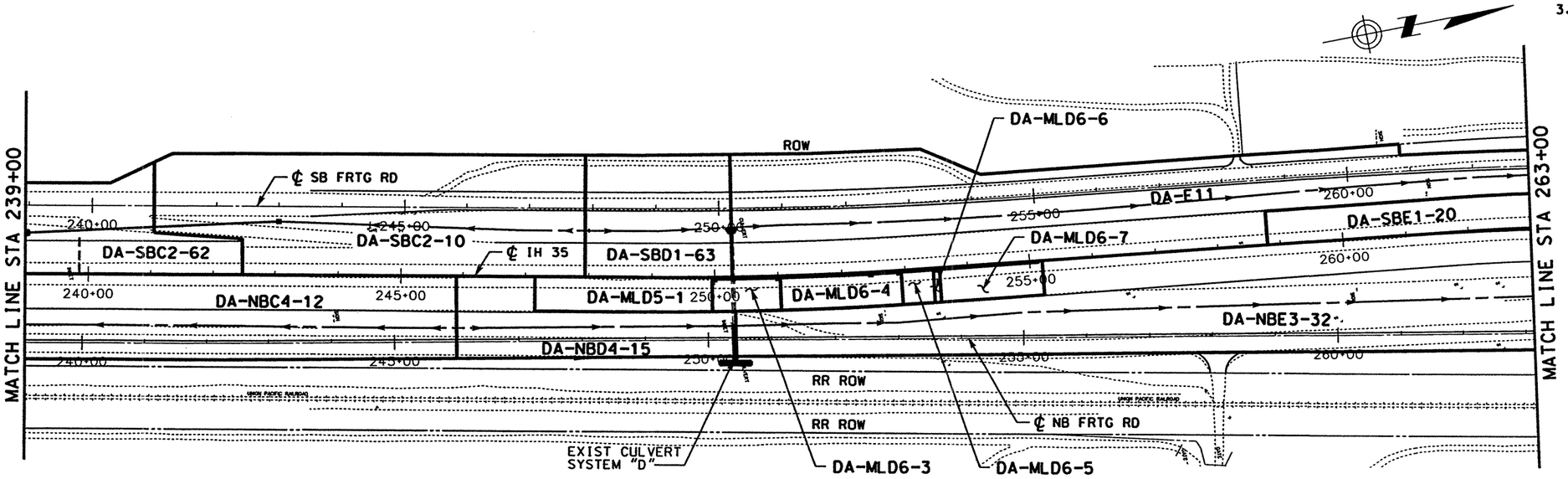

LEGEND

DITCH FLOW

GENERAL NOTES:

1. DESIGN FREQUENCY:

   A. ROADSIDE DITCH - 10 YEAR
   B. INLETS ON MAINLANES - 10 YEAR
   C. INLETS FOR FRONTAGE ROADS - 10 YEAR
   D. TRUNK SYSTEM - 10 YEAR

2. RUNOFF COEFFICIENTS (C)

   A. GRASS - 0.35
   B. PAVEMENT - 0.90

3. AREAS SHOWN FOR RUNOFF FACTOR C=0.90 INCLUDES ADDITIONAL PAVED AREA FOR RAMP AND FRONTAGE ROAD CONSTRUCTION.

0 100 200
SCALE: 1" = 200'

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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE AREA MAP
STA 215+00 TO
STA 263+00

SHEET 2 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		450
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cf0130\

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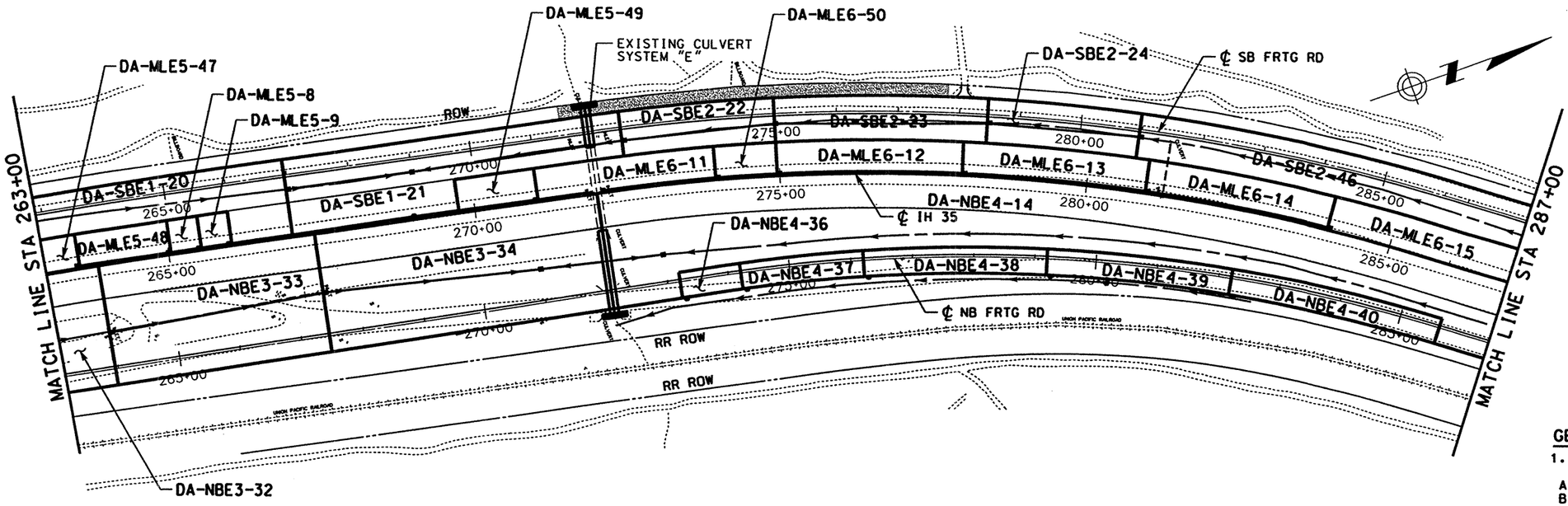

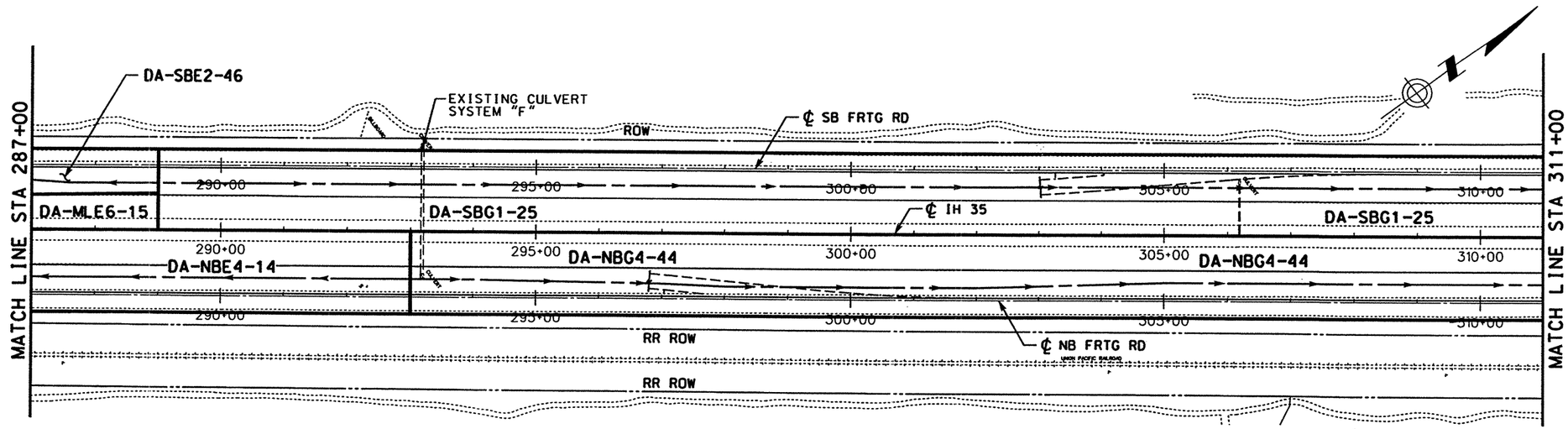

LEGEND

DITCH FLOW

GENERAL NOTES:

1. DESIGN FREQUENCY:

   A. ROADSIDE DITCH - 10 YEAR
   B. INLETS ON MAINLANES - 10 YEAR
   C. INLETS FOR FRONTAGE ROADS - 10 YEAR
   D. TRUNK SYSTEM - 10 YEAR

2. RUNOFF COEFFICIENTS (C)

   A. GRASS - 0.35
   B. PAVEMENT - 0.90

3. AREAS SHOWN FOR RUNOFF FACTOR C=0.90 INCLUDES ADDITIONAL PAVED AREA FOR RAMP AND FRONTAGE ROAD CONSTRUCTION.

SCALE: 1" = 200'

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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE AREA MAP
STA 263+00 TO
STA 311+00

SHEET 3 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	4 SI
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

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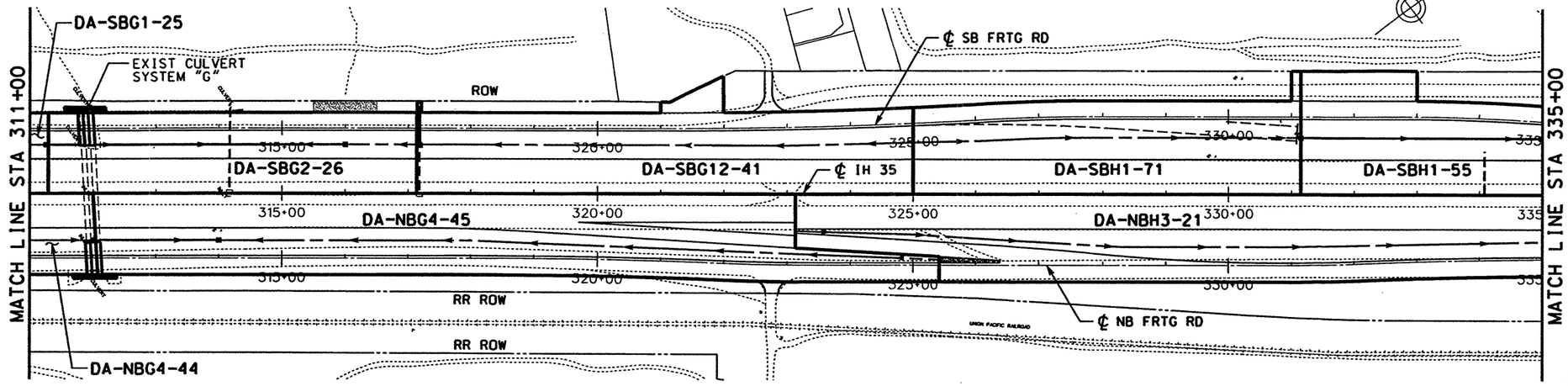

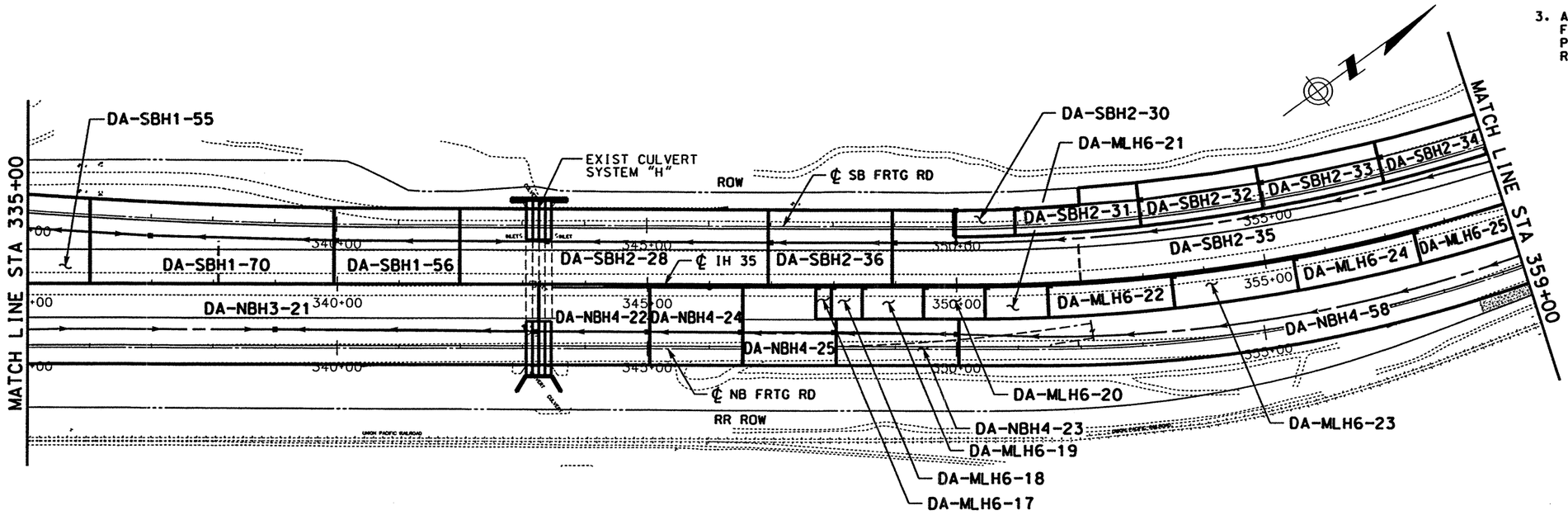

LEGEND

→ DITCH FLOW

GENERAL NOTES:

1. DESIGN FREQUENCY:

   A. ROADSIDE DITCH - 10 YEAR
   B. INLETS ON MAINLANES - 10 YEAR
   C. INLETS FOR FRONTAGE ROADS - 10 YEAR
   D. TRUNK SYSTEM - 10 YEAR

2. RUNOFF COEFFICIENTS (C)

   A. GRASS - 0.35
   B. PAVEMENT - 0.90

3. AREAS SHOWN FOR RUNOFF FACTOR C=0.90 INCLUDES ADDITIONAL PAVED AREA FOR RAMP AND FRONTAGE ROAD CONSTRUCTION.

SCALE: 1" = 200'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE AREA MAP
STA 311+00 TO
STA 359+00

SHEET 4 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	452
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cf0130\ b13dap04.dgn-11

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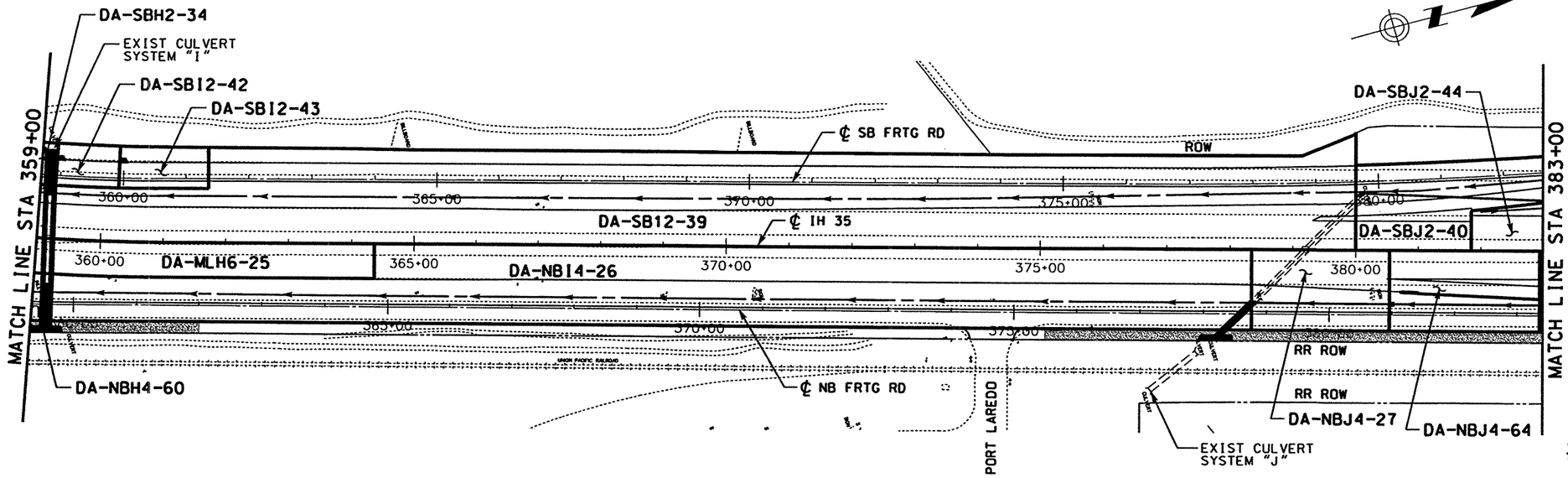

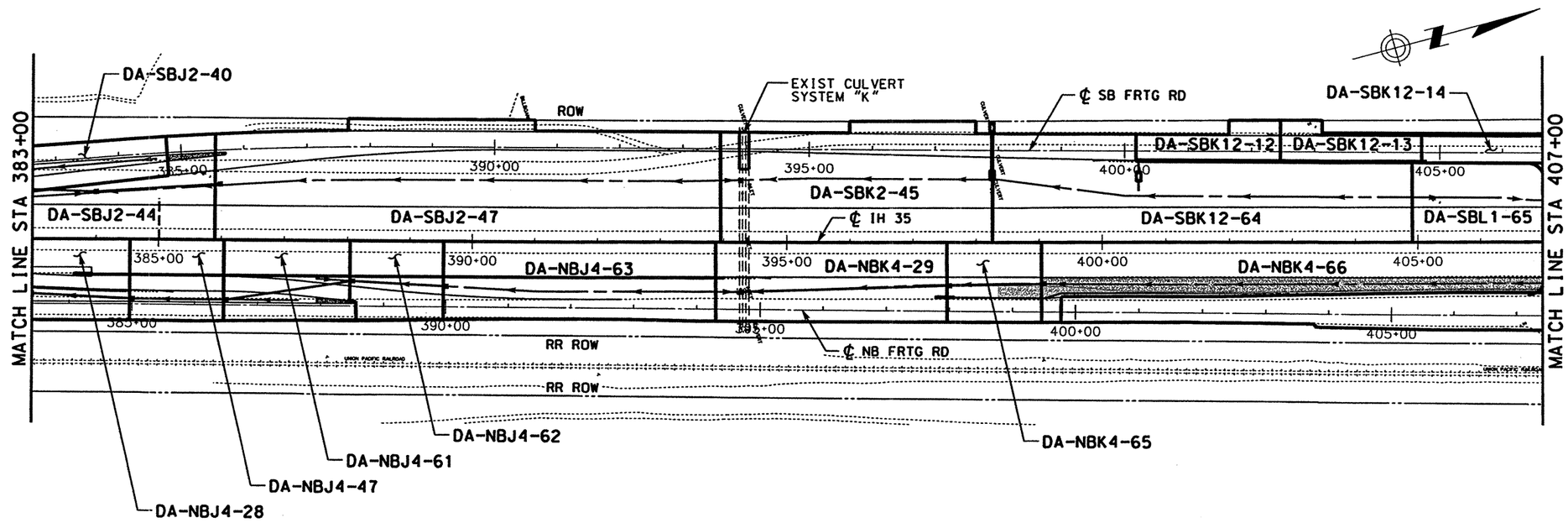

LEGEND

DITCH FLOW

GENERAL NOTES:

1. DESIGN FREQUENCY:

   A. ROADSIDE DITCH - 10 YEAR
   B. INLETS ON MAINLANES - 10 YEAR
   C. INLETS FOR FRONTAGE ROADS - 10 YEAR
   D. TRUNK SYSTEM - 10 YEAR

2. RUNOFF COEFFICIENTS (C)

   A. GRASS - 0.35
   B. PAVEMENT - 0.90

3. AREAS SHOWN FOR RUNOFF FACTOR C=0.90 INCLUDES ADDITIONAL PAVED AREA FOR RAMP AND FRONTAGE ROAD CONSTRUCTION.

0 100 200
SCALE: 1" = 200'

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE AREA MAP
STA 359+00 TO
STA 407+00

SHEET 5 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	453
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\c10130\

b13dgn05.dgn-10

REF FILE(S): j011cgp01.bdr, bdr LV ON = 17.46.57.58.60-62
j011cgp01.alg, alg LV ON = 1-6,35-39
j011cgp01.bck, bck LV ON = 2,9,10,14,17,21,25,28
j011cgp01.eop, eop LV ON = 1-11,13-17,19-63

REF FILE(S): j011cgp01.drn, drn LV ON = 8,9,16,28,49,50
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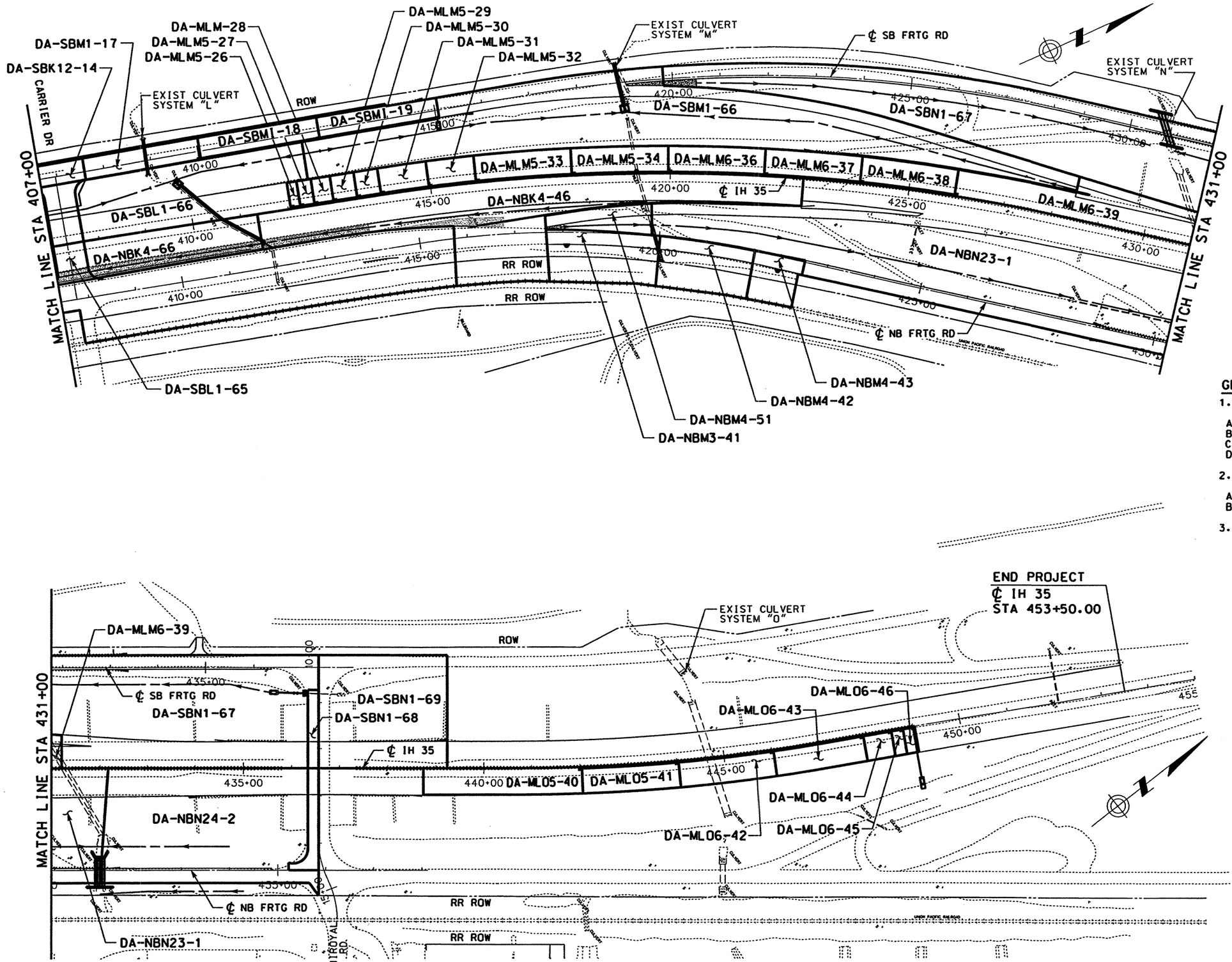

LEGEND

DITCH FLOW

GENERAL NOTES:

1. DESIGN FREQUENCY:

   A. ROADSIDE DITCH - 10 YEAR
   B. INLETS ON MAINLANES - 10 YEAR
   C. INLETS FOR FRONTAGE ROADS - 10 YEAR
   D. TRUNK SYSTEM - 10 YEAR

2. RUNOFF COEFFICIENTS (C)

   A. GRASS - 0.35
   B. PAVEMENT - 0.90

3. AREAS SHOWN FOR RUNOFF FACTOR C=0.90 INCLUDES ADDITIONAL PAVED AREA FOR RAMP AND FRONTAGE ROAD CONSTRUCTION.

0 100 200
SCALE: 1" = 200'

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Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE AREA MAP
STA 407+00 TO
STA 453+50

SHEET 6 OF 6

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		454
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cf0130\

b13dgn06.dgn-12

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j011op01.alg, alg LV ON = 1-6.35-39
j011op01.bdr, bdr LV ON = 17.46.57.58.60-62

REF FILE(S): j011op01.drn, drn LV ON = 8.9.16.28.49.50
j011op01.row, row LV ON = 1-22.24-63
milolnt.row, row

SUMMARY OF DRAINAGE AREA

DRAINAGE AREA ID	CORRESPONDING DRAINAGE INLET	TOTAL DA ACRE	AREAS ACRES C FACTORS 0.90	AREAS ACRES C FACTORS 0.35	Cw	Cw x A	TIME OF CONC MIN	I 10 YR IN/HR	Q 10 YR CFS
DA-MLD5-1	MLD5-1	0.38	0.38		0.90	0.34	10.00	8.30	2.84
DA-MLD6-3	MLD6-3	0.13	0.13		0.90	0.12	10.00	8.30	0.97
DA-MLD6-4	MLD6-4	0.24	0.24		0.90	0.22	10.00	8.30	1.79
DA-MLD6-5	MLD6-5	0.08	0.08		0.90	0.07	10.00	8.30	0.58
DA-MLD6-6	MLD6-6	0.01	0.01		0.90	0.01	10.00	8.30	0.04
DA-MLD6-7	MLD6-7	0.21	0.21		0.90	0.19	10.00	8.30	1.57
DA-MLE5-8	MLE5-8	0.07	0.07		0.90	0.06	10.00	8.30	0.52
DA-MLE5-9	MLE5-9	0.07	0.07		0.90	0.06	10.00	8.30	0.52
DA-MLE6-11	MLE6-11	0.39	0.39		0.90	0.35	10.00	8.30	2.91
DA-MLE6-12	MLE6-12	0.39	0.39		0.90	0.35	10.00	8.30	2.91
DA-MLE6-13	MLE6-13	0.39	0.39		0.90	0.35	10.00	8.30	2.91
DA-MLE6-14	MLE6-14	0.39	0.39		0.90	0.35	10.00	8.30	2.91
DA-MLE6-15	MLE6-15	0.64	0.64		0.90	0.58	10.00	8.30	4.78
DA-MLH6-17	MLH6-17	0.04	0.04		0.90	0.04	10.00	8.30	0.30
DA-MLH6-18	MLH6-18	0.07	0.07		0.90	0.06	10.00	8.30	0.52
DA-MLH6-19	MLH6-19	0.13	0.13		0.90	0.12	10.00	8.30	0.97
DA-MLH6-20	MLH6-20	0.13	0.13		0.90	0.12	10.00	8.30	0.97
DA-MLH6-21	MLH6-21	0.13	0.13		0.90	0.12	10.00	8.30	0.97
DA-MLH6-22	MLH6-22	0.26	0.26		0.90	0.23	10.00	8.30	1.94
DA-MLH6-23	MLH6-23	0.26	0.26		0.90	0.23	10.00	8.30	1.94
DA-MLH6-24	MLH6-24	0.35	0.35		0.90	0.32	10.00	8.30	2.61
DA-MLH6-25	MLH6-25	1.00	1.00		0.90	0.90	10.00	8.30	7.47
DA-MLM5-26	MLM5-26	0.03	0.03		0.90	0.03	10.00	8.30	0.22
DA-MLM5-27	MLM5-27	0.04	0.04		0.90	0.04	10.00	8.30	0.30
DA-MLM5-28	MLM5-28	0.06	0.06		0.90	0.05	10.00	8.30	0.45
DA-MLM5-29	MLM5-29	0.07	0.07		0.90	0.06	10.00	8.30	0.52
DA-MLM5-30	MLM5-30	0.07	0.07		0.90	0.06	10.00	8.30	0.52
DA-MLM5-31	MLM5-31	0.13	0.13		0.90	0.12	10.00	8.30	0.97
DA-MLM5-32	MLM5-32	0.13	0.13		0.90	0.12	10.00	8.30	0.97
DA-MLM5-33	MLM5-33	0.26	0.26		0.90	0.23	10.00	8.30	1.94
DA-MLM5-34	MLM5-34	0.27	0.27		0.90	0.24	10.00	8.30	2.02
DA-MLM6-36	MLM6-36	0.26	0.26		0.90	0.23	10.00	8.30	1.94
DA-MLM6-37	MLM6-37	0.26	0.26		0.90	0.23	10.00	8.30	1.94
DA-MLM6-38	MLM6-38	0.26	0.26		0.90	0.23	10.00	8.30	1.94
DA-MLM6-39	MLM6-39	0.78	0.78		0.90	0.70	10.00	8.30	5.83
DA-MLO5-40	MLO5-40	0.42	0.42		0.90	0.38	10.00	8.30	3.14
DA-MLO5-41	MLO5-41	0.26	0.26		0.90	0.23	10.00	8.30	1.94
DA-MLO6-42	MLO6-42	0.26	0.26		0.90	0.23	10.00	8.30	1.94
DA-MLO6-43	MLO6-43	0.25	0.25		0.90	0.23	10.00	8.30	1.87
DA-MLO6-44	MLO6-44	0.08	0.08		0.90	0.07	10.00	8.30	0.60
DA-MLO6-45	MLO6-45	0.04	0.04		0.90	0.04	10.00	8.30	0.30
DA-MLO6-46	MLO6-46	0.04	0.04		0.90	0.04	10.00	8.30	0.30
DA-MLE5-47	MLE5-47	0.61	0.61		0.90	0.55	10.00	8.30	4.56
DA-MLE5-48	MLE5-48	0.20	0.20		0.90	0.18	10.00	8.30	1.49
DA-MLE5-49	MLE5-49	0.17	0.17		0.90	0.15	10.00	8.30	1.27
DA-MLE6-50	MLE6-50	0.14	0.14		0.90	0.13	10.00	8.30	1.05

SUMMARY OF DRAINAGE AREA

DRAINAGE AREA ID	CORRESPONDING DRAINAGE INLET	TOTAL DA ACRE	AREAS ACRES C FACTORS 0.90	AREAS ACRES C FACTORS 0.35	Cw	Cw x A	TIME OF CONC MIN	I 10 YR IN/HR	Q 10 YR CFS
DA-NBA4-1	NBA4-1	0.20	0.20	0.00	0.90	0.18	10.00	8.30	1.49
DA-NBA4-2	NBA4-2	0.32	0.32	0.00	0.90	0.29	10.00	8.30	2.39
DA-NBA4-30	NBA4-30	1.10	0.52	0.58	0.61	0.67	10.00	8.30	5.57
DA-NBA4-31	NBA4-31	5.94	4.28	1.66	0.75	4.43	15.83	6.74	29.87
DA-NBB3-48	NBB3-48	0.35	0.35	0.00	0.90	0.32	10.00	8.30	2.61
DA-NBB4-6	NBB4-6	1.92	1.36	0.56	0.74	1.42	10.00	8.30	11.79
DA-NBB4-7	NBB4-7	1.05	0.84	0.21	0.79	0.83	10.00	8.30	6.89
DA-NBB4-9	NBB4-9	0.59	0.45	0.14	0.77	0.45	10.00	8.30	3.77
DA-NBB4-10	NBB4-10	3.13	2.18	0.95	0.73	2.29	10.00	8.30	19.05
DA-NBC4-12	NBC4-12	6.38	4.22	2.16	0.71	4.55	16.22	6.66	30.32
DA-NBD4-15	NBD4-15	1.30	0.94	0.36	0.75	0.97	10.00	8.30	8.07
DA-NBE3-32	NBE3-32	6.02	3.06	2.96	0.63	3.79	11.33	7.88	29.86
DA-NBE3-33	NBE3-33	1.37	0.79	0.58	0.67	0.91	10.00	8.30	7.59
DA-NBE3-34	NBE3-34	1.94	1.01	0.93	0.64	1.23	10.00	8.30	10.25
DA-NBE4-14	NBE4-14	7.41	4.39	3.02	0.68	5.01	17.47	6.41	32.10
DA-NBE4-36	NBE4-36	0.09	0.09	0.00	0.90	0.08	10.00	8.30	0.67
DA-NBE4-37	NBE4-37	0.14	0.14	0.00	0.90	0.13	10.00	8.30	1.05
DA-NBE4-38	NBE4-38	0.21	0.21	0.00	0.90	0.19	10.00	8.30	1.57
DA-NBE4-39	NBE4-39	0.21	0.21	0.00	0.90	0.19	10.00	8.30	1.57
DA-NBE4-40	NBE4-40	0.24	0.24	0.00	0.90	0.22	10.00	8.30	1.79
DA-NBG4-44	NBG4-44	5.85	4.29	1.56	0.75	4.41	16.64	6.57	28.96
DA-NBG4-45	NBG4-45	4.42	3.52	0.90	0.79	3.48	10.00	8.30	28.91
DA-NBH3-21	NBH3-21	5.48	4.68	0.80	0.82	4.49	10.00	8.30	37.29
DA-NBH4-22	NBH4-22	0.52	0.40	0.12	0.77	0.40	10.00	8.30	3.34
DA-NBH4-23	NBH4-23	1.54	1.13	0.41	0.75	1.16	10.00	8.30	9.63
DA-NBH4-24	NBH4-24	0.48	0.34	0.14	0.74	0.36	10.00	8.30	2.95
DA-NBH4-25	NBH4-25	0.48	0.34	0.14	0.74	0.36	10.00	8.30	2.95
DA-NBH4-58	NBH4-58	1.67	1.01	0.66	0.68	1.14	10.00	8.30	9.46
DA-NBI4-26	NBI4-26	5.66	4.56	1.10	0.79	4.49	16.03	6.70	30.06
DA-NBJ4-27	NBJ4-27	0.63	0.50	0.13	0.79	0.50	10.00	8.30	4.11
DA-NBJ4-28	NBJ4-28	0.73	0.67	0.06	0.85	0.62	10.00	8.30	5.18
DA-NBJ4-47	NBJ4-47	0.50	0.45	0.05	0.85	0.42	10.00	8.30	3.51
DA-NBJ4-61	NBJ4-61	0.61	0.56	0.05	0.85	0.52	10.00	8.30	4.33
DA-NBJ4-62	NBJ4-62	0.46	0.42	0.04	0.85	0.39	10.00	8.30	3.25
DA-NBJ4-63	NBJ4-63	1.26	0.97	0.29	0.77	0.97	10.00	8.30	8.09
DA-NBJ4-64	NBJ4-64	0.76	0.67	0.09	0.83	0.63	10.00	8.30	5.27
DA-NBK4-29	NBK4-29	1.09	0.83	0.26	0.77	0.84	10.00	8.30	6.96
DA-NBK4-65	NBK4-65	0.50	0.38	0.12	0.77	0.38	10.00	8.30	3.19
DA-NBK4-66	NBK4-66	2.26	1.86	0.40	0.78	1.77	11.28	7.89	13.94
DA-NBL4-46	NBL4-46	1.92	1.56	0.36	0.80	1.53	10.00	8.30	12.70
DA-NBM4-51	NBM4-51	0.20	0.11	0.09	0.65	0.13	10.00	8.30	1.08
DA-NBM4-70	NBM4-70	0.38	0.38	0.00	0.90	0.34	10.00	8.30	2.84
DA-NBM3-41	NBM3-41	0.38	0.38	0.00	0.90	0.34	10.00	8.30	2.84
DA-NBM4-42	NBM4-42	0.20	0.20	0.00	0.90	0.18	10.00	8.30	1.49
DA-NBM4-43	NBM4-43	0.19	0.19	0.00	0.90	0.17	10.00	8.30	1.42
DA-NBN23-1	CULVERT "N"	5.80	3.25	2.55	0.66	3.82	10.17	8.25	31.48
DA-NBN24-2	CULVERT "N"	2.28	0.90	1.38	0.57	1.29	10.00	8.30	10.73

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF DRAINAGE AREA CALCULATIONS

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		455
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 57,58,60-62
b36qsp38.dgn-04 HOUFILE023 \hcivil\cf0130\ 4/18/2003

SUMMARY OF DRAINAGE AREA

DRAINAGE AREA ID	CORRESPONDING DRAINAGE INLET	TOTAL DA ACRE	AREAS ACRES C FACTORS 0.90	0.35	Cw	Cw x A	TIME OF CONC MIN	I 10 YR IN/HR	Q 10 YR CFS
DA-SBA2-1	SBA2-1	0.20	0.20		0.90	0.18	10.00	8.30	1.49
DA-SBA2-2	SBA2-2	0.20	0.20		0.90	0.18	10.00	8.30	1.49
DA-SBA2-3	SBA2-3	0.20	0.20		0.90	0.18	10.00	8.30	1.49
DA-SBA2-4	SBA2-4	0.20	0.20		0.90	0.18	10.00	8.30	1.49
DA-SBA2-5	SBA2-5	0.33	0.33		0.90	0.30	10.00	8.30	2.47
DA-SBA2-7	SBA2-7	0.21	0.21		0.90	0.19	10.00	8.30	1.57
DA-SBA2-8	SBA2-8	0.22	0.22		0.90	0.20	10.00	8.30	1.64
DA-SBA2-9	SBA2-9	0.20	0.20		0.90	0.18	10.00	8.30	1.49
DA-SBC2-10	SBC2-10	2.72	1.58	1.14	0.67	1.82	10.00	8.30	15.12
DA-SBK12-12	SBK12-12	0.22	0.22		0.90	0.20	10.00	8.30	1.64
DA-SBK12-13	SBK12-13	0.22	0.22		0.90	0.20	10.00	8.30	1.64
DA-SBK12-14	SBK12-14	0.23	0.23		0.90	0.21	10.00	8.30	1.72
DA-SBM1-17	SBM1-17	0.28	0.28		0.90	0.25	10.00	8.30	2.09
DA-SBM1-18	SBM1-18	0.25	0.25		0.90	0.23	10.00	8.30	1.87
DA-SBM1-19	SBM1-19	0.25	0.25		0.90	0.23	10.00	8.30	1.87
DA-SBE1-20	SBE1-20	4.70	2.85	1.85	0.68	3.21	13.96	7.16	23.01
DA-SBE1-21	SBE1-21	1.28	0.90	0.38	0.74	0.94	10.00	8.30	7.83
DA-SBE2-22	SBE2-22	0.43	0.25	0.18	0.67	0.29	10.00	8.30	2.39
DA-SBE2-23	SBE2-23	0.59	0.34	0.25	0.67	0.39	10.00	8.30	3.27
DA-SBE2-24	SBE2-24	0.43	0.25	0.18	0.67	0.29	10.00	8.30	2.39
DA-SBG1-25	SBG1-25	10.56	8.19	2.37	0.78	8.20	19.17	6.10	50.06
DA-SBG2-26	SBG2-26	2.39	1.85	0.54	0.78	1.85	10.00	8.30	15.39
DA-SBH2-28	SBH2-28	1.79	0.99	0.80	0.65	1.17	10.00	8.30	9.72
DA-SBH2-30	SBH2-30	0.13	0.07	0.06	0.65	0.08	10.00	8.30	0.70
DA-SBH2-31	SBH2-31	0.25	0.14	0.11	0.66	0.16	10.00	8.30	1.37
DA-SBH2-32	SBH2-32	0.25	0.14	0.11	0.66	0.16	10.00	8.30	1.37
DA-SBH2-33	SBH2-33	0.25	0.14	0.11	0.66	0.16	10.00	8.30	1.37
DA-SBH2-34	SBH2-34	0.47	0.36	0.11	0.77	0.36	10.00	8.30	3.01
DA-SBH2-35	SBH2-35	2.37	1.38	0.99	0.67	1.59	10.00	8.30	13.19
DA-SBH2-36	SBH2-36	0.69	0.39	0.30	0.66	0.46	10.00	8.30	3.79
DA-SBI2-39	SBI2-39	7.94	4.68	3.26	0.67	5.35	18.17	6.28	33.62
DA-SBJ2-40	SBJ2-40	1.01	0.80	0.21	0.79	0.79	10.00	8.30	6.59
DA-SBG12-41	SBG12-41	2.56	1.76	0.80	0.73	1.86	10.00	8.30	15.47
DA-SBI2-42	SBI2-42	0.07	0.07		0.90	0.06	10.00	8.30	0.52
DA-SBI2-43	SBI2-43	0.14	0.14		0.90	0.13	10.00	8.30	1.05
DA-SBJ2-44	SBJ2-44	1.05	0.73	0.32	0.73	0.77	10.00	8.30	6.38
DA-SBK2-45	SBK2-45	3.84	1.95	1.89	0.63	2.42	10.00	8.30	20.06
DA-SBE2-46	SBE2-46	1.34	0.78	0.56	0.67	0.90	10.00	8.30	7.45
DA-SBJ2-47	SBJ2-47	3.49	1.94	1.55	0.66	2.29	10.00	8.30	19.00
DA-SBH1-55	SBH1-55	1.71	0.97	0.74	0.66	1.13	10.00	8.30	9.40
DA-SBH1-56	SBH1-56	0.92	0.60	0.32	0.71	0.65	10.00	8.30	5.41
DA-SBB2-57	SBB2-57	1.58	1.21	0.37	0.77	1.22	10.00	8.30	10.12
DA-SBA2-58	SBA2-58	4.74	3.34	1.40	0.74	3.50	16.33	6.63	23.19
DA-SBA1-59	SBA1-59	2.82	2.02	0.80	0.74	2.10	10.00	8.30	17.42
DA-SBB2-60	SBB2-60	3.66	2.31	1.35	0.70	2.55	10.00	8.30	21.18
DA-SBC1-61	SBC1-61	1.45	0.96	0.49	0.71	1.04	10.00	8.30	8.60
DA-SBC2-62	SBC2-62	4.21	3.10	1.11	0.75	3.18	17.25	6.45	20.51
DA-SBD1-63	SBD1-63	0.99	0.51	0.48	0.63	0.63	10.00	8.30	5.20
DA-SBK12-64	SBK12-64	2.31	1.09	1.22	0.61	1.41	10.00	8.30	11.69
DA-SBL1-65	SBL1-65	2.59	1.21	1.38	0.61	1.57	10.00	8.30	13.05
DA-SBM1-66	SBM1-66	3.65	0.96	2.69	0.49	1.81	10.00	8.30	14.99
DA-SBN1-67	SBN1-67	5.84	2.46	3.38	0.58	3.40	10.00	8.30	28.20
DA-SBN1-68	SBN1-68	0.10	0.10		0.90	0.09	10.00	8.30	0.75
DA-SBN1-69	SBN1-69	1.54	0.58	0.96	0.56	0.86	10.00	8.30	7.12
DA-SBH1-70	SBH1-70	1.22	0.80	0.42	0.71	0.87	10.00	8.30	7.20
DA-SBH1-71	SBH1-71	1.86	1.22	0.64	0.71	1.32	10.00	8.30	10.97

REF FILE(S): j011qq01.bdr, bdr LV ON = 57,58,60-62

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IH 35
LOOP 20 TO UNIROYAL ROAD
SUMMARY OF DRAINAGE AREA CALCULATIONS

SHEET 2 OF 2

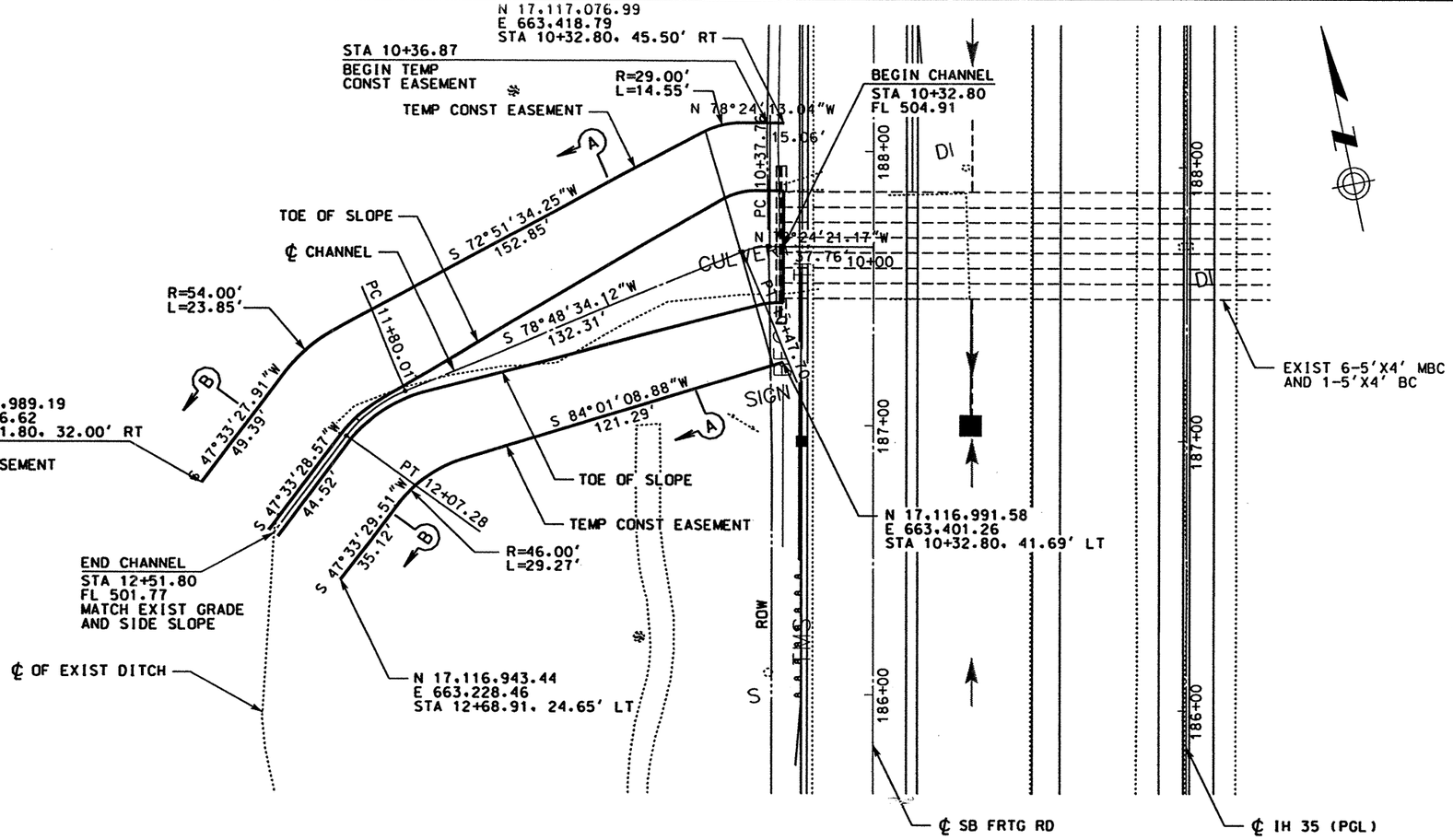
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		456
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

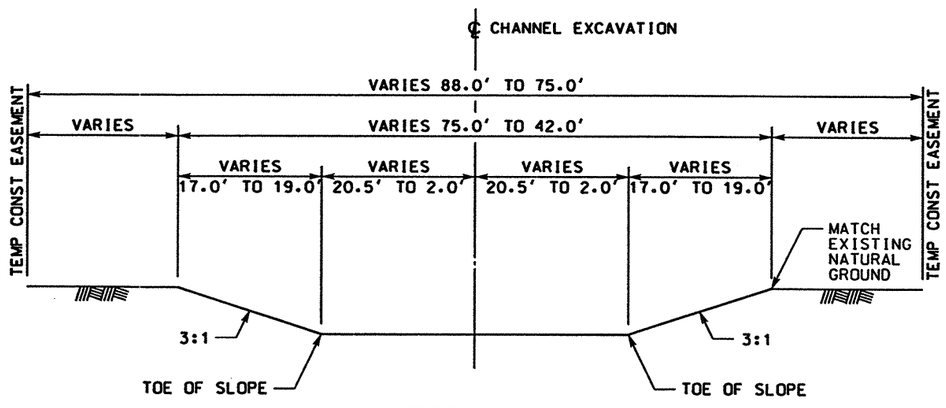
4/19/2003
HOUFILE023 \hcivil\cf0130\
b36qsp39.dgn-02

ITEM NUMBER		DESCRIPTION	UNITS	QUANTITY
110	502	EXCAVATION (CHAN)	CY	663

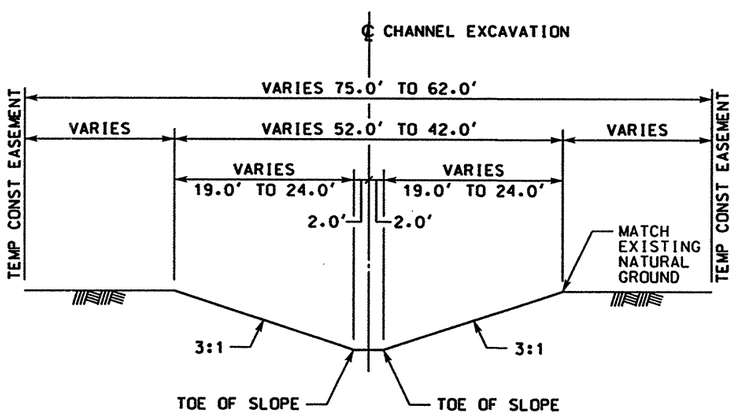
NOTE:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.





SECTION A-A
STA 10+32.80 TO STA 12+08



SECTION B-B
STA 12+08 TO STA 12+51.80

SCALE: 1" = 50'

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CHANNEL EXCAVATION

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		457
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

HOUFILE023 \hciviL\c10130\

b13lop06.dgn-04

REF FILE(S): j0110p01.bdr, bdr LV ON = 15:47,57,58,60-62
j0110p01.alg, alg LV ON = 1-6,25-29
j0110p01.bck, bck LV ON = 2,3,9,10,14,17,20,21,25,28
j0110p01.eop, eop LV ON = 1-17,19-63

REF FILE(S): j0110p01.utl, utl LV ON = 1-63
j0110p01.drn, drn LV ON = 8,9,28,37,51
milolnt.row, row LV ON = 1-63

WinStorm (STORM DRAIN DESIGN)

Version 3.05. Jan. 25. 2002
Run @ 3/17/2003 10:19:42 AM

PROJECT NAME : LAREDO
JOB NUMBER : CF0130
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 1
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
MLD5-1	0.9	0.38	10.00	10.00	8.30	0.000	2.839
	0.9	0.38	Pavement				
MLD6-3	0.9	0.13	10.00	10.00	8.30	0.000	0.971
	0.9	0.13	Pavement				
MLD6-4	0.9	0.24	10.00	10.00	8.30	0.000	1.793
	0.9	0.24	Pavement				
MLD6-5	0.9	0.08	10.00	10.00	8.30	0.000	0.575
	0.9	0.08	Pavement				
MLD6-6	0.9	0.01	10.00	10.00	8.30	0.000	0.045
	0.9	0.01	Pavement				
MLD6-7	0.9	0.21	10.00	10.00	8.30	0.000	1.569
	0.9	0.21	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
MLD5-1	Curb	10.00	1.14	2.60	0.015	0.21	n/a	n/a	8.83	584.07
MLD6-3	Curb	10.00	0.80	3.30	0.015	0.21	n/a	n/a	8.83	583.02
MLD6-5	Curb	10.00	0.10	2.00	0.015	0.21	n/a	n/a	8.83	582.46
MLD6-6	Curb	10.00	0.10	2.00	0.015	0.21	n/a	n/a	8.83	582.49
MLD6-7	Slott	160.00	0.10	1.10	0.015	n/a	n/a	n/a	8.83	582.49

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
MLD5-1	Curb	2.839	2.557	0.500	0.283	MLD6-3	13.84	10.00	8.62
MLD6-3	Curb	1.254	1.254	0.500	0.000	MLD6-4	8.03	10.00	5.85
MLD6-5	Curb	0.575	0.575	0.500	0.000	MLD6-4	3.54	10.00	8.80
MLD6-6	Curb	0.073	0.073	0.500	0.000	MLD6-5	1.39	10.00	4.05
MLD6-7	Slott	1.569	1.541	0.500	0.028	MLD6-6	179.20	160.00	18.64

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
MLD6-4	Curb	10.00	n/a	0.61	2.40	0.03	2.40	0.015	3.31	0.25	582.44

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
MLD6-4	Curb	10.00	n/a	n/a	1.793	4.588	0.134	7.79	8.71

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
MLD5-1	Curb	0.900	0.38	10.00	8.30	0.000	0.00	2.839
MLD6-2	CircMh	0.900	1.04	12.13	7.64	0.000	0.00	7.174
MLD6-3	Curb	0.900	0.66	11.78	7.74	0.000	0.00	4.620
MLD6-4	Curb	0.900	0.53	11.02	7.97	0.000	0.00	3.824
MLD6-5	Curb	0.900	0.29	10.74	8.06	0.000	0.00	2.125
MLD6-6	Curb	0.900	0.22	10.34	8.19	0.000	0.00	1.592
MLD6-7	Slott	0.900	0.21	10.00	8.30	0.000	0.00	1.569
JCT	JnctBx	0.900	1.04	12.13	7.64	0.000	0.00	7.174
ML 01	Outlt	0.900	1.04	12.13	7.64	0.000	0.00	7.174

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	MLD6-7	MLD6-6	578.04	577.94	Circ 1	0.00	2.00	50.00	0.20	0.012
2	MLD6-6	MLD6-5	577.94	577.82	Circ 1	0.00	2.00	60.00	0.20	0.012
3	MLD6-5	MLD6-4	577.82	577.73	Circ 1	0.00	2.00	45.00	0.20	0.012
4	MLD6-4	MLD6-3	577.73	577.44	Circ 1	0.00	2.00	146.00	0.20	0.012
5	MLD6-3	MLD6-2	577.44	577.30	Circ 1	0.00	2.00	70.00	0.20	0.012
6	MLD5-1	MLD6-2	577.86	577.80	Circ 1	0.00	2.00	30.00	0.20	0.012
7	MLD6-2	JCT	577.30	575.35	Circ 2	0.00	2.50	78.00	2.50	0.012
8	JCT	ML 01	575.35	574.10	Circ 2	0.00	2.50	62.00	2.02	0.012

Conveyance Hydraulic Computations. Tailwater = 576.600 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	578.63	578.60	0.004	0.52	0.65	2.45	1.76	1.57	10.96	0.000
2	578.60	578.58	0.004	0.52	0.75	2.48	1.47	1.59	10.96	0.000
3	578.58	578.56	0.008	0.59	0.83	2.72	1.73	2.12	10.96	0.000
4	578.56	578.35	0.024	0.81	0.91	3.19	2.76	3.82	10.96	0.000
5	578.35	578.06	0.036	0.91	0.91	3.34	3.34	4.62	10.96	0.000
6	578.55	578.39	0.013	0.69	0.69	2.97	2.97	2.84	10.96	0.000
7*	577.69	576.60	0.007	0.38	1.25	7.51	1.46	7.17	140.56	0.000
8*	576.60	576.60	0.007	0.40	2.50	6.96	0.73	7.17	126.22	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= MLD5-1
Capacity of grade inlet exceeded at inlet Id= MLD6-7
Computed ponded width exceeds allowable width at inlet Id= MLD6-7
Discharge decreased downstream node Id= JCT Previous intensity used.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS MAINLANES

SHEET 1 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	458
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j01lop01.bdr, bdr LV ON = 46,57,58,60-62

b13wrp01.dgn-03 HOUFILE023 \hciv\\cf0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 3/17/2003 10:29:59 AM

PROJECT NAME : LAREDO
JOB NUMBER : CF0130
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 2
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
MLE6-11	0.9	0.39	10.00	10.00	8.30	0.000	2.914
	0.9	0.39	Pavement				
MLE6-12	0.9	0.39	10.00	10.00	8.30	0.000	2.914
	0.9	0.39	Pavement				
MLE6-13	0.9	0.39	10.00	10.00	8.30	0.000	2.914
	0.9	0.39	Pavement				
MLE6-14	0.9	0.39	10.00	10.00	8.30	0.000	2.914
	0.9	0.39	Pavement				
MLE6-15	0.9	0.64	10.00	10.00	8.30	0.000	4.782
	0.9	0.64	Pavement				
MLE5-49	0.9	0.17	10.00	10.00	8.30	0.000	1.270
	0.9	0.17	Pavement				
MLE5-9	0.9	0.07	10.00	10.00	8.30	0.000	0.523
	0.9	0.07	Pavement				
MLE5-8	0.9	0.07	10.00	10.00	8.30	0.000	0.523
	0.9	0.07	Pavement				
MLE5-48	0.9	0.20	10.00	10.00	8.30	0.000	1.494
	0.9	0.20	Pavement				
MLE5-47	0.9	0.61	10.00	10.00	8.30	0.000	4.557
	0.9	0.61	Pavement				
MLE6-50	0.9	0.14	10.00	10.00	8.30	0.000	1.046
	0.9	0.14	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
MLE6-12	Curb	10.00	1.59	5.50	0.015	0.21	n/a	n/a	8.83	574.32
MLE6-13	Curb	10.00	1.83	5.50	0.015	0.21	n/a	n/a	8.83	579.76
MLE6-14	Curb	10.00	1.83	5.50	0.015	0.21	n/a	n/a	8.83	585.27
MLE6-15	Curb	10.00	1.83	4.30	0.015	0.21	n/a	n/a	8.83	590.74
MLE6-50	Curb	10.00	1.04	5.20	0.015	0.21	n/a	n/a	8.83	573.00
MLE5-47	Curb	10.00	0.78	5.50	0.015	0.21	n/a	n/a	8.83	577.02
MLE5-48	Curb	10.00	0.41	3.10	0.015	0.21	n/a	n/a	8.83	576.25
MLE5-8	Curb	10.00	0.41	2.30	0.015	0.21	n/a	n/a	8.83	576.04
MLE5-9	Curb	10.00	0.41	1.40	0.015	0.21	n/a	n/a	8.83	575.83
MLE5-49	Curb	10.00	0.61	2.00	0.015	0.21	n/a	n/a	8.83	572.35

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
MLE6-12	Curb	3.249	3.023	0.500	0.226	MLE6-50	12.95	10.00	5.33
MLE6-13	Curb	3.422	3.087	0.500	0.335	MLE6-12	13.79	10.00	5.29
MLE6-14	Curb	3.945	3.437	0.500	0.509	MLE6-13	14.72	10.00	5.58
MLE6-15	Curb	4.782	3.750	0.500	1.031	MLE6-14	17.44	10.00	7.00
MLE6-50	Curb	1.272	1.272	0.500	0.000	MLE6-11	7.69	10.00	4.21
MLE5-47	Curb	4.557	4.321	0.500	0.237	MLE5-48	12.40	10.00	6.93
MLE5-48	Curb	1.731	1.731	0.500	0.000	MLE5-8	7.90	10.00	7.77
MLE5-8	Curb	0.523	0.523	0.500	0.000	MLE5-9	4.84	10.00	5.96
MLE5-9	Curb	0.523	0.523	0.500	0.000		5.30	10.00	8.14
MLE5-49	Curb	1.270	1.270	0.500	0.000	MLE6-11	8.44	10.00	8.45

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
MLE6-11	Curb	10.00	n/a	0.46	3.00	0.92	3.00	0.015	3.31	0.25	572.02

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
MLE6-11	Curb	10.00	n/a	n/a	2.914	4.588	0.185	6.23	7.13

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
MLE6-11	Curb	0.900	2.34	14.13	7.12	0.000	0.00	15.001
MLE6-12	Curb	0.900	1.81	13.29	7.33	0.000	0.00	11.941
MLE6-13	Curb	0.900	1.42	12.29	7.60	0.000	0.00	9.710
MLE6-14	Curb	0.900	1.03	11.22	7.91	0.000	0.00	7.332
MLE6-15	Curb	0.900	0.64	10.00	8.30	0.000	0.00	4.782
MLE6-50	Curb	0.900	1.95	13.59	7.26	0.000	0.00	12.735
MLE5-47	Curb	0.900	0.61	10.00	8.30	0.000	0.00	4.557
MLE5-48	Curb	0.900	0.81	10.61	8.10	0.000	0.00	5.906
MLE5-8	Curb	0.900	0.88	10.79	8.04	0.000	0.00	6.369
MLE5-9	Curb	0.900	0.95	10.98	7.98	0.000	0.00	6.826
MLE5-49	Curb	0.900	1.12	12.82	7.45	0.000	0.00	7.514
MLE5-10	CircMh	0.900	0.95	10.98	7.98	0.000	0.00	6.826
CUL E	JnctBx	0.900	3.46	14.13	7.12	0.000	0.00	22.176
ML 02	Outlt	0.900	3.46	14.13	7.12	0.000	0.00	22.176

Conveyance Configuration Data

Run#	Node US	Node DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	MLE6-15	MLE6-14	581.47	580.42	Circ 1	0.00	2.00	300.00	0.35	0.012
2	MLE6-14	MLE6-13	575.92	574.87	Circ 1	0.00	2.00	300.00	0.35	0.012
3	MLE6-13	MLE6-12	570.37	569.32	Circ 1	0.00	2.00	300.00	0.35	0.012
4	MLE6-12	MLE6-50	568.82	568.37	Circ 1	0.00	2.00	100.00	0.45	0.012
5	MLE6-50	MLE6-11	567.87	567.01	Circ 1	0.00	2.00	190.00	0.45	0.012
6	MLE6-11	CUL E	566.51	566.50	Circ 1	0.00	2.00	2.00	0.50	0.012
7	MLE5-47	MLE5-48	571.99	571.46	Circ 1	0.00	2.00	150.00	0.35	0.012
8	MLE5-48	MLE5-8	571.46	571.28	Circ 1	0.00	2.00	50.00	0.36	0.012
9	MLE5-8	MLE5-9	571.28	571.10	Circ 1	0.00	2.00	50.00	0.36	0.012
10	MLE5-9	MLE5-10	570.10	569.05	Circ 1	0.00	2.00	300.00	0.35	0.012
11	MLE5-10	MLE5-49	568.05	567.35	Circ 1	0.00	2.00	200.00	0.35	0.012
12	MLE5-49	CUL E	567.35	567.00	Circ 1	0.00	2.00	100.00	0.35	0.012
13	CUL E	ML 02	565.26	563.95	Box 2	7.00	4.00	145.00	0.90	0.012

Conveyance Hydraulic Computations. Tailwater = 567.950 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	582.27	581.19	0.038	0.80	0.80	4.10	4.10	4.78	14.50	0.000
2	576.92	575.83	0.089	1.00	1.00	4.67	4.67	7.33	14.50	0.000
3	571.56	570.43	0.157	1.19	1.19	5.00	5.00	9.71	14.50	0.000
4	570.09	569.61	0.237	1.27	1.27	5.70	5.70	11.94	16.44	0.000
5	569.18	568.29	0.270	1.31	1.31	5.83	5.83	12.73	16.49	0.000
6	567.96	567.95	0.375	1.44	1.45	6.21	6.14	15.00	17.33	0.000
7	572.76	572.34	0.035	0.77	0.88	4.12	3.42	4.56	14.57	0.000
8	572.34	572.20	0.058	0.88	0.92	4.47	4.17	5.91	14.71	0.000
9	572.20	571.99	0.068	0.92	0.92	4.50	4.50	6.37	14.71	0.000
10	571.07	569.98	0.078	0.97	0.97	4.53	4.53	6.83	14.50	0.000
11	569.02	568.37	0.078	0.97	1.02	4.53	4.26	6.83	14.50	0.000
12	568.37	567.97	0.094	1.02	1.02	4.69	4.69	7.51	14.50	0.000
13*	567.95	567.95	0.001	0.31	4.00	5.10	0.40	22.18	774.12	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= MLE6-12
Capacity of grade inlet exceeded at inlet Id= MLE6-13
Capacity of grade inlet exceeded at inlet Id= MLE6-14
Capacity of grade inlet exceeded at inlet Id= MLE6-15
Capacity of grade inlet exceeded at inlet Id= MLE5-47
Discharge decreased downstream node Id= MLE5-10 Previous intensity used.
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 10
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 9
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 2
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 1

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS MAINLANES

SHEET 2 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		459
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.bdr, bdr LV ON = 46,57,58,60-62

HOUFILE023 \hcivil\cf0130\ 4/18/2003 b13wrp02.dgn-05

WinStorm (STORM DRAIN DESIGN)

Version 3.05. Jan. 25. 2002
Run @ 3/17/2003 10:47:33 AM

PROJECT NAME : LAREDO
JOB NUMBER : CF0130
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 3
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
MLH6-17	0.9	0.04	10.00	10.00	8.30	0.000	0.299
	0.9	0.04	Pavement				
MLH6-18	0.9	0.07	10.00	10.00	8.30	0.000	0.523
	0.9	0.07	Pavement				
MLH6-19	0.9	0.13	10.00	10.00	8.30	0.000	0.971
	0.9	0.13	Pavement				
MLH6-20	0.9	0.13	10.00	10.00	8.30	0.000	0.971
	0.9	0.13	Pavement				
MLH6-22	0.9	0.26	10.00	10.00	8.30	0.000	1.943
	0.9	0.26	Pavement				
MLH6-23	0.9	0.26	10.00	10.00	8.30	0.000	1.943
	0.9	0.26	Pavement				
MLH6-24	0.9	0.35	10.00	10.00	8.30	0.000	2.615
	0.9	0.35	Pavement				
MLH6-25	0.9	1.00	10.00	10.00	8.30	0.000	7.471
	0.9	1.00	Pavement				
MLH6-21	0.9	0.13	10.00	10.00	8.30	0.000	0.971
	0.9	0.13	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
MLH6-17	Curb	10.00	2.43	0.80	0.015	0.21	n/a	n/a	8.83	571.92
MLH6-18	Curb	10.00	2.55	1.10	0.015	0.21	n/a	n/a	8.83	572.54
MLH6-19	Curb	10.00	2.79	1.50	0.015	0.21	n/a	n/a	8.83	573.87
MLH6-20	Curb	10.00	2.93	2.40	0.015	0.21	n/a	n/a	8.83	576.78
MLH6-22	Curb	10.00	2.73	4.10	0.015	0.21	n/a	n/a	8.83	582.54
MLH6-23	Curb	10.00	2.32	5.50	0.015	0.21	n/a	n/a	8.83	587.59
MLH6-24	Curb	10.00	1.91	5.50	0.015	0.21	n/a	n/a	8.83	591.82
MLH6-25	Curb	10.00	1.50	5.50	0.015	0.21	n/a	n/a	8.83	595.24
MLH6-21	Curb	10.00	2.93	3.20	0.015	0.21	n/a	n/a	8.83	579.71

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
MLH6-17	Curb	0.299	0.299	0.000	0.000		7.25	10.00	6.62
MLH6-18	Curb	0.562	0.562	0.500	0.000	MLH6-17	9.44	10.00	6.91
MLH6-19	Curb	0.990	0.951	0.500	0.040	MLH6-18	12.00	10.00	6.93
MLH6-20	Curb	0.998	0.979	0.500	0.019	MLH6-19	11.25	10.00	5.12
MLH6-22	Curb	2.157	1.951	0.500	0.206	MLH6-21	13.72	10.00	4.95
MLH6-23	Curb	2.689	2.474	0.500	0.214	MLH6-22	13.25	10.00	4.62
MLH6-24	Curb	4.507	3.760	0.500	0.746	MLH6-23	15.83	10.00	5.82
MLH6-25	Curb	7.471	5.580	0.500	1.892	MLH6-24	18.73	10.00	7.36
MLH6-21	Curb	1.177	1.150	0.500	0.027	MLH6-20	11.40	10.00	4.56

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
MLH6-16	CircMh	0.900	2.37	13.10	7.38	0.000	0.00	15.741
MLH6-17	Curb	0.900	2.37	13.10	7.38	0.000	0.00	15.741
MLH6-18	Curb	0.900	2.33	13.03	7.40	0.000	0.00	15.513
MLH6-19	Curb	0.900	2.26	12.89	7.43	0.000	0.00	15.121
MLH6-20	Curb	0.900	2.13	12.61	7.51	0.000	0.00	14.395
MLH6-22	Curb	0.900	1.87	12.01	7.68	0.000	0.00	12.921
MLH6-23	Curb	0.900	1.61	11.39	7.86	0.000	0.00	11.388
MLH6-24	Curb	0.900	1.35	10.71	8.07	0.000	0.00	9.801
MLH6-25	Curb	0.900	1.00	10.00	8.30	0.000	0.00	7.471
MLH6-21	Curb	0.900	2.00	12.31	7.59	0.000	0.00	13.665
CUL H	JnctBx	0.900	2.37	13.10	7.38	0.000	0.00	15.741
ML 03	Outlt	0.900	2.37	13.10	7.38	0.000	0.00	15.741

Conveyance Configuration Data

Run#	Node US	Node DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	MLH6-25	MLH6-24	587.74	587.04	Circ 1	0.00	2.00	200.00	0.35	0.012
2	MLH6-24	MLH6-23	583.54	582.84	Circ 1	0.00	2.00	200.00	0.35	0.012
3	MLH6-23	MLH6-22	578.34	577.54	Circ 1	0.00	2.00	200.00	0.40	0.012
4	MLH6-22	MLH6-21	575.04	574.64	Circ 1	0.00	2.00	100.00	0.40	0.012
5	MLH6-21	MLH6-20	572.14	571.74	Circ 1	0.00	2.00	100.00	0.40	0.012
6	MLH6-20	MLH6-19	569.24	568.79	Circ 1	0.00	2.00	100.00	0.45	0.012
7	MLH6-19	MLH6-18	567.79	567.56	Circ 1	0.00	2.00	50.00	0.46	0.012
8	MLH6-18	MLH6-17	567.06	566.94	Circ 1	0.00	2.00	25.00	0.48	0.012
9	MLH6-17	MLH6-16	563.94	563.15	Circ 1	0.00	2.00	175.00	0.45	0.012
10	MLH6-16	CUL H	560.15	559.00	Circ 1	0.00	2.00	255.00	0.45	0.012
11	CUL H	ML 03	553.03	552.37	Box 1	10.00	8.00	136.00	0.49	0.012

Conveyance Hydraulic Computations. Tailwater = 560.370 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	588.76	588.01	0.093	1.02	1.02	4.66	4.66	7.47	14.50	0.000
2	584.74	583.96	0.160	1.20	1.20	4.96	4.96	9.80	14.50	0.000
3	579.62	578.75	0.216	1.28	1.28	5.36	5.36	11.39	15.50	0.000
4	576.45	575.93	0.278	1.41	1.41	5.47	5.47	12.92	15.50	0.000
5	573.61	573.07	0.311	1.47	1.47	5.53	5.53	13.67	15.50	0.000
6	570.68	570.16	0.345	1.44	1.44	5.96	5.96	14.39	16.44	0.000
7	569.29	568.96	0.381	1.50	1.50	5.98	5.98	15.12	16.62	0.000
8	568.56	568.36	0.401	1.50	1.50	6.14	6.14	15.51	16.98	0.000
9	565.50	564.58	0.412	1.56	1.56	5.98	5.98	15.74	16.47	0.000
10	561.71	560.43	0.412	1.56	1.56	5.98	5.98	15.74	16.46	0.000
11*	560.37	560.37	0.000	0.37	8.00	4.24	0.20	15.741	175.23	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= MLH6-19
Capacity of grade inlet exceeded at inlet Id= MLH6-20
Capacity of grade inlet exceeded at inlet Id= MLH6-22
Capacity of grade inlet exceeded at inlet Id= MLH6-23
Capacity of grade inlet exceeded at inlet Id= MLH6-24
Capacity of grade inlet exceeded at inlet Id= MLH6-25
Capacity of grade inlet exceeded at inlet Id= MLH6-21
Discharge decreased downstream node Id= MLH6-16 Previous intensity used.
Discharge decreased downstream node Id= CUL H Previous intensity used.
Upstream hydraulic gradeline exceeds critical elevation at node Id= CUL H
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 9
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 8
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 5
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 4
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 3
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 2
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 1

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA
SHEETS
MAINLANES

SHEET 3 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	460
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j01lap01.bdr, bdr LV ON = 46.57.58.60-62

HOUFILE023 \hciwh\cf0130\ 4/18/2003

b13wrp03.dgn-04

WinStorm (STORM DRAIN DESIGN)

Version 3.05, Jan. 25, 2002
Run @ 3/17/2003 10:54:34 AM

PROJECT NAME : LAREDO
JOB NUMBER : CF0130
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 4
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
MLM5-26	0.9	0.03	10.00	10.00	8.30	0.000	0.224
	0.9	0.03	Pavement				
MLM5-27	0.9	0.04	10.00	10.00	8.30	0.000	0.299
	0.9	0.04	Pavement				
MLM5-28	0.9	0.06	10.00	10.00	8.30	0.000	0.448
	0.9	0.06	Pavement				
MLM5-29	0.9	0.07	10.00	10.00	8.30	0.000	0.523
	0.9	0.07	Pavement				
MLM5-30	0.9	0.07	10.00	10.00	8.30	0.000	0.523
	0.9	0.07	Pavement				
MLM5-31	0.9	0.13	10.00	10.00	8.30	0.000	0.971
	0.9	0.13	Pavement				
MLM5-32	0.9	0.13	10.00	10.00	8.30	0.000	0.971
	0.9	0.13	Pavement				
MLM5-33	0.9	0.26	10.00	10.00	8.30	0.000	1.943
	0.9	0.26	Pavement				
MLM5-34	0.9	0.27	10.00	10.00	8.30	0.000	2.017
	0.9	0.27	Pavement				
MLM6-36	0.9	0.26	10.00	10.00	8.30	0.000	1.943
	0.9	0.26	Pavement				
MLM6-37	0.9	0.26	10.00	10.00	8.30	0.000	1.943
	0.9	0.26	Pavement				
MLM6-38	0.9	0.26	10.00	10.00	8.30	0.000	1.943
	0.9	0.26	Pavement				
MLM6-39	0.9	0.78	10.00	10.00	8.30	0.000	5.828
	0.9	0.78	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
MLM5-26	Curb	10.00	0.54	0.80	0.015	0.21	n/a	n/a	8.83	650.11
MLM5-27	Curb	10.00	0.46	1.00	0.015	0.21	n/a	n/a	8.83	650.26
MLM5-28	Curb	10.00	0.38	1.30	0.015	0.21	n/a	n/a	8.83	650.39
MLM5-29	Curb	10.00	0.38	1.60	0.015	0.21	n/a	n/a	8.83	650.54
MLM5-30	Curb	10.00	0.38	2.10	0.015	0.21	n/a	n/a	8.83	650.73
MLM5-31	Curb	10.00	0.38	2.50	0.015	0.21	n/a	n/a	8.83	650.92
MLM5-32	Curb	10.00	0.38	3.40	0.015	0.21	n/a	n/a	8.83	651.31
MLM5-33	Curb	10.00	0.38	4.30	0.015	0.21	n/a	n/a	8.83	651.69
MLM5-34	Curb	10.00	0.38	4.60	0.015	0.21	n/a	n/a	8.83	652.46
MLM6-36	Curb	10.00	0.38	4.60	0.015	0.21	n/a	n/a	8.83	653.22
MLM6-37	Curb	10.00	1.23	4.60	0.015	0.21	n/a	n/a	8.83	654.76
MLM6-38	Curb	10.00	2.16	4.60	0.015	0.21	n/a	n/a	8.83	658.17
MLM6-39	Curb	10.00	2.16	4.50	0.015	0.21	n/a	n/a	8.83	662.49

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
MLM5-26	Curb	0.224	0.224	0.000	0.000		4.15	10.00	8.00
MLM5-27	Curb	0.299	0.299	0.500	0.000	MLM5-26	4.42	10.00	8.00
MLM5-28	Curb	0.448	0.448	0.500	0.000	MLM5-27	4.88	10.00	8.15
MLM5-29	Curb	0.523	0.523	0.500	0.000	MLM5-28	5.08	10.00	7.63
MLM5-30	Curb	0.523	0.523	0.500	0.000	MLM5-29	4.83	10.00	6.43
MLM5-31	Curb	0.971	0.971	0.500	0.000	MLM5-30	6.20	10.00	7.24
MLM5-32	Curb	0.971	0.971	0.500	0.000	MLM5-31	5.75	10.00	6.00
MLM5-33	Curb	1.943	1.943	0.500	0.000	MLM5-32	7.41	10.00	6.70
MLM5-34	Curb	2.017	2.017	0.500	0.000	MLM5-33	7.38	10.00	6.52
MLM6-36	Curb	1.996	1.996	0.500	0.000	MLM5-34	7.35	10.00	6.50
MLM6-37	Curb	2.509	2.456	0.500	0.053	MLM6-36	11.33	10.00	5.67
MLM6-38	Curb	3.577	3.010	0.500	0.567	MLM6-37	15.61	10.00	5.83
MLM6-39	Curb	5.828	4.193	0.500	1.635	MLM6-38	19.74	10.00	7.11

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
MLM5-26	Curb	0.900	0.03	10.00	8.30	0.000	0.00	0.224
MLM5-27	Curb	0.900	0.07	10.24	8.22	0.000	0.00	0.518
MLM5-28	Curb	0.900	0.13	10.52	8.13	0.000	0.00	0.951
MLM5-29	Curb	0.900	0.20	10.81	8.04	0.000	0.00	1.447
MLM5-30	Curb	0.900	0.27	11.12	7.94	0.000	0.00	1.929
MLM5-31	Curb	0.900	0.40	11.41	7.85	0.000	0.00	2.826
MLM5-32	Curb	0.900	0.53	11.94	7.70	0.000	0.00	3.671
MLM5-33	Curb	0.900	0.79	12.43	7.56	0.000	0.00	5.375
MLM5-34	Curb	0.900	1.06	13.33	7.32	0.000	0.00	6.985
MLM6-36	Curb	0.900	1.56	12.41	7.57	0.000	0.00	10.623
MLM6-37	Curb	0.900	1.30	11.67	7.77	0.000	0.00	9.096
MLM6-38	Curb	0.900	1.04	10.86	8.02	0.000	0.00	7.506
MLM6-39	Curb	0.900	0.78	10.00	8.30	0.000	0.00	5.828
MLM6-35	CircMh	0.900	2.62	13.83	7.19	0.000	0.00	16.965
ML 04	Outlt	0.900	2.62	13.83	7.19	0.000	0.00	16.965

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	MLM6-39	MLM6-38	653.76	653.26	Circ 1	0.00	2.00	200.00	0.25	0.012
2	MLM6-38	MLM6-37	650.26	649.76	Circ 1	0.00	2.00	200.00	0.25	0.012
3	MLM6-37	MLM6-36	648.76	648.16	Circ 1	0.00	2.00	200.00	0.30	0.012
4	MLM6-36	MLM6-35	648.16	647.95	Circ 1	0.00	2.00	70.00	0.30	0.012
5	MLM5-26	MLM5-27	645.30	645.26	Circ 1	0.00	2.00	20.00	0.20	0.012
6	MLM5-27	MLM5-28	645.26	645.20	Circ 1	0.00	2.00	30.00	0.20	0.012
7	MLM5-28	MLM5-29	645.20	645.10	Circ 1	0.00	2.00	40.00	0.25	0.012
8	MLM5-29	MLM5-30	645.10	644.97	Circ 1	0.00	2.00	50.00	0.26	0.012
9	MLM5-30	MLM5-31	644.97	644.84	Circ 1	0.00	2.00	50.00	0.26	0.012
10	MLM5-31	MLM5-32	644.84	644.59	Circ 1	0.00	2.00	100.00	0.25	0.012
11	MLM5-32	MLM5-33	644.59	644.34	Circ 1	0.00	2.00	100.00	0.25	0.012
12	MLM5-33	MLM5-34	644.34	643.84	Circ 1	0.00	2.00	200.00	0.25	0.012
13	MLM5-34	MLM6-35	643.84	643.45	Circ 1	0.00	2.00	130.00	0.30	0.012
14	MLM6-35	ML 04	643.20	640.94	Circ 1	0.00	3.00	113.00	2.00	0.012

Conveyance Hydraulic Computations. Tailwater = 643.940 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	654.73	654.11	0.057	0.97	0.97	3.86	3.86	5.83	12.26	0.000
2	651.38	650.73	0.094	1.12	1.12	4.12	4.12	7.51	12.26	0.000
3	649.98	649.50	0.138	1.22	1.34	4.54	4.05	9.10	13.43	0.000
4	649.50	649.12	0.188	1.34	1.34	4.73	4.73	10.62	13.43	0.000
5	645.63	645.62	0.000	0.20	0.36	1.38	0.57	0.22	10.96	0.000
6	645.62	645.61	0.000	0.30	0.41	1.78	1.10	0.52	10.96	0.000
7	645.61	645.59	0.002	0.38	0.49	2.33	1.61	0.95	12.26	0.000
8	645.59	645.54	0.003	0.46	0.57	2.64	1.94	1.45	12.50	0.000
9	645.54	645.51	0.006	0.53	0.67	2.88	2.11	1.93	12.50	0.000
10	645.51	645.38	0.013	0.66	0.79	3.15	2.46	2.83	12.26	0.000
11	645.38	645.28	0.022	0.75	0.94	3.41	2.54	3.67	12.26	0.000
12	645.28	644.87	0.048	0.94	1.03	3.72	3.29	5.37	12.26	0.000
13	644.87	644.52	0.081	1.03	1.07	4.28	4.10	6.98	13.43	0.000
14*	644.52	643.94	0.055	0.83	3.00	10.72	2.40	16.96	102.21	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= MLM6-37
Capacity of grade inlet exceeded at inlet Id= MLM6-38
Capacity of grade inlet exceeded at inlet Id= MLM6-39
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 4
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 1

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA
SHEETS
MAINLANES

SHEET 4 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	461
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): J01lop01.bdr, bdr LV ON = 46.57.58.60-62

b13wrp04.dgn-05 HOUFILE023 \hcivil\c0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/17/2003 11:45:35 AM

PROJECT NAME : LAREDO
JOB NUMBER : CF0130
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 5
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
ML06-46	0.9	0.04	10.00	10.00	8.30	0.000	0.299
	0.9	0.04	Pavement				
ML06-43	0.9	0.25	10.00	10.00	8.30	0.000	1.868
	0.9	0.25	Pavement				
ML06-42	0.9	0.26	10.00	10.00	8.30	0.000	1.943
	0.9	0.26	Pavement				
ML05-41	0.9	0.26	10.00	10.00	8.30	0.000	1.943
	0.9	0.26	Pavement				
ML05-40	0.9	0.42	10.00	10.00	8.30	0.000	3.138
	0.9	0.42	Pavement				
ML06-44	0.9	0.08	10.00	10.00	8.30	0.000	0.598
	0.9	0.08	Pavement				
ML06-45	0.9	0.04	10.00	10.00	8.30	0.000	0.299
	0.9	0.04	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
ML06-46	Curb	10.00	1.41	0.90	0.015	0.21	n/a	n/a	8.83	662.55
ML06-43	Curb	10.00	1.96	1.80	0.015	0.21	n/a	n/a	8.83	664.43
ML06-42	Curb	10.00	1.62	3.50	0.015	0.21	n/a	n/a	8.83	667.85
ML05-41	Curb	10.00	1.24	4.60	0.015	0.21	n/a	n/a	8.83	670.72
ML05-40	Curb	10.00	0.87	4.20	0.015	0.21	n/a	n/a	8.83	672.83
ML06-44	Curb	10.00	1.68	1.30	0.015	0.21	n/a	n/a	8.83	663.32
ML06-45	Curb	10.00	1.54	1.10	0.015	0.21	n/a	n/a	8.83	662.92

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
ML06-46	Curb	0.299	0.299	0.000	0.000		6.13	10.00	6.89
ML06-43	Curb	1.933	1.700	0.500	0.233	ML06-44	14.46	10.00	8.50
ML06-42	Curb	1.947	1.882	0.500	0.065	ML06-43	11.79	10.00	5.83
ML05-41	Curb	2.044	2.040	0.500	0.004	ML06-42	10.34	10.00	5.24
ML05-40	Curb	3.138	3.036	0.500	0.102	ML05-41	11.75	10.00	6.98
ML06-44	Curb	0.830	0.830	0.500	0.000	ML06-45	9.81	10.00	7.77
ML06-45	Curb	0.299	0.299	0.500	0.000	ML06-46	6.16	10.00	6.00

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
ML06-46	Curb	0.900	1.35	12.78	7.47	0.000	0.00	9.070
ML06-43	Curb	0.900	1.19	12.40	7.57	0.000	0.00	8.106
ML06-42	Curb	0.900	0.94	11.70	7.77	0.000	0.00	6.570
ML05-41	Curb	0.900	0.68	10.91	8.01	0.000	0.00	4.900
ML05-40	Curb	0.900	0.42	10.00	8.30	0.000	0.00	3.138
ML06-44	Curb	0.900	1.27	12.61	7.51	0.000	0.00	8.585
ML06-45	Curb	0.900	1.31	12.69	7.49	0.000	0.00	8.829
ML 05	Outlt	0.900	1.35	12.78	7.47	0.000	0.00	9.070

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	ML05-40	ML05-41	666.34	665.64	Circ 1	0.00	2.00	200.00	0.35	0.012
2	ML05-41	ML06-42	663.64	662.94	Circ 1	0.00	2.00	200.00	0.35	0.012
3	ML06-42	ML06-43	660.19	659.52	Circ 1	0.00	2.00	190.00	0.35	0.012
4	ML06-43	ML06-44	658.77	658.56	Circ 1	0.00	2.00	60.00	0.35	0.012
5	ML06-44	ML06-45	658.06	657.97	Circ 1	0.00	2.00	25.00	0.36	0.012
6	ML06-45	ML06-46	657.47	657.38	Circ 1	0.00	2.00	25.00	0.36	0.012
7	ML06-46	ML 05	655.88	655.66	Circ 1	0.00	2.00	104.00	0.21	0.012

Conveyance Hydraulic Computations. Tailwater = 657.660 (ft)

Run#	Hydraulic Grade US Elev (ft)	Hydraulic Grade DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	666.97	666.26	0.016	0.63	0.63	3.68	3.68	3.14	14.50	0.000
2	664.44	663.72	0.040	0.80	0.80	4.20	4.20	4.90	14.50	0.000
3	661.13	660.43	0.072	0.94	0.94	4.54	4.54	6.57	14.56	0.000
4	659.83	659.57	0.109	1.06	1.06	4.78	4.78	8.11	14.50	0.000
5	659.15	659.01	0.123	1.09	1.09	4.88	4.88	8.59	14.71	0.000
6	658.60	658.44	0.130	1.12	1.12	4.85	4.85	8.83	14.71	0.000
7	657.78	657.66	0.137	1.38	2.00	3.94	2.89	9.07	11.27	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= ML06-43
Capacity of grade inlet exceeded at inlet Id= ML06-42
Capacity of grade inlet exceeded at inlet Id= ML05-41
Capacity of grade inlet exceeded at inlet Id= ML05-40
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 2
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 1

STATE OF TEXAS
RUDY L. GOMEZ
PE 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA
SHEETS
MAINLANES

SHEET 5 OF 5

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		462
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J01lap01.bar, bar LV ON = 46.57.58.60-62

b13wrp05.dgn-05 HOUFILE023 \hcivil\cf0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 1/13/2003 11:36:29 AM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 1
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBA4-1	0.9	0.20	10.00	10.00	8.30	0.000	1.494
	0.9	0.20	Pavement				
NBA4-2	0.9	0.32	10.00	10.00	8.30	0.000	2.391
	0.9	0.32	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBA4-1	Grate	3.98	2.50	2.00	0.015	n/a	2.21	Parall	16.00	521.48
NBA4-2	Grate	3.98	3.80	2.00	0.015	n/a	2.21	Parall	16.00	528.18

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Bypass Allow (cfs)	Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBA4-1	Grate	1.494	1.116	0.000	0.379		n/a	0.00	6.90
NBA4-2	Grate	2.391	1.625	0.500	0.765	NB1	n/a	0.00	7.60

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBA4-1	Grate	0.900	0.52	10.42	8.16	0.000	0.00	3.820
NBA4-2	Grate	0.900	0.32	10.00	8.30	0.000	0.00	2.391
JB	JnctBx	0.900	0.52	10.42	8.16	0.000	0.00	3.820
NB01	Outlt	0.900	0.52	10.42	8.16	0.000	0.00	3.820

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBA4-2	NBA4-1	523.61	516.01	Circ 1	0.00	2.00	200.00	3.80	0.012
2	NBA4-1	JB	514.01	513.91	Circ 1	0.00	2.00	4.00	2.50	0.012
3	JB	NB01	512.91	504.91	Box 1	5.00	4.00	245.00	3.27	0.012

Conveyance Hydraulic Computations. Tailwater = 508.910 (ft)

Run#	Hydraulic Grade US Elev (ft)	Hydraulic Grade DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	523.91	516.31	0.010	0.30	0.30	7.95	7.95	2.39	47.80	0.000
2*	514.43	514.33	0.024	0.42	0.42	7.86	7.86	3.82	38.76	0.000
3*	513.17	508.91	0.000	0.13	4.00	5.71	0.19	3.82	480.23	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBA4-1
Capacity of grade inlet exceeded at inlet Id= NBA4-2
Discharge decreased downstream node Id= JB Previous intensity used.
Upstream hydraulic gradeline exceeds critical elevation at node Id= JB
Drop flowline elevation. Downstream HGL set to uniform depth elevation at Run# 1

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 4:25:53 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 2
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBA3-30	0.61	1.10	10.00	10.00	8.30	0.000	5.570
	0.9	0.52	Pavement				
	0.35	0.58	Undeveloped				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBA3-30	Grate	10.00	6.25	0.20	33.00	3.57	33.00	0.023	n/a	1.50	515.76

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBA3-30	Grate	n/a	10.00	6.25	5.570	20.570	0.319	3.53	0.90

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBA3-30	Grate	0.610	1.10	10.00	8.30	0.000	0.00	5.570
NB02	Outlt	0.610	1.10	10.00	8.30	0.000	0.00	5.570

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBA3-30	NB02	512.80	512.56	Circ 1	0.00	2.00	60.00	0.40	0.012

Conveyance Hydraulic Computations. Tailwater = 514.500 (ft)

Run#	Hydraulic Grade US Elev (ft)	Hydraulic Grade DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	514.52	514.50	0.052	0.83	1.94	4.53	1.79	5.57	15.50	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Grate inlet in sag Id=NBA3-30 has a % reduction safety factor = 50

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 1 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		463
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J01lop01.bdr, bdr LV ON = 46,57,58,60-62

HOUFILE023 \hchi\lvcf0130\ 4/18/2003
b13wrp06.dgn-04

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 3/19/2003 4:26:26 PM

PROJECT NAME : LAREDO CF-130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 3
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBA4-31	0.746	5.94	15.83	15.83	6.74	0.000	29.872
	0.9	4.28	Pavement				
	0.35	1.66	Undeveloped				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBA4-31	Grate	15.00	12.50	3.80	33.00	0.26	33.00	0.023	n/a	1.50	516.10

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBA4-31	Grate	n/a	15.00	12.50	29.872	41.140	0.747	1.68	6.32

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBA4-31	Grate	0.746	5.94	15.83	6.74	0.000	0.00	29.872
NB03	Outlt	0.746	5.94	15.83	6.74	0.000	0.00	29.872

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBA4-31	NB03	512.62	512.12	Circ 1	0.00	2.50	100.00	0.50	0.012

Conveyance Hydraulic Computations. Tailwater = 514.620 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	515.01	514.62	0.452	1.95	2.50	7.26	6.09	29.87	31.42	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Grate inlet in sag Id=NBA4-31 has a % reduction safety factor = 50

REF FILE(S): J011op01.bdr, bdr LV ON = 46,57,58,60-62

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 2 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		464
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

b13wrp07.dgn-03 HOUFILE023 \hciwl\c\f0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 4:27:56 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 4
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBB4-6	0.74	1.92	10.00	10.00	8.30	0.000	11.788
	0.9	1.36	Pavement				
	0.35	0.56	Undeveloped				
NBB4-7	0.79	1.05	10.00	10.00	8.30	0.000	6.886
	0.9	0.84	Pavement				
	0.35	0.21	Undeveloped				
NBB4-9	0.769	0.59	10.00	10.00	8.30	0.000	3.769
	0.9	0.45	Pavement				
	0.35	0.14	Undeveloped				
NBB4-10	0.733	3.13	10.00	10.00	8.30	0.000	19.047
	0.9	2.18	Pavement				
	0.35	0.95	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBB4-7	Grate	5.12	0.85	33.00	0.023	n/a	2.50	Parall	12.00	536.49
NBB4-10	Grate	5.00	0.79	33.00	0.023	n/a	2.50	Parall	12.00	540.37

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBB4-7	Grate	6.886	6.877	0.500	0.009	NBB4-6	n/a	0.00	3.03
NBB4-10	Grate	19.047	18.599	0.500	0.448	NBB4-9	n/a	0.00	4.52

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBB4-6	Grate	15.00	12.50	0.2033.00		0.85	33.00	0.023	n/a	1.50	535.00
NBB4-9	Grate	10.00	6.25	0.2933.00		0.24	33.00	0.023	n/a	1.50	539.77

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBB4-6	Grate	n/a	15.00	12.50	11.797	41.140	0.402	4.26	2.36
NBB4-9	Grate	n/a	10.00	6.25	4.217	20.570	0.265	2.32	2.52

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBB4-6	Grate	0.747	6.69	11.66	7.78	0.000	0.00	38.881
NBB4-7	Grate	0.750	4.77	11.27	7.89	0.000	0.00	28.245
NBB4-8	CircMh	0.739	3.72	10.55	8.12	0.000	0.00	22.319
NBB4-9	Grate	0.769	0.59	10.00	8.30	0.000	0.00	3.769
NBB4-10	Grate	0.733	3.13	10.00	8.30	0.000	0.00	19.047
NB04	Outlt	0.747	6.69	11.66	7.78	0.000	0.00	38.881

Conveyance Configuration Data

Run#	Node US	Node DS	I.D.	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBB4-10	NBB4-8		536.61	534.73	Circ 1	0.00	2.00	250.00	0.75	0.012
2	NBB4-9	NBB4-8		534.78	534.73	Circ 1	0.00	2.00	11.00	0.45	0.012
3	NBB4-8	NBB4-7		534.23	532.73	Circ 1	0.00	2.50	300.00	0.50	0.012
4	NBB4-7	NBB4-6		532.73	531.76	Circ 1	0.00	2.50	175.00	0.55	0.012
5	NBB4-6	NB04		531.75	531.69	Circ 1	0.00	2.50	7.00	0.90	0.012

Conveyance Hydraulic Computations. Tailwater = 534.190 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	538.09	536.21	0.604	1.48	1.48	7.62	7.62	19.05	21.26	0.000
2*	535.80	535.79	0.024	0.65	1.06	4.27	2.22	3.77	16.53	0.000
3*	535.79	534.67	0.252	1.56	1.94	6.92	5.46	22.32	31.42	0.000
4*	534.67	534.24	0.404	1.78	2.48	7.57	5.76	28.25	33.09	0.000
5*	534.24	534.19	0.765	1.89	2.50	9.74	7.92	38.88	42.16	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBB4-7
Capacity of grade inlet exceeded at inlet Id= NBB4-10
Grate inlet in sag Id=NBB4-6 has a % reduction safety factor = 50
Grate inlet in sag Id=NBB4-9 has a % reduction safety factor = 50

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 3 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		46 S
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.bdr, bdr LV ON = 46,57,58,60-62

HOUFILE023 \hcivil\cf0130\ 4/18/2003
b13wrp08.dgn-03

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 4:29:15 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 5
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBC4-12	0.714	6.38	16.22	16.22	6.66	0.000	30.315
	0.9	4.22	Pavement				
	0.35	2.16	Undeveloped				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBC4-12	Grate	36.04	35.95	1.20	25.00	0.73	25.00	0.023	n/a	1.50	546.80

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBC4-12	Grate	n/a	36.04	35.95	30.315	102.195	0.420	2.49	6.23

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q (cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBC4-12	Grate	0.714	6.38	16.22	6.66	0.000	0.00	30.315
NB05	Outlt	0.714	6.38	16.22	6.66	0.000	0.00	30.315

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBC4-12	NB05	544.03	543.63	Circ 3	0.00	2.00	100.00	0.40	0.012

Conveyance Hydraulic Computations. Tailwater = 545.630 (ft)

Run#	Hydraulic Grade US Elev (ft)	Hydraulic Grade DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	545.75	545.63	0.170	1.17	2.00	5.28	3.22	30.32	46.51	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Grate inlet in sag Id=NBC4-12 has a % reduction safety factor = 50

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 4/11/2003 7:46:52 AM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 6
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBD4-15	0.748	1.30	10.00	10.00	8.30	0.000	8.069
	0.9	0.94	Pavement				
	0.35	0.36	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBD4-15	Grate	2.50	0.32	33.00	0.023	n/a	2.50	Parall	8.00	578.66

On Grade Inlets Computation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Bypass Allow (cfs)	Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBD4-15	Grate	8.069	7.909	0.250	0.160	NBE3-32	n/a	0.00	3.87

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q (cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBD4-15	Grate	0.748	1.30	10.00	8.30	0.000	0.00	8.069
NB06	Outlt	0.748	1.30	10.00	8.30	0.000	0.00	8.069

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBD4-15	NB06	575.33	574.10	Circ 2	0.00	2.50	62.00	1.98	0.012

Conveyance Hydraulic Computations. Tailwater = 576.600 (ft)

Run#	Hydraulic Grade US Elev (ft)	Hydraulic Grade DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	576.61	576.60	0.008	0.43	2.50	7.18	0.82	8.07	125.20	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBD4-15

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 4 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		466
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01loop01.bdr, bdr LV ON = 46,57,58,60-62

b13wrp09.dgn-04 HOUFILE023 \hciv\c\0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 4/11/2003 7:53:08 AM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 7
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBE3-32	0.63	6.02	11.33	11.33	7.88	0.000	29.850
	0.9	3.06	Pavement				
	0.35	2.96	Undeveloped				
NBE3-33	0.667	1.37	10.00	10.00	8.30	0.000	7.587
	0.9	0.79	Pavement				
	0.35	0.58	Undeveloped				
NBE3-34	0.637	1.94	10.00	10.00	8.30	0.000	10.263
	0.9	1.01	Pavement				
	0.35	0.93	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBE3-32	Grate	6.00	0.51	33.00	0.023	n/a	4.00	Parall	12.00	573.37
NBE3-33	Grate	6.00	0.32	33.00	0.023	n/a	4.00	Parall	12.00	571.52

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBE3-32	Grate	29.850	29.680	0.250	0.170	NBE3-33	n/a	0.00	5.75
NBE3-33	Grate	7.757	7.757	0.250	0.000		n/a	0.00	3.82

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBE3-34	Grate	24.00	20.00	0.32	33.00	1.30	33.00	0.023	n/a	1.50	570.40

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBE3-34	Grate	n/a	24.00	20.00	10.263	65.824	0.268	4.05	1.37

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBE3-32	Grate	0.630	6.02	11.33	7.88	0.000	0.03	29.877
NBE3-33	Grate	0.637	7.39	12.36	7.58	0.000	0.03	35.676
NBE3-34	Grate	0.637	9.33	13.54	7.27	0.000	0.03	43.202
NB07	Outlt	0.637	9.33	13.54	7.27	0.000	0.03	43.202

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBE3-32	NBE3-33	569.06	567.65	Circ 2	0.00	2.00	351.00	0.40	0.012
2	NBE3-33	NBE3-34	567.65	566.81	Circ 2	0.00	2.50	350.00	0.24	0.012
3	NBE3-34	NB07	566.81	566.53	Circ 2	0.00	2.50	100.00	0.28	0.012

Conveyance Hydraulic Computations. Tailwater = 568.400 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	570.64	569.39	0.371	1.56	1.74	5.67	5.15	29.88	31.07	0.000
2	569.39	568.68	0.161	1.72	1.88	4.96	4.52	35.68	43.54	0.000
3	568.68	568.40	0.236	1.88	1.88	5.47	5.47	43.20	47.03	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBE3-32
Grate inlet in sag Id=NBE3-34 has a % reduction safety factor = 50
Tailwater set to uniform depth elevation = 568.40(ft)

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 5 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		467
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.bdr, bdr LV ON = 46,57,58,60-62

HOUFILE023 \hciv\lc10130\ 4/18/2003
b13wrp10.dgn-04

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 3/19/2003 4:31:21 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-068
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 8
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBE4-14	0.676	7.41	17.47	17.47	6.41	0.000	32.098
	0.9	4.39	Pavement				
	0.35	3.02	Undeveloped				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBE4-14	Grate	15.00	12.50	0.5833	3.00	1.46	33.00	0.023	n/a	1.50	571.12

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBE4-14	Grate	n/a	15.00	12.50	32.098	41.140	0.783	2.45	4.70

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBE4-14	Grate	0.676	7.41	17.47	6.41	0.000	0.00	32.098
NB08	Outlt	0.676	7.41	17.47	6.41	0.000	0.00	32.098

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBE4-14	NB08	566.94	566.62	Circ 1	0.00	3.00	100.00	0.32	0.012

Conveyance Hydraulic Computations. Tailwater = 569.620 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	569.78	569.62	0.197	2.02	3.00	6.36	4.54	32.10	40.88	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Grate inlet in sag Id=NBE4-14 has a % reduction safety factor = 50

REF FILE(S): J01lop01.bdr, bdr LV ON = 46.57.58.60-62

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 6 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		468
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b13wrp11.dgn-03

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 3/19/2003 4:31:50 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 9
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBG4-44	0.753	5.85	16.64	16.64	6.57	0.000	28.960
	0.9	4.29	Pavement				
	0.35	1.56	Undeveloped				
NBG4-45	0.788	4.42	10.00	10.00	8.30	0.000	28.913
	0.9	3.52	Pavement				
	0.35	0.90	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBG4-44	Grate	5.00	1.90	33.00	0.023	n/a	2.50	Parall	12.00	567.50

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBG4-44	Grate	28.960	27.795	1.250	1.165	NBG4-45	n/a	0.00	4.46

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBG4-45	Grate	15.00	12.50	0.65	33.00	0.38	33.00	0.023	n/a	1.25	566.20

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBG4-45	Grate	n/a	15.00	12.50	30.078	32.357	0.750	3.54	5.37

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBG4-44	Grate	0.768	10.27	16.64	6.57	0.000	0.00	51.848
NBG4-45	Grate	0.788	4.42	10.00	8.30	0.000	0.00	28.913
NB011	Outlt	0.768	10.27	16.64	6.57	0.000	0.00	51.848

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
2	NBG4-44	NB011	558.95	558.13	Box 3	8.00	7.00	215.00	0.38	0.012
1	NBG4-45	NBG4-44	561.70	561.30	Circ 1	0.00	3.00	200.00	0.20	0.012

Conveyance Hydraulic Computations. Tailwater = 565.130 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
2*	565.13	565.13	0.000	0.49	7.00	4.39	0.31	51.85	1947.81	0.000
1	565.45	565.13	0.160	2.25	3.00	5.08	4.09	28.91	32.32	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBG4-44
Grate inlet in sag Id=NBG4-45 has a % reduction safety factor = 50

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 7 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		469
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J011op01.bdr, bdr LV ON = 46,57,58,60-62

b13wrp12.dgn-03 HOUFILE023 \hclvlt\cf0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN)

Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 4:32:15 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 10
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBH3-21	0.82	5.48	10.00	10.00	8.30	0.000	37.289
	0.9	4.68	Pavement				
	0.35	0.80	Undeveloped				
NBH4-22	0.771	0.52	10.00	10.00	8.30	0.000	3.343
	0.9	0.40	Pavement				
	0.35	0.12	Undeveloped				
NBH4-23	0.754	1.54	10.00	10.00	8.30	0.000	9.634
	0.9	1.13	Pavement				
	0.35	0.41	Undeveloped				
NBH4-25	0.74	0.48	10.00	10.00	8.30	0.000	2.947
	0.9	0.34	Pavement				
	0.35	0.14	Undeveloped				
NBH4-58	0.683	1.67	10.00	10.00	8.30	0.000	9.463
	0.9	1.01	Pavement				
	0.35	0.66	Undeveloped				
NBH4-24	0.74	0.48	10.00	10.00	8.30	0.000	2.947
	0.9	0.34	Pavement				
	0.35	0.14	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBH4-22	Grate	5.00	0.33	33.00	0.023	n/a	2.50	Parall	12.00	562.84
NBH4-23	Grate	5.00	2.80	33.00	0.023	n/a	2.50	Parall	12.00	570.29
NBH4-24	Grate	5.00	1.69	33.00	0.023	n/a	2.50	Parall	8.00	564.11
NBH4-25	Grate	2.50	2.80	33.00	0.023	n/a	2.50	Reticu	12.00	566.64
NBH4-58	Grate	5.00	2.80	33.00	0.023	n/a	2.50	Parall	8.00	575.90

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBH4-22	Grate	3.343	3.343	0.250	0.000	NBH3-21	n/a	0.00	2.75
NBH4-23	Grate	9.638	9.632	0.250	0.005	NBH4-25	n/a	0.00	2.75
NBH4-24	Grate	3.168	3.168	0.000	0.000		n/a	0.00	1.99
NBH4-25	Grate	2.952	2.731	0.250	0.221	NBH4-24	n/a	0.00	1.76
NBH4-58	Grate	9.463	9.460	0.250	0.004	NBH4-23	n/a	0.00	2.73

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBH3-21	Grate	15.00	12.50	0.21	33.00	0.33	33.00	0.023	n/a	1.50	561.44

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBH3-21	Grate	n/a	15.00	12.50	37.290	41.140	0.866	6.84	3.73

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBH3-21	Grate	0.820	5.48	10.00	8.30	0.000	0.00	37.289
NBH4-22	Grate	0.777	10.17	12.08	7.66	0.000	0.00	60.540
NBO12	JnctBx	0.777	10.17	12.08	7.66	0.000	0.00	60.540
NBH4-23	Grate	0.717	3.21	10.73	8.06	0.000	0.00	18.548
NBH4-24	Grate	0.722	4.17	11.64	7.78	0.000	0.00	23.436
NBH4-25	Grate	0.720	3.69	11.19	7.92	0.000	0.00	21.029
NBH4-58	Grate	0.683	1.67	10.00	8.30	0.000	0.00	9.463

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBH3-21	NBH4-22	557.28	556.07	Circ 1	0.00	3.00	410.00	0.30	0.012
2	NBH4-22	NBO12	553.45	552.20	Box 4	10.00	8.00	214.00	0.58	0.012
4	NBH4-24	NBH4-22	557.95	557.50	Circ 1	0.00	2.50	150.00	0.30	0.012
5	NBH4-25	NBH4-24	560.04	559.59	Circ 1	0.00	2.50	150.00	0.30	0.012
3	NBH4-23	NBH4-25	561.48	561.03	Circ 1	0.00	2.50	150.00	0.30	0.012
6	NBH4-58	NBH4-23	567.29	566.70	Circ 1	0.00	2.00	200.00	0.30	0.012

Conveyance Hydraulic Computations. Tailwater = 560.200 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	561.29	560.20	0.266	2.34	3.00	6.29	5.28	37.29	39.26	0.000
2*	560.20	560.20	0.000	0.34	8.00	4.40	0.19	60.54	5149.14	0.000
4	560.62	560.20	0.278	1.95	2.50	5.70	4.77	23.44	24.34	0.000
5	561.84	561.15	0.224	1.80	1.80	5.57	5.57	21.03	24.34	0.000
3	563.12	562.49	0.174	1.64	1.64	5.43	5.43	18.55	24.34	0.000
6	568.54	567.80	0.149	1.25	1.25	4.58	4.58	9.46	13.31	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBH4-22
Capacity of grade inlet exceeded at inlet Id= NBH4-23
Capacity of grade inlet exceeded at inlet Id= NBH4-25
Capacity of grade inlet exceeded at inlet Id= NBH4-58
Grate inlet in sag Id=NBH3-21 has a % reduction safety factor = 50
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 6

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 8 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		470
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

REF FILE(S): J01loop01.bdr, bdr LV ON = 46,57,58,60-62

4/18/2003 HOUFILE023 \hciviil\c10130\ b13wrp13.dgn-03

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 4:32:42 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 11
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NB14-26	0.793	5.66	16.03	16.03	6.70	0.000	30.060
	0.9	4.56	Pavement				
	0.35	1.10	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NB14-26	Grate	5.00	0.20	33.00	0.023	n/a	6.00	Parall	12.00	593.12

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NB14-26	Grate	30.060	30.046	0.000	0.014		n/a	0.00	6.88

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NB14-26	Grate	0.793	5.66	16.03	6.70	0.000	0.00	30.060
NB013	JnctBx	0.793	5.66	16.03	6.70	0.000	0.00	30.060

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NB14-26	NB013	587.16	585.88	Circ 3	0.00	3.00	64.00	2.00	0.012

Conveyance Hydraulic Computations. Tailwater = 588.780 (ft)

Run#	Hydraulic Grade US Elev (ft)	Hydraulic Grade DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	588.79	588.78	0.019	0.63	2.90	9.20	1.43	30.06	306.63	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NB14-26

REF FILE(S): j011ap01.bar, bar LV ON = 46,57,58,60-62

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA
SHEETS
NB FRONTAGE ROAD

SHEET 9 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		471
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

b13wrp14.dgn-04 HOUFILE023 \hciwil\cf0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 4:33:54 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 12
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBJ4-27	0.787	0.63	10.00	10.00	8.30	0.000	4.113
	0.9	0.50	Pavement				
	0.35	0.13	Undeveloped				
NBJ4-28	0.855	0.73	10.00	10.00	8.30	0.000	5.180
	0.9	0.67	Pavement				
	0.35	0.06	Undeveloped				
NBJ4-47	0.845	0.50	10.00	10.00	8.30	0.000	3.507
	0.9	0.45	Pavement				
	0.35	0.05	Undeveloped				
NBJ4-61	0.855	0.61	10.00	10.00	8.30	0.000	4.329
	0.9	0.56	Pavement				
	0.35	0.05	Undeveloped				
NBJ4-62	0.852	0.46	10.00	10.00	8.30	0.000	3.254
	0.9	0.42	Pavement				
	0.35	0.04	Undeveloped				
NBJ4-63	0.773	1.26	10.00	10.00	8.30	0.000	8.090
	0.9	0.97	Pavement				
	0.35	0.29	Undeveloped				
NBJ4-64	0.835	0.76	10.00	10.00	8.30	0.000	5.267
	0.9	0.67	Pavement				
	0.35	0.09	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBJ4-27	Grate	5.00	0.20	33.00	0.023	n/a	2.50	Parall	8.00	607.70
NBJ4-28	Grate	5.00	0.20	33.00	0.023	n/a	2.50	Parall	8.00	608.14
NBJ4-47	Grate	5.00	1.93	33.00	0.023	n/a	2.50	Parall	8.00	611.54
NBJ4-61	Grate	5.00	1.93	33.00	0.023	n/a	2.50	Parall	8.00	614.43
NBJ4-63	Grate	5.00	1.46	33.00	0.023	n/a	2.50	Parall	8.00	619.60
NBJ4-64	Grate	5.00	0.20	33.00	0.023	n/a	2.50	Parall	8.00	608.14

On Grade Inlets Computation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Bypass Allow (cfs)	Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBJ4-27	Grate	4.125	4.121	0.250	0.004	NBI4-26	n/a	0.00	3.28
NBJ4-28	Grate	5.180	5.169	4.000	0.011	NBJ4-64	n/a	0.00	3.58
NBJ4-47	Grate	3.507	3.507	0.000	0.000		n/a	0.00	2.02
NBJ4-61	Grate	4.329	4.329	0.000	0.000		n/a	0.00	2.18
NBJ4-63	Grate	8.090	8.080	0.250	0.009	NBJ4-62	n/a	0.00	2.92
NBJ4-64	Grate	5.278	5.266	0.250	0.012	NBJ4-27	n/a	0.00	3.61

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBJ4-62	Grate	15.00	12.50	0.59	33.00	1.46	33.00	0.023	n/a	1.00	617.40

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBJ4-62	Grate	n/a	15.00	12.50	3.264	46.305	0.171	1.57	1.80

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q (cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBJ4-27	Grate	0.821	4.95	13.27	7.34	0.000	0.00	29.818
NBJ4-28	Grate	0.824	3.56	11.97	7.69	0.000	0.00	22.562
NBO14	Junct	0.821	4.95	13.27	7.34	0.000	0.00	29.818
NBJ4-47	Grate	0.816	2.83	11.53	7.82	0.000	0.00	18.061
NBJ4-61	Grate	0.810	2.33	11.12	7.94	0.000	0.00	14.988
NBJ4-62	Grate	0.794	1.72	10.50	8.13	0.000	0.00	11.115
NBJ4-63	Grate	0.773	1.26	10.00	8.30	0.000	0.00	8.090
NBJ4-64	Grate	0.826	4.32	12.68	7.49	0.000	0.00	26.733

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBJ4-64	NBJ4-27	604.89	604.08	Circ 1	0.00	2.50	220.00	0.37	0.012
2	NBJ4-27	NBO14	605.89	603.94	Circ 2	0.00	3.00	79.00	2.47	0.012
3	NBJ4-28	NBJ4-64	605.61	604.89	Circ 1	0.00	2.50	240.00	0.30	0.012
4	NBJ4-47	NBJ4-28	606.25	605.61	Circ 1	0.00	2.50	160.00	0.40	0.012
5	NBJ4-61	NBJ4-47	608.99	608.24	Circ 1	0.00	2.00	150.00	0.50	0.012
6	NBJ4-62	NBJ4-61	611.80	611.00	Circ 1	0.00	2.00	200.00	0.40	0.012
7	NBJ4-63	NBJ4-62	614.80	614.20	Circ 1	0.00	2.00	150.00	0.40	0.012

Conveyance Hydraulic Computations. Tailwater = 603.940 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	607.42	606.62	0.362	2.03	2.50	6.26	5.45	26.73	26.97	0.000
2*	606.62	604.67	0.043	0.73	0.73	11.12	11.12	29.82	227.11	0.000
3	607.98	607.42	0.258	1.91	2.50	5.59	4.60	22.56	24.34	0.000
4	608.14	607.98	0.165	1.46	2.37	6.04	3.75	18.06	28.11	0.000
5	610.43	609.64	0.374	1.44	1.44	6.20	6.20	14.99	17.33	0.000
6	613.05	612.20	0.206	1.25	1.25	5.38	5.38	11.12	15.50	0.000
7	615.83	615.21	0.109	1.03	1.03	4.95	4.95	8.09	15.50	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBJ4-27
Capacity of grade inlet exceeded at inlet Id= NBJ4-28
Capacity of grade inlet exceeded at inlet Id= NBJ4-63
Capacity of grade inlet exceeded at inlet Id= NBJ4-64
Tailwater set to uniform depth elevation = 604.67(ft)
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 5
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 6
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 7

STATE OF TEXAS RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 10 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		472
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

REF FILE(S): J011op01.bdr. bdr LV ON = 46.57,58.60-62

b13wrp15.dgn-03 HOUFILE023 \hcivil\cf0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN)

Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 4:35:08 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 13
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBK4-29	0.769	1.09	10.00	10.00	8.30	0.000	6.956
	0.9	0.83	Pavement				
	0.35	0.26	Undeveloped				
NBK4-65	0.768	0.50	10.00	10.00	8.30	0.000	3.188
	0.9	0.38	Pavement				
	0.35	0.12	Undeveloped				
NBK4-66	0.781	2.26	11.28	11.28	7.89	0.000	13.936
	0.9	1.86	Pavement				
	0.23	0.40	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBK4-65	Grate	5.00	1.20	33.00	0.023	n/a	2.50	Parall	8.00	634.66
NBK4-66	Grate	5.00	1.20	33.00	0.023	n/a	2.50	Parall	8.00	636.46

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Bypass Allow (cfs)	Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBK4-65	Grate	3.346	3.346	0.500	0.000	NBK4-29	n/a	0.00	2.16
NBK4-66	Grate	13.936	13.778	0.500	0.158	NBK4-65	n/a	0.00	3.70

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBK4-29	Grate	15.00	12.50	0.75	33.00	2.16	33.00	0.230	n/a	0.50	628.00

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBK4-29	Grate	n/a	15.00	12.50	6.956	8.186	0.283	3.11	5.84

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBK4-29	Grate	0.776	3.85	12.59	7.52	0.000	0.00	22.456
NBK4-65	Grate	0.779	2.76	11.72	7.76	0.000	0.00	16.683
NBK4-66	Grate	0.781	2.26	11.28	7.89	0.000	0.00	13.936
NBO15	Outlt	0.776	3.85	12.59	7.52	0.000	0.00	22.456

Conveyance Configuration Data

Run#	Node US	Node DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBK4-29	NBO15	624.24	624.00	Circ 3	0.00	3.00	55.00	0.44	0.012
2	NBK4-65	NBK4-29	626.40	624.74	Circ 1	0.00	2.00	330.00	0.50	0.012
3	NBK4-66	NBK4-65	631.70	631.10	Circ 1	0.00	2.00	150.00	0.40	0.012

Conveyance Hydraulic Computations. Tailwater = 627.000 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	627.01	627.00	0.011	0.80	3.00	4.92	1.06	22.46	143.21	0.000
2	628.53	627.01	0.463	1.56	2.00	6.34	5.31	16.68	17.38	0.000
3	633.17	632.44	0.323	1.47	1.47	5.64	5.64	13.94	15.50	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBK4-66
Grate inlet in sag Id=NBK4-29 has a % reduction safety factor = 50
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 3

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 11 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		473
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01ap01.bdr, bdr LV ON = 46,57,58,60-62

HOUFILE023 \hcivil\cf0130\ 4/18/2003
b13wrp16.dgn-03

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 4:36:32 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 14: CULVERT "L"
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBL4-46	0.797	1.92	10.00	10.00	8.30	0.000	12.701
	0.9	1.56	Pavement				
	0.35	0.36	Undeveloped				
NBL-XX	0.612	2.45	10.00	10.00	8.30	0.000	12.467
	0.9	1.17	Pavement				
	0.35	1.29	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBL4-46	Grate	5.00	0.20	33.00	0.023	n/a	2.50	Parall	8.00	647.04

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBL4-46	Grate	12.701	12.545	0.250	0.156	NBK4-67	n/a	0.00	5.01

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBL4-46	Grate	0.693	4.37	10.16	8.25	0.000	0.25	25.256
NBL-XX	Junct	0.612	2.45	10.00	8.30	0.000	0.00	12.467
NBO16	Outlt	0.693	4.37	10.16	8.25	0.000	0.25	25.256

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
2	NBL-XX	NBL4-46	645.75	644.00	Circ 2	0.00	2.00	81.00	2.16	0.012
3	NBL4-46	NBO16	644.00	642.06	Circ 2	0.00	2.00	213.00	0.91	0.012

Conveyance Hydraulic Computations. Tailwater = 644.060 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
2*	646.32	645.28	0.065	0.56	1.28	8.60	2.94	12.47	72.06	0.000
3*	645.28	644.06	0.265	1.05	2.00	7.59	4.02	25.26	46.79	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBL4-46

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 4:37:17 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 15: CULVERT "M"
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBM4-51	0.652	0.20	10.00	10.00	8.30	0.000	1.083
	0.9	0.11	Pavement				
	0.35	0.09	Undeveloped				
NBMX	0.508	1.28	10.00	10.00	8.30	0.000	5.409
	0.9	0.37	Pavement				
	0.35	0.92	Undeveloped				
NBM4-70	0.9	0.38	10.00	10.00	8.30	0.000	2.839
	0.9	0.38	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBM4-51	Grate	2.50	1.61	33.00	0.023	n/a	2.50	Parall	8.00	651.42
NBM4-70	Grate	5.00	3.88	4.60	0.015	n/a	2.50	Transv	8.00	650.30

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBM4-51	Grate	1.083	1.083	0.000	0.000		n/a	0.00	1.33
NBM4-70	Grate	2.839	2.591	0.250	0.248	CULV N2	n/a	0.00	4.80

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBM4-51	Grate	0.527	1.48	10.16	8.25	0.000	0.00	6.450
NBMX	JnctBx	0.508	1.28	10.00	8.30	0.000	0.00	5.409
NBM4-70	Grate	0.603	1.86	10.28	8.21	0.000	0.00	9.227
NBO17	Outlt	0.603	1.86	10.28	8.21	0.000	0.00	9.227

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBM4-51	NBM4-70	645.44	644.39	Circ 1	0.00	3.00	55.00	1.91	0.012
2	NBMX	NBM4-51	648.00	646.41	Circ 1	0.00	3.00	75.00	2.12	0.012
3	NBM4-70	NBO17	644.39	640.94	Circ 1	0.00	3.00	164.00	2.10	0.012

Conveyance Hydraulic Computations. Tailwater = 643.940 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	645.97	645.35	0.008	0.52	0.96	7.94	3.31	6.45	99.86	0.000
2*	648.46	646.87	0.006	0.46	0.46	7.81	7.81	5.41	105.23	0.000
3*	645.35	643.94	0.016	0.60	3.00	9.12	1.31	9.23	104.83	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBM4-70
Drop flowline elevation. Downstream HGL set to uniform depth elevation at Run# 2

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 12 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	474
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): J01loop01.bdr, bdr LV ON = 46,57,58,60-62

4/18/2003 HOUFILE023 \hcivil\cf0130\ b13wrp17.dgn-03

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 4:38:32 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 15
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBM4-70	0.9	0.38	10.00	10.00	8.30	0.000	2.839
	0.9	0.38	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBM4-70	Grate	5.00	3.83	4.60	0.015	n/a	2.50	Transv	8.00	650.30

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBM4-70	Grate	2.839	2.591	0.250	0.248	NBL4-46	n/a	0.00	4.79

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
NBM4-70	Grate	0.900	0.38	10.00	8.30	0.000	0.00	2.839
NB017	Outlt	0.900	0.38	10.00	8.30	0.000	0.00	2.839

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	NBM4-70	NB017	644.39	640.94	Circ 1	0.00	3.00	120.00	2.88	0.012

Conveyance Hydraulic Computations. Tailwater = 643.940 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	644.91	643.94	0.002	0.32	3.00	7.16	0.40	2.84	122.56	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= NBM4-70

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 1/4/2003 3:24:58 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : IH-35 STORM SEWER SYSTEM
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBB4-48	0.9	0.35	10.00	10.00	8.30	0.000	2.615
	0.9	0.35	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBB4-48	Curb	14.00	1.94	2.00	0.015	0.33	n/a	n/a	16.00	539.76

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBB4-48	Curb	2.615	2.615	0.500	0.000		9.85	14.00	8.90

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
NB FRONTAGE ROAD

SHEET 13 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		474A
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J01lop01.bdr, bdr LV ON = 46,57,58,60-62

4/18/2003 HOUFILE023 \hcivil\cf0130\ b13wrp18.dgn-04

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 1/5/2003 3:14:57 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : IH-35 STORM SEWER SYSTEM
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBM3-41	0.9	0.38	10.00	10.00	8.30	0.000	2.839
	0.9	0.38	Pavement				
NBM4-42	0.9	0.20	10.00	10.00	8.30	0.000	1.494
	0.9	0.20	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBM3-41	Curb	14.00	0.25	4.70	0.015	0.33	n/a	n/a	8.00	653.71

On Grade Inlets Computation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBM3-41	Curb	2.839	2.839	0.500	0.000		5.36	14.00	7.91

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
NBM4-42	Curb	14.00	n/a	0.25	4.70	0.25	4.70	0.015	1.50	0.50	653.52

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
NBM4-42	Curb	14.00	n/a	n/a	1.494	13.580	0.115	4.79	4.79

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 1/5/2003 3:35:50 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : IH-35 STORM SEWER SYSTEM
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
NBM4-43	0.9	0.19	10.00	10.00	8.30	0.000	1.420
	0.9	0.19	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
NBM4-43	Curb	14.00	0.51	2.50	0.015	0.33	n/a	n/a	8.00	656.08

On Grade Inlets Computation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
NBM4-43	Curb	1.420	1.420	0.500	0.000		4.96	14.00	7.92

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA
SHEETS
NB FRONTAGE ROAD

SHEET 14 OF 14

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		474 B
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J011op01.bdr. bdr LV ON = 46.57.58.60-62

b13wrp19.dgn-01 HOUFILE023 \hciviv\cf0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 2/27/2003 1:57:12 PM

PROJECT NAME : LAREDO CF0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 1
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBA1-59	0.744	2.82	10.00	10.00	8.30	0.000	17.416
	0.9	2.02	Pavement				
	0.35	0.80	Undeveloped				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
SBA1-59	Grate	10.00	6.25	0.20	33.00	1.61	33.00	0.023	n/a	1.25	509.83

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
SBA1-59	Grate	n/a	10.00	6.25	17.416	18.778	0.683	4.94	2.44

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBA1-59	Grate	0.744	2.82	10.00	8.30	0.000	0.00	17.416
CULVA	JnctBx	0.744	2.82	10.00	8.30	0.000	0.00	17.416
SB012	Outlt	0.744	2.82	10.00	8.30	0.000	0.00	17.416

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBA1-59	CULVA	506.47	506.27	Circ 1	0.00	2.50	50.00	0.40	0.012
2	CULVA	SB012	504.38	503.91	Box 7	4.00	5.00	60.00	0.78	0.012

Conveyance Hydraulic Computations. Tailwater = 508.910 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	508.99	508.91	0.154	1.43	2.50	6.02	3.55	17.42	28.11	0.000
2*	508.91	508.91	0.000	0.19	5.00	3.35	0.12	17.42	1646.08	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Grate inlet in sag Id=SBA1-59 has a % reduction safety factor = 50
Discharge decreased downstream node Id= CULVA Previous intensity used.

REF FILE(S): J01top01.bdr, bdr LV ON = 46,57,58,60-62

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 1 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	475
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

4/18/2003
HOUFILE023 \hciwin\c0130\
b13wrp20.dgn-03

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 2/25/2003 4:09:58 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 2
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBA2-1	0.9	0.20	10.00	10.00	8.30	0.000	1.494
	0.9	0.20	Pavement				
SBA2-2	0.9	0.20	10.00	10.00	8.30	0.000	1.494
	0.9	0.20	Pavement				
SBA2-3	0.9	0.20	10.00	10.00	8.30	0.000	1.494
	0.9	0.20	Pavement				
SBA2-4	0.9	0.20	10.00	10.00	8.30	0.000	1.494
	0.9	0.20	Pavement				
SBA2-5	0.9	0.33	10.00	10.00	8.30	0.000	2.465
	0.9	0.33	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBA2-1	Grate	3.98	3.26	2.00	0.015	n/a	2.21	Parall	16.00	516.96
SBA2-2	Grate	3.98	4.00	2.00	0.015	n/a	2.21	Parall	16.00	524.72
SBA2-3	Grate	3.98	4.00	2.00	0.015	n/a	2.21	Parall	16.00	532.72
SBA2-4	Grate	3.98	4.00	2.00	0.015	n/a	2.21	Parall	16.00	540.72
SBA2-5	Grate	3.98	2.83	1.60	0.015	n/a	2.21	Parall	16.00	547.90

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBA2-1	Grate	1.494	1.122	0.500	0.372		n/a	0.00	6.55
SBA2-2	Grate	1.494	1.130	0.500	0.364	SB1	n/a	0.00	6.30
SBA2-3	Grate	1.494	1.130	0.500	0.364	SB2	n/a	0.00	6.30
SBA2-4	Grate	1.494	1.130	0.500	0.364	SB3	n/a	0.00	6.30
SBA2-5	Grate	2.465	1.517	0.500	0.949	SB4	n/a	0.00	9.31

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBA2-1	Grate	0.900	1.13	11.42	7.85	0.000	0.00	7.983
SBA2-2	Grate	0.900	0.93	11.11	7.94	0.000	0.00	6.647
SBA2-3	Grate	0.900	0.73	10.79	8.04	0.000	0.00	5.285
SBA2-4	Grate	0.900	0.53	10.43	8.16	0.000	0.00	3.892
SBA2-5	Grate	0.900	0.33	10.00	8.30	0.000	0.00	2.465
CUL A	JnctBx	0.900	1.13	11.42	7.85	0.000	0.00	7.983
SB 01	Outlt	0.900	1.13	11.42	7.85	0.000	0.00	7.983

Conveyance Configuration Data

Run#	Node US	Node DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBA2-5	SBA2-4	542.60	535.60	Circ 1	0.00	2.00	200.00	3.50	0.012
2	SBA2-4	SBA2-3	535.60	527.60	Circ 1	0.00	2.00	200.00	4.00	0.012
3	SBA2-3	SBA2-2	527.60	519.60	Circ 1	0.00	2.00	200.00	4.00	0.012
4	SBA2-2	SBA2-1	519.60	511.60	Circ 1	0.00	2.00	200.00	4.00	0.012
5	SBA2-1	CUL A	511.60	507.00	Circ 1	0.00	2.00	115.00	4.00	0.012
6	CUL A	SB 01	505.60	504.91	Box 1	5.00	4.00	130.00	0.53	0.012

Conveyance Hydraulic Computations. Tailwater = 508.910 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	542.92	535.98	0.010	0.32	0.38	7.76	5.91	2.47	45.87	0.000
2*	535.98	528.04	0.025	0.38	0.44	9.33	7.51	3.89	49.04	0.000
3*	528.04	520.10	0.046	0.44	0.50	10.20	8.67	5.28	49.04	0.000
4*	520.10	512.15	0.074	0.50	0.55	10.91	9.41	6.65	49.04	0.000
5*	512.15	508.91	0.106	0.55	1.91	11.49	2.58	7.98	49.04	0.000
6*	508.91	508.91	0.001	0.38	4.00	4.26	0.40	7.98	193.57	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= SBA2-1
Capacity of grade inlet exceeded at inlet Id= SBA2-2
Capacity of grade inlet exceeded at inlet Id= SBA2-3
Capacity of grade inlet exceeded at inlet Id= SBA2-4
Capacity of grade inlet exceeded at inlet Id= SBA2-5
Discharge decreased downstream node Id= CUL A Previous intensity used.
Upstream hydraulic gradeline exceeds critical elevation at node Id= CUL A

STATE OF TEXAS — RUDY L. GOMEZ — R. 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 2 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		476
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011ap01.bar, bar LV ON = 46.57.58.60-62

b13wrp21.dgn-03 HOUFILE023 \hcivil\cf0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN)

Version 3.05. Jan. 25. 2002
Run @ 2/25/2003 4:22:34 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 3
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBA2-7	0.9	0.21	10.00	10.00	8.30	0.000	1.569
	0.9	0.21	Pavement				
SBA2-8	0.9	0.22	10.00	10.00	8.30	0.000	1.644
	0.9	0.22	Pavement				
SBA2-9	0.9	0.20	10.00	10.00	8.30	0.000	1.494
	0.9	0.20	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBA2-7	Grate	3.98	1.75	2.00	0.015	n/a	2.21	Parall	16.00	550.89
SBA2-8	Grate	3.98	2.40	2.00	0.015	n/a	2.21	Parall	16.00	545.74
SBA2-9	Grate	3.98	0.53	2.00	0.015	n/a	2.21	Parall	16.00	542.12

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBA2-7	Grate	1.569	1.158	0.500	0.411	SB8	n/a	0.00	7.50
SBA2-8	Grate	1.644	1.203	0.500	0.441	SB9	n/a	0.00	7.20
SBA2-9	Grate	1.494	1.160	0.500	0.334		n/a	0.00	9.20

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBA2-7	Grate	0.900	0.21	10.00	8.30	0.000	0.00	1.569
SBA2-8	Grate	0.900	0.43	10.63	8.09	0.000	0.00	3.132
SBA2-9	Grate	0.900	0.63	11.44	7.84	0.000	0.00	4.448
SB 02	Outlt	0.900	0.63	11.44	7.84	0.000	0.00	4.448

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBA2-7	SBA2-8	545.66	540.26	Circ 1	0.00	2.00	225.00	2.40	0.012
2	SBA2-8	SBA2-9	540.26	539.24	Circ 1	0.00	2.00	203.00	0.50	0.012
3	SBA2-9	SB 02	539.24	539.13	Circ 1	0.00	2.00	22.00	0.50	0.012

Conveyance Hydraulic Computations. Tailwater = 541.240 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	545.94	541.28	0.004	0.28	1.02	5.95	0.97	1.57	37.98	0.000
2*	541.28	541.25	0.016	0.57	2.00	4.20	1.00	3.13	17.37	0.000
3*	541.25	541.24	0.033	0.69	2.00	4.65	1.42	4.45	17.33	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= SBA2-7
Capacity of grade inlet exceeded at inlet Id= SBA2-8
Capacity of grade inlet exceeded at inlet Id= SBA2-9

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 3 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		477
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.bdr, bdr LV ON = 46,57,58,60-62

HOUFILE023 \hcivil\cf0130\ 4/18/2003
b13wrp22.dgn-04

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 2/26/2003 7:17:20 AM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 4
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBC2-10	0.669	2.72	10.00	10.00	8.30	0.000	15.117
	0.9	1.58	Pavement				
	0.35	1.14	Undeveloped				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
SBC2-10	Grate	15.12	8.77	0.25	33.00	0.69	33.00	0.023	n/a	1.50	580.10

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
SBC2-10	Grate	n/a	15.12	8.77	15.117	28.864	0.472	3.05	3.80

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBC2-10	Grate	0.669	2.72	10.00	8.30	0.000	0.00	15.117
SB 03	Outlt	0.669	2.72	10.00	8.30	0.000	0.00	15.117

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBC2-10	SB 03	569.02	567.22	Circ 1	0.00	2.00	400.00	0.45	0.012

Conveyance Hydraulic Computations. Tailwater = 569.220 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	570.54	569.22	0.380	1.50	2.00	5.98	4.81	15.12	16.44	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Grate inlet in sag Id=SBC2-10 has a % reduction safety factor = 50

REF FILE(S): J01lop01.bdr, bar LV ON = 46,57,58,60-62

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 4 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		478
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b13wrp23.dgn-04

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 3/18/2003 9:20:42 AM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 5
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBE1-20	0.684	4.70	13.96	13.96	7.16	0.000	23.013
	0.9	2.85	Pavement				
	0.35	1.85	Undeveloped				
SBE1-21	0.737	1.28	10.00	10.00	8.30	0.000	7.828
	0.9	0.90	Pavement				
	0.35	0.38	Undeveloped				
SBE2-22	0.67	0.43	10.00	10.00	8.30	0.000	2.391
	0.9	0.25	Pavement				
	0.35	0.18	Undeveloped				
SBE2-23	0.667	0.59	10.00	10.00	8.30	0.000	3.267
	0.9	0.34	Pavement				
	0.35	0.25	Undeveloped				
SBE2-24	0.67	0.43	10.00	10.00	8.30	0.000	2.391
	0.9	0.25	Pavement				
	0.35	0.18	Undeveloped				
SBE2-46	0.67	1.34	10.00	10.00	8.30	0.000	7.455
	0.9	0.78	Pavement				
	0.35	0.56	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBE1-20	Grate	5.12	0.84	33.00	0.023	n/a	2.50	Transv	6.00	570.15
SBE2-22	Grate	5.12	0.65	33.00	0.023	n/a	2.50	Transv	6.00	568.58
SBE2-23	Grate	5.12	0.93	33.00	0.023	n/a	2.50	Transv	6.00	570.48
SBE2-24	Grate	5.12	1.88	33.00	0.023	n/a	2.50	Transv	6.00	575.16
SBE2-46	Grate	5.12	1.88	33.00	0.023	n/a	2.50	Transv	6.00	579.86

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBE1-20	Grate	23.013	22.325	0.500	0.688	SBE1-21	n/a	0.00	4.77
SBE2-22	Grate	2.391	2.391	0.500	0.000	SBE1-21	n/a	0.00	2.15
SBE2-23	Grate	3.267	3.267	0.500	0.000	SBE2-22	n/a	0.00	2.25
SBE2-24	Grate	2.392	2.392	0.500	0.000	SBE2-23	n/a	0.00	1.75
SBE2-46	Grate	7.455	7.453	0.500	0.001	SBE2-24	n/a	0.00	2.69

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
SBE1-21	Grate	15.12	8.77	0.84	33.00	0.74	33.00	0.023	n/a	1.50	568.51

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
SBE1-21	Grate	n/a	15.12	8.77	8.516	28.864	0.322	2.25	2.85

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBE1-20	Grate	0.684	4.70	13.96	7.16	0.000	0.00	23.013
SBE1-21	Grate	0.695	5.98	14.48	7.04	0.000	0.00	29.251
SBE2-22	Grate	0.669	2.79	12.75	7.47	0.000	0.00	13.957
SBE2-23	Grate	0.669	2.36	11.98	7.69	0.000	0.00	12.141
SBE2-24	Grate	0.670	1.77	10.86	8.02	0.000	0.00	9.512
SBE2-46	Grate	0.670	1.34	10.00	8.30	0.000	0.00	7.455
CUL E	JnctBx	0.687	8.77	15.53	6.80	0.000	0.00	40.970
SB 04	Outlt	0.687	8.77	15.53	6.80	0.000	0.00	40.970

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBE1-20	SBE1-21	565.90	565.10	Circ 1	0.00	2.50	200.00	0.40	0.012
2	SBE1-21	CUL E	564.60	564.10	Circ 1	0.00	3.00	300.00	0.17	0.012
3	SBE2-46	SBE2-24	573.16	572.16	Circ 1	0.00	2.00	250.00	0.40	0.012
4	SBE2-24	SBE2-23	568.88	567.48	Circ 1	0.00	2.00	350.00	0.40	0.012
5	SBE2-23	SBE2-22	566.20	565.20	Circ 1	0.00	2.00	250.00	0.40	0.012
6	SBE2-22	CUL E	565.20	565.00	Circ 1	0.00	2.00	50.00	0.40	0.012
7	CUL E	SB 04	564.10	563.95	Box 2	7.00	4.00	61.00	0.25	0.012

Conveyance Hydraulic Computations. Tailwater = 567.950 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	568.98	568.44	0.268	1.72	2.50	6.40	4.69	23.01	28.11	0.000
2	568.44	567.95	0.164	2.44	3.00	4.76	4.14	29.25	29.50	0.000
3	574.14	573.13	0.092	0.98	0.98	4.84	4.84	7.45	15.50	0.000
4	570.00	568.73	0.151	1.12	1.25	5.23	4.62	9.51	15.50	0.000
5	568.73	568.11	0.245	1.34	2.00	5.41	3.86	12.14	15.50	0.000
6	568.11	567.95	0.324	1.50	2.00	5.52	4.44	13.96	15.50	0.000
7	567.95	567.95	0.003	0.69	4.00	4.26	0.73	40.97	403.86	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= SBE1-20
Capacity of grade inlet exceeded at inlet Id= SBE2-46
Grate inlet in sag Id=SBE1-21 has a % reduction safety factor = 50
Upstream hydraulic gradeline exceeds critical elevation at node Id= CUL E
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 3

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 5 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		479
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J01lop01.bdr, bdr LV ON = 46.57.58.60-62

HOUFILE023 \hciviil\cf0130\ 4/18/2003

b13wrp24.dgn-03

WinStorm (STORM DRAIN DESIGN)

Version 3.05. Jan. 25. 2002
Run @ 3/18/2003 9:29:37 AM

PROJECT NAME : LAREDO CF0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 6
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBG1-25	0.777	10.56	19.17	19.17	6.10	0.000	50.058
	0.9	8.19	Pavement				
	0.35	2.37	Undeveloped				
SBG2-26	0.776	2.39	10.00	10.00	8.30	0.000	15.391
	0.9	1.85	Pavement				
	0.35	0.54	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBG1-25	Grate	5.12	1.10	33.00	0.023	n/a	2.50	Transv	8.00	566.63

On Grade Inlets Computation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBG1-25	Grate	50.058	46.181	4.000	3.877	SBG2-26	n/a	0.00	6.10

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
SBG2-26	Grate	15.12	8.77	0.50	33.00	0.49	33.00	0.023	n/a	1.50	563.20

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
SBG2-26	Grate	n/a	15.12	8.77	19.268	28.864	0.554	4.15	3.42

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBG1-25	Grate	0.777	10.56	19.17	6.10	0.000	0.00	50.058
SBG2-26	Grate	0.776	2.39	10.00	8.30	0.000	0.15	15.543
CUL G	JnctBx	0.776	12.95	19.29	6.08	0.000	0.15	61.324
SB 06	Outlt	0.776	12.95	19.29	6.08	0.000	0.15	61.324

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBG1-25	CUL G	562.21	561.90	Circ 1	0.00	3.00	60.00	0.52	0.012
2	SBG2-26	CUL G	560.35	558.57	Circ 1	0.00	2.00	400.00	0.45	0.012
3	CUL G	SB 06	558.48	558.13	Box 1	8.00	7.00	59.00	0.59	0.012

Conveyance Hydraulic Computations. Tailwater = 565.130 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	565.42	565.13	0.480	2.37	3.00	8.37	7.08	50.06	51.95	0.000
2	566.74	565.13	0.402	1.56	2.00	5.90	4.95	15.54	16.35	0.000
3*	565.13	565.13	0.003	0.96	7.00	8.01	1.10	61.32	809.75	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= SBG1-25
Grate inlet in sag Id=SBG2-26 has a % reduction safety factor = 50
Upstream hydraulic gradeline exceeds critical elevation at node Id= CUL G
Upstream hydraulic gradeline exceeds critical elevation at node Id= SBG2-26

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 6 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		480
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 46.57.58.60-62

b13wrp25.dgn-03 HOUFILE023 \hcivil\cf0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN)

Version 3.05. Jan. 25. 2002
Run @ 2/26/2003 8:57:50 AM

PROJECT NAME : LAREDO CF0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 7
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBG12-41	0.728	2.56	10.00	10.00	8.30	0.000	15.474
	0.9	1.76	Pavement				
	0.35	0.80	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBG12-41	Grate	5.12	2.14	33.00	0.023	n/a	2.50	Transv	5.00	563.78

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBG12-41	Grate	15.474	15.321	0.500	0.152	SBG2-26	n/a	0.00	3.46

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBG12-41	Grate	0.728	2.56	10.00	8.30	0.000	0.00	15.474
SB 07	Outlt	0.728	2.56	10.00	8.30	0.000	0.00	15.474

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBG12-4	SB 07	561.04	560.64	Circ 1	0.00	2.00	62.00	0.65	0.012

Conveyance Hydraulic Computations. Tailwater = 562.640 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	562.89	562.64	0.399	1.34	2.00	6.94	4.93	15.47	19.69	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet id= SBG12-41

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 7 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		481
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J011op01.bdr, bdr LV ON = 46,57,58,60-62

b13wrp26.dgn-04 HOUFILE023 \hciv\lc\f0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN)

Version 3.05. Jan. 25. 2002
Run @ 3/4/2003 8:14:18 AM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 8
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBH1-55	0.662	1.71	10.00	10.00	8.30	0.000	9.397
	0.9	0.97	Pavement				
	0.35	0.74	Undeveloped				
SBH1-56	0.709	0.92	10.00	10.00	8.30	0.000	5.412
	0.9	0.60	Pavement				
	0.35	0.32	Undeveloped				
SBH1-70	0.711	1.22	10.00	10.00	8.30	0.000	7.197
	0.9	0.80	Pavement				
	0.35	0.42	Undeveloped				
SBH1-71	0.711	1.86	10.00	10.00	8.30	0.000	10.974
	0.9	1.22	Pavement				
	0.35	0.64	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBH1-56	Grate	5.12	0.75	33.00	0.023	n/a	2.50	Parall	5.00	560.90
SBH1-71	Grate	5.00	1.37	33.00	0.015	n/a	2.50	Parall	5.00	565.56

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBH1-56	Grate	5.412	5.410	0.500	0.002	SBH1-70	n/a	0.00	2.83
SBH1-71	Grate	10.974	10.964	0.500	0.010	SBH1-55	n/a	0.00	2.80

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
SBH1-55	Grate	15.12	8.77	0.84	33.00	1.04	33.00	0.023	n/a	0.75	558.70
SBH1-70	Grate	15.12	8.77	0.64	33.00	0.60	33.00	0.023	n/a	0.75	559.10

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
SBH1-55	Grate	n/a	15.12	8.77	9.407	15.163	0.344	2.64	2.54
SBH1-70	Grate	n/a	15.12	8.77	7.199	15.163	0.288	1.94	2.96

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBH1-55	Grate	0.687	3.57	11.28	7.89	0.000	0.00	19.366
SBH1-56	Grate	0.696	5.71	12.82	7.45	0.000	0.00	29.616
SBH1-70	Grate	0.693	4.79	11.91	7.71	0.000	0.00	25.589
SBH1-71	Grate	0.711	1.86	10.00	8.30	0.000	0.00	10.974
SB 08	Outlt	0.696	5.71	12.82	7.45	0.000	0.00	29.616

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
2	SBH1-55	SBH1-70	554.95	554.45	Circ 1	0.00	3.00	200.00	0.25	0.012
3	SBH1-70	SBH1-56	554.45	553.70	Circ 1	0.00	3.00	300.00	0.25	0.012
4	SBH1-56	SB 08	553.70	552.95	Circ 1	0.00	3.00	300.00	0.25	0.012
5	SBH1-71	SBH1-55	557.30	555.95	Circ 1	0.00	2.00	385.00	0.35	0.012

Conveyance Hydraulic Computations. Tailwater = 555.950 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
2	556.79	556.65	0.072	1.55	2.20	5.27	3.48	19.37	36.13	0.000
3	556.65	556.36	0.125	1.88	2.66	5.51	3.86	25.59	36.13	0.000
4	556.36	555.95	0.168	2.06	3.00	5.72	4.19	29.62	36.13	0.000
5	558.61	557.14	0.200	1.31	1.31	5.02	5.02	10.97	14.51	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= SBH1-56
Capacity of grade inlet exceeded at inlet Id= SBH1-71
Grate inlet in sag Id=SBH1-55 has a % reduction safety factor = 50
Grate inlet in sag Id=SBH1-70 has a % reduction safety factor = 50

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 8 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		482
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J01lap01.bdr, bdr LV ON = 46,57,58,60-62

b13wrp27.dgn-04 HOUFILE023 \hcivil\cf0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 3:09:10 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 9
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBH2-31	0.658	0.25	10.00	10.00	8.30	0.000	1.366
	0.9	0.14	Pavement				
	0.35	0.11	Undeveloped				
SBH2-32	0.658	0.25	10.00	10.00	8.30	0.000	1.366
	0.9	0.14	Pavement				
	0.35	0.11	Undeveloped				
SBH2-30	0.646	0.13	10.00	10.00	8.30	0.000	0.697
	0.9	0.07	Pavement				
	0.35	0.06	Undeveloped				
SBH2-33	0.658	0.25	10.00	10.00	8.30	0.000	1.366
	0.9	0.14	Pavement				
	0.35	0.11	Undeveloped				
SBH2-34	0.771	0.47	10.00	10.00	8.30	0.000	3.009
	0.9	0.36	Pavement				
	0.35	0.11	Undeveloped				
SBH2-35	0.67	2.37	10.00	10.00	8.30	0.000	13.187
	0.9	1.38	Pavement				
	0.35	0.99	Undeveloped				
SBH2-36	0.661	0.69	10.00	10.00	8.30	0.000	3.785
	0.9	0.39	Pavement				
	0.35	0.30	Undeveloped				
SBH2-28	0.654	1.79	10.00	10.00	8.30	0.000	9.721
	0.9	0.99	Pavement				
	0.35	0.80	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBH2-30	Curb	10.00	2.76	2.12	0.015	0.33	n/a	n/a	14.00	576.97
SBH2-35	Grate	5.12	2.90	33.00	0.023	n/a	2.50	Transv	14.00	572.21
SBH2-31	Curb	10.00	2.78	3.50	0.015	0.33	n/a	n/a	14.00	579.86
SBH2-32	Curb	10.00	2.78	3.50	0.015	0.33	n/a	n/a	14.00	585.43
SBH2-33	Curb	10.00	2.78	3.50	0.015	0.33	n/a	n/a	14.00	590.99
SBH2-34	Curb	10.00	2.78	3.50	0.015	0.33	n/a	n/a	14.00	595.71
SBH2-36	Grate	5.12	2.82	33.00	0.023	n/a	2.50	Transv	5.00	566.57

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBH2-30	Curb	0.697	0.697	0.000	0.000		5.39	10.00	4.89
SBH2-35	Grate	13.187	13.137	0.250	0.050	SBH2-36	n/a	0.00	3.08
SBH2-31	Curb	1.366	1.366	0.250	0.000	SBH2-30	7.05	10.00	4.60
SBH2-32	Curb	1.366	1.366	0.250	0.000	SBH2-31	7.05	10.00	4.60
SBH2-33	Curb	1.379	1.379	0.250	0.000	SBH2-32	7.09	10.00	4.63
SBH2-34	Curb	3.009	2.995	0.250	0.014	SBH2-33	10.53	10.00	6.17
SBH2-36	Grate	3.835	3.835	0.250	0.000	SBH2-28	n/a	0.00	1.95

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
SBH2-28	Grate	15.12	8.77	0.20	33.00	0.84	33.00	0.023	n/a	1.50	562.25

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
SBH2-28	Grate	n/a	15.12	8.77	9.721	28.864	0.351	3.49	2.68

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBH2-30	Curb	0.696	1.35	12.90	7.43	0.000	0.00	6.988
SBH2-35	Grate	0.680	3.72	13.47	7.29	0.000	1.54	19.964
SBH2-31	Curb	0.702	1.22	12.52	7.53	0.000	0.00	6.449
SBH2-32	Curb	0.713	0.97	11.74	7.75	0.000	0.00	5.362
SBH2-33	Curb	0.732	0.72	10.91	8.00	0.000	0.00	4.218
SBH2-34	Curb	0.771	0.47	10.00	8.30	0.000	0.00	3.009
SBH2-36	Grate	0.677	4.41	14.04	7.15	0.000	1.54	22.865
SBH2-28	Grate	0.670	6.20	15.00	6.92	0.000	1.54	30.292
SBH2-38	CircMn	0.696	1.35	12.90	7.43	0.000	0.00	6.988
SB 09	Outlt	0.670	6.20	15.00	6.92	0.000	1.54	30.292

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBH2-34	SBH2-33	587.99	587.29	Circ 1	0.00	2.00	200.00	0.35	0.012
2	SBH2-33	SBH2-32	582.70	582.00	Circ 1	0.00	2.00	200.00	0.35	0.012
3	SBH2-32	SBH2-31	577.06	576.36	Circ 1	0.00	2.00	200.00	0.35	0.012
4	SBH2-31	SBH2-30	573.52	573.17	Circ 1	0.00	2.00	100.00	0.35	0.012
5	SBH2-30	SBH2-38	570.39	570.20	Circ 1	0.00	2.00	55.00	0.35	0.012
6	SBH2-38	SBH2-35	568.70	568.35	Circ 1	0.00	2.00	100.00	0.35	0.012
7	SBH2-35	SBH2-36	561.75	561.05	Circ 1	0.00	2.50	200.00	0.35	0.012
8	SBH2-36	SBH2-28	558.23	557.00	Circ 1	0.00	2.50	352.00	0.35	0.012
9	SBH2-28	SB 09	552.86	552.37	Box 1	10.00	8.00	62.00	0.79	0.012

Conveyance Hydraulic Computations. Tailwater = 562.950 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	588.61	587.90	0.015	0.62	0.62	3.65	3.65	3.01	14.50	0.000
2	583.43	582.72	0.030	0.73	0.73	4.03	4.03	4.22	14.50	0.000
3	577.90	577.18	0.048	0.84	0.84	4.26	4.26	5.36	14.50	0.000
4	574.46	574.07	0.069	0.94	0.94	4.46	4.46	6.45	14.50	0.000
5	571.37	571.14	0.081	0.98	0.98	4.54	4.54	6.99	14.41	0.000
6	569.68	569.29	0.081	0.98	0.98	4.54	4.54	6.99	14.50	0.000
7	564.28	563.88	0.202	1.64	2.50	5.85	4.07	19.96	26.29	0.000
8	563.88	562.95	0.265	1.80	2.50	6.05	4.66	22.86	26.27	0.000
9#	562.95	562.95	0.000	0.48	8.00	6.36	0.38	30.29	499.78	0.000

END

Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= SBH2-35
Capacity of grade inlet exceeded at inlet Id= SBH2-34
Grate inlet in sag Id=SBH2-28 has a % reduction safety factor = 50
Discharge decreased downstream node Id= SBH2-38 Previous intensity used.
Upstream hydraulic gradeline exceeds critical elevation at node Id= SBH2-28
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 6
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 5
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 4
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 3
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 2
Drop flowline elevation. Downstream HGL set to critical depth elevation at Run# 1

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 9 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		483
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lap01.bdr, bar LV ON = 46,57,58,60-62

HOUFILE023 \hcivil\cf0130\ 4/18/2003

b13wrp28.dgn-03

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 2/26/2003 12:33:28 PM

PROJECT NAME : LAREDO
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 10
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBI2-39	0.674	7.94	18.17	18.17	6.28	0.000	33.615
	0.9	4.68	Pavement				
	0.35	3.26	Undeveloped				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBI2-39	Grate	5.12	0.30	33.00	0.023	n/a	2.50	Transv	12.00	595.04

On Grade Inlets Computation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBI2-39	Grate	33.615	32.272	1.500	1.344	SBH2-35	n/a	0.00	6.69

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBI2-39	Grate	0.674	7.94	18.17	6.28	0.000	0.00	33.615
SB 010	Outlt	0.674	7.94	18.17	6.28	0.000	0.00	33.615

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBI2-39	SB 010	591.30	586.88	Circ 1	0.00	3.00	217.00	2.04	0.012

Conveyance Hydraulic Computations. Tailwater = 589.880 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	593.18	589.88	0.216	1.18	3.00	13.05	4.76	33.62	103.15	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= SBI2-39

STATE OF TEXAS
RUDY L. GOMEZ
No. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 10 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		484
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 46.57.58.60-62

HOUFILE023 \hcivil\cf0130\ 4/18/2003
b13wrp29.dgn-04

WinStorm (STORM DRAIN DESIGN) Version 3.05, Jan. 25, 2002
Run @ 3/19/2003 3:19:51 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 11: CULVERT "J"
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBJ2-44	0.732	1.05	10.00	10.00	8.30	0.000	6.384
	0.9	0.73	Pavement				
	0.35	0.32	Undeveloped				
SBJ2-40	0.786	1.01	10.00	10.00	8.30	0.000	6.587
	0.9	0.80	Pavement				
	0.35	0.21	Undeveloped				
SBJ2-47	0.656	3.49	10.00	10.00	8.30	0.000	18.997
	0.9	1.94	Pavement				
	0.35	1.55	Undeveloped				
NBJ4-27	0.821	4.95	13.27	13.27	7.34	0.000	29.814
	0.821	4.95	Composite "C"				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBJ2-40	Grate	2.50	0.42	33.00	0.023	n/a	2.50	Transv	10.00	611.97
SBJ2-47	Grate	5.12	2.75	33.00	0.023	n/a	2.50	Transv	5.00	613.88
NBJ4-27	Grate	5.00	0.40	33.00	0.023	n/a	2.50	Parall	8.00	607.70

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBJ2-40	Grate	6.587	6.523	0.500	0.064	SBI2-39	n/a	0.00	3.39
SBJ2-47	Grate	18.997	18.020	0.500	0.978	SBJ2-44	n/a	0.00	3.56
NBJ4-27	Grate	29.814	28.628	0.250	1.186		n/a	0.00	6.07

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
SBJ2-44	Grate	15.12	8.77	0.51	25.00	0.79	25.00	0.023	n/a	0.50	612.31

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
SBJ2-44	Grate	n/a	15.12	8.77	7.361	8.254	0.292	2.10	3.51

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q (cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBJ2-44	Grate	0.673	4.54	10.72	8.06	0.000	0.00	24.654
SBJ2-40	Grate	0.694	5.55	12.05	7.67	0.000	0.00	29.523
SBJ2-47	Grate	0.656	3.49	10.00	8.30	0.000	0.00	18.997
NBJ4-27	Grate	0.754	10.50	13.27	7.34	0.000	0.00	58.066
SB 011	Outlt	0.754	10.50	13.27	7.34	0.000	0.00	58.066

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBJ2-47	SBJ2-44	610.47	609.87	Circ 2	0.00	2.00	200.00	0.30	0.012
2	SBJ2-44	SBJ2-40	609.87	608.70	Circ 2	0.00	2.00	387.00	0.30	0.012
3	SBJ2-40	NBJ4-27	608.47	602.08	Circ 2	0.00	3.00	243.00	2.63	0.012
4	NBJ4-27	SB 011	602.08	600.94	Circ 2	0.00	3.00	80.00	1.43	0.012

Conveyance Hydraulic Computations. Tailwater = 603.940 (ft)

Run#	Hydraulic Grade US Elev (ft)	Hydraulic Grade DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	611.74	611.37	0.150	1.25	1.50	4.60	3.76	19.00	26.85	0.000
2	611.37	609.96	0.253	1.50	1.50	4.88	4.88	24.65	26.95	0.000
3*	609.19	604.07	0.042	0.72	1.99	11.33	2.97	29.52	234.42	0.000
4*	604.07	603.94	0.161	1.20	3.00	10.98	4.11	58.07	172.54	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= SBJ2-40
Capacity of grade inlet exceeded at inlet Id= SBJ2-47
Capacity of grade inlet exceeded at inlet Id= NBJ4-27
Grate inlet in sag Id=SBJ2-44 has a % reduction safety factor = 50

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 11 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		485
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J01lap01.bdr, bdr LV ON = 46,57,58,60-62

HOUFILE023 \hchivil\cf0130\ 4/18/2003
b13wrp30.dgn-04

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 2/26/2003 2:03:24 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 12
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBK2-45	0.629	3.84	10.00	10.00	8.30	0.000	20.060
	0.9	1.95	Pavement				
	0.35	1.89	Undeveloped				

Sag Inlets Configuration Data.

Inlet ID	Inlet Type	Length/ Perim. (ft)	Grate Area (sf)	Left-Slope Long (%)	Left-Slope Trans (%)	Right-Slope Long (%)	Right-Slope Trans (%)	Gutter n	Gutter DeprW (ft)	Depth Allowed (ft)	Critic Elev. (ft)
SBK2-45	Grate	15.12	8.77	0.413	3.00	0.20	33.00	0.023	n/a	0.95	631.77

Sag Inlets Computation Data.

Inlet ID	Inlet Type	Length (ft)	Grate Perim (ft)	Grate Area (sf)	Total Q (cfs)	Inlet Capacity (cfs)	Total Head (ft)	Ponded Width Left (ft)	Ponded Width Right (ft)
SBK2-45	Grate	n/a	15.12	8.77	20.060	21.617	0.569	2.18	5.72

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBK2-45	Grate	0.629	3.84	10.00	8.30	0.000	0.00	20.060
SB 012	Outlt	0.629	3.84	10.00	8.30	0.000	0.00	20.060

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBK2-45	SB 012	627.74	623.64	Circ 3	0.00	3.00	245.00	1.67	0.012

Conveyance Hydraulic Computations. Tailwater = 626.640 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	628.55	626.64	0.009	0.54	3.00	7.66	0.95	20.06	280.48	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Grate inlet in sag id=SBK2-45 has a % reduction safety factor = 50

REF FILE(S): J011op01.bdr. bdr LV ON = 46.57.58.60-62

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 12 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		486
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b13wrp31.dgn-03

WinStorm (STORM DRAIN DESIGN)

Version 3.05. Jan. 25. 2002
Run @ 1/6/2003 4:06:40 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 13
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBK12-12	0.9	0.22	10.00	10.00	8.30	0.000	1.644
	0.9	0.22	Pavement				
SBK12-13	0.9	0.22	10.00	10.00	8.30	0.000	1.644
	0.9	0.22	Pavement				
SBK12-14	0.9	0.23	10.00	10.00	8.30	0.000	1.718
	0.9	0.23	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBK12-12	Grate	3.98	3.72	2.00	0.015	n/a	2.21	Parall	16.00	651.88
SBK12-13	Grate	3.98	3.72	2.00	0.015	n/a	2.21	Parall	16.00	660.36
SBK12-14	Grate	3.98	2.80	2.00	0.015	n/a	2.21	Parall	16.00	668.37

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBK12-12	Grate	2.280	1.566	0.000	0.714		n/a	0.00	7.50
SBK12-13	Grate	2.113	1.477	0.500	0.637	SBK12-1	n/a	0.00	7.30
SBK12-14	Grate	1.718	1.249	0.500	0.470	SBK12-1	n/a	0.00	7.10

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBK12-12	Grate	0.900	0.67	10.97	7.99	0.000	0.00	4.816
SBK12-13	Grate	0.900	0.45	10.53	8.13	0.000	0.00	3.291
SBK12-14	Grate	0.900	0.23	10.00	8.30	0.000	0.00	1.718
SB 013	Outlt	0.900	0.67	10.97	7.99	0.000	0.00	4.816

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBK12-1	SBK12-1	663.76	655.43	Circ 1	0.00	2.00	225.00	3.70	0.012
2	SBK12-1	SBK12-1	655.43	646.99	Circ 1	0.00	2.00	228.00	3.70	0.012
3	SBK12-1	SB 013	645.49	645.34	Circ 1	0.00	2.00	29.00	0.52	0.012

Conveyance Hydraulic Computations. Tailwater = 647.340 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	664.02	655.79	0.005	0.26	0.36	7.13	4.50	1.72	47.18	0.000
2*	655.79	647.35	0.018	0.36	0.36	8.61	8.52	3.29	47.17	0.000
3*	647.35	647.34	0.039	0.71	2.00	4.81	1.53	4.82	17.63	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= SBK12-12
Capacity of grade inlet exceeded at inlet Id= SBK12-13
Capacity of grade inlet exceeded at inlet Id= SBK12-14

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 13 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	487
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

REF FILE(S): J01lop01.bar. bar LV ON = 46.57.58.60-62

HOUFILE023 \hcivil\cf0130\ 4/18/2003
b13wrp32.dgn-03

WinStorm (STORM DRAIN DESIGN)

Version 3.05. Jan. 25. 2002
Run @ 1/6/2003 1:05:38 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : STORM SEWER SYSTEM NO 14
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBM1-17	0.9	0.28	10.00	10.00	8.30	0.000	2.092
	0.9	0.28	Pavement				
SBM1-18	0.9	0.25	10.00	10.00	8.30	0.000	1.868
	0.9	0.25	Pavement				
SBM1-19	0.9	0.25	10.00	10.00	8.30	0.000	1.868
	0.9	0.25	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBM1-17	Grate	3.98	2.98	2.00	0.015	n/a	2.21	Parall	16.00	666.80
SBM1-18	Grate	3.98	2.98	2.00	0.015	n/a	2.21	Parall	16.00	659.34
SBM1-19	Grate	3.98	2.98	2.00	0.015	n/a	2.21	Parall	16.00	651.80

On Grade Inlets Conmputation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBM1-17	Grate	2.092	1.457	0.500	0.634	SBM1-18	n/a	0.00	7.55
SBM1-18	Grate	2.502	1.672	0.500	0.830	SBM1-19	n/a	0.00	8.10
SBM1-19	Grate	2.698	1.771	0.500	0.927		n/a	0.00	8.30

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBM1-17	Grate	0.900	0.28	10.00	8.30	0.000	0.00	2.092
SBM1-18	Grate	0.900	0.53	10.59	8.11	0.000	0.00	3.866
SBM1-19	Grate	0.900	0.78	11.10	7.95	0.000	0.00	5.579
SB 014	Outlt	0.900	0.78	11.10	7.95	0.000	0.00	5.579

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBM1-17	SBM1-18	662.31	654.86	Circ 1	0.00	2.00	250.00	2.98	0.012
2	SBM1-18	SBM1-19	654.86	647.32	Circ 1	0.00	2.00	253.00	2.98	0.012
3	SBM1-19	SB 014	646.32	646.19	Circ 1	0.00	2.00	25.00	0.52	0.012

Conveyance Hydraulic Computations. Tailwater = 68.190 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1*	662.61	655.27	0.007	0.30	0.41	7.02	4.54	2.09	42.32	0.000
2*	655.27	647.73	0.025	0.41	0.41	8.40	8.40	3.87	42.32	0.000
3*	647.09	646.96	0.052	0.77	0.77	4.97	4.97	5.58	17.68	0.000

END

* Super critical flow.

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years
Capacity of grade inlet exceeded at inlet Id= SBM1-17
Capacity of grade inlet exceeded at inlet Id= SBM1-18
Capacity of grade inlet exceeded at inlet Id= SBM1-19
Tailwater set to uniform depth elevation = 646.96(ft)
Drop flowline elevation. Downstream HGL set to uniform depth elevation at Run# 2

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 14 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		488
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J01lap01.bar, bar LV ON = 46,57,58,60-62

HOUFILE023 \hciwil\cf0130\ 4/18/2003
b13wrp33.dgn-02

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 1/9/2003 6:15:42 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : CULVERT "L1"
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
L	0.693	4.37	10.16	10.16	8.25	0.000	24.977
	0.693	4.37	Composite "C"				

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
L	JnctBx	0.693	4.37	10.16	8.25	0.000	0.00	24.977
L1OUT	Outlt	0.693	4.37	10.16	8.25	0.000	0.00	24.977

Conveyance Configuration Data

Run#	Node I.D. US	DS	Flowline Elev. US (ft)	DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	L	L1OUT	642.00	641.72	Circ 1	0.00	2.50	74.00	0.38	0.012

Conveyance Hydraulic Computations. Tailwater = 643.720 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (f/s)	Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	643.94	643.72	0.316	1.88	2.00	6.32	5.93	24.98	27.34	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 1/9/2003 4:35:26 PM

PROJECT NAME : LAREDO CF-0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : CULVERT "M1"
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
M1UP	0.67	8.91	11.67	11.67	7.78	0.000	46.432
	0.603	1.86					
	0.688	7.05					

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
M1UP	JnctBx	0.670	8.91	11.67	7.78	0.000	0.00	46.432
NBOM1	Outlt	0.670	8.91	11.67	7.78	0.000	0.00	46.432

Conveyance Configuration Data

Run#	Node I.D. US	DS	Flowline Elev. US (ft)	DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	M1UP	NBOM1	639.77	639.47	Circ 2	0.00	2.50	80.00	0.38	0.012

Conveyance Hydraulic Computations. Tailwater = 641.970 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (f/s)	Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	642.16	641.97	0.273	1.76	2.50	6.29	4.73	46.43	54.43	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 15 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		489
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 46.57.58.60-62

b13wrp34.dgn-01 HOUFILE023 \hdivh\cf0130\ 4/18/2003

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 1/6/2003 3:46:26 PM

PROJECT NAME : LAREDO CF0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : UNIROYAL RD
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SBN1-68	0.9	0.10	10.00	10.00	8.30	0.000	0.747
	0.9	0.10	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SBN1-68	Curb	10.00	2.66	2.00	0.015	0.33	n/a	n/a	12.00	647.96

On Grade Inlets Computation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SBN1-68	Curb	0.747	0.747	0.000	0.000		5.55	10.00	5.25

Cumulative Junction Discharge Computations

Node I.D.	Node Type	Weighted C-Value	Cumulat. Dr.Area (acres)	Cumulat. Tc (min)	Intens. (in/hr)	User Supply Q cfs)	Additional Q in Node (cfs)	Total Disch. (cfs)
SBN1-68	Curb	0.900	0.10	10.00	8.30	0.000	0.00	0.747
SB UNRD	Outlt	0.900	0.10	10.00	8.30	0.000	0.00	0.747

Conveyance Configuration Data

Run#	Node I.D. US	Node I.D. DS	Flowline Elev. US (ft)	Flowline Elev. DS (ft)	Shape #	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n value
1	SBN1-68	SB UNRD	642.06	641.95	Circ 1	0.00	2.00	61.00	0.18	0.012

Conveyance Hydraulic Computations. Tailwater = 643.950 (ft)

Run#	Hydraulic Gradeline US Elev (ft)	Hydraulic Gradeline DS Elev (ft)	Fr.Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (f/s)	Velocity Actual (f/s)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	643.95	643.95	0.001	0.36	2.00	1.95	0.24	0.75	10.41	0.000

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:

Runoff Frequency of: 10 Years

WinStorm (STORM DRAIN DESIGN) Version 3.05. Jan. 25. 2002
Run @ 1/6/2003 10:34:08 AM

PROJECT NAME : LAREDO CF0130
JOB NUMBER : 0018-05-062
PROJECT DESCRIPTION : CURB OUTLET
ANALYSYS FREQUENCY : 10 Years
MEASUREMENT UNITS: ENGLISH

OUTPUT FOR ANALYSYS FREQUENCY of: 10 Years

Runoff Computation for Design Frequency.

ID	C Value	Area (acre)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
SB12-42	0.9	0.07	10.00	10.00	8.30	0.000	0.523
	0.9	0.07	Pavement				
SB12-43	0.9	0.14	10.00	10.00	8.30	0.000	1.046
	0.9	0.14	Pavement				

On Grade Inlet Configuration Data

Inlet ID	Inlet Type	Inlet Length (ft)	Slopes Long (%)	Slopes Trans (%)	Gutter n	Gutter Depr. (ft)	Grate Width (ft)	Grate Type	Pond Width Allowed (ft)	Critic Elev. (ft)
SB12-42	Curb	14.00	0.79	3.50	0.015	0.33	n/a	n/a	12.00	2.50
SB12-43	Curb	14.00	0.27	2.80	0.015	0.33	n/a	n/a	12.00	2.50

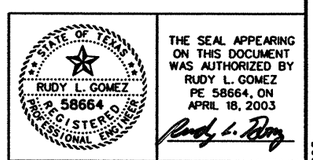
On Grade Inlets Computation Data.

Inlet ID	Inlet Type	Total Q (cfs)	Intercept Capacity (cfs)	Q Bypass Allow (cfs)	Q Bypass Actual (cfs)	To Inlet ID	Required Length (ft)	Actual Length (ft)	Ponded Width (ft)
SB12-42	Curb	0.523	0.523	0.000	0.000		3.16	14.00	4.06
SB12-43	Curb	1.046	1.046	0.000	0.000		3.54	14.00	7.43

END

NORMAL TERMINATION OF WINSTORM.

Warning Messages for current project:



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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
SB FRONTAGE ROAD

SHEET 16 OF 16

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		490
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

REF FILE(S): J01lap01.bar. bar LV ON = 46.57.58.60-62

b13wrp35.dgn-01 HOUFILE023 \hcivil\cf0130\ 4/18/2003

SUMMARY OF CULVERT COMPUTATIONS

CULVERT ID	STATION	DRAINAGE AREAS ** ID	DRAINAGE AREAS ** ACRES	C	Tc (MIN)	I (IN/HR) 50	N	DISCHARGE Q-50 YR (CFS)	SHAPE	RISE (FT)	BARRELS	LENGTH (FT)	SLOPE (FT/FT)	MATERIAL	Ce	V (FT/SEC)	HW ELEV (FT)	TW ELEV (FT)
2	211+58.00 (ML)	B	37.73	0.468	18.22	7.67	0.012	135.43	CIRC.BOX	3.0	2.1	155/33/66	0.015/0.041/0.001	CONC	0.50	6.39	539.02	534.69
3	227+13.91 (ML)	C	67.55	0.435	21.46	7.04	0.012	206.89	CIRC.BOX	3.5/3.0	3.2	110/210/88	0.002/0.005/0.009	CONC	0.50	5.49/5.95	550.62	546.58
4	250+29.42 (ML)	D	8.88	0.444	10.00	10.08	0.012	39.78	CIRC	2.5	2	162.50/65	0.023/0.018	CONC	0.70	4.05	581.23	576.60
5 ***	272+00.00 (ML)	E	211.12	0.391	30.93	5.72	0.012	356.00	BOX	4.0	2	140/139/69	0.015/0.009/0.008	CONC	0.20	6.36	572.22	567.95
9	359+18.00 (ML)	I	58.01	0.429	29.01	5.94	0.012	147.84	CIRC.BOX	3.0/2.0	1	77.5/150.5/66	0.018/0.021/0.019	CONC	0.50	6.97	596.41	589.88
11 ****	394+32.36 (ML)	K.K1	19.19	0.559	13.42	8.89	0.012	106.72	CIRC	3.0	3	182/148	0.009/0.028	CONC	0.50	2.86	632.30	626.64
11A	398+25.79 (ML)	K1	3.2	0.350	10.00	10.08	0.012	11.29	CIRC	2.0	1	72	0.005	CONC	0.70	5.87	641.76	640.72
14	430+00.00 (ML)	N1.N2	95.78	0.520	24.39	6.56	0.012	336.61	BOX	4.0	2	70	0.003	CONC	0.70	6.07	641.05	639.95
14A	432+00.00 (ML)	N2	81.9	0.510	23.83	6.64	0.012	277.55	BOX	2.0	2	54	0.015	CONC	0.20	6.06	651.09	649.78
15 *	10+80.00 (UNIROYAL)	UNIROYAL	1.71	0.581	10.00	10.08	0.012	10.02	CIRC	2.0	1	83/77	0.001/0.002	CONC	0.50	3.19	646.17	645.93

SUMMARY OF CULVERT COMPUTATIONS

CULVERT ID	STATION	REMARKS
2	211+58.00 (ML)	EXIST 1-5'x3' AND 2-36" RCP. ADD 1-36" RCP & EXTEND EXIST 36" RCPs
3	227+13.91 (ML)	EXIST 2-5'x3' BOX & 3-42" RCP. ADD 1-36" RCP & EXTEND EXIST 42" RCPs
4	250+29.42 (ML)	EXTEND EXIST 2-30" RCP ADEQUATE. STRUCTURE ADEQUATE
5	272+00.00 (ML)	EXIST 2-7'x4' BOX EXTENDED & ADEQUATE
9	359+18.00 (ML)	EXIST 36" RCP. ADD 2-36"RCP & EXTEND EXIST 36"RCP
11	394+32.36 (ML)	EXIST 3-36" RCP ADEQUATE. EXTEND EXIST 3-36"RCPs
11A	398+25.79 (ML)	RMOVE & REPLACE EXIST 18"RCP WITH 1-24"RCP
14	430+00.00 (ML)	REMOVE & REPLACE EXIST 2-6'x4' BOX WITH 2-7'x4' BOX
14A	432+00.00 (ML)	REMOVE & REPLACE EXIST 10'x2' BOX WITH 4-4'x3' BOX
15 *	10+80.00 (UNIROYAL)	EXIST 1-24"RCP ADEQUATE. ADD 1-24"RCP

* DESIGNED FOR A 25-YR STORM EVENT
** DRAINAGE AREAS ARE CUMMALITIVE OF OFF-SITE AND ON-SITE AREAS
*** TR-55 METHOD (GRAPHICAL PEAK DISCHARGE METHOD) USED TO CALCULATE FLOW RATES
**** ENERGY DISSIPATORS USED DOWNSTREAM OF CULVERT

NOTE: RATIONAL METHOD USED TO CALCULATE FLOW RATES

SUMMARY OF ON-SITE AND OFF-SITE ACREAGES

CULVERT ID	DRAINAGE AREA ID (CONTRIBUTING AREAS)	OFF-SITE ACREAGE	ON-SITE ACREAGE	TOTAL ACREAGE
1	A (A.B.C.D)	840.00	47.02	887.02
2	B	25.50	12.23	37.73
3	C	51.90	15.65	67.55
4	D	6.40	2.48	8.88
5	E	184.60	26.52	211.12
6	F	-	1.28	1.28
7	G	710.40	20.34	730.74
8	H (H.I.J.K.K1)	1300.00	56.86	1356.86
9	I	45.80	12.21	58.01
10	J	-	10.50	10.50
11	K (K.K1)	11.10	11.29	22.39
11A	K1	3.20	-	3.20
12	L	-	4.37	4.37
12A	L1	-	4.37	4.37
13	M	-	4.15	4.15
13A	M1	-	8.91	8.91
14	N1 (N1.N2)	81.90	13.88	95.78
14A	N2	81.90	-	81.90
15	UNIROYAL	-	1.71	1.71

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

SUMMARY OF CULVERT COMPUTATIONS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		491
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/19/2003
HOUFILE023 \hcivil\vcf0130\
b36qsp42.dgn-04

TEXAS HYDRAULIC SYSTEM. CULVERT (ver. 1.2. Feb/2002)
Thu Jan 09 16:42:26 2003

CULVERT HYDRAULIC COMPUTATIONS

CULVERT NAME: "B" Sta 211+58 Input Units: English
PROJECT NAME: IH 35 Output Units: English
PROJECT CONTROL: CSJ:0018-05-062, ETC
COUNTY: Webb County
DESCRIPTION: Loop 20 To Uniroyal Rd

ANALYZE MULTIPLE OPENING CULVERT

MATERIAL: CONCRETE
SHAPE: RCP CIRCULAR PIPE.
ENTRANCE: HEADWALL
PROFILE: BROKEN BACK CULVERT

FREQUENCY: 25-yr DISCHARGE: 124.91 cfs TAILWATER: 534.69 ft
FREQUENCY: 50-yr DISCHARGE: 135.43 cfs TAILWATER: 534.69 ft
FREQUENCY: 100-yr DISCHARGE: 150.02 cfs TAILWATER: 534.69 ft

n value: 0.0120 Ke value: 0.5000

CULVERT DIAM. = 3.00 ft BARRELS = 3

INLET station: 80.00 elevation: 535.40 ft
OUTLET station: 334.00 elevation: 531.69 ft

BROKEN BACK CULVERT CONFIGURATION

			UPSTREAM		DOWNSTREAM	
Unit	Slope	Length	Sta.	Elev.	Sta.	Elev.
1	0.01484	155.00	80.00	535.40	235.00	533.10
2	0.04094	33.00	235.00	533.10	268.00	531.75
3	0.00091	66.00	268.00	531.75	334.00	531.69

CULVERT OUTPUT RUN NO => 1

ANALYSIS for discharge frequency of : 25-yr

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
3	41.64	3.00	0.00	254.00	539.73	538.79	3.39	Inlet	5.89	3.00

Inlet control depth = 3.39 ft
Outlet control depth = 1.45 ft

Normal depth = 1.45 ft Culvert slope = 0.01461
Critical depth = 2.10 ft Critical slope = 0.00473

CULVERT OUTPUT RUN NO => 2

ANALYSIS for discharge frequency of : 50-yr

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
3	45.14	3.00	0.00	254.00	539.73	539.02	3.62	Inlet	6.39	3.00

Inlet control depth = 3.67 ft
Outlet control depth = 1.54 ft

Normal depth = 1.52 ft Culvert slope = 0.01461
Critical depth = 2.19 ft Critical slope = 0.00501

CULVERT OUTPUT RUN NO => 3

ANALYSIS for discharge frequency of : 100-yr

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
3	50.01	3.00	0.00	254.00	539.73	539.38	3.98	Inlet	7.07	3.00

Inlet control depth = 4.04 ft
Outlet control depth = 1.64 ft

Normal depth = 1.62 ft Culvert slope = 0.01461
Critical depth = 2.30 ft Critical slope = 0.00547

RUNING MESSAGES LIST:

*Computation: Hydraulic jump occurs inside of unit 3.
*Computation: Uniform depth is used as Tail water for the upstream unit.
*Computation: Hydraulic jump occurs inside of unit 3.
*Computation: Uniform depth is used as Tail water for the upstream unit.

NORMAL TERMINATION OF THYSYS. CULVERT.

REF FILE(S): J011op01.bdr, bdr LV ON = 46,57,58,60-62

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
CULVERT B

SHEET 1 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		492
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

HOUFILE023 \hchilvc\0130\ 4/18/2003
b13wrp36.dgn-03

Mon Jan 13 10:39:11 2003

CULVERT HYDRAULIC COMPUTATIONS

CULVERT NAME: "C" 227+13.91
PROJECT NAME: IH 35
PROJECT CONTROL: CSJ:0018-05-062, ETC
COUNTY: Webb County
DESCRIPTION: Loop 20 To Uniroyal Road

MATERIAL: CONCRETE
SHAPE: CIRCULAR
ENTRANCE: STRAIGHT
PROFILE: STRAIGHT CULVERT

FREQUENCY: 25 YR DISCHARGE: 190.80 cfs TAILWATER: 546.58 ft
FREQUENCY: 50 YR DISCHARGE: 206.90 cfs TAILWATER: 546.58 ft
FREQUENCY: 100 YR DISCHARGE: 229.50 cfs TAILWATER: 546.58 ft

n value: 0.0120 Ke value: 0.5000

CULVERT 1: CULVERT RISE = 3.50 ft BARRELS = 3
CULVERT 2: CULVERT RISE = 3.00 ft BARRELS = 1

INLET station: 0.00 elevation: 547.20 ft
OUTLET station: 410.00 elevation: 543.08 ft

CULVERT OUTPUT RUN NO => 1

ANALYSIS for discharge frequency of : 25 YR

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
3	152.04	3.50	0.00	322.80	549.00	548.41	1.83	Inlet	5.27	3.50
1	38.76	3.00	0.00	322.80	549.00	548.41	1.83	Outlet	5.48	3.00

CULVERT OUTPUT RUN NO => 2

ANALYSIS for discharge frequency of : 50 YR

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
3	165.99	3.50	0.00	322.80	549.00	548.63	2.05	Inlet	5.75	3.50
1	40.91	3.00	0.00	322.80	549.00	548.79	2.21	Outlet	6.02	3.00

CULVERT OUTPUT RUN NO => 3

ANALYSIS for discharge frequency of : 100 YR

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
3	186.93	3.50	0.00	322.80	549.00	548.79	2.21	Outlet	6.48	3.50
1	42.57	3.00	0.00	322.80	549.00	548.79	2.21	Outlet	6.02	3.00

* RESULTS GENERATED BY HEC-RAS DUE TO VARYING CULVERT SIZES

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
CULVERT C

SHEET 2 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		493
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01loop01.bdr, bdr LV ON = 46,57,58,60-62

HOUFILE023 \hcivil\cf0130\ 4/18/2003
b13wrp37.dgn-02

TEXAS HYDRAULIC SYSTEM. CULVERT (ver. 1.2. Feb/2002)
Thu Jan 09 16:40:12 2003

CULVERT HYDRAULIC COMPUTATIONS

CULVERT NAME: "D"Sta 250+29.4 Input Units: English
PROJECT NAME: IH 35 Output Units: English
PROJECT CONTROL: CSJ:0018-05-062, ETC
COUNTY: Webb County
DESCRIPTION: Loop 20 To Uniroyal Rd

ANALYZE MULTIPLE OPENING CULVERT

MATERIAL: CONCRETE
SHAPE: RCP CIRCULAR PIPE.
ENTRANCE: MITER
PROFILE: BROKEN BACK CULVERT

FREQUENCY: 25-yr DISCHARGE: 36.69 cfs TAILWATER: 576.60 ft
FREQUENCY: 50-yr DISCHARGE: 39.78 cfs TAILWATER: 576.60 ft
FREQUENCY: 100-yr DISCHARGE: 43.90 cfs TAILWATER: 576.60 ft

n value: 0.0120 Ke value: 0.7000

CULVERT DIAM. = 2.50 ft BARRELS = 2

INLET station: 0.00 elevation: 579.14 ft
OUTLET station: 227.50 elevation: 574.10 ft

BROKEN BACK CULVERT CONFIGURATION

			UPSTREAM		DOWNSTREAM	
Unit	Slope	Length	Sta.	Elev.	Sta.	Elev.
1	0.02345	162.50	0.00	579.14	162.50	575.33
2	0.01893	65.00	162.50	575.33	227.50	574.10

CULVERT OUTPUT RUN NO => 1

ANALYSIS for discharge frequency of : 25-yr

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
2	18.35	2.50	0.00	217.50	582.31	581.10	2.18	Inlet	3.74	2.50

Inlet control depth = 2.18 ft
Outlet control depth = 0.89 ft

Normal depth = 0.89 ft Culvert slope = 0.02216
Critical depth = 1.45 ft Critical slope = 0.00418

CULVERT OUTPUT RUN NO => 2

ANALYSIS for discharge frequency of : 50-yr

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
2	19.89	2.50	0.00	217.50	582.31	581.23	2.31	Inlet	4.05	2.50

Inlet control depth = 2.31 ft
Outlet control depth = 0.93 ft

Normal depth = 0.93 ft Culvert slope = 0.02216
Critical depth = 1.51 ft Critical slope = 0.00432

CULVERT OUTPUT RUN NO => 3

ANALYSIS for discharge frequency of : 100-yr

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
2	21.95	2.50	0.00	217.50	582.31	581.41	2.50	Inlet	4.47	2.50

Inlet control depth = 2.50 ft
Outlet control depth = 0.98 ft

Normal depth = 0.98 ft Culvert slope = 0.02216
Critical depth = 1.59 ft Critical slope = 0.00451

RUNING MESSAGES LIST:

*Computation: Hydraulic jump occurs inside of unit 2.
*Computation: Uniform depth is used as Tail Water for the upstream unit.
*Computation: Hydraulic jump occurs inside of unit 2.
*Computation: Uniform depth is used as Tail Water for the upstream unit.
*Computation: Hydraulic jump occurs inside of unit 2.
*Computation: Uniform depth is used as Tail Water for the upstream unit.

NORMAL TERMINATION OF THYSYS. CULVERT.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
CULVERT D

SHEET 3 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		494
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J011op01.bar, bar LV ON = 46.57.58.60-62

b13wrp38.dgn-04 HOUFILE023 \hcivil\cf0130\ 4/18/2003

TEXAS HYDRAULIC SYSTEM. CULVERT (ver. 1.2. Feb/2002)
Thu Jan 09 16:37:55 2003

CULVERT HYDRAULIC COMPUTATIONS

CULVERT NAME: "E"Sta 272+00 Input Units: English
PROJECT NAME: IH 35 Output Units: English
PROJECT CONTROL: CSJ:0018-05-062, ETC
COUNTY: Webb County
DESCRIPTION: Loop 20 To Uniroyal Rd

ANALYZE MULTIPLE OPENING CULVERT

MATERIAL: CONCRETE
SHAPE: CONCRETE BOX.
ENTRANCE: BEVEL TO SLOPE
PROFILE: BROKEN BACK CULVERT

FREQUENCY: 25-yr DISCHARGE: 434.94 cfs TAILWATER: 567.95 ft
FREQUENCY: 50-yr DISCHARGE: 471.56 cfs TAILWATER: 567.95 ft
FREQUENCY: 100-yr DISCHARGE: 524.54 cfs TAILWATER: 567.95 ft

n value: 0.0120 Ke value: 0.2000

CULVERT RISE = 4.00 ft CULVERT SPAN = 7.00 ft BARRELS = 2

INLET station: 0.00 elevation: 567.93 ft
OUTLET station: 348.00 elevation: 563.95 ft

BROKEN BACK CULVERT CONFIGURATION

			UPSTREAM		DOWNSTREAM	
Unit	Slope	Length	Sta.	Elev.	Sta.	Elev.
1	0.01522	140.00	0.00	567.93	140.00	565.80
2	0.00914	139.00	140.00	565.80	279.00	564.53
3	0.00841	69.00	279.00	564.53	348.00	563.95

CULVERT OUTPUT RUN NO => 1

ANALYSIS for discharge frequency of : 25-yr

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
2	217.47	4.00	7.00	348.00	574.16	572.99	5.06	Inlet	7.77	4.00

Inlet control depth = 5.06 ft
Outlet control depth = 1.81 ft

Normal depth = 1.81 ft Culvert slope = 0.01144
Critical depth = 3.11 ft Critical slope = 0.00335

CULVERT OUTPUT RUN NO => 2

ANALYSIS for discharge frequency of : 50-yr

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
2	235.78	4.00	7.00	348.00	574.16	573.37	5.44	Inlet	8.42	4.00

Inlet control depth = 5.44 ft
Outlet control depth = 1.91 ft

Normal depth = 1.91 ft Culvert slope = 0.01144
Critical depth = 3.28 ft Critical slope = 0.00341

CULVERT OUTPUT RUN NO => 3

ANALYSIS for discharge frequency of : 100-yr

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
2	262.27	4.00	7.00	348.00	574.16	573.94	6.01	Inlet	9.37	4.00

Inlet control depth = 6.01 ft
Outlet control depth = 2.06 ft

Normal depth = 2.06 ft Culvert slope = 0.01144
Critical depth = 3.52 ft Critical slope = 0.00349

RUNING MESSAGES LIST:

*Computation: Hydraulic jump occurs inside of unit 3.
*Computation: Uniform depth is used as Tail Water for the upstream unit.
*Computation: Hydraulic jump occurs inside of unit 2.
*Computation: Uniform depth is used as Tail Water for the upstream unit.
*Computation: Hydraulic jump occurs inside of unit 3.
*Computation: Uniform depth is used as Tail Water for the upstream unit.
*Computation: Hydraulic jump occurs inside of unit 2.

NORMAL TERMINATION OF THYSYS. CULVERT.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
CULVERT E

SHEET 4 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		495
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01laq01.bdr, bdr LV ON = 46,57,58,60-62
HOUFILE023 \hclvil\cf0130\ 4/18/2003
b13wrp39.dgn-03

TEXAS HYDRAULIC SYSTEM. CULVERT (ver. 1.2. Feb/2002)
Thu Jan 09 16:35:47 2003

CULVERT HYDRAULIC COMPUTATIONS

CULVERT NAME: "I" Sta 359+18 Input Units: English
PROJECT NAME: IH 35 Output Units: English
PROJECT CONTROL: CSJ:0018-05-062, ETC
COUNTY: Webb County
DESCRIPTION: Loop 20 To Uniroyal Rd

ANALYZE MULTIPLE OPENING CULVERT

MATERIAL: CONCRETE
SHAPE: RCP CIRCULAR PIPE.
ENTRANCE: HEADWALL
PROFILE: BROKEN BACK CULVERT

FREQUENCY: 25-yr DISCHARGE: 136.36 cfs TAILWATER: 589.88 ft
FREQUENCY: 50-yr DISCHARGE: 147.84 cfs TAILWATER: 589.88 ft
FREQUENCY: 100-yr DISCHARGE: 164.36 cfs TAILWATER: 589.88 ft

n value: 0.0120 Ke value: 0.5000

CULVERT DIAM. = 3.00 ft BARRELS = 3

INLET station: 0.00 elevation: 592.67 ft
OUTLET station: 294.00 elevation: 586.88 ft

BROKEN BACK CULVERT CONFIGURATION

			UPSTREAM		DOWNSTREAM	
Unit	Slope	Length	Sta.	Elev.	Sta.	Elev.
1	0.01768	77.50	0.00	592.67	77.50	591.30
2	0.02087	150.50	77.50	591.30	228.00	588.16
3	0.01940	66.00	228.00	588.16	294.00	586.88

CULVERT OUTPUT RUN NO => 1

ANALYSIS for discharge frequency of : 25-yr

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
3	45.45	3.00	0.00	285.00	597.48	596.13	3.64	Inlet	6.43	3.00

Inlet control depth = 3.64 ft
Outlet control depth = 1.45 ft

Normal depth = 1.45 ft Culvert slope = 0.01970
Critical depth = 2.20 ft Critical slope = 0.00504

CULVERT OUTPUT RUN NO => 2

ANALYSIS for discharge frequency of : 50-yr

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
3	49.28	3.00	0.00	285.00	597.48	596.41	3.92	Inlet	6.97	3.00

Inlet control depth = 3.92 ft
Outlet control depth = 1.52 ft

Normal depth = 1.52 ft Culvert slope = 0.01970
Critical depth = 2.29 ft Critical slope = 0.00540

CULVERT OUTPUT RUN NO => 3

ANALYSIS for discharge frequency of : 100-yr

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
3	54.79	3.00	0.00	285.00	597.48	596.85	4.36	Inlet	7.75	3.00

Inlet control depth = 4.36 ft
Outlet control depth = 1.62 ft

Normal depth = 1.62 ft Culvert slope = 0.01970
Critical depth = 2.40 ft Critical slope = 0.00600

RUNING MESSAGES LIST:

*Computation: Hydraulic jump occurs inside of unit 3.
*Computation: Uniform depth is used as Tail Water for the upstream unit.
*Computation: Hydraulic jump occurs inside of unit 3.
*Computation: Uniform depth is used as Tail Water for the upstream unit.

NORMAL TERMINATION OF THYSYS. CULVERT.

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
CULVERT I

SHEET 5 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		496
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

REF FILE(S): j01lop01.bdr, bdr LV ON = 46,57,58,60-62
HOUFILE023 \hdivlh\cf0130\
b13wrp40.dgn-04

TEXAS HYDRAULIC SYSTEM. CULVERT (ver. 1.2. Feb/2002)
Mon Jan 13 09:09:30 2003

CULVERT HYDRAULIC COMPUTATIONS

CULVERT NAME: "K1" 398+25.25 Input Units: English
PROJECT NAME: IH 35 Output Units: English
PROJECT CONTROL: CSJ:0018-05-062, ETC
COUNTY: Webb County
DESCRIPTION: Loop 20 To Uniroyal Road

ANALYZE SINGLE OPENING CULVERT

MATERIAL: CONCRETE
SHAPE: RCP CIRCULAR PIPE.
ENTRANCE: MITER
PROFILE: STRAIGHT CULVERT

FREQUENCY: 25 YR DISCHARGE: 10.42 cfs TAILWATER: 639.83 ft
FREQUENCY: 50 YR DISCHARGE: 11.29 cfs TAILWATER: 639.83 ft
FREQUENCY: 100 YR DISCHARGE: 12.46 cfs TAILWATER: 639.83 ft

n value: 0.0120 Ke value: 0.7000

CULVERT DIAM. = 2.00 ft BARRELS = 1

INLET station: 0.00 elevation: 640.06 ft
OUTLET station: 84.00 elevation: 637.83 ft

CULVERT OUTPUT RUN NO => 1

ANALYSIS for discharge frequency of : 25 YR

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
1	10.42	2.00	0.00	70.00	643.37	641.63	1.73	Inlet	3.52	1.79

Inlet control depth = 1.73 ft
Outlet control depth = 3.25 ft

Normal depth = 0.70 ft Culvert slope = 0.02656
Critical depth = 1.16 ft Critical slope = 0.00449

CULVERT OUTPUT RUN NO => 2

ANALYSIS for discharge frequency of : 50 YR

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
1	11.29	2.00	0.00	70.00	643.37	641.73	1.83	Inlet	10.39	0.76

Inlet control depth = 1.83 ft
Outlet control depth = 3.42 ft

Normal depth = 0.73 ft Culvert slope = 0.02656
Critical depth = 1.21 ft Critical slope = 0.00463

CULVERT OUTPUT RUN NO => 3

ANALYSIS for discharge frequency of : 100 YR

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
1	12.46	2.00	0.00	70.00	643.37	641.88	1.98	Inlet	10.63	0.80

Inlet control depth = 1.98 ft
Outlet control depth = 3.63 ft

Normal depth = 0.77 ft Culvert slope = 0.02656
Critical depth = 1.27 ft Critical slope = 0.00484

RUNING MESSAGES LIST:

#Computation: Outlet velocity is based on the tail water depth.
#Computation: Hydraulic jump occurs at culvert outlet.
#Computation: Outlet velocity is based on the outlet water depth.
#Computation: Hydraulic jump occurs at culvert outlet.
#Computation: Outlet velocity is based on the outlet water depth.

NORMAL TERMINATION OF THYSYS. CULVERT.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
CULVERT K1

SHEET 6 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		497
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 46,57,58,60-62

HOUFILE023 \hdivil\c10130\ 4/18/2003
b13wrp41.dgn-04

TEXAS HYDRAULIC SYSTEM. CULVERT (ver. 1.2. Feb/2002)
Mon Jan 13 09:06:23 2003

CULVERT HYDRAULIC COMPUTATIONS

CULVERT NAME: "K" 394+32.36 Input Units: English
PROJECT NAME: IH 35 Output Units: English
PROJECT CONTROL: CSJ:0018-05-062, ETC
COUNTY: Webb County
DESCRIPTION: Loop 20 To Uniroyal Road

ANALYZE MULTIPLE OPENING CULVERT

MATERIAL: CONCRETE
SHAPE: RCP CIRCULAR PIPE.
ENTRANCE: HEADWALL
PROFILE: BROKEN BACK CULVERT

FREQUENCY: 25 YR DISCHARGE: 98.43 cfs TAILWATER: 626.64 ft
FREQUENCY: 50 YR DISCHARGE: 106.72 cfs TAILWATER: 626.64 ft
FREQUENCY: 100 YR DISCHARGE: 117.95 cfs TAILWATER: 626.64 ft

n value: 0.0120 Ke value: 0.5000

CULVERT DIAM. = 3.00 ft BARRELS = 3

INLET station: 0.00 elevation: 629.30 ft
OUTLET station: 330.00 elevation: 623.64 ft

BROKEN BACK CULVERT CONFIGURATION

			UPSTREAM		DOWNSTREAM	
Unit	Slope	Length	Sta.	Elev.	Sta.	Elev.
1	0.00857	182.00	0.00	629.30	182.00	627.74
2	0.02771	148.00	182.00	627.74	330.00	623.64

CULVERT OUTPUT RUN NO => 1

ANALYSIS for discharge frequency of : 25 YR

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
3	32.81	3.00	0.00	321.00	632.15	632.14	2.84	Inlet	13.98	1.10

Inlet control depth = 2.84 ft
Outlet control depth = 1.48 ft

Normal depth = 1.07 ft Culvert slope = 0.01715
Critical depth = 1.86 ft Critical slope = 0.00414

CULVERT OUTPUT RUN NO => 2

ANALYSIS for discharge frequency of : 50 YR

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
3	35.57	3.00	0.00	321.00	632.15	632.30	3.00	Inlet	14.12	1.16

Inlet control depth = 3.00 ft
Outlet control depth = 1.56 ft

Normal depth = 1.12 ft Culvert slope = 0.01715
Critical depth = 1.94 ft Critical slope = 0.00431

CULVERT OUTPUT RUN NO => 3

ANALYSIS for discharge frequency of : 100 YR

Barls.	Qpb	Rise	Span	Length	Max.HW elev	Calc.HW elev	HW	Control	Veloc.	Out.depth
	cfs	ft	ft	ft	ft	ft	ft		ft/s	ft
3	39.32	3.00	0.00	321.00	632.15	632.53	3.23	Inlet	14.54	1.22

Inlet control depth = 3.23 ft
Outlet control depth = 1.65 ft

Normal depth = 1.18 ft Culvert slope = 0.01715
Critical depth = 2.04 ft Critical slope = 0.00455

RUNING MESSAGES LIST:

*Computation: Hydraulic jump occurs inside of the most downstream unit.
*Computation: Outlet velocity is based on outlet water depth.
*Computation: Hydraulic jump occurs inside of the most downstream unit.
*Computation: Outlet velocity is based on outlet water depth.
*Computation: Hydraulic jump occurs inside of the most downstream unit.
*Computation: Outlet velocity is based on outlet water depth.

NORMAL TERMINATION OF THYSYS. CULVERT.

REF FILE(S): J011op01.bdr, bdr LV ON = 46,57,58,60-62

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
CULVERT K

SHEET 7 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		498
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

HOUFILE023 \hcivil\cf0130\ 4/18/2003
b13wrp42.dgn-04

TEXAS HYDRAULIC SYSTEM. CULVERT (ver. 1.2. Feb/2002)
Thu Jan 09 16:26:15 2003

CULVERT HYDRAULIC COMPUTATIONS

CULVERT NAME: "N2" 431+28.64 Input Units: English
PROJECT NAME: IH 35 Output Units: English
PROJECT CONTROL: CSJ:0018-05-062, ETC
COUNTY: Webb County
DESCRIPTION: Loop 20 To Uniroyal Road

ANALYZE MULTIPLE OPENING CULVERT

MATERIAL: CONCRETE
SHAPE: CONCRETE BOX.
ENTRANCE: BEVEL TO SLOPE
PROFILE: STRAIGHT CULVERT

FREQUENCY: 25 YR DISCHARGE: 255.99 cfs TAILWATER: 649.78 ft
FREQUENCY: 50 YR DISCHARGE: 277.55 cfs TAILWATER: 649.78 ft
FREQUENCY: 100 YR DISCHARGE: 308.08 cfs TAILWATER: 649.78 ft

n value: 0.0120 Ke value: 0.2000

CULVERT RISE = 4.00 ft CULVERT SPAN = 6.00 ft BARRELS = 2

INLET station: 0.00 elevation: 646.78 ft
OUTLET station: 66.00 elevation: 645.78 ft

CULVERT OUTPUT RUN NO => 1

ANALYSIS for discharge frequency of : 25 YR

Barls.	Opb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
2	128.00	4.00	6.00	54.00	651.43	650.75	3.97	Outlet	5.59	3.82

Inlet control depth = 3.74 ft
Outlet control depth = 3.97 ft

Normal depth = 1.43 ft Culvert slope = 0.01515
Critical depth = 2.42 ft Critical slope = 0.00344

CULVERT OUTPUT RUN NO => 2

ANALYSIS for discharge frequency of : 50 YR

Barls.	Opb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
2	138.78	4.00	6.00	54.00	651.43	651.09	4.31	Outlet	6.06	3.82

Inlet control depth = 3.98 ft
Outlet control depth = 4.31 ft

Normal depth = 1.51 ft Culvert slope = 0.01515
Critical depth = 2.55 ft Critical slope = 0.00349

CULVERT OUTPUT RUN NO => 3

ANALYSIS for discharge frequency of : 100 YR

Barls.	Opb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
2	154.04	4.00	6.00	54.00	651.43	651.52	4.74	Outlet	6.72	3.82

Inlet control depth = 4.31 ft
Outlet control depth = 4.74 ft

Normal depth = 1.63 ft Culvert slope = 0.01515
Critical depth = 2.74 ft Critical slope = 0.00356

RUNING MESSAGES LIST:

*Computation: Outlet velocity is based on the tail water depth.
*Computation: Tail water is above critical depth at entrance. Higher Outlet/Inlet Control used.
*Computation: Outlet velocity is based on the tail water depth.
*Computation: Tail water is above critical depth at entrance. Higher Outlet/Inlet Control used.
*Computation: Outlet velocity is based on the tail water depth.
*Computation: Tail water is above critical depth at entrance. Higher Outlet/Inlet Control used.

NORMAL TERMINATION OF THYSYS. CULVERT.

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
CULVERT N2

SHEET 8 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		499
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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b13wrp43.dgn-03

REF FILE(S): j011op01.bdr, bdr LV ON = 46,57,58,60-62

TEXAS HYDRAULIC SYSTEM. CULVERT (ver. 1.2. Feb/2002)
Thu Jan 09 16:00:56 2003

CULVERT HYDRAULIC COMPUTATIONS

CULVERT NAME: "N1" 430+79.34 Input Units: English
PROJECT NAME: IH 35 Output Units: English
PROJECT CONTROL: CSJ:0018-05-062, ETC
COUNTY: Webb County
DESCRIPTION: Loop 20 To Uniroyal Road

ANALYZE MULTIPLE OPENING CULVERT

MATERIAL: CONCRETE
SHAPE: CONCRETE BOX.
ENTRANCE: STRAIGHT
PROFILE: STRAIGHT CULVERT

FREQUENCY: 25 YR DISCHARGE: 310.47 cfs TAILWATER: 639.95 ft
FREQUENCY: 50 YR DISCHARGE: 336.61 cfs TAILWATER: 639.95 ft
FREQUENCY: 100 YR DISCHARGE: 373.64 cfs TAILWATER: 639.95 ft

n value: 0.0120 Ke value: 0.7000

CULVERT RISE = 4.00 ft CULVERT SPAN = 7.00 ft BARRELS = 2

INLET station: 0.00 elevation: 636.24 ft
OUTLET station: 94.00 elevation: 635.95 ft

CULVERT OUTPUT RUN NO => 1

ANALYSIS for discharge frequency of : 25 YR

Barls.	Opb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
2	155.24	4.00	7.00	70.00	642.85	640.88	4.68	Outlet	5.60	3.96

Inlet control depth = 4.26 ft
Outlet control depth = 4.68 ft

Normal depth = 2.51 ft Culvert slope = 0.00309
Critical depth = 2.48 ft Critical slope = 0.00317

CULVERT OUTPUT RUN NO => 2

ANALYSIS for discharge frequency of : 50 YR

Barls.	Opb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
2	168.31	4.00	7.00	70.00	642.85	641.05	4.85	Outlet	6.07	3.96

Inlet control depth = 4.55 ft
Outlet control depth = 4.85 ft

Normal depth = 2.65 ft Culvert slope = 0.00309
Critical depth = 2.62 ft Critical slope = 0.00321

CULVERT OUTPUT RUN NO => 3

ANALYSIS for discharge frequency of : 100 YR

Barls.	Opb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
2	186.82	4.00	7.00	70.00	642.85	641.30	5.09	Outlet	6.73	3.96

Inlet control depth = 4.98 ft
Outlet control depth = 5.09 ft

Normal depth = 2.87 ft Culvert slope = 0.00309
Critical depth = 2.81 ft Critical slope = 0.00326

RUNING MESSAGES LIST:

NORMAL TERMINATION OF THYSYS. CULVERT.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
CULVERT N1

SHEET 9 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		500
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b13wrp44.dgn-03

REF FILE(S): j01loop01.bdr, bdr LV ON = 46,57,58,60-62

TEXAS HYDRAULIC SYSTEM. CULVERT (ver. 1.2. Feb/2002)
Mon Jan 13 09:27:08 2003

CULVERT HYDRAULIC COMPUTATIONS

CULVERT NAME: "Uniroyal"10+80 Input Units: English
PROJECT NAME: IH 35 Output Units: English
PROJECT CONTROL: CSJ:0018-05-062, ETC
COUNTY: Webb County
DESCRIPTION: Loop 20 To Uniroyal Road

ANALYZE SINGLE OPENING CULVERT

MATERIAL: CONCRETE
SHAPE: RCP CIRCULAR PIPE.
ENTRANCE: HEADWALL
PROFILE: BROKEN BACK CULVERT

FREQUENCY: 25 YR DISCHARGE: 9.24 cfs TAILWATER: 645.93 ft
FREQUENCY: 50 YR DISCHARGE: 10.02 cfs TAILWATER: 645.93 ft
FREQUENCY: 100 YR DISCHARGE: 11.05 cfs TAILWATER: 645.93 ft

n value: 0.0120 Ke value: 0.5000

CULVERT DIAM. = 2.00 ft BARRELS = 1

INLET station: 0.00 elevation: 644.12 ft
OUTLET station: 160.00 elevation: 643.93 ft

BROKEN BACK CULVERT CONFIGURATION

Unit	Slope	Length	UPSTREAM Sta.	UPSTREAM Elev.	DOWNSTREAM Sta.	DOWNSTREAM Elev.
1	0.00072	83.00	0.00	644.12	83.00	644.06
2	0.00169	77.00	83.00	644.06	160.00	643.93

CULVERT OUTPUT RUN NO => 1

ANALYSIS for discharge frequency of : 25 YR

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
1	9.24	2.00	0.00	136.00	648.00	646.12	2.02	Outlet	2.94	1.99

Inlet control depth = 1.62 ft
Outlet control depth = 2.02 ft

Normal depth = 2.00 ft Culvert slope = 0.00119
Critical depth = 1.09 ft Critical slope = 0.00432

CULVERT OUTPUT RUN NO => 2

ANALYSIS for discharge frequency of : 50 YR

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
1	10.02	2.00	0.00	136.00	648.00	646.17	2.06	Outlet	3.19	1.19

Inlet control depth = 1.71 ft
Outlet control depth = 2.06 ft

Normal depth = 2.00 ft Culvert slope = 0.00119
Critical depth = 1.13 ft Critical slope = 0.00443

CULVERT OUTPUT RUN NO => 3

ANALYSIS for discharge frequency of : 100 YR

Barls.	Qpb cfs	Rise ft	Span ft	Length ft	Max.HW elev ft	Calc.HW elev ft	HW ft	Control	Veloc. ft/s	Out.depth ft
1	11.05	2.00	0.00	136.00	648.00	646.23	2.13	Outlet	3.52	2.00

Inlet control depth = 1.82 ft
Outlet control depth = 2.13 ft

Normal depth = 2.00 ft Culvert slope = 0.00119
Critical depth = 1.19 ft Critical slope = 0.00459

RUNING MESSAGES LIST:

NORMAL TERMINATION OF THYSYS. CULVERT.

REF FILE(S): j01lcp01.bdr, bdr LV ON = 46,57,58,60-62

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
REGISTERED PROFESSIONAL ENGINEER

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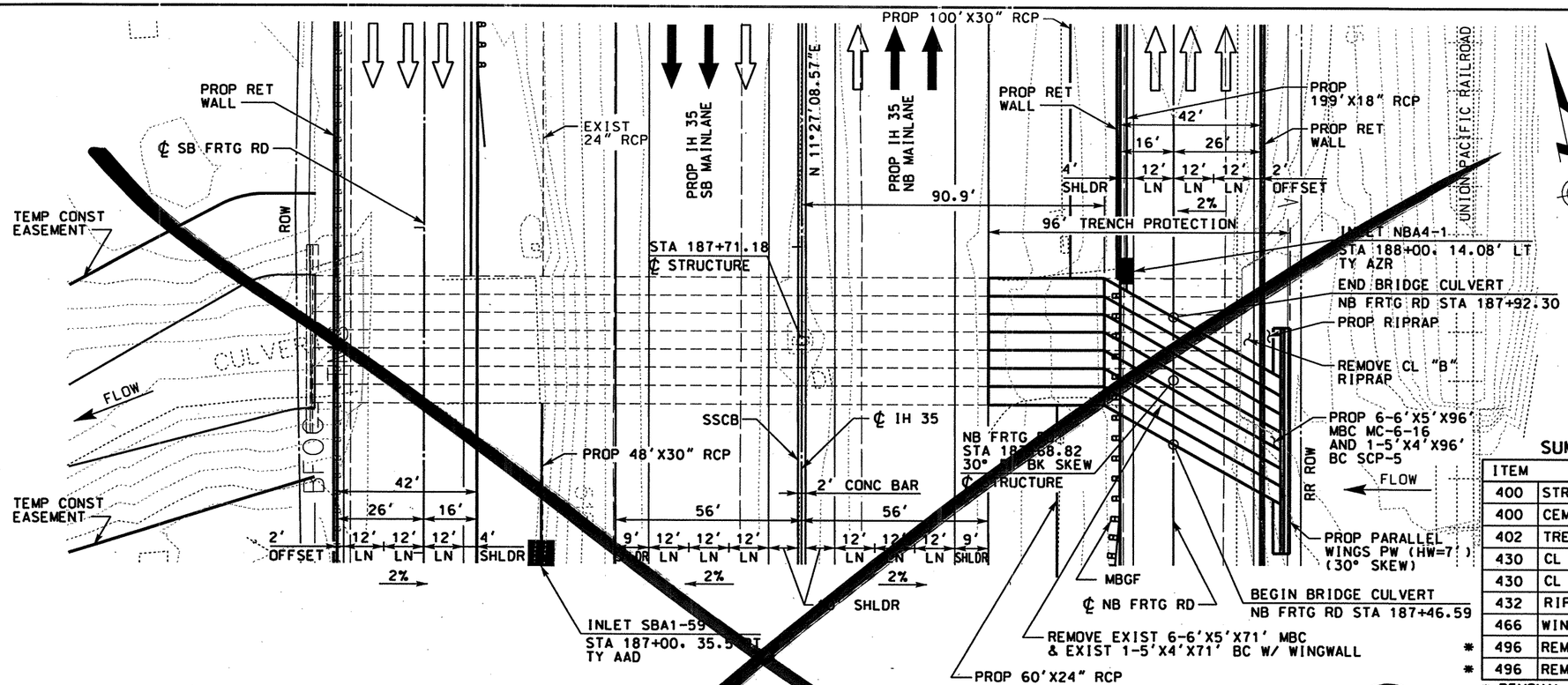
IH 35
LOOP 20 TO UNIROYAL ROAD

HYDRAULIC DATA SHEETS
CULVERT UNIROYAL

SHEET 10 OF 10

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		501
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

b13wrp45.dgn-04 HOUFILE023 \hcivil\cf0130\ 4/18/2003



NOTES:

1. SEE "BOX CULVERT SUPPLEMENT" (BCS) DETAIL SHEETS FOR ADDITIONAL INFORMATION.
2. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.

SUMMARY OF QUANTITIES (CULVERT A)

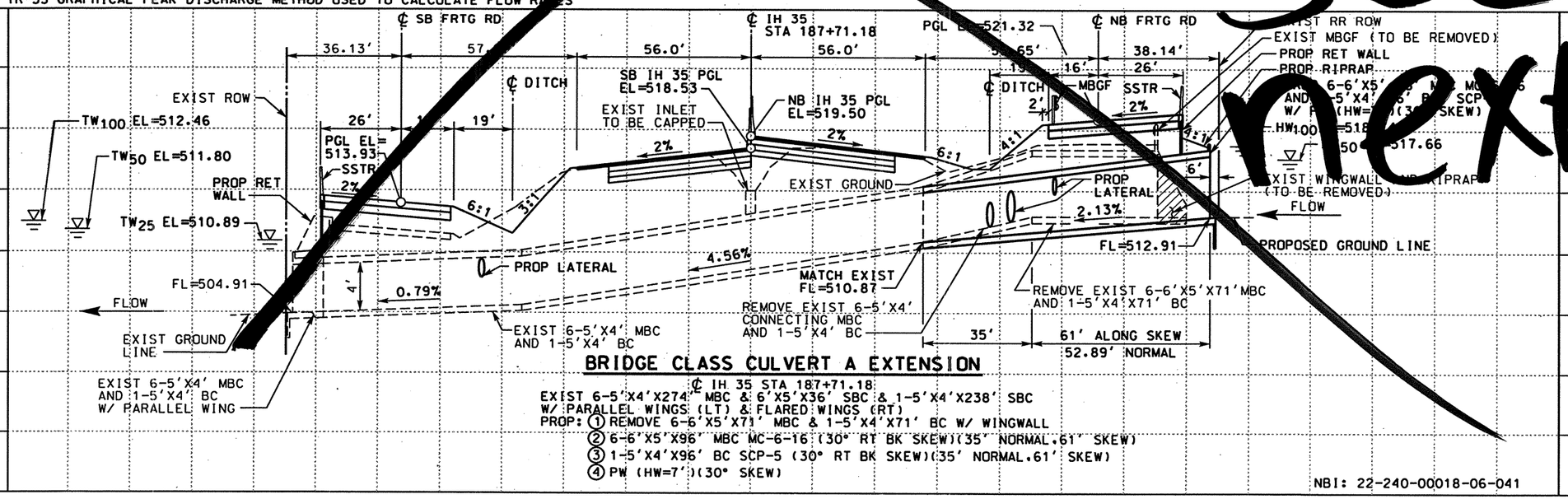
ITEM	DESCRIPTION	UNIT	EST
400	STRUCTURAL EXCAVATION (CULV LARGE)	CY	313
400	CEMENT STABILIZED BACKFILL	CY	457
402	TRENCH PROTECTION	LF	96
430	CL C CONC FOR EXT STR (CULV)(6'X5')	LF	576
430	CL C CONC FOR EXT STR (CULV)(5'X4')	LF	96
432	RIPRAP (CONC)(CL B)(5 IN)	CY	13.5
466	WINGWALL (PW)(HW=7')(30° SKEW)	EA	1
* 496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
* 496	REMOVE OLD STR (WINGWALL)	EA	1

* REMOVAL ITEM

CULVERT HYDRAULIC COMPUTATIONS

DRAINAGE AREA NO	CULV ID	STATION	FREQ-YR	DRAINAGE AREA (AC)	TIME OF CONC (MIN)	Q (CFS)	TAILWATER ELEV (FT)	STRUCTURE DESCRIPTION	LENGTH (FT)	KE	HW MAX ELEV (FT)	HW CALC ELEV (FT)	VELOCITY (FPS)	INLET ELEV (FT)	OUTLET ELEV (FT)	SLOPE %	LENGTH CORRECTED	WATER ON
			25			662	510.89	6-6'X5' MBC MC-6-16 1-5'X4' BC SCP-5 W/PARALLEL WINGS (HW=7')(30° SKEW)				516.76	4.73					
A	A*	187+71.18	50	887.02	72.6	906	511.80		279	0.5	519.52	517.66	6.47	512.91	504.91	2.87 (4.56/0.79)	296	
			100			1232	512.46					518.74	8.80					

* BROKEN BACK CULVERT
** TR-55 GRAPHICAL PEAK DISCHARGE METHOD USED TO CALCULATE FLOW RATES



BRIDGE CLASS CULVERT A EXTENSION

℄ IH 35 STA 187+71.18
EXIST 6-5'X4'X274' MBC & 6'X5'X36' SBC & 1-5'X4'X238' SBC W/ PARALLEL WINGS (LT) & FLARED WINGS (RT)
PROP: ① REMOVE 6-6'X5'X71' MBC & 1-5'X4'X71' BC W/ WINGWALL
② 6-6'X5'X96' MBC MC-6-16 (30° RT BK SKEW)(35' NORMAL,61' SKEW)
③ 1-5'X4'X96' BC SCP-5 (30° RT BK SKEW)(35' NORMAL,61' SKEW)
④ PW (HW=7')(30° SKEW)

NBI: 22-240-00018-06-041

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 02, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
BRIDGE CLASS
CULVERT A EXTENSION
BRIDGE LAYOUT
STA 187+71.18
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	502
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j01lop01.uti. uti LV ON = 1-63
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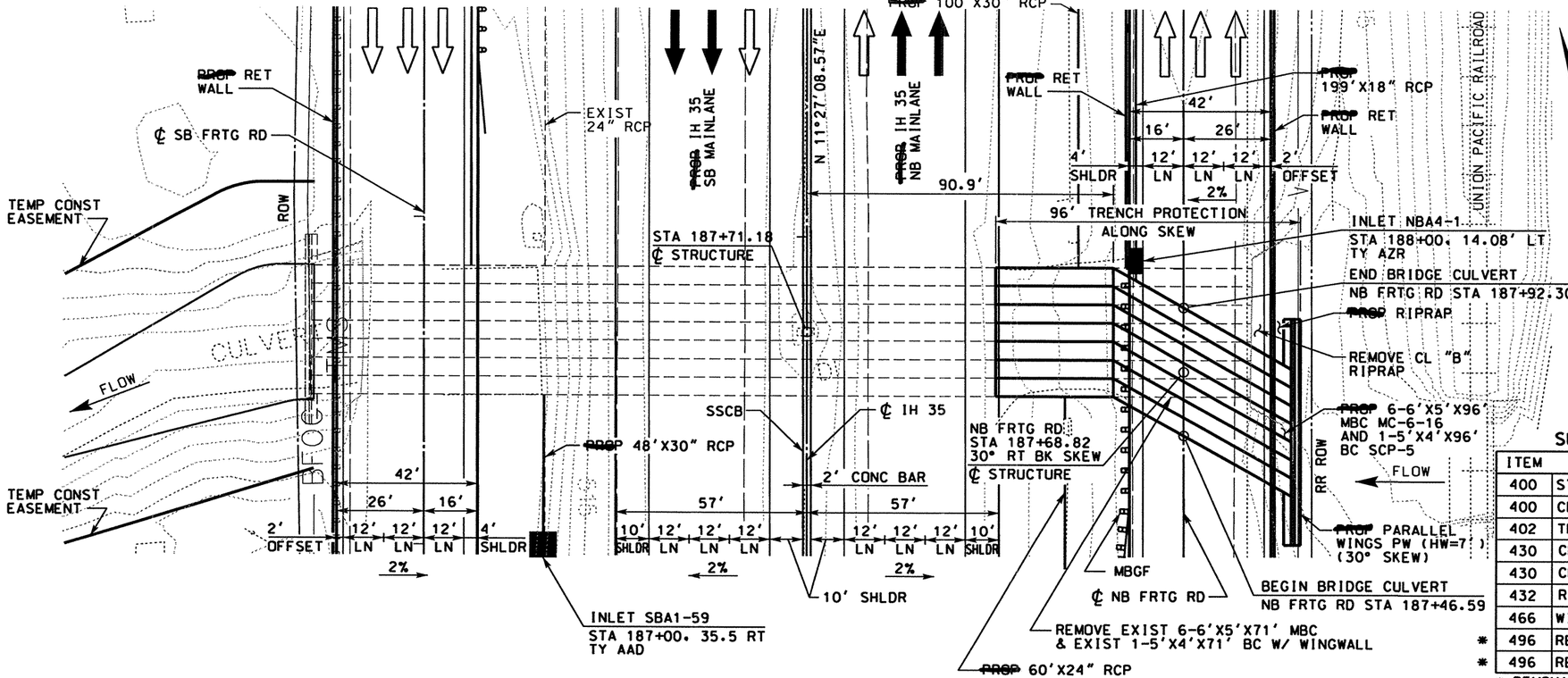
j01lop01.eop. eop LV ON = 1-17.19-63
j01lop01.drn. drn LV ON = 8.28
j01lop01.alg. alg LV ON = 1-6.25-29
j01lop01.bdr. bdr LV ON = 10.19.45.46.57.58.60-62
b13lop01.dgn-26 HOUFILE023 \hchivil\cf0130\ 6/4/2003

See next



NOTES:

1. SEE "BOX CULVERT SUPPLEMENT" (BCS) DETAIL SHEETS FOR ADDITIONAL INFORMATION.
2. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.

SUMMARY OF QUANTITIES (CULVERT A)

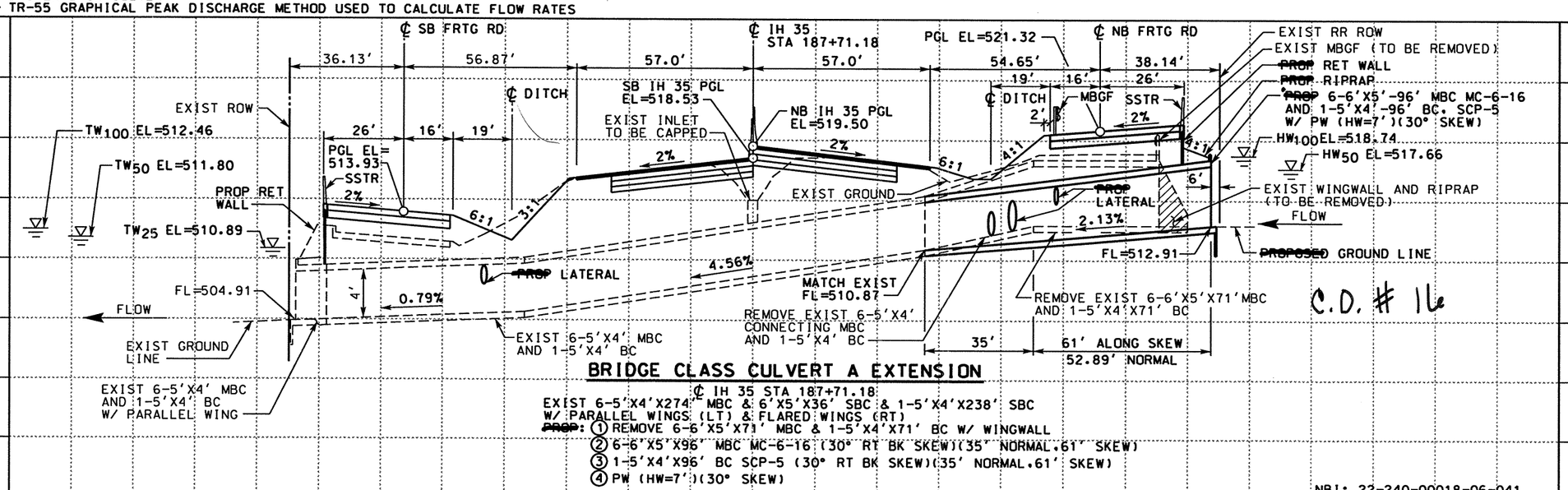
	ITEM	DESCRIPTION	UNIT	EST
	400	STRUCTURAL EXCAVATION (CULV LARGE)	CY	313
	400	CEMENT STABILIZED BACKFILL	CY	457
	402	TRENCH PROTECTION	LF	96
	430	CL C CONC FOR EXT STR (CULV)(6'X5')	LF	576
	430	CL C CONC FOR EXT STR (CULV)(5'X4')	LF	96
	432	RIPRAP (CONC)(CL B)(5 IN)	CY	13.5
	466	WINGWALL (PW)(HW=7')(30° SKEW)	EA	1
*	496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
*	496	REMOVE OLD STR (WINGWALL)	EA	1

* REMOVAL ITEM

CULVERT HYDRAULIC COMPUTATIONS

DRAINAGE AREA NO	CULV ID	STATION	FREQ-YR	DRAINAGE AREA (AC)	TIME OF CONC (MIN)	Q (CFS)	TAILWATER ELEV (FT)	STRUCTURE DESCRIPTION	LENGTH (FT)	KE	HW MAX ELEV (FT)	HW CALC ELEV (FT)	VELOCITY (FPS)	INLET ELEV (FT)	OUTLET ELEV (FT)	SLOPE %	LENGTH CONSTRUCTED	WATER ON ROAD
			25			662	510.89	6-6'x5' MBC MC-6-16 1-5'x4' BC SCP-5 W/PW (HW=7')(30° SKEW)				516.76	4.73					NO
A	A*	187+71.18	50	887.02	72.6	906	511.80		279	0.5	519.52	517.66	6.47	512.91	504.91	2.13/4.56/0.79	96	NO
			100			1232	512.46					518.74	8.80					NO

* BROKEN BACK CULVERT
** TR-55 GRAPHICAL PEAK DISCHARGE METHOD USED TO CALCULATE FLOW RATES



C.D. # 16

BRIDGE CLASS CULVERT A EXTENSION

℄ IH 35 STA 187+71.18

EXIST 6-5'X4'X274' MBC & 6'X5'X36' SBC & 1-5'X4'X238' SBC W/ PARALLEL WINGS (LT) & FLARED WINGS (RT)

PROP: ① REMOVE 6-6'X5'X71' MBC & 1-5'X4'X71' BC W/ WINGWALL
② 6-6'X5'X96' MBC MC-6-16 (30° RT BK SKEW)(35' NORMAL,61' SKEW)
③ 1-5'X4'X96' BC SCP-5 (30° RT BK SKEW)(35' NORMAL,61' SKEW)
④ PW (HW=7')(30° SKEW)

NBI: 22-240-00018-06-041

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
BRIDGE CLASS
CULVERT A EXTENSION
BRIDGE LAYOUT
STA 187+71.18
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	502
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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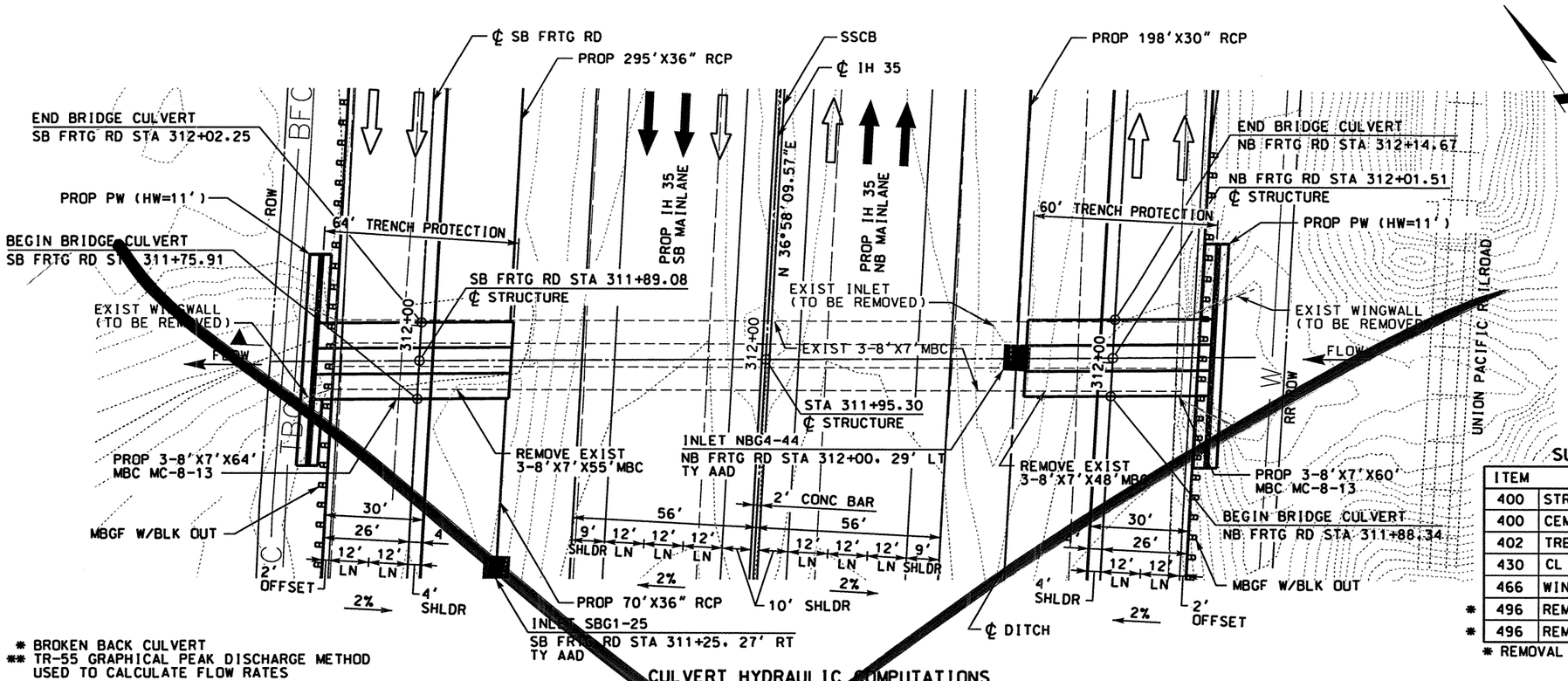


* BROKEN BACK CULVERT
** TR-55 GRAPHICAL PEAK DISCHARGE METHOD USED TO CALCULATE FLOW RATES

NOTES:

1. SEE "BOX CULVERT SUPPLEMENT" (BCS) DETAIL SHEETS FOR ADDITIONAL INFORMATION.
2. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.

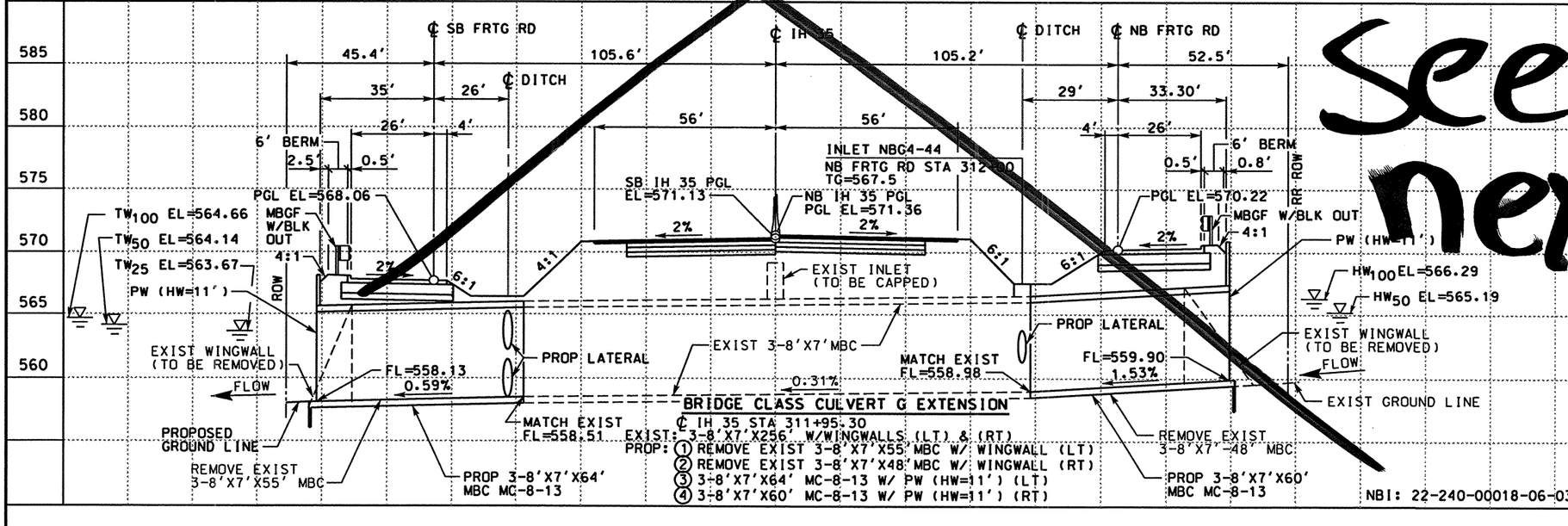
SUMMARY OF QUANTITIES (CULVERT G)

	ITEM	DESCRIPTION	UNIT	EST
	400	STRUCTURAL EXCAVATION (CULV LARGE)	CY	346
	400	CEMENT STABILIZED BACKFILL	CY	374
	402	TRENCH PROTECTION	LF	124
	430	CL C CONC FOR EXT STR (CULV)(8'X7')	LF	372
	466	WINGWALL PW (HW=11')	EA	2
*	496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
*	496	REMOVE OLD STR (WINGWALL)	EA	2

* REMOVAL ITEM

CULVERT HYDRAULIC COMPUTATIONS

DRAINAGE AREA NO	CULV ID	STATION	FREQ-YR	DRAINAGE AREA (AC)	TIME OF CONC (MIN)	Q (CFS)	TAILWATER ELEV (FT)	STRUCTURE DESCRIPTION	LENGTH (FT)	KE	HW MAX ELEV (FT)	HW CALC ELEV (FT)	VELOCITY (FPS)	INLET ELEV (FT)	OUTLET ELEV (FT)	SLOPE %	LENGTH CONSTRUCTED	WATER ON ROAD
			25			534	563.67	3-8'x7' MBC-8-13 W/ PW (HW=11' (LT & RT)				564.32	3.99					NO
G	G*	311+95.30	50	730.74	75.0	731	564.14		277	0.5	568.16	565.19	5.04	559.90	558.13	1.53/0.31/0.59	124	NO
			100			995	564.66					566.29	6.32					NO



BRIDGE CLASS CULVERT G EXTENSION

℄ IH 35 STA 311+95.30
EXIST: 3-8'X7'X256' W/WINGWALLS (LT) & (RT)
PROP: ① REMOVE EXIST 3-8'X7'X55' MBC W/ WINGWALL (LT)
② REMOVE EXIST 3-8'X7'X48' MBC W/ WINGWALL (RT)
③ 3-8'X7'X64' MC-8-13 W/ PW (HW=11') (LT)
④ 3-8'X7'X60' MC-8-13 W/ PW (HW=11') (RT)

NBI: 22-240-00018-06-034

See next

SCALE: 1" = 40' HORIZ
1" = 10' VERT

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IH 35
LOOP 20 TO UNIROYAL ROAD
BRIDGE CLASS
CULVERT G EXTENSION
BRIDGE LAYOUT
STA 311+95.30

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	503
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j0110p01.bdr, bdr LV ON = 10,19,45,46,57,58,60-62

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6/3/2003
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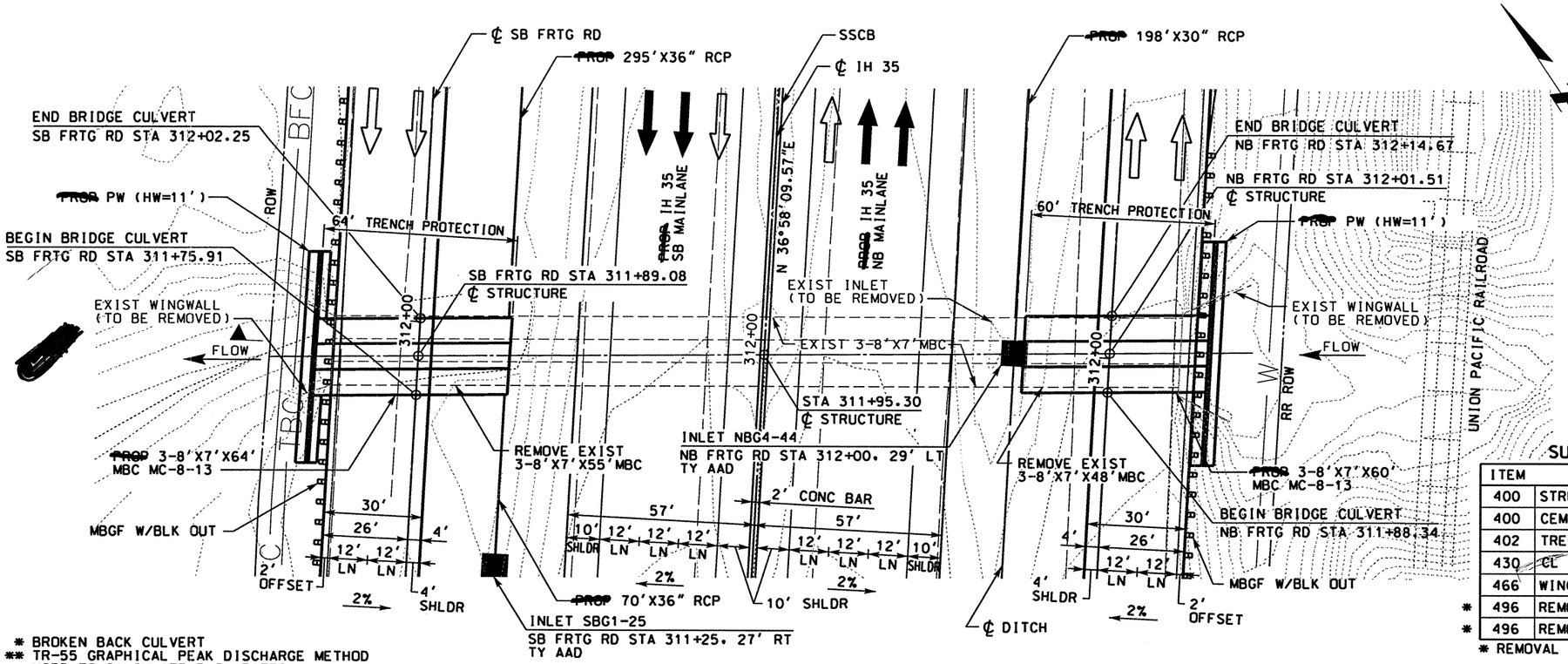


* BROKEN BACK CULVERT
** TR-55 GRAPHICAL PEAK DISCHARGE METHOD USED TO CALCULATE FLOW RATES

NOTES:

1. SEE "BOX CULVERT SUPPLEMENT" (BCS) DETAIL SHEETS FOR ADDITIONAL INFORMATION.
2. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.

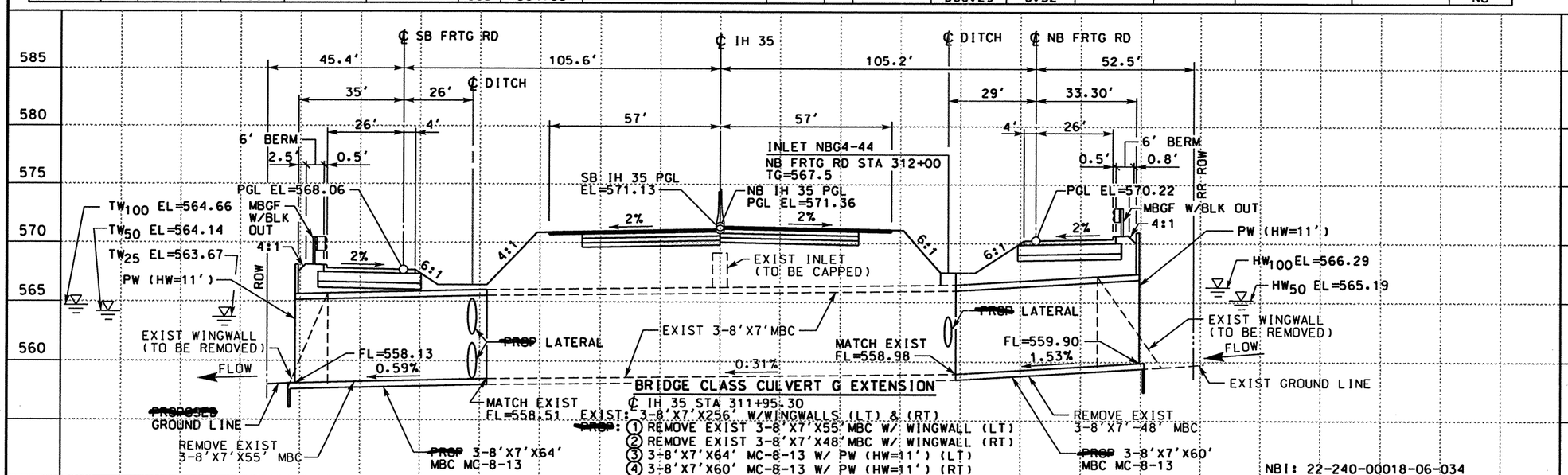
SUMMARY OF QUANTITIES (CULVERT G)

	ITEM	DESCRIPTION	UNIT	EST
	400	STRUCTURAL EXCAVATION (CULV LARGE)	CY	346
	400	CEMENT STABILIZED BACKFILL	CY	374
	402	TRENCH PROTECTION	LF	124
	430	CL C CONC FOR EXT STR (CULV)(8'X7')	LF	372
	466	WINGWALL PW (HW=11')	EA	2
*	496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
*	496	REMOVE OLD STR (WINGWALL)	EA	2

* REMOVAL ITEM

CULVERT HYDRAULIC COMPUTATIONS

DRAINAGE AREA NO	CULV ID	STATION	FREQ-YR	DRAINAGE AREA (AC)	TIME OF CONC (MIN)	Q (CFS)	TAILWATER ELEV (FT)	STRUCTURE DESCRIPTION	LENGTH (FT)	KE	HW MAX ELEV (FT)	HW CALC ELEV (FT)	VELOCITY (FPS)	INLET ELEV (FT)	OUTLET ELEV (FT)	SLOPE %	LENGTH CONSTRUCTED	WATER ON ROAD
			25			534	563.67	3-8'x7' MC-8-13 W/ PW (HW=11')(LT & RT)				564.32	3.99					NO
G	G*	311+95.30	50	730.74	75.0	731	564.14		277	0.5	568.16	565.19	5.04	559.90	558.13	1.53/0.31/0.59	124	NO
			100			995	564.66					566.29	6.32					NO



BRIDGE CLASS CULVERT G EXTENSION
℄ IH 35 STA 311+95.30
EXIST: 3-8'X7'X256' W/WINGWALLS (LT) & (RT)
PROP: ① REMOVE EXIST 3-8'X7'X55' MBC W/ WINGWALL (LT)
② REMOVE EXIST 3-8'X7'X48' MBC W/ WINGWALL (RT)
③ 3-8'X7'X64' MC-8-13 W/ PW (HW=11') (LT)
④ 3-8'X7'X60' MC-8-13 W/ PW (HW=11') (RT)

NBI: 22-240-00018-06-034

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

SCALE: 1" = 40' HORIZ
1" = 10' VERT

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IH 35
LOOP 20 TO UNIROYAL ROAD
BRIDGE CLASS
CULVERT G EXTENSION
BRIDGE LAYOUT
STA 311+95.30
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	503
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.uti, uti LV ON = 1-63
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j01lop01.drn, drn LV ON = 8,28
j01lop01.alg, alg LV ON = 1-6,25-29
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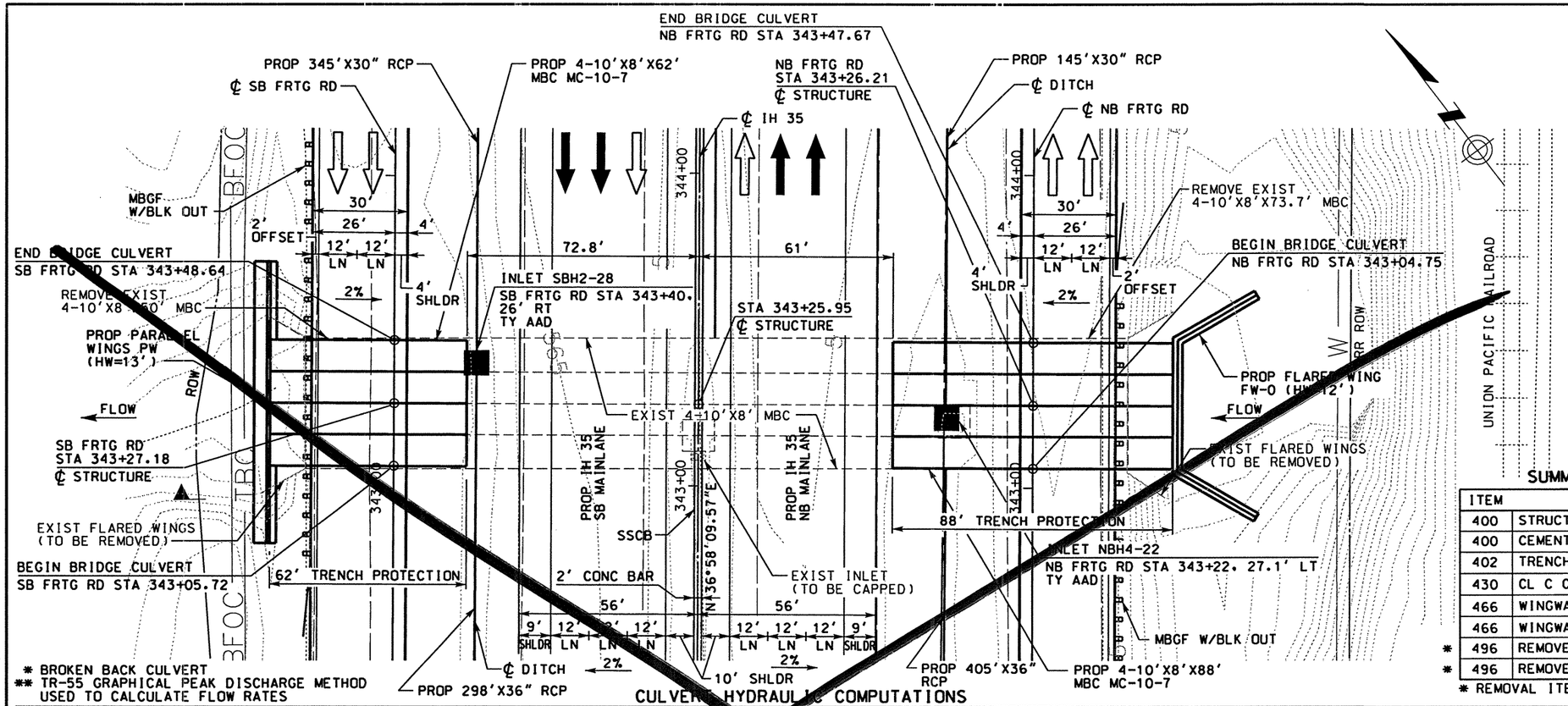
b13lop08.dgn-21 HOUFILE023 \hciv\vc0130\ 3/4/2004



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NOTES:

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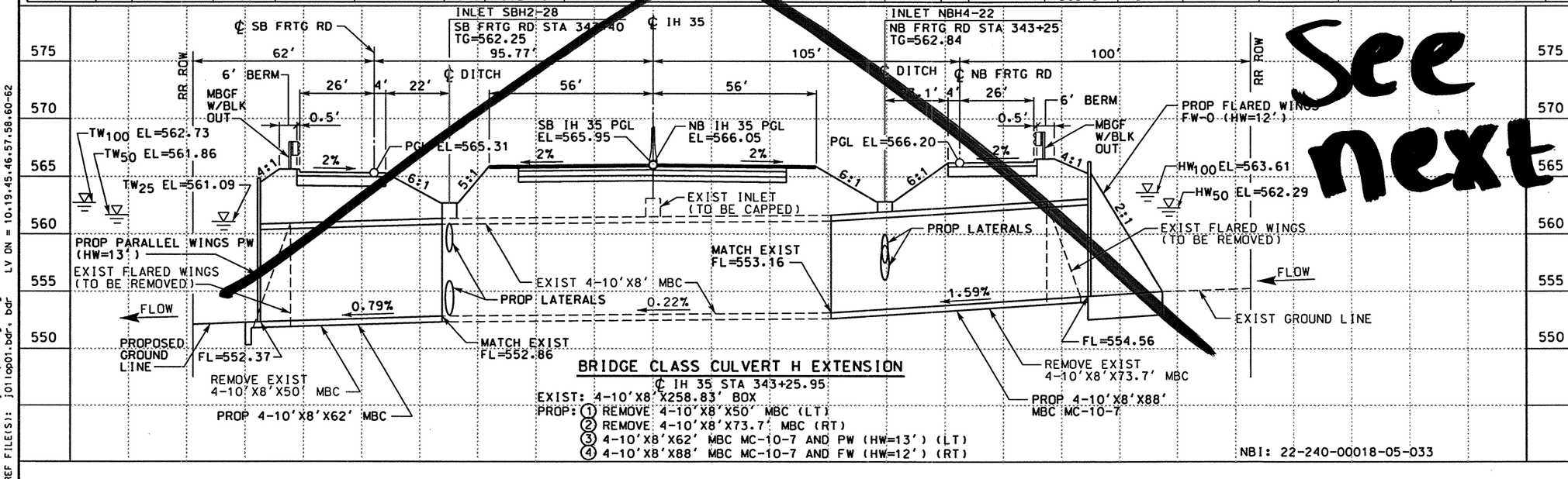
SUMMARY OF QUANTITIES (CULVERT H)

	ITEM	DESCRIPTION	UNIT	EST
	400	STRUCTURAL EXCAVATION (CULV LARGE)	CY	680
	400	CEMENT STABILIZED BACKFILL	CY	840
	402	TRENCH PROTECTION	LF	150
	430	CL C CONC FOR EXT STR (CULV)(10'X8')	LF	600
	466	WINGWALL FW-0 (HW=12')	EA	1
	466	WINGWALL PW (HW=13')	EA	1
*	496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
*	496	REMOVE OLD STR (WINGWALL)	EA	2

* REMOVAL ITEM

CULVERT HYDRAULIC COMPUTATIONS

DRAINAGE AREA NO	CULV ID	STATION	FREQ-YR	DRAINAGE AREA (AC)	TIME OF CONC (MIN)	Q (CFS)	TAILWATER ELEV (FT)	STRUCTURE DESCRIPTION	LENGTH (FT)	KE	HW MAX ELEV (FT)	HW CALC ELEV (FT)	VELOCITY (FPS)	INLET ELEV (FT)	OUTLET ELEV (FT)	SLOPE %	LENGTH CONSTRUCTED	WATER ON ROAD
			25			992	561.09	4-10'x8' MBC MC-10-7 W/PW(HW=13')(LT)				561.30	3.10					NO
H	H*	343+25.95	50	1356.86	75.0	1358	561.86	4-10'x8' MBC MC-10-7 W/PW(HW=12')(RT)	285	0.2	564.07	562.29	4.24	554.56	552.37	1.59/0.22/0.79	150	NO
			100			1846	562.73					563.61	5.77					NO



BRIDGE CLASS CULVERT H EXTENSION

℄ IH 35 STA 343+25.95

EXIST: 4-10'X8'X258.83' BOX
PROP: ① REMOVE 4-10'X8'X50' MBC (LT)
② REMOVE 4-10'X8'X73.7' MBC (RT)
③ 4-10'X8'X62' MBC MC-10-7 AND PW (HW=13') (LT)
④ 4-10'X8'X88' MBC MC-10-7 AND FW (HW=12') (RT)

NBI: 22-240-00018-05-033

See next

SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
BRIDGE CLASS
CULVERT H EXTENSION
BRIDGE LAYOUT
STA 343+25.95
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	504
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

6/9/2003

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j0110p01.drn, drn LV ON = 8,28
j0110p01.alg, alg LV ON = 1-6,25-29
j0110p01.bar, bar LV ON = 10,19,45,46,57,58,60-62
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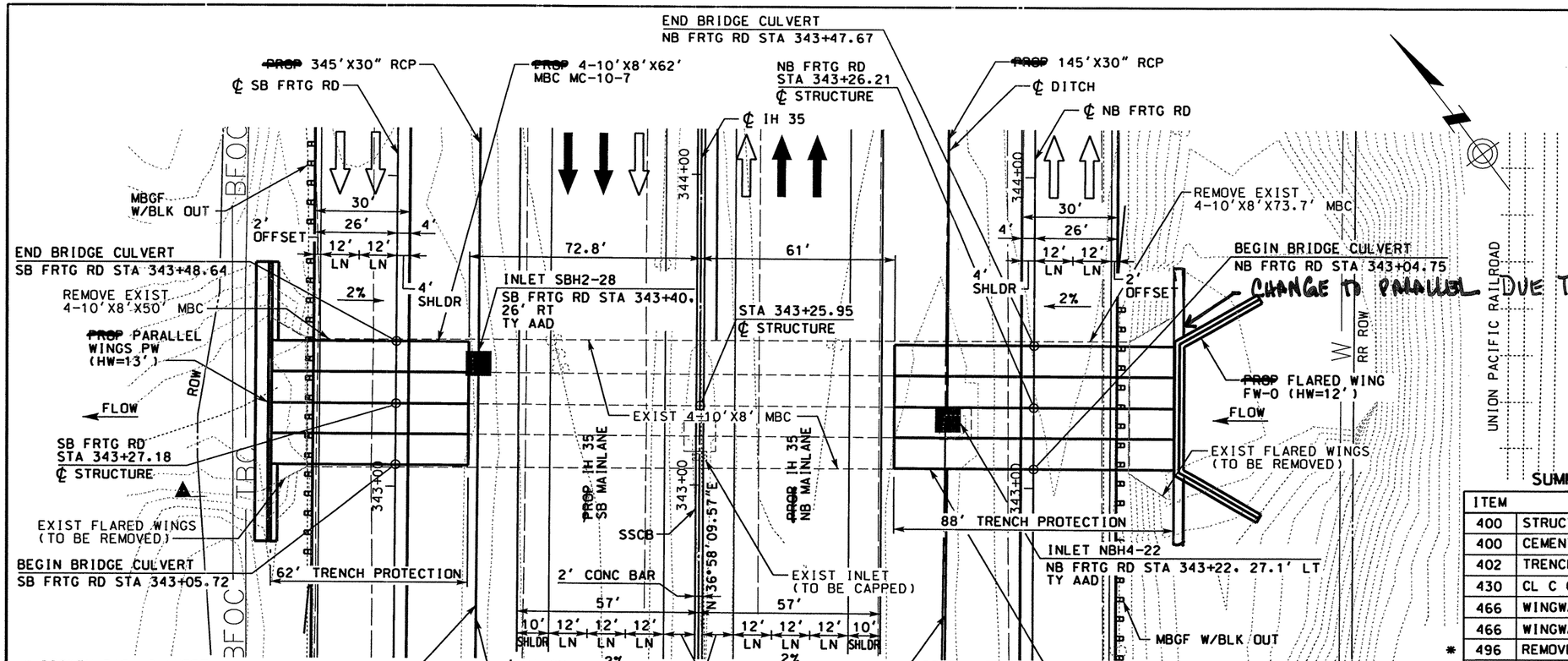

* BROKEN BACK CULVERT
** TR-55 GRAPHICAL PEAK DISCHARGE METHOD USED TO CALCULATE FLOW RATES

NOTES:

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2. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

SUMMARY OF QUANTITIES (CULVERT H)

	ITEM	DESCRIPTION	UNIT	EST
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	430	CL C CONC FOR EXT STR (CULV)(10'X8')	LF	600
	466	WINGWALL FW-0 (HW=12')	EA	1
	466	WINGWALL PW (HW=13')	EA	1
*	496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
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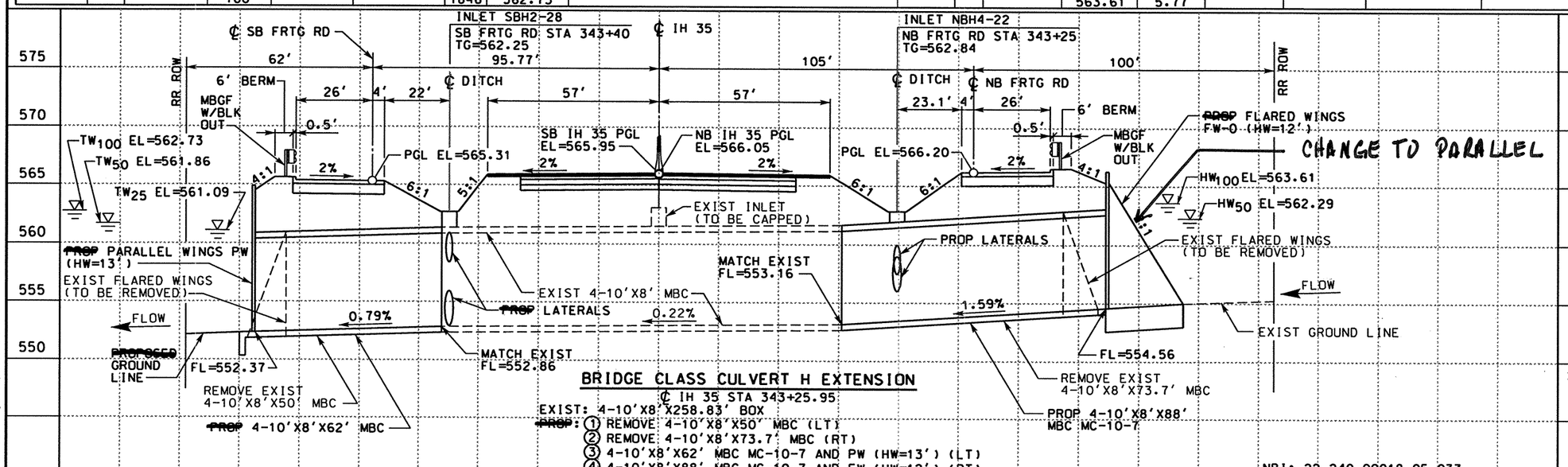
* REMOVAL ITEM

CULVERT HYDRAULIC COMPUTATIONS

DRAINAGE AREA NO	CULV ID	STATION	FREQ-YR	DRAINAGE AREA (AC)	TIME OF CONC (MIN)	Q (CFS)	TAILWATER ELEV (FT)	STRUCTURE DESCRIPTION	LENGTH (FT)	KE	HW MAX ELEV (FT)	HW CALC ELEV (FT)	VELOCITY (FPS)	INLET ELEV (FT)	OUTLET ELEV (FT)	SLOPE %	LENGTH CONSTRUCTED	WATER ON ROAD
			25			992	561.09	4-10'x8' MBC MC-10-7 W/PW(HW=13')(LT)				561.30	3.10					NO
H	H*	343+25.95	50	1356.86	75.0	1358	561.86	4-10'x8' MBC MC-10-7 W/PW(HW=12')(RT)	285	0.2	564.07	562.29	4.24	554.56	552.37	1.59/0.22/0.79	150	NO
			100			1846	562.73					563.61	5.77					NO



BRIDGE CLASS CULVERT H EXTENSION

℄ IH 35 STA 343+25.95

EXIST: 4-10'X8'X258.83' BOX

~~PROP~~:
1. REMOVE 4-10'X8'X50' MBC (LT)
2. REMOVE 4-10'X8'X73.7' MBC (RT)
3. 4-10'X8'X62' MBC MC-10-7 AND PW (HW=13') (LT)
4. 4-10'X8'X88' MBC MC-10-7 AND FW (HW=12') (RT)

NBI: 22-240-00018-05-033

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
NO. 34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
BRIDGE CLASS CULVERT H EXTENSION
BRIDGE LAYOUT
STA 343+25.95

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	504
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

3/4/2004

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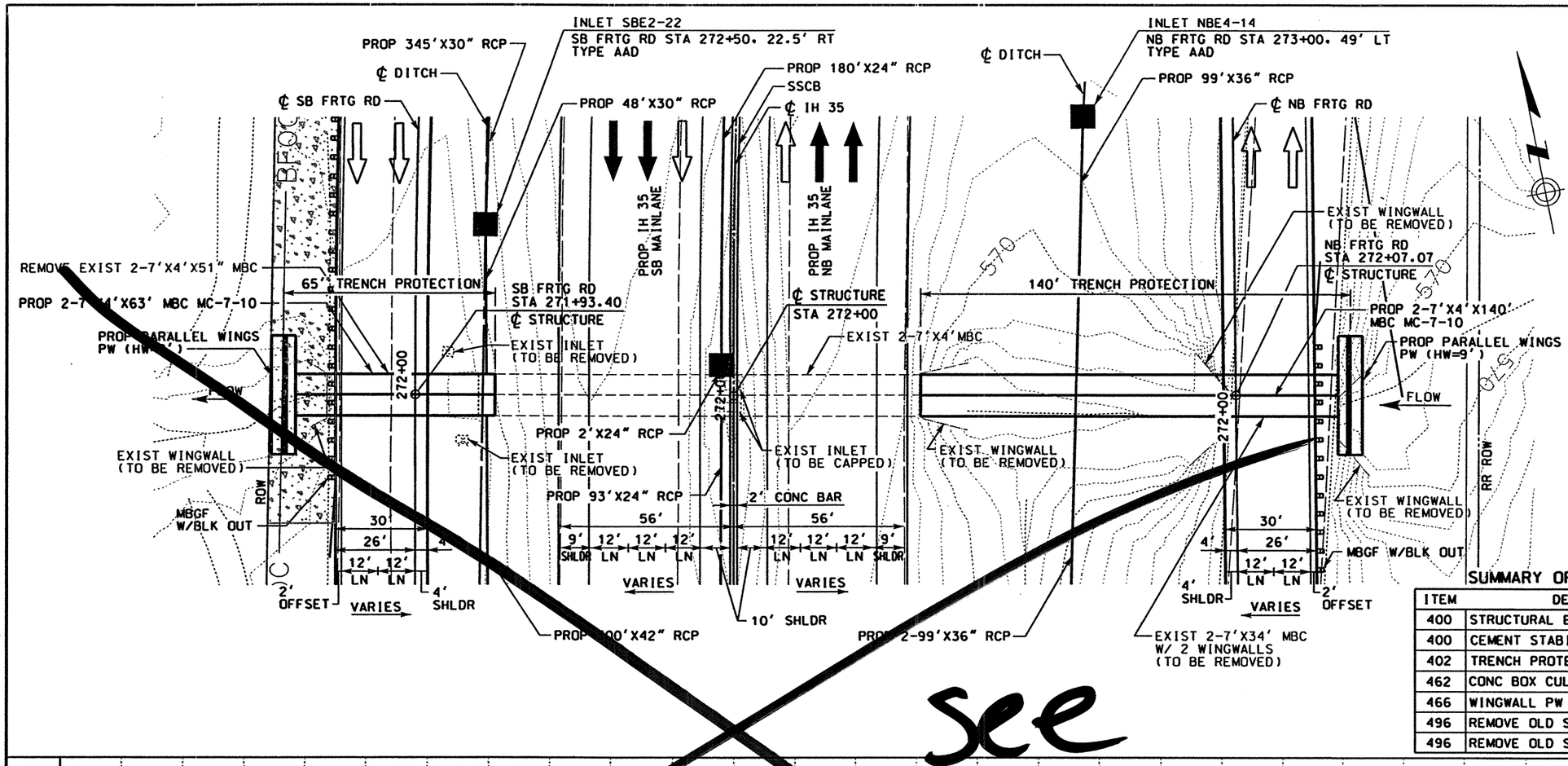
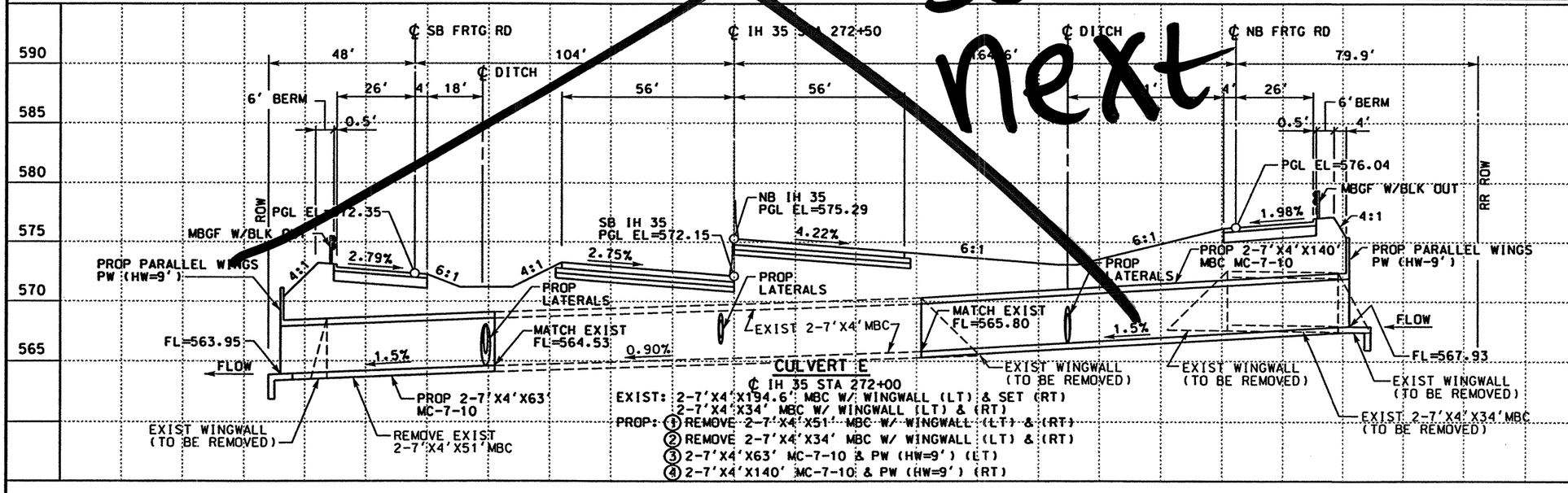


NOTE:

1. SEE "BOX CULVERT SUPPLEMENT" (BCS) DETAIL SHEETS FOR ADDITIONAL INFORMATION.
2. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA FOR MORE INFORMATION.

SUMMARY OF QUANTITIES (CULVERT E)

ITEM	DESCRIPTION	UNIT	EST
400	STRUCTURAL EXCAVATION	CY	250
400	CEMENT STABILIZED BACKFILL	CY	290
402	TRENCH PROTECTION	LF	205
462	CONC BOX CULVERT 2-7'X4' MC-7-10	LF	406
466	WINGWALL PW (HW=9')	EA	2
496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
496	REMOVE OLD STR (WINGWALL)	EA	3



CULVERT E
℄ IH 35 STA 272+00

EXIST: 2-7'X4'X194.6' MBC W/ WINGWALL (LT) & SET (RT)
2-7'X4'X34' MBC W/ WINGWALL (LT) & (RT)

PROP: ① REMOVE 2-7'X4'X51' MBC W/ WINGWALL (LT) & (RT)
② REMOVE 2-7'X4'X34' MBC W/ WINGWALL (LT) & (RT)
③ 2-7'X4'X63' MC-7-10 & PW (HW=9') (LT)
④ 2-7'X4'X140' MC-7-10 & PW (HW=9') (RT)

see next

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CULVERT E EXTENSION
STA 272+00

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	505
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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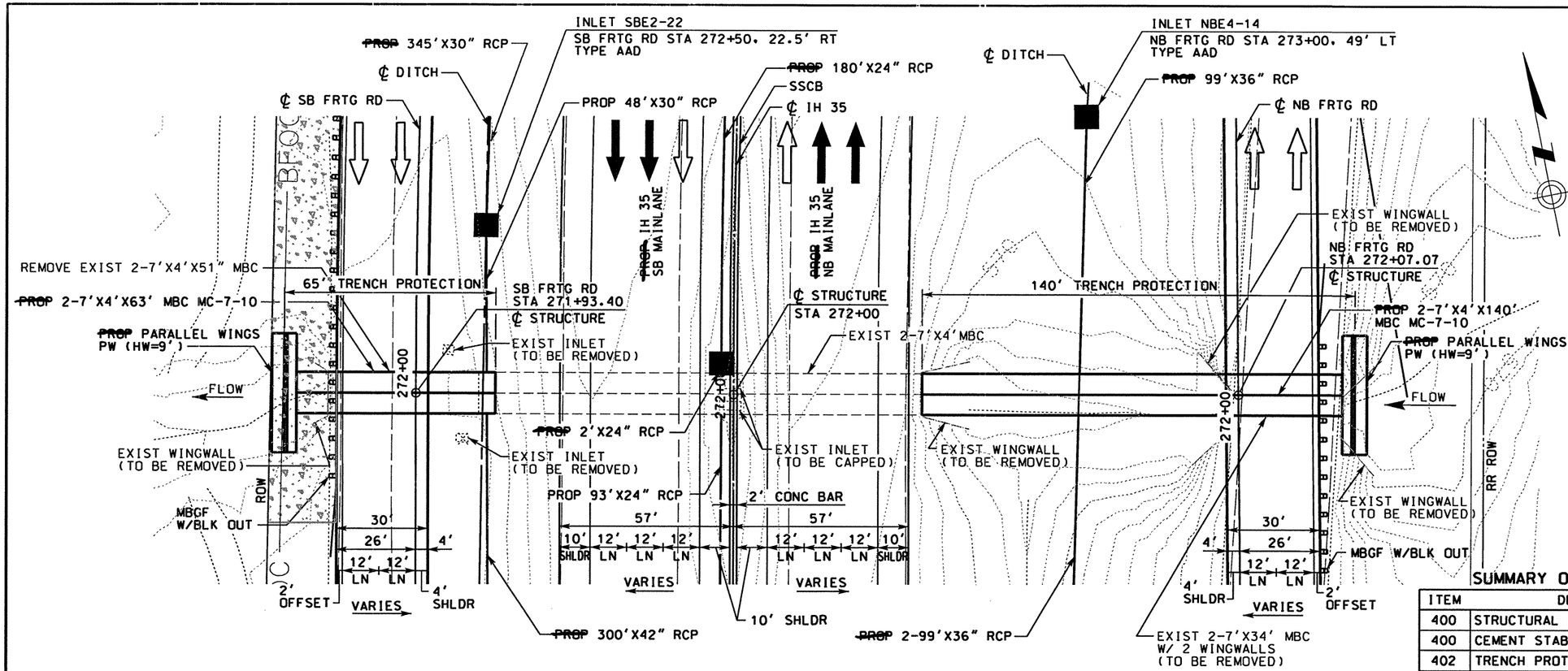


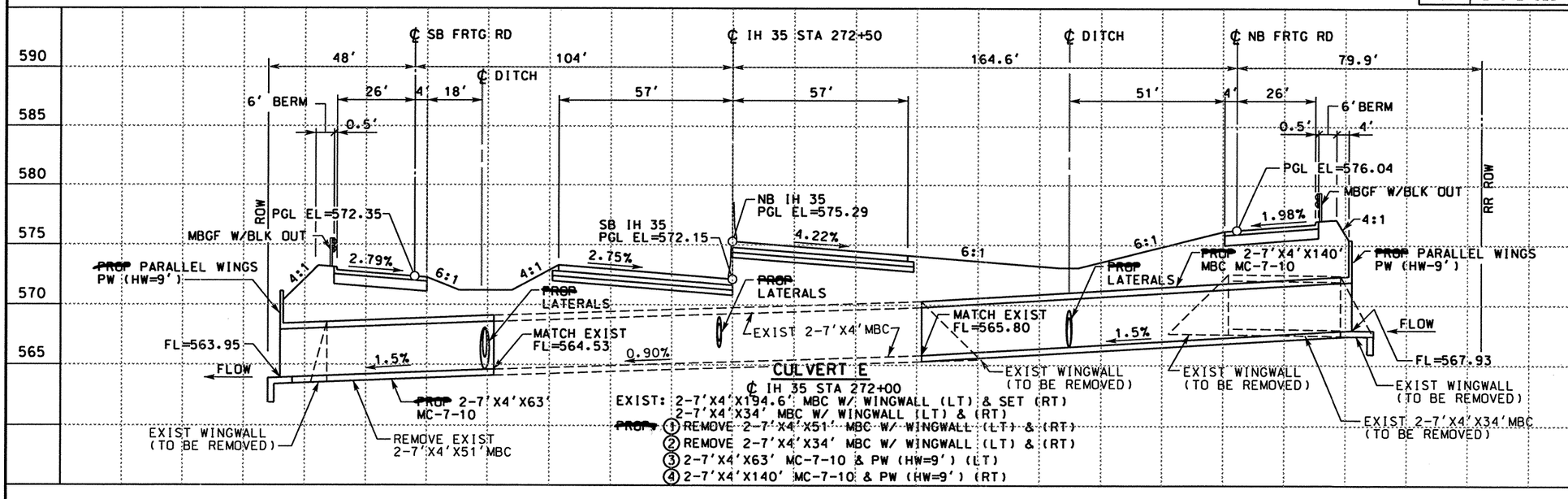
NOTE:

1. SEE "BOX CULVERT SUPPLEMENT" (BCS) DETAIL SHEETS FOR ADDITIONAL INFORMATION.
2. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

SUMMARY OF QUANTITIES (CULVERT E)

ITEM	DESCRIPTION	UNIT	EST
400	STRUCTURAL EXCAVATION	CY	250
400	CEMENT STABILIZED BACKFILL	CY	290
402	TRENCH PROTECTION	LF	205
462	CONC BOX CULVERT 2-7'X4' MC-7-10	LF	406
466	WINGWALL PW (HW=9')	EA	2
496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
496	REMOVE OLD STR (WINGWALL)	EA	3



CULVERT E

℄ IH 35 STA 272+00

EXIST: 2-7'X4'X194.6' MBC W/ WINGWALL (LT) & SET (RT)
2-7'X4'X34' MBC W/ WINGWALL (LT) & (RT)

~~PROP~~
1. REMOVE 2-7'X4'X51' MBC W/ WINGWALL (LT) & (RT)
2. REMOVE 2-7'X4'X34' MBC W/ WINGWALL (LT) & (RT)
3. 2-7'X4'X63' MC-7-10 & PW (HW=9') (LT)
4. 2-7'X4'X140' MC-7-10 & PW (HW=9') (RT)

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD

CULVERT E EXTENSION
STA 272+00

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	505
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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j011op01.drn. drn LV ON = 8.28
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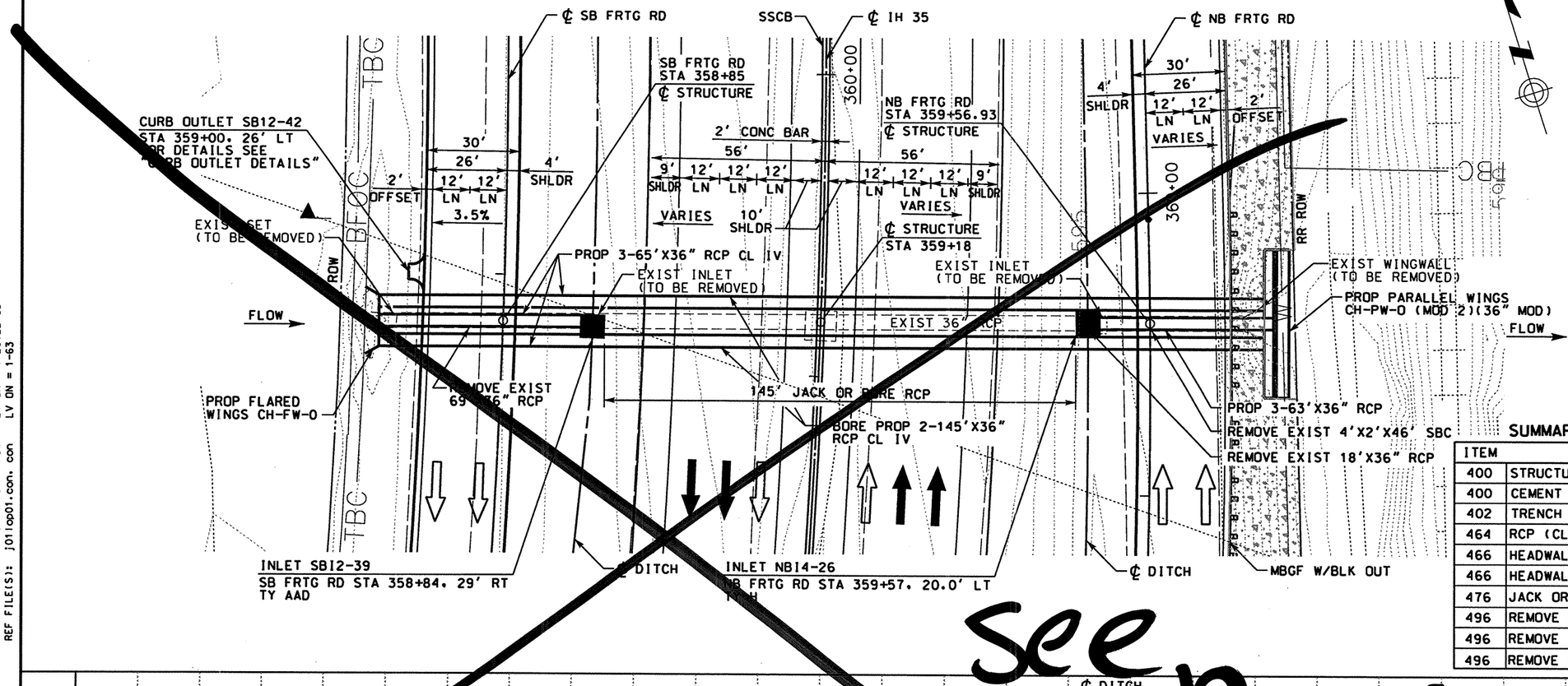


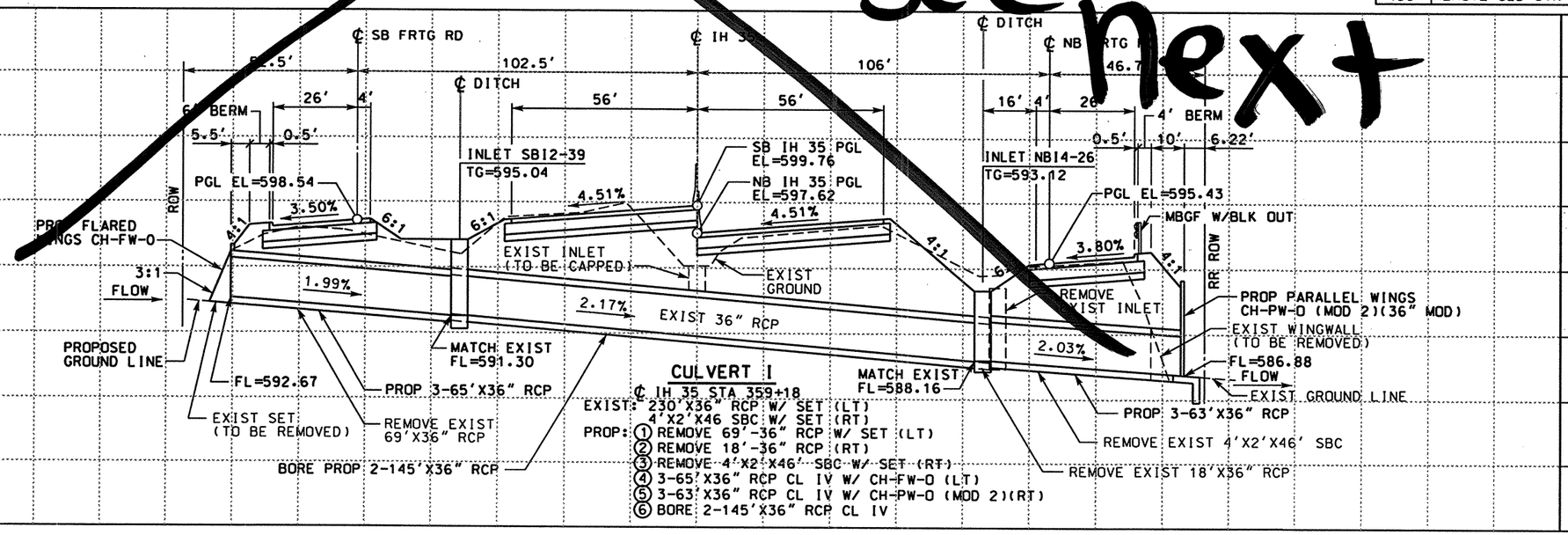
NOTE:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.

SUMMARY OF QUANTITIES (CULVERT I)

ITEM	DESCRIPTION	UNIT	EST
400	STRUCTURAL EXCAVATION	CY	390
400	CEMENT STABILIZED BACKFILL	CY	420
402	TRENCH PROTECTION	LF	135
464	RCP (CLASS IV)(36")	LF	384
466	HEADWALL (CH-PW-O)(MOD 2)(DIA=36")	EA	1
466	HEADWALL (CH-FW-O)(DIA=36")	EA	1
476	JACK OR BORE RCP (CLASS IV)(36")	LF	290
496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
496	REMOVE OLD STR (WINGWALL)	EA	1
496	REMOVE OLD STR (SET)	EA	1

see next



CULVERT I

℄ IH 35 STA 359+18

EXIST: 230'X36" RCP W/ SET (LT)
4'X2'X46 SBC W/ SET (RT)

PROP:
1. REMOVE 69'-36" RCP W/ SET (LT)
2. REMOVE 18'-36" RCP (RT)
3. REMOVE 4'X2'X46' SBC W/ SET (RT)
4. 3-65'X36" RCP CL IV W/ CH-FW-O (LT)
5. 3-63'X36" RCP CL IV W/ CH-PW-O (MOD 2)(RT)
6. BORE 2-145'X36" RCP CL IV

SCALE: 1" = 40' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 09, 2003

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CULVERT I EXTENSION
STA 359+18

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	506
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/9/2003

REF FILE(S): j01lop01.uti, j01lop01.bck, j01lop01.eop, j01lop01.drn, j01lop01.alg, j01lop01.bdr, milpint.row, row, j01lop01.con, con

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LV ON = 1-17.19-63
LV ON = 8.28
LV ON = 1-6.25-29
LV ON = 10.19.45.46.57.58.60-62

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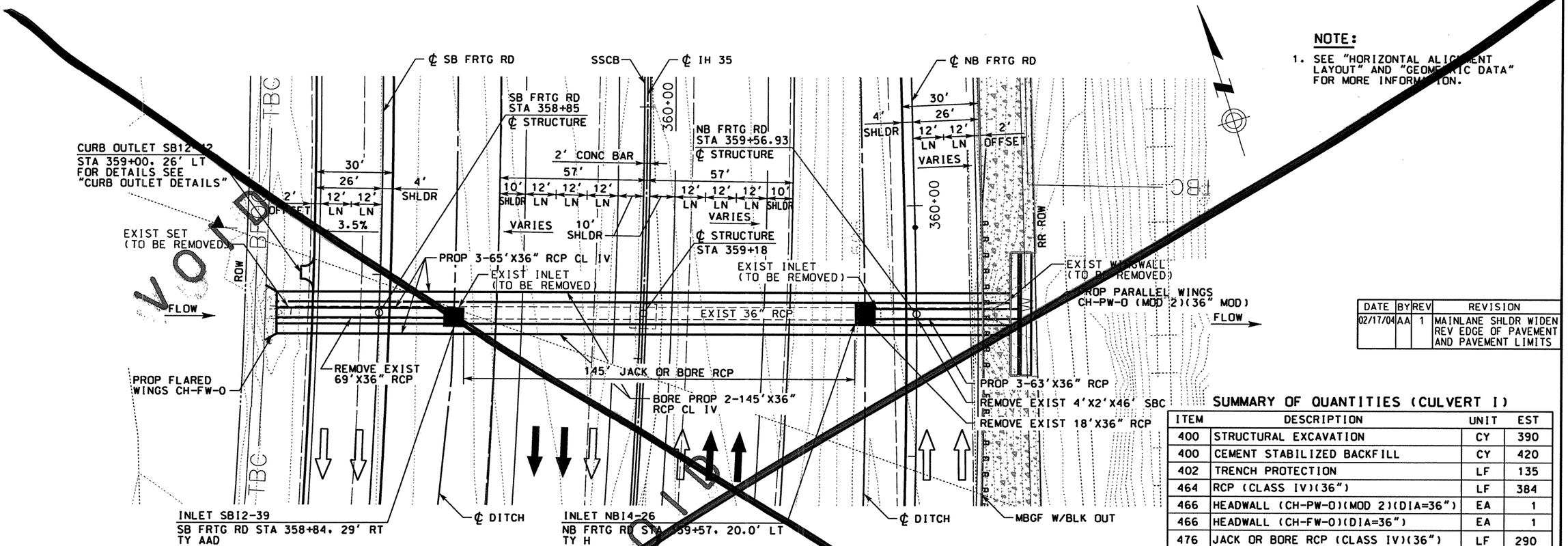


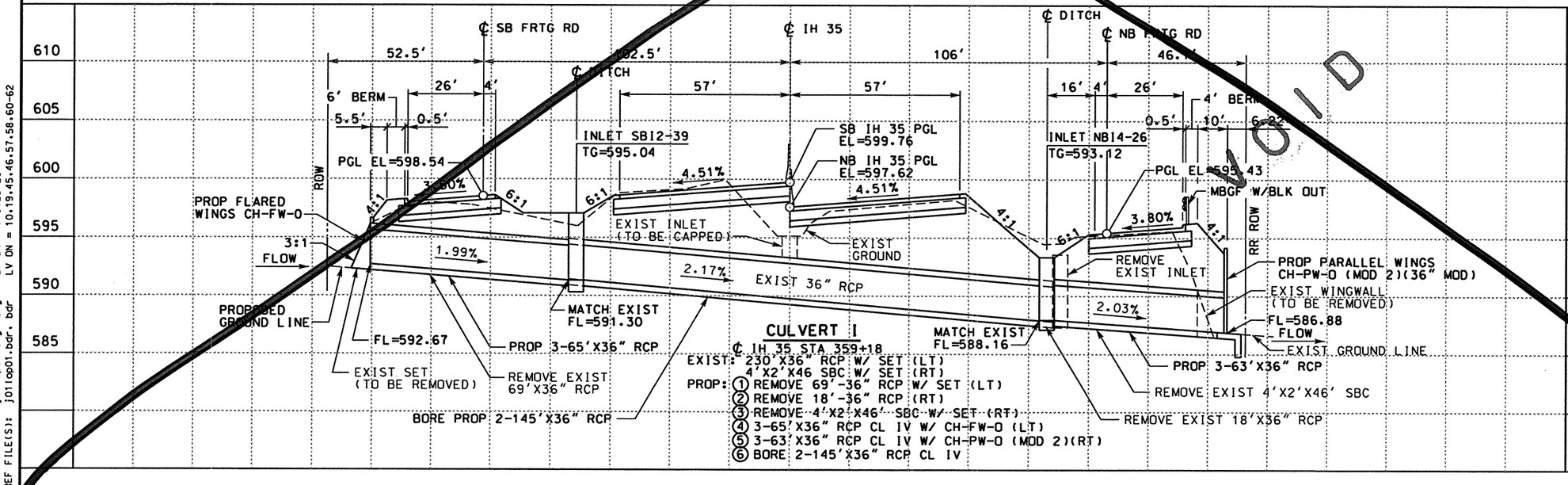
NOTE:

1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

SUMMARY OF QUANTITIES (CULVERT I)

ITEM	DESCRIPTION	UNIT	EST
400	STRUCTURAL EXCAVATION	CY	390
400	CEMENT STABILIZED BACKFILL	CY	420
402	TRENCH PROTECTION	LF	135
464	RCP (CLASS IV)(36")	LF	384
466	HEADWALL (CH-PW-O)(MOD 2)(DIA=36")	EA	1
466	HEADWALL (CH-FW-O)(DIA=36")	EA	1
476	JACK OR BORE RCP (CLASS IV)(36")	LF	290
496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
496	REMOVE OLD STR (WINGWALL)	EA	1
496	REMOVE OLD STR (SET)	EA	1



CULVERT I
℄ IH 35 STA 359+18

EXIST: 230'X36" RCP W/ SET (LT)
4'X2'X46 SBC W/ SET (RT)

PROP: ① REMOVE 69'-36" RCP W/ SET (LT)
② REMOVE 18'-36" RCP (RT)
③ REMOVE 4'X2'X46' SBC W/ SET (RT)
④ 3-65'X36" RCP CL IV W/ CH-FW-O (LT)
⑤ 3-63'X36" RCP CL IV W/ CH-PW-O (MOD 2)(RT)
⑥ BORE 2-145'X36" RCP CL IV

SCALE: 1" = 40' HORIZ
1" = 10' VERT

VOID

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CULVERT I EXTENSION
STA 359+18

SHEET 1 OF 1

FED RD DIV NO	FED AID PROJECT NO	SHEET NO
6	NH-2002 (79)	506
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

3/4/2004

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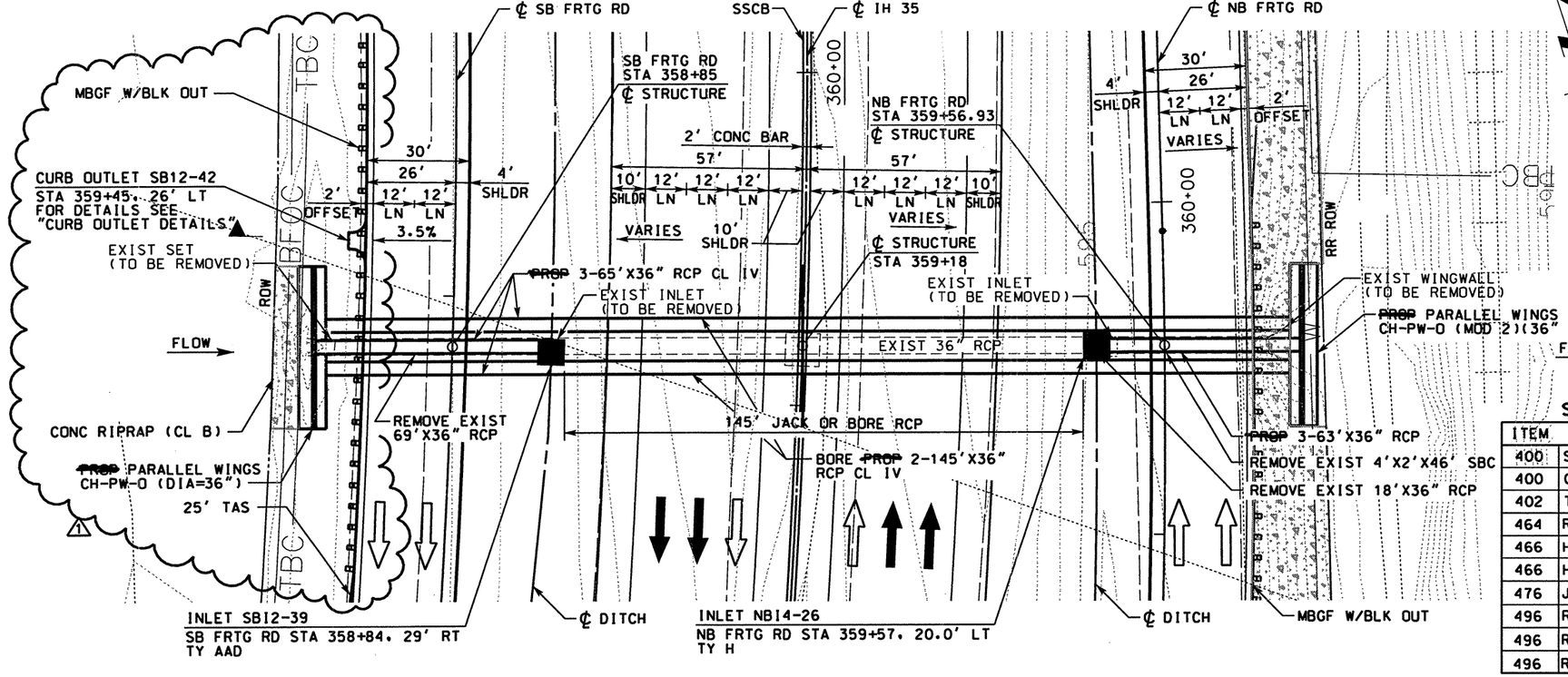


NOTE:

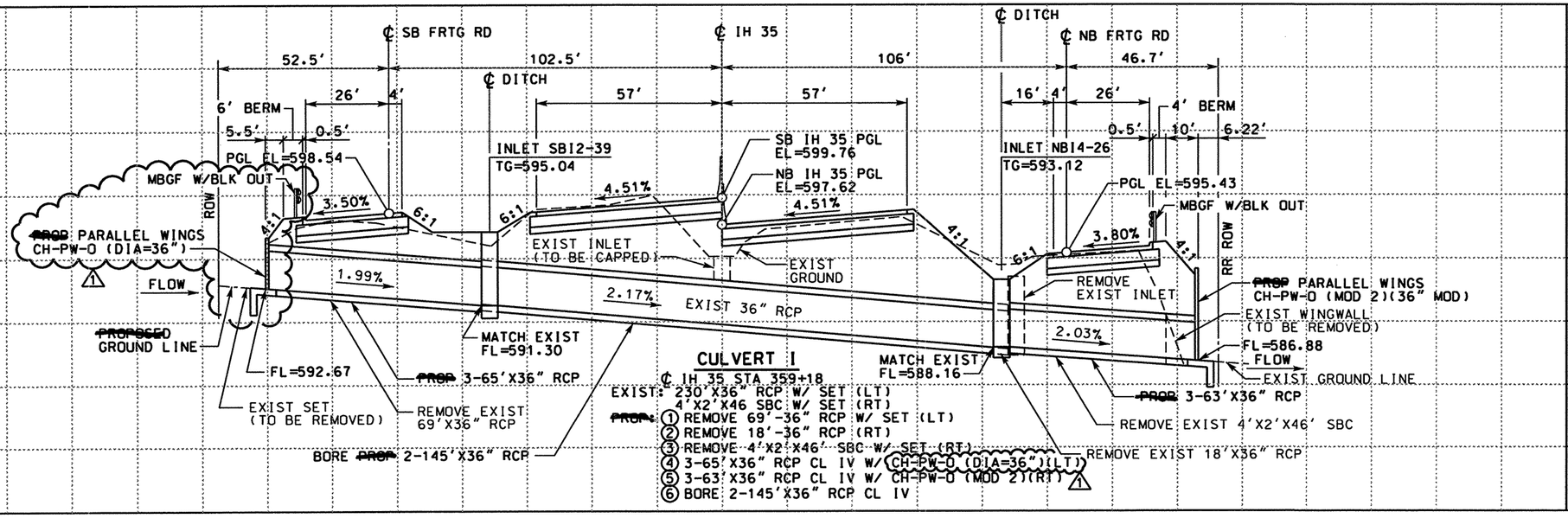
1. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.

C.D.# 18

SUMMARY OF QUANTITIES (CULVERT I)

ITEM	DESCRIPTION	UNIT	EST
400	STRUCTURAL EXCAVATION	CY	390
400	CEMENT STABILIZED BACKFILL	CY	420
402	TRENCH PROTECTION	LF	135
464	RCP (CLASS IV)(36")	LF	384
466	HEADWALL (CH-PW-O)(MOD 2)(DIA=36")	EA	1
466	HEADWALL (CH-PW-O)(DIA=36")	EA	1
476	JACK OR BORE RCP (CLASS IV)(36")	LF	290
496	REMOVE OLD STR (LARGE)(BOX CULV)	EA	1
496	REMOVE OLD STR (WINGWALL)	EA	1
496	REMOVE OLD STR (SET)	EA	1

DATE	BY	REV	REVISION
01/04/05	AA	1	WINGWALL MODIFICATIONS FOR CULVERT I



CULVERT I
℄ IH 35 STA 359+18
EXIST: 230'X36" RCP W/ SET (LT)
4'X2'X46 SBC W/ SET (RT)
~~PROP~~:
① REMOVE 69'-36" RCP W/ SET (LT)
② REMOVE 18'-36" RCP (RT)
③ REMOVE 4'X2'X46' SBC W/ SET (RT)
④ 3-65'X36" RCP CL IV W/ CH-PW-O (DIA=36")(LT)
⑤ 3-63'X36" RCP CL IV W/ CH-PW-O (MOD 2)(RT)
⑥ BORE 2-145'X36" RCP CL IV

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CULVERT I EXTENSION
STA 359+18

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	506
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j01lop01.bdr, bdr LV ON = 10,19,45,46,57,58,60-62
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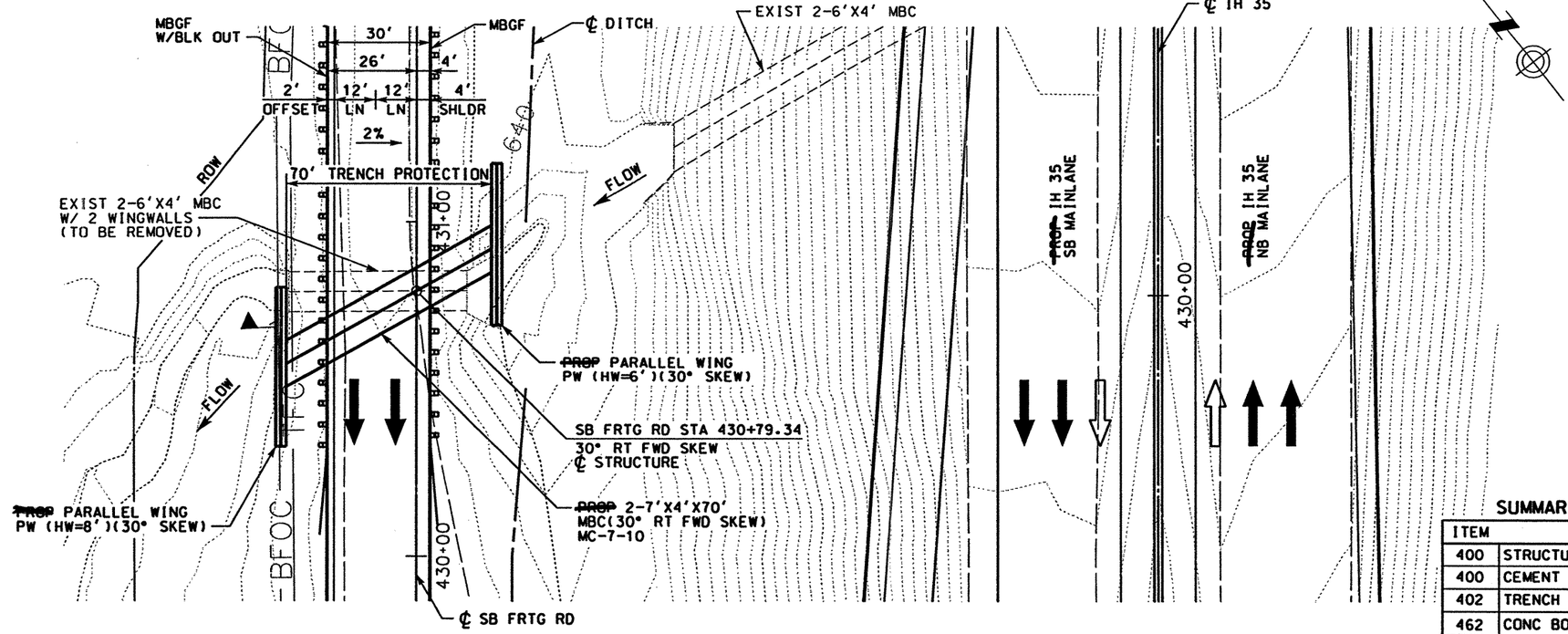
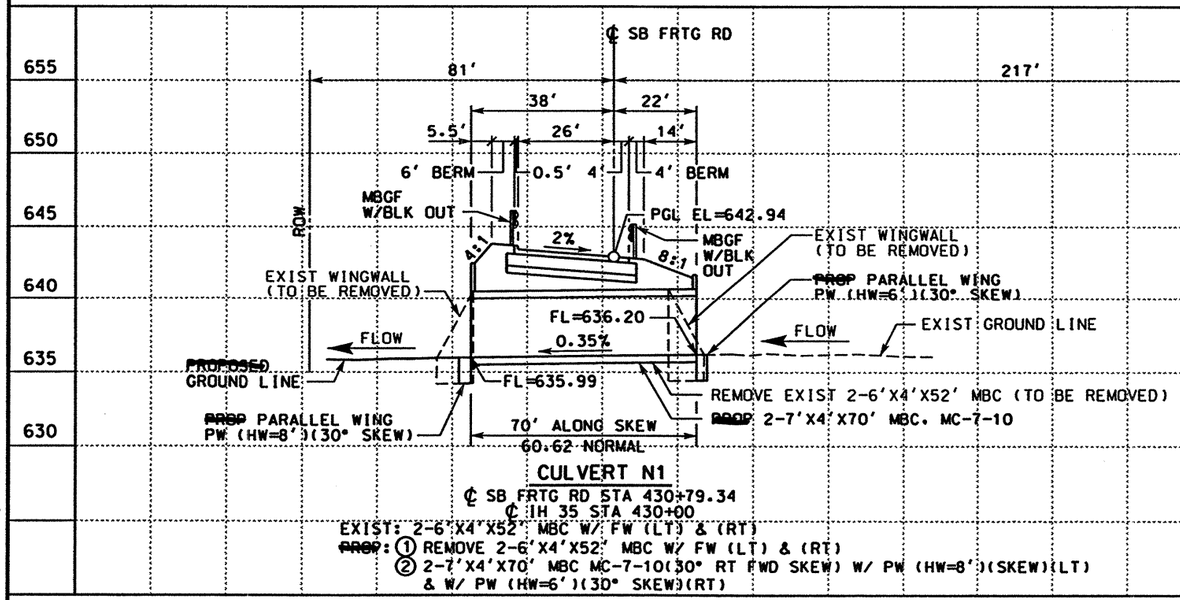


NOTES:

1. SEE "BOX CULVERT SUPPLEMENT" (BCS) DETAIL SHEETS FOR ADDITIONAL INFORMATION.
2. SEE "HORIZONTAL ALIGNMENT LAYOUT" AND "GEOMETRIC DATA" FOR MORE INFORMATION.

SUMMARY OF QUANTITIES (CULVERT N1)

ITEM	DESCRIPTION	UNIT	EST
400	STRUCTURAL EXCAVATION	CY	113
400	CEMENT STABILIZED BACKFILL	CY	110
402	TRENCH PROTECTION	LF	70
462	CONC BOX CULVERT (2-7'X4') MC-7-10	LF	140
466	WINGWALL PW (HW=8')(30° SKEW)	EA	1
466	WINGWALL PW (HW=6')(30° SKEW)	EA	1
496	REMOV OLD STR (LARGE)(BOX CULV)	EA	1
496	REMOV OLD STR (WINGWALL)	EA	2



CULVERT N1

℄ SB FRTG RD STA 430+79.34
℄ IH 35 STA 430+00

EXIST: 2-6'X4'X52' MBC W/ FW (LT) & (RT)
~~PROP~~: ① REMOVE 2-6'X4'X52' MBC W/ FW (LT) & (RT)
② 2-7'X4'X70' MBC MC-7-10(30° RT FWD SKEW) W/ PW (HW=8')(SKEW)(LT) & W/ PW (HW=6')(30° SKEW)(RT)

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CULVERT N1 EXTENSION STA 430+00

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	507
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

4/18/2003

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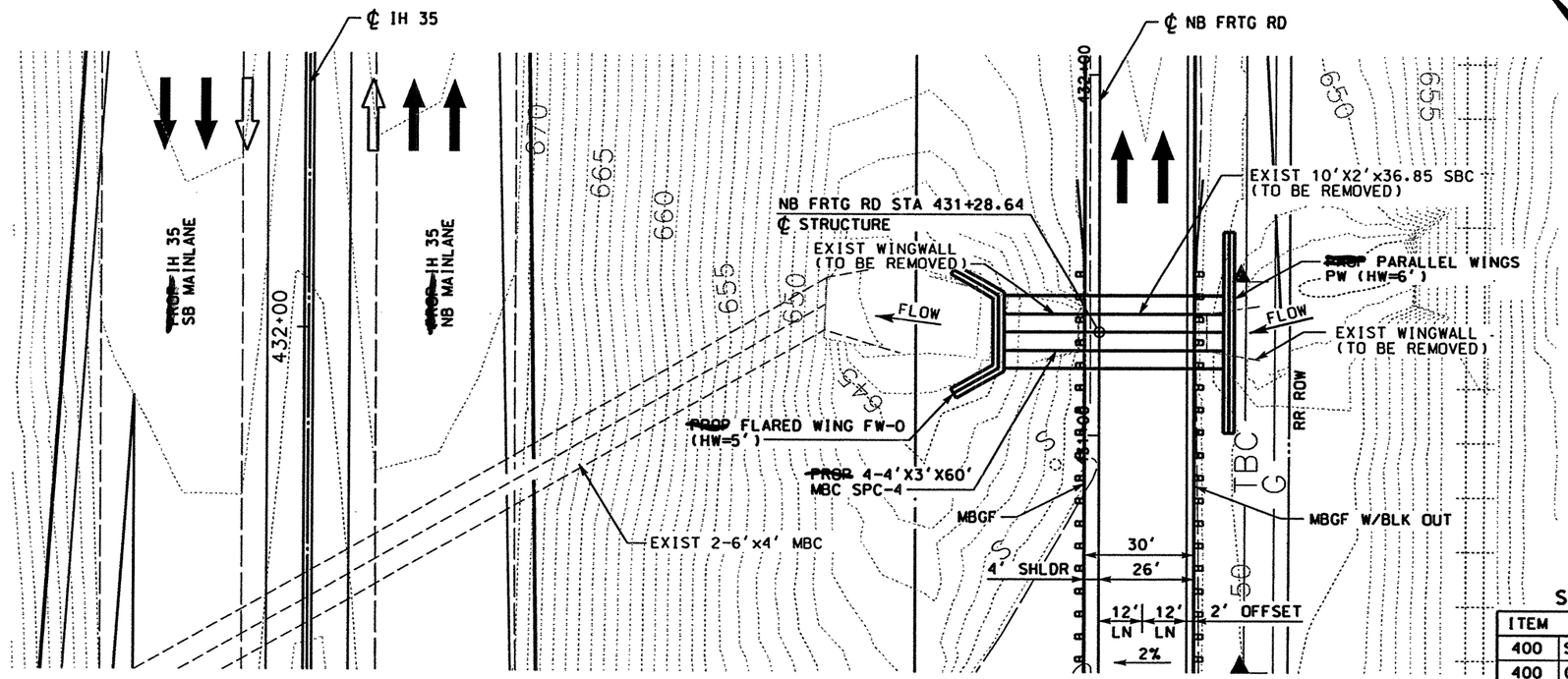
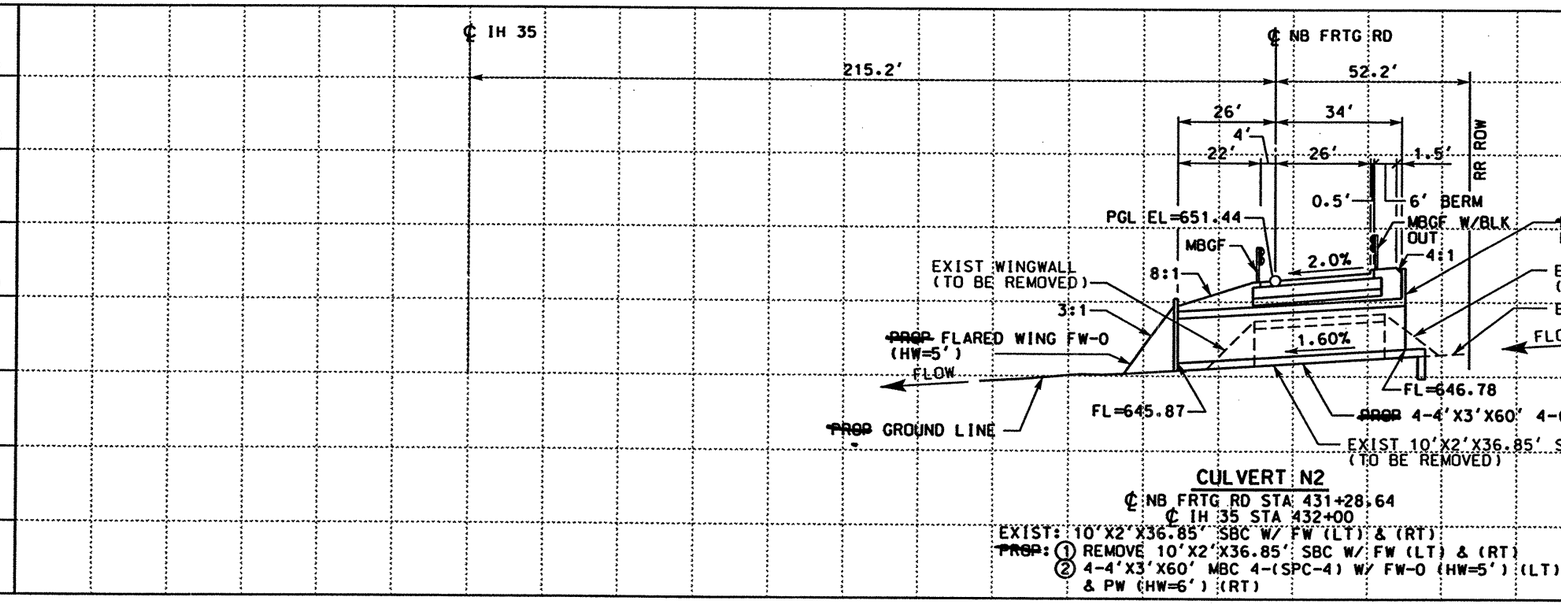


SUMMARY OF QUANTITIES (CULVERT N2)

ITEM	DESCRIPTION	UNIT	EST
400	STRUCTURAL EXCAVATION	CY	120
400	CEMENT STABILIZED BACKFILL	CY	110
462	CONC BOX CULVERT (4-4'X3') SPC-4	LF	240
466	WINGWALL PW (HW=6')	EA	1
466	WINGWALL FW-0 (HW=5')	EA	1
496	REMOV OLD STR (LARGE)(BOX CULV)	EA	1
496	REMOV OLD STR (WINGWALL)	EA	2



CULVERT N2

℄ NB FRTG RD STA 431+28.64
℄ IH 35 STA 432+00

EXIST: 10'X2'X36.85' SBC W/ FW (LT) & (RT)
PROP: ① REMOVE 10'X2'X36.85' SBC W/ FW (LT) & (RT)
② 4-4'X3'X60' MBC 4-(SPC-4) W/ FW-0 (HW=5') (LT) & PW (HW=6') (RT)

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CULVERT N2 EXTENSION
STA 432+00

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	508
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cf0130\

b130p12.dgn-09

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REF FILE(S):
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j0110p01.bck, bck LV ON = 2-4,6.8-10.14.21.25
j0110p01.eop, eop LV ON = 1-17.19-63
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j0110p01.bdr, bdr LV ON = 10.19.45.46.57.58.60-62

℄ SB FRTG RD
STA 212+16.63

℄ IH 35

MH NBB4-5
NB FRTG RD STA 211+18
TR=535.02

℄ NB FRTG RD
STA 211+03

RR
ROW

ROW

131.5' ALONG SKEW

98' ALONG SKEW

30'
ALONG SKEW

6'

545

2%

2%

PROP LATERAL
PROP 3-63'X36"
RCP @ 0.09%

EXIST
FL=535.92

4:1

4:1

EXIST INLET
(TO BE CAPPED)

3:1

MBGF

540

EXIST LATERAL
(TO BE CAPPED)

2%

EXIST SET
(TO BE REMOVED)

5:1

EXIST 5'X3' SBC

535

EXIST 2-36" RCP

PROP PARALLEL
WINGS CH-PW-S
(30° SKEW)

EXIST
GROUND LINE

EXIST INLET

FLOW

530

BORE
PROP 265'X36" RCP CL IV

MATCH EXIST
FL=531.75

REMOVE EXIST
2-44'X36" RCP

FL=53[illegible]09

525

CULVERT "B"

℄ IH 35 STA 211+56

PROP: ① REMOVE 2-44'X36" RCP W/ SET (RT)
② 3-63'X36" RCP W/ CH-PW-S (30° SKEW)(RT)
③ BORE 265'X36"RCP CL IV

℄ SB FRTG RD
STA 228+22

℄ IH 35

MH NBC4-11
NB FRTG RD STA 226+44.
31' LT
TR=54[illegible]05

℄ NB FRTG RD
STA 226+13

RR
ROW

560

161' ALONG SKEW

112' ALONG SKEW

44' ALONG SKEW

8.30'

ROW

555

2%

2%

PROP LATERAL

PROP 3-87'X42"
RCP @ 1.00%

EXIST
FL=547.20

4:1

4:1

EXIST INLET
(TO BE CAPPED)

5:1

MBGF

EXIST WINGWALL
(TO BE REMOVED)

550

6:1

2%

EXIST 2-5'X3' MBC

PROP PARALLEL
WINGS CH-PW-S
(45° SKEW)

545

EXIST 3-42" RCP

PROP GROUND LINE

FLOW

BORE
PROP 315'X36" RCP CL IV

EXIST MH

MATCH EXIST
FL=543.95

FL=543.08

540

315' JACK OR BORE RCP

REMOVE EXIST 3-72'X42" RCP

PROP 38'X36" RCP

CULVERT "C"

℄ IH 35 STA 227+12.75

PROP: ① REMOVE 3-72'X42" RCP & WING WALL (RT)
② 3-87'X42" RCP W/ CH-PW-S (45° SKEW)(RT)
③ BORE 315'X36" RCP CL IV
④ 87'X36" RCP

INLET NBD4-[illegible]
NB FRTG RD STA [illegible]+40. 22.5' LT
TG=578.94

℄ NB FRTG RD
STA 250+42.4

RR
ROW

℄ IH 35

83'

18.5'

8'

585

3.19%

2.85%

EXIST INLET
(TO BE REMOVED)

MBGF

EXIST SET
(TO BE REMOVED)

4:1

4:1

3:1

5:1

2%

3:1

580

EXIST
GROUND LINE

EXIST 2-30" RCP 2.6%

PROP PARALLEL
WINGS CH-PW-O

575

PROP SETP-CD

MATCH EXIST
FL=579.14

FLOW

MATCH EXIST
FL=575.33

FL=574.10

EXIST SET
(TO BE REMOVED)

570

REMOVE EXIST 2-4.2'X30" RCP

PROP 2-62'X30" RCP @ 1.98%

REMOVE EXIST 2-62'X30" RCP

CULVERT "D"

℄ IH 35 STA 250+29.42

PROP: ① REMOVE 2-4.2'X30" RCP W/ SET (LT)
② REMOVE 2-62'X30" RCP W/ SET (RT)
③ SETP-CD (LT)
④ 2-62'X30" RCP W/ CH-PW-O (RT)

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 09, 2003

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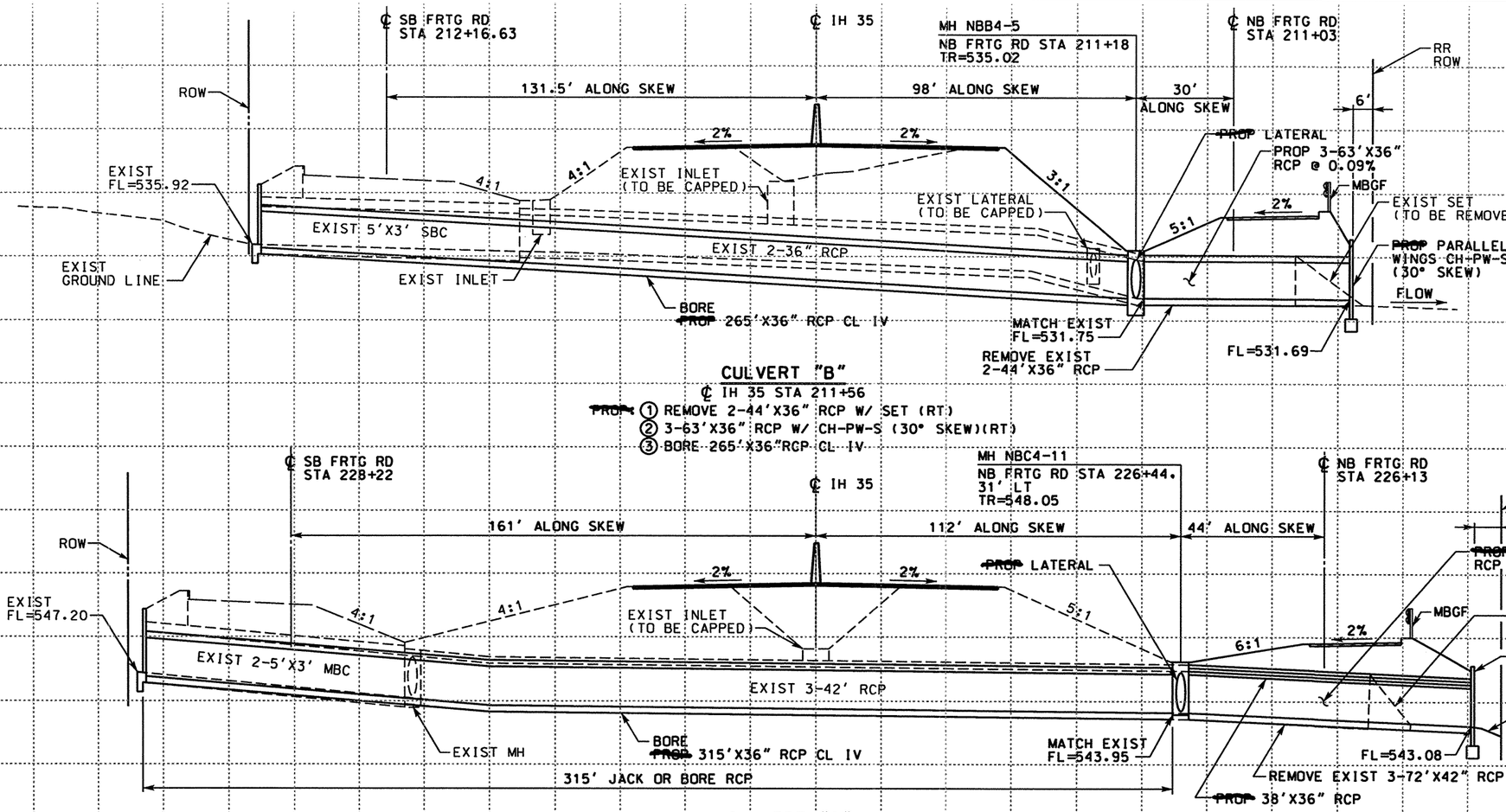
IH 35
LOOP 20 TO UNIROYAL ROAD
CULVERT EXTENSION

SHEET 1 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		509
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.bdr, bdr LV ON = 8,11,46,57,58,60-62

b13bcp01.dgn-13 HOUFILE023 \hclwlv\c0130\ 6/9/2003



CULVERT "B"

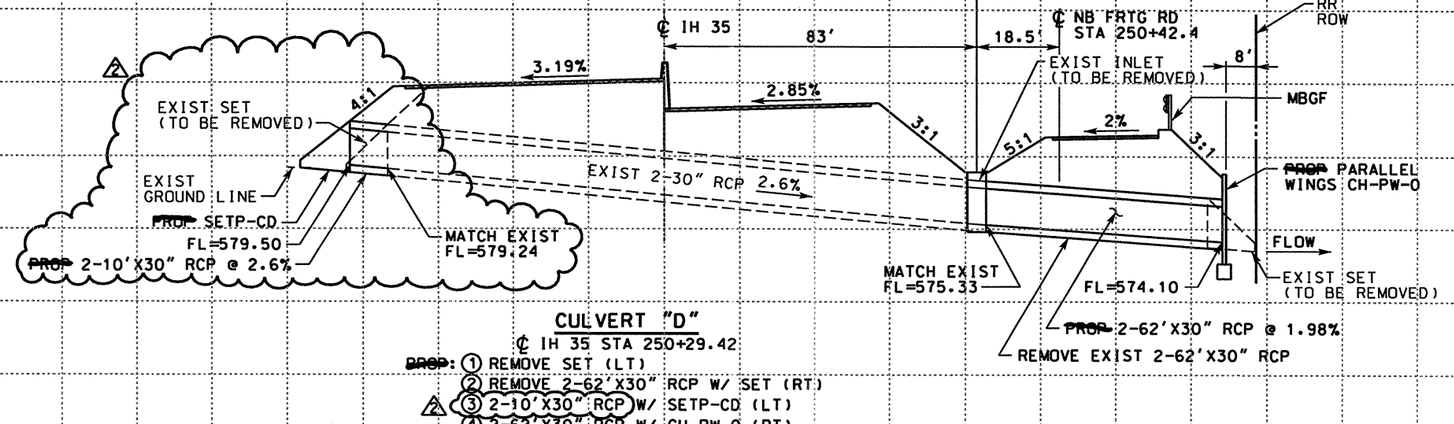
℄ IH 35 STA 211+56

PROP: ① REMOVE 2-44'X36" RCP W/ SET (RT)
② 3-63'X36" RCP W/ CH-PW-S (30° SKEW)(RT)
③ BORE 265'X36"RCP CL IV

CULVERT "C"

℄ IH 35 STA 227+12.75

PROP: ① REMOVE 3-72'X42" RCP & WING WALL (RT)
② 3-87'X42" RCP W/ CH-PW-S (45° SKEW)(RT)
③ BORE 315'X36" RCP CL IV
④ 87'X36" RCP



CULVERT "D"

℄ IH 35 STA 250+29.42

PROP: ① REMOVE SET (LT)
② REMOVE 2-62'X30" RCP W/ SET (RT)
③ 2-10'X30" RCP W/ SETP-CD (LT)
④ 2-62'X30" RCP W/ CH-PW-O (RT)

DATE	BY	REV	REVISION
11/30/04	AA	2	ADD AUXILIARY LANE

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

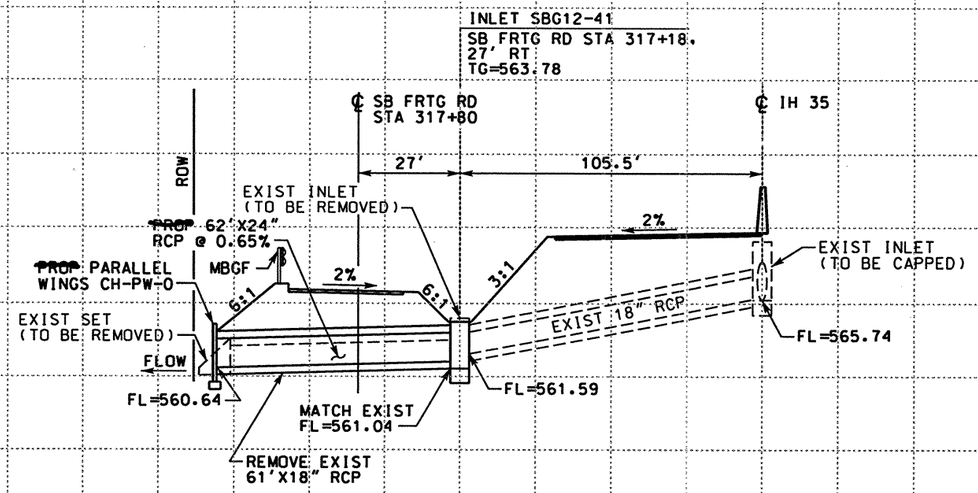
CULVERT EXTENSION

SHEET 1 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	509
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr. bdr LV ON = 8.11.46.57.58.60-62

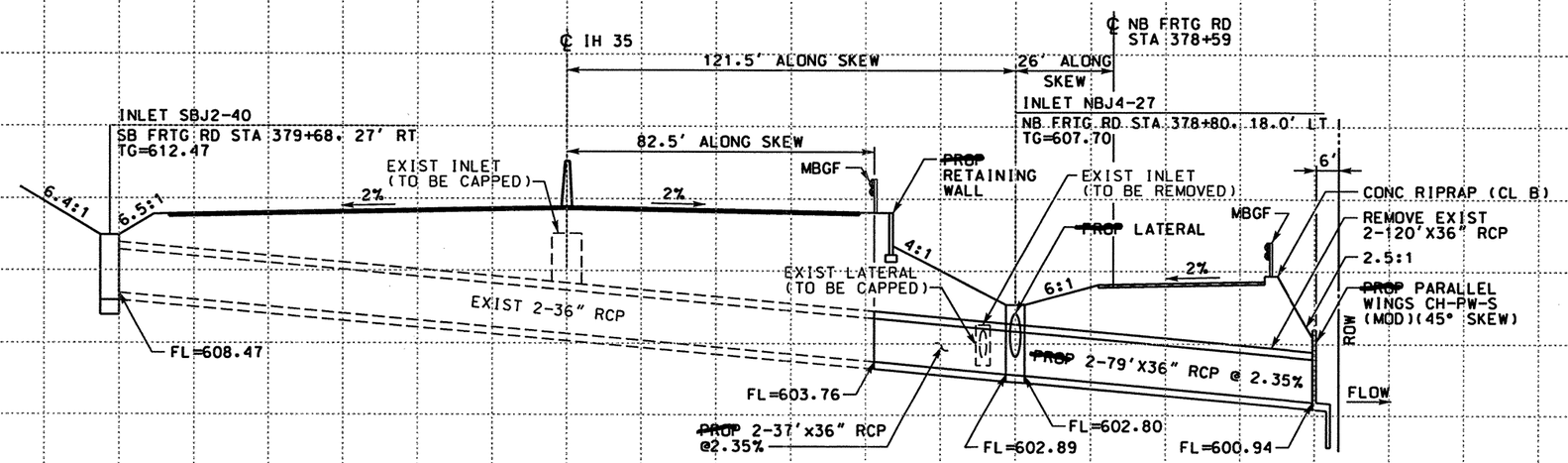
b13bcp01.dgn-15 HOUFILE023 \hcivil\tc10130\ 2/10/2005



CULVERT G1

℄ IH 35 STA 317+19.07

~~PROP~~: ① REMOVE 61'X18" RCP W/ SET (LT)
② 62'X24" RCP W/ CH-PW-0 (LT)



CULVERT J

℄ IH 35 STA 379+18.94

~~PROP~~: ① REMOVE 2-120'X36" RCP W/ SET (RT)
② INLET TY AD (LT)
③ 2-37'x36" RCP W/ INLET TY AAD (RT)
④ 2-79'x36" RCP W/ CH-PW-S (MOD)(45° SKEW)(RT)

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 09, 2003

Alaa Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD

CULVERT EXTENSION

SHEET 2 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		510
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011cp01.bdr, bdr LV ON = 8,11,46,57,58,60-62

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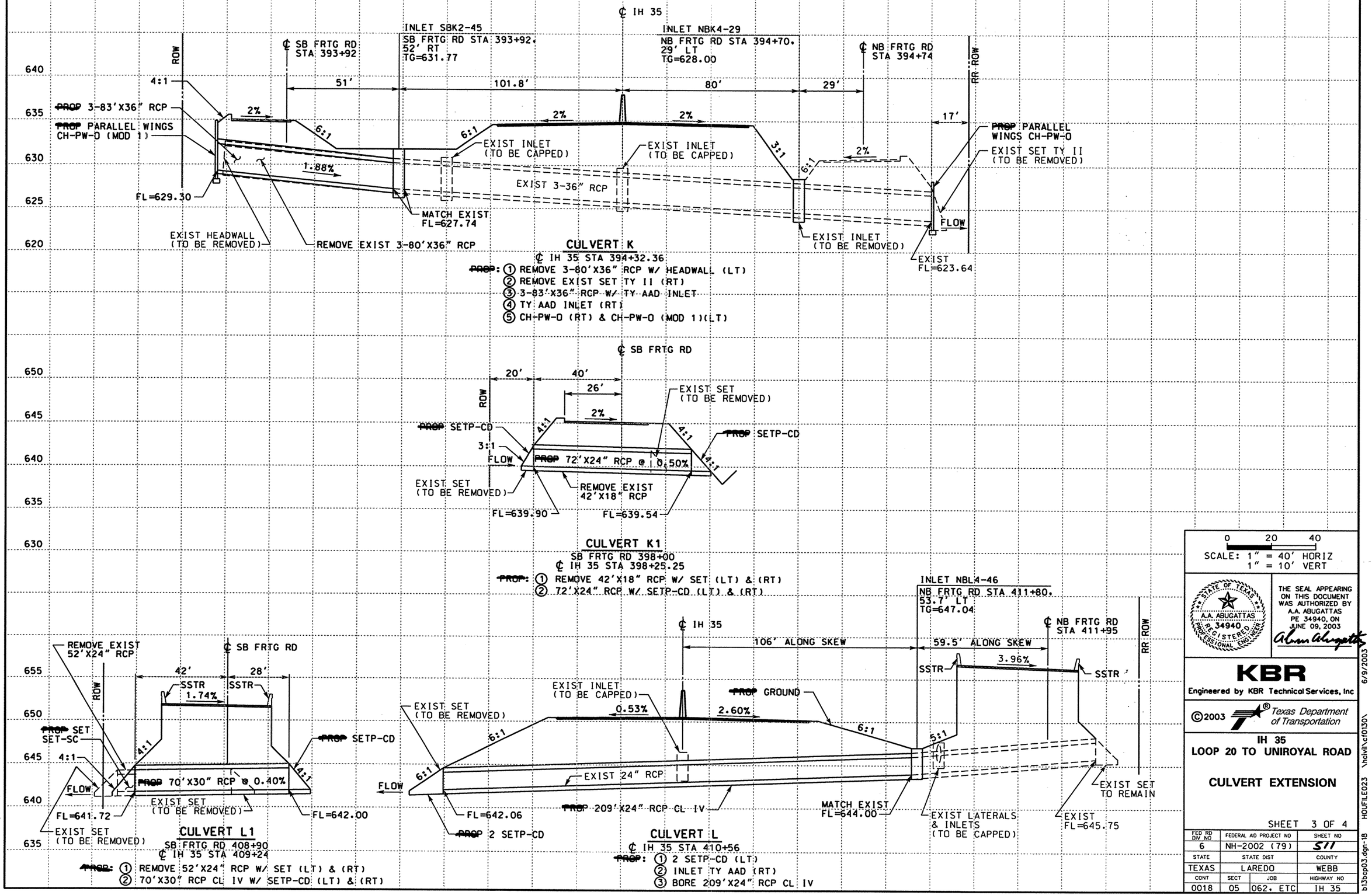

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

CULVERT EXTENSION

SHEET 3 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	511
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/9/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 8.11.46.57.58.60-62

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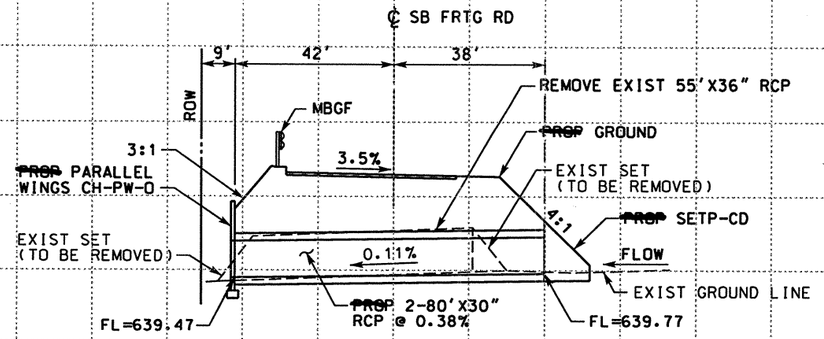


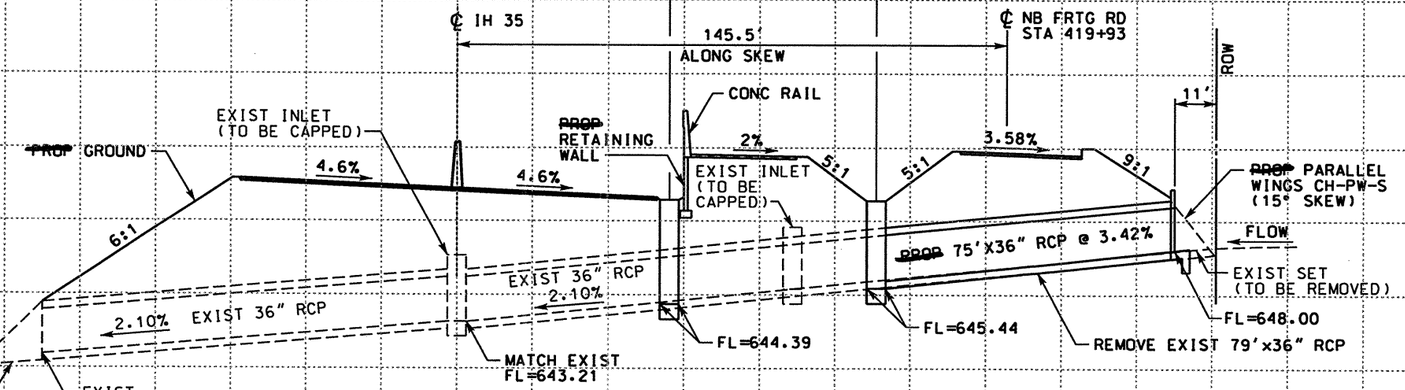
CULVERT M1

SB FRTG RD 418+89.04
℄ IH 35 STA 418+98.62

~~PROP~~: ① REMOVE 55'X36" RCP W/2 SET
② 2-80'X30" RCP W/ 2 SETP-CD (RT)
③ CH-PW-D (LT)

INLET NBM4-70
NB FRTG RD STA 419+64.50
72' LT
TG=650.30

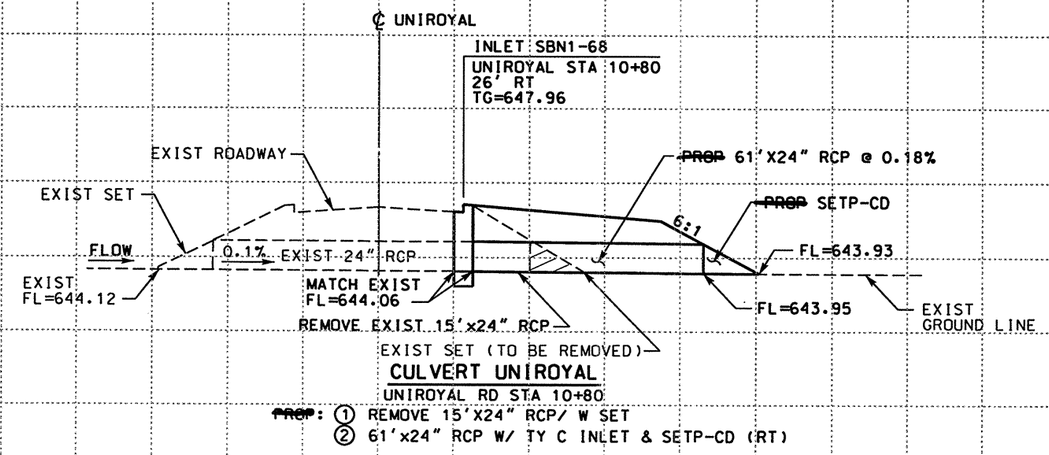
INLET NBM4-51
NB FRTG RD STA 419+80.60
30.80' LT
TG=651.41



CULVERT M

℄ IH 35 STA 419+32.34

~~PROP~~: ① REMOVE 79'X36" RCP/ W SET
② INLET TY AD & TY AAD (RT)
③ 75'X36" RCP W/ CH-PW-S (15° SKEW)(RT)



CULVERT UNIROYAL

UNIROYAL RD STA 10+80

~~PROP~~: ① REMOVE 15'X24" RCP/ W SET
② 61'x24" RCP W/ TY C INLET & SETP-CD (RT)

0 20 40
SCALE: 1" = 40' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

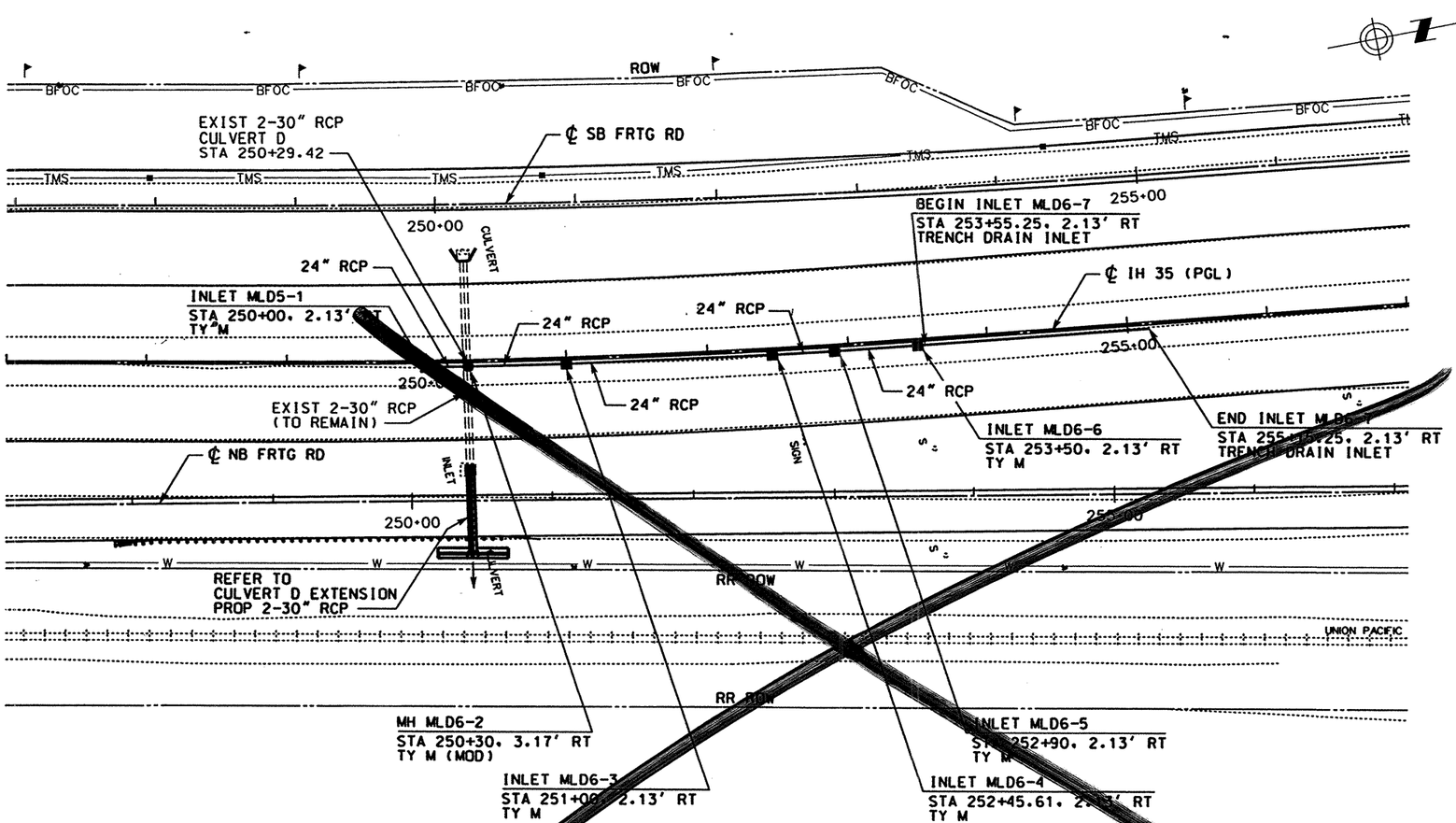
CULVERT EXTENSION

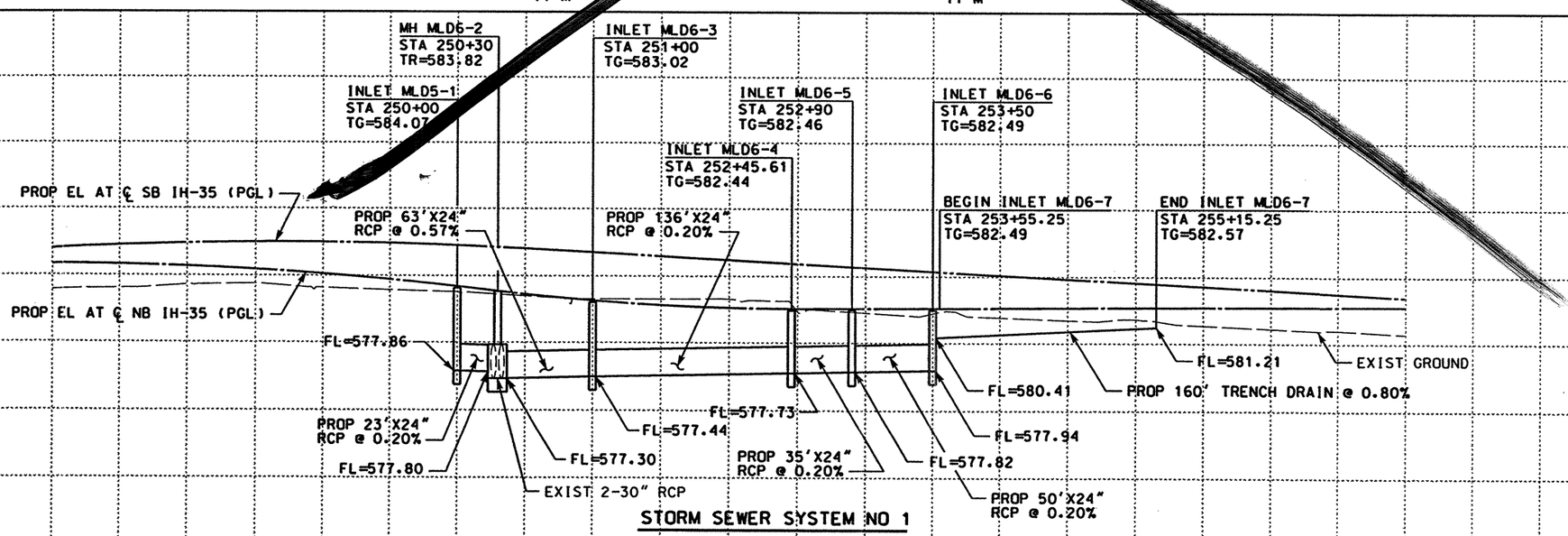
SHEET 4 OF 4

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		SI2
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): J01lop01.bdr, bdr LV ON = 8,11,46,57,58,60-62

b13pcp04.dgn-19 HOUFILE023 \hciv\lvc\0130\ 6/9/2003





STORM SEWER SYSTEM NO 1

LEGEND

- ROW
- PROPOSED DITCH ℄
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)
- TC = TOP OF CURB
- TG = TOP OF GRATE
- TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
MAINLANES
STA 247+00 TO STA 257+00
SHEET 1 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	513
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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j011op01.eop, eop LV ON = 1-11,13-17,19-63
j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-6,35-39
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4/18/2003
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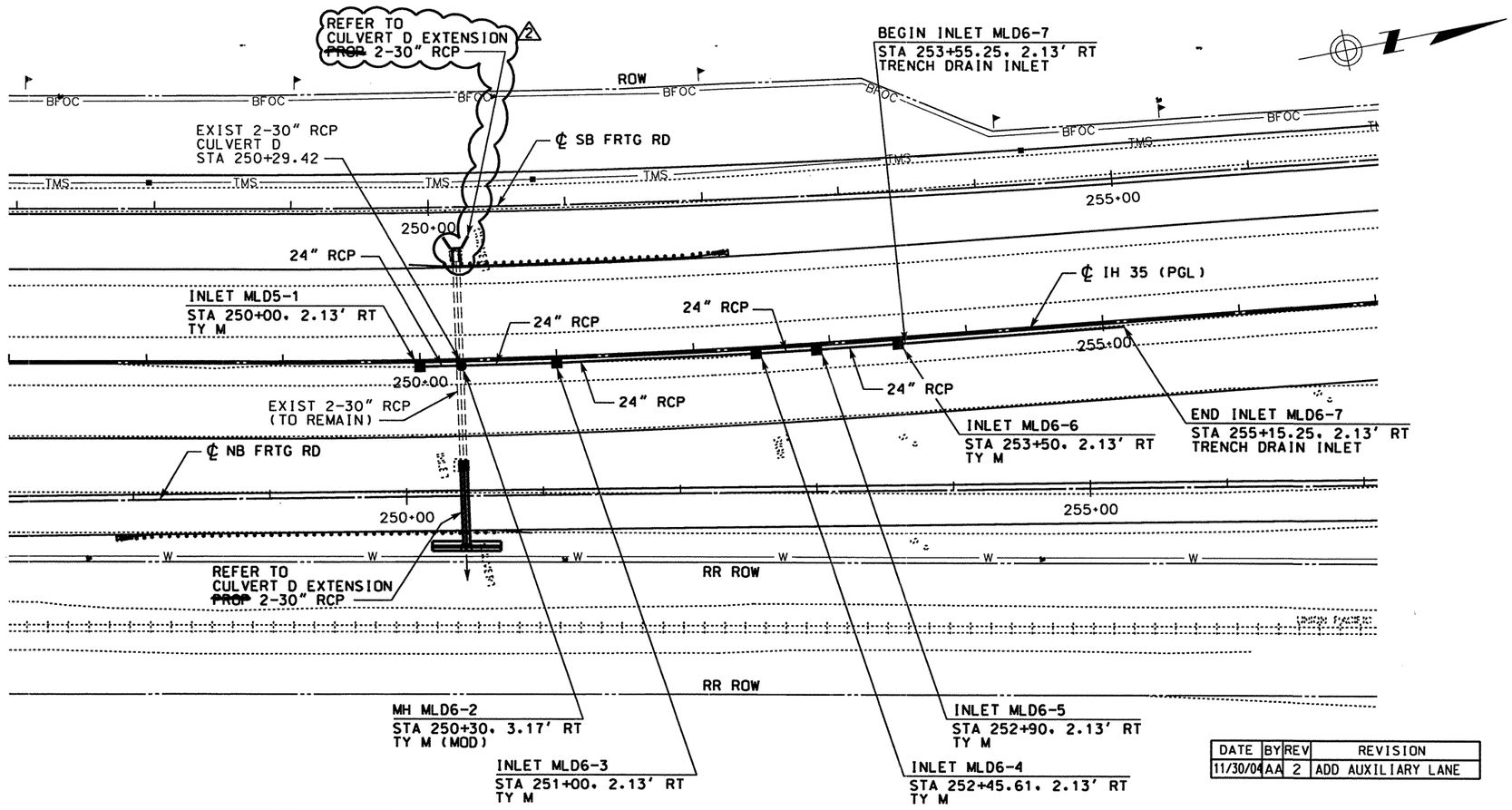


LEGEND

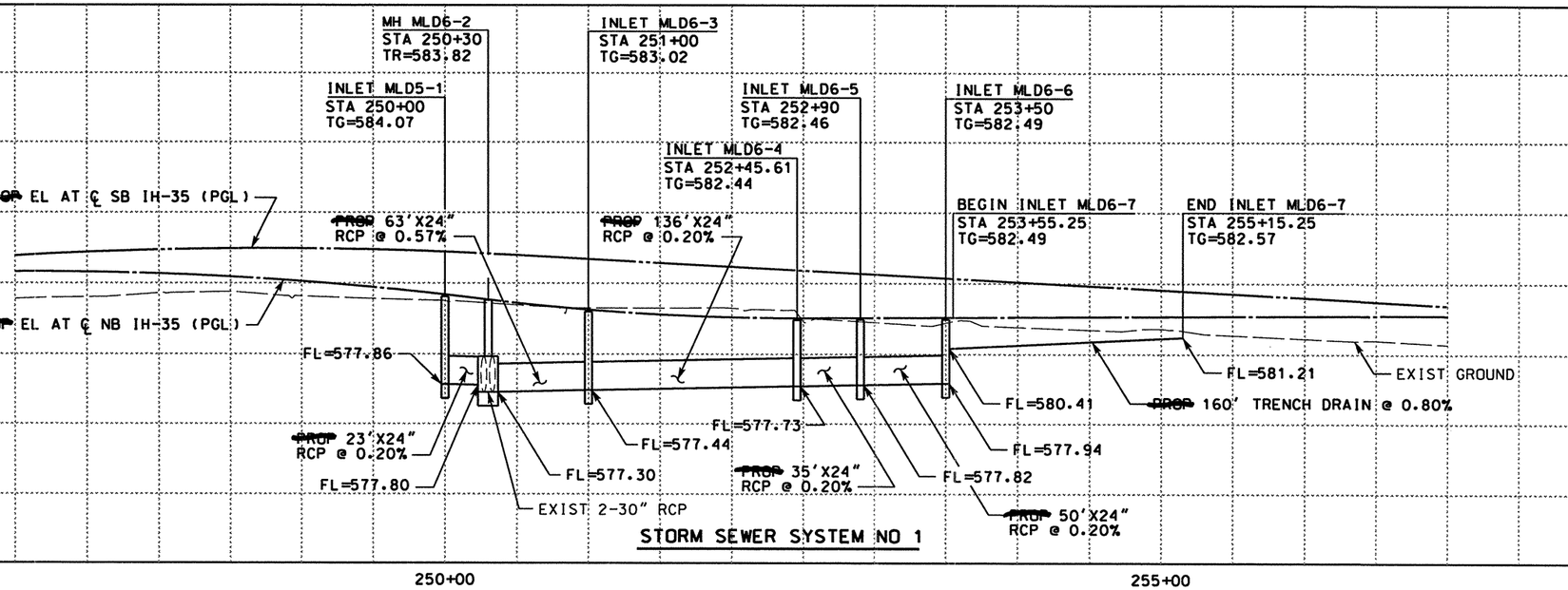
- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

DATE	BY	REV	REVISION
11/30/04	AA	2	ADD AUXILIARY LANE



STORM SEWER SYSTEM NO 1

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON FEBRUARY 10, 2005

A.A. ABUGATTAS
PE 34940
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
MAINLANES
STA 247+00 TO STA 257+00
SHEET 1 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	513
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.drn, drn LV ON = 8,9,28,51
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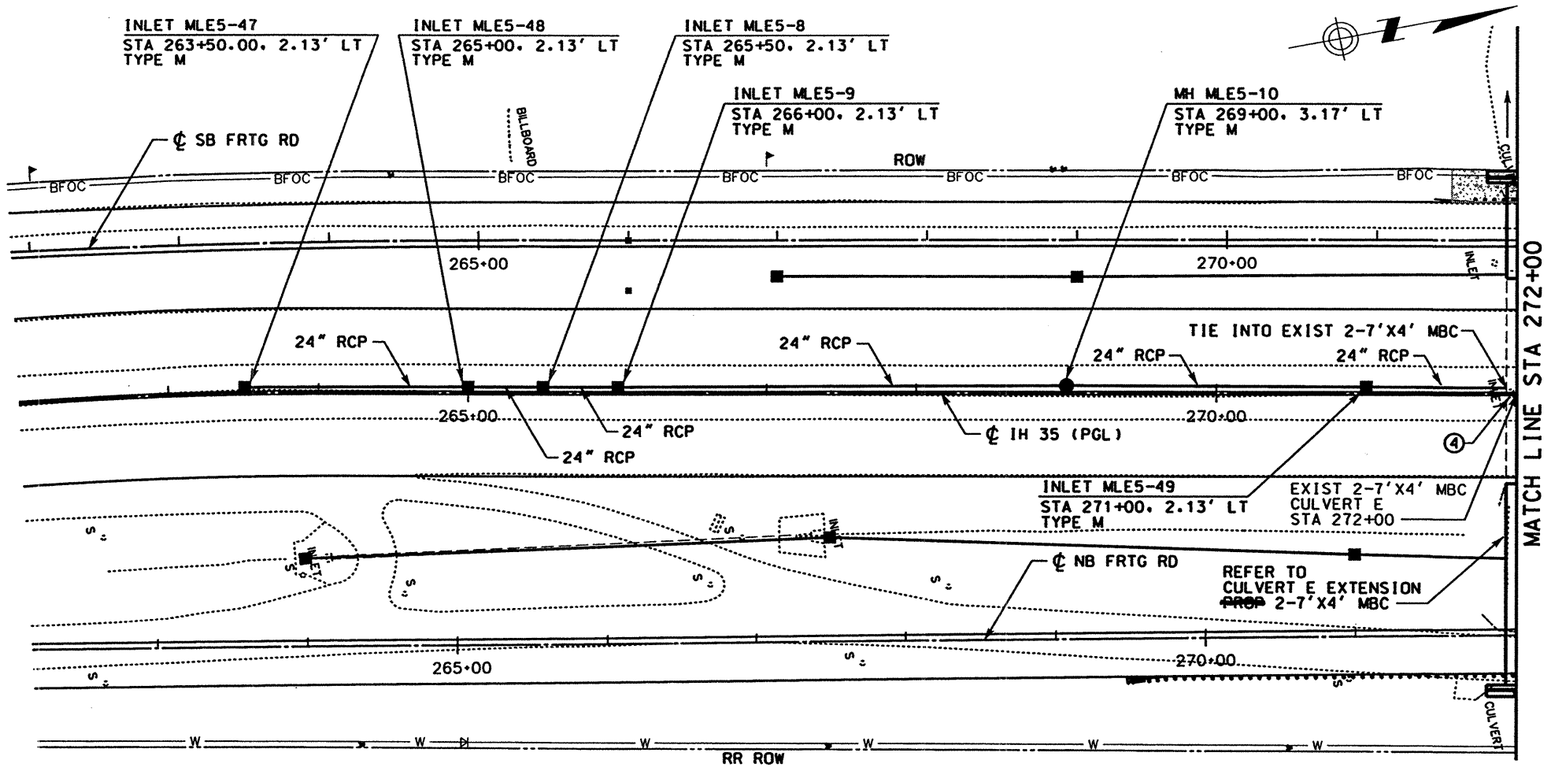


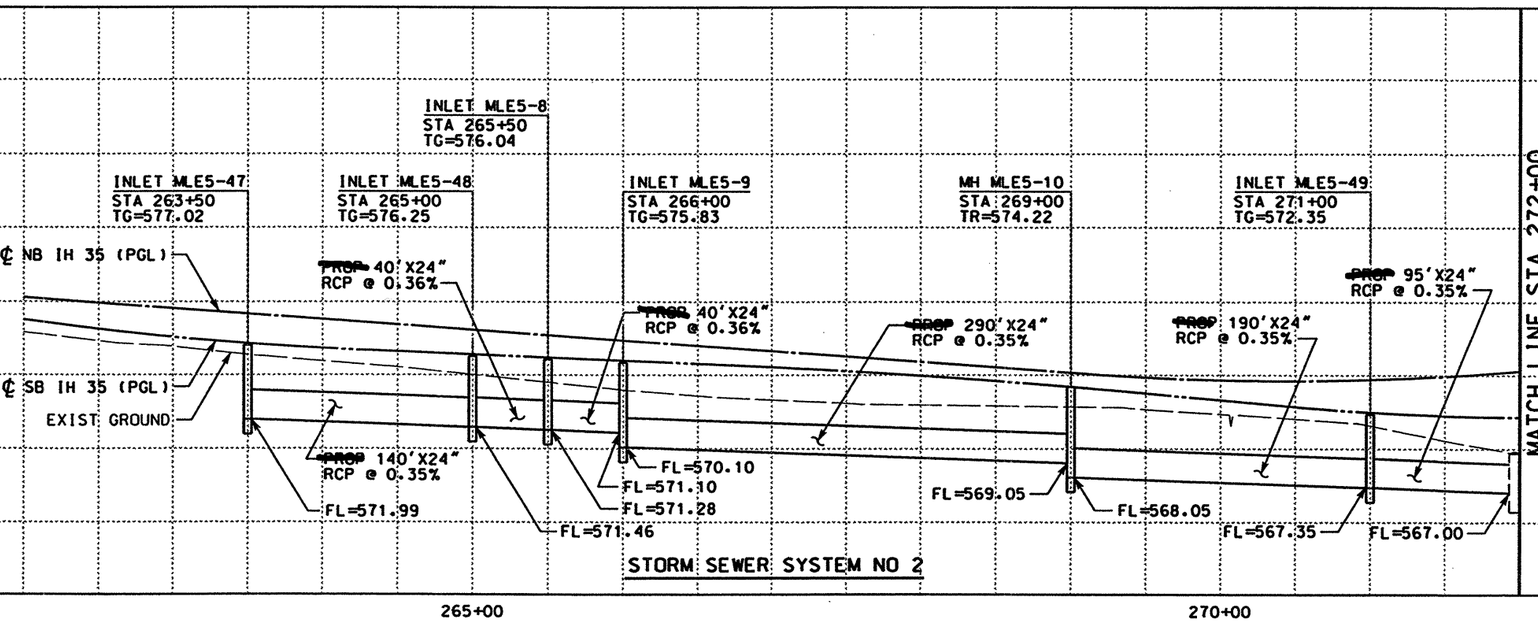
LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ~~PROPOSED~~ INLET
- ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
MAINLANES
STA 262+00 TO STA 272+00
SHEET 2 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	514
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b13pp02.dgn-17

REF FILE(S): j011op01.grd, j011op01.drn, j011op01.eop, j011op01.bck, j011op01.alg, j011op01.bdr, milolnt.row, row
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LV DN = 1-11.13-17.19-63
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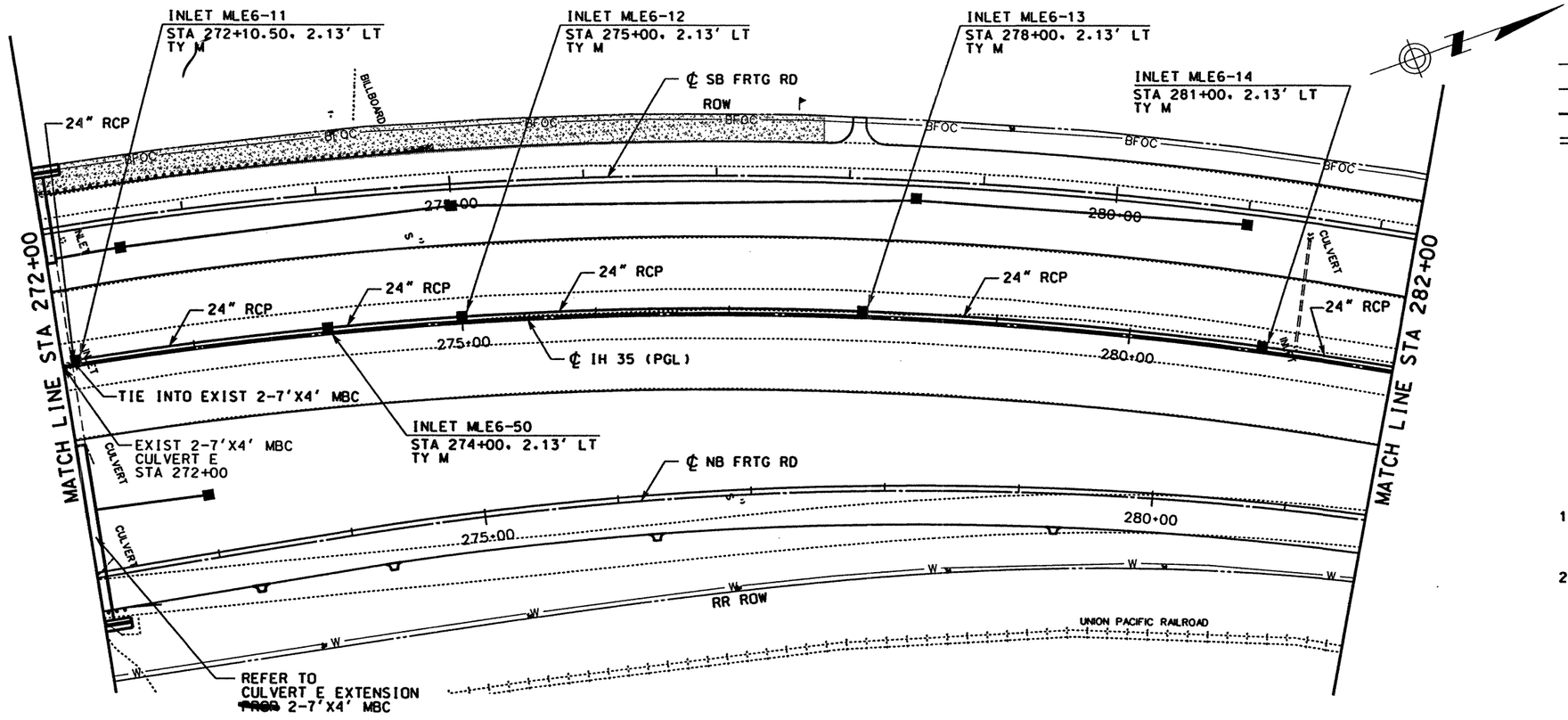
LV DN = 1-6.35-39
LV DN = 10.11.30.33.46.57.58.60-62



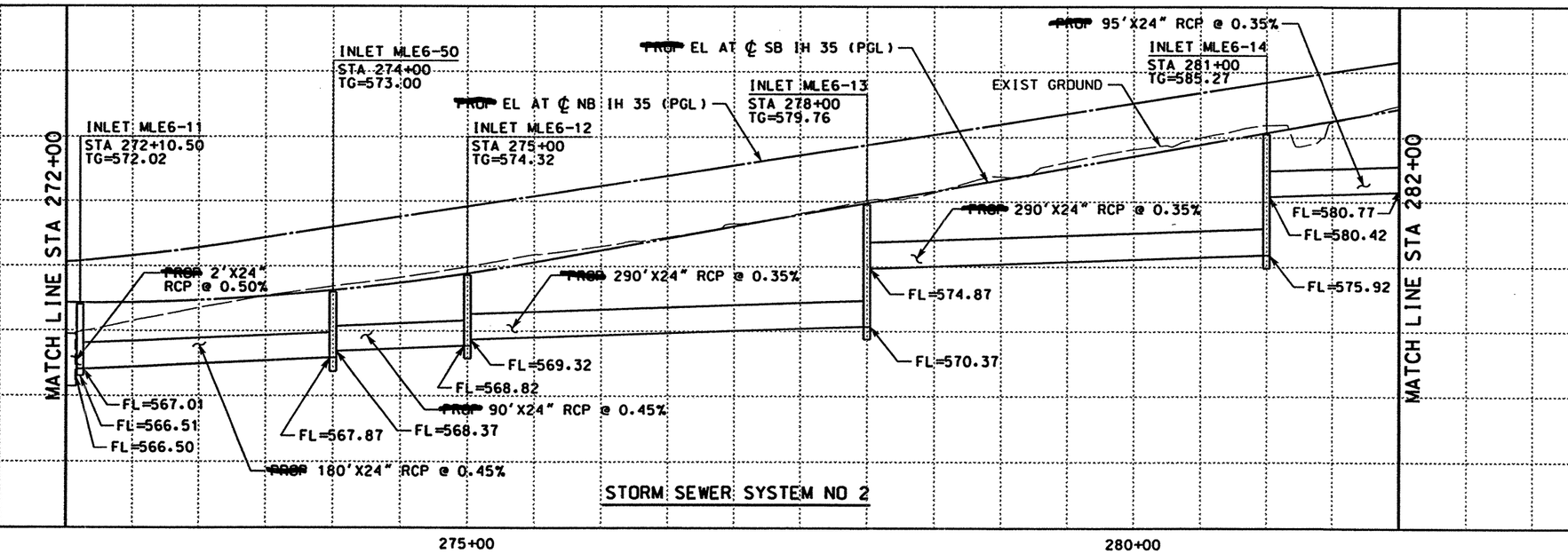
LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



STORM SEWER SYSTEM NO 2

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER PLAN AND PROFILE MAINLANES
STA 272+00 TO STA 282+00
SHEET 3 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		515
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.drn, drn LV ON = 8,9,28,51
j011op01.row, row LV ON = 1-63
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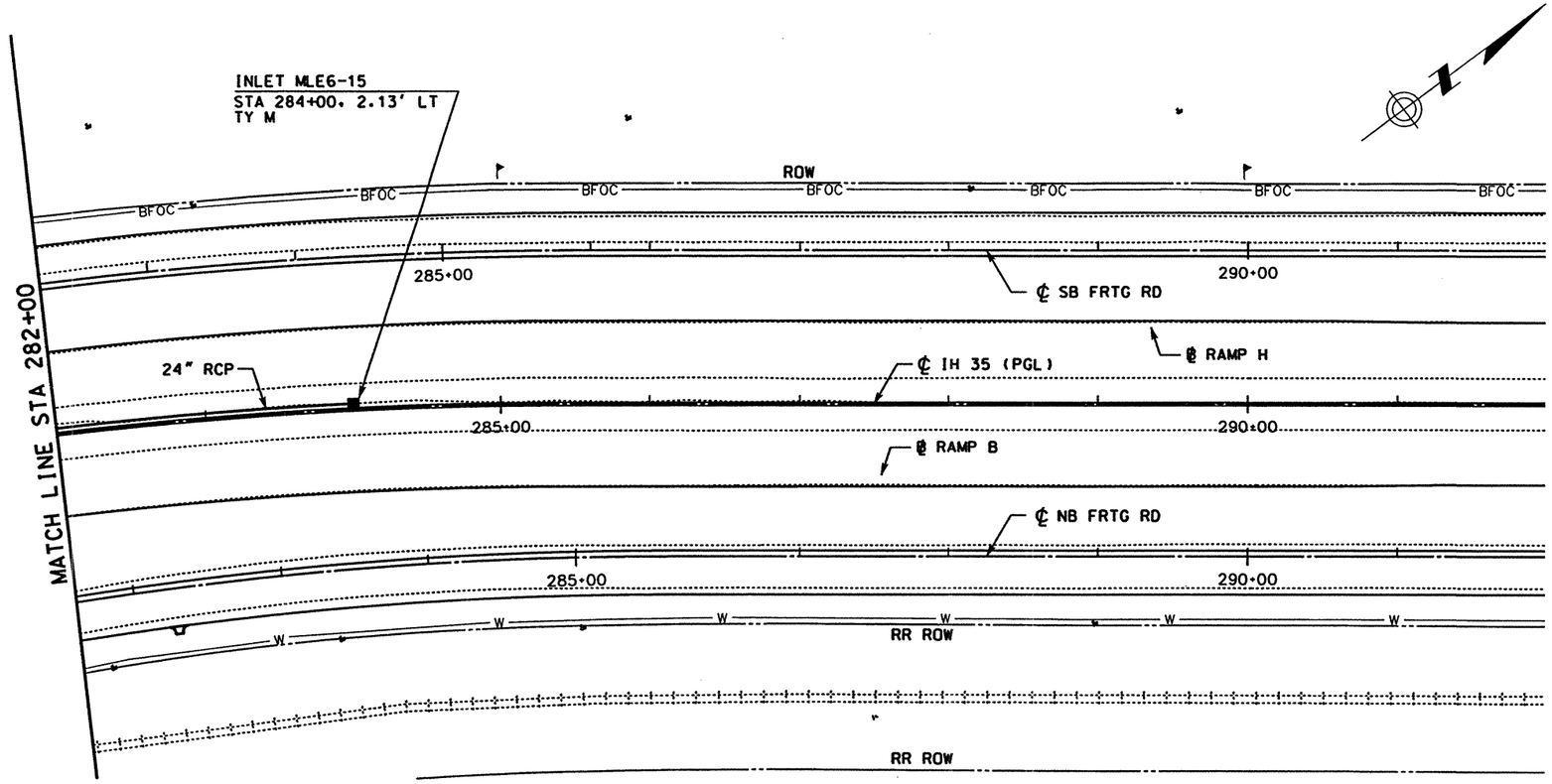
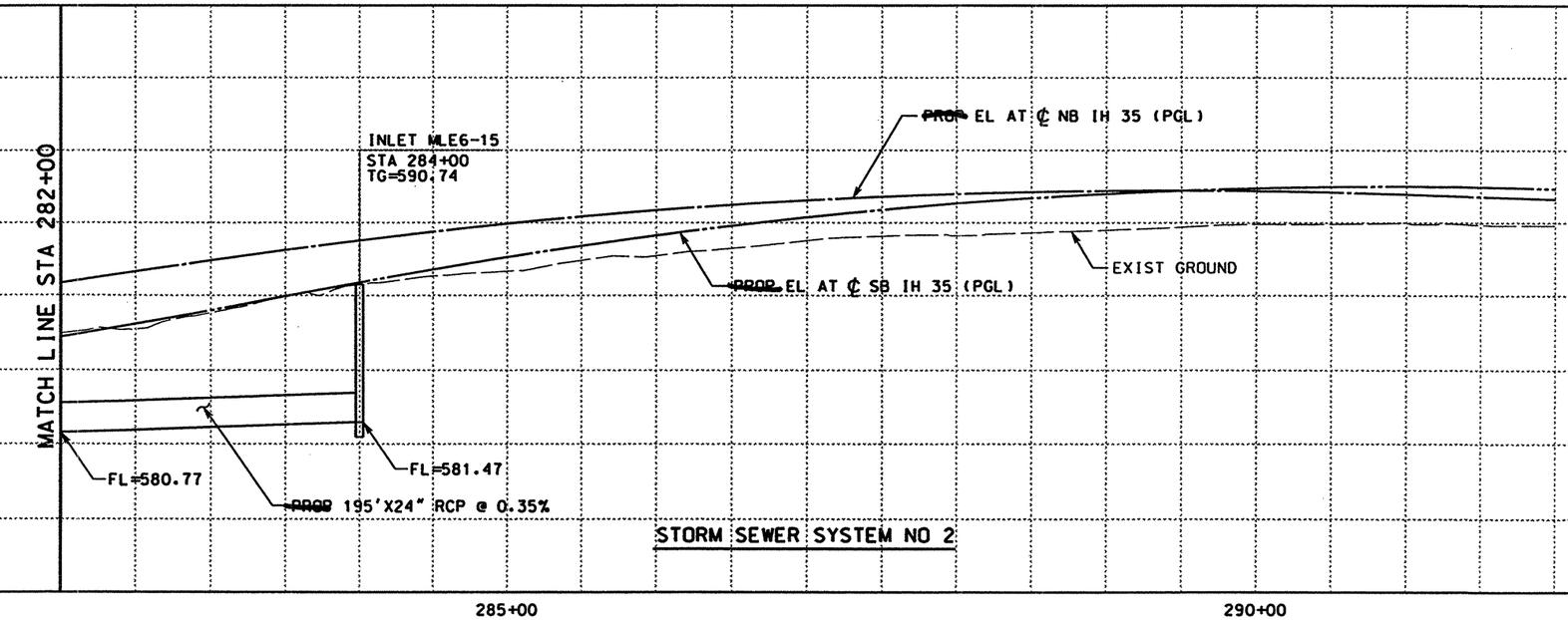
j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 10-11,30,33,46,57,58,60-62
b13pp03.dgn-17 \\houfile023 \civil\cf0130\ 4/18/2003





LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
P.E. 58664
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER PLAN AND PROFILE MAINLANES
STA 282+00 TO STA 292+00
SHEET 4 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		576
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S):
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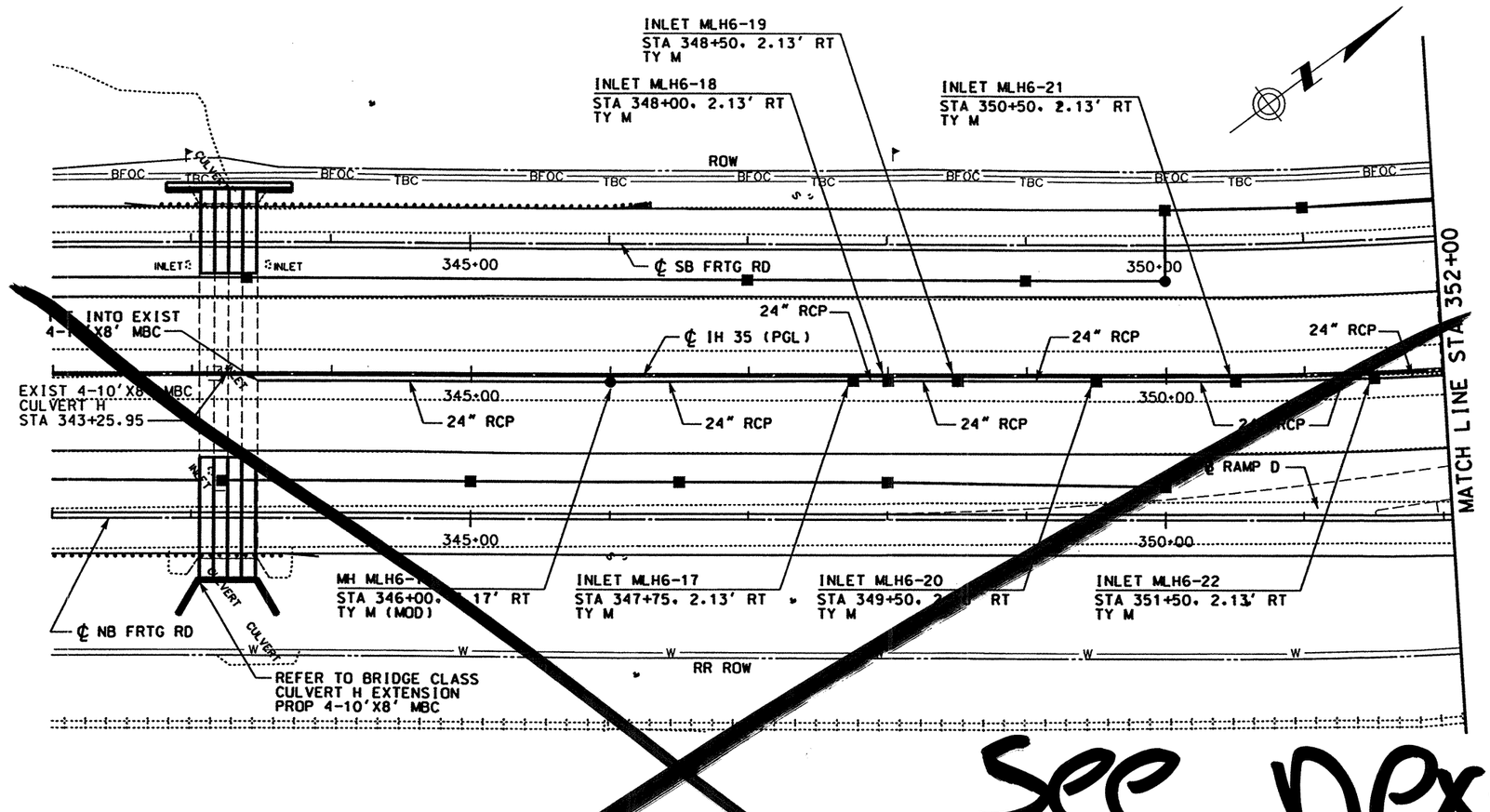
b13ppp04.dgn-15 HOUFILE023 \hcivil\c\f0130\ 4/18/2003



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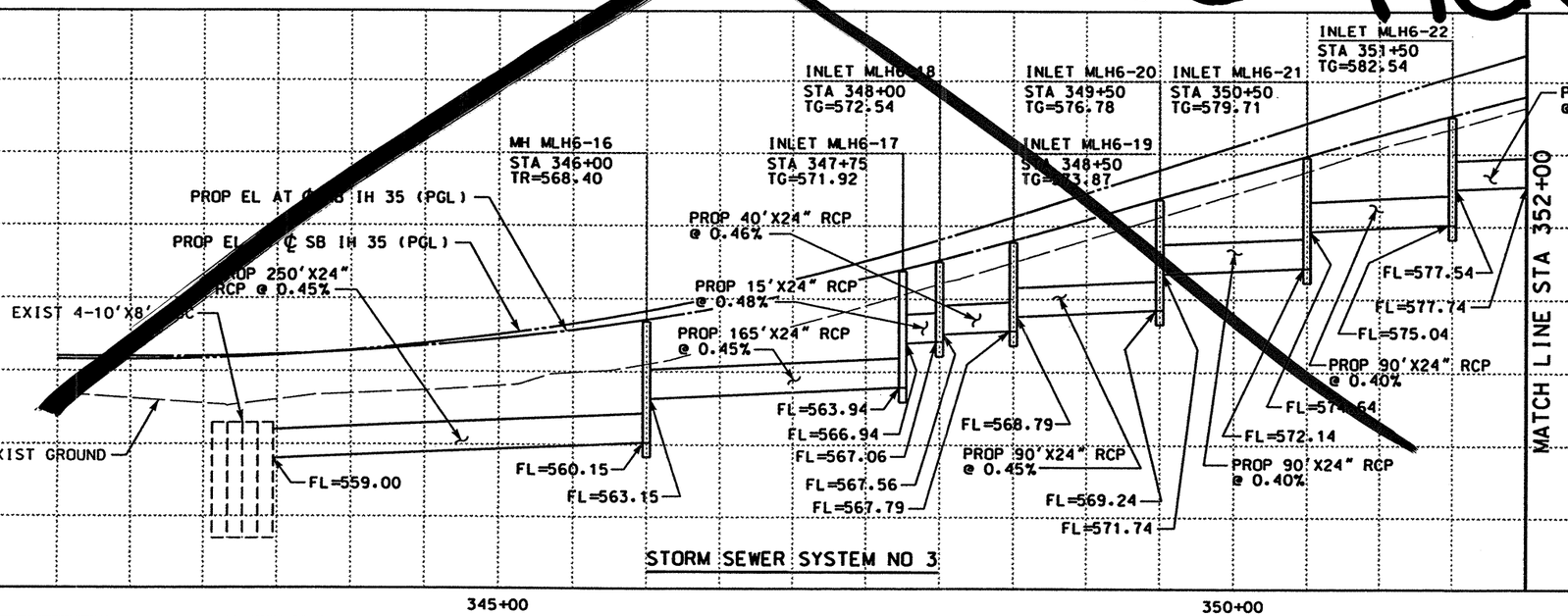

LEGEND

- ROW
- PROPOSED DITCH ℄
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
MAINLANES
STA 342+00 TO STA 352+00
SHEET 5 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	517
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

4/18/2003
HOUFILE023 \hchivil\cf0130\
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LV DN = 8-9,28,51
LV DN = 1-63

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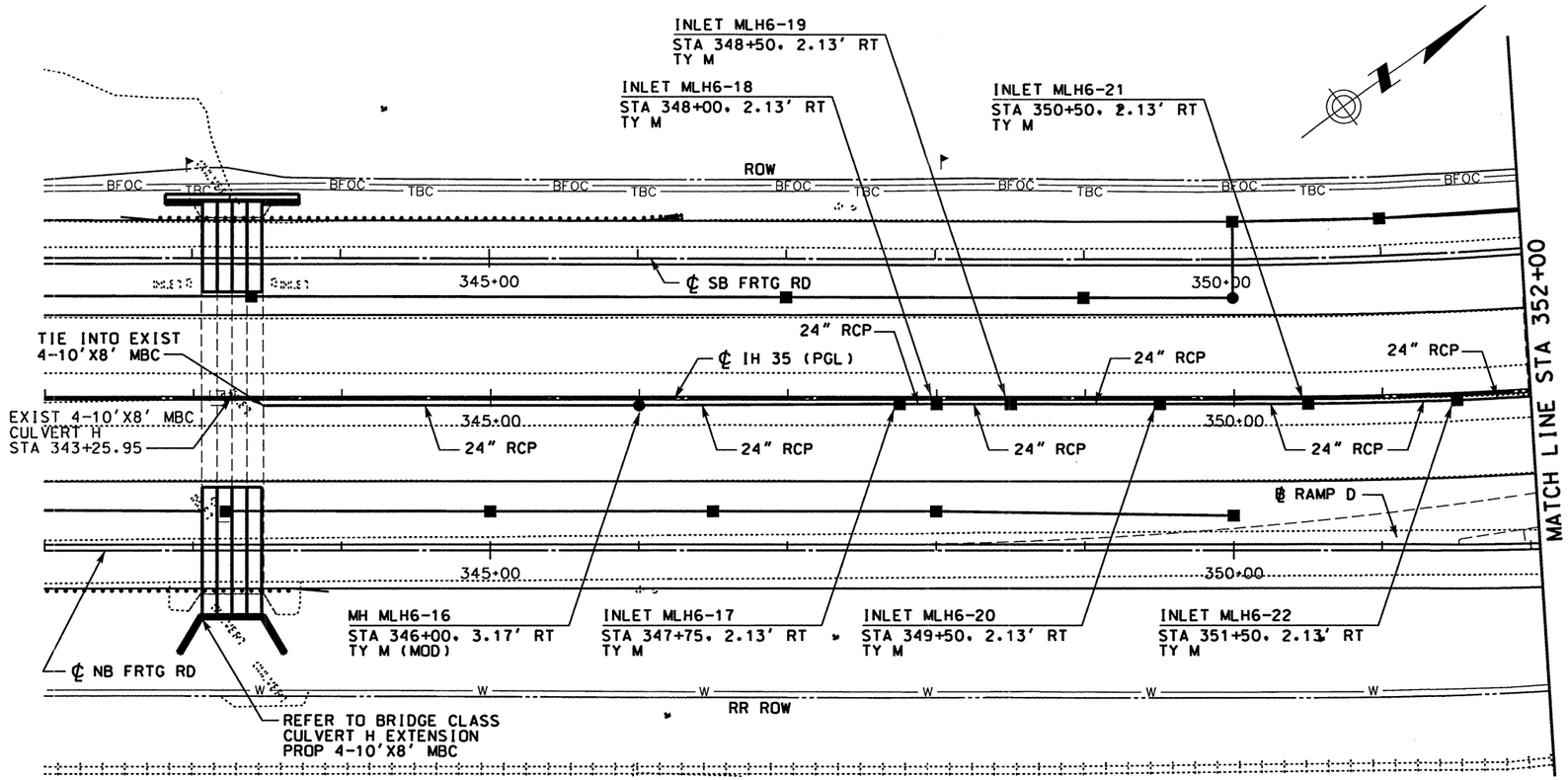
LV DN = 1-11,13-17,19-63
LV DN = 2-9,10,14,17,20,21,25,28
LV DN = 1-6,35-39
LV DN = 10,11,30,33,46,57,58,60-62



LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ~~PROPOSED~~ INLET
- ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
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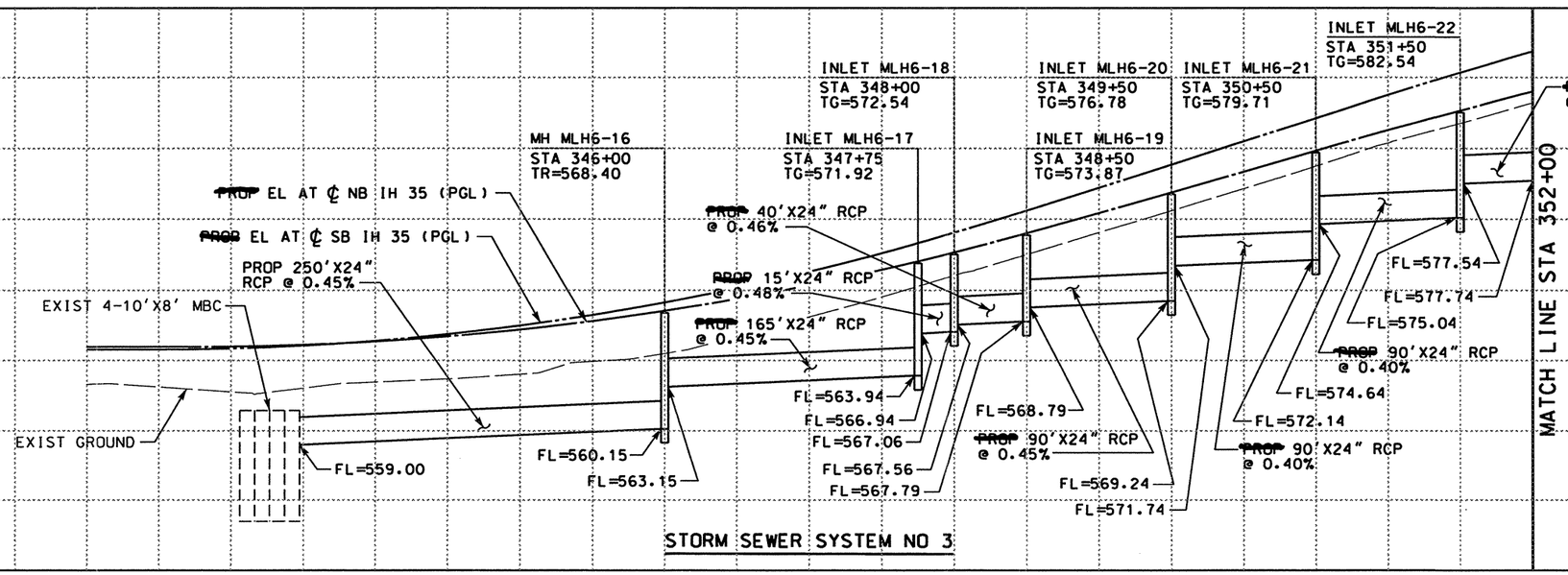

STORM SEWER SYSTEM NO 3

DATE	BY	REV	REVISION
02/17/04	AA	1	MAINLANE SHLDR WIDEN REV EDGE OF PAVEMENT AND PAVEMENT LIMITS

SCALE: 1" = 100' HORIZ
1" = 10' VERT

A.A. ABUGATTAS
R 34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON MARCH 05, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
MAINLANES
STA 342+00 TO STA 352+00
SHEET 5 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	517
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

3/4/2004

REF FILE(S): j01lop01.drn LV ON = 8.9.28.51
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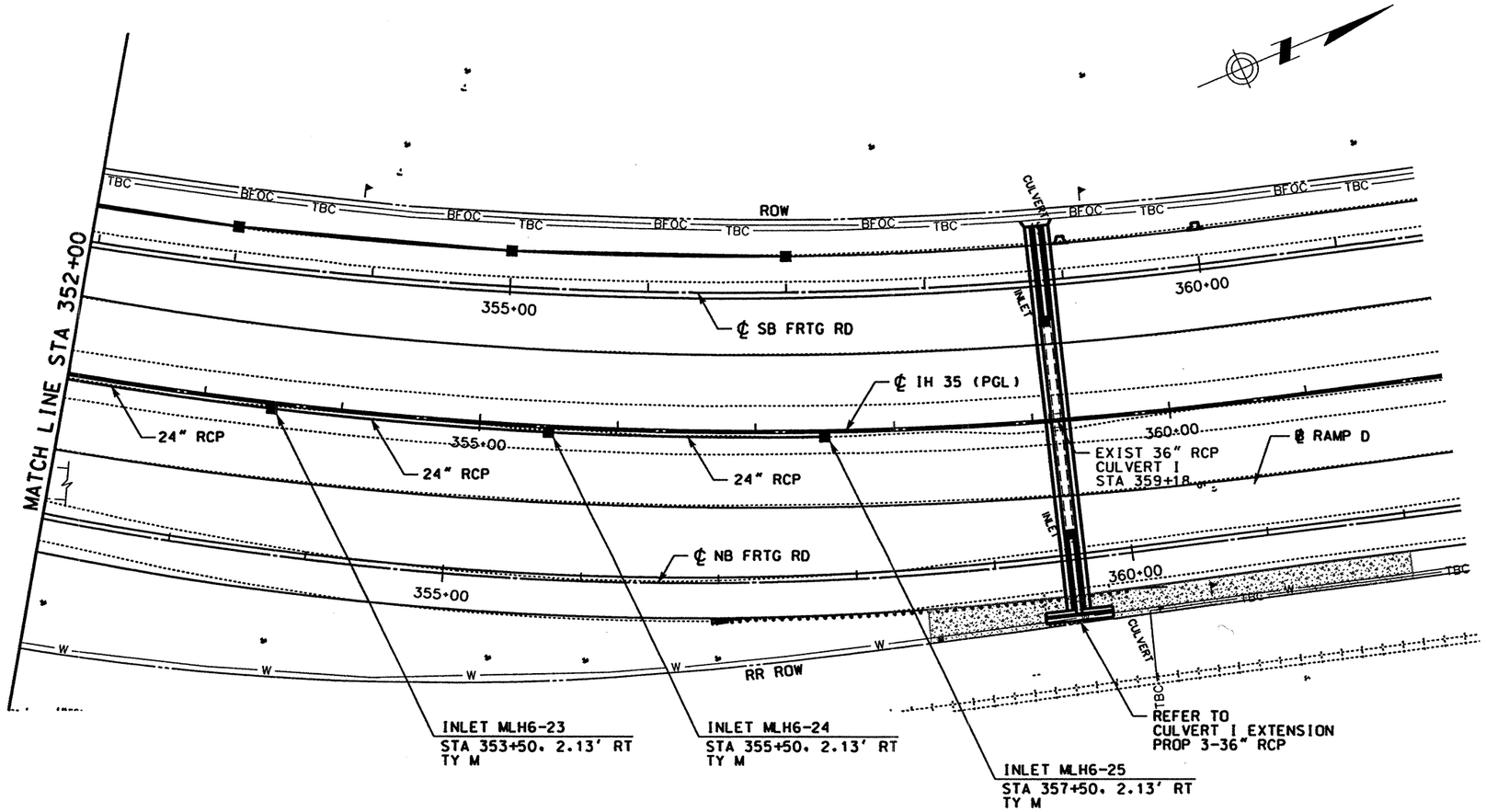
j01lop01.bak. bak LV ON = 2.9.10.14.17.20.21.25.28
j01lop01.alg. alg LV ON = 1-6.35-39
j01lop01.bdr. bdr LV ON = 10.11.30.33.46.57.58.60-62

b13ppp05.dgn-17 HOUFILE023 \hcivil\cf0130\



LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
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NOTES:

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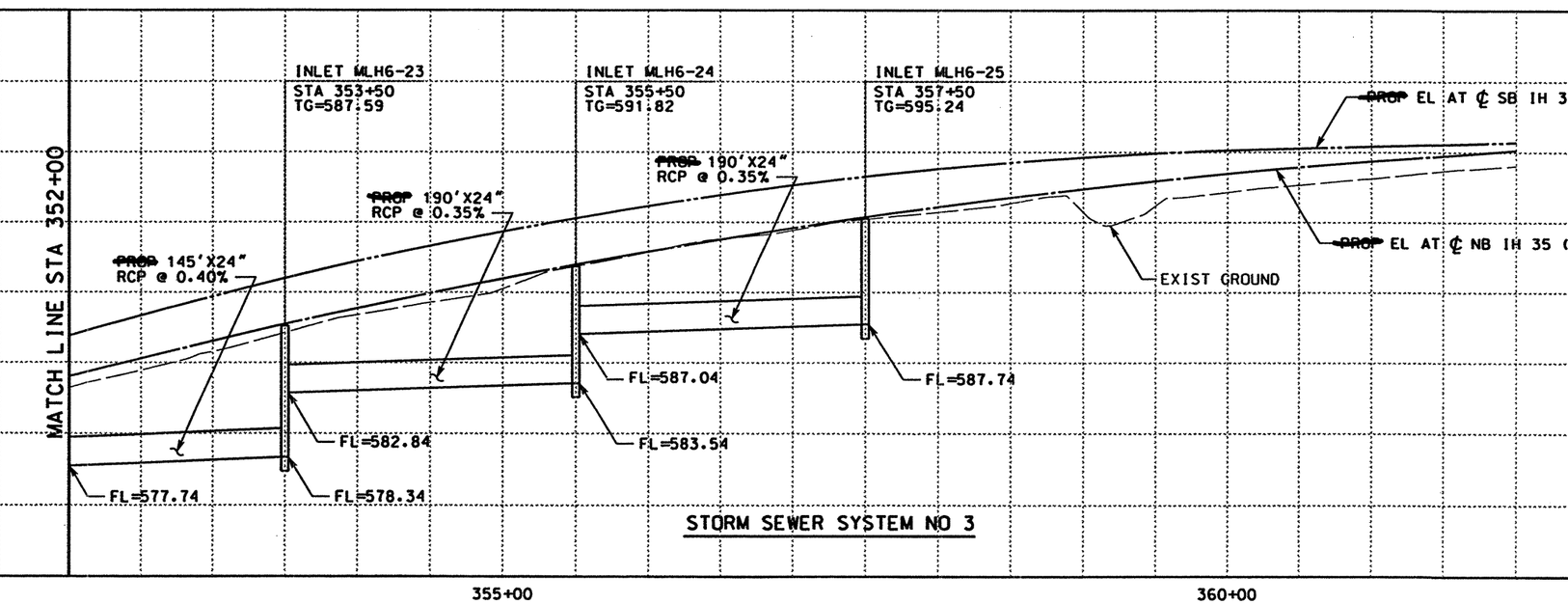
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



STORM SEWER SYSTEM NO 3

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
MAINLANES
STA 352+00 TO STA 362+00

SHEET 6 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	578
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

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J0110p01.bck, bck LV ON = 1-11,13-17,19-63
J0110p01.dlg, dlg LV ON = 2,9,10,14,17,20,21,25,28
J0110p01.bdr, bdr LV ON = 1-6,35-39
LV ON = 10,11,30,33,46,57,58,60-62

REF FILE(S): J0110p01.utl, utl
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J0110p01.bck, bck
J0110p01.dlg, dlg
J0110p01.bdr, bdr

4/18/2003
\hciwlv\c0130\HOUFILE023\b13ppp06.dgn-09

INLET MLM5-26
STA 412+10. 2.13' LT
TY M

INLET MLM5-27
STA 412+30. 2.13' LT
TY M

INLET MLM5-30
STA 413+50. 2.13' LT
TY M

INLET MLM5-31
STA 414+00. 2.13' LT
TY M

INLET MLM5-32
STA 415+00. 2.13' LT
TY M

INLET MLM5-33
STA 416+00. 2.13' LT
TY M

EXIST 36" RCP
CULVERT M1
STA 418+98.50

℄ SB FRTG RD

ROW

BFOC

TFC

TC

10+00

415+00

420+00

15+00

℄ RAMP K

REFER TO CULVERT
M1 EXTENSION
~~PROP~~ 2-30" RCP

INLET MLM6-36
STA 420+00. 2.13' LT
TY M

INLET MLM5-34
STA 418+00. 2.13' LT
TY M

INLET MLM6-37
STA 422+00. 2.13' LT
TY M

TRANSMISSION LINE

CULVERT

24" RCP

MH MLM6-35
STA 419+30. 3.17' LT
TY M (MOD)

EXIST 36" RCP
CULVERT M
STA 419+32.34

℄ RAMP F

INLET MLM5-28
STA 412+60. 2.13' LT
TY M

℄ IH 35 (PGL)

℄ NB FRTG RD

INLET MLM5-29
STA 413+00. 2.13' LT
TY M

RR ROW

TBC

REFER TO
CULVERT M EXTENSION
PROP 1-36" RCP

MATCH LINE STA 422+00

LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
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NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

INLET MLM5-28
STA 412+60
TG=650.39

INLET MLM5-29
STA 413+00
TG=650.54

INLET MLM5-32
STA 415+00
TG=651.31

INLET MLM5-33
STA 416+00
TG=651.69

~~PROP~~ EL AT ℄ NB & SB IH 35 (PGL)

MH MLM6-35
STA 419+30
TR=653.10

INLET MLM6-36
STA 420+00
TG=653.22

INLET MLM6-37
STA 422+00
TG=654.76

INLET MLM5-27
STA 412+30
TG=650.26

INLET MLM5-31
STA 414+00
TG=650.92

INLET MLM5-34
STA 418+00
TG=652.46

INLET MLM5-26
STA 412+10
TG=650.11

INLET MLM5-30
STA 413+50
TG=650.73

665
660
655
650
645
640
635

~~PROP~~ 10'X24" RCP @ 0.20%
~~PROP~~ 40'X24" RCP @ 0.26%
~~PROP~~ 40'X24" RCP @ 0.26%
~~PROP~~ 90'X24" RCP @ 0.25%
~~PROP~~ 90'X24" RCP @ 0.25%
~~PROP~~ 190'X24" RCP @ 0.25%
~~PROP~~ 123.5'X24" RCP @ 0.30%
~~PROP~~ 63.5'X24" RCP @ 0.30%
~~PROP~~ 190'X24" RCP @ 0.30%
~~PROP~~ 30'X24" RCP @ 0.25%
~~PROP~~ 20'X24" RCP @ 0.20%

FL=644.97
FL=645.10
FL=645.30
FL=645.26
FL=645.20
FL=644.84
FL=644.59
FL=644.34
FL=643.45
FL=643.84
FL=647.95
EXIST 36" RCP
FL=648.16
FL=648.76

EXIST GROUND

STORM SEWER SYSTEM NO 4

415+00

420+00

MATCH LINE STA 422+00

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER PLAN AND PROFILE MAINLANES
STA 412+00 TO STA 422+00

SHEET 7 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	519
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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J011op01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
J011op01.alg. alg LV ON = 1-6.35-39
J011op01.bdr. bdr LV ON = 10.11.30.33.46.57.58.60-62
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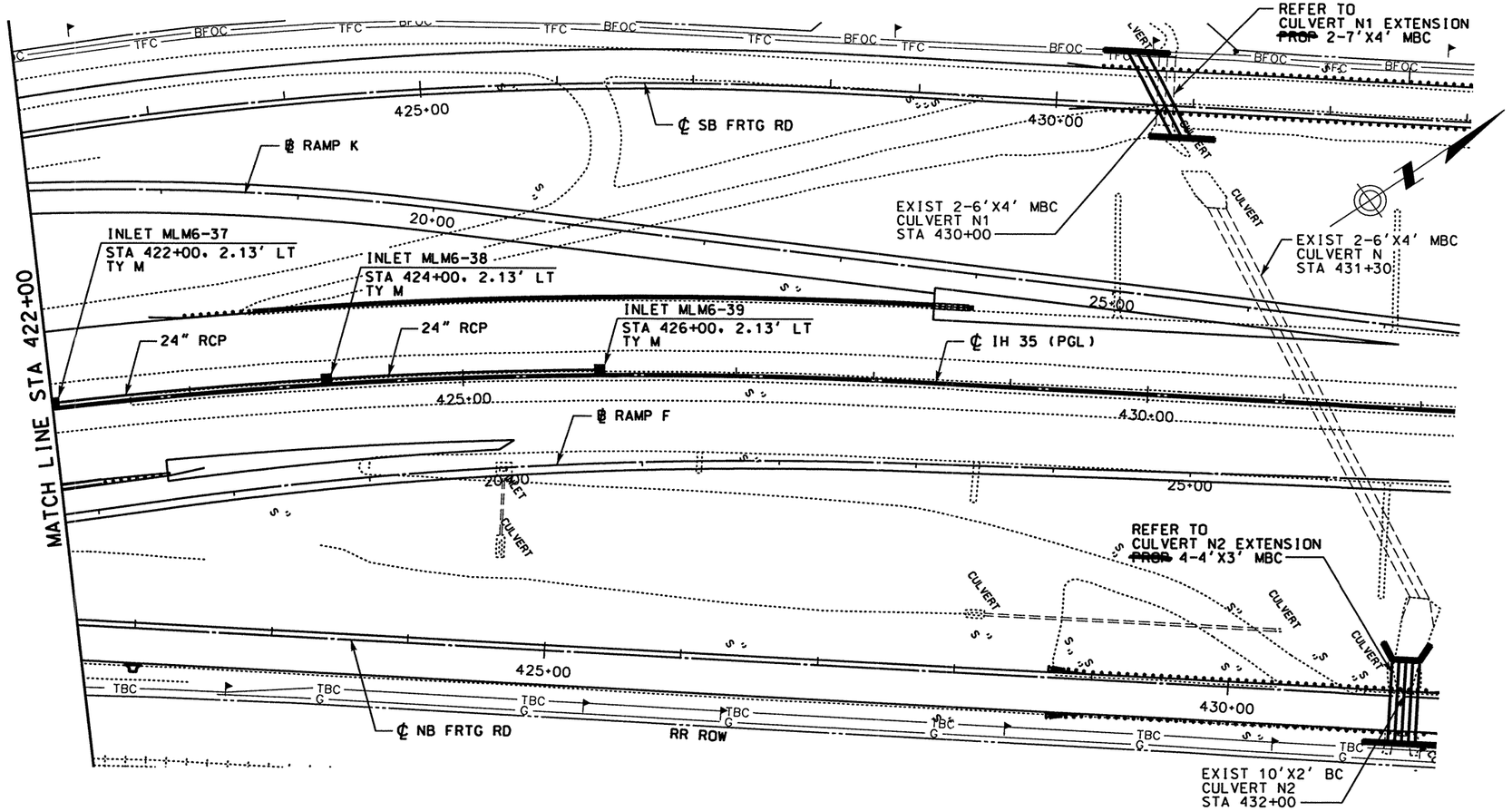
b13ppp07.dgn-16 HOUFILE023 \hcivil\cr0130\ 4/18/2003



LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
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NOTES:

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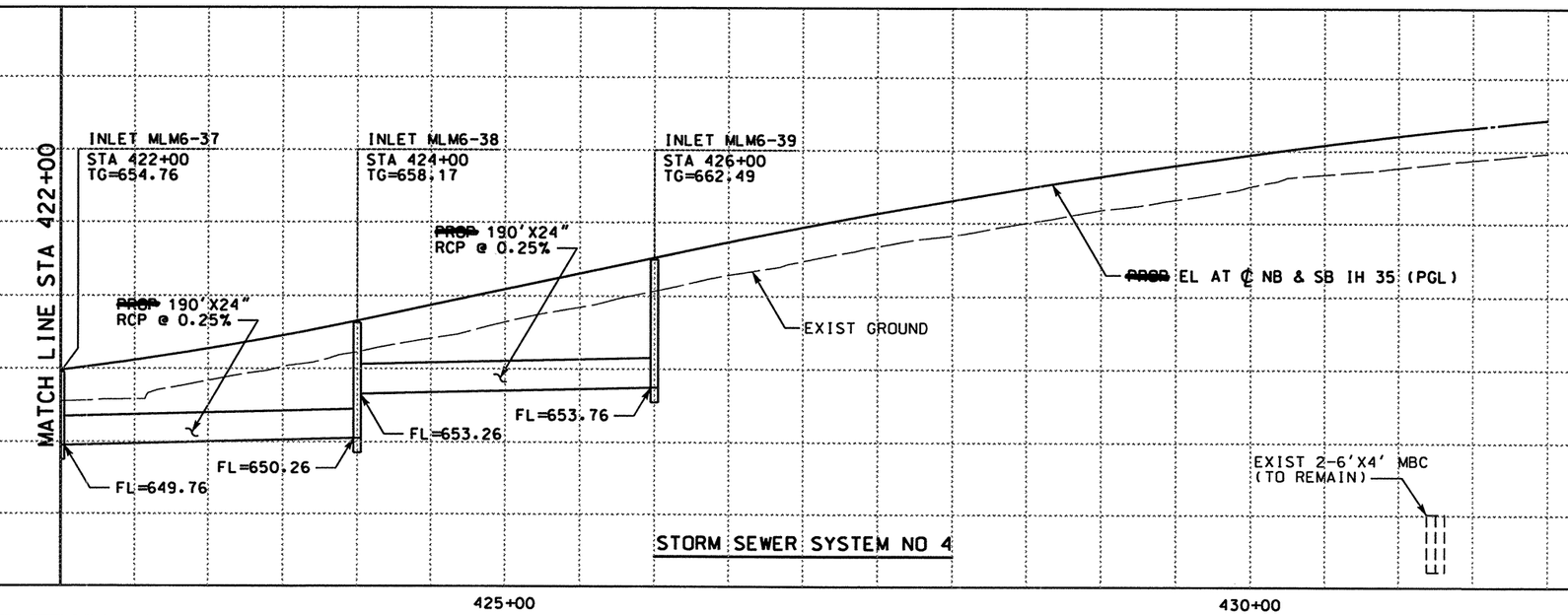

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
R. 34940
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 02, 2003

Abram Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
MAINLANES
STA 422+00 TO STA 432+00
SHEET 8 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		520
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.drn, drn LV ON = 8,9,28,51
REF FILE(S): j011op01.urt, urt LV ON = 1-63
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j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 10,11,30,33,46,57,58,60-62
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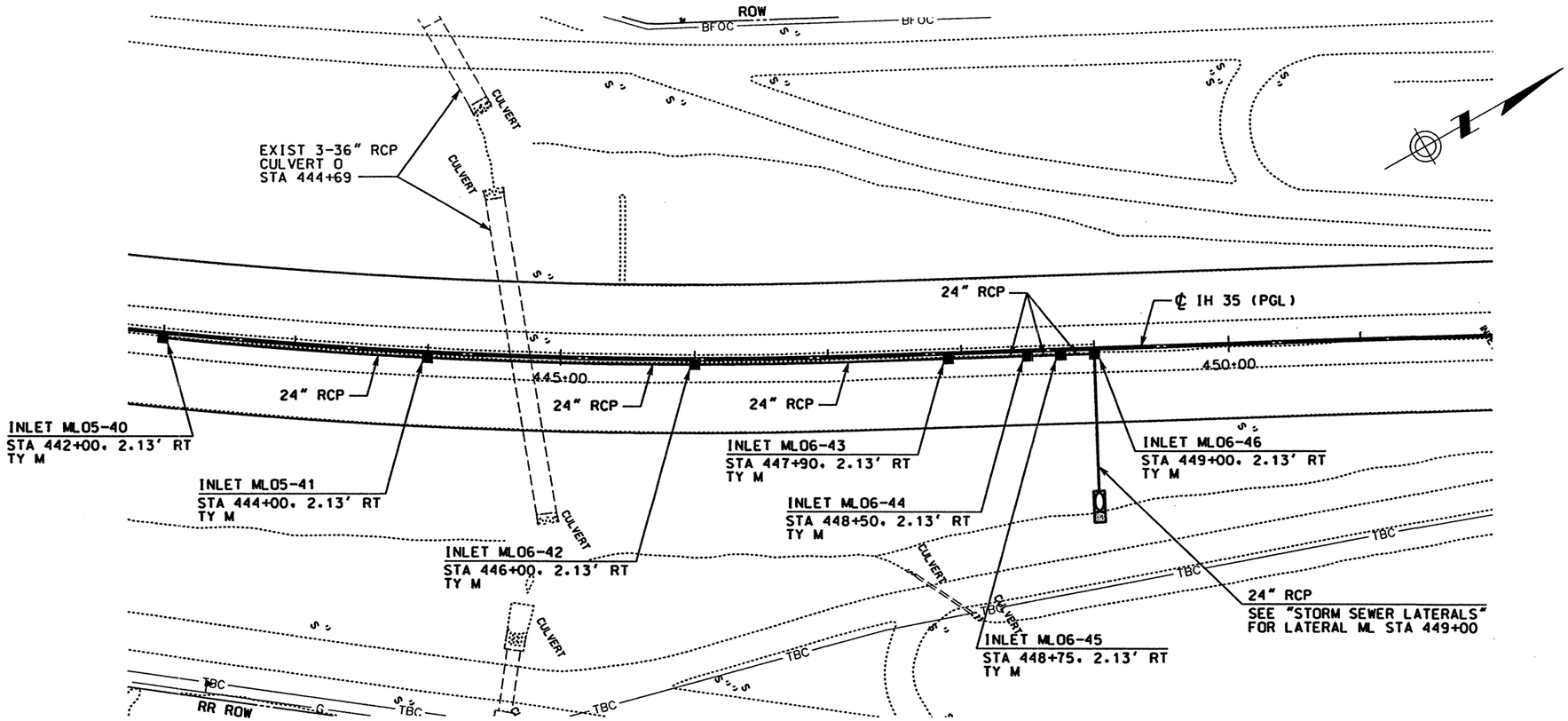
6/3/2003 HOUFILE023 \hciv\cf0130\ b13pp08.dgn-14



LEGEND

- ROW
- PROPOSED DITCH ℄
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
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TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

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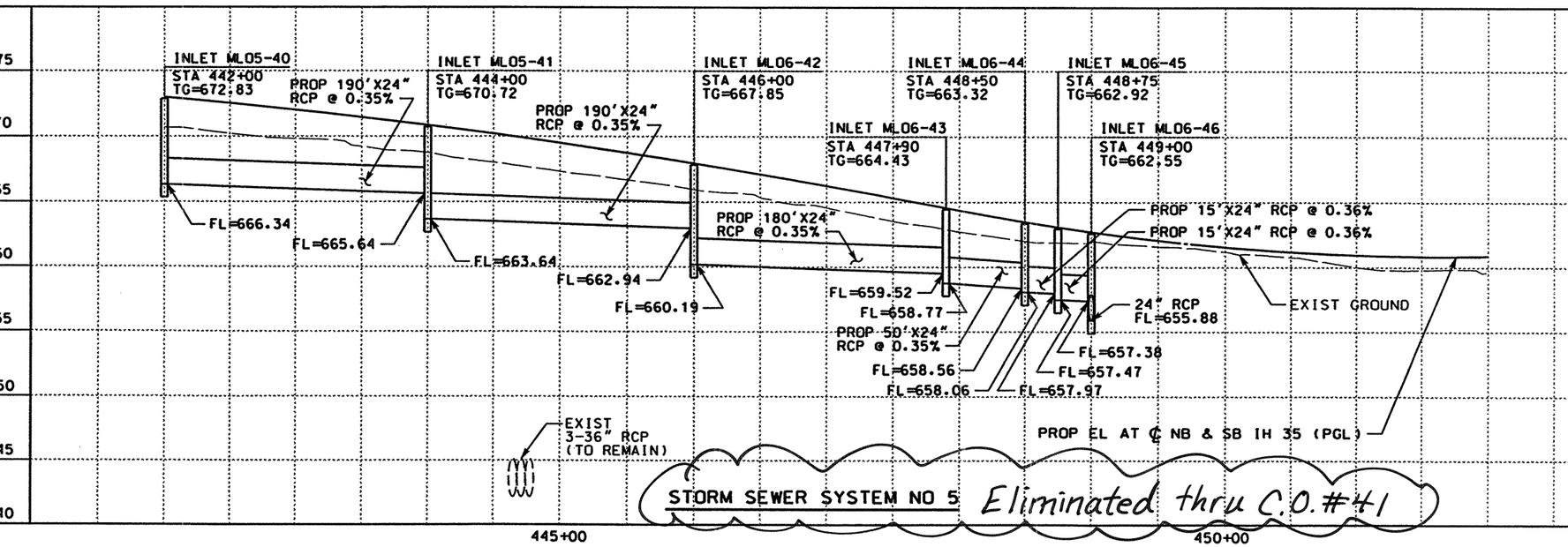
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

3. The storm sewer system described on this sheet was eliminated thru C.O.#1



STORM SEWER SYSTEM NO 5 Eliminated thru C.O.#1

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
MAINLANES
STA 442+00 TO STA 452+00

SHEET 9 OF 9

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	521
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

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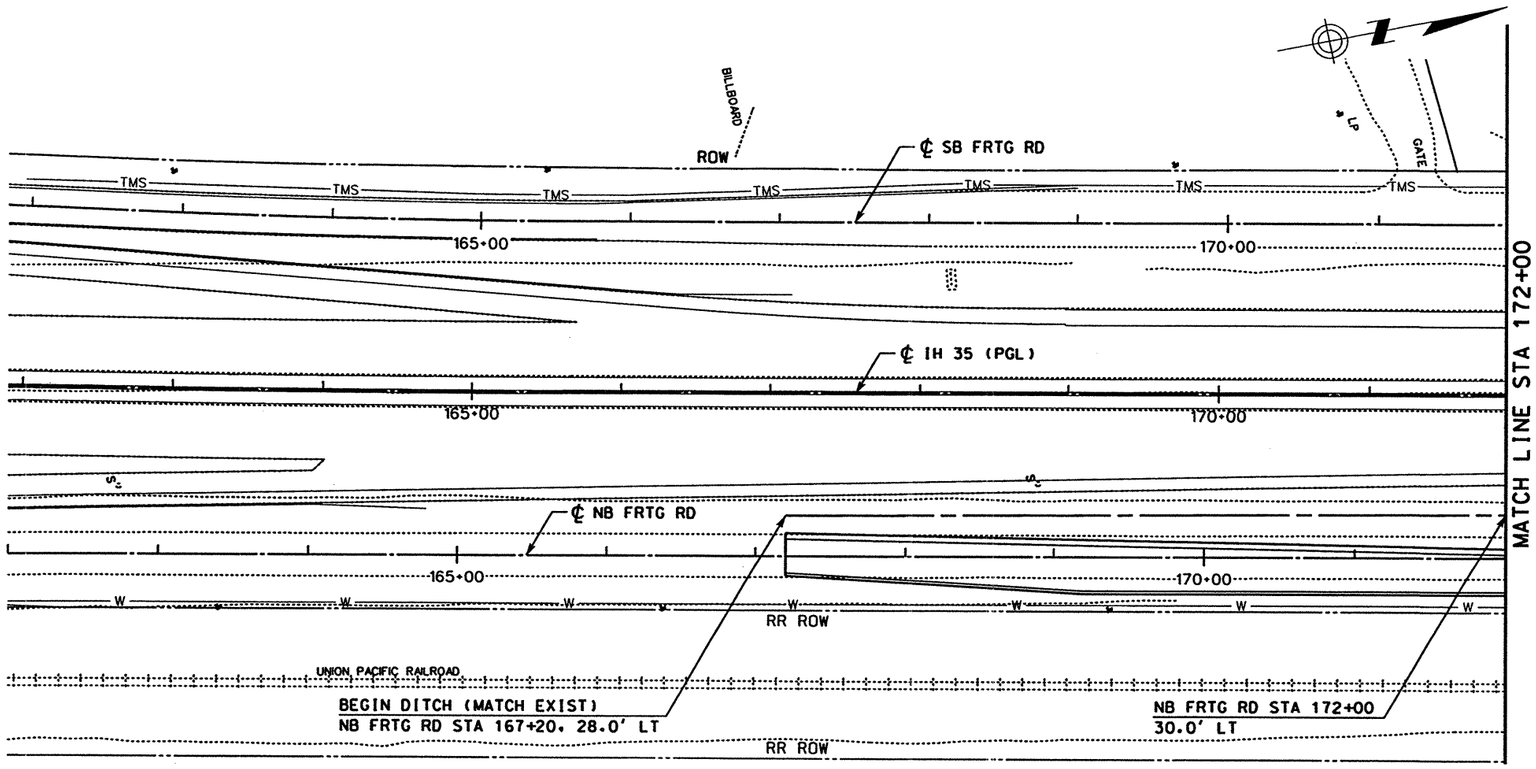


LEGEND

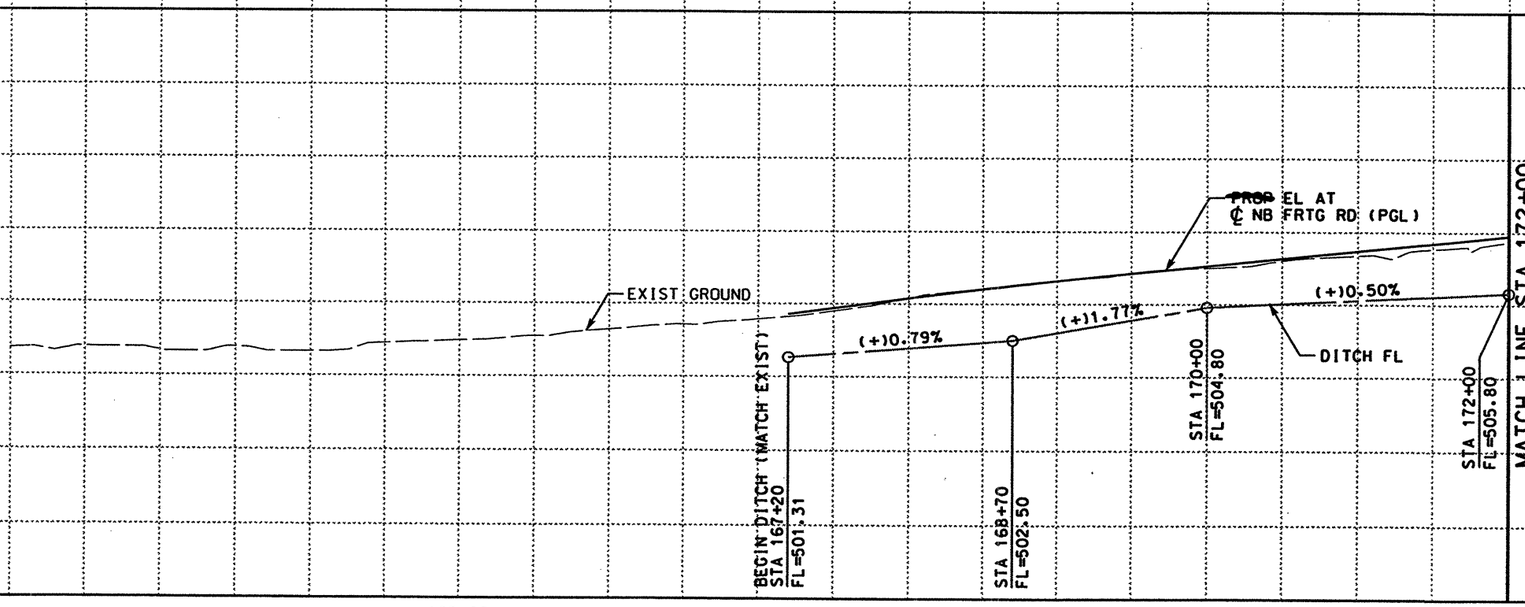
- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- ~~EXIST~~STING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 162+00 TO STA 172+00

SHEET 1 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	522
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

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4/18/2003
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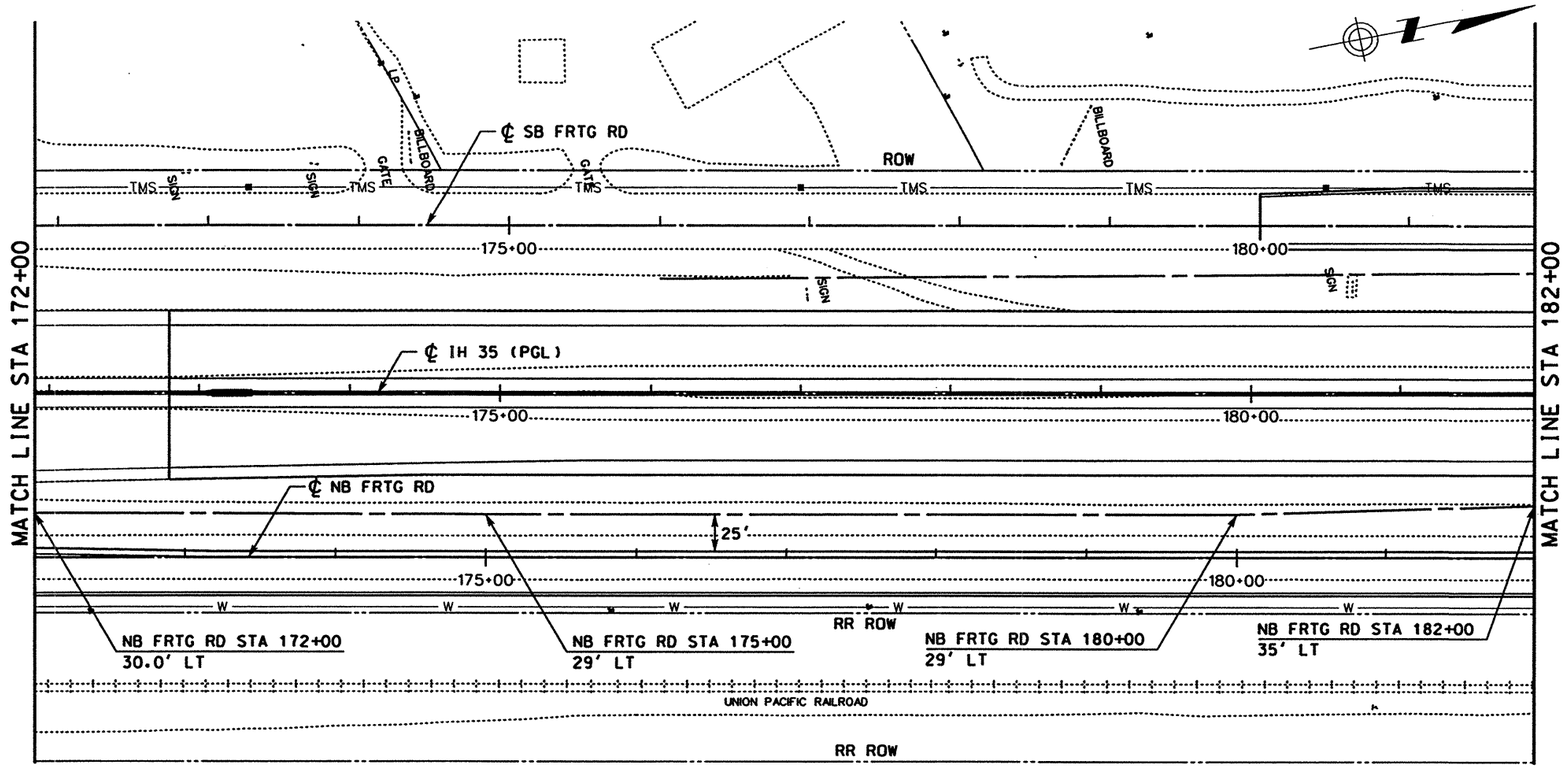


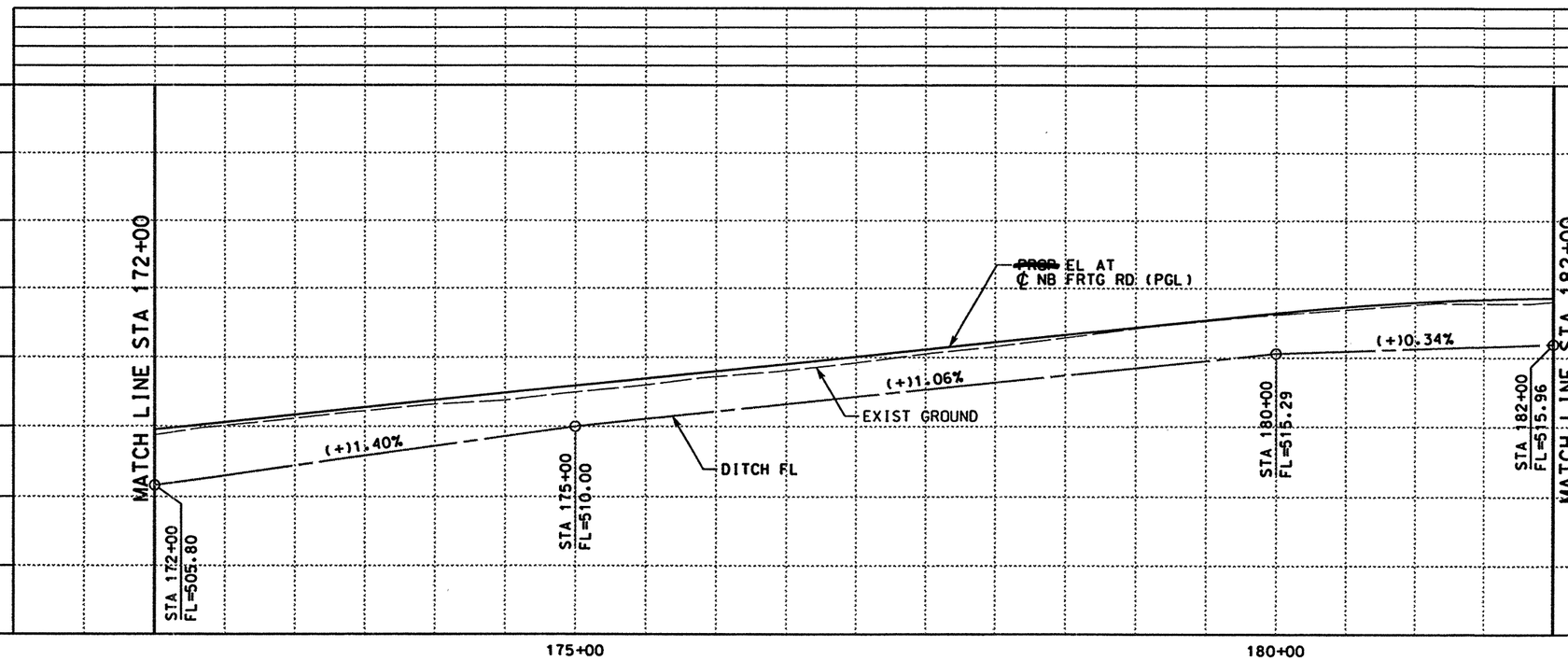
LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 172+00 TO STA 182+00

SHEET 2 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		523
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cf0130\

b13ppl1.dgn-08

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j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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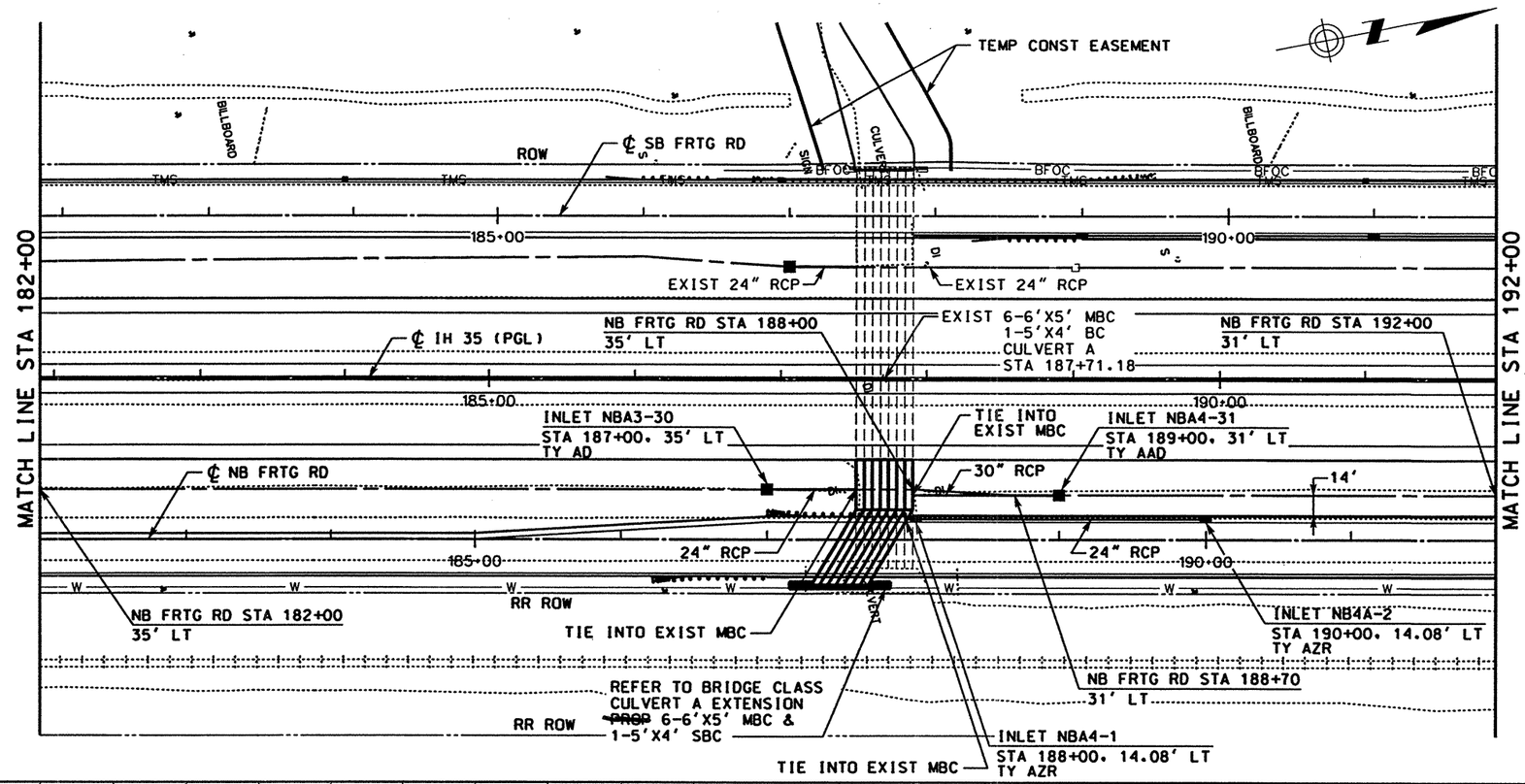


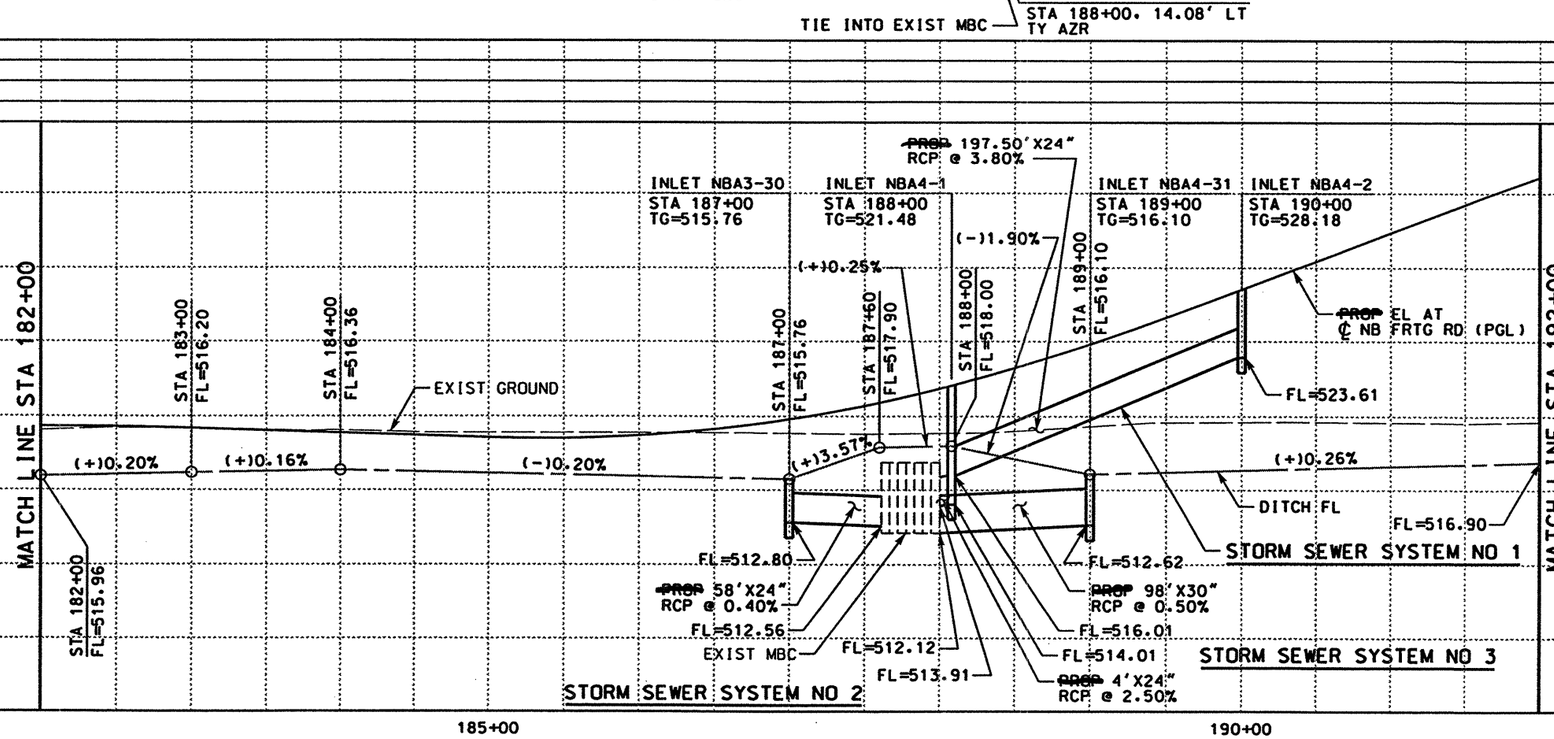
LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

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RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 182+00 TO STA 192+00

SHEET 3 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	S24
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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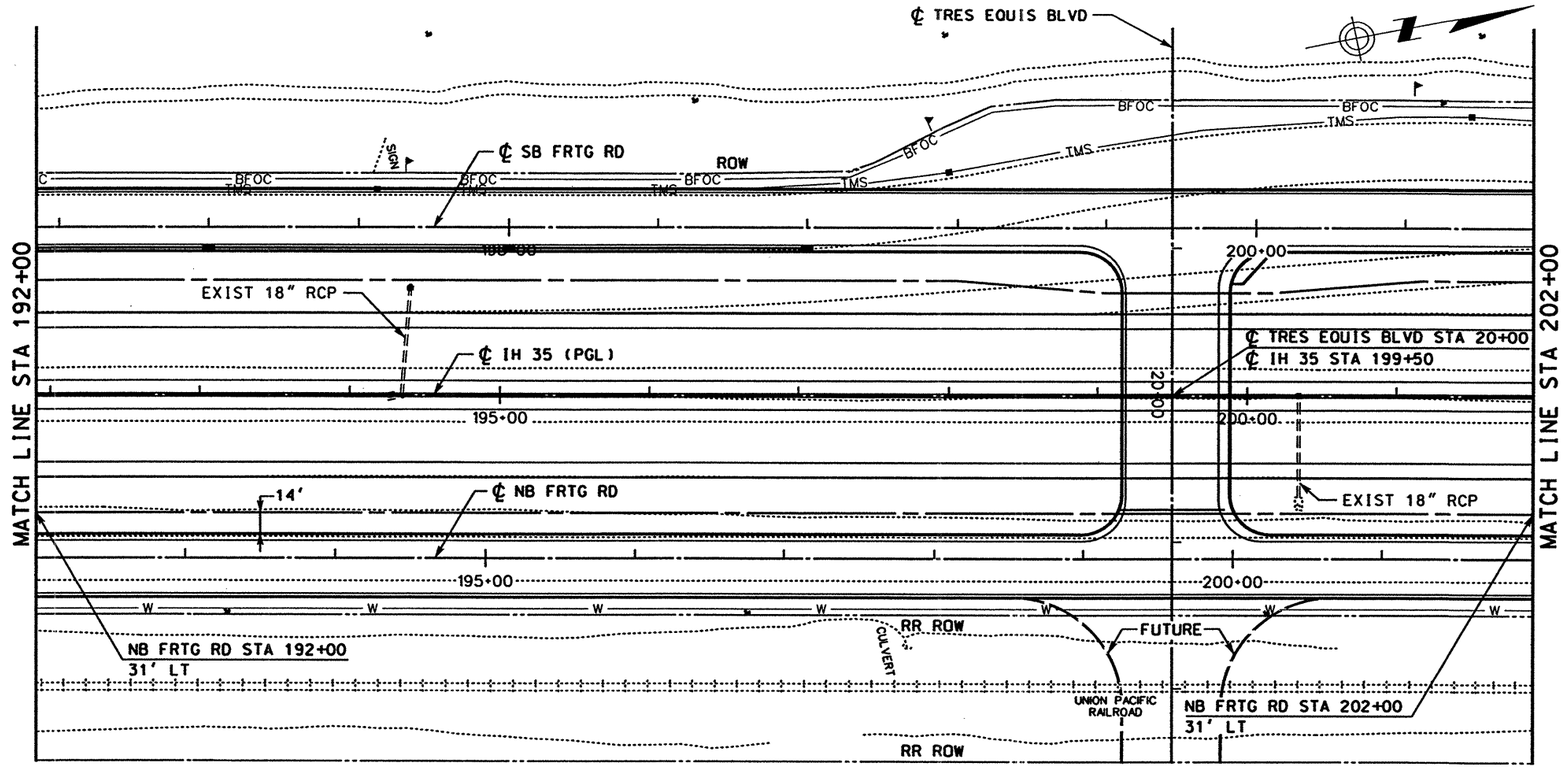
b13ppp12.dgn-10 HOUFILE023 \hcivil\c\0130\ 4/18/2003



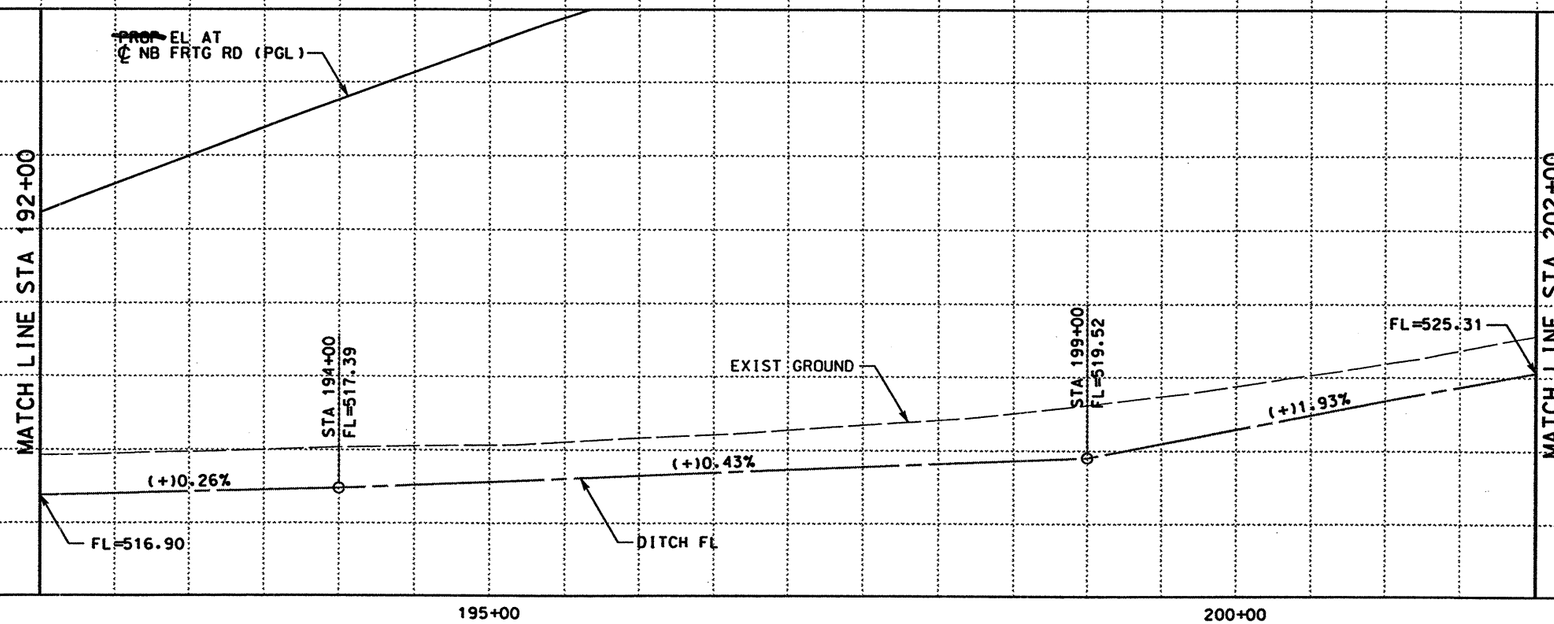
LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 192+00 TO STA 202+00

SHEET 4 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	525
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

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j011op01.alg. alg LV ON = 1-6.35-39
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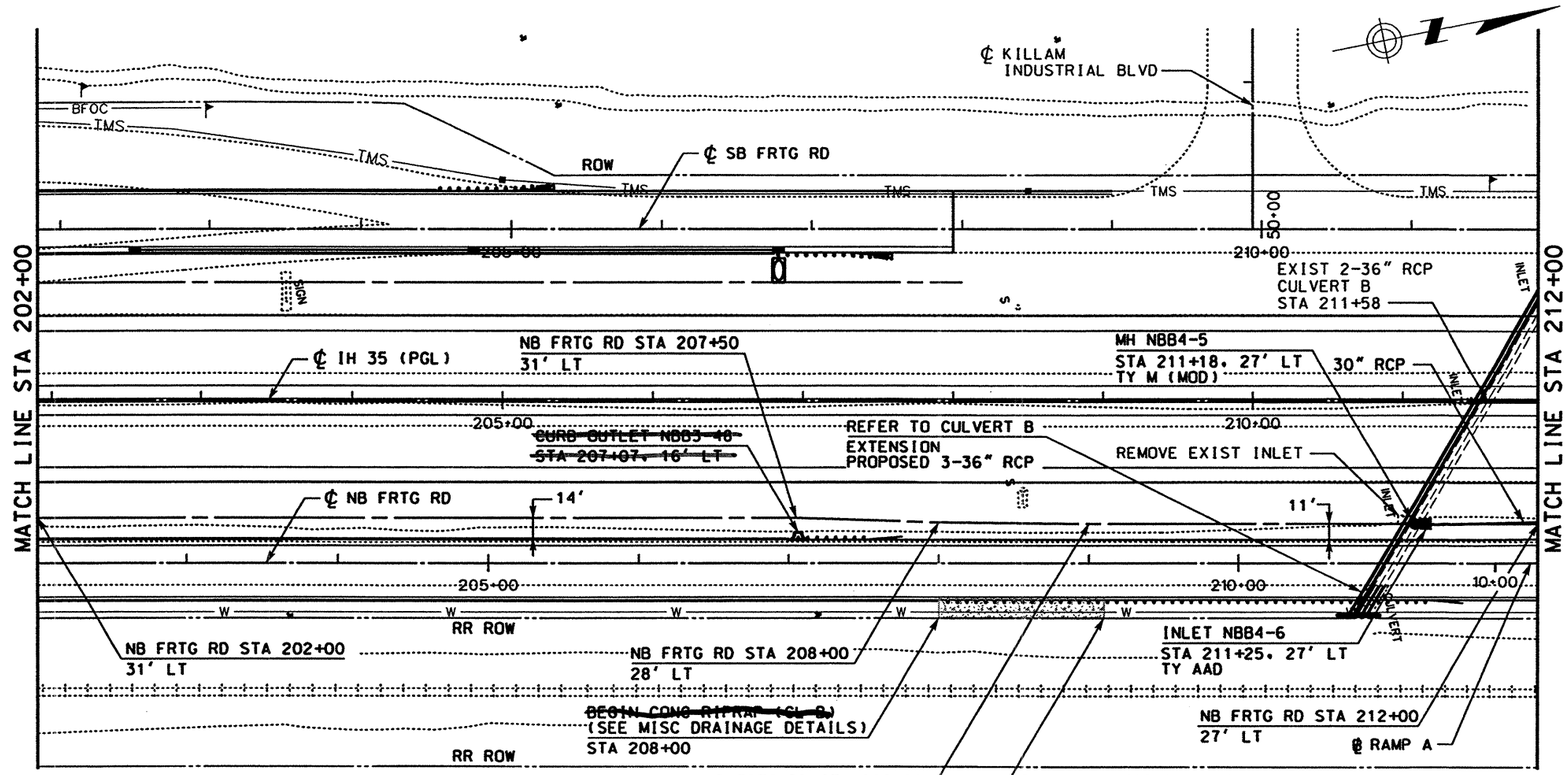


LEGEND

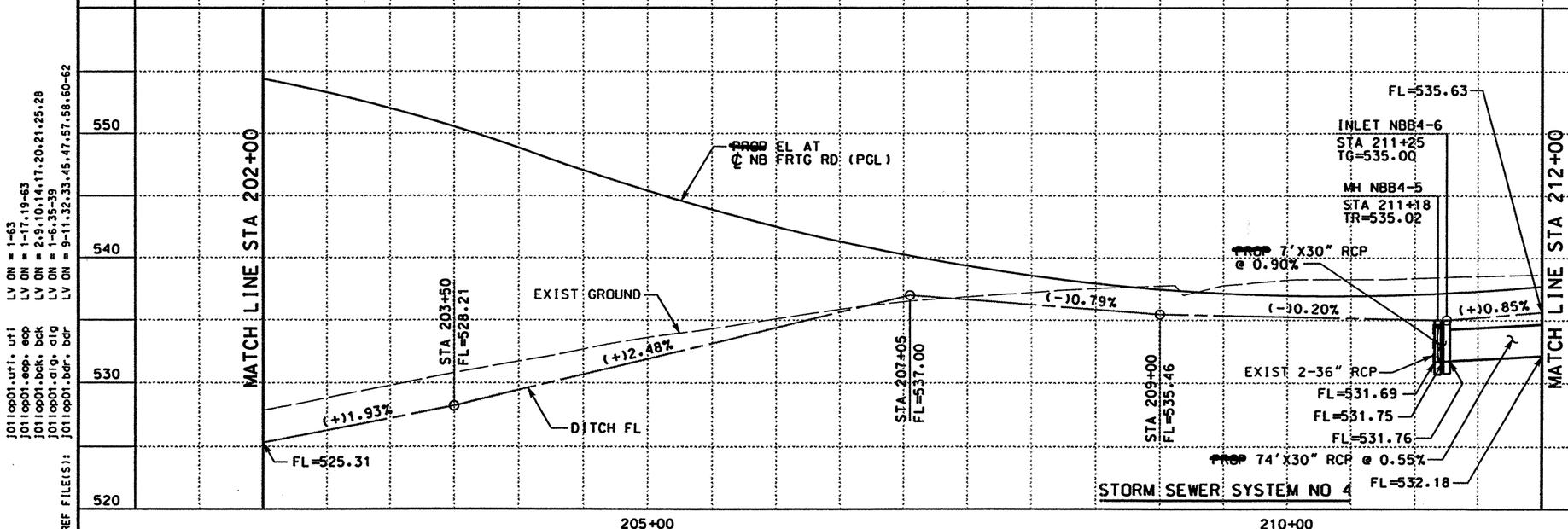
- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 202+00 TO STA 212+00

SHEET 5 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	526
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

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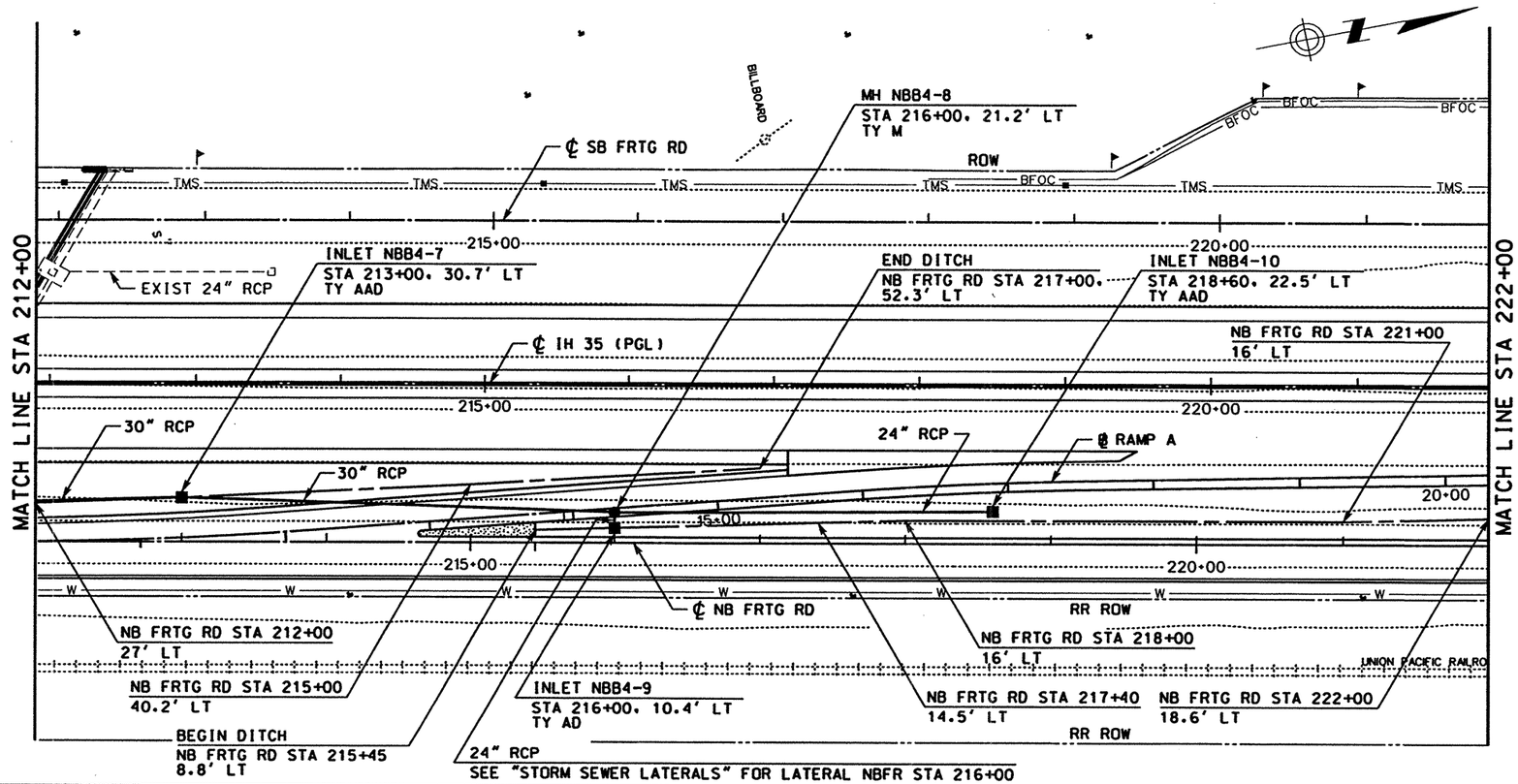
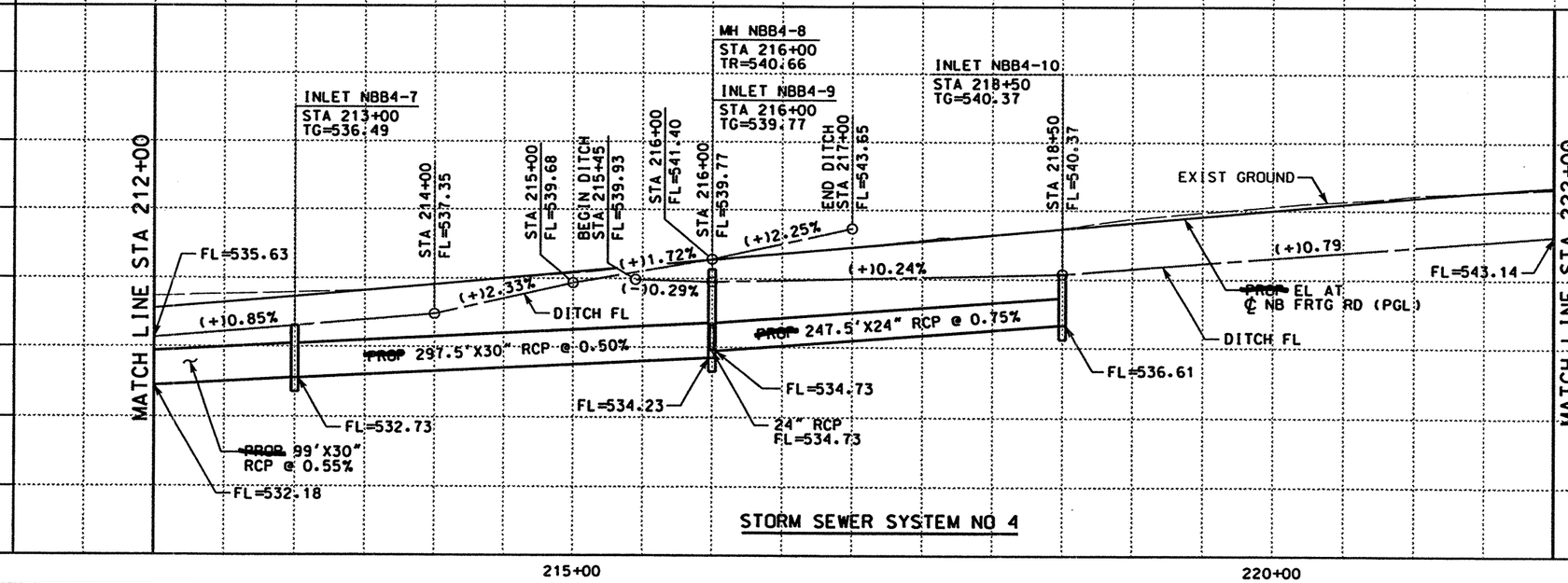
j01op01.dlg, dlg LV ON = 1-6,35-39
j01op01.bdr, bdr LV ON = 9-11,32-33,45,47,57,58,60-62
b13pp14.dgn-09 HOUFILE023 \hcivil\cf0130\ 4/18/2003





STORM SEWER SYSTEM NO 4

LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 212+00 TO STA 222+00
SHEET 6 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		527
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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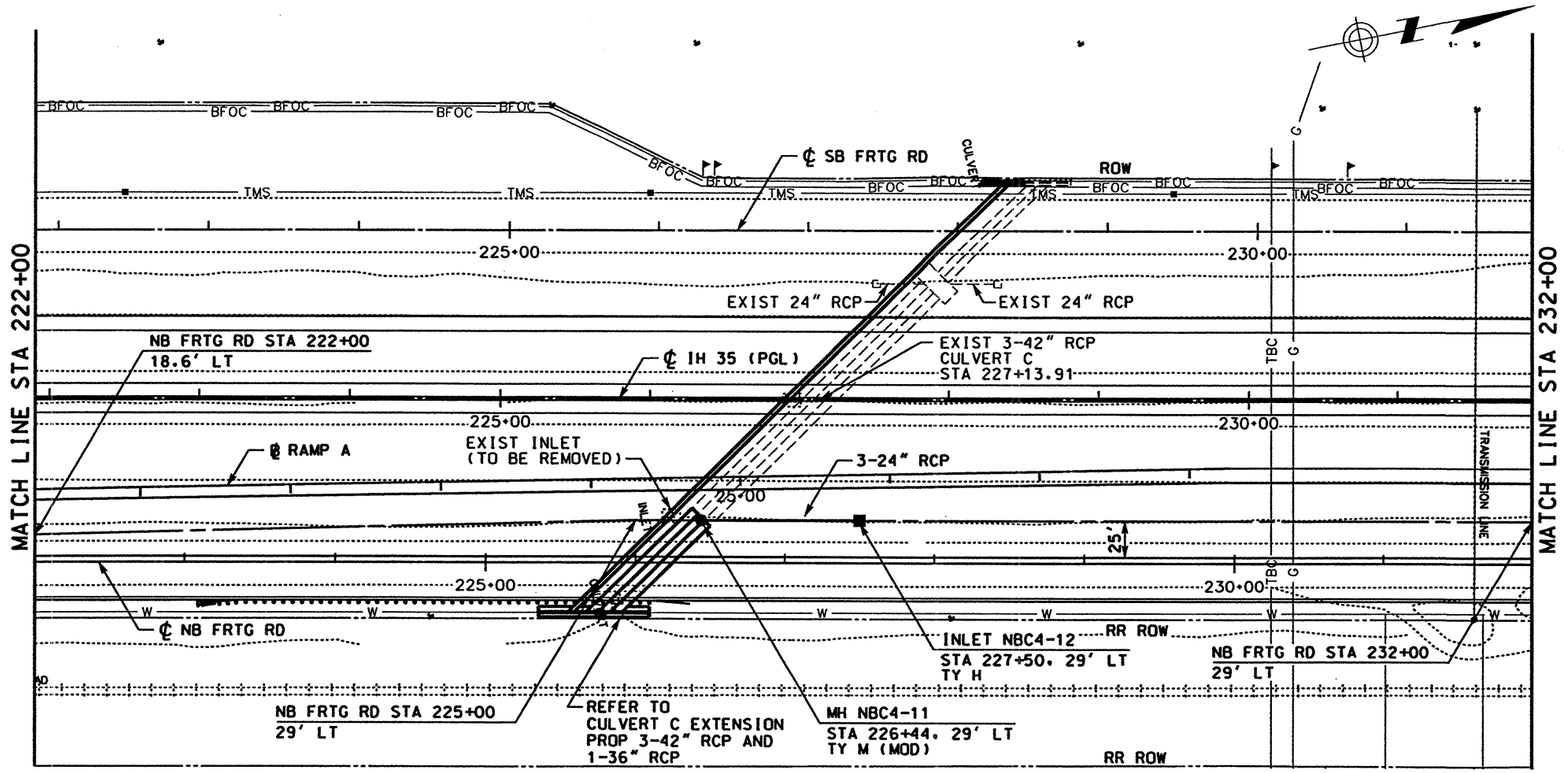
J0110p01.alg, alg LV ON = 1-6,35-39
J0110p01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
b13ppl15.dgn-08 HOUFILE023 \hciv\\cf0130\ 4/18/2003



LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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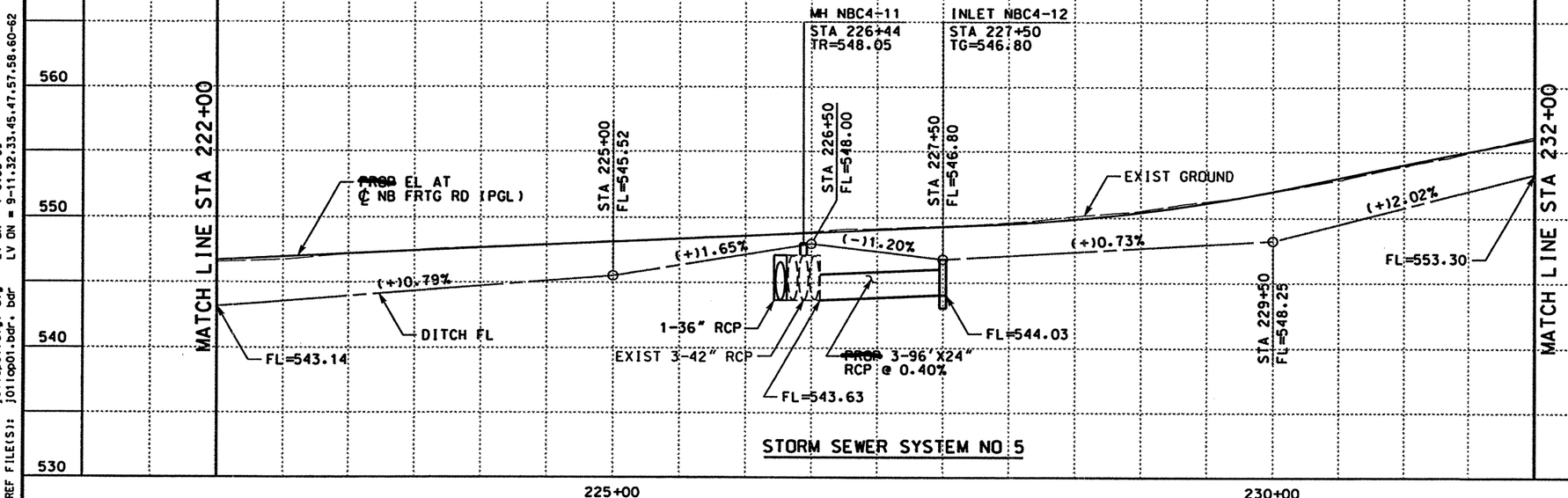
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



STORM SEWER SYSTEM NO 5

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 222+00 TO STA 232+00

SHEET 7 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	528
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.olg, olg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

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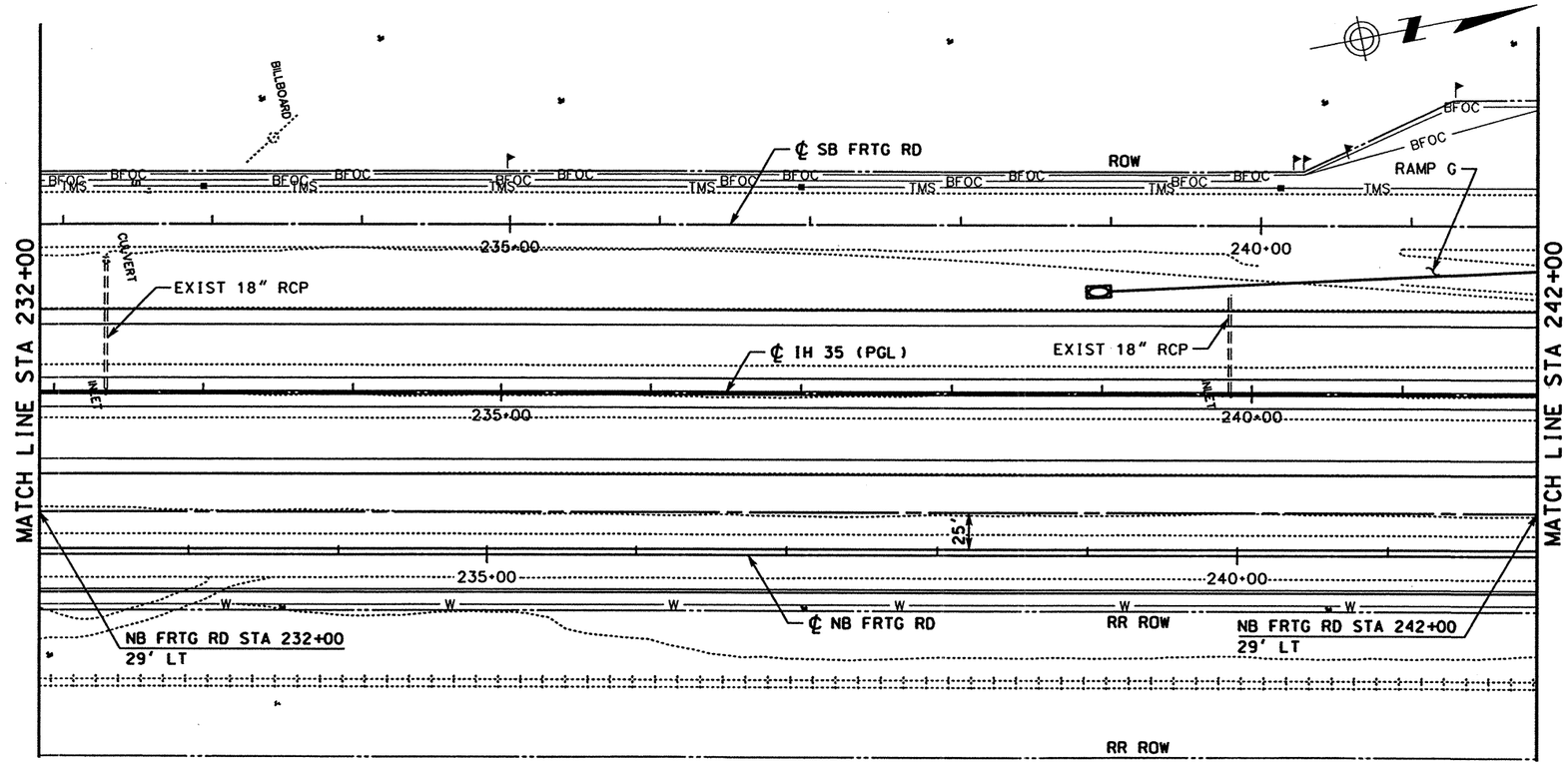


LEGEND

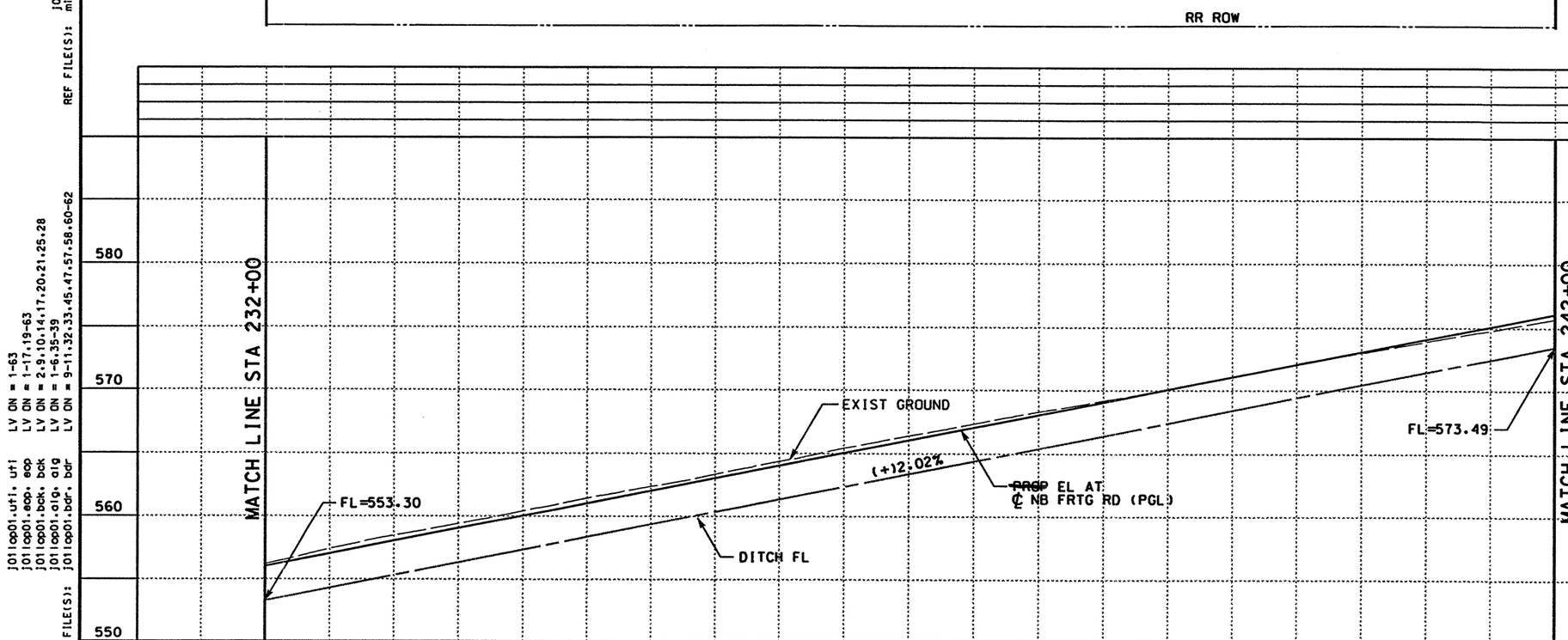
- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 232+00 TO STA 242+00

SHEET 8 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	529
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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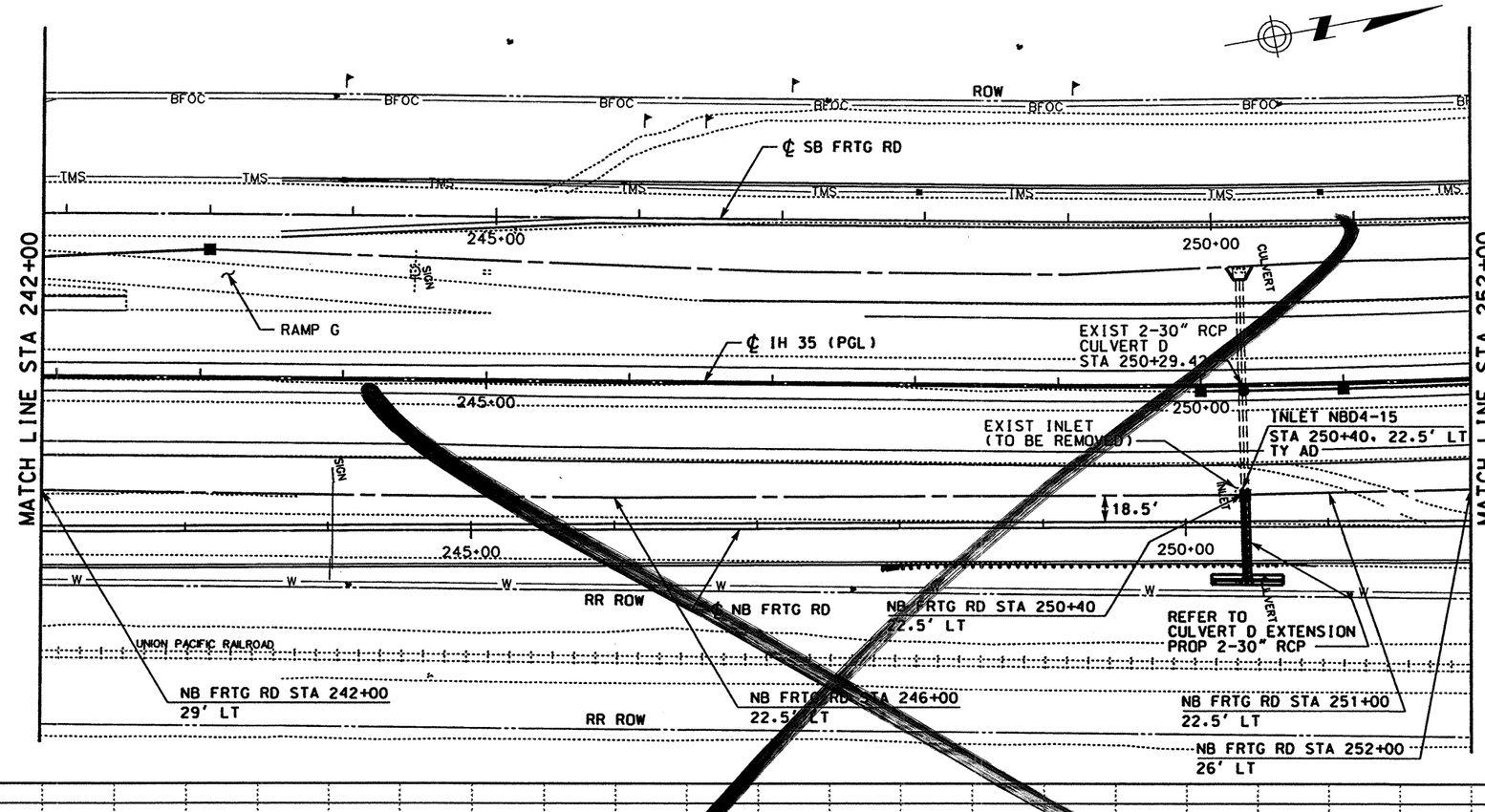

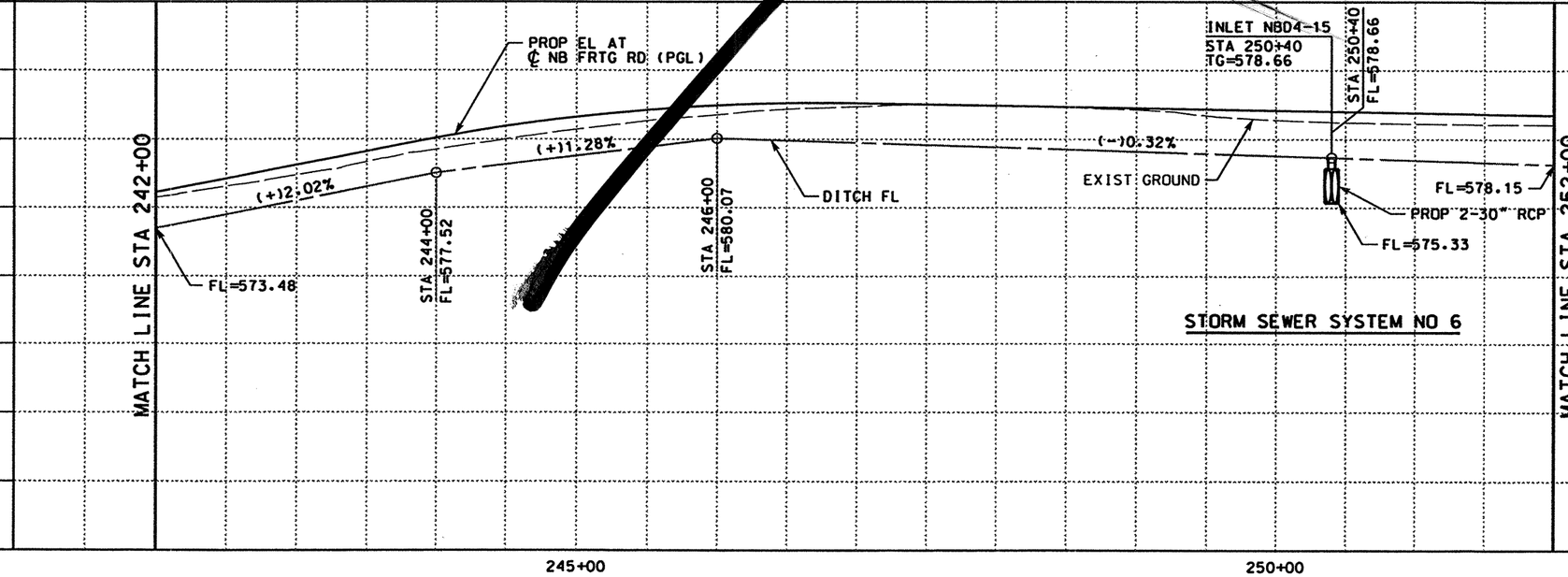

STORM SEWER SYSTEM NO 6

LEGEND

- ROW
- PROPOSED DITCH ℄
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

KBR
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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 242+00 TO STA 252+00
SHEET 9 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		530
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

\hcivil\c\f0130\ b13ppp18.dgn-11 HOUFILE023

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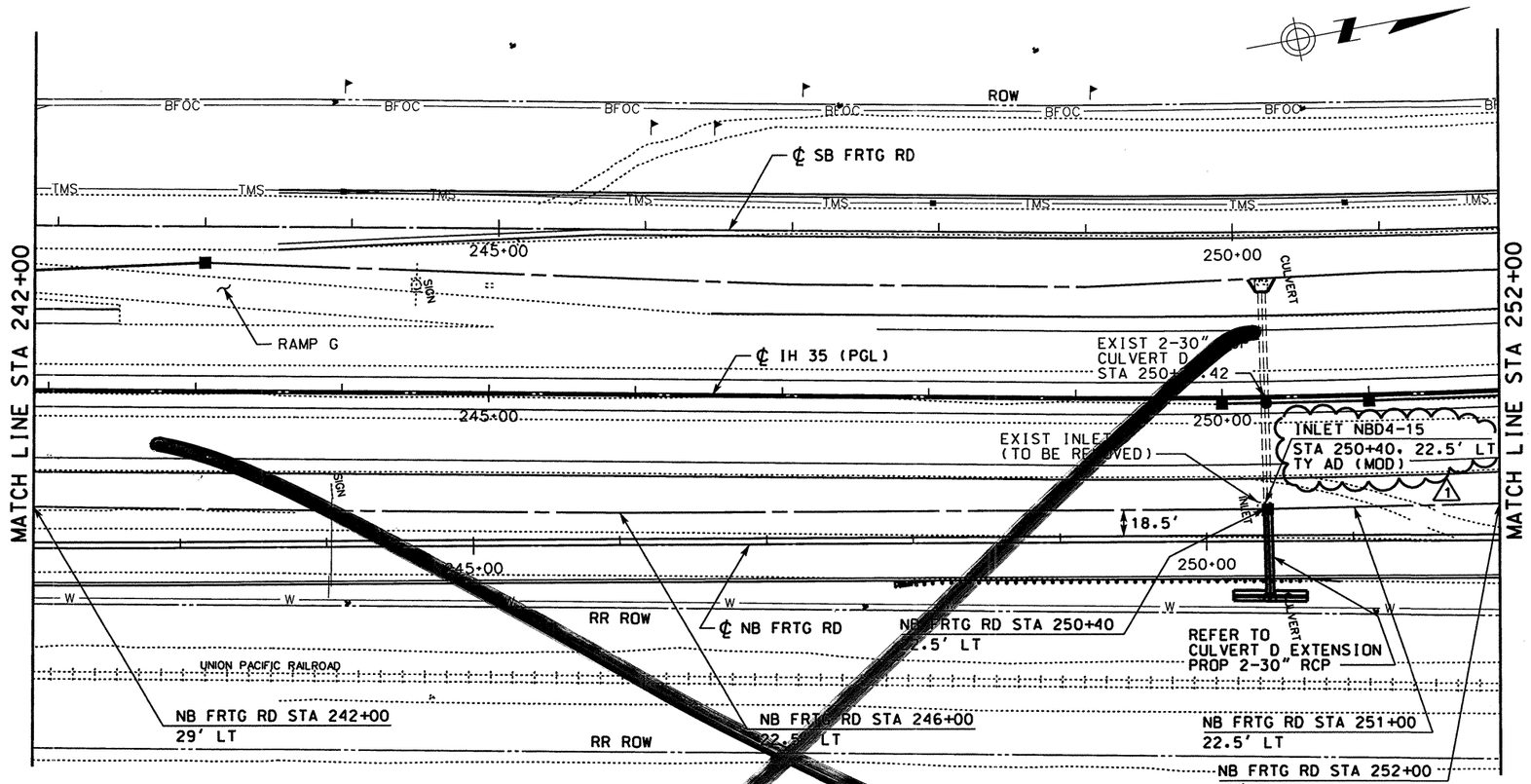

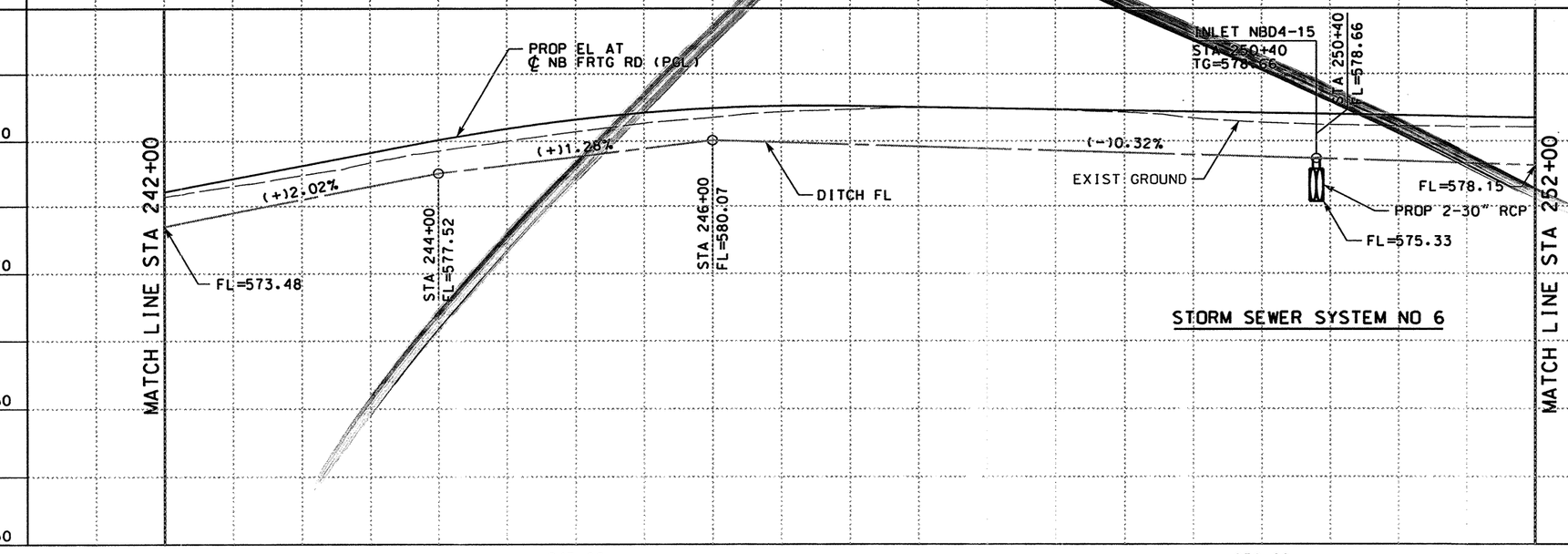

STORM SEWER SYSTEM NO 6

LEGEND

- ROW
- PROPOSED DITCH ℄
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

DATE	BY	REV	REVISION
6/25/04	OG	01	INLET NBDA-15 TO TY AD(MOD)

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 25, 2004

A. Abugattas 6/29/2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 242+00 TO STA 252+00

SHEET 9 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	530
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.pro, pro milofnt.row • row
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LV ON = 2-9.10.14.17.20-21.25.28
LV ON = 1-6.35-39
LV ON = 9-11.32.33.45.47.57.58.60-62
j011op01.uti, uti
j011op01.eop, eop
j011op01.bck, bck
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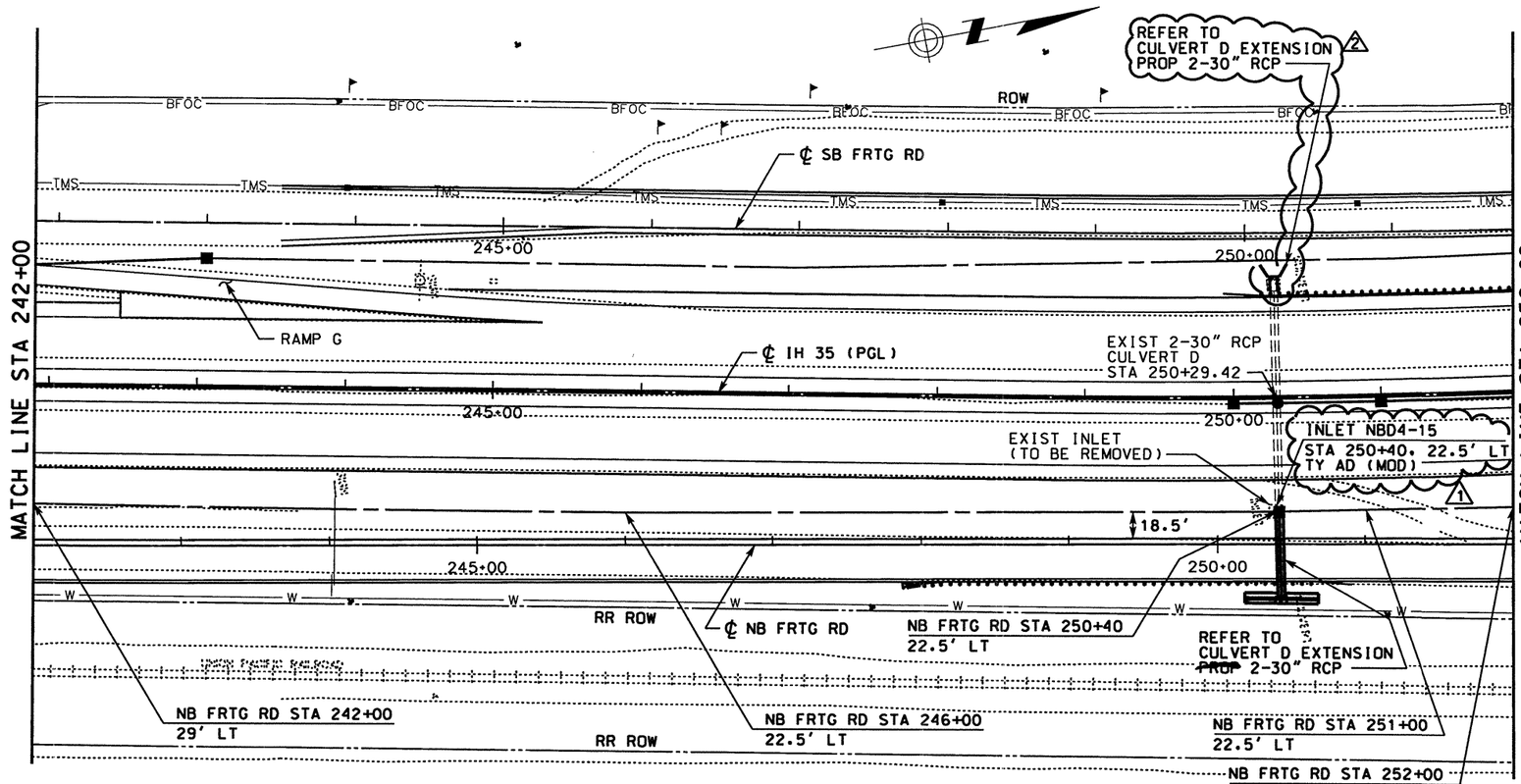
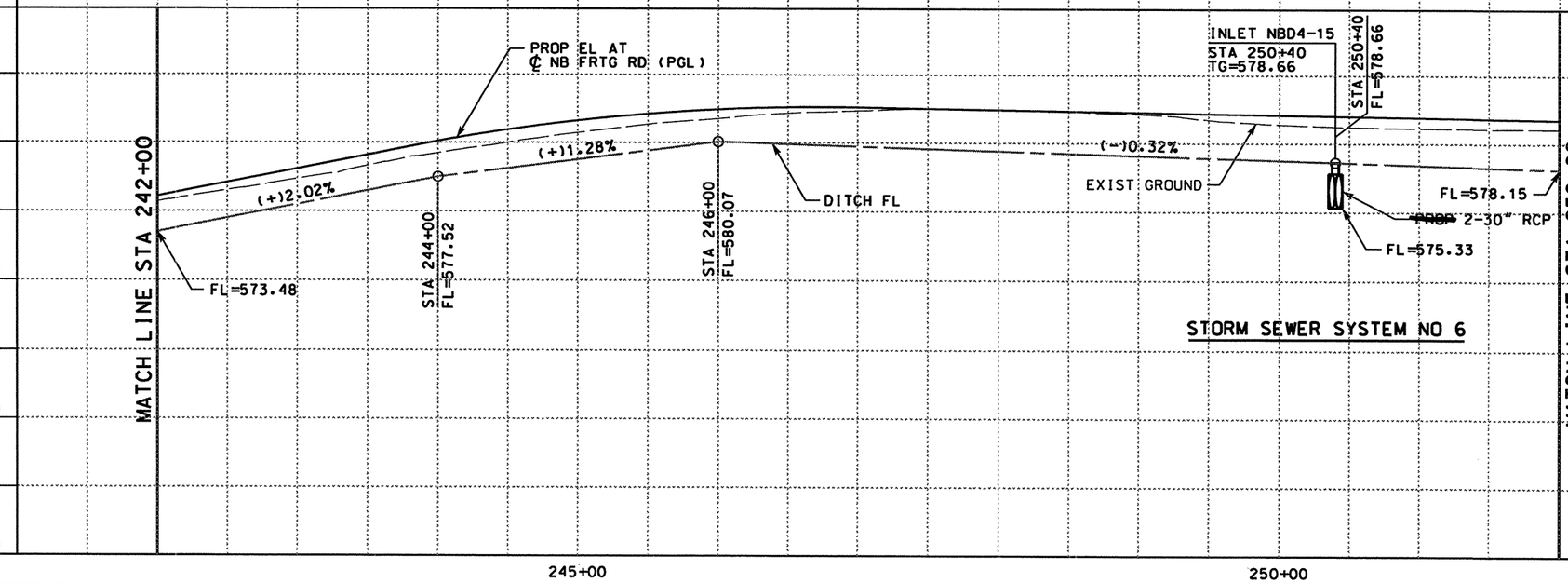
6/29/2004





STORM SEWER SYSTEM NO 6

LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

DATE	BY	REV	REVISION
11/30/04	AA	2	ADD AUXILIARY LANE
6/25/04	DG	01	INLET NBDA-15 TO TY AD(MOD)

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON FEBRUARY 10, 2005

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 242+00 TO STA 252+00
SHEET 9 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	530
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

2/10/2005

REF FILE(S): j0110p01.pro, j0110p01.mlointf.row, j0110p01.utl, j0110p01.eop, j0110p01.bck, j0110p01.alg, j0110p01.bdr, b13pp18.dgn-12, HOUFILE023 \hcivil\c\f0130\

LV ON = 1-23.25-63
LV ON = 1-63
LV ON = 1-17.19-63
LV ON = 2-9.10.14.17.20.21.25.28
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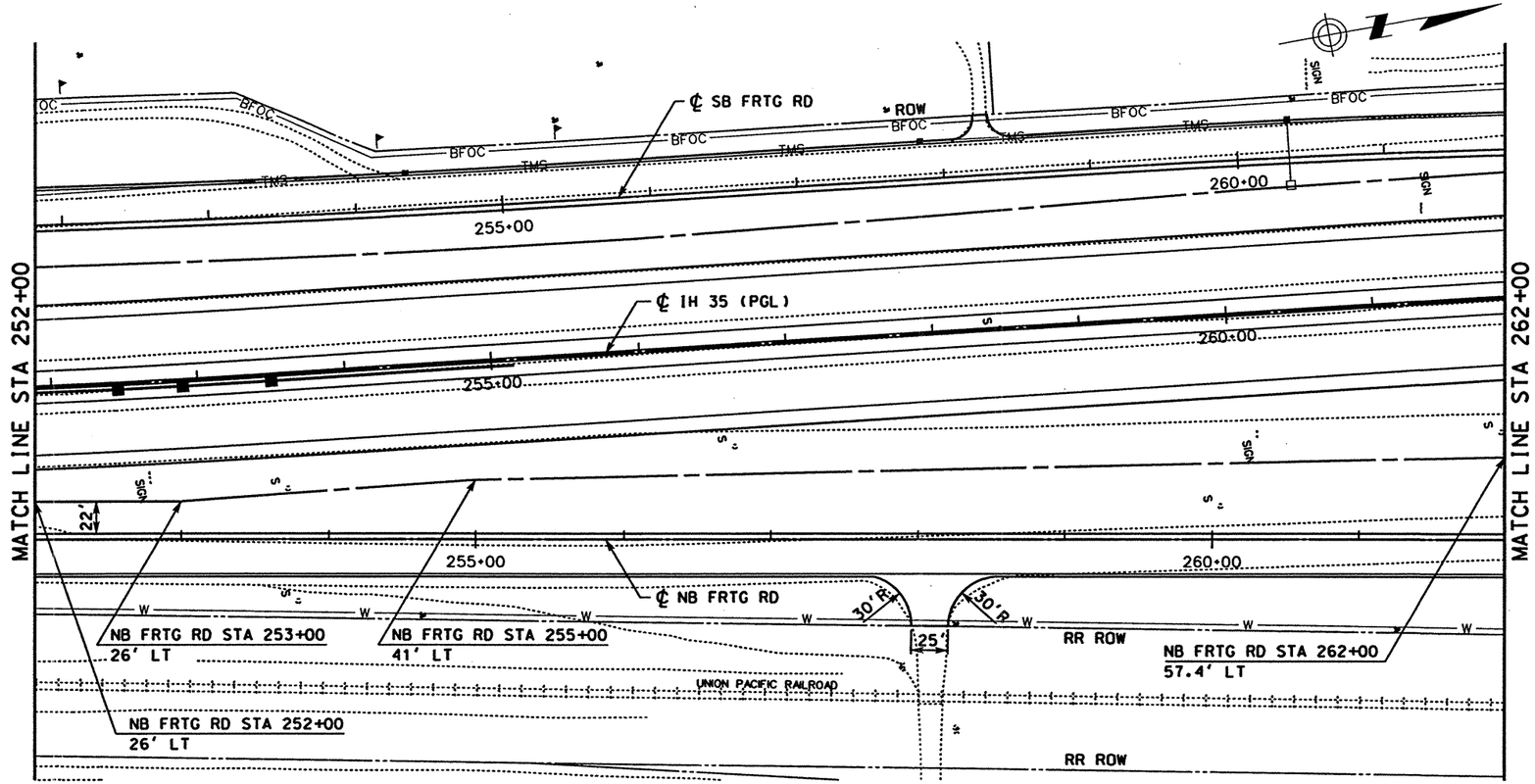
LV ON = 9-11.32.33.45.47.57.58.60-62



LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
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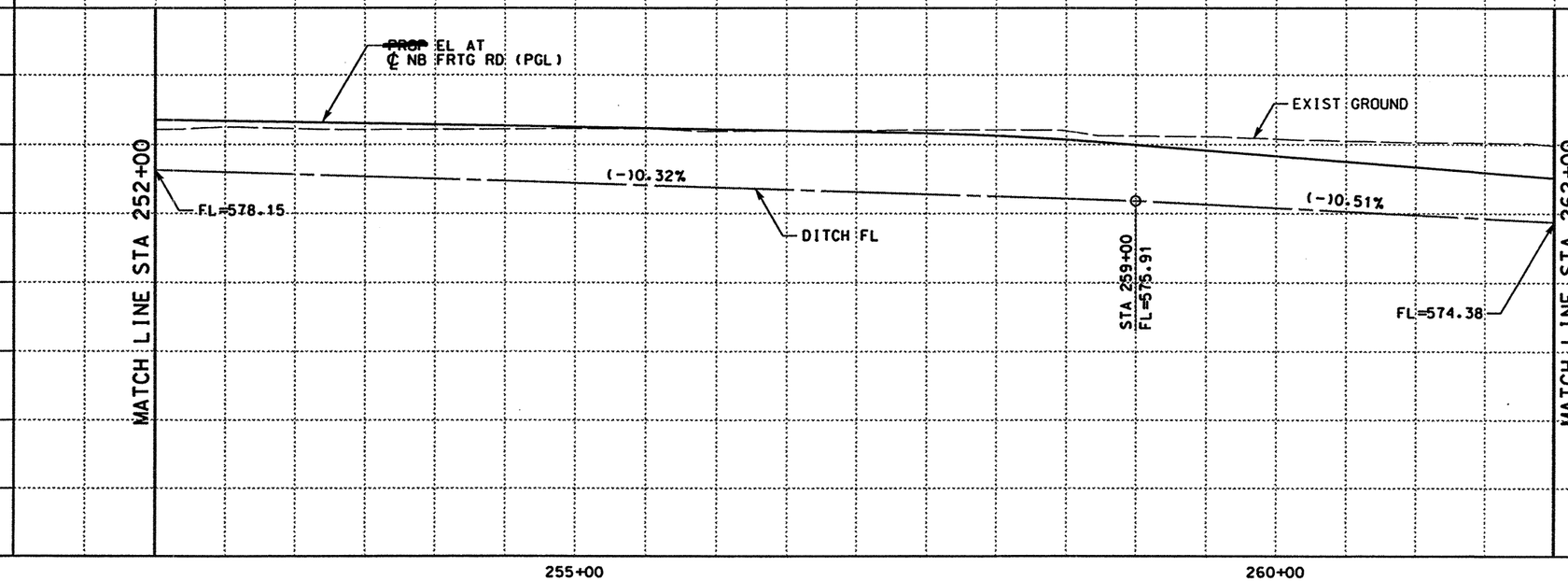
TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · P.E. 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 252+00 TO STA 262+00

SHEET 10 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	531
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

4/18/2003

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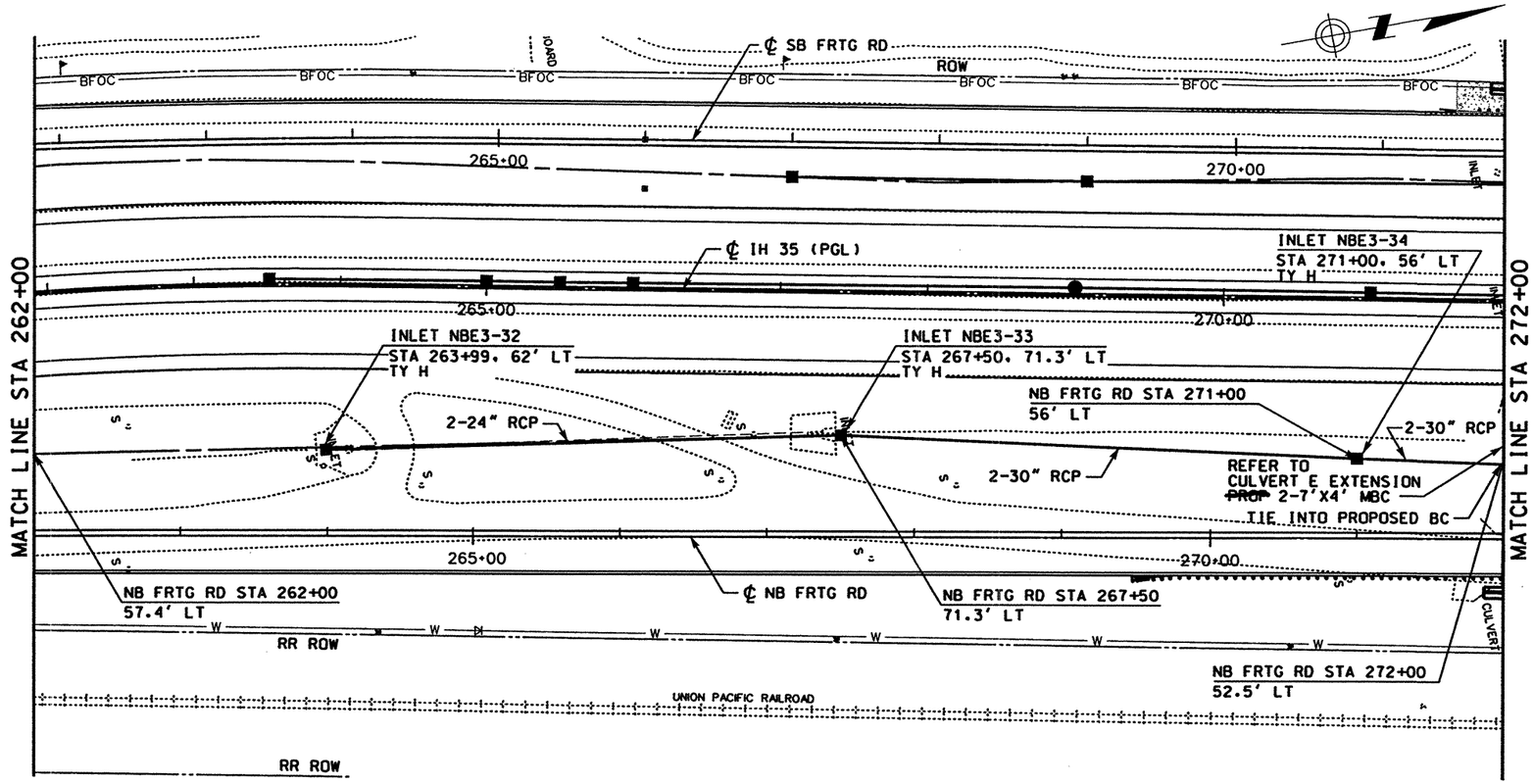

LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ~~PROPOSED~~ INLET
- ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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TR = TOP OF RIM

NOTES:

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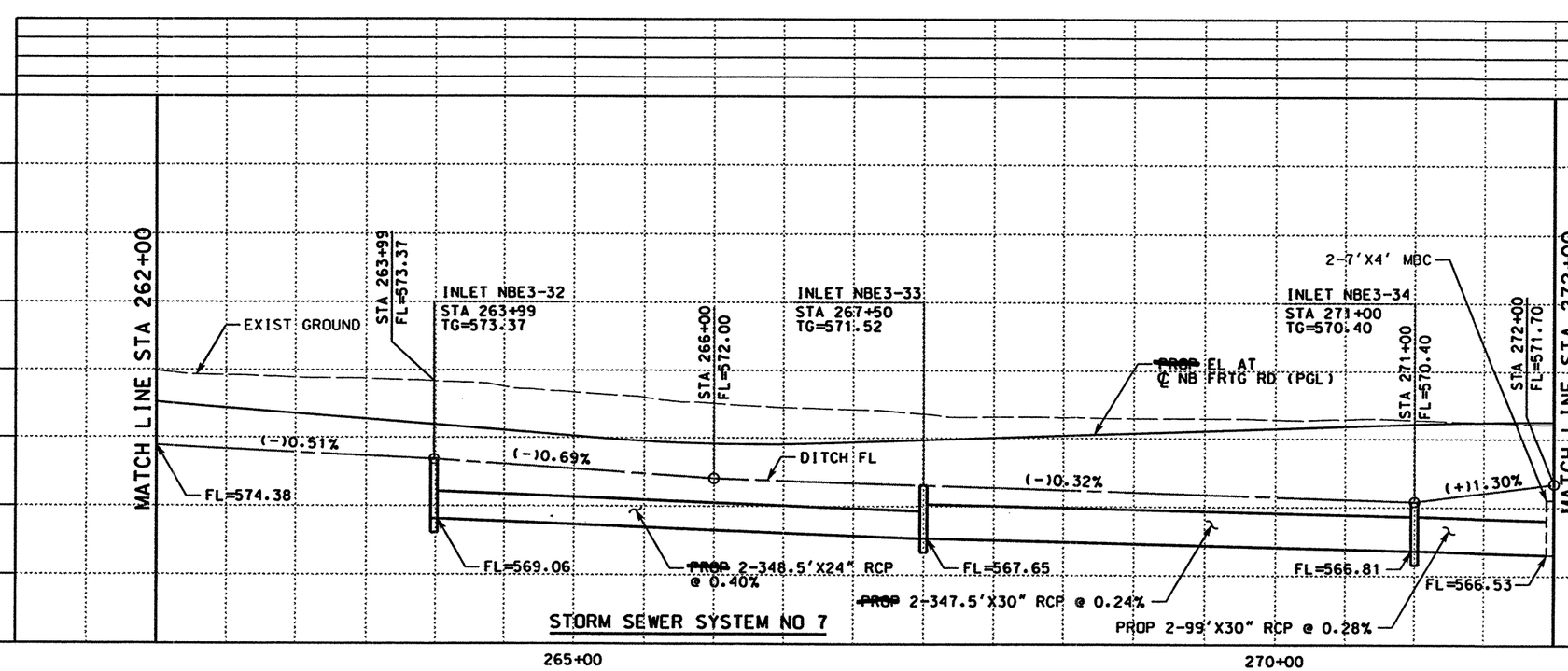
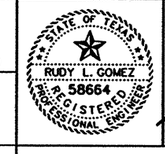
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 262+00 TO STA 272+00
SHEET 11 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	532
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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J011op01.clg, clg LV ON = 1-6,35-39
J011op01.bar, bar LV ON = 9-11,32,33,45,47,57,58,60-62
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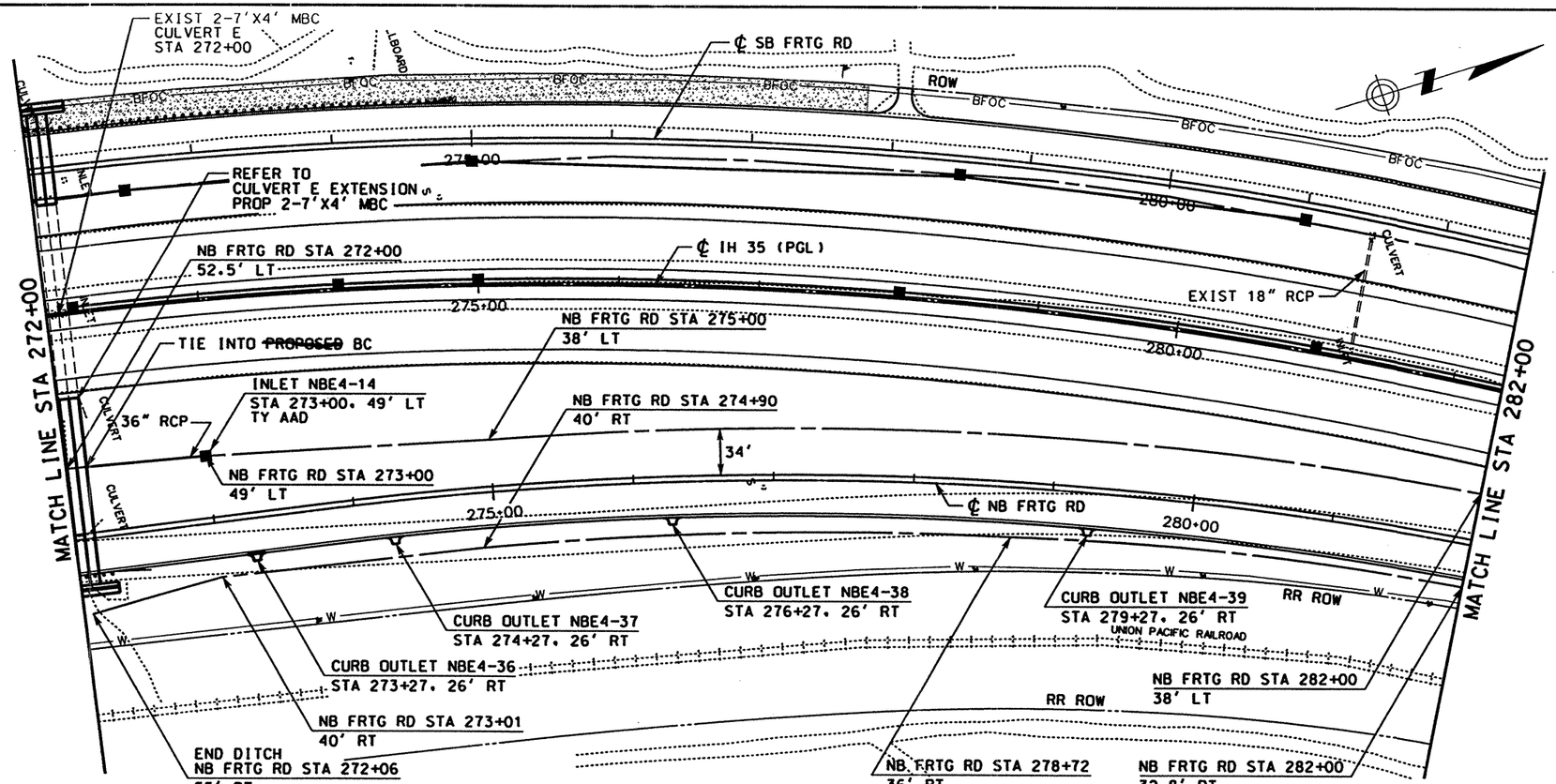


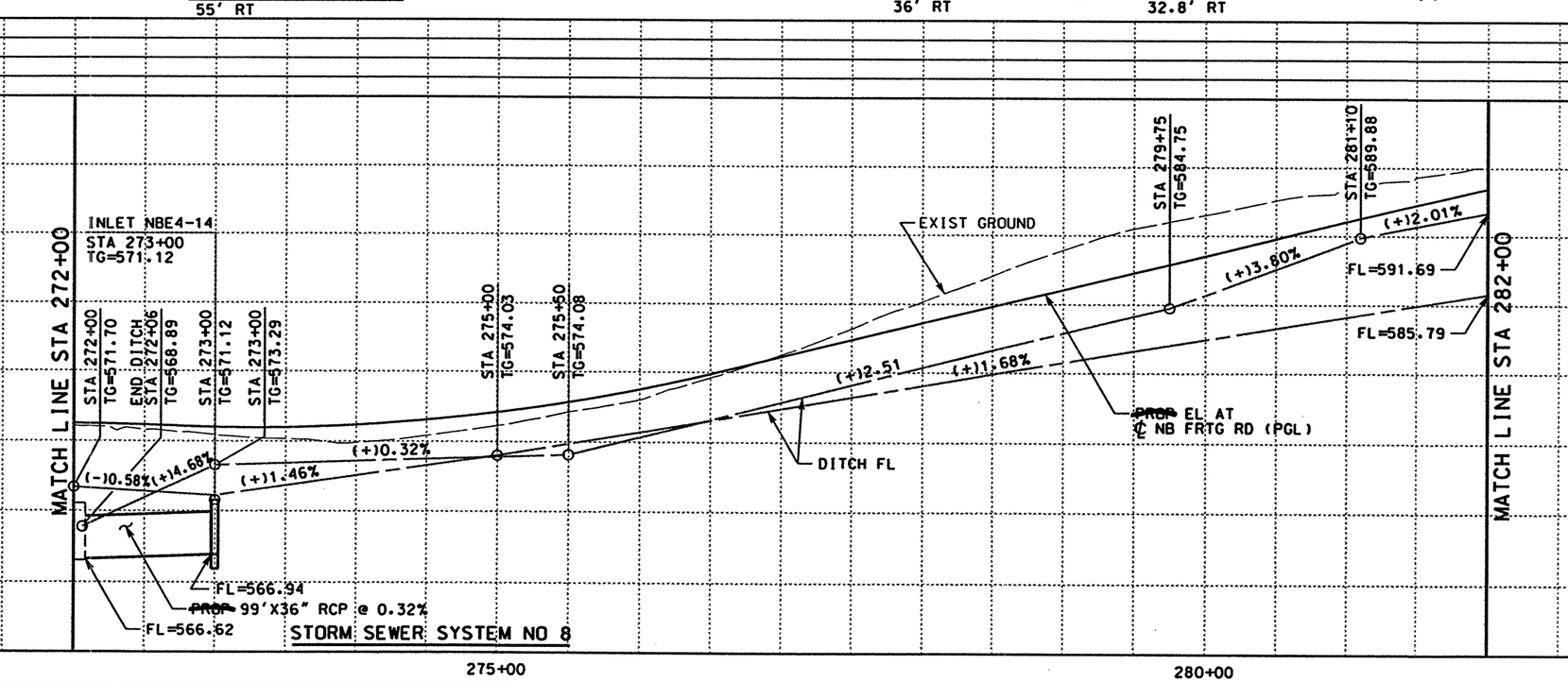
LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ~~PROPOSED~~ INLET
- ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 272+00 TO STA 282+00

SHEET 12 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	533
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

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J011op01.bck, bck LV ON = 2-9.10.14.17.20.21.25.28
J011op01.alg, alg LV ON = 1-6.35-39
J011op01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62

4/18/2003
HOUFILE023 \hchivil\cf0130\
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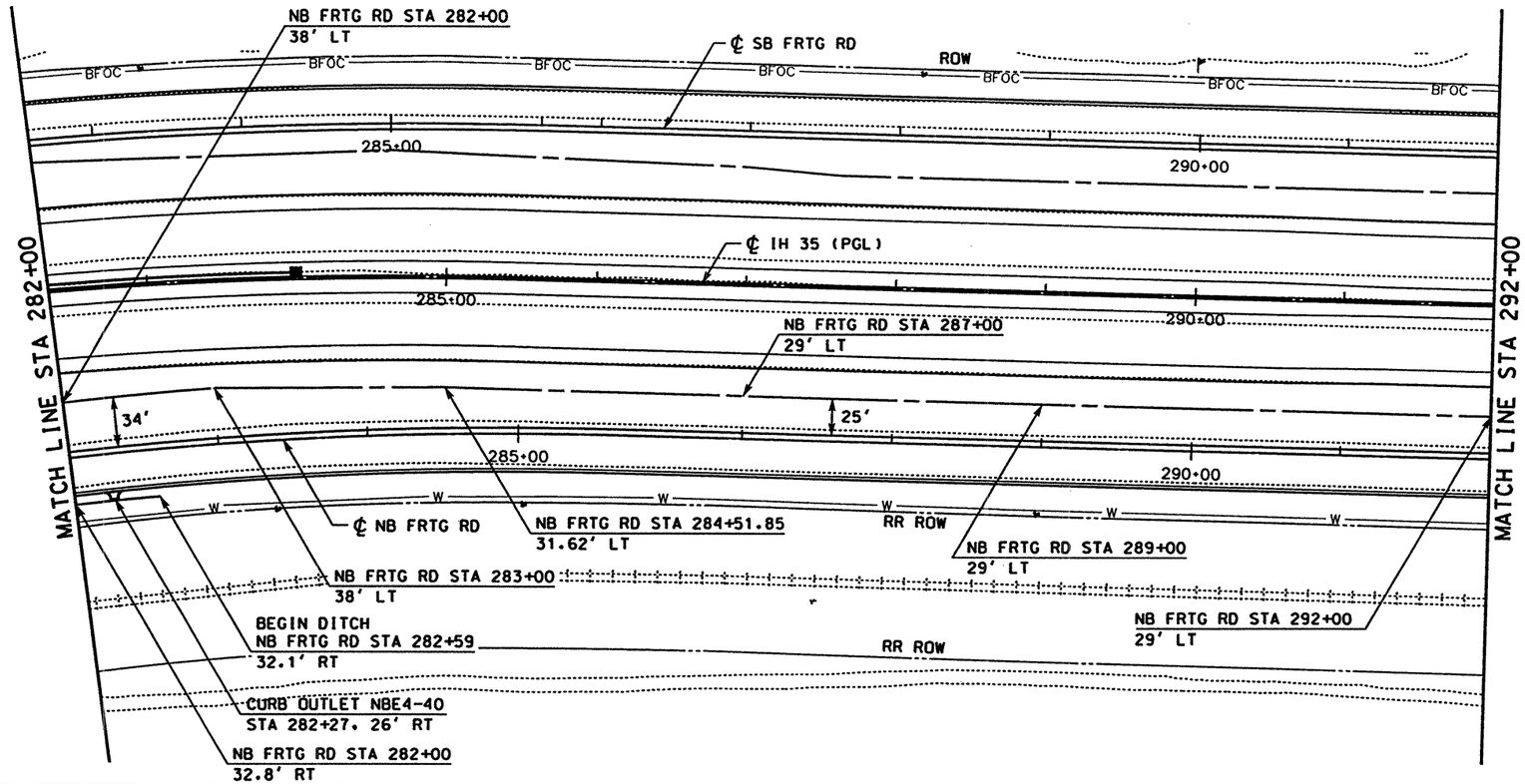

LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

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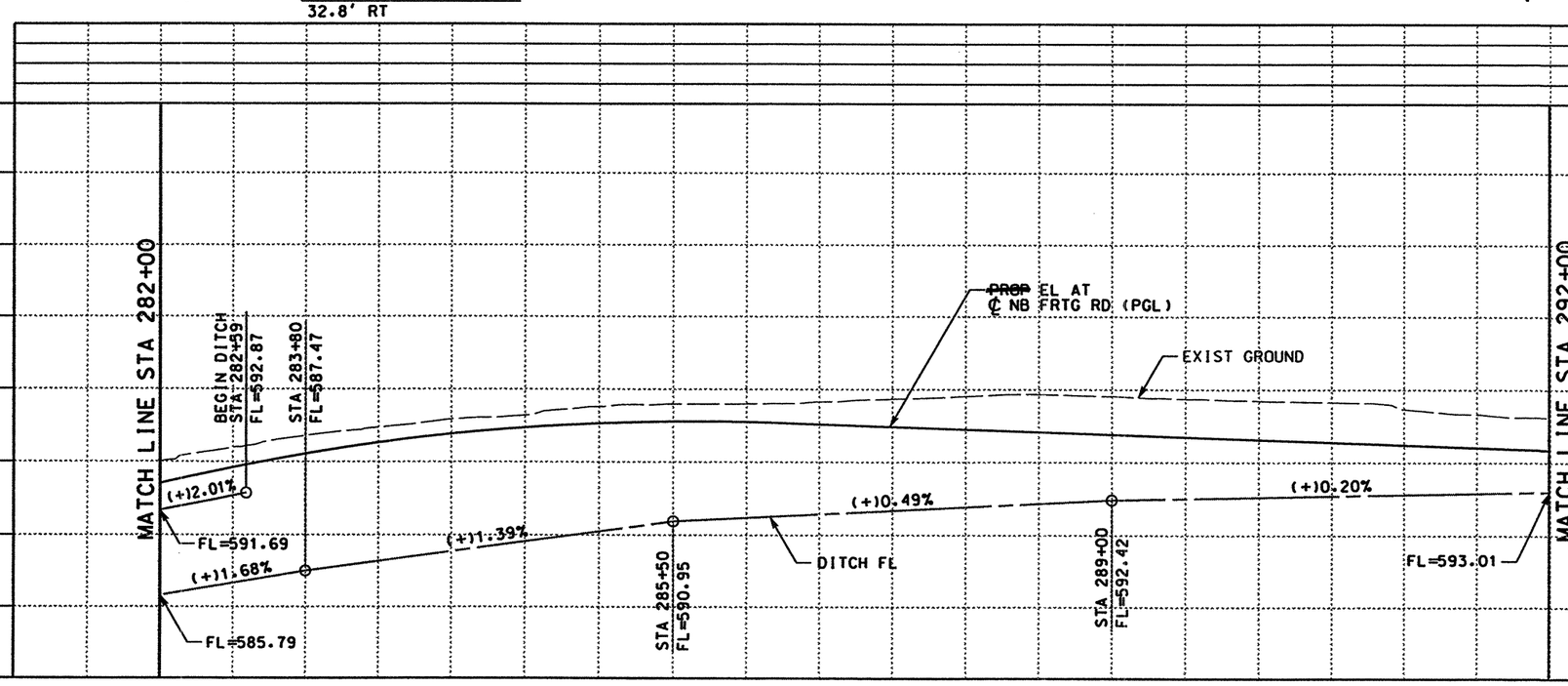
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 282+00 TO STA 292+00
SHEET 13 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	534
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

4/18/2003

REF FILE(S): j011op01.pro. pro LV ON = 1-63
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j011op01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62
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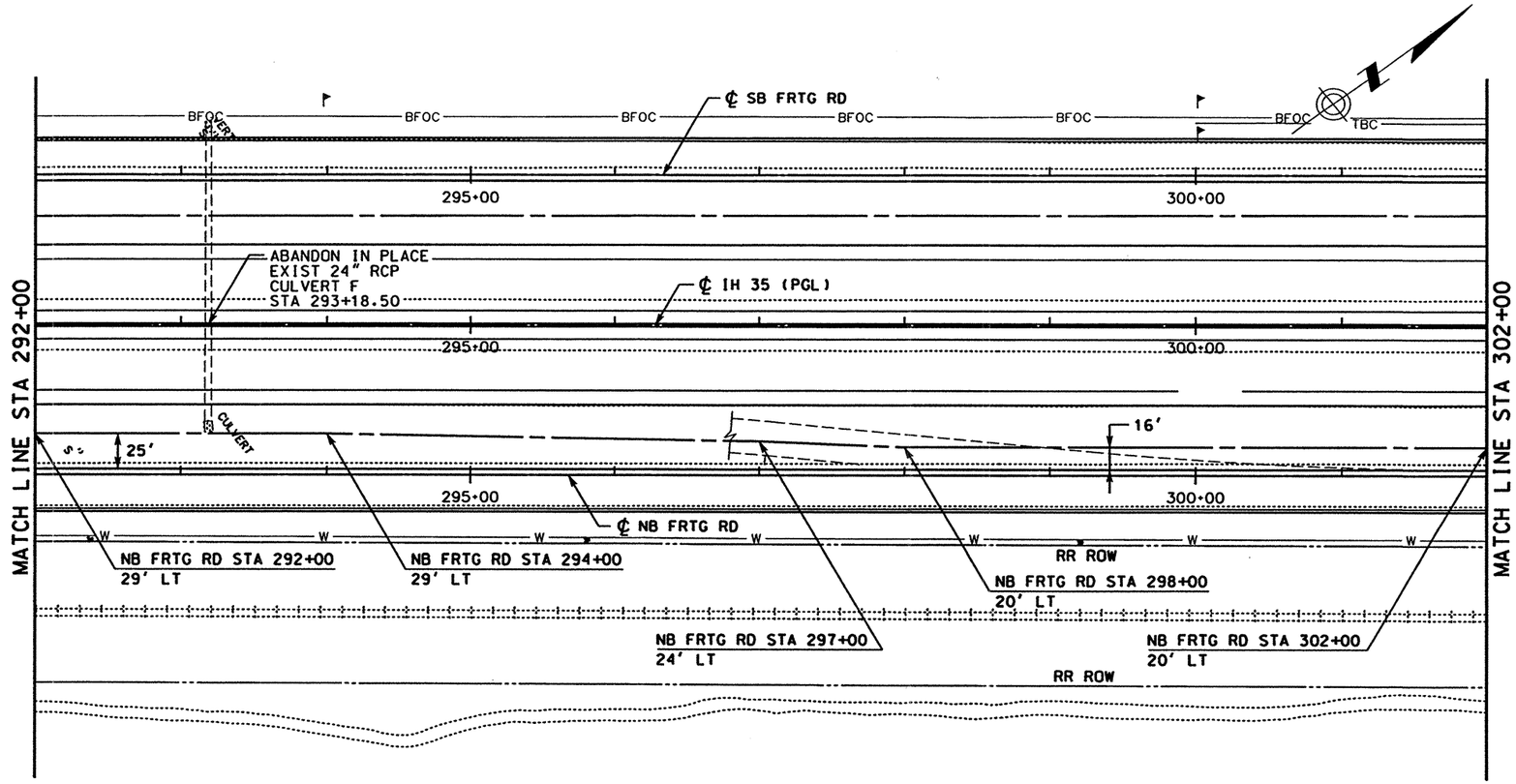

LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

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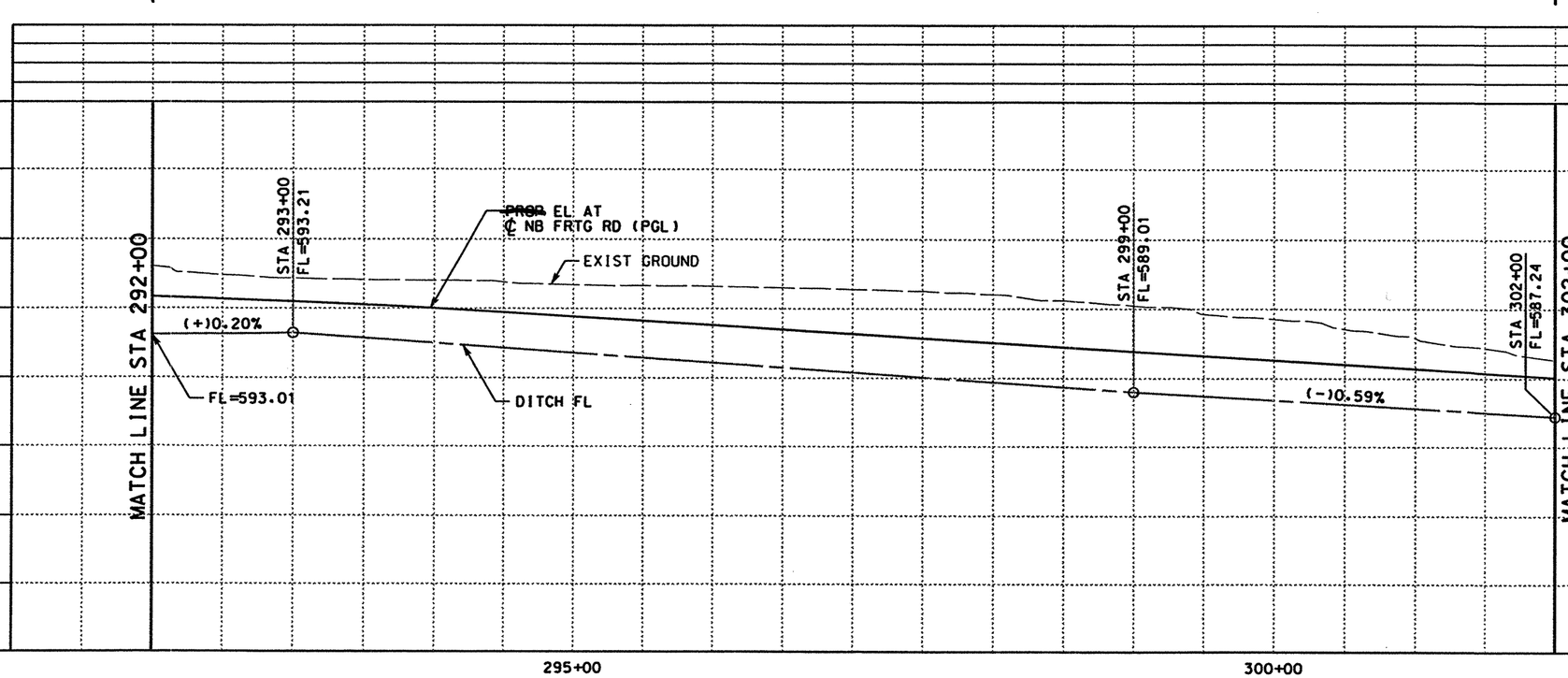
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 292+00 TO STA 302+00
SHEET 14 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	535
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j0110p01.pro, pro LV ON = 1-63
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j0110p01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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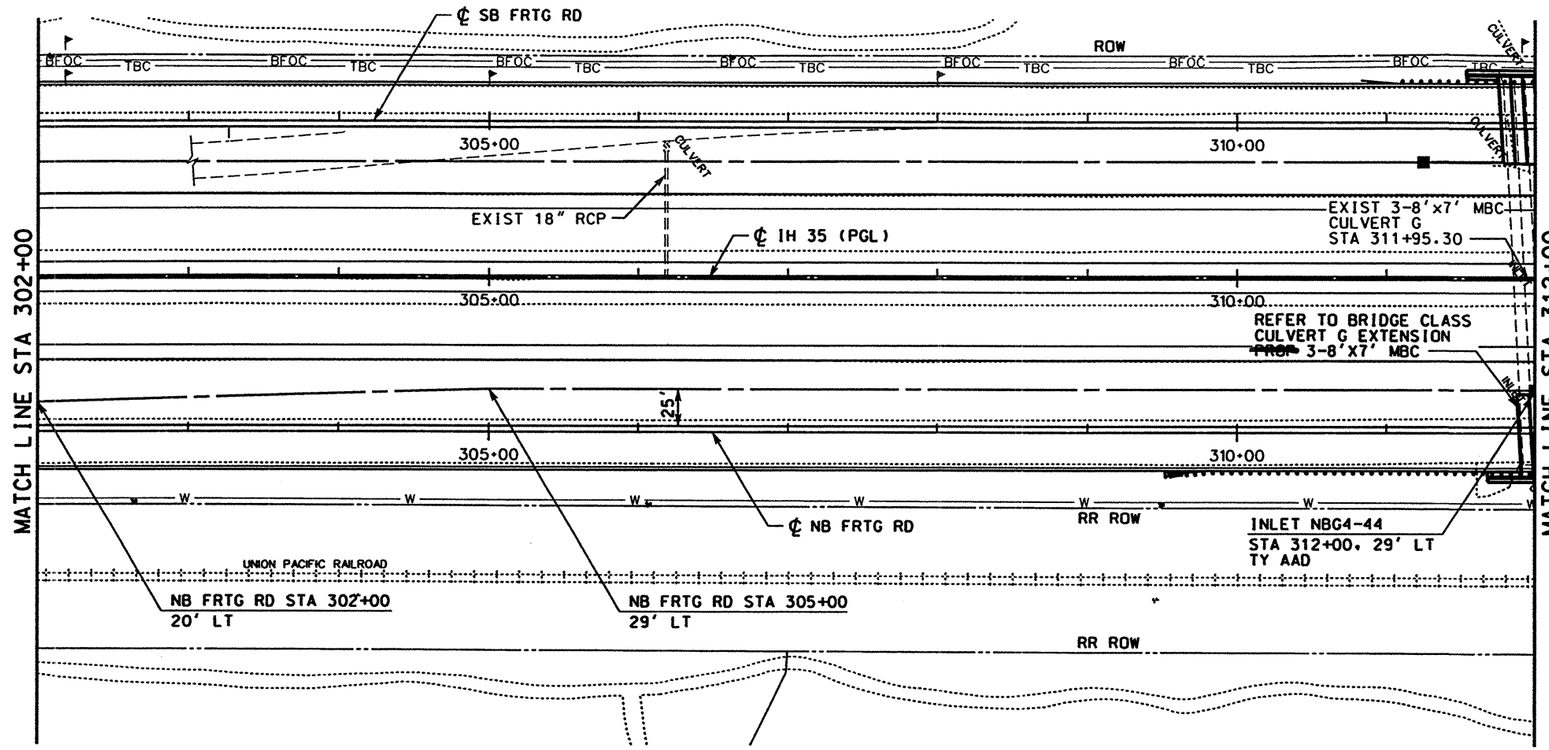
b13ppp23.dgn-10 HOUFILE023 \hcivil\cf0130\ 4/18/2003



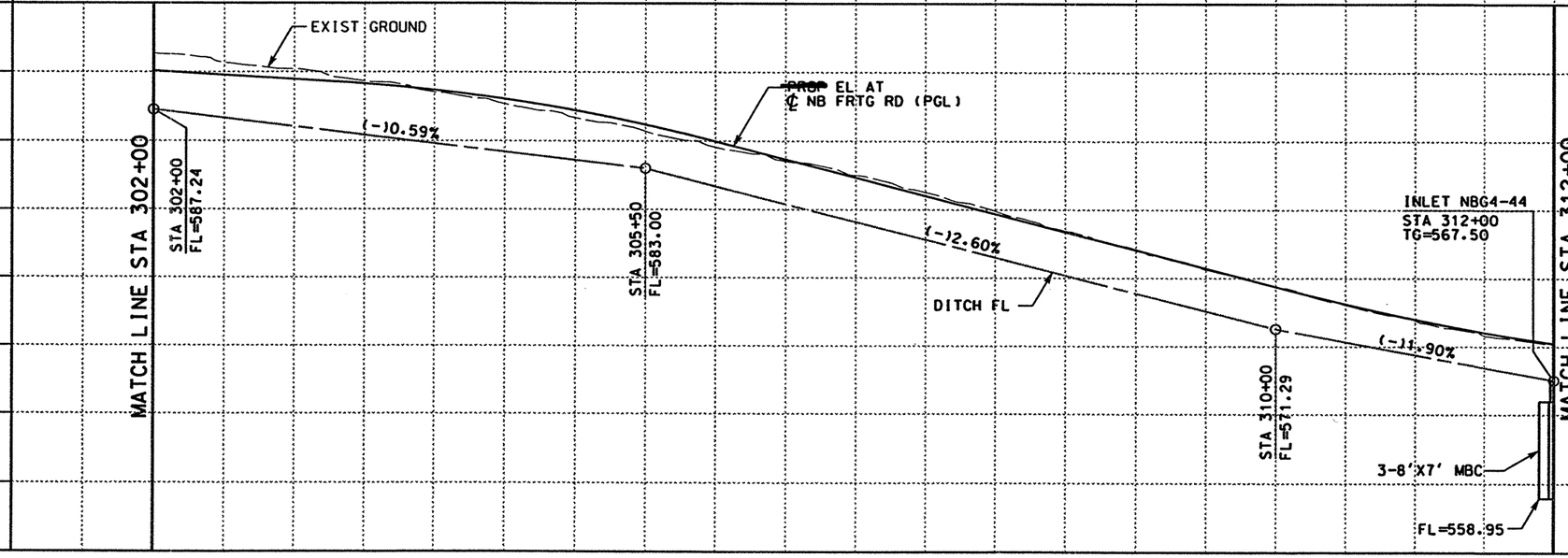
LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ~~PROPOSED~~ INLET
- ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 302+00 TO STA 312+00
SHEET 15 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	536
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/18/2003
\hcivil\cf0130\HOUFILE023\b13ppp24.dgn-10

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1011op01.alg. alg LV ON = 1-6.35-39
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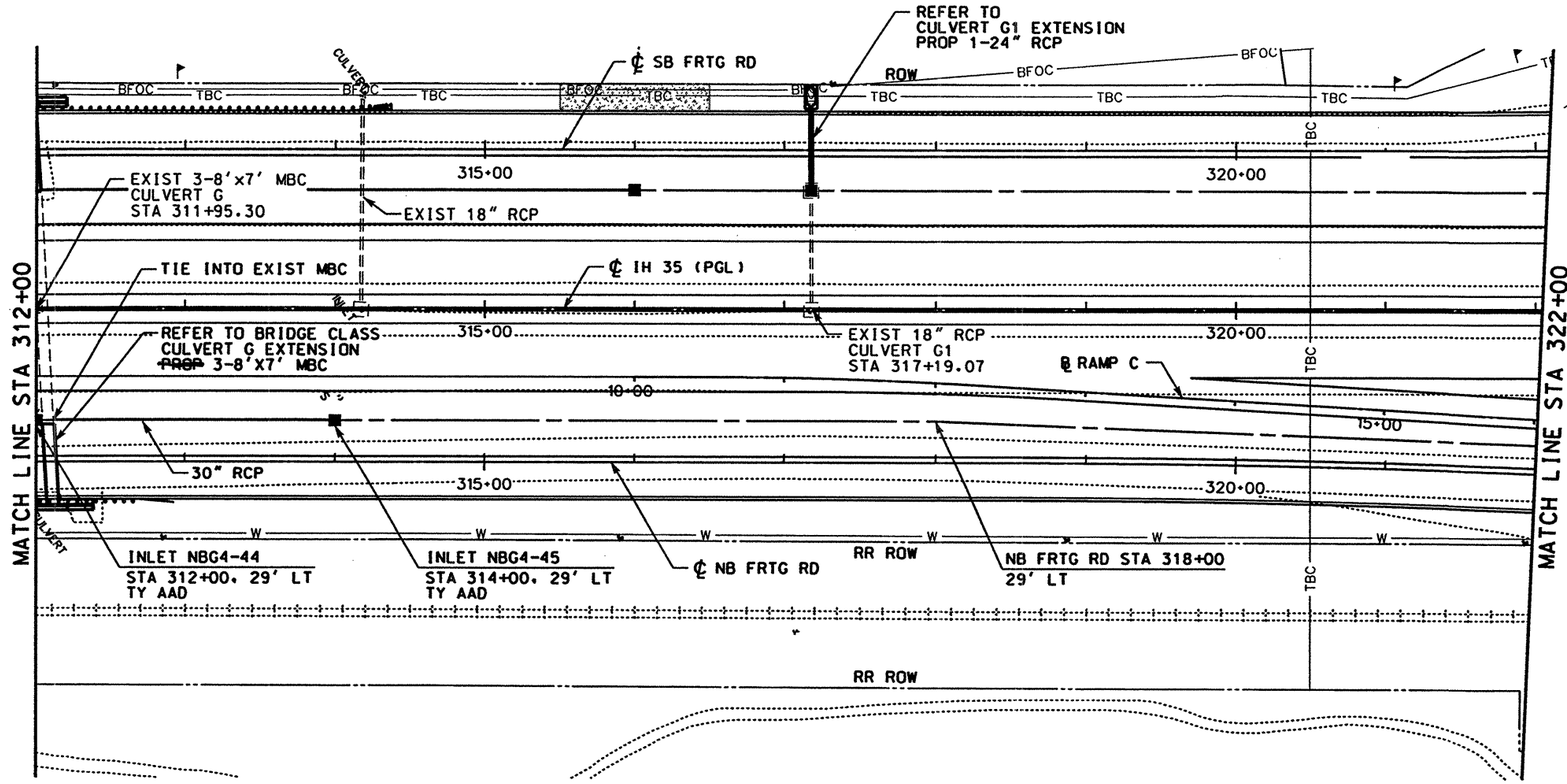


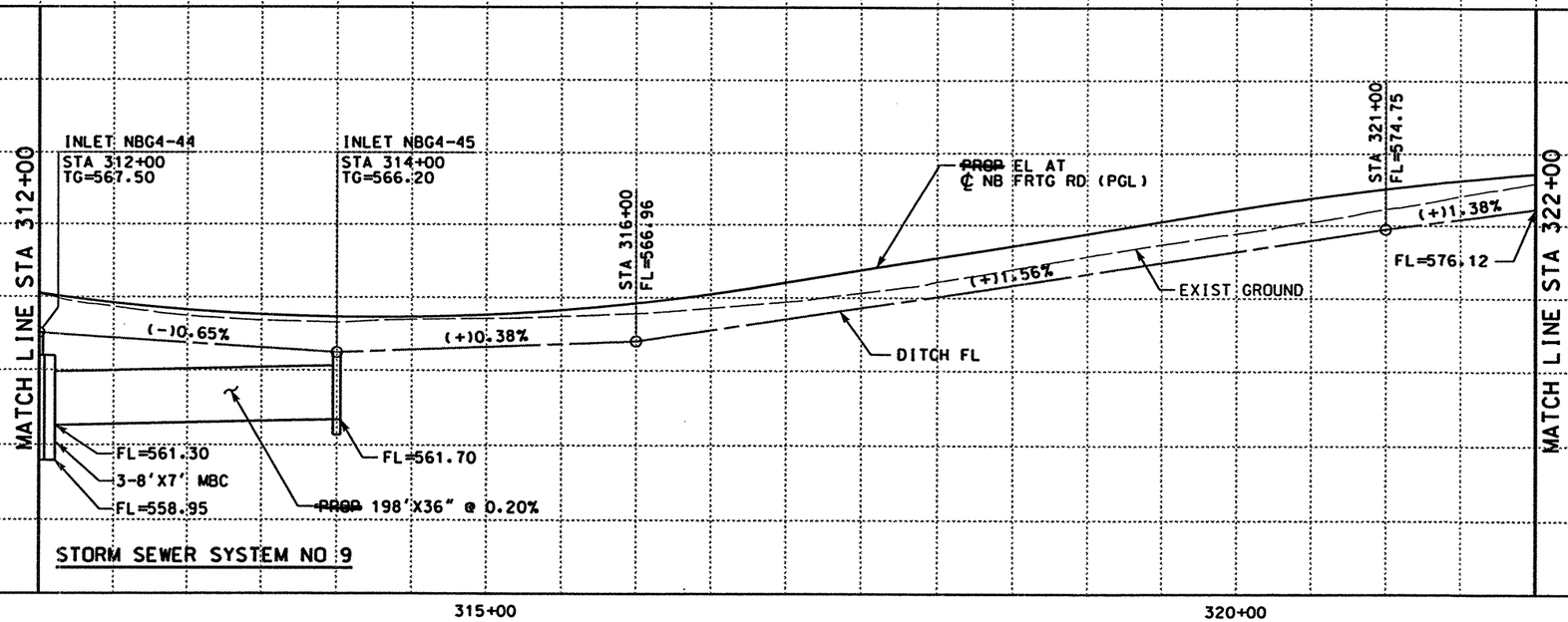
LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ~~PROPOSED~~ INLET
- ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 312+00 TO STA 322+00
SHEET 16 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	537
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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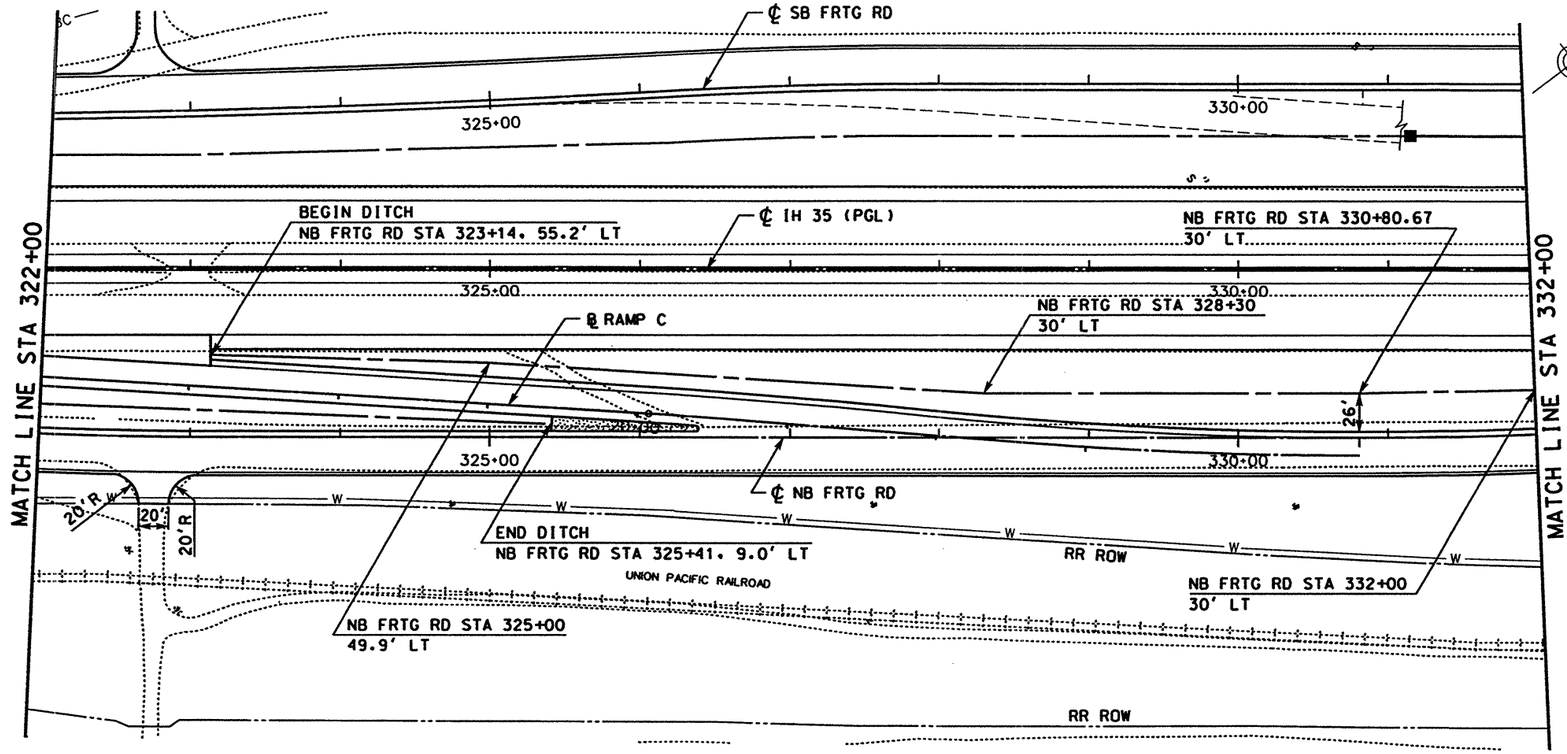


LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

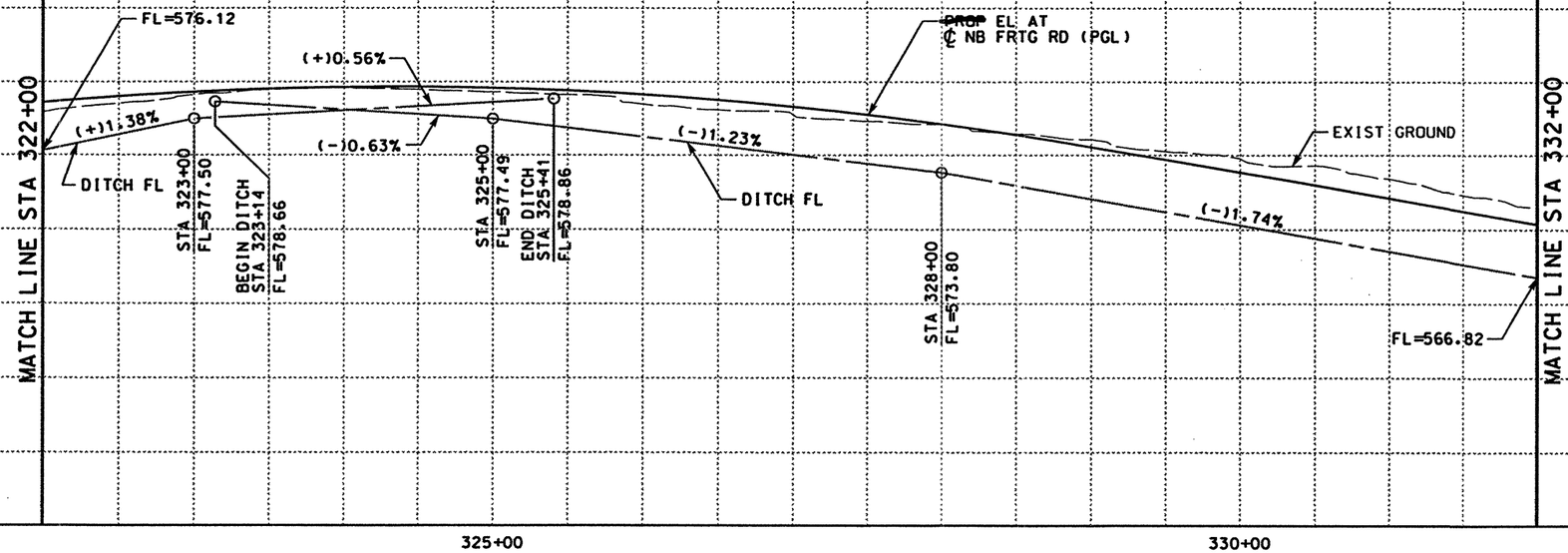
TC = TOP OF CURB

TG = TOP OF GRATE

TR = TOP OF RIM

NOTES:

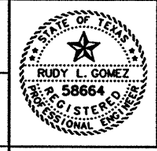
1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100

SCALE: 1" = 100' HORIZ
1" = 10' VERT



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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 322+00 TO STA 332+00

SHEET 17 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		538
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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j011op01.alg. alg LV ON = 9-11.32.33.45.47.57.58.60-62
j011op01.bdr. bdr LV ON = 1-63
j011op01.uti. uti LV ON = 1-63

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j011op01.bck. bck LV ON = 1-6.35-39
j011op01.alg. alg LV ON = 9-11.32.33.45.47.57.58.60-62
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4/18/2003
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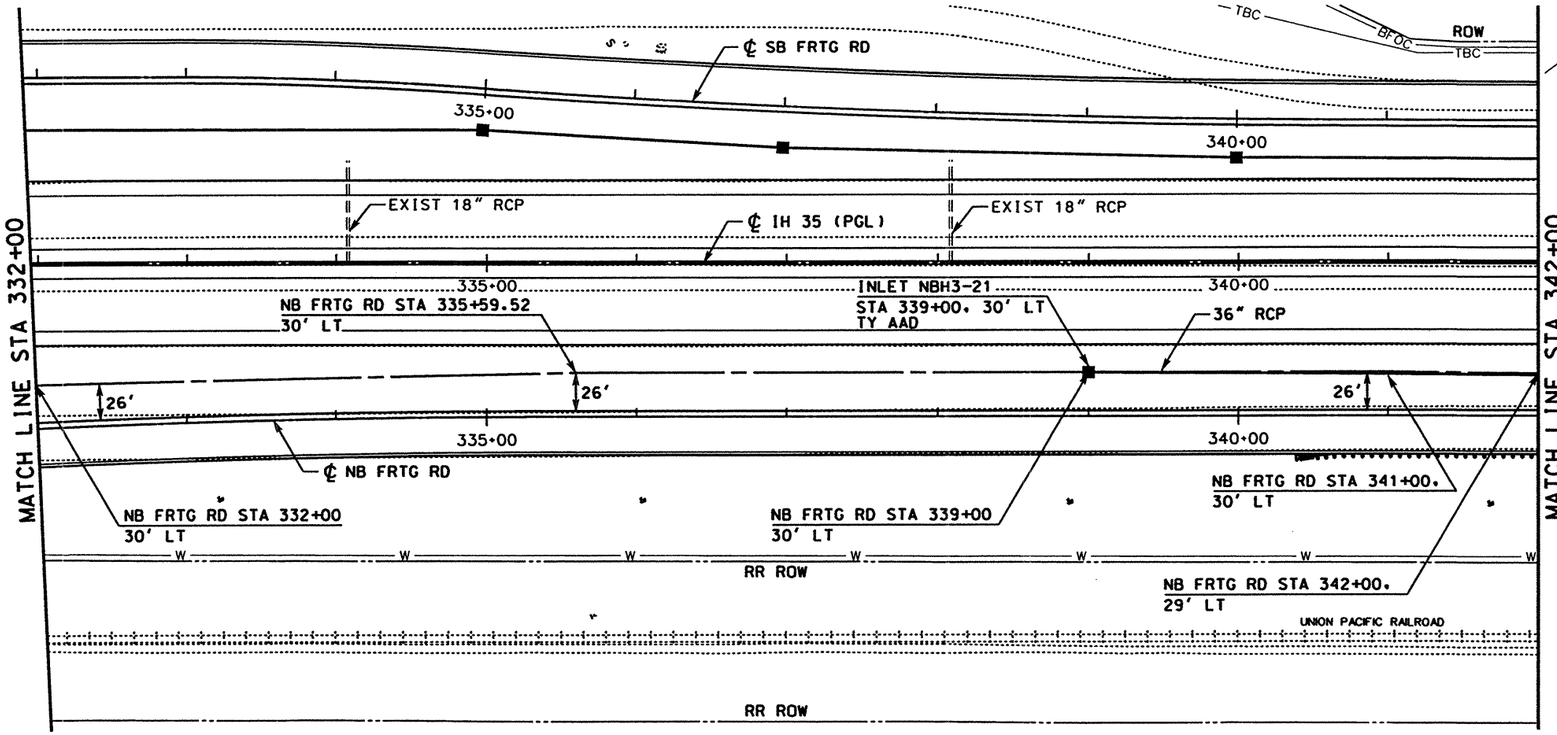
HOUFILE023
b13pp26.dgn-08



LEGEND

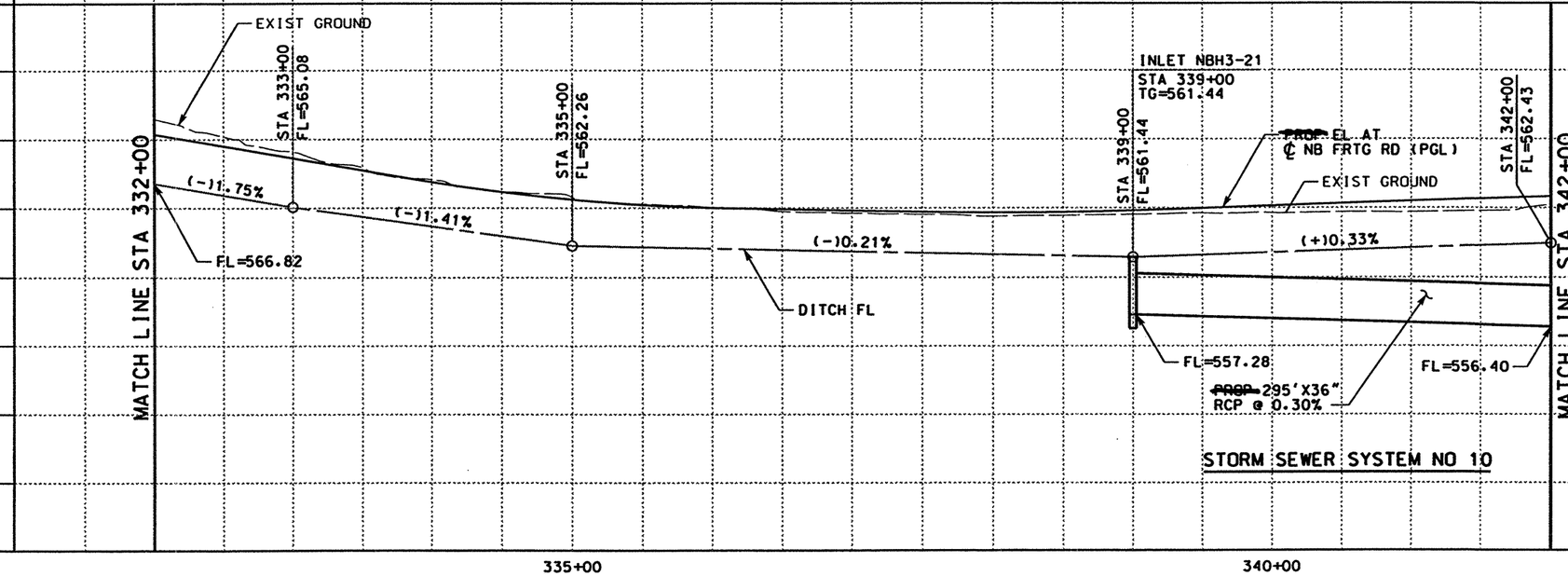
- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 332+00 TO STA 342+00
SHEET 18 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		539
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

\hchwlt\c\f0130\ HOUFILE023 b13ppp27.dgn-10

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j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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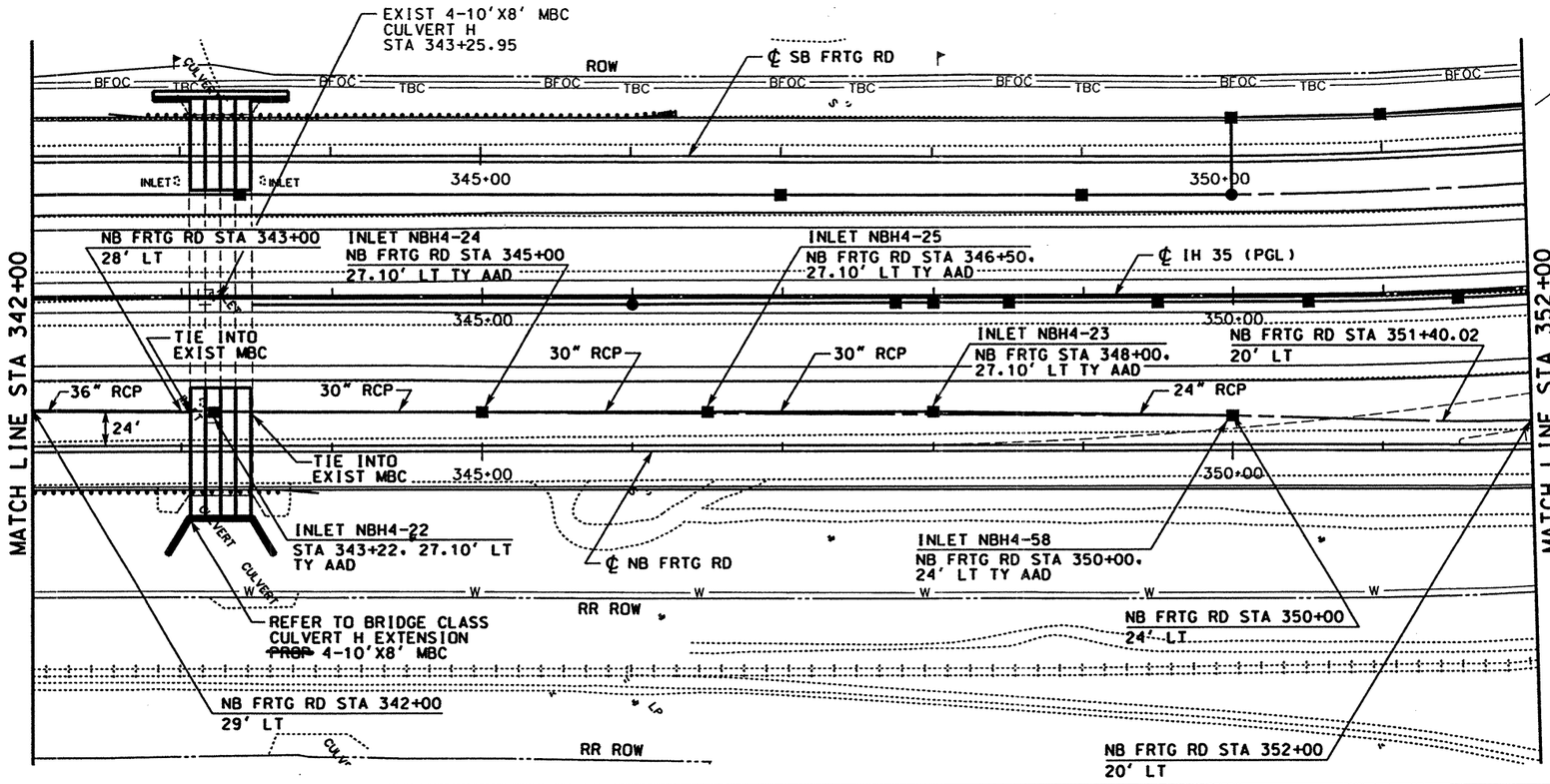


LEGEND

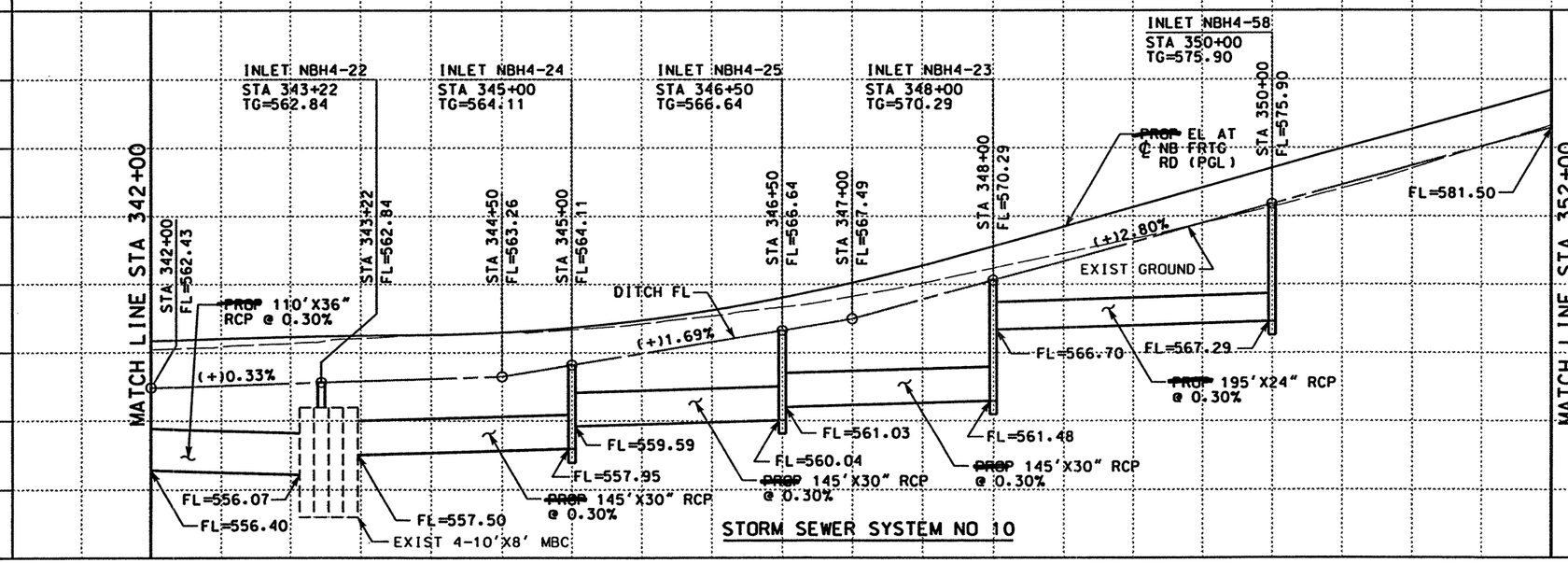
- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



STORM SEWER SYSTEM NO 10

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 342+00 TO STA 352+00
SHEET 19 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	546
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j01lop01.alg, alg LV ON = 1-6.35-39
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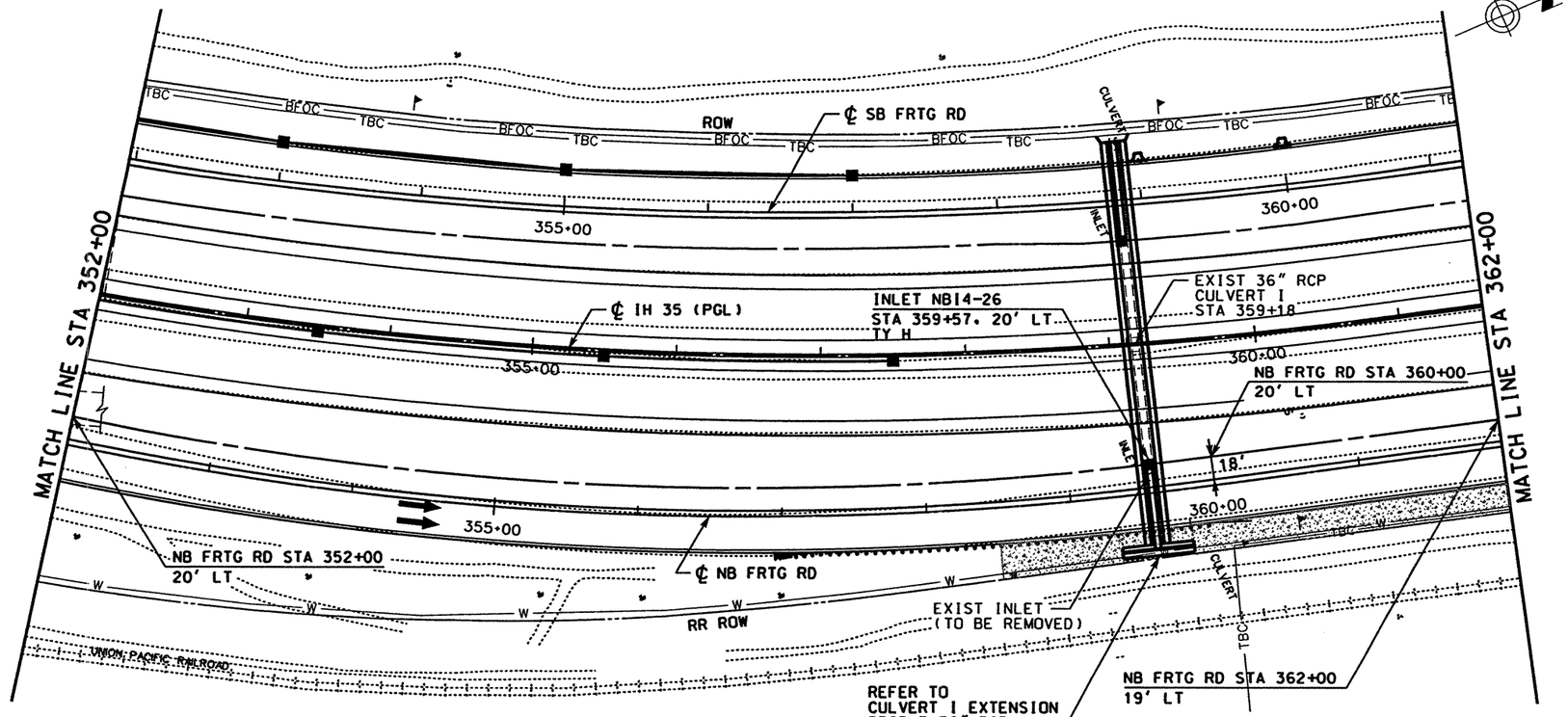


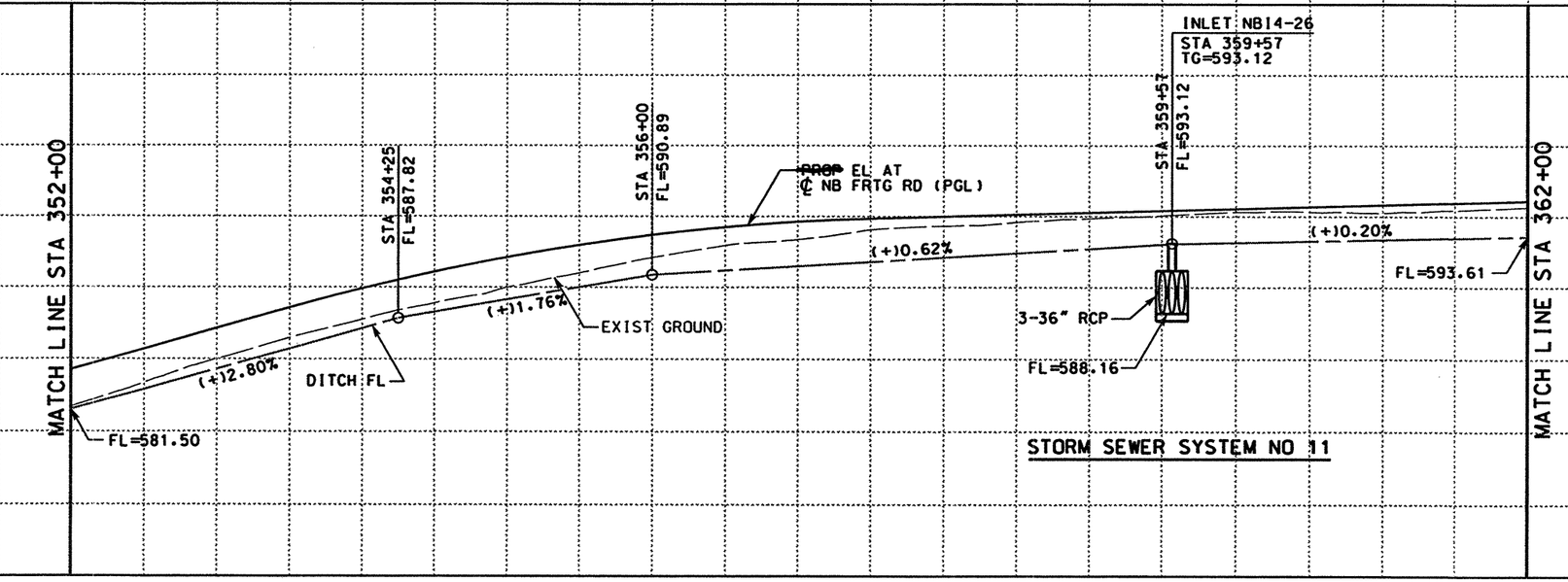
LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 352+00 TO STA 362+00

SHEET 20 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	541
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j0110p01.alg, alg LV ON = 9-11.32.33.45.47.57.58.60-62
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REF FILE(S): j0110p01.pro LV ON = 1-23.25-63
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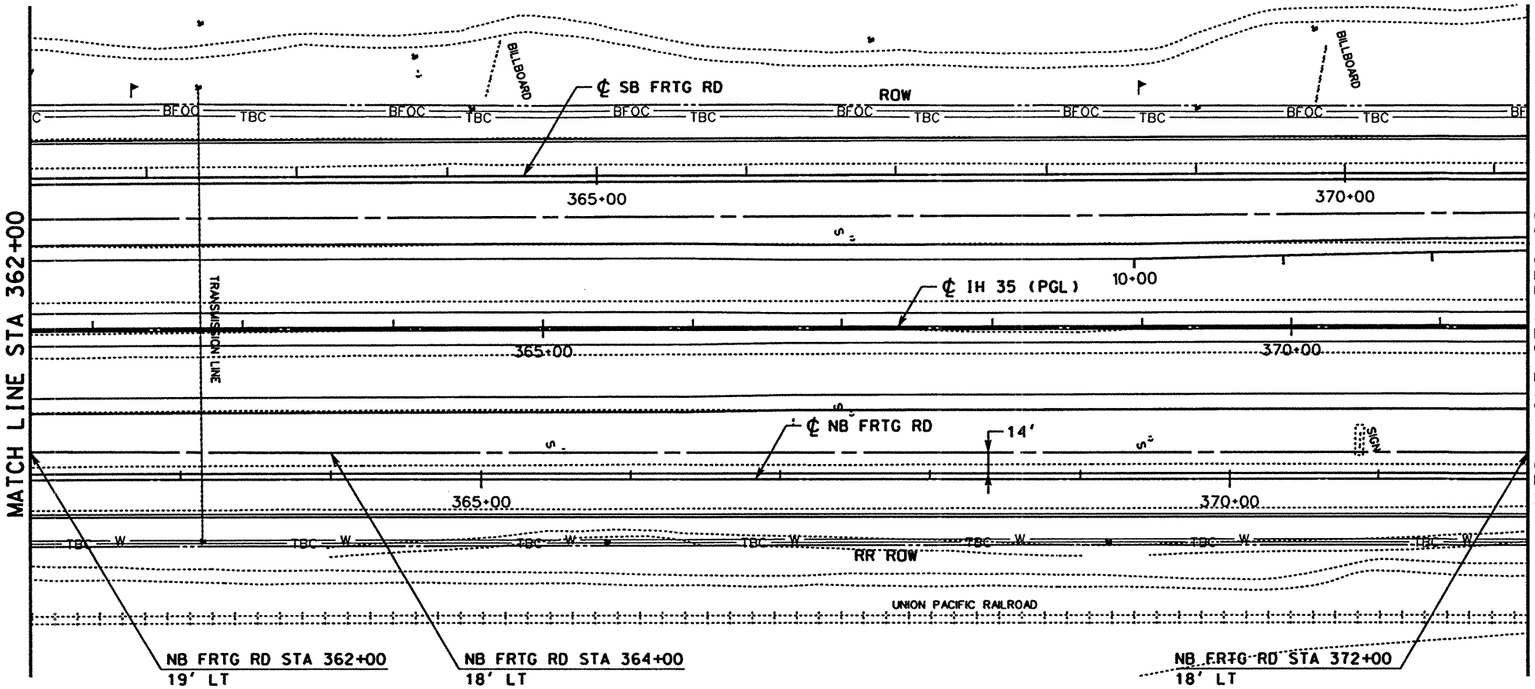


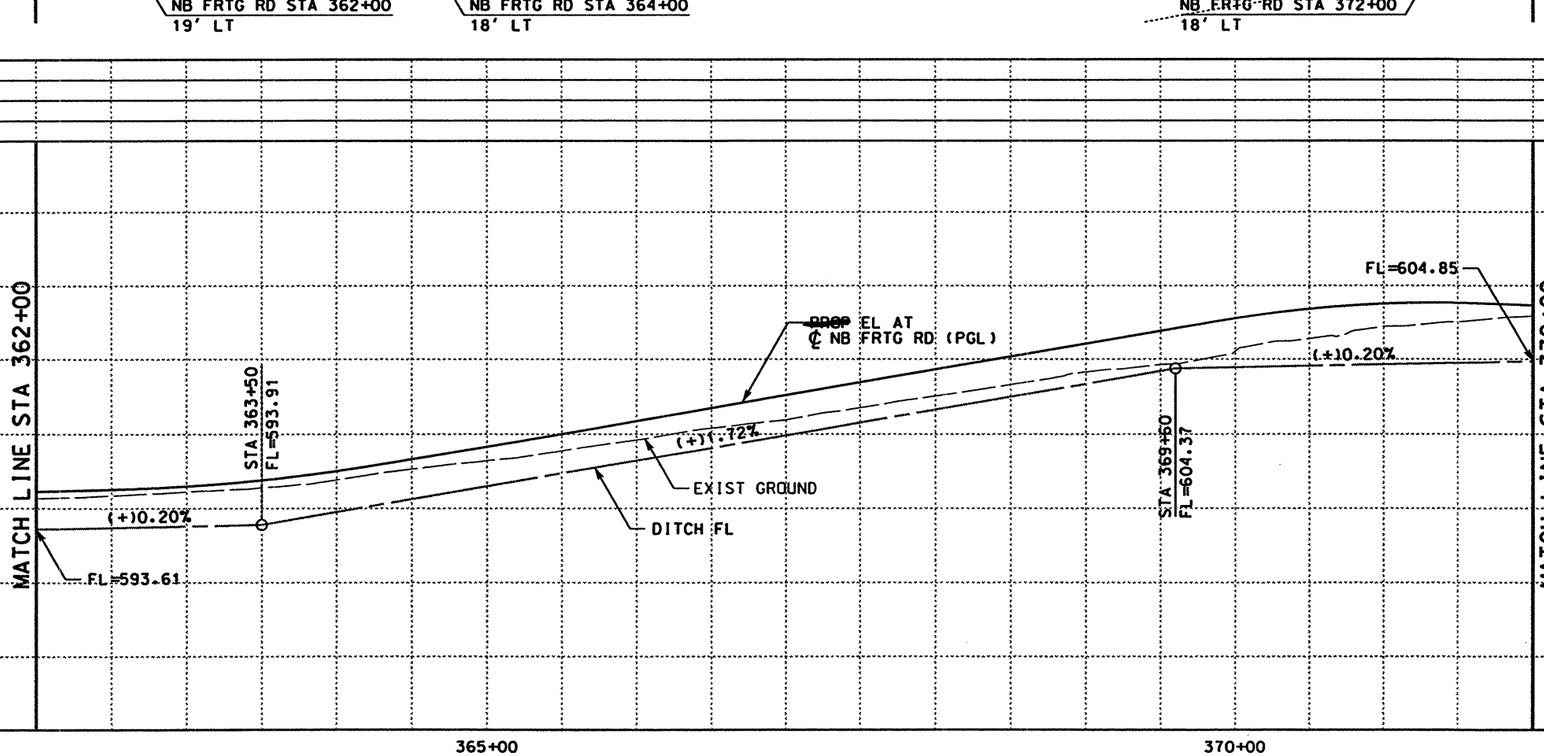
LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

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RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 362+00 TO STA 372+00

SHEET 21 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	542
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j011op01.uti, uti LV ON = 1-63
j011op01.eop, eop LV ON = 1-17,19-63
j011op01.bck, bck LV ON = 2-9,10,14,17,20,21,25,28
j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

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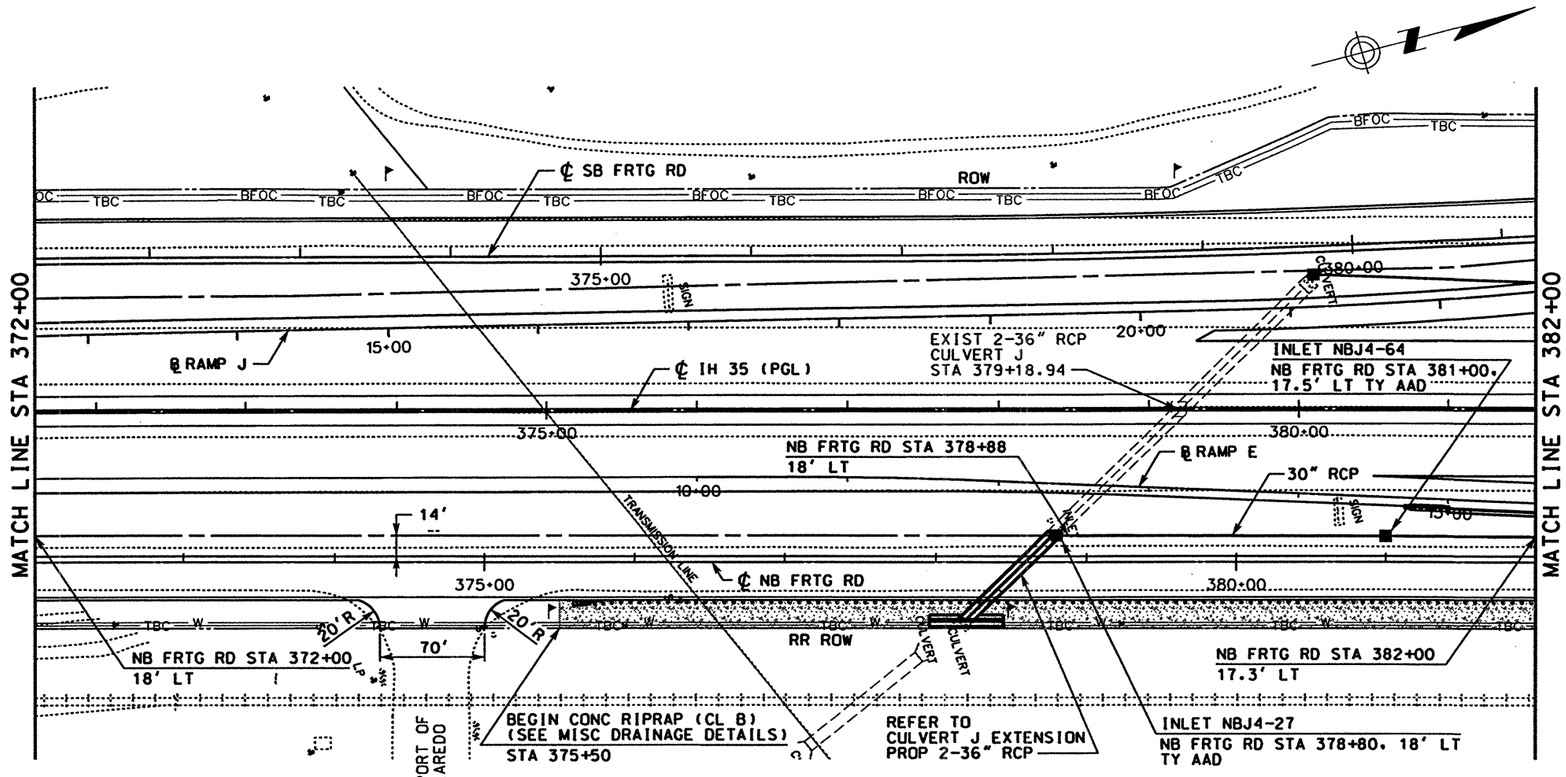
b13ppp30.dgn-06 HOUFILE023 \hchivil\c\f0130\ 4/18/2003



LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

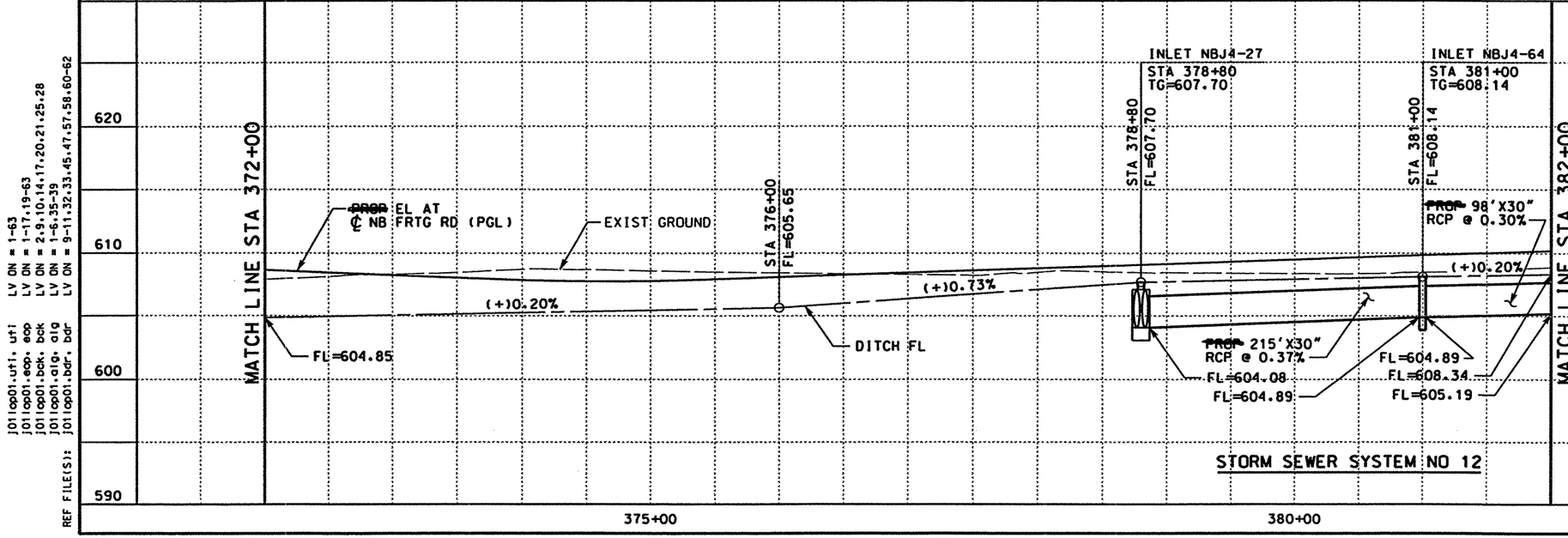
TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT



STORM SEWER SYSTEM NO 12

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 372+00 TO STA 382+00

SHEET 22 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	543
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

REF FILE(S): J0110p01.pro, pro LV ON = J0110p01.eop, eop LV ON = 1-17,19-63 J0110p01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28 J0110p01.alg, alg LV ON = 1-6,35-39 J0110p01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

REF FILE(S): J0110p01.ufi, ufi LV ON = 1-63 milolnt.row, row LV ON = 1-23,25-63

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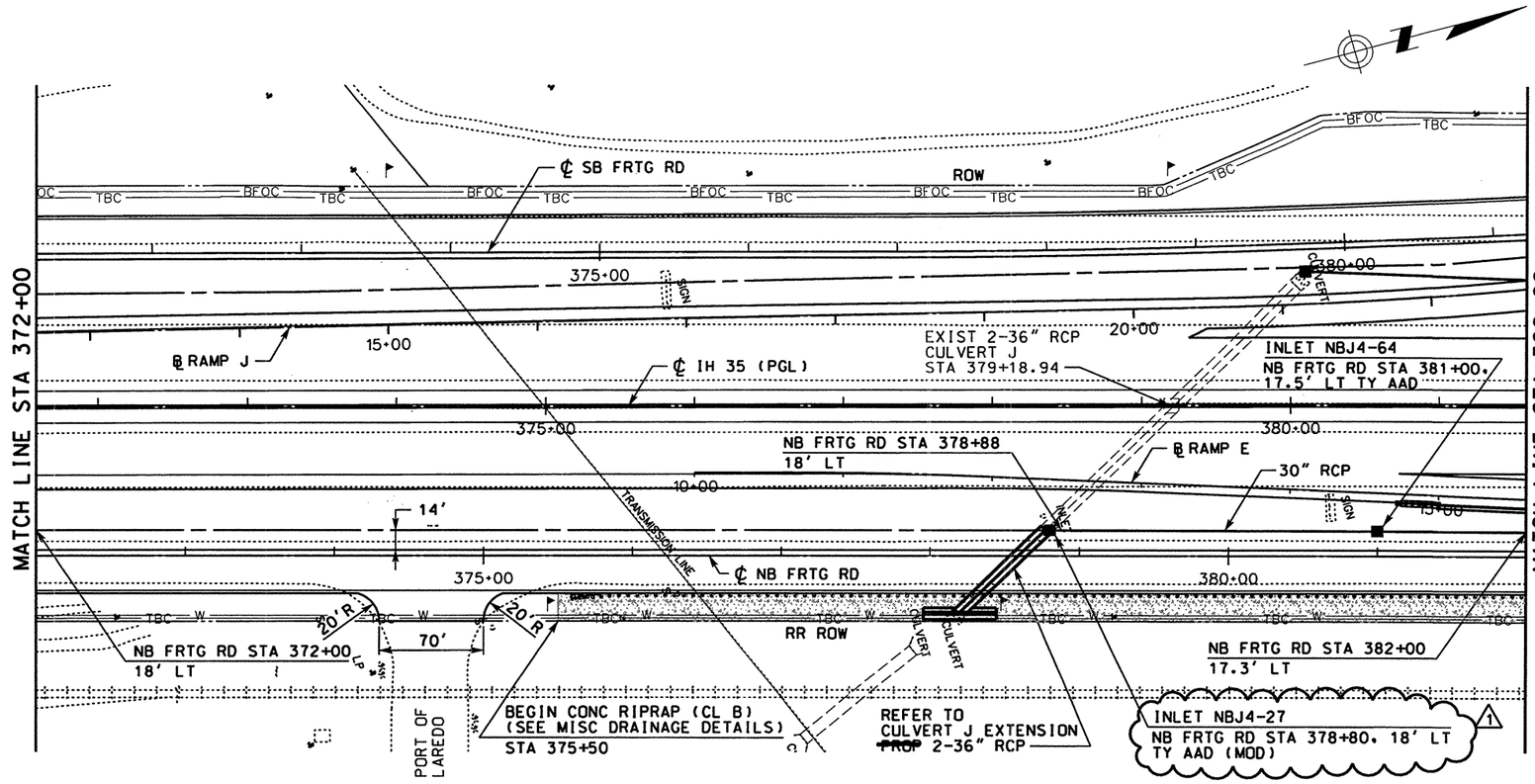


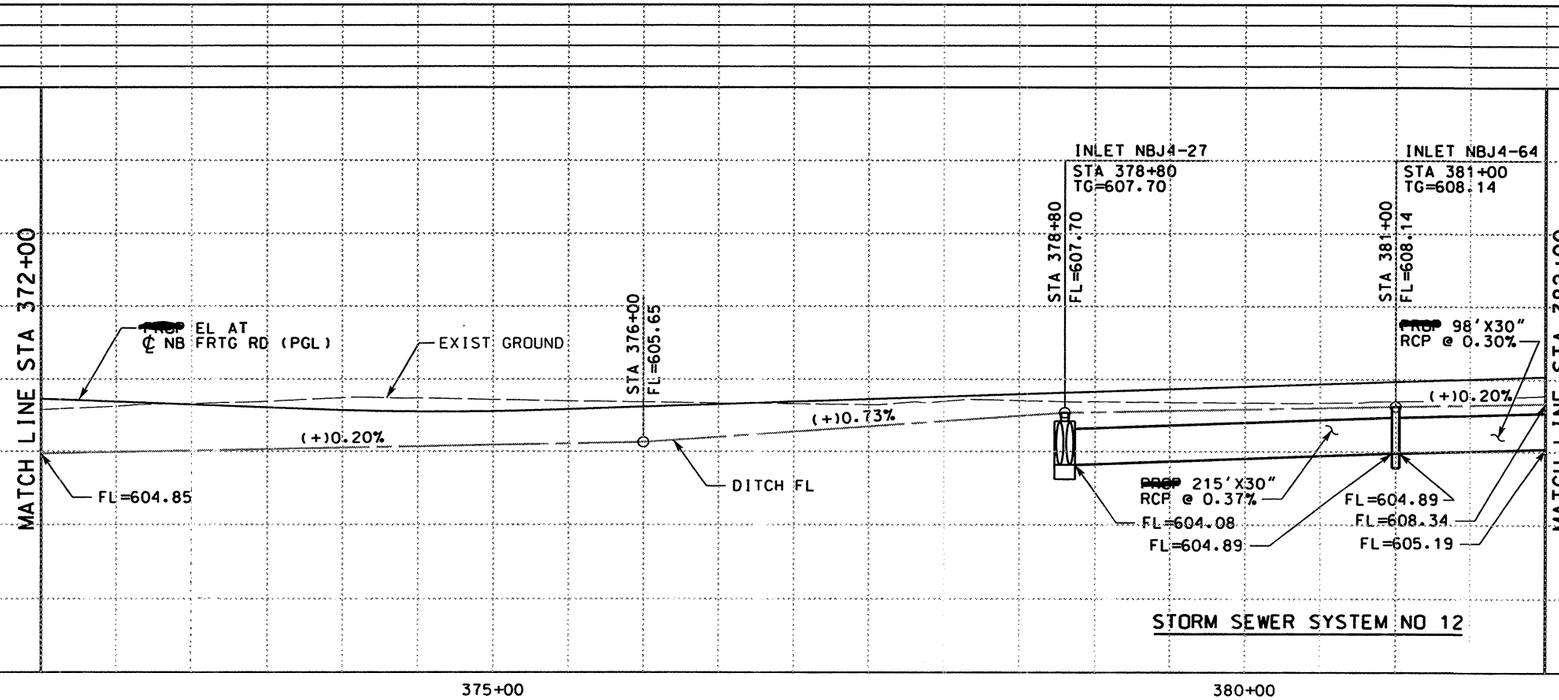
LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



STORM SEWER SYSTEM NO 12

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

DATE	BY	REV	REVISION
6/25/04	OC	01	INLET NBJ4-27 TO TY AAD(MOD)

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 25, 2004

6/29/2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 372+00 TO STA 382+00

SHEET 22 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	543
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.pro milofnt.row

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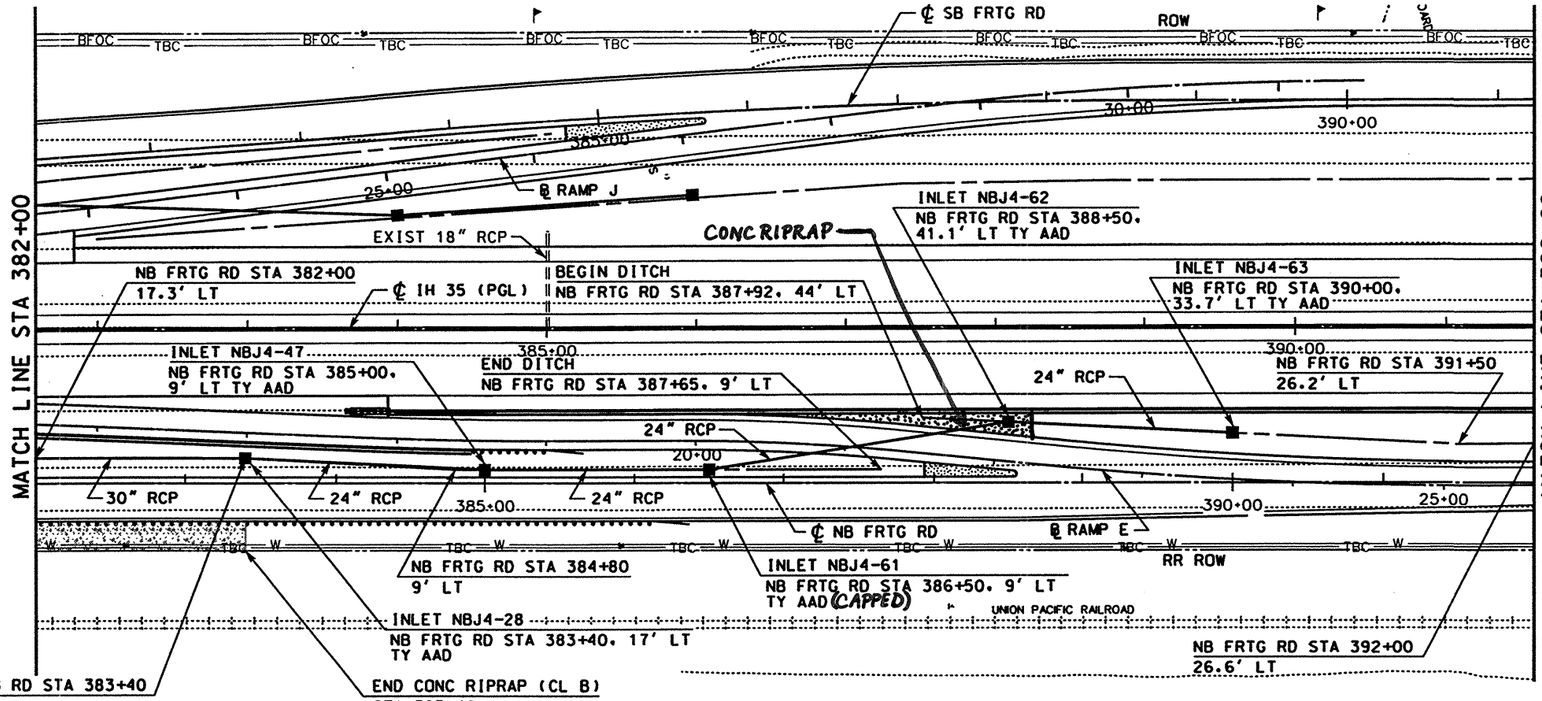
LV ON = 1-23.25-63

REF FILE(S): j011op01.uti, uti LV ON = 1-63
j011op01.eop, eop LV ON = 1-17.19-63
j011op01.bck, bck LV ON = 2-9.10.14.17.20.21.25.28
j011op01.dlg, dlg LV ON = 1-6.35-39
j011op01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62

b13app31.dgn-11 HOUFILE023 \hchivil\cf0130\



LEGEND

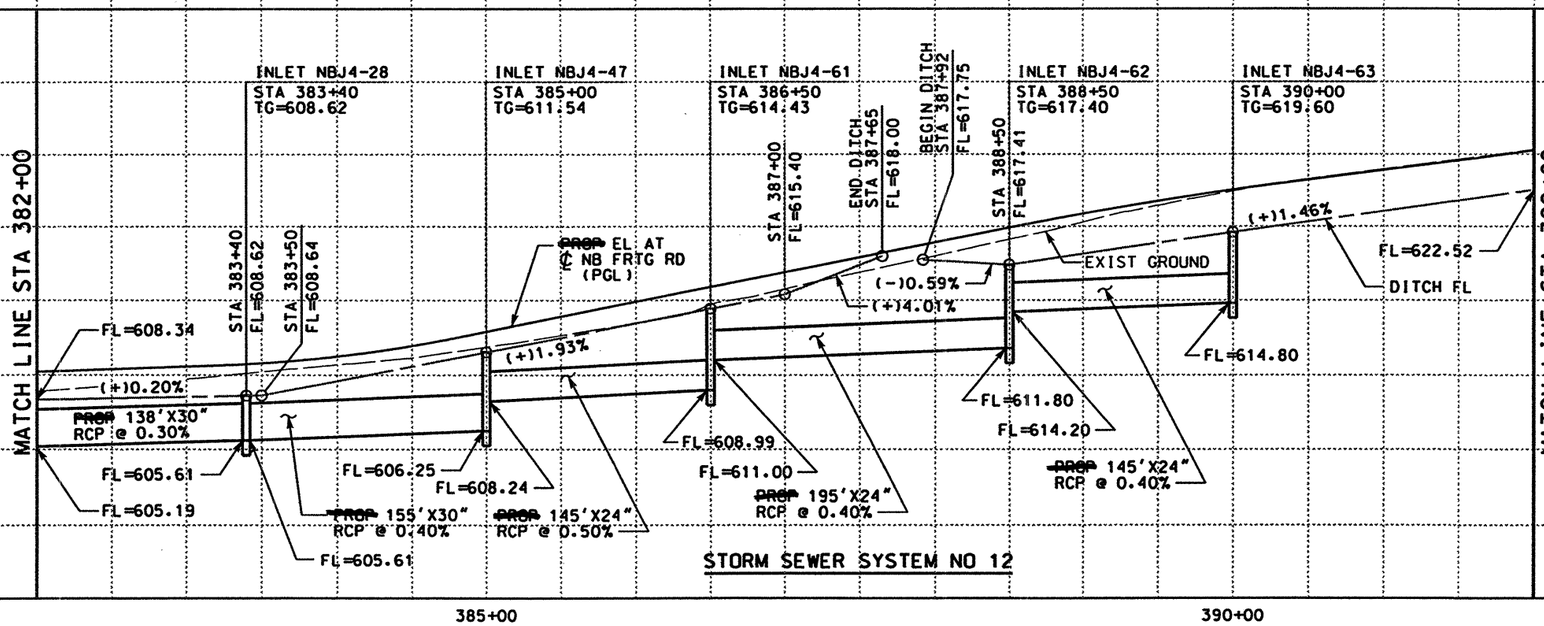
- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



STORM SEWER SYSTEM NO 12

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS — RUDY L. GOMEZ — 58664 — REGISTERED PROFESSIONAL ENGINEER

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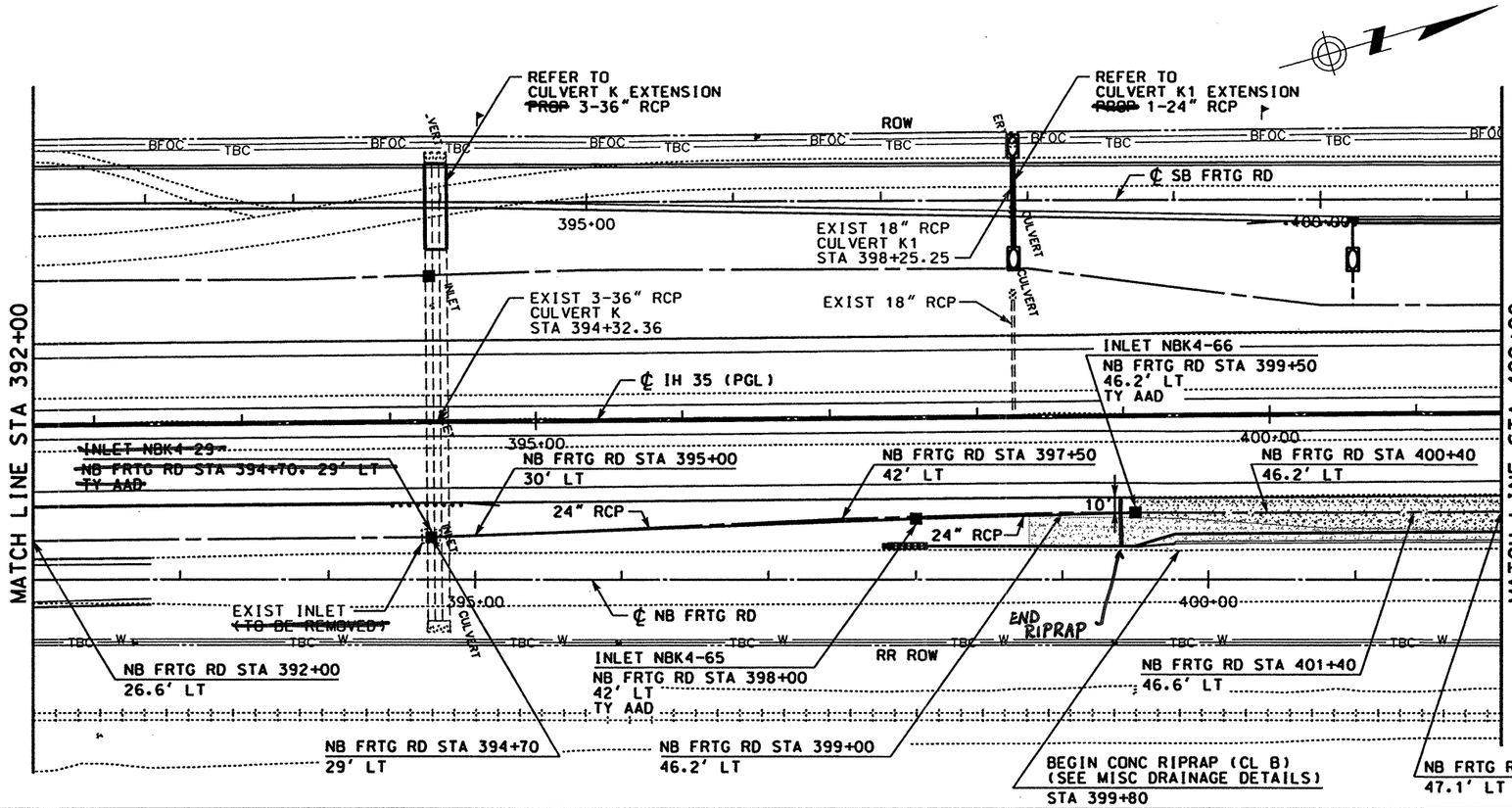
IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 382+00 TO STA 392+00

SHEET 23 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	544
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.dgn, j01lop01.pro, j01lop01.eop, j01lop01.bck, j01lop01.alg, j01lop01.bdr, milolnt.row, row
LV ON = 1-63, 1-17.19-63, 2.9.10.14.17.20.21.25.28, 1-6.35-39, 9-11.32.33.45.47.57.58.60-62, 1-23.25-63
REF FILE(S): b13ppp32.dgn-12 HOUFILE023 \hciviL\c10130\ 4/18/2003



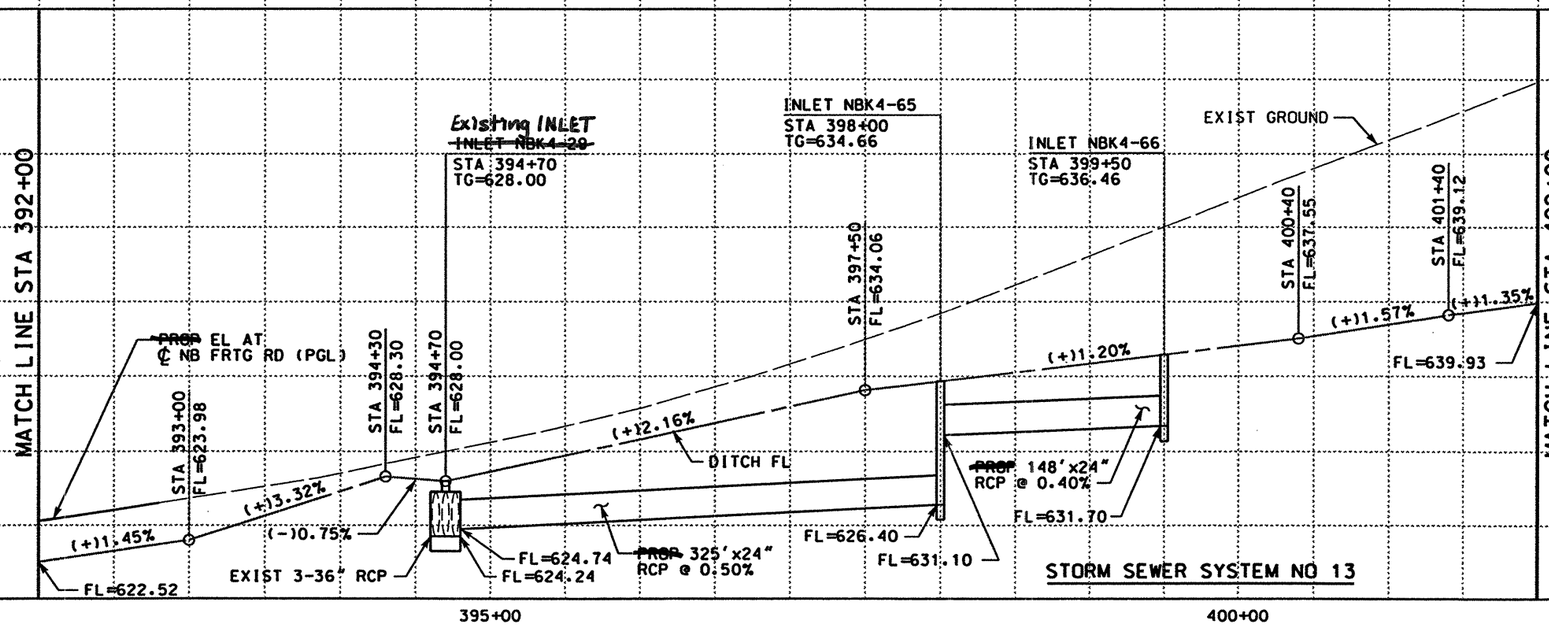
LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



STORM SEWER SYSTEM NO 13

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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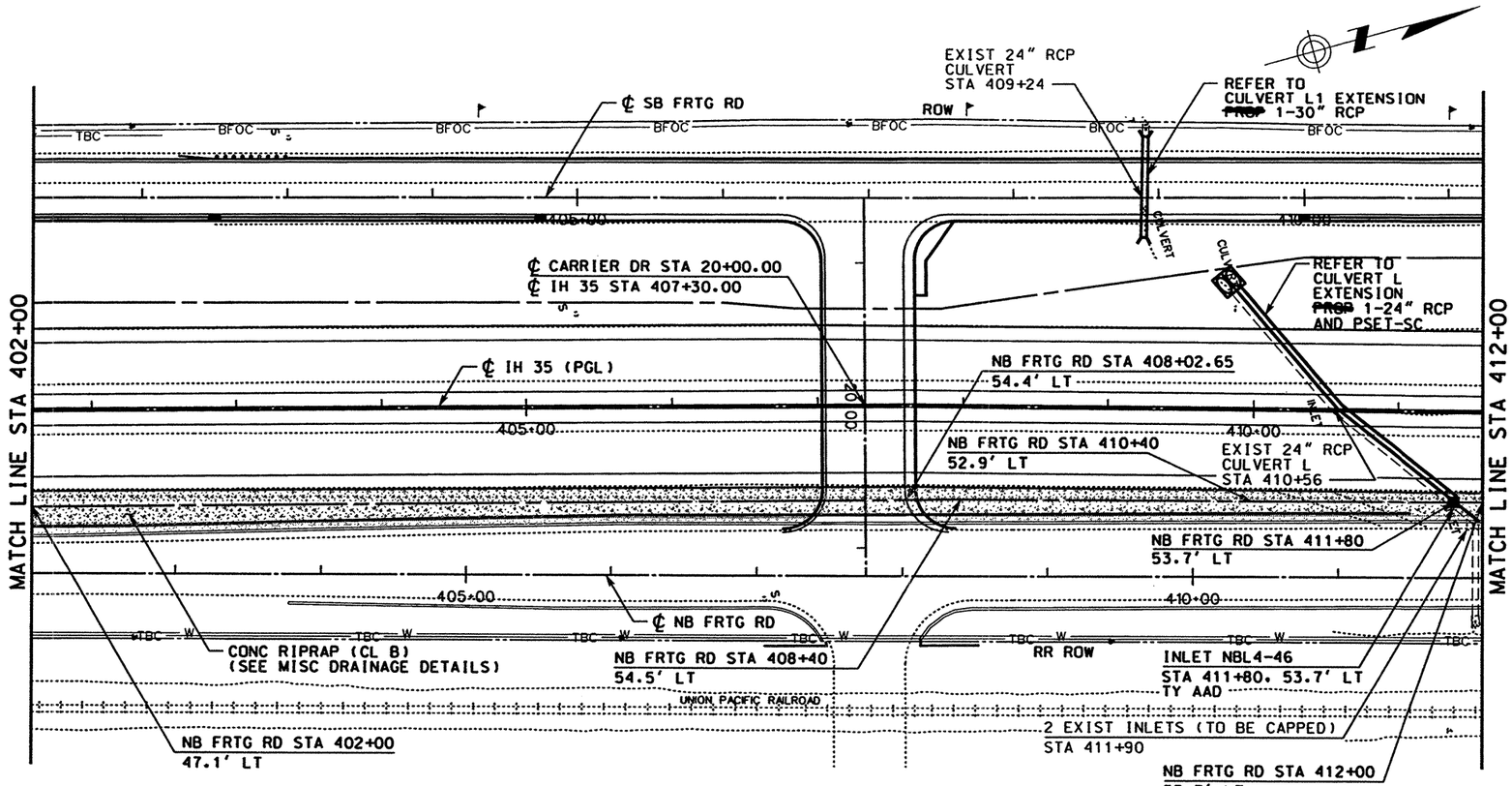
IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 392+00 TO STA 402+00
SHEET 24 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	545
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j01top01.pro, row, miljoint.row
LV ON = 1-23.25-63

REF FILE(S): j01top01.utl, utl; j01top01.eop, eop; j01top01.bck, bck; j01top01.alg, alg; j01top01.bdr, bdr
LV ON = 1-63; 1-5.7-17.19-63; 2.9.10.14.17.20.21.25.28; 1-6.35-39; 9-11.32.33.45.47.57.58.60-62

b13pp33.dgn-12 HOUFILE023 \hciwin\cf0130\ 4/18/2003



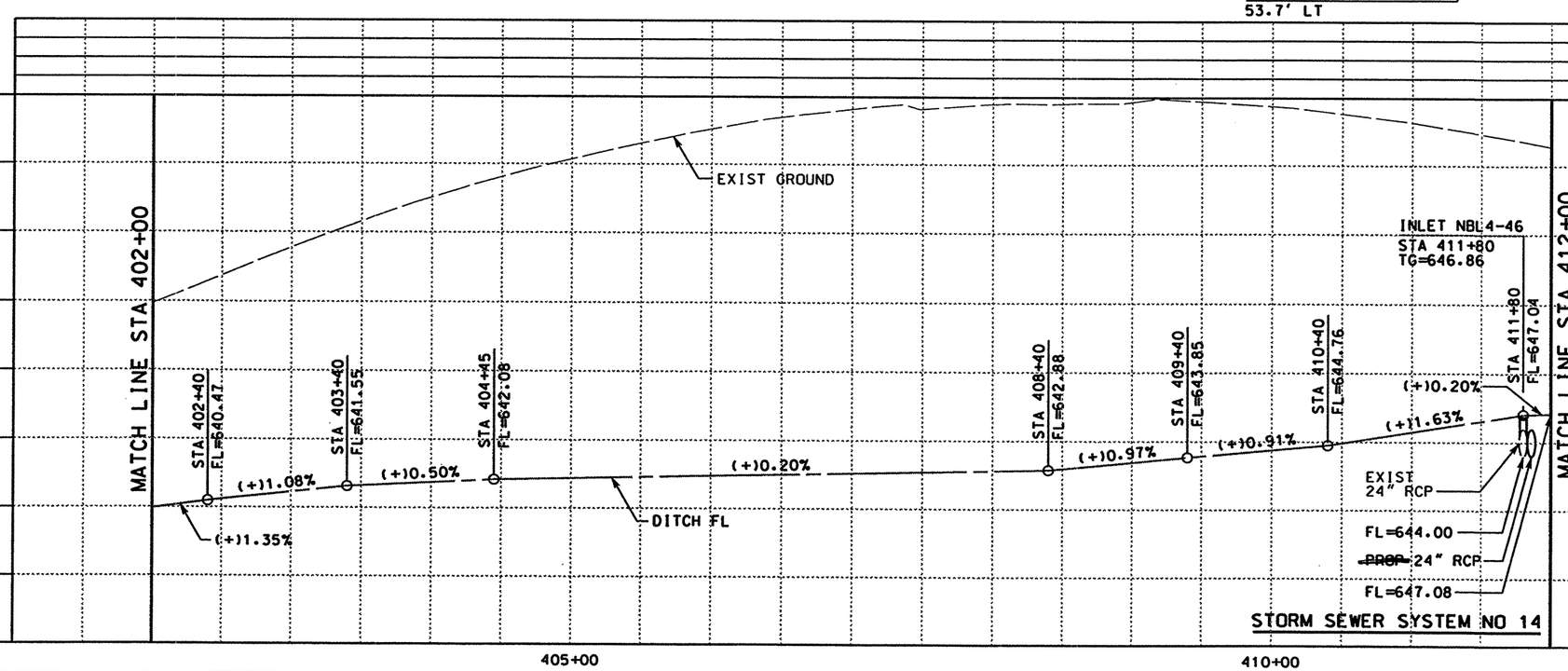
LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
	670	EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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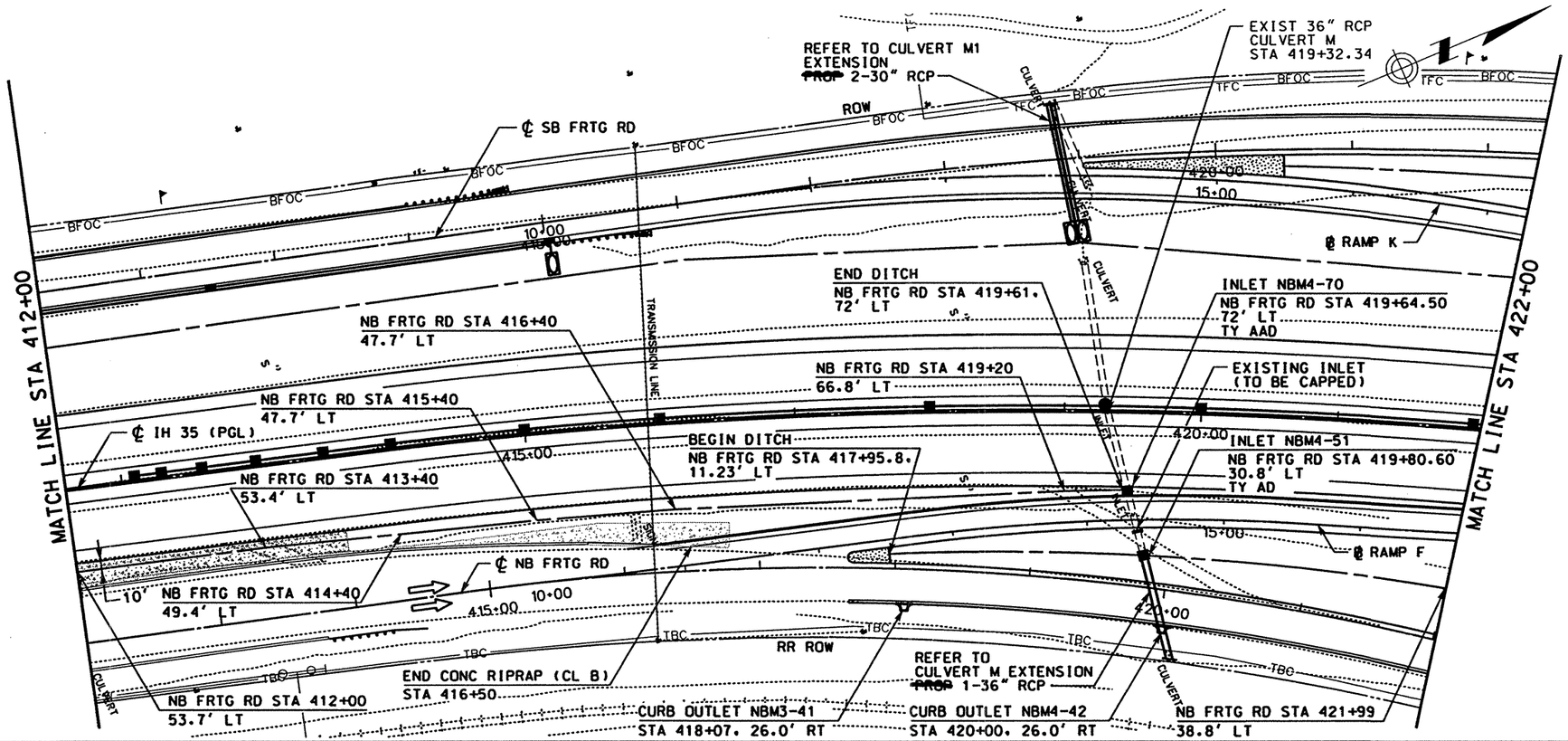
IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 402+00 TO STA 412+00
SHEET 25 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	546
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j01lop01.pro, pro LV ON = 1-23.25-63
REF FILE(S): j01lop01.row • row LV ON = 1-23.25-63

REF FILE(S):
j01lop01.uti, uti LV ON = 1-63
j01lop01.eop, eop LV ON = 1-5.7-17.19-63
j01lop01.bak, bak LV ON = 2.9.10.14.17.20.21.25.28
j01lop01.alg, alg LV ON = 1-6.35-39
j01lop01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62

b13ppp34.dgn-13 HOUFILE023 \hchiwh\c\0130\ 4/18/2003



LEGEND

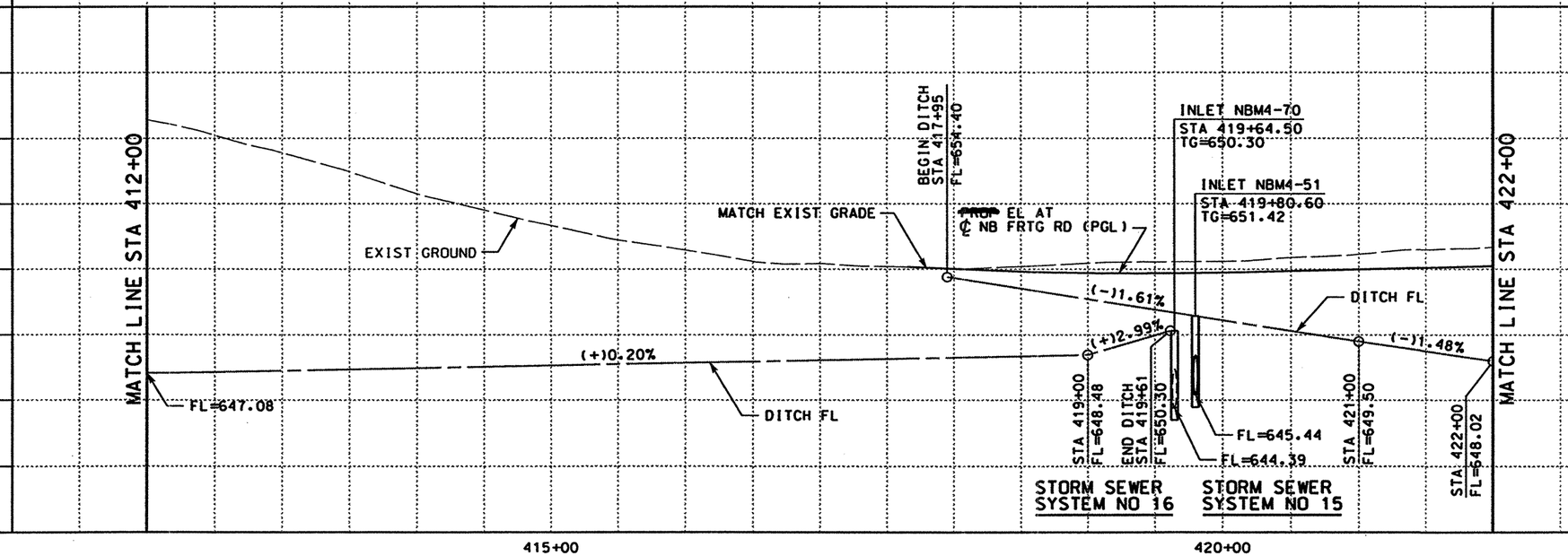
- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 412+00 TO STA 422+00
SHEET 26 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	547
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

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j011op01.alg. alg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62
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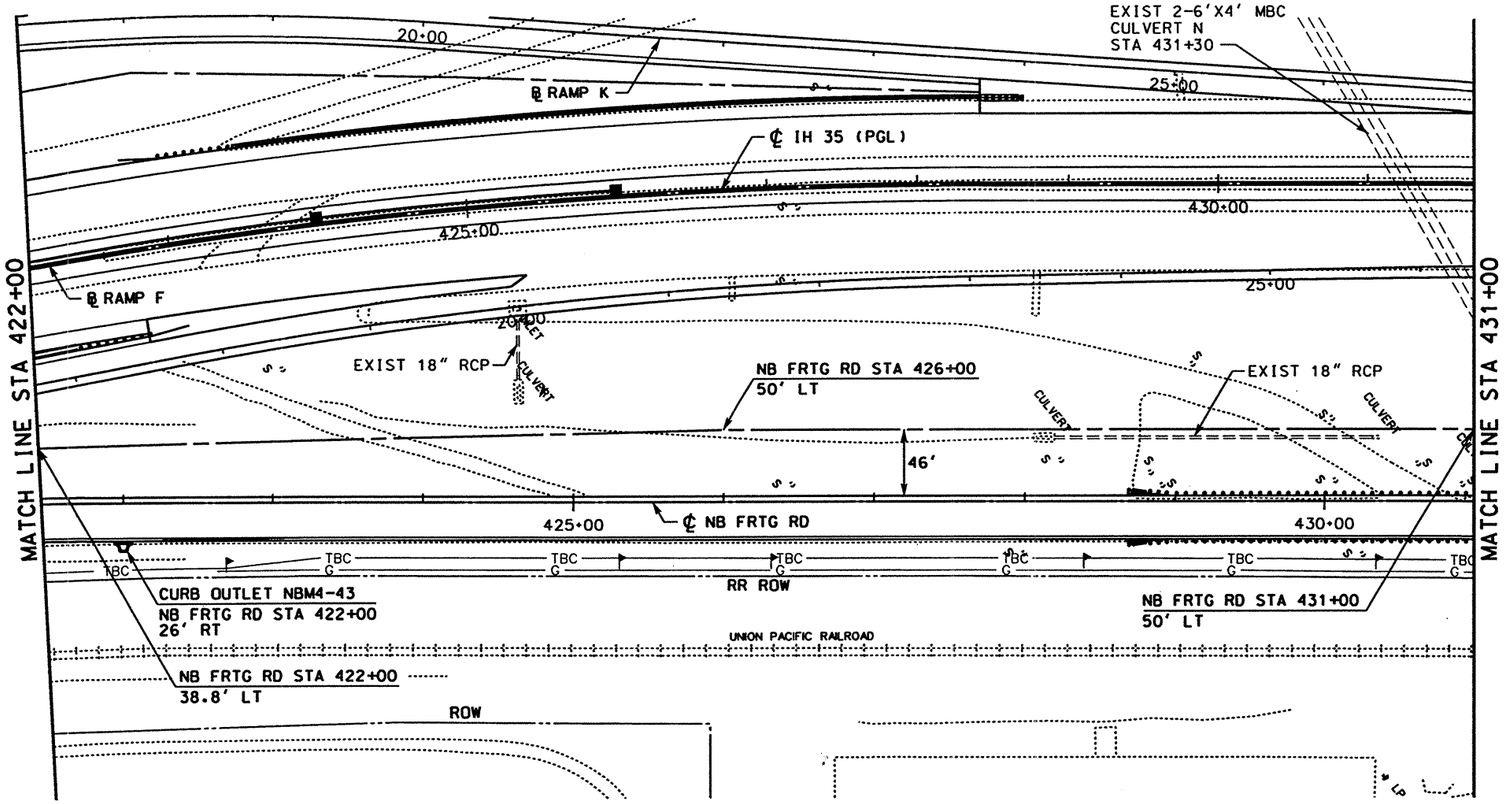

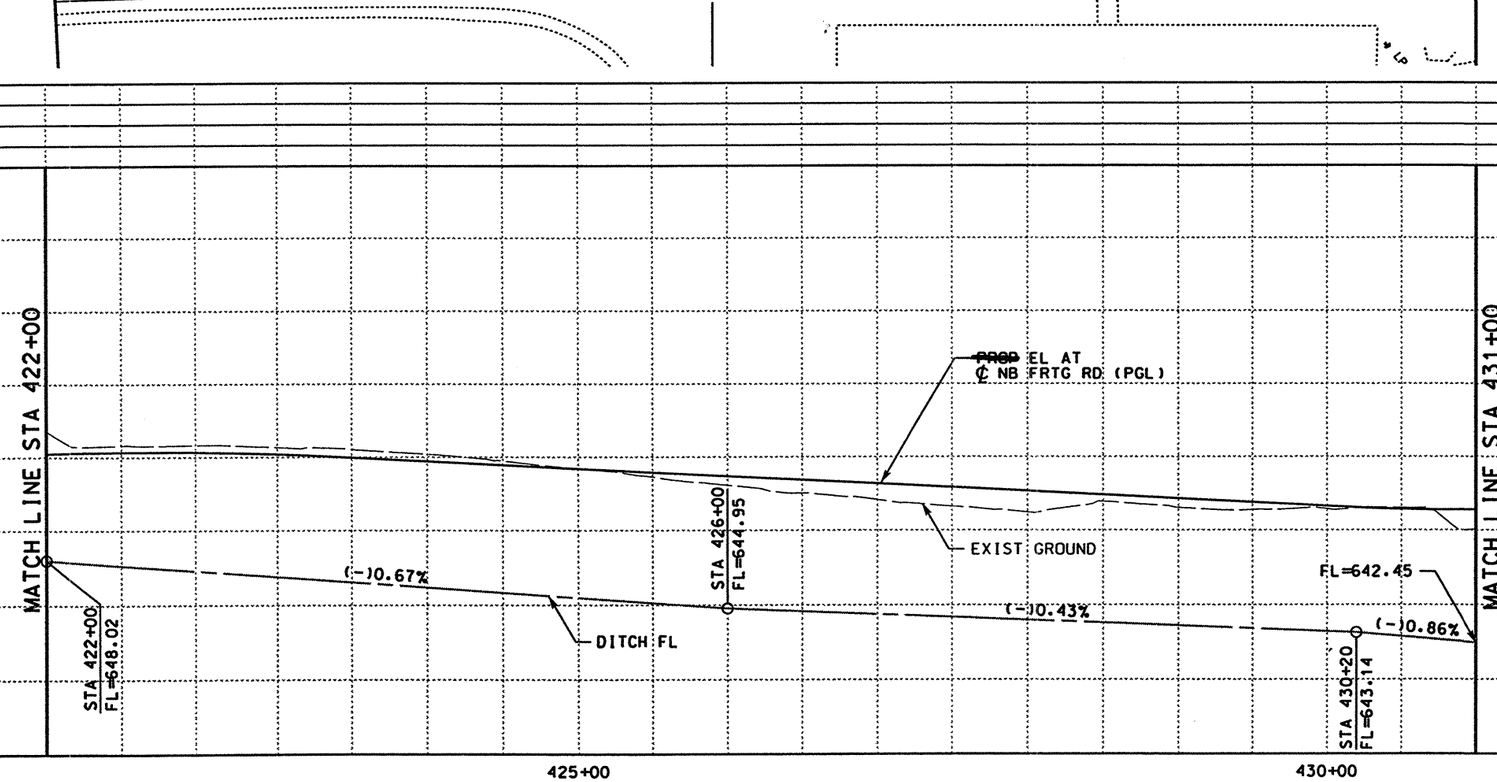

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 422+00 TO STA 431+00
SHEET 27 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		548
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hciv\\cf0130\
b13pp36.dgn-08

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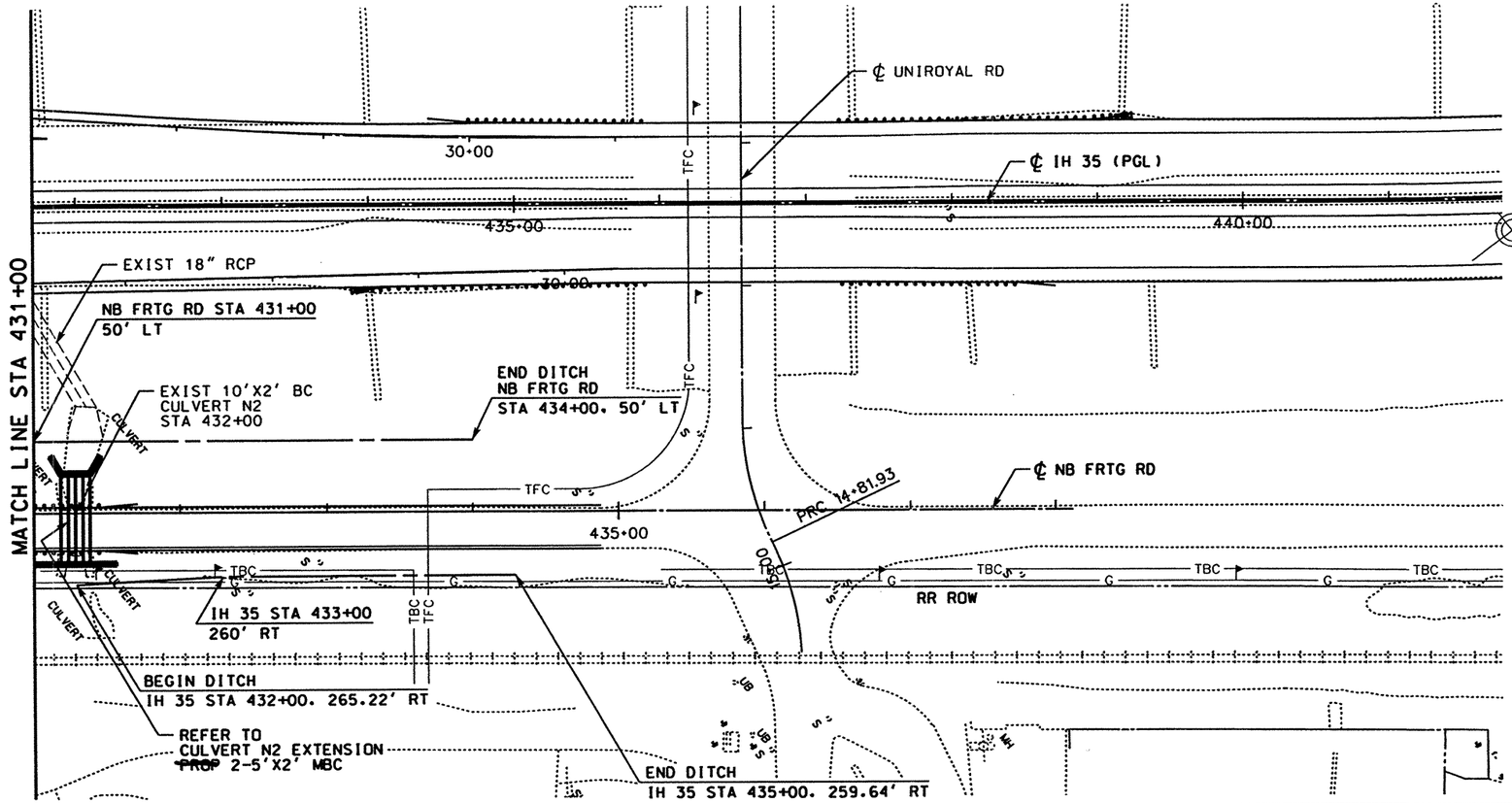
REF FILE(S): J011cp01.utl. utl LV ON = 1-63
J011cp01.eop. eop LV ON = 1-17.19-63
J011cp01.bck. bck LV ON = 2-9.10.14.17.20.21.25.28
J011cp01.alg. alg LV ON = 1-6.35-39
J011cp01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62



LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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TG = TOP OF GRATE
TR = TOP OF RIM

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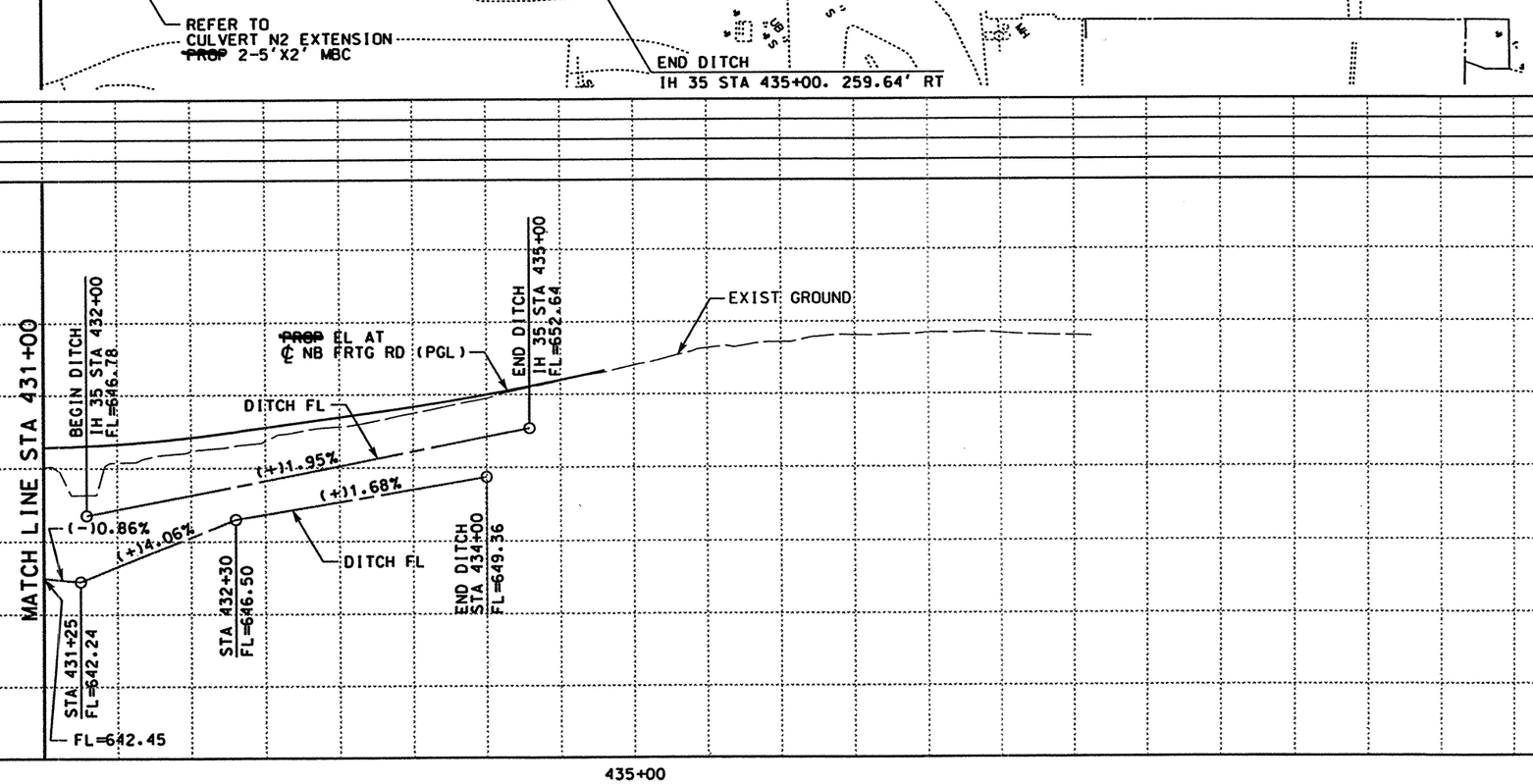
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
NB FRONTAGE ROAD
STA 431+00 TO STA 438+12

SHEET 28 OF 28

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	549
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b13ppp37.dgn-08

REF FILE(S): j01op01.pro • pro LV ON = 31
mi1oint.row • row LV ON = 1-23.25-63

REF FILE(S): j01op01.utl. utl LV ON = 1-63
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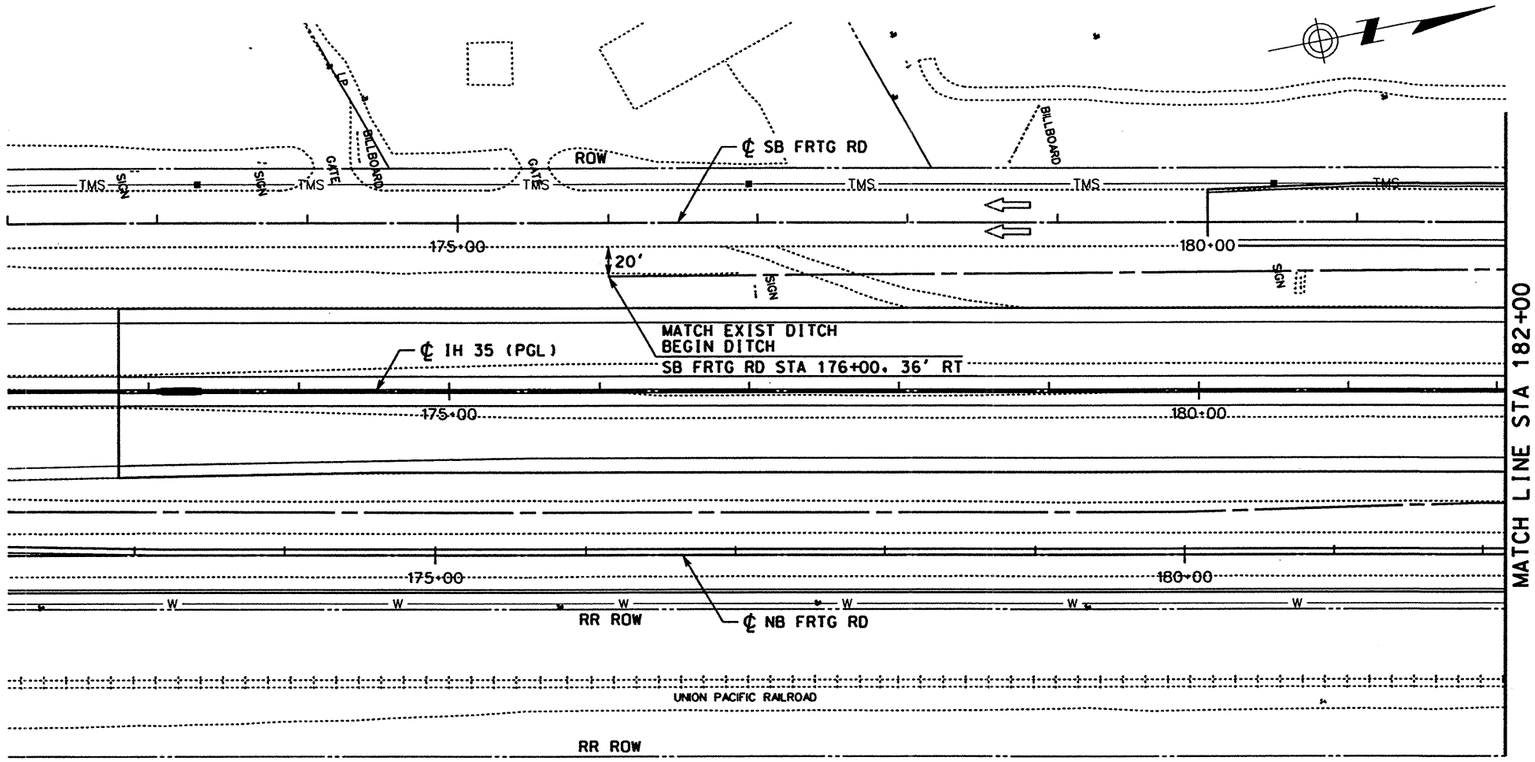
j01op01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
j01op01.alg. alg LV ON = 1-6.35-39
j01op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62



LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

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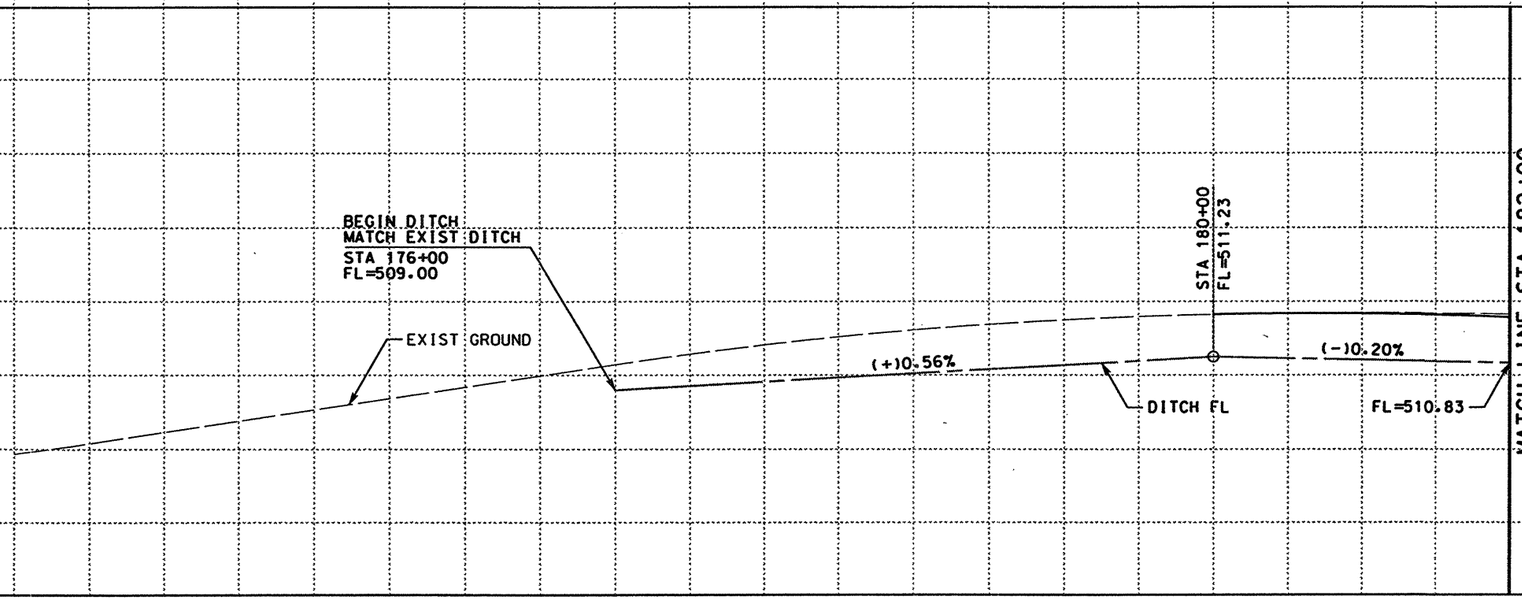
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 172+00 TO STA 182+00

SHEET 1 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	550
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\c10130\

b13pp38.dgn-05

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jo11op01.bck, bck LV ON = 2-9,10,14,17,20,21,25,28
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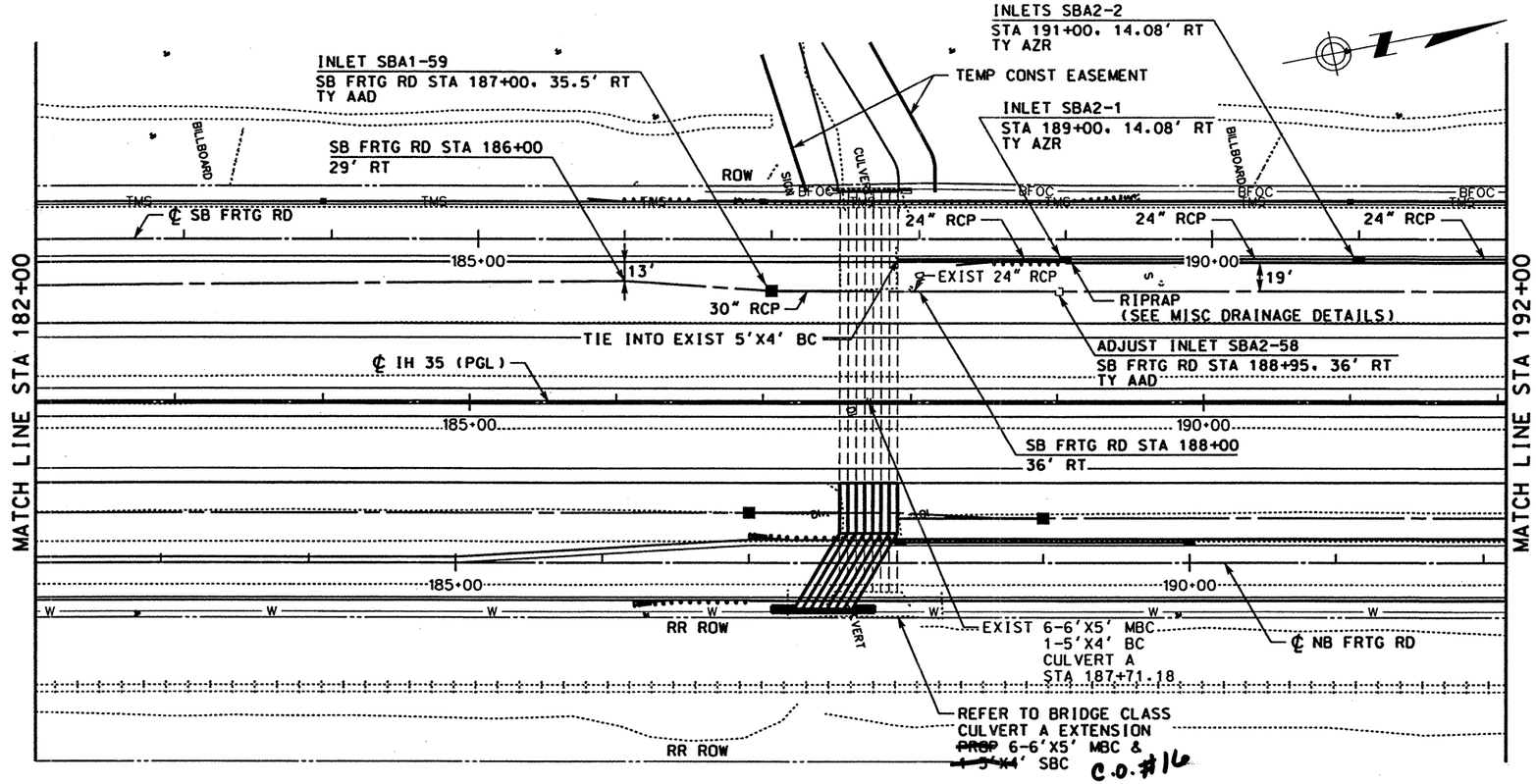


LEGEND

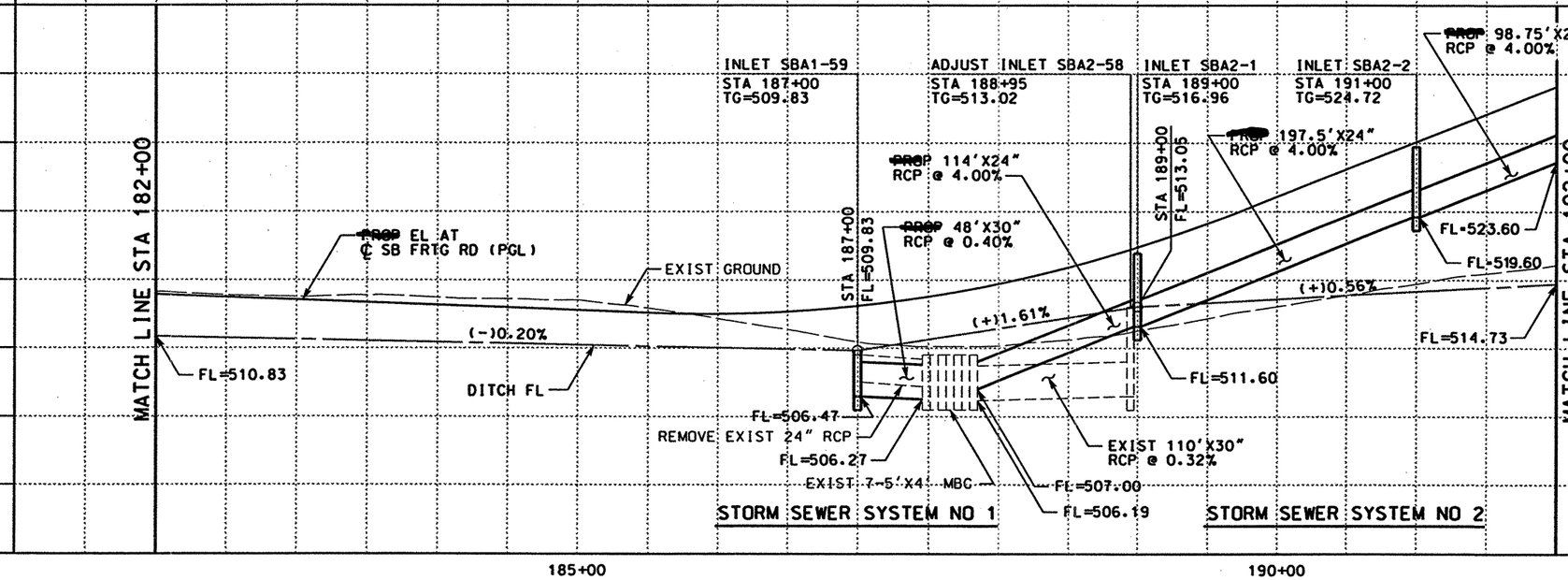
- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 182+00 TO STA 192+00
SHEET 2 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		551
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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4/18/2003
HOUFILE023 \hcivil\c10130\
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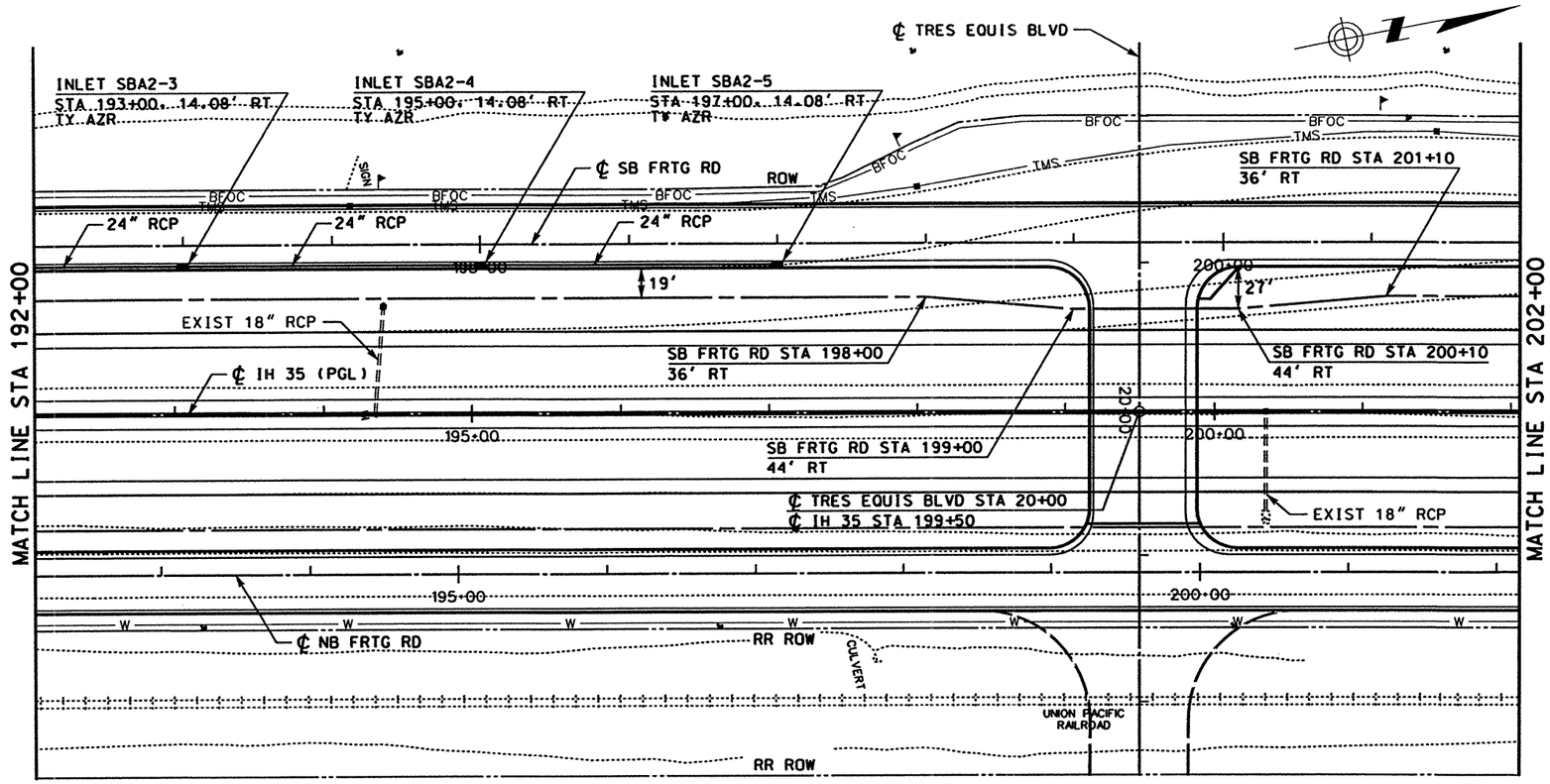


LEGEND

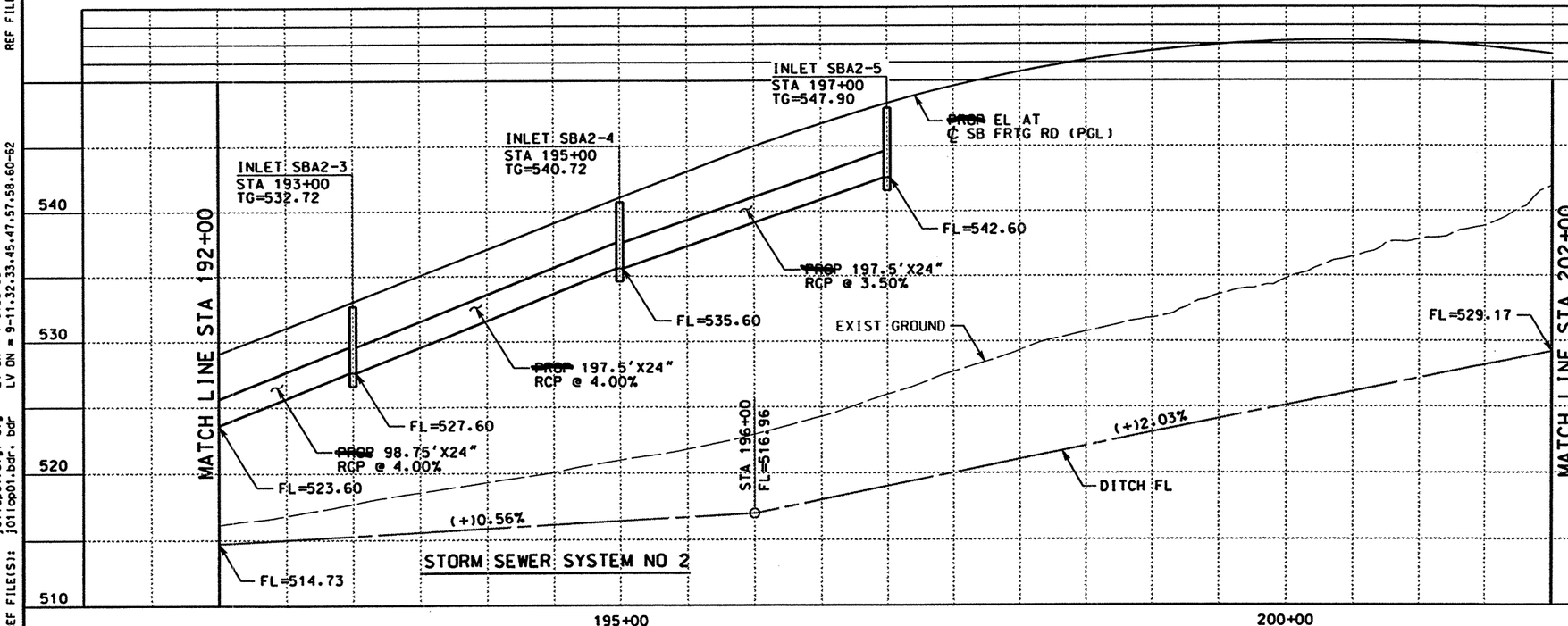
- ROW
- PROPOSED DITCH FL
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 192+00 TO STA 202+00

SHEET 3 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	552
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

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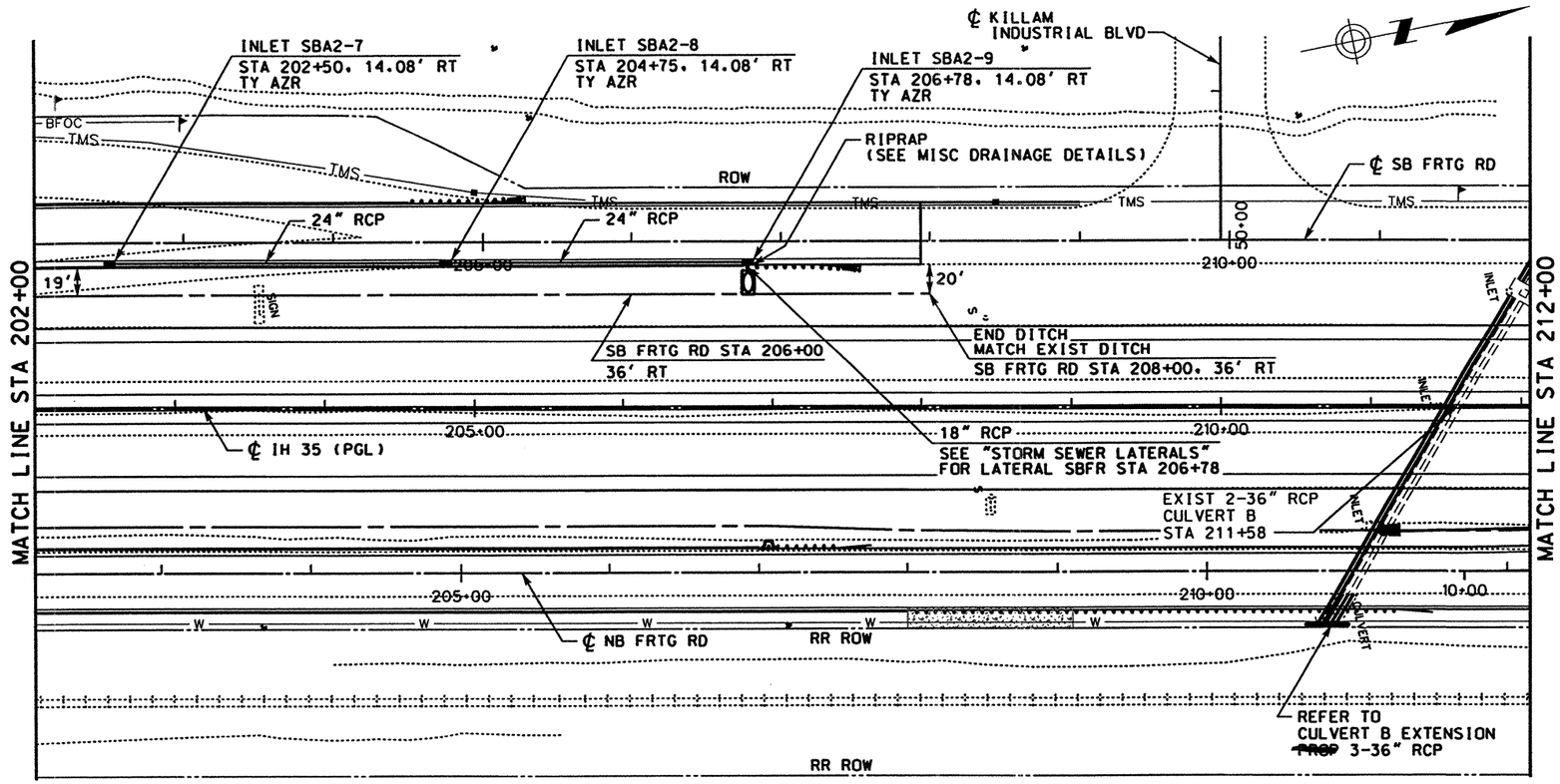


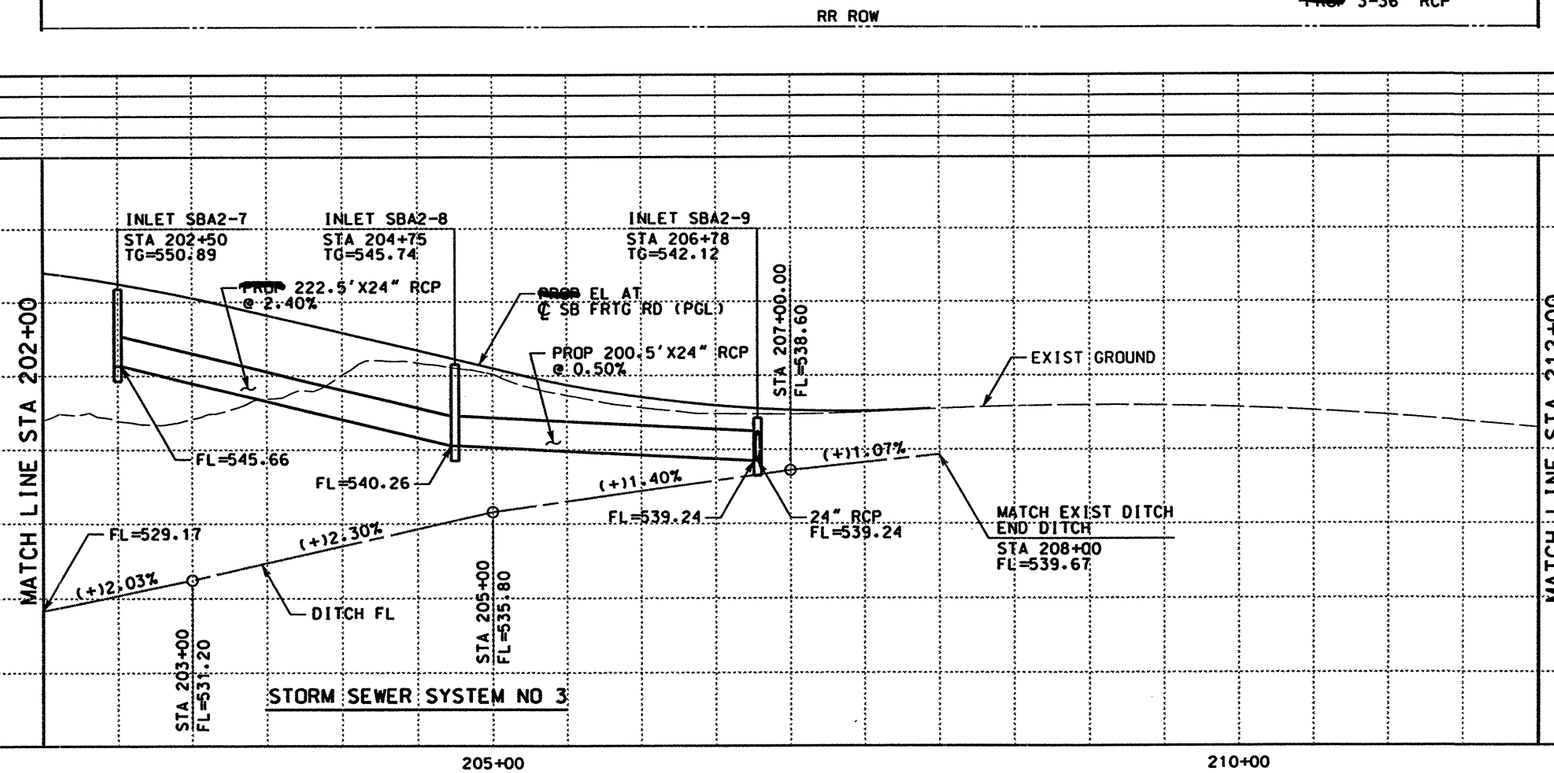
LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

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RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 202+00 TO STA 212+00
SHEET 4 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	553
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

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j01lop01.alg. alg LV ON = 1-6.35-59
j01lop01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62

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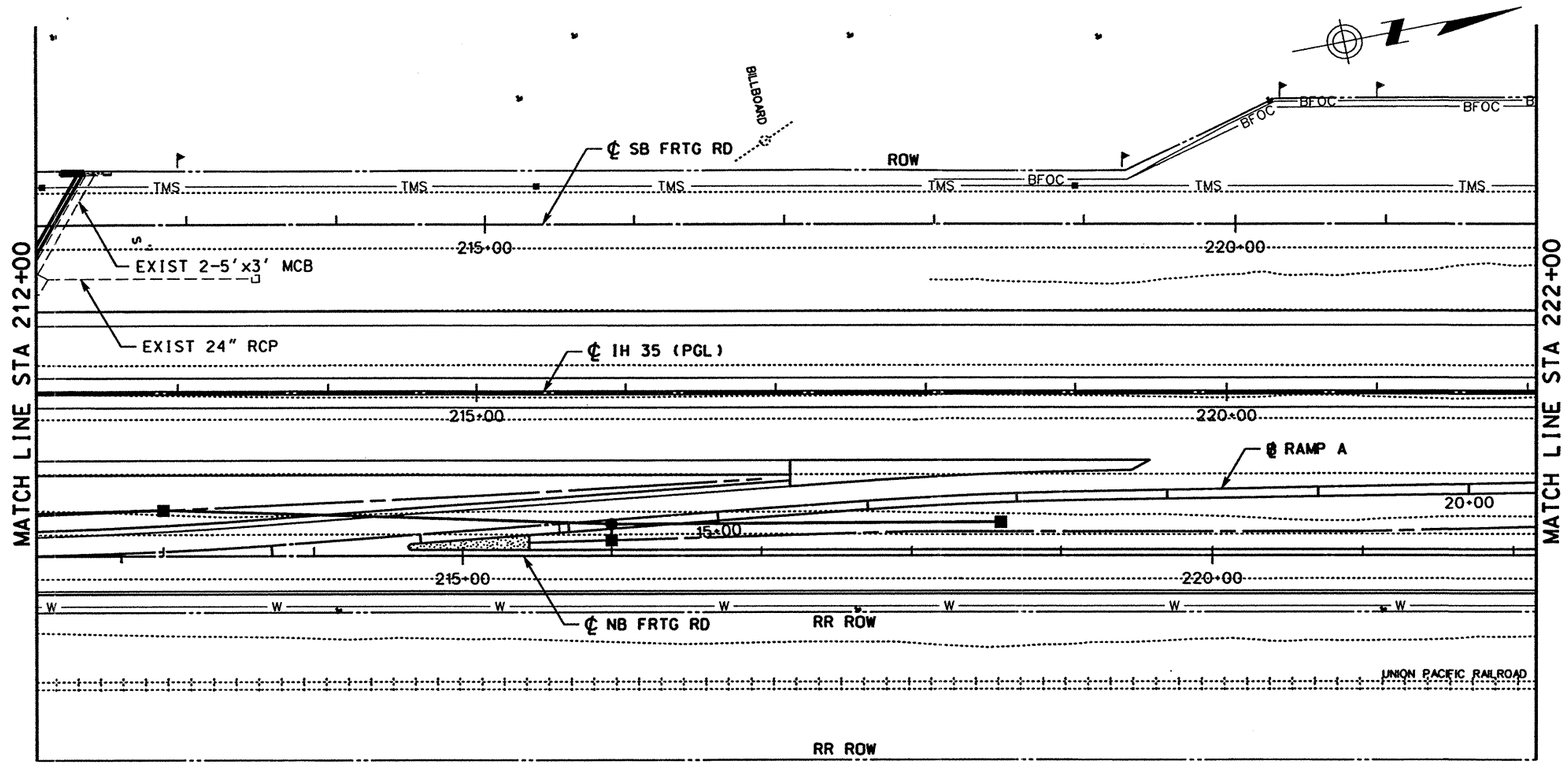


LEGEND

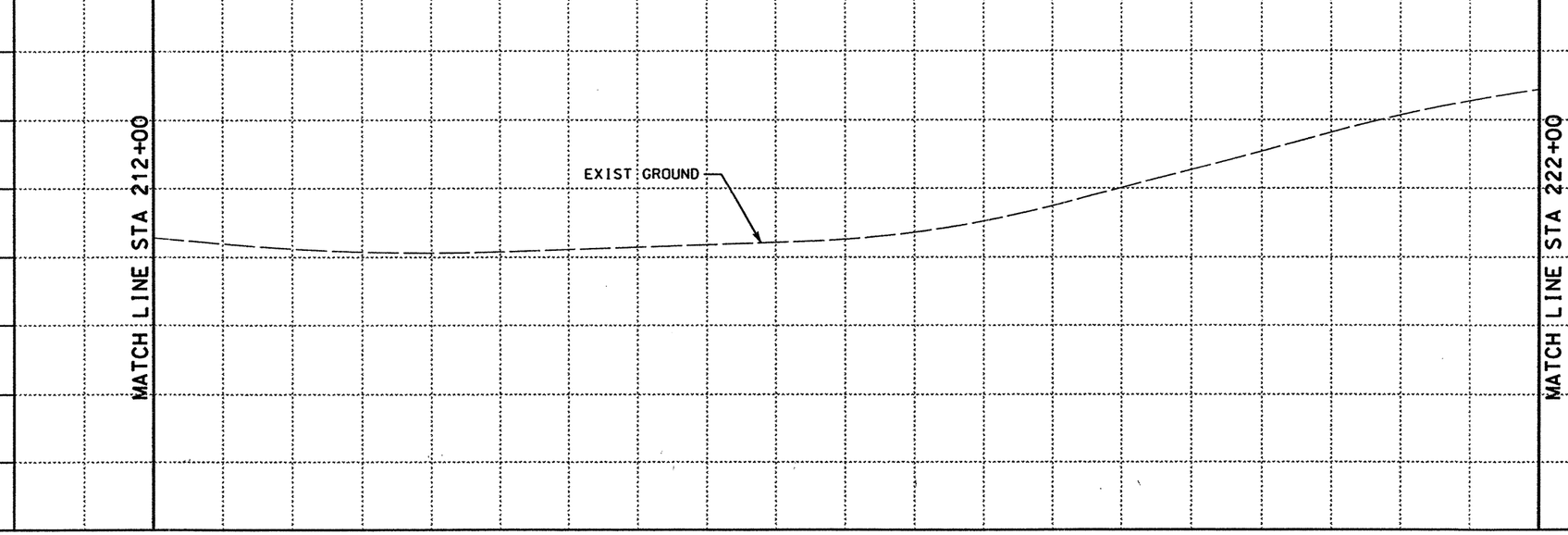
- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 212+00 TO STA 222+00

SHEET 5 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	554
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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j011opp01.alg. alg LV ON = 1-6.35-39
j011opp01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62

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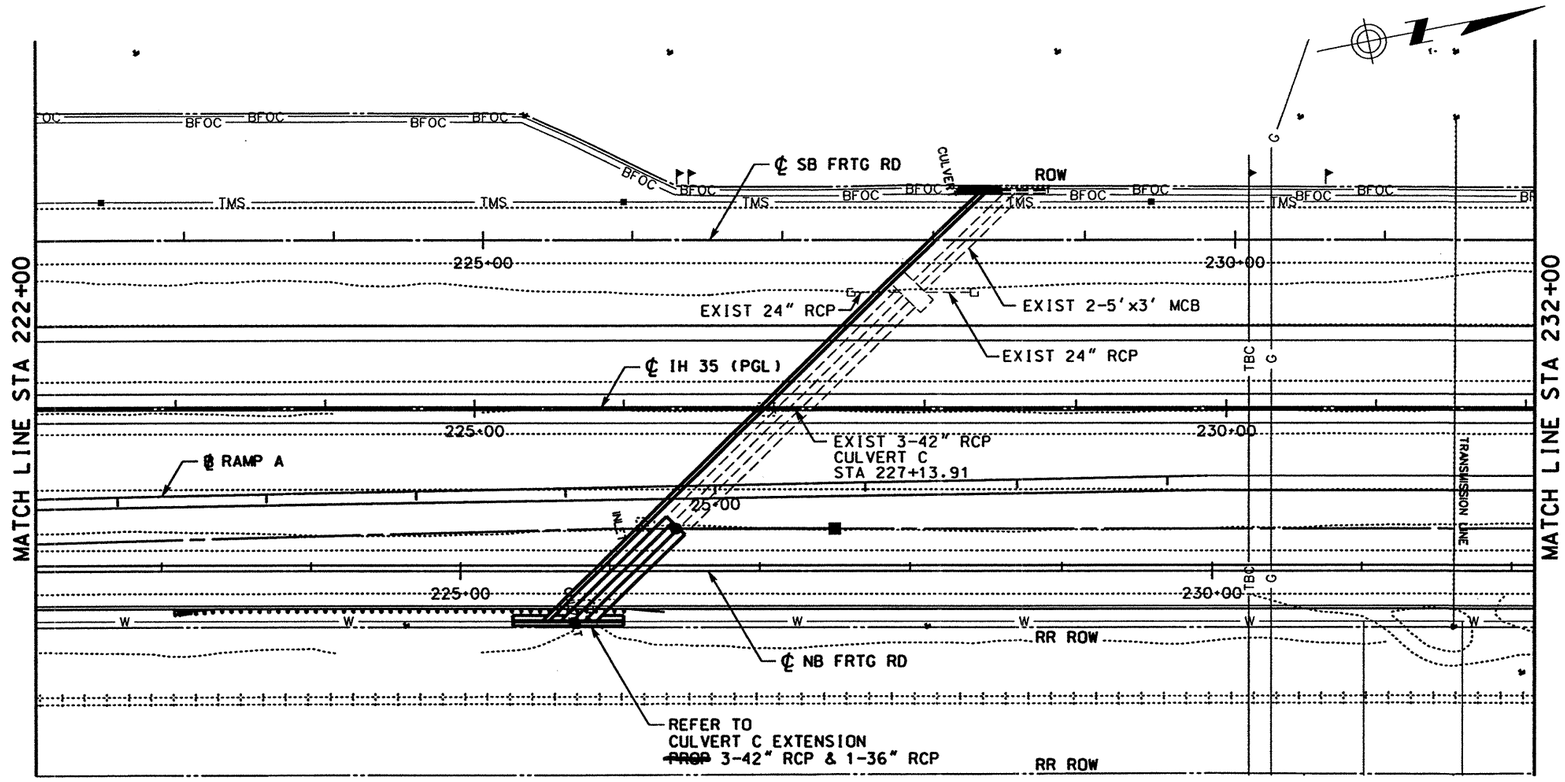


LEGEND

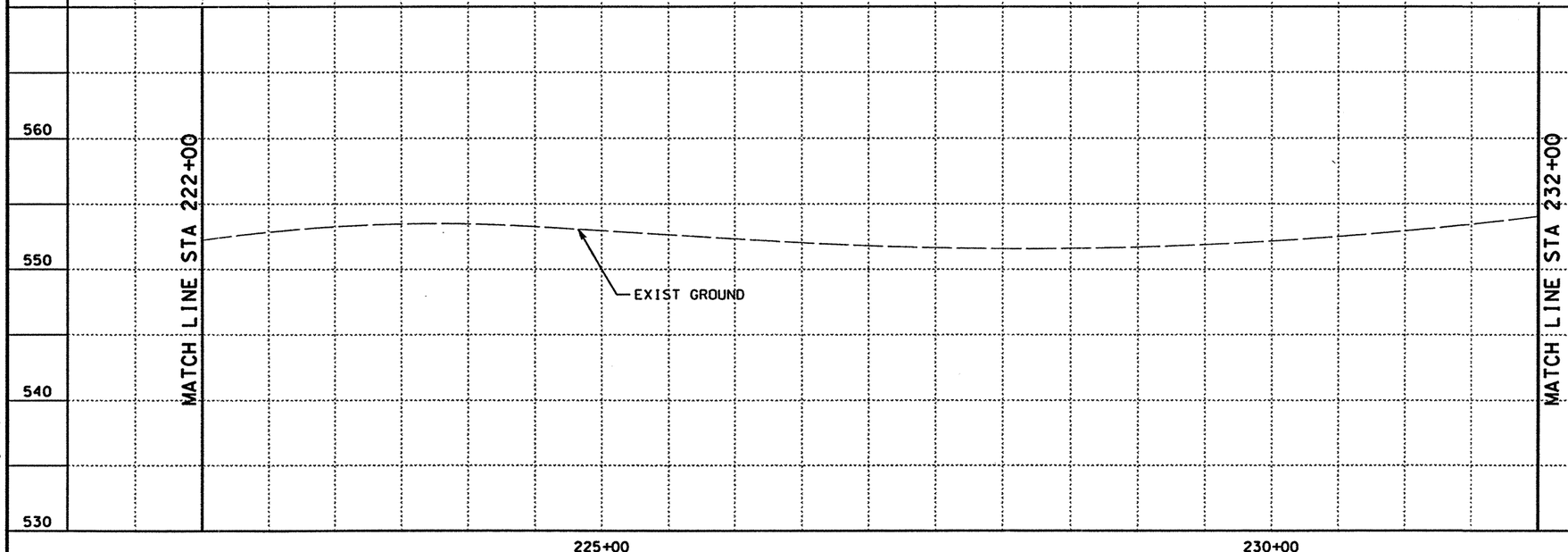
- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 222+00 TO STA 232+00

SHEET 6 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	555
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

4/18/2003
\hcivil\cf0130\
HOUFILE023
b13ppp43.dgn-03

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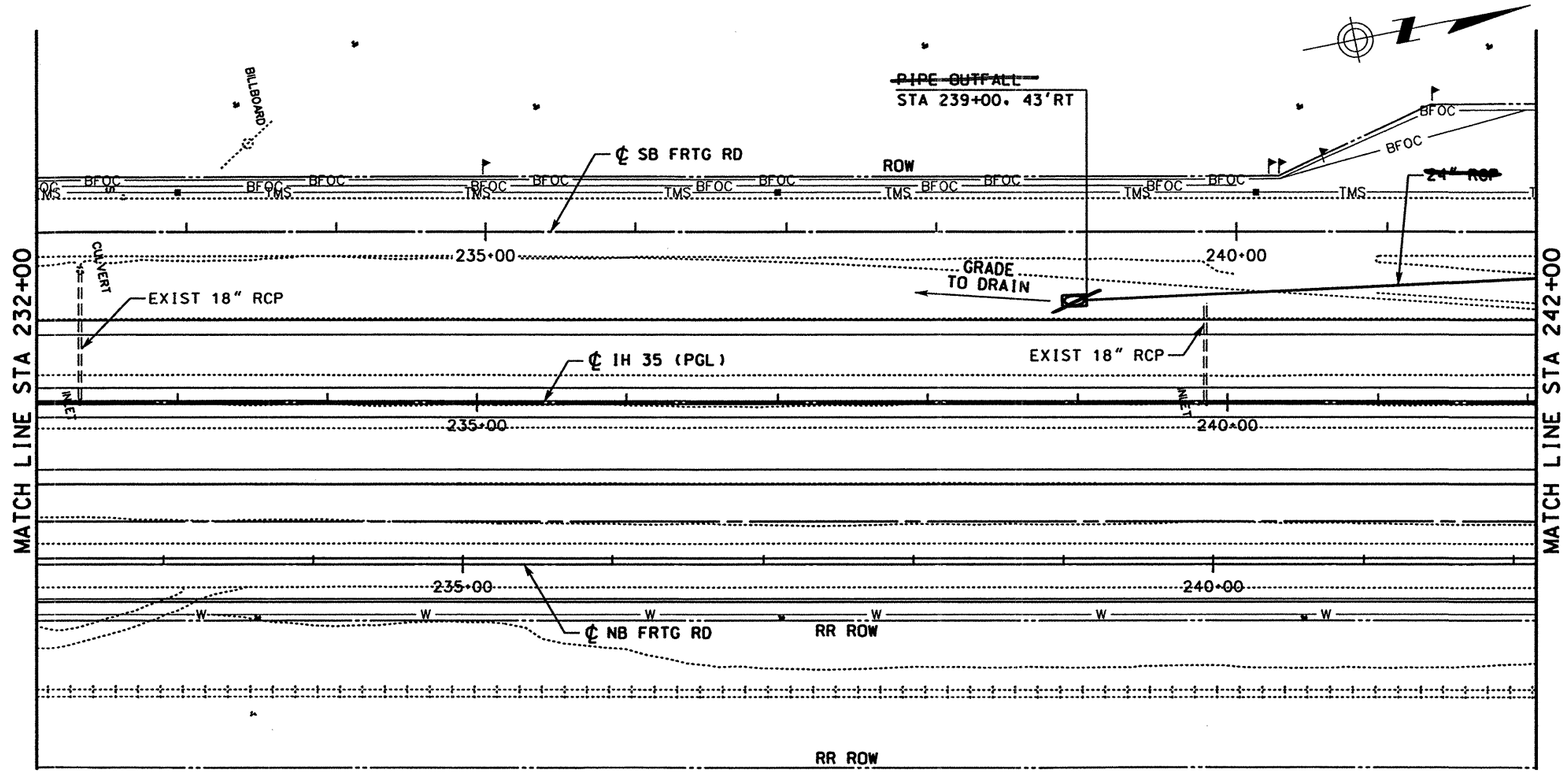
j011op01.dlg. dlg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.32-33.45.47.57.58.60-62



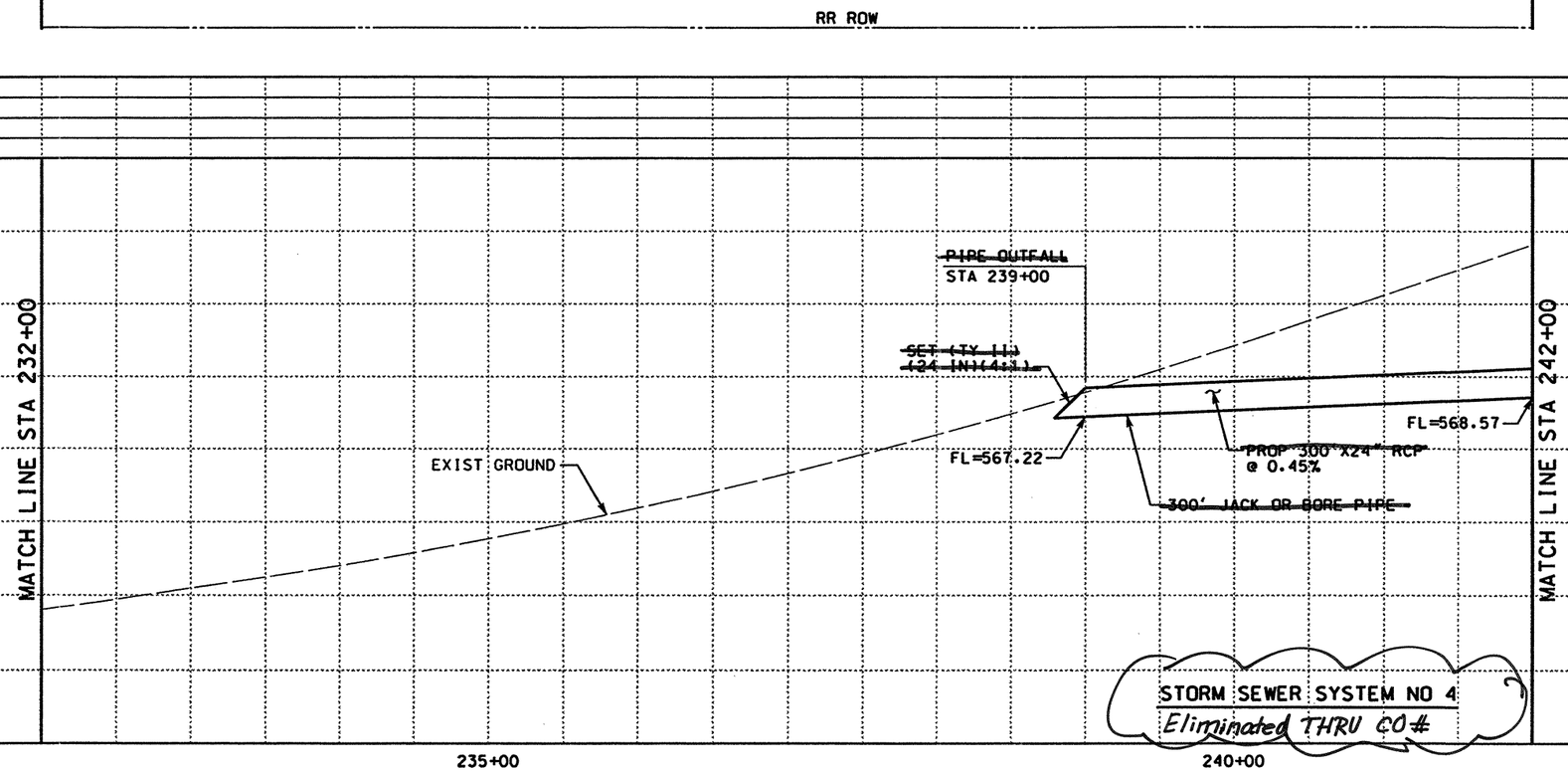
LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



STORM SEWER SYSTEM NO 4
Eliminated THRU CO#

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 232+00 TO STA 242+00

SHEET 7 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	556
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

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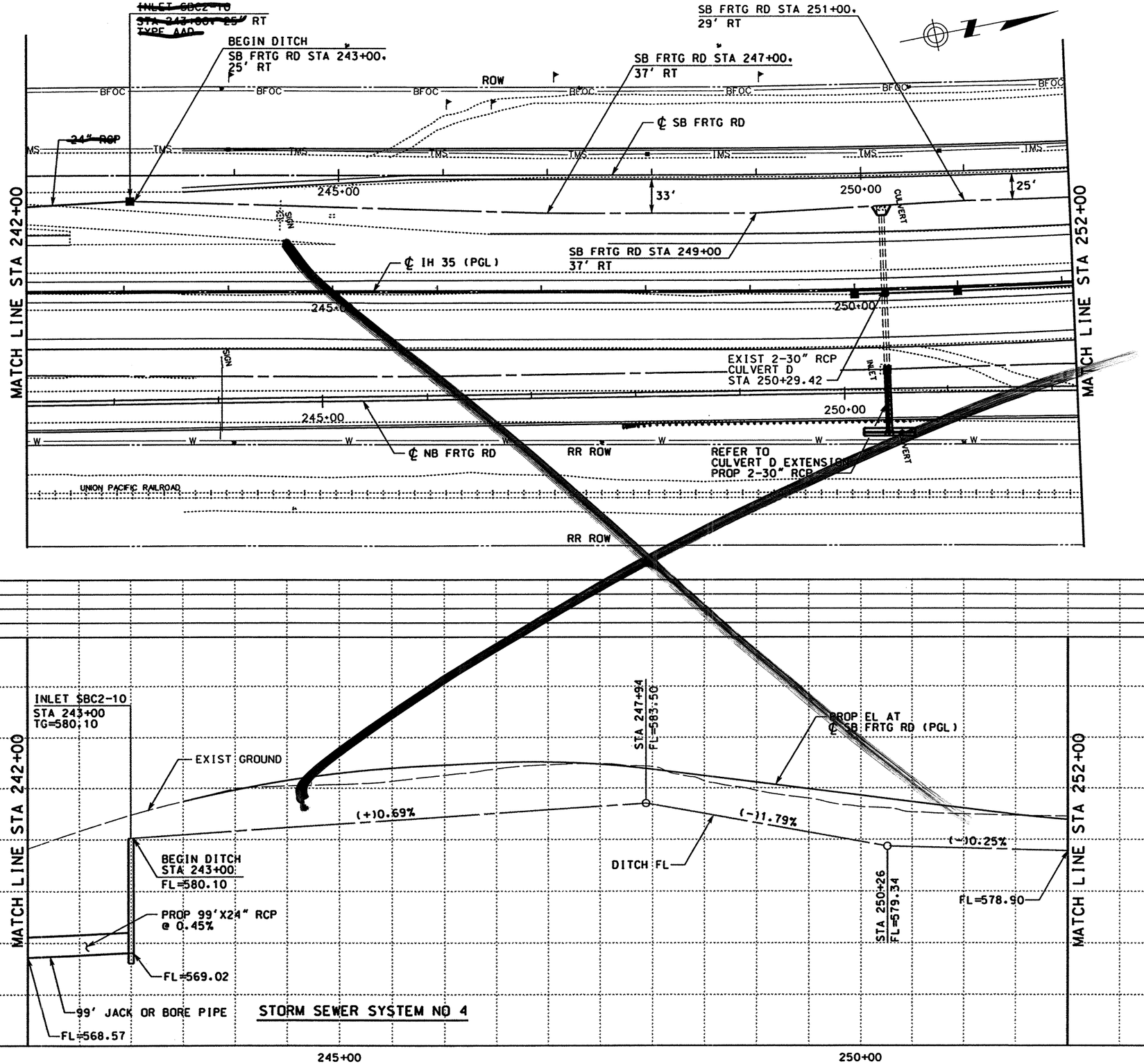
REF FILE(S): j011op01.utl, utl LV ON = 1-63
j011op01.eop, eop LV ON = 1-17,19-63
j011op01.bck, bck LV ON = 2,9,10,14,17,20,21,25,28
j011op01.dlg, dlg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32-33,45,47,57,58,60-62

b13pp44.dgn-07 HOUFILE023 \hcivil\cf0130\ 4/18/2003



LEGEND

- ROW
- PROPOSED DITCH ℄
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 242+00 TO STA 252+00
SHEET 8 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		557
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hciv\lvc10130\
b13pp45.dgn-10

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j0110p01.alg, alg LV ON = 1-6.35-39
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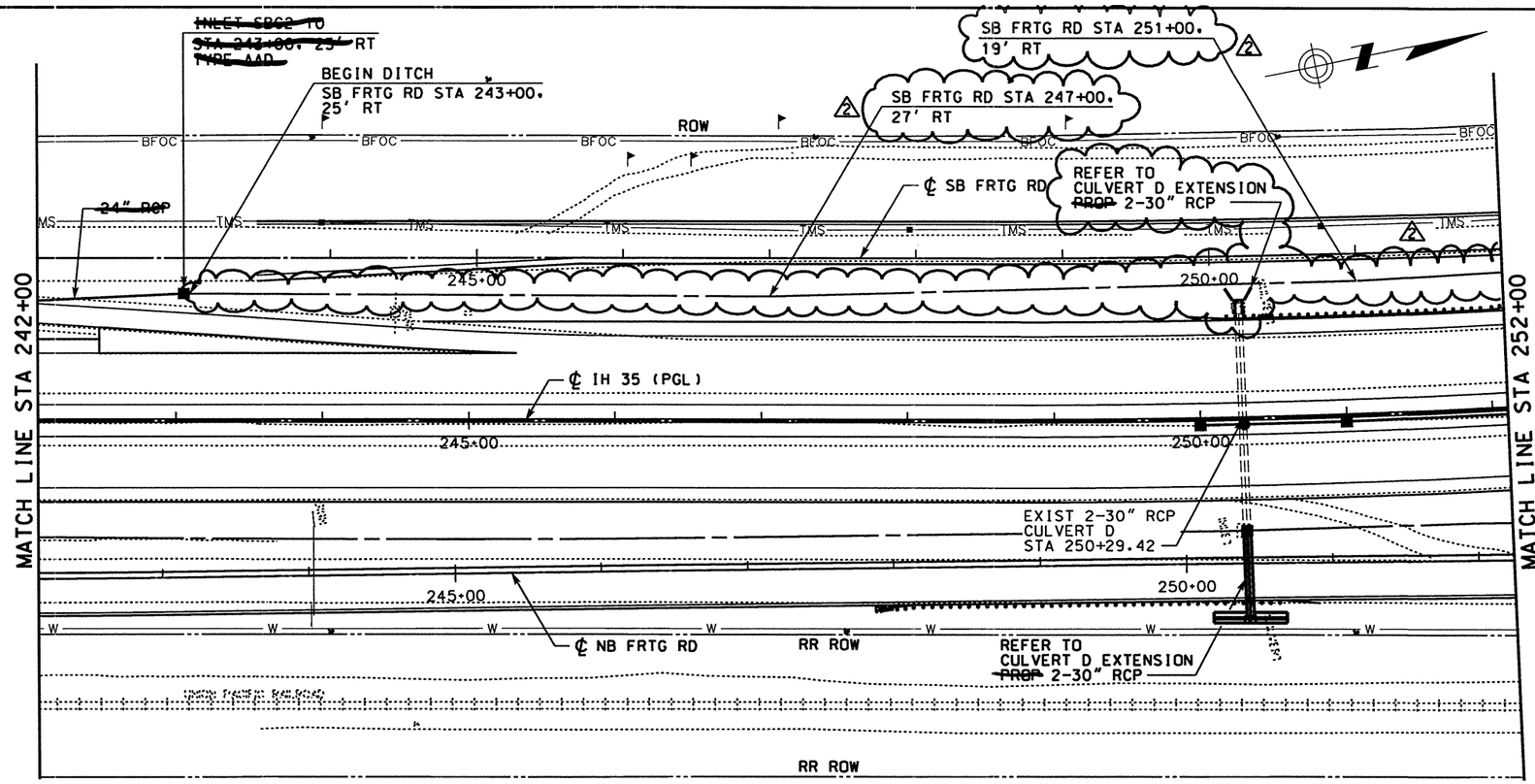

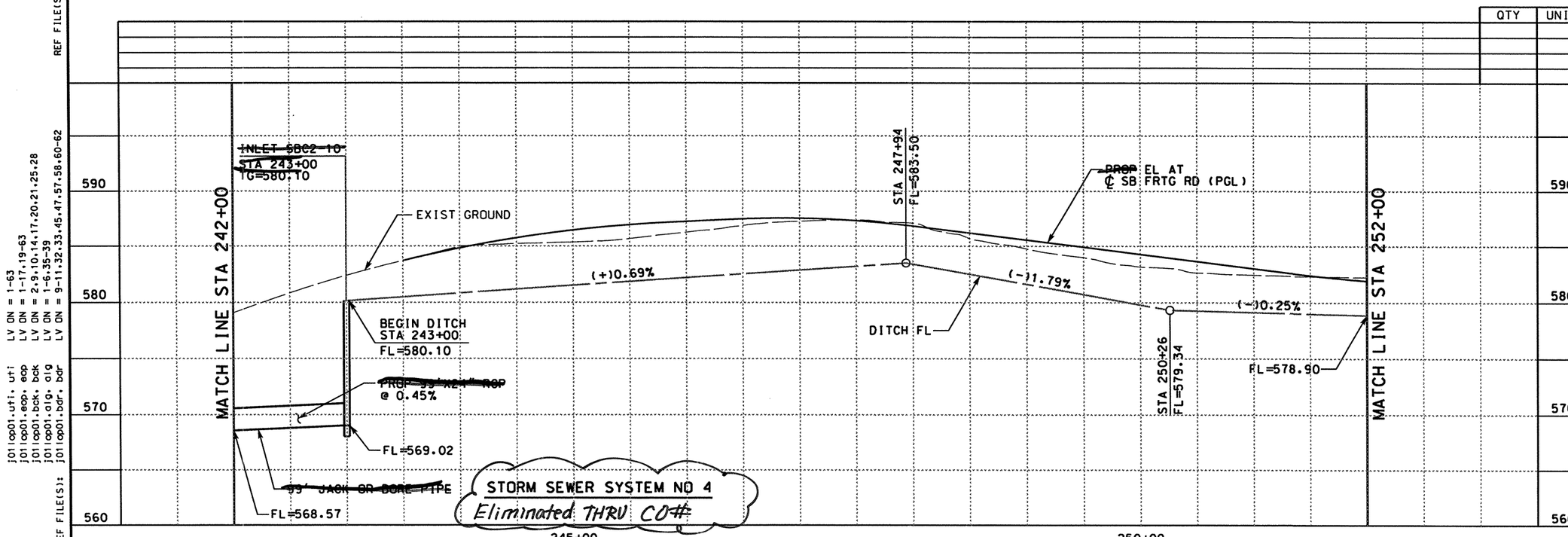

LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

DATE	BY	REV	REVISION
11/30/04	AA	2	ADD AUXILIARY LANE

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON FEBRUARY 10, 2005

Abun Abugattas

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 242+00 TO STA 252+00

SHEET 8 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	557
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

2/10/2005
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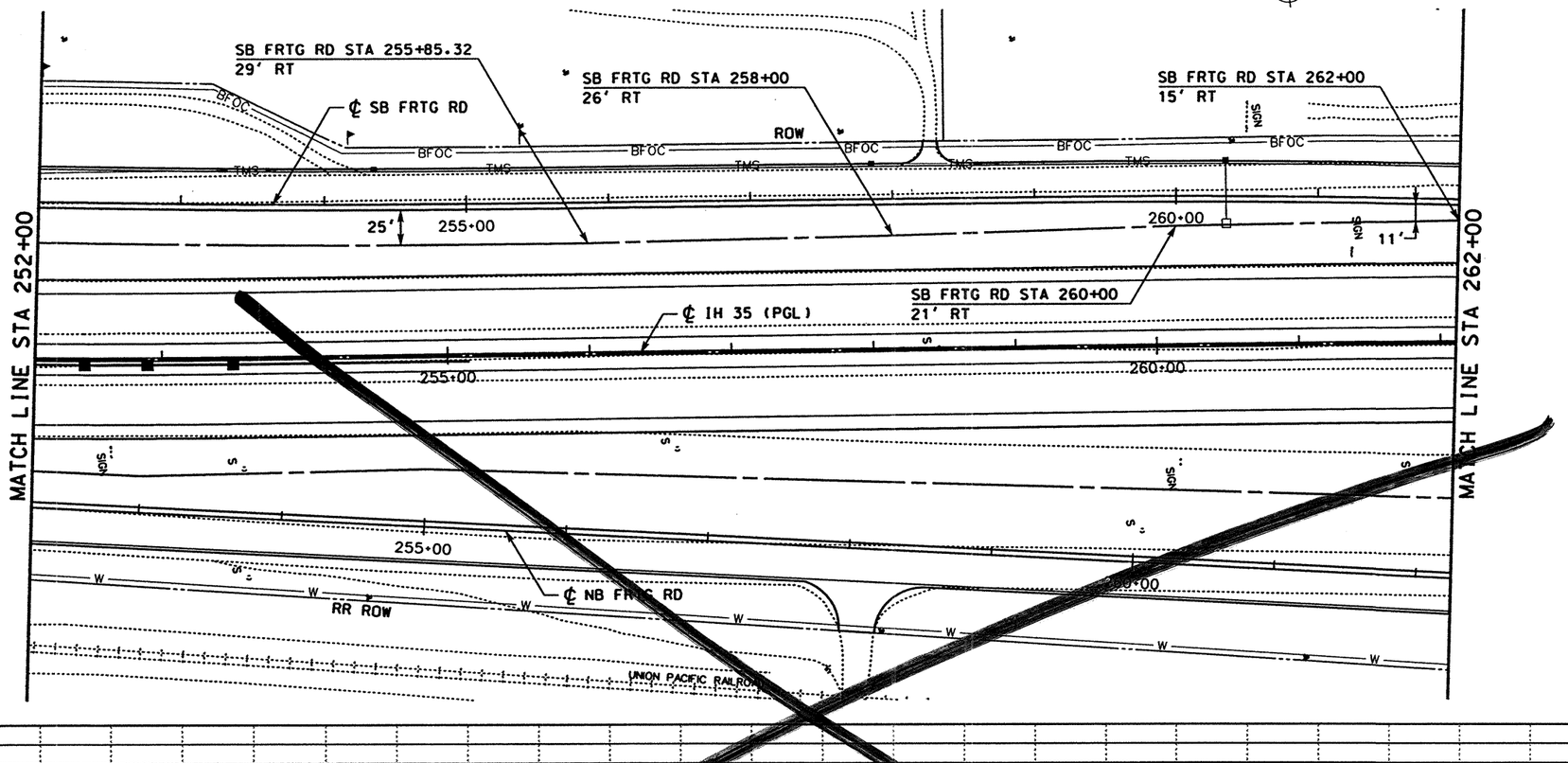

LEGEND

- ROW
- PROPOSED DITCH FL
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 252+00 TO STA 262+00

SHEET 9 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	558
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b13pp46.dgn-09

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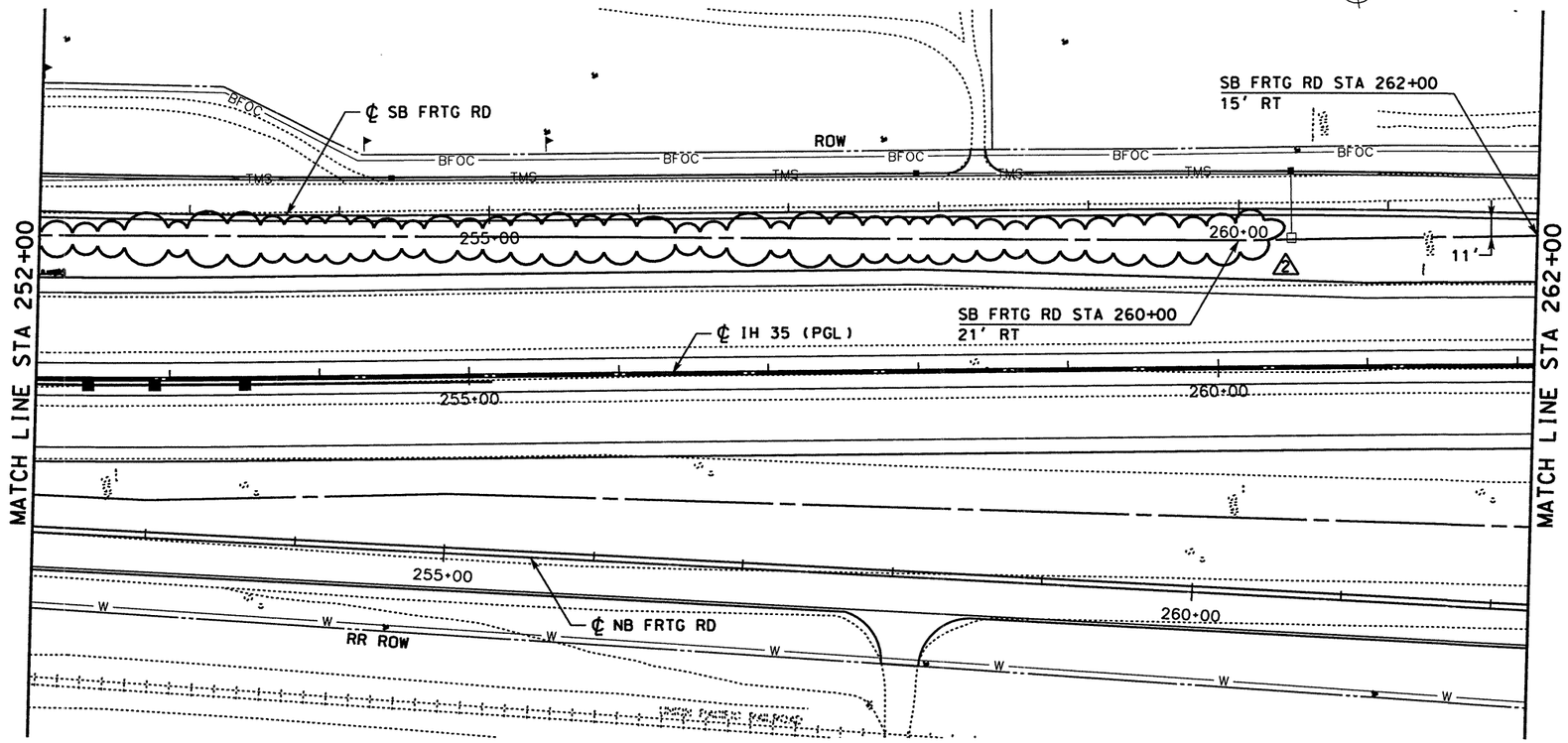

LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
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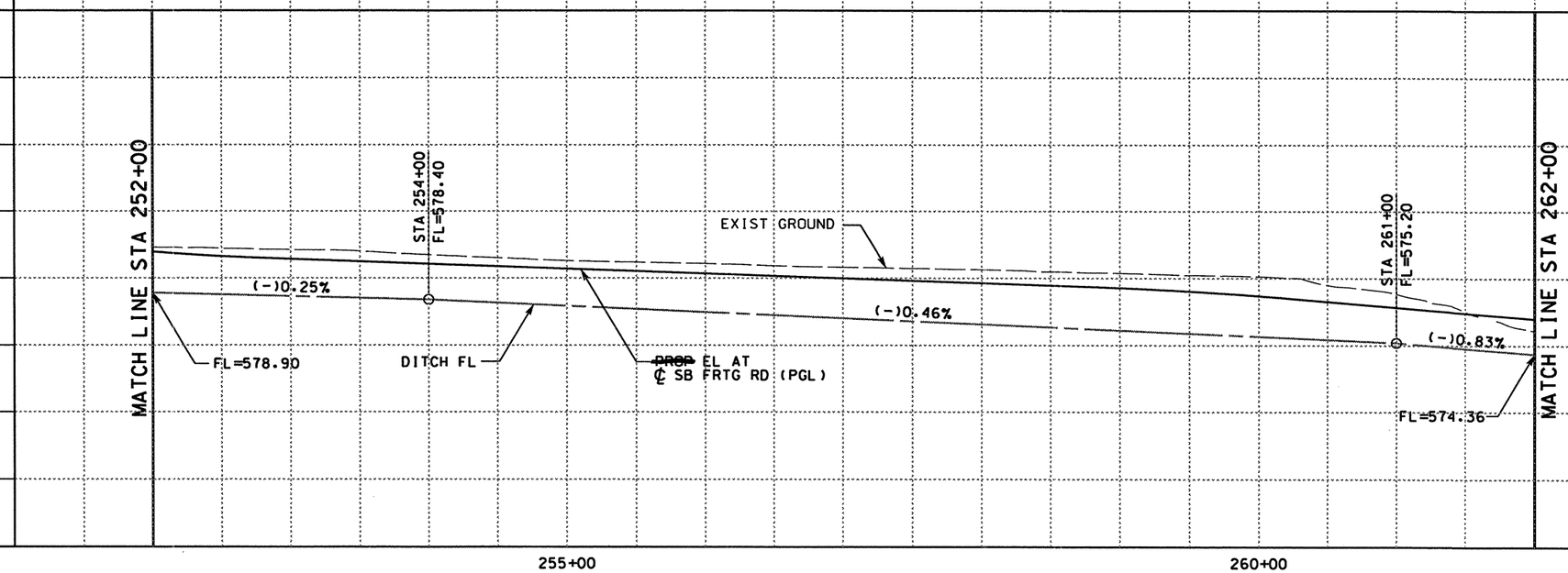
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

DATE	BY	REV	REVISION
11/30/04	AA	2	ADD AUXILIARY LANE

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON FEBRUARY 10, 2005

A.A. ABUGATTAS 34940 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 252+00 TO STA 262+00

SHEET 9 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	558
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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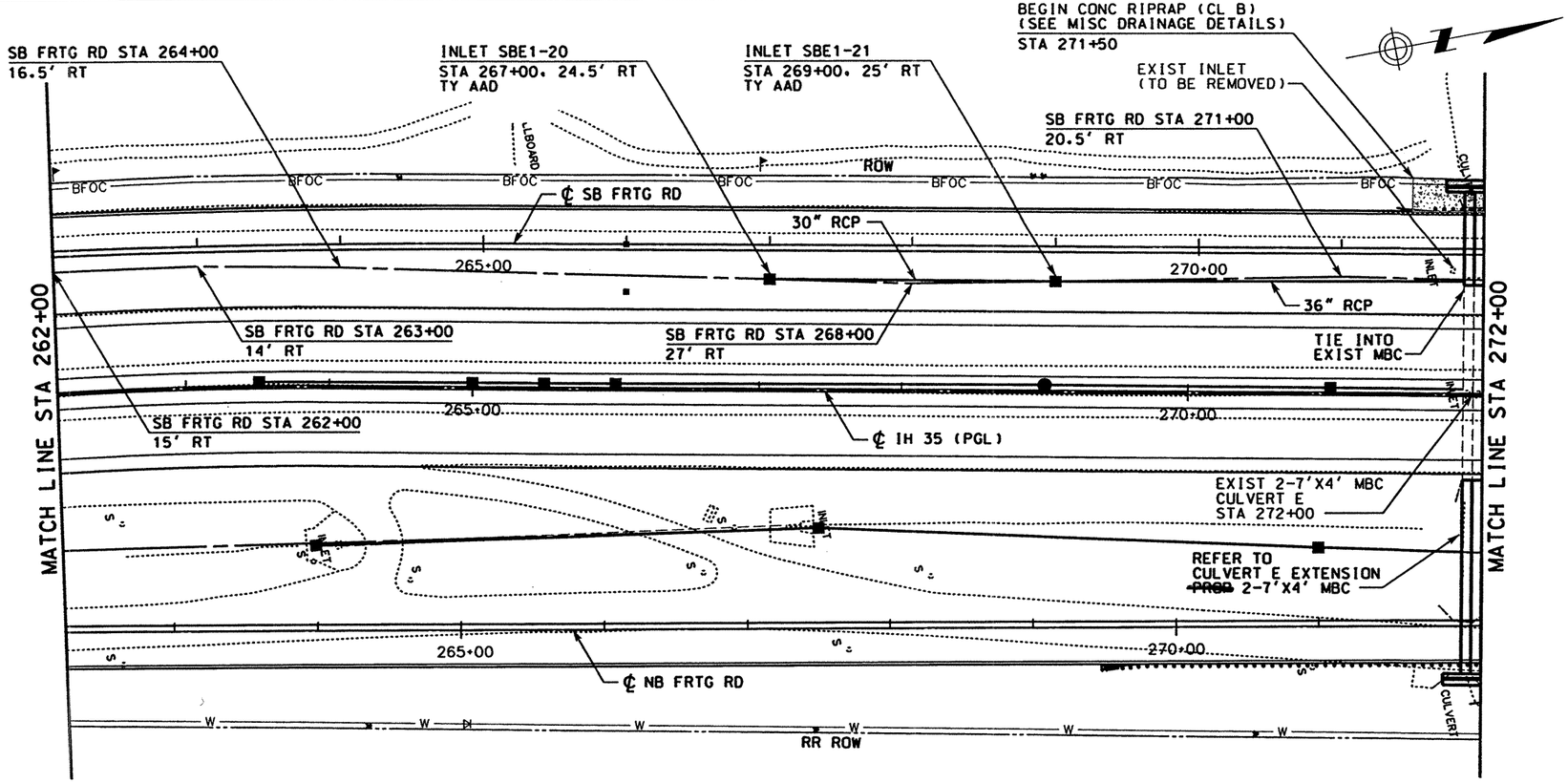


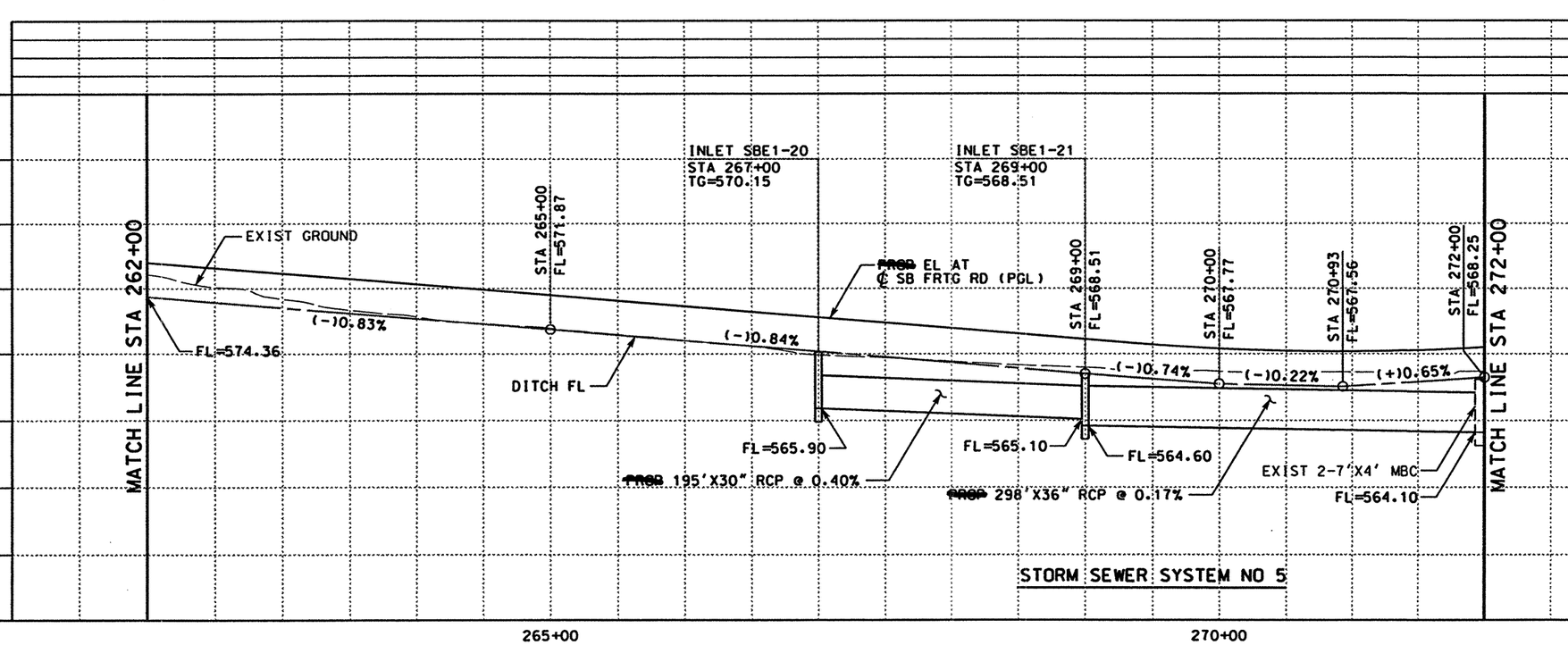
LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ~~PROPOSED~~ INLET
- ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



STORM SEWER SYSTEM NO 5

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 262+00 TO STA 272+00
SHEET 10 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		559
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

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j011op01.dlg.dlg LV ON = 1-6.35-39
j011op01.bdr.bdr LV ON = 9-11.32.33.45.47.57.58.60-62

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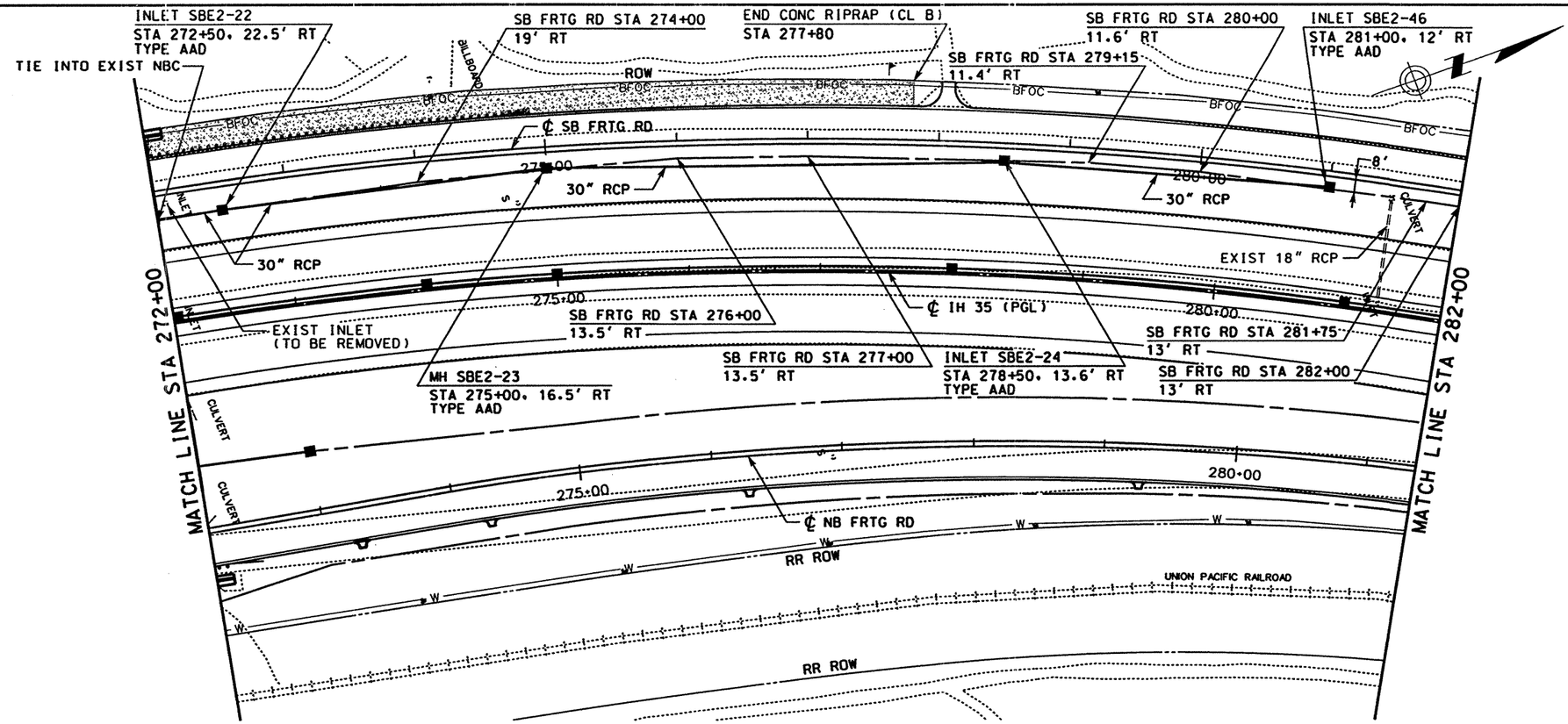

LEGEND

- ROW
- PROPOSED DITCH FL
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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TR = TOP OF RIM

NOTES:

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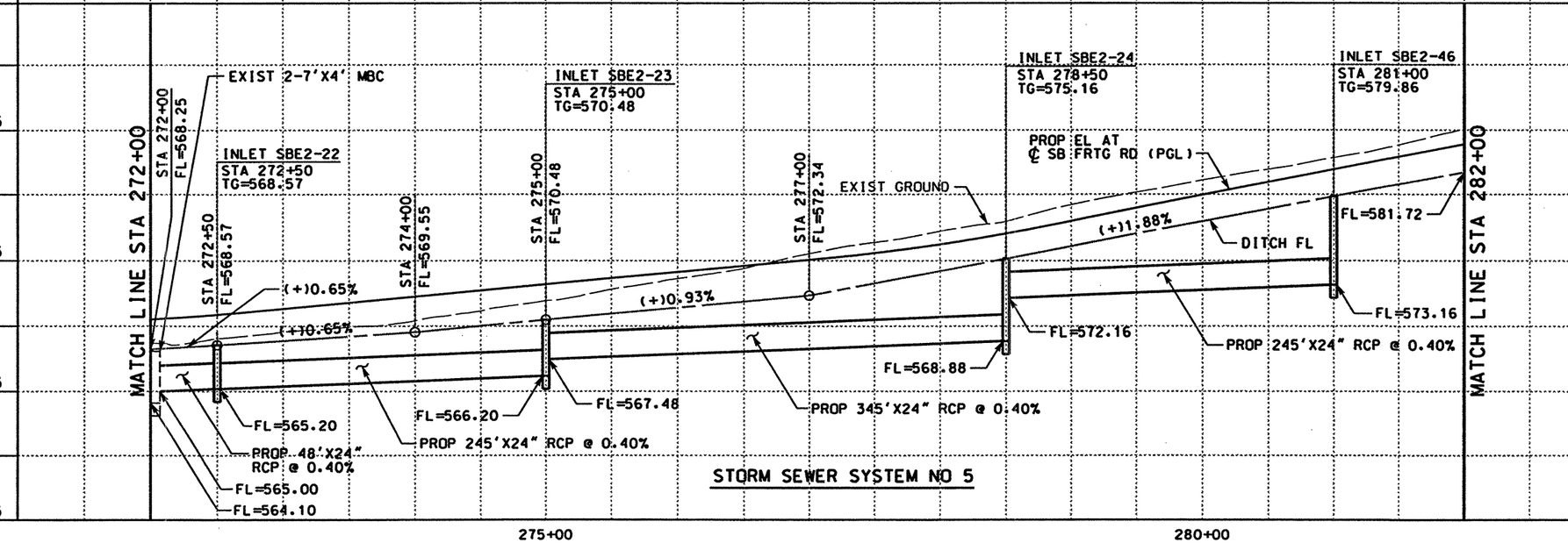
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



STORM SEWER SYSTEM NO 5

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 272+00 TO STA 282+00
SHEET 11 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		560
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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4/18/2003
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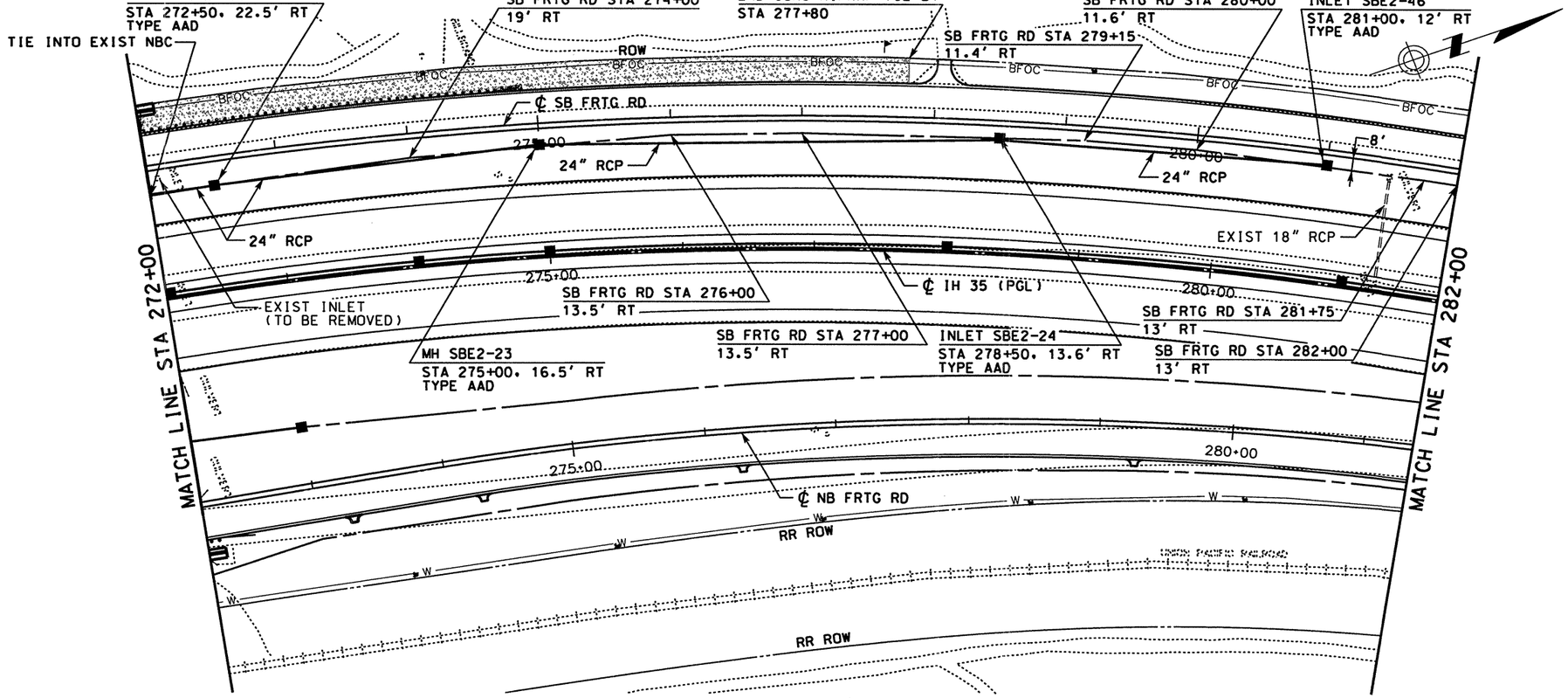

LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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TG = TOP OF GRATE
TR = TOP OF RIM

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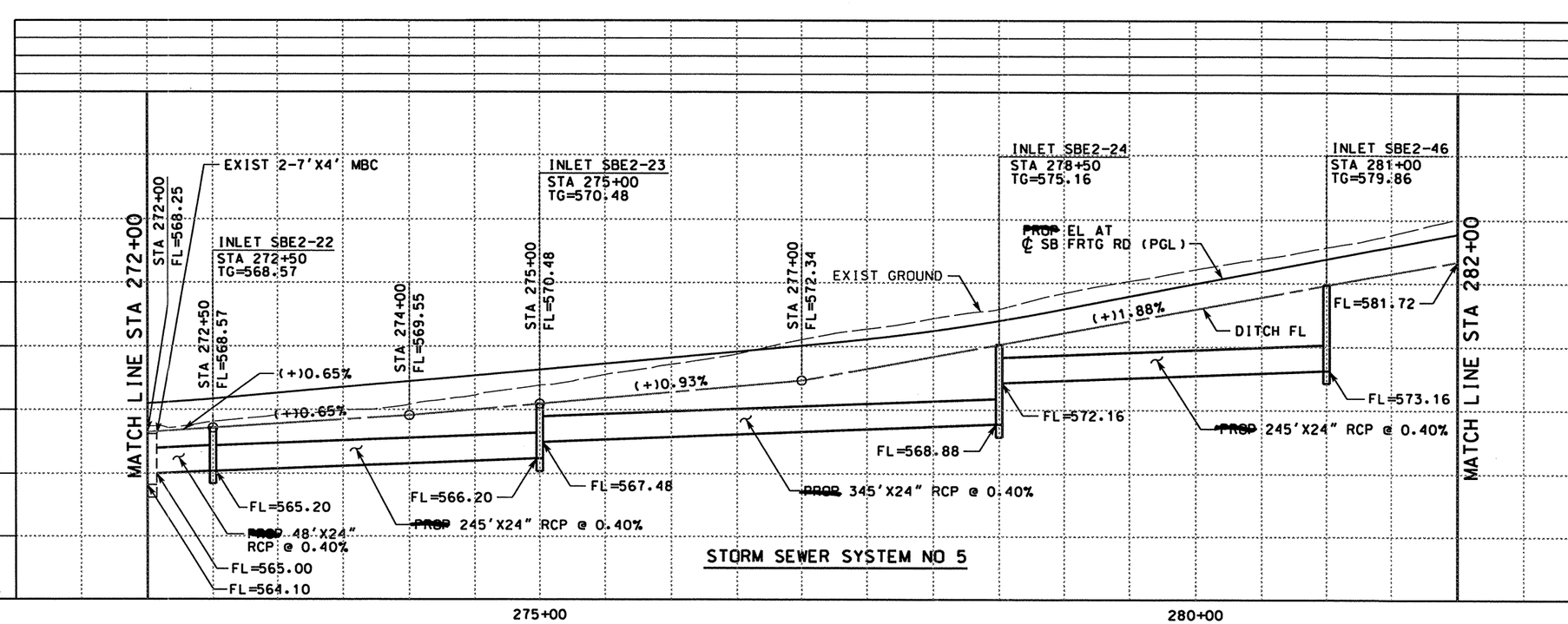

STORM SEWER SYSTEM NO 5

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JULY 28, 2004

A.A. ABUGATTAS
94940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 272+00 TO STA 282+00
SHEET 11 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		560
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

7/27/2004

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j011op01.alg, alg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62
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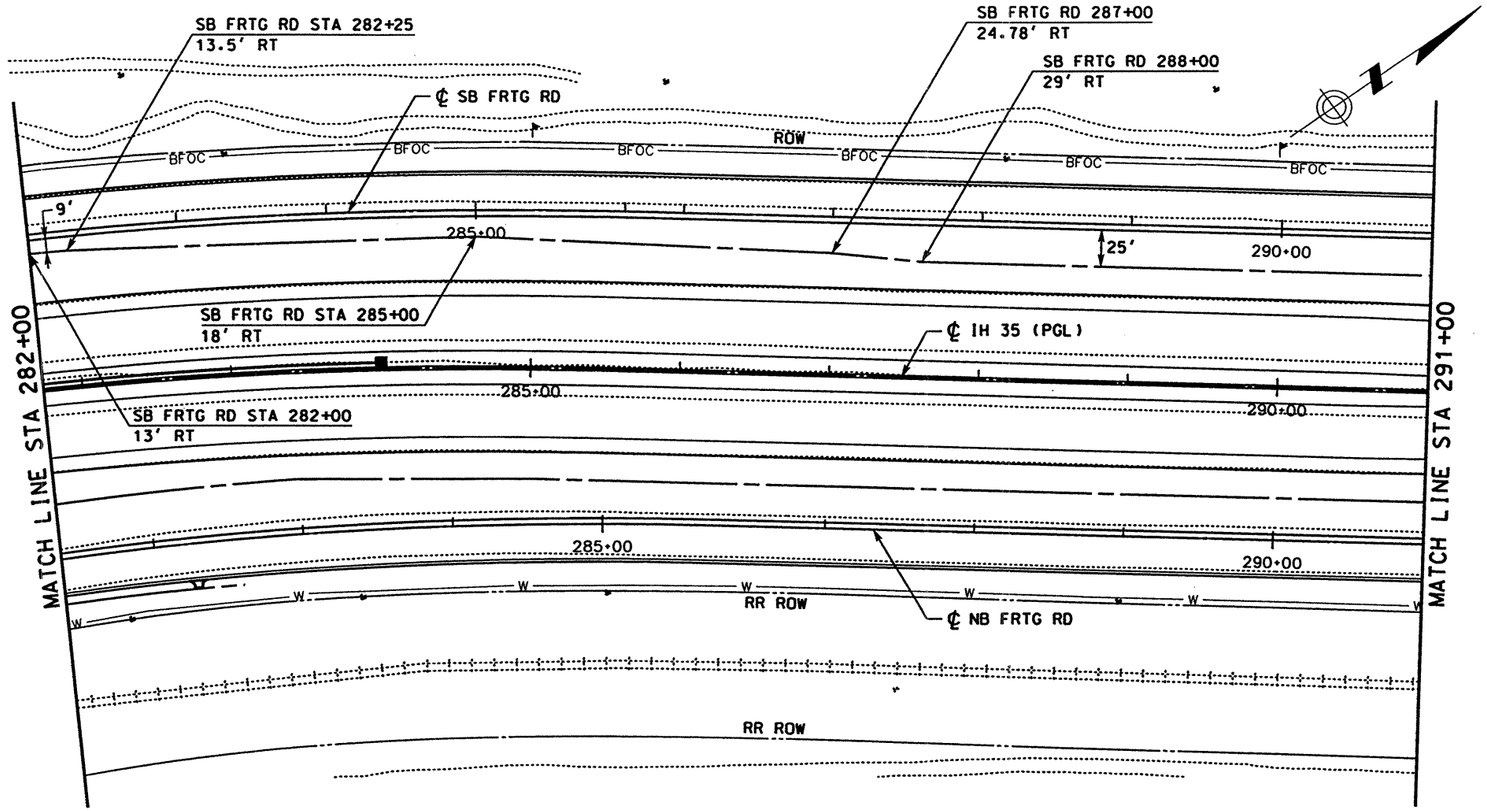

LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ~~PROPOSED~~ INLET
- ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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NOTES:

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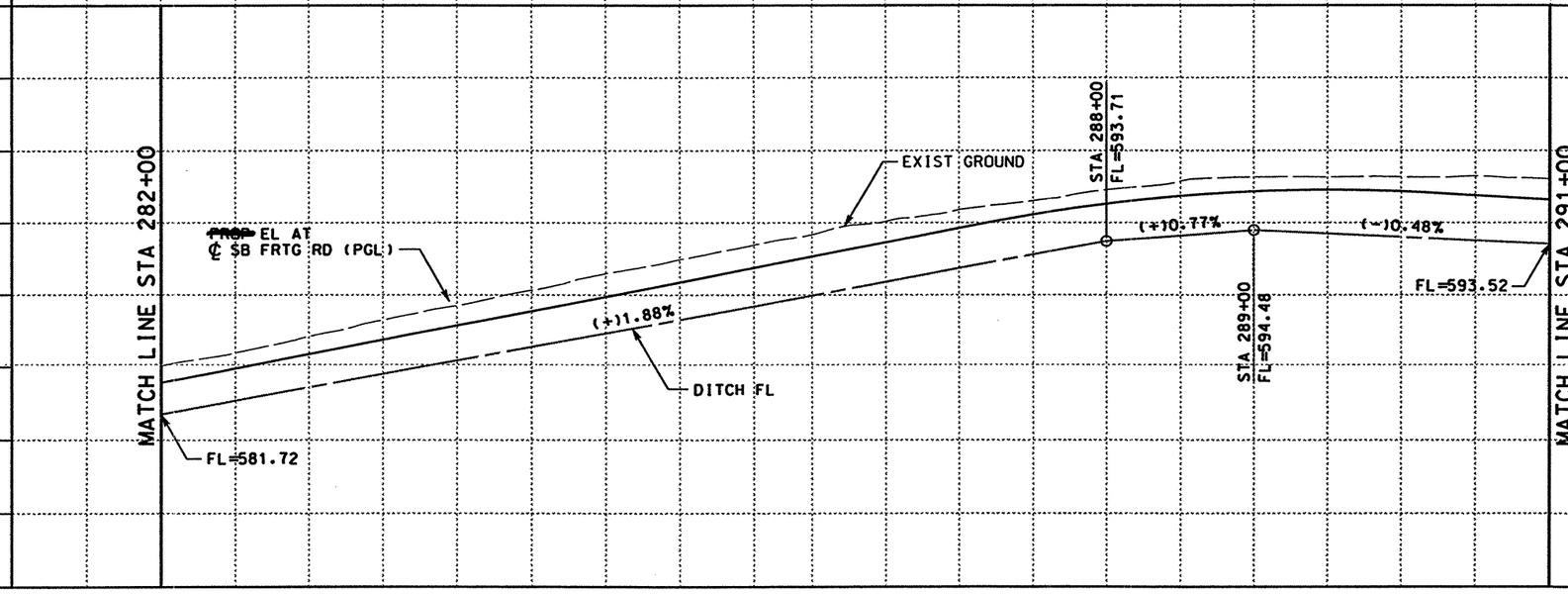
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
NO. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 282+00 TO STA 291+00
SHEET 12 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	561
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

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j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

4/18/2003
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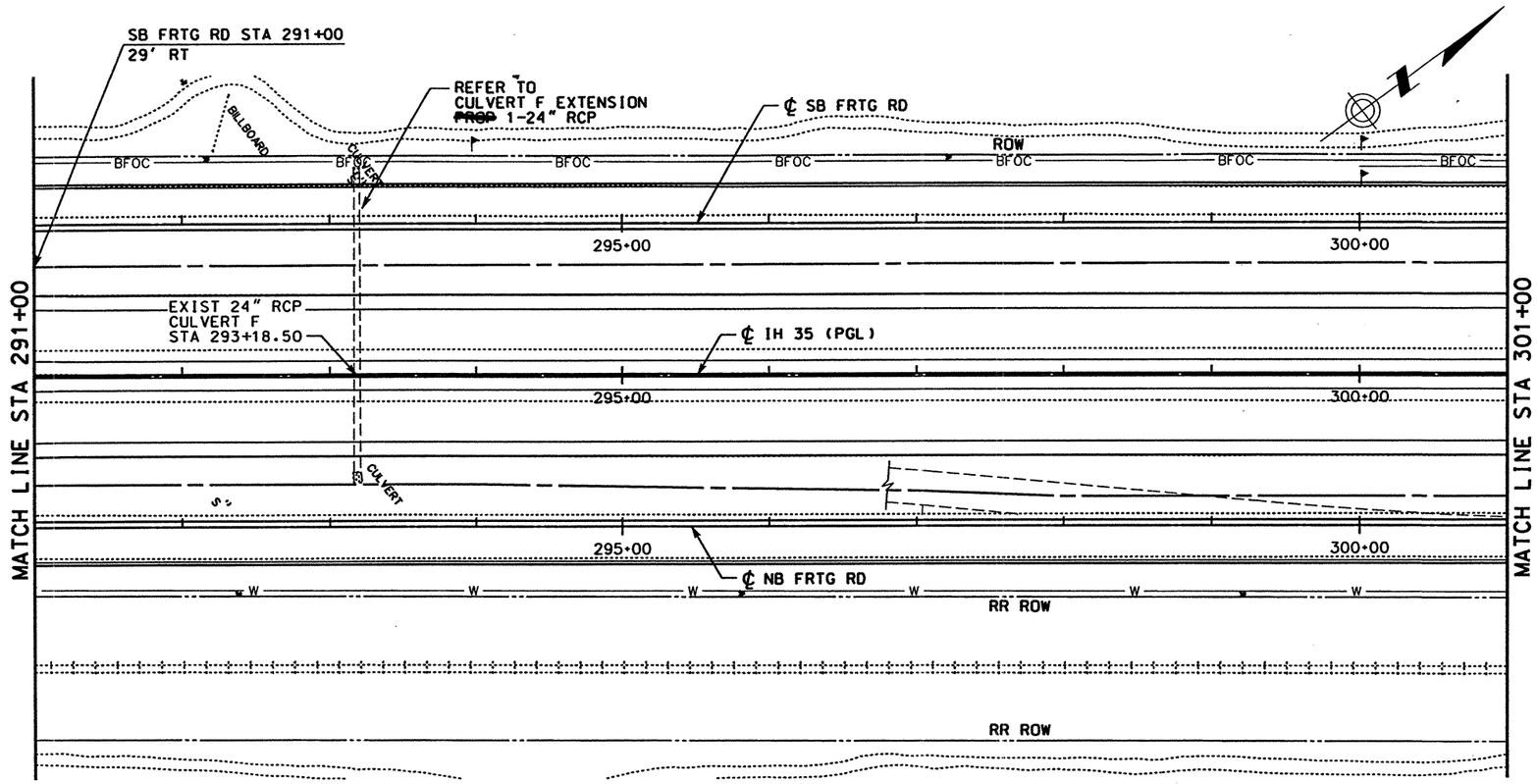

LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
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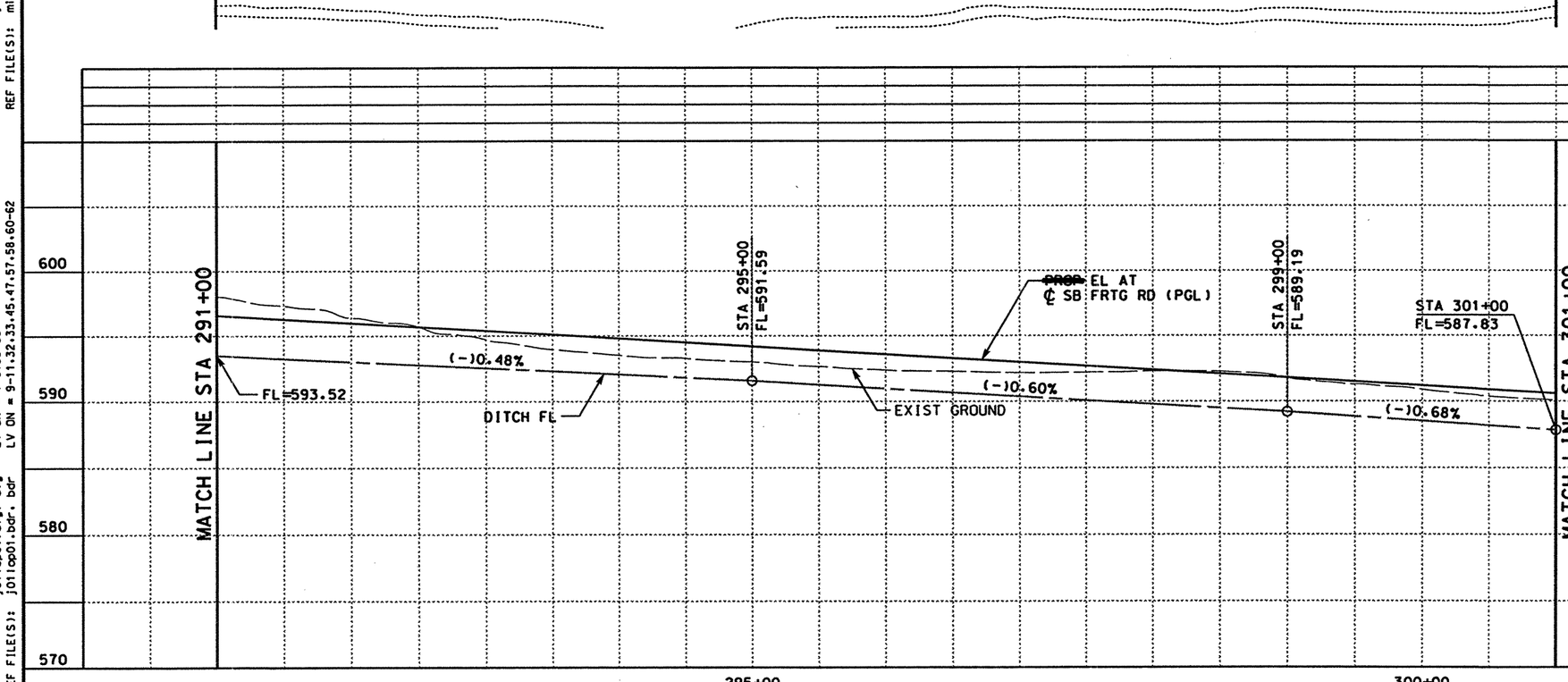

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 291+00 TO STA 301+00
SHEET 13 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	562
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

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j011op01.eop. eop LV ON = 1-17.19-63
j011op01.bck. bck LV ON = 2.9.10.14.17.20.21.25.28
j011op01.dlg. dlg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62

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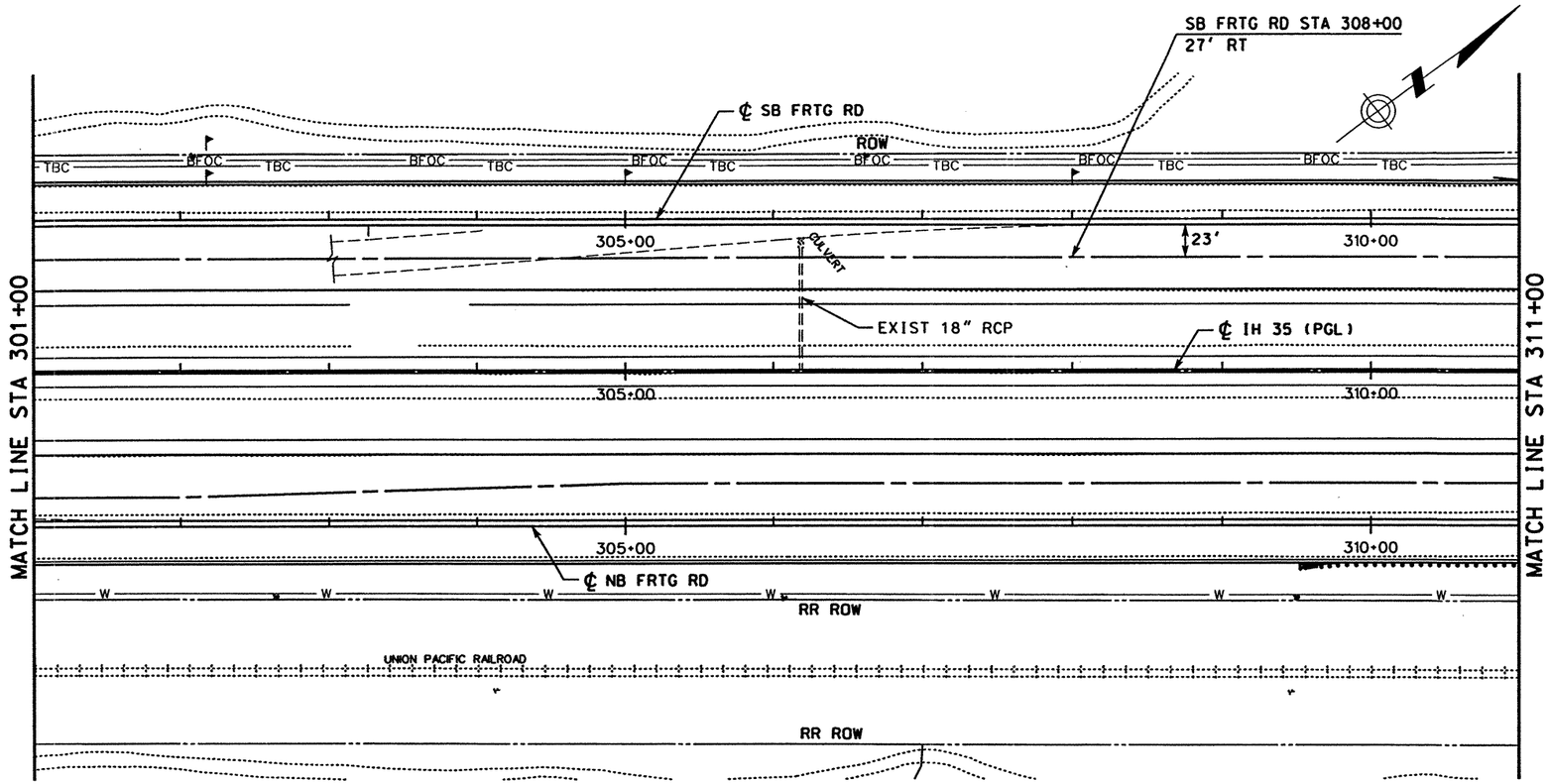

LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
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TR = TOP OF RIM

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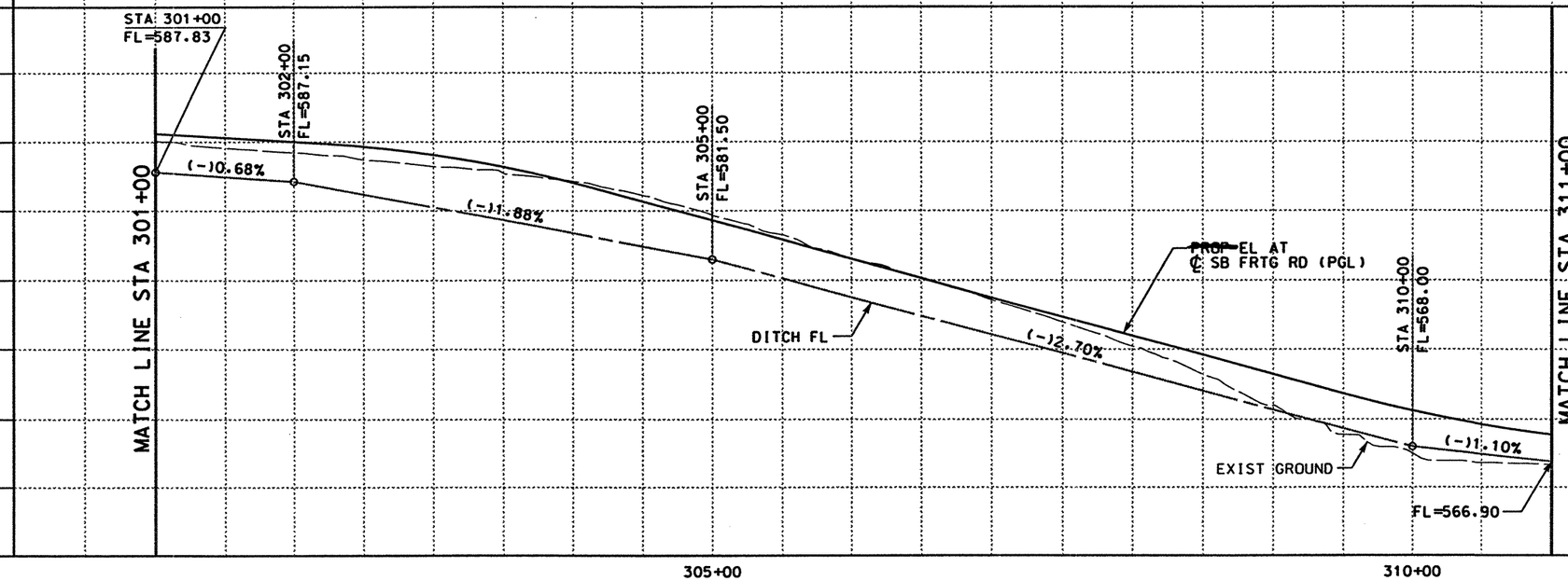

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 301+00 TO STA 311+00

SHEET 14 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	563
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

4/18/2003

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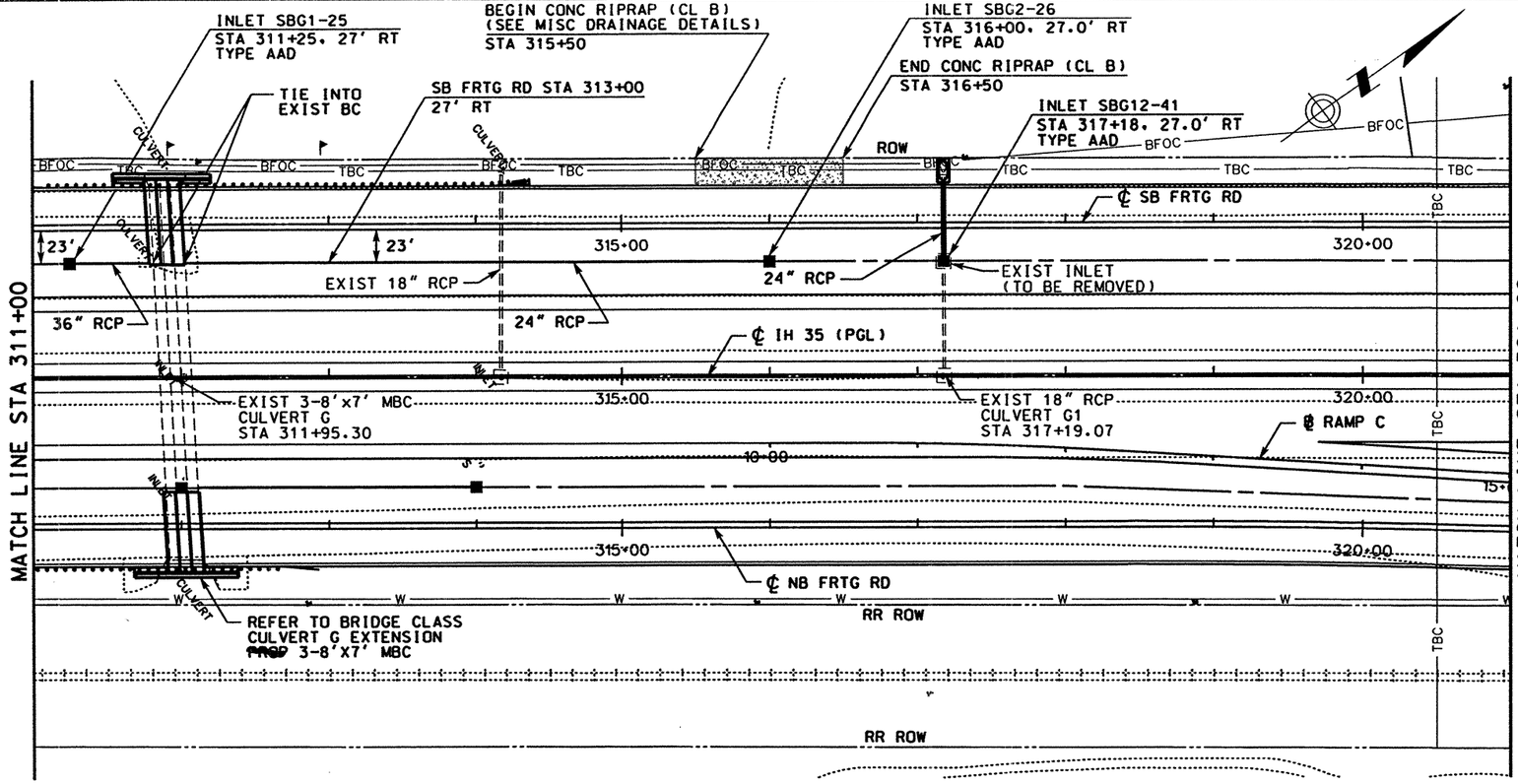


LEGEND

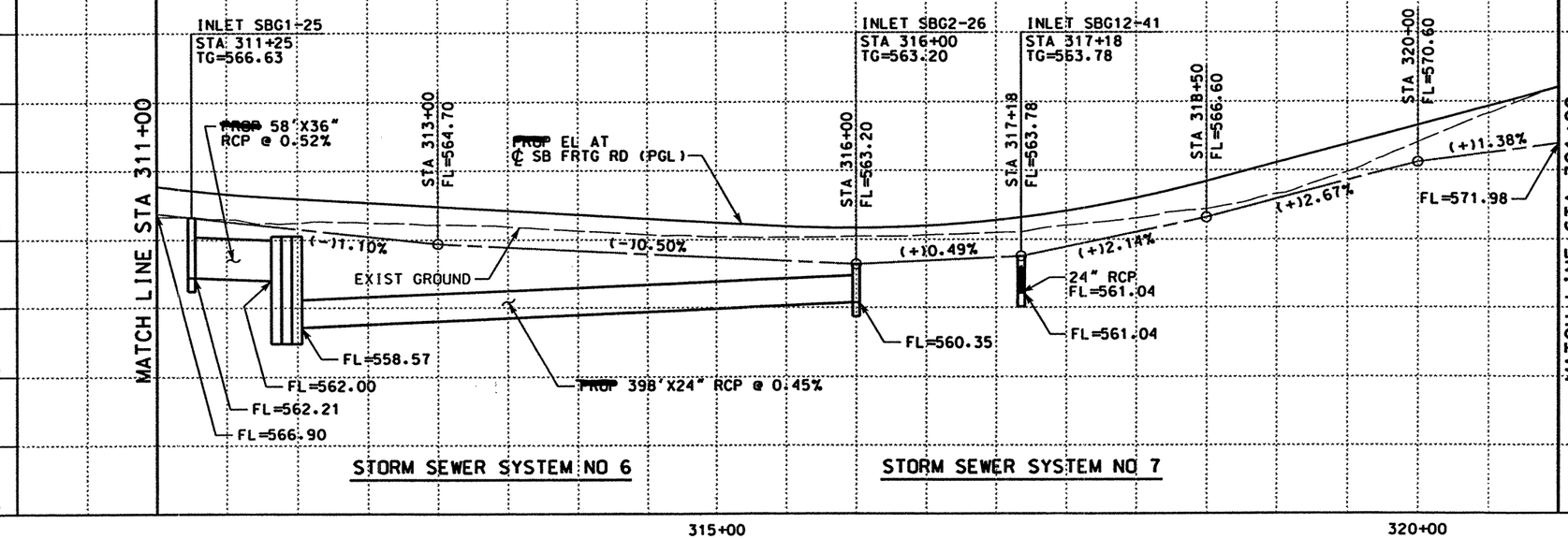
- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 311+00 TO STA 321+00

SHEET 15 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	564
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

4/18/2003

HOUFILE023 \hciviil\cf0130\

b13ppp52.dgn-12

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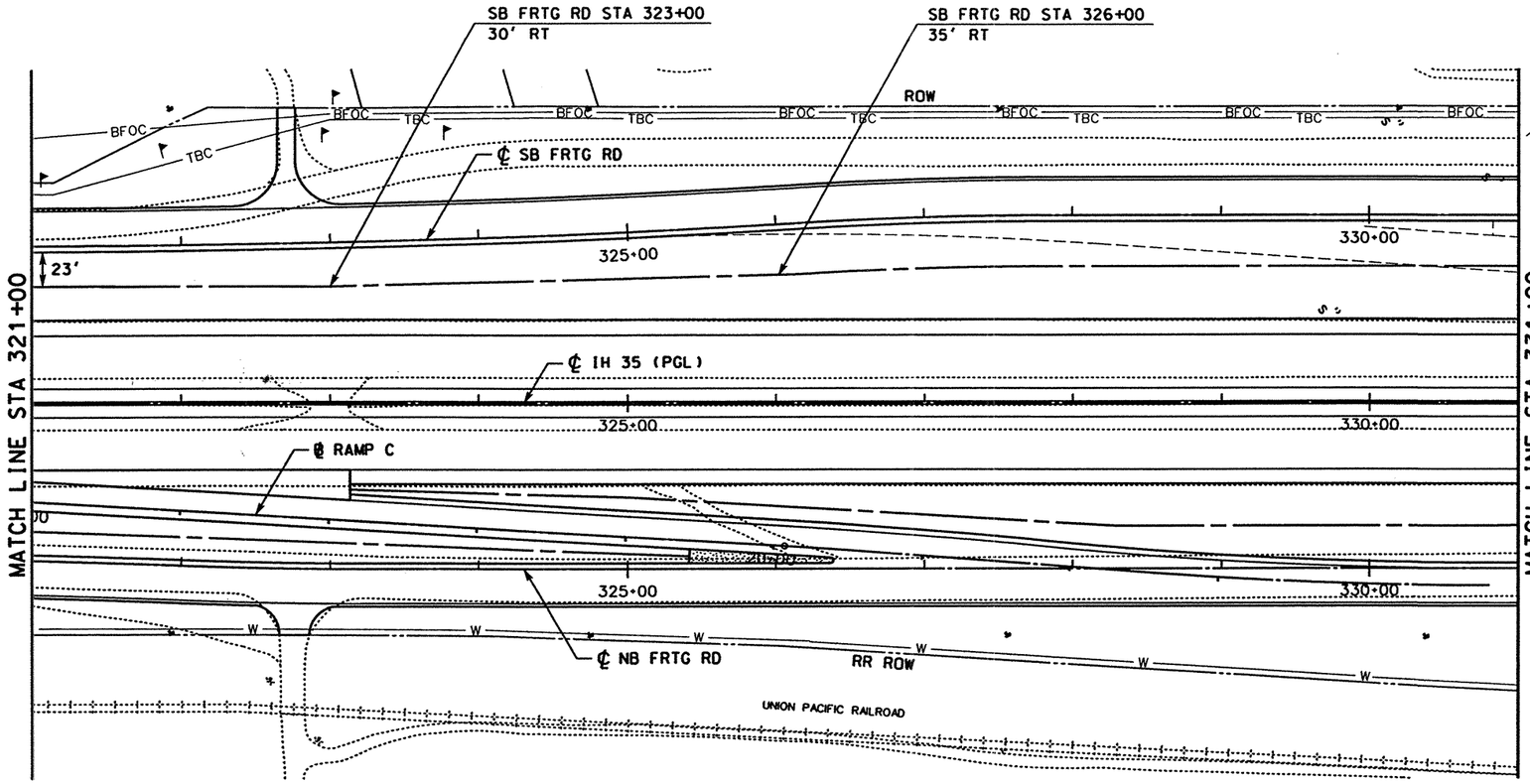


LEGEND

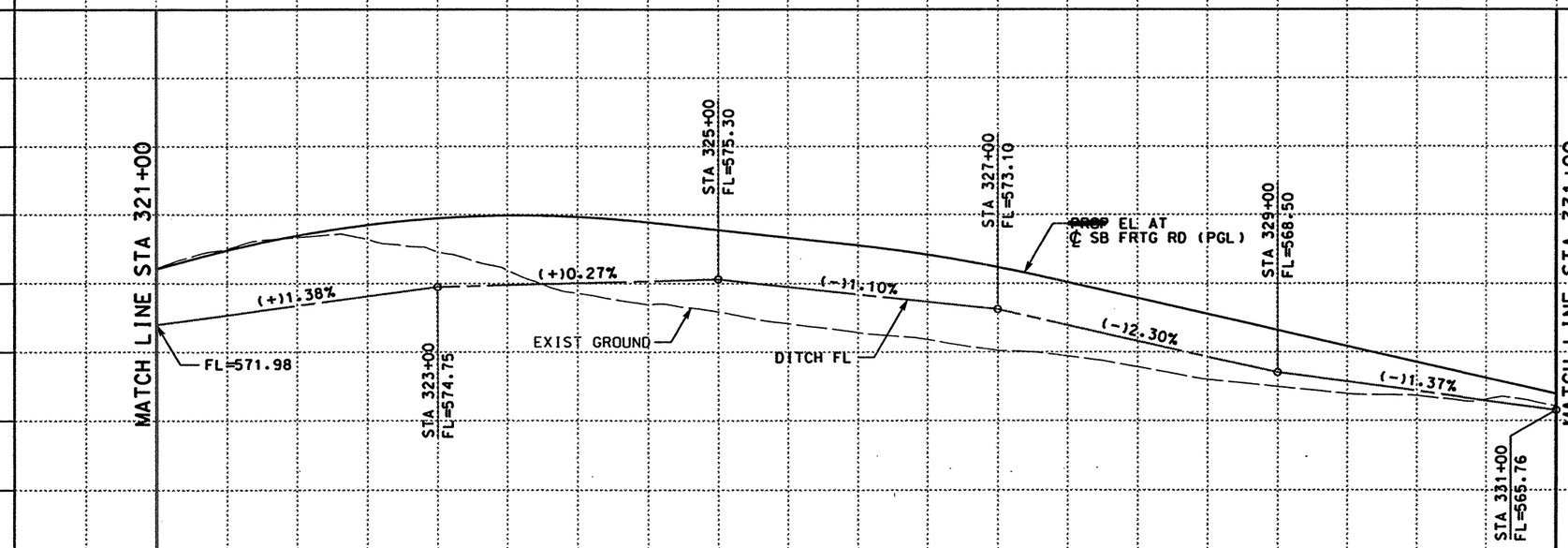
- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ~~PROPOSED~~ INLET
- ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
P. 58664
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 321+00 TO STA 331+00

SHEET 16 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	565
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003 HOUFILE023 \hcivil\cf0130\ b13ppp53.dgn-08

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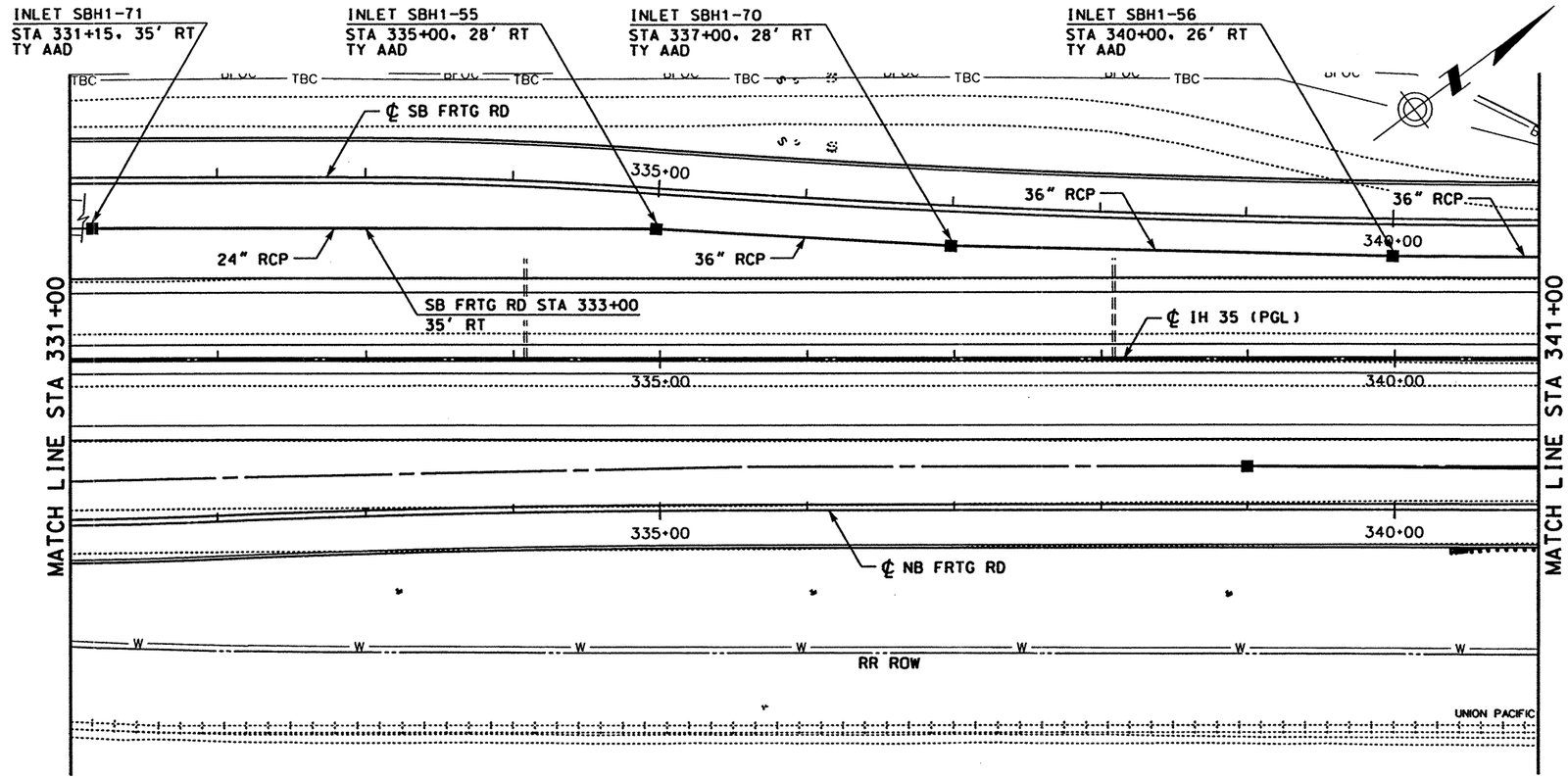


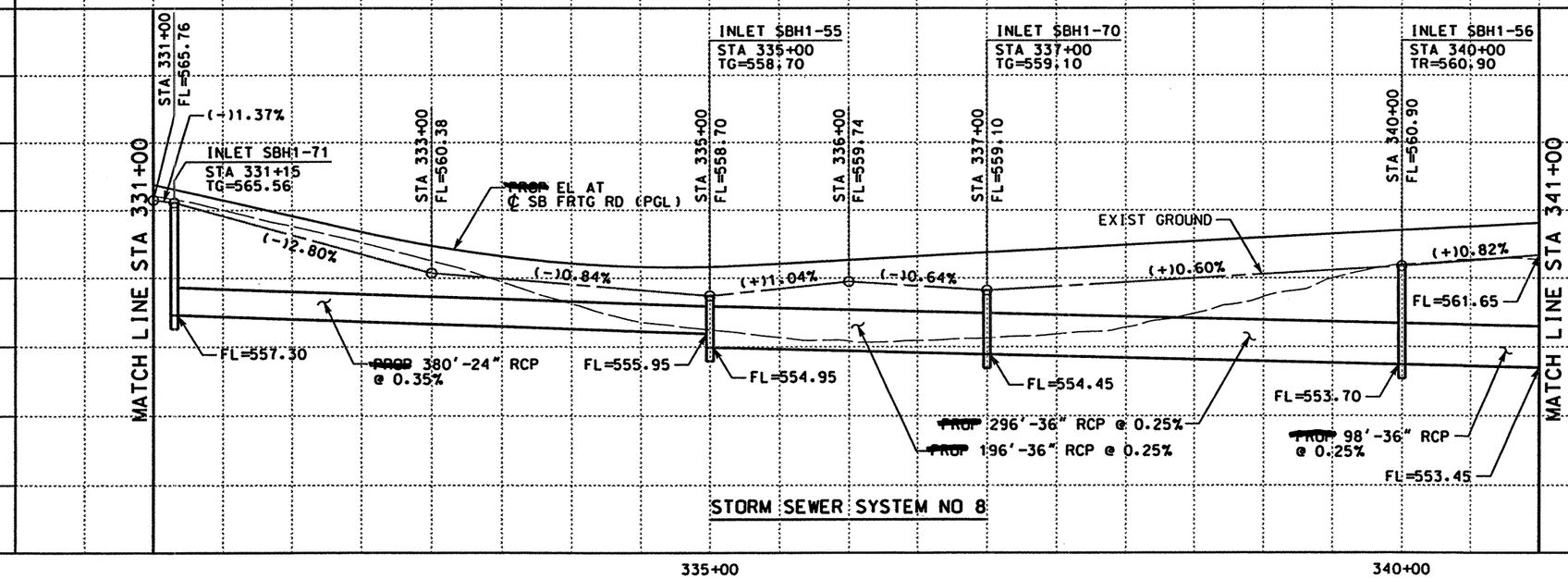
LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



STORM SEWER SYSTEM NO 8

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 331+00 TO STA 341+00
SHEET 17 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	566
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003
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j011op01.alg, alg LV ON = 1-6.35-39
j011op01.bdr, bdr LV ON = 9-11.32.33.45.47.57.58.60-62
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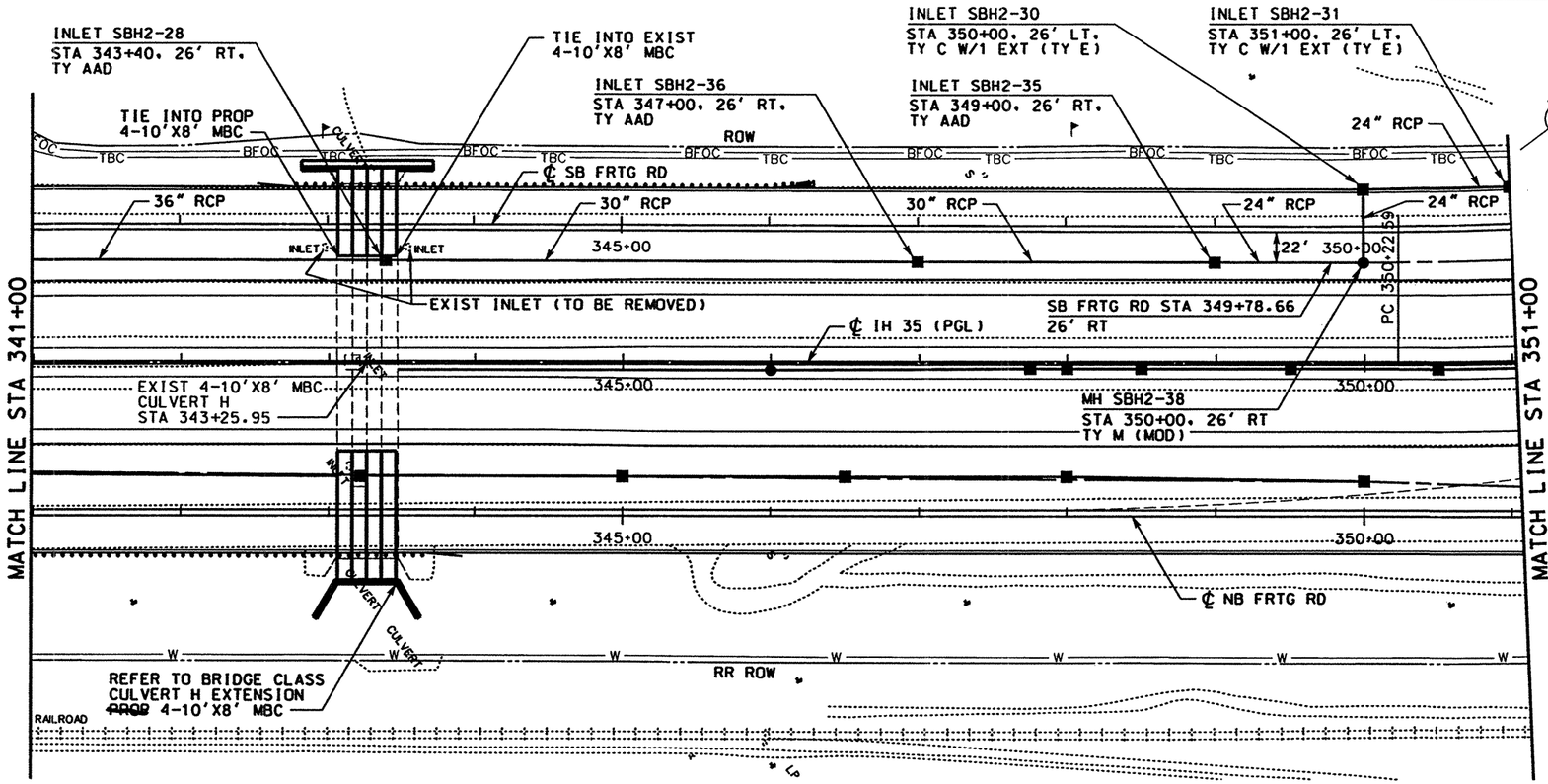


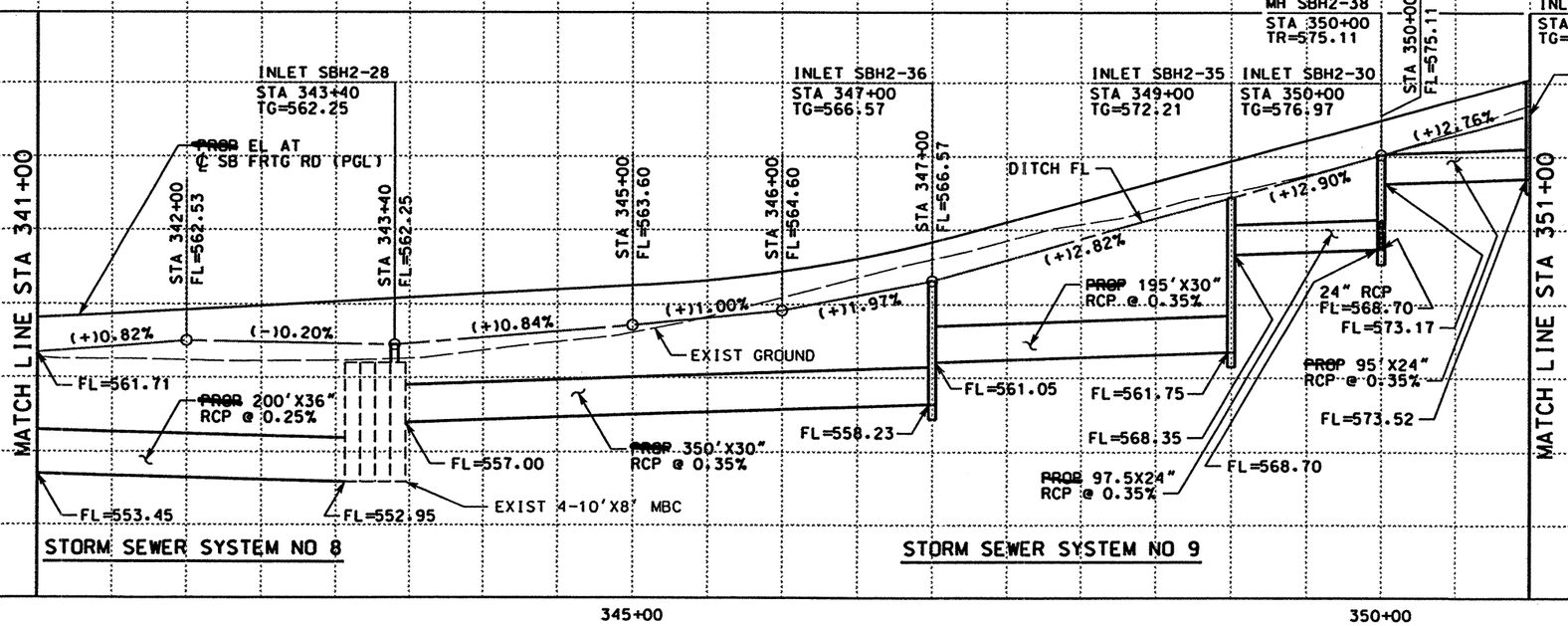
LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 341+00 TO STA 351+00
SHEET 18 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	567
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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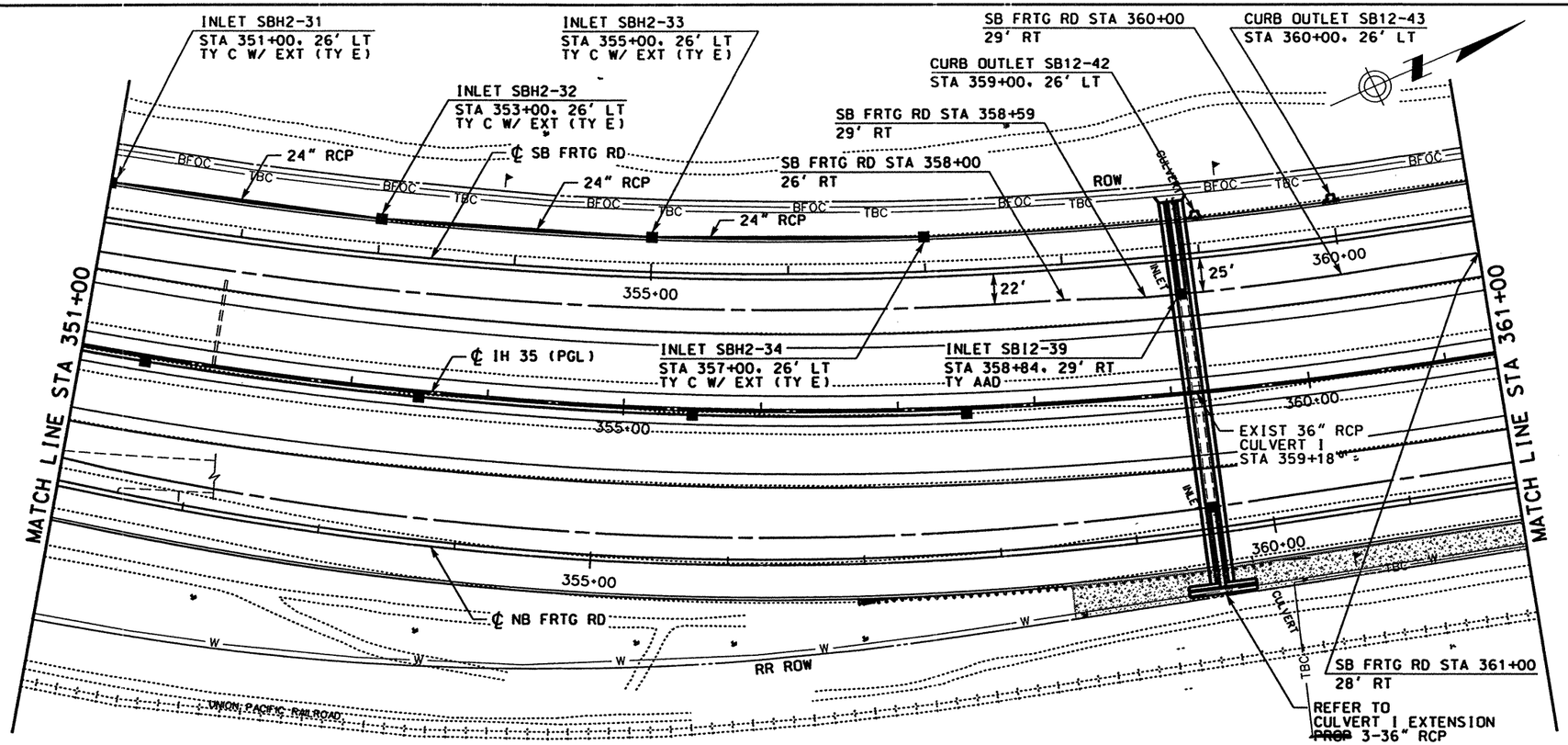

LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

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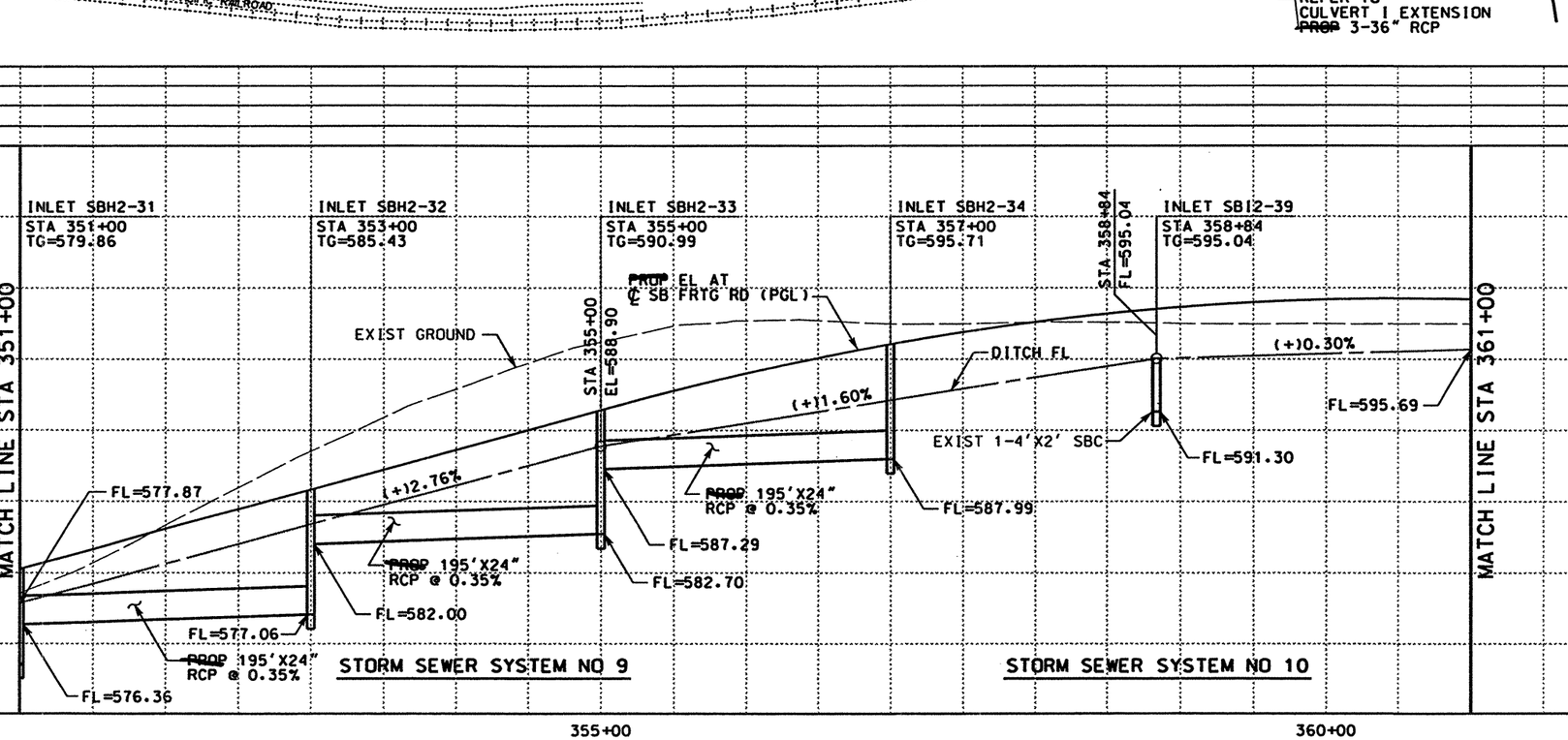
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



STORM SEWER SYSTEM NO 9

STORM SEWER SYSTEM NO 10

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 351+00 TO STA 361+00

SHEET 19 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		568
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

4/18/2003

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j0110p01.alg. alg LV ON = 1-6.35-39
j0110p01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62

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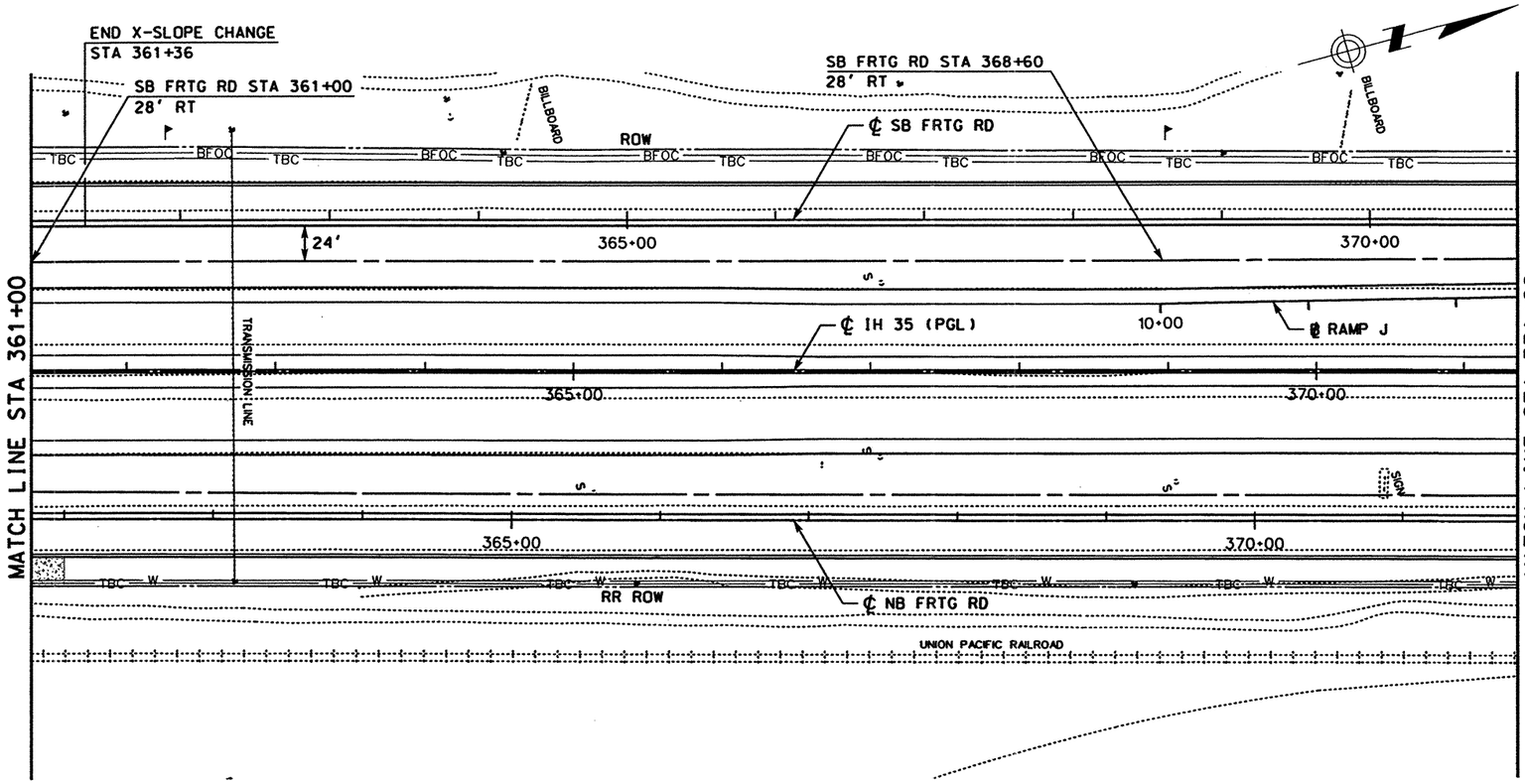


LEGEND

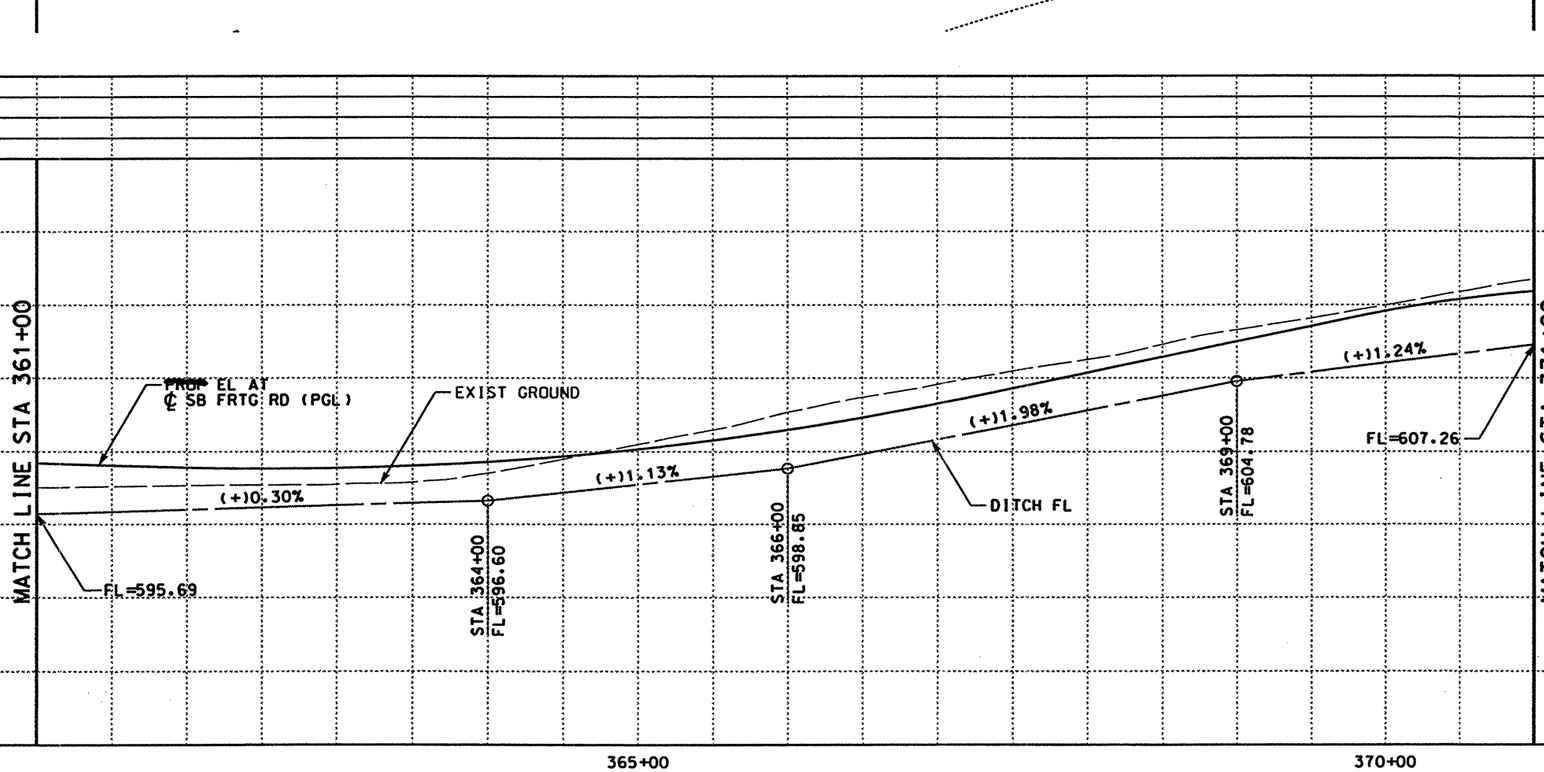
- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
NO. 58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 361+00 TO STA 371+00

SHEET 20 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	569
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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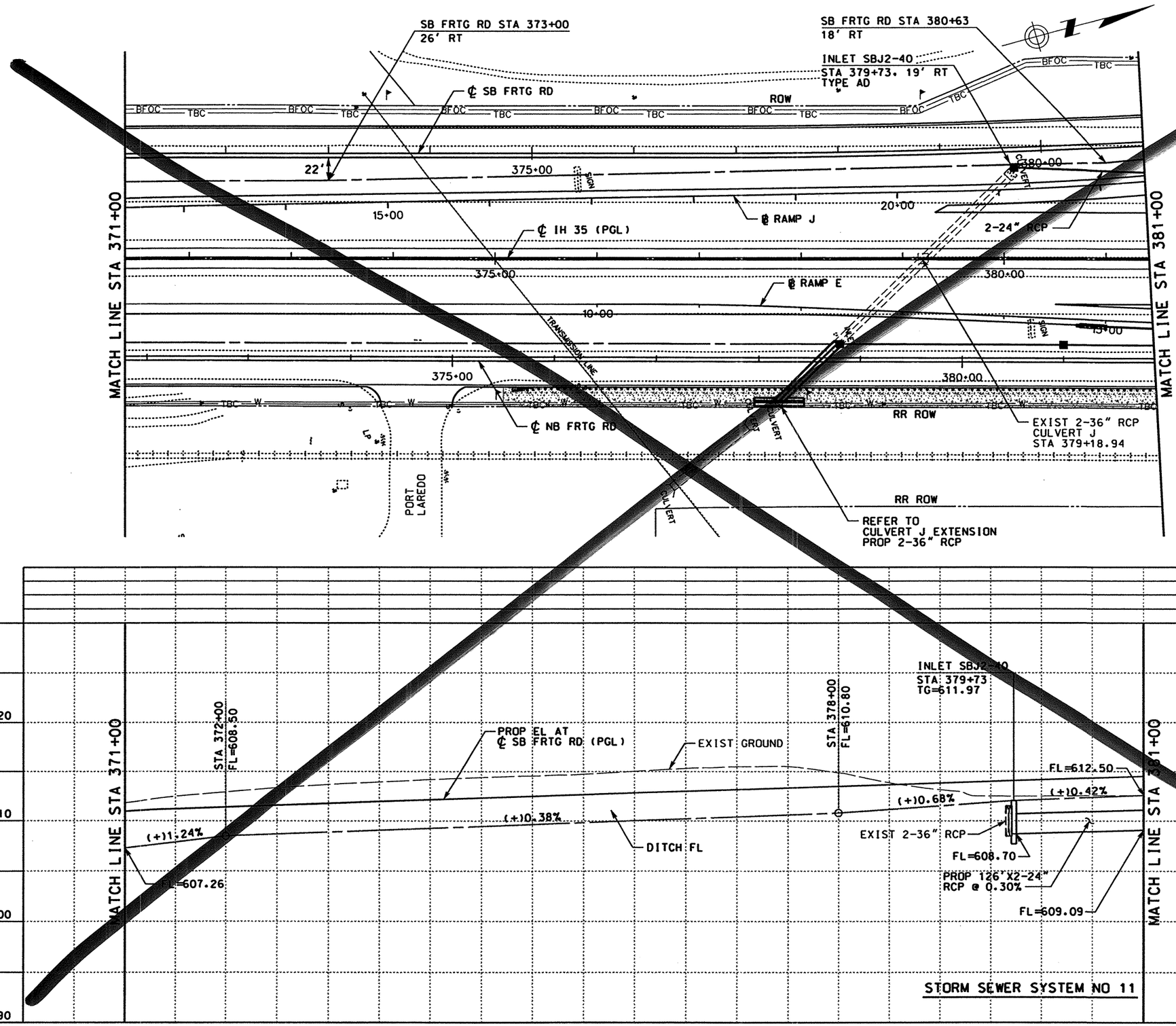
j011op01.bdr, bdr LV ON = 1-6,35-39
LV ON = 9-11,32,33,45,47,57,58,60-62



LEGEND

- ROW
- PROPOSED DITCH ℄
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 371+00 TO STA 381+00
SHEET 21 OF 27

STORM SEWER SYSTEM NO 11

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	570
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

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j011op01.bck, bck LV ON = 1-6.35-39
j011op01.alg, alg LV ON = 9-11.32.33.45.47.57.58.60-62
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REF FILE(S): j011op01.pro, pro LV ON = 1-63
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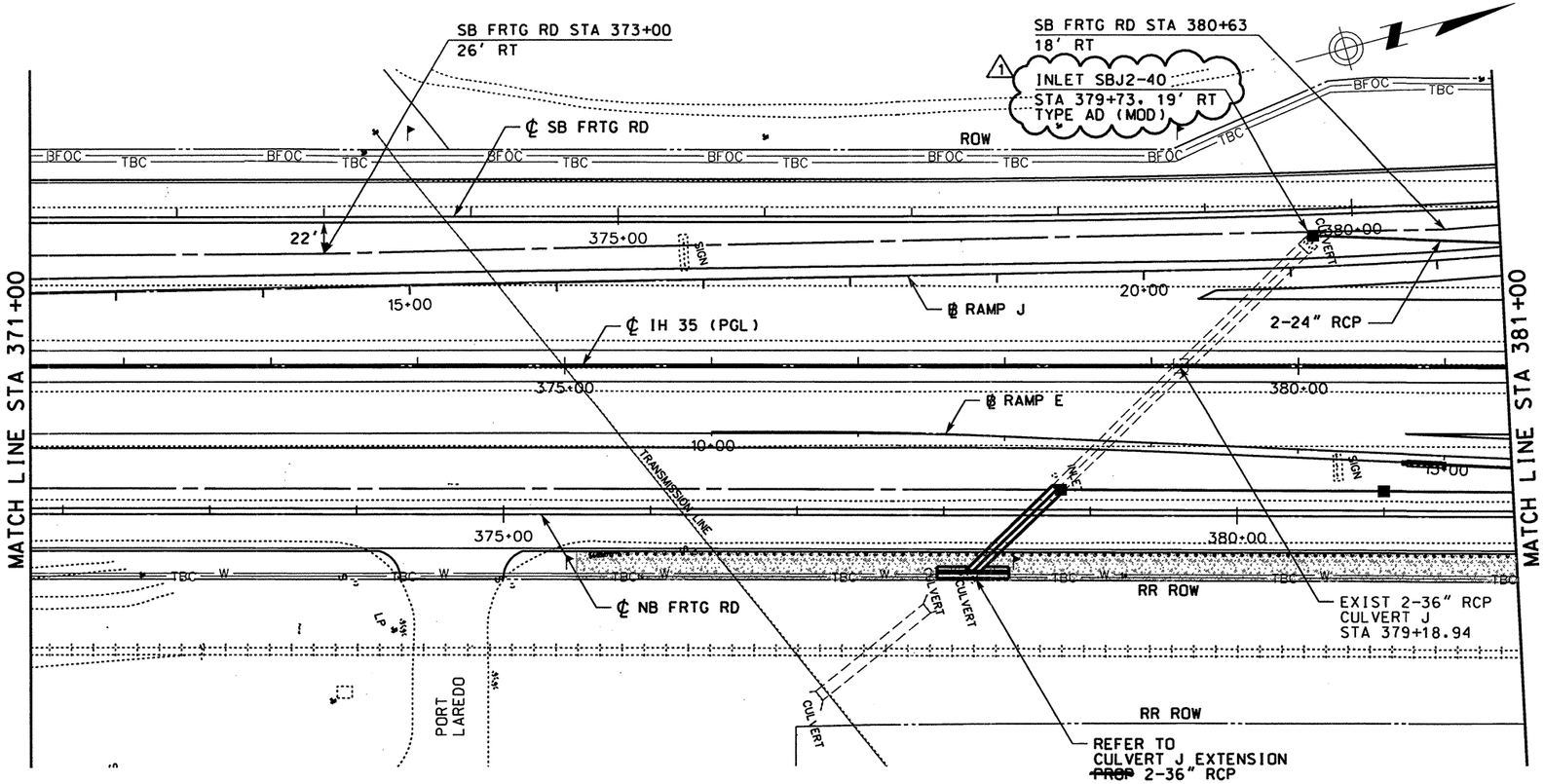


LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

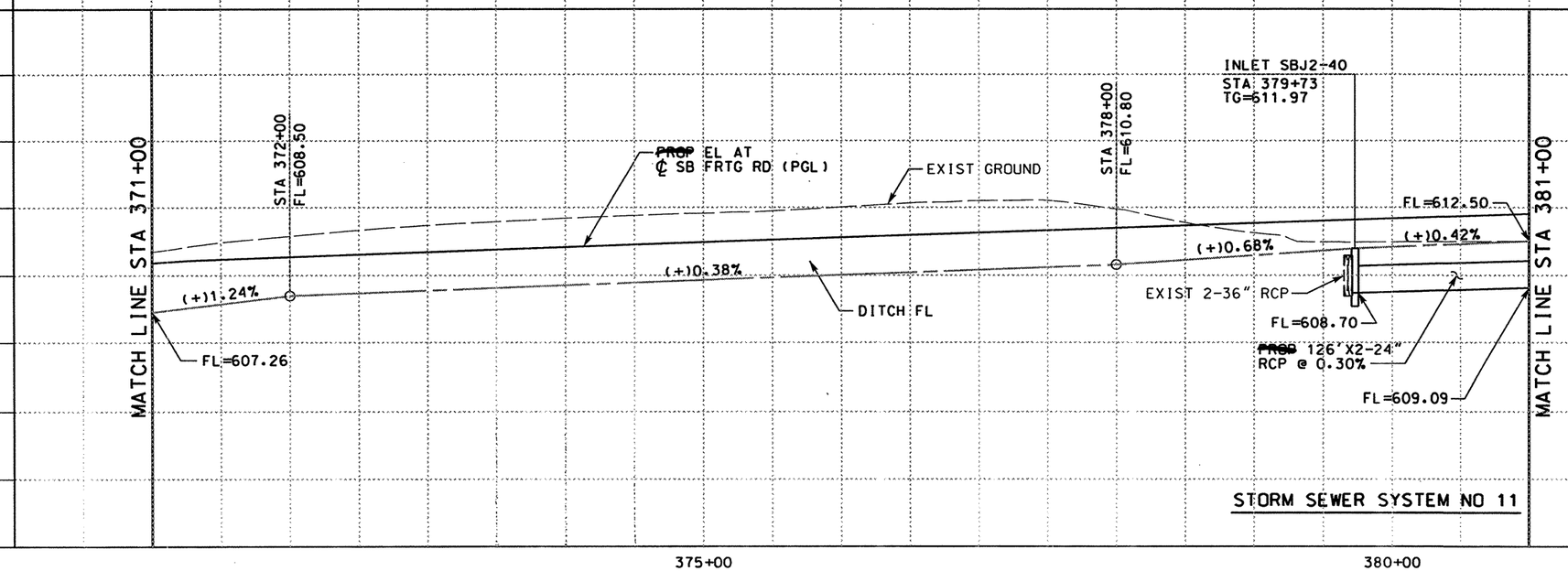
TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

DATE	BY	REV	REVISION
6/25/04	OG	01	INLET SBJ2-40 TO TY AD(MOD)

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



STORM SEWER SYSTEM NO 11

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
A.A. ABUGATTAS
68940
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 371+00 TO STA 381+00

SHEET 21 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	570
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

6/29/2004

REF FILE(S): j011op01.uti. uti LV ON = 1-63
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j011op01.alg. alg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62

REF FILE(S): j011op01.pro. pro LV ON = 1-63
milolnr.row • row LV ON = 1-23.25-63

b13ppp58.dgn-10 HOUFILE023 \hciwil\c0130\

BEGIN DITCH
SB FRTG RD STA 381+60.
56.9' RT

END DITCH
SB FRTG RD STA 384+68.
8.6' RT

INLET SBJ2-47
STA 385+60. 56' RT
TY AAD

MATCH LINE STA 381+00

MATCH LINE STA 391+00

℄ SB FRTG RD

2-24" RCP

INLET SBJ2-46
STA 383+60. 56' RT
TYPE AAD

EXIST 18" RCP

℄ IH 35 (PGL)

℄ RAMP J

℄ RAMP E

SB FRTG RD STA 388+41.87
54' RT

SB FRTG RD STA 387+00
54' RT

ROW

RR ROW

UNION PACIFIC RAILROAD

BFOC TBC W

385+00 390+00 25+00 30+00 50'

℄ NB FRTG RD

LEGEND

- ROW
- PROPOSED DITCH ℄
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

PROP EL AT ℄ SB FRTG RD (PGL)

EXIST GROUND

DITCH FL

(+)1.65%

(+)12.75%

(+)0.42%

(-)0.51%

(+)0.79%

PROP 258'X2-24" RCP @ 0.30%

PROP 195'X2-24" RCP @ 0.30%

BEGIN DITCH STA 381+60 FL=613.32

END DITCH STA 384+68 FL=614.06

INLET SBJ2-44 STA 383+60 TG=612.31 FL=612.31

INLET SBJ2-47 STA 385+60 TG=613.88 FL=613.88

STA 390+00 FL=626.00

FL=612.50

FL=609.09

FL=609.87

FL=610.47

630 620 610 600

385+00 390+00

STORM SEWER SYSTEM NO 11

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 381+00 TO STA 391+00
SHEET 22 OF 27

FED RD DIV NO	FED. AID PROJECT NO	SHEET NO
6	NH-2[illegible](79)	571
STATE	STATE	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.pro, j011op01.int.row, j011op01.utl, j011op01.eop, j011op01.bck, j011op01.dlg, j011op01.bdr

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LV ON = 1-17.19-63
LV ON = 2-9.10.14.17.20.21.25.28
LV ON = 1-6.35-39
LV ON = 9-11.32.33.45.47.57.58.60-62
LV ON = 1-63
LV ON = 1-23.25-63

4/18/2003
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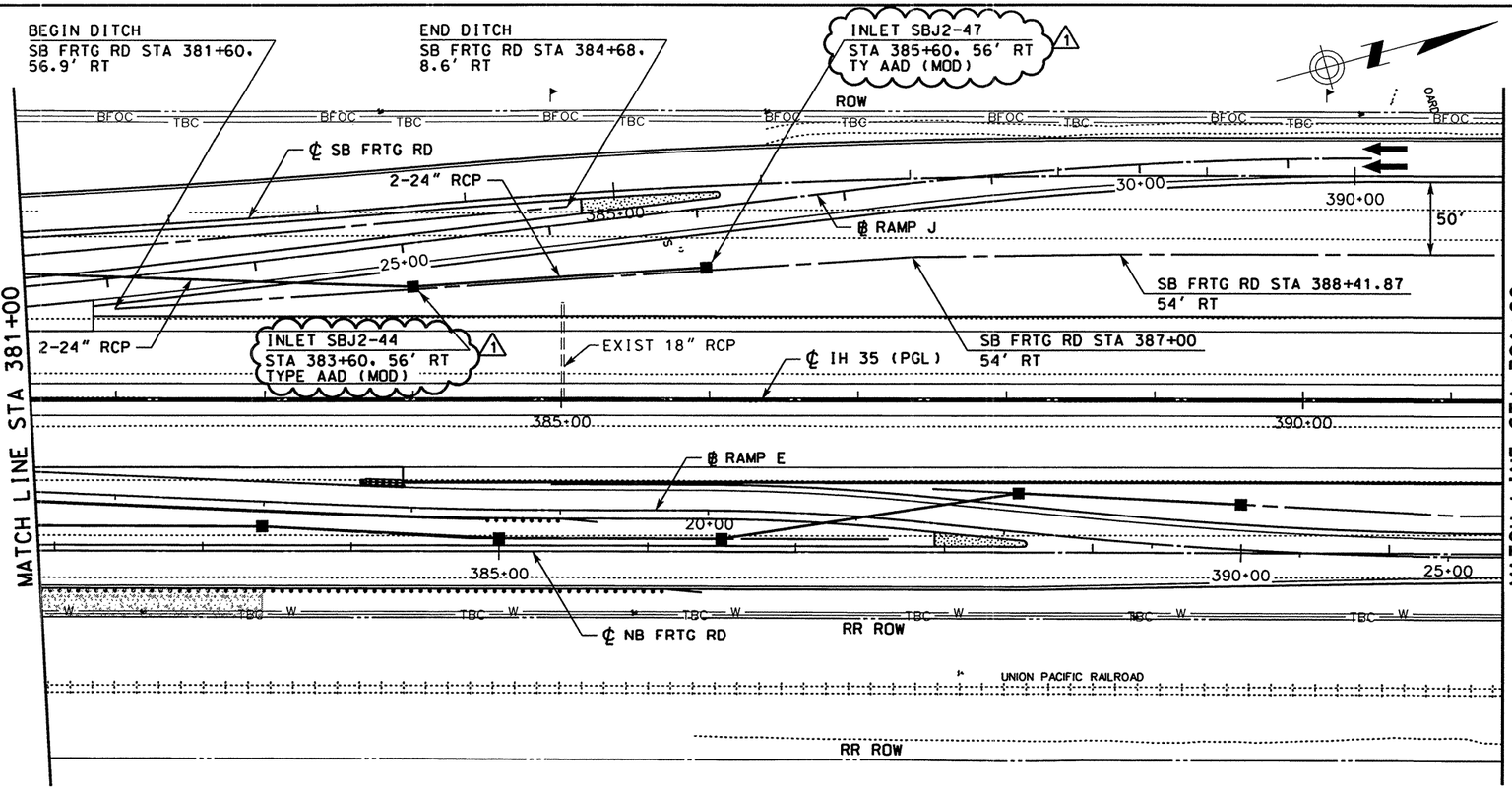
b13pp59.dgn-07



LEGEND

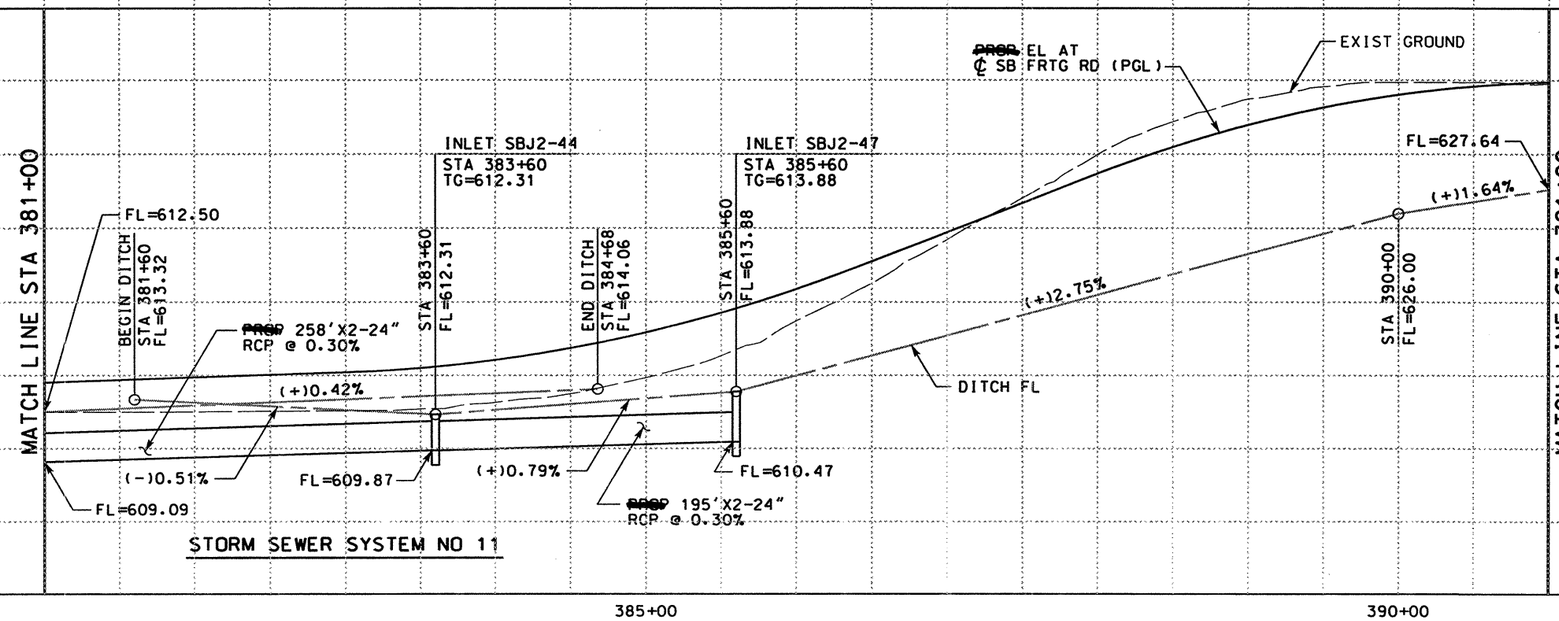
- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH ~~PROPOSED~~ GRADE (SEE NOTE 1)
- ④ REMOVE SMALL STRUCTURES (SEE NOTE 1)

TC = TOP OF CURB
TG = TOP OF GRATE
TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

DATE	BY	REV	REVISION
6/25/04	OG	01	INLET SBJ2-44 & 47 TO TYAAD(MOD)



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 25, 2004

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 381+00 TO STA 391+00

SHEET 22 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	571
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/29/2004

HOUFILE023 \hcivil\cf0130\

b13pp59.dgn-07

REF FILE(S): j011op01.uti. uti LV ON = 1-63
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j011op01.bck. bck LV ON = 2-9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62

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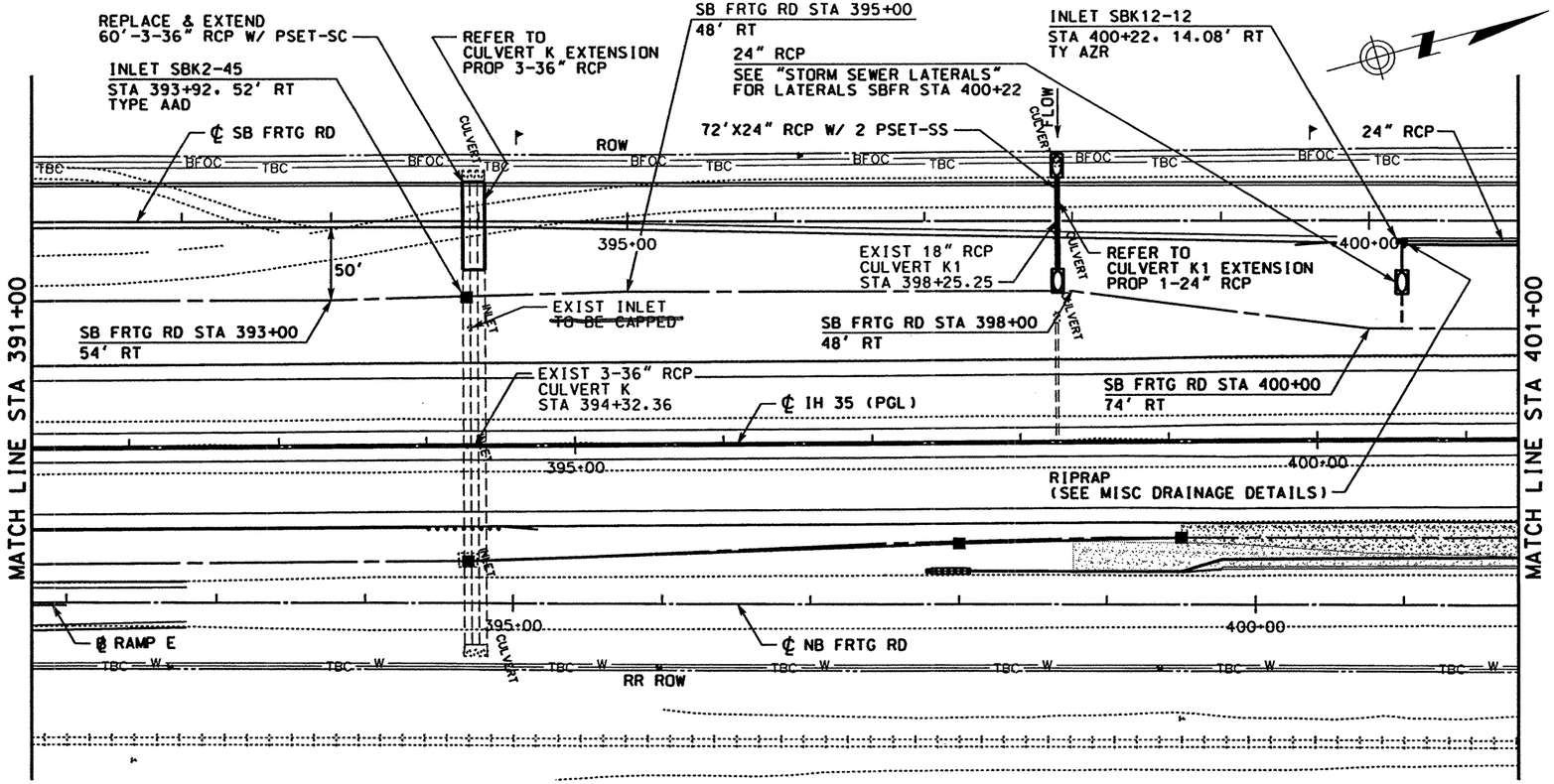

LEGEND

- ROW
- PROPOSED DITCH FL
- PROPOSED RCP
- EXISTING RCP
- ■ PROPOSED INLET
- ● PROPOSED MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
- ③ ADJUST EXISTING MANHOLE TOP TO MATCH PROPOSED GRADE (SEE NOTE 1)
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TR = TOP OF RIM

NOTES:

1. SEE "SUMMARY OF REMOVAL OF EXISTING STRUCTURES" FOR QUANTITIES.
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 391+00 TO STA 401+00

SHEET 23 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	S72
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

4/18/2003

REF FILE(S): j011op01.uti. uti LV ON = 1-63
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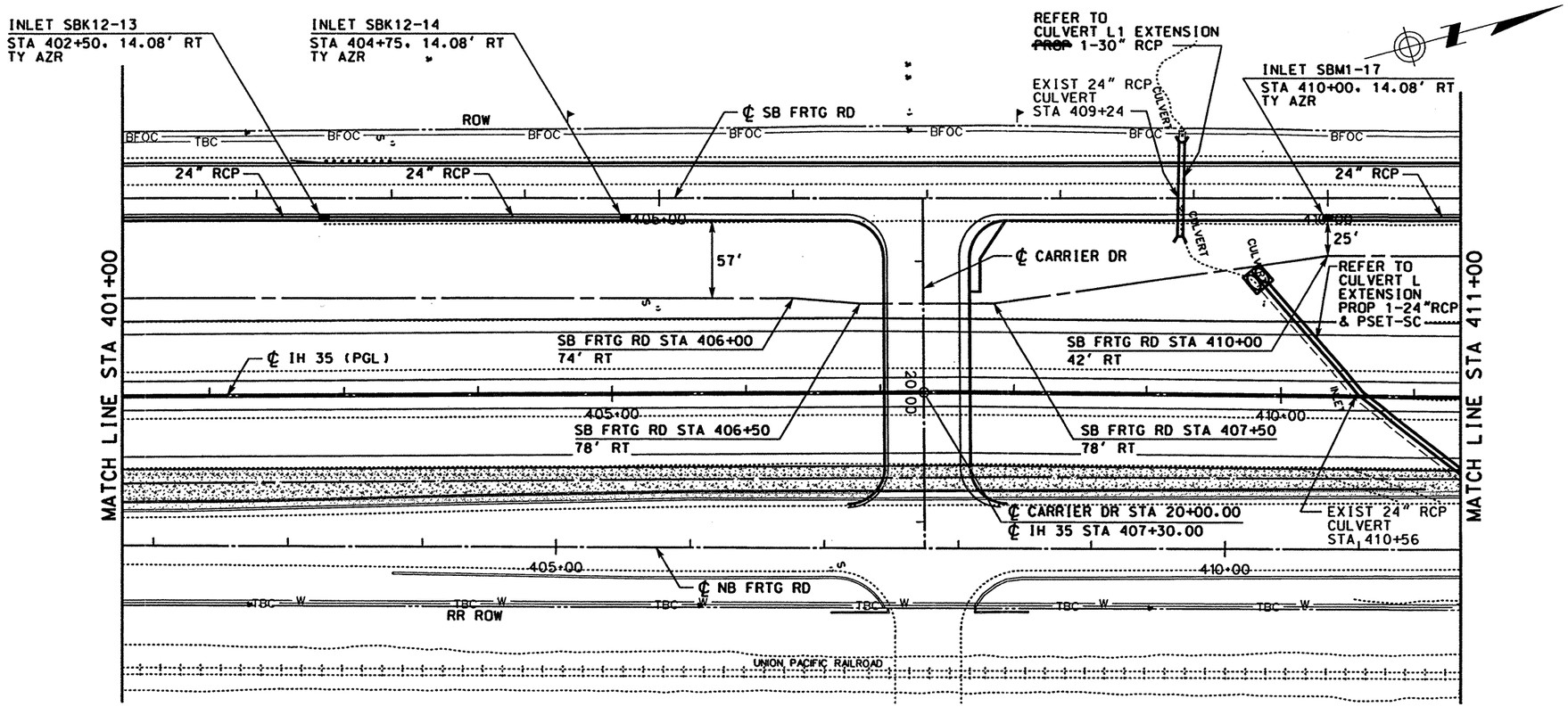

LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
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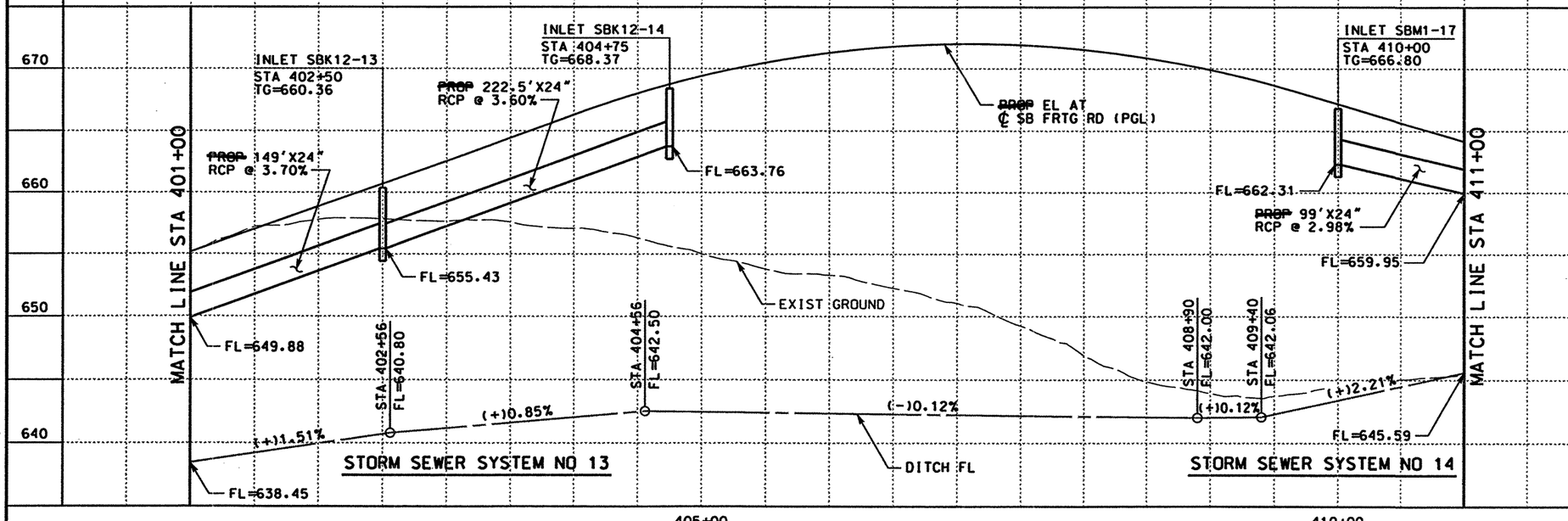
QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T



0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

RUDY L. GOMEZ 58664 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 401+00 TO STA 411+00

SHEET 24 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	573
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

REF FILE(S): j011op01.uti. uti LV ON = 1-63
j011op01.eop. eop LV ON = 1-17.19-63
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j011op01.alg. alg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62

REF FILE(S): j011op01.pro. pro LV ON = 1-63
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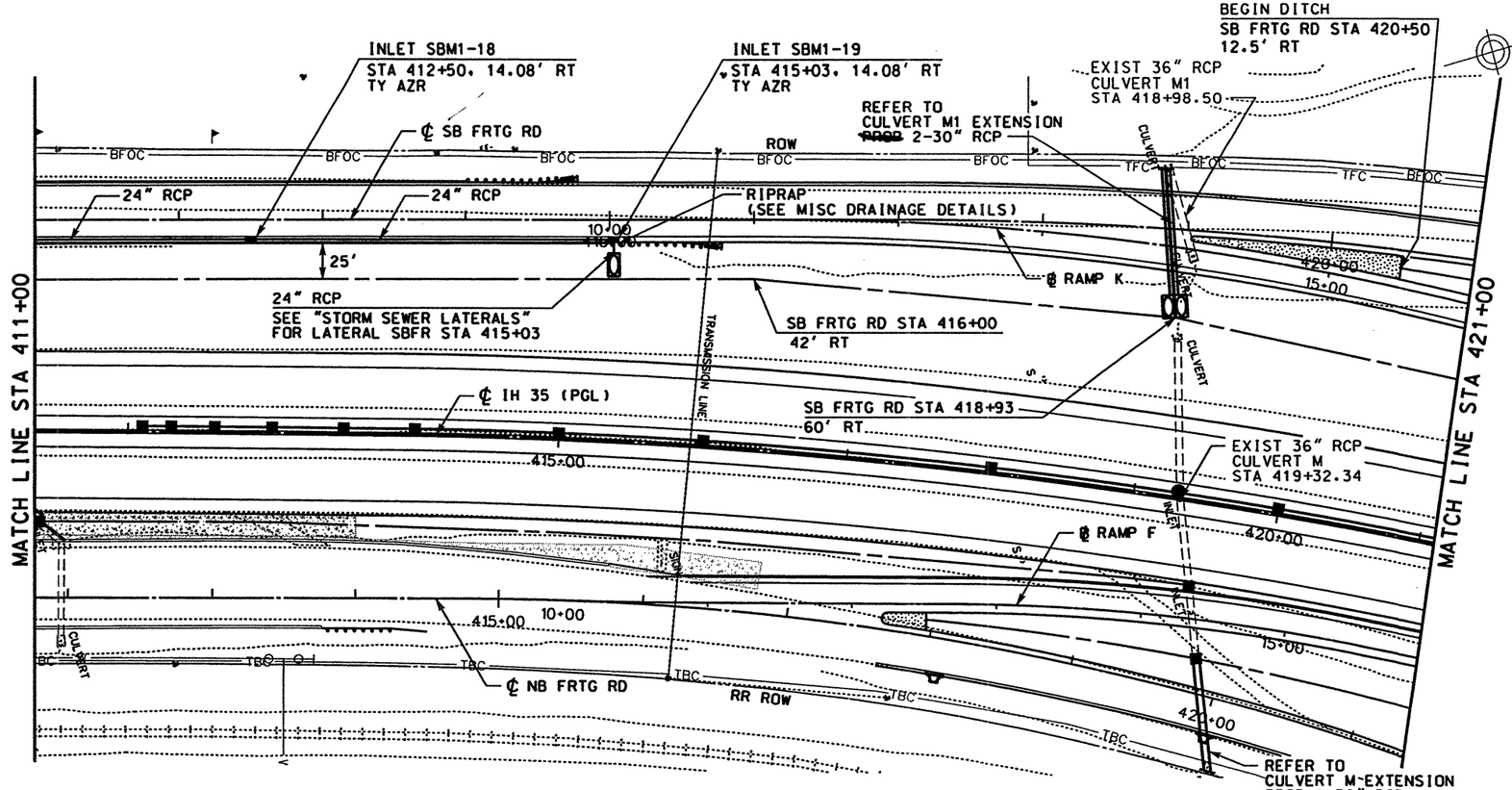

LEGEND

- ROW
- ~~PROPOSED~~ DITCH FL
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
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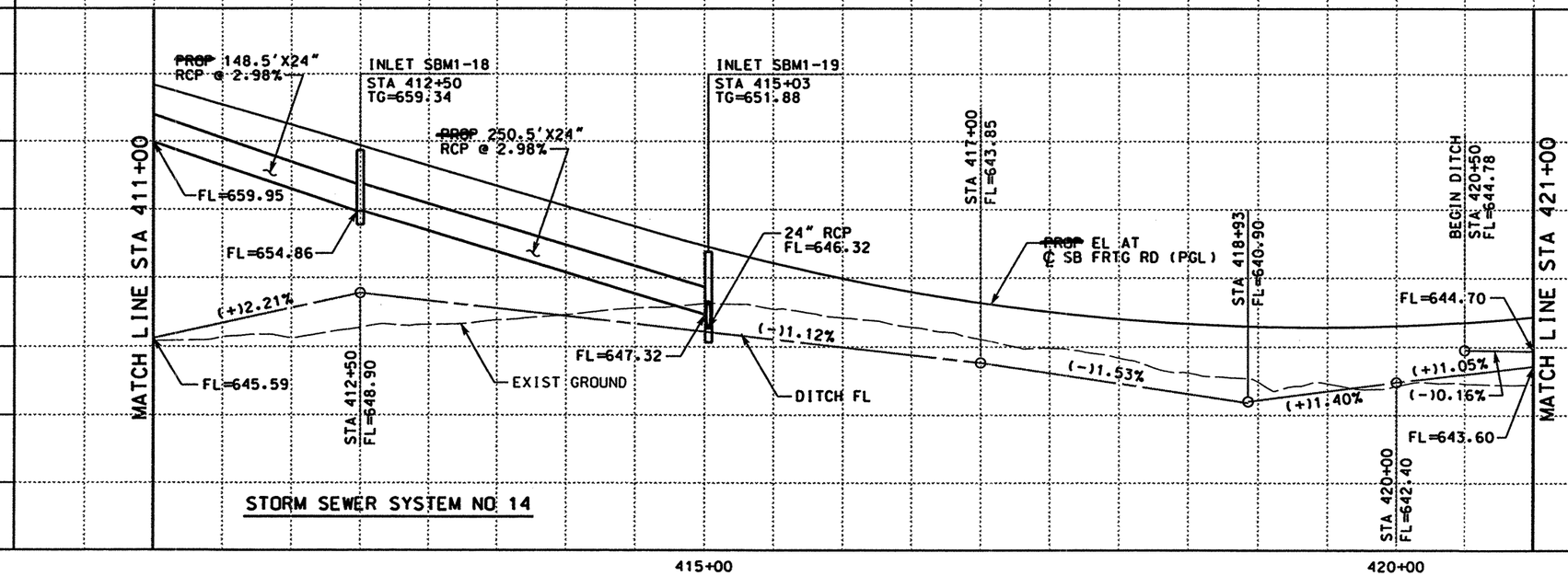
2. SEE "STORM SEWER DETAILS (SECTIONS)" PLAN SHEET FOR SECTIONS AT INLETS AND MEDIAN BARRIER.



STORM SEWER SYSTEM NO 14

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 411+00 TO STA 421+00

SHEET 25 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	574
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

4/18/2003

REF FILE(S): j011op01.pro, pro LV ON = 1-63
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j011op01.bdr, bdr LV ON = 9-11,32-33,45,47,57,58,60-62
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REF FILE(S): j011op01.pro, pro LV ON = 1-63
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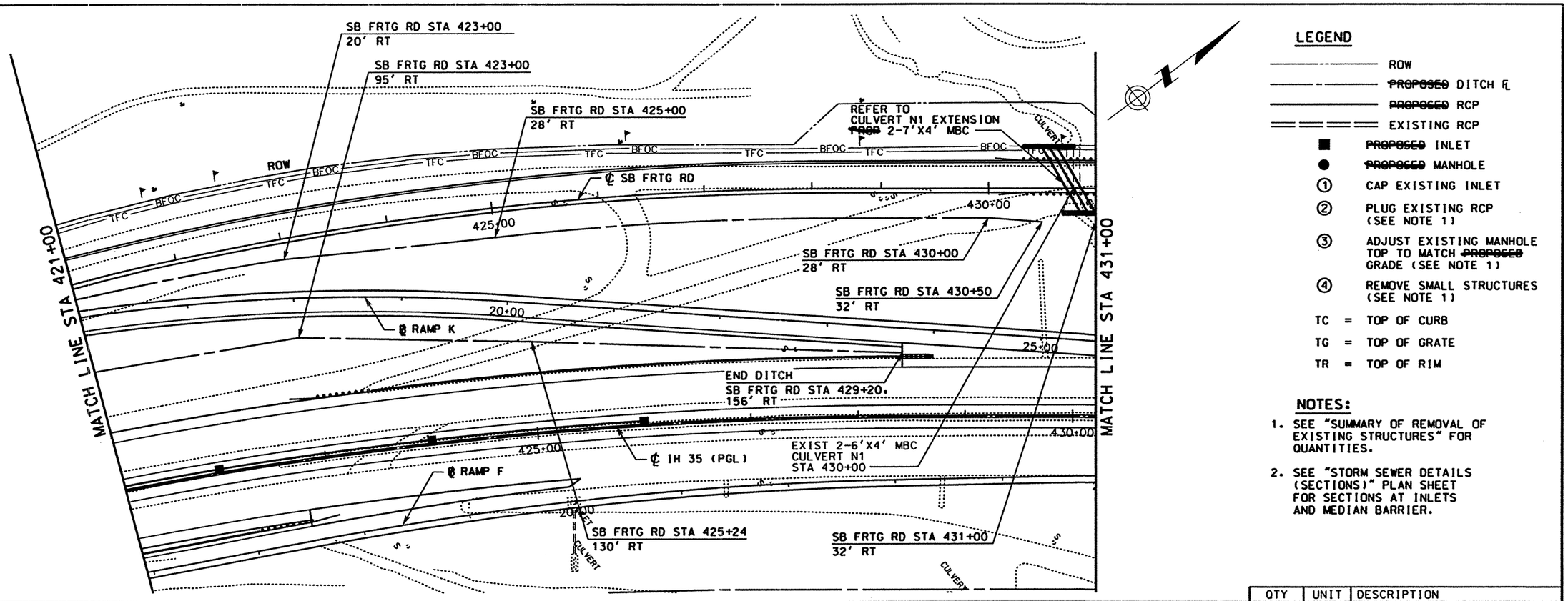

LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
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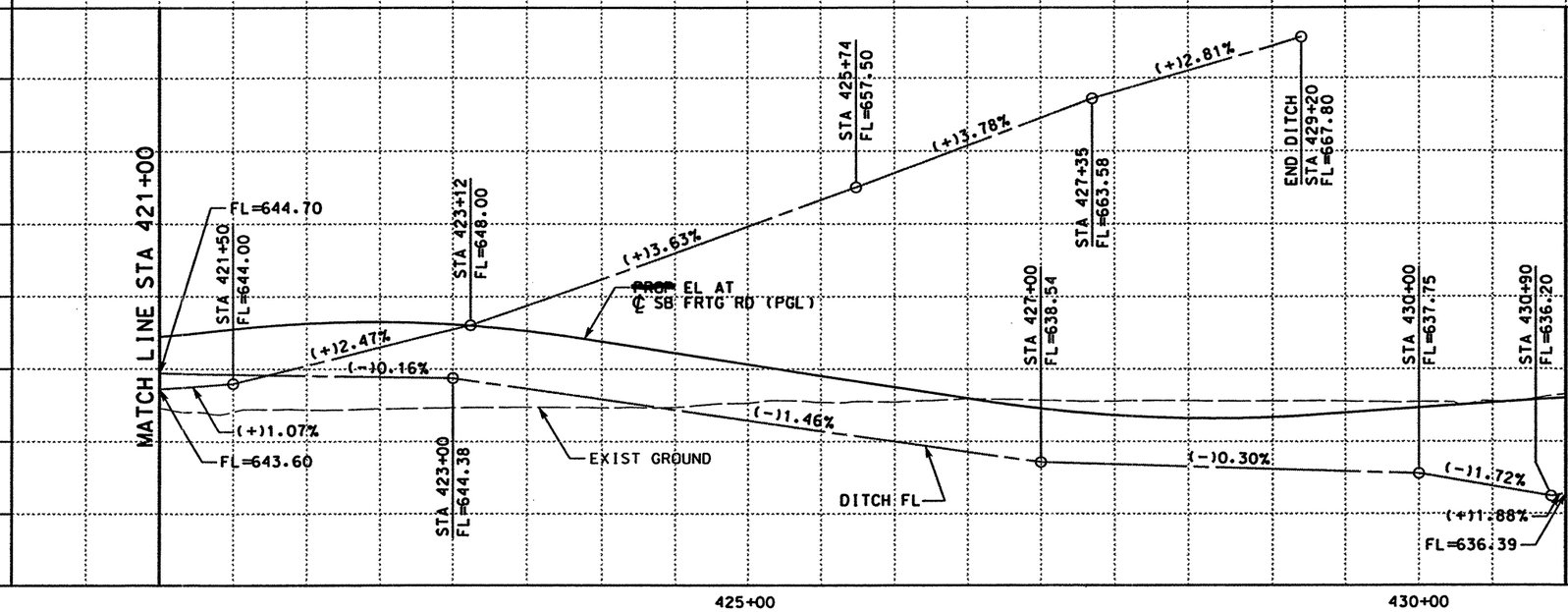

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 421+00 TO STA 431+00

SHEET 26 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	575
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

4/18/2003

REF FILE(S): j011op01.pro. pro LV ON = 1-63
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j011op01.eop. eop LV ON = 1-17.19-63
j011op01.bck. bck LV ON = 2-9.10.14.17.20.21.25.28
j011op01.alg. alg LV ON = 1-6.35-39
j011op01.bdr. bdr LV ON = 9-11.32.33.45.47.57.58.60-62
REF FILE(S): milolnt.row . row

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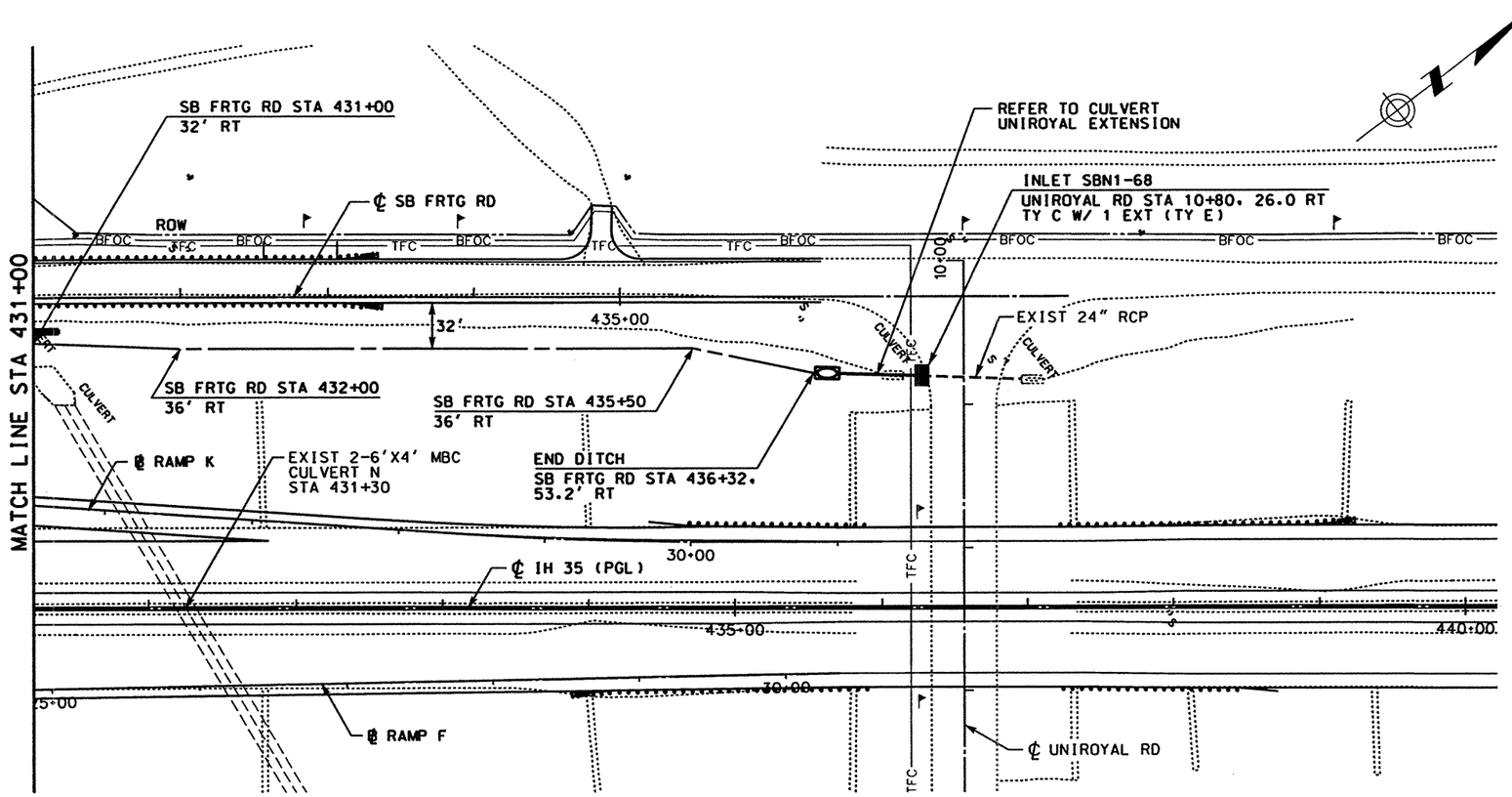

LEGEND

- ROW
- ~~PROPOSED~~ DITCH ℄
- ~~PROPOSED~~ RCP
- EXISTING RCP
- ■ ~~PROPOSED~~ INLET
- ● ~~PROPOSED~~ MANHOLE
- ① CAP EXISTING INLET
- ② PLUG EXISTING RCP (SEE NOTE 1)
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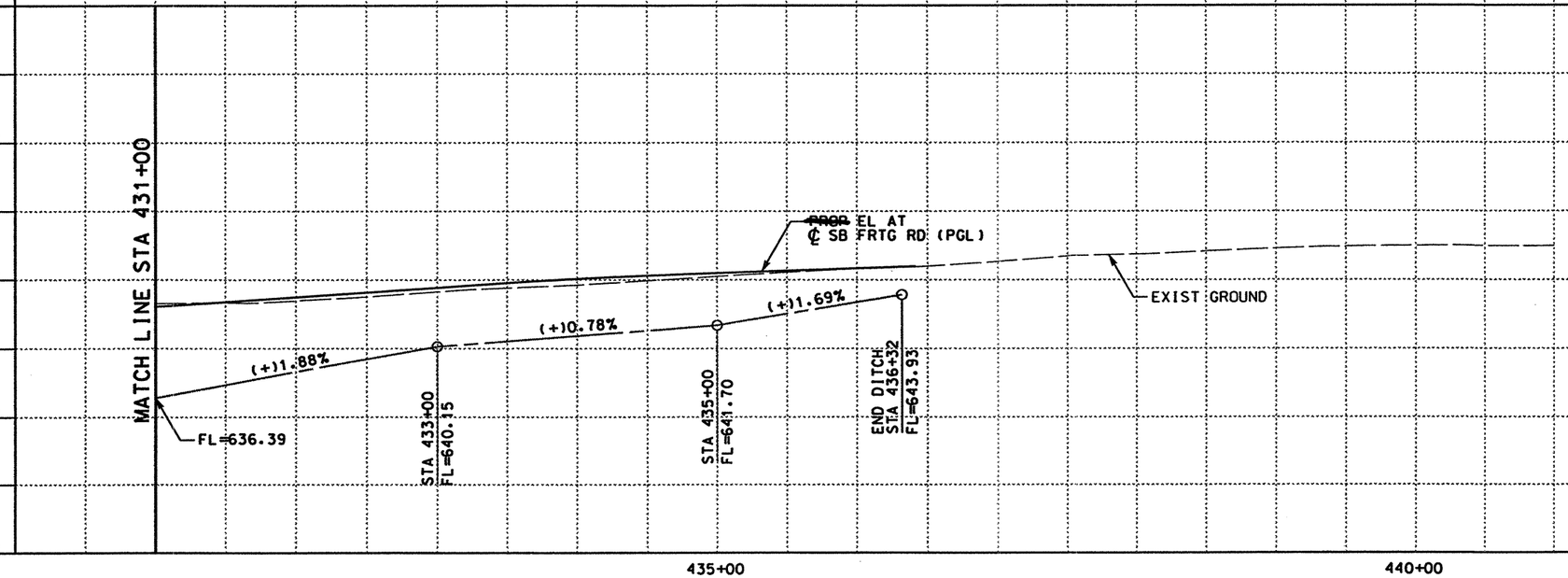

QTY	UNIT	DESCRIPTION
		PREP RDWY
		RDWY EXCAV
		CHANNEL EXCAV
		EMBK'T

0 50 100
SCALE: 1" = 100' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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Rudy L. Gomez

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IH 35
LOOP 20 TO UNIROYAL ROAD
STORM SEWER
PLAN AND PROFILE
SB FRONTAGE ROAD
STA 431+00 TO STA 436+00

SHEET 27 OF 27

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	576
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j011op01.pro, pro LV ON = 31
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j011op01.dlg, dlg LV ON = 1-6,35-39
j011op01.bdr, bdr LV ON = 9-11,32,33,45,47,57,58,60-62

b13pp64.dgn-07 HOUFILE023 \hctiv1\cf0130\ 4/18/2003

NB DITCH
NB FRTG STATIONS & OFFSETS

STATION	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6	*
168+00.00	28.33						
169+00.00	28.75						
170+00.00	29.17						
171+00.00	29.58						
172+00.00	30.00						
173+00.00	27.26	29.67	38.18				
174+00.00	24.94	29.33	39.20				
175+00.00	23.03	29.00	39.20				
176+00.00	22.85	29.40	37.50				
177+00.00	22.84	29.80	36.07				
178+00.00	22.83	30.20	35.76				
179+00.00	22.82	30.60	36.66				
180+00.00	23.13	31.00	38.39				
181+00.00	25.36	33.00	37.73				
182+00.00	25.37	35.00	37.83				
183+00.00	23.36	35.00	38.46				
184+00.00	20.57	35.00	39.82				
185+00.00	20.04	35.00	39.38				
186+00.00	27.26	35.00	38.74				
187+00.00	32.75	35.00	38.20				
188+00.00	32.83	35.00	51.53				
189+00.00	30.10	31.00	39.96				
190+00.00	29.93	31.00	38.43				
191+00.00	30.02	31.00	37.95				
192+00.00	30.11	31.00	37.47				
193+00.00	30.51	31.00	37.00				
194+00.00	25.92	31.00	36.60				
195+00.00	25.17	31.00	37.03				
196+00.00	25.30	31.00	36.03				
197+00.00	25.35	31.00	32.41				
198+00.00	27.14	31.00	34.35				
199+00.00	29.88	31.00	34.97				
200+00.00	27.31	31.00	34.48				
201+00.00	26.03	31.00	33.91				
202+00.00	26.00	31.00	33.33				
203+00.00	25.95	31.00	32.75				
204+00.00	28.67	31.00	33.33				
205+00.00	28.00	31.00	35.51				
206+00.00	28.00	31.00	34.10				
207+00.00	28.01	31.00	31.12				
208+00.00	27.83	28.00	32.20				
209+00.00	26.19	27.00	32.70				
210+00.00	26.15	27.00	31.18				
211+00.00	26.25	27.00	30.08				
212+00.00	27.00	27.01	32.36				
213+00.00	30.70	30.71	35.56				
214+00.00	35.27	35.45	39.03				
215+00.00	35.84	40.20	42.35				
216+00.00	10.38	10.47	11.13	45.74	46.25	46.47	
217+00.00	12.45	13.35	13.65	52.30			
218+00.00	14.46	16.00	16.87				
219+00.00	15.58	16.00	17.95				
220+00.00	15.97	16.00	17.92				
221+00.00	16.00	16.22	18.48				
222+00.00	16.24	18.60	19.84				
223+00.00	18.27	21.20	21.98				
224+00.00	22.35	23.80	24.91				
225+00.00	20.54	26.40	28.85				
226+00.00	13.86	29.00	31.94				
227+00.00	15.95	29.00	30.30				
228+00.00	19.14	29.00	31.22				
229+00.00	20.68	29.00	30.88				
230+00.00	21.67	29.01	34.79				
231+00.00	21.70	29.01	37.95				
232+00.00	21.63	29.01	37.91				
233+00.00	21.57	29.01	36.04				
234+00.00	21.50	29.01	34.00				
235+00.00	21.43	29.01	31.96				
236+00.00	21.36	29.01	29.92				
237+00.00	21.29	29.02	31.68				

NB DITCH
NB FRTG STATIONS & OFFSETS

STATION	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6	*
238+00.00	21.23	29.02	30.34				
239+00.00	21.16	29.02	33.05				
240+00.00	21.09	29.02	32.11				
241+00.00	21.02	29.02	30.75				
242+00.00	20.98	29.00	29.82				
243+00.00	20.94	27.82	29.56				
244+00.00	21.07	26.05	29.99				
245+00.00	22.95	24.28	28.72				
246+00.00	20.36	22.50	26.66				
247+00.00	19.94	22.50	26.81				
248+00.00	20.57	22.50	23.70				
249+00.00	21.30	22.50	22.59				
250+00.00	22.03	22.50	22.50				
251+00.00	22.76	25.56	26.00				
252+00.00	23.47	26.00	28.05				
253+00.00	24.19	26.00	28.08				
254+00.00	28.10	33.50	33.83				
255+00.00	29.56	40.86	41.00				
256+00.00	30.43	43.34	47.91				
257+00.00	31.30	45.67	50.50				
258+00.00	31.50	48.01	52.65				
259+00.00	29.69	50.34	61.27				
260+00.00	27.81	52.68	70.51				
261+00.00	26.02	55.02	80.64				
262+00.00	24.24	57.35	91.04				
263+00.00	22.48	59.69	98.18				
264+00.00	20.78	62.03	99.60				
265+00.00	19.96	64.68	96.44				
266+00.00	20.59	67.33	93.08				
267+00.00	23.30	69.98	91.59				
268+00.00	27.23	69.11	90.26				
269+00.00	31.25	64.74	92.82				
270+00.00	35.27	60.37	94.86				
271+00.00	38.66	56.00	94.45				
272+00.00	33.22	52.50	98.45				
273+00.00	35.02	49.00	89.46				
274+00.00	28.46	42.37	84.55				
275+00.00	25.75	38.00	76.99				
276+00.00	25.75	38.00	70.35				
277+00.00	29.55	38.00	64.25				
278+00.00	33.24	38.00	58.56				
279+00.00	33.60	38.00	53.32				
280+00.00	35.57	38.00	48.53				
281+00.00	34.45	38.00	44.18				
282+00.00	34.22	38.00	40.14				
283+00.00	30.53	36.38	38.00				
284+00.00	30.35	32.76	33.93				
285+00.00	28.81	29.93	31.01				
287+00.00	23.41	29.00	30.82				
288+00.00	25.73	29.00	29.07				
289+00.00	26.91	29.00	31.59				
290+00.00	26.59	29.00	29.74				
291+00.00	25.69	29.00	31.46				
292+00.00	24.79	29.00	29.86				
293+00.00	23.85	29.00	30.69				
294+00.00	24.55	29.00	29.12				
295+00.00	24.49	27.33	27.55				
296+00.00	24.40	25.67	25.98				
297+00.00	21.25	24.00	24.42				
298+00.00	18.02	20.00	23.02				
299+00.00	17.84	20.00	21.62				
300+00.00	17.66	20.00	20.22				
301+00.00	17.48	20.00	23.68				
302+00.00	17.30	20.00	24.34				
303+00.00	22.68	23.00					
304+00.00	21.35	26.00	28.64				
305+00.00	24.42	29.00	31.27				
306+00.00	23.15	29.00	30.02				
307+00.00	23.35	29.00	30.23				
308+00.00	23.52	29.00	31.22				

NB DITCH
NB FRTG STATIONS & OFFSETS

STATION	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6	*
309+00.00	23.70	29.00	32.21				
310+00.00	23.87	29.00	32.01				
311+00.00	20.90	29.00	33.23				
312+00.00	21.74	29.00	31.15				
313+00.00	18.93	29.00	33.23				
314+00.00	19.94	29.00	32.01				
315+00.00	19.68	29.00	32.58				
316+00.00	23.24	29.00	29.85				
317+00.00	22.03	29.00	32.39				
318+00.00	22.37	29.00	30.65				
319+00.00	22.70	25.14	27.63				
320+00.00	20.18	22.34	22.45				
321+00.00	19.32	20.71	22.87				
322+00.00	19.83	20.24					
323+00.00	15.75	18.68	19.87				
324+00.00	14.65	14.71	15.72	52.70	52.76	52.97	
325+00.00	10.16	10.66	11.96	48.09	49.90	51.64	
326+00.00	38.75	43.87	44.87				
327+00.00	37.31	37.84	41.01				
328+00.00	31.54	31.81	41.98				
329+00.00	28.05	30.65	41.85				
330+00.00	27.37	31.59	41.90				
331+00.00	26.07	32.46	41.89				
332+00.00	26.22	30.99	39.55				
333+00.00	26.67	28.31	35.98				
334+00.00	24.83	26.81	33.88				
335+00.00	25.42	26.47	29.78				
336+00.00	23.00	27.20	30.73				
337+00.00	23.03	28.13	29.54				
338+00.00	23.35	29.07	31.36				
339+00.00	25.44	30.00	30.29				
340+00.00	25.56	30.00	31.88				
341+00.00	25.67	30.00	30.77				
342+00.00	25.78	29.00	32.68				
343+00.00	25.60	28.00	34.52				
344+00.00	24.56	27.43	34.34				
345+00.00	21.73	26.86	32.83				
346+00.00	19.18	26.29	31.92				
347+00.00	20.96	25.71	28.12				
348+00.00	20.27	25.14	28.03				
349+00.00	20.63	24.57	25.12				
350+00.00	20.99	24.00	25.42				
351+00.00	21.03	21.14	23.87				
352+00.00	18.75	20.08	21.13				
353+00.00	18.98	20.18	22.94				
354+00.00	18.78	20.25	27.53				
355+00.00	19.88	20.29	27.96				
356+00.00	19.90	20.30	26.02				
357+00.00	20.27	20.43	24.28				
358+00.00	19.49	20.21	23.98				
359+00.00	19.26	20.11	25.95				
360+00.00	19.39	20.00	23.52				
361+00.00	18.37	19.50	20.25				
362+00.00	17.98	19.00	19.50				
363+00.00	17.56	18.50	19.49				
364+00.00	16.55	18.00	21.77				
365+00.00	16.15	18.00	22.26				
366+00.00	16.19	18.00	20.89				
367+00.00	16.22	18.00	19.53				
368+00.00	16.26	18.00	22.22				
369+00.00	16.30	18.00	24.32				
370+00.00	16.72	18.00	22.13				
371+00.00	17.57	18.00	19.46				
372+00.00	17.01	18.00	20.26				
373+00.00	16.92	18.00	19.65				
374+00.00	17.52	18.00	21.80				
375+00.00	17.31	18.00	23.63				
376+00.00	17.06	18.00	23.68				
377+00.00	16.85	18.00	21.13				
378+00.00	15.46	18.00	20.58				

* NOTE: REFER TO ROADWAY DITCH DATA SHEET 3 OF 3 FOR GRADE BREAK (GB) LOCATION

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

ROADWAY DITCH DATA

SHEET 1 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	577
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/21/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62
HOUFILE023 \hcivil\cf0130\b36asp43.dgn-01

NB DITCH
NB FRTG STATIONS & OFFSETS

STATION	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6
379+00.00	14.32	17.97	20.73			
380+00.00	14.72	17.75	21.33			
381+00.00	15.62	17.53	19.53			
382+00.00	16.53	17.31	19.54			
383+00.00	16.35	17.09	17.93			
384+00.00	12.73	13.57	14.09			
385+00.00	8.87	9.00	10.26			
386+00.00	9.00	11.84				
387+00.00	9.00	13.52				
388+00.00	42.77	43.60	43.86			
389+00.00	38.12	38.63	39.55			
390+00.00	32.39	33.66	36.60			
391+00.00	27.36	28.69	30.33			
392+00.00	25.00	26.64	26.85			
393+00.00	26.01	27.51	30.09			
394+00.00	25.16	28.39	32.16			
395+00.00	27.11	30.00	33.24			
396+00.00	31.80	34.80	36.90			
397+00.00	37.43	39.60	41.72			
398+00.00	42.00	42.07	42.47			
399+00.00	41.24	46.20	46.44			
400+00.00	43.80	46.20	47.38			
401+00.00	45.95	46.44	48.35			
402+00.00	45.94	47.10	48.85			
403+00.00	46.86	48.26	49.57			
404+00.00	49.39	49.41	50.04			
405+00.00	50.57	50.73				
406+00.00	51.72	52.00				
407+00.00	52.88	53.61				
408+00.00	54.04	54.27				
409+00.00	54.02					
410+00.00	53.22	53.23				
411+00.00	53.24	53.53				
412+00.00	53.66	53.66	54.65			
413+00.00	53.45	53.47	53.65			
414+00.00	51.00	51.01	51.30			
415+00.00	48.00	48.64				
416+00.00	47.06	47.87				
417+00.00	45.85	48.22	48.99			
418+00.00	11.35	11.52	11.60	52.67	53.39	54.23
419+00.00	17.08	18.33	19.34	63.69	64.01	64.08
420+00.00	21.93	25.16	30.44			
421+00.00	28.73	31.99	40.89			
422+00.00	35.30	38.78	49.66			
422+00.00	37.20	39.95	55.40			
423+00.00	38.79	42.46	61.19			
424+00.00	39.25	44.97	60.71			
425+00.00	39.73	47.49	54.13			
426+00.00	45.60	50.00	55.03			
427+00.00	48.63	50.00	64.42			
428+00.00	48.24	50.00	62.27			
429+00.00	47.83	50.00	55.10			
430+00.00	47.58	50.00	66.77			
431+00.00	43.56	50.00	69.08			
432+00.00	41.43	50.00	56.89			
433+00.00	39.96	50.00	55.76			
434+00.00	43.64	49.56	50.00			

SB DITCH
SB FRTG STATIONS & OFFSETS

STATION	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6
181+00.00	31.88	32.50	36.03			
182+00.00	31.67	31.80	35.49			
183+00.00	30.77	31.10	35.70			
184+00.00	29.87	30.40	35.85			
185+00.00	28.99	29.70	35.30			
186+00.00	28.65	29.00	34.40			
187+00.00	35.00	35.15	35.37			
188+00.00	35.28	36.00	37.74			
189+00.00	32.10	36.00	37.78			
190+00.00	34.80	36.00	38.83			
191+00.00	34.80	36.00	39.41			
192+00.00	34.80	36.00	36.57			
193+00.00	34.80	36.00	37.57			
194+00.00	34.80	36.00	38.52			
195+00.00	34.80	36.00	38.42			
196+00.00	34.86	36.00	36.75			
197+00.00	35.21	36.00	36.38			
198+00.00	34.93	36.00	38.36			
199+00.00	41.73	44.00	44.15			
200+00.00	42.79	44.00	46.91			
201+00.00	34.95	36.76	37.61			
202+00.00	32.88	36.00	37.44			
203+00.00	35.58	36.00	37.35			
204+00.00	33.32	36.00	38.72			
205+00.00	33.98	36.00	40.64			
206+00.00	35.15	36.00	39.72			
207+00.00	32.84	36.00	40.47			
208+00.00	36.00					
244+00.00	26.78	28.00	44.67			
245+00.00	29.21	31.00	40.18			
246+00.00	31.07	34.00	38.94			
247+00.00	33.31	37.00	39.60			
248+00.00	25.92	37.00	41.74			
249+00.00	29.02	37.19	39.15			
250+00.00	31.64	32.51	33.71			
251+00.00	28.47	29.00	32.50			
252+00.00	23.47	29.00	32.13			
253+00.00	21.64	29.00	31.05			
254+00.00	21.19	29.00	30.48			
255+00.00	21.73	29.00	33.92			
256+00.00	22.39	28.83	32.87			
257+00.00	23.03	27.66	28.90			
258+00.00	23.67	26.50	31.67			
259+00.00	23.73	23.97	28.75			
260+00.00	20.53	21.00	21.25			
261+00.00	18.23	18.58	19.50			
262+00.00	13.63	15.00	21.84			
263+00.00	13.86	14.00	20.65			
264+00.00	16.25	16.50	22.51			
265+00.00	18.71	19.89	25.38			
266+00.00	21.00	22.33	27.21			
267+00.00	21.00	24.66	29.03			
268+00.00	21.00	27.00	30.98			
269+00.00	21.00	24.83	29.20			
270+00.00	20.81	22.67	27.28			
271+00.00	18.50	20.50	21.63			
272+00.00	18.65	22.10	23.11			
273+00.00	19.30	22.14	27.22			
274+00.00	18.53	19.00	24.62			
275+00.00	16.17	16.50	22.98			
276+00.00	13.50	13.81	20.61			
277+00.00	13.47	13.50	18.37			
278+00.00	13.29	14.36	18.40			
279+00.00	11.68	12.03	18.93			
280+00.00	11.60	11.67	19.42			
281+00.00	12.00	12.02	19.95			
282+00.00	12.37	13.10	20.53			
283+00.00	12.71	13.67	21.55			
284+00.00	16.09	16.62	23.42			
285+00.00	18.00	18.06	25.75			

SB DITCH
SB FRTG STATIONS & OFFSETS

STATION	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6
286+00.00	20.15	21.86	24.92			
286+00.00	20.15	21.86	23.59			
287+00.00	21.15	24.78	28.24			
288+00.00	20.98	28.96	30.88			
289+00.00	21.54	28.86	31.41			
290+00.00	24.45	28.76	29.20			
291+00.00	23.84	28.67	31.61			
292+00.00	23.13	28.57	31.58			
293+00.00	22.42	28.47	31.25			
294+00.00	21.71	28.37	31.28			
295+00.00	21.00	28.27	31.30			
296+00.00	21.00	28.18	30.74			
297+00.00	21.00	28.08	30.17			
298+00.00	21.00	27.98	29.60			
299+00.00	21.00	27.88	29.03			
300+00.00	21.48	27.78	28.06			
301+00.00	21.96	27.69	31.36			
302+00.00	22.44	27.59	28.18			
303+00.00	24.38	27.49	29.24			
304+00.00	27.30	27.39	27.82			
305+00.00	22.11	27.29	27.76			
306+00.00	21.69	27.20	31.20			
307+00.00	21.27	27.10	30.76			
308+00.00	20.85	27.00	30.78			
309+00.00	20.43	27.00	30.80			
310+00.00	21.04	27.00	30.57			
311+00.00	17.09	27.00	29.07			
312+00.00	18.48	27.00	31.00			
313+00.00	21.56	27.00	30.72			
314+00.00	21.05	27.00	30.66			
315+00.00	20.53	27.00	28.39			
316+00.00	21.14	27.00	29.80			
317+00.00	21.54	27.00	27.79			
318+00.00	20.09	27.00	28.34			
319+00.00	21.01	27.00	30.32			
320+00.00	21.46	27.00	29.04			
321+00.00	25.68	27.00	29.71			
322+00.00	25.85	28.50	32.34			
323+00.00	25.41	30.00	31.44			
324+00.00	24.73	28.83	34.99			
325+00.00	26.70	28.83	41.66			
326+00.00	26.19	30.00	43.46			
327+00.00	23.18	34.50	46.66			
328+00.00	23.67	35.61	41.54			
329+00.00	23.76	35.42	36.94			
330+00.00	18.01	35.22	38.24			
331+00.00	12.23	35.03	39.58			
332+00.00	13.68	35.01	39.35			
333+00.00	16.87	35.00	40.27			
334+00.00	11.21	33.23	36.20			
335+00.00	17.69	28.00	28.29			
336+00.00	15.06	27.42	28.50			
337+00.00	21.91	28.00	31.24			
338+00.00	21.73	26.17	28.97			
339+00.00	21.40	25.50	27.71			
340+00.00	21.06	26.00	27.63			
341+00.00	19.45	25.46	26.46			
342+00.00	17.90	25.53	27.42			
343+00.00	22.30	25.59	25.97			
344+00.00	22.98	25.65	27.70			
345+00.00	21.21	25.71	26.16			
346+00.00	20.93	25.77	27.40			
347+00.00	20.93	25.83	27.36			
348+00.00	20.46	25.89	28.18			
349+00.00	20.97	25.95	27.62			
350+00.00	21.02	26.00	27.18			
351+00.00	21.62	26.00	27.43			
352+00.00	21.72	26.00	27.77			
353+00.00	21.83	26.00	26.03			
354+00.00	21.94	26.00	27.67			

* NOTE: REFER TO ROADWAY DITCH DATA SHEET 3 OF 3 FOR GRADE BREAK (GB) LOCATION

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD

ROADWAY DITCH DATA

SHEET 2 OF 3

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	576
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 47.57.58.60-62

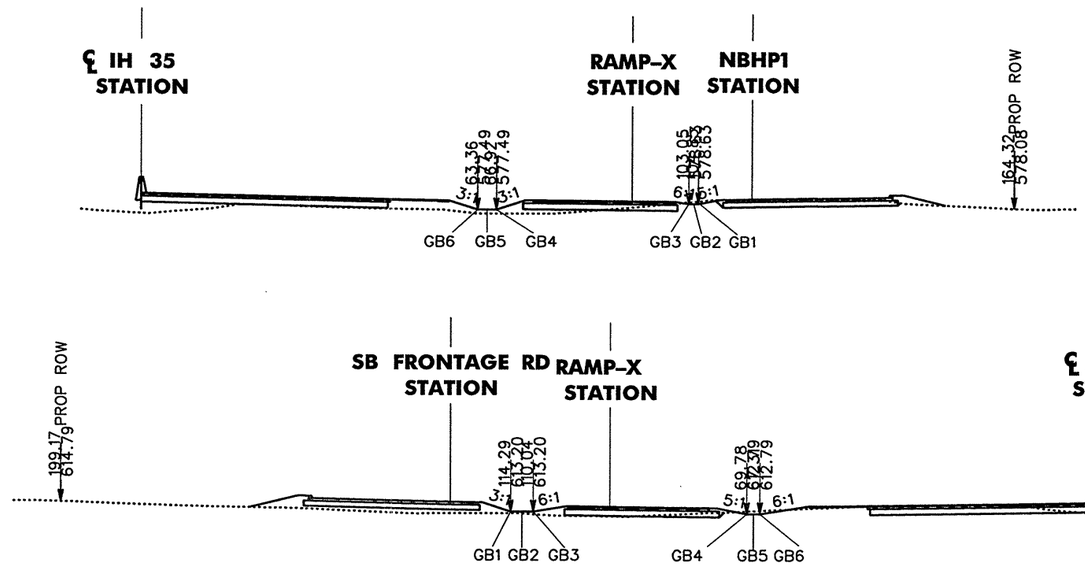
b36qsp44.dgn-01 HOUFILE023 \hciv\lcf0130\ 4/21/2003

SB DITCH
SB FRTG STATIONS & OFFSETS

STATION	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6	*
355+00.00	22.27	26.00	27.94				
356+00.00	23.24	26.00	27.76				
357+00.00	22.22	26.00	26.95				
358+00.00	24.04	26.00	29.97				
359+00.00	27.56	29.00	31.93				
360+00.00	25.22	29.00	30.54				
361+00.00	24.76	28.00	29.66				
362+00.00	23.38	28.00	29.26				
363+00.00	21.12	28.00	30.11				
364+00.00	20.68	28.00	29.94				
365+00.00	20.27	28.00	30.08				
366+00.00	20.41	28.00	31.73				
367+00.00	20.09	28.00	29.81				
368+00.00	20.60	28.00	30.93				
369+00.00	22.51	28.00	30.02				
370+00.00	25.95	28.00	29.82				
371+00.00	26.61	28.00	30.40				
372+00.00	23.68	28.00	30.13				
373+00.00	22.30	28.00	29.68				
374+00.00	22.10	25.89	27.41				
375+00.00	21.89	23.77	25.79				
376+00.00	20.75	21.66	23.59				
377+00.00	17.85	19.57	21.05				
378+00.00	16.63	18.30	20.15				
379+00.00	17.69	18.26	20.07				
380+00.00	17.71	18.60	23.07				
381+00.00	15.59	16.45	23.45				
382+00.00	12.46	13.10	19.88	56.27	56.69	57.22	
383+00.00	10.79	10.97	13.74	56.14	57.02	58.67	
384+00.00	9.90	56.66	58.40	62.73			
385+00.00	56.51	58.66	66.42				
386+00.00	53.06	57.20	69.87				
387+00.00	49.24	54.00	75.54				
388+00.00	49.41	54.00	77.53				
389+00.00	50.87	54.00	78.41				
390+00.00	48.58	54.00	79.24				
391+00.00	47.93	54.00	78.38				
392+00.00	37.86	54.00	77.77				
393+00.00	26.31	54.00	78.88				
394+00.00	20.45	51.00	78.59				
395+00.00	24.20	48.00	76.34				
396+00.00	31.15	48.00	78.55				
397+00.00	41.48	48.00	79.05				
398+00.00	44.34	48.00	77.43				
399+00.00	49.85	61.00	76.12	-----	-----	-----	
400+00.00	61.25	74.00	74.85	-----	-----	-----	
401+00.00	73.85	74.00	75.99	-----	-----	-----	
402+00.00	73.81	74.00	75.48	-----	-----	-----	
403+00.00	73.84	74.00	75.49	-----	-----	-----	
404+00.00	73.78	74.00	75.06	-----	-----	-----	
405+00.00	73.75	74.00	74.72	-----	-----	-----	
406+00.00	74.00	74.55	76.78	-----	-----	-----	
407+00.00	78.00	78.68	-----	-----	-----	-----	
408+00.00	59.25	70.80	72.01	-----	-----	-----	
409+00.00	50.07	56.40	59.84	-----	-----	-----	
410+00.00	42.00	45.07	58.58	-----	-----	-----	
411+00.00	41.71	42.00	64.75	-----	-----	-----	
412+00.00	41.73	42.00	71.54	-----	-----	-----	
413+00.00	41.74	42.00	71.34	-----	-----	-----	
414+00.00	41.63	42.00	60.67	-----	-----	-----	
415+00.00	41.40	42.00	52.23	-----	-----	-----	
416+00.00	38.79	42.00	50.02	-----	-----	-----	
417+00.00	42.68	50.47	56.57	-----	-----	-----	
418+00.00	49.11	57.01	59.44	-----	-----	-----	
419+00.00	57.92	61.09	71.70	-----	-----	-----	
420+00.00	10.55	10.65	10.77	57.59	74.77	83.00	
421+00.00	15.05	17.25	18.01	65.50	84.94	91.46	
422+00.00	19.46	20.36	24.03	77.09	91.67	100.11	
423+00.00	20.00	20.33	21.13	93.45	95.00	98.87	
424+00.00	23.52	25.74	28.33	110.32	112.82	114.69	

SB DITCH
SB FRTG STATIONS & OFFSETS

STATION	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6	*
425+00.00	26.94	28.00	29.33	125.37	127.09	134.08	
426+00.00	27.67	28.00	29.20	138.23	138.96	146.86	
427+00.00	26.63	28.00	28.65	147.67	147.77	151.48	
428+00.00	26.36	28.00	29.49	153.22	153.22	154.15	
429+00.00	25.20	28.00	33.24	153.22	153.22	154.15	
430+00.00	28.00	28.40	37.15	153.22	153.22	154.15	
431+00.00	32.00	32.17	38.35				
432+00.00	33.88	36.00	47.10				
433+00.00	32.24	36.00	56.66				
434+00.00	30.15	36.00	63.06				
435+00.00	27.60	36.00	66.03				
436+00.00	34.93	46.49	62.24				
437+00.00	34.93						



STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

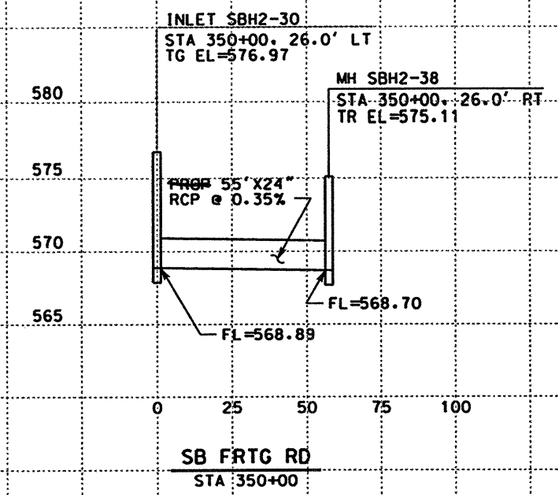
ROADWAY DITCH DATA

SHEET 3 OF 3

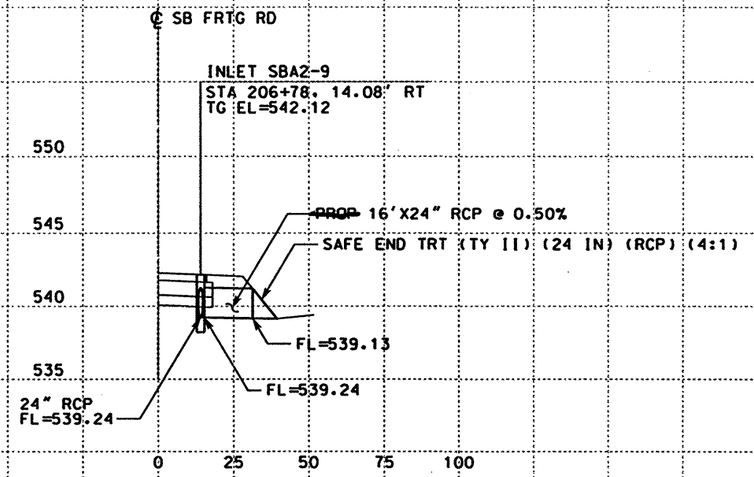
FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	579
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062 ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV DN = 47.57.58.60-62

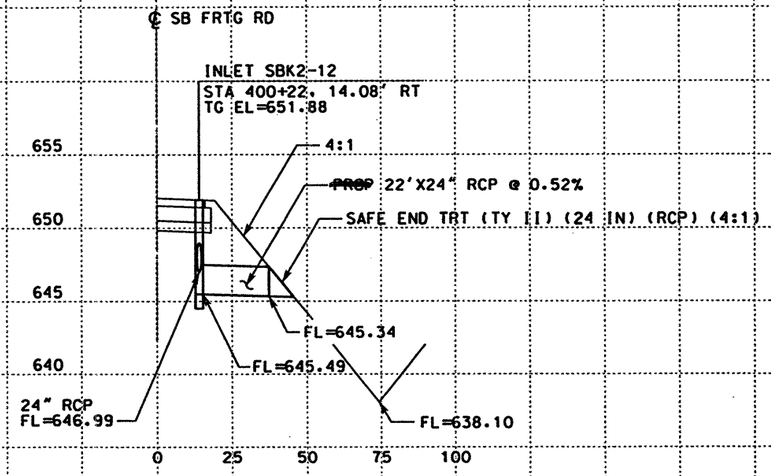
4/21/2003 \hcivil\cf0130\ HOUFILE023 \36asp45.dgn-01



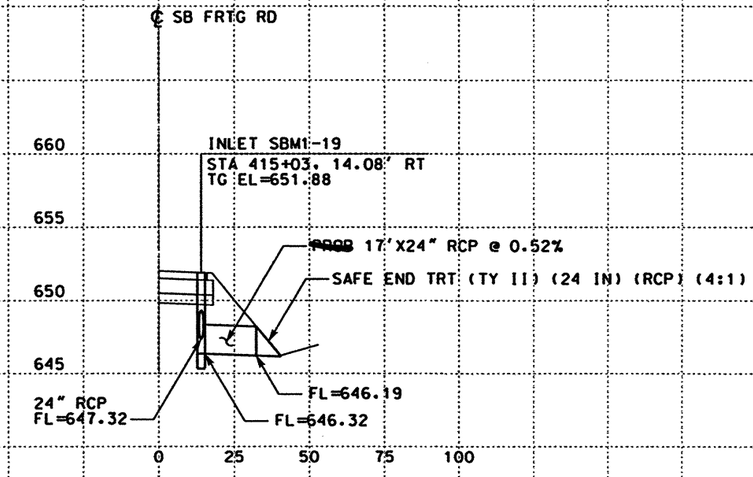
SB FRTG RD
STA 350+00



SB FRTG RD
STA 206+78



SB FRTG RD
STA 400+22



SB FRTG RD
STA 415+03

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
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IH 35
LOOP 20 TO UNIROYAL ROAD

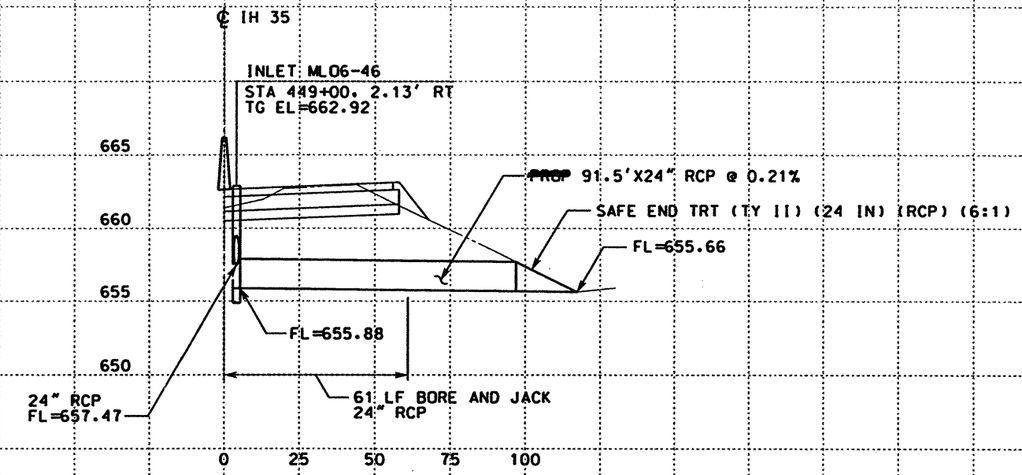
STORM SEWER LATERALS

SHEET 1 OF 2

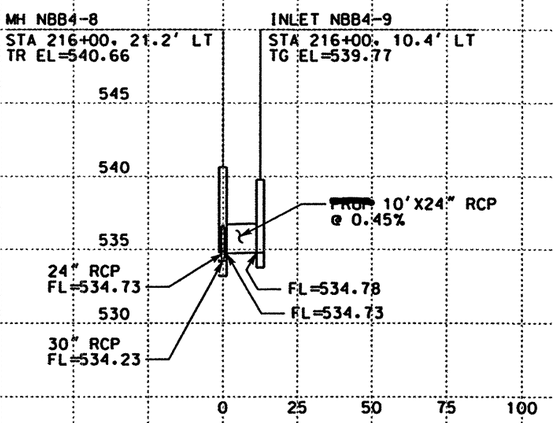
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		580
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 8.11.46.57.58.60-62

b13lop01.dgn-14 HOUFILE023 \hciwin\c0130\ 4/18/2003



IH 35 MAINLANES
STA 449+00



NB FRTG RD
STA 216+00

0 25 50
SCALE: 1" = 50' HORIZ
1" = 10' VERT

STATE OF TEXAS
RUDY L. GOMEZ
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IH 35
LOOP 20 TO UNIROYAL ROAD

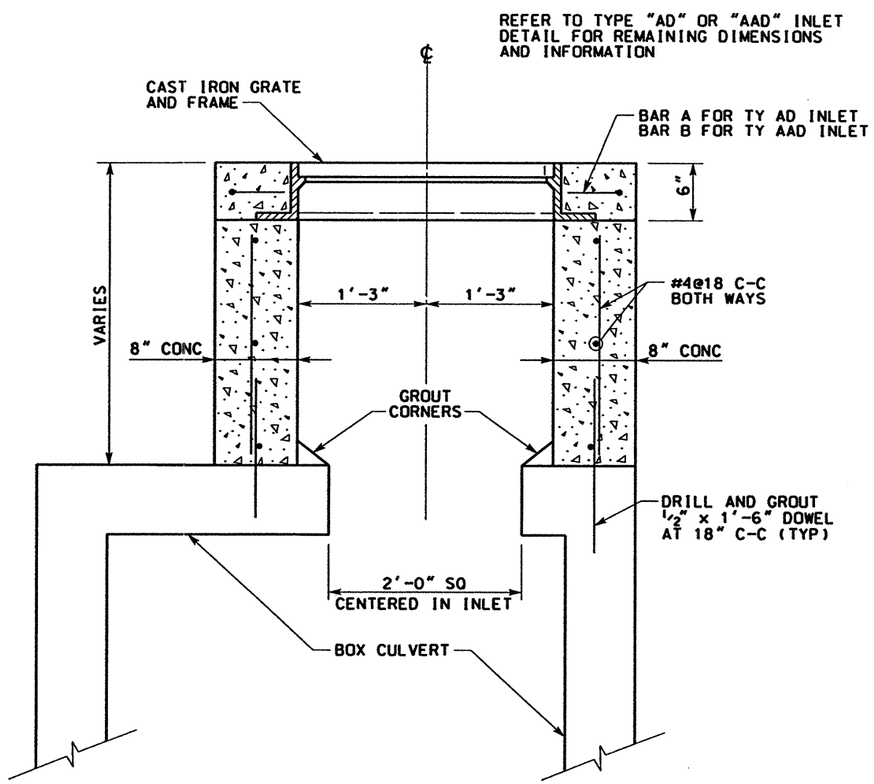
STORM SEWER LATERALS

SHEET 2 OF 2

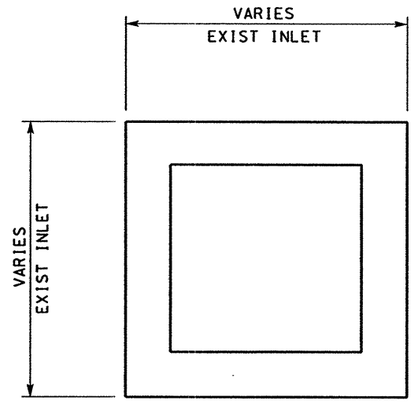
FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		581
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j01lop01.bdr, bdr LV ON = 8,11,46,57,58,60-62

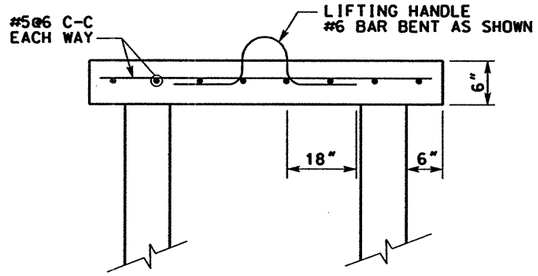
b13lop02.dgn-06 HOUFILE023 \hciwil\c0130\ 4/18/2003



TYPE "AD" OR "AAD" INLET ON A BOX CULVERT
NTS



PLAN

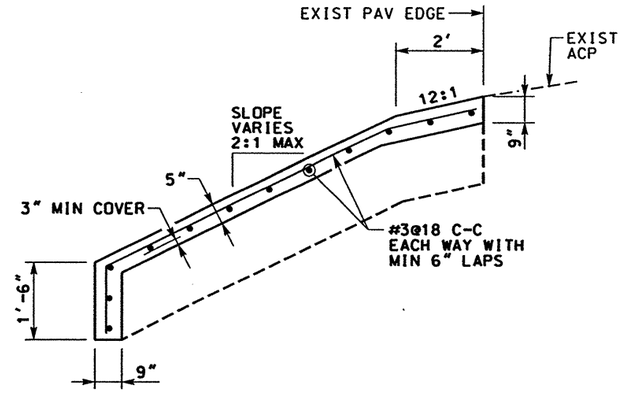


SECTION

CAP INLET DETAIL
NTS

NOTE:

1. INLETS ~~SHALL BE~~ CAPPED AT A MINIMUM OF 2' BELOW FINISHED GRADE. CONTRACTOR ~~SHALL~~ ADJUST EXISTING TOP OF INLET AS REQUIRED SUBSIDIARY TO PAY ITEM FOR CAPING EXISTING INLET.



5" CL "B" RIPRAP
NTS

HS 25 LOADING

STATE OF TEXAS
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IH 35
LOOP 20 TO UNIROYAL ROAD

MISCELLANEOUS DRAINAGE DETAILS

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	582
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

REF FILE(S): J011op01.bdr, bdr LV ON = 46,57,58,60-62

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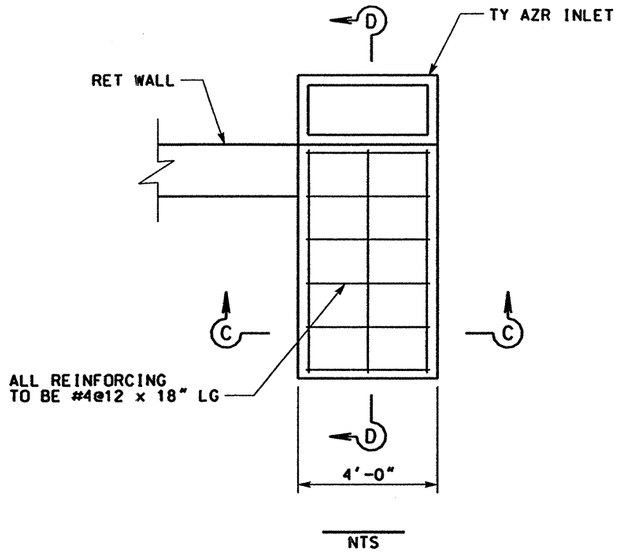
b13bdp01.dgn-04



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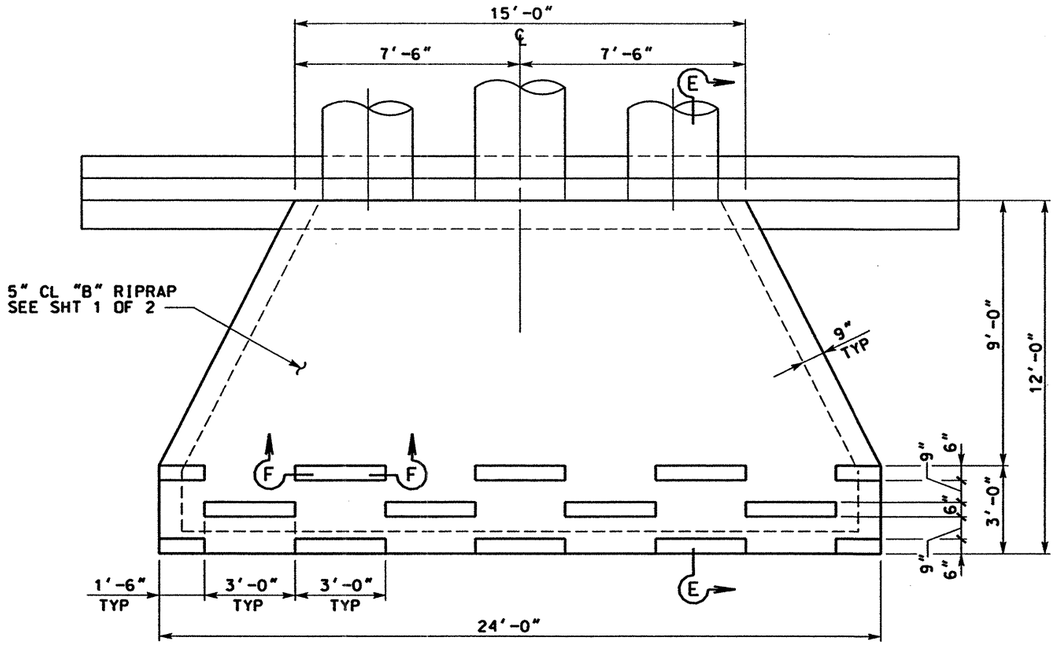
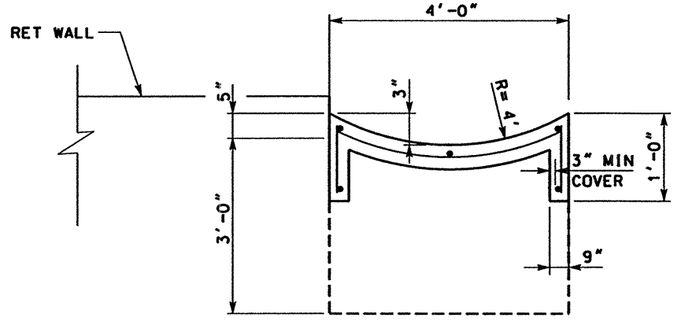
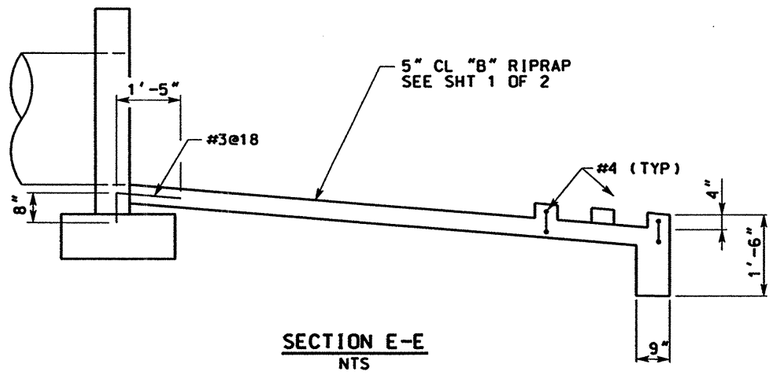


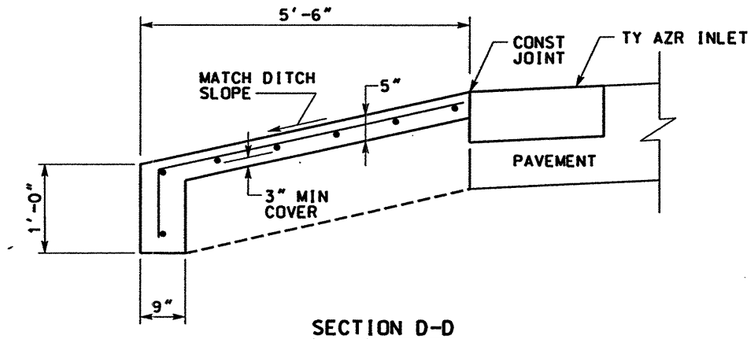
~~CULVERT K ENERGY DISSIPATOR~~
NTS



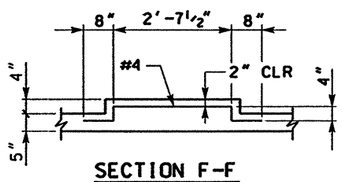
SECTION C-C
NTS



SECTION E-E
NTS



SECTION D-D
NTS



SECTION F-F
NTS

GENERAL NOTES:

ALL EXPOSED EDGES ~~SHALL BE~~ TOOLED. NO DIRECT PAYMENT ~~WILL BE~~ MADE FOR REINFORCING, EXCAVATION AND EXPANSION JOINT MATERIAL. THESE ITEMS ~~SHALL BE~~ INCLUDED IN THE UNIT PRICE BID FOR "CLASS B CONCRETE".

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

MISCELLANEOUS DRAINAGE DETAILS

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	583
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 46,57,58,60-62

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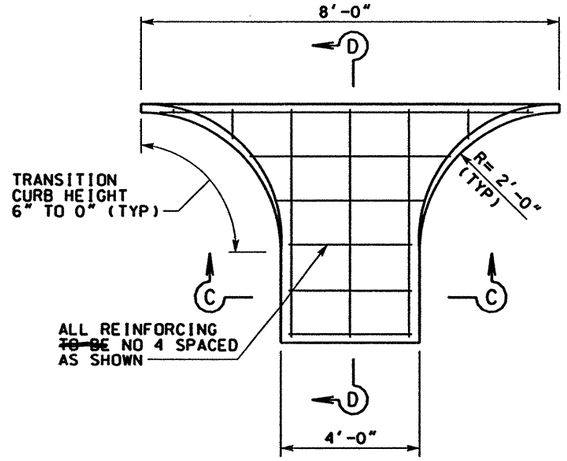
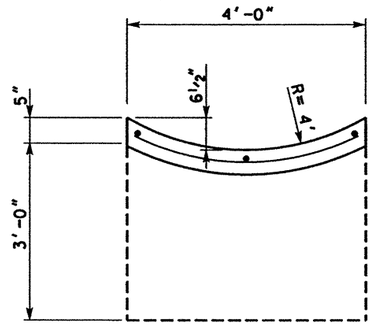
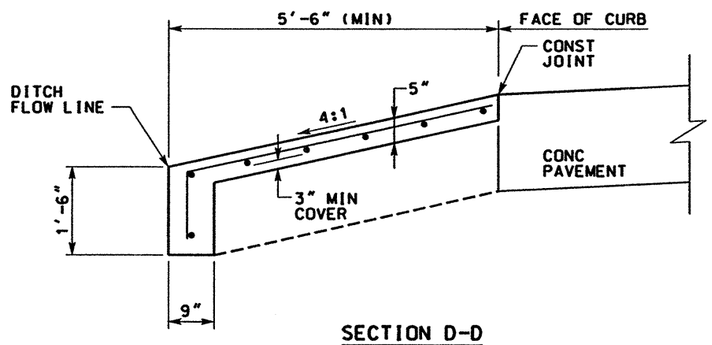


TYPE I
(FOR CURB OUTLET)
NTS



SECTION C-C
(FOR CURB OUTLET)
NTS



SECTION D-D
(FOR CURB OUTLET)
NTS

NOTE:

1. PLACE #4 x 18" DOWELS @ 12" C-C.

GENERAL NOTES:

(FOR CURB OUTLET)
ALL CONCRETE ~~SHALL BE~~ CLASS "A". ALL EXPOSED EDGES ~~SHALL BE~~ TOOLED. PAYMENT FOR CURB OUTLET AND CURB ~~SHALL BE~~ MADE AT THE UNIT PRICE BID FOR "CLASS A CONCRETE (CURB OUTLET)". NO DIRECT PAYMENT ~~WILL BE~~ MADE FOR REINFORCING. EXCAVATION AND EXPANSION JOINT MATERIAL. THESE ITEMS ~~SHALL BE~~ INCLUDED IN THE UNIT PRICE BID FOR "CLASS A CONCRETE (CURB OUTLET)". THE CURB ~~SHALL BE~~ THE SAME HEIGHT AND SHALL MATCH THE INSIDE FACE OF ADJACENT CURB.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

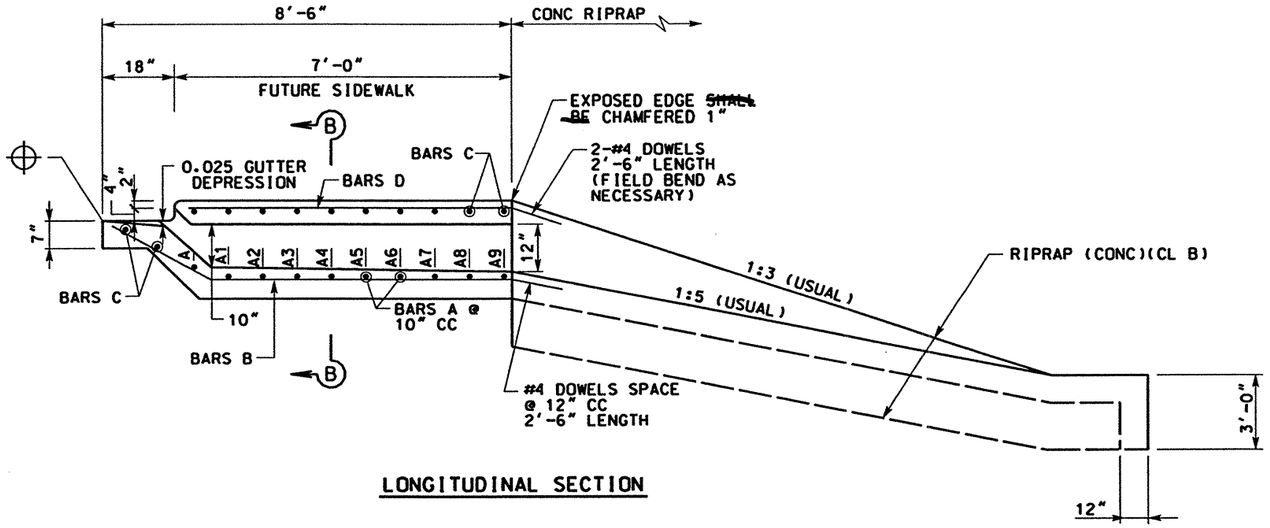
CURB OUTLET
DETAILS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		584
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

REF FILE(S): J011op01.bdr, bdr LV ON = 46.57.58.60-62

b13bdp02.dgn-02 HOUFILE023 \hdiv\lvc\10130\ 4/18/2003

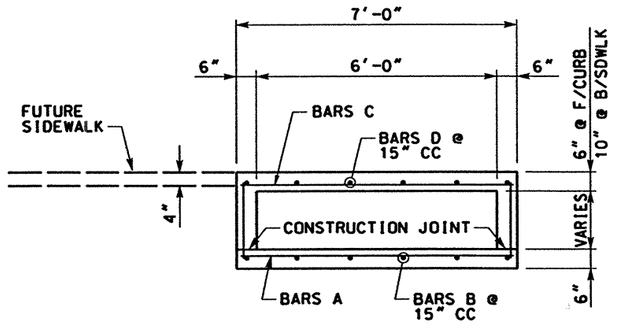


LONGITUDINAL SECTION

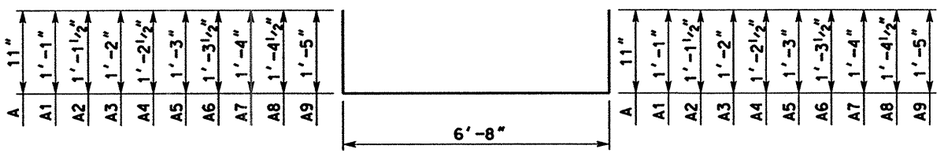
⊕ THE CONTRACTOR WILL PROVIDE A 50MMX100MM (2" X 4") BLOCKOUT IN BOTH CAST-IN-PLACE AND PRECAST INLETS. THIS OPENING IS TO PROVIDE ROADWAY DRAINAGE FROM THE FLEXBASE SURFACE INTO THE INLET. BLOCKOUT OPENING SHALL BE GROUTED UPON COMPLETION OF THE LAST COURSE OF ACP. THIS NOT PAID FOR DIRECTLY BUT SUBSIDIARY TO THE BID ITEM "INLET (COMP)(SPL)."

GENERAL NOTES

1. ALL CONC CL "A".
2. WORK AND MATERIAL REQUIRED TO CONNECT RIPRAP TO PROPOSED "INLET (COMPL)(SPL)" NOT PAID FOR DIRECTLY BUT SUBSIDIARY TO THE BID ITEM 465.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.



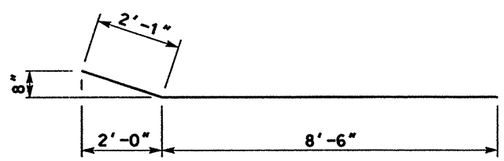
SECTION B-B



BARS A

* BILL OF REINFORCING STEEL INLET (COMPL) (SPL)					
BAR	NO	SIZE	LENGTH	WEIGHT	SHAPE
A-A9	7	5	VARIES	66.40 LBS	⌊——⌋
B	6	4	7'-6"	30.30 LBS	⟋—⟍
C	22	5	6'-8"	152.70 LBS	STRAIGHT
D	6	4	5'-6"	21.50 LBS	STRAIGHT
CI "A" CONC=3.10 C.Y.			TOTAL	299.20 LBS	

* FOR CONTRACTOR INFORMATION ONLY REINFORCING FOR "INLET (COMPL)(SPL)" STEEL NOT PAID FOR DIRECTLY BY CONSIDERED SUBSIDIARY TO ITEM 465.



BARS B

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STATE OF TEXAS · RUDY L. GOMEZ · 58664 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD

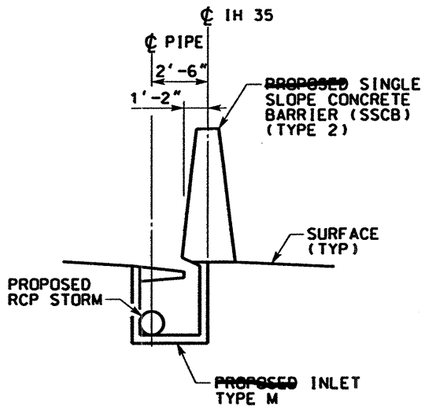
INLET / OUTLET DETAILS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		584A
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

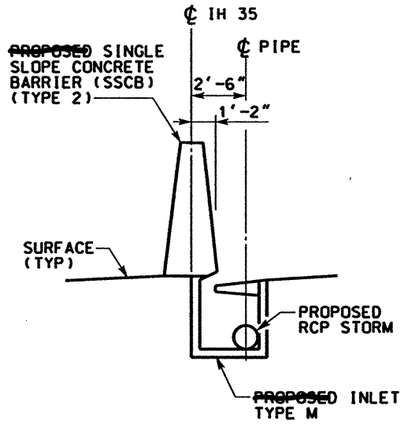
REF FILE(S): J011op01.bdr. bdr LV=ON 16.47.57.58.60-62

B13SDP07.DGN-01 \\HOUFILE023 \HCIVIL\CF0130\ 4/18/2003



SECTION NO 1

(INLET MLM5-26,MLM5-27,MLM5-28, MLM5-29,MLM5-30,MLM5-31,MLM5-32, MLM5-33,MLM5-34,MLM6-36,MLM6-37, MLM6-38,MLM6-39)



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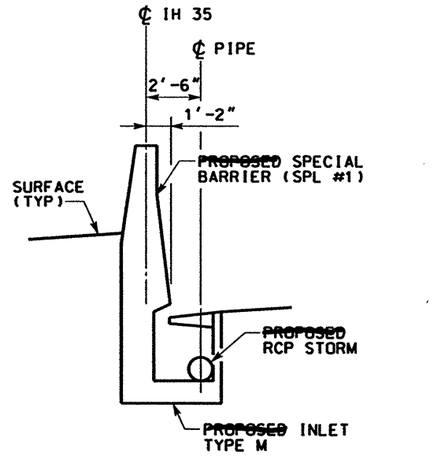
(INLET MLO5-40,MLO5-41,MLO6-42, MLO6-43,MLO6-44,MLO6-45,MLO6-46)



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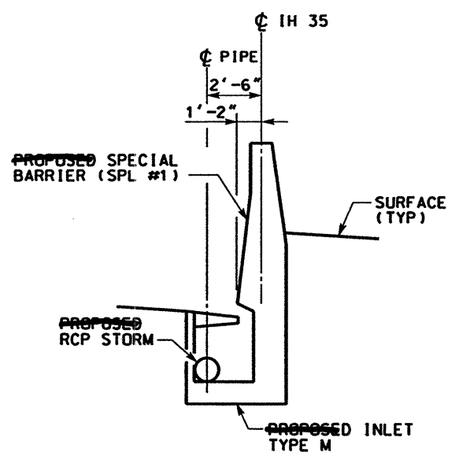
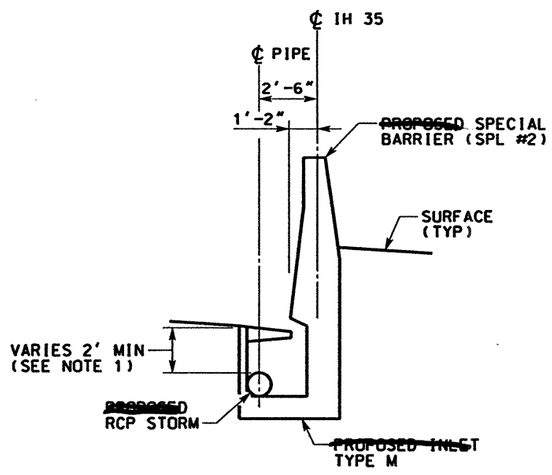


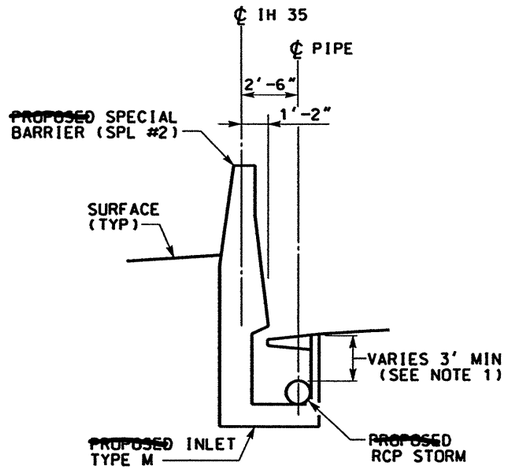
SECTION NO 3

(INLET MLE5-8,MLE5-9,MLE5-47, MLE5-48,MLE5-49)



SECTION NO 4

(INLET MLE6-11,MLE6-12,MLE6-13, MLE6-14,MLE6-15,MLE6-50)



SECTION NO 5

(INLET MLD5-1,MLD6-3,MLD6-4,MLD6-5, MLD6-6,MLD6-7,MLH6-23,MLH6-24,MLH6-25)

NOTES:

1. CONTRACTOR ~~SHALL~~ OMIT 1' CEMENT STABILIZED BACKFILL OVER PROPOSED RCP STORM WHERE LESS THAN 4' BETWEEN FINISHED GRADE AND TOP OF PIPE AT SECTIONS NO 4 & 5 ONLY.
2. STORM SEWER ~~SHALL BE~~ CONSTRUCTED PARALLEL TO THE CENTER LINE OF IH 35 AT OFFSET INDICATED.
3. SEE SSCB (TYPE 2), SPECIAL BARRIER #1 AND SPECIAL BARRIER #2 DETAILS FOR PLACEMENT OF REINFORCEMENT AND DETAILS.
4. SEE "CTB INLET TYPE M" DETAILS FOR PLACEMENT OF REINFORCEMENT AND DETAILS.

SCALE: NTS

STATE OF TEXAS · JAMES B. HORNSBY · 81485 · REGISTERED PROFESSIONAL ENGINEER

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James B. Hornsby

KBR

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IH 35
LOOP 20 TO UNIROYAL ROAD

STORM SEWER DETAILS (SECTIONS)

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	585
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

4/18/2003

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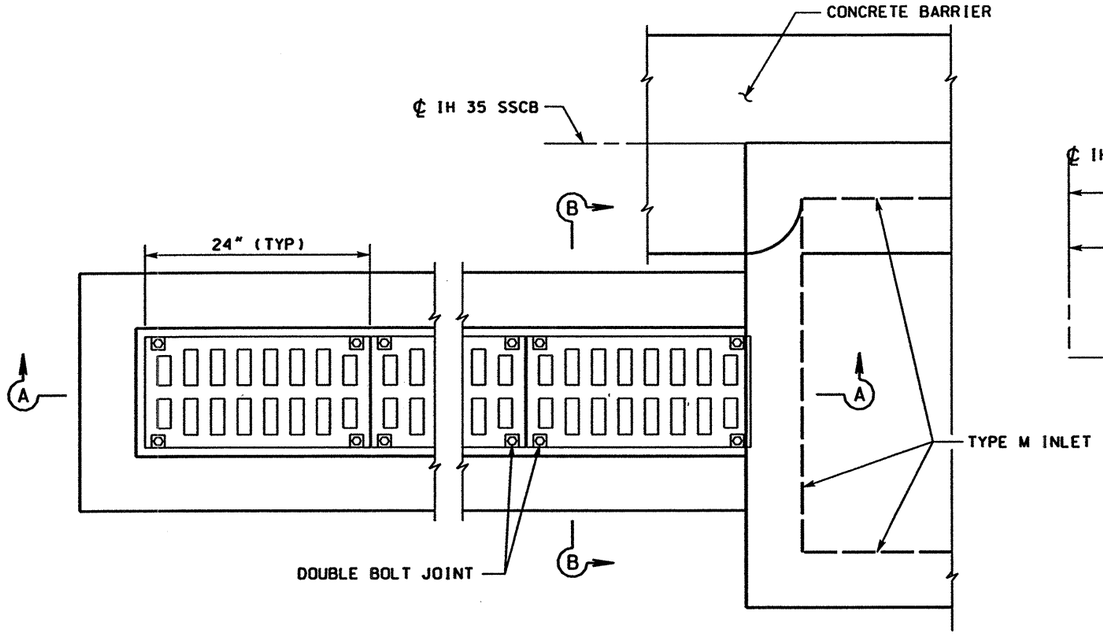
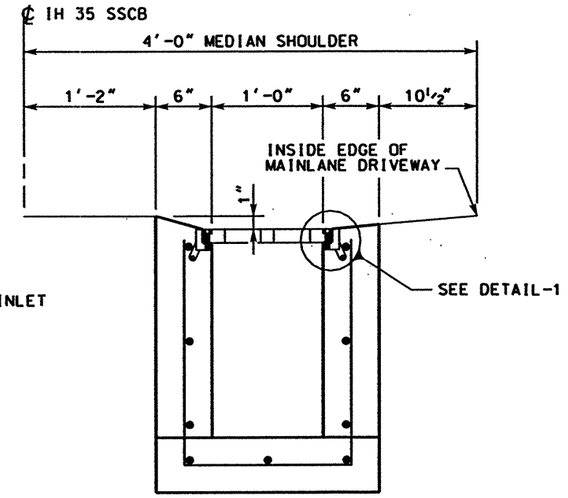
b13sdp02.dgn-07

REF FILE(S): j011op01.bdr, bdr LV ON = 32,45,47,57,58,60-62



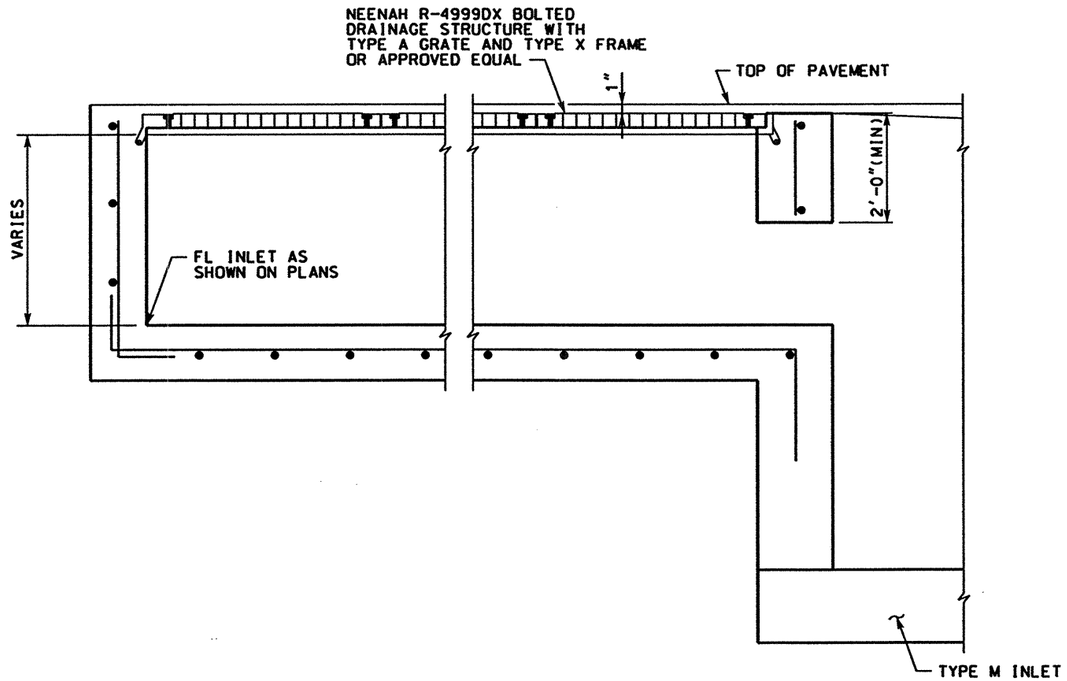
PLAN - TRENCH DRAIN INLET JUNCTION BOX



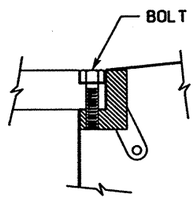
SECTION B-B
TRENCH DRAIN INLET

NOTES:

1. REINFORCING STEEL ~~SHALL BE~~ #4 BARS @ 12" CENTERS BOTH WAYS PLACED 2" CLEAR TO OUTSIDE FACE OF BOX WALL UNLESS OTHERWISE NOTED.
2. ALL CONCRETE ~~SHALL BE~~ CLASS "C". ALL REINFORCING STEEL SHALL BE DEFORMED BARS.



SECTION A-A



DETAIL-1
GRATE BOLT
NTS

HS 25 LOADING

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IH 35
LOOP 20 TO UNIROYAL ROAD

MISCELLANEOUS
DRAINAGE DETAILS
TRENCH DRAIN INLET
AND JUNCTION BOX

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		586
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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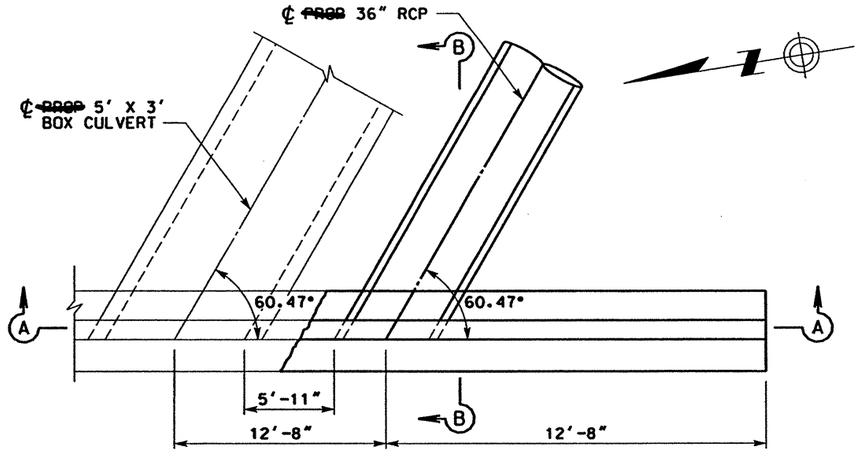
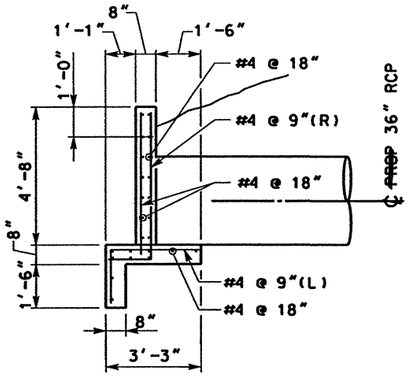
b13sdp04.dgn-02

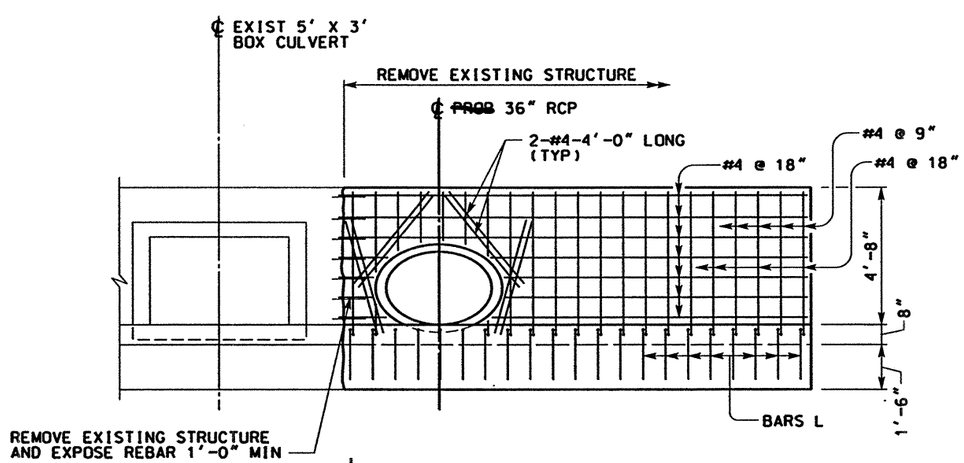
REF FILE(S): j011op01.bdr, bdr LV ON = 46,57,58,60-62



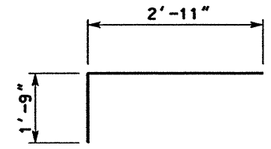
PLAN
SCALE: 1"=5'



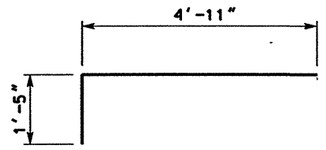
SECTION B-B
SCALE: 1"=5'



SECTION A-A
SCALE: 1"=5'



BARS L



BARS R

* REINF	* CONCRETE
LB	CY
410	3.6

* FOR CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED
PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
CULVERT "B"
WINGWALL
(SPECIAL)
DETAILS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		587
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062. ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 46,57,58,60-62

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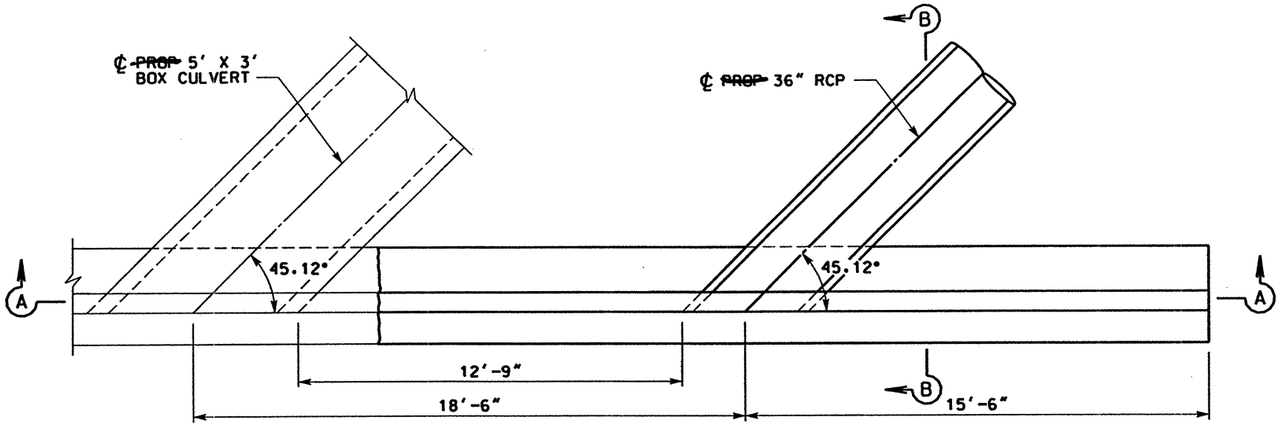
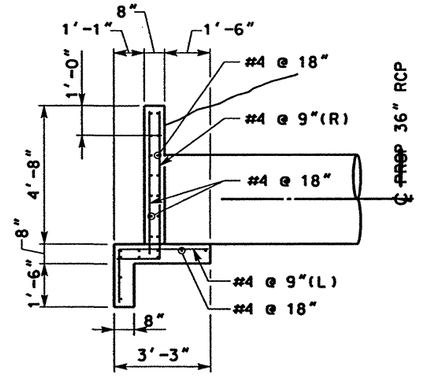
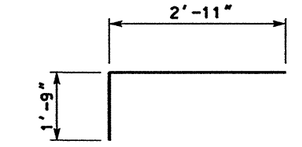


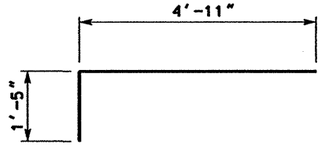
PLAN
SCALE: 1"=5'



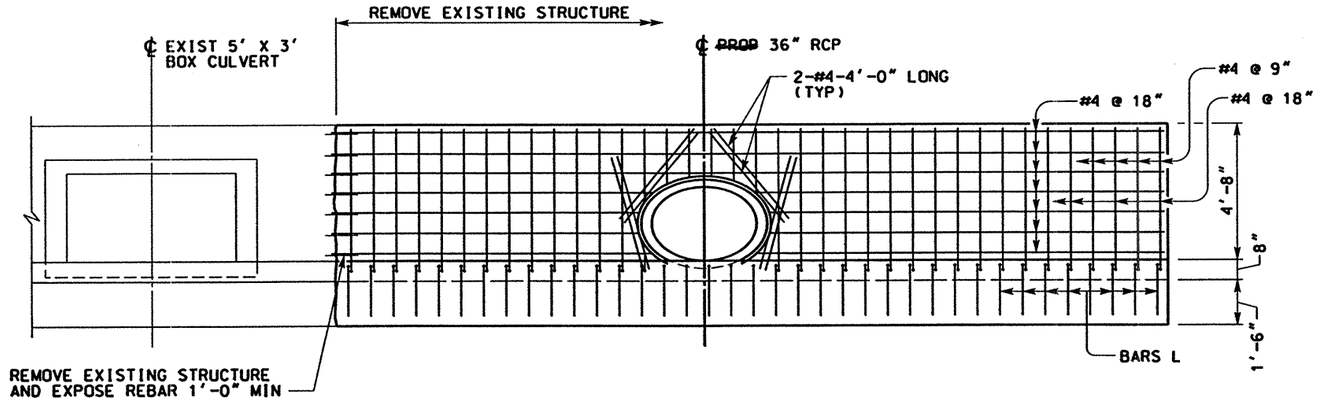
SECTION B-B
SCALE: 1"=5'



BARS L



BARS R



SECTION A-A
SCALE: 1"=5'

* REINF	* CONCRETE
LB	CY
764	7.2

* FOR CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
CULVERT "C"
WINGWALL
(SPECIAL)
DETAILS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		588
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

4/18/2003

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b13sdp05.dgn-01

REF FILE(S): j0110p01.bdr, bdr LV ON = 46,57,58,60-62

Culvert Station and/or Creek name followed by applicable end (Lt, Rt or Both)	Description of Box Culvert No. Spans ~ Span X Height	Max Fill Height (Ft)	Applicable Box Culvert Standard	Applicable Wingwall or End Treatment Standard	Skew Angle (0°, 15°, 30° or 45°)	Side Slope or Channel Slope Ratio (SL:1)	T Culvert Top Slab Thickness (In)	U Culvert Wall Thickness (In)	C Estimated Curb Height (Ft)	(1) Hw Height of Wingwall (Ft)	A Curb to End of Wingwall (Ft)	B Offset of End of Wingwall (Ft)	Lw Length of Longest Wingwall (Ft)	Ltw Culvert Toewall Length (Ft)	Atw Anchor Toewall Length (Ft)	Riprap Apron (C.Y.)	(2) Class "C" Conc (Curb) (C.Y.)	(3) Class "C" Conc (Wingwall) (C.Y.)	Total Wingwall Area (S.F.)
Culvert A Extension Sta. 187+71.18 (Rt)	6 ~ 6'x 5'	4'	MC-6-16	PW	30°	3:1	7"	7"	1.000'	6.583'	N/A	N/A	22.805'	46.284'	N/A	0.0	1.7	24.0	300
Culvert A Extension Sta. 187+71.18 (Rt)	1 ~ 5'x 4'	5'	SCP-5	PW	30°	3:1	6"	6"	2.000'	6.500'	N/A	N/A	22.517'	6.928'	N/A	0.0	0.5	17.8	293
Culvert E Extension Sta. 272+00 (Lt)	2 ~ 7'x 4'	6'	MC-7-10	PW	0°	4:1	7"	7"	5.000'	9.583'	N/A	N/A	38.333'	15.750'	N/A	0.0	2.9	49.1	735
Culvert E Extension Sta. 272+00 (Rt)	2 ~ 7'x 4'	6'	MC-7-10	PW	0°	4:1	7"	7"	4.000'	8.583'	N/A	N/A	34.333'	15.750'	N/A	0.0	2.3	40.7	589
Culvert G Extension Sta. 311+95.30 (Lt)	3 ~ 8'x 7'	4'	MC-8-13	PW	0°	4:1	8"	7"	3.000'	10.667'	N/A	N/A	42.667'	26.333'	N/A	0.0	2.9	65.0	910
Culvert G Extension Sta. 311+95.30 (Rt)	3 ~ 8'x 7'	4'	MC-8-13	PW	0°	4:1	8"	7"	3.250'	10.917'	N/A	N/A	43.667'	26.333'	N/A	0.0	3.2	66.5	953
Culvert H Extension Sta. 343+25.95 (Lt)	4 ~10'x 8'	5'	MC-10-7	PW	0°	4:1	8"	7"	4.000'	12.667'	N/A	N/A	50.667'	42.917'	N/A	0.0	6.4	99.4	1284
Culvert H Extension Sta. 343+25.95 (Rt)	4 ~10'x 8'	4'	MC-10-7	FW-0	0°	4:1	8"	7"	3.000'	11.417'	44.333'	25.596'	51.192'	42.917'	N/A	0.0	4.8	38.5	602
Culvert N1 Extension Sta. 430+00 (Lt)	2 ~ 7'x 4'	4'	MC-7-10	PW	30°	4:1	7"	7"	3.250'	7.833'	N/A	N/A	36.181'	18.187'	N/A	0.0	2.2	36.5	567
Culvert N1 Extension Sta. 430+00 (Rt)	2 ~ 7'x 4'	3'	MC-7-10	PW	30°	6:1	7"	7"	1.354'	5.938'	N/A	N/A	41.136'	18.187'	N/A	0.0	0.9	31.4	488
Culvert N2 Extension Sta. 432+00 (Lt)	4 ~ 4'x 3'	2'	SCP-4	FW-0	0°	6:1	5"	5"	1.750'	4.917'	27.500'	15.877'	31.754'	20.833'	N/A	0.0	1.4	11.7	167
Culvert N2 Extension Sta. 432+00 (Rt)	4 ~ 4'x 3'	2.25'	SCP-4	PW	0°	4:1	5"	5"	2.500'	5.917'	N/A	N/A	23.667'	20.833'	N/A	0.0	1.9	18.9	280

(1) The wall heights shown will be rounded to the nearest Foot for bidding purposes.

(2) Concrete volume shown is for box culvert curb only. Curb concrete is considered part of the Box Culvert for payment.

(3) Concrete volume shown is total of wing, footing, culvert toewall (if any), anchor toewall (if any) and wingwall toewall. Riprap apron, culvert and curb quantities are not included.

GENERAL NOTES:

This sheet is a supplement to the Box Culvert standards. It is to be filled out by the culvert specifier and provides dimensions for the construction of the Box Culvert Wingwalls and Safety End Treatments.

An Excel 97 spreadsheet to assist in completing this table can be downloaded from the Bridge Standards (English) web page on the TxDOT web site.

NOTES:

Skew Angle = 0° for SW-0, FW-0, SETB-SW-0, and SETB-FW-0 standards.
30° Maximum for Safety End Treatment

SL:1 = Horizontal:1 Vertical
Side Slope at culvert for Flared or Straight Wingwalls. Channel Slope for Parallel Wingwalls.
Slope shall be 3:1 or flatter for Safety End Treatments.

T = Box Culvert Top Slab Thickness. Can be found on the applicable Box Culvert Standard.

U = Box Culvert Wall Thickness. Can be found on the applicable Box Culvert Standard.

C = Curb Height.

See applicable wing or end treatment standards for calculations of Hw, A, B, Lw, Ltw, Atw, and Total Wingwall Area.
Hw = Height of Wingwall.
A = Distance from Face of Curb to End of Wingwall (Not applicable to Parallel or Straight Wingwalls).
B = Offset of End of Wingwall (Not applicable to Parallel or Straight Wingwalls).
Lw = Length of Longest Wingwall.
Ltw = Length of Culvert Toewall (Not applicable when using Riprap Apron).
Atw = Length of Anchor Toewall (Applicable to Safety End Treatment only).
Total Wingwall Area = Wingwall area in S.F. for two wingwalls (one structure end) if Lt or Rt.
Area for four wingwalls (two structure ends) if Both.

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LEVELS DISPLAYED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	25	26	27	28	29	30	31	32	
33	34	35	55	63	73	83	94	104	114	124	134	144	154	164	174	184
49	50	51	52	53	54	55	56	65	75	85	96	106	162	163	

COMMENTS:

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STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

Texas Department of Transportation
Bridge Division

BOX CULVERT SUPPLEMENT
WINGS AND END TREATMENTS

BCS

FILE: bcssidel.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		589
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

6/4/2003
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b34moo30. dgn-06

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LEVELS USED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

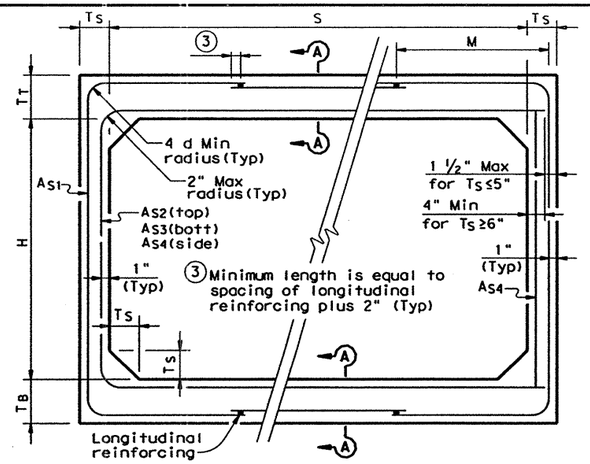
BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (in²/ft) ②								① Liff Weight (Tons)	Governing ASTM Standard
S (ft)	H (ft)	T_T (in)	T_B (in)	T_S (in)	(ft)	(in)	A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S7}	A_{S8}	A_{S5}	A_{S6}		
4	2	7 ½	6	5	< 2	-	0.21	0.37	0.20	0.13	0.18	0.14	0.18	0.18	4.5	C 850
4	2	5	5	5	2	19	0.26	0.22	0.20	0.12	-	-	-	-	3.6	C 789
4	2	5	5	5	3	18	0.15	0.13	0.13	0.12	-	-	-	-	3.6	C 789
4	2	5	5	5	8	18	0.12	0.12	0.12	0.12	-	-	-	-	3.6	C 789
4	2	5	5	5	10	17	0.13	0.13	0.14	0.12	-	-	-	-	3.6	C 789
4	2	5	5	5	12	17	0.15	0.15	0.15	0.12	-	-	-	-	3.6	C 789
4	2	5	5	5	14	17	0.17	0.17	0.17	0.12	-	-	-	-	3.6	C 789
4	2	5	5	5	16	17	0.19	0.19	0.19	0.12	-	-	-	-	3.6	C 789
4	2	5	5	5	18	17	0.21	0.21	0.21	0.12	-	-	-	-	3.6	C 789
4	3	7 ½	6	5	< 2	-	0.18	0.41	0.23	0.13	0.18	0.14	0.20	0.18	5.0	C 850
4	3	5	5	5	2	22	0.21	0.27	0.24	0.12	-	-	-	-	4.1	C 789
4	3	5	5	5	3	19	0.13	0.16	0.16	0.12	-	-	-	-	4.1	C 789
4	3	5	5	5	4	18	0.12	0.13	0.13	0.12	-	-	-	-	4.1	C 789
4	3	5	5	5	5	18	0.12	0.12	0.13	0.12	-	-	-	-	4.1	C 789
4	3	5	5	5	6	17	0.12	0.12	0.13	0.12	-	-	-	-	4.1	C 789
4	3	5	5	5	8	17	0.12	0.14	0.14	0.12	-	-	-	-	4.1	C 789
4	3	5	5	5	10	17	0.12	0.15	0.16	0.12	-	-	-	-	4.1	C 789
4	3	5	5	5	12	17	0.12	0.17	0.18	0.12	-	-	-	-	4.1	C 789
4	3	5	5	5	14	17	0.13	0.20	0.20	0.12	-	-	-	-	4.1	C 789
4	3	5	5	5	16	17	0.15	0.22	0.22	0.12	-	-	-	-	4.1	C 789
4	3	5	5	5	18	17	0.16	0.24	0.24	0.12	-	-	-	-	4.1	C 789
4	4	7 ½	6	5	< 2	-	0.16	0.43	0.24	0.13	0.18	0.14	0.21	0.18	5.5	C 850
4	4	5	5	5	2	34	0.18	0.30	0.28	0.12	-	-	-	-	4.6	C 789
4	4	5	5	5	3	24	0.12	0.18	0.18	0.12	-	-	-	-	4.6	C 789
4	4	5	5	5	4	21	0.12	0.14	0.15	0.12	-	-	-	-	4.6	C 789
4	4	5	5	5	5	20	0.12	0.13	0.14	0.12	-	-	-	-	4.6	C 789
4	4	5	5	5	6	19	0.12	0.14	0.14	0.12	-	-	-	-	4.6	C 789
4	4	5	5	5	8	18	0.12	0.15	0.15	0.12	-	-	-	-	4.6	C 789
4	4	5	5	5	10	18	0.12	0.16	0.17	0.12	-	-	-	-	4.6	C 789
4	4	5	5	5	12	18	0.12	0.19	0.19	0.12	-	-	-	-	4.6	C 789
4	4	5	5	5	14	18	0.12	0.21	0.21	0.12	-	-	-	-	4.6	C 789
4	4	5	5	5	16	18	0.12	0.23	0.24	0.12	-	-	-	-	4.6	C 789
4	4	5	5	5	18	17	0.14	0.25	0.26	0.12	-	-	-	-	4.6	C 789

Note: ASTM C850 design shall be used for all direct traffic culverts.

① For Box Length = 8'-0"

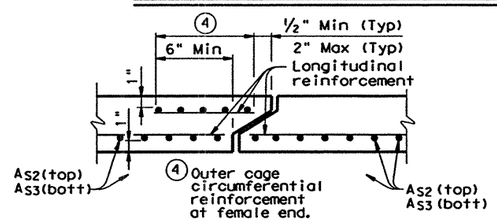
② A_{S1} thru A_{S4}, A_{S7} and A_{S8} are minimum required areas of reinforcement per linear foot of box length. A_{S6} and A_{S5} are minimum required areas of reinforcement per linear foot of box width.



C789 CORNER OPTION "A"

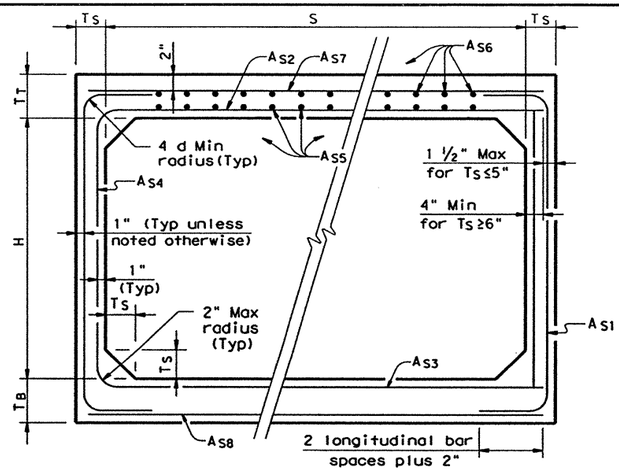
C789 CORNER OPTION "B"

ASTM C789 STANDARD



SECTION A-A

(TOP AND BOTTOM SLAB JOINT REINFORCEMENT)



C850 CORNER OPTION "A"

C850 CORNER OPTION "B"

ASTM C850 STANDARD

GENERAL NOTES:

Designs shown conform to ASTM C789 or ASTM C850. Refer to ASTM C789 or ASTM C850 for information or details not shown.

For ASTM C789 designs, all reinforcing steel shall have a minimum specified yield stress of 65 ksi.

For ASTM C850 designs, all reinforcing steel shall have a minimum specified yield stress of 60 ksi.

All concrete shall be Class "H" Concrete with a minimum 28 day compressive strength of 5,000 psi.

See SCP-MD standard sheet for miscellaneous details and notes not shown.

Designed for HS20 loading and to the maximum fill height shown.

In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Shop plans for alternate designs shall be submitted in accordance with Item "Precast Concrete Structures".

HS20 LOADING

Texas Department of Transportation
Bridge Division

SINGLE BOX CULVERTS PRECAST
4'-0" SPAN

SCP-4

FILE: ~~scp04ste.dgn~~	DN: GAF	CK: LMW	DW: BWH	CK: LDS	
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT			SHEET
REVISIONS	6	NH-2002 (79)			590
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

b34mp133.dgn-01 HOUFILE023 \hci\ilvcf01301 4/18/2003

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
ACC:

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (in²/ft) ②								① Lift Weight (Tons)	Governing ASTM Standard
S (ft)	H (ft)	T_T (in)	T_B (in)	T_S (in)	(ft)	(in)	A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S7}	A_{S8}	A_{S5}	A_{S6}		
5	3	8	7	6	< 2	-	0.22	0.41	0.22	0.14	0.19	0.17	0.19	0.19	6.6	C 850
5	3	6	6	6	2	23	0.26	0.28	0.23	0.14	-	-	-	-	5.7	C 789
5	3	6	6	6	3	21	0.17	0.18	0.18	0.14	-	-	-	-	5.7	C 789
5	3	6	6	6	4	21	0.14	0.15	0.15	0.14	-	-	-	-	5.7	C 789
5	3	6	6	6	5	20	0.14	0.14	0.15	0.14	-	-	-	-	5.7	C 789
5	3	6	6	6	6	20	0.14	0.15	0.15	0.14	-	-	-	-	5.7	C 789
5	3	6	6	6	8	20	0.14	0.16	0.16	0.14	-	-	-	-	5.7	C 789
5	3	6	6	6	10	20	0.15	0.18	0.19	0.14	-	-	-	-	5.7	C 789
5	3	6	6	6	12	20	0.17	0.20	0.21	0.14	-	-	-	-	5.7	C 789
5	3	6	6	6	14	20	0.19	0.23	0.23	0.14	-	-	-	-	5.7	C 789
5	3	6	6	6	16	19	0.21	0.26	0.26	0.14	-	-	-	-	5.7	C 789
5	3	6	6	6	18	19	0.23	0.28	0.29	0.14	-	-	-	-	5.7	C 789
5	4	8	7	6	< 2	-	0.19	0.44	0.24	0.14	0.19	0.17	0.21	0.19	7.2	C 850
5	4	6	6	6	2	28	0.23	0.32	0.27	0.14	-	-	-	-	6.3	C 789
5	4	6	6	6	3	23	0.15	0.20	0.21	0.14	-	-	-	-	6.3	C 789
5	4	6	6	6	6	22	0.14	0.16	0.17	0.14	-	-	-	-	6.3	C 789
5	4	6	6	6	8	20	0.14	0.17	0.18	0.14	-	-	-	-	6.3	C 789
5	4	6	6	6	10	20	0.14	0.20	0.21	0.14	-	-	-	-	6.3	C 789
5	4	6	6	6	12	20	0.14	0.22	0.23	0.14	-	-	-	-	6.3	C 789
5	4	6	6	6	14	20	0.16	0.25	0.26	0.14	-	-	-	-	6.3	C 789
5	4	6	6	6	16	19	0.18	0.28	0.29	0.14	-	-	-	-	6.3	C 789
5	4	6	6	6	18	19	0.20	0.31	0.31	0.14	-	-	-	-	6.3	C 789
5	5	8	7	6	< 2	-	0.16	0.46	0.26	0.14	0.19	0.17	0.22	0.19	7.8	C 850
5	5	6	6	6	2	41	0.20	0.35	0.29	0.14	-	-	-	-	6.9	C 789
5	5	6	6	6	3	29	0.14	0.22	0.23	0.14	-	-	-	-	6.9	C 789
5	5	6	6	6	4	25	0.14	0.18	0.19	0.14	-	-	-	-	6.9	C 789
5	5	6	6	6	5	24	0.14	0.17	0.18	0.14	-	-	-	-	6.9	C 789
5	5	6	6	6	6	22	0.14	0.17	0.18	0.14	-	-	-	-	6.9	C 789
5	5	6	6	6	8	22	0.14	0.18	0.19	0.14	-	-	-	-	6.9	C 789
5	5	6	6	6	10	21	0.14	0.21	0.22	0.14	-	-	-	-	6.9	C 789
5	5	6	6	6	12	21	0.14	0.23	0.24	0.14	-	-	-	-	6.9	C 789
5	5	6	6	6	14	21	0.14	0.26	0.27	0.14	-	-	-	-	6.9	C 789
5	5	6	6	6	16	21	0.16	0.29	0.30	0.14	-	-	-	-	6.9	C 789
5	5	6	6	6	18	20	0.17	0.32	0.33	0.14	-	-	-	-	6.9	C 789
5	2	8	7	6	< 2	-	0.24	0.33	0.25	0.14	0.19	0.17	0.19	0.19	6.0	C 850
5	2	6	6	6	18	23	0.27	0.19	0.19	0.14	-	-	-	-	5.1	C 789

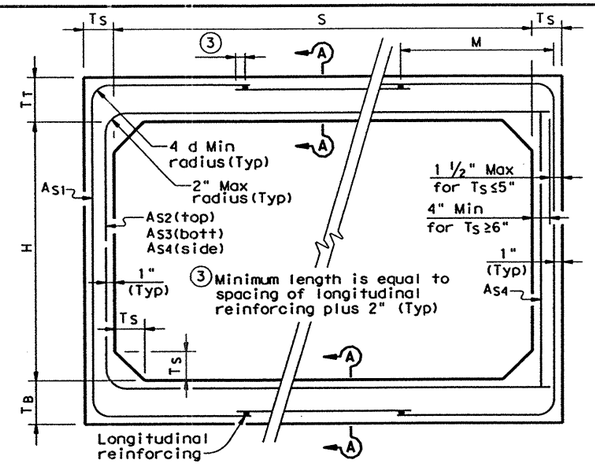
⑤

Note: ASTM C850 design shall be used for all direct traffic culverts.

① For Box Length = 8'-0"

② A_{S1} thru A_{S4}, A_{S7} and A_{S8} are minimum required areas of reinforcement per linear foot of box length. A_{S6} and A_{S5} are minimum required areas of reinforcement per linear foot of box width.

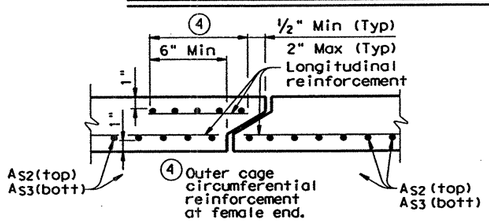
⑤ These designs were created by TxDOT and are not shown in the ASTM Specifications.



C789 CORNER OPTION "A"

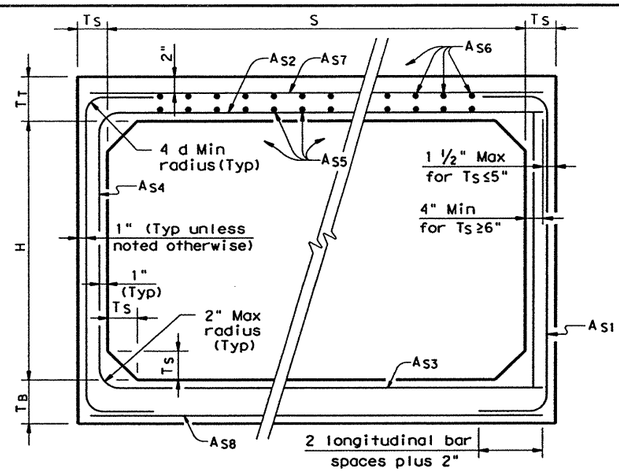
C789 CORNER OPTION "B"

ASTM C789 STANDARD



SECTION A-A

(TOP AND BOTTOM SLAB JOINT REINFORCEMENT)



C850 CORNER OPTION "A"

C850 CORNER OPTION "B"

ASTM C850 STANDARD

GENERAL NOTES:

Designs shown conform to ASTM C789 or ASTM C850. Refer to ASTM C789 or ASTM C850 for information or details not shown.

For ASTM C789 designs, all reinforcing steel shall have a minimum specified yield stress of 65 ksi.

For ASTM C850 designs, all reinforcing steel shall have a minimum specified yield stress of 60 ksi.

All concrete shall be Class "H" Concrete with a minimum 28 day compressive strength of 5,000 psi.

See SCP-MD standard sheet for miscellaneous details and notes not shown.

Designed for HS20 loading and to the maximum fill height shown.

In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Shop plans for alternate designs shall be submitted in accordance with Item "Precast Concrete Structures".

HS20 LOADING

Texas Department of Transportation
Bridge Division

SINGLE BOX CULVERTS PRECAST
5'-0" SPAN

SCP-5

FILE: ~~scp05a1e.dgn~~	DN: GAF	CK: LMW	DW: BWH	CK: LDS
© TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		591
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003
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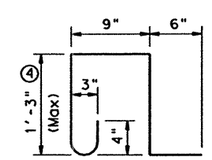
b34mop16.dgn-01

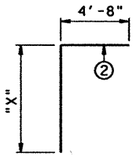
BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

NUMBER OF SPANS	SECTION DIMENSIONS				Bars B				Bars C & D						Bars E					Bars F_1 ~#4				Bars F_2 ~#4 at 1'-6" Max			Bars M~#4 at 1'-6" Max			Bars Y & Z~#4 at 1'-0" Max					Bars H 4~#4		Bars K		QUANTITIES Per foot of Barrel		Curb		Total	
									Bar C		Bar D																																	
	S	H	T	U	No.	Size	Spa	Length	Wt	No.	Size	Spa	Length	Wt	No.	Size	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Length	Wt	No.	Length	Wt	No.	Bar Y Length	Bar Y Wt	Bar Z Length	Bar Z Wt	Length	Weight	No.	Weight	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
2	5'-0"	2'-0"	7"	7"	194	#4	5"	11'- 6"	1,490	162	#4	6"	7'- 1"	767	6'-10"	739	162	#5	6"	5'- 8"	957	14	8"	39'-9"	372	38	39'-9"	1,009	56	2'- 0"	75	41	4'- 6"	123	5'- 0"	137	11'- 6"	31	26	74	0.637	141.7	0.9	105	26.4	5,774
3	5'-0"	2'-0"	7"	7"	194	#4	5"	17'- 1"	2,214	162	#4	6"	7'- 1"	767	6'-10"	739	162	#5	6"	11'- 3"	1,901	21	8"	39'-9"	558	54	39'-9"	1,434	56	2'- 0"	75	82	4'- 6"	246	5'- 0"	274	17'- 1"	46	36	102	0.922	205.2	1.3	148	38.2	8,356
4	5'-0"	2'-0"	7"	7"	194	#4	5"	22'- 8"	2,937	162	#4	6"	7'- 1"	767	6'-10"	739	162	#5	6"	16'-10"	2,844	28	8"	39'-9"	743	70	39'-9"	1,859	56	2'- 0"	75	123	4'- 6"	370	5'- 0"	411	22'- 8"	61	48	136	1.206	268.6	1.7	197	49.9	10,942
5	5'-0"	2'-0"	7"	7"	194	#4	5"	28'- 3"	3,661	162	#4	6"	7'- 1"	767	6'-10"	739	162	#5	6"	22'- 5"	3,788	35	8"	39'-9"	929	86	39'-9"	2,284	56	2'- 0"	75	164	4'- 6"	493	5'- 0"	548	28'- 3"	75	60	170	1.491	332.1	2.1	245	61.7	13,529
6	5'-0"	2'-0"	7"	7"	194	#4	5"	33'-10"	4,385	162	#4	6"	7'- 1"	767	6'-10"	739	162	#5	6"	28'- 0"	4,731	42	8"	39'-9"	1,115	102	39'-9"	2,708	56	2'- 0"	75	205	4'- 6"	616	5'- 0"	685	33'-10"	90	70	199	1.775	395.5	2.5	289	73.5	16,110
2	5'-0"	3'-0"	7"	7"	194	#4	5"	11'- 6"	1,490	138	#4	7"	8'- 1"	745	6'-10"	630	162	#5	6"	5'- 8"	957	14	8"	39'-9"	372	44	39'-9"	1,168	56	3'- 0"	112	41	4'- 6"	123	7'- 0"	192	11'- 6"	31	26	74	0.702	144.7	0.9	105	29.0	5,894
3	5'-0"	3'-0"	7"	7"	194	#4	5"	17'- 1"	2,214	138	#4	7"	8'- 1"	745	6'-10"	630	162	#5	6"	11'- 3"	1,901	21	8"	39'-9"	558	62	39'-9"	1,646	56	3'- 0"	112	82	4'- 6"	246	7'- 0"	383	17'- 1"	46	36	102	1.008	210.9	1.3	148	41.6	8,583
4	5'-0"	3'-0"	7"	7"	194	#4	5"	22'- 8"	2,937	138	#4	7"	8'- 1"	745	6'-10"	630	162	#5	6"	16'-10"	2,844	28	8"	39'-9"	743	80	39'-9"	2,124	56	3'- 0"	112	123	4'- 6"	370	7'- 0"	575	22'- 8"	61	48	136	1.314	277.0	1.7	197	54.3	11,277
5	5'-0"	3'-0"	7"	7"	194	#4	5"	28'- 3"	3,661	138	#4	7"	8'- 1"	745	6'-10"	630	162	#5	6"	22'- 5"	3,788	35	8"	39'-9"	929	98	39'-9"	2,602	56	3'- 0"	112	164	4'- 6"	493	7'- 0"	767	28'- 3"	75	60	170	1.620	343.2	2.1	245	66.9	13,972
6	5'-0"	3'-0"	7"	7"	194	#4	5"	33'-10"	4,385	138	#4	7"	8'- 1"	745	6'-10"	630	162	#5	6"	28'- 0"	4,731	42	8"	39'-9"	1,115	116	39'-9"	3,080	56	3'- 0"	112	205	4'- 6"	616	7'- 0"	959	33'-10"	90	70	199	1.926	409.3	2.5	289	79.5	16,662
2	5'-0"	4'-0"	7"	7"	194	#4	5"	11'- 6"	1,490	138	#4	7"	9'- 1"	837	6'-10"	630	162	#5	6"	5'- 8"	957	14	8"	39'-9"	372	44	39'-9"	1,168	56	4'- 0"	150	41	4'- 6"	123	9'- 0"	246	11'- 6"	31	26	74	0.767	149.3	0.9	105	31.6	6,078
3	5'-0"	4'-0"	7"	7"	194	#4	5"	17'- 1"	2,214	138	#4	7"	9'- 1"	837	6'-10"	630	162	#5	6"	11'- 3"	1,901	21	8"	39'-9"	558	62	39'-9"	1,646	56	4'- 0"	150	82	4'- 6"	246	9'- 0"	493	17'- 1"	46	36	102	1.095	216.9	1.3	148	45.1	8,823
4	5'-0"	4'-0"	7"	7"	194	#4	5"	22'- 8"	2,937	138	#4	7"	9'- 1"	837	6'-10"	630	162	#5	6"	16'-10"	2,844	28	8"	39'-9"	743	80	39'-9"	2,124	56	4'- 0"	150	123	4'- 6"	370	9'- 0"	739	22'- 8"	61	48	136	1.422	284.4	1.7	197	58.6	11,571
5	5'-0"	4'-0"	7"	7"	194	#4	5"	28'- 3"	3,661	138	#4	7"	9'- 1"	837	6'-10"	630	162	#5	6"	22'- 5"	3,788	35	8"	39'-9"	929	98	39'-9"	2,602	56	4'- 0"	150	164	4'- 6"	493	9'- 0"	986	28'- 3"	75	60	170	1.750	351.9	2.1	245	72.1	14,321
6	5'-0"	4'-0"	7"	7"	194	#4	5"	33'-10"	4,385	138	#4	7"	9'- 1"	837	6'-10"	630	162	#5	6"	28'- 0"	4,731	42	8"	39'-9"	1,115	116	39'-9"	3,080	56	4'- 0"	150	205	4'- 6"	616	9'- 0"	1,232	33'-10"	90	70	199	2.078	419.4	2.5	289	85.6	17,065
2	5'-0"	5'-0"	7"	7"	194	#4	5"	11'- 6"	1,490	138	#4	7"	10'- 1"	930	6'-10"	630	162	#5	6"	5'- 8"	957	14	8"	39'-9"	372	50	39'-9"	1,328	56	5'- 0"	187	41	4'- 6"	123	11'- 0"	301	11'- 6"	31	26	74	0.832	158.0	0.9	105	34.2	6,423
3	5'-0"	5'-0"	7"	7"	194	#4	5"	17'- 1"	2,214	138	#4	7"	10'- 1"	930	6'-10"	630	162	#5	6"	11'- 3"	1,901	21	8"	39'-9"	558	70	39'-9"	1,859	56	5'- 0"	187	82	4'- 6"	246	11'- 0"	603	17'- 1"	46	36	102	1.181	228.2	1.3	148	48.5	9,276
4	5'-0"	5'-0"	7"	7"	194	#4	5"	22'- 8"	2,937	138	#4	7"	10'- 1"	930	6'-10"	630	162	#5	6"	16'-10"	2,844	28	8"	39'-9"	743	90	39'-9"	2,390	56	5'- 0"	187	123	4'- 6"	370	11'- 0"	904	22'- 8"	61	48	136	1.530	298.4	1.7	197	62.9	12,132
5	5'-0"	5'-0"	7"	7"	194	#4	5"	28'- 3"	3,661	138	#4	7"	10'- 1"	930	6'-10"	630	162	#5	6"	22'- 5"	3,788	35	8"	39'-9"	929	110	39'-9"	2,921	56	5'- 0"	187	164	4'- 6"	493	11'- 0"	1,205	28'- 3"	75	60	170	1.880	368.6	2.1	245	77.3	14,989
6	5'-0"	5'-0"	7"	7"	194	#4	5"	33'-10"	4,385	138	#4	7"	10'- 1"	930	6'-10"	630	162	#5	6"	28'- 0"	4,731	42	8"	39'-9"	1,115	130	39'-9"	3,452	56	5'- 0"	187	205	4'- 6"	616	11'- 0"	1,506	33'-10"	90	70	199	2.229	438.8	2.5	289	91.7	17,841

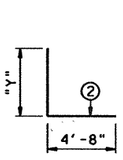
H	Bar Dimensions "X"	"Y"
2'-0"	2'-5"	2'-2"
3'-0"	3'-5"	2'-2"
4'-0"	4'-5"	2'-2"
5'-0"	5'-5"	2'-2"



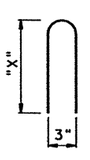
BARS K ~ #4
(Spa = 1'-0" Max)
(Length = 4'-3")



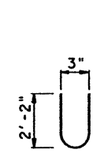
BARS C



BARS D

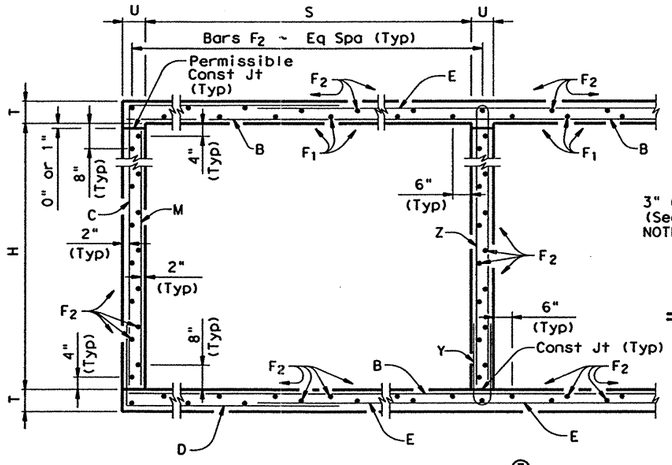


BARS Z



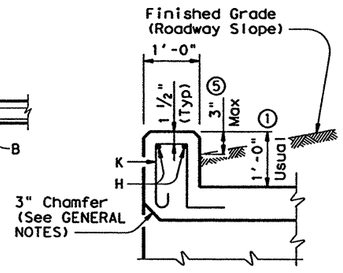
BARS Y

② Extend into slab.

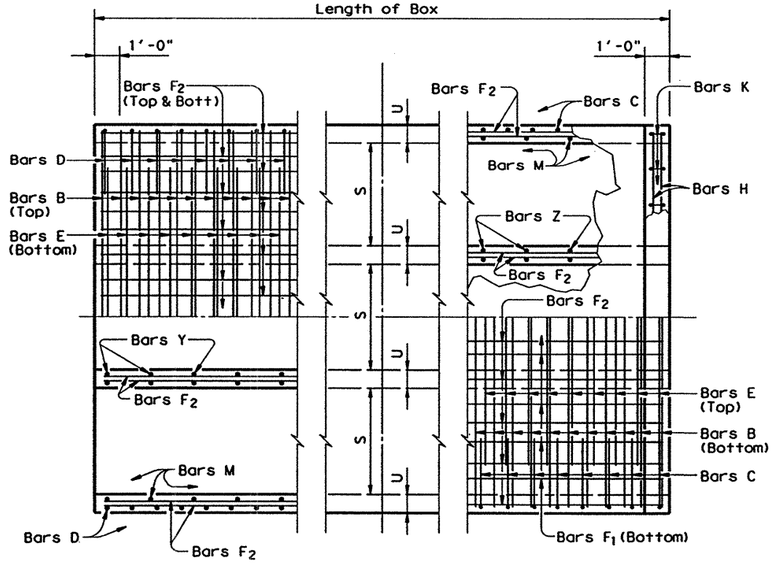


TYPICAL SECTION ③

③ Reinforcing shown for orientation purposes only. See table for number and spacing of bars.



SECTION THRU CURB



BOTTOM SLAB

TOP SLAB

PART PLANS ③

① 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details.

④ For curbs less than 1'-0" high, tilt bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, bars K may be omitted.

⑤ For vehicle safety, curb heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Designed for HS20 Loading and to the maximum fill height shown.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" concrete with a minimum 28 day compressive strength of 3600 psi; except for the top slab of direct traffic culverts, which shall be Class "S" concrete with a minimum 28 day compressive strength of 4000 psi.

The bottom edge of the top slab shall be chamfered 3" at the entrance.

Reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.

Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.

See standard MC-MD for skewed ends, angle sections and lengthening details.

For Direct Traffic, construct top slab to conform to crown of roadway while maintaining constant thickness of slab.

Bar Dimensions "X" and "Y" shall be adjusted as necessary.

The maximum permissible variation in dimension H is 6 inches.

HS20 LOADING

Texas Department of Transportation
Bridge Division

MULTIPLE BOX CULVERTS
5'-0" SPAN
DIRECT TRAFFIC TO 20' MAX FILL

MC-5-20

FILE: ~~mc520std.dgn~~	DN: GAF	CK: LMW	DW: BWH	CK: LDS
© TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	6	NH-2002 (79)		592
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/16/2003

HOUFILE023 \hcivil\cf0130\ b34mp130.dgn-01

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 31 41 51 61
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 43 53 63 73 83 94 04 14 24 34 44 54 64 74 84
95 05 15 25 35 45 55 65 75 85 96 06 16 26 36

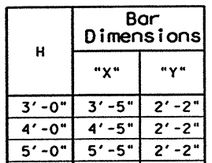
ACC:

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

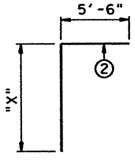
BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

NUMBER OF SPANS	SECTION DIMENSIONS				Bars B					Bars C & D						Bars E					Bars F_1 ~#4				Bars F_2 ~#4 at 1'-6" Max			Bars M~#4 at 1'-6" Max			Bars Y & Z~#4 at 1'-0" Max					Bars H 4~#4		Bars K		QUANTITIES Per foot of Barrel		Curb		Total	
	S	H	T	U	No.	Size	Spa	Length	Wt	No.	Size	Spa	Bar C Length	Bar C Wt	Bar D Length	Bar D Wt	No.	Size	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Length	Wt	No.	Length	Wt	No.	Bar Y Length	Bar Y Wt	Bar Z Length	Bar Z Wt	Length	Weight	No.	Weight	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
2	6'-0"	3'-0"	7"	7"	162	#5	6"	13'- 6"	2,281	162	#4	6"	8'-11"	965	7'- 8"	830	194	#5	5"	6'- 0"	1,214	16	9"	39'-9"	425	50	39'-9"	1,328	56	3'- 0"	112	41	4'- 6"	123	7'- 0"	192	13'- 6"	36	30	85	0.789	186.8	1.0	121	32.6	7,591
3	6'-0"	3'-0"	7"	7"	162	#5	6"	20'- 1"	3,393	162	#4	6"	8'-11"	965	7'- 8"	830	194	#5	5"	12'- 7"	2,546	24	9"	39'-9"	637	71	39'-9"	1,885	56	3'- 0"	112	82	4'- 6"	246	7'- 0"	383	20'- 1"	54	42	119	1.138	274.9	1.5	173	47.0	11,170
4	6'-0"	3'-0"	7"	7"	162	#5	6"	26'- 8"	4,506	162	#4	6"	8'-11"	965	7'- 8"	830	194	#5	5"	19'- 2"	3,878	32	9"	39'-9"	850	92	39'-9"	2,443	56	3'- 0"	112	123	4'- 6"	370	7'- 0"	575	26'- 8"	71	56	159	1.487	363.2	2.0	230	61.5	14,759
5	6'-0"	3'-0"	7"	7"	162	#5	6"	33'- 3"	5,618	162	#4	6"	8'-11"	965	7'- 8"	830	194	#5	5"	25'- 9"	5,210	40	9"	39'-9"	1,062	113	39'-9"	3,000	56	3'- 0"	112	164	4'- 6"	493	7'- 0"	767	33'- 3"	89	70	199	1.836	451.4	2.5	288	75.9	18,345
6	6'-0"	3'-0"	7"	7"	162	#5	6"	39'-10"	6,730	162	#4	6"	8'-11"	965	7'- 8"	830	194	#5	5"	32'- 4"	6,542	48	9"	39'-9"	1,275	134	39'-9"	3,558	56	3'- 0"	112	205	4'- 6"	616	7'- 0"	959	39'-10"	106	82	233	2.186	539.7	3.0	339	90.4	21,926
2	6'-0"	4'-0"	7"	7"	162	#5	6"	13'- 6"	2,281	162	#4	6"	9'-11"	1,073	7'- 8"	830	194	#5	5"	6'- 0"	1,214	16	9"	39'-9"	425	50	39'-9"	1,328	56	4'- 0"	150	41	4'- 6"	123	9'- 0"	246	13'- 6"	36	30	85	0.853	191.8	1.0	121	35.1	7,791
3	6'-0"	4'-0"	7"	7"	162	#5	6"	20'- 1"	3,393	162	#4	6"	9'-11"	1,073	7'- 8"	830	194	#5	5"	12'- 7"	2,546	24	9"	39'-9"	637	71	39'-9"	1,885	56	4'- 0"	150	82	4'- 6"	246	9'- 0"	493	20'- 1"	54	42	119	1.224	281.3	1.5	173	50.5	11,426
4	6'-0"	4'-0"	7"	7"	162	#5	6"	26'- 8"	4,506	162	#4	6"	9'-11"	1,073	7'- 8"	830	194	#5	5"	19'- 2"	3,878	32	9"	39'-9"	850	92	39'-9"	2,443	56	4'- 0"	150	123	4'- 6"	370	9'- 0"	739	26'- 8"	71	56	159	1.595	371.0	2.0	230	65.8	15,069
5	6'-0"	4'-0"	7"	7"	162	#5	6"	33'- 3"	5,618	162	#4	6"	9'-11"	1,073	7'- 8"	830	194	#5	5"	25'- 9"	5,210	40	9"	39'-9"	1,062	113	39'-9"	3,000	56	4'- 0"	150	164	4'- 6"	493	9'- 0"	986	33'- 3"	89	70	199	1.966	460.6	2.5	288	81.1	18,710
6	6'-0"	4'-0"	7"	7"	162	#5	6"	39'-10"	6,730	162	#4	6"	9'-11"	1,073	7'- 8"	830	194	#5	5"	32'- 4"	6,542	48	9"	39'-9"	1,275	134	39'-9"	3,558	56	4'- 0"	150	205	4'- 6"	616	9'- 0"	1,232	39'-10"	106	82	233	2.337	550.2	3.0	339	96.5	22,345
2	6'-0"	5'-0"	7"	7"	162	#5	6"	13'- 6"	2,281	162	#4	6"	10'-11"	1,181	7'- 8"	830	194	#5	5"	6'- 0"	1,214	16	9"	39'-9"	425	56	39'-9"	1,487	56	5'- 0"	187	41	4'- 6"	123	11'- 0"	301	13'- 6"	36	30	85	0.918	200.7	1.0	121	37.7	8,150
3	6'-0"	5'-0"	7"	7"	162	#5	6"	20'- 1"	3,393	162	#4	6"	10'-11"	1,181	7'- 8"	830	194	#5	5"	12'- 7"	2,546	24	9"	39'-9"	637	79	39'-9"	2,098	56	5'- 0"	187	82	4'- 6"	246	11'- 0"	603	20'- 1"	54	42	119	1.311	293.0	1.5	173	53.9	11,894
4	6'-0"	5'-0"	7"	7"	162	#5	6"	26'- 8"	4,506	162	#4	6"	10'-11"	1,181	7'- 8"	830	194	#5	5"	19'- 2"	3,878	32	9"	39'-9"	850	102	39'-9"	2,708	56	5'- 0"	187	123	4'- 6"	370	11'- 0"	904	26'- 8"	71	56	159	1.703	385.4	2.0	230	70.1	15,644
5	6'-0"	5'-0"	7"	7"	162	#5	6"	33'- 3"	5,618	162	#4	6"	10'-11"	1,181	7'- 8"	830	194	#5	5"	25'- 9"	5,210	40	9"	39'-9"	1,062	125	39'-9"	3,319	56	5'- 0"	187	164	4'- 6"	493	11'- 0"	1,205	33'- 3"	89	70	199	2.096	477.6	2.5	288	86.3	19,393
6	6'-0"	5'-0"	7"	7"	162	#5	6"	39'-10"	6,730	162	#4	6"	10'-11"	1,181	7'- 8"	830	194	#5	5"	32'- 4"	6,542	48	9"	39'-9"	1,275	148	39'-9"	3,930	56	5'- 0"	187	205	4'- 6"	616	11'- 0"	1,506	39'-10"	106	82	233	2.488	569.9	3.0	339	102.5	23,136
2	6'-0"	6'-0"	7"	7"	162	#5	6"	13'- 6"	2,281	194	#4	5"	11'-11"	1,544	7'- 8"	994	194	#5	5"	6'- 0"	1,214	16	9"	39'-9"	425	62	39'-9"	1,646	56	6'- 0"	224	41	4'- 6"	123	13'- 0"	356	13'- 6"	36	30	85	0.983	220.2	1.0	121	40.3	8,928
3	6'-0"	6'-0"	7"	7"	162	#5	6"	20'- 1"	3,393	194	#4	5"	11'-11"	1,544	7'- 8"	994	194	#5	5"	12'- 7"	2,546	24	9"	39'-9"	637	87	39'-9"	2,310	56	6'- 0"	224	82	4'- 6"	246	13'- 0"	712	20'- 1"	54	42	119	1.397	315.2	1.5	173	57.4	12,779
4	6'-0"	6'-0"	7"	7"	162	#5	6"	26'- 8"	4,506	194	#4	5"	11'-11"	1,544	7'- 8"	994	194	#5	5"	19'- 2"	3,878	32	9"	39'-9"	850	112	39'-9"	2,974	56	6'- 0"	224	123	4'- 6"	370	13'- 0"	1,068	26'- 8"	71	56	159	1.811	410.2	2.0	230	74.4	16,638
5	6'-0"	6'-0"	7"	7"	162	#5	6"	33'- 3"	5,618	194	#4	5"	11'-11"	1,544	7'- 8"	994	194	#5	5"	25'- 9"	5,210	40	9"	39'-9"	1,062	137	39'-9"	3,638	56	6'- 0"	224	164	4'- 6"	493	13'- 0"	1,424	33'- 3"	89	70	199	2.225	505.2	2.5	288	91.5	20,495
6	6'-0"	6'-0"	7"	7"	162	#5	6"	39'-10"	6,730	194	#4	5"	11'-11"	1,544	7'- 8"	994	194	#5	5"	32'- 4"	6,542	48	9"	39'-9"	1,275	162	39'-9"	4,302	56	6'- 0"	224	205	4'- 6"	616	13'- 0"	1,780	39'-10"	106	82	233	2.639	600.2	3.0	339	108.6	24,346

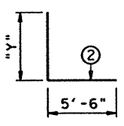
H	Bar Dimensions "X"	Bar Dimensions "Y"
3'-0"	3'-5"	2'-2"
4'-0"	4'-5"	2'-2"
5'-0"	5'-5"	2'-2"
6'-0"	6'-5"	2'-2"



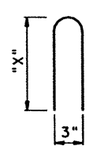
BARS K ~ #4
(Spa = 1'-0" Max)
(Length = 4'-3")



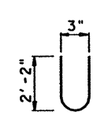
BARS C



BARS D

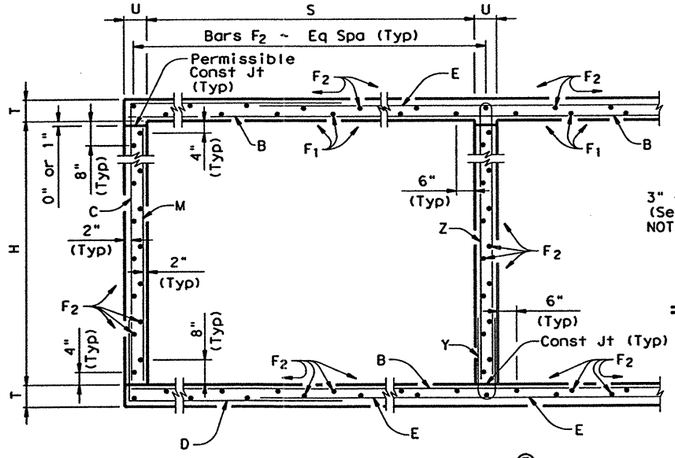


BARS Z



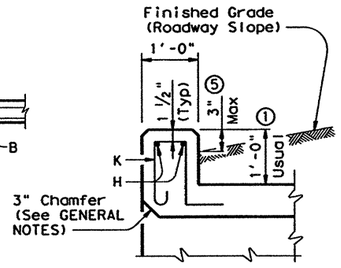
BARS Y

② Extend into slab.

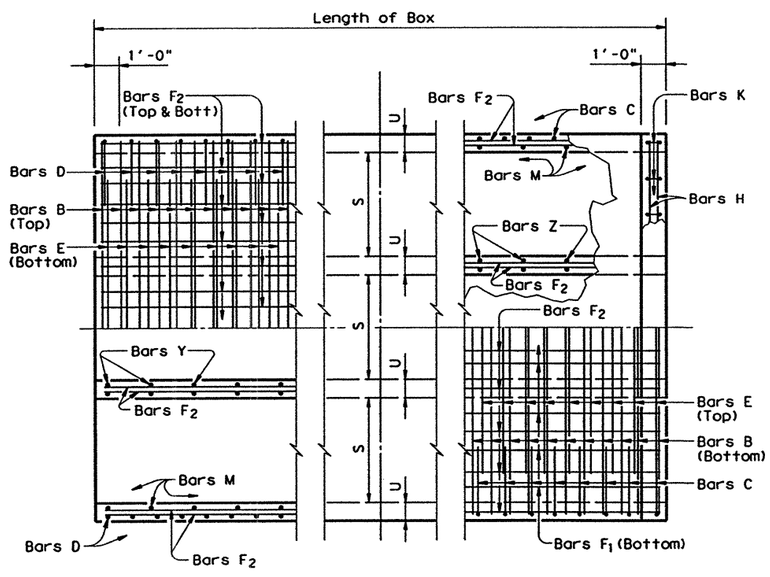


TYPICAL SECTION ③

③ Reinforcing shown for orientation purposes only. See table for number and spacing of bars.



SECTION THRU CURB



BOTTOM SLAB TOP SLAB

PART PLANS ③

① 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details.

④ For curbs less than 1'-0" high, tilt bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, bars K may be omitted.

⑤ For vehicle safety, curb heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Designed for HS20 Loading and to the maximum fill height shown.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" concrete with a minimum 28 day compressive strength of 3600 psi; except for the top slab of direct traffic culverts, which shall be Class "S" concrete with a minimum 28 day compressive strength of 4000 psi.

The bottom edge of the top slab shall be chamfered 3" at the entrance.

Reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.

Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.

See standard MC-MD for skewed ends, angle sections and lengthening details.

For Direct Traffic, construct top slab to conform to crown of roadway while maintaining constant thickness of slab. Bar Dimensions "X" and "Y" shall be adjusted as necessary. The maximum permissible variation in dimension H is 6 inches.

HS20 LOADING

Texas Department of Transportation
Bridge Division

MULTIPLE BOX CULVERTS
6'-0" SPAN
DIRECT TRAFFIC TO 16' MAX FILL

MC-6-16

FILE: ~~mc616ste.dgn~~	DN: GAF	CK: LMW	DW: BWH	CK: LDS
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		593
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cf0130\

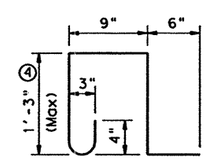
D34mop17.dgn-01

LEVELS DISPLAYED ACC:
1 2 3 4 5 6 7 8 9 10 11 12 31 41 51 61
71 81 91 92 121 122 123 124 125 126 127 128 129 303 312
331 345 361 731 835 940 941 942 943 944 945 946 947 948
951 952 953 954 955 956 957 958 959 960 961 962 963 1

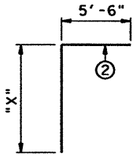
BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

NUMBER OF SPANS	SECTION DIMENSIONS				Bars B					Bars C & D							Bars E					Bars F_1 ~#4				Bars F_2 ~#4 at 1'-6" Max			Bars M~#4 at 1'-6" Max			Bars Y & Z~#4 at 10" Max					Bars H 4~#4		Bars K		QUANTITIES: Per foot of Barrel		Curb		Total	
													Bar C		Bar D																															
	S	H	T	U	No.	Size	Spa	Length	Wt	No.	Size	Spa	Length	Wt	Length	Wt	No.	Size	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Length	Wt	No.	Length	Wt	No.	Bar Y Length	Bar Y Wt	Bar Z Length	Bar Z Wt	Length	Weight	No.	Weight	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
2	7'-0"	3'-0"	7"	7"	194	#5	5"	15'- 6"	3,136	162	#4	6"	8'-11"	965	7'- 8"	830	194	#5	5"	8'- 0"	1,619	20	8"	39'-9"	531	54	39'-9"	1,434	56	3'- 0"	112	49	4'- 6"	147	7'- 0"	229	15'- 6"	41	34	97	0.875	225.1	1.2	138	36.2	9,141
3	7'-0"	3'-0"	7"	7"	194	#5	5"	23'- 1"	4,671	162	#4	6"	8'-11"	965	7'- 8"	830	194	#5	5"	15'- 7"	3,153	30	8"	39'-9"	797	77	39'-9"	2,045	56	3'- 0"	112	98	4'- 6"	295	7'- 0"	458	23'- 1"	62	48	136	1.267	333.2	1.7	198	52.4	13,524
4	7'-0"	3'-0"	7"	7"	194	#5	5"	30'- 8"	6,205	162	#4	6"	8'-11"	965	7'- 8"	830	194	#5	5"	23'- 2"	4,688	40	8"	39'-9"	1,062	100	39'-9"	2,655	56	3'- 0"	112	147	4'- 6"	442	7'- 0"	687	30'- 8"	82	64	182	1.660	441.2	2.3	264	68.7	17,910
5	7'-0"	3'-0"	7"	7"	194	#5	5"	38'- 3"	7,740	162	#4	6"	8'-11"	965	7'- 8"	830	194	#5	5"	30'- 9"	6,222	50	8"	39'-9"	1,328	123	39'-9"	3,266	56	3'- 0"	112	196	4'- 6"	589	7'- 0"	916	38'- 3"	102	80	227	2.052	549.2	2.9	329	85.0	22,297
6	7'-0"	3'-0"	7"	7"	194	#5	5"	45'-10"	9,274	162	#4	6"	8'-11"	965	7'- 8"	830	194	#5	5"	38'- 4"	7,756	60	8"	39'-9"	1,593	146	39'-9"	3,877	56	3'- 0"	112	245	4'- 6"	736	7'- 0"	1,146	45'-10"	122	94	267	2.445	657.2	3.4	389	101.2	26,678
2	7'-0"	4'-0"	7"	7"	194	#5	5"	15'- 6"	3,136	162	#4	6"	9'-11"	1,073	7'- 8"	830	194	#5	5"	8'- 0"	1,619	20	8"	39'-9"	531	54	39'-9"	1,434	56	4'- 0"	150	49	4'- 6"	147	9'- 0"	295	15'- 6"	41	34	97	0.940	230.4	1.2	138	38.8	9,353
3	7'-0"	4'-0"	7"	7"	194	#5	5"	23'- 1"	4,671	162	#4	6"	9'-11"	1,073	7'- 8"	830	194	#5	5"	15'- 7"	3,153	30	8"	39'-9"	797	77	39'-9"	2,045	56	4'- 0"	150	98	4'- 6"	295	9'- 0"	589	23'- 1"	62	48	136	1.354	340.1	1.7	198	55.9	13,801
4	7'-0"	4'-0"	7"	7"	194	#5	5"	30'- 8"	6,205	162	#4	6"	9'-11"	1,073	7'- 8"	830	194	#5	5"	23'- 2"	4,688	40	8"	39'-9"	1,062	100	39'-9"	2,655	56	4'- 0"	150	147	4'- 6"	442	9'- 0"	884	30'- 8"	82	64	182	1.768	449.7	2.3	264	73.0	18,253
5	7'-0"	4'-0"	7"	7"	194	#5	5"	38'- 3"	7,740	162	#4	6"	9'-11"	1,073	7'- 8"	830	194	#5	5"	30'- 9"	6,222	50	8"	39'-9"	1,328	123	39'-9"	3,266	56	4'- 0"	150	196	4'- 6"	589	9'- 0"	1,178	38'- 3"	102	80	227	2.182	559.4	2.9	329	90.2	22,705
6	7'-0"	4'-0"	7"	7"	194	#5	5"	45'-10"	9,274	162	#4	6"	9'-11"	1,073	7'- 8"	830	194	#5	5"	38'- 4"	7,756	60	8"	39'-9"	1,593	146	39'-9"	3,877	56	4'- 0"	150	245	4'- 6"	736	9'- 0"	1,473	45'-10"	122	94	267	2.596	669.1	3.4	389	107.2	27,151
2	7'-0"	5'-0"	7"	7"	194	#5	5"	15'- 6"	3,136	162	#4	6"	10'-11"	1,181	7'- 8"	830	194	#5	5"	8'- 0"	1,619	20	8"	39'-9"	531	60	39'-9"	1,593	56	5'- 0"	187	49	4'- 6"	147	11'- 0"	360	15'- 6"	41	34	97	1.005	239.6	1.2	138	41.4	9,722
3	7'-0"	5'-0"	7"	7"	194	#5	5"	23'- 1"	4,671	162	#4	6"	10'-11"	1,181	7'- 8"	830	194	#5	5"	15'- 7"	3,153	30	8"	39'-9"	797	85	39'-9"	2,257	56	5'- 0"	187	98	4'- 6"	295	11'- 0"	720	23'- 1"	62	48	136	1.440	352.3	1.7	198	59.3	14,289
4	7'-0"	5'-0"	7"	7"	194	#5	5"	30'- 8"	6,205	162	#4	6"	10'-11"	1,181	7'- 8"	830	194	#5	5"	23'- 2"	4,688	40	8"	39'-9"	1,062	110	39'-9"	2,921	56	5'- 0"	187	147	4'- 6"	442	11'- 0"	1,080	30'- 8"	82	64	182	1.876	464.9	2.3	264	77.3	18,860
5	7'-0"	5'-0"	7"	7"	194	#5	5"	38'- 3"	7,740	162	#4	6"	10'-11"	1,181	7'- 8"	830	194	#5	5"	30'- 9"	6,222	50	8"	39'-9"	1,328	135	39'-9"	3,585	56	5'- 0"	187	196	4'- 6"	589	11'- 0"	1,440	38'- 3"	102	80	227	2.312	577.6	2.9	329	95.4	23,431
6	7'-0"	5'-0"	7"	7"	194	#5	5"	45'-10"	9,274	162	#4	6"	10'-11"	1,181	7'- 8"	830	194	#5	5"	38'- 4"	7,756	60	8"	39'-9"	1,593	160	39'-9"	4,248	56	5'- 0"	187	245	4'- 6"	736	11'- 0"	1,800	45'-10"	122	94	267	2.747	690.1	3.4	389	113.3	27,994
2	7'-0"	6'-0"	7"	7"	194	#5	5"	15'- 6"	3,136	162	#4	6"	11'-11"	1,290	7'- 8"	830	194	#5	5"	8'- 0"	1,619	20	8"	39'-9"	531	66	39'-9"	1,752	56	6'- 0"	224	49	4'- 6"	147	13'- 0"	426	15'- 6"	41	34	97	1.069	248.9	1.2	138	44.0	10,093
3	7'-0"	6'-0"	7"	7"	194	#5	5"	23'- 1"	4,671	162	#4	6"	11'-11"	1,290	7'- 8"	830	194	#5	5"	15'- 7"	3,153	30	8"	39'-9"	797	93	39'-9"	2,469	56	6'- 0"	224	98	4'- 6"	295	13'- 0"	851	23'- 1"	62	48	136	1.527	364.5	1.7	198	62.8	14,778
4	7'-0"	6'-0"	7"	7"	194	#5	5"	30'- 8"	6,205	162	#4	6"	11'-11"	1,290	7'- 8"	830	194	#5	5"	23'- 2"	4,688	40	8"	39'-9"	1,062	120	39'-9"	3,186	56	6'- 0"	224	147	4'- 6"	442	13'- 0"	1,277	30'- 8"	82	64	182	1.984	480.1	2.3	264	81.7	19,468
5	7'-0"	6'-0"	7"	7"	194	#5	5"	38'- 3"	7,740	162	#4	6"	11'-11"	1,290	7'- 8"	830	194	#5	5"	30'- 9"	6,222	50	8"	39'-9"	1,328	147	39'-9"	3,903	56	6'- 0"	224	196	4'- 6"	589	13'- 0"	1,702	38'- 3"	102	80	227	2.441	595.7	2.9	329	100.5	24,157
6	7'-0"	6'-0"	7"	7"	194	#5	5"	45'-10"	9,274	162	#4	6"	11'-11"	1,290	7'- 8"	830	194	#5	5"	38'- 4"	7,756	60	8"	39'-9"	1,593	174	39'-9"	4,620	56	6'- 0"	224	245	4'- 6"	736	13'- 0"	2,128	45'-10"	122	94	267	2.899	711.3	3.4	389	119.4	28,840
2	7'-0"	7'-0"	7"	7"	194	#5	5"	15'- 6"	3,136	162	#4	6"	12'-11"	1,398	7'- 8"	830	194	#5	5"	8'- 0"	1,619	20	8"	39'-9"	531	66	39'-9"	1,752	56	7'- 0"	262	49	4'- 6"	147	15'- 0"	491	15'- 6"	41	34	97	1.134	254.2	1.2	138	46.6	10,304
3	7'-0"	7'-0"	7"	7"	194	#5	5"	23'- 1"	4,671	162	#4	6"	12'-11"	1,398	7'- 8"	830	194	#5	5"	15'- 7"	3,153	30	8"	39'-9"	797	93	39'-9"	2,469	56	7'- 0"	262	98	4'- 6"	295	15'- 0"	982	23'- 1"	62	48	136	1.613	371.4	1.7	198	66.2	15,055
4	7'-0"	7'-0"	7"	7"	194	#5	5"	30'- 8"	6,205	162	#4	6"	12'-11"	1,398	7'- 8"	830	194	#5	5"	23'- 2"	4,688	40	8"	39'-9"	1,062	120	39'-9"	3,186	56	7'- 0"	262	147	4'- 6"	442	15'- 0"	1,473	30'- 8"	82	64	182	2.092	488.7	2.3	264	86.0	19,810
5	7'-0"	7'-0"	7"	7"	194	#5	5"	38'- 3"	7,740	162	#4	6"	12'-11"	1,398	7'- 8"	830	194	#5	5"	30'- 9"	6,222	50	8"	39'-9"	1,328	147	39'-9"	3,903	56	7'- 0"	262	196	4'- 6"	589	15'- 0"	1,964	38'- 3"	102	80	227	2.571	605.9	2.9	329	105.7	24,565
6	7'-0"	7'-0"	7"	7"	194	#5	5"	45'-10"	9,274	162	#4	6"	12'-11"	1,398	7'- 8"	830	194	#5	5"	38'- 4"	7,756	60	8"	39'-9"	1,593	174	39'-9"	4,620	56	7'- 0"	262	245	4'- 6"	736	15'- 0"	2,455	45'-10"	122	94	267	3.050	723.1	3.4	389	125.4	29,313

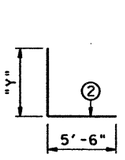
H	Bar Dimensions "X"	"Y"
3'-0"	3'-5"	2'-2"
4'-0"	4'-5"	2'-2"
5'-0"	5'-5"	2'-2"
6'-0"	6'-5"	2'-2"
7'-0"	7'-5"	2'-2"



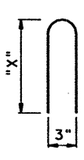
BARS K ~ #4
(Spa = 1'-0" Max)
(Length = 4'-3")



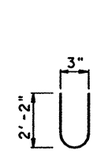
BARS C



BARS D

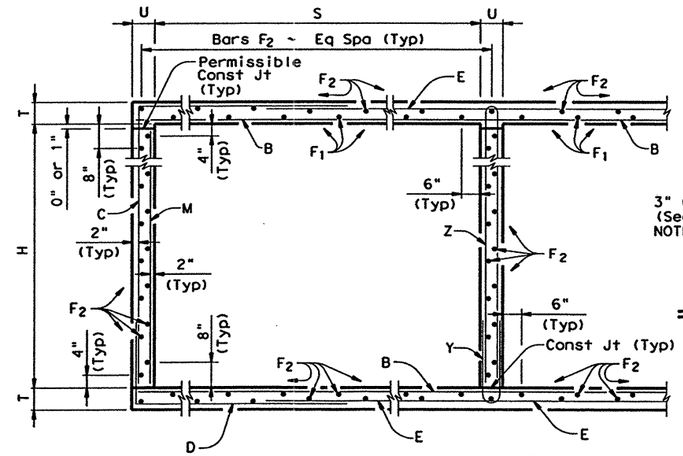


BARS Z



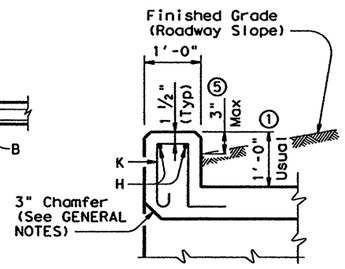
BARS Y

② Extend into slab.

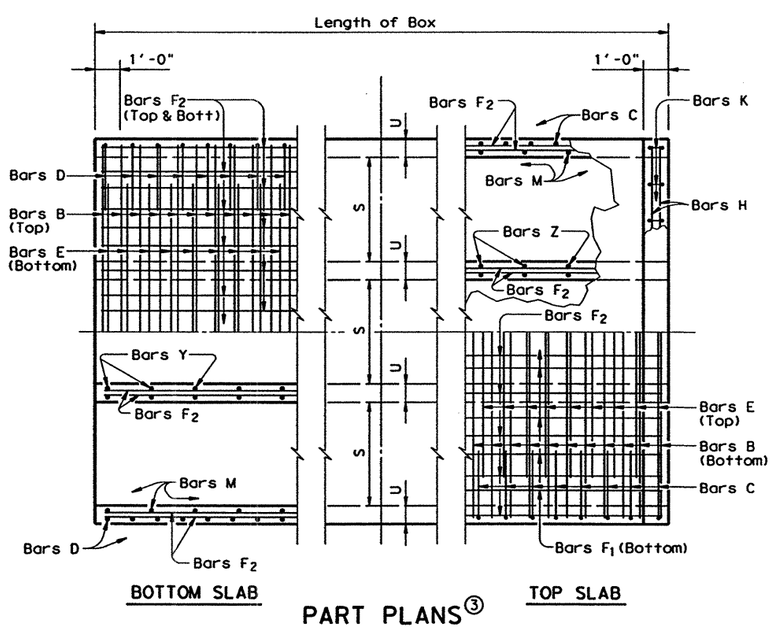


TYPICAL SECTION ③

③ Reinforcing shown for orientation purposes only. See table for number and spacing of bars.



SECTION THRU CURB



BOTTOM SLAB TOP SLAB

PART PLANS ③

① 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details.

④ For curbs less than 1'-0" high, tilt bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, bars K may be omitted.

⑤ For vehicle safety, curb heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Designed for HS20 Loading and to the maximum fill height shown.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" concrete with a minimum 28 day compressive strength of 3600 psi; except for the top slab of direct traffic culverts, which shall be Class "S" concrete with a minimum 28 day compressive strength of 4000 psi.

The bottom edge of the top slab shall be chamfered 3" at the entrance.

Reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.

Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.

See standard MC-MD for skewed ends, angle sections and lengthening details.

For Direct Traffic, construct top slab to conform to crown of roadway while maintaining constant thickness of slab. Bar Dimensions "X" and "Y" shall be adjusted as necessary. The maximum permissible variation in dimension H is 6 inches.

HS20 LOADING

Texas Department of Transportation
Bridge Division

MULTIPLE BOX CULVERTS
7'-0" SPAN
DIRECT TRAFFIC TO 10' MAX FILL

MC-7-10

FILE: mc710ste.dgn	DN: GAF	CK: LMW	DW: BWH	CK: LDS
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	6	NH-2002 (79)		594
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003

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DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS USED ACC:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

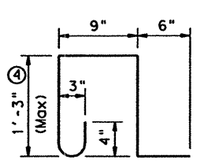
NUMBER OF SPANS	SECTION DIMENSIONS				Bars B				Bars C & D						Bars E				Bars F_1 ~#4				Bars F_2 ~#4 at 1'-6" Max			Bars M~#4 at 1'-6" Max			Bars Y & Z~#4 at 10" Max					Bars H 4~#4		Bars K	
												Bar C		Bar D																							
	S	H	T	U	No.	Size	Spa	Length	Wt	No.	Size	Spa	Length	Wt	Length	Wt	No.	Size	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Length	Wt	No.	Length	Wt	No.	Bar Y Length	Bar Y Wt	Bar Z Length	Bar Z Wt	Length	Weight	No.	Weight
2	8'-0"	4'-0"	8"	7"	162	#5	6"	17'- 6"	2,957	194	#4	5"	10'- 7"	1,372	8'- 4"	1,080	194	#6	5"	8'-10"	2,574	22	9"	39'-9"	584	56	39'-9"	1,487	56	4'- 0"	150	49	4'- 8"	153	9'- 2"	300	17'- 6"	47	38	108
3	8'-0"	4'-0"	8"	7"	162	#5	6"	26'- 1"	4,407	194	#4	5"	10'- 7"	1,372	8'- 4"	1,080	194	#6	5"	17'- 5"	5,075	36	8"	39'-9"	956	80	39'-9"	2,124	56	4'- 0"	150	98	4'- 8"	305	9'- 2"	600	26'- 1"	70	54	153
4	8'-0"	4'-0"	8"	7"	162	#5	6"	34'- 8"	5,857	194	#4	5"	10'- 7"	1,372	8'- 4"	1,080	194	#6	5"	26'- 0"	7,576	48	8"	39'-9"	1,275	104	39'-9"	2,762	56	4'- 0"	150	147	4'- 8"	458	9'- 2"	900	34'- 8"	93	72	204
5	8'-0"	4'-0"	8"	7"	162	#5	6"	43'- 3"	7,308	194	#4	5"	10'- 7"	1,372	8'- 4"	1,080	194	#6	5"	34'- 7"	10,077	60	8"	39'-9"	1,593	128	39'-9"	3,399	56	4'- 0"	150	196	4'- 8"	611	9'- 2"	1,200	43'- 3"	116	90	256
6	8'-0"	4'-0"	8"	7"	162	#5	6"	51'-10"	8,758	194	#4	5"	10'- 7"	1,372	8'- 4"	1,080	194	#6	5"	43'- 2"	12,578	72	8"	39'-9"	1,912	152	39'-9"	4,036	56	4'- 0"	150	245	4'- 8"	764	9'- 2"	1,500	51'-10"	138	106	301
2	8'-0"	5'-0"	8"	7"	194	#5	5"	17'- 6"	3,541	194	#4	5"	11'- 7"	1,501	8'- 4"	1,080	194	#6	5"	8'-10"	2,574	22	9"	39'-9"	584	62	39'-9"	1,646	56	5'- 0"	187	49	4'- 8"	153	11'- 2"	366	17'- 6"	47	38	108
3	8'-0"	5'-0"	8"	7"	194	#5	5"	26'- 1"	5,278	194	#4	5"	11'- 7"	1,501	8'- 4"	1,080	194	#6	5"	17'- 5"	5,075	36	8"	39'-9"	956	88	39'-9"	2,337	56	5'- 0"	187	98	4'- 8"	305	11'- 2"	731	26'- 1"	70	54	153
4	8'-0"	5'-0"	8"	7"	194	#5	5"	34'- 8"	7,015	194	#4	5"	11'- 7"	1,501	8'- 4"	1,080	194	#6	5"	26'- 0"	7,576	48	8"	39'-9"	1,275	114	39'-9"	3,027	56	5'- 0"	187	147	4'- 8"	458	11'- 2"	1,097	34'- 8"	93	72	204
5	8'-0"	5'-0"	8"	7"	194	#5	5"	43'- 3"	8,751	194	#4	5"	11'- 7"	1,501	8'- 4"	1,080	194	#6	5"	34'- 7"	10,077	60	8"	39'-9"	1,593	140	39'-9"	3,717	56	5'- 0"	187	196	4'- 8"	611	11'- 2"	1,462	43'- 3"	116	90	256
6	8'-0"	5'-0"	8"	7"	194	#5	5"	51'-10"	10,488	194	#4	5"	11'- 7"	1,501	8'- 4"	1,080	194	#6	5"	43'- 2"	12,578	72	8"	39'-9"	1,912	166	39'-9"	4,408	56	5'- 0"	187	245	4'- 8"	764	11'- 2"	1,828	51'-10"	138	106	301
2	8'-0"	6'-0"	8"	7"	194	#5	5"	17'- 6"	3,541	194	#4	5"	12'- 7"	1,631	8'- 4"	1,080	194	#6	5"	8'-10"	2,574	22	9"	39'-9"	584	68	39'-9"	1,806	56	6'- 0"	224	49	4'- 8"	153	13'- 2"	431	17'- 6"	47	38	108
3	8'-0"	6'-0"	8"	7"	194	#5	5"	26'- 1"	5,278	194	#4	5"	12'- 7"	1,631	8'- 4"	1,080	194	#6	5"	17'- 5"	5,075	36	8"	39'-9"	956	96	39'-9"	2,549	56	6'- 0"	224	98	4'- 8"	305	13'- 2"	862	26'- 1"	70	54	153
4	8'-0"	6'-0"	8"	7"	194	#5	5"	34'- 8"	7,015	194	#4	5"	12'- 7"	1,631	8'- 4"	1,080	194	#6	5"	26'- 0"	7,576	48	8"	39'-9"	1,275	124	39'-9"	3,293	56	6'- 0"	224	147	4'- 8"	458	13'- 2"	1,293	34'- 8"	93	72	204
5	8'-0"	6'-0"	8"	7"	194	#5	5"	43'- 3"	8,751	194	#4	5"	12'- 7"	1,631	8'- 4"	1,080	194	#6	5"	34'- 7"	10,077	60	8"	39'-9"	1,593	152	39'-9"	4,036	56	6'- 0"	224	196	4'- 8"	611	13'- 2"	1,724	43'- 3"	116	90	256
6	8'-0"	6'-0"	8"	7"	194	#5	5"	51'-10"	10,488	194	#4	5"	12'- 7"	1,631	8'- 4"	1,080	194	#6	5"	43'- 2"	12,578	72	8"	39'-9"	1,912	180	39'-9"	4,780	56	6'- 0"	224	245	4'- 8"	764	13'- 2"	2,155	51'-10"	138	106	301
2	8'-0"	7'-0"	8"	7"	194	#5	5"	17'- 6"	3,541	194	#4	5"	13'- 7"	1,760	8'- 4"	1,080	194	#6	5"	8'-10"	2,574	22	9"	39'-9"	584	68	39'-9"	1,806	56	7'- 0"	262	49	4'- 8"	153	15'- 2"	496	17'- 6"	47	38	108
3	8'-0"	7'-0"	8"	7"	194	#5	5"	26'- 1"	5,278	194	#4	5"	13'- 7"	1,760	8'- 4"	1,080	194	#6	5"	17'- 5"	5,075	36	8"	39'-9"	956	96	39'-9"	2,549	56	7'- 0"	262	98	4'- 8"	305	15'- 2"	993	26'- 1"	70	54	153
4	8'-0"	7'-0"	8"	7"	194	#5	5"	34'- 8"	7,015	194	#4	5"	13'- 7"	1,760	8'- 4"	1,080	194	#6	5"	26'- 0"	7,576	48	8"	39'-9"	1,275	124	39'-9"	3,293	56	7'- 0"	262	147	4'- 8"	458	15'- 2"	1,489	34'- 8"	93	72	204
5	8'-0"	7'-0"	8"	7"	194	#5	5"	43'- 3"	8,751	194	#4	5"	13'- 7"	1,760	8'- 4"	1,080	194	#6	5"	34'- 7"	10,077	60	8"	39'-9"	1,593	152	39'-9"	4,036	56	7'- 0"	262	196	4'- 8"	611	15'- 2"	1,986	43'- 3"	116	90	256
6	8'-0"	7'-0"	8"	7"	194	#5	5"	51'-10"	10,488	194	#4	5"	13'- 7"	1,760	8'- 4"	1,080	194	#6	5"	43'- 2"	12,578	72	8"	39'-9"	1,912	180	39'-9"	4,780	56	7'- 0"	262	245	4'- 8"	764	15'- 2"	2,482	51'-10"	138	106	301
2	8'-0"	8'-0"	8"	7"	194	#5	5"	17'- 6"	3,541	162	#5	6"	14'- 7"	2,464	8'- 9"	1,478	194	#6	5"	8'-10"	2,574	22	9"	39'-9"	584	74	39'-9"	1,965	56	8'- 0"	299	49	4'- 8"	153	17'- 2"	562	17'- 6"	47	38	108
3	8'-0"	8'-0"	8"	7"	194	#5	5"	26'- 1"	5,278	162	#5	6"	14'- 7"	2,464	8'- 9"	1,478	194	#6	5"	17'- 5"	5,075	36	8"	39'-9"	956	104	39'-9"	2,762	56	8'- 0"	299	98	4'- 8"	305	17'- 2"	1,124	26'- 1"	70	54	153
4	8'-0"	8'-0"	8"	7"	194	#5	5"	34'- 8"	7,015	162	#5	6"	14'- 7"	2,464	8'- 9"	1,478	194	#6	5"	26'- 0"	7,576	48	8"	39'-9"	1,275	134	39'-9"	3,558	56	8'- 0"	299	147	4'- 8"	458	17'- 2"	1,686	34'- 8"	93	72	204
5	8'-0"	8'-0"	8"	7"	194	#5	5"	43'- 3"	8,751	162	#5	6"	14'- 7"	2,464	8'- 9"	1,478	194	#6	5"	34'- 7"	10,077	60	8"	39'-9"	1,593	164	39'-9"	4,355	56	8'- 0"	299	196	4'- 8"	611	17'- 2"	2,248	43'- 3"	116	90	256
6	8'-0"	8'-0"	8"	7"	194	#5	5"	51'-10"	10,488	162	#5	6"	14'- 7"	2,464	8'- 9"	1,478	194	#6	5"	43'- 2"	12,578	72	8"	39'-9"	1,912	194	39'-9"	5,151	56	8'- 0"	299	245	4'- 8"	764	17'- 2"	2,809	51'-10"	138	106	301

QUANTITIES

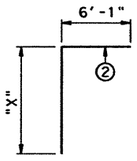
Per foot of Barrel		Curb		Total	
Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
1.136	266.4	1.3	155	46.7	10,812
1.646	401.7	2.0	223	67.8	16,292
2.156	535.8	2.6	297	88.8	21,727
2.667	669.8	3.2	372	109.9	27,162
3.177	803.8	3.9	439	131.0	32,589
1.201	290.8	1.3	155	49.3	11,787
1.733	436.3	2.0	223	71.3	17,673
2.264	580.4	2.6	297	93.2	23,513
2.796	724.5	3.2	372	115.0	29,351
3.328	868.7	3.9	439	137.0	35,185
1.265	300.6	1.3	155	51.9	12,179
1.819	449.0	2.0	223	74.8	18,183
2.372	596.1	2.6	297	97.5	24,142
2.926	743.2	3.2	372	120.2	30,099
3.479	890.3	3.9	439	143.1	36,051
1.330	306.4	1.3	155	54.5	12,411
1.905	456.5	2.0	223	78.2	18,481
2.480	605.2	2.6	297	101.8	24,505
3.056	753.9	3.2	372	125.4	30,528
3.631	902.7	3.9	439	149.1	36,545
1.395	340.5	1.3	155	57.1	13,775
1.992	493.5	2.0	223	81.7	19,964
2.588	645.2	2.6	297	106.1	26,106
3.185	796.9	3.2	372	130.6	32,248
3.782	948.6	3.9	439	155.2	38,382

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

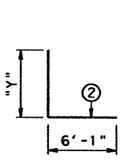
H	Bar Dimensions "X"	"Y"
4'-0"	4'-6"	2'-3"
5'-0"	5'-6"	2'-3"
6'-0"	6'-6"	2'-3"
7'-0"	7'-6"	2'-3"
8'-0"	8'-6"	2'-8"



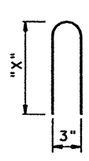
BARS K ~ #4
(Spa = 1'-0" Max)
(Length = 4'-3")



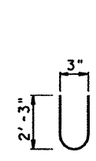
BARS C



BARS D

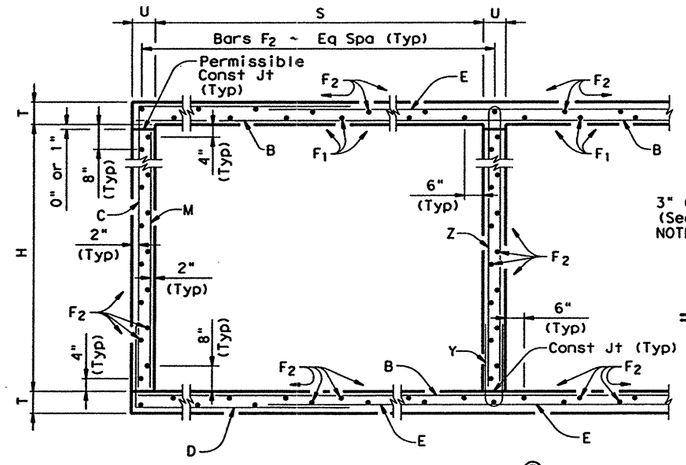


BARS Z



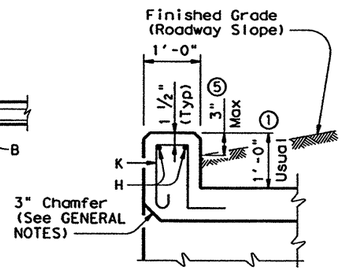
BARS Y

② Extend into slab.

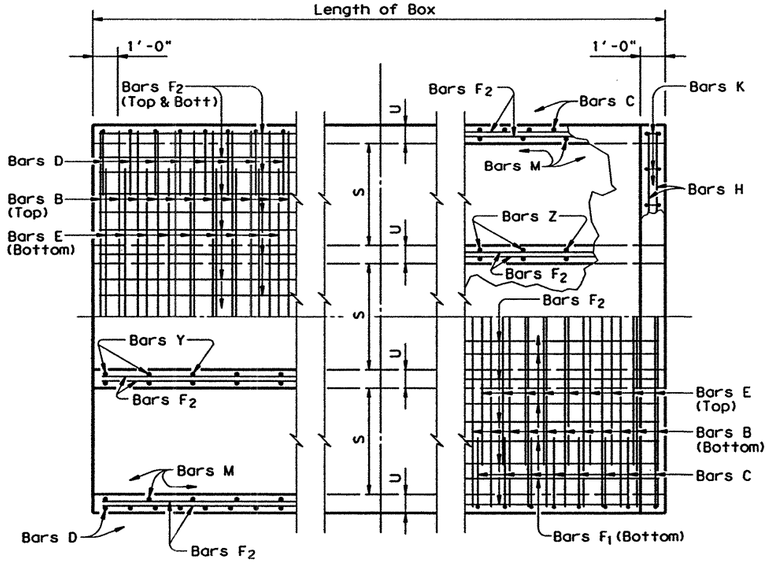


TYPICAL SECTION ③

③ Reinforcing shown for orientation purposes only. See table for number and spacing of bars.



SECTION THRU CURB



BOTTOM SLAB TOP SLAB

PART PLANS ③

① 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details.

④ For curbs less than 1'-0" high, tilt bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, bars K may be omitted.

⑤ For vehicle safety, curb heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Designed for HS20 Loading and to the maximum fill height shown.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" concrete with a minimum 28 day compressive strength of 3600 psi; except for the top slab of direct traffic culverts, which shall be Class "S" concrete with a minimum 28 day compressive strength of 4000 psi.

The bottom edge of the top slab shall be chamfered 3" at the entrance.

Reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.

Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.

See standard MC-MD for skewed ends, angle sections and lengthening details.

For Direct Traffic, construct top slab to conform to crown of roadway while maintaining constant thickness of slab. Bar Dimensions "X" and "Y" shall be adjusted as necessary. The maximum permissible variation in dimension H is 6 inches.

HS20 LOADING

Texas Department of Transportation
Bridge Division

MULTIPLE BOX CULVERTS
8'-0" SPAN
DIRECT TRAFFIC TO 13' MAX FILL

MC-8-13

FILE: ~~mc813ste.dgn~~	DN: GAF	CK: LMW	DW: BWH	CK: LDS
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	6	NH-2002 (79)		595
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

LEVELS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

4/18/2003

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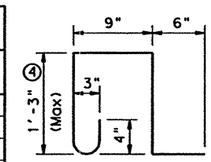
d34mp132.dgn-01

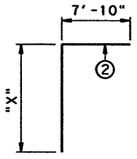
BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

NUMBER OF SPANS	SECTION DIMENSIONS				④Bars B				Bars C & D						Bars E					Bars F_1 ~#4				Bars F_2 ~#4 at 1'-6" Max			Bars M~#4 at 1'-6" Max			Bars Y & Z~#4 at 8" Max				⑥Bars H 4~#4		Bars K		QUANTITIES: Per foot of Barrel		Curb		Total	
	S	H	T	U	No.	Size	Spa	Length	Wt	No.	Size	Spa	Bar C Length	Bar C Wt	Bar D Length	Bar D Wt	No.	Size	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Length	Wt	No.	Length	Wt	Bar Y Length	Bar Y Wt	Bar Z Length	Bar Z Wt	Length	Weight	No.	Weight	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
2	10'-0"	5'-0"	8"	7"	162	#6	6"	21'- 6"	5,231	194	#4	5"	13'- 4"	1,728	10'- 1"	1,307	162	#6	6"	11'- 0"	2,677	30	8"	39'-9"	797	72	39'-9"	1,912	56	5'- 0"	187	61	4'- 8"	190	11'- 2"	455	21'- 6"	57	46	131	1.398	362.1	1.6	188	57.5	14,672
3	10'-0"	5'-0"	8"	7"	162	#6	6"	32'- 1"	7,807	194	#4	5"	13'- 4"	1,728	10'- 1"	1,307	162	#6	6"	21'- 7"	5,252	45	8"	39'-9"	1,195	103	39'-9"	2,735	56	5'- 0"	187	122	4'- 8"	380	11'- 2"	910	32'- 1"	86	66	187	2.029	537.5	2.4	273	83.6	21,774
4	10'-0"	5'-0"	8"	7"	162	#6	6"	42'- 8"	10,382	194	#4	5"	13'- 4"	1,728	10'- 1"	1,307	162	#6	6"	32'- 2"	7,827	60	8"	39'-9"	1,593	134	39'-9"	3,558	56	5'- 0"	187	183	4'- 8"	570	11'- 2"	1,365	42'- 8"	114	88	250	2.659	712.9	3.2	364	109.6	28,881
5	10'-0"	5'-0"	8"	7"	162	#6	6"	53'- 3"	12,957	194	#4	5"	13'- 4"	1,728	10'- 1"	1,307	162	#6	6"	42'- 9"	10,402	75	8"	39'-9"	1,991	165	39'-9"	4,381	56	5'- 0"	187	244	4'- 8"	761	11'- 2"	1,820	53'- 3"	142	110	312	3.290	888.4	4.0	454	135.6	35,988
6	10'-0"	5'-0"	8"	7"	162	#6	6"	66'- 5"	16,161	194	#4	5"	13'- 4"	1,728	10'- 1"	1,307	162	#6	6"	53'- 4"	12,977	90	8"	39'-9"	2,390	196	39'-9"	5,204	56	5'- 0"	187	305	4'- 8"	951	11'- 2"	2,275	65'- 7"	175	130	369	3.921	1,079.5	4.7	544	161.5	43,724
2	10'-0"	6'-0"	8"	7"	162	#6	6"	21'- 6"	5,231	194	#4	5"	14'- 4"	1,857	10'- 1"	1,307	162	#6	6"	11'- 0"	2,677	30	8"	39'-9"	797	78	39'-9"	2,071	56	6'- 0"	224	61	4'- 8"	190	13'- 2"	537	21'- 6"	57	46	131	1.463	372.3	1.6	188	60.1	15,079
3	10'-0"	6'-0"	8"	7"	162	#6	6"	32'- 1"	7,807	194	#4	5"	14'- 4"	1,857	10'- 1"	1,307	162	#6	6"	21'- 7"	5,252	45	8"	39'-9"	1,195	111	39'-9"	2,947	56	6'- 0"	224	122	4'- 8"	380	13'- 2"	1,073	32'- 1"	86	66	187	2.115	551.1	2.4	273	87.0	22,315
4	10'-0"	6'-0"	8"	7"	162	#6	6"	42'- 8"	10,382	194	#4	5"	14'- 4"	1,857	10'- 1"	1,307	162	#6	6"	32'- 2"	7,827	60	8"	39'-9"	1,593	144	39'-9"	3,824	56	6'- 0"	224	183	4'- 8"	570	13'- 2"	1,610	42'- 8"	114	88	250	2.767	729.9	3.2	364	113.9	29,558
5	10'-0"	6'-0"	8"	7"	162	#6	6"	53'- 3"	12,957	194	#4	5"	14'- 4"	1,857	10'- 1"	1,307	162	#6	6"	42'- 9"	10,402	75	8"	39'-9"	1,991	177	39'-9"	4,700	56	6'- 0"	224	244	4'- 8"	761	13'- 2"	2,146	53'- 3"	142	110	312	3.420	908.6	4.0	454	140.8	36,799
6	10'-0"	6'-0"	8"	7"	162	#6	6"	66'- 5"	16,161	194	#4	5"	14'- 4"	1,857	10'- 1"	1,307	162	#6	6"	53'- 4"	12,977	90	8"	39'-9"	2,390	210	39'-9"	5,576	56	6'- 0"	224	305	4'- 8"	951	13'- 2"	2,683	65'- 7"	175	130	369	4.072	1,103.2	4.7	544	167.6	44,670
2	10'-0"	7'-0"	8"	7"	162	#6	6"	21'- 6"	5,231	194	#4	5"	15'- 4"	1,987	10'- 1"	1,307	162	#6	6"	11'- 0"	2,677	30	8"	39'-9"	797	78	39'-9"	2,071	56	7'- 0"	262	61	4'- 8"	190	15'- 2"	618	21'- 6"	57	46	131	1.528	378.5	1.6	188	62.7	15,328
3	10'-0"	7'-0"	8"	7"	162	#6	6"	32'- 1"	7,807	194	#4	5"	15'- 4"	1,987	10'- 1"	1,307	162	#6	6"	21'- 7"	5,252	45	8"	39'-9"	1,195	111	39'-9"	2,947	56	7'- 0"	262	122	4'- 8"	380	15'- 2"	1,236	32'- 1"	86	66	187	2.202	559.3	2.4	273	90.5	22,646
4	10'-0"	7'-0"	8"	7"	162	#6	6"	42'- 8"	10,382	194	#4	5"	15'- 4"	1,987	10'- 1"	1,307	162	#6	6"	32'- 2"	7,827	60	8"	39'-9"	1,593	144	39'-9"	3,824	56	7'- 0"	262	183	4'- 8"	570	15'- 2"	1,854	42'- 8"	114	88	250	2.876	740.2	3.2	364	118.2	29,970
5	10'-0"	7'-0"	8"	7"	162	#6	6"	53'- 3"	12,957	194	#4	5"	15'- 4"	1,987	10'- 1"	1,307	162	#6	6"	42'- 9"	10,402	75	8"	39'-9"	1,991	177	39'-9"	4,700	56	7'- 0"	262	244	4'- 8"	761	15'- 2"	2,472	53'- 3"	142	110	312	3.549	921.0	4.0	454	146.0	37,293
6	10'-0"	7'-0"	8"	7"	162	#6	6"	66'- 5"	16,161	194	#4	5"	15'- 4"	1,987	10'- 1"	1,307	162	#6	6"	53'- 4"	12,977	90	8"	39'-9"	2,390	210	39'-9"	5,576	56	7'- 0"	262	305	4'- 8"	951	15'- 2"	3,090	65'- 7"	175	130	369	4.223	1,117.5	4.7	544	173.6	45,245
2	10'-0"	8'-0"	8"	7"	162	#6	6"	21'- 6"	5,231	194	#4	5"	16'- 4"	2,117	10'- 1"	1,307	162	#6	6"	11'- 0"	2,677	30	8"	39'-9"	797	84	39'-9"	2,230	56	8'- 0"	299	61	4'- 8"	190	17'- 2"	700	21'- 6"	57	46	131	1.593	388.7	1.6	188	65.3	15,736
3	10'-0"	8'-0"	8"	7"	162	#6	6"	32'- 1"	7,807	194	#4	5"	16'- 4"	2,117	10'- 1"	1,307	162	#6	6"	21'- 7"	5,252	45	8"	39'-9"	1,195	119	39'-9"	3,160	56	8'- 0"	299	122	4'- 8"	380	17'- 2"	1,399	32'- 1"	86	66	187	2.288	572.9	2.4	273	93.9	23,189
4	10'-0"	8'-0"	8"	7"	162	#6	6"	42'- 8"	10,382	194	#4	5"	16'- 4"	2,117	10'- 1"	1,307	162	#6	6"	32'- 2"	7,827	60	8"	39'-9"	1,593	154	39'-9"	4,089	56	8'- 0"	299	183	4'- 8"	570	17'- 2"	2,099	42'- 8"	114	88	250	2.984	757.1	3.2	364	122.6	30,647
5	10'-0"	8'-0"	8"	7"	162	#6	6"	53'- 3"	12,957	194	#4	5"	16'- 4"	2,117	10'- 1"	1,307	162	#6	6"	42'- 9"	10,402	75	8"	39'-9"	1,991	189	39'-9"	5,019	56	8'- 0"	299	244	4'- 8"	761	17'- 2"	2,798	53'- 3"	142	110	312	3.679	941.3	4.0	454	151.2	38,105
6	10'-0"	8'-0"	8"	7"	162	#6	6"	66'- 5"	16,161	194	#4	5"	16'- 4"	2,117	10'- 1"	1,307	162	#6	6"	53'- 4"	12,977	90	8"	39'-9"	2,390	224	39'-9"	5,948	56	8'- 0"	299	305	4'- 8"	951	17'- 2"	3,498	65'- 7"	175	130	369	4.374	1,141.2	4.7	544	179.7	46,192
2	10'-0"	9'-0"	8"	7"	162	#6	6"	21'- 6"	5,231	194	#4	5"	17'- 4"	2,246	10'- 1"	1,307	162	#6	6"	11'- 0"	2,677	30	8"	39'-9"	797	90	39'-9"	2,390	56	9'- 0"	337	61	4'- 8"	190	19'- 2"	781	21'- 6"	57	46	131	1.657	398.9	1.6	188	67.9	16,144
3	10'-0"	9'-0"	8"	7"	162	#6	6"	32'- 1"	7,807	194	#4	5"	17'- 4"	2,246	10'- 1"	1,307	162	#6	6"	21'- 7"	5,252	45	8"	39'-9"	1,195	127	39'-9"	3,372	56	9'- 0"	337	122	4'- 8"	380	19'- 2"	1,562	32'- 1"	86	66	187	2.374	586.5	2.4	273	97.4	23,731
4	10'-0"	9'-0"	8"	7"	162	#6	6"	42'- 8"	10,382	194	#4	5"	17'- 4"	2,246	10'- 1"	1,307	162	#6	6"	32'- 2"	7,827	60	8"	39'-9"	1,593	164	39'-9"	4,355	56	9'- 0"	337	183	4'- 8"	570	19'- 2"	2,343	42'- 8"	114	88	250	3.092	774.0	3.2	364	126.9	31,324
5	10'-0"	9'-0"	8"	7"	162	#6	6"	53'- 3"	12,957	194	#4	5"	17'- 4"	2,246	10'- 1"	1,307	162	#6	6"	42'- 9"	10,402	75	8"	39'-9"	1,991	201	39'-9"	5,337	56	9'- 0"	337	244	4'- 8"	761	19'- 2"	3,124	53'- 3"	142	110	312	3.809	961.6	4.0	454	156.4	38,916
6	10'-0"	9'-0"	8"	7"	162	#6	6"	66'- 5"	16,161	162	#5	6"	17'- 4"	2,929	10'- 6"	1,774	162	#6	6"	53'- 4"	12,977	90	8"	39'-9"	2,390	238	39'-9"	6,320	56	9'- 0"	337	305	4'- 8"	951	19'- 2"	3,905	65'- 7"	175	130	369	4.526	1,193.6	4.7	544	185.7	48,288
2	10'-0"	10'-0"	8"	7"	162	#6	6"	21'- 6"	5,231	162	#5	6"	18'- 4"	3,098	10'- 6"	1,774	162	#6	6"	11'- 0"	2,677	30	8"	39'-9"	797	90	39'-9"	2,390	56	10'- 0"	374	61	4'- 8"	190	21'- 2"	862	21'- 6"	57	46	131	1.722	434.8	1.6	188	70.5	17,581
3	10'-0"	10'-0"	8"	7"	162	#6	6"	32'- 1"	7,807	162	#5	6"	18'- 4"	3,098	10'- 6"	1,774	162	#6	6"	21'- 7"	5,252	45	8"	39'-9"	1,195	127	39'-9"	3,372	56	10'- 0"	374	122	4'- 8"	380	21'- 2"	1,725	32'- 1"	86	66	187	2.461	624.4	2.4	273	100.8	25,250
4	10'-0"	10'-0"	8"	7"	162	#6	6"	42'- 8"	10,382	162	#5	6"	18'- 4"	3,098	10'- 6"	1,774	162	#6	6"	32'- 2"	7,827	60	8"	39'-9"	1,593	164	39'-9"	4,355	56	10'- 0"	374	183	4'- 8"	570	21'- 2"	2,587	42'- 8"	114	88	250	3.200	814.0	3.2	364	131.2	32,924
5	10'-0"	10'-0"	8"	7"	162	#6	6"	53'- 3"	12,957	162	#5	6"	18'- 4"	3,098	10'- 6"	1,774	162	#6	6"	42'- 9"	10,402	75	8"	39'-9"	1,991	201	39'-9"	5,337	56	10'- 0"	374	244	4'- 8"	761	21'- 2"	3,450	53'- 3"	142	110	312	3.938	1,003.6	4.0	454	161.5	40,598
6	10'-0"	10'-0"	8"	7"	162	#6	6"	66'- 5"	16,161	162	#5	6"	18'- 4"	3,098	10'- 6"	1,774	162	#6	6"	53'- 4"	12,977	90	8"	39'-9"	2,390	238	39'-9"	6,320	56	10'- 0"	374	305	4'- 8"	951	21'- 2"	4,312	65'- 7"	175	130	369	4.677	1,208.9	4.7	544	191.8	48,901

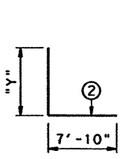
H	Bar Dimensions "X"	Bar Dimensions "Y"
5'-0"	5'-6"	2'- 3"
6'-0"	6'-6"	2'- 3"
7'-0"	7'-6"	2'- 3"
8'-0"	8'-6"	2'- 3"
9'-0"	9'-6"	2'- 3"
10'-0"	10'-6"	2'- 8"



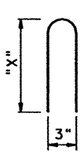
BARS K ~ #4
(Spa = 1'-0" Max)
(Length = 4'-3")



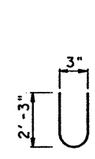
BARS C



BARS D

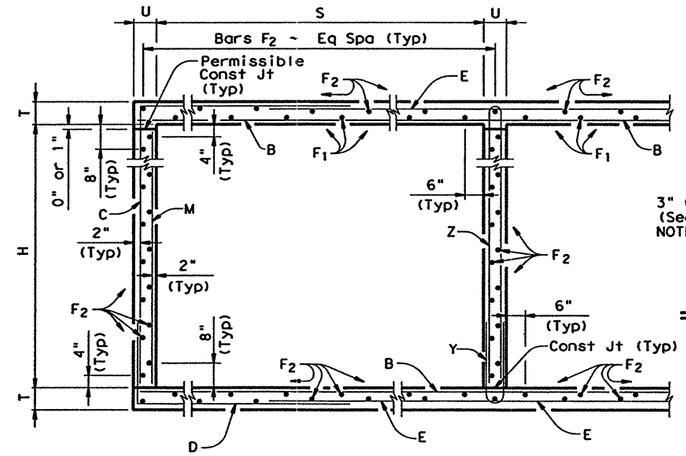


BARS Z

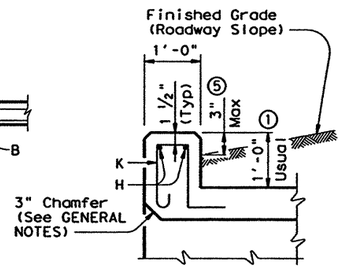


BARS Y

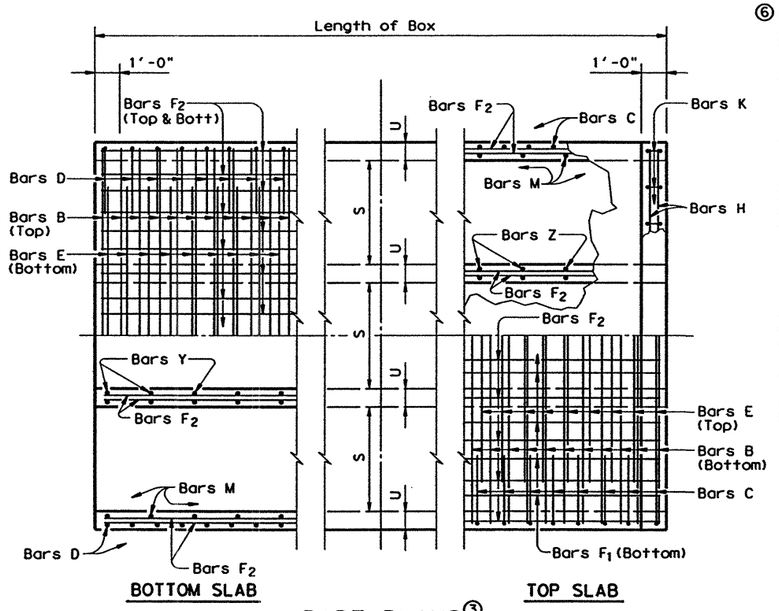
② Extend into slab.



TYPICAL SECTION③



SECTION THRU CURB



BOTTOM SLAB

TOP SLAB

PART PLANS③

⑥ Bar lengths over 60' include one bar lap as follows:
#4 = 1'-9", #5 = 2'-2", & #6 = 2'-7"
For Epoxy coated reinforcing, bar laps shall be as follows:
#4 = 2'-7", #5 = 3'-3", & #6 = 3'-10"

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Designed for HS20 Loading and to the maximum fill height shown.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" concrete with a minimum 28 day compressive strength of 3600 psi; except for the top slab of direct traffic culverts, which shall be Class "S" concrete with a minimum 28 day compressive strength of 4000 psi.

The bottom edge of the top slab shall be chamfered 3" at the entrance.

Reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.

Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.

See standard MC-MD for skewed ends, angle sections and lengthening details.

For Direct Traffic, construct top slab to conform to crown of roadway while maintaining constant thickness of slab.

Bar Dimensions "X" and "Y" shall be adjusted as necessary.

The maximum permissible variation in dimension H is 6 inches.

HS20 LOADING

① 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details.

④ For curbs less than 1'-0" high, tilt bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, bars K may be omitted.

⑤ For vehicle safety, curb heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

③ Reinforcing shown for orientation purposes only. See table for number and spacing of bars.

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS ...erLAYED
ACC:

Texas Department of Transportation
Bridge Division

MULTIPLE BOX CULVERTS
10'-0" SPAN
DIRECT TRAFFIC TO 7' MAX FILL

MC-10-7

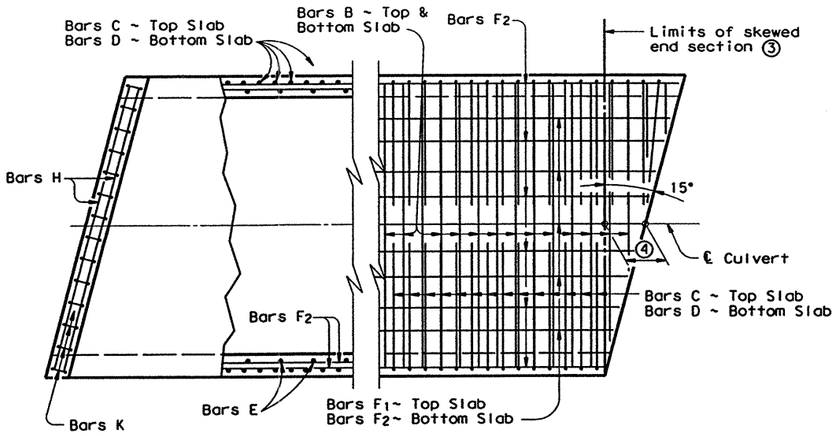
FILE: mc10to7e.dgn	DN: GAF	CK: LWW	DW: BWH	CK: LDS
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	6	NH-2002 (79)		596
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003

HOUFILE023 \hci\vl\cf0130\

D34mp129.dgn-01

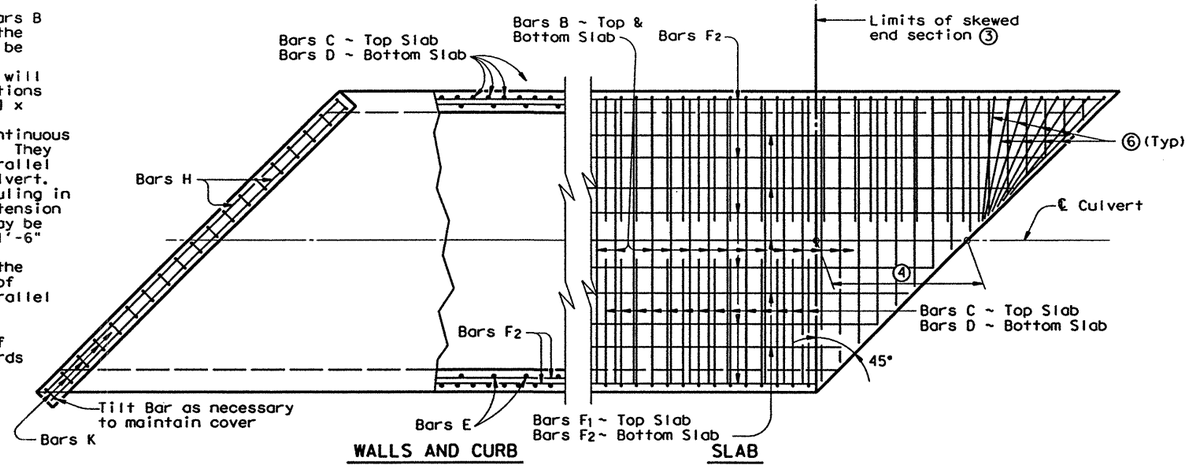
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



WALLS AND CURB SLAB

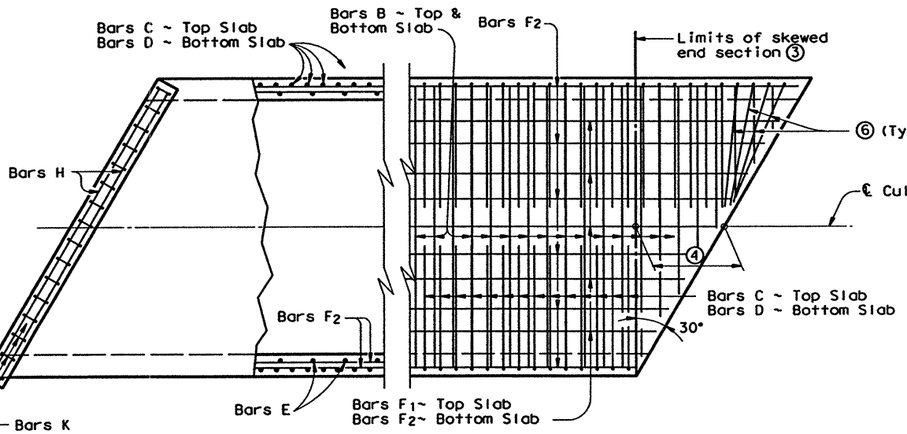
PLAN OF SKEWED ENDS ~ 15°⑦

② When the spacing between Bars B becomes less than half of the normal spacing, bars shall be cut to avoid fouling
③ The length of Bars B and E will vary in the skewed end sections
④ [One half of overall width] x [Tan of the skew angle]
⑤ Bars F_1 and F_2 shall be continuous through the angle section. They shall be bent to remain parallel to the walls of the Box Culvert.
⑥ When necessary to avoid fouling in acute corners, the slab extension leg of Bars C and Bars D may be shortened to a minimum of 1'-6" for skews of 30° and 45°.
⑦ For skews of 15° or less, the contractor has the option of placing Bars B, C and D parallel to the skewed end while maintaining spacing along centerline box. Lengths of Bars B shown on the standards shall be increased to accommodate the skew.



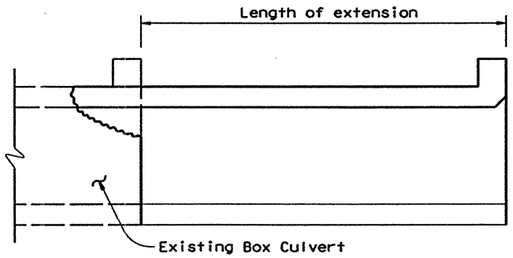
WALLS AND CURB SLAB

PLAN OF SKEWED ENDS ~ 45°



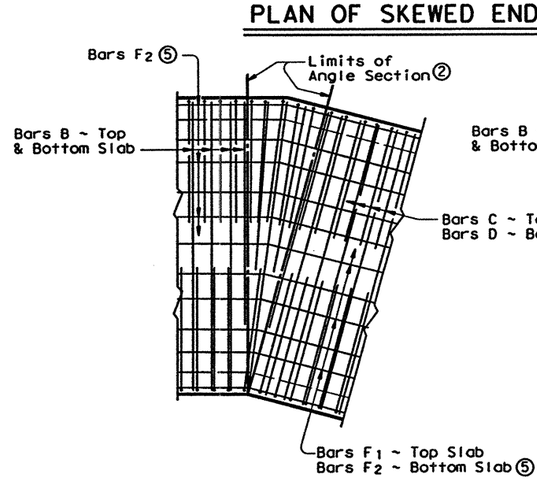
WALLS AND CURB SLAB

PLAN OF SKEWED ENDS ~ 30°

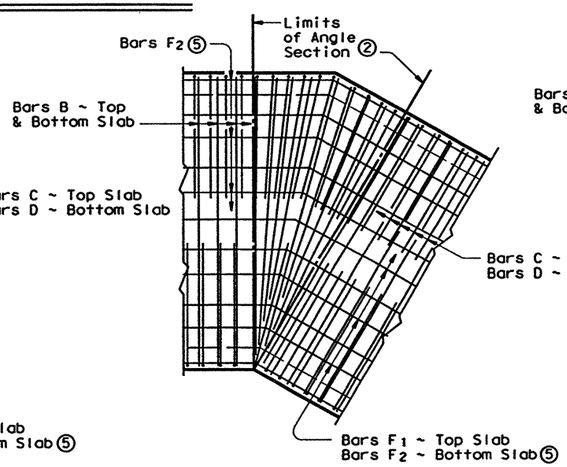


LENGTHENING DETAIL①

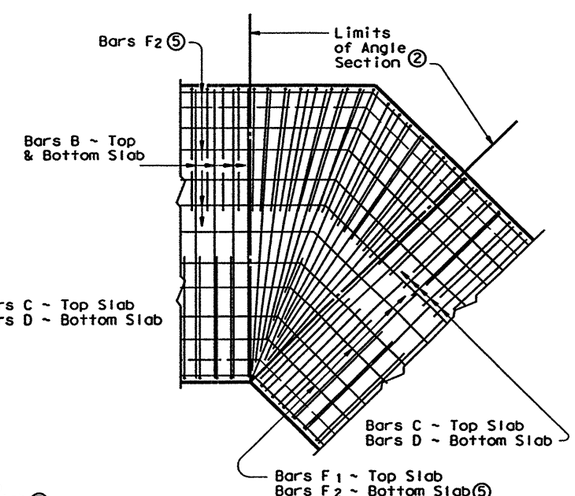
① For box culverts with less than 2'-0" of fill, the top slab shall be broken back to provide a minimum 1'-10" lap of the existing longitudinal bars with the longitudinal bars in the extension. If the depth of fill is 2'-0" or greater, the top slab shall be broken back to provide a 1'-0" minimum embedment of existing longitudinal reinforcing into the extension. Alternatively, if the fill height is greater than 2'-0", the existing curb may be left in place and 2'-0" long #6 bars shall be drilled and grouted 1'-0" into the existing top slab at 1'-6" center to center spacing. Wings and apron shall be broken back as necessary to install the extension. Exposed wingwall and apron reinforcing may be removed or cleaned and included in the extension. When lengthening existing box culverts with dimensions different than current standard dimensions, horizontal and vertical transitions shall be formed as directed by the Engineer. Bottom slabs shall match to maintain an uninterrupted flow line. Existing and new reinforcing shall be field bent into transition maintaining specified cover requirements. For direct traffic culverts, the "H" dimension may be adjusted to provide a smooth riding surface.



PLAN OF ANGLE SECTION ~ 15°



PLAN OF ANGLE SECTION ~ 30°



PLAN OF ANGLE SECTION ~ 45°

GENERAL NOTES:
Designed according to current AASHTO Standard and Interim Specifications.
Designed for HS20 loading.
All reinforcing steel shall be Grade 60.
All concrete shall be Class "C" concrete with a minimum 28 day compressive strength of 3600 psi; except for the top slab of direct traffic culverts, which shall be Class "S" concrete with a minimum 28 day compressive strength of 4000 psi.
Refer to Single Box Culverts Cast-in-Place standard for details of straight sections of culvert. For skewed sections and angle sections refer to Single Box Culverts Cast-in-Place standard for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown. For Skewed ends with curbs, adjust length of Bars H, number of Bars K, curb concrete volume and reinforcing steel weight by dividing the values shown on the culvert standards by the cosine of the skew angle.
Laps for Bars H, when required, shall be 1'-9" for uncoated bars and 2'-7" for epoxy coated.

HS20 LOADING

Texas Department of Transportation
Bridge Division

SINGLE BOX CULVERTS CAST-IN-PLACE MISCELLANEOUS DETAILS

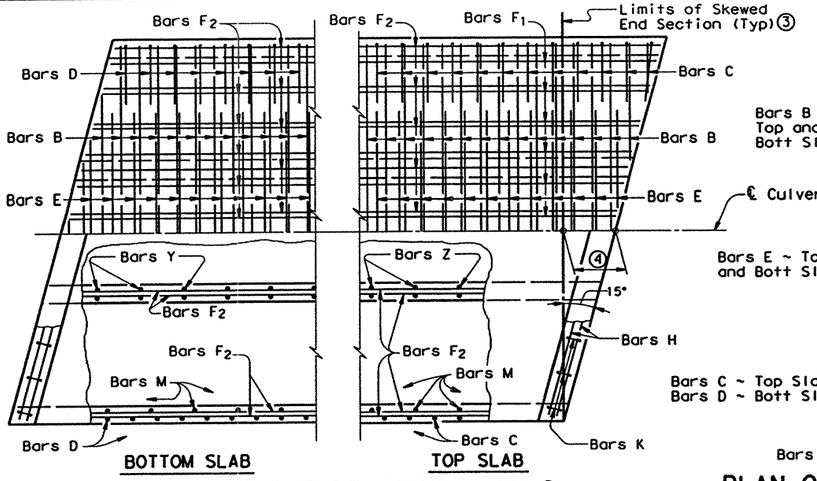
SCC-MD

FILE: sccmd1ster.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: LDS
© TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		597
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

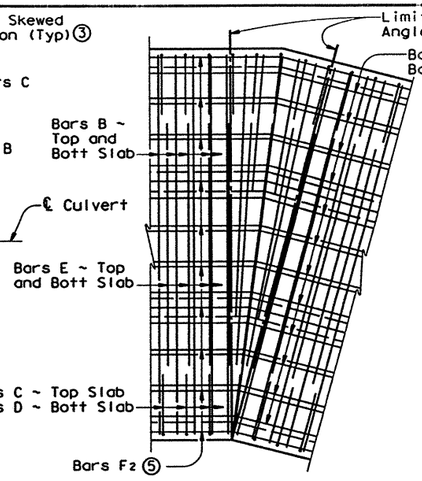
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

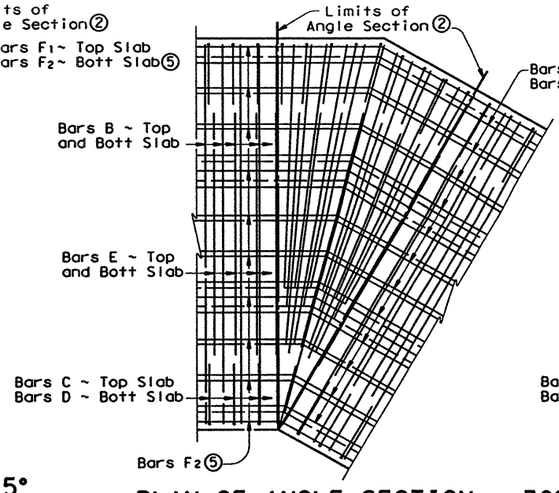
4/19/2003
HOUFILE023 \hcivil\cf0130\ d34mp180.dgn-01



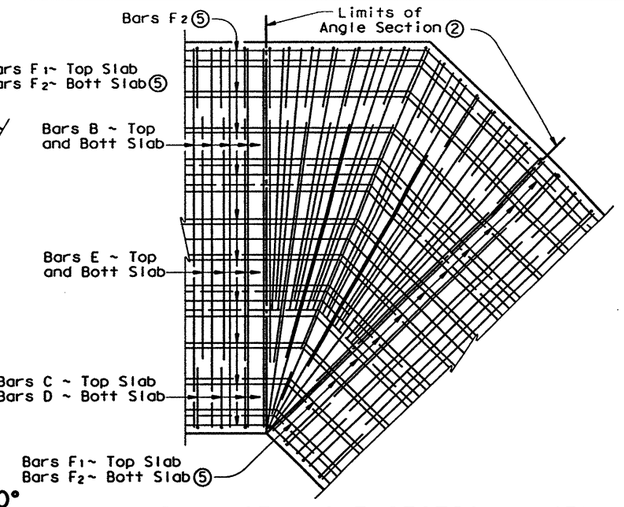
PLAN OF SKEWED ENDS ~ 15° ⑦



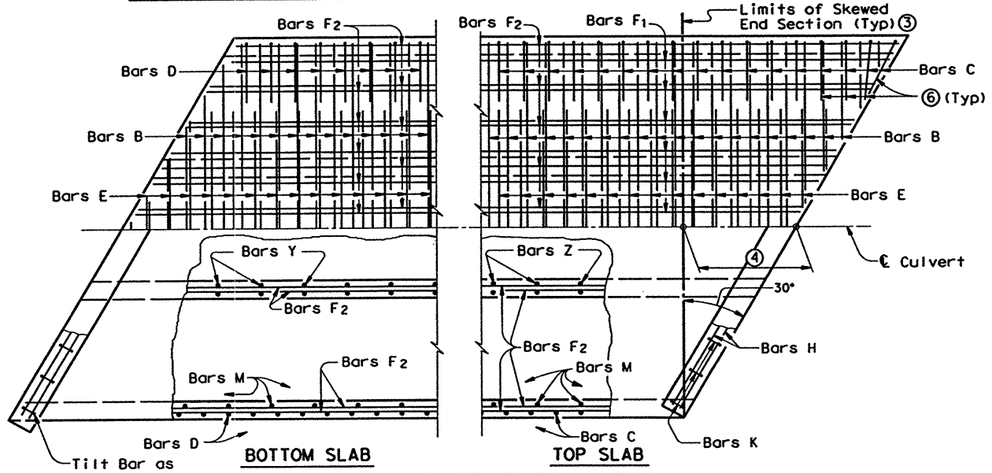
PLAN OF ANGLE SECTION ~ 15°



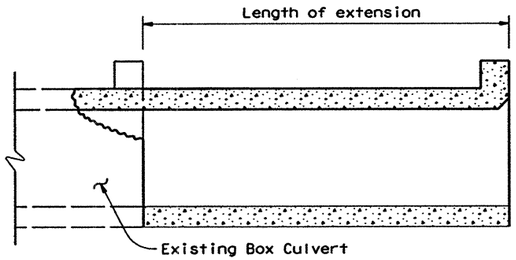
PLAN OF ANGLE SECTION ~ 30°



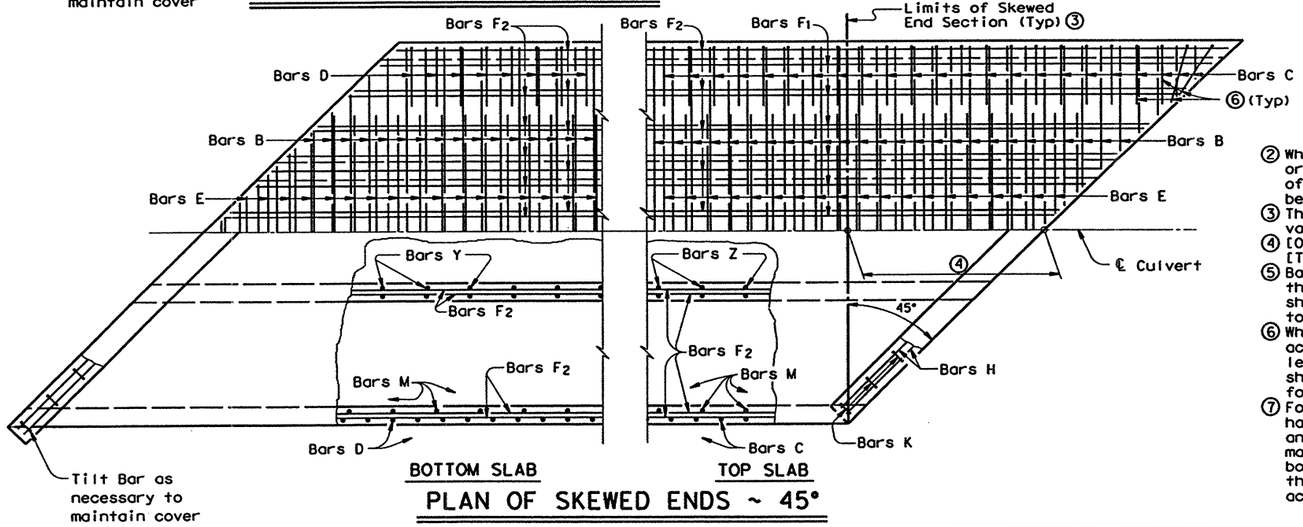
PLAN OF ANGLE SECTION ~ 45°



PLAN OF SKEWED ENDS ~ 30°



LENGTHENING DETAIL ①



PLAN OF SKEWED ENDS ~ 45°

① For box culverts with less than 2'-0" of fill, the top slab shall be broken back to provide a minimum 1'-10" lap of the existing longitudinal bars with the longitudinal bars in the extension. If the depth of fill is 2'-0" or greater, the top slab shall be broken back to provide a 1'-0" minimum embedment of existing longitudinal reinforcing into the extension. Alternatively, if the fill height is greater than 2'-0", the existing curb may be left in place and 2'-0" long #6 bars shall be drilled and grouted 1'-0" into the existing top slab at 1'-6" center to center spacing. Wings and apron shall be broken back as necessary to install the extension. Exposed wingwall and apron reinforcing may be removed or cleaned and included in the extension. When lengthening existing box culverts with dimensions different than current standard dimensions, horizontal and vertical transitions shall be formed as directed by the Engineer. Bottom slabs shall match to maintain an uninterrupted flow line. Existing and new reinforcing shall be field bent into transition maintaining specified cover requirements. For direct traffic culverts, the "H" dimension may be adjusted to provide a smooth riding surface.

② When the spacing between Bars B or Bars E becomes less than half of the normal spacing, bars shall be cut to avoid fouling

③ The length of Bars B and E will vary in the skewed end sections

④ [One half of overall width] x [Tan of the skew angle]

⑤ Bars F_1 and F_2 shall be continuous through the angle section. They shall be bent to remain parallel to the walls of the Box Culvert.

⑥ When necessary to avoid fouling in acute corners, the slab extension leg of Bars C and Bars D may be shortened to a minimum of 1'-6" for skews of 30° and 45°.

⑦ For skews of 15° or less, the contractor has the option of placing Bars B, C, D and E parallel to the skewed end while maintaining spacing along centerline box. Lengths of Bars B and E shown on the standards shall be increased to accommodate the skew.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Designed for HS20 loading.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" concrete with a minimum 28 day compressive strength of 3600 psi; except for the top slab of direct traffic culverts, which shall be Class "S" concrete with a minimum 28 day compressive strength of 4000 psi.

Refer to Multiple Box Culverts Cast-in-Place standard for details of straight sections of culvert. For skewed sections and angle sections refer to Multiple Box Culverts Cast- in-Place standard for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown. For Skewed ends with curbs, adjust length of Bars H, number of Bars K, curb concrete volume and reinforcing steel weight by dividing the values shown on the culvert standards by the cosine of the skew angle.

Laps for Bars H, when required, shall be 1'-9" for uncoated bars and 2'-7" for epoxy coated.

HS20 LOADING

Texas Department of Transportation
Bridge Division

MULTIPLE BOX CULVERTS MISCELLANEOUS DETAILS

MC-MD

FILE: mc-mdsterdgn	DN: GAF	CK: MAS	DW: MCB	CK: GAF
© TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		597A
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/19/2003

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ACC:

LEVELS DISPLAYED

| | | |

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Dimensions					Variable Reinforcing				③ Estimated Quantities per ft of wing length (2~Wings)	
					Bars J1		Bars J2			
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'- 8"	1'- 9"	1'- 3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'- 2"	2'- 0"	1'- 6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'- 8"	2'- 3"	1'- 9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'- 2"	2'- 6"	2'- 0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'- 8"	2'- 9"	2'- 3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'- 2"	3'- 0"	2'- 6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'- 8"	3'- 3"	2'- 9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'- 2"	3'- 6"	3'- 0"	1'- 0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'- 8"	4'- 0"	3'- 0"	1'- 1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'- 2"	4'- 6"	3'- 0"	1'- 3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2~Wings)

Bar	Size	No.	Spa
DL	#5	~	1'-0"
DS	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
RS	#5	3	~
RL	#5	3	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

① Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.

② Adjust to fit as necessary to maintain 1 1/4" clear cover and 4" minimum between bars.

③ Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by 0.5 x (A+Lw).

④ Recommended values of Slope are: 2:1, 3:1, 4:1, & 6:1.

⑤ When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Unless otherwise shown on the plans or directed by the Engineer, the riprap shall have a 6" wide by 1'-6" deep reinforced concrete toewall along all edges adjacent to natural ground; the toewall shall be reinforced by extending typical riprap reinforcing into the toewall; construction joints or grooved joints, oriented in the direction of flow, shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required. Payment for riprap shall be as required by the pertinent Item.

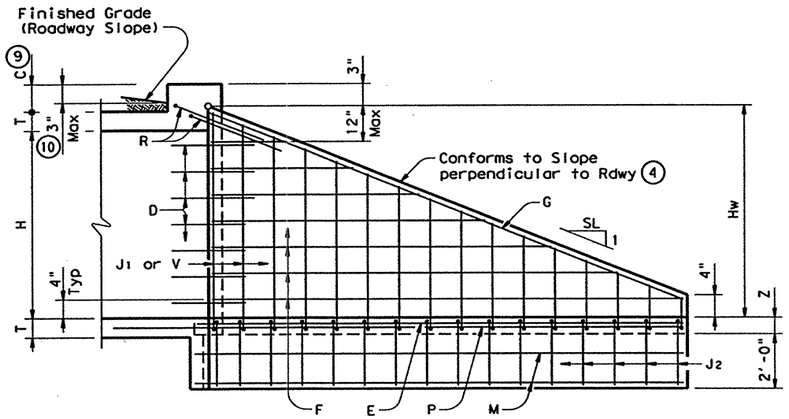
⑥ At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.

⑦ Applicable values of of Skew are: 15°, 30°, and 45°.

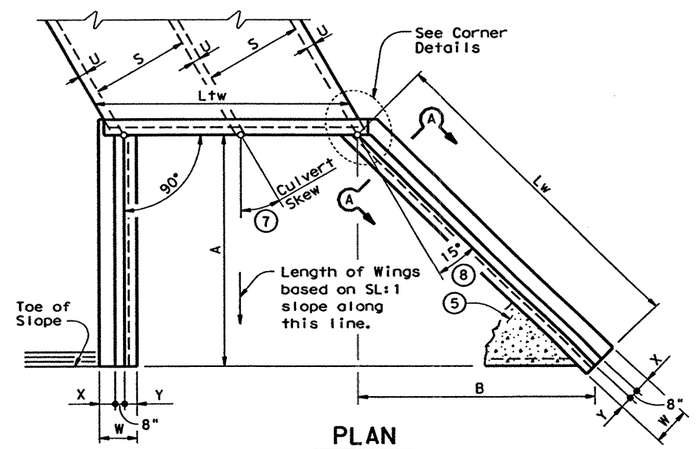
⑧ Typical wingwall angle for all skews.

⑨ 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details. Estimated curb heights are shown elsewhere in the plans.

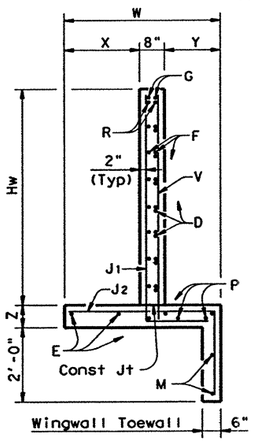
⑩ For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.



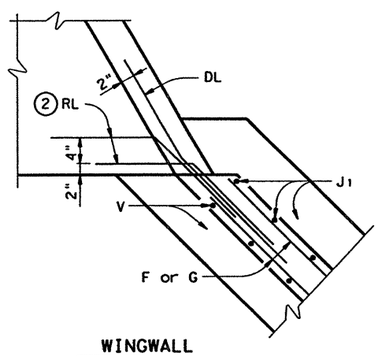
INSIDE ELEVATION
(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)



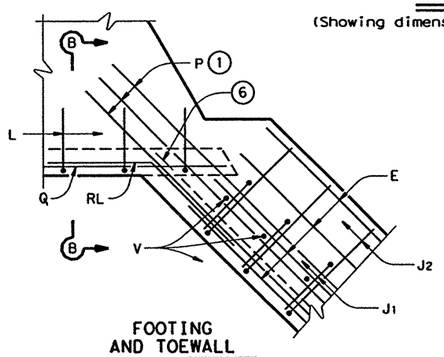
PLAN
(Showing dimensions and 30° Skew.)



SECTION A-A

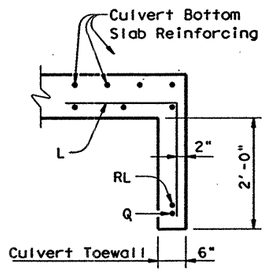


WINGWALL

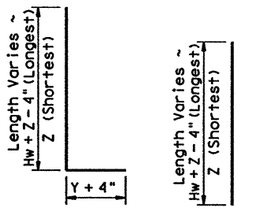


FOOTING AND TOEWALL

CORNER DETAILS
(Culvert and Culvert Toewall reinforcing not shown for clarity.)

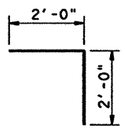


SECTION B-B ⑤

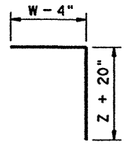


BARS J1

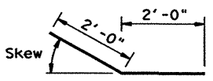
BARS V



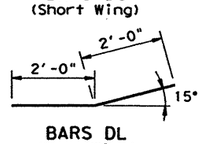
BARS L



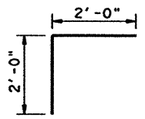
BARS J2



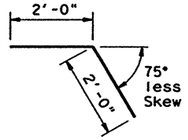
BARS DS
(Short Wing)



BARS DL
(Long Wing)



BARS RS
(Short Wing)



BARS RL
(Long Wing)

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

Hw = H + T + C - 0.250'
A = (Hw - 0.333') (SL)
B = (A) [Tangent (Θ + 15°)]
Lw = (A) ÷ [Cosine (Θ + 15°)]

For Cast-in-place culverts:

Ltw = [(N) (S) + (N+1) (U)] ÷ (Cosine Θ)

For Precast culverts:

Ltw = [(N) (2U+S) + (N-1) (0.500')] ÷ (Cosine Θ)

Total Wingwall Area (Two Wings ~ S.F.) = (0.5) (Hw + 0.333') (Lw + A)

Hw = Height of Wingwall
SL:1 = Side Slope Ratio (Horizontal:1 Vertical)
A = Length of Short Wingwall
Lw = Length of Long Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans
Θ = Culvert Skew

See applicable box culvert standard for H, S, T, and U values.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.

All reinforcing bars shall be adjusted to provide a minimum of 1 1/4" clear cover.

When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.

See BCS sheet for additional dimensions and information.

The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

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LEVELS Displayed
COMMENTS:

Texas Department of Transportation
Bridge Division

FLARED WINGS FOR SKEWED BOX CULVERTS

FW-S

FILE: fwsside.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
© TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		598
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hciv11\cf0130\
b34mop18.dgn-01

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Dimensions					Variable Reinforcing				③ Estimated Quantities per ft of wing length (2~Wings)	
					Bars J1		Bars J2			
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'- 8"	1'- 9"	1'- 3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'- 2"	2'- 0"	1'- 6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'- 8"	2'- 3"	1'- 9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'- 2"	2'- 6"	2'- 0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'- 8"	2'- 9"	2'- 3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'- 2"	3'- 0"	2'- 6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'- 8"	3'- 3"	2'- 9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'- 2"	3'- 6"	3'- 0"	1'- 0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'- 8"	4'- 0"	3'- 0"	1'- 1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'- 2"	4'- 6"	3'- 0"	1'- 3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2~Wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

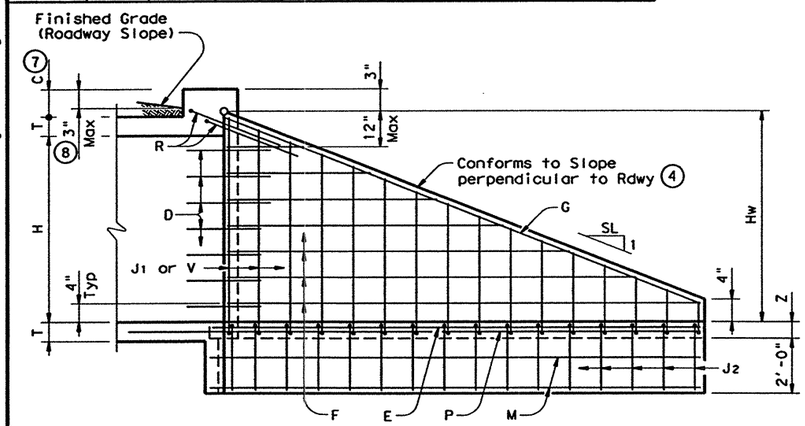
1. Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.
2. Adjust to fit as necessary to maintain 1 1/4" clear cover and 4" minimum between bars.
3. Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.
4. Recommended values of Slope are: 2:1, 3:1, 4:1, & 6:1.
5. When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Unless otherwise shown on the plans or directed by the Engineer, the riprap shall have a 6" wide by 1'-6" deep reinforced concrete toewall along all edges adjacent to natural ground; the toewall shall be reinforced by extending typical riprap reinforcing into the toewall; construction joints or grooved joints, oriented in the direction of flow, shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required. Payment for riprap shall be as required by the pertinent Item.
6. At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.
7. 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details. Estimated curb heights are shown elsewhere in the plans.
8. For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

WING DIMENSION CALCULATIONS:

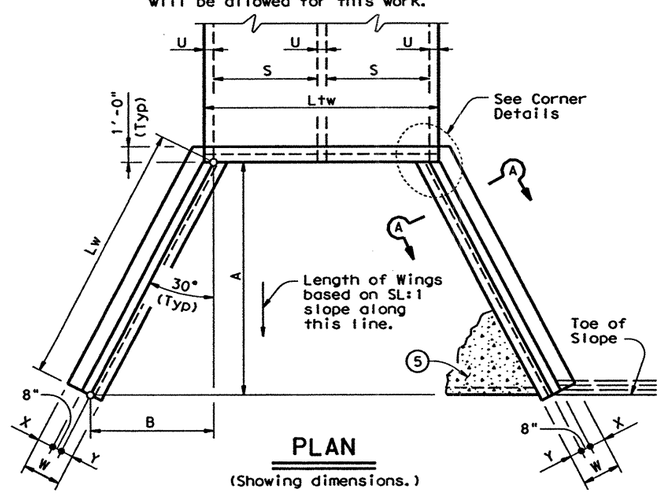
Formulas: (All values are in Feet)
Hw = H + T + C - 0.250'
A = (Hw - 0.333') (SL)
B = (A) Tangent (30°)
Lw = (A) ÷ Cosine (30°)
For Cast-in-place culverts:
Ltw = (N) (S) + (N+1) (U)
For Precast culverts:
Ltw = (N) (2U+S) + (N-1) (0.500')
Total Wingwall Area (Two Wings ~ S.F.) = (Hw + 0.333') (Lw)

Hw = Height of Wingwall
SL:1 = Side Slope Ratio (Horizontal:1 Vertical)
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans

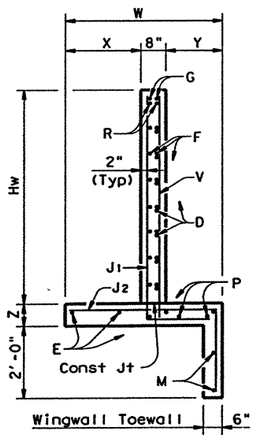
See applicable box culvert standard for H, S, T, and U values.



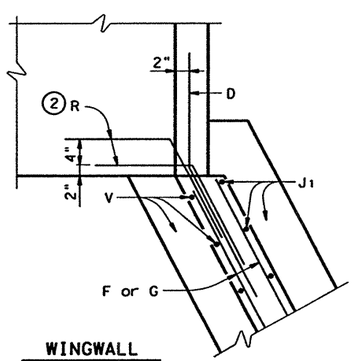
INSIDE ELEVATION
(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)



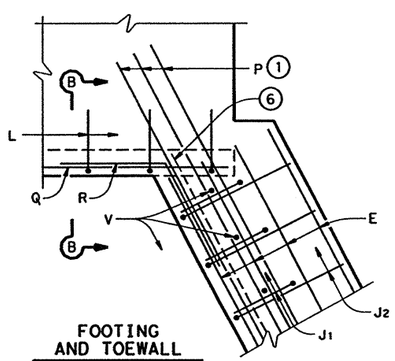
PLAN
(Showing dimensions.)



SECTION A-A

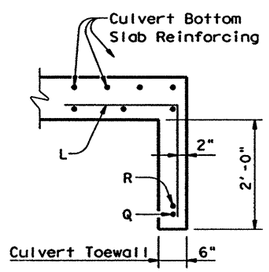


WINGWALL

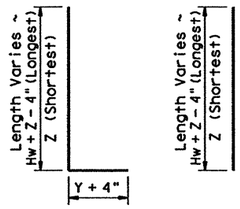


FOOTING AND TOEWALL

CORNER DETAILS
(Culvert and Culvert Toewall reinforcing not shown for clarity.)

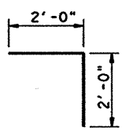


SECTION B-B ⑤

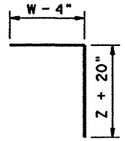


BARS J1

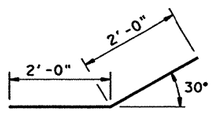
BARS V



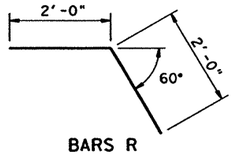
BARS L



BARS J2



BARS D



BARS R

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.
All reinforcing steel shall be Grade 60.
All concrete shall be Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.
All reinforcing bars shall be adjusted to provide a minimum of 1 1/4" clear cover.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See BCS sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty is made by the Texas Department of Transportation for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 | 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 | 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 | 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
COMMENTS:

Texas Department of Transportation
Bridge Division

FLARED WINGS
FOR 0° SKEW BOX CULVERTS

FW-0

FILE: tx-0skde.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	6	NH-2002 (79)		599
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003
HOUFILE023 \hcivil\cf0130\
b34mp128.dgn-01

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

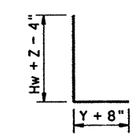
Maximum Wingwall Height Hw	Dimensions W	X	Y	Z	Variable Reinforcing Bars J1 Size	Bars J1 Spa	Bars J2 Size	Bars J2 Spa	④ Estimated Quantities per ft of wing (2-Wings) Reinf (Lb/Ft)	Conc (CY/Ft)	Estimated Quantities per ft of Toewall (1-Toewall) Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	43.13	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	43.80	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	44.47	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	47.81	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	48.48	0.480	6.85	0.071
4'-0"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	50.26	0.532	6.85	0.071
4'-6"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	54.27	0.568	6.85	0.071
5'-0"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	57.94	0.632	6.96	0.075
5'-6"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	61.95	0.668	6.96	0.075
6'-0"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	75.16	0.730	7.07	0.078
6'-6"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	79.54	0.768	7.07	0.078
7'-0"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	86.65	0.864	8.07	0.093
7'-6"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	91.03	0.902	8.07	0.093
8'-0"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	133.54	0.962	8.13	0.095
8'-6"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	138.96	1.000	8.13	0.095
9'-6"	6'- 0"	2'-10"	2'- 2"	9"	#5	6"	#5	6"	151.43	1.136	8.41	0.110
10'-6"	6'- 5"	3'- 0"	2'- 5"	9"	#6	6"	#5	6"	190.76	1.234	8.57	0.117
11'-6"	7'- 2"	3'- 6"	2'- 8"	11"	#6	6"	#6	6"	224.62	1.438	9.52	0.140
12'-6"	7'- 8"	3'- 9"	2'-11"	1'- 0"	#7	6"	#6	6"	277.90	1.592	9.74	0.157
13'-6"	8'- 2"	4'- 0"	3'- 2"	1'- 2"	#8	6"	#6	6"	343.21	1.804	10.02	0.186
14'-6"	8'-10"	4'- 5"	3'- 5"	1'- 4"	#9	6"	#6	6"	427.43	2.046	10.30	0.218
15'-6"	9'- 6"	4'-10"	3'- 8"	1'- 6"	#9	6"	#7	6"	484.01	2.302	11.24	0.253
16'-0"	9'-11"	5'- 0"	3'-11"	1'- 7"	#9	6"	#7	6"	500.21	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING (2-Wings)

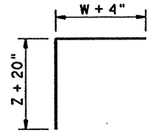
Bar	Size	No.	Spa
D1	#5	~	1'-0"
D2	#5	~	1'-0"
E1	#4	~	1'-0"
F	#4	~	1'-0"
G	#5	~	1'-0"
M1	#4	4	~
P	#4	~	1'-0"
V	#4	~	1'-0"

TABLE OF TOEWALL REINFORCING

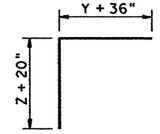
Bar	Size	No	Spa
J3	#4	~	1'-0"
M2	#4	2	~
E2	#4	~	1'-0"



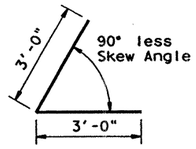
BARS J1



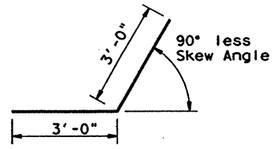
BARS J2



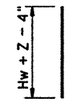
BARS J3



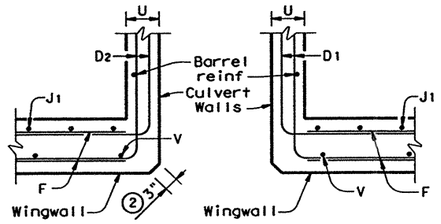
BARS D1



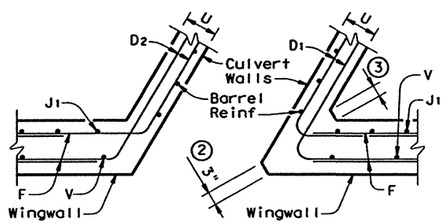
BARS D2



BARS V

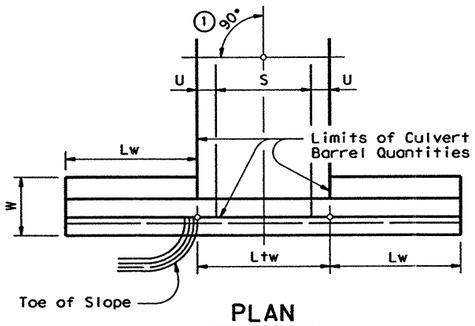


SECTION C-C



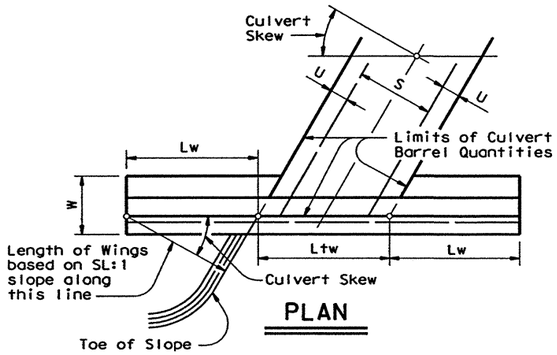
SECTION C-C

PARTIAL ELEVATION



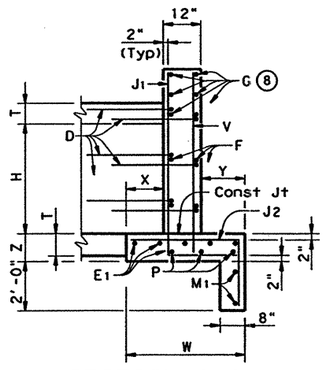
PLAN

DETAILS FOR NON-SKEWED BOX CULVERTS

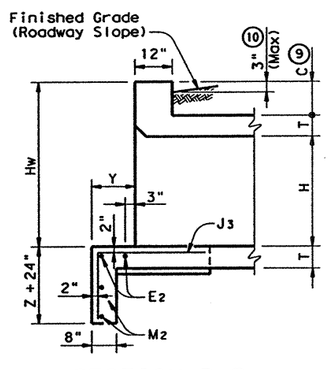


PLAN

DETAILS FOR SKEWED BOX CULVERTS
(Showing 30° Skew)



SECTION A-A
(Showing Wing Reinf)



SECTION B-B
(Showing Toewall Reinf)

1. Skew Angle = 0°
2. At discharge end, chamfer may be ¾".
3. For 15° Skew ~ 1"
   For 30° Skew ~ 2"
   For 45° Skew ~ 3"
4. Quantities shown are for two wings. To determine total quantities for two wings, multiply the tabulated values by Lw.
5. Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.
6. Extend Bars E1 1'-6" minimum into the bottom slab of the culvert.
7. Lap Bars M1 1'-6" minimum with Bars M2.
8. Bars G shall be equally spaced at 1'-0" maximum, placed as shown. There shall be at least 4 Bars G per wing.
9. 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details. Estimated curb heights are shown elsewhere in the plans.
10. For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)
Hw = H + T + C
Lw = (Hw) (SL) ÷ Cosine (V)
For Cast-in-place culverts:
Ltw = [(N) (S) + (N + 1) (U)] ÷ (Cosine V)
For Precast culverts:
Ltw = [(N) (2 U + S) + (N - 1) (0.5')] ÷ (Cosine V)
Total Wingwall Area (Two Wings ~ S.F.)
= (2) (Hw) (Lw)

Hw = Height of Wingwall
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans
SL:1 = Channel Slope ratio. (Horizontal: 1 Vertical, Usual value is 2:1)
V = Culvert Skew

See applicable box culvert standard for S, H, T and U values.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.
All reinforcing steel shall be Grade 60.
All concrete shall be Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.
All reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See BCS sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

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LEVELS Displayed
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

COMMENTS:

HS20 LOADING

Texas Department of Transportation
Bridge Division

PARALLEL WINGS
FOR SKEWED AND NON-SKEWED BOX CULVERTS

PW

FILE:	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
© TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		600
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003
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D34mop19.dgn-01

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Dimensions					Variable Reinforing				③ Estimated Quantities per ft of wing length (2-Wings)	
					Bars J1		Bars J2			
Maximum Wingwall Height ⑨ Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'- 8"	1'- 9"	1'- 3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'- 2"	2'- 0"	1'- 6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'- 8"	2'- 3"	1'- 9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'- 2"	2'- 6"	2'- 0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'- 8"	2'- 9"	2'- 3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'- 2"	3'- 0"	2'- 6"	9"	#7	6"	#5	6"	162.29	0.721

TABLE OF WINGWALL REINFORCING (2-Wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

TABLE OF ESTIMATED ANCHOR TOEWALL QUANTITIES

Bar	Size	No.	Spa
K	#4	~	1'-0"
N	#5	6	~
OL	#4	6	~
Reinf (Lb/Ft)			9.82
Conc (CY/Ft)			0.074

① Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.

② Adjust to fit as necessary to maintain 1 ¼" clear cover and 4" minimum between bars.

③ Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.

④ Recommended values of Slope are: 3:1, 4:1, & 6:1. Slope shall be 3:1 or flatter.

⑤ When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Unless otherwise shown on the plans or directed by the Engineer, construction joints or grooved joints, oriented in the direction of flow, and shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required. Payment for riprap shall be as required by the pertinent Item.

⑥ At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.

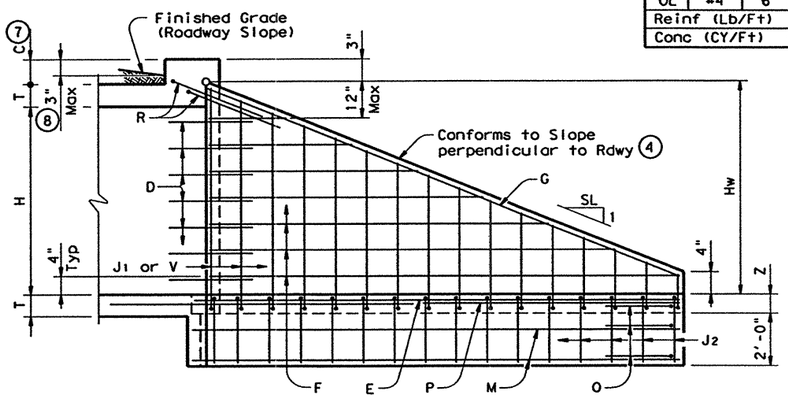
⑦ 3" min to 5'-0" max. For curbs greater than 1'-0" high, see ECD standard for additional details. Estimated curb heights are shown elsewhere in the plans.

⑧ For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

⑨ See "Table Of Maximum Wing Heights" for various slopes. Height is limited based on a 33'-6" maximum safety pipe runner length.

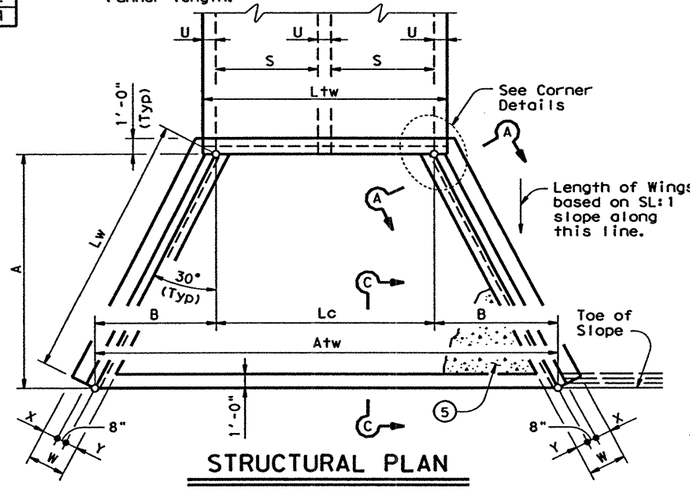
⑨ TABLE OF MAXIMUM WING HEIGHTS (Hw max)

Side Slope	Hw max
3:1	11'- 5"
4:1	8'-10"
6:1	6'- 1"



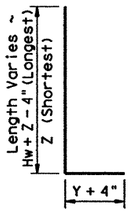
INSIDE ELEVATION OF WINGWALL

(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)

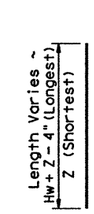


STRUCTURAL PLAN

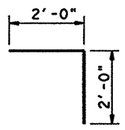
(Showing dimensions.)



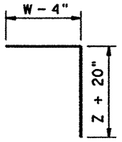
BARS J1



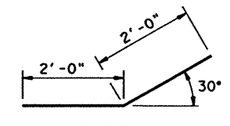
BARS V



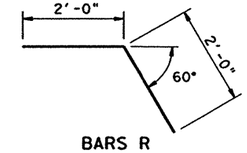
BARS L



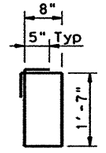
BARS J2



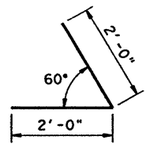
BARS D



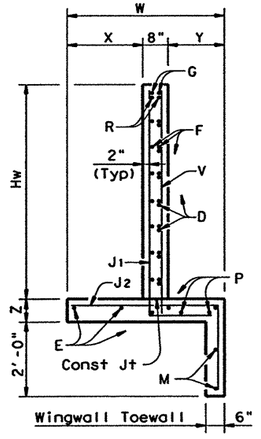
BARS R



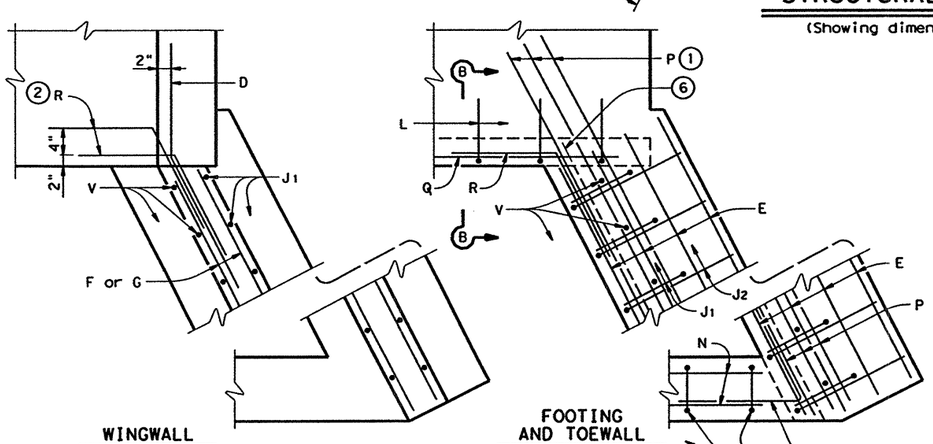
BARS K
(Length = 5'-4")



BARS OL

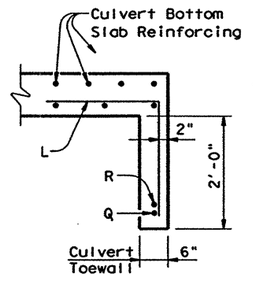


SECTION A-A

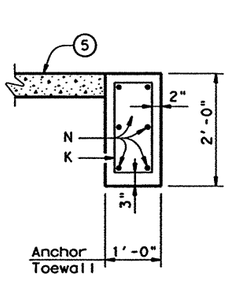


CORNER DETAILS

(Culvert and Culvert Toewall reinforcing not shown for clarity.)



SECTION B-B ⑤



SECTION C-C

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

Hw = H + T + C - 0.250' ⑨

A = (Hw - 0.333') (SL)

B = (A) (Tangent 30°)

Lw = (A) ÷ (Cosine 30°)

For Cast-in-place culverts:

Ltw = (N) (S) + (N + 1) (U)

For Precast culverts:

Ltw = (N) (2U + S) + (N - 1) (0.500')

Lc = (Ltw) - (2U)

Atw = (Lc) + (2B)

Total Wingwall Area (Two Wings ~ S.F.) = (Hw + 0.333') (Lw)

Hw = Height of Wingwall
SL:1 = Side Slope Ratio (Horizontal : 1 Vertical)
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
Lc = Culvert Curb between Wings
Atw = Anchor Toewall Length
N = Number of Culvert Spans

See applicable box culvert standard for H, S, T, and U values. See Table of Maximum Wall Heights for limits on Hw.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

The Safety End Treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Pipe Runners.

Pipe Runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.

All reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.

When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.

See BCS sheet for additional dimensions and information.

All bolts, nuts, washers, brackets, angles, and pipe runners are considered parts of the Safety End Treatment for payment.

Pipe Runners shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Bolts and nuts shall conform to ASTM A307. Steel plates shall conform to ASTM A36. All steel components, except reinforcing, shall be galvanized. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

SHEET 1 OF 3

Texas Department of Transportation
Bridge Division

SAFETY END TREATMENT WITH FLARED WINGS

FOR 0° SKEW BOX CULVERTS TYPE I ~ CROSS DRAINAGE

SETB-FW-0

FILE: SETBf0se.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		601
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

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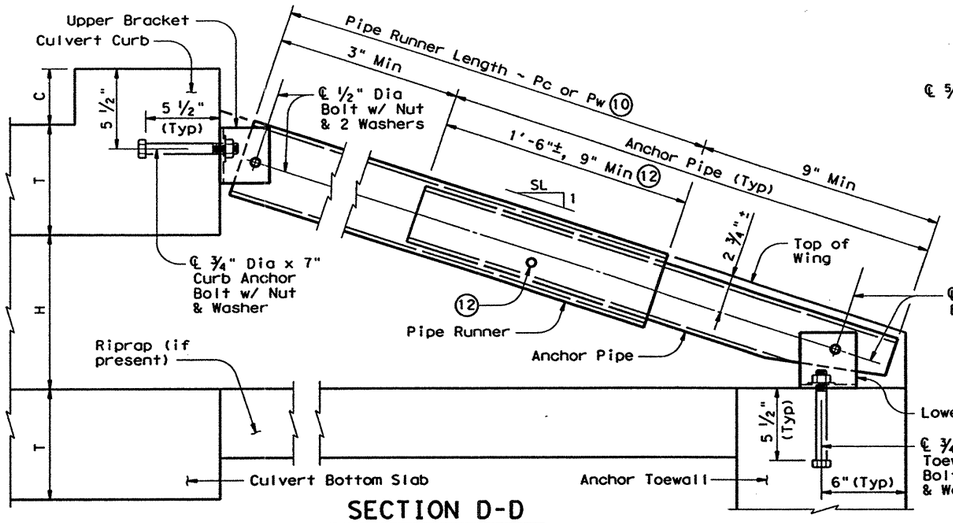
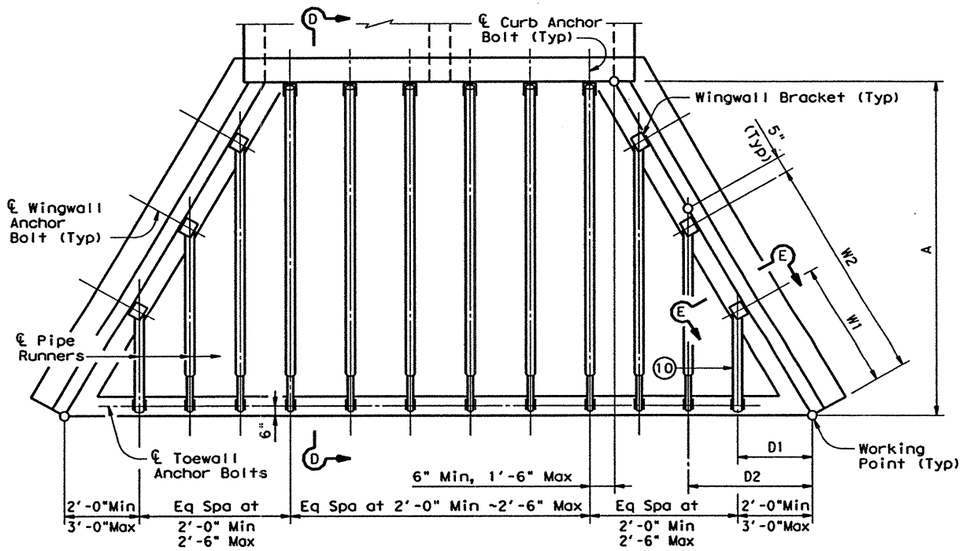
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 | 1 1 1 1 1 1 1 1 | 2 2 2 2 2 2 2 2 | 3 3 3 3 3 3 3 3 | 4 4 4 4 4 4 4 4 | 5 5 5 5 5 5 5 5 | 6 6 6 6 6 6 6 6

COMMENTS:

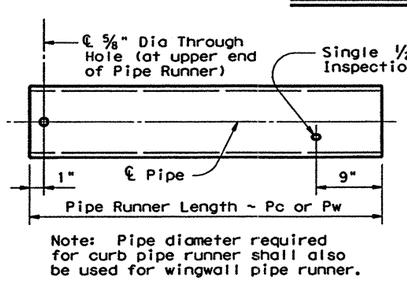


SECTION D-D

(Showing Curb Pipe Runner. Except for upper bracket, Wingwall Pipe Runners are similar.)

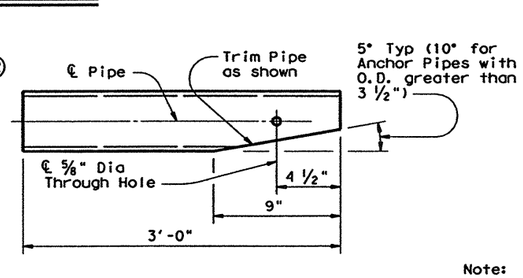


PIPE RUNNER PLAN

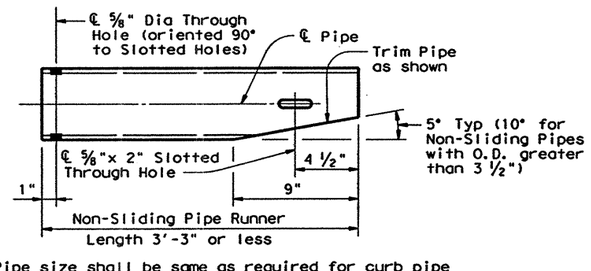


Note: Pipe diameter required for curb pipe runner shall also be used for wingwall pipe runner.

PIPE RUNNER DETAILS

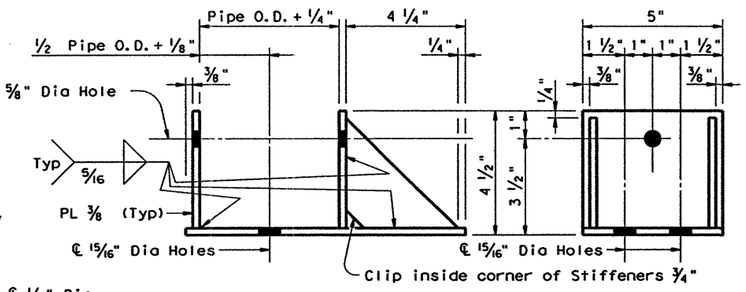


ANCHOR PIPE DETAILS



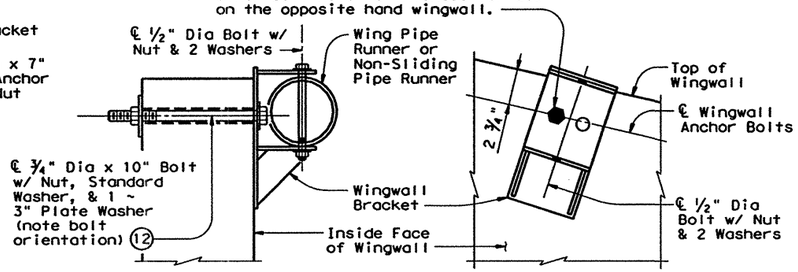
Note: Pipe size shall be same as required for curb pipe runner. Adjust the corresponding Lower Bracket accordingly.

NON-SLIDING PIPE RUNNER DETAILS



ELEVATION SIDE VIEW

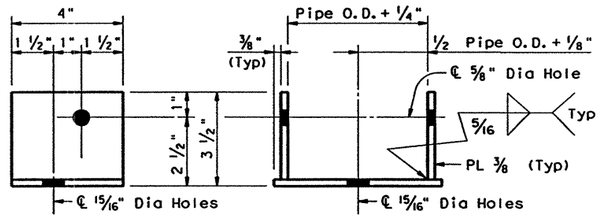
¾" Anchor Bolt shall be installed in hole nearest to the culvert curb. Other bolt hole is intended for use on the opposite hand wingwall.



SECTION E-E (Showing installed bracket.) ELEVATION (Showing installed bracket normal to Wall. Pipe not shown for clarity.)

Note: Wingwall Bracket shall match the Upper Curb Bracket size.

WINGWALL BRACKET DETAILS



SIDE VIEW ELEVATION

Note: Upper and Lower Brackets shall, except for the brackets used with Non-Sliding Pipe Runners, match the required pipe diameters as shown in the table.

UPPER & LOWER BRACKET DETAILS

MAXIMUM PIPE RUNNER LENGTHS & REQUIRED PIPE RUNNER SIZES

Maximum Pipe Runner Length (Pc or Pw)	Required Pipe Runner Size			Required Anchor Pipe Size		
	Pipe Size	Pipe O.D.	Pipe I.D.	Pipe Size	Pipe O.D.	Pipe I.D.
9'-4"	3" STD	3.500"	3.068"	2" STD	2.375"	2.067"
19'-0"	4" STD	4.500"	4.026"	3" STD	3.500"	3.068"
33'-6"	5" STD	5.563"	5.047"	4" STD	4.500"	4.026"

(10) If Pipe Runner Length Pw is 1'-9" or less, a single Non-Sliding Pipe Runner shall replace the normal Pipe Runner and Anchor Pipe. See NON-SLIDING PIPE RUNNER DETAILS for additional information.

(11) At Contractor's option, a ⅞" diameter hole may be drilled in the Wingwall or a ⅞" I.D. sleeve may be cast with the Wingwall.

(12) After installation of Pipe Runner, the ½" inspection hole shall be utilized to ensure that the lap of the Anchor Pipe with the Pipe Runner is adequate.

PIPE RUNNER DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

W"n" = (2.000) (D"n") - (0.416)

Pw"n" = (D"n") (K2) - (2.063)

Pw1 Non-Sliding Pipe Runner (If required) = (D1) (K2) - (0.563)

Pc = (A) (K1) - (1.688)

W"n"= Distance from Working Point to centerline Anchor Bolt measured along bottom inside face of Wing

D"n"= Distance from Working Point to centerline Pipe Runner measured along outside face of Anchor Toewall

Pw = Wingwall Pipe Runner Length

Pc = Curb Pipe Runner Length

K = Constant Values for use in formulas

Slope SL:1	K1	K2
3:1	1.054	1.826
4:1	1.031	1.785
6:1	1.014	1.756

"n" = Wing Pipe Runner Number

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LEVELS DISPLAYED
1 2 3 4 5 6 7 8 | C H T B | 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

COMMENTS:

SHEET 2 OF 3

Texas Department of Transportation
Bridge Division

SAFETY END TREATMENT WITH FLARED WINGS

FOR 0° SKEW BOX CULVERTS
TYPE I ~ CROSS DRAINAGE

SETB-FW-0

FILE: ~~setbf0se.dgn~~	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
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REVISIONS	22	NH-2002 (79)		602
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003

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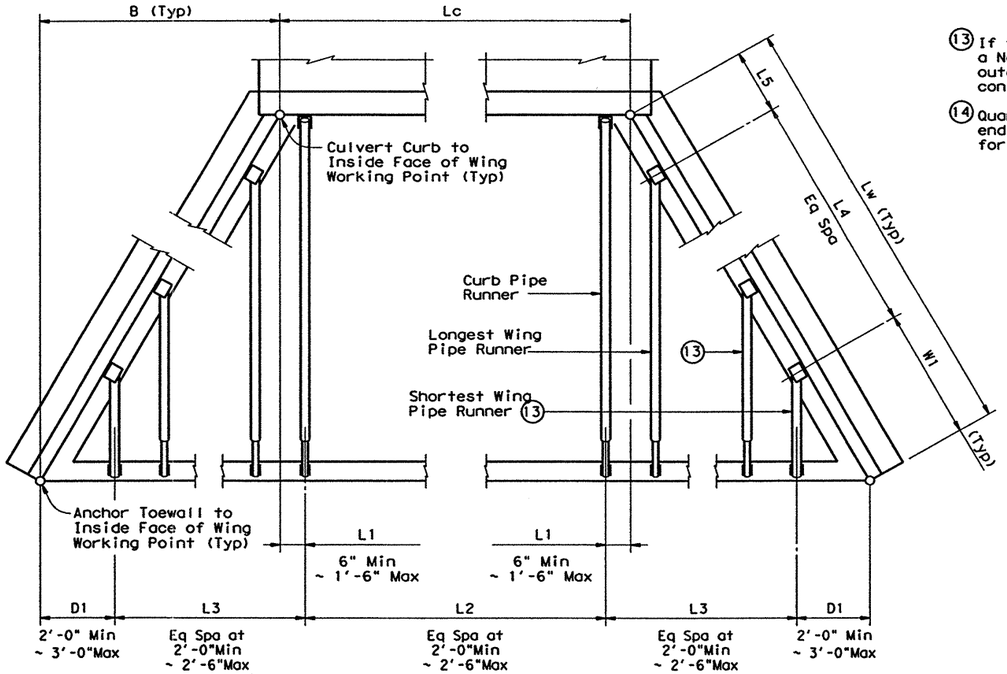
Culvert Station and/or Creek name followed by applicable end (Lt, Rt or Both) (14)	Applicable Wing or End Treatment Standard	Lc	L1	L2			D1	L3			W1	L4			L5	Curb Pipe Runner (Pc)		Longest Wing Pipe Runner (Pw)	Shortest Wing Pipe Runner (Pw)	Non-Sliding Wing Pipe Runner (if applicable)	Curb, Wing, and/or Non-Sliding Pipe Runners		3'-0" Anchor Pipe	
		(Ft-In)	(Ft-In)	No. Spa	Spa at (Ft-In)	Overall Length (Ft-In)	(Ft-In)	No. Spa	Spa at (Ft-In)	Overall Length (Ft-In)	(Ft-In)	No. Spa	Spa at (Ft-In)	Overall Length (Ft-In)	(Ft-In)	No.	Length (Ft-In)	(Ft-In)	(Ft-In)	(Ft-In)	Size (3",4" or 5")	Total (14) Length (Ft-In)	Size (2",3" or 4")	Total (14) Length (Ft-In)
CULVERT N1 EXTENSION STA 432+00(LT)	SETB-FW-0	10.000	1.250	3	2.500	7.500	3.000	3	2.448	7.343	5.583	2	4.896	9.791	2.812	4	14.292	11.792	3.208	N/A	4"	102.167	3"	30.000



PIPE RUNNER LAYOUT

(13) If the outermost Wing Pipe Runner is a Non-Sliding Pipe Runner, the next outermost Wing Pipe Runner ~~shall be~~ considered the Shortest.

(14) Quantities shown are for one structure end if Lt or Rt. Quantities shown are for two structure ends if Both

SPECIAL NOTE:

This tabular sheet is to be filled out by the culvert specifier and provides information for the construction details and quantities of Pipe Runners.

An Excel 97 spreadsheet to assist in completing this table can be downloaded from the Bridge Standards (English) web page on the TxDOT web site.

Note that the tabular quantities are given for estimating purposes only. It is likely that these quantities will change due to field conditions. Therefore, all dimensions ~~shall be~~ verified by the Contractor in the field prior to fabrication of the Safety End Treatment components.

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LEVELS DIAGRAMMED

1	2	3	4	5	6	7	8	1	2	3	4	5	6
17	18	19	20	21	22	23	24	25	26	27	28	29	30
33	34	35	36	37	38	39	40	41	42	43	44	45	46
49	50	51	52	53	54	55	56	57	58	59	60	61	62

COMMENTS:

SHEET 3 OF 3

Texas Department of Transportation
Bridge Division

SAFETY END TREATMENT WITH FLARED WINGS

FOR 0° SKEW BOX CULVERTS TYPE I ~ CROSS DRAINAGE

SETB-FW-0

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

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REVISIONS	22	NH-2002 (79)		603
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003

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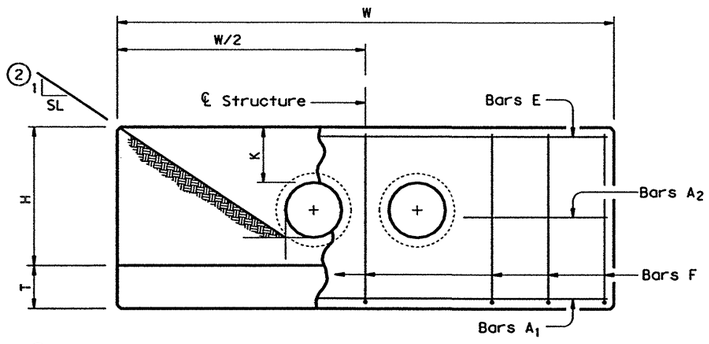
TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL

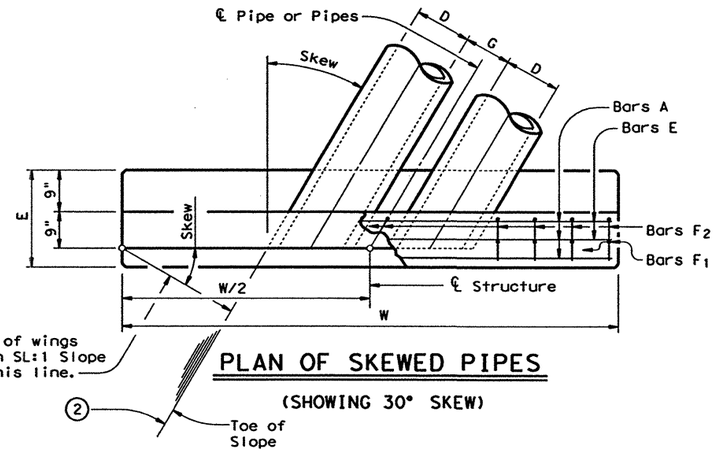
SLOPE	DIA OF PIPE, D	15 Degrees						30 Degrees						45 Degrees					
		Values for one Pipe			Values to be added for each addt'l Pipe			Values for one Pipe			Values to be added for each addt'l Pipe			Values for one Pipe			Values to be added for each addt'l Pipe		
		W	Reinf (Lbs)	Conc (CY) ①	W	Reinf (Lbs)	Conc (CY) ①	W	Reinf (Lbs)	Conc (CY) ①	W	Reinf (Lbs)	Conc (CY) ①	W	Reinf (Lbs)	Conc (CY) ①	W	Reinf (Lbs)	Conc (CY) ①
2:1	12"	9'- 4"	124	1.1	1'- 9 3/4"	15	0.2	10'- 5"	130	1.2	2'- 0"	16	0.2	12'- 9"	159	1.5	2'- 5 3/4"	17	0.3
	15"	10'- 7"	136	1.3	2'- 3"	17	0.2	11'-10"	159	1.5	2'- 6"	18	0.2	14'- 6"	191	1.8	3'- 0 3/4"	20	0.3
	18"	11'-11"	165	1.5	2'- 9"	19	0.3	13'- 3"	174	1.7	3'- 1"	29	0.3	16'- 3"	207	2.1	3'- 9 1/4"	33	0.4
	21"	13'- 2"	203	1.9	3'- 2 1/4"	31	0.4	14'- 9"	233	2.1	3'- 6 3/4"	33	0.4	18'- 0"	276	2.6	4'- 4 1/4"	36	0.5
	24"	14'- 6"	240	2.1	3'- 8 1/4"	34	0.4	16'- 2"	251	2.4	4'- 1 3/4"	36	0.5	19'-10"	318	2.9	5'- 0 3/4"	39	0.6
	27"	15'- 9"	258	2.5	4'- 0 3/4"	38	0.5	17'- 7"	292	2.8	4'- 6 1/4"	39	0.6	21'- 7"	342	3.4	5'- 6 1/4"	44	0.7
	30"	17'- 1"	297	2.8	4'- 5 3/4"	40	0.6	19'- 1"	311	3.1	5'- 0"	42	0.6	23'- 4"	388	3.8	6'- 1 3/4"	47	0.8
	33"	18'- 5"	320	3.3	4'- 9 3/4"	43	0.6	20'- 6"	358	3.6	5'- 4 3/4"	46	0.7	25'- 1"	439	4.4	6'- 7 1/4"	51	0.9
	36"	19'- 8"	401	4.0	5'- 3"	47	0.9	21'-11"	422	4.5	5'-10 3/4"	50	0.9	26'-10"	517	5.5	7'- 2 1/4"	55	1.2
	42"	22'- 3"	476	5.0	6'- 0 3/4"	53	1.1	24'-10"	528	5.6	6'- 8 3/4"	56	1.2	30'- 5"	634	6.9	8'- 3"	76	1.4
	48"	25'-11"	577	6.6	6'- 9 3/4"	60	1.3	28'-10"	637	7.3	7'- 7 1/4"	79	1.5	35'- 4"	791	9.0	9'- 3 3/4"	88	1.8
	54"	28'- 6"	711	7.8	7'- 9"	83	1.6	31'- 9"	781	8.7	8'- 8"	87	1.8	38'-11"	958	10.7	10'- 7 1/4"	97	2.2
	60"	31'- 1"	805	9.2	8'- 6 1/4"	91	1.9	34'- 8"	881	10.2	9'- 6 1/4"	97	2.1	42'- 5"	1113	12.5	11'- 8"	124	2.6
	66"	33'- 8"	907	10.6	9'- 0 3/4"	98	2.1	37'- 6"	1028	11.8	10'- 1 1/4"	102	2.4	46'- 0"	1235	14.5	12'- 4 1/4"	132	2.9
	72"	36'- 3"	1071	12.1	9'- 8"	105	2.4	40'- 5"	1207	13.5	10'- 9 1/4"	110	2.6	49'- 6"	1446	16.6	13'- 2 1/4"	141	3.2
3:1	12"	13'- 6"	178	1.6	1'- 9 3/4"	15	0.2	15'- 0"	189	1.8	2'- 0"	15	0.2	18'- 5"	237	2.2	2'- 5 3/4"	17	0.2
	15"	15'- 3"	212	1.9	2'- 3"	17	0.2	17'- 0"	223	2.1	2'- 6"	17	0.3	20'-10"	276	2.6	3'- 0 3/4"	20	0.3
	18"	17'- 1"	231	2.3	2'- 9"	19	0.3	19'- 1"	259	2.5	3'- 1"	29	0.3	23'- 4"	318	3.1	3'- 9 1/4"	32	0.4
	21"	18'-11"	306	2.7	3'- 2 1/4"	31	0.4	21'- 1"	339	3.0	3'- 6 3/4"	33	0.4	25'-10"	413	3.7	4'- 4 1/4"	36	0.5
	24"	20'- 8"	345	3.1	3'- 8 3/4"	35	0.4	23'- 1"	384	3.5	4'- 1 3/4"	36	0.5	28'- 3"	462	4.2	5'- 0 3/4"	40	0.6
	27"	22'- 6"	376	3.7	4'- 0 3/4"	38	0.5	25'- 1"	438	4.1	4'- 6 1/4"	39	0.6	30'- 9"	522	5.0	5'- 6 1/4"	44	0.7
	30"	24'- 4"	422	4.1	4'- 5 3/4"	40	0.6	27'- 2"	466	4.6	5'- 0"	42	0.6	33'- 3"	578	5.6	6'- 1 3/4"	47	0.8
	33"	26'- 2"	476	4.8	4'-10"	43	0.6	29'- 2"	522	5.3	5'- 4 3/4"	46	0.7	35'- 9"	644	6.5	6'- 7 1/4"	51	0.9
	36"	27'-11"	590	5.9	5'- 3 1/4"	47	0.8	31'- 2"	645	6.6	5'-10 3/4"	50	0.9	38'- 2"	787	8.0	7'- 2 1/4"	56	1.2
	42"	31'- 7"	684	7.3	6'- 0 1/4"	53	1.1	35'- 3"	776	8.2	6'- 8 3/4"	56	1.2	43'- 2"	933	10.0	8'- 3"	79	1.4
	48"	36'- 9"	880	9.6	6'- 9 3/4"	61	1.3	41'- 0"	953	10.7	7'- 7 1/4"	81	1.5	50'- 2"	1166	13.1	9'- 3 3/4"	88	1.8
	54"	40'- 5"	1065	11.4	7'- 9"	85	1.6	45'- 0"	1185	12.7	8'- 8"	89	1.8	55'- 2"	1435	15.5	10'- 7 1/4"	97	2.2
	60"	44'- 0"	1224	13.3	8'- 6 1/4"	93	1.9	49'- 1"	1356	14.8	9'- 6 1/4"	96	2.1	60'- 1"	1627	18.2	11'- 8"	124	2.6
	66"	47'- 7"	1357	15.4	9'- 1"	98	2.1	53'- 1"	1497	17.2	10'- 1 1/4"	103	2.3	65'- 1"	1834	21.1	12'- 4 1/4"	130	2.9
	72"	51'- 3"	1624	17.7	9'- 8"	105	2.3	57'- 2"	1787	19.7	10'- 9 1/4"	109	2.6	70'- 0"	2210	24.1	13'- 2 1/4"	139	3.2
4:1	12"	17'- 7"	232	2.1	1'- 9 3/4"	15	0.2	19'- 8"	259	2.4	2'- 0"	16	0.2	24'- 0"	314	2.9	2'- 5 3/4"	18	0.2
	15"	19'-11"	272	2.5	2'- 3"	17	0.2	22'- 3"	301	2.8	2'- 6"	18	0.3	27'- 3"	361	3.5	3'- 0 3/4"	21	0.3
	18"	22'- 3"	313	3.0	2'- 9"	19	0.3	24'-10"	344	3.3	3'- 1"	29	0.3	30'- 5"	427	4.0	3'- 9 1/4"	32	0.4
	21"	24'- 7"	407	3.6	3'- 2 1/4"	31	0.4	27'- 5"	446	4.0	3'- 6 3/4"	33	0.4	33'- 7"	549	4.9	4'- 4 1/4"	36	0.5
	24"	26'-11"	455	4.1	3'- 8 3/4"	35	0.4	30'- 0"	499	4.5	4'- 1 3/4"	36	0.5	36'- 9"	609	5.6	5'- 0 3/4"	40	0.6
	27"	29'- 3"	514	4.8	4'- 0 3/4"	38	0.5	32'- 7"	562	5.4	4'- 6 1/4"	40	0.6	39'-11"	703	6.6	5'- 6 1/4"	43	0.7
	30"	31'- 7"	568	5.4	4'- 5 3/4"	40	0.6	35'- 3"	620	6.0	5'- 0"	42	0.6	43'- 2"	768	7.4	6'- 1 3/4"	49	0.8
	33"	33'-11"	634	6.2	4'-10"	43	0.7	37'-10"	710	7.0	5'- 4 3/4"	46	0.7	46'- 4"	848	8.5	6'- 7 1/4"	52	0.9
	36"	36'- 3"	776	7.7	5'- 3"	48	0.9	40'- 5"	868	8.6	5'-10 3/4"	49	0.9	49'- 6"	1058	10.6	7'- 2 1/4"	56	1.1
	42"	40'-11"	921	9.6	6'- 0 1/4"	53	1.0	45'- 7"	1022	10.7	6'- 8 3/4"	57	1.2	55'-10"	1262	13.1	8'- 3"	78	1.4
	48"	47'- 7"	1152	12.6	6'-10"	61	1.3	53'- 1"	1268	14.0	7'- 7 1/4"	80	1.5	65'- 1"	1579	17.2	9'- 3 3/4"	86	1.8
	54"	52'- 3"	1416	14.9	7'- 9 1/4"	86	1.6	58'- 4"	1589	16.6	8'- 8"	89	1.8	71'- 5"	1916	20.4	10'- 7 1/4"	95	2.2
	60"	56'-11"	1606	17.5	8'- 6 3/4"	92	1.9	63'- 6"	1798	19.5	9'- 6 1/4"	95	2.1	77'- 9"	2184	23.9	11'- 8"	122	2.6
	66"	61'- 7"	1811	20.2	9'- 0 3/4"	97	2.1	68'- 8"	2011	22.5	10'- 1 1/4"	101	2.4	84'- 2"	2464	27.6	12'- 4 1/4"	131	2.9
	72"	66'- 3"	2142	23.2	9'- 8"	104	2.4	73'-11"	2371	25.9	10'- 9 1/4"	108	2.6	90'- 6"	2929	31.7	13'- 2 1/4"	138	3.2
6:1	12"	25'-11"	342	3.1	1'- 9 3/4"	15	0.2	28'-10"	374	3.5	2'- 0"	16	0.2	35'- 4"	456	4.3	2'- 5 3/4"	17	0.2
	15"	29'- 3"	390	3.7	2'- 3"	17	0.2	32'- 7"	442	4.2	2'- 6"	18	0.2	39'-11"	549	5.1	3'- 0 3/4"	20	0.3
	18"	32'- 7"	459	4.4	2'- 9"	20	0.3	36'- 4"	515	4.9	3'- 1"	29	0.3	44'- 7"	629	6.0	3'- 9 1/4"	33	0.4
	21"	36'- 0"	608	5.3	3'- 2 1/4"	31	0.4	40'- 2"	660	5.9	3'- 6 3/4"	33	0.4	49'- 2"	823	7.2	4'- 4 1/4"	38	0.5
	24"	39'- 4"	672	6.0	3'- 8 3/4"	35	0.4	43'-11"	748	6.7	4'- 1 3/4"	36	0.5	53'- 9"	920	8.2	5'- 0 3/4"	42	0.6
	27"	42'- 8"	770	7.1	4'- 0 3/4"	38	0.5	47'- 8"	852	8.0	4'- 6 1/4"	41	0.5	58'- 4"	1039	9.7	5'- 6 1/4"	45	0.7
	30"	46'- 1"	839	8.0	4'- 5 3/4"	40	0.6	51'- 5"	949	8.9	5'- 0"	44	0.6	62'-11"	1154	10.9	6'- 1 3/4"	48	0.8
	33"	49'- 5"	947	9.2	4'-10"	45	0.7	55'- 2"	1040	10.3	5'- 4 3/4"	48	0.7	67'- 6"	1284	12.6	6'- 7 1/4"	50	0.9
	36"	52'-10"	1151	11.4	5'- 3"	49	0.8	58'-11"	1287	12.7	5'-10 3/4"	51	1.0	72'- 1"	1575	15.6	7'- 2 1/4"	55	1.1
	42"	59'- 6"	1365	14.2	6'- 0 1/4"	55	1.0	66'- 5"	1522	15.8	6'- 8 3/4"	57	1.2	81'- 4"	1867	19.4	8'- 3"	76	1.4
	48"	69'- 4"	1729	18.5	6'-10"	59	1.3	77'- 4"	1934	20.7	7'- 7 1/4"	79	1.5	94'- 9"	2360	25.3	9'- 3 3/4"	86	1.8
	54"	76'- 1"	2130	22.0	7'- 9 1/4"	83	1.6	84'-10"	2370	24.6	8'- 8"	87	1.8	103'-11"	2904	30.1	10'- 7 1/4"	95	2.2
	60"	82'-10"	2414	25.8	8'- 6 3/4"	90	1.9	92'- 5"	2673	28.8	9'- 6 1/4"	94	2.1	113'-2"	3286	35.3	11'- 8"	122	2.6
	66"	89'- 7"	2712	29.9	9'- 0 3/4"	96	2.1	99'-11"	3030	33.3	10'- 1 1/4"	101	2.4	122'-4"	3689	40.8	12'- 4 1/4"	130	2.9
	72"	96'- 3"	3210	34.2	9'- 8"	102	2.4	107'-5"	3572	38.2	10'- 9 1/4"	108	2.6	131'-6"	4364	46.8	13'- 2 1/4"	139	3.2

① Quantities increase slightly for metal pipe installations.



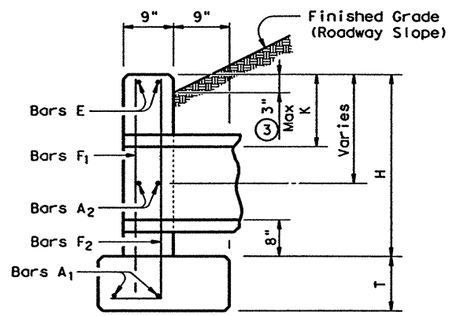
② Indicated slope is perpendicular to ℄ Pipe or Pipes

ELEVATION



PLAN OF SKEWED PIPES

(SHOWING 30° SKEW)



℄ SECTION

③ For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

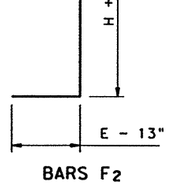
TABLE OF CONSTANT DIMENSIONS

DIA OF PIPE, D	G	K	H	T	E
12"	9"	1'- 0"	2'- 8"	9"	1'- 9"
15"	11"	1'- 0"	2'-11"	9"	1'- 9"
18"	1'- 2"	1'- 0"	3'- 2"	9"	1'- 9"
21"	1'- 4"	1'- 0"	3'- 5"	9"	2'- 0"
24"	1'- 7"	1'- 0"	3'- 8"	9"	2'- 0"
27"	1'- 8"	1'- 0"	3'-11"	9"	2'- 3"
30"	1'-10"	1'- 0"	4'- 2"	9"	2'- 3"
33"	1'-11"	1'- 0"	4'- 5"	9"	2'- 6"
36"	2'- 1"	1'- 0"	4'- 8"	1'- 0"	2'- 6"
42"	2'- 4"	1'- 0"	5'- 2"	1'- 0"	2'- 9"
48"	2'- 7"	1'- 3"	5'-11"	1'- 0"	3'- 0"
54"	3'- 0"	1'- 3"	6'- 5"	1'- 0"	3'- 3"
60"	3'- 3"	1'- 3"	6'-11"	1'- 0"	3'- 6"
66"	3'- 3"	1'- 3"	7'- 5"	1'- 0"	3'- 9"
72"	3'- 4"	1'- 3"	7'-11"	1'- 0"	4'- 0"

④ TABLE OF REINFORCING STEEL

Bar	Size	Spa	No.
A1	# 5	~	2
A2	# 5	1'-6"	~
E	# 5	~	2
F	# 5	1'-0"	~

④ Quantities shown are for one structure end. (One headwall)



BARS F_2

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.

Texas Department of Transportation
Bridge Division

CONCRETE HEADWALLS WITH PARALLEL WINGS FOR SKEWED PIPE CULVERTS

CH-PW-S

FILE: chpwsetr.dgn	DN: GAF	CK: CAT	DW: BWH	CK: CAT
© TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		604
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003

HOUFILE023 \hcivil\cfd0130\ b34mop20.dgn-01

DISCLAIMER:
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LEVELS & LAYED ACC:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL

SLOPE	DIA OF PIPE, D	15 Degrees						30 Degrees						45 Degrees					
		Values for one Pipe			Values to be added for each addt'l Pipe			Values for one Pipe			Values to be added for each addt'l Pipe			Values for one Pipe			Values to be added for each addt'l Pipe		
		W	Reinf (Lbs)	Conc (CY) (1)	W	Reinf (Lbs)	Conc (CY) (1)	W	Reinf (Lbs)	Conc (CY) (1)	W	Reinf (Lbs)	Conc (CY) (1)	W	Reinf (Lbs)	Conc (CY) (1)	W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	9'- 4"	124	1.1	1'- 9 3/4"	15	0.2	10'- 5"	130	1.2	2'- 0"	16	0.2	12'- 9"	159	1.5	2'- 5 3/4"	17	0.3
	15"	10'- 7"	136	1.3	2'- 3"	17	0.2	11'-10"	159	1.5	2'- 6"	18	0.2	14'- 6"	191	1.8	3'- 0 3/4"	20	0.3
	18"	11'-11"	165	1.5	2'- 9"	19	0.3	13'- 3"	174	1.7	3'- 1"	29	0.3	16'- 3"	207	2.1	3'- 9 1/4"	33	0.4
	21"	13'- 2"	203	1.9	3'- 2 1/4"	31	0.4	14'- 9"	233	2.1	3'- 6 3/4"	33	0.4	18'- 0"	276	2.6	4'- 4 1/4"	36	0.5
	24"	14'- 6"	240	2.1	3'- 8 1/4"	34	0.4	16'- 2"	251	2.4	4'- 1 3/4"	36	0.5	19'-10"	318	2.9	5'- 0 3/4"	39	0.6
	27"	15'- 9"	258	2.5	4'- 0 3/4"	38	0.5	17'- 7"	292	2.8	4'- 6 1/4"	39	0.6	21'- 7"	342	3.4	5'- 6 1/4"	44	0.7
	30"	17'- 1"	297	2.8	4'- 5 3/4"	40	0.6	19'- 1"	311	3.1	5'- 0"	42	0.6	23'- 4"	388	3.8	6'- 1 3/4"	47	0.8
	33"	18'- 5"	320	3.3	4'- 9 3/4"	43	0.6	20'- 6"	358	3.6	5'- 4 3/4"	46	0.7	25'- 1"	439	4.4	6'- 7 1/4"	51	0.9
	36"	19'- 8"	401	4.0	5'- 3"	47	0.9	21'-11"	422	4.5	5'-10 3/4"	50	0.9	26'-10"	517	5.5	7'- 2 1/4"	55	1.2
	36" (MOD)	22'- 4"	643	5.4	5'- 3"	147	1.3	24'- 7"	718	5.9	5'-10 3/4"	170	1.4	29'- 6"	860	7.1	7'- 2 1/4"	217	1.7
	42"	22'- 3"	476	5.0	6'- 0 3/4"	53	1.1	24'-10"	528	5.6	6'- 8 3/4"	56	1.2	30'- 5"	634	6.9	8'- 3"	76	1.4
	48"	25'-11"	577	6.6	6'- 9 3/4"	60	1.3	28'-10"	637	7.3	7'- 7 1/4"	79	1.5	35'- 4"	791	9.0	9'- 3 3/4"	88	1.8
	54"	28'- 6"	711	7.8	7'- 9"	83	1.6	31'- 9"	781	8.7	8'- 8"	87	1.8	38'-11"	958	10.7	10'- 7 1/4"	97	2.2
	60"	31'- 1"	805	9.2	8'- 6 1/4"	91	1.9	34'- 8"	881	10.2	9'- 6 1/4"	97	2.1	42'- 5"	1113	12.5	11'- 8"	124	2.6
	66"	33'- 8"	907	10.6	9'- 0 3/4"	98	2.1	37'- 6"	1028	11.8	10'- 1 1/4"	102	2.4	46'- 0"	1235	14.5	12'- 4 1/4"	132	2.9
	72"	36'- 3"	1071	12.1	9'- 8"	105	2.4	40'- 5"	1207	13.5	10'- 9 1/4"	110	2.6	49'- 6"	1446	16.6	13'- 2 1/4"	141	3.2
3:1	12"	13'- 6"	178	1.6	1'- 9 3/4"	15	0.2	15'- 0"	189	1.8	2'- 0"	15	0.2	18'- 5"	237	2.2	2'- 5 3/4"	17	0.2
	15"	15'- 3"	212	1.9	2'- 3"	17	0.2	17'- 0"	223	2.1	2'- 6"	17	0.3	20'-10"	276	2.6	3'- 0 3/4"	20	0.3
	18"	17'- 1"	231	2.3	2'- 9"	19	0.3	19'- 1"	259	2.5	3'- 1"	29	0.3	23'- 4"	318	3.1	3'- 9 1/4"	32	0.4
	21"	18'-11"	306	2.7	3'- 2 1/4"	31	0.4	21'- 1"	339	3.0	3'- 6 3/4"	33	0.4	25'-10"	413	3.7	4'- 4 1/4"	36	0.5
	24"	20'- 8"	345	3.1	3'- 8 3/4"	35	0.4	23'- 1"	384	3.5	4'- 1 3/4"	36	0.5	28'- 3"	462	4.2	5'- 0 3/4"	40	0.6
	27"	22'- 6"	376	3.7	4'- 0 3/4"	38	0.5	25'- 1"	438	4.1	4'- 6 1/4"	39	0.6	30'- 9"	522	5.0	5'- 6 1/4"	44	0.7
	30"	24'- 4"	422	4.1	4'- 5 3/4"	40	0.6	27'- 2"	466	4.6	5'- 0"	42	0.6	33'- 3"	578	5.6	6'- 1 3/4"	47	0.8
	33"	26'- 2"	476	4.8	4'-10"	43	0.6	29'- 2"	522	5.3	5'- 4 3/4"	46	0.7	35'- 9"	644	6.5	6'- 7 1/4"	51	0.9
	36"	27'-11"	590	5.9	5'- 3 1/4"	47	0.8	31'- 2"	645	6.6	5'-10 3/4"	50	0.9	38'- 2"	787	8.0	7'- 2 1/4"	56	1.2
	36" (MOD)	31'-11"	923	7.7	5'- 3"	147	1.3	34'- 3"	1004	8.3	5'-10 3/4"	170	1.4	42'- 3"	1233	10.2	7'- 2 1/4"	217	1.7
	42"	31'- 7"	684	7.3	6'- 0 1/4"	53	1.1	35'- 3"	776	8.2	6'- 8 3/4"	56	1.2	43'- 2"	933	10.0	8'- 3"	79	1.4
	48"	36'- 9"	880	9.6	6'- 9 3/4"	61	1.3	41'- 0"	953	10.7	7'- 7 1/4"	81	1.5	50'- 2"	1166	13.1	9'- 3 3/4"	88	1.8
	54"	40'- 5"	1065	11.4	7'- 9"	85	1.6	45'- 0"	1185	12.7	8'- 8"	89	1.8	55'- 2"	1435	15.5	10'- 7 1/4"	97	2.2
	60"	44'- 0"	1224	13.3	8'- 6 1/4"	93	1.9	49'- 1"	1356	14.8	9'- 6 1/4"	96	2.1	60'- 1"	1627	18.2	11'- 8"	124	2.6
	66"	47'- 7"	1357	15.4	9'- 1"	98	2.1	53'- 1"	1497	17.2	10'- 1 1/4"	103	2.3	65'- 1"	1834	21.1	12'- 4 1/4"	130	2.9
	72"	51'- 3"	1624	17.7	9'- 8"	105	2.3	57'- 2"	1787	19.7	10'- 9 1/4"	109	2.6	70'- 0"	2210	24.1	13'- 2 1/4"	139	3.2
4:1	12"	17'- 7"	232	2.1	1'- 9 3/4"	15	0.2	19'- 8"	259	2.4	2'- 0"	16	0.2	24'- 0"	314	2.9	2'- 5 3/4"	18	0.2
	15"	19'-11"	272	2.5	2'- 3"	17	0.2	22'- 3"	301	2.8	2'- 6"	18	0.3	27'- 3"	361	3.5	3'- 0 3/4"	21	0.3
	18"	22'- 3"	313	3.0	2'- 9"	19	0.3	24'-10"	344	3.3	3'- 1"	29	0.3	30'- 5"	427	4.0	3'- 9 1/4"	32	0.4
	21"	24'- 7"	407	3.6	3'- 2 1/4"	31	0.4	27'- 5"	446	4.0	3'- 6 3/4"	33	0.4	33'- 7"	549	4.9	4'- 4 1/4"	36	0.5
	24"	26'-11"	455	4.1	3'- 8 3/4"	35	0.4	30'- 0"	499	4.5	4'- 1 3/4"	36	0.5	36'- 9"	609	5.6	5'- 0 3/4"	40	0.6
	27"	29'- 3"	514	4.8	4'- 0 3/4"	38	0.5	32'- 7"	562	5.4	4'- 6 1/4"	40	0.6	39'-11"	703	6.6	5'- 6 1/4"	43	0.7
	30"	31'- 7"	568	5.4	4'- 5 3/4"	40	0.6	35'- 3"	620	6.0	5'- 0"	42	0.6	43'- 2"	768	7.4	6'- 1 3/4"	49	0.8
	33"	33'-11"	634	6.2	4'-10"	43	0.7	37'-10"	710	7.0	5'- 4 3/4"	46	0.7	46'- 4"	848	8.5	6'- 7 1/4"	52	0.9
	36"	36'- 3"	776	7.7	5'- 3"	48	0.9	40'- 5"	868	8.6	5'-10 3/4"	49	0.9	49'- 6"	1058	10.6	7'- 2 1/4"	56	1.1
	36" (MOD)	40'- 8"	1182	9.8	5'- 3"	147	1.3	45'-10"	1327	11.0	5'-10 3/4"	170	1.4	54'-11"	1586	13.2	7'- 2 1/4"	217	1.7
	42"	40'-11"	921	9.6	6'- 0 1/4"	53	1.0	45'- 7"	1022	10.7	6'- 8 3/4"	57	1.2	55'-10"	1262	13.1	8'- 3"	78	1.4
	48"	47'- 7"	1152	12.6	6'-10"	61	1.3	53'- 1"	1268	14.0	7'- 7 1/4"	80	1.5	65'- 1"	1579	17.2	9'- 3 3/4"	86	1.8
	54"	52'- 3"	1416	14.9	7'- 9 1/4"	86	1.6	58'- 4"	1589	16.6	8'- 8"	89	1.8	71'- 5"	1916	20.4	10'- 7 1/4"	95	2.2
	60"	56'-11"	1606	17.5	8'- 6 3/4"	92	1.9	63'- 6"	1798	19.5	9'- 6 1/4"	95	2.1	77'- 9"	2184	23.9	11'- 8"	122	2.6
	66"	61'- 7"	1811	20.2	9'- 0 3/4"	97	2.1	68'- 8"	2011	22.5	10'- 1 1/4"	101	2.4	84'- 2"	2464	27.6	12'- 4 1/4"	131	2.9
	72"	66'- 3"	2142	23.2	9'- 8"	104	2.4	73'-11"	2371	25.9	10'- 9 1/4"	108	2.6	90'- 6"	2929	31.7	13'- 2 1/4"	138	3.2
6:1	12"	25'-11"	342	3.1	1'- 9 3/4"	15	0.2	28'-10"	374	3.5	2'- 0"	16	0.2	35'- 4"	456	4.3	2'- 5 3/4"	17	0.2
	15"	29'- 3"	390	3.7	2'- 3"	17	0.2	32'- 7"	442	4.2	2'- 6"	18	0.2	39'-11"	549	5.1	3'- 0 3/4"	20	0.3
	18"	32'- 7"	459	4.4	2'- 9"	20	0.3	36'- 4"	515	4.9	3'- 1"	29	0.3	44'- 7"	629	6.0	3'- 9 1/4"	33	0.4
	21"	36'- 0"	608	5.3	3'- 2 1/4"	31	0.4	40'- 2"	660	5.9	3'- 6 3/4"	33	0.4	49'- 2"	823	7.2	4'- 4 1/4"	38	0.5
	24"	39'- 4"	672	6.0	3'- 8 3/4"	35	0.4	43'-11"	748	6.7	4'- 1 3/4"	36	0.5	53'- 9"	920	8.2	5'- 0 3/4"	42	0.6
	27"	42'- 8"	770	7.1	4'- 0 3/4"	38	0.5	47'- 8"	852	8.0	4'- 6 1/4"	41	0.5	58'- 4"	1039	9.7	5'- 6 1/4"	45	0.7
	30"	46'- 1"	839	8.0	4'- 5 3/4"	40	0.6	51'- 5"	949	8.9	5'- 0"	44	0.6	62'-11"	1154	10.9	6'- 1 3/4"	48	0.8
	33"	49'- 5"	947	9.2	4'-10"	45	0.7	55'- 2"	1040	10.3	5'- 4 3/4"	48	0.7	67'- 6"	1284	12.6	6'- 7 1/4"	50	0.9
	36"	52'-10"	1151	11.4	5'- 3"	49	0.8	58'-11"	1287	12.7	5'-10 3/4"	51	1.0	72'- 1"	1575	15.6	7'- 2 1/4"	55	1.1
	36" (MOD)	59'-11"	1729	14.4	5'- 3"	147	1.3	67'- 0"	1930	16.1	5'-10 3/4"	170	1.4	80'- 2"	2318	19.3	7'- 2 1/4"	217	1.7
	42"	59'- 6"	1365	14.2	6'- 0 1/4"	55	1.0	66'- 5"	1522	15.8	6'- 8 3/4"	57	1.2	81'- 4"	1867	19.4	8'- 3"	76	1.4
	48"	69'- 4"	1729	18.5	6'-10"	59	1.3	77'- 4"	1934	20.7	7'- 7 1/4"	79	1.5	94'- 9"	2360	25.3	9'- 3 3/4"	86	1.8
	54"	76'- 1"	2130	22.0	7'- 9 1/4"	83	1.6	84'-10"	2370	24.6	8'- 8"	87	1.8	103'-11"	2904	30.1	10'- 7 1/4"	95	2.2
	60"	82'-10"	2414	25.8	8'- 6 3/4"	90	1.9	92'- 5"	2673	28.8	9'- 6 1/4"	94	2.1	113'-2"	3286	35.3	11'- 8"	122	2.6
	66"	89'- 7"	2712	29.9	9'- 0 3/4"	96	2.1	99'-11"	3030	33.3	10'- 1 1/4"	101	2.4	122'-4"	3689	40.8	12'- 4 1/4"	130	2.9
	72"	96'- 3"	3210	34.2	9'- 8"	102	2.4	107'-5"	3572	38.2	10'- 9 1/4"	108	2.6	131'-6"	4364	46.8	13'- 2 1/4"	139	3.2

(1) Quantities increase slightly for metal pipe installations.

DISCLAIMER:
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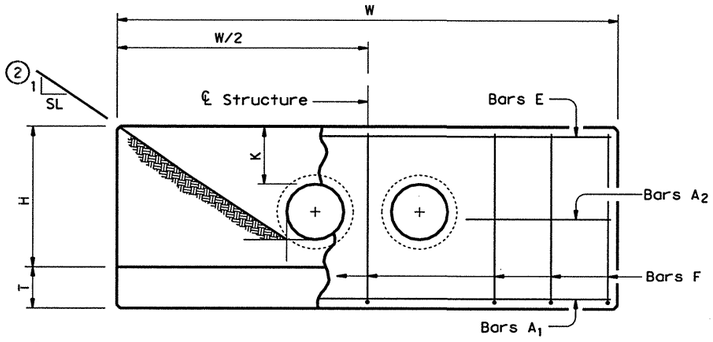
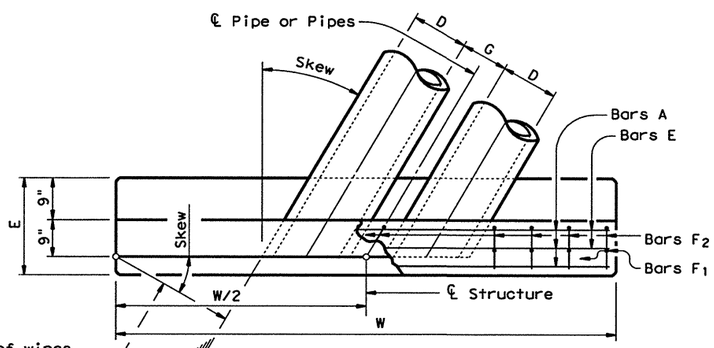
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 31 40 41 51 60
1 7 18 19 20 21 22 23 24 25 26 27 28 29 30 33 131 132
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 65 75 85 96 106 263

ACC:



(2) Indicated slope is perpendicular to ℄ Pipe or Pipes

ELEVATION



PLAN OF SKEWED PIPES

(SHOWING 30° SKEW)

BARS F2

℄ SECTION

(3) For vehicle safety, curb heights and wall heights ~~shall be~~ reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes ~~will be~~ made in quantities and no additional compensation will be allowed for this work.

TABLE OF CONSTANT DIMENSIONS

DIA OF PIPE, D	G	K	H	T	E
12"	9"	1'- 0"	2'- 8"	9"	1'- 9"
15"	11"	1'- 0"	2'-11"	9"	1'- 9"
18"	1'- 2"	1'- 0"	3'- 2"	9"	1'- 9"
21"	1'- 4"	1'- 0"	3'- 5"	9"	2'- 0"
24"	1'- 7"	1'- 0"	3'- 8"	9"	2'- 0"
27"	1'- 8"	1'- 0"	3'-11"	9"	2'- 3"
30"	1'-10"	1'- 0"	4'- 2"	9"	2'- 3"
33"	1'-11"	1'- 0"	4'- 5"	9"	2'- 6"
36"	2'- 1"	1'- 0"	4'- 8"	1'- 0"	2'- 6"
36" (MOD)	2'- 1"	1'- 8"	5'- 4"	1'- 0"	2'- 6"
42"	2'- 4"	1'- 0"	5'- 2"	1'- 0"	2'- 9"
48"	2'- 7"	1'- 3"	5'-11"	1'- 0"	3'- 0"
54"	3'- 0"	1'- 3"	6'- 5"	1'- 0"	3'- 3"
60"	3'- 3"	1'- 3"	6'-11"	1'- 0"	3'- 6"
66"	3'- 3"	1'- 3"	7'- 5"	1'- 0"	3'- 9"
72"	3'- 4"	1'- 3"	7'-11"	1'- 0"	4'- 0"

(4) TABLE OF REINFORCING STEEL

Bar	Size	Spa	No.
A1	# 5	~	2
A2	# 5	1'-6"	~
E	# 5	~	2
F	# 5	1'-0"	~

(4) Quantities shown are for one structure end. (One headwall)

GENERAL NOTES:
Designed according to current AASHTO Standard and Interim Specifications.
Reinforcing steel ~~shall be~~ placed with the center of the outside layer of bars 2" from the surface of the concrete.
All reinforcing steel ~~shall be~~ Grade 60.
All concrete ~~shall be~~ Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY P.E. 81485, ON JUNE 09, 2003

36" (MOD) ADDED

Texas Department of Transportation
Bridge Division

CONCRETE HEADWALLS WITH PARALLEL WINGS FOR SKEWED PIPE CULVERTS

CH-PW-S (MOD)

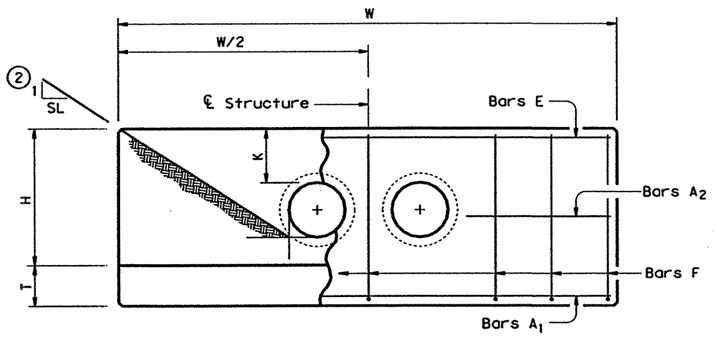
FILE: chpwsetc.dgn	DN: GAF	CK: CAT	DW: BWH	CK: CAT
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		604A
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

6/9/2003
HOUFILE023 \hcivil\cf0130\
b34mp185.dgn-03

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL

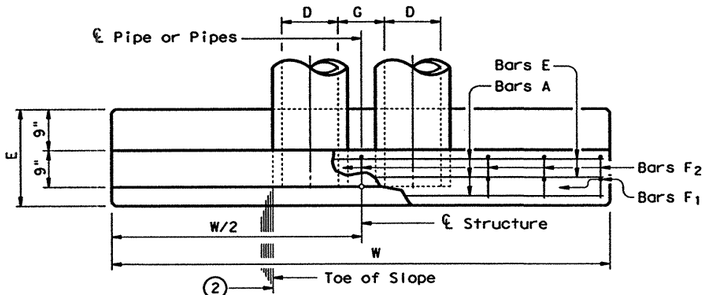
SLOPE	DIA OF PIPE, D	Values for one Pipe W	Values for one Pipe Reinf (Lbs)	Values for one Pipe Conc (CY) (1)	Values to be added for each addt'l Pipe W	Values to be added for each addt'l Pipe Reinf (Lbs)	Values to be added for each addt'l Pipe Conc (CY) (1)
2:1	12"	9'- 0"	122	1.1	1'- 9"	15	0.2
	15"	10'- 3"	136	1.3	2'- 2"	16	0.2
	18"	11'- 6"	163	1.5	2'- 8"	19	0.3
	21"	12'- 9"	200	1.8	3'- 1"	31	0.4
	24"	14'- 0"	217	2.1	3'- 7"	34	0.4
	27"	15'- 3"	254	2.4	3'-11"	37	0.5
	30"	16'- 6"	272	2.7	4'- 4"	40	0.6
	33"	17'- 9"	314	3.1	4'- 8"	43	0.6
	36"	19'- 0"	371	3.9	5'- 1"	46	0.8
	42"	21'- 6"	442	4.9	5'-10"	52	1.0
	48"	25'- 0"	569	6.4	6'- 7"	59	1.3
	54"	27'- 6"	701	7.5	7'- 6"	82	1.6
	60"	30'- 0"	794	8.8	8'- 3"	90	1.8
	66"	32'- 6"	894	10.2	8'- 9"	96	2.0
	72"	35'- 0"	1055	11.7	9'- 4"	103	2.3
3:1	12"	13'- 0"	175	1.6	1'- 9"	14	0.2
	15"	14'- 9"	193	1.9	2'- 2"	17	0.2
	18"	16'- 6"	228	2.2	2'- 8"	19	0.3
	21"	18'- 3"	299	2.6	3'- 1"	31	0.4
	24"	20'- 0"	323	3.0	3'- 7"	33	0.4
	27"	21'- 9"	371	3.5	3'-11"	37	0.5
	30"	23'- 6"	415	4.0	4'- 4"	40	0.5
	33"	25'- 3"	469	4.6	4'- 8"	43	0.6
	36"	27'- 0"	556	5.7	5'- 1"	46	0.8
	42"	30'- 6"	675	7.1	5'-10"	52	1.0
	48"	35'- 6"	837	9.2	6'- 7"	59	1.3
	54"	39'- 0"	1015	11.0	7'- 6"	84	1.6
	60"	42'- 6"	1171	12.9	8'- 3"	91	1.8
	66"	46'- 0"	1298	14.9	8'- 9"	98	2.0
	72"	49'- 6"	1561	17.1	9'- 4"	103	2.3
4:1	12"	17'- 0"	229	2.0	1'- 9"	15	0.2
	15"	19'- 3"	266	2.4	2'- 2"	17	0.2
	18"	21'- 6"	308	2.9	2'- 8"	19	0.3
	21"	23'- 9"	382	3.5	3'- 1"	31	0.3
	24"	26'- 0"	430	3.9	3'- 7"	34	0.4
	27"	28'- 3"	486	4.7	3'-11"	37	0.5
	30"	30'- 6"	539	5.2	4'- 4"	40	0.6
	33"	32'- 9"	603	6.0	4'- 8"	42	0.6
	36"	35'- 0"	738	7.5	5'- 1"	47	0.8
	42"	39'- 6"	881	9.3	5'-10"	52	1.0
	48"	46'- 0"	1102	12.1	6'- 7"	61	1.3
	54"	50'- 6"	1364	14.4	7'- 6"	84	1.6
	60"	55'- 0"	1547	16.9	8'- 3"	91	1.8
	66"	59'- 6"	1741	19.5	8'- 9"	98	2.0
	72"	64'- 0"	2069	22.4	9'- 4"	102	2.3
6:1	12"	25'- 0"	336	3.0	1'- 9"	14	0.2
	15"	28'- 3"	384	3.6	2'- 2"	17	0.2
	18"	31'- 6"	452	4.2	2'- 8"	19	0.3
	21"	34'- 9"	581	5.1	3'- 1"	31	0.4
	24"	38'- 0"	644	5.8	3'- 7"	34	0.4
	27"	41'- 3"	737	6.9	3'-11"	37	0.5
	30"	44'- 6"	807	7.7	4'- 4"	39	0.6
	33"	47'- 9"	912	8.9	4'- 8"	44	0.6
	36"	51'- 0"	1108	11.0	5'- 1"	48	0.8
	42"	57'- 6"	1318	13.7	5'-10"	54	1.0
	48"	67'- 0"	1674	17.9	6'- 7"	59	1.3
	54"	73'- 6"	2064	21.3	7'- 6"	83	1.6
	60"	80'- 0"	2343	24.9	8'- 3"	89	1.8
	66"	86'- 6"	2635	28.9	8'- 9"	96	2.0
	72"	93'- 0"	3123	33.1	9'- 4"	101	2.3

(1) Quantities increase slightly for metal pipe installations.

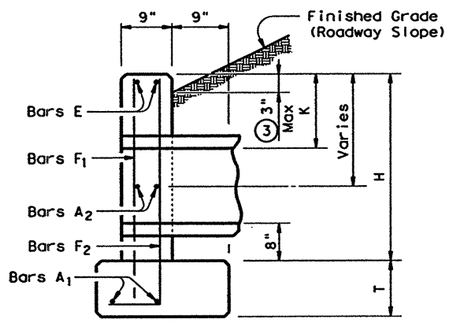


(2) Indicated slope is perpendicular to ℄ Pipe or Pipes

ELEVATION



PLAN OF NON-SKEWED PIPES



℄ SECTION

(3) For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

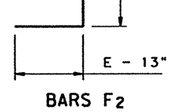
TABLE OF CONSTANT DIMENSIONS

DIA OF PIPE, D	G	K	H	T	E
12"	9"	1'- 0"	2'- 8"	9"	1'- 9"
15"	11"	1'- 0"	2'-11"	9"	1'- 9"
18"	1'- 2"	1'- 0"	3'- 2"	9"	1'- 9"
21"	1'- 4"	1'- 0"	3'- 5"	9"	2'- 0"
24"	1'- 7"	1'- 0"	3'- 8"	9"	2'- 0"
27"	1'- 8"	1'- 0"	3'-11"	9"	2'- 3"
30"	1'-10"	1'- 0"	4'- 2"	9"	2'- 3"
33"	1'-11"	1'- 0"	4'- 5"	9"	2'- 6"
36"	2'- 1"	1'- 0"	4'- 8"	1'- 0"	2'- 6"
42"	2'- 4"	1'- 0"	5'- 2"	1'- 0"	2'- 9"
48"	2'- 7"	1'- 3"	5'-11"	1'- 0"	3'- 0"
54"	3'- 0"	1'- 3"	6'- 5"	1'- 0"	3'- 3"
60"	3'- 3"	1'- 3"	6'-11"	1'- 0"	3'- 6"
66"	3'- 3"	1'- 3"	7'- 5"	1'- 0"	3'- 9"
72"	3'- 4"	1'- 3"	7'-11"	1'- 0"	4'- 0"

(4) TABLE OF REINFORCING STEEL

Bar	Size	Spa	No.
A1	# 5	~	2
A2	# 5	1'-6"	~
E	# 5	~	2
F	# 5	1'-0"	~

(4) Quantities shown are for one structure end. (One headwall)



BARS F2

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.

Texas Department of Transportation
Bridge Division

CONCRETE HEADWALLS WITH PARALLEL WINGS FOR NON-SKEWED PIPE CULVERTS

CH-PW-0

FILE: chpw0etc.dgn	DN: GAF	CK: CAT	DW: BWH	CK: CAT
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		605
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

DISCLAIMER:
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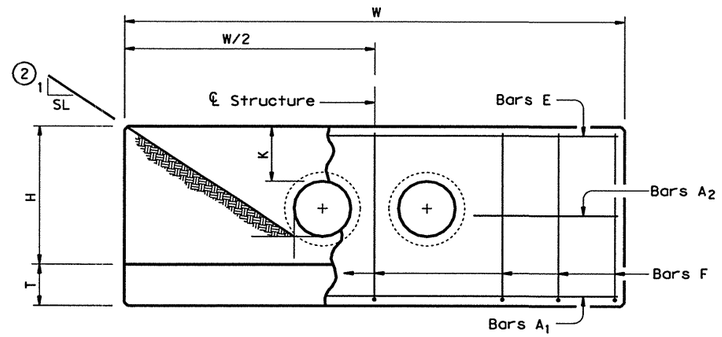
LEVELS UISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL

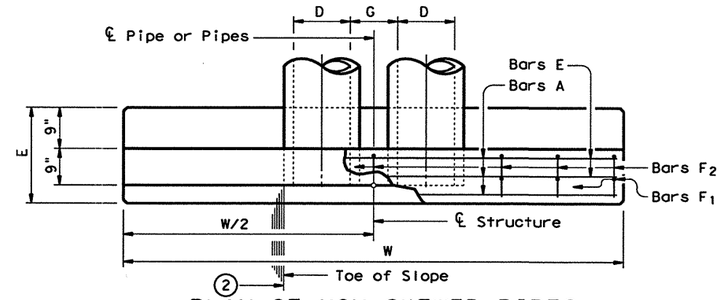
SLOPE	DIA OF PIPE, D	Values for one Pipe W	Reinf (Lbs)	Conc (CY) (1)	Values to be added for each addt'l Pipe W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	9'- 0"	122	1.1	1'- 9"	15	0.2
	15"	10'- 3"	136	1.3	2'- 2"	16	0.2
	18"	11'- 6"	163	1.5	2'- 8"	19	0.3
	21"	12'- 9"	200	1.8	3'- 1"	31	0.4
	24"	14'- 0"	217	2.1	3'- 7"	34	0.4
	27"	15'- 3"	254	2.4	3'-11"	37	0.5
	30"	16'- 6"	272	2.7	4'- 4"	40	0.6
	33"	17'- 9"	314	3.1	4'- 8"	43	0.6
	36"	19'- 0"	371	3.9	5'- 1"	46	0.8
	36"(MOD1)	22'- 4"	665	5.5	5'- 1"	146	1.2
	36"(MOD2)	32'- 6"	1042	7.5	5'- 1"	163	1.4
	42"	21'- 6"	442	4.9	5'-10"	52	1.0
	48"	25'- 0"	569	6.4	6'- 7"	59	1.3
	54"	27'- 6"	701	7.5	7'- 6"	82	1.6
	60"	30'- 0"	794	8.8	8'- 3"	90	1.8
	66"	32'- 6"	894	10.2	8'- 9"	96	2.0
	72"	35'- 0"	1055	11.7	9'- 4"	103	2.3
3:1	12"	13'- 0"	175	1.6	1'- 9"	14	0.2
	15"	14'- 9"	193	1.9	2'- 2"	17	0.2
	18"	16'- 6"	228	2.2	2'- 8"	19	0.3
	21"	18'- 3"	299	2.6	3'- 1"	31	0.4
	24"	20'- 0"	323	3.0	3'- 7"	33	0.4
	27"	21'- 9"	371	3.5	3'-11"	37	0.5
	30"	23'- 6"	415	4.0	4'- 4"	40	0.5
	33"	25'- 3"	469	4.6	4'- 8"	43	0.6
	36"	27'- 0"	556	5.7	5'- 1"	46	0.8
	36"(MOD1)	32'- 0"	994	7.9	5'- 1"	146	1.2
	36"(MOD2)	47'- 0"	1507	10.9	5'- 1"	163	1.4
	42"	30'- 6"	675	7.1	5'-10"	52	1.0
	48"	35'- 6"	837	9.2	6'- 7"	59	1.3
	54"	39'- 0"	1015	11.0	7'- 6"	84	1.6
	60"	42'- 6"	1171	12.9	8'- 3"	91	1.8
	66"	46'- 0"	1298	14.9	8'- 9"	98	2.0
	72"	49'- 6"	1561	17.1	9'- 4"	103	2.3
4:1	12"	17'- 0"	229	2.0	1'- 9"	15	0.2
	15"	19'- 3"	266	2.4	2'- 2"	17	0.2
	18"	21'- 6"	308	2.9	2'- 8"	19	0.3
	21"	23'- 9"	382	3.5	3'- 1"	31	0.3
	24"	26'- 0"	430	3.9	3'- 7"	34	0.4
	27"	28'- 3"	486	4.7	3'-11"	37	0.5
	30"	30'- 6"	539	5.2	4'- 4"	40	0.6
	33"	32'- 9"	603	6.0	4'- 8"	42	0.6
	36"	35'- 0"	738	7.5	5'- 1"	47	0.8
	36"(MOD1)	41'- 8"	1220	10.2	5'- 1"	146	1.2
	36"(MOD2)	62'- 0"	1988	14.4	5'- 1"	163	1.4
	42"	39'- 6"	881	9.3	5'-10"	52	1.0
	48"	46'- 0"	1102	12.1	6'- 7"	61	1.3
	54"	50'- 6"	1364	14.4	7'- 6"	84	1.6
	60"	55'- 0"	1547	16.9	8'- 3"	91	1.8
	66"	59'- 6"	1741	19.5	8'- 9"	98	2.0
	72"	64'- 0"	2069	22.4	9'- 4"	102	2.3
6:1	12"	25'- 0"	336	3.0	1'- 9"	14	0.2
	15"	28'- 3"	384	3.6	2'- 2"	17	0.2
	18"	31'- 6"	452	4.2	2'- 8"	19	0.3
	21"	34'- 9"	581	5.1	3'- 1"	31	0.4
	24"	38'- 0"	644	5.8	3'- 7"	34	0.4
	27"	41'- 3"	737	6.9	3'-11"	37	0.5
	30"	44'- 6"	807	7.7	4'- 4"	39	0.6
	33"	47'- 9"	912	8.9	4'- 8"	44	0.6
	36"	51'- 0"	1108	11.0	5'- 1"	48	0.8
	36"(MOD1)	61'- 0"	1775	15.0	5'- 1"	146	1.2
	36"(MOD2)	91'- 0"	2918	21.1	5'- 1"	163	1.4
	42"	57'- 6"	1318	13.7	5'-10"	54	1.0
	48"	67'- 0"	1674	17.9	6'- 7"	59	1.3
	54"	73'- 6"	2064	21.3	7'- 6"	83	1.6
	60"	80'- 0"	2343	24.9	8'- 3"	89	1.8
	66"	86'- 6"	2635	28.9	8'- 9"	96	2.0
	72"	93'- 0"	3123	33.1	9'- 4"	101	2.3

(1) Quantities increase slightly for metal pipe installations.



(2) Indicated slope is perpendicular to ℄ Pipe or Pipes

ELEVATION



PLAN OF NON-SKEWED PIPES

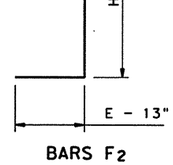
TABLE OF CONSTANT DIMENSIONS

DIA OF PIPE, D	G	K	H	T	E
12"	9"	1'- 0"	2'- 8"	9"	1'- 9"
15"	11"	1'- 0"	2'-11"	9"	1'- 9"
18"	1'- 2"	1'- 0"	3'- 2"	9"	1'- 9"
21"	1'- 4"	1'- 0"	3'- 5"	9"	2'- 0"
24"	1'- 7"	1'- 0"	3'- 8"	9"	2'- 0"
27"	1'- 8"	1'- 0"	3'-11"	9"	2'- 3"
30"	1'-10"	1'- 0"	4'- 2"	9"	2'- 3"
33"	1'-11"	1'- 0"	4'- 5"	9"	2'- 6"
36"	2'- 1"	1'- 0"	4'- 8"	1'- 0"	2'- 6"
36" (MOD1)	2'- 1"	1'- 10"	5'- 6"	1'- 0"	2'- 6"
36" (MOD2)	2'- 1"	4'- 4"	8'- 0"	1'- 0"	2'- 6"
42"	2'- 4"	1'- 0"	5'- 2"	1'- 0"	2'- 9"
48"	2'- 7"	1'- 3"	5'-11"	1'- 0"	3'- 0"
54"	3'- 0"	1'- 3"	6'- 5"	1'- 0"	3'- 3"
60"	3'- 3"	1'- 3"	6'-11"	1'- 0"	3'- 6"
66"	3'- 3"	1'- 3"	7'- 5"	1'- 0"	3'- 9"
72"	3'- 4"	1'- 3"	7'-11"	1'- 0"	4'- 0"

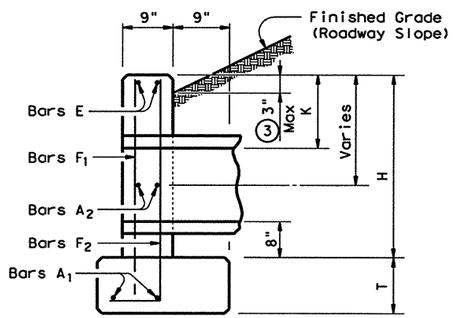
(4) TABLE OF REINFORCING STEEL

Bar	Size	Spa	No.
A1	# 5	~	2
A2	# 5	1'-6"	~
E	# 5	~	2
F	# 5	1'-0"	~

(4) Quantities shown are for one structure end. (One headwall)



BARS F_2



℄ SECTION

(3) For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Reinforcing steel ~~shall be~~ placed with the center of the outside layer of bars 2" from the surface of the concrete.

All reinforcing steel ~~shall be~~ Grade 60.

All concrete ~~shall be~~ Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.

STATE OF TEXAS — A.A. ABUGATTAS — 34940 — REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS P.E. 34940, ON JUNE 09, 2003

A. A. Abugattas

36" (MOD1) & (MOD2) ADDED

Texas Department of Transportation
Bridge Division

CONCRETE HEADWALLS WITH PARALLEL WINGS FOR NON-SKEWED PIPE CULVERTS

CH-PW-0 (MOD)

FILE: ~~chpw0ele.dgn~~	DN: GAF	CK: CAT	DW: BWH	CK: CAT
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		60SA
	COUNTY	CONTROL	SECT JOB	HIGHWAY
	WEBB	0018	05 062, ETC	IH 35

6/9/2003 HOUFILE023 \hciviil\cf0130\ b34mp177.dgn-03

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LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 31 41 51 61
71 81 92 02 12 22 32 42 52 62 72 82 93 03 13 23
33 43 53 63 73 83 94 04 14 24 34 44 54 64 74 84
95 05 15 25 35 45 55 65 75 85 96 06 16 26 36 46

ACC:

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL

SLOPE	DIA OF PIPE, D	Values for one Pipe W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	Values to be added for each addt'l Pipe X and W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	4'- 7 1/2"	2'- 6"	2'-10"	3'- 3 1/4"	84	0.6	1'- 9"	20	0.2
	15"	5'- 5 3/4"	2'- 9 1/2"	3'- 4"	3'-10 1/4"	99	0.7	2'- 2"	24	0.3
	18"	6'- 4 1/4"	3'- 1"	3'-10"	4'- 5"	120	0.9	2'- 8"	32	0.3
	21"	7'- 2 3/4"	3'- 4 1/2"	4'- 4"	5'- 0"	137	1.1	3'- 1"	43	0.4
	24"	8'- 2 1/2"	3'- 9 1/2"	4'-10"	5'- 7"	158	1.3	3'- 7"	50	0.5
	27"	9'- 1"	4'- 1"	5'- 4"	6'- 2"	173	1.5	3'-11"	56	0.6
	30"	9'-11 1/2"	4'- 4 1/2"	5'-10"	6'- 8 3/4"	197	1.7	4'- 4"	65	0.8
	33"	10'-10"	4'- 8"	6'- 4"	7'- 3 3/4"	216	2.0	4'- 8"	71	0.9
	36"	11'- 8 1/4"	4'-11 1/2"	6'-10"	7'-10 3/4"	241	2.2	5'- 1"	81	1.0
	42"	13'- 5 1/4"	5'- 6 1/2"	7'-10"	9'- 0 1/2"	290	2.8	5'-10"	97	1.3
	48"	15'- 9"	6'- 1 1/2"	9'- 4"	10'- 9 1/4"	350	3.8	6'- 7"	117	1.7
	54"	17'- 5 3/4"	6'- 8 1/2"	10'- 4"	11'-11 1/4"	415	4.5	7'- 6"	151	2.1
	60"	19'- 2 3/4"	7'- 3 1/2"	11'- 4"	13'- 1"	469	5.3	8'- 3"	174	2.5
	66"	20'-11 1/2"	7'-10 1/2"	12'- 4"	14'- 3"	530	6.2	8'- 9"	194	2.9
	72"	22'- 8 1/2"	8'- 5 1/2"	13'- 4"	15'- 4 3/4"	587	7.1	9'- 4"	213	3.3
3:1	12"	6'- 3"	2'- 6"	4'- 3"	4'-11"	114	0.8	1'- 9"	22	0.2
	15"	7'- 5"	2'- 9 1/2"	5'- 0"	5'- 9 1/4"	133	1.1	2'- 2"	28	0.3
	18"	8'- 6 3/4"	3'- 1"	5'- 9"	6'- 7 3/4"	166	1.3	2'- 8"	37	0.5
	21"	9'- 8 3/4"	3'- 4 1/2"	6'- 6"	7'- 6"	189	1.6	3'- 1"	48	0.6
	24"	11'- 0"	3'- 9 1/2"	7'- 3"	8'- 4 1/2"	221	2.0	3'- 7"	58	0.7
	27"	12'- 2"	4'- 1"	8'- 0"	9'- 2 3/4"	245	2.3	3'-11"	67	0.8
	30"	13'- 4"	4'- 4 1/2"	8'- 9"	10'- 1 1/4"	287	2.7	4'- 4"	77	1.0
	33"	14'- 5 3/4"	4'- 8"	9'- 6"	10'-11 3/4"	310	3.1	4'- 8"	84	1.2
	36"	15'- 7 3/4"	4'-11 1/2"	10'- 3"	11'-10"	343	3.5	5'- 1"	96	1.4
	42"	17'-11 1/2"	5'- 6 1/2"	11'- 9"	13'- 6 3/4"	424	4.5	5'-10"	119	1.7
	48"	21'- 1 3/4"	6'- 1 1/2"	14'- 0"	16'- 2"	527	6.1	6'- 7"	146	2.3
	54"	23'- 5 1/2"	6'- 8 1/2"	15'- 6"	17'-10 3/4"	618	7.3	7'- 6"	186	2.9
	60"	25'- 9 1/4"	7'- 3 1/2"	17'- 0"	19'- 7 1/2"	707	8.7	8'- 3"	219	3.4
	66"	28'- 1"	7'-10 1/2"	18'- 6"	21'- 4 1/4"	797	10.1	8'- 9"	242	3.9
	72"	30'- 4 3/4"	8'- 5 1/2"	20'- 0"	23'- 1 1/4"	910	11.7	9'- 4"	272	4.4
4:1	12"	7'-10 3/4"	2'- 6"	5'- 8"	6'- 6 1/2"	144	1.1	1'- 9"	24	0.3
	15"	9'- 4"	2'- 9 1/2"	6'- 8"	7'- 8 1/2"	177	1.5	2'- 2"	32	0.4
	18"	10'- 9 1/2"	3'- 1"	7'- 8"	8'-10 1/4"	217	1.9	2'- 8"	42	0.5
	21"	12'- 2 3/4"	3'- 4 1/2"	8'- 8"	10'- 0"	254	2.3	3'- 1"	57	0.7
	24"	13'- 9 1/2"	3'- 9 1/2"	9'- 8"	11'- 2"	295	2.8	3'- 7"	67	0.9
	27"	15'- 3"	4'- 1"	10'- 8"	12'- 3 3/4"	328	3.3	3'-11"	77	1.0
	30"	16'- 8 1/4"	4'- 4 1/2"	11'- 8"	13'- 5 3/4"	379	3.8	4'- 4"	89	1.3
	33"	18'- 1 3/4"	4'- 8"	12'- 8"	14'- 7 1/2"	417	4.5	4'- 8"	101	1.4
	36"	19'- 7"	4'-11 1/2"	13'- 8"	15'- 9 1/4"	464	5.1	5'-1"	115	1.7
	42"	22'- 5 3/4"	5'- 6 1/2"	15'- 8"	18'- 1"	575	6.5	5'-10"	141	2.1
	48"	26'- 6 1/4"	6'- 1 1/2"	18'- 8"	21'- 6 3/4"	720	8.9	6'- 7"	175	2.8
	54"	29'- 5"	6'- 8 1/2"	20'- 8"	23'-10 1/4"	863	10.7	7'- 6"	226	3.6
	60"	32'- 3 3/4"	7'- 3 1/2"	22'- 8"	26'- 2"	984	12.7	8'- 3"	264	4.3
	66"	35'- 2 1/2"	7'-10 1/2"	24'- 8"	28'- 5 3/4"	1126	14.9	8'- 9"	300	4.9
	72"	38'- 1 1/4"	8'- 5 1/2"	26'- 8"	30'- 9 1/2"	1283	17.3	9'- 4"	334	5.6
6:1	12"	11'- 2"	2'- 6"	8'- 6"	9'- 9 3/4"	220	1.9	1'- 9"	28	0.4
	15"	13'- 2 1/4"	2'- 9 1/2"	10'- 0"	11'- 6 1/2"	264	2.5	2'- 2"	37	0.5
	18"	15'- 2 1/2"	3'- 1"	11'- 6"	13'- 3 1/4"	326	3.2	2'- 8"	50	0.7
	21"	17'- 2 3/4"	3'- 4 1/2"	13'- 0"	15'- 0 1/4"	381	3.9	3'- 1"	69	0.9
	24"	19'- 4 1/2"	3'- 9 1/2"	14'- 6"	16'- 9"	447	4.8	3'- 7"	80	1.2
	27"	21'- 4 3/4"	4'- 1"	16'- 0"	18'- 5 3/4"	506	5.7	3'-11"	96	1.4
	30"	23'- 5 1/4"	4'- 4 1/2"	17'- 6"	20'- 2 1/2"	587	6.7	4'- 4"	110	1.7
	33"	25'- 5 1/2"	4'- 8"	19'- 0"	21'-11 1/4"	667	7.8	4'- 8"	127	2.0
	36"	27'- 5 3/4"	4'-11 1/2"	20'- 6"	23'- 8"	727	9.0	5'- 1"	144	2.3
	42"	31'- 6 1/4"	5'- 6 1/2"	23'- 6"	27'- 1 1/2"	914	11.5	5'-10"	179	3.0
	48"	37'- 3 1/2"	6'- 1 1/2"	28'- 0"	32'- 4"	1181	15.9	6'- 7"	231	4.0
	54"	41'- 4 1/4"	6'- 8 1/2"	31'- 0"	35'- 9 1/2"	1412	19.2	7'- 6"	300	5.0
	60"	45'- 4 3/4"	7'- 3 1/2"	34'- 0"	39'- 3"	1619	22.9	8'- 3"	353	6.0

(1) Quantities increase slightly for metal pipe installations.

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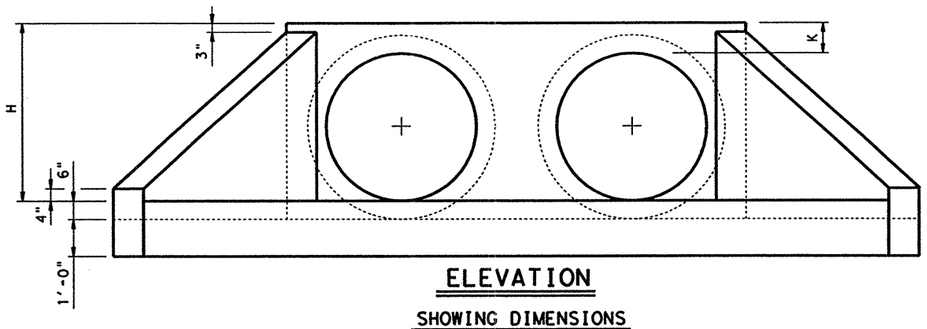
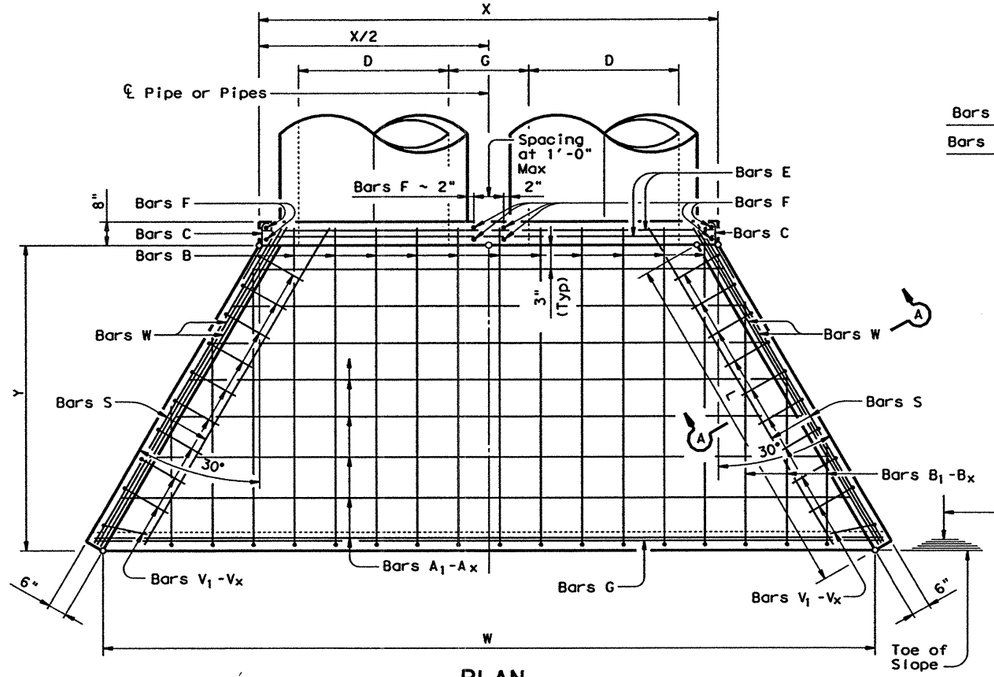
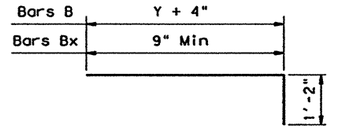
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
ACC:



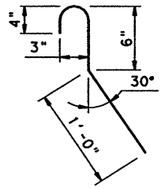
ELEVATION
SHOWING DIMENSIONS



PLAN



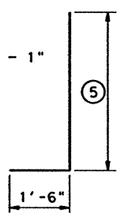
BARS B & B1-Bx



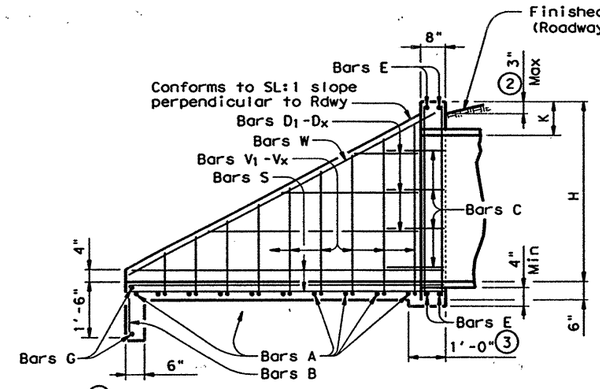
BARS C
(2'-0" long)

(5) Min Length = $6" + 3" \times \left(\frac{12 \times H - 7}{12 \times L}\right)$

Max Length = $12 \times H - 3" \times \left(\frac{12 \times H - 7}{12 \times L}\right) - 1"$



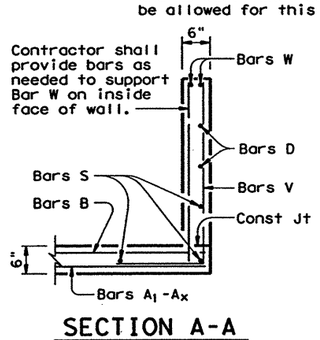
BARS V



(3) Provide a 1'-0" footing as shown where required to maintain 4" Min cover for pipes.

TYPICAL WING ELEVATION

(2) For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.



SECTION A-A

(4) TABLE OF REINFORCING STEEL

Bar	Size	Spa	No.
A	# 4	1'-0"	~
B	# 3	1'-6"	~
C	# 4	1'-0"	~
D	# 3	1'-0"	~
E	# 5	~	4
F	# 5	~	~
G	# 3	~	2
S	# 4	~	6
V	# 4	1'-0"	~
W	# 5	~	4

(4) Quantities shown are for one structure end. (One headwall)

TABLE OF CONSTANT DIMENSIONS

DIA OF PIPE, D	G	K	H
12"	9"	1'- 0"	2'- 0"
15"	11"	1'- 0"	2'- 3"
18"	1'- 2"	1'- 0"	2'- 6"
21"	1'- 4"	1'- 0"	2'- 9"
24"	1'- 7"	1'- 0"	3'- 0"
27"	1'- 8"	1'- 0"	3'- 3"
30"	1'-10"	1'- 0"	3'- 6"
33"	1'-11"	1'- 0"	3'- 9"
36"	2'- 1"	1'- 0"	4'- 0"
42"	2'- 4"	1'- 0"	4'- 6"
48"	2'- 7"	1'- 3"	5'- 3"
54"	3'- 0"	1'- 3"	5'- 9"
60"	3'- 3"	1'- 3"	6'- 3"
66"	3'- 3"	1'- 3"	6'- 9"
72"	3'- 4"	1'- 3"	7'- 3"

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.

Texas Department of Transportation
Bridge Division

CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS

CH-FW-0

FILE: ch-fw00se.dgn	DN: GAF	CK: CAT	DW: BWH	CK: CAT
© TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		605B
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

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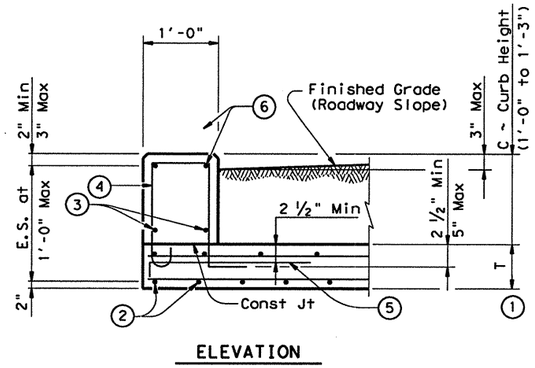
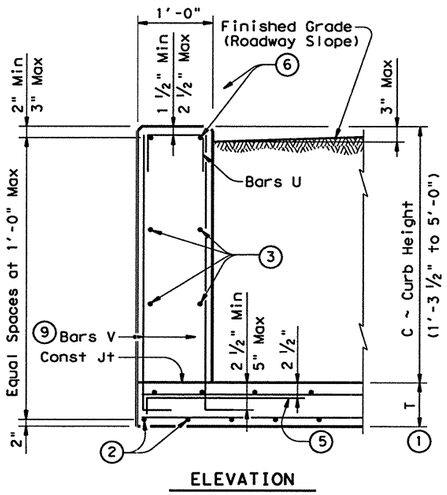


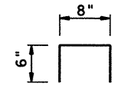
ELEVATION

FILL HEIGHTS FROM 1'-0" TO 1'-3"

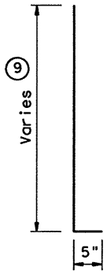


ELEVATION

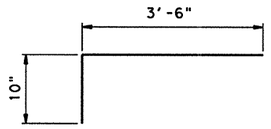
FILL HEIGHTS FROM 1'-3 ½" TO 5'-0"



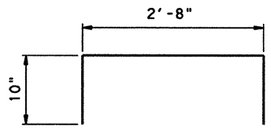
BARS U (#4)
("C" = 1'-3 ½" to 5'-0")
Space at 2'-0" Max



BARS V (#5)
("C" = 1'-3 ½" to 5'-0")
Space at 1'-0" Max



BARS L (#5)
("C" = 1'-0 ½" to 5'-0")
Space at 1'-0" Max



⑦ OPTIONAL BARS L (#5)
("C" = 1'-0 ½" to 5'-0")
Space at 1'-0" Max

⑧ TABLE OF ESTIMATED CURB QUANTITIES

Curb Height (C)	Class "C" Conc (CY/Ft)	Reinf Steel (Lb/Ft)
1'- 0"	0.037	5.51
1'- 3"	0.046	5.51
1'- 3½"	0.048	5.01
1'- 9"	0.065	5.49
1'-10"	0.068	6.97
2'- 9"	0.102	7.87
2'-10"	0.105	9.29
3'- 9"	0.139	10.25
3'-10"	0.142	11.67
4'- 9"	0.176	12.63
4'-10"	0.179	14.05
5'- 0"	0.185	14.22

① For T less than 7" see Standard SCP-MD for details not shown.

② Normal Culvert Bars B or additional Bars H per skewed end details.

③ Additional #4 Bars as required to maintain 1'-0" max spa.

④ Place normal culvert Bars K as shown

⑤ For curbs greater than 1'-0" high, place Bars L as shown. Tilt hook as necessary to maintain cover.

⑥ Place normal culvert Bars H as shown

⑦ Optional Bars L are to be used only for Precast Box Culverts with 3'-0" closure pour.

⑧ Quantities shown are per linear foot of curb length assuming T=7". Values in table can be interpolated for intermediate values of curb height, C. Quantity includes Bars K (when applicable) and Bars H shown on the box culvert standards.

⑨ Length of Bars V may be adjusted as necessary to maintain clear cover. Omit normal culvert Bars K when using Bars V.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Designed for HS20 loading.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.

All reinforcing bars shall be adjusted to provide 1¼" clear cover.

These extended curb details have sufficient strength to allow for future retrofit of T6 rail. These details are not suitable for mounting other rail types. For new construction using T6 rail use T6-CM standard.

The extended curb is considered part of the Box Culvert for payment.

For vehicle safety the top of curb shall not extend more than 3" above finished grade.

HS20 LOADING

Texas Department of Transportation
Bridge Division

EXTENDED CURB DETAILS
FOR BOX CULVERTS WITH CURBS FROM 1'-0" TO 5'-0"

ECD

FILE: ecdstdet1.dgn	DN: GAF	CK: ARC	DW: TxDOT	CK: GAF
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		605C
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

6/4/2003

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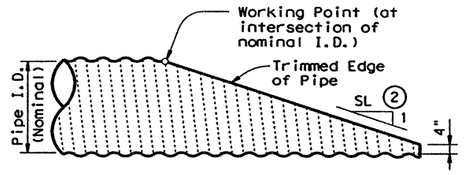
ACC:

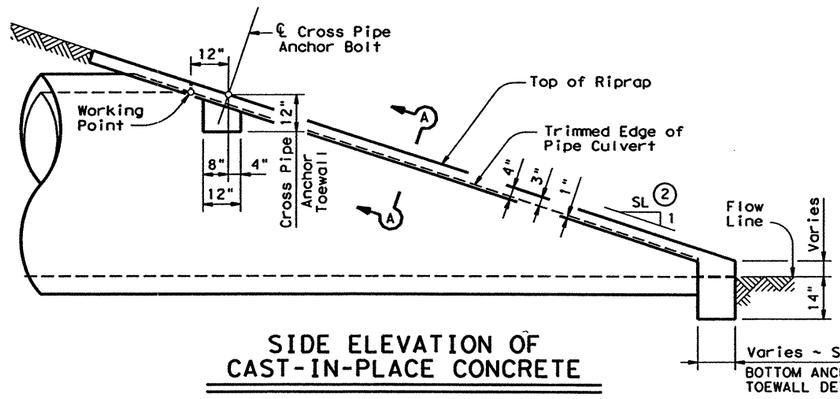
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 31 41 51 61
1 11 81 92 02 12 22 32 42 52 62 72 82 93 03 13 52
3 33 43 53 63 73 83 94 04 14 24 34 44 54 64 74 84
4 95 05 15 25 35 45 55 65 75 85 96 06 16 26 36



NOTE: All Pipe Runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

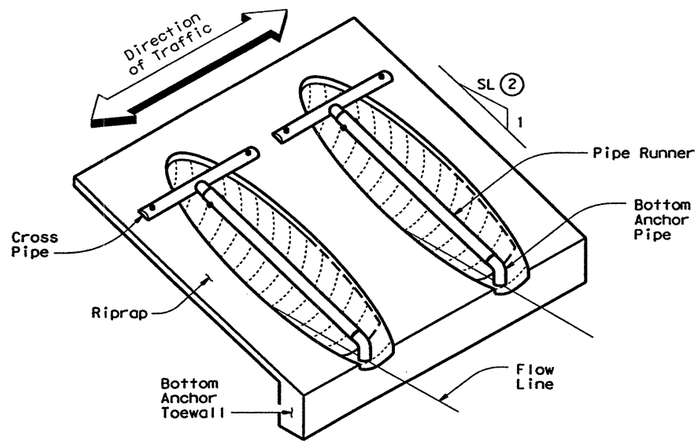
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing Corrugated Metal Pipe Culvert. Details of Concrete Pipe Culvert are similar.)



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing Concrete Pipe Culvert. Details of Corrugated Metal Pipe Culvert are similar. Pipe Runners not shown for clarity)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

(1) CROSS PIPE LENGTHS, PIPE RUNNER LENGTHS, & REQUIRED PIPE SIZES

Nominal Culvert I.D.	Pipe Culvert Spa ~ G	Cross Pipe Length	3:1 Side Slope		4:1 Side Slope		6:1 Side Slope	
			Pipe Runner Length	Pipe Runner Size	Pipe Runner Length	Pipe Runner Size	Pipe Runner Length	Pipe Runner Size
24"	1'- 7"	3'- 5"	3'- 9"	3"	5'- 5"	3"	8'- 7"	3"
27"	1'- 8"	3'- 8"	4'- 7"	3"	6'- 5"	3"	10'- 2"	4"
30"	1'-10"	3'-11"	5'- 4"	3"	7'- 6"	3"	11'- 9"	4"
33"	1'-11"	4'- 2"	6'- 2"	3"	8'- 6"	3"	13'- 3"	4"
36"	2'- 1"	4'- 5"	6'-11"	3"	9'- 6"	3"	14'- 9"	4"
42"	2'- 4"	4'-11"	8'- 6"	3"	11'- 6"	4"	17'- 9"	4"
48"	2'- 7"	5'- 5"	10'- 1"	4"	13'- 7"	4"	20'- 9"	5"
54"	3'- 0"	5'-11"	11'- 8"	4"	15'- 8"	4"	23'-10"	5"
60"	3'- 3"	6'- 5"	13'- 3"	4"	17'- 9"	4"	26'-10"	5"

(3) CONDITIONS FOR USE OF PIPE RUNNER

Nominal Culvert I.D.	Required for Single Pipe Culvert	Required for Multiple Pipe Culverts
24"	Not required	Skews over 30°
27" to 30"	Skews over 15°	Skews over 15°
33" to 60"	All skews	All skews

(1) STANDARD PIPE SIZES & MAX PIPE RUNNER LENGTHS

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10'- 0"
4" STD	4.500"	4.026"	19'- 8"
5" STD	5.563"	5.047"	34'- 2"

(1) Size of Pipe Runner shall be as shown in the tables. Cross Pipe shall be the same size as the Pipe Runner. Cross Pipe Stub Out and Bottom Anchor Pipe shall be the next smaller size pipe as shown in the STANDARD PIPE SIZES table.

(2) Recommended values of slope are 3:1, 4:1, & 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.

(3) For 48" culvert pipes, the skew shall not exceed 30°.
For 54" culvert pipes, the skew shall not exceed 15°.
For 60" culvert pipes, the skew shall not exceed 0°.
For all other culvert pipe sizes, the skew shall not exceed 45°.

GENERAL NOTES:

Pipe Runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

The Safety End Treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Pipe Runners.

Riprap and all necessary inverts shall be considered Concrete Riprap in accordance with Item 432, "Riprap".

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Pipe Runners, Cross Pipes, and Anchor Pipes shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Bolts and nuts shall conform to ASTM A307.

All steel components, except concrete reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

SHEET 1 OF 2

Texas Department of Transportation
Bridge Division

SAFETY END TREATMENT
FOR 24" DIA TO 60" DIA PIPE CULVERTS TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE: ~~setpedes.dgn~~	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		606
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

DISCLAIMER:
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LEVELS DISABLED: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

COMMENTS:

4/18/2003

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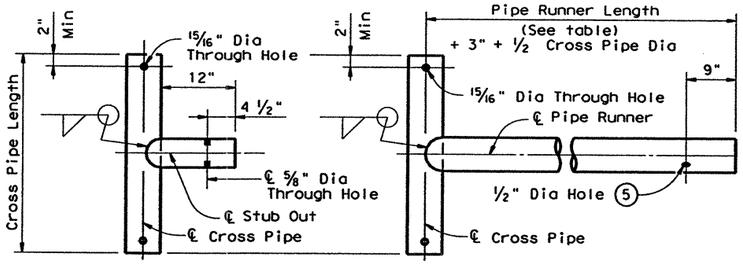
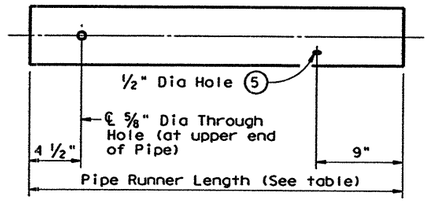


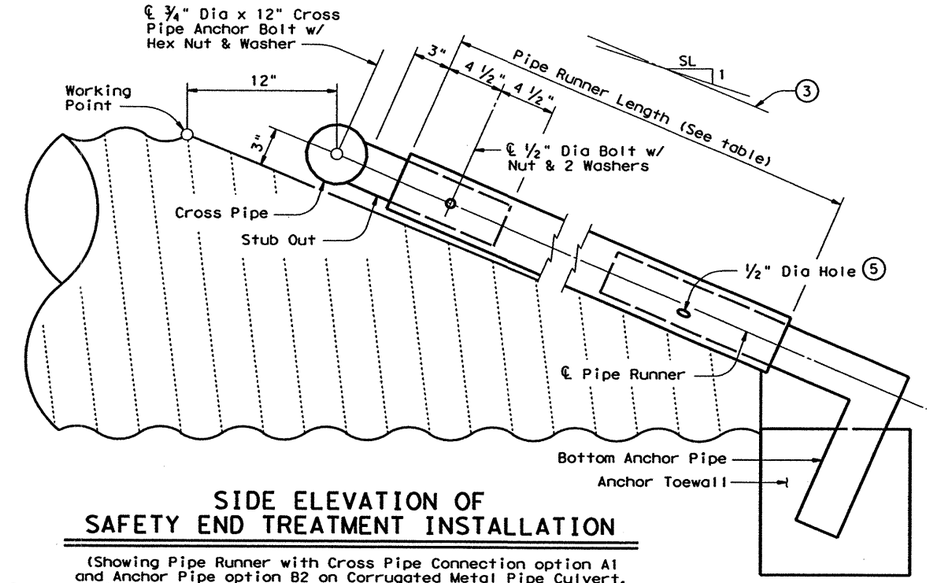
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS



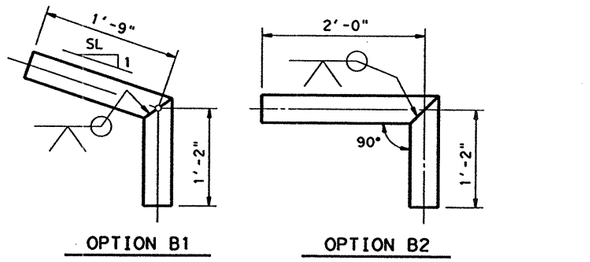
NOTE: The separate Pipe Runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS



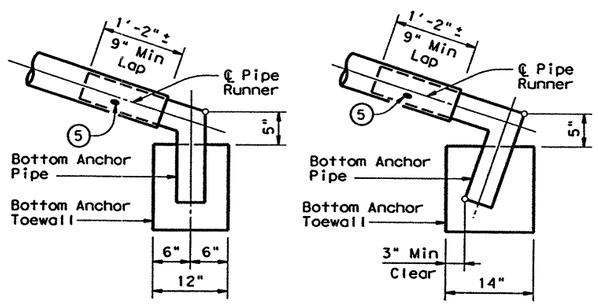
SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

(Showing Pipe Runner with Cross Pipe Connection option A1 and Anchor Pipe option B2 on Corrugated Metal Pipe Culvert. Concrete Pipe Culvert details are similar. Riprap not shown for clarity)



OPTION B1 OPTION B2

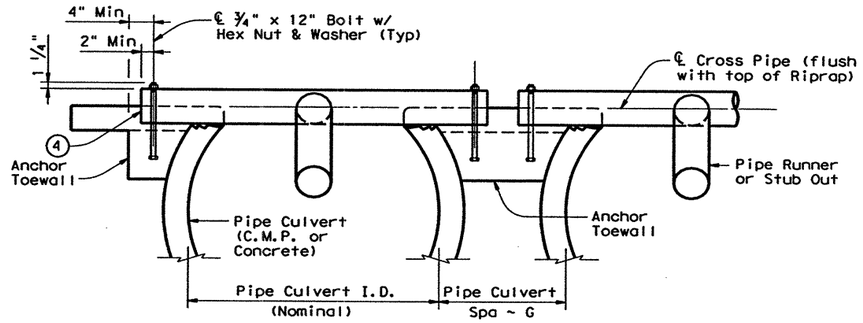
BOTTOM ANCHOR PIPE DETAILS (6)



OPTION B1 OPTION B2

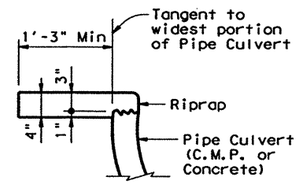
BOTTOM ANCHOR TOEWALL DETAILS

(Culvert & Riprap not shown for clarity)



SHOWING CROSS PIPE & ANCHOR TOEWALL

SECTION A-A



SHOWING TYPICAL PIPE CULVERT & RIPRAP

(3) Note that actual slope of Pipe Runner may vary slightly from Side Slope of Riprap and trimmed Culvert Pipe edge.

(4) Care shall be taken to ensure that Riprap concrete does not flow into the Cross Pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(5) After installation, the 1/2" hole shall be inspected to ensure that the lap of the Pipe Runner with the Bottom Anchor Pipe is adequate.

(6) At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the Runner) may be substituted for the mitered and welded joint in the Bottom Anchor Pipe.

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LEVELS SAVED COMMENTS:

SHEET 2 OF 2

Texas Department of Transportation
Bridge Division

SAFETY END TREATMENT
FOR 24" DIA TO 60" DIA PIPE CULVERTS TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE: ~~setpedes.dgn~~	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		607
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003

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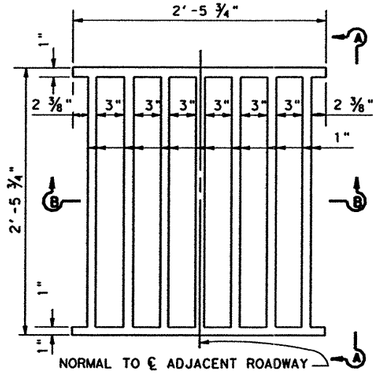
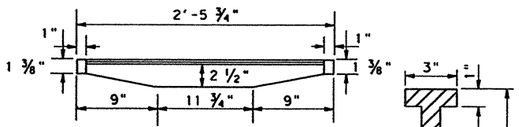
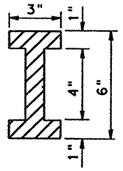


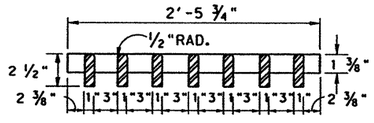
PLAN



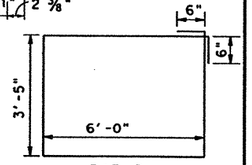
SECTION A-A



SECTION OF CAST IRON I-BEAM



SECTION B-B

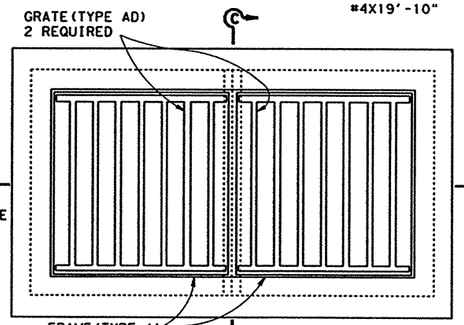


BAR B
#4X19'-10"

TYPE AD GRADE

NOTE: ALL INLET FRAMES AND GRATES USED IN PAVED AREAS ~~SHALL BE~~ MADE OF A588 GR50 STRUCTURAL STEAL. WELDING ~~SHALL BE~~ INACCORDANCE WITH ITEM"STRUCTURAL FIELD WELDING"OTHERWISE CAST IRON WILL BE USED.

① NOTE: REVISED 11/93-CHANGED STEP SPACING TO 16"; CHANGED NOTE FOR STAGE I CONSTRUCTION TO 6" OVER HIGH PIPE; REVISED NOTE ABOUT USE OF CONCRETE INLETS; ADDED NOTE ABOUT FRAME AND GRATE MATERIAL.



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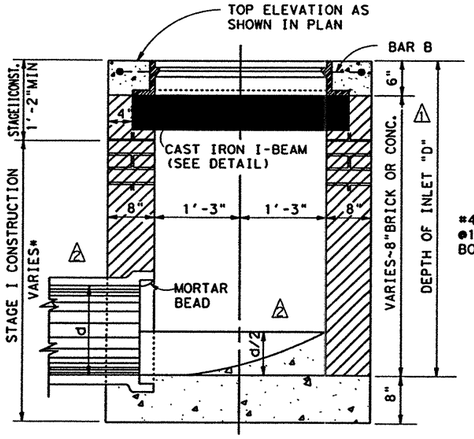
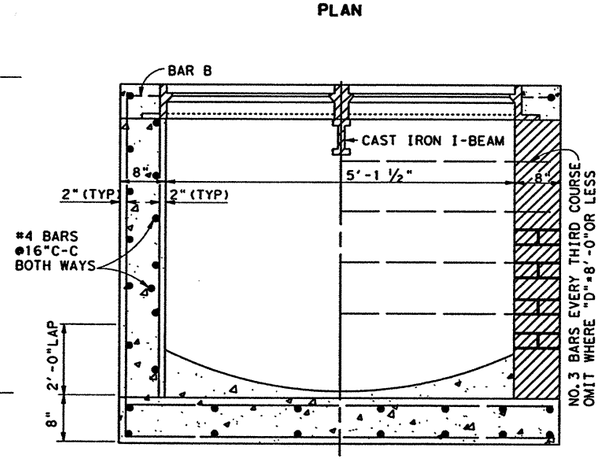


SECTION C-C

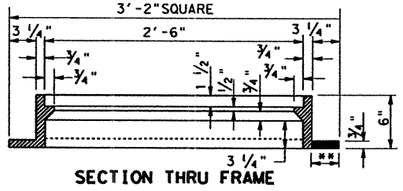
* BUT NOT LESS THAN SIX INCHES OVER HIGHEST ENTERING PIPE.



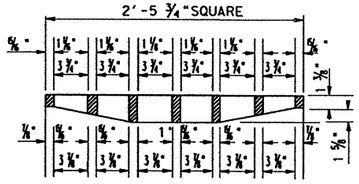
HALF SECTION D-D CONCRETE WALLS

HALF SECTION D-D MASONRY WALLS

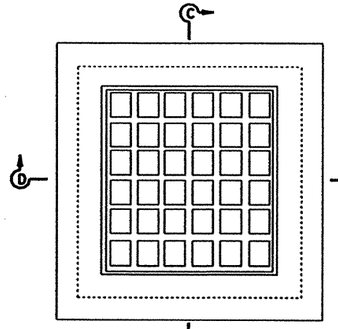
TYPE AAD INLET



SECTION THRU FRAME



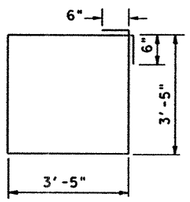
SECTION THRU GRATE



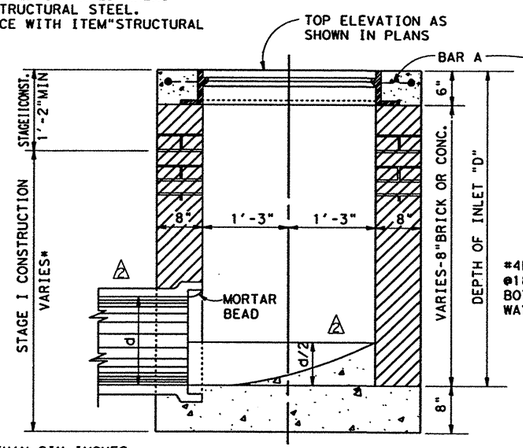
PLAN

**FOR TYPE AAD INLETS, THE FRAME ~~MAY BE~~ CAST WITHOUT THE 3 1/4"LEG, OR THE ADJOINING LEGS OF STANDARD FRAMES ~~MAY BE~~ CUT IN THE FIELD. MAKE 1 LEFT-HAND AND 1 RIGHT-HAND. ALL INLET FRAMES AND GRATES USED IN PAVED AREAS ~~SHALL BE~~ MADE OF A588 GR50 STRUCTURAL STEEL. WELDING ~~SHALL BE~~ IN ACCORDANCE WITH ITEM"STRUCTURAL FIELD WELDING"

TYPE A FRAME AND GRATE



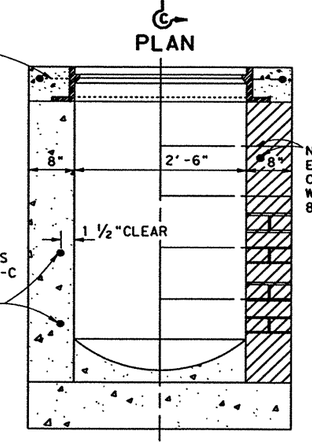
BAR A
#4X14'-8"



* BUT NOT LESS THAN SIX INCHES OVER HIGHEST ENTERING PIPE.

SECTION C-C

TYPE A & AD INLET



HALF SECTION D-D CONCRETE WALLS

HALF SECTION D-D MASONRY WALLS

*NOTES: INLETS ~~SHALL BE~~ CONSTRUCTED OF CONCRETE IN PAVED AREAS OTHERWISE BRICK INLETS ~~MAY BE~~ CONSTRUCTED. TYPE AD INLETS ~~SHALL BE~~ EQUIPPED WITH TYPE A FRAME AND TYPE AD GRATE.

WHERE SIZE OF PIPES PASSING THRU INLET EXCEEDS 30" INCREASE INSIDE WIDTH TO DIAMETER OF PIPE AND SLOPE WALLS FROM HOR. DIA. OF PIPE TO 2'-6" AT TOP.

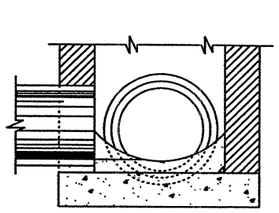
CAST IRON MANHOLE STEPS (SEE MANHOLE DETAILS) SPACED AT 16" CENTERS AND LOCATED ON WALL SPECIFIED BY THE ENGINEER ~~SHALL BE~~ PROVIDED AND INSTALLED WHERE "D" EXCEEDS 5'-0".

SEE SPECIAL SHEET FOR EXCAVATION AND BACKFILL DIAGRAMS.

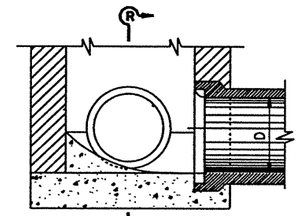
TYPE A, AD, & AAD INLETS ~~SHALL BE~~ BUILT TO STAGE I AND FINISHED AFTER ALL GRADING OPERATIONS ARE SUBSTANTIALLY* COMPLETED.

TYPE AD GRATES ~~SHALL BE~~ DUCTILE IRON. TYPE A FRAMES AND GRATES* ~~MAY BE~~ GRAY CAST IRON.

THE FURNISHING AND INSTALLATION OF CAST IRON I-BEAMS ~~SHALL BE~~ CONSIDERED INCIDENTAL TO INLET (COMPL) (TY AAD) OR INLET (STAGE II) (TY AAD) AS THE CASE MAY BE.

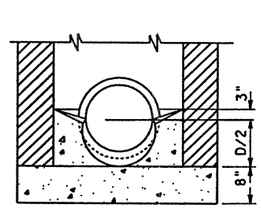


SECTION R-R

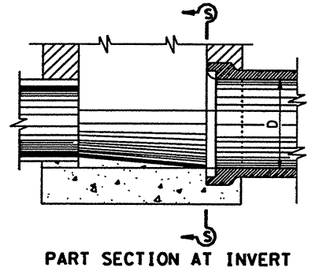


PART SECTION AT INVERT

SHOWING SHAPING OF INVERT, PIPE ENTERING FROM ADJACENT SIDES

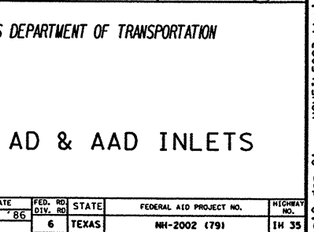


SECTION S-S



PART SECTION AT INVERT

SHOWING SHAPING OF INVERT, PIPE ENTERING FROM OPPOSITE SIDES



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

REVISIONS

REV 3/96 SPELLING CHANGE △

REV 3/96 CHANGED "D" TO "d" AND "D /2" TO "d /2". △

REV 3-2-12 CLB

REV 4-01 UPDATE TO STD D-4 & ADDED (+)NOTE.

REVISED 11/93-SEE NOTE ①

REVISED 7/96 CORRECTED SPELLING ERROR ON THE TITLE BLOCK.

REVISED 6/98 ADDED COPYRIGHT INFO TO THE TITLE BLOCK.

TEXAS DEPARTMENT OF TRANSPORTATION

©1998 TxDOT

TYPE A, AD & AAD INLETS

DN	DRAWING	DATE	FED. RD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CK DN	ORIGINAL	OCT. '86	6	TEXAS	NH-2002 (79)	IH 35
DW			STATE PROJ. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	SHEET NO.
CK DW						
TR			23	MEDINA	0014 05 059	6/28

4/18/2003

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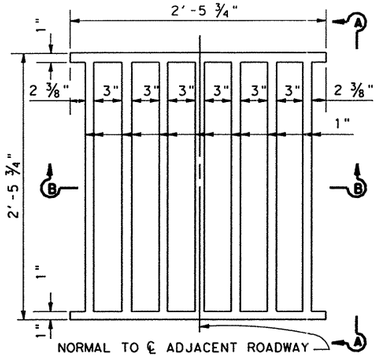
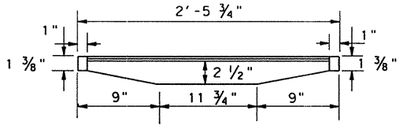
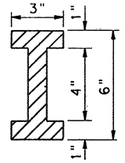


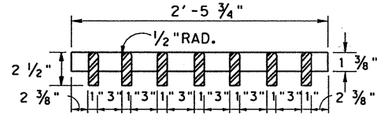
PLAN



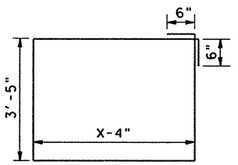
SECTION A-A



SECTION OF CAST IRON I-BEAM



SECTION B-B



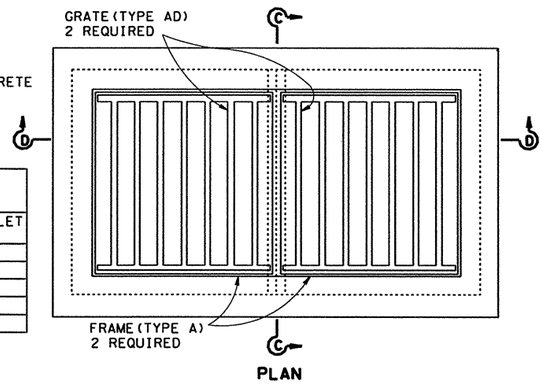
BAR B
#4 REBAR

TYPE AD GRATE

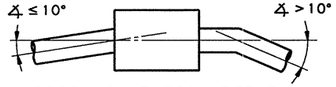
NOTE: ALL INLET FRAMES AND GRATES USED IN PAVED AREAS ~~SHALL BE~~ MADE OF A588 GR50 STRUCTURAL STEAL. WELDING ~~SHALL BE~~ INACCORDANCE WITH ITEM" STRUCTURAL FIELD WELDING" OTHERWISE CAST IRON ~~WILL BE~~ USED.

① NOTE: REVISED 11/93-CHANGED STEP SPACING TO 16"; CHANGED NOTE FOR STAGE I CONSTRUCTION TO 6" OVER HIGH PIPE; REVISED NOTE ABOUT USE OF CONCRETE INLETS; ADDED NOTE ABOUT FRAME AND GRATE MATERIAL.

TABLE-INLET WITH TWO PIPES (FOR A, AD, & AAD INLETS)				
PIPE INSIDE DIAMETER	PIPE OUTSIDE DIAMETER	CLEARANCE BETWEEN PIPES	LATERAL CLEARANCE	TOTAL INLET WIDTH
(d)	(OD)	(C)		(W)
(IN)	(IN)	(IN)	(IN)	(LF)
24	29	11	9	7.25
30	35.5	13	9	8.50
36	42.25	15	9	9.79



PLAN

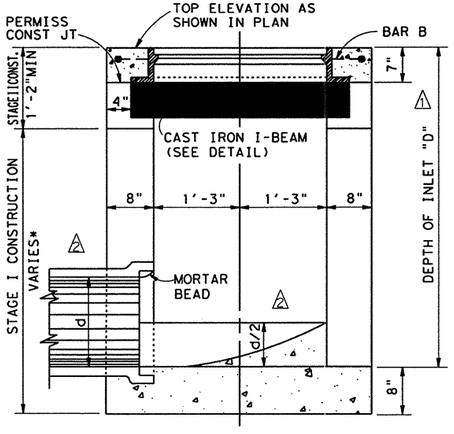


PIPE CONNECTION DETAIL

Connecting pipes should enter within 10° of normal to inlet wall. If necessary, pipe elbow or curved approach alignment should be used to stay within this limit.

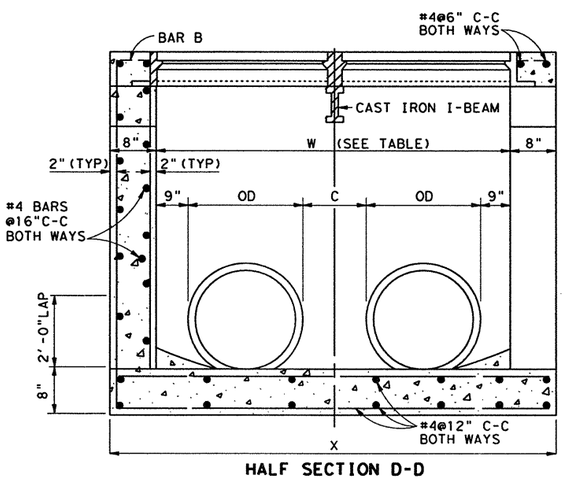
TYPE AD INLET TO MODIFY			
NBD4-15	STA	250+40	2/30"-2/30"
SBJ2-40	STA	379+73	2/36"-2/24"

TYPE AAD INLET TO MODIFY			
NBJ4-27	STA	378+80	2/36"-2/36"
SBJ2-44	STA	383+60	2/24"-2/24"
SBJ2-47	STA	385+60	2/24"



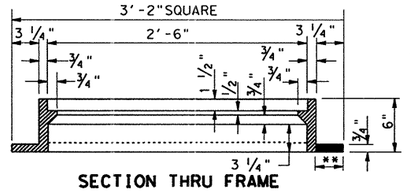
SECTION C-C

* BUT NOT LESS THAN SIX INCHES OVER HIGHEST ENTERING PIPE.

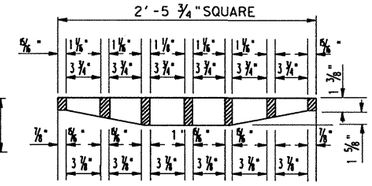


HALF SECTION D-D
CONCRETE WALLS

TYPE AAD INLET



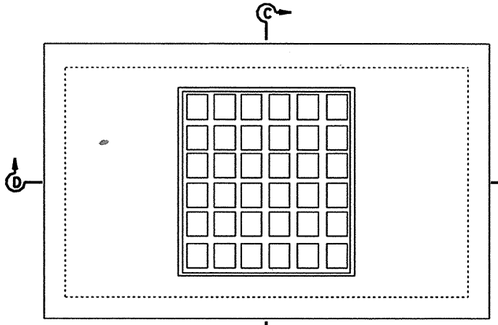
SECTION THRU FRAME

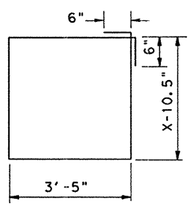


SECTION THRU GRATE

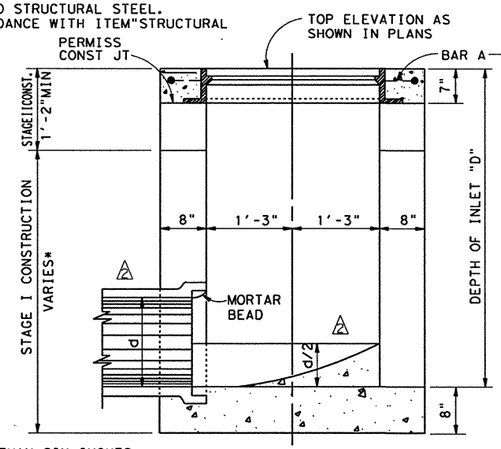
** FOR TYPE AAD INLETS, THE FRAME MAY BE CAST WITHOUT THE 3 1/4"LEG, OR THE ADJOINING LEGS OF STANDARD FRAMES ~~SHALL BE~~ CUT IN THE FIELD. MAKE 1 LEFT-HAND AND 1 RIGHT-HAND. ALL INLET FRAMES AND GRATES USED IN PAVED AREAS ~~SHALL BE~~ MADE OF A588 GR50 STRUCTURAL STEEL. WELDING ~~SHALL BE~~ IN ACCORDANCE WITH ITEM"STRUCTURAL FIELD WELDING"

TYPE A FRAME AND GRATE





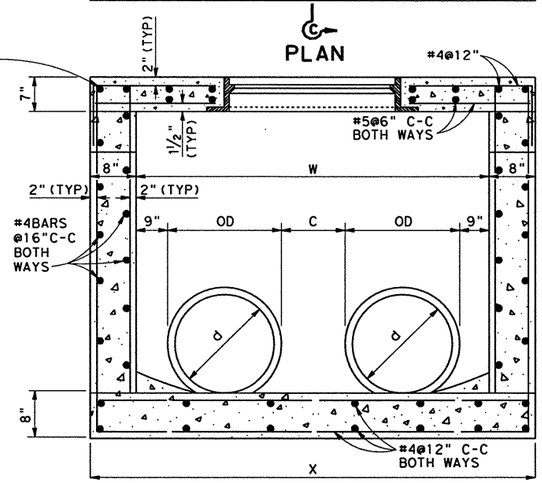
BAR A
#4 REBAR



* BUT NOT LESS THAN SIX INCHES OVER HIGHEST ENTERING PIPE.

SECTION C-C

TYPE A & AD INLET



HALF SECTION D-D
CONCRETE WALLS

*NOTES: INLETS ~~SHALL BE~~ CONSTRUCTED OF CONCRETE. TYPE AD INLETS ~~SHALL BE~~ EQUIPPED WITH TYPE A FRAME AND TYPE AD GRATE.

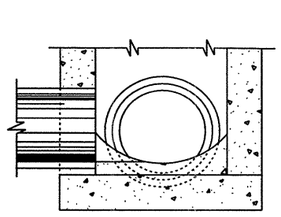
CAST IRON MANHOLE STEPS (SEE MANHOLE DETAILS) SPACED AT 16" CENTERS AND LOCATED ON WALL SPECIFIED BY THE ENGINEER ~~SHALL BE~~ PROVIDED AND INSTALLED WHERE "D" EXCEEDS 5'-0".

SEE SPECIAL SHEET FOR EXCAVATION AND BACKFILL DIAGRAMS.

TYPE A, AD, & AAD INLETS ~~SHALL BE~~ BUILT TO STAGE I AND FINISHED AFTER ALL GRADING OPERATIONS ARE SUBSTANTIALLY* COMPLETED.

TYPE AD GRATES ~~SHALL BE~~ DUCTILE IRON. TYPE A FRAMES AND GRATES* ~~MAY BE~~ GRAY CAST IRON.

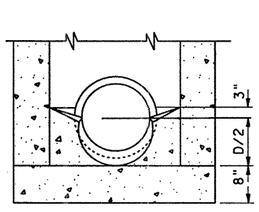
THE FURNISHING AND INSTALLATION OF CAST IRON I-BEAMS ~~SHALL BE~~ CONSIDERED INCIDENTAL TO INLET (COMPL) (TY AAD) OR INLET (STAGE II) (TY AAD) AS THE CASE MAY BE.



SECTION R-R

PART SECTION AT INVERT

SHOWING SHAPING OF INVERT, PIPE ENTERING FROM ADJACENT SIDES



SECTION S-S

PART SECTION AT INVERT

SHOWING SHAPING OF INVERT, PIPE ENTERING FROM OPPOSITE SIDES

STATE OF TEXAS
A. A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JUNE 11, 2004

REVISIONS
REV 3/96 SPELLING CHANGE △
REV 3/96 CHANGED "D" TO "6" AND "D /2" TO "d /2". △
REV 3-2-72 CLB
REV 4-91 UPDATE TO STD D-4 & ADDED (4) NOTE.
REVISED 11/93-SEE NOTE ①
REVISED 7/96 CORRECTED SPELLING ERROR ON THE TITLE BLOCK.
REVISED 6/98 ADDED COPYRIGHT INFO TO THE TITLE BLOCK.

TEXAS DEPARTMENT OF TRANSPORTATION

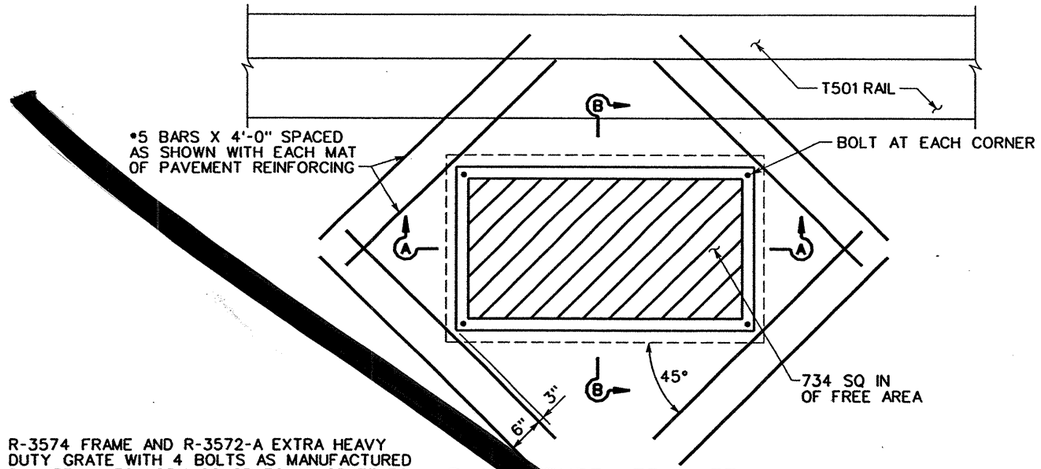
© 1998 TxDOT

TYPE A, AD & AAD INLETS (MOD)

DN	DRAWING	DATE	FED. RD DIV. NO.	STATE	FEDERAL AID PROJECT NO.		HIGHWAY NO.
CK DN	ORIGINAL	OCT. '86	6	TEXAS	NH-2002 (79)		IH 35
DW			STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK TR			22	WEBB	0018	05	062, ETC	506A

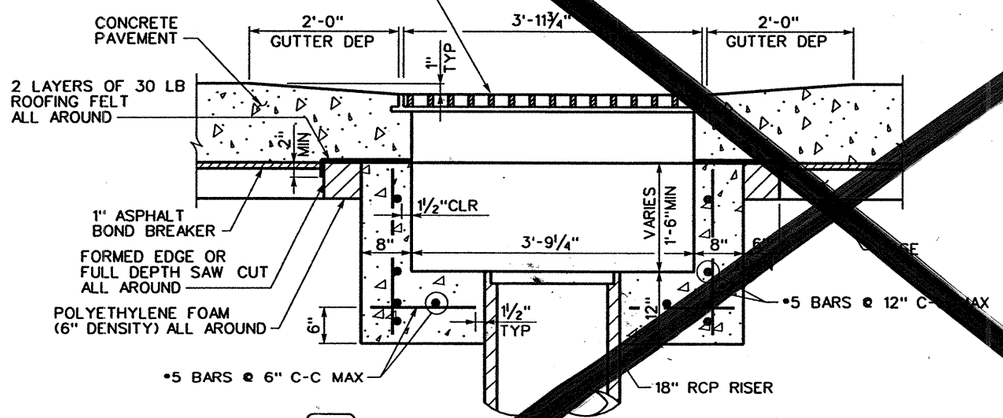
6/11/2004

HOUFILE023 \hc\ivi\0130\D34mop10.dgn-02

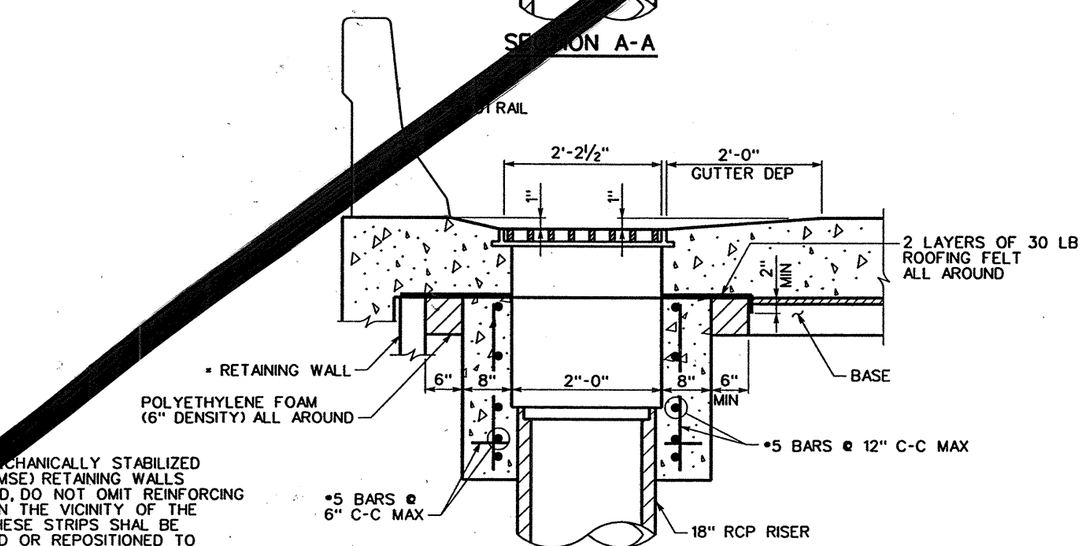


PLAN TYPE AZR INLET

R-3574 FRAME AND R-3572-A EXTRA HEAVY DUTY GRATE WITH 4 BOLTS AS MANUFACTURED BY NEEHAN FOUNDRY CO. OR EQUAL. GRATE TO BE BOLTED TO FRAME WITH 4 COUNTERSUNK STAINLESS STEEL CAP SCREWS. FRAME TO BE MADE OF GRAY IRON AND GRATE TO BE MADE OF DUCTILE IRON.

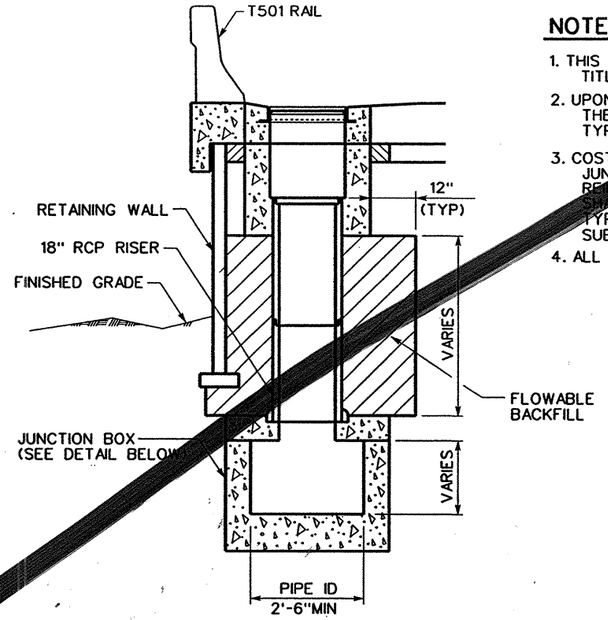


SECTION A-A



SECTION B-B

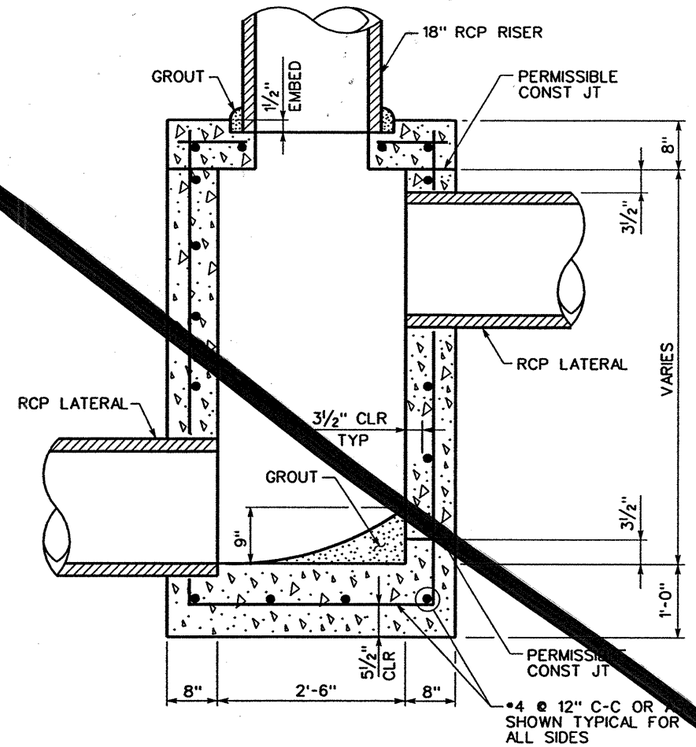
* WHEN MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS ARE USED, DO NOT OMIT REINFORCING STRIPS IN THE VICINITY OF THE INLET. THESE STRIPS SHAL BE ADJUSTED OR REPOSITIONED TO CLEAR INLETS IN ACCORDANCE WITH WALL MANUFACTURE'S RECOMMENDATIONS.



TYPICAL SECTION

NOTES:

1. THIS MODIFIED STANDARD IS BASED ON SDHPT STANDARD TITLED "TYPE AZR INLET (TOP DIRECT DRIVE)".
2. UPON INSTALLATION OF THE GRATES, THE THREADS OF THE CAP SCREWS SHALL BE COATED WITH A THREAD LOCK TYPE ADHESIVE (LOCTITE OR EQUAL).
3. COST OF FURNISHING AND INSTALLING VERTICAL RISERS, JUNCTION BOX, FRAMES, GRATES, ADDITIONAL PAVEMENT REINFORCING, ROOFING FELT AND POLYETHYENE FOAM SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE TYPE OF INLET SELECTED. DUCTILE IRON MAY BE SUBSTITUTED FOR GRAY IRON.
4. ALL CONCRETE SHALL BE CLASS C.



JUNCTION BOX DETAIL

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ P.E. 58664, ON APRIL 18, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE
MISCELLANEOUS DETAILS
TYPE AZR INLET
(FOR DIRECT DRIVE)
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	609
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

4/18/2003

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62
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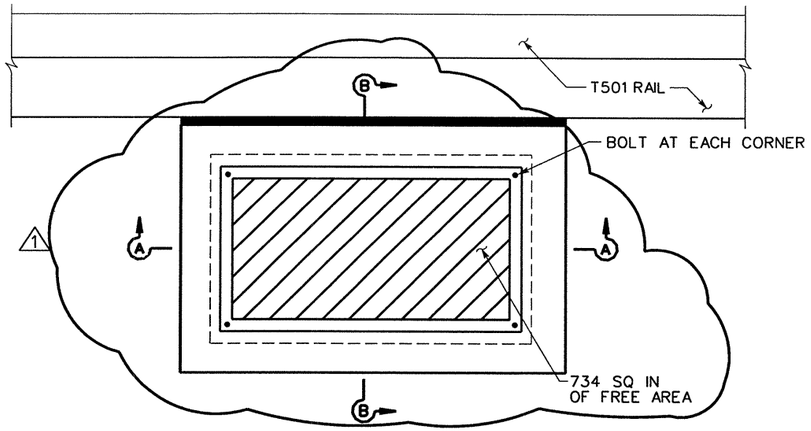
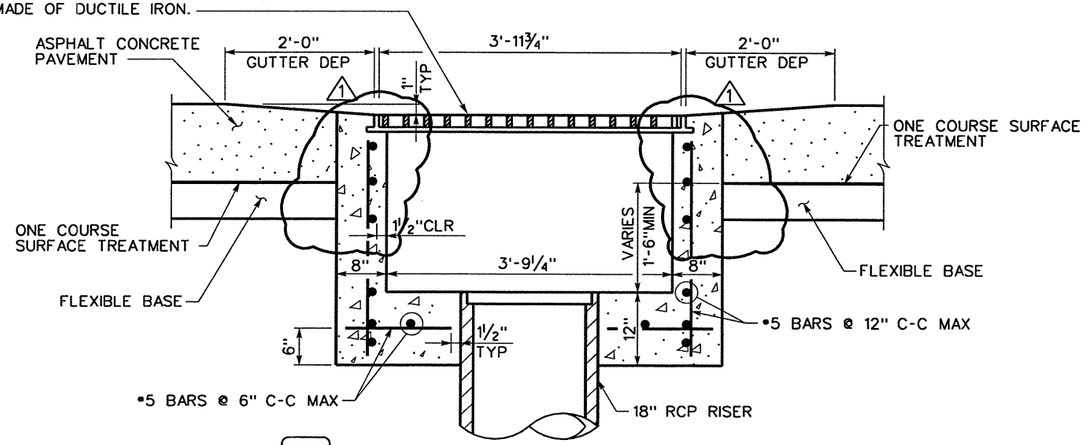
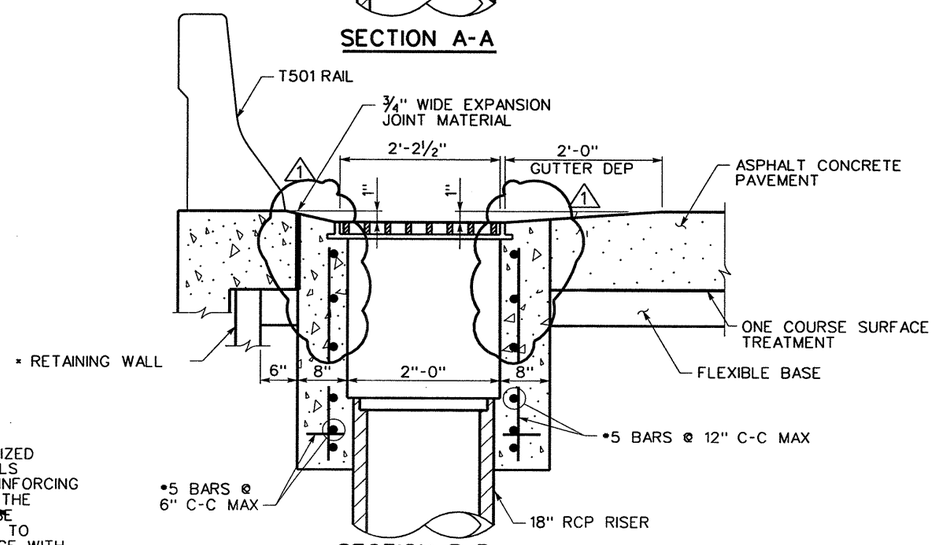


PLAN - TYPE AZR INLET

R-3574 FRAME AND R-3572-A EXTRA HEAVY DUTY GRATE WITH 4 BOLTS AS MANUFACTURED BY NEEHAN FOUNDRY CO. OR EQUAL. GRATE ~~TO BE~~ BOLTED TO FRAME WITH 4 COUNTERSUNK STAINLESS STEEL CAP SCREWS. FRAME ~~TO BE~~ MADE OF GRAY IRON AND GRATE ~~TO BE~~ MADE OF DUCTILE IRON.

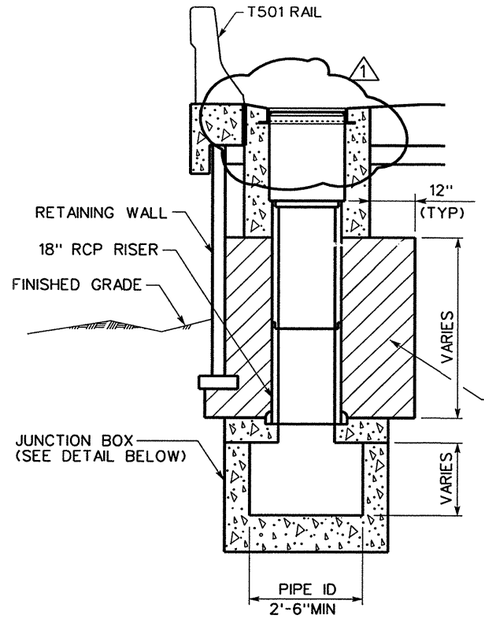


SECTION A-A



SECTION B-B

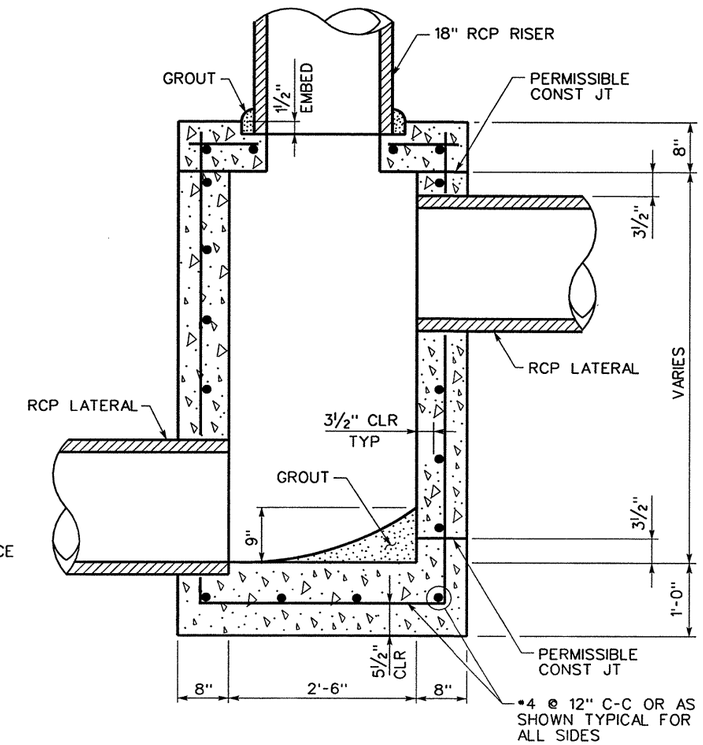
* WHEN MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS ARE USED, DO NOT OMIT REINFORCING STRIPS IN THE VICINITY OF THE INLET. THESE STRIPS ~~SHALL BE~~ ADJUSTED OR REPOSITIONED TO CLEAR INLETS IN ACCORDANCE WITH WALL MANUFACTURE'S RECOMMENDATIONS.



TYPICAL SECTION

NOTES:

1. THIS MODIFIED STANDARD IS BASED ON SDHPT STANDARD TITLED "TYPE AZR INLET (FOR DIRECT DRIVE)".
2. UPON INSTALLATION OF THE GRATES, THE THREADS OF THE CAP SCREWS SHALL BE COATED WITH A THREAD LOCK TYPE ADHESIVE (LOCTITE OR EQUAL).
3. COST OF FURNISHING AND INSTALLING VERTICAL RISERS, JUNCTION BOX, FRAMES, GRATES, AND EXPANSION JOINT MATERIAL ~~SHALL BE~~ INCLUDED IN THE UNIT PRICE BID FOR THE TYPE OF INLET SELECTED. DUCTILE IRON ~~MAY BE~~ SUBSTITUTED FOR GRAY IRON.
4. ALL CONCRETE ~~SHALL BE~~ CLASS C.
5. FOR MORE INFORMATION REGARDING DIMENSIONS FOR THE ASPHALT CONCRETE PAVEMENT AND FLEXIBLE BASE SEE ~~PROPOSED~~ TYPICAL SECTIONS.



JUNCTION BOX DETAIL

DATE	BY	REV	REVISION
7/08/04	DG	01	INLET WALL HEIGHT

STATE OF TEXAS · A.A. ABUGATTAS · 34940 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS PE 34940, ON JULY 08, 2004

A.A. Abugattas

KBR

Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
DRAINAGE
MISCELLANEOUS DETAILS
TYPE AZR INLET
(FOR DIRECT DRIVE)

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	609
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

7/8/2004

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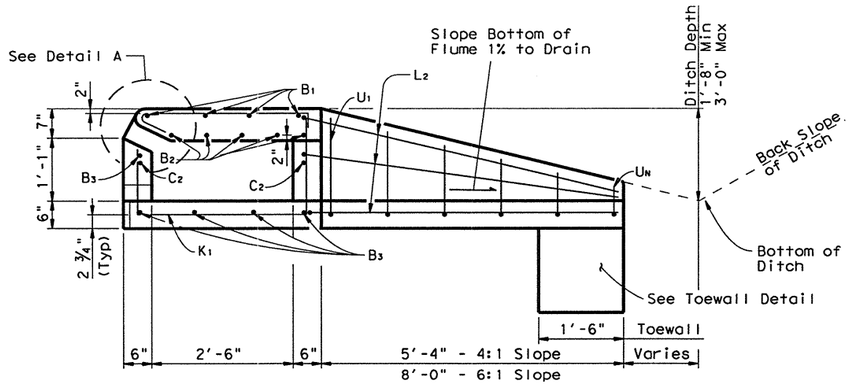
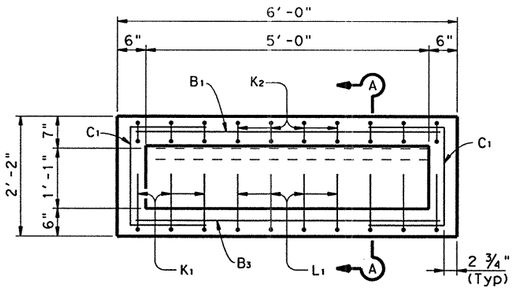
b13edp08.dgn-03

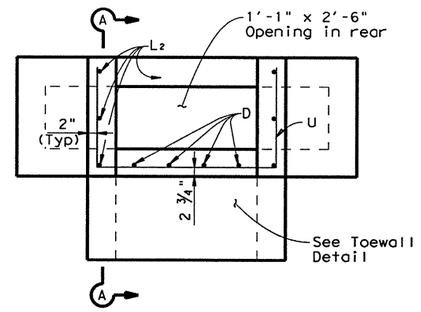
REF FILE(S): j011op01.bdr, bdr LV ON = 47.57.58.60-62



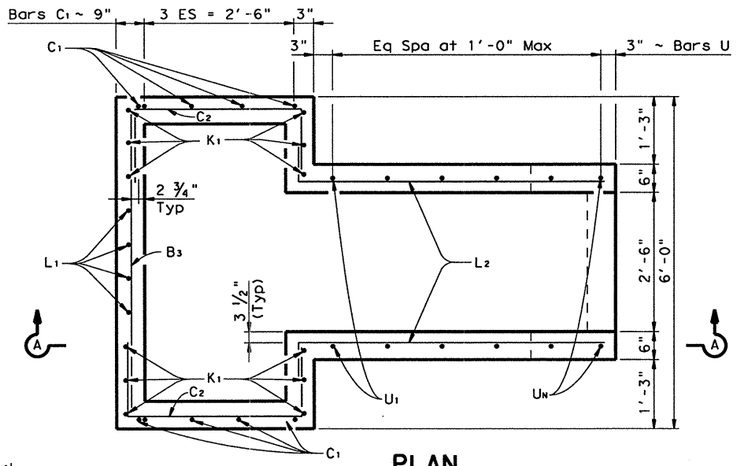
SECTION A-A



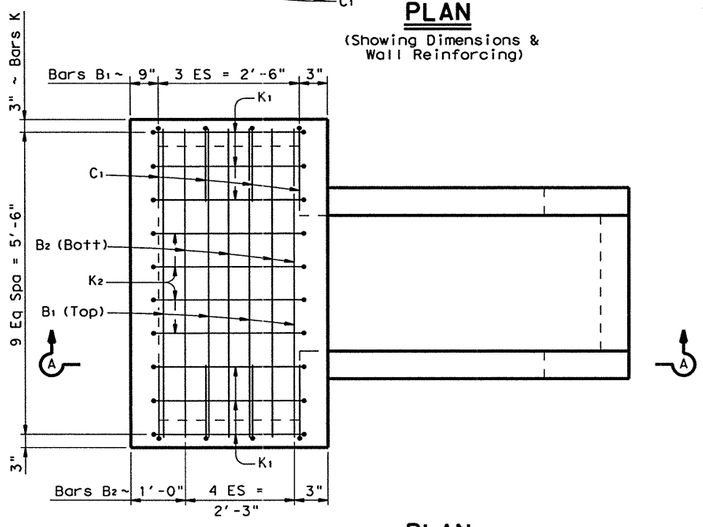
ELEVATION
(At front of inlet)



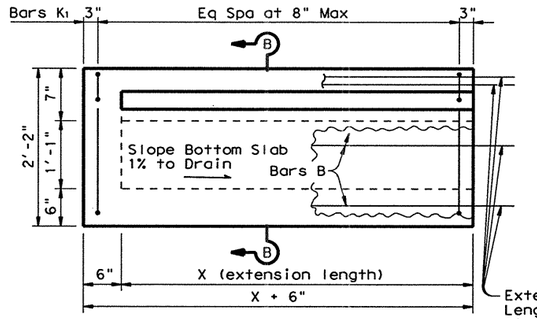
ELEVATION
(At rear of inlet)



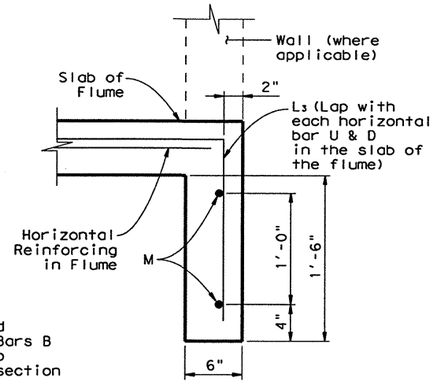
PLAN
(Showing Dimensions & Wall Reinforcing)



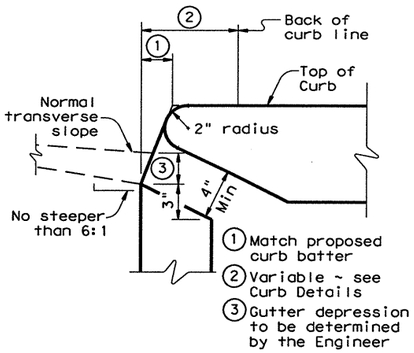
PLAN
(Showing Top Slab Reinforcing)



EXTENSION ELEVATION

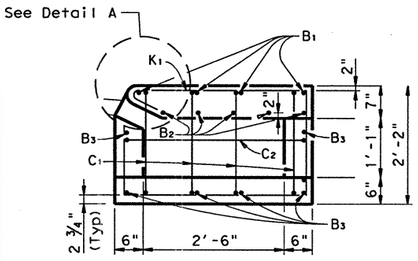


TOEWALL DETAIL



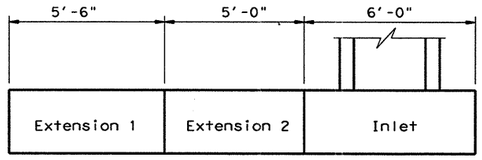
DETAIL A

EXTENSION QUANTITIES			
Ext	"X"	Cl "A" Conc	Reinf Steel
No.	Ft	CY	Lb
1	5	0.9	150
2	10	1.7	217
3	15	2.4	284
4	20	3.2	350



SECTION B-B

Bar cover and placement shall be as for the primary inlet section, unless otherwise noted.



Note: If more than one extension is required, they should all be located on one side as indicated above. No slope is required in flowline of extension.

EXTENSION PLACEMENT

SHEET 1 OF 2

Texas Department of Transportation
Bridge Division

CURB INLET TYPE D AND EXTENSION TYPE F (5'-0" INLET FOR DITCH DISCHARGE)

IL-D

FILE: sp660i.dgn	DN: MDH	CK:	DW: RGS	CK: MDH
©TxDOT MAY 2003	DIST	FED REG	FEDERAL AID PROJECT	SHEET
REVISIONS	22	6	NH-2002 (79)	609A
	COUNTY		CONTROL SECT JOB	HIGHWAY
	WEBB		0018 05 062 ETC	IH 35

6/4/2003

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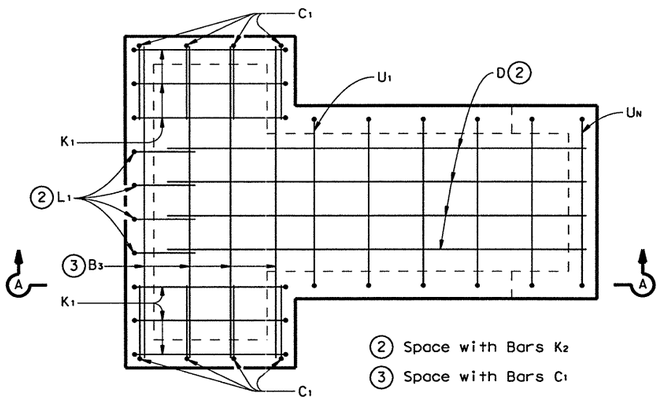
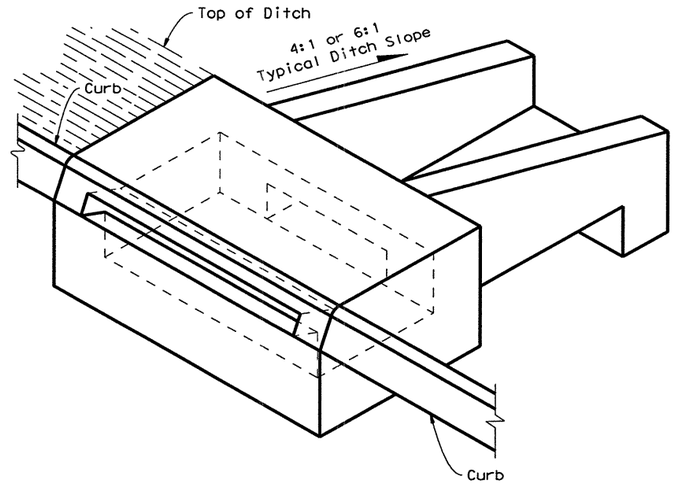
LEVELS DISPLAYED

PATH:



PLAN

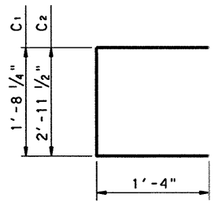
(Showing Bottom Slab Reinforcing)



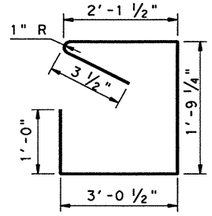
ISOMETRIC OF INLET

TABLE OF ESTIMATED QUANTITIES

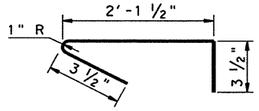
4:1 DITCH SLOPE					6:1 DITCH SLOPE				
Bar	No.	Size	Length	Weight	Bar	No.	Size	Length	Weight
B_1	4	# 5	5'- 8"	24	B_1	4	# 5	5'- 8"	24
B_2	5	# 5	5'- 8"	30	B_2	5	# 5	5'- 8"	30
B_3	5	# 4	5'- 8"	19	B_3	5	# 4	5'- 8"	19
C_1	8	# 4	4'- 4"	23	C_1	8	# 4	4'- 4"	23
C_2	2	# 4	5'- 8"	8	C_2	2	# 4	5'- 8"	8
D	4	# 4	8'- 6"	23	D	4	# 4	11'- 2"	30
K_1	6	# 4	8'- 2"	33	K_1	6	# 4	8'- 2"	33
K_2	4	# 4	2'- 8"	7	K_2	4	# 4	2'- 8"	7
L_1	4	# 4	2'- 9"	7	L_1	4	# 4	2'- 9"	7
L_2	6	# 4	6'- 8"	27	L_2	6	# 4	9'- 4"	37
L_3	8	# 4	3'- 0"	16	L_3	8	# 4	3'- 0"	16
M	2	# 4	5'- 4"	7	M	2	# 4	5'- 4"	7
U_{1-6}	6	# 4	5'- 5"	22	U_{1-9}	9	# 4	5'- 5"	33
Reinforcing Steel			Lb	246	Reinforcing Steel			Lb	274
Class "A" Concrete			CY	1.7	Class "A" Concrete			CY	2.0



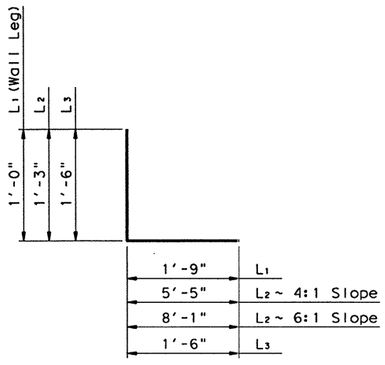
BARS C



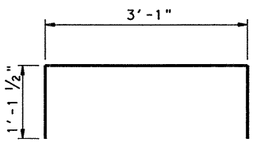
BARS K1



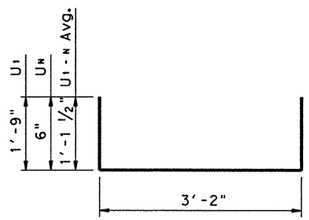
BARS K2



BARS L



BARS M



BARS U

GENERAL NOTES:

Quantities shown herein are for Contractor's information only. Unless otherwise shown in the plans, payment will be made for each inlet of the type specified and for each extension. Each five foot curb opening of extension is considered "one extension" regardless of whether placed monolithically or precast. Extension length shall be in multiples of 5 feet.

Alternate design drawings bearing the seal of a registered professional engineer will be acceptable for precast construction of inlets.

When approved by the Engineer opening configurations of equivalent hydraulic design may be furnished.

Shop drawings will not be required.

The Contractor may with the approval of the Engineer furnish inlets of equivalent structural design.

In areas of conflict, reinforcing steel shall be bent or adjusted to clear as directed by the Engineer.

Texas Department of Transportation
Bridge Division

CURB INLET TYPE D AND EXTENSION TYPE F (5'-0" INLET FOR DITCH DISCHARGE)

IL-D

FILE: ~~sd06d1.dgn~~	DN: MDH	CK:	DW: RGS	CK: MDH
©TxDOT MAY 2003	DIST	FED REG	FEDERAL AID PROJECT	SHEET
REVISIONS	22	6	NH-2002 (79)	6098
	COUNTY	CONTROL	SECT JOB	HIGHWAY
	WEBB	0018	05 062, ETC	IH 35

PATH:

LEVELS DISPLAYED

1

6/4/2003

HOUFILE023 \nciviltcf0130\ 34mp190. dgn-01

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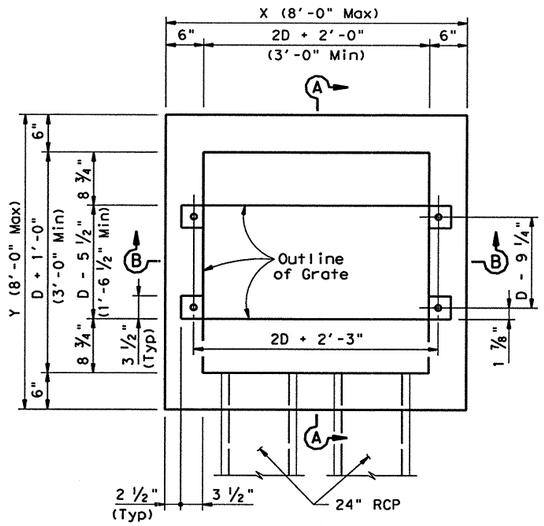
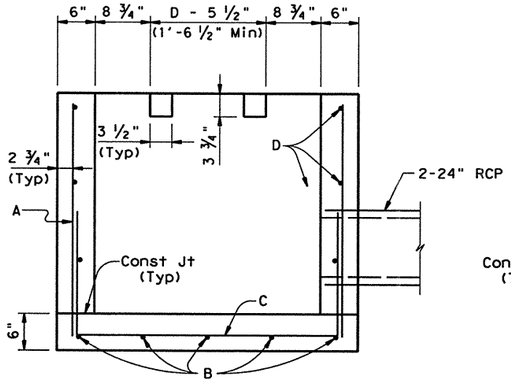
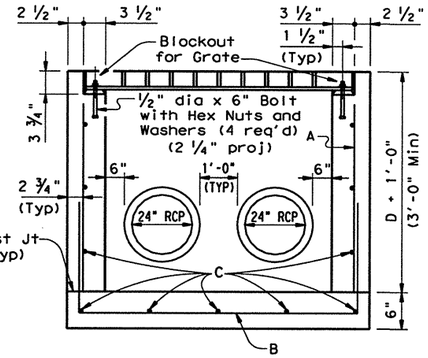


PLAN

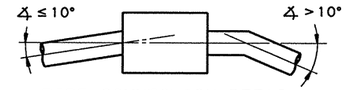


SECTION A-A

Space Bars A, B, C and D at 12" Max

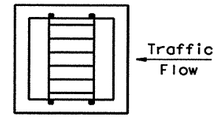


SECTION B-B



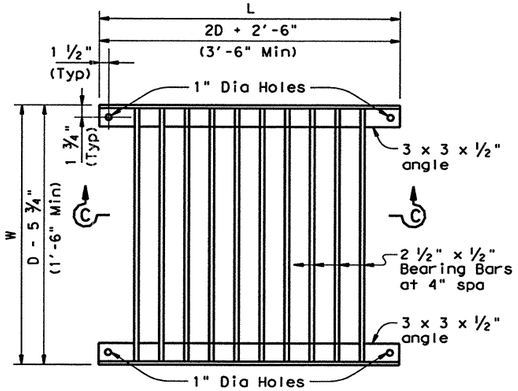
PIPE CONNECTION DETAIL

Connecting pipes should enter within 10° of normal to inlet wall. If necessary, pipe elbow or curved approach alignment should be used to stay within this limit.

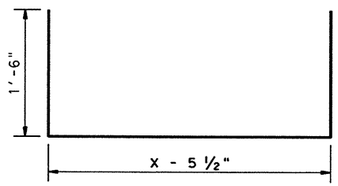


GRATE ORIENTATION DETAIL

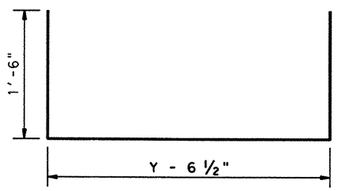
If possible, horizontal grate inlet should be oriented such that both traffic and ditch water approach parallel to bars on grate. If this is not possible, orientation must favor traffic flow. Grate is not ~~to be~~ used under direct traffic, rather it is ~~to be~~ used in ditches and medians away from the roadway.



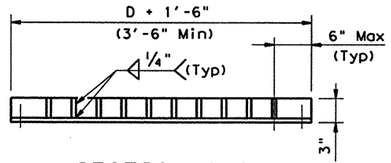
PLAN ~ GRATE



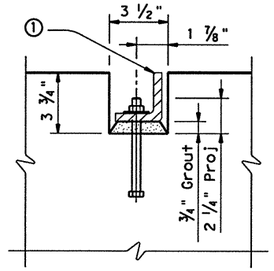
BARS B



BARS C



SECTION C-C



GRATE MOUNTING DETAIL

① Interior angle with 4 ~ 1/2" dia x 6" Bolts, Hex Nuts and Washers

GENERAL NOTES:

Quantities shown hereon are for Contractor's information only. Unless otherwise shown in the plans, payment ~~will be~~ made for each inlet of the Type specified.

Alternate design drawings bearing the seal of a registered professional engineer will be acceptable for precast construction of the inlets.

Shop drawings will ~~not be~~ required.

The Contractor may with the approval of the Engineer furnish inlets of equivalent structural design.

In areas of conflict between reinforcing steel, blockouts, pipes, anchor belts or other reinforcing steel, the reinforcement ~~shall be~~ bent or adjusted to clear as directed by the Engineer.

Structural Steel for grates shall conform to the requirements of ASTM Designation A-36 or AISI Designation M1010-M1020.

All reinforcing steel ~~shall be~~ #4 unless otherwise noted.

The pipe diameter, "D", ~~to be~~ used in determining horizontal dimensions of Type "H" Inlet, shall be the largest pipe entering or exiting the inlet which would control that particular wall dimension. For vertical dimension, use largest "D" or 1'-0" above highest pipe soffit as a minimum dimension.

All steel components except reinforcing, ~~shall be~~ galvanized after fabrication. Galvanizing damaged during transport or construction ~~shall be~~ repaired in accordance with the specifications.

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS P.E. 34940, ON JUNE 02, 2003

ACCOMMODATE TWO 24" Ø RCP PIPES

Texas Department of Transportation
Bridge Division

HORIZONTAL INLET TYPE H

IL-HSTDE (MOD)

FILE: ~~ihstde.dgn~~	DN: TxDOT	CK: TER	DW: MCB	CK: TER/GAF
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		610
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

6/3/2003

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
PATH:

b34mp146.dgn-02 HOUFILE023 \hcivil\cf0130\

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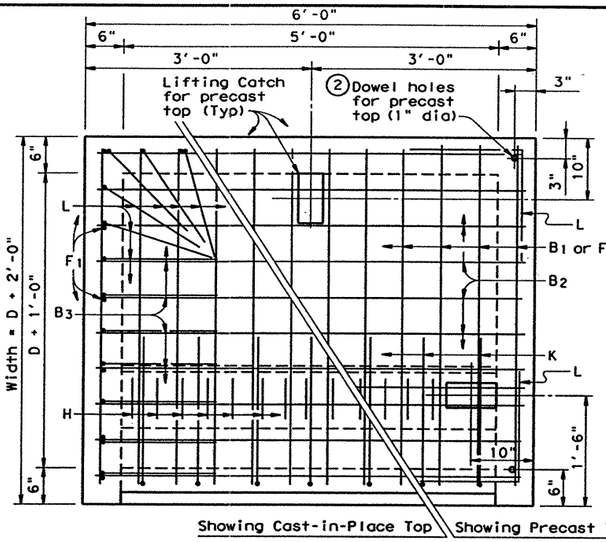
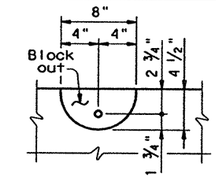
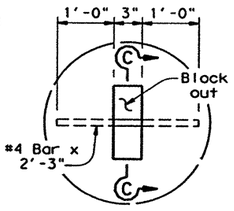


PLAN

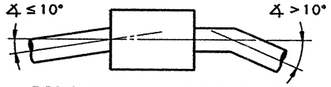


SECTION C-C



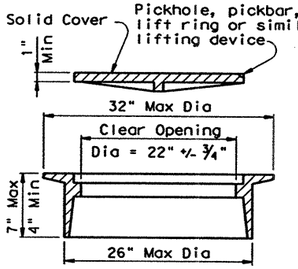
PLAN

LIFTING CATCH



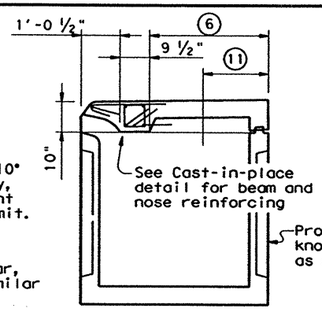
PIPE CONNECTION DETAIL

Connecting pipes should enter within 10° of normal to inlet wall. If necessary, pipe elbow or curved approach alignment should be used to stay within this limit.



RING AND COVER DETAILS

Approximate Weight = 245 lb



PREFABRICATED INLET

⑥ For reinforcing steel and dimensions not shown, see fabricators design drawing. Structure shall be of the size required to accommodate size of pipe shown elsewhere in the plans. Length of inlet = 5'-0"

ESTIMATED QUANTITIES ⑧

Pipe Size = D	Height	For 4 Foot Width		Per 6 Inch Add'l Width		Per 1 Foot ⑦ Add'l Height	
		Cl "A" Conc	Reinf Steel	Cl "A" Conc	Reinf Steel	Cl "A" Conc	Reinf Steel
In	Ft	CY	Lb	CY	Lb	CY	Lb
18"	3'-7"	1.6	315	--	--	.33	32
24"	4'-1"	2.0	329	--	--	.33	32
30"	4'-7"	2.4	347	.18	19	.35	33
36"	5'-1"	2.7	361	.19	20	.37	35
42"	5'-7"	3.1	379	.20	21	.39	36
48"	6'-1"	3.5	393	.21	21	.41	38

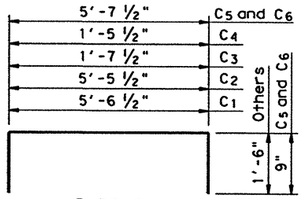
⑦ For Width (4'-0" Min) = D + 2'-0"

⑧ Does not apply to prefabricated inlets

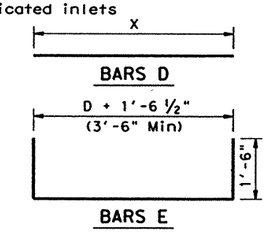
REINF STEEL

Bar	Size	Spacing
B1	#4	6"
B2	#5	6"
B3	#4	6"
C1-2	#4	12"
C3-4	#4	⑨
C5	#6	⑨
C6	#4	⑨
D	#4	⑨
E	#4	12"
F1-3	#4	12"
G	#4	6"
H	#3	4"
K	#4	9"
L	#4	6"

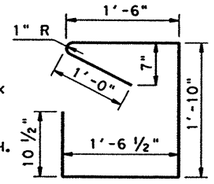
⑨ As shown



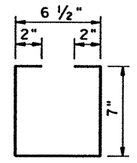
BARS C



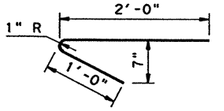
BARS E



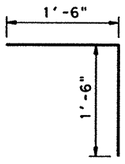
BARS G



BARS H



BARS K



BARS L

GENERAL NOTES:

Quantities shown herein are for Contractor's information only. Unless otherwise shown in the plans, payment will be made for each inlet of the type specified and for each extension. Each five foot curb opening of extension is considered "one extension" regardless of whether placed monolithically or precast. Extension length shall be in multiples of 5 feet.

Engineer has the option of specifying cast-in-place top with ring and cover or removable precast top as specified elsewhere in plans.

Alternate design drawings bearing the seal of a registered professional engineer will be acceptable for precast construction of inlets.

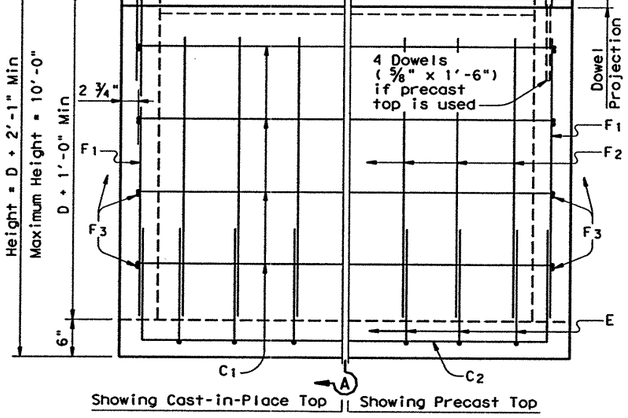
When approved by the Engineer opening configurations of equivalent hydraulic design may be furnished.

Shop drawings will not be required.

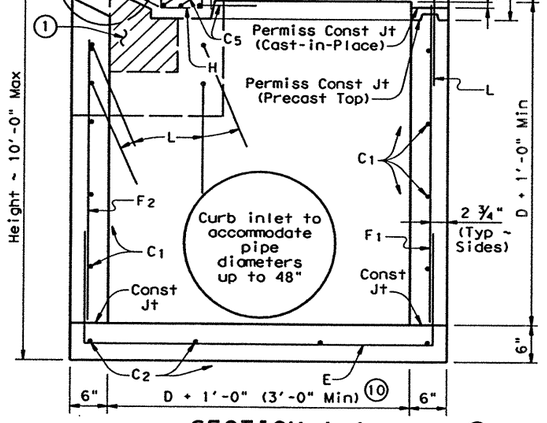
The Contractor may with the approval of the Engineer furnish inlets of equivalent structural design.

In areas of conflict between reinforcing steel, blockouts, pipes, anchor bolts or other reinforcing steel, the reinforcement shall be bent or adjusted to clear as directed by the Engineer.

Ring and cover shall conform to the requirements of AASHTO M306, "Standard Specification for Drainage Structure Castings". Materials shall conform to ASTM A48, Class 35B for gray iron castings or ASTM A536, Grade 65-45-12 for ductile iron castings. Aluminum alloy castings shall not be permitted.



ELEVATION



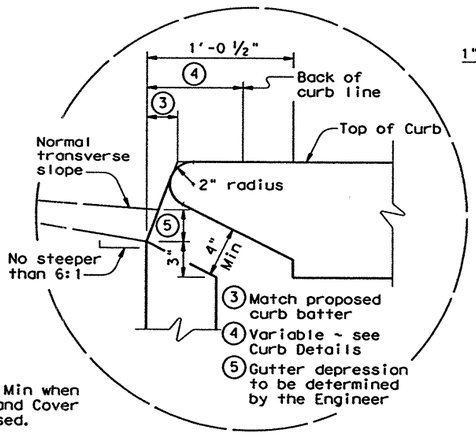
SECTION A-A

① Block out to accommodate extension if used and to place 4 Bars L

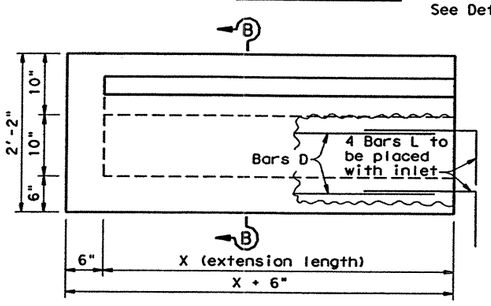
② If precast top is used, provide 4 ~ 5/8" dia x 1'-6" smooth bars in inlet walls for 1" dia holes

⑩ 3'-6" Min when Ring and Cover are used.

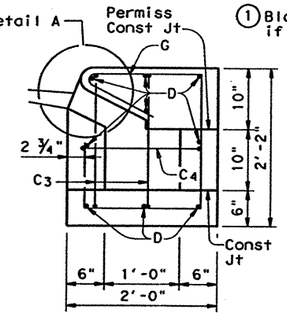
⑪ 1'-6" Min, 1'-9" Max Adjust placement of Ring and Cover as necessary to avoid conflict with Bars H.



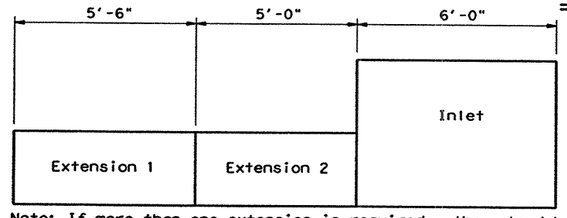
DETAIL A



EXTENSION ELEVATION



SECTION B-B



Note: If more than one extension is required, they should all be located on one side as indicated above. No slope is required in flowline of extension.

EXTENSION PLACEMENT

EXTENSION QUANTITIES

Ext	"X"	Cl "A" Conc	Reinf Steel
No.	Ft	CY	Lb
1	5	0.7	104
2	10	1.2	190
3	15	1.8	277
4	20	2.4	366

Texas Department of Transportation
Bridge Division

CURB INLET TYPE C AND EXTENSION TYPE E (5'-0" INLET)

IL-C

FILE: ~~il-cetde.dgn~~	DN: TxDOT	CK: TER	DW: MCB	CK: TER/GAF
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		611
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

4/18/2003

HOUFILE023 \hc1vil\cf0130\ 534mep14.dgn-01

PATH:

LEVELS Displayed
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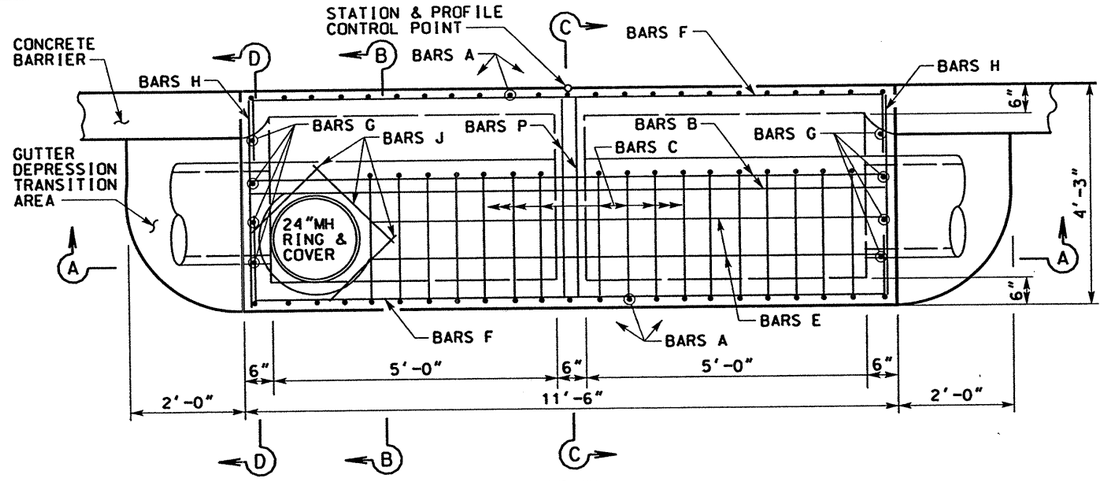
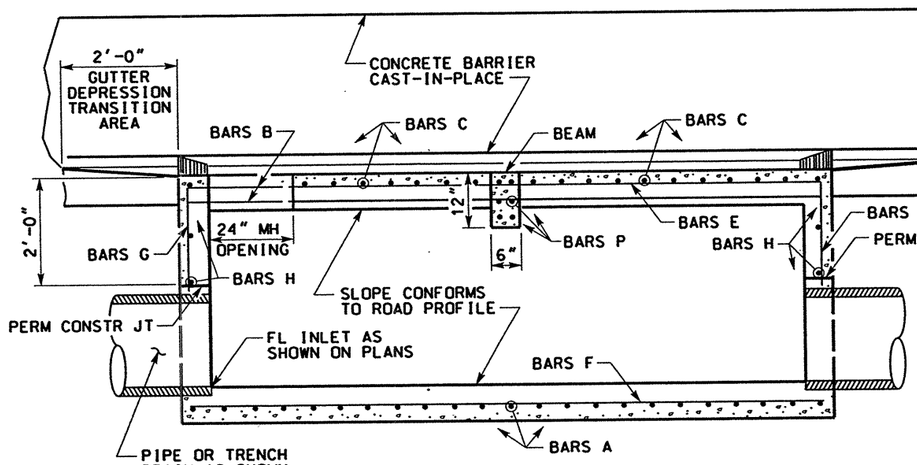
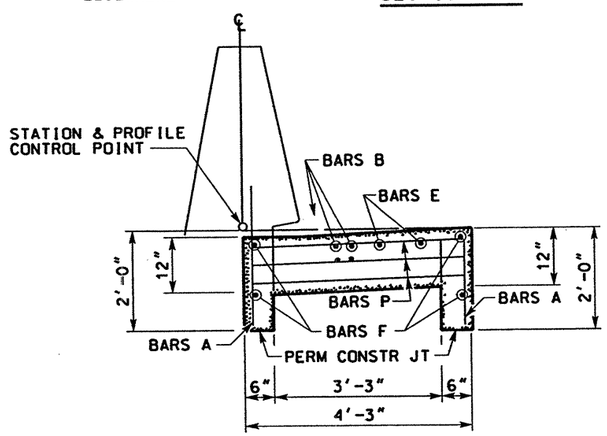


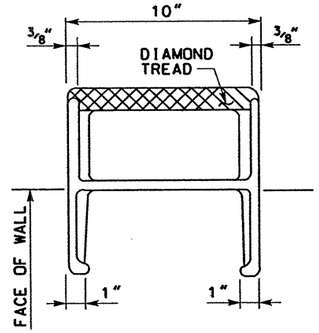
PLAN



SECTION A-A



SECTION C-C
BEAM DETAIL



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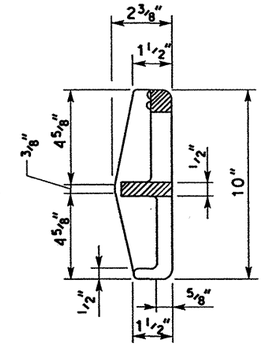
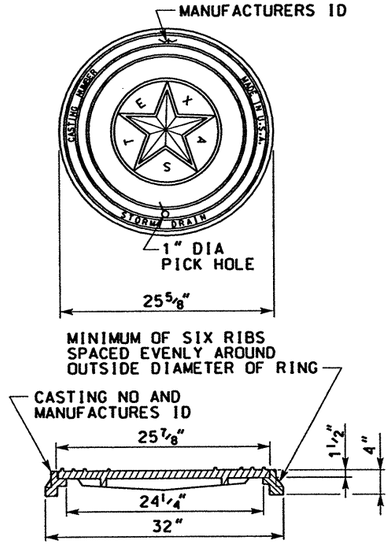
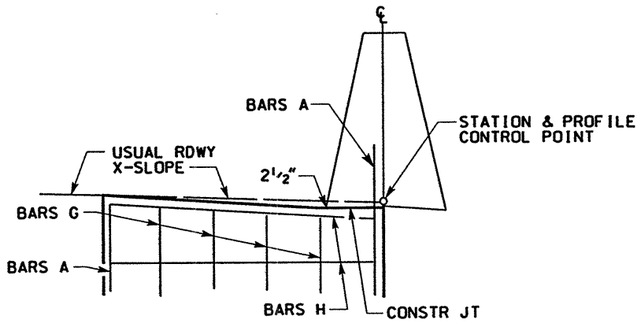


SECTION

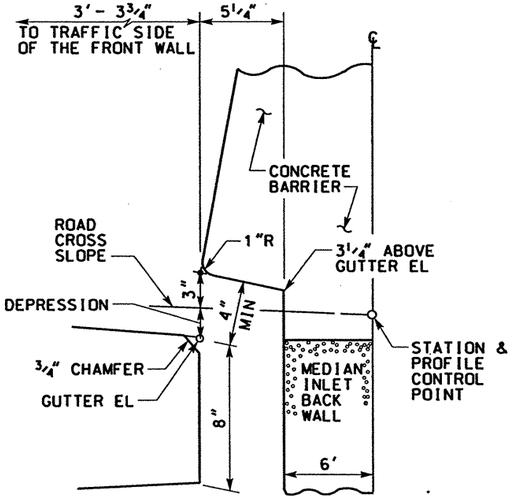
DETAIL OF CAST IRON STEP



MANHOLE
RING & COVER DETAIL



SECTION D-D
SIDE WALLS



THROAT DETAIL

GENERAL NOTES:

THE BARRIER MUST BE CAST IN PLACE FROM BEGIN GUTTER TRANSITION TO END GUTTER TRANSITION. THE SSCB OVER THE INLET AND THE GUTTER TAPERS ~~WILL BE~~ PAID FOR UNDER ITS OWN BID ITEM. SEE SSCB (2) FOR ADDITIONAL BARRIER NOTES AND DETAILS.

CAST IRON STEPS SPACED AT 15" ~~SHALL BE~~ PROVIDED AND INSTALLED BY THE MANHOLE IN ALL INLETS WHEN "H" EXCEEDS 4'-0".

OUTFALL PIPES WHICH LAY TRANSVERSE TO ROADWAY, AT INLETS ON GRADE, ~~WILL BE~~ PLACED ADJACENT TO THE WALL AT LOW END OF INLET.

PAYMENT FOR INLET CONC REINF STEEL, MANHOLE RING & COVER AND STEPS ~~SHALL BE~~ INCLUDED IN UNIT COST OF ITEM 465 "MANHOLES & INLETS".

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY PE 81485, ON APRIL 18, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
CTB INLET
TYPE M

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		612
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j0110g01.bdr, bdr LV ON = 48,57,58,60-62

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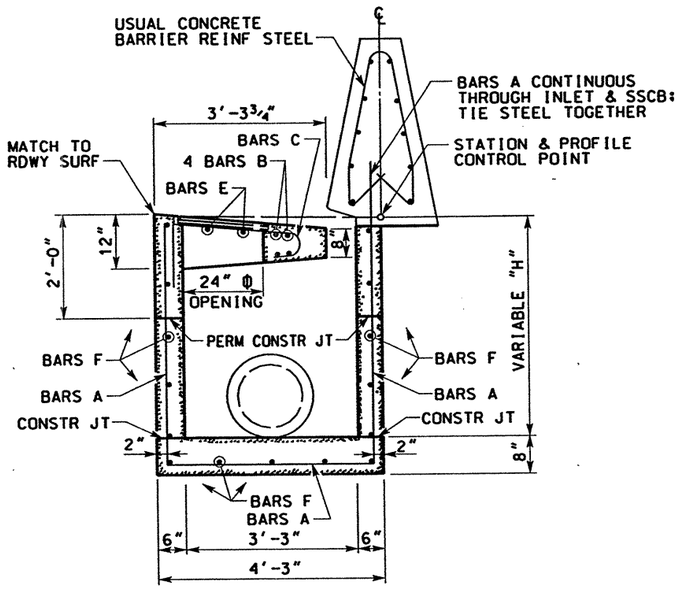
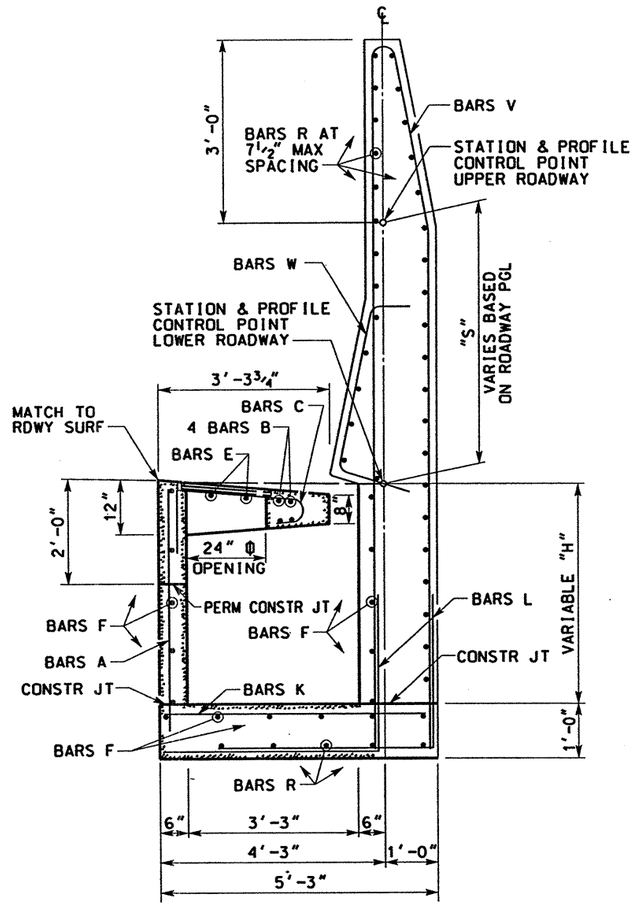


SECTION B-B



SECTION B-B
AT SPECIAL RAILS #1 & #2

ESTIMATED QUANTITIES - FOR H = 3'-10"

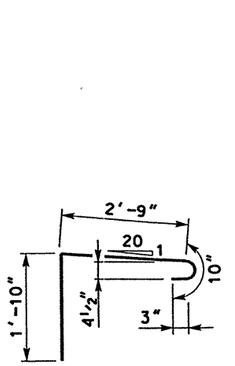
REINFORCING STEEL					
BAR	NO	SIZE	SPAC	LENGTH	WEIGHT
A	24	#4	6"	13'-6"	216
B	4	#5		11'-2"	47
C	17	#5	6"	5'-5"	96
E	2	#4	8"	8'-10"	12
F	15	#4	11"	13'-10"	139
G	8	#4	11"	4'-2"	22
H	10	#4	11"	3'-11"	36
J	3	#4		2'-4"	5
P	6	#5		3'-11"	25
TOTAL - REINF STEEL - LBS					598*
TOTAL - CLASS "C" CONC - CY					4.23*

* FOR CONTRACTOR'S INFORMATION ONLY.
NO DEDUCTIONS MADE FOR PIPES.
QUANTITIES VARY W/ "H"

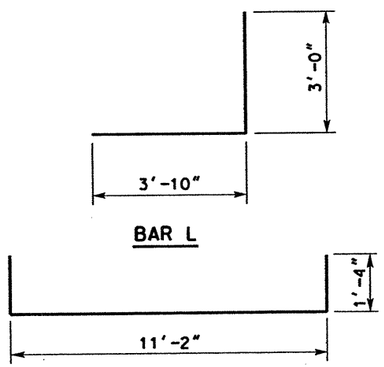
SPECIAL RAILS #1 & #2
ESTIMATED QUANTITIES -
FOR H = 3'-10" & S = 5'-0"

REINFORCING STEEL					
BAR	NO	SIZE	SPAC	LENGTH	WEIGHT
A	24	#4	6"	4'-5"	71
B	4	#5		11'-2"	47
C	17	#5	6"	5'-5"	96
E	2	#4	8"	8'-10"	12
F	15	#4	11"	13'-10"	139
G	8	#4	11"	4'-2"	22
H	10	#4	11"	3'-11"	36
J	3	#4		2'-4"	5
K	15	#5	10"	4'-9"	74
L	30	#5	10"	6'-10"	214
P	6	#5		3'-11"	25
R	50	#5	7.5"	11'-2"	582
V	15	#5	10"	25'-2"	394
W	15	#5	10"	5'-3"	82
TOTAL - REINF STEEL - LBS					1799*
TOTAL - CLASS "C" CONC - CY					10.5*

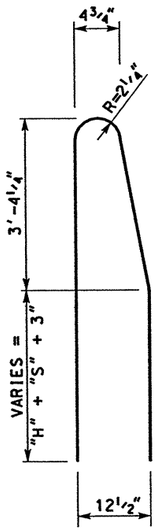
* FOR CONTRACTOR'S INFORMATION ONLY.
NO DEDUCTIONS MADE FOR PIPES.
QUANTITIES VARY W/ "H" & "S"



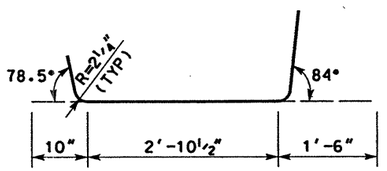
BAR C



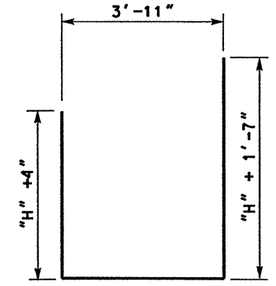
BAR F



BAR V



BAR W



BAR A

HS 25 LOADING

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY PE 81485, ON APRIL 18, 2003

James B. Hornsby

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
CTB INLET
TYPE M

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	613
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062. ETC	IH 35

REF FILE(S): j0110p01.bdr, bdr LV ON = 48.57.58.60-62

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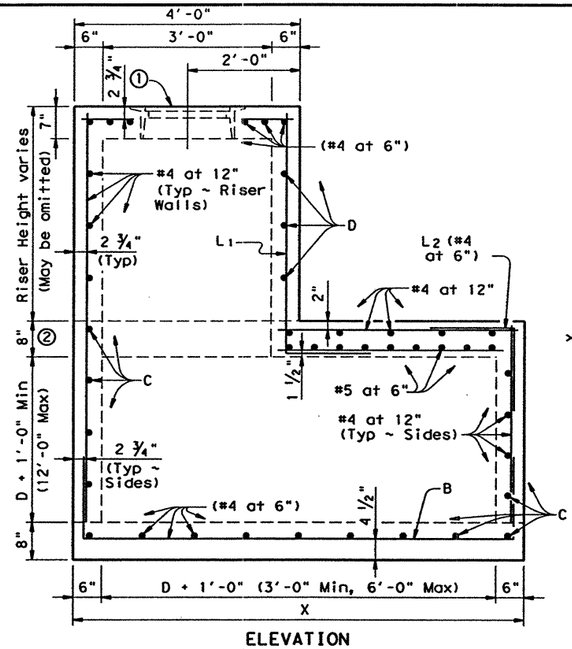
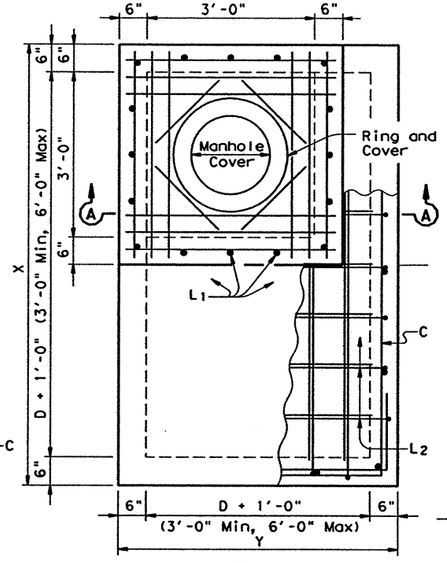


ELEVATION

D = Maximum inside diameter of any Pipe entering the side shown or the opposite side



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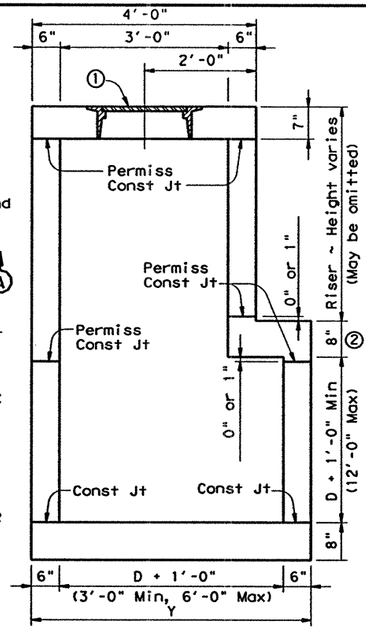
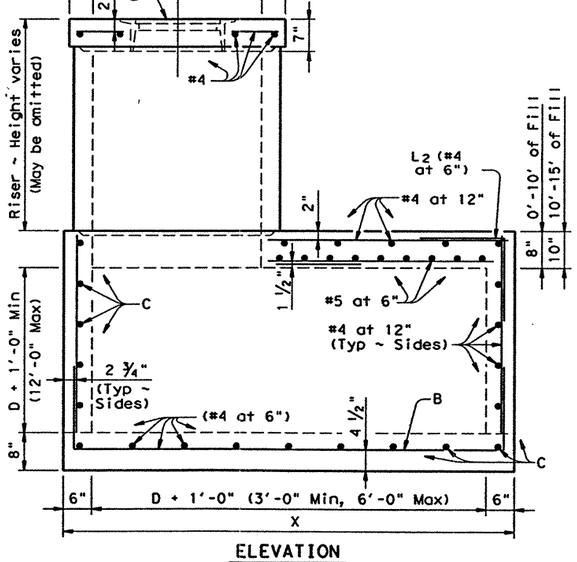


SECTION A-A

MANHOLE WITH CAST-IN-PLACE RISER

① See Ring and Cover Details

② for 0'-15' of Fill



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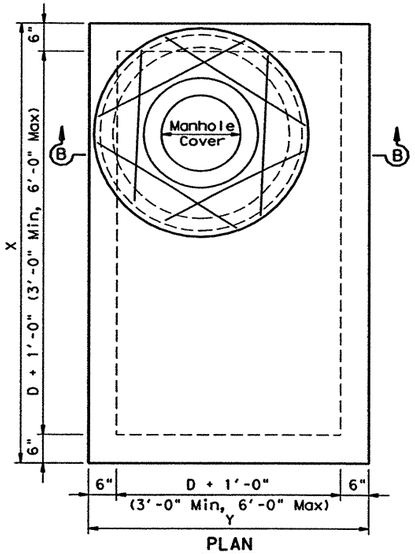

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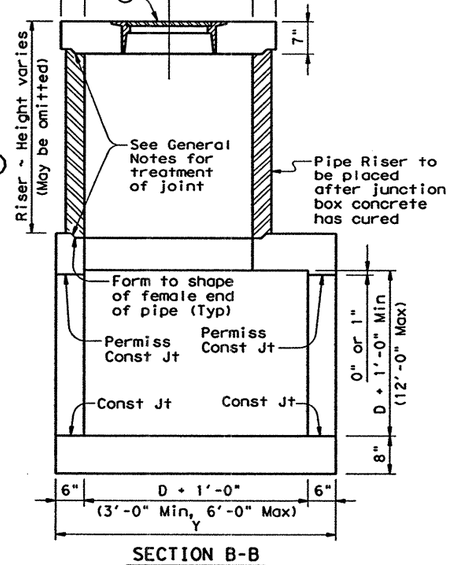
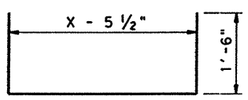
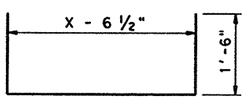


SECTION B-B

OPTIONAL MANHOLE WITH CONCRETE PIPE RISER



BARS B



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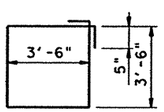

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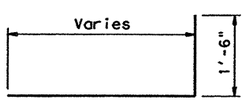
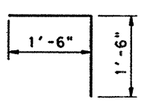


BARS L_1



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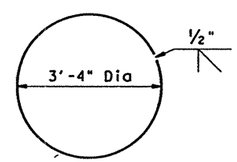
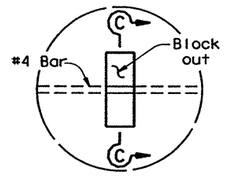
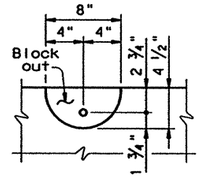


CONCENTRIC BAR

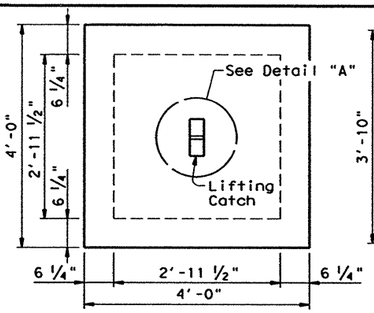


DETAIL "A"



SECTION C-C

LIFTING CATCH



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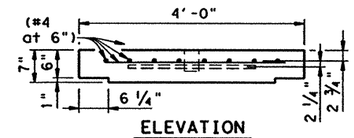
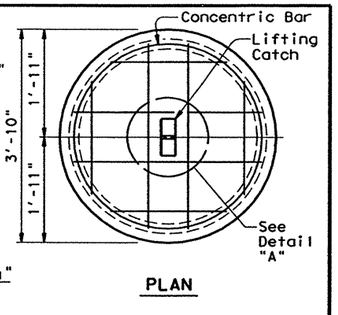


ELEVATION

CAST-IN-PLACE RISER COVER



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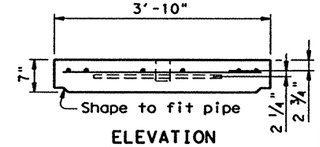
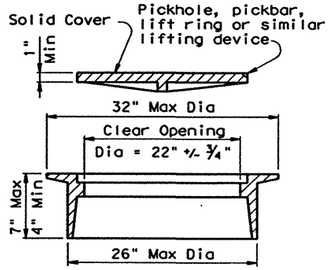


ELEVATION

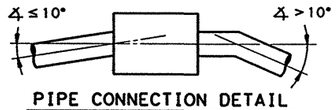
CONCRETE PIPE RISER COVER

OPTIONAL PRECAST CONCRETE LIFT-OFF COVERS



RING AND COVER DETAILS

Approximate Weight = 245 lb



PIPE CONNECTION DETAIL

Connecting pipes should enter within 10° of normal to inlet wall. If necessary, pipe elbow or curved approach alignment should be used to stay within this limit.

GENERAL NOTES:

Unless otherwise shown in the plans, payment will be made for each manhole of the Type M.

Alternate design drawings bearing the seal of a registered professional engineer will be acceptable for precast construction of the manholes.

Shop drawings will not be required.

The Contractor may with the approval of the Engineer furnish manholes of equivalent structural design.

In areas of conflict between reinforcing steel, blockouts, pipes, anchor bolts or other reinforcing steel, the reinforcement shall be bent or adjusted to clear as directed by the Engineer.

The riser may be constructed of reinforced concrete as shown or of Reinforced Concrete Pipe, Class III, in accordance with ASTM Designation C-76. If pipe is used, joints shall conform to the Item "Reinforced Concrete Pipe Culverts". Precast Concrete Lift-Off Cover may be substituted for Ring and Cover.

The riser, either cast-in-place or concrete pipe, may be located in any corner.

All reinforcing steel shall be #4 unless otherwise noted.

Pipes may enter any or all walls. The maximum size of pipe that can be accommodated is 60". More than one pipe may enter a side, subject to the maximum box dimension shown. The clear distance between adjacent pipes should be 9" minimum.

Ring and cover shall conform to the requirements of AASHTO M306, "Standard Specification for Drainage Structure Castings". Materials shall conform to ASTM A48, Class 35B for gray iron castings or ASTM A536, Grade 65-45-12 for ductile iron castings. Aluminum alloy castings shall not be permitted.

Texas Department of Transportation
Bridge Division

MANHOLE TYPE M
(JUNCTION BOX WITH ACCESS)

MH-M

FILE: mhmetdc.dgn	DN: TxDOT	CK: TER	DW: MCB	CK: TER/GAF	
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT			SHEET
REVISIONS	22	NH-2002 (79)			614
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

4/18/2003

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LEVELS USED
1 2 3 4 5 6 7 8 9 10 11 12 21 31 41 51 61 7 17 18 19 20 21 22 23 24 25 26 27 28 29 33 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163

PATH:

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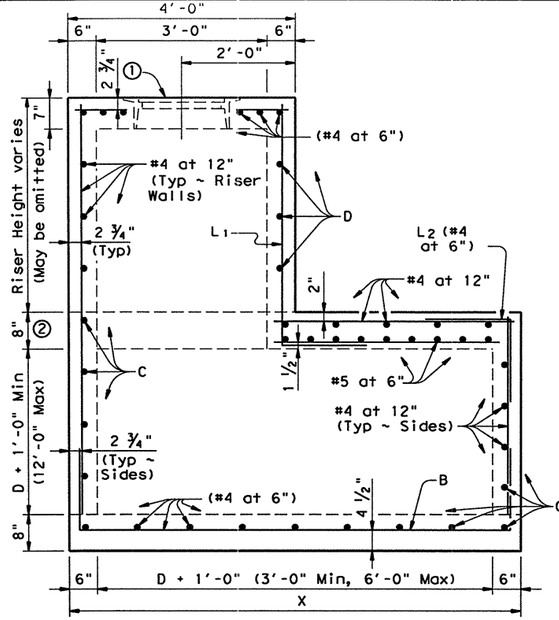
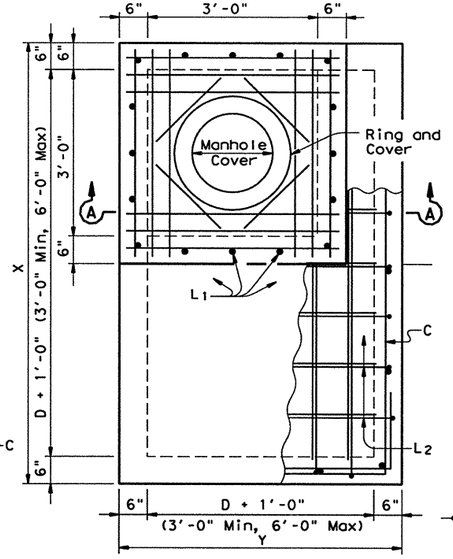
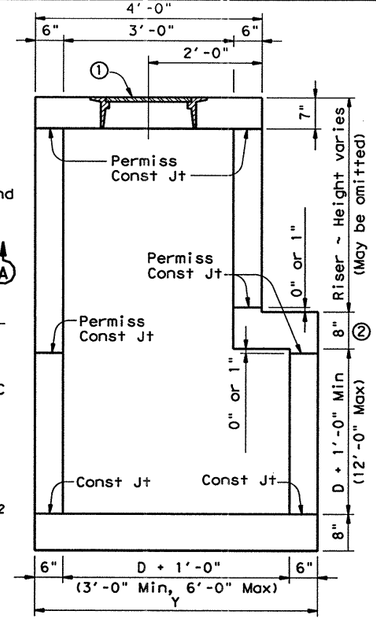


ELEVATION

D = Maximum inside diameter of any Pipe entering the side shown or the opposite side



PLAN

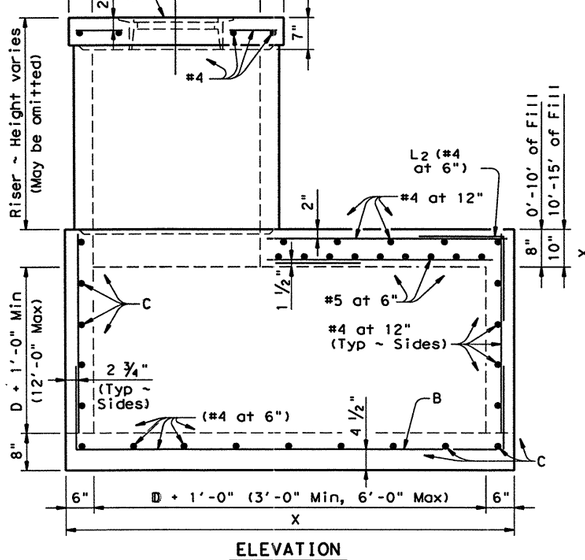


SECTION A-A

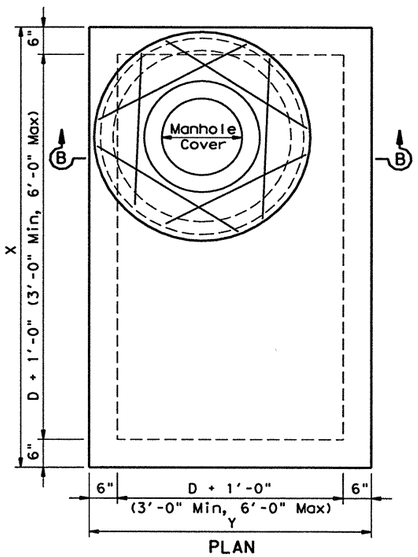
MANHOLE WITH CAST-IN-PLACE RISER

① See Ring and Cover Details

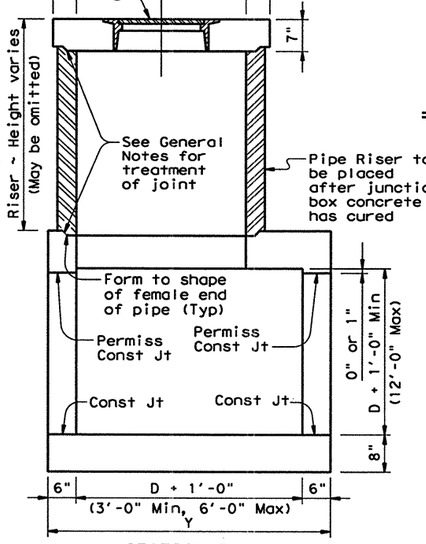
② for 0'-15' of Fill



ELEVATION

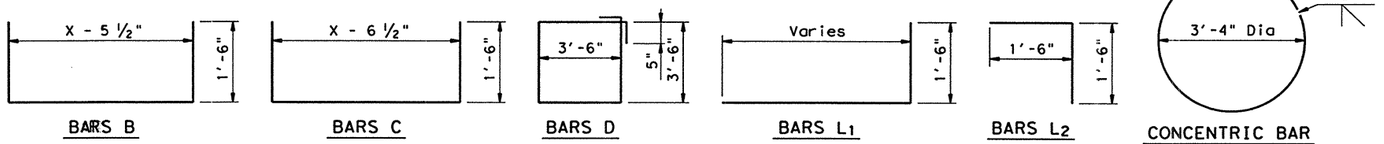


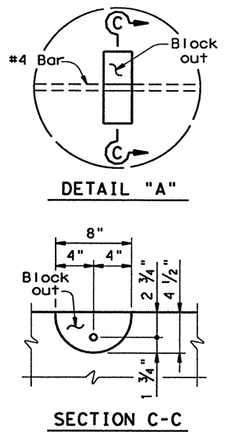
PLAN



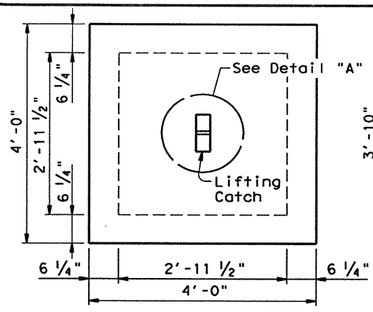
SECTION B-B

OPTIONAL MANHOLE WITH CONCRETE PIPE RISER

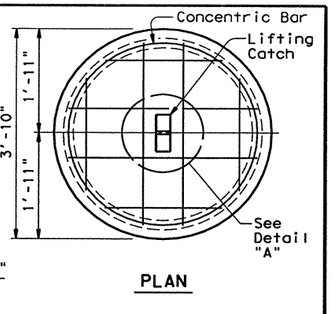




LIFTING CATCH

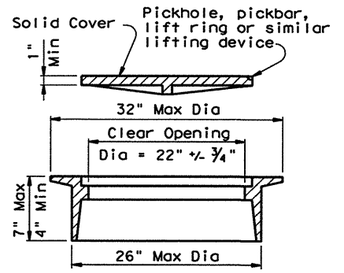


CAST-IN-PLACE RISER COVER



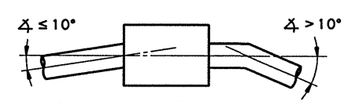
CONCRETE PIPE RISER COVER

OPTIONAL PRECAST CONCRETE LIFT-OFF COVERS



RING AND COVER DETAILS

Approximate Weight = 245 lb



PIPE CONNECTION DETAIL

Connecting pipes should enter within 10° of normal to inlet wall. If necessary, pipe elbow or curved approach alignment should be used to stay within this limit.

GENERAL NOTES:

Unless otherwise shown in the plans, payment ~~will be~~ made for each manhole of the Type M (Mod).

Exposed edges ~~shall be~~ chamfered ¾".

Alternate design drawings bearing the seal of a registered professional engineer ~~will be~~ acceptable for precast construction of the manholes.

Shop drawings will not be required.

The Contractor may with the approval of the Engineer furnish manholes of equivalent structural design.

In areas of conflict between reinforcing steel, blockouts, pipes, anchor bolts or other reinforcing steel, the reinforcement ~~shall be~~ bent or adjusted to clear as directed by the Engineer.

The riser may be constructed of reinforced concrete as shown or of Reinforced Concrete Pipe , Class III, in accordance with ASTM Designation C-76. If pipe is used, joints ~~shall~~ conform to the Item "Reinforced Concrete Pipe Culverts".

The riser, either cast-in-place or concrete pipe, ~~may be~~ located in any corner.

All reinforcing steel shall be #4 unless otherwise noted.

Pipes or culverts may enter any or all walls. The maximum size of pipe that can be accomodated is 60". More than one pipe may enter a side, subject to the maximum box dimension shown. The clear distance between adjacent pipes should be 9" minimum.

Actual number of culverts and boxes may differ as shown on storm sewer sheets.

Angle of connection of culverts and junction box varies as shown on storm sewer sheets.

Riser ~~may be~~ located on any corner.

The contractor may with the approval of the engineer furnish some junction boxes of equivalent structural design.

Ladder rungs ~~shall be~~ provided at 18" spacings at the locations directed by the engineer.

The minimum thickness of the wall and slabs (U & T Respectively) ~~shall be~~ 8".

STATE OF TEXAS
A.A. ABUGATTAS
34940
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A.A. ABUGATTAS P.E. 34940, ON JUNE 09, 2003

Abugattas

GENERAL NOTES CHANGED

Texas Department of Transportation
Bridge Division

MANHOLE TYPE M
(JUNCTION BOX WITH ACCESS)

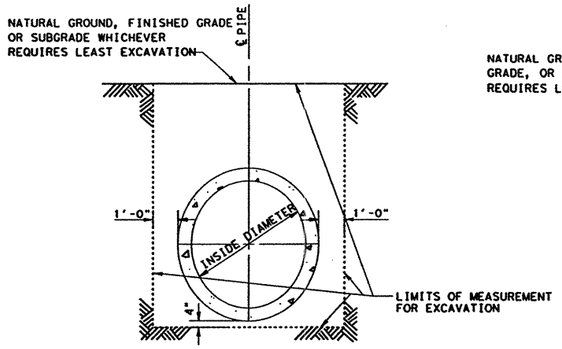
MH-M (MOD)

FILE: mr-ms4de-dgn	DN: TxDOT	CK: TER	DW: MCB	CK: TER/GAF
©TxDOT September 2000	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	22	NH-2002 (79)		615
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

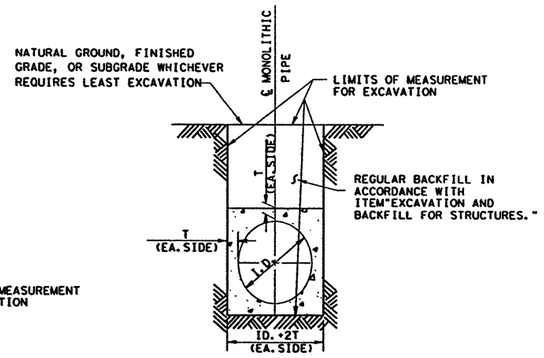
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

PATH:

b34mop13.dgn-02 HOUFILE023 \hcivil\cf0130\ 6/9/2003



EXCAVATION DETAIL FOR PIPE SEWER AND REINF. CONC. PIPE IN A PAVED AREA



EXCAVATION DETAIL FOR MONOLLITHIC PIPE SEWER IN A PAVED OR GRADED AREA

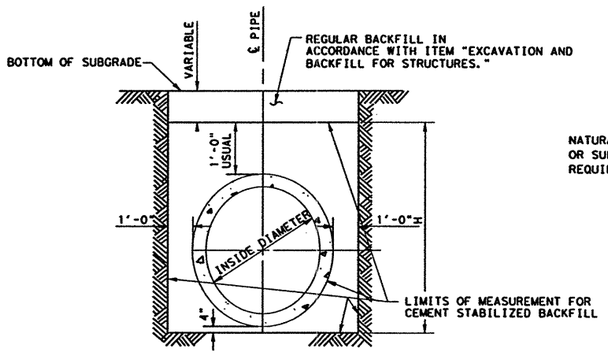
MONOLITHIC SEWERS

EXCAVATION FACTORS		
PIPE DIA. IN.	T FT.	SEWER EXCAVATION C.Y. PER L.F. PER FT. OF DEPTH
36	0.417	0.142
42	0.458	0.164
48	0.458	0.182
54	0.500	0.204
60	0.583	0.228
66	0.583	0.247
72	0.625	0.269
78	0.625	0.287
84	0.625	0.306

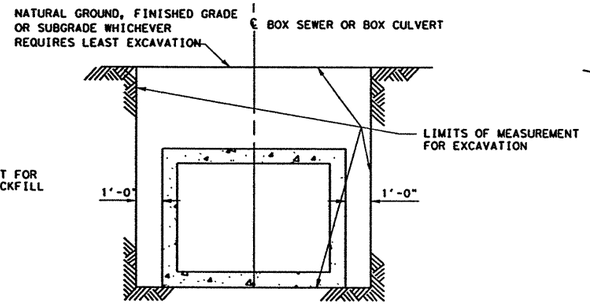
PRECAST PIPE SEWER PIPE OR PIPE CULVERT

EXCAVATION AND BACKFILL FACTORS					
PIPE DIA. IN.	T FT.	CULVERT OR SEWER EXCAVATION C.Y. PER L.F. PER FT. OF DEPTH IN A PAVED AREA	CULVERT OR SEWER EXCAVATION C.Y. PER L.F. PER FT. OF DEPTH IN A GRADED AREA	CEM. STAB. BACKFILL C.Y. PER L.F. IN A GRADED AREA	CEM. STAB. BACKFILL C.Y. BY EQUATION IN A PAVED AREA
18	0.19	0.144	0.144	0.083	L(0.144H-0.103)
24	0.23	0.165	0.165	0.094	L(0.165H-0.176)
30	0.29	0.188	0.188	0.152	L(0.188H-0.276)
36	0.33	0.210	0.210	0.189	L(0.210H-0.390)
42	0.38	0.231	0.231	0.229	L(0.231H-0.528)
48	0.42	0.253	0.327	0.451	L(0.253H-0.681)
54	0.46	0.275	0.349	0.518	L(0.275H-0.854)
60	0.50	0.296	0.370	0.588	L(0.296H-1.047)
66	0.54	0.318	0.392	0.660	L(0.318H-1.259)
72	0.58	0.340	0.414	0.735	L(0.340H-1.491)
78	0.62	0.361	0.435	0.813	L(0.361H-1.742)
84	0.67	0.383	0.457	0.893	L(0.383H-2.023)

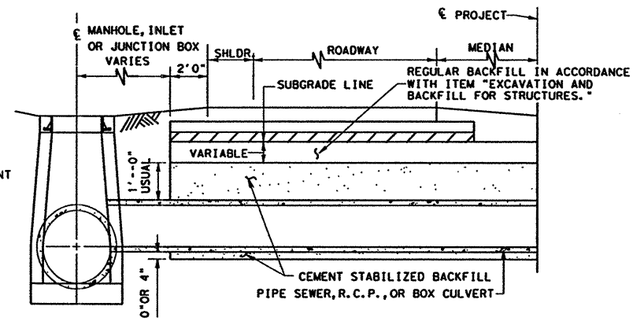
L = LENGTH OF REQUIRED CEMENT STABILIZED BACKFILL ALONG THE CULVERT.



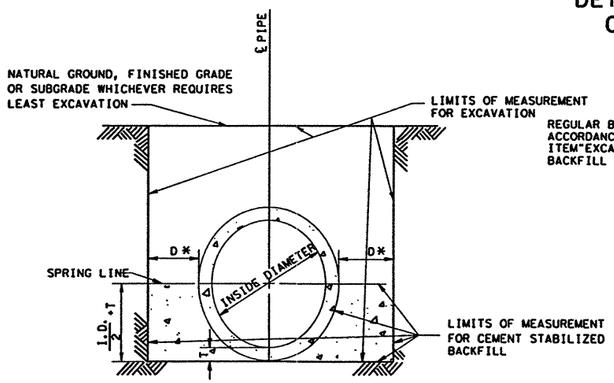
CEM. STAB. DETAIL FOR PIPE SEWER AND REINF. CONC. PIPE IN A PAVED AREA INCLUDING DETOURS*



**EXCAVATION AND REGULAR BACKFILL DETAIL FOR BOX SEWERS AND BOX CULVERTS IN A GRADED AREA

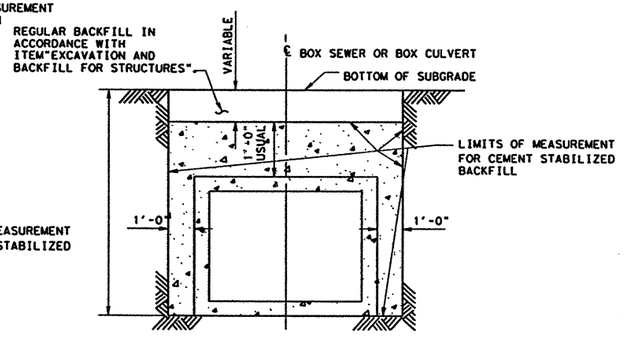


HORIZONTAL LIMITS OF CEM. STAB. BKFL. 2'-0"OUTSIDE SHOULDER LINE

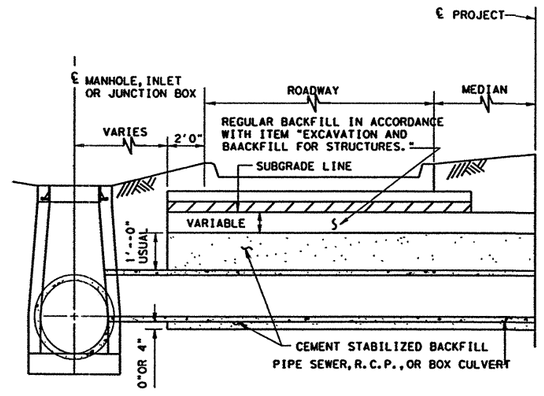


EXCAVATION & CEM. STAB. BKFL. DETAIL FOR PIPE SEWER AND REINF. CONC. PIPE IN A GRADED AREA

*LIMITS OF EXCAVATION:
D=1'FOR 42"PIPE SEWER OR R.C.P.& LESS.
D=2'FOR PIPE SEWER OR R.C.P. GREATER THAN 42"



CEM. STAB. BKFL. FOR BOX SEWERS AND BOX CULVERTS IN A PAVED AREA INCLUDING DETOURS*



HORIZONTAL LIMITS OF CEM. STAB. BKFL. 2'-0"OUTSIDE BACK OF CURB

NOTE:

CEMENT STABILZED BACKFILL ~~MAY BE~~ OMITTED IN PRIVATE DRIVEWAYS AS INDICATED ELSEWHERE IN THE PLANS.

RUBBER GASKETS ~~SHALL BE~~ REQUIRED FOR ALL JOINTS ON ~~PROPOSED~~ CROSS DRAINAGE, PIPE CULVERTS AND ~~PROPOSED~~ STORM SEWER SYSTEMS, UNLESS OTHERWISE SHOWN IN THE PLANS.

* BACKFILL WITH CEMENT STABILIZED MATERIAL WILL BE REQUIRED FOR ALL STRUCTURES UNDER DETOURS UNLESS SPECIFIED IN THE GENERAL NOTES.

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

4/18/2003

REVISIONS
REV. 5/90 RUBBER GASKET
REV. 2/91 DETOUR
REV. 11/91 * * REMARKED
REV. 11/93 UPDATED TO NEW SPECS. AND 3DD REVISION BLOCK.
REV. 3/94 ADDED SHEET 2 AND MOVED CSB TYPICAL SECTION OF MANHOLE IN PAVED OR GRADED AREA
REV. 6/96 ADDED COPYRIGHT INFO TO THE TITLE BLOCK.

TEXAS DEPARTMENT OF TRANSPORTATION

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EXCAVATION & BACKFILL DIAGRAMS

SHEET 1 OF 2

DN	DRAWING	DATE	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CK DN	ORIGINAL		6	TEXAS	NH-2002 (79)	IH 35
DW			STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	SHEET NO.
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TR						
CK TR						

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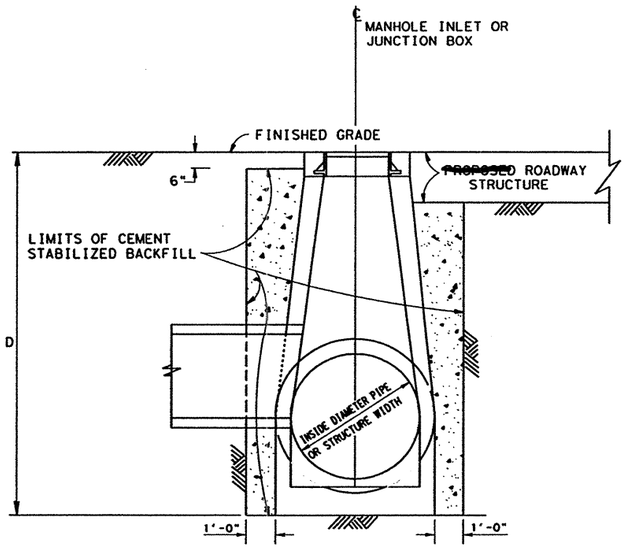
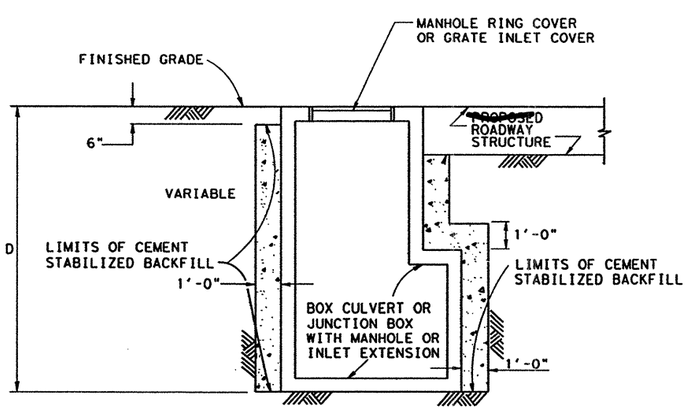


TYPICAL SECTION OF MANHOLE IN A PAVED OR GRADED AREA

N. T. S.



TYPICAL SECTION OF JUNCTION BOX IN A PAVED OR GRADED AREA

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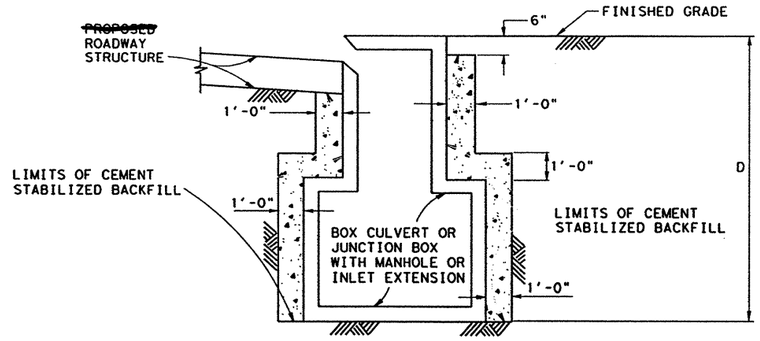
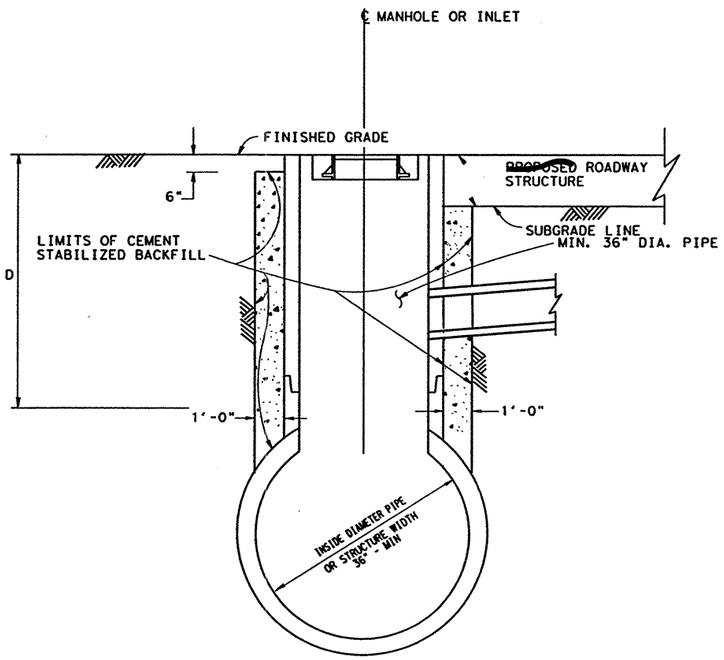


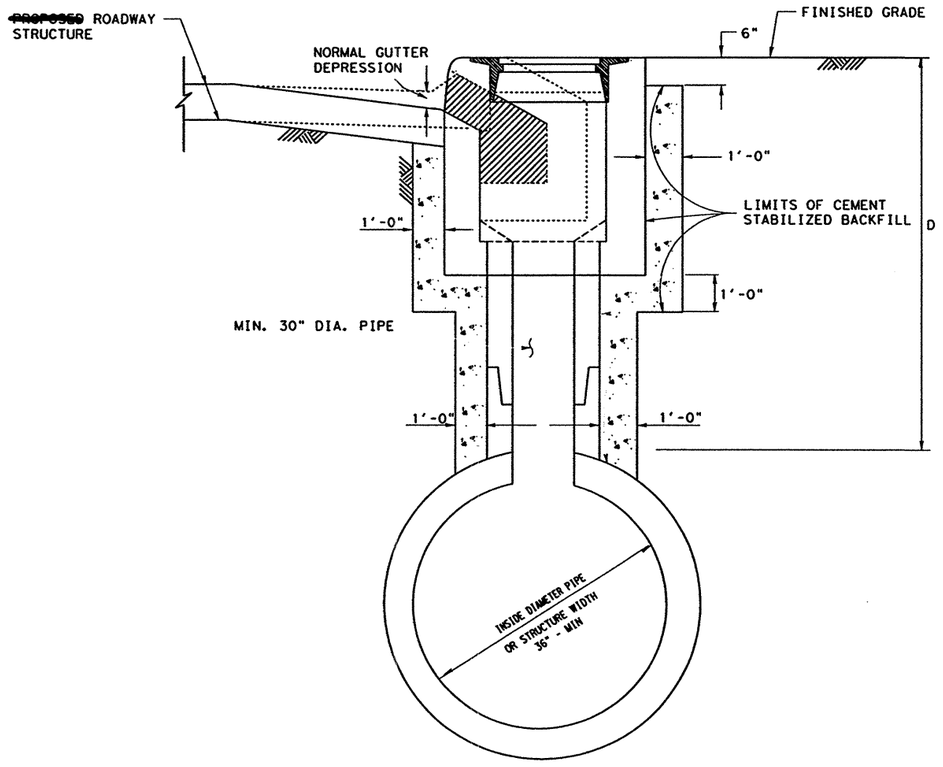
TYPICAL SECTION OF INLET EXTENSION ON A BOX CULVERT IN A PAVED OR GRADED AREA

N. T. S.



TYPICAL SECTION OF MANHOLE IN A PAVED OR GRADED AREA

N. T. S.



TYPICAL SECTION OF CURB INLET IN A PAVED OR GRADED AREA

N. T. S.

TABLE 1

SCHEDULE FOR PAY QUANTITIES OF CEMENT STABILIZED BACKFILL

MANHOLE OR INLET DEPTH (D) IN FEET	CEMENT STABILIZED BACKFILL IN CUBIC YARDS
0 THROUGH 5	5
> 5 THROUGH 10	7.5
GREATER THAN 10	12

NOTES:

1. THE QUANTITY OF CEMENT STABILIZED BACKFILL IS BASED ON AN ESTIMATED RATE OF 1.0 C.Y. PER FT. OF DEPTH OF THE INLET OR MANHOLE BELOW FINISHED GRADE. THE CONTRACTOR IS PAID A FIXED AMOUNT BASED ON DEPTH (D) AND TABLE 1.
2. ~~PROPOSED~~ ROADWAY STRUCTURE INCLUDES PAVEMENT, BASE AND ANY SUBGRADE.
3. FOR BACKFILL OF INTERSECTING PIPES AND BOX CULVERTS, SEE "EXCAVATION AND BACKFILL DIAGRAM FOR PIPES AND BOX CULVERTS".

STATE OF TEXAS
RUDY L. GOMEZ
58664
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RUDY L. GOMEZ PE 58664, ON APRIL 18, 2003

REVISIONS
REV. 6/98 ADDED COPYRIGHT INFO TO THE TITLE BLOCK.

TEXAS DEPARTMENT OF TRANSPORTATION

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EXCAVATION & BACKFILL DIAGRAMS

SHEET 2 OF 2

DN	DRAWING	DATE	FED. RD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CK DN			6	TEXAS	NH-2002 (79)	IH 35
DW			STATE DIST. NO.	COUNTY	CONTROL NO. / SECTION NO. / JOB NO.	SHEET NO.
CK DW			22	WEBB	0018 05 062, ETC	617
TR						
CK TR						

4/18/2003

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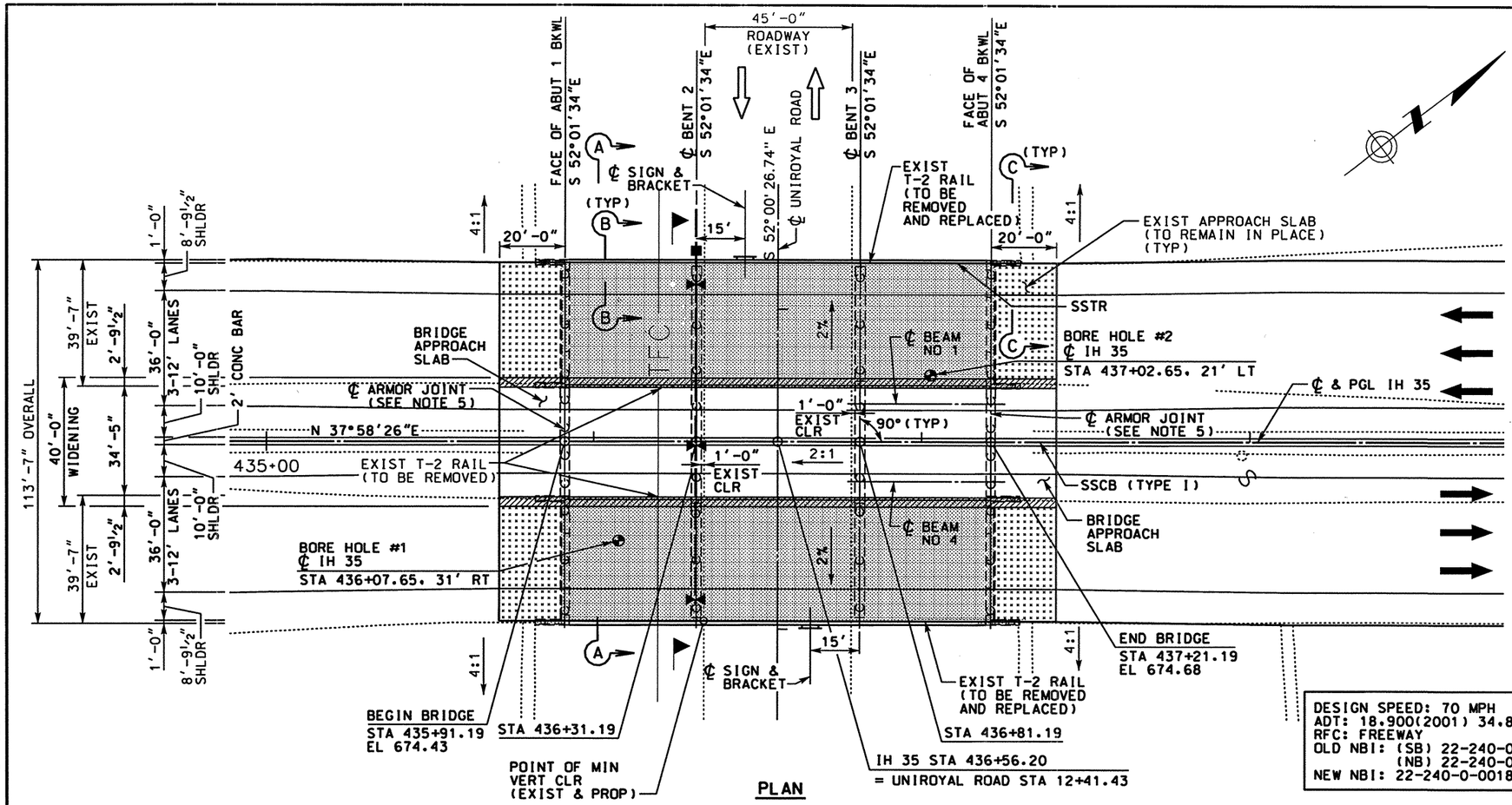
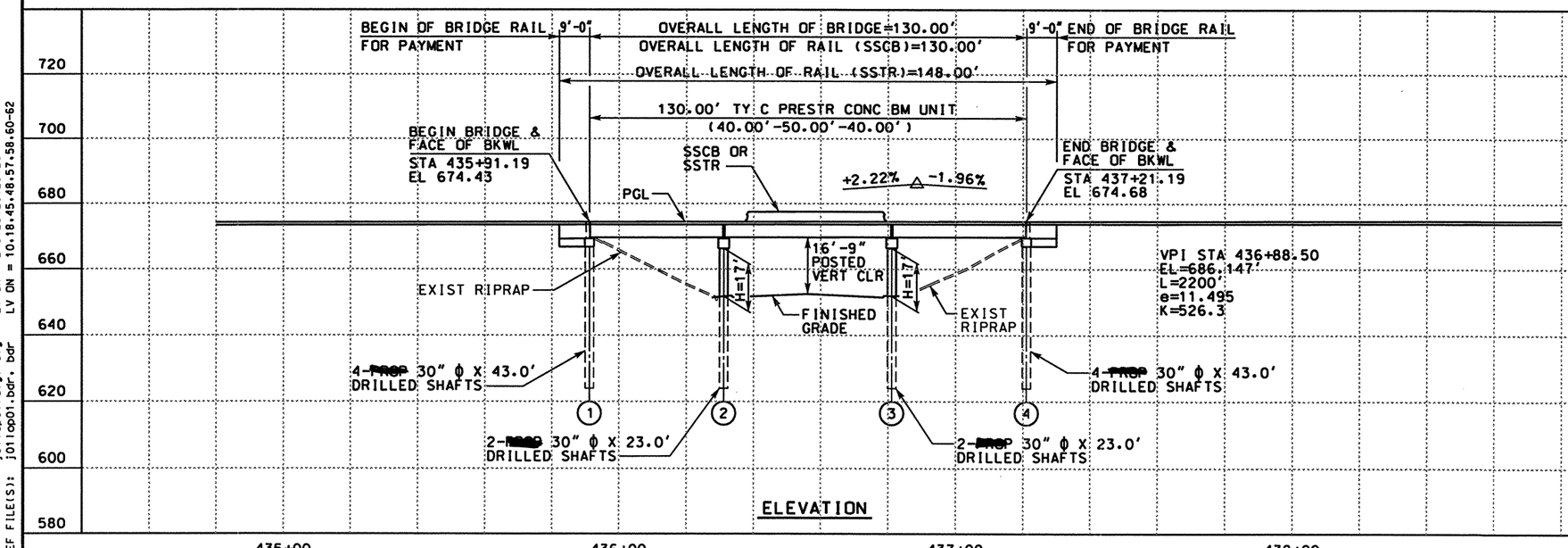


PLAN



ELEVATION

LEGEND

- TO BE REMOVED
- EXISTING BRIDGE
- EXIST APPROACH SLAB
- ▶ UNDERPASS BRIDGE LIGHTING

GENERAL NOTES:

1. DESIGNED ACCORDING TO 1996 AASHTO STANDARD SPECIFICATION AND INTERIMS THERETO (HS25 LOADING).
2. BEAM END CONDITIONS:
   D: DENOTES A SLOTTED HOLE AT EXTERIOR BEAM END.
   BLANK: DENOTES NO HOLE AT BEAM END.
3. FOR BORING LOGS, SEE "BORING LOGS" SHEETS.
4. DRILLED SHAFTS ARE DESIGNED WITH POINT BEARING AND SKIN FRICTION.
5. EXISTING ARMOR JOINT PLATES TO REMAIN. EXTEND WITH NEW ARMOR PLATES WITH FIELD WELDED BUTT SPLICES AS DETAILED IN THE AJ STANDARD AT ~~PROPOSED~~ WIDENING. ~~PROPOSED~~ ARMOR PLATES TO MATCH EXISTING. NEW AJ PLATE LENGTH IS 34'-5" EACH SIDE.
6. CONTRACTOR ~~SHALL~~ VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE FIELD.
7. INDENT ON THE BACK SIDE OF THE SSTR IS ~~TO BE~~ STAINED BLUE (FEDERAL STANDARD 595 B 35466).

DESIGN SPEED: 70 MPH
ADT: 18,900(2001) 34,800(2021)
RFC: FREEWAY
OLD NBI: (SB) 22-240-0-0018-05-161
(NB) 22-240-0-0018-05-162
NEW NBI: 22-240-0-0018-05-161

0 20 40
SCALE: 1" = 40'

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES B. HORNSBY PE 81485, ON JUNE 09, 2003

KBR
Engineered by KBR Technical Services, Inc

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IH 35
LOOP 20 TO UNIROYAL ROAD
UNIROYAL ROAD OVERPASS BRIDGE LAYOUT

SHEET 1 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	618
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

REF FILE(S): j011op01.uti, uti LV ON = 1-63
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REF FILE(S): j011op01.bnt, bnt LV ON = 1-17.19-63
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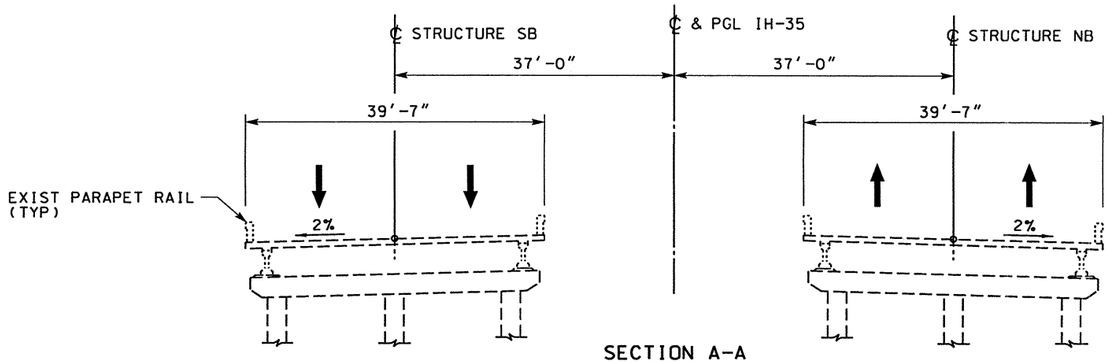
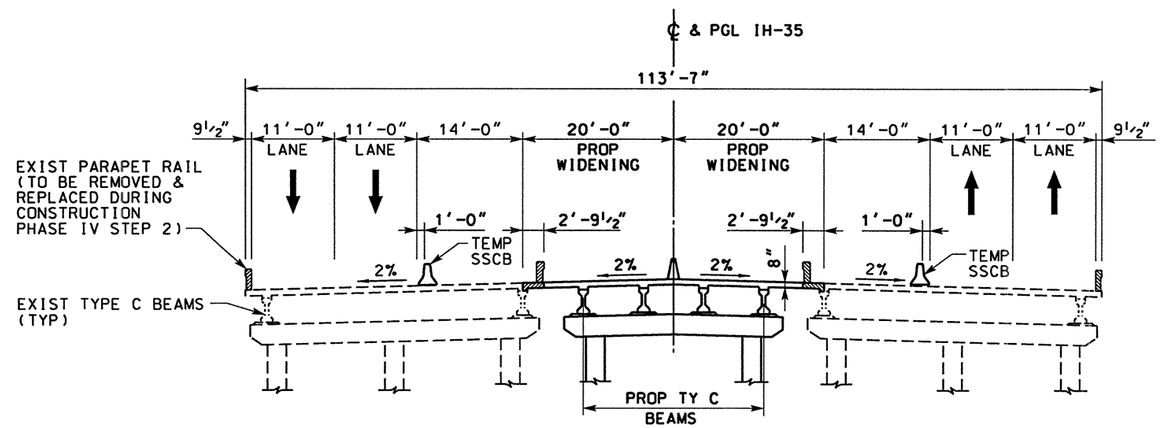
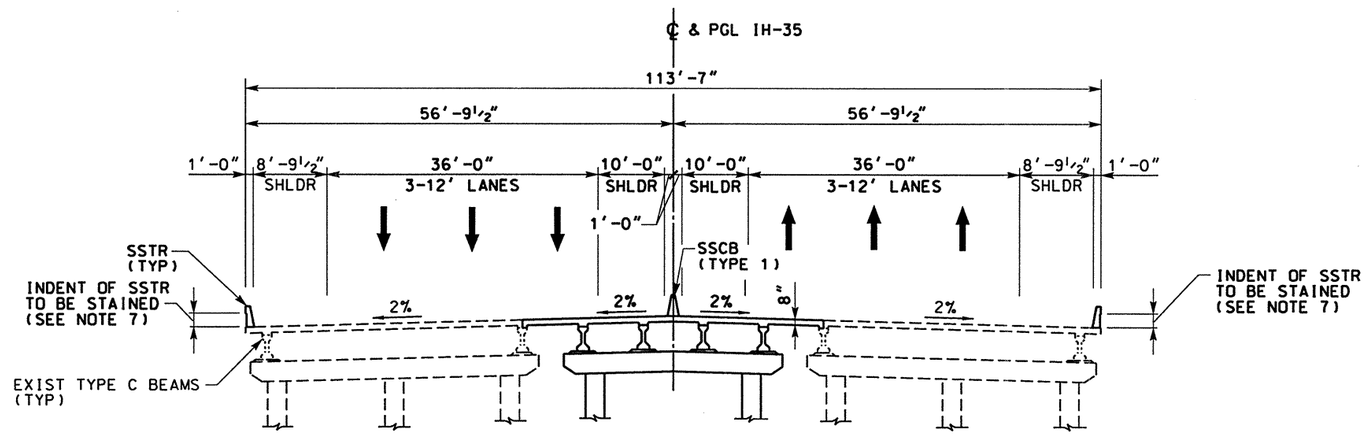
b70ppp01.dgn-25 6/9/2003 HOUFILE023 \hciwlv\c\0130\



SECTION A-A
EXISTING



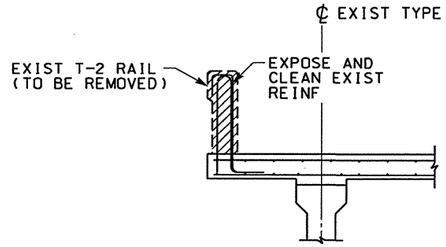
SECTION A-A
DURING CONSTRUCTION



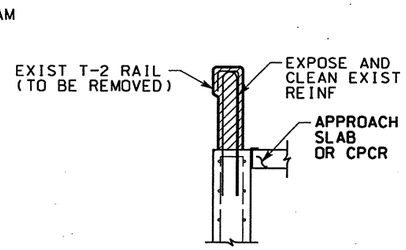
SECTION A-A
TYPICAL TRANSVERSE SECTION

NOTE:

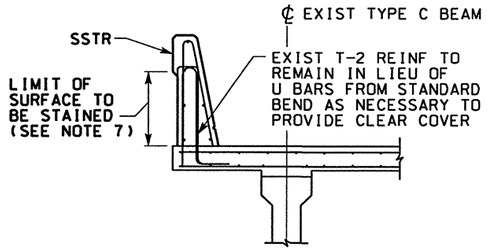
1. FOR NOTES SEE SHEET 1 OF 2.



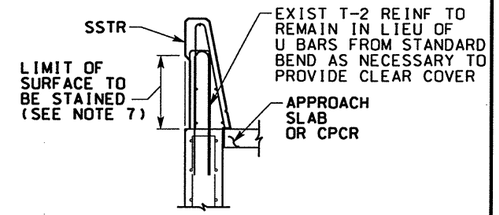
SECTION B-B



SECTION C-C



SECTION B-B
ON BRIDGE SLAB
NTS



SECTION C-C
NTS

EXISTING RAIL REPLACEMENT

0 10 20
SCALE: 1" = 20'

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
UNIROYAL ROAD OVERPASS
BRIDGE LAYOUT

SHEET 2 OF 2

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		619
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

6/9/2003

HOUFILE023 \hcivil\c(0130)\

b701sp01.dgn-14

REF FILE(S): j011sp01.bdr, bdr LV ON = 20,47,57,58,60-62

SUMMARY OF BRIDGE QUANTITIES

DESCRIPTION	400-0502 STRUCT EXCAV (BRIDGE)	416-0504 DRILL SHAFTS (30 IN)	420-0514 CL C CONC (BENT)	422-0509 REINF CONC SLAB (EXT STR)	425-0503 PRESTR CONC BEAM (TY C)	CONC STAIN FINISH *	428-0501 CONC SURF TREAT	430-0506 CL C CONC FOR EXT STR (ABUT)	440-XXXX REINF CONC STEEL *	442-0503 STR STL (ARMOR JOINT)	450-0526 RAIL (TY SSTR)	452-0510 REMOV RAIL (CONC)	514-0535 PERM CONC TRF BAR SGL SLP (TY 1) (H=42")	444-505 SIGN & BRACKET
	CY	LF	CY	SF	LF	SY	SY	CY	LB	LB	LF	LF	LF	EA
2-ABUTMENTS	36	344						25.8	6008					
2-INTERIOR BENTS		92	27.6						5898					
1-PRESTR CONC BM UNIT				5200	516.04	66	551		33800	1832	296	592	130	2
TOTALS	36	436	27.6	5200	516.04	66	551	25.8	45706	1832	296	592	130	2

* FOR CONTRACTOR'S INFORMATION ONLY

BEARING SEAT ELEVATIONS

		BEAM 1	BEAM 2	BEAM 3	BEAM 4
ABUT 1	(FWD)	669.924	670.084	670.084	669.924
BENT 2	(BK)	670.031	670.191	670.191	670.031
	(FWD)	670.035	670.195	670.195	670.035
BENT 3	(BK)	670.127	670.287	670.287	670.127
	(FWD)	670.129	670.289	670.289	670.129
ABUT 4	(BK)	670.170	670.330	670.330	670.170

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JAMES B. HORNSBY
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IH 35
LOOP 20 TO UNIROYAL ROAD
UNIROYAL OVERPASS
QUANTITY SUMMARY / BEARING SEAT ELEVATIONS
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	620
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

REF FILE(S): j011op01.bdr, bdr LV ON = 47,57,58,60-62

HOUFILE023 \hciviln\cf0130\ 6/9/2003
b36espp04.dgn-15

PROJECT: IH 35: LOOP 20 TO UNIROYAL ROAD BORING TEST HOLE •1

DATE _____ TYPE CORE LOCATION STA. 436+07.65, 31' RT

DEPTH IN FEET	SYMBOL	DESCRIPTION Elevation: 651.28	THD 1st 6"	THD 2nd 6"
0		Silty sandy clay, soft well packed moist		
		Silty sandy clay & gypsum well packed moist	25	28
10		Clay, soft fine, well packed moist	40	44
		Clay, soft fine, well packed dry		
		Clay, hard, fine, well packed dry gypsum	50/ 5"	50/ 3⅝"
20		Clay, hard, fine, well packed, dry	50	50/ 2⅝"
30			50/ 2⅝"	50/ 1¼"
		Clay, hard, fine, well packed, dry	50/ 1½"	50/ 1⅛"
40		Bottom of hole 40'	50/ 1⅛"	50/ ⅜"

BORING DRILLED TO 40 FEET (40 FEET) WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT _____ FEET (- FEET) WHILE DRILLING ▽

WATER LEVEL AT _____ FEET (____ FEET) AFTER _____ HOURS ▽

DRILLED BY _____ CHECKED BY _____ LOGGED BY _____

PROJECT: IH 35: LOOP 20 TO UNIROYAL ROAD BORING TEST HOLE •2

DATE _____ TYPE CORE LOCATION STA. 437+02.65, 21' LT

DEPTH IN FEET	SYMBOL	DESCRIPTION Elevation: 652.09	THD 1st 6"	THD 2nd 6"
0		Exist roadway base		
		Sandy clay soft, fine, well packed, moist		
		Silty sandy clay soft, fine, well packed & gypsum moist	15	17
10			30	40
20		Shaley clay, hard fine, well packed & gypsum moist	50/ 4⅝"	50/ 4"
			50/ 3¼"	50/ 3¼"
30		Shaley clay, fine sandstone, hard well packed, moist	50/ 1⅝"	50/ 1¼"
40		Bottom of hole 40'	50/ 2⅛"	50/ 1⅛"

BORING DRILLED TO 40 FEET (40 FEET) WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT _____ FEET (- FEET) WHILE DRILLING ▽

WATER LEVEL AT _____ FEET (____ FEET) AFTER _____ HOURS ▽

DRILLED BY _____ CHECKED BY _____ LOGGED BY _____

STATE OF TEXAS JAMES B. HORNSBY 81485 REGISTERED PROFESSIONAL ENGINEER

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James B. Hornsby

4/18/2003

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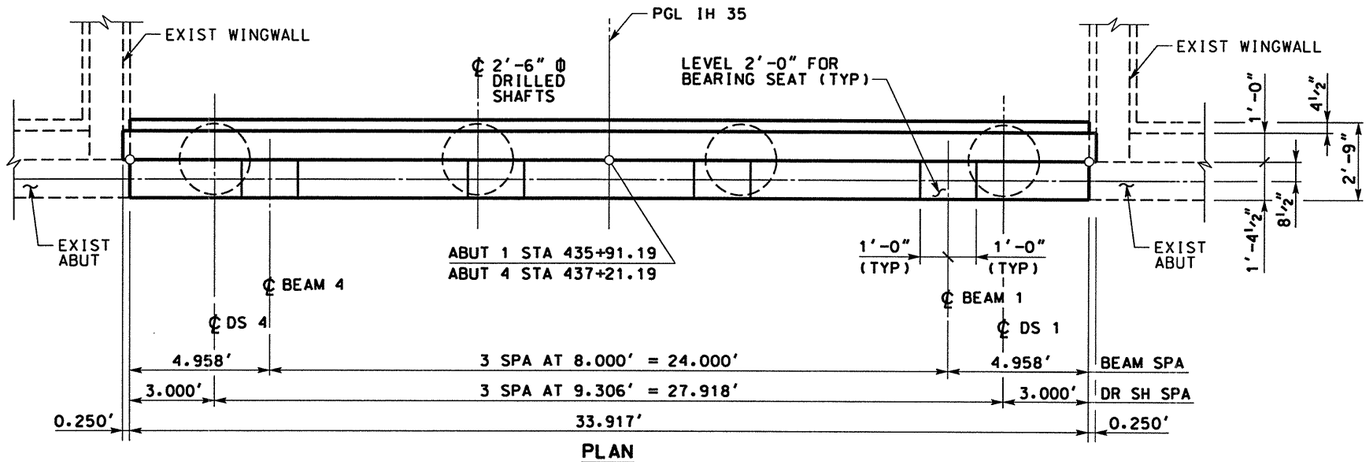
IH 35
LOOP 20 TO UNIROYAL ROAD
UNIROYAL ROAD OVERPASS
SOIL BORINGS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO		SHEET NO
6	NH-2002 (79)		621
STATE	STATE DIST		COUNTY
TEXAS	LAREDO		WEBB
CONT	SECT	JOB	HIGHWAY NO
0018	05	062, ETC	IH 35

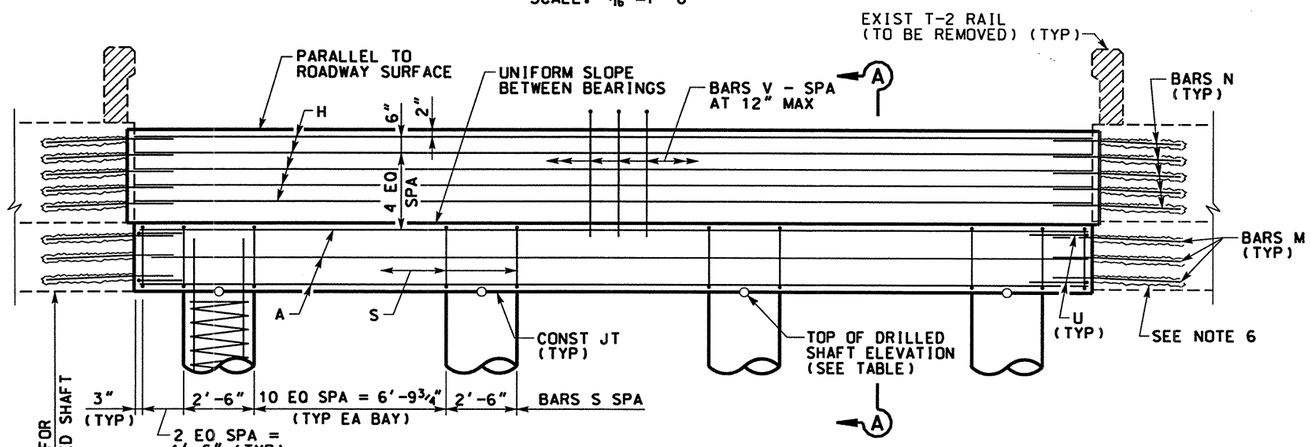
REF FILE(S): J011op01.bdr, bdr LV ON = 5,45,57,60-63

b70blp01.dgn-03 HOUFILE023 \hcivil\cf0130\

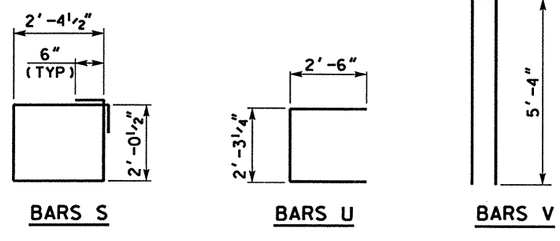


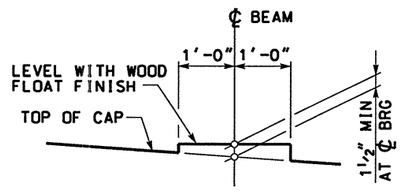
PLAN

ABUT 1 SHOWN. ABUT 4 OPPOSITE HAND
SCALE: $\frac{3}{16}$"=1'-0"



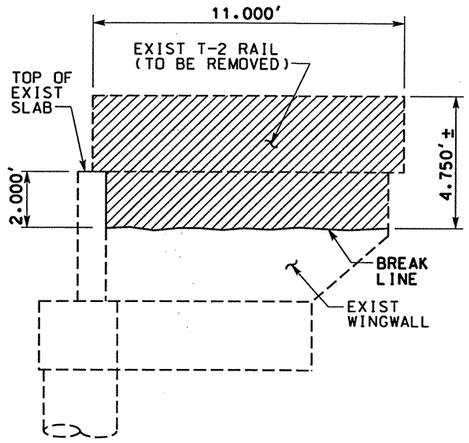
ELEVATION
SCALE: $\frac{3}{16}$"=1'-0"



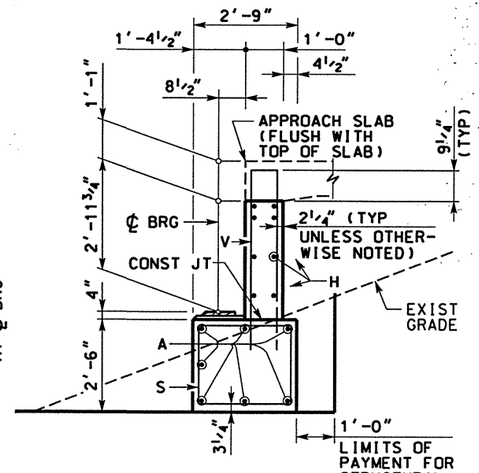


NOTE:
BEARING SURFACE ~~SHALL BE~~ CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD

BEARING SEAT ELEVATION
NTS



TYPICAL EXIST WINGWALL REMOVAL
SCALE: $\frac{3}{16}$"=1'-0"



SECTION A-A
WITH APPROACH SLAB
SCALE: ¼"=1'-0"

TABLE TOP OF SHAFT ELEVATIONS

	SHAFT	ELEV
ABUT 1	1	667.258
	2	667.444
	3	667.444
	4	667.258
ABUT 4	1	667.506
	2	667.692
	3	667.692
	4	667.506

TABLE OF CONSTANT QUANTITIES FOR ABUT CAP

BAR	NO	SIZE	LENGTH	WEIGHT
A	7	#11	33'-7"	1249
H	10	#5	34'-2"	356
M	14	#11	6'-9"	502
N	20	#5	2'-3"	47
S	39	#5	9'-10"	400
U	4	#6	7'-3"	44
V	34	#5	11'-4"	402
† REINFORCING STEEL			LB	3004
CLASS "C" CONCRETE FOR EXT STR (ABUT)			CY	12.9
STRUCT EXCAV (BRIDGE)			CY	18.0

† FOR CONTRACTOR'S INFORMATION ONLY

LEGEND

▨ TO BE REMOVED

NOTES:

1. DESIGNED ACCORDING TO AASHTO 1996 STANDARD AND INTERIM SPECIFICATIONS.
2. ALL CAP AND WALL REINFORCING STEEL SHALL BE GRADE 60.
3. CALCULATED FOUNDATION LOAD = 140 TON/ DRILLED SHAFT.
4. ALL REINFORCING STEEL IN DRILLED SHAFTS IS INCLUDED IN PRICE BID OF DRILLED SHAFT.
5. REMOVAL OF EXISTING PARAPET AND PORTION OF EXISTING WINGWALL AS WELL AS DOWELING INTO EXISTING ABUTMENT ~~SHALL BE~~ CONSIDERED INCIDENTAL TO "CLASS C CONCRETE FOR EXTEND STRUCTURE".
6. EPOXY GROUT BARS M & N INTO EXISTING CAP. THE CONTRACTOR ~~SHALL~~ LOCATE & AVOID THE MAIN LONGITUDINAL STEEL OF THE EXISTING BENT CAP DURING DRILLING OF HOLES. BARS M ~~SHALL BE~~ #11 BARS WITH 1'-6" EMBEDMENT LENGTH. BARS N ~~SHALL BE~~ #5 BARS WITH 1'-0" EMBEDMENT LENGTH.
7. ALL DIMENSIONS TO REINFORCEMENT ARE TO ℄ BAR UNLESS NOTED OTHERWISE.

HS25 LOADING

STATE OF TEXAS — JAMES B. HORNSBY — 81485 — REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
UNIROYAL OVERPASS
ABUTMENT 1 & 4

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	622
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT JOB	HIGHWAY NO
0018	05 062, ETC	IH 35

6/9/2003

REF FILE(S): j011op01.bar, bar LV ON = 48.57,58.60-62
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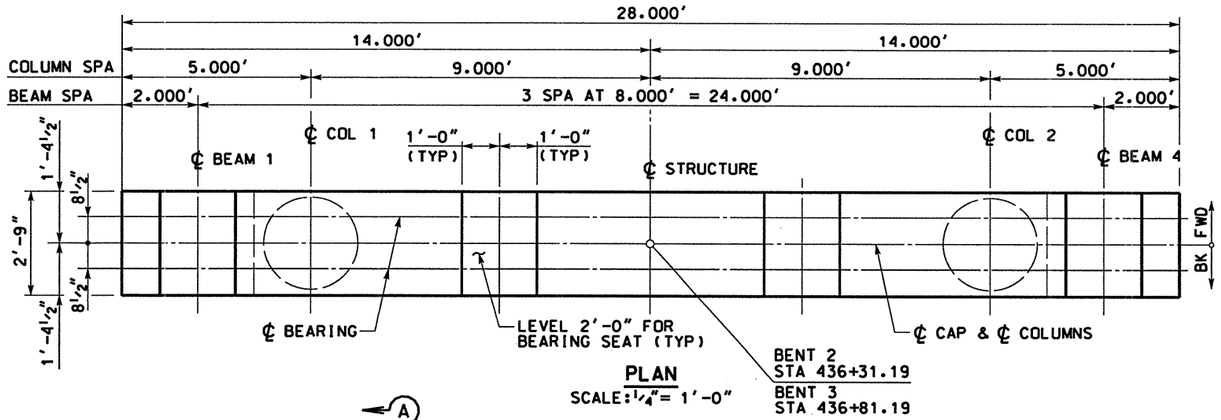
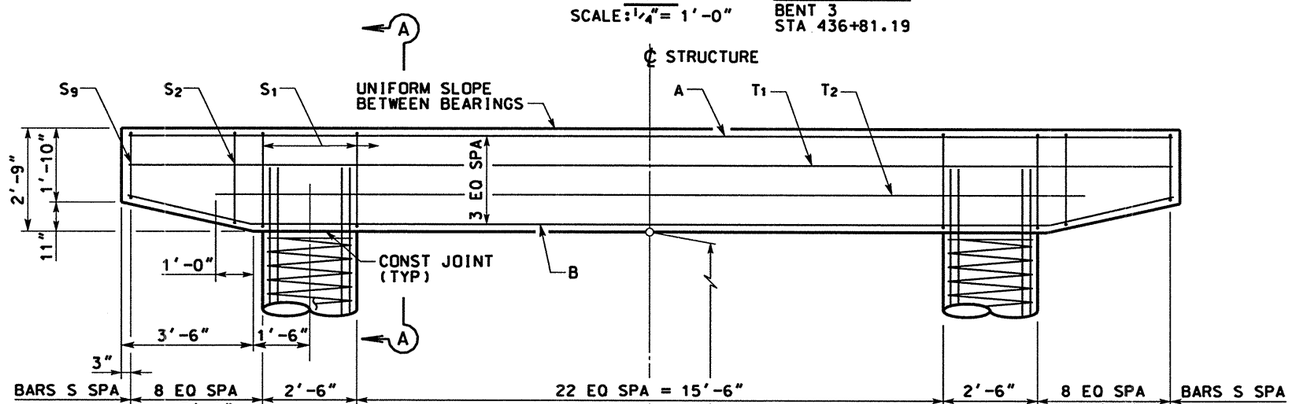
TABLE TOP OF COLUMN ELEVATIONS		
BENT 2	1	667.468
	2	667.468
BENT 3	1	667.563
	2	667.563

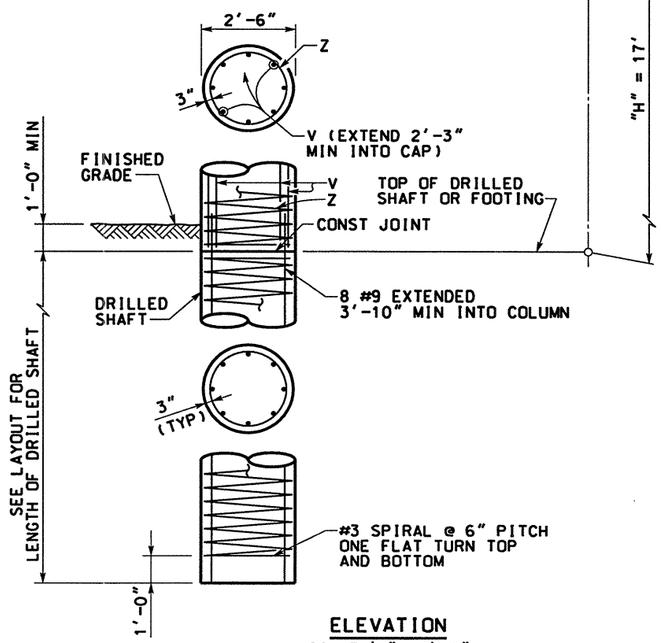
TABLE OF QUANTITIES FOR ONE BENT				
BAR	NO	SIZE	LENGTH	MASS
A	4	#11	27'-8"	588
B	4	#11	28'-0"	594
S_1	25	#5	10'-6"	274
S_{2-9}	16	#5	9'-6"	159
T_1	2	#5	27'-8"	58
T_2	2	#5	23'-0"	49
V	16	#9	19'-3"	1047
Z	2	#3	239'-5"	180
† REINFORCING STEEL			LB	2.949
CLASS "C" CONC BENT			CY	13.8

† FOR CONTRACTOR'S INFORMATION ONLY

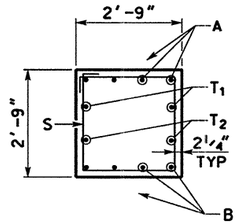


PLAN
SCALE: 1/4" = 1'-0"

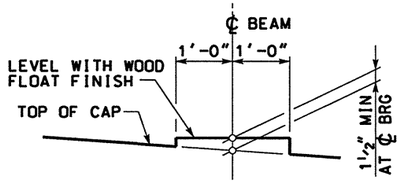




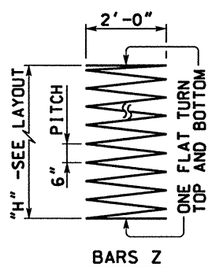
ELEVATION
SCALE: 1/4" = 1'-0"



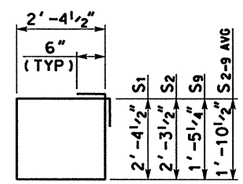
SECTION A-A
SCALE: 1/4" = 1'-0"



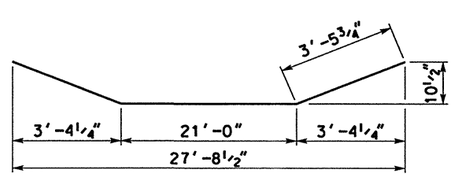
BEARING SEAT DETAIL
(BEARING SURFACE SHALL BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)



BARS Z



BARS S



BARS B

NOTES:

1. DESIGNED ACCORDING TO AASHTO 1996 STANDARD AND INTERIM SPECIFICATIONS.
2. CALCULATED FOUNDATION LOAD = 117 TONS/DRILL SHAFT.
3. ALL DIMENSIONS TO REINFORCEMENT ARE TO ℄ BAR UNLESS NOTED OTHERWISE.
4. ALL REINFORCING STEEL IN DRILLED SHAFTS IS INCLUDED IN PRICE BID OF DRILLED SHAFT.

HS25 LOADING

STATE OF TEXAS JAMES B. HORNSBY 81485 REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
UNIROYAL OVERPASS
BENTS 2 & 3

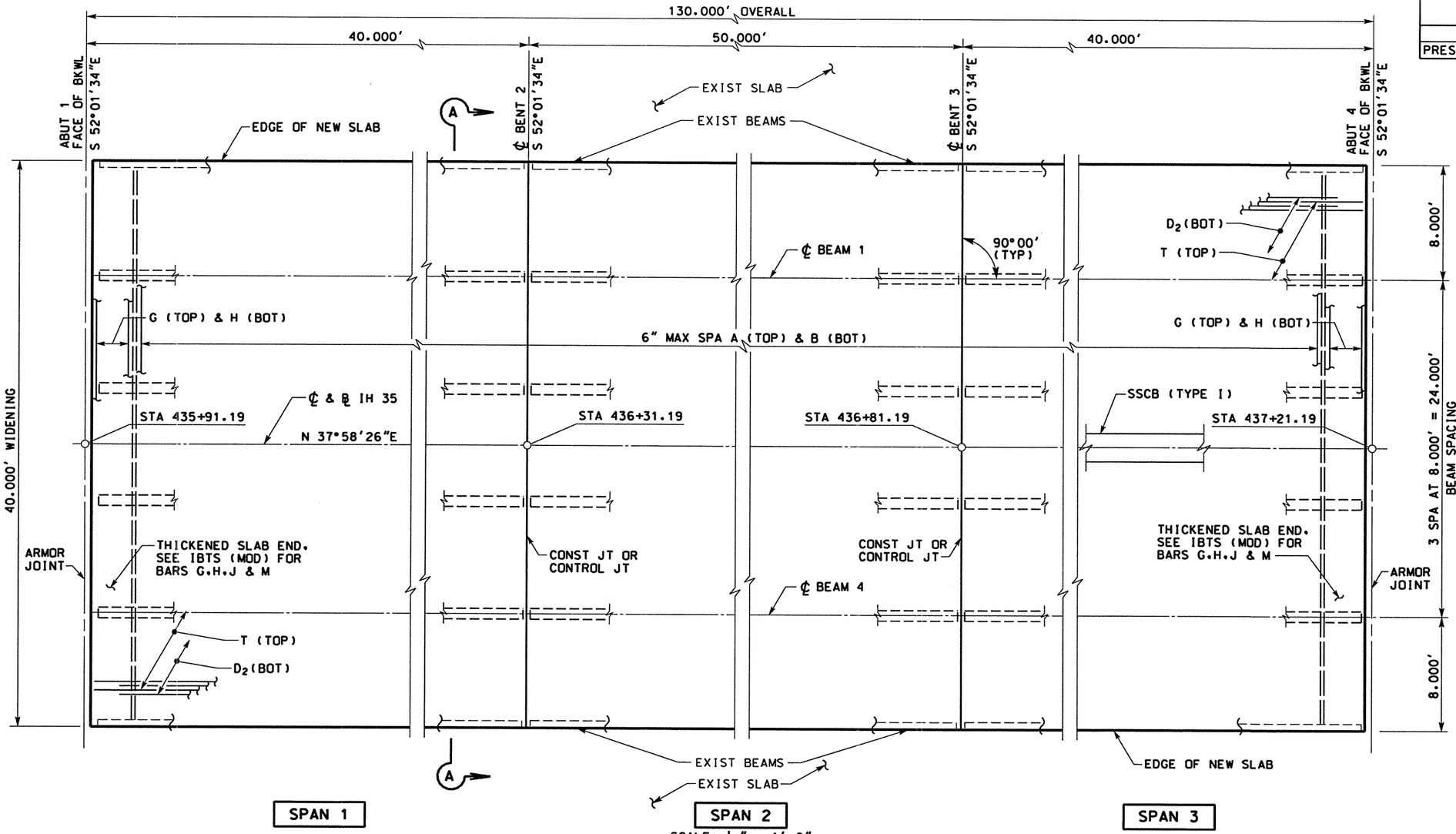
SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	623
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062. ETC	IH 35

6/5/2003

REF FILE(S): J01LDP01.BDR, BDR LV ON = 48,57,58,60-62
HOUFILE023 \HCIVIL\CF0130\
b70bdp01.dgn-08

ESTIMATED QUANTITY SUMMARY		
ITEM	UNIT	QUANTITY
PRESTRESSED CONC BEAM (TY C)	LF	516.04



SCALE: 1/8" = 1'-0"

NOTES:

1. DESIGNED ACCORDING TO CURRENT AASHTO STANDARD AND INTERIM SPECIFICATIONS.
2. SEE IBTS STANDARD FOR THICKENED SLAB END DETAILS AND QUANTITY ADJUSTMENTS.
3. SEE PCP(C) OR PMDF(C) STANDARDS FOR DETAILS AND QUANTITY ADJUSTMENTS IF EITHER OF THESE OPTIONS ARE USED. USE OF PCP(C) WILL NOT BE ALLOWED IN FIRST BAY NEXT TO EXISTING BEAM
4. ALL REINFORCING ~~SHALL BE~~ GRADE 60.
5. CONCRETE STRENGTH F'c = 4.000 PSI.
6. BAR LAPS, WHERE REQUIRED, SHALL BE AS FOLLOWS:
   UNCOATED '- #4 = 1'-5"
   '- #5 = 1'-9"
   EPOXY COATED '- #4 = 2'-1"
   '- #5 = 2'-7"

BEAM REPORT

SPAN	BEAMS	HORIZONTAL DISTANCE		TRUE DISTANCE
		C-C BENT	C-C BRG	BOT BM FLG **
1	ALL	40.000	38.583	39.67
2	ALL	50.000	48.583	49.67
3	ALL	40.000	38.583	39.67

** BEAM LENGTH SHOWN IS BOTTOM BEAM FLANGE LENGTH WITH ADJUSTMENT MADE FOR BEAM SLOPE

HS25 LOADING

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IH 35
LOOP 20 TO UNIROYAL ROAD
UNIROYAL OVERPASS
PRESTRESSED CONCRETE BEAM UNIT
(SPAN 1-3)

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	624
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT / JOB	HIGHWAY NO
0018	05 / 062, ETC	IH 35

6/4/2003

REF FILE(S): JO1LOP01.BDR, BDR LV ON = 14,48,57,58,60-62
HOUFILE023 \hcivil\cf0130\
b70slp01.dgn-09

BAR TABLE	
BAR	SIZE
A	#5
B	#5
D_2	#5
G	#5
H	#5
J	#5

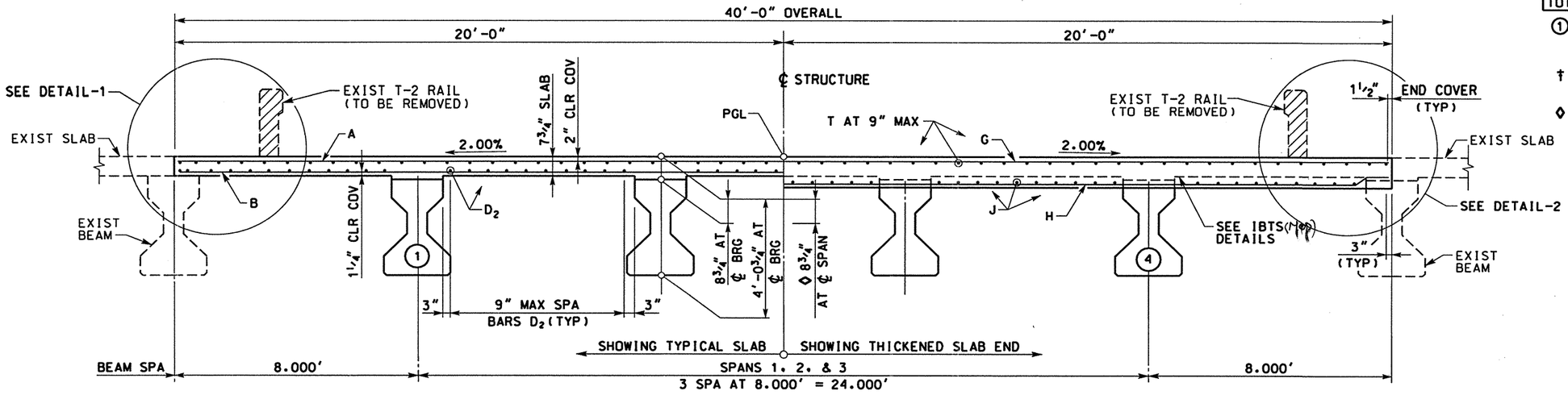
TABLE OF ESTIMATED QUANTITIES

SPAN	REINF CONCRETE SLAB (EXT STR)(CL S)	CLASS "S" CONCRETE †	① TOTAL REINF STEEL †
	SF	CY	LB
1	1600	39.5	10400
2	2000	49.3	13000
3	1600	39.5	10400
TOTAL	5200	128.3	33800

① REINFORCING STEEL QUANTITY IS CALCULATED USING AN APPROXIMATE FACTOR OF 6.5 LB/SF.

† FOR CONTRACTOR'S INFORMATION ONLY

◊ THEORETICAL DIMENSIONS



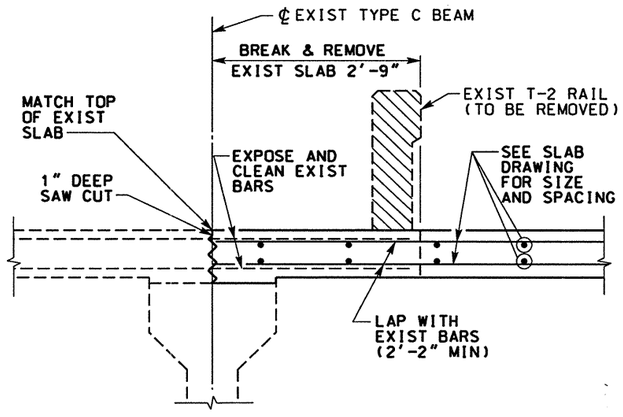
SECTION A-A
SCALE: ¼" = 1'-0"

LEGEND

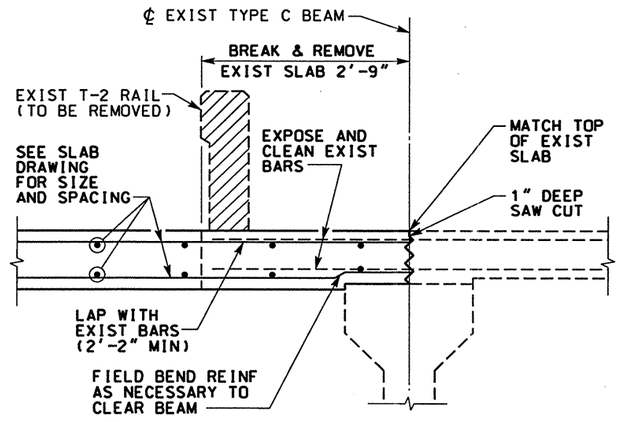
▨ TO BE REMOVED

NOTE:

1. BAR LAPS. WHERE REQUIRED. ~~SHALL BE~~ AS FOLLOWS
   #4 = 1'-5"
   #5 = 1'-9"

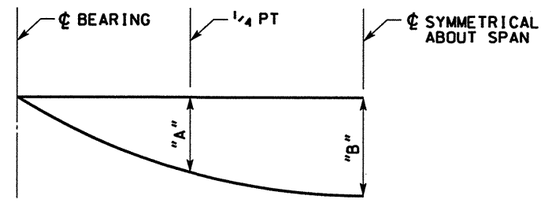


DETAIL-1
SCALE: ½" = 1'-0"



DETAIL-2
SCALE: ½" = 1'-0"

SPAN NO	BEAM NO	"A"(FT)	"B"(FT)
1 & 3	ALL	0.061	0.086
2	ALL	0.015	0.022



NOTE: DEFLECTIONS SHOWN ARE DUE TO CAST-IN-PLACE CONCRETE ONLY.
(E_c = 5.000 KSI)

DEAD LOAD DEFLECTION DIAGRAM

HS25 LOADING

STATE OF TEXAS · JAMES B. HORNSBY · 81485 · REGISTERED PROFESSIONAL ENGINEER

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IH 35
LOOP 20 TO UNIROYAL ROAD
UNIROYAL OVERPASS
PRESTRESSED CONCRETE BEAM UNIT TYPICAL SECTIONS

SHEET 1 OF 1

FED RD DIV NO	FEDERAL AID PROJECT NO	SHEET NO
6	NH-2002 (79)	625
STATE	STATE DIST	COUNTY
TEXAS	LAREDO	WEBB
CONT	SECT	JOB	HIGHWAY NO
9018	05	060	ETC	IH 35

6/4/2003

HOUFILE023 \hcivil\cf0130\70sdp02.dgn-08

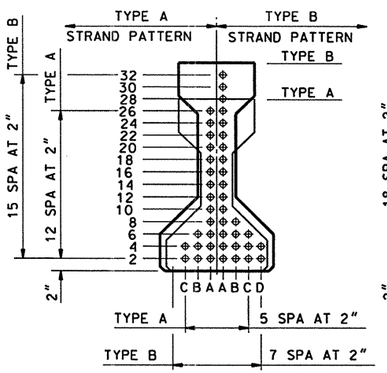
REF FILE(S): j011op01.bdr, bdr LV ON = 48.57.58.60-62

DESIGNED BEAMS (DEPRESSED STRANDS)

STRUCTURE	SPAN NO	BEAM NO	BEAM TYPE	NON-STD STRAND PATTERN	PRESTRESSING STRANDS TOTAL NO	TOTAL SIZE (in)	TOTAL STRGTH f's (ksi)	TOTAL "e" ℄ (in)	TOTAL "e" END (in)	DEPRESSED NO	DEPRESSED TO (in)	CONCRETE RELEASE STRGTH f'ci (psi)	CONCRETE MINIMUM 28 DAY COMP STRGTH f'c (psi)
UNIROYAL RD	1 & 3	ALL	C	1	12	0.5	270	10.09	6.76	10	16	4000	5000
	2	ALL	C	2 ①	16	0.5	270	11.34	7.59	10	18 ①	4000	5000

OPTIONAL DESIGN

DESIGN LOAD COMP STRESS (TOP ℄) fct(psi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) fcb(psi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (ft-kips)	
981	-1380	1509	①
1533	-2070	2198	



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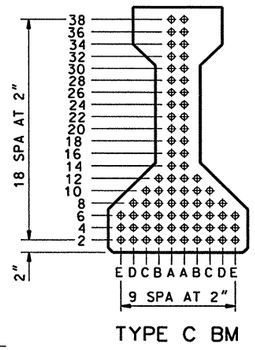

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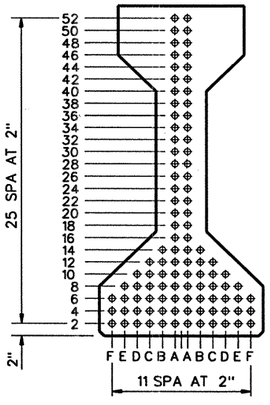

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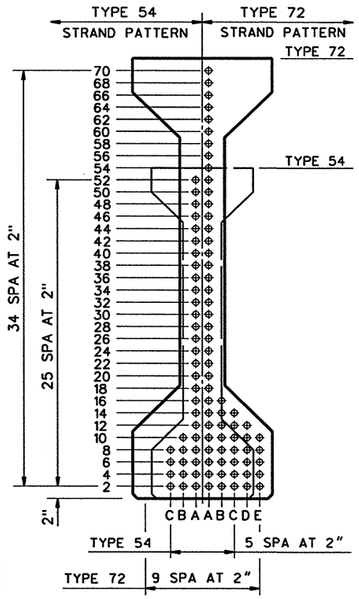
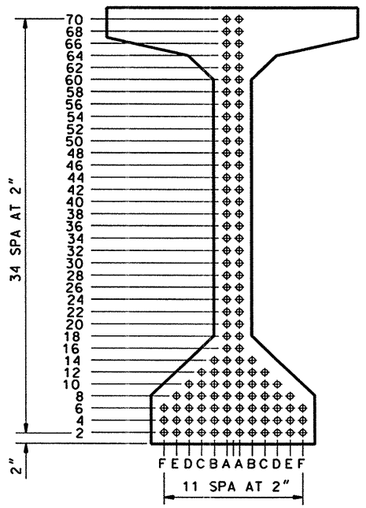
(AASHTO TYPE IV BM)



TYPE 54 & TYPE 72 BMS



TYPE VIM BM
(AASHTO TYPE VI(MOD) BM)

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF BEAM ①
1	2 AT 2E. 2 AT 4A. 2 AT 6A. 2 AT 8A.
	2 AT 10A. 2 AT 12A
2	2 AT 2A. 2 AT 2B. 2 AT 2E. 2 AT 4A.
	2 AT 6A. 2 AT 8A. 2 AT 10A. 2 AT 12A

GENERAL NOTES:

DESIGNED IN ACCORDANCE WITH CURRENT AASHTO STANDARD SPECIFICATIONS.

ALL CONCRETE ~~SHALL BE~~ CLASS H. ALL REINFORCING BARS ~~SHALL BE~~ GRADE 60.

WHEN SHOWN ON THIS SHEET, THE FABRICATOR HAS THE OPTION OF FURNISHING EITHER THE DESIGNED DEPRESSED STRAND BEAM OR AN APPROVED OPTIONAL DESIGN. ALL OPTIONAL DESIGN SUBMITTALS AND SHOP DRAWINGS ~~SHALL BE~~ SIGNED, SEALED AND DATED BY A REGISTERED PROFESSIONAL ENGINEER.

OPTIONAL DESIGNS FOR BEAMS 120 FEET OR LONGER ~~SHALL~~ HAVE A CALCULATED RESIDUAL CAMBER EQUAL TO OR GREATER THAN THAT OF THE DESIGNED BEAM.

PRESTRESS LOSSES FOR THE DESIGNED BEAMS HAVE BEEN CALCULATED FOR A RELATIVE HUMIDITY OF 65 PERCENT. OPTIONAL DESIGNS ~~SHALL~~ LIKEWISE CONFORM.

CERTAIN BEAMS WITH DEPRESSED STRANDS ARE SUBJECT TO CRACKING IN THE END OF THE BEAM. WHEN SUCH CRACKS OCCUR, ALL SUBSEQUENT BEAMS ~~OF~~ THE ~~SAME~~ TYPE AND STRAND PATTERN ~~SHALL~~ HAVE STRANDS DEBONDED IN THE FOLLOWING MANNER:

1. ALTERNATE ROWS OF DEPRESSED STRANDS ~~SHALL BE~~ DEBONDED FOR TWO FEET FROM EACH END OF THE BEAM.
2. ONE HALF OF THE STRAIGHT STRANDS, AS NEARLY AS POSSIBLE, ~~SHALL BE~~ DEBONDED FOR FOUR FEET FROM EACH END OF THE BEAM.
3. THE DEBONDING PATTERN ~~SHALL BE~~ SYMMETRICAL ABOUT THE VERTICAL AXIS OF THE BEAM FOR BOTH DEPRESSED AND STRAIGHT STRANDS.
4. STRANDS ~~SHALL BE~~ DEBONDED SO THAT THE CENTERS OF GRAVITY OF THE DEPRESSED STRANDS AND THE STRAIGHT STRANDS WILL REMAIN WITHIN ONE INCH OF THEIR ORIGINAL LOCATION.
5. STRANDS ~~SHALL BE~~ ENCASED IN PLASTIC TUBING ALONG ENTIRE DEBONDED LENGTH, AND ENDS OF TUBING ~~SHALL BE~~ SEALED WITH WATERPROOF TAPE. SPLIT PLASTIC TUBING ~~MAY BE~~ USED PROVIDED THE SEAM OF THE TUBING IS SUFFICIENTLY SEALED WITH WATERPROOF TAPE TO PROHIBIT GROUT INFILTRATION. WRAPPING OF STRANDS WITH TAPE TO PROVIDE DEBONDING WILL NOT BE PERMITTED.
6. REVISED SHOP DRAWINGS WILL NOT BE REQUIRED.

FOR DEPRESSED STRAND DESIGNED BEAMS, STRANDS ~~SHALL BE~~ LOCATED AS LOW AS POSSIBLE ON THE 2" GRID SYSTEM UNLESS A NON-STANDARD STRAND PATTERN IS INDICATED. FILL ROW "2", THEN ROW "4", THEN ROW "6", ETC., BEGINNING EACH ROW IN THE "A" POSITION AND WORKING OUTWARD UNTIL THE REQUIRED NUMBER OF STRANDS IS REACHED. ALL STRANDS IN THE "A" POSITION ~~SHALL BE~~ DEPRESSED, MAINTAINING THE 2" SPACING SO THAT, AT THE BEAM ENDS, THE UPPER TWO STRANDS ARE IN THE POSITION SHOWN IN THE TABLE.

STRANDS FOR THE DESIGNED BEAM ~~SHALL BE~~ ½" 270 ksi LOW RELAXATION STRANDS PRETENSIONED TO 31.0 k EACH.

HS25 LOADING

SHEET 1 OF 1

DATE	BY	REV	REVISION
02/20/04	RB	1	REVISED BEAM DESIGNS

STATE OF TEXAS · RAYMOND C. BARKER · 44988 · REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RAYMOND C. BARKER PE 44988, ON FEBRUARY 20, 2004

Raymond C. Barker

KBR
Engineered by KBR Technical Services, Inc

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PRESTRESSED CONCRETE BEAMS
(NON-STANDARD SPANS)

IBNS

FILE: ~~bstd005.dgn~~	DN: SB	CK: LAH	DW: JAG	CK: SB
ORIG DATE:	DIST	FED REG	FEDERAL AID PROJECT	SHEET
REVISIONS	22	6	NH-2002 (79)	626
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	WEBB	0018	05	062, ETC	IH 35

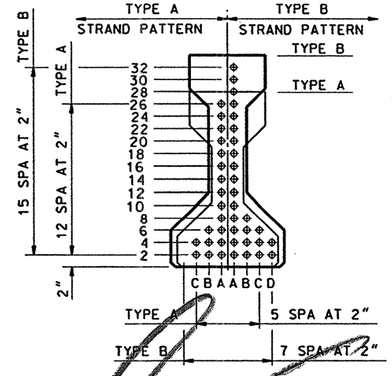
2/20/2004 HOUFILE023 \HCIVIL\CFO130\ b70d6p04.DGN-04

DESIGNED BEAMS (DEPRESSED STRANDS)

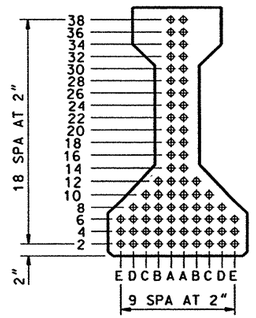
STRUCTURE	SPAN NO	BEAM NO	BEAM TYPE	NON-STD STRAND PATTERN	PRESTRESSING STRANDS TOTAL NO	TOTAL SIZE (in)	TOTAL STRGTH f's (ksi)	TOTAL "e" ℄ (in)	TOTAL "e" END (in)	DEPRESSED NO	DEPRESSED TO (in)	CONCRETE RELEASE STRGTH f'ci (psi)	CONCRETE MINIMUM 28 DAY COMP STRGTH f'c (psi)
UNIROYAL RD	1 & 3		C		10	0.5	270	11.09	7.09	10	14	4000	5000
	2	ALL			16	0.5	270	11.34	6.84	12	18	4000	5000

OPTIONAL DESIGN

DESIGN LOAD COMP STRESS (TOP ℄) fct(psi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) fcb(psi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (ft-kips)
989	-1330	1545
1549	2009	2250



TYPE A & TYPE B BMS



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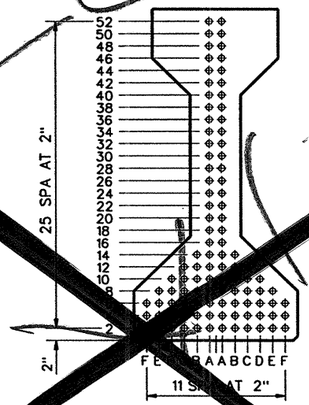
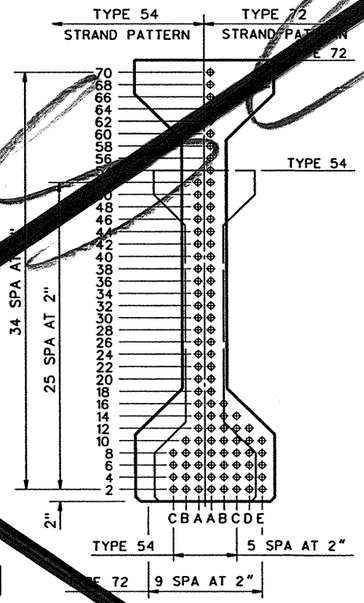


TYPE IV BM
(AASHTO TYPE IV BM)



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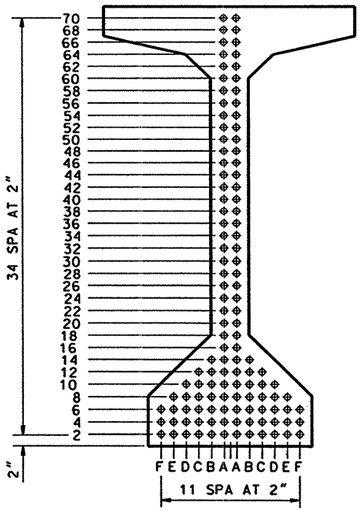

TYPE VI(MOD) BM
(AASHTO TYPE VI(MOD) BM)

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF BEAM

GENERAL NOTES:

DESIGNED IN ACCORDANCE WITH CURRENT AASHTO STANDARD SPECIFICATIONS.

ALL CONCRETE SHALL BE CLASS H. ALL REINFORCING BARS SHALL BE GRADE 60.

WHEN SHOWN ON THIS SHEET, THE FABRICATOR HAS THE OPTION OF FURNISHING EITHER THE DESIGNED DEPRESSED STRAND BEAM OR AN APPROVED OPTIONAL DESIGN. ALL OPTIONAL DESIGN SUBMITTALS AND SHOP DRAWINGS SHALL BE SIGNED, SEALED AND DATED BY A REGISTERED PROFESSIONAL ENGINEER.

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2. ONE HALF OF THE STRAIGHT STRANDS, AS NEARLY AS POSSIBLE, SHALL BE DEBONDED FOR FOUR FEET FROM EACH END OF THE BEAM.
3. THE DEBONDING PATTERN SHALL BE SYMMETRICAL ABOUT THE VERTICAL AXIS OF THE BEAM FOR BOTH DEPRESSED AND STRAIGHT STRANDS.
4. STRANDS SHALL BE DEBONDED SO THAT THE CENTERS OF GRAVITY OF THE DEPRESSED STRANDS AND THE STRAIGHT STRANDS WILL REMAIN WITHIN ONE INCH OF THEIR ORIGINAL LOCATION.
5. STRANDS SHALL BE ENCASED IN PLASTIC TUBING ALONG ENTIRE DEBONDED LENGTH, AND ENDS OF TUBING SHALL BE SEALED WITH WATERPROOF TAPE. SPLIT PLASTIC TUBING MAY BE USED PROVIDED THE SEAM OF THE TUBING IS SUFFICIENTLY SEALED WITH WATERPROOF TAPE TO PROHIBIT GROUT INFILTRATION. WRAPPING OF STRANDS WITH TAPE TO PROVIDE DEBONDING WILL NOT BE PERMITTED.
6. REVISED SHOP DRAWINGS WILL NOT BE REQUIRED.

FOR DEPRESSED STRAND DESIGNED BEAMS, STRANDS SHALL BE LOCATED AS LOW AS POSSIBLE ON THE 2" GRID SYSTEM UNLESS A NON-STANDARD STRAND PATTERN IS INDICATED. FILL ROW "2", THEN ROW "4", THEN ROW "6", ETC., BEGINNING EACH ROW IN THE "A" POSITION AND WORKING OUTWARD UNTIL THE REQUIRED NUMBER OF STRANDS IS REACHED. ALL STRANDS IN THE "A" POSITION SHALL BE DEPRESSED, MAINTAINING THE 2" SPACING SO THAT, AT THE BEAM ENDS, THE UPPER TWO STRANDS ARE IN THE POSITION SHOWN IN THE TABLE.

STRANDS FOR THE DESIGNED BEAM SHALL BE ½" 270 ksi LOW RELAXATION STRANDS PRETENSIONED TO 31.0 k EACH.

HS25 LOADING

SHEET 1 OF 1

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PRESTRESSED CONCRETE BEAMS
(NON-STANDARD SPANS)

IBNS

STATE OF TEXAS
JAMES B. HORNSBY
81485
REGISTERED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by James B. Hornsby P.E. 81485, on January 28, 2003.

FILE:	bstd005.dgn	DN: SB	CK: LAH	DW: JAG	CK: SB
ORIG DATE:		DIST	FED REG	FEDERAL AID PROJECT	SHEET
REVISIONS		22	6	NH-2002 (79)	626
		COUNTY	CONTROL	SECT	JOB	HIGHWAY
		WEBB	0018	05	062, ETC	IH 35

4/18/2003
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