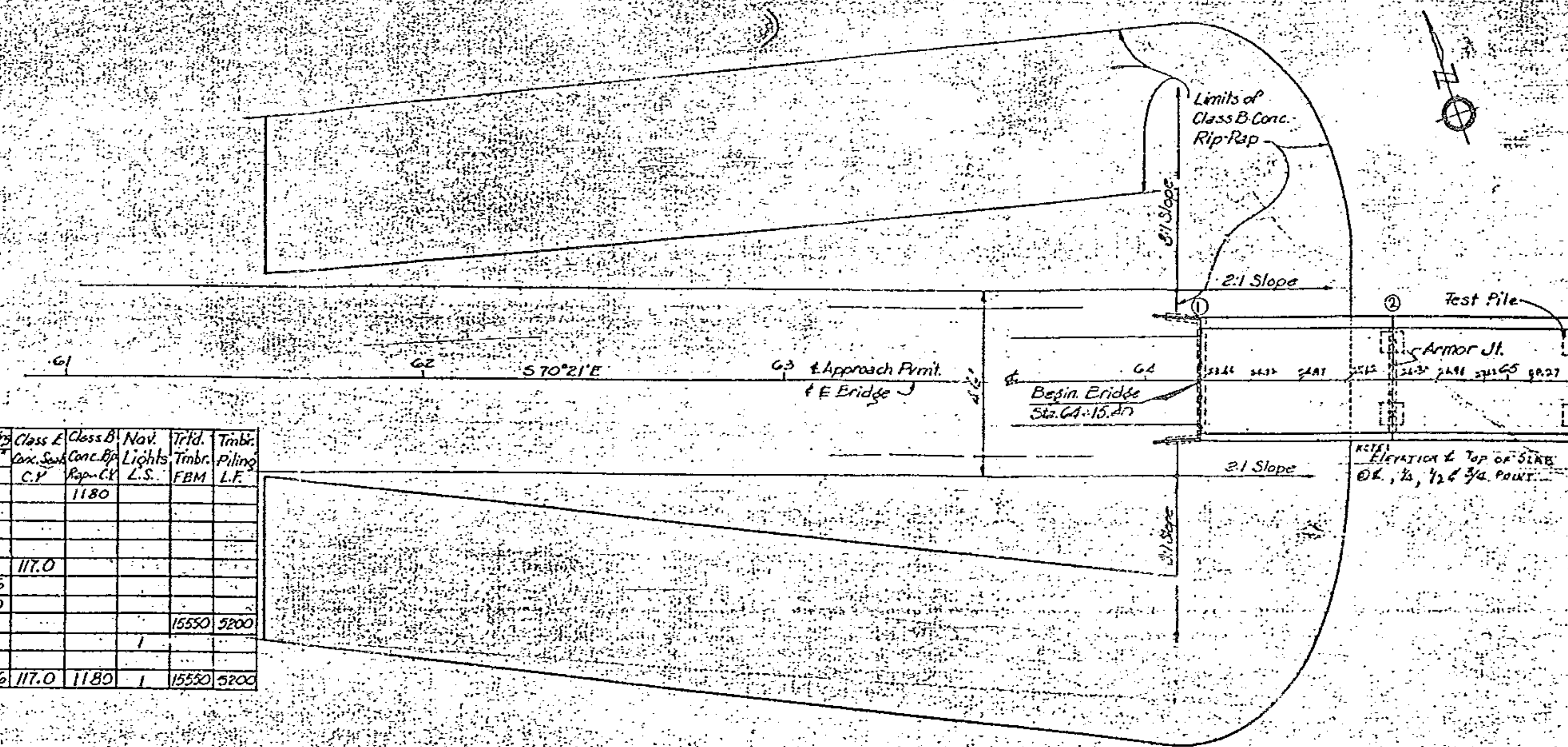
NOTE: The Contractor will be permitted to excavate a work channel in the construction of this project, subject to the following limitations: No portion of the work channel shall be within fifteen feet of the closest portion of the substructure shall be excavated to an elevation below the elevation of the bottom of the adjacent footing. Before completion of the construction of the project the contractor will be required to backfill the work channel to the approximate natural ground line for a distance of 50 feet from the centerline of the roadway. Mooring of work barges or other equipment to the completed or partially completed substructure, or contact between mooring lines and substructure will not be permitted.

All elevations are based on Mean Low Tide Datum which is 1.0' below Mean Sea Level Datum.



ESTIMATED QUANTITIES

	Struct. Excav. C.Y.	Class A Concrete Slabs C.Y.	Class A Concrete Bents C.Y.	Reinf. Steel Lb.	Struct. Steel Lb.	Type C. Prestr. Bms L.F.	16" □ Precast Conc. Piling L.F.	16" □ Precast Conc. Test Piling L.F.	Aluminum Railing Ty. "P" L.F.	Aluminum Railing Ty. "T" L.F.	Class E Conc. Seal C.Y.	Class B Conc. Rip-Rap C.Y.	Nav. Lights L.S.	Trtd. Tmbr. FBM	Tmbr. Piling L.F.
Abutment Bents 1 & 36	60.0		29.6	4544			760					1180			
Int. Bents 2-7 & 30-35	296.0		417.0	63492			3870	190							
Int. Bents 8-16 & 21-29	596.0		992.4	141,222			7480	190							
Transition Bents 17 & 20	58.0		150.3	23,726			1152								
Piers 18 & 19	420.0		278.0	37,816			2,070	100			117.0				
32~53' Simple Spans		1443.8		281,288	8262	6666.67			1696	1696					
1~400' PL Girder Unit		313.0		62,270	456,100				400	400					
Fender System					2250									15550	5200
Navigation Lights													1		
Total	1,430	1756.8	1867.8	614,358	466,612	6666.67	15332	480	2,096	2,096	117.0	1180	1	15550	5200

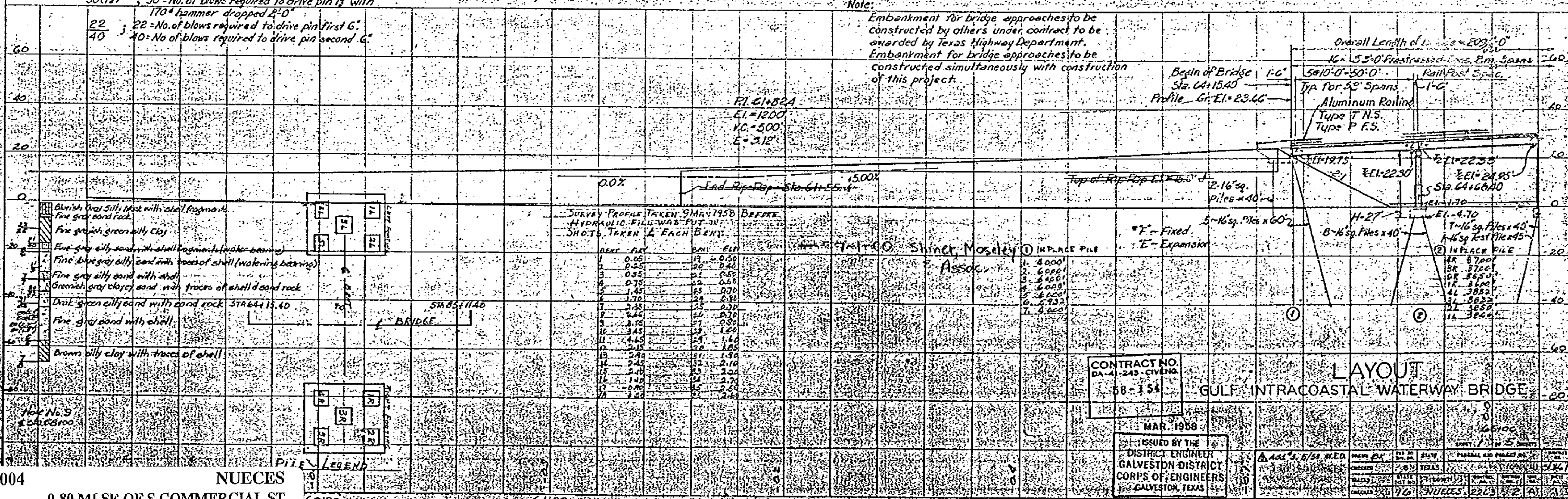
Penetrometer Notes:

Standard Penetrometer Test (3" Diameter Steel Pin with Conical Point). Explanation of fractional numbers shown on Test Hole Data:

50(1½") ; 50 = No. of blows required to drive pin 1½" with 170# hammer dropped 2'-0"

22/40 ; 22 = No. of blows required to drive pin first 6". 40 = No. of blows required to drive pin second 6".

Note: Embankment for bridge approaches to be constructed by others under contract to be awarded by Texas Highway Department. Embankment for bridge approaches to be constructed simultaneously with construction of this project.



LAYOUT

GULF INTRACOASTAL WATERWAY BRIDGE

CONTRACT NO. DA-41-243-CIVENG-58-154

MAR. 1958

ISSUED BY THE DISTRICT ENGINEER GALVESTON DISTRICT CORPS OF ENGINEERS GALVESTON, TEXAS

AS BUILT

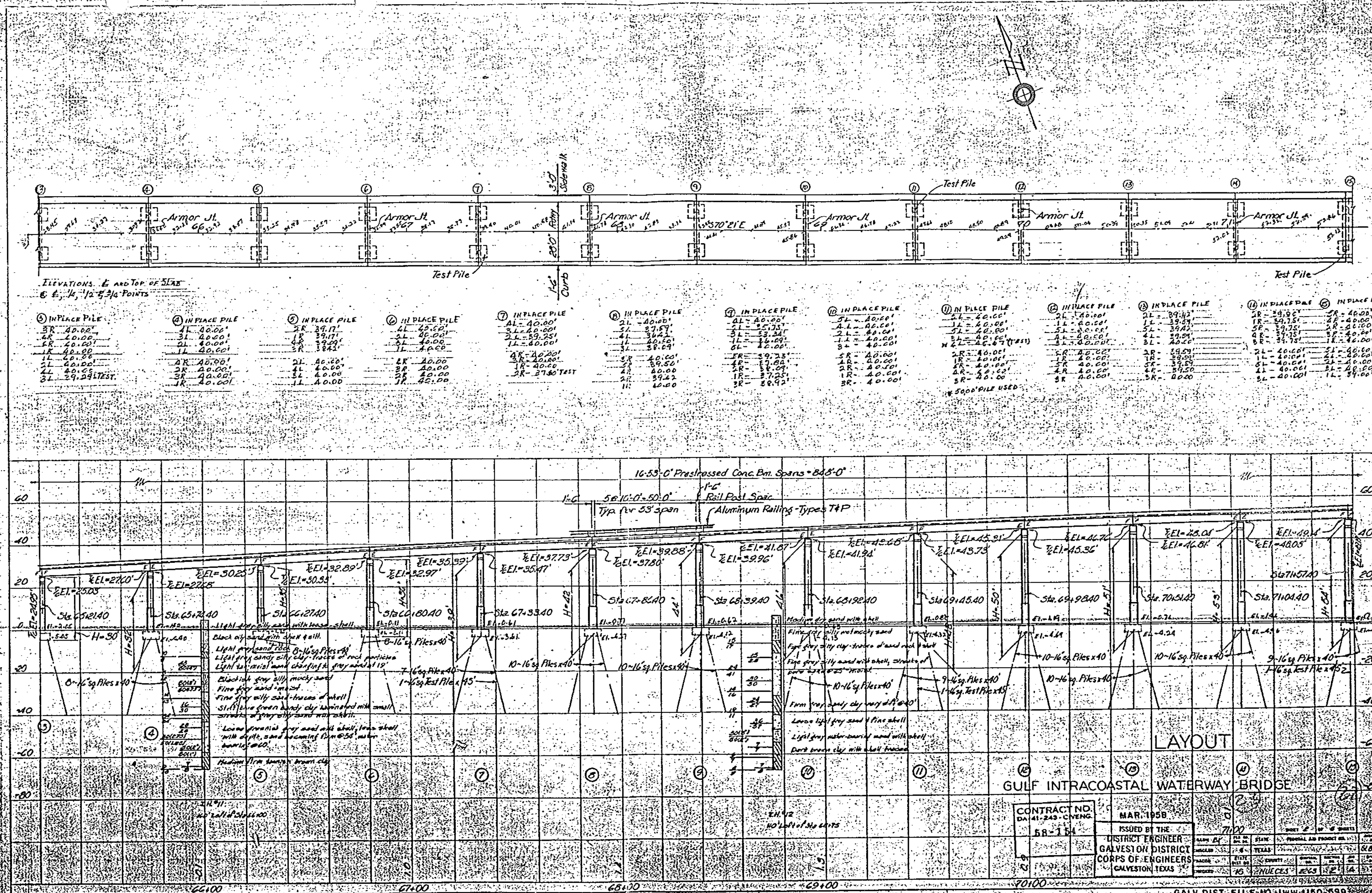
GALV. DIST. FILE NO. IWW 1160-599

178-2263-02-004 **NUECES**

Maint. Sec. 09 0.80 MI SE OF S COMMERCIAL ST

SH 361 over GULF INTRACOASTAL WATERWAY

35 SPANS, 3-CONT STEEL PLATE GIRDER & 32-PS CONC GIRDER SPANS ON CONC CAPS, COLUMNS & PILES



LAYOUT

GULF INTRACOASTAL WATERWAY BRIDGE

CONTRACT NO.
DA-41-243-CIVENG.
58-154

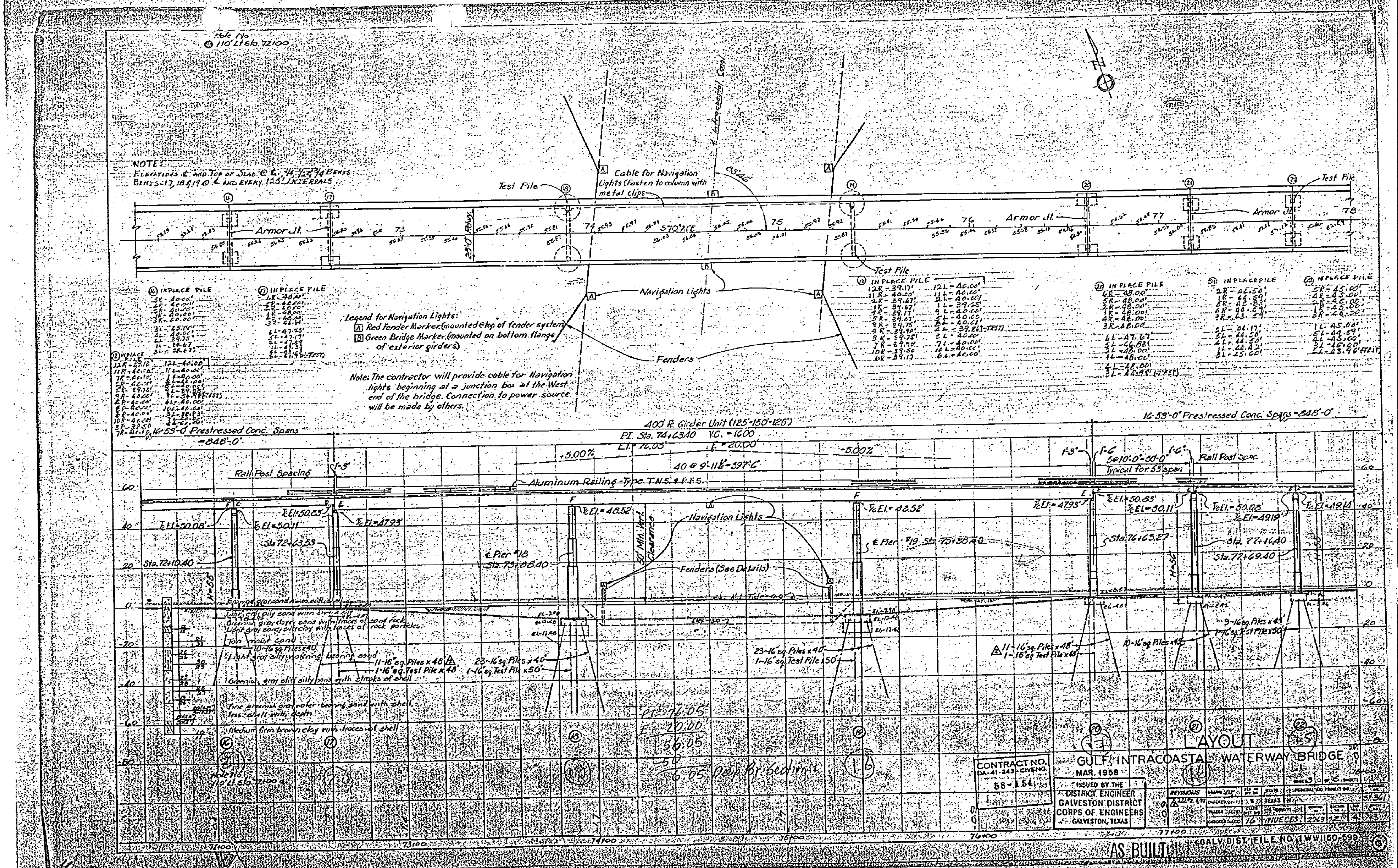
MAR. 1958

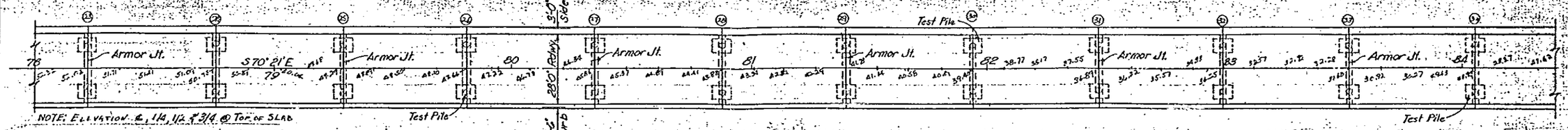
ISSUED BY THE
DISTRICT ENGINEER
GALVESTON DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

STATE	COUNTY
TEXAS	NUECES

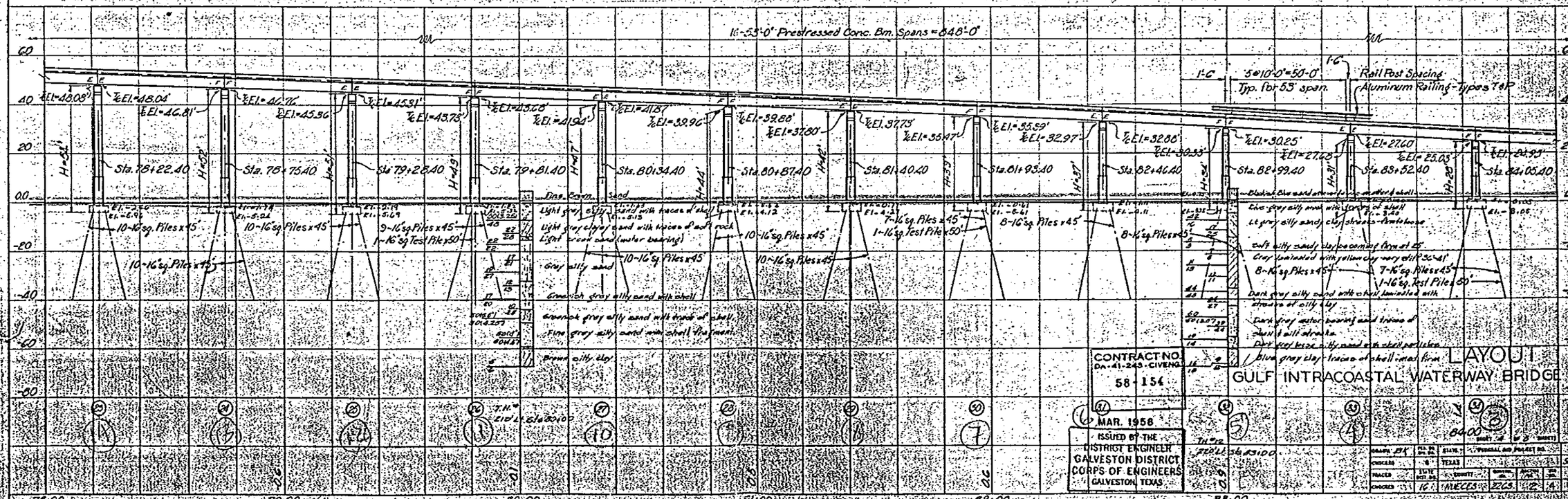
AS BUILT

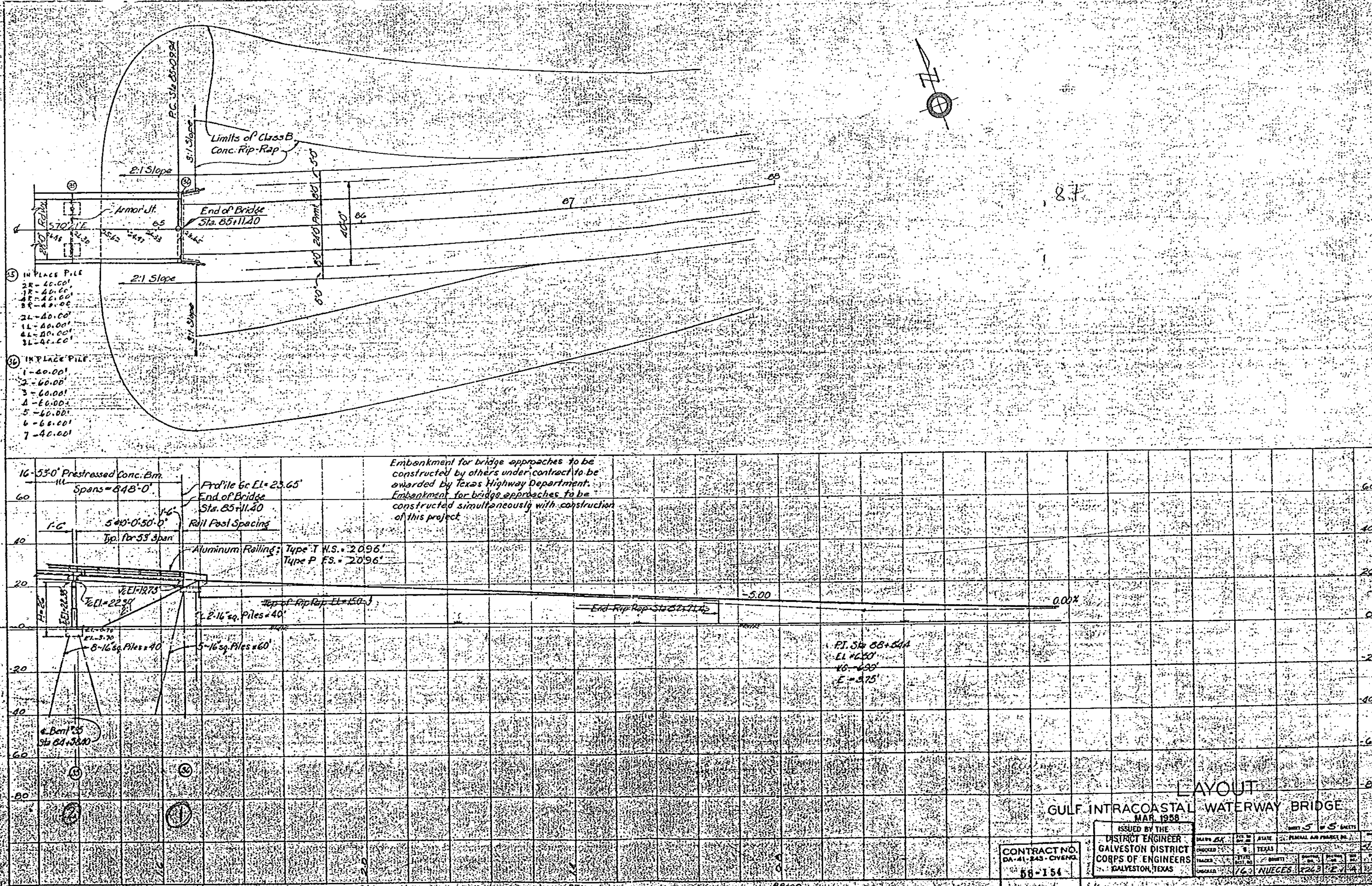
GALV. DIST. FILE NO. IWW 1150-599


NOTE: Elevations ℄ and Top of Slab @ ℄. 14, 15 & 16 Bents. Bents-17, 18 & 19 @ ℄ and every 125' intervals
Test Pile
Cable for Navigation Lights (Fasten to column with metal clips)
Armor Jt.
S 70°21'E
Test Pile
Navigation Lights
Legend for Navigation Lights:
A Red Fender Marker (mounted @ top of fender system)
B Green Bridge Marker (mounted on bottom flange of exterior girders)
Fenders
Note: The contractor will provide cable for Navigation lights beginning at a junction box at the West end of the bridge. Connection to power source will be made by others.
IN PLACE PILE
400 ft. Girder Unit (125'-150'-125')
16-53'-0" Prestressed Conc. Spans = 848'-0"
P.I. Sta. 74+63.40 V.C. = 1600
E = 20.00
+5.00%
-5.00%
40 @ 9'-11½" = 397'-6"
Rail Post Spacing
Aluminum Railing-Type T.N.S. & F.F.S.
Typical for 53' span
Rail Post spac.
Navigation Lights
50' Min. Vert. Clearance
℄ Pier #18 Sta. 73+88.40
℄ Pier #19 Sta. 75+38.40
Fenders (See Details)
Sta. 72+10.40
Sta. 72+63.53
Sta. 76+63.27
Sta. 77+16.40
Sta. 77+69.40
11-16" sq. Piles x 48'
1-16" sq. Test Pile x 48'
23-16" sq. Piles x 40'
1-16" sq. Test Pile x 50'
9-16" sq. Piles x 45'
10-16" sq. Piles x 45'
Medium firm brown clay with traces of shell
LAYOUT
GULF INTRACOASTAL WATERWAY BRIDGE
CONTRACT NO. DA-41-243-CIVENG-58-154
MAR. 1958
ISSUED BY THE DISTRICT ENGINEER GALVESTON DISTRICT CORPS OF ENGINEERS GALVESTON, TEXAS
TEXAS
16 NUECES
72+00
73+00
74+00
75+00
76+00
77+00
AS BUILT
GALV. DIST. FILE NO. I WW II50-699



(24) IN PLACE PILE	(25) IN PLACE PILE	(26) IN PLACE PILE	(27) IN PLACE PILE	(28) IN PLACE PILE	(29) IN PLACE PILE	(30) IN PLACE PILE	(31) IN PLACE PILE	(32) IN PLACE PILE	(33) IN PLACE PILE	(34) IN PLACE PILE
2R - 45.00'	2R - 45.00'	1R - 45.00'	5R - 45.00'	2R - 45.00'	2R - 45.00'	2R - 45.23' (TEST)	2R - 45.00'	2R - 44.22'	1R - 45.00'	2R - 45.66' (TEST)
1R - 45.00'	1R - 45.00'	2R - 45.00'	4R - 45.00'	1R - 45.00'	1R - 45.00'	1R - 45.00'	3R - 45.00'	3R - 45.00'	2L - 45.00'	1R - 45.00'
4R - 45.00'	5R - 45.00'	3R - 44.34'	3R - 45.00'	5R - 45.00'	5R - 44.92'	4R - 45.00'	1R - 45.00'	1R - 45.00'	4R - 45.00'	4R - 44.00'
5R - 45.00'	4R - 46.00'	4R - 45.00'	1R - 45.00'	4R - 45.00'	4R - 44.00'	5R - 45.00'	4R - 45.00'	4R - 44.67'	3R - 45.00'	3R - 44.43'
3R - 45.00'	3R - 45.00'	1L - 45.00'	3R - 45.00'	3R - 45.00'						
2L - 45.00'	5L - 45.00'	1R - 45.00'	7L - 45.00'	2L - 44.00'	2L - 45.00'	2L - 45.00'	2L - 45.88'	2L - 44.33'	2L - 45.00'	2L - 45.00'
1L - 45.00'	4L - 45.00'	2R - 44.00'	6L - 45.00'	1L - 45.00'	3L - 45.00'	3L - 45.00'	1L - 45.00'	1L - 45.00'	1L - 45.00'	1L - 46.26'
4L - 45.00'	2L - 45.00'	4R - 44.17'	5L - 45.00'	4L - 46.00'	1L - 45.00'	1L - 45.00'	3L - 45.00'	4L - 45.00'	4L - 45.00'	4L - 46.56'
5L - 45.00'	1L - 46.00'	3R - 42.50'	3L - 45.00'		4L - 46.00'		4L - 45.00'	3L - 45.00'	3L - 45.00'	3L - 45.00'
3L - 45.00'	3L - 45.00'	5R - 44.48' (TEST)	2L - 46.00'				5L - 45.00'			
					3L - 44.17'					
					2R - 46.00'					





LAYOUT
GULF INTRACOASTAL WATERWAY BRIDGE
MAR. 1958

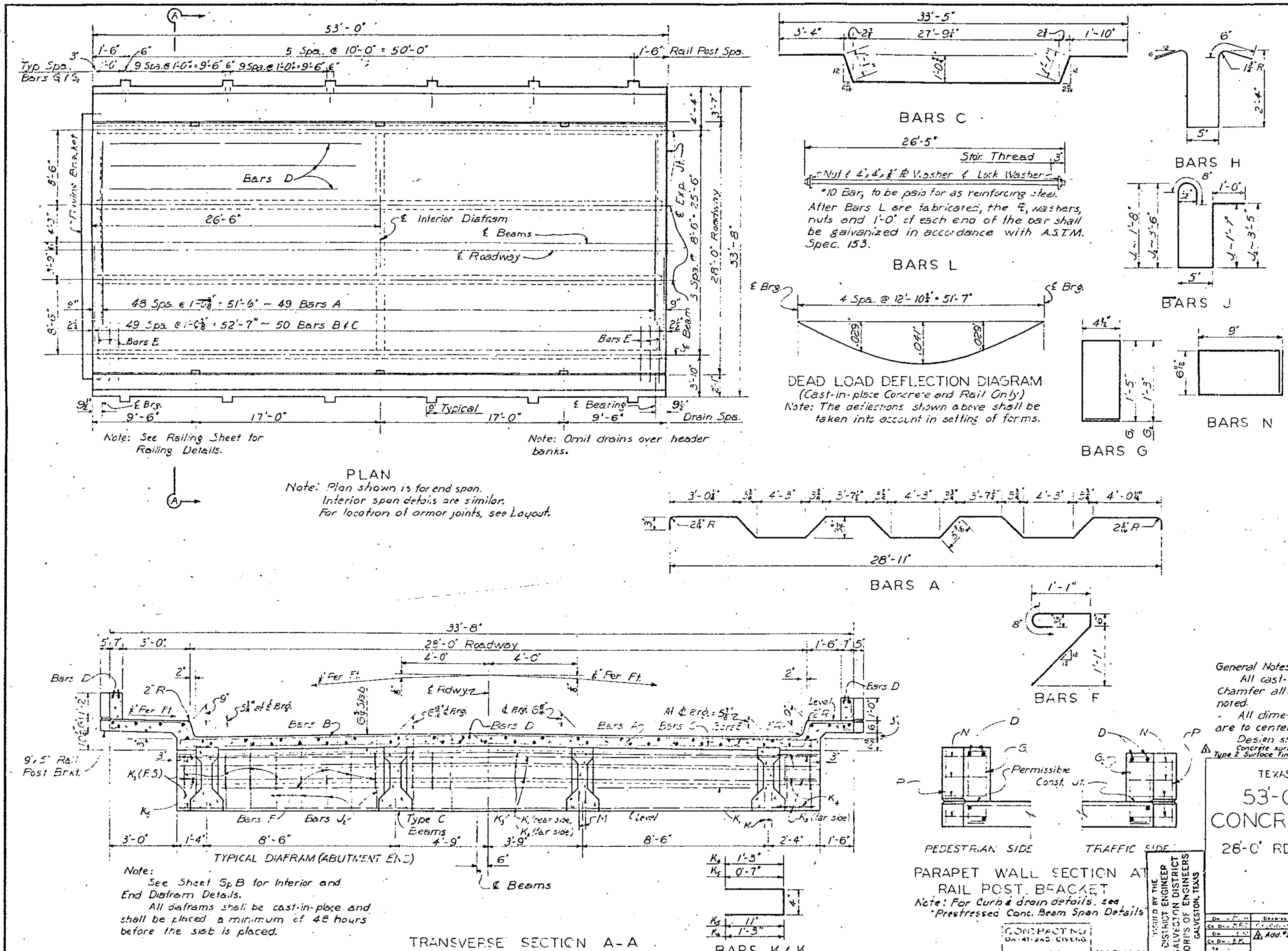
ISSUED BY THE DISTRICT ENGINEER
GALVESTON DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

CONTRACT NO. DA-41-243-CIVENG.
58-154

Sheet 5 of 5 sheets
State: TEXAS
County: NUECES

GALV. DIST. FILE NO. IWW 1150-599

AS BUILT



BILL OF REINFORCING STEEL

Bar	No.	Size	Spacing	Length	Weight
A	49	#5	1'-0⅛"	28'-11"	1537
B	50	#5	1'-0⅛"	28'-11"	1505
C	50	#5	1'-0⅛"	33'-1"	1829
D	51	#5	Shown	52'-9"	2806
E*	3	#6	6¼"	2'-4"	39
G	54	#4	Shown	3'-10"	138
G₂	54	#4	Shown	3'-6"	126
H	21	#4	1'-0"	5'-10"	82
J	42	#4	1'-0"	5'-2"	145
K₁	24	#5	~	7'-2"	179
K₂	4	#5	~	26'-3"	110
L	1	#10	~	26'-5"	114
†M	12	#6	~	2'-6"	45
N	48	#4	0'-5½"	3'-0"	96
P	24	#4	0'-5"	1'-3"	20
Total Weight					8774

* Dowel Bars ~ Not deformed.
† Average per span

TABLE OF ESTIMATED QUANTITIES

Item	Unit	Quantity
Concrete, Class A	Cu. Yd.	45.0 ⊕
Reinforcing Steel	Lb.	8774 ⊕
Prestr. Conc. Bms (Type C)	Lin. Ft.	209.33
Railing	Lin. Ft.	106
Structural Steel (Armor ℞)	Lb.	243 *

⊕ Does not include quan. in Prestressed Concrete Beams.
* Spans adjacent to ℞. Girder require two Armor ℞s.

ADDITIONAL REINFORCING STEEL FOR ONE END SPAN

Bar	No.	Size	Spacing	Length	Weight
F	24	#4	1'-0⅛"	3'-5"	59
J₂	24	#4	1'-0⅛"	8'-10"	142
K₃	5	#5	~	28'-11"	151
K₄	3	#5	~	2'-10"	9
K₅	2	#5	~	1'-10"	4
J₁	21	#4	Omit 21 Bars		-72
K₂	2	#5	Omit 2 Bars		-55
K₁	3	#5	~	7'-2"	22
Total					260

ADDITIONAL QUANTITIES FOR ONE END SPAN

Item	Unit	Quantity
Concrete, Class A	Cu. Yd.	1.9
Reinforcing Steel	Lbs.	260

General Notes:
All cast-in-place concrete shall be Class A. Chamfer all exposed corners ¾" unless otherwise noted.
All dimensions relating to reinforcing steel are to centers of bars.
Design stress for reinforcing steel = 20,000 psi.
⚠ Concrete surfaces shall be finished in accordance with Par. 402.24, Type 2 Surface Finish of specifications.

TYPE C BEAMS
TEXAS HIGHWAY DEPARTMENT

53'-0" PRESTRESSED CONCRETE BEAM SPAN

28'-0" RDWY. 3'-0" SDWLK. 8" CURB

H20 LOADING

Drawing: Original — Date: FEB. 1958 — ⚠ Add. #2 5/58

Fed. Road Div. No. 6 — State: TEXAS — Sheet No. 11 — State Dist. No. 16 — Section No. 2 — Job No. 4

ISSUED BY THE DISTRICT ENGINEER GALVESTON DISTRICT CORPS OF ENGINEERS GALVESTON, TEXAS

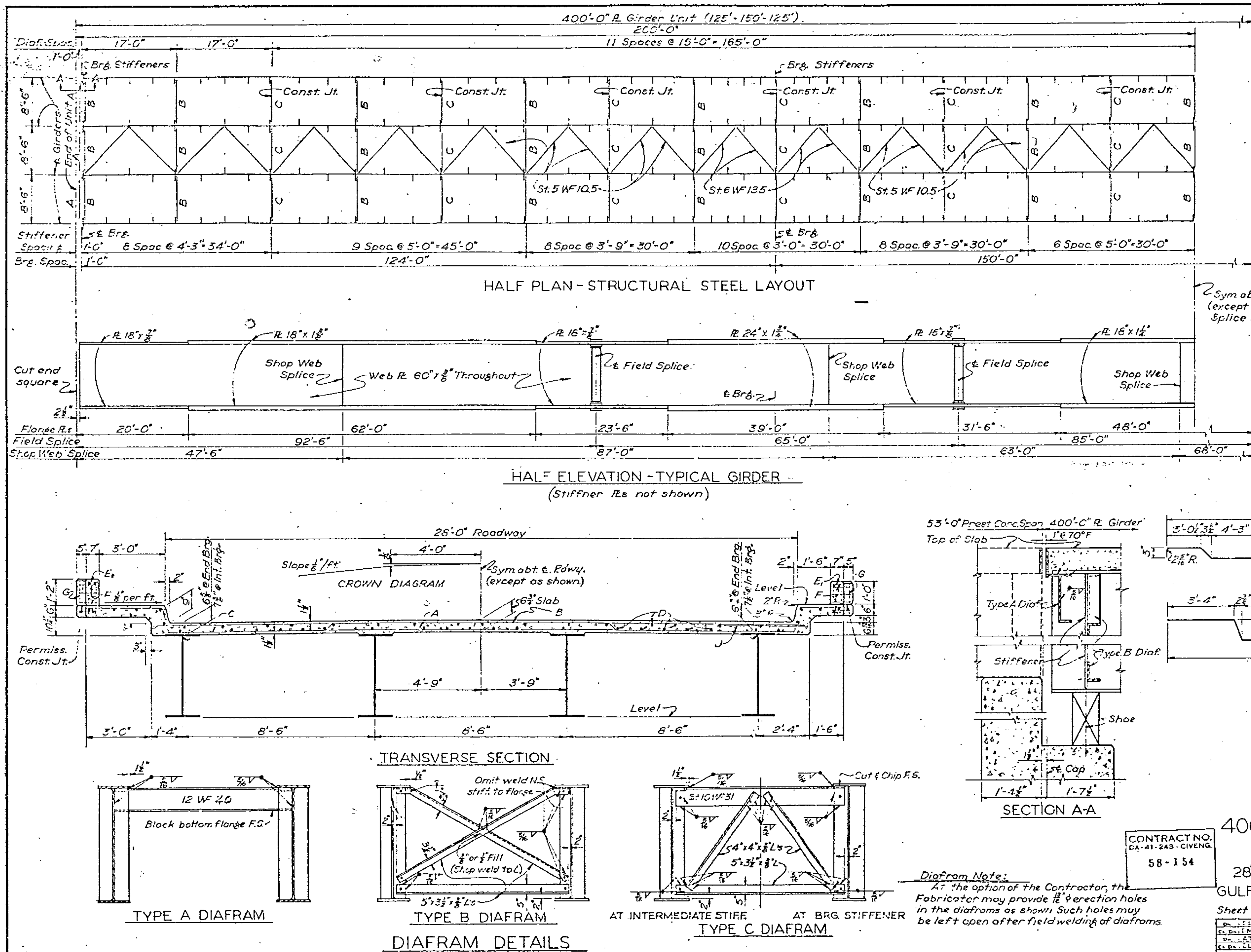
CONTRACT NO. DA-41-243-CIVENG 58-154 MAR. 1958

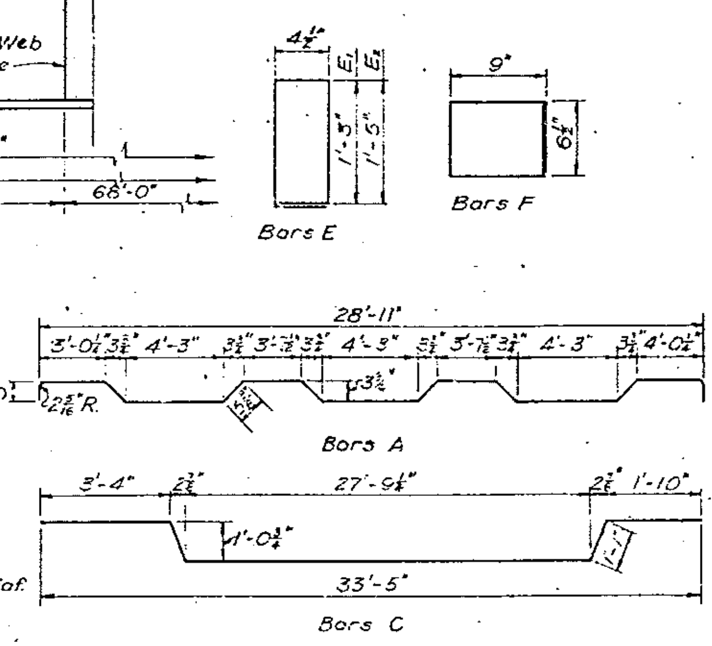
AS BUILT

GALV. DIST. FILE NO. IWW 1150-599

12

11





BILL OF REINFORCING STEEL

Bar	No.	Size	Spac.	Length	Weight
A	372	#5	[illegible]	[illegible]	[illegible]
B	385	#5	[illegible]	[illegible]	[illegible]
C	355	#5	1'-1"	35'-1"	[illegible]
D1	102	#5	Shown	[illegible]	[illegible]
D2	561	#5	Shown	[illegible]	[illegible]
E1	404	#4	Shown	3'-6"	[illegible]
E2	404	#4	Shown	3'-10"	1034
F	328	#4	Shown	3'-0"	657
G	164	#4	~	1'-3"	137
H	216	#5	Shown	2'-6	563
J	72	#6	6½"	4'-4"	468
				Total lbs.	62,2[illegible]

ESTIMATED QUANTITIES

Item	Unit	Quantity
Class A Concrete	Cu.Yd.	313.[illegible]
Reinforcing Steel	Lb.	62270
Structural Steel	Lb.	455,10[illegible]
Railing	Lin.Ft.	800

Includes 670# for 2 Armor Pls. & 7440# for shoes.

Diafram Note: At the option of the Contractor, the Fabricator may provide 13/16" φ erection holes in the diaframs as shown. Such holes may be left open after field welding of diaframs.

MAR. 1958

ISSUED BY THE DISTRICT ENGINEER GALVESTON DISTRICT CORPS OF ENGINEERS GALVESTON, TEXAS

CONTRACT NO. DA-41-243-CIVENG. 58-154

TEXAS HIGHWAY DEPARTMENT

400'-0" CONTINUOUS PLATE GIRDER UNIT

28'-0" RDWY. 36" SIDEWALK 18" CURB

GULF INTRACOASTAL WATERWAY BRIDGE

Sheet 1 of 4

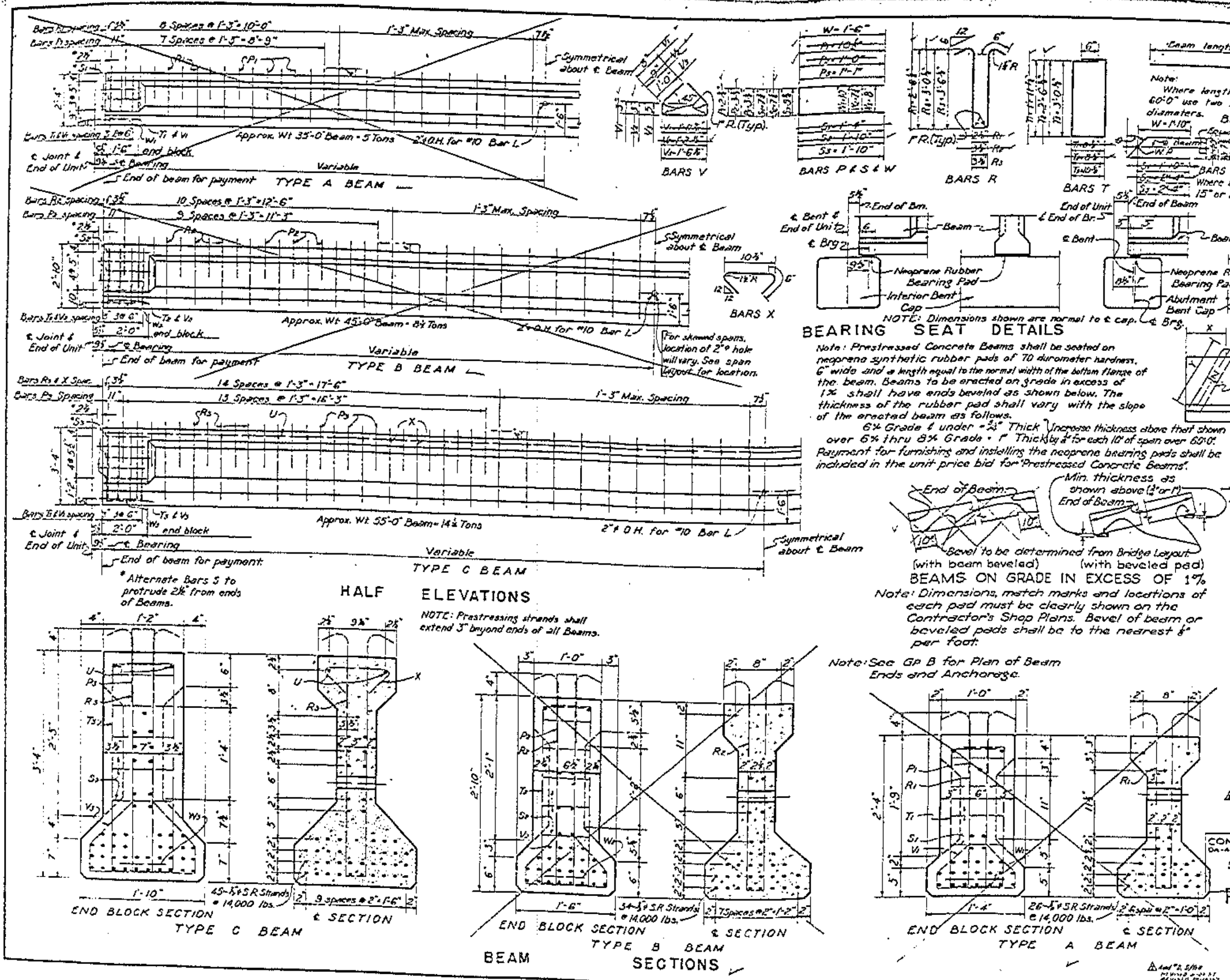
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS		14
STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.
16	NUECES	[illegible]	[illegible]	4	[illegible]

AS-BUILT

GALV. DIST. FILE NO. IWW 1150-599

(14)

15



BILL OF REINFORCING STEEL—ONE BEAM ONLY					
Bar	No.	Size	Shape	Length	Weight
TYPE A BEAM—35'-0" SPAN					
P_1	16	#4	Shown	[illegible]	27
R_1	20	#4	Shown	6'-0"	112
S_1	8	#4	Shown	3'-4"	18
T_1	6	#4	Shown	6'-0"	24
V_1	6	#4	Shown	2'-11"	12
W_1	[illegible]	#5	Shown	3'-10"	8
26-⅜"ø S.R. Strands			Shown	34'-7"	246
TYPE B BEAM—45'-0" SPAN					
P_2	20	#4	Shown	[illegible]	30
R_2	[illegible]	#4	Shown	7'-[illegible]	170
S_2	10	#4	Shown	4'-4"	29
T_2	8	#4	Shown	7'-2"	38
V_2	8	#4	Shown	3'-3"	17
W_2	2	#5	Shown	3'-8"	8
34-⅜"ø S.R. Strands			Shown	44'-7"	415
TYPE C BEAM—55'-0" SPAN					
P_3	28	#4	Shown	2'-6"	47
R_3	44	#4	Shown	6'-7"	227
S_3	10	#4	Shown	4'-6"	30
T_3	8	#4	Shown	8'-6"	45
U	2	#5	—	53'-3"	112
V_3	8	#4	Shown	4'-5"	24
W_3	2	#5	Shown	3'-8"	8
X	44	#4	Shown	1'-8"	49
45-⅜"ø S.R. Strands			Shown	54'-7"	672

DIMENSIONS FOR LIFTING EYE				
Beam	Size	X	Y	Z
A	[illegible]	1'-6"	2'-6"	5"
B	#1" ø	1'-9"	3'-0"	6"
C	#1" ø	2'-0"	3'-6"	6"

*Lifting Eye must be Struct. Grade Steel (plain or deformed).

ESTIMATED QUANTITIES—ONE BEAM ONLY							
Beam Type	Span Length	Concrete Cu. Yds	Reinforcing Steel Lbs	Prestressed Strands Lbs	For Each Additional Foot: Concrete, Cu. Yds	Reinforcing Steel Lbs	Prestressed Strands Lbs
A	35'-0"	2.50	196	246	0.071	3.21	7.12
B	45'-0"	4.19	292	415	0.093	3.78	9.32
C	55'-0"	7.04	552	672	0.127	6.41	12.33

NOTE: The quantities shown above are for the Contractors information only and not for bidding purposes. The Quantities shown are for normal beams only. For skewed beams lengths of Bars S & W and number of Bars T & V will vary.

GENERAL NOTES:

All concrete shall be Class F. See specifications.

Chamfer all exposed corners ¾" unless otherwise noted. Exposed corners of beams may be rounded to ¾" radius in lieu of chamfering.

Dimensions relating to reinforcing steel and prestressing strands are to centers of bars or strands.

Suitable holes or anchorage devices for supporting forms for cast-in-place concrete may be cast in beams at the option of the Contractor, provided they are indicated on the working drawings and approved by the Engineer.

Tops of beams shall be rough floated. At approximately the time of initial set, entire top of beam shall be scrubbed transversely with coarse wire brush to remove all laitance and to produce a roughened surface for bonding slab.

In the handling of beams, they must be maintained in an upright position at all times and must be picked up from points within the solid bearing blocks at the beam ends. Disregard of this requirement may lead to collapse of the member.

MAR. 1958

⚠ Concrete surfaces shall be finished in accordance with Par. 402.24, Type 2 Surface Finish of specifications.

ISSUED BY THE DISTRICT ENGINEER GALVESTON DISTRICT CORPS OF ENGINEERS GALVESTON, TEXAS

CONTRACT NO. DA-41-243-CIVENG. 58-154

TEXAS HIGHWAY DEPARTMENT

PRESTRESSED CONC. BEAMS

Gp A

AS BUILT

GALV. DIST. FILE NO. IWW 1150-599

(12)

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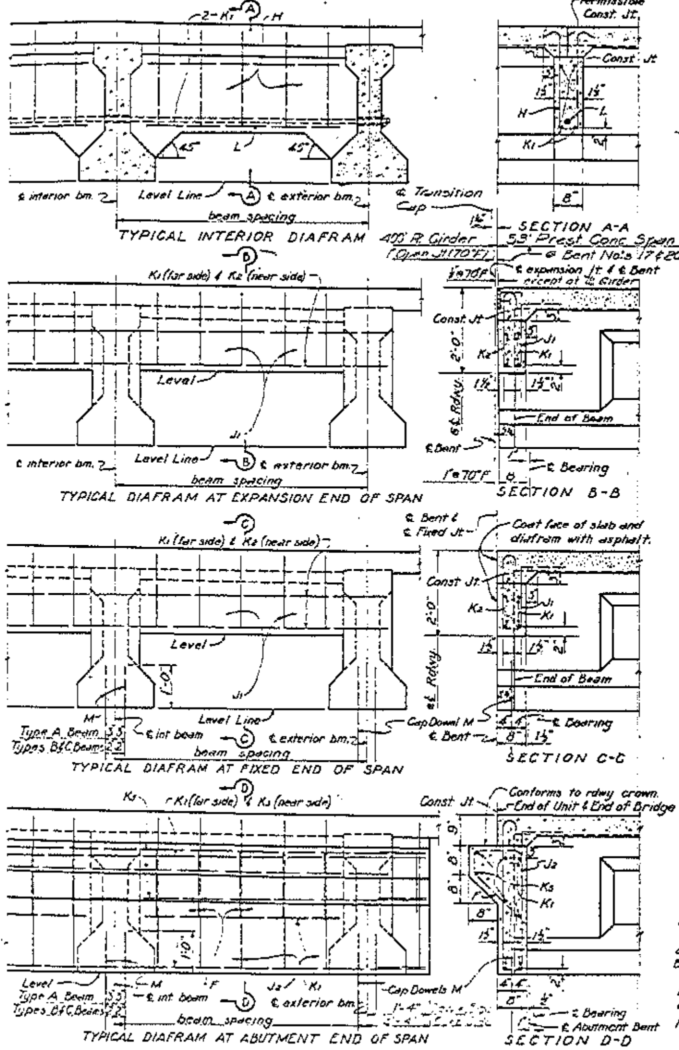
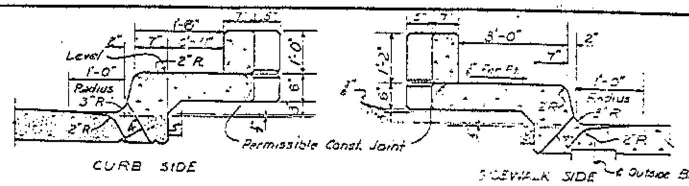
NOTE: All cast-in-place diaframs shall be cast before pouring of the roadway slab. After the concrete has obtained a minimum compressive strength of 1500 p.s.i., the nuts of the #10 bar shall be firmly tightened.



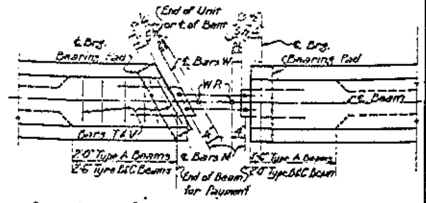
DIAFRAM DETAILS



4"x6" Formed drain. Trowel entrance to give a ½" entrance depression. Provide a ½" drip bead around drain. Bend reinforcing steel to clear drain 1".

4"x6" Formed drain. Trowel entrance to give a ½" entrance depression. Provide a ½" drip bead around drain. Bend reinforcing steel to clear drain 1".

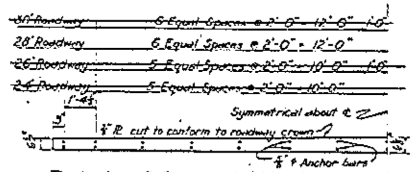
CURB & DRAIN DETAILS



Beams Skewed 15° or More — Beams Skewed less than 15°

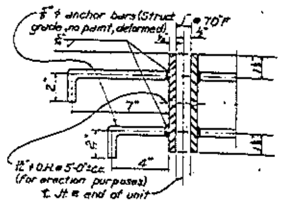
All dimensions, except and Block dimensions, are normal to ℄ Bent & ℄ Beam.

PLAN OF BEAM ENDS AND ANCHORAGE



The two Armor ℞s for a complete joint shall be cut simultaneously from two ℞s. clamped together.

ELEVATION



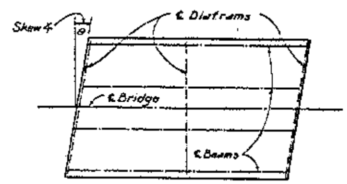
SECTION

Weight of one complete armor joint:

28' Roadway = 456 lbs.

ARMORED JOINT DETAILS

NOTE: Armor joints to be provided as shown on Layouts.



PLAN OF UNIT ON SKEW

NOTES:

Areas of diaframs in contact with bent cap shall be placed on a layer of ½" Preformed Bituminous Fiber Material, THD Spec. 402.2, Type III.

Part of dowel bar M to be embedded in diafram shall be wrapped with layer of 15" asphalt roofing felt, top of dowel capped with sheet metal cap containing ½" paper cushion.

GENERAL NOTES:

All cast-in-place concrete shall be Class A. Chamfer all exposed corners ¾" unless otherwise noted.

All dimensions relating to reinforcing steel are to centers of bars.

Design stress for reinforcing steel = 20,000 psi.

Concrete surfaces shall be finished in accordance with Par. 402.24, Type 2 Surface Finish of specifications.

TEXAS HIGHWAY DEPARTMENT

PRESTRESSED CONCRETE BEAM SPAN DETAILS

Gp B

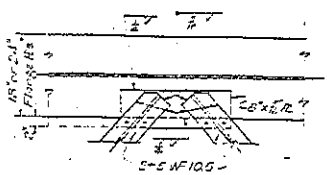
CONTRACT NO. 58-154

ISSUED BY THE DISTRICT ENGINEER GALVESTON DISTRICT CORPS OF ENGINEERS GALVESTON, TEXAS

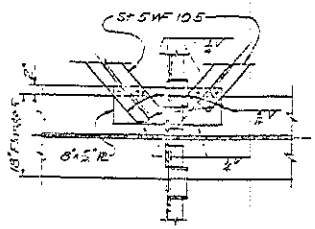
AS BUILT

GALV. DIST. FILE NO. IWW 1150-595

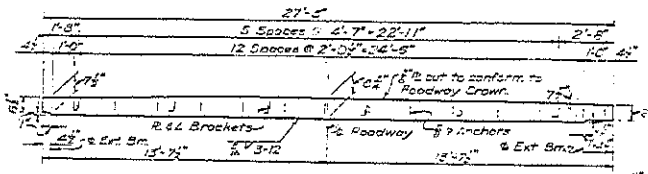
(13)



CONNECTION BETWEEN DIAFRAMS

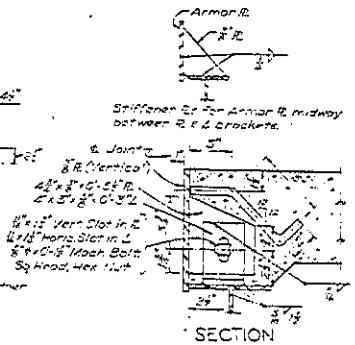


CONNECTION AT DIAFRAM TYPES B & C



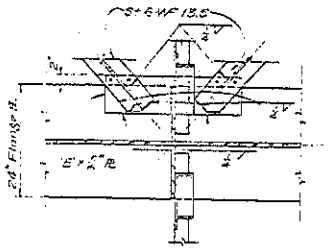
ELEVATION

Note: Field weld angles to top flange of diafram; adjust Armor Pl. to correct grade & alignment & bolt for field welding. The two Armor Pls for a complete joint shall be cut simultaneously from two Pls clamped together. Armor Pls. may be shipped in convenient lengths and field butt welded.

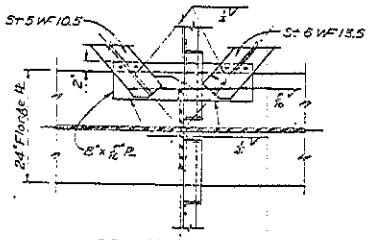


SECTION

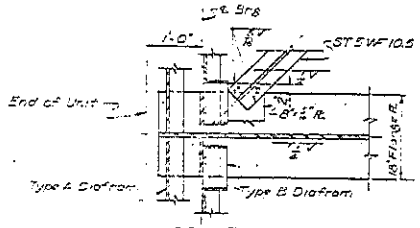
ARMOR JOINT DETAILS



CONNECTION AT INTERIOR BEARINGS



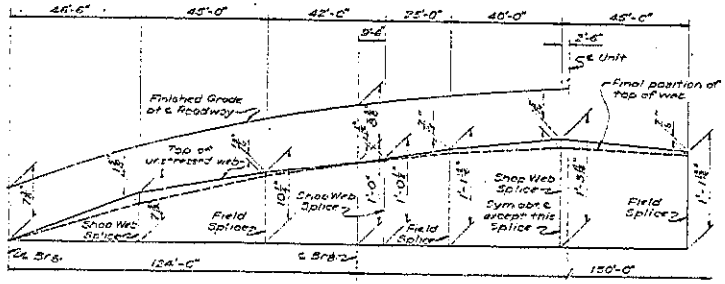
CONNECTION AT DIAFRAM TYPE B



CONNECTION AT END BEARINGS

BOTTOM LATERAL SYSTEM

Note: At the option of Contractor the Fabricator may provide 3/4" erection holes in the lateral connections. Such holes may be left open after field welding of laterals.



GIRDER BLOCKING DIAGRAM

Assembled unstressed position of girder is to compensate for vertical curve and for a dead load of 1090# per girder.

TEXAS HIGHWAY DEPARTMENT

400'-0" CONTINUOUS PLATE GIRDER UNIT

28'-0" RDWY. 36" SIDEWALK 18" CURB

GULF INTRACOASTAL WATERWAY BRIDGE

CONTRACT NO. DA-41-240-CIVENG. 58-134

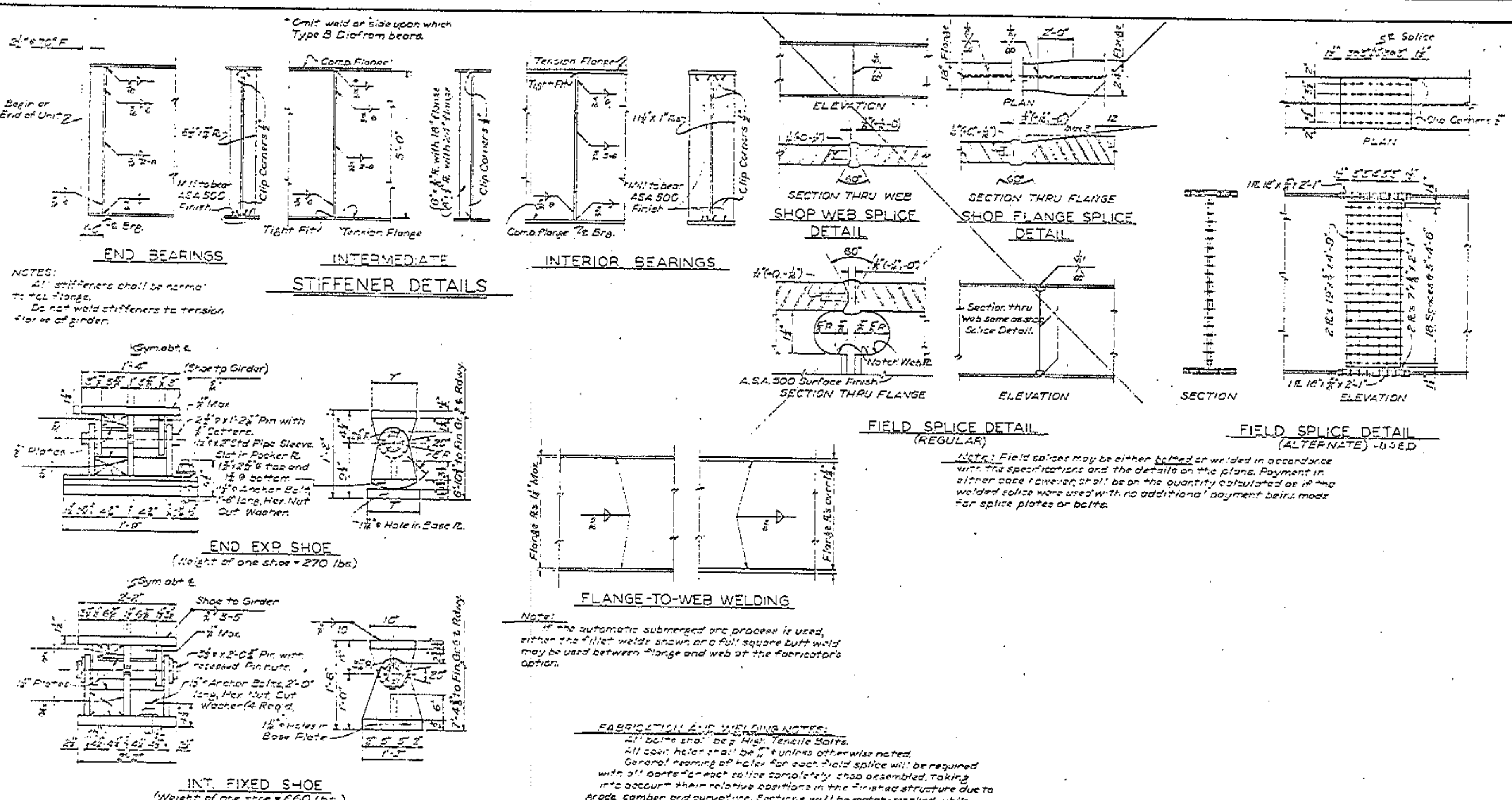
MAR. 1958

Sheet 2 of 4

FILED BY THE DIST. ENGINEER, GALVESTON DISTRICT, CORPS OF ENGINEERS, GALVESTON, TEXAS

AS BUILT

GALV DIST. FILE NO. IWW 1150-599



Note: Field splices may be either bolted or welded in accordance with the specifications and the details on the plans. Payment in either case however, shall be on the quantity calculated as if the welded splice were used with no additional payment being made for splice plates or bolts.

FABRICATION AND WELDING NOTES:

All bolts shall be High Tensile Bolts.

All bolt holes shall be $\frac{15}{16}$" ø unless otherwise noted.

General reaming of holes for each field splice will be required with all parts for each splice completely shop assembled, taking into account their relative positions in the finished structure due to grade, camber and curvature. Sections will be match-marked while assembled by stamping in the metal.

All shop splices in flange plates and web plates shall be made prior to welding flange plates to web plates. All such proposed splices shall be shown on the Shop Drawings.

Extension bars shall be used in making butt welds in girder flanges. See A.W.S. Specifications, Section 505 K.

No paint shall be applied on any contact surface of Field Splices if High Tensile Bolts are to be used to make such splices.

Welding Procedure shall be in accordance with A.W.S. Specifications and shall be outlined on the Shop Drawings.

Shoe Notes: All shoes shall be fabricated from structural steel. Surface finishes shall conform to A.S.A. Standard finishes as follows:

Pins and Pin Holes — #125
Rockers ———— #250

Pins and Rollers 7" and less in diameter shall conform to A.S.T.M. A235 (Class I) or A.S.T.M.-A108 (Grades 1016-1030). Rollers over 7" in diameter shall conform to A.S.T.M.-A235 (Class I).
Anchor bolt nuts shall be tightened and threads burred.

TEXAS HIGHWAY DEPARTMENT

400'-0" CONTINUOUS PLATE GIRDER UNIT

28'-0" RDWY. 30" SIDEWALK 18" CURB
GULF INTRACOASTAL WATERWAY BRIDGE

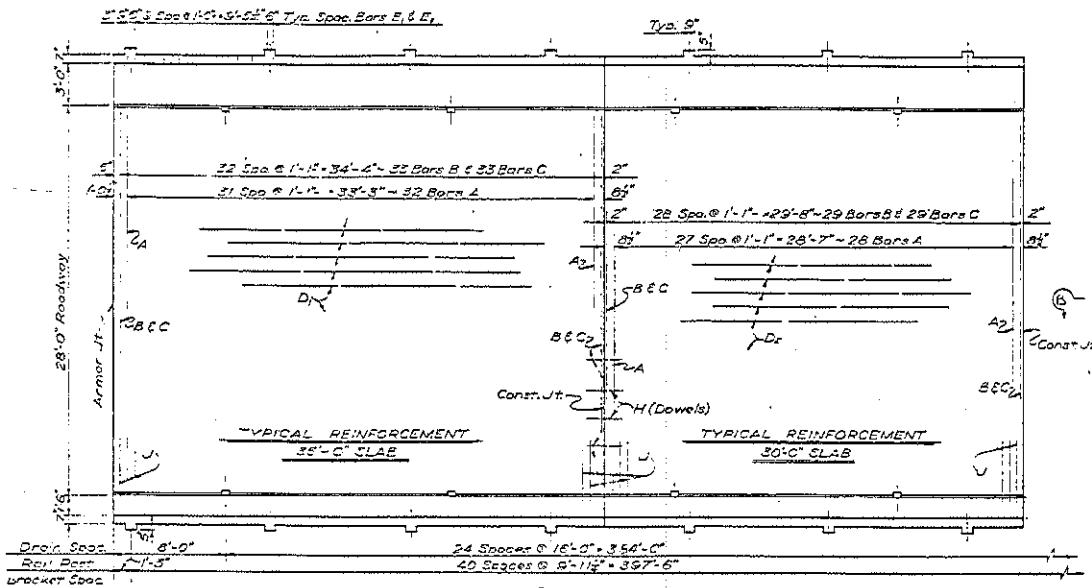
CONTRACT NO. DA-41-243-CIVENG-58-154
MAR. 1958

ISSUED BY THE DISTRICT ENGINEER GALVESTON DISTRICT CORPS OF ENGINEERS GALVESTON, TEXAS

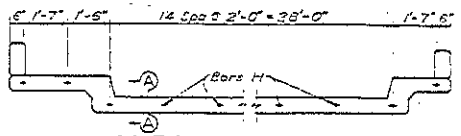
Sheet 3 of 4

AS BUILT

GALV. DIST. FILE NO. IWW 1150-599

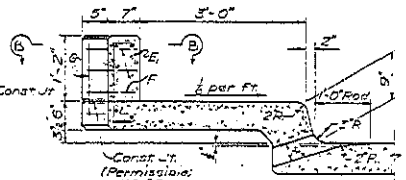


PLAN
TYPICAL SLABS

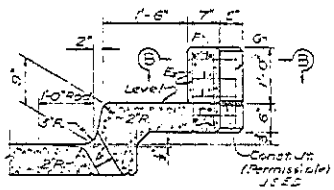


LOCATION OF DOWEL BARS H
AT CONSTRUCTION JOINTS

SEC. A-A

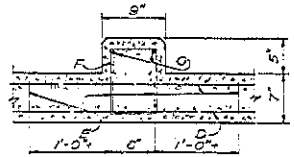


SIDEWALK & DRAIN DETAIL

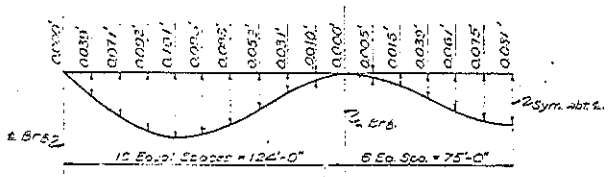


CURB & DRAIN DETAIL

4"x6" Formed Drain. Trowel entrance to give a ½" entrance depression. Provide a ½" drip bead around drain. Bend reinforcing steel to clear drain 1".

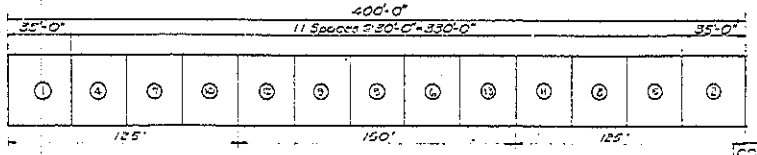


SEC. B-B



DEAD LOAD DEFLECTION DIAGRAM
(Due to Conc & Rail Only)

CONSTRUCTION PROCEDURE: After all structural steel is erected or accurate measurement shall be made of the beam flanges at all control points. Subsequent setting of forms, pouring and finishing of concrete shall be governed by these measurements only, taking into account the deflections shown above.



SLAB POURING SEQUENCE △

MAR 1956
APPROVED BY THE
DISTRICT ENGINEER
GALVESTON DISTRICT
CORPS OF ENGINEERS
GALVESTON, TEXAS

TEXAS HIGHWAY DEPARTMENT

400'-0" CONTINUOUS PLATE GIRDER UNIT

28'-0" RDWY. 35" SIDEWALK 18" CURB

GULF INTRACOASTAL WATERWAY BRIDGE

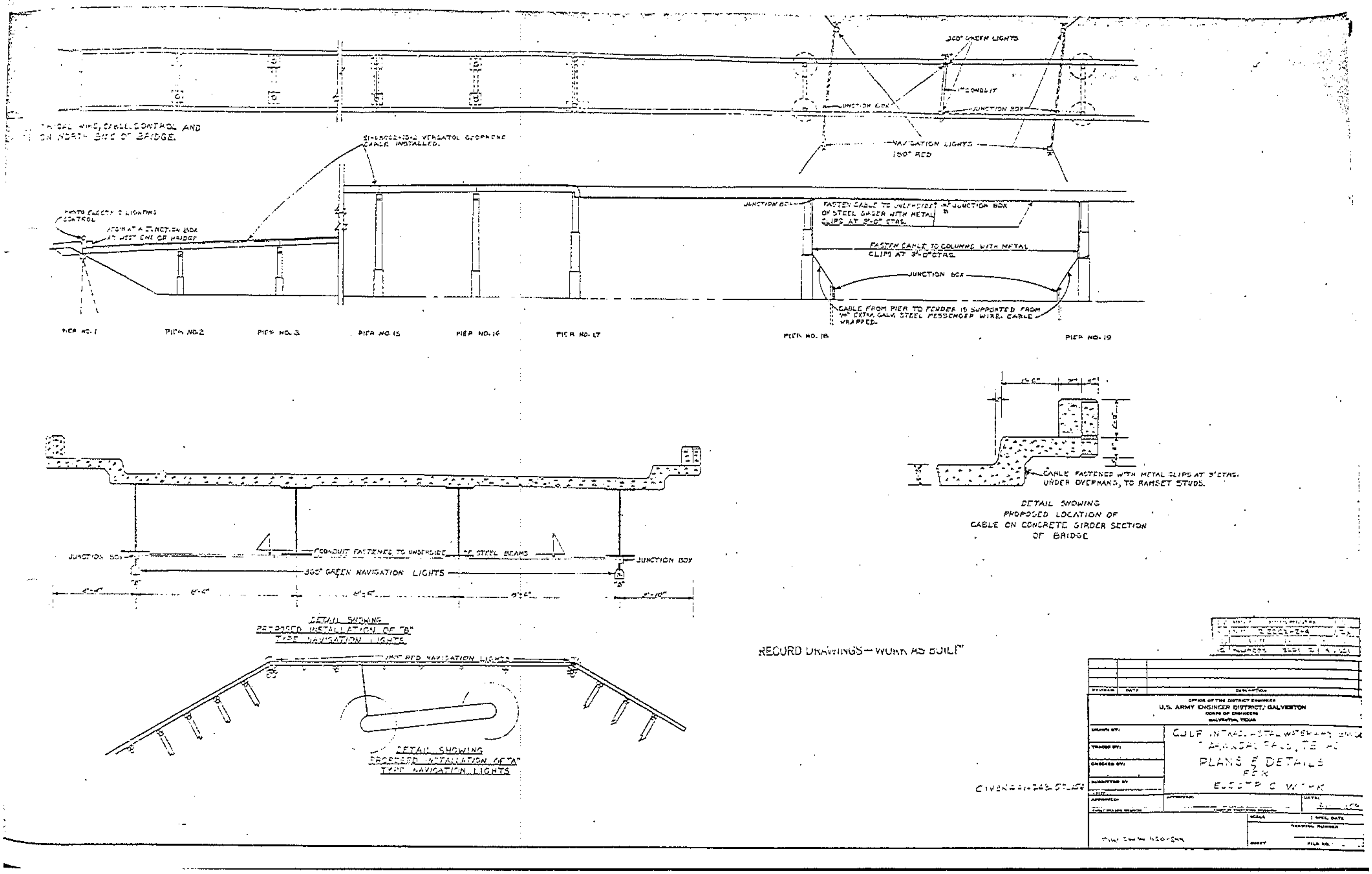
Sheet 4 of 4

CONTRACT NO.
58-154

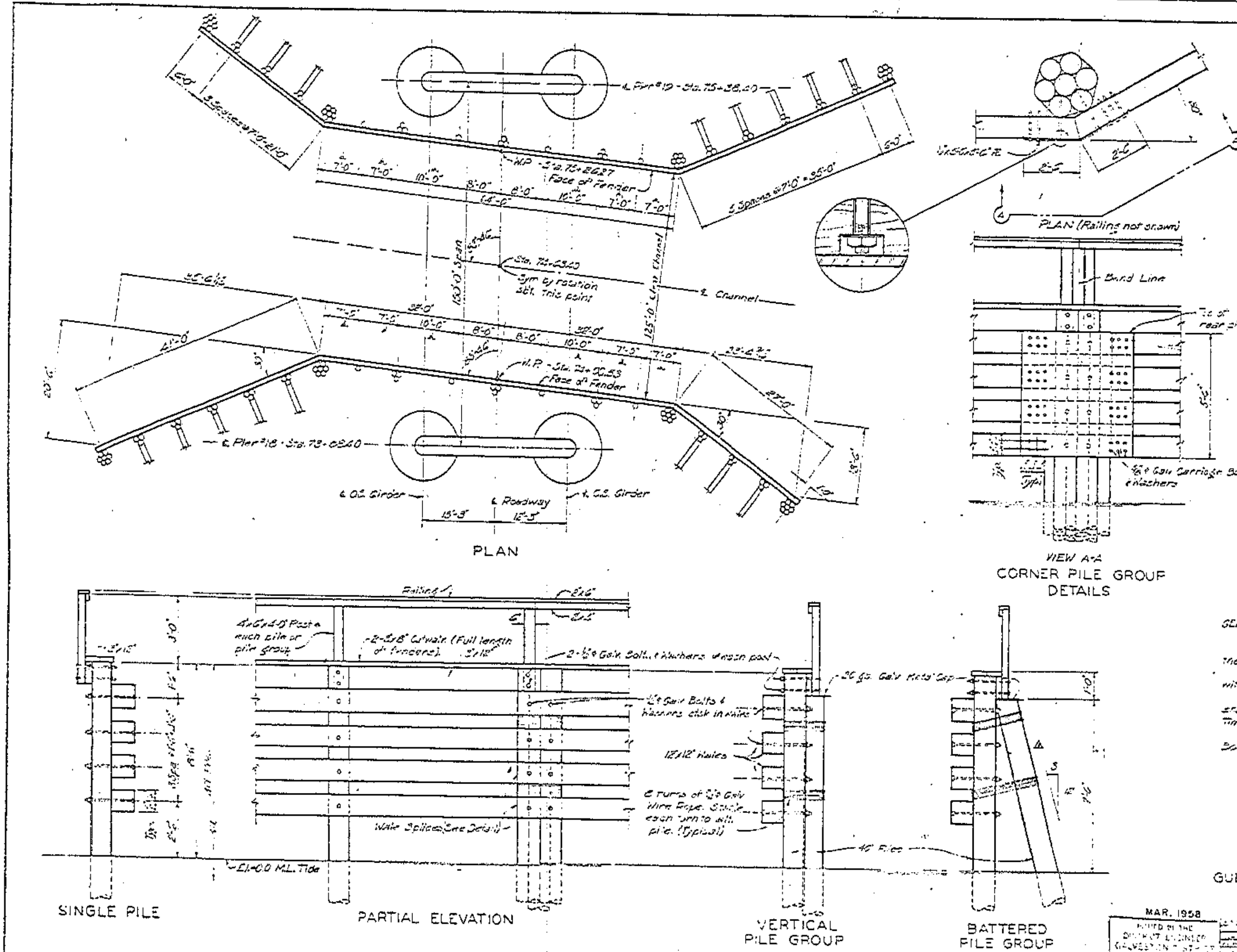
AS BUILT

GALV DIST. FILE NO IWW 1150-599

17



360° GREEN LIGHTS
1" CONDUIT
JUNCTION BOX
NAVIGATION LIGHTS
180° RED
ON NORTH SIDE OF BRIDGE.
CABLE INSTALLED.
PHOTO ELECTRIC LIGHTING CONTROL
AT WEST END OF BRIDGE
FASTEN CABLE TO UNDERSIDE OF STEEL GIRDER WITH METAL CLIPS AT 3'-0" CTRS.
FASTEN CABLE TO COLUMNS WITH METAL CLIPS AT 3'-0" CTRS.
CABLE FROM PIER TO FENDER IS SUPPORTED FROM EXTRA GALV. STEEL MESSENGER WIRE. CABLE WRAPPED.
PIER NO. 1
PIER NO. 2
PIER NO. 3
PIER NO. 15
PIER NO. 16
PIER NO. 17
PIER NO. 18
PIER NO. 19
CABLE FASTENED WITH METAL CLIPS AT 3' CTRS. UNDER OVERHANG, TO RAMSET STUDS.
DETAIL SHOWING PROPOSED LOCATION OF CABLE ON CONCRETE GIRDER SECTION OF BRIDGE
JUNCTION BOX
CONDUIT FASTENED TO UNDERSIDE OF STEEL BEAMS
360° GREEN NAVIGATION LIGHTS
DETAIL SHOWING PROPOSED INSTALLATION OF "B" TYPE NAVIGATION LIGHTS
RECORD DRAWINGS—WORK AS BUILT"
180° RED NAVIGATION LIGHTS
DETAIL SHOWING PROPOSED INSTALLATION OF "A" TYPE NAVIGATION LIGHTS
OFFICE OF THE DISTRICT ENGINEER
U.S. ARMY ENGINEER DISTRICT, GALVESTON
CORPS OF ENGINEERS
GALVESTON, TEXAS
PLANS & DETAILS
FOR
DRAWN BY:
TRACED BY:
CHECKED BY:
SUBMITTED BY:
APPROVED:
SCALE
DRAWING NUMBER
SHEET
FILE NO.



Note: Splice wales at 3 pile groups in channel. Splice at alternate pile groups with a maximum of two splices per pile group in wings.

WALE SPLICE DETAIL

ESTIMATED QUANTITIES		
Description	Unit	Quantities
Treated Timber [illegible]*	[illegible]	[illegible]
Treated Timber Piling [illegible]*	[illegible]	[illegible]
Structural [illegible]	[illegible]	[illegible]

*Full Cell Process.

GENERAL NOTES:

The cost of galv. wire rope shall be included in the unit price bid for "Treated Timber Piling".

All hardware shall be galvanized in accordance with A.S.T.M. A 153.

The cost of hardware, excepting [illegible], shall be included in the unit price bid for "Treated Timber".

All bolt holes shall be treated with Greenlee Bolt Hole Treater or approved equal.

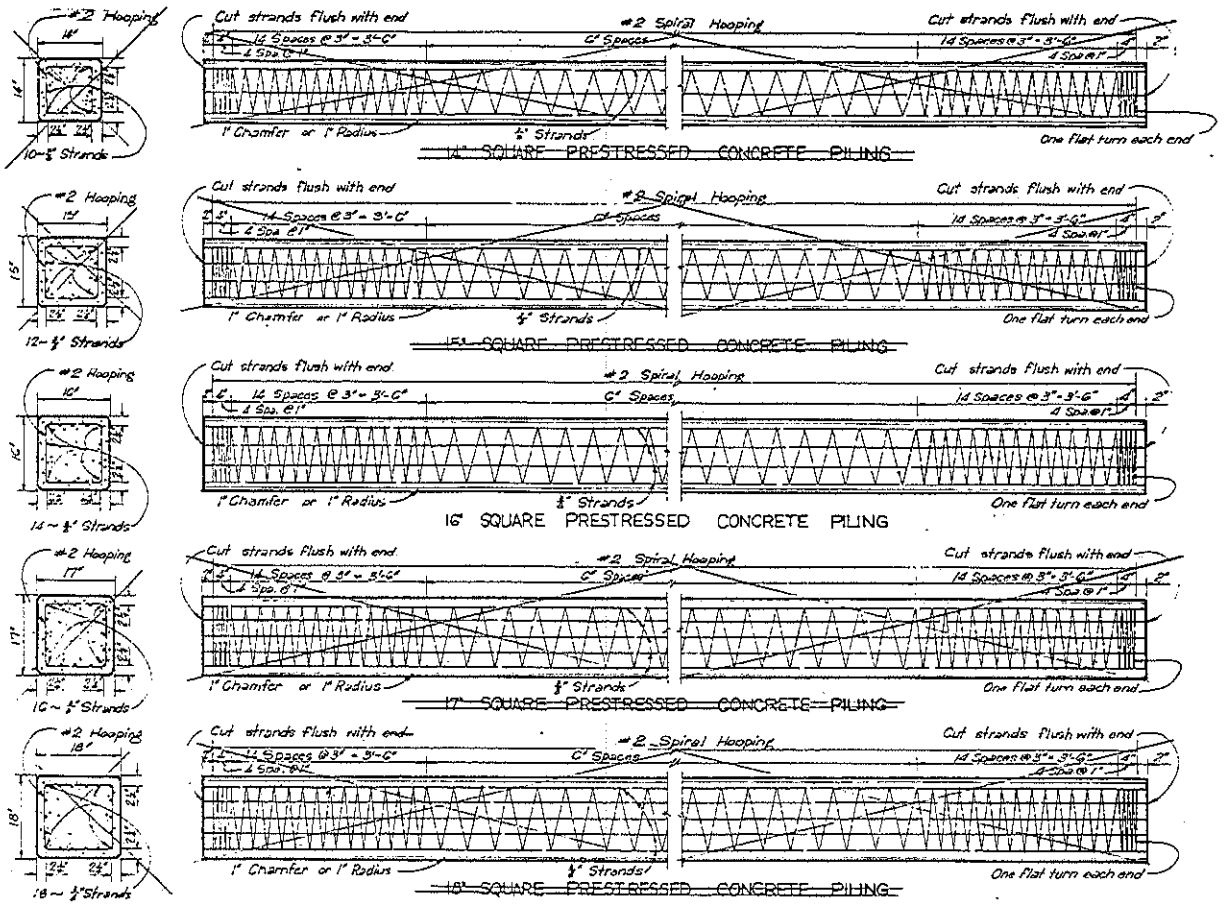
TEXAS HIGHWAY DEPARTMENT

FENDER DETAILS

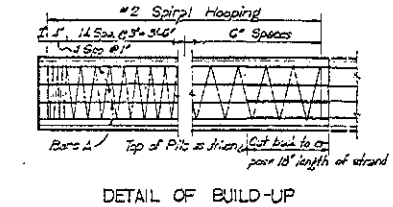
GULF INTRACOASTAL WATERWAY BRIDGE

MAR. 1958

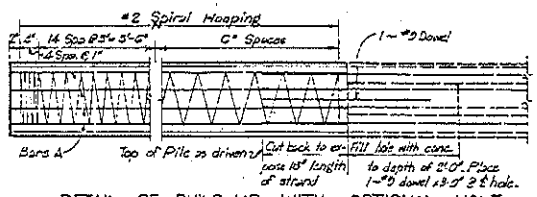
GALV. DIST. FILE NO. IWW 1150-599



BARS A "G"	
Pile Size	Number
14"	10
15"	12
16"	14
17"	16
18"	18

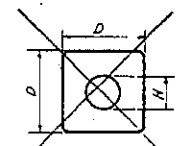


DETAIL OF BUILD-UP



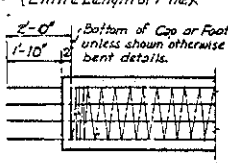
DETAIL OF BUILD-UP WITH OPTIONAL HOLE

Class A Concrete may be used for pile build-up when no additional driving is required



OPTIONAL FORMED HOLE
(Entire Length of Pile)

DIMENSION FOR OPTIONAL HOLE		
D	H	Strands
In.	In.	No.
14	5	10
15	6	12
16	7	14
17	8	16
18	9	18

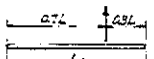


PILING AFTER DRIVING (SPECIAL)
(See note at right)

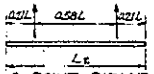
Reinforcing steel shall protrude into substructure concrete only where shown in sub-structure details in which case piles may be cast to approved length with reinforcing steel protruding from top of pile, or piles may be cast to extra length and cut-back after driving to expose reinforcing steel.

Cost of reinforcement projecting into caps or footings shall be included in price bid for Piles.

Pick-up lengths are based on careful handling and on holding pile firmly in this position-G- (horiz.) throughout all lifting & handling. If the pile at any time assumes this position -G- (disg.), reduce allowable lengths by 15%.



1-POINT PICK-UP



2-POINT PICK-UP

TABLE OF ELEMENTS

Pile Size	Area*	½" Strands	Ic	L1	L2
In.	Sq. In.	No.	In.⁴	Ft.	Ft.
14	N 196	10	3671	53	77
	G 196		5001	50	71
15	N 197	12	4166	58	84
	G 225		5819	53	73
16	N 218	14	5344	63	90
	G 256		6401	55	78
17	N 239	16	6103	66	93
	G 289		6966	57	80
18	N 260	18	8326	70	100
	G 305		8748	58	84

*N = Net G = Gross, without hole

GENERAL NOTES:

All concrete shall be Class F except as noted. All corners shall be chamfered as shown or noted.

All dimensions relating to reinforcing steel are to centers of bars or strand.

Size, number and length of piling shall be as shown on Layout Sheet.

All strands shall be initially prestressed to 14,000 lbs./strand.

△ Concrete surfaces shall be finished in accordance with Par. 402.24, Type 2 Surface Finish of specifications.

Material used in forming holes for prestressed concrete piles may be left in place provided it does not add appreciably to the weight of the pile.

TEXAS STATE HIGHWAY DEPARTMENT

PILING
PRESTRESSED CONCRETE

CONTRACT NO. DA-41-243-CIVENG. 58-154

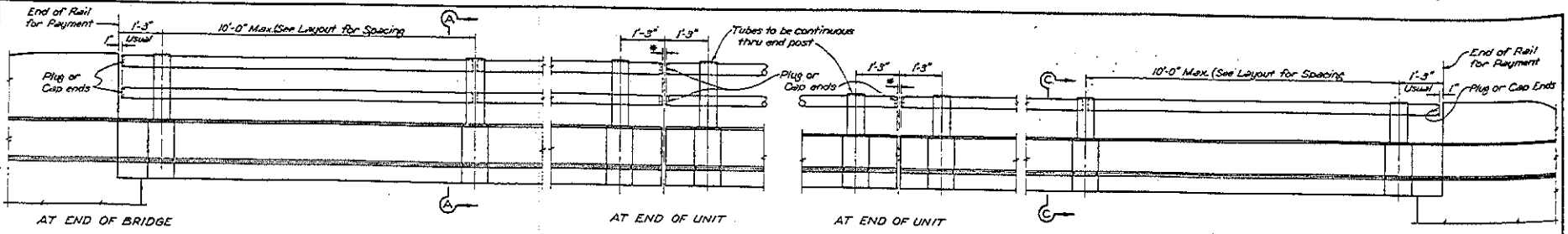
MAR. 1958

PP-1

APPROVED BY THE DISTRICT ENGINEER GALVESTON DISTRICT CORPS OF ENGINEERS GALVESTON, TEXAS

AS BUILT

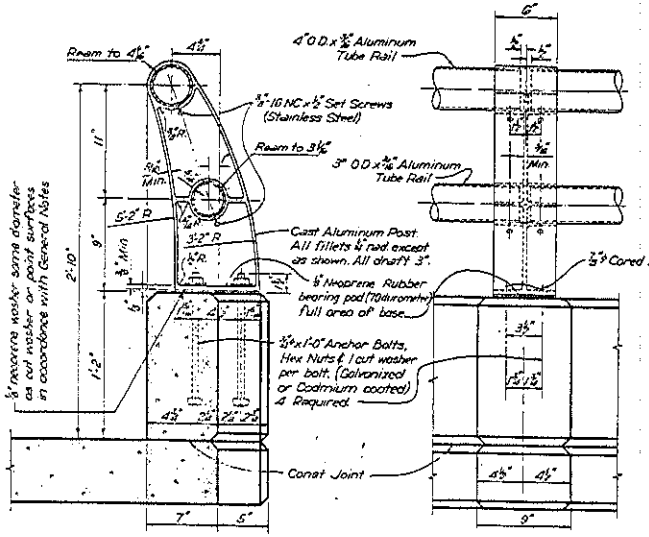
GALV. DIST. FILE NO. IWW 1150-599

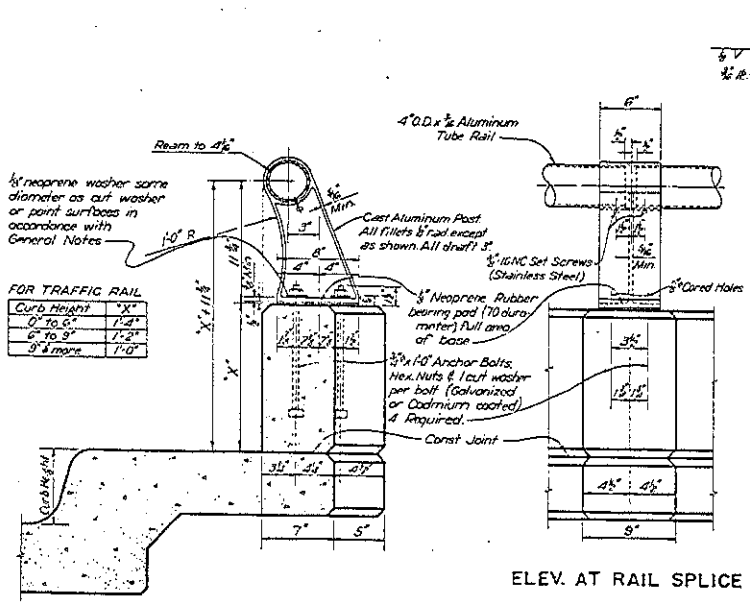


ELEVATION – PEDESTRIAN RAILING

* ½" for rail members @ fixed joint. Provide opening ½" wider than normal joint opening in slab @ exp. joint.

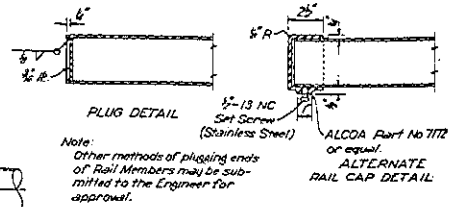
ELEVATION – TRAFFIC RAILING





FOR TRAFFIC RAIL

Curb Height	"X"
0" to 6"	1'-4"
6" to 9"	1'-2"
9" & more	1'-0"



Note: Other methods of plugging ends of Rail Members may be submitted to the Engineer for approval.

RAIL END DETAILS

GENERAL NOTES:

All anchorage provisions are considered as parts of the railing for payment.

Rail sections may be made continuous for as many as 3 post spaces.

All parts of the railing except anchor bolts, nuts & washers shall be made from Aluminum Alloy; see Special Provision.

Anchor Bolts and Nuts shall 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. A-153.

Rail tubing shall be bent to follow curvature of roadway.

Posts and Post Brackets to be vertical.

All surfaces of Anchor Bolts Nuts or washers coming in contact with Post shall be thoroughly coated with an aluminum impregnated caulking compound, or a neoprene rubber gasket will be used.

Welding shall be done by an arc welding process in which no welding flux is used. Welding is not permitted except as shown.

ALUMINUM RAILING
PEDESTRIAN
(TYPE P)

ALUMINUM RAILING
TRAFFIC
(TYPE T)

TEXAS HIGHWAY DEPARTMENT

ALUMINUM RAILING TYPES P & T

CONTRACT NO. GA-141-2-63-CIVENG. 58-154

MAR. 1958

ISSUED BY THE DIST. CT ENGINEER GALVESTON DISTRICT CORPS OF ENGINEERS GALVESTON, TEXAS

AS BUILT

GALV. DIST. FILE NO. 1WW 1150-599