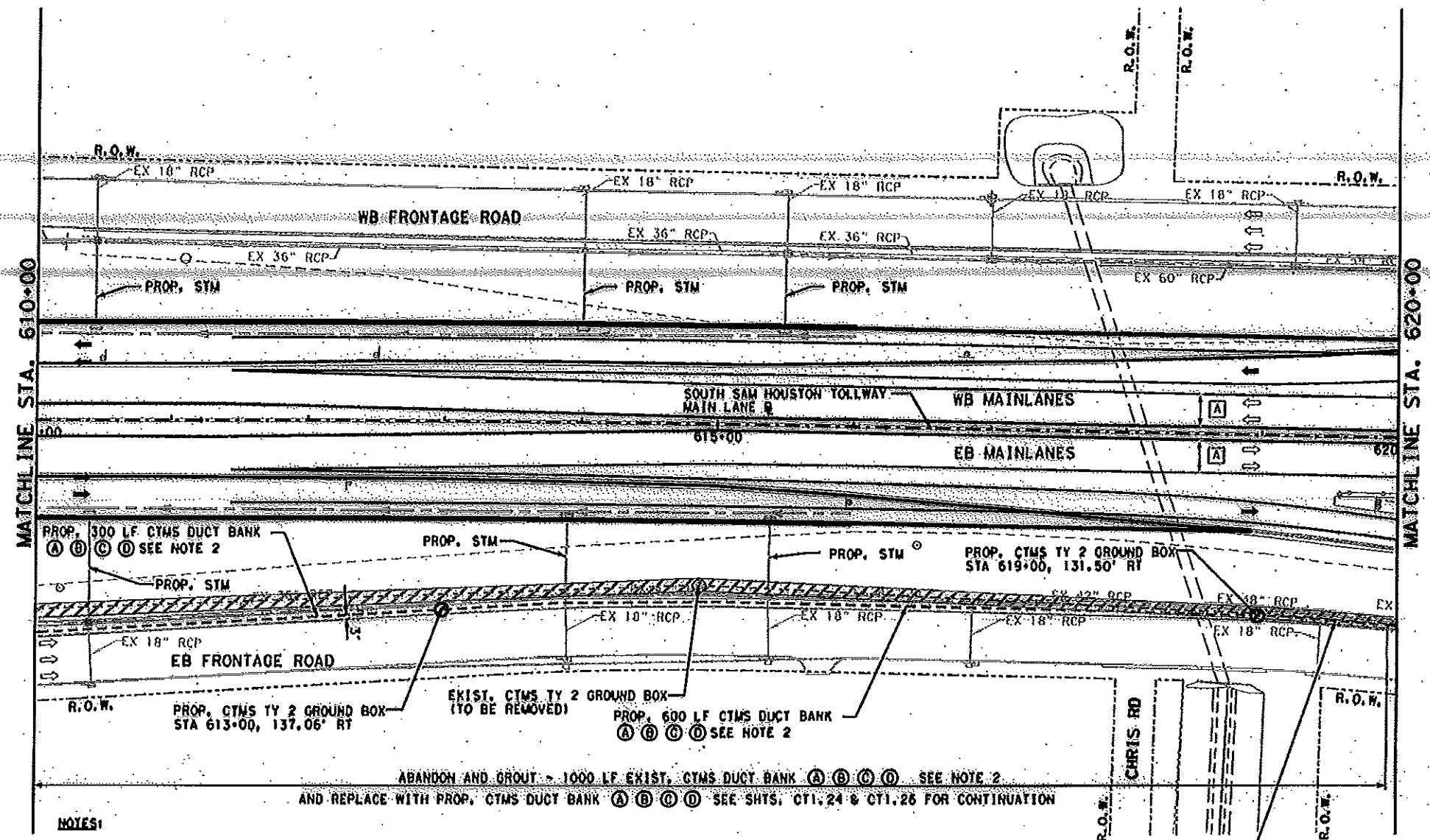


LEGEND

- Ⓐ TKDOT 3" DIA, SCH 80 PVC (3.5" O.D.)
- Ⓑ HCTRA 3" DIA, SCH 80 PVC (3.5" O.D.)
- Ⓒ TKDOT 4" MULTIDUCT SCH 80 PVC (4.75" O.D.)
- Ⓓ HCTRA 4" MULTIDUCT SCH 80 PVC (4.75" O.D.)
- Ⓐ EXIST. LIMITS OF PAVEMENT
- ⊕ PROP. CTMS TYPE 1 GROUND BOX
- ⊗ EXIST. CTMS TYPE 1 GROUND BOX
- ⊙ PROP. CTMS TYPE 2 GROUND BOX
- ⊚ EXIST. CTMS TYPE 2 GROUND BOX
- ⊖ PROP. ELECTRICAL SERVICE DROP
- ⊗ EXIST. ELECTRICAL SERVICE DROP
- Ⓜ PROP. CCTV CAMERA
- Ⓜ EXIST. CCTV CAMERA
- Ⓜ PROP. DMS CONTROLLER CABINET
- Ⓜ EXIST. DMS CONTROLLER CABINET
- Ⓜ PROP. DMS SIGN
- Ⓜ EXIST. DMS SIGN
- Ⓜ EXIST. TKDOT HUB BUILDING
- ➔ PROP. TRAFFIC FLOW DIRECTION
- ➔ EXIST. TRAFFIC FLOW DIRECTION
- PROP. CTMS DUCT BANK
- EXIST. CTMS DUCT BANK
- Ⓜ ABANDON EXIST. CTMS DUCT BANK (CONDUIT AND CABLES)



ABANDON AND GROUT - 1000 LF EXIST. CTMS DUCT BANK Ⓐ Ⓑ Ⓒ Ⓓ SEE NOTE 2
AND REPLACE WITH PROP. CTMS DUCT BANK Ⓐ Ⓑ Ⓒ Ⓓ SEE SHYS. CT1.24 & CT1.25 FOR CONTINUATION

NOTES:

1. CONDUIT AND CABLES ARE SHOWN AS PER TKDOT FIBER INSTALLATION AS-BUILT DRAWINGS, 6-24-2002.
2. IN CONDUIT Ⓐ: 1-144 ST SINGLE MODE FIBER
1-6 PR #22 COMM (T1)
- IN CONDUIT Ⓑ: EMPTY
- IN CONDUIT Ⓒ: 2-6 CT SINGLE MODE FIBER (CCTV)
- IN CONDUIT Ⓓ: 1-144 CT SINGLE MODE FIBER
3. ALL SINGLE MODE CABLE TO BE REPLACED BETWEEN ALMEDA RO. HUB BUILDING AND SH 288 HUB BUILDING. ESTIMATED QUANTITY EA. FIBER, BID ITEM 18900-2101 (144 CT) = 15,730 FT.
4. REMOVAL OF EXIST GROUND BOXES ARE INCIDENTAL TO THE PROJECT.
5. GROUT OF EXIST. CONDUIT SHALL BE INCIDENTAL TO THE COST OF BID ITEM "5878", ABANDON EXIST. PIPE.
6. PROVIDE 50 LF SLACK LOOP OF MULTIMODE AND SINGLE MODE FIBER IN EACH RESPECTIVE GROUND BOX THROUGH WHICH FIBER OPTIC CABLE IS ROUTED.

PROP. 100 LF CTMS DUCT BANK
Ⓐ Ⓑ Ⓒ Ⓓ SEE NOTE 2

NO.	DATE	REVISION	APPROVED



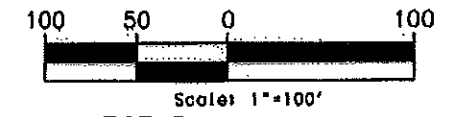
HCTRA
Harris County Toll Road Authority

CobbPendley
Professional Engineers

**SAM HOUSTON TOLLWAY
COMPUTERIZED TRAFFIC
MANAGEMENT SYSTEM
CONDUIT AND FIBER PLAN**

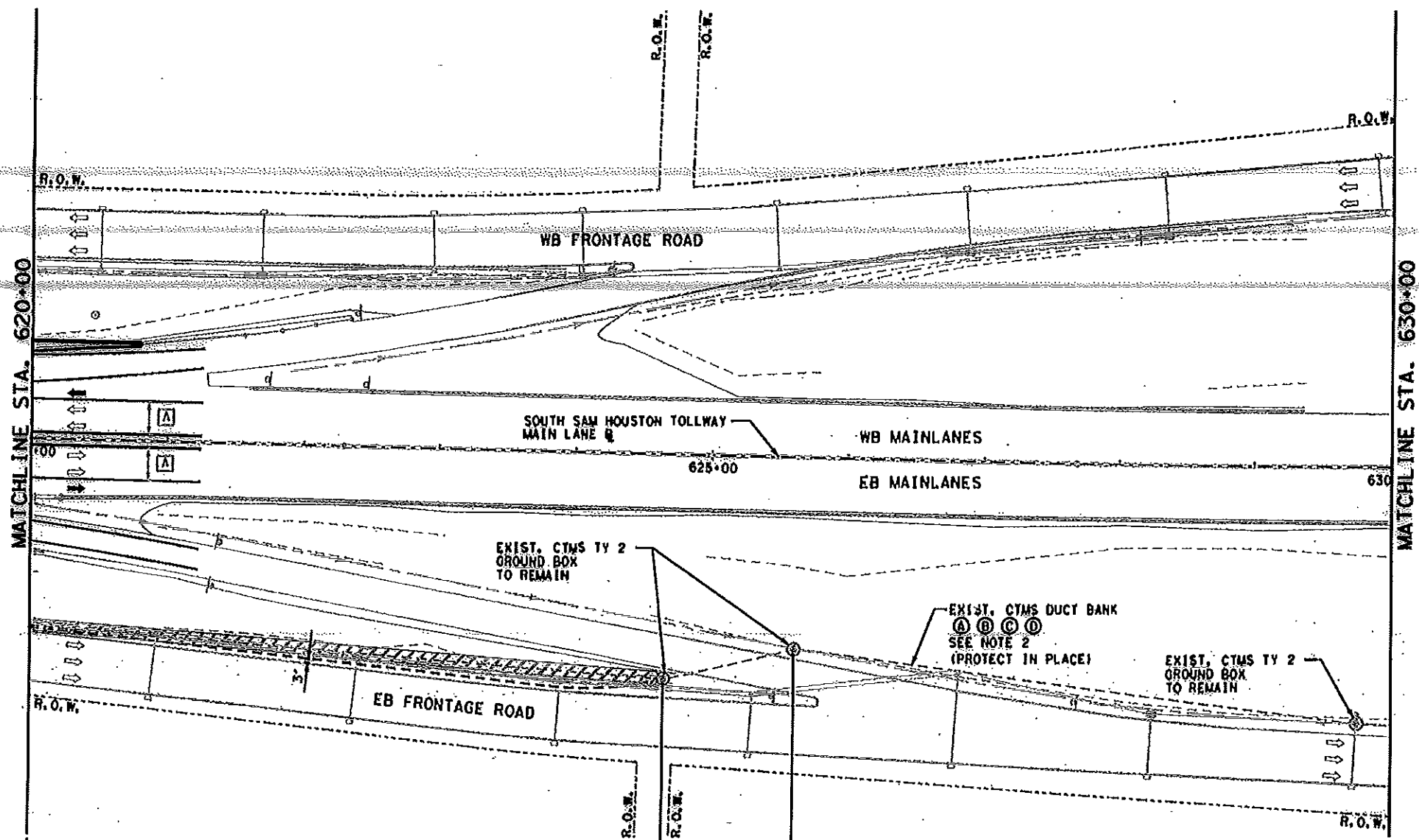
CT1.25	SHEET 25 OF 30
DRAWN: NTANO	HORIZ SCALE: 1" = 100'
DESIGNED: PB	VERT SCALE: 1" = 100'
CHECKED: MB	DATE: 9/23/2011
APPROVED:	SHEET NO: 767
CONTRACT: 331	SECTION:

DATE: 9/23/2011
 TIME: 7:49:35 AM
 PLOT BY: NTANG
 FILE: s:\projects\2008\080507\080507.ctb
 PLOT DRIVER: SPLTRVL\$



LEGEND

(A)	TXDOT 3" DIA. SCH 80 PVC (3.5" O.D.)
(B)	HCTRA 3" DIA. SCH 80 PVC (3.5" O.D.)
(C)	TXDOT 4" MULTIDUCT SCH 80 PVC (4.75" O.D.)
(D)	HCTRA 4" MULTIDUCT SCH 80 PVC (4.75" O.D.)
[A]	EXIST. LIMITS OF PAVEMENT
[B]	PROP. CTMS TYPE 1 GROUND BOX
[C]	EXIST. CTMS TYPE 1 GROUND BOX
[D]	PROP. CTMS TYPE 2 GROUND BOX
[E]	EXIST. CTMS TYPE 2 GROUND BOX
[F]	PROP. ELECTRICAL SERVICE DROP
[G]	EXIST. ELECTRICAL SERVICE DROP
[H]	PROP. CCTV CAMERA
[I]	EXIST. CCTV CAMERA
[J]	PROP. DMS CONTROLLER CABINET
[K]	EXIST. DMS CONTROLLER CABINET
[L]	PROP. DMS SIGN
[M]	EXIST. DMS SIGN
[N]	EXIST. TXDOT HUB BUILDING
[O]	PROP. TRAFFIC FLOW DIRECTION
[P]	EXIST. TRAFFIC FLOW DIRECTION
[Q]	PROP. CTMS DUCT BANK
[R]	EXIST. CTMS DUCT BANK
[S]	ABANDON EXIST. CTMS DUCT BANK (CONDUIT AND CABLES)



ABANDON AND GROUT EXIST. CTMS DUCT BANK (A)(B)(C)(D)
 ~ 466 FT AND PLACE PROP. CTMS DUCT BANK (A)(B)(C)(D)
 SEE SHEET 1.25 FOR CONTINUATION.

EXIST. CTMS DUCT BANK
 IN STL CASING
 (A)(B)(C)(D)
 SEE NOTE 2
 (PROTECT IN PLACE)

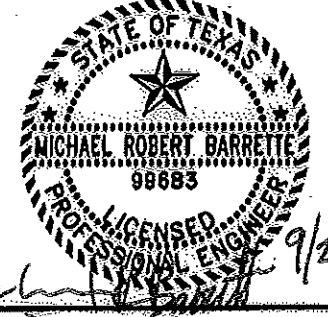
EXIST. CTMS DUCT BANK
 (A)(B)(C)(D)
 SEE NOTE 2
 (PROTECT IN PLACE)

EXIST. CTMS TY 2
 GROUND BOX
 TO REMAIN

NOTES:

- CONDUIT AND CABLES ARE SHOWN AS PER TXDOT FIBER INSTALLATION AS-BUILT DRAWINGS, 8-24-2002.
- IN CONDUIT (A): 1-144 CT SINGLE MODE FIBER OPTIC CABLE 1-6 PR #22 COMM CABLE (VOICE)
 IN CONDUIT (B): EMPTY
 IN CONDUIT (C): 2-6 CT SINGLE MODE FIBER (CCTV)
 IN CONDUIT (D): 1-144 CT SINGLE MODE FIBER OPTIC CABLE
- ALL SINGLE MODE CABLE TO BE REPLACED BETWEEN ALMEDA RD. HUB BUILDING AND SH 288 HUB BUILDING. ESTIMATED QUANTITY EA. FIBER, BID ITEM 16900-2101 (144 CT) = 15,730.
- REMOVAL OF EXIST GROUND BOXES ARE INCIDENTAL TO THE PROJECT.
- GROUT OF EXIST. CONDUIT SHALL BE INCIDENTAL TO THE COST OF BID ITEM "8878", ABANDON EXIST. PIPE.
- PROVIDE 50 LF SLACK LOOP OF MULTIMODE AND SINGLE MODE FIBER IN EACH RESPECTIVE GROUND BOX THROUGH WHICH FIBER OPTIC CABLE IS ROUTED.

NO.	DATE	REVISION	APPROVED



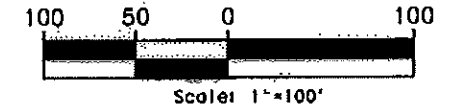
HCTRA
 Harris County Toll Road Authority
 CobbFendley
 713.683.3200 | 6715.483.3200 | www.cobbhendley.com

**SAM HOUSTON TOLLWAY
 COMPUTERIZED TRAFFIC
 MANAGEMENT SYSTEM
 CONDUIT AND FIBER PLAN**

CTI.26	SHEET 26 OF 30
DRAWN: NTANG	HORIZ SCALE: 1" = 100'
DESIGNED: PB	VERT SCALE: 1" = 100'
CHECKED: MB	DATE: 9/23/2011
APPROVED:	SHEET NO: 767
CONTRACT: 331	SECTION:

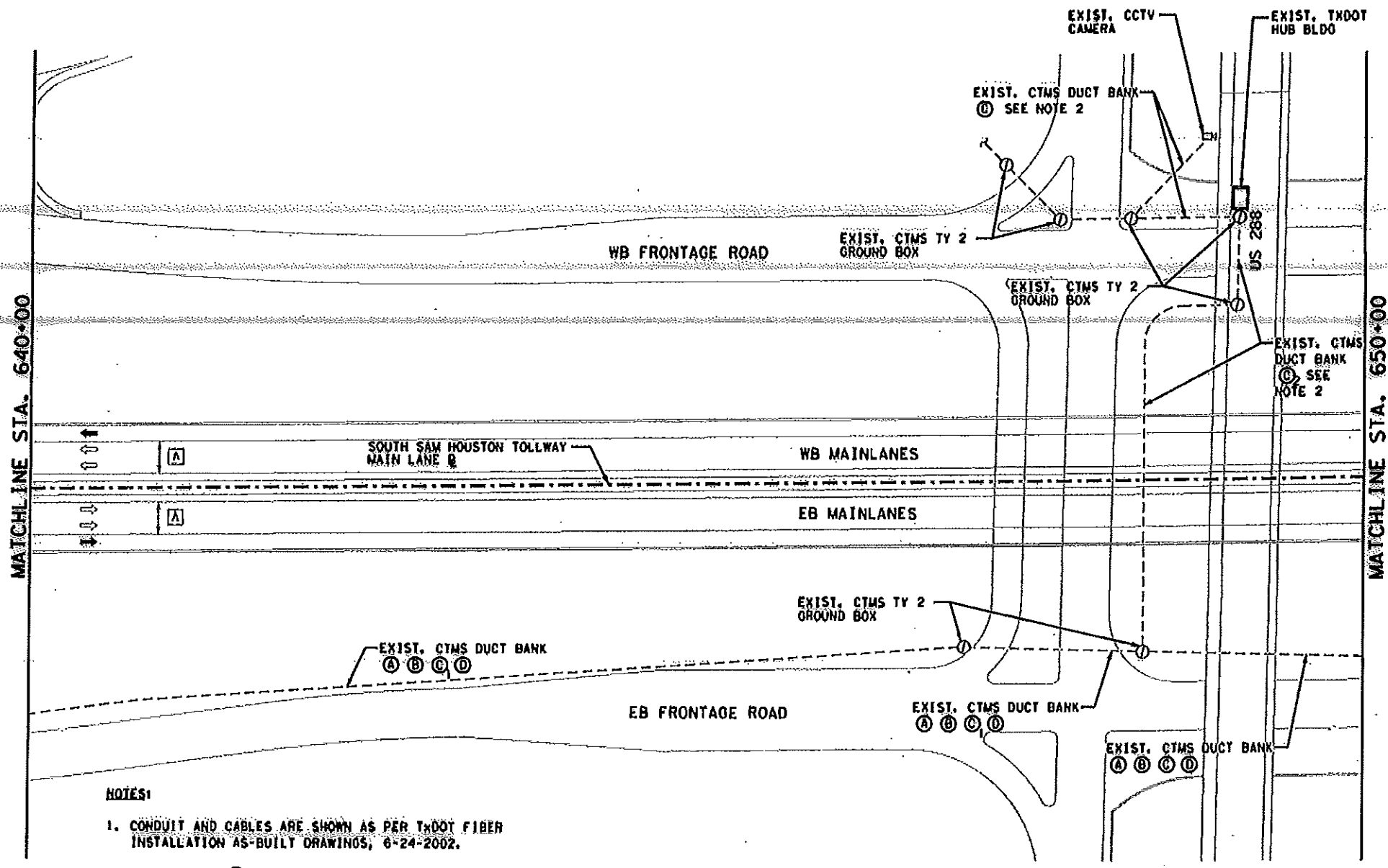
PLOT DRIVER: SPLDRVL*

DATE: 9/23/2011
 TIME: 7:49:40 AM
 PLOT BY: NTANG
 FILE: s:\c\2008\0907\com_tacton\houston\project\plan\plan.ctb



LEGEND

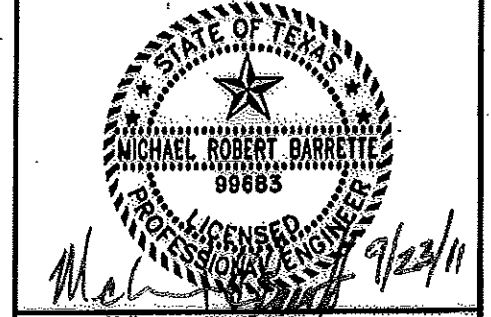
- Ⓐ TXDOT 3" DIA, SCH 80 PVC (3.5" O.D.)
- Ⓑ HCTRA 3" DIA, SCH 80 PVC (3.5" O.D.)
- Ⓒ TXDOT 4" MULTIDUCT SCH 80 PVC (4.75" O.D.)
- Ⓓ HCTRA 4" MULTIDUCT SCH 80 PVC (4.75" O.D.)
- Ⓐ EXIST. LIMITS OF PAVEMENT
- ⊗ PROP. CTMS TYPE 1 GROUND BOX
- ⊗ EXIST. CTMS TYPE 1 GROUND BOX
- ⊗ PROP. CTMS TYPE 2 GROUND BOX
- ⊗ EXIST. CTMS TYPE 2 GROUND BOX
- ⊙ PROP. ELECTRICAL SERVICE DROP
- ⊙ EXIST. ELECTRICAL SERVICE DROP
- Ⓜ PROP. CCTV CAMERA
- Ⓜ EXIST. CCTV CAMERA
- Ⓜ PROP. DMS CONTROLLER CABINET
- Ⓜ EXIST. DMS CONTROLLER CABINET
- Ⓜ PROP. DMS SIGN
- Ⓜ EXIST. DMS SIGN
- Ⓜ EXIST. TXDOT HUB BUILDING
- Ⓜ PROP. TRAFFIC FLOW DIRECTION
- Ⓜ EXIST. TRAFFIC FLOW DIRECTION
- Ⓜ PROP. CTMS DUCT BANK
- Ⓜ EXIST. CTMS DUCT BANK
- Ⓜ ABANDON EXIST. CTMS DUCT BANK (CONDUIT AND CABLES)



NOTES:

1. CONDUIT AND CABLES ARE SHOWN AS PER TXDOT FIBER INSTALLATION AS-BUILT DRAWINGS, 6-24-2002.
2. IN CONDUIT Ⓐ: 1-144 CT SINGLE MODE FIBER OPTIC CABLE
 1-6 PR #22 COMM CABLE (VOICE)
 IN CONDUIT Ⓑ: EMPTY
 IN CONDUIT Ⓒ: 1-6 CT SINGLE MODE FIBER (CCTV)
 IN CONDUIT Ⓓ: 3-6 CT SINGLE MODE FIBER (CCTV)
 IN CONDUIT Ⓒ₂: 4-6 CT SINGLE MODE FIBER (CCTV)
 IN CONDUIT Ⓓ: 1-144 CT SINGLE MODE FIBER OPTIC CABLE
3. ALL SINGLE MODE CABLE TO BE REPLACED BETWEEN ALMEDA RD HUB BUILDING AND SH 288 HUB BUILDING, ESTIMATED QUANTITY EA, FIBER, BID ITEM 16900-2101 (144 CT) = 15,730 FT.
4. REMOVAL OF EXIST GROUND BOXES ARE INCIDENTAL TO THE PROJECT.
5. ROUTE OF EXIST. CONDUIT SHALL BE INCIDENTAL TO THE COST OF BID ITEM "5878", ABANDON EXIST. PIPE.
6. PROVIDE 50 LF SLACK LOOP OF MULTIMODE AND SINGLE MODE FIBER IN EACH RESPECTIVE GROUND BOX THROUGH WHICH FIBER OPTIC CABLE IS ROUTED.

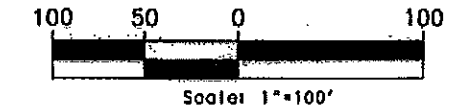
NO.	DATE	REVISION	APPROVED



**SAM HOUSTON TOLLWAY
 COMPUTERIZED TRAFFIC
 MANAGEMENT SYSTEM
 CONDUIT AND FIBER PLAN**

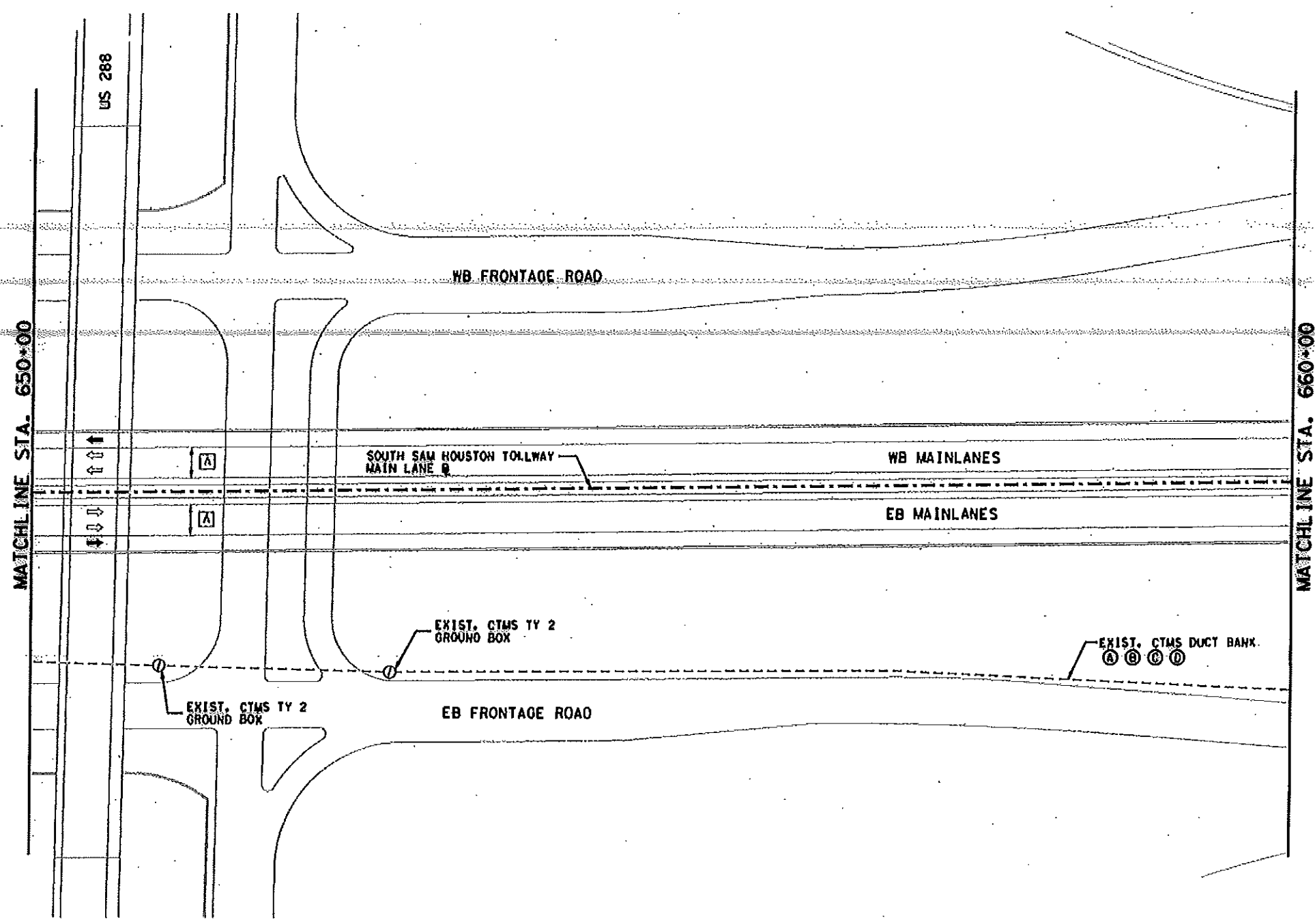
CT1128	SHEET 28 OF 30
DRAWN: NTANG	HORIZ SCALE: 1" = 100'
DESIGNED: PB	VERT SCALE: 1" = 100'
CHECKED: MB	DATE: 9/23/2011
APPROVED:	SHEET NO: 764
CONTRACT: 331	SECTION:

DATE: 9/23/2011 TIME: 3:55:00 PM PLOT BY: NTANG
 FILE: \\sdc\c\2009\0923\0923.ctb Plot Driver: \$PLTDRVL\$



LEGEND

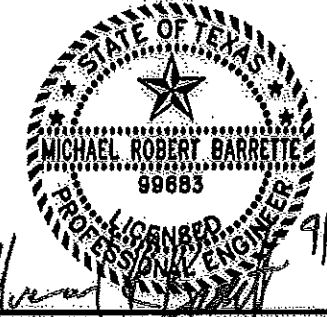
- Ⓐ TXDOT 3" DIA. SCH 80 PVC (3.5" O.D.)
- Ⓑ HCTRA 3" DIA. SCH 80 PVC (3.5" O.D.)
- Ⓒ TXDOT 4" MULTIDUCT SCH 80 PVC (4.75" O.D.)
- Ⓓ HCTRA 4" MULTIDUCT SCH 80 PVC (4.75" O.D.)
- Ⓐ EXIST. LIMITS OF PAVEMENT
- ⊗ PROP. CTMS TYPE 1 GROUND BOX
- ⊗ EXIST. CTMS TYPE 1 GROUND BOX
- ⊗ PROP. CTMS TYPE 2 GROUND BOX
- ⊗ EXIST. CTMS TYPE 2 GROUND BOX
- ⊗ PROP. ELECTRICAL SERVICE DROP
- ⊗ EXIST. ELECTRICAL SERVICE DROP
- ⊗ PROP. CCTV CAMERA
- ⊗ EXIST. CCTV CAMERA
- ⊗ PROP. DMS CONTROLLER CABINET
- ⊗ EXIST. DMS CONTROLLER CABINET
- ⊗ PROP. DMS SIGN
- ⊗ EXIST. DMS SIGN
- ⊗ EXIST. TXDOT HUB BUILDING
- ⊗ PROP. TRAFFIC FLOW DIRECTION
- ⊗ EXIST. TRAFFIC FLOW DIRECTION
- PROP. CTMS DUCT BANK
- EXIST. CTMS DUCT BANK
- ⊗ ABANDON EXIST. CTMS DUCT BANK (CONDUIT AND CABLES)



NOTES:

1. CONDUIT AND CABLES ARE SHOWN AS PER TXDOT FIBER INSTALLATION AS-BUILT DRAWINGS, 6-24-2002.
2. IN CONDUIT Ⓐ: 1-144 CT SINGLE MODE FIBER OPTIC CABLE
1-6 PR #22 COMM CABLE(T1)
- IN CONDUIT Ⓑ: EMPTY
- IN CONDUIT Ⓒ: 1-6 CT SINGLE MODE FIBER (CCTV)
- IN CONDUIT Ⓓ: 1-144 CT SINGLE MODE FIBER OPTIC CABLE

NO.	DATE	REVISION	APPROVED



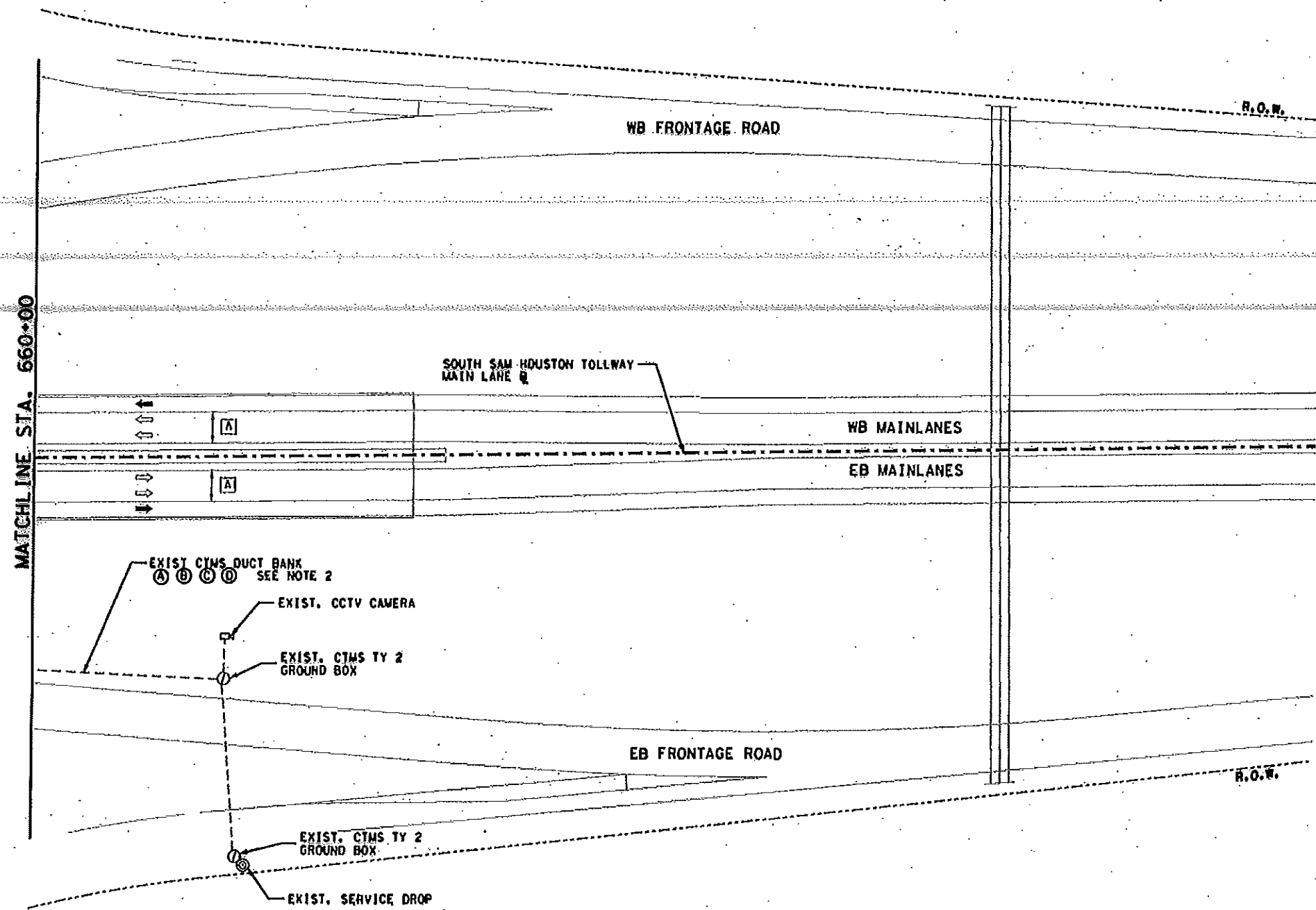
HCTRA
 Harris County Toll Road Authority

Cobbendley
 14401 Northwest Freeway, Suite 1100
 Houston, Texas 77040
 713.662.5211 | 713.662.5200 | www.cobbendley.com

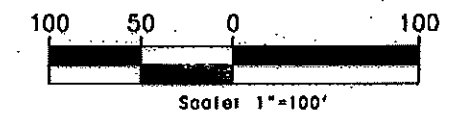
SAM HOUSTON TOLLWAY
COMPUTERIZED TRAFFIC
MANAGEMENT SYSTEM
CONDUIT AND FIBER PLAN

CT1-29	SHEET 29 OF 30
DRAWN: NTANG	HORIZ SCALE: 1" = 100'
DESIGNED: PB	VERT SCALE: 1" = 100'
CHECKED: MB	DATE: 9/23/2011
APPROVED:	SHEET NO: 765
CONTRACT: 331	SECTION:

DATE: 9/23/2011 TIME: 3:11:02 PM PLOT BY: NTANG
 FILE: D:\cadd\2008\0607\0607.ctb Plot Driver: spltdrvls
 C:\Program Files\Autodesk\AutoCAD 2008\Plot\Plotter\AutoCAD-CTB.ctb



- NOTES:**
- CONDUIT AND CABLES ARE SHOWN AS PER TXDOT FIBER INSTALLATION AS-BUILT DRAWINGS, 6-24-2002.
 - IN CONDUIT (A): 1-144 CT SINGLE MODE FIBER OPTIC CABLE
1-6 PR #22 COMM CABLE (T1)
 - IN CONDUIT (B): EMPTY
 - IN CONDUIT (C): 1-6 ST SINGLE MODE FIBER OPTIC CABLE (CCTV)
 - IN CONDUIT (D): 1-144 CT SINGLE MODE FIBER OPTIC CABLE



- LEGEND**
- (A) TXDOT 3" DIA, SCH 80 PVC (3.5" O.D.)
 - (B) HCTRA 3" DIA, SCH 80 PVC (3.5" O.D.)
 - (C) TXDOT 4" MULTIDUCT SCH 80 PVC (4.75" O.D.)
 - (D) HCTRA 4" MULTIDUCT SCH 80 PVC (4.75" O.D.)
 - [A] EXIST. LIMITS OF PAVEMENT
 - ⊗ PROP. CTMS TYPE 1 GROUND BOX
 - ⊗ EXIST. CTMS TYPE 1 GROUND BOX
 - ⊗ PROP. CTMS TYPE 2 GROUND BOX
 - ⊗ EXIST. CTMS TYPE 2 GROUND BOX
 - PROP. ELECTRICAL SERVICE DROP
 - EXIST. ELECTRICAL SERVICE DROP
 - ☒ PROP. CCTV CAMERA
 - ☒ EXIST. CCTV CAMERA
 - ☒ PROP. DMS CONTROLLER CABINET
 - ☒ EXIST. DMS CONTROLLER CABINET
 - ☒ PROP. DMS SIGN
 - ☒ EXIST. DMS SIGN
 - ☒ EXIST. TXDOT HUB BUILDING
 - ☒ PROP. TRAFFIC FLOW DIRECTION
 - ☒ EXIST. TRAFFIC FLOW DIRECTION
 - PROP. CTMS DUCT BANK
 - EXIST. CTMS DUCT BANK
 - ⊗ ABANDON EXIST. CTMS DUCT BANK (CONDUIT AND CABLES)

NO.	DATE	REVISION	APPROVED

STATE OF TEXAS
 MICHAEL ROBERT BARRETTE
 98683
 LICENSED PROFESSIONAL ENGINEER
 9/23/11

HCTRA
 Harris County Toll Road Authority
 Cobbendley
 14400 Northwest Freeway, Suite 1100
 Houston, Texas 77040
 713.443.3411 | 713.443.3412 | 713.443.3413

SAM HOUSTON TOLLWAY
 COMPUTERIZED TRAFFIC
 MANAGEMENT SYSTEM
 CONDUIT AND FIBER PLAN

CT1.30	SHEET 30 OF 30
DRAWN: NTANG	HORIZ SCALE: 1" = 100'
DESIGNED: PB	VERT SCALE: 1" = 100'
CHECKED: MB	DATE: 9/23/2011
APPROVED:	SHEET NO: 766
CONTRACT: 331	SECTION: