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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	C 517-1-48		1
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	ATASCOSA	
CONT.	SECT.	JOB	HIGHWAY NO.
0517	01	048	SH 16

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

STATE PROJECT
PROJECT NO. C517-1-48
CSJ: 0517-01-048

ATASCOSA COUNTY
SH 16

LIMITS FROM: SH 97
TO: TAMARAC ST

NET LENGTH OF ROADWAY = 8,252.92 FT = 1.563 MI
NET LENGTH OF BRIDGE = 0.00 FT = 0.00 MI
NET LENGTH OF PROJECT = 8,252.92 FT = 1.563 MI

FOR WORK CONSISTING OF CONSTRUCT 6' SIDEWALKS AND PEDESTRIAN INFRASTRUCTURE

DESIGN SPEED = N/A
AREA OF DISTURBED SOIL =2.48 AC
ADT:N/A

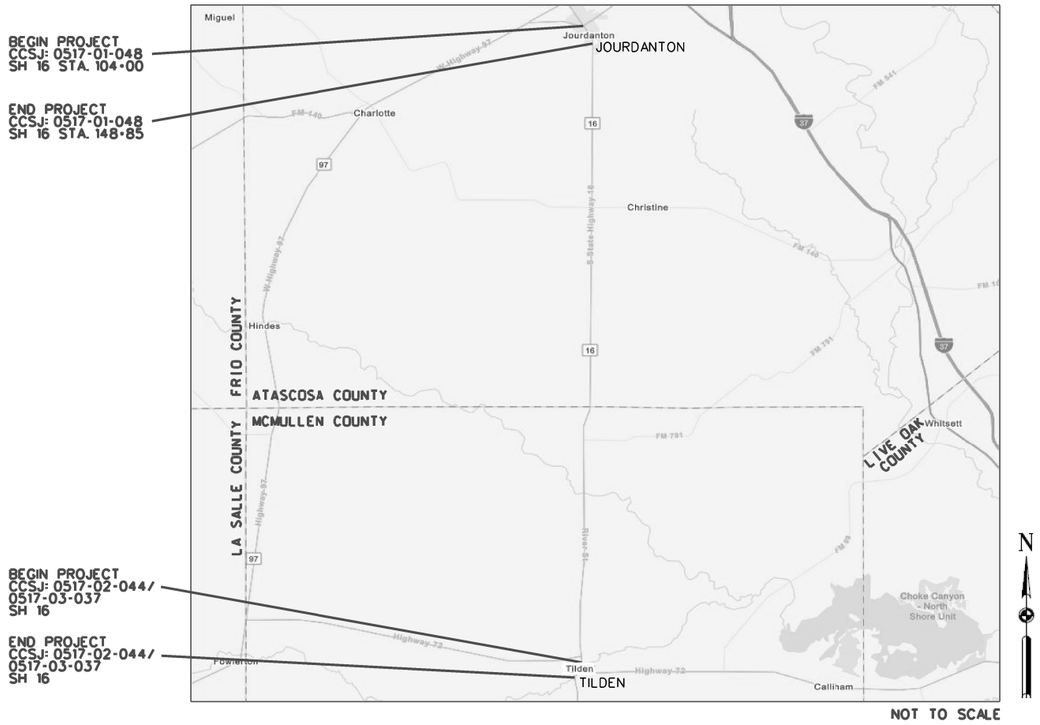
ACCESSIBILITY STANDARDS = PROWAG

REGISTERED ACCESSIBILITY SPECIALIST INSPECTION REQUIRED
TDLR NO. 2024017925

INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

PLANS PREPARED BY:
Kimley»Horn
TX FIRM NO. F-928
10814 JOLLYVILLE ROAD, CAMPUS IV,
SUITE 300, AUSTIN, TX 78759
TEL: 512-418-1771
FAX: 972-239-3820



FINAL PLANS

LETTING DATE: _____

DATE CONTRACTOR BEGAN WORK: _____

DATE WORK WAS ACCEPTED: _____

FINAL CONTRACT COST: $ _____

CONTRACTOR: _____

FINAL PLANS STATEMENT:

THE CONSTRUCTION WORK WAS PERFORMED
IN ACCORDANCE WITH THE PLANS.

_____ P.E. _____
AREA ENGINEER DATE

TEXAS DEPARTMENT OF TRANSPORTATION

FILE LOCATION AND NAME
T:\Engdata\Standards\Design\TITLESHEET-2024Specs.DGN

LEVELS DISPLAYED

COUNTY _____ PROJ. NO. _____
HWY. NO. _____ LETTING DATE _____
DATE ACCEPTED _____

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, SEPTEMBER 1, 2024 AND THE SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: SPECIAL LABOR PROVISIONS FOR STATE PROJECTS (000--005)

EXCEPTIONS: NONE
EQUATIONS: NONE
R.R. CROSSINGS: NONE

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SUBMITTED FOR LETTING 7/19/2024
DocuSigned by: Jacob Jamburga
TRANSPORTATION ENGINEER SUPERVISOR

RECOMMENDED FOR LETTING 7/23/2024
DocuSigned by: Richard J. De La Cruz, PE
DIRECTOR OF TRANSPORTATION PLANNING & DEVELOPMENT

REVIEWED FOR LETTING 7/19/2024
DocuSigned by: JERogers, P.E.
TRANSPORTATION ENGINEER SUPERVISOR

APPROVED FOR LETTING 7/23/2024
DocuSigned by: Charles Benavides
DISTRICT ENGINEER

SHEET				DESCRIPTION
				GENERAL
	1			TITLE
	2			INDEX OF SHEETS
	3			PROJECT LOCATION MAP ATASCOSA COUNTY
	4			PROJECT LOCATION MAP MCMULLEN COUNTY
5	--	12		TYPICAL SECTIONS
	13, 13A - 13G			GENERAL NOTES
	14, 14A - 14B			ESTIMATE AND QUANTITY
15	-	19		SUMMARY OF QUANTITIES
	20			DRIVEWAY SUMMARY - JOURDANTON
	21			DRIVEWAY SUMMARY - TILDEN
	22			SUMMARY OF SMALL SIGNS (SOSS)
				TRAFFIC CONTROL PLAN
	23			TCP NARRATIVE - JOURDANTON
	24			TCP NARRATIVE - TILDEN
	25			SCHEDULE OF BARRICADES
	26			TRAFFIC CONTROL PLAN ADVANCE WARNING DEVICES - JOURDANTON
	27			TRAFFIC CONTROL PLAN ADVANCE WARNING DEVICES - TILDEN
				TRAFFIC CONTROL - STANDARDS
28	--	39	*	BC(1)-21 THRU BC(12)-21
	40		*	TCP (1-1)-18
	41		*	TCP (1-2)-18
	42		*	TCP (1-3)-18
	43		*	TCP (1-4)-18
	44		*	TCP (2-4)-18
	45		*	WZ(BTS-1)-13
	46		*	WZ(BTS-2)-13
	47		*	WZ(RS)-22
				ROADWAY DETAILS
48	--	52		SPECIAL DETAILS
53	--	72		SIDEWALK PLAN IN JOURDANTON
73	--	84		SIDEWALK PLAN IN TILDEN
				ROADWAY - STANDARDS
85	--	88	*	PED-18
89	--	92	*	MB (1)-21THRU MB (4)-21
93	--	94	**	MISCELLANEOUS CURB AND SIDEWALK DETAILS
	95		**	ARMOR CURB DETAIL
96	--	98	**	SIDEWALK BRIDGE

SHEET				DESCRIPTION
				SIGNING & PAVEMENT MARKING -STANDARDS
	99		*	TS-FD-12
	100		*	SMD (GEN) -08
	101		*	SMD (SLIP-1) -08
	102		*	SMD (SLIP-2) -08
	103		*	SMD (SLIP-3) -08
	104		*	PM (1) -22
	105		*	PM (2) -22
	106		*	PM (3) -22
	107		*	PM (4) -22A
	108		*	ED (1) -14
	109		*	ED (3) -14
	110		*	ED (8) -14
				UTILTIES
111	--	130		UTILITY LAYOUT - JOURDANTON
131	--	142		UTILITY LAYOUT - TILDEN
				ENVIRONMENTAL
	143		**	(EPIC) ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS
144	--	145	*	(SWP3) TXDOT STORM WATER POLLUTION PREVENTION PLAN
	146		*	(SW3P) GENERAL LAYOUT
147	--	149	*	EC (9) -16
	150		**	SAT TREE PROTECTION

NOTES:

1: (*) INDICATES STATE STANDARDS
2: (**) INDICATES SAN ANTONIO DISTRICT STANDARDS

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE WITH AN * HAVE BEEN ISSUED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT

P.E. 04-19-2024
DATE

Kimley»Horn F-928

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INDEX OF SHEETS

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		SH 16
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	2
CONT.	SECT.	JOB	
0517	01	048, ETC	

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HIGHWAY	FROM	TO
SH 16	SH 97 (OAK ST)	TAMARAC ST

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4/19/2024

SAMUEL J. LUNDQUIST
122185
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

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F-928

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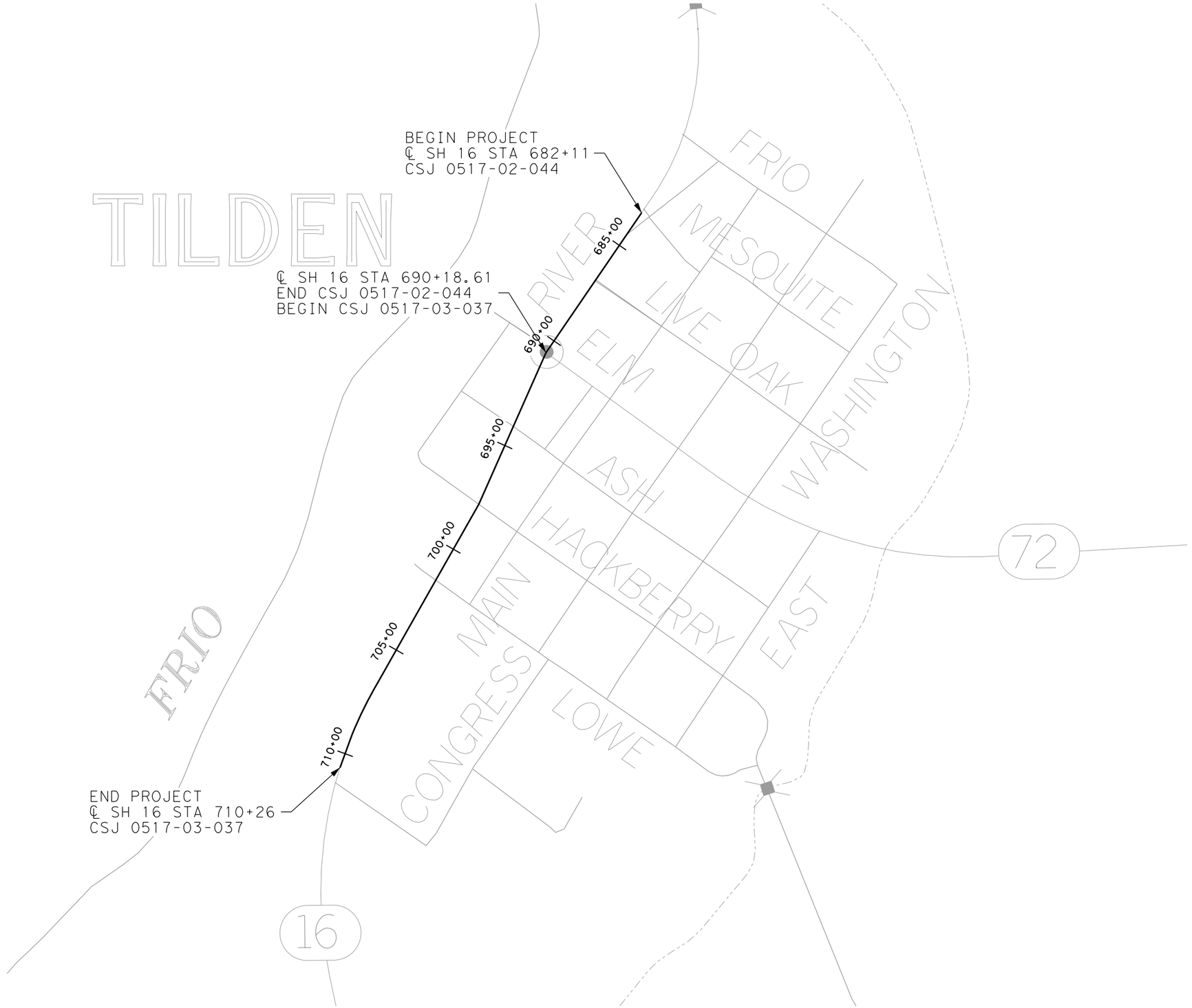
PROJECT LOCATION MAP
ATASCOSA COUNTY

SHEET 1 OF 1

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		SH 16
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	3
CONT.	SECT.	JOB	
0517	01	048,ETC	

HIGHWAY	FROM	TO
SH 16	WATER ST	SCHOOL ST



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STATE OF TEXAS
WIRAT WANICHAKORN
96609
LICENSED PROFESSIONAL ENGINEER

4/17/2024

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PROJECT LOCATION MAP
MCMULLEN COUNTY

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	4
CONT.	SECT.	JOB	
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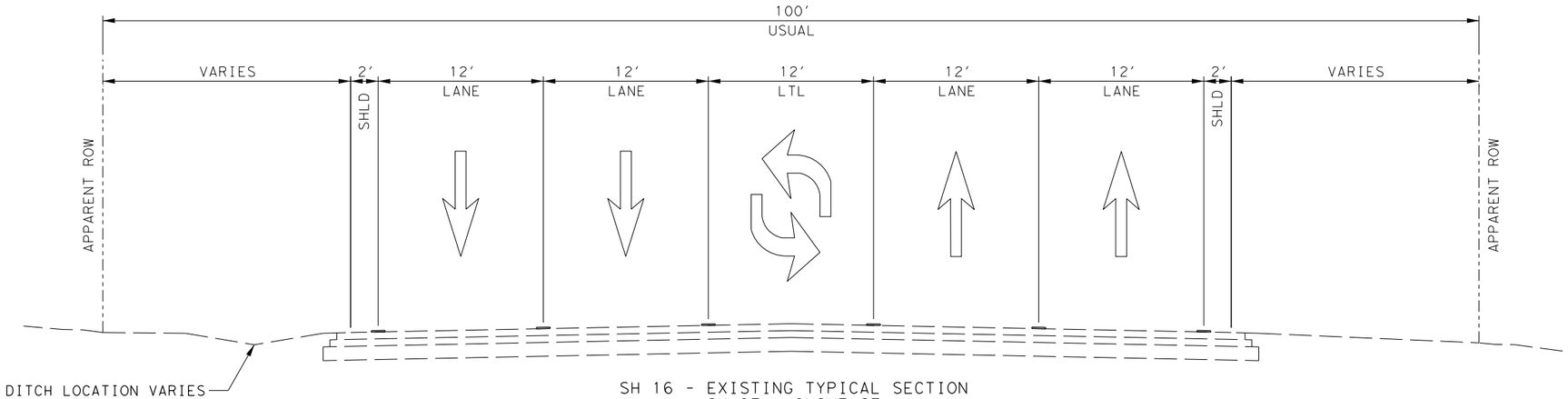
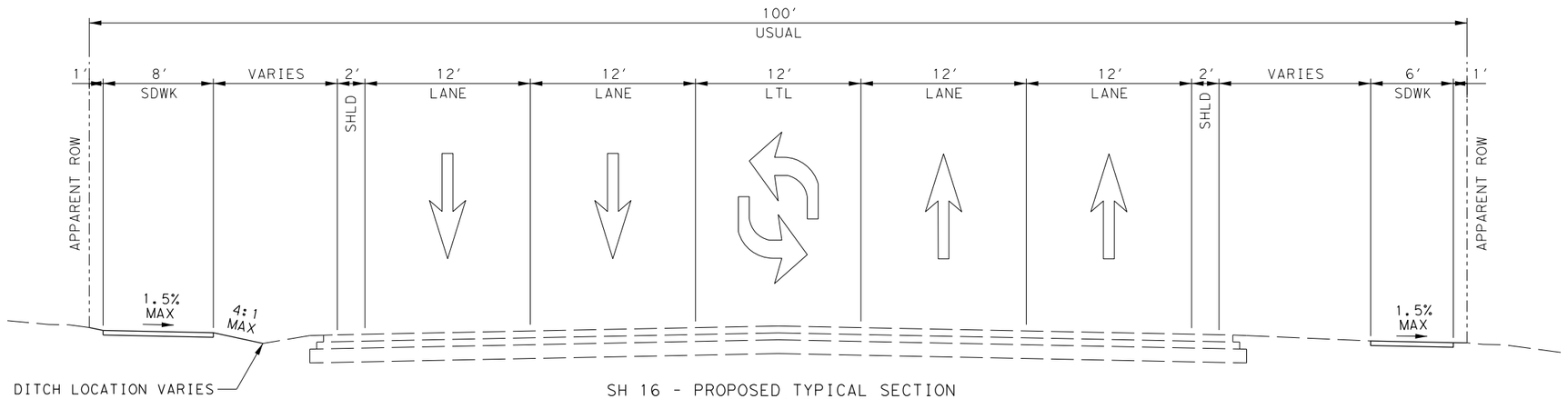


SH 16 - EXISTING TYPICAL SECTION
SH 97 - OLIVE ST

STA 104+00 TO STA 130+43



SH 16 - PROPOSED TYPICAL SECTION
SH 97 - OLIVE ST

STA 104+00 TO STA 130+43

4/19/2024

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TYPICAL SECTIONS

SHEET 1 OF 2

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	5
CONT.	SECT.	JOB	
0517	01	048,ETC	

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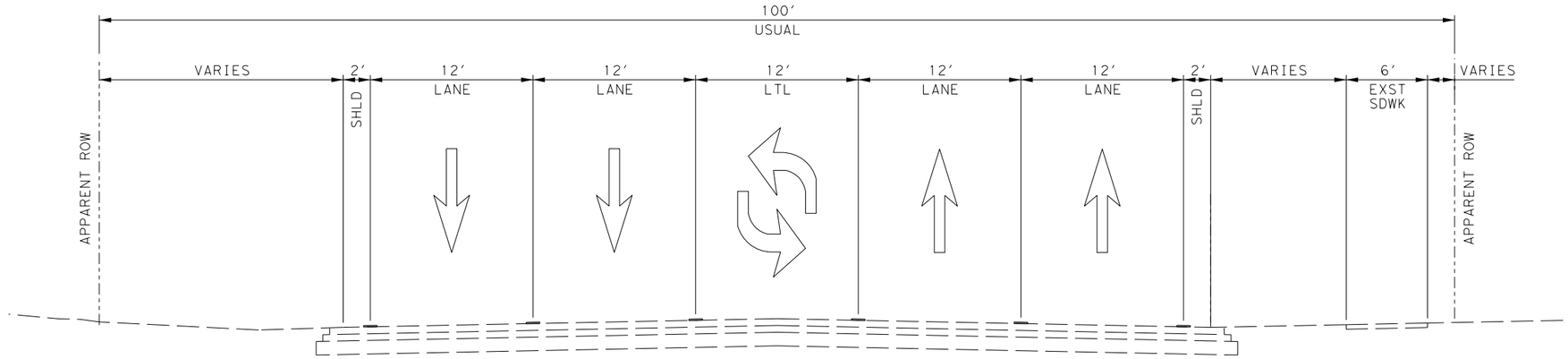
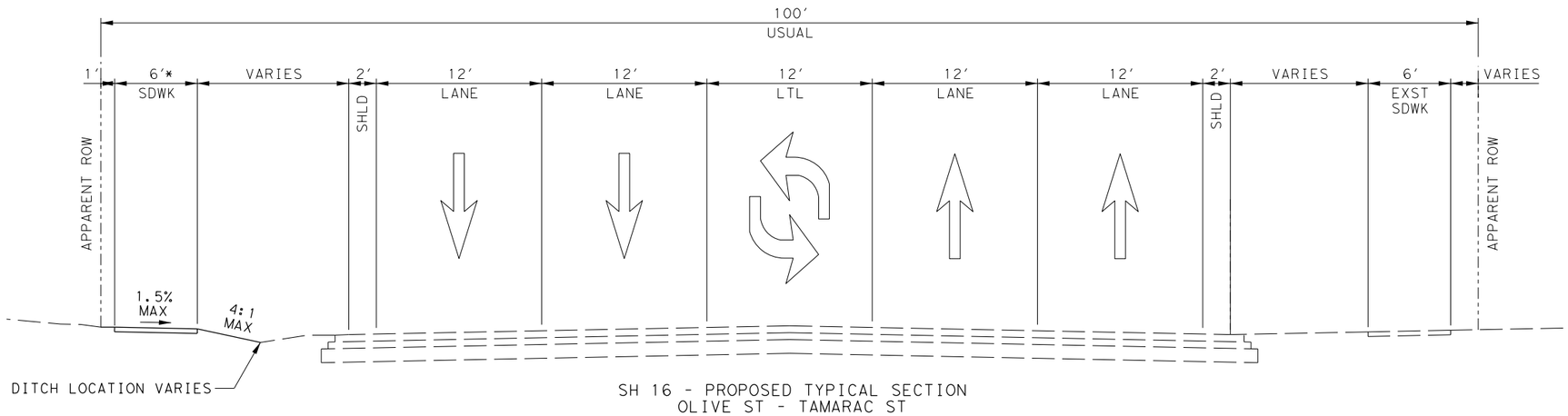


SH 16 - EXISTING TYPICAL SECTION
OLIVE ST - TAMARAC ST

STA 130+43 TO STA 148+85



SH 16 - PROPOSED TYPICAL SECTION
OLIVE ST - TAMARAC ST

STA 130+43 TO STA 148+85

* 8′ SIDEWALK ENDS AT PEACH ST

4/19/2024

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TYPICAL SECTIONS

SHEET 2 OF 2

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	6
CONT.	SECT.	JOB	
0517	01	048,ETC	

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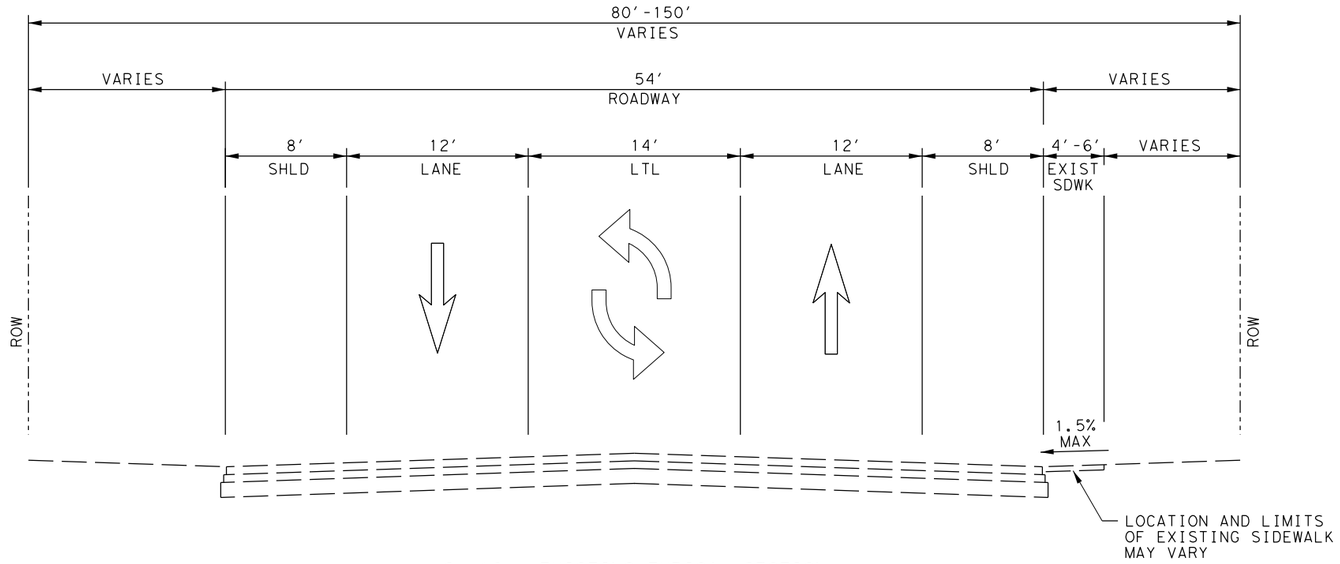
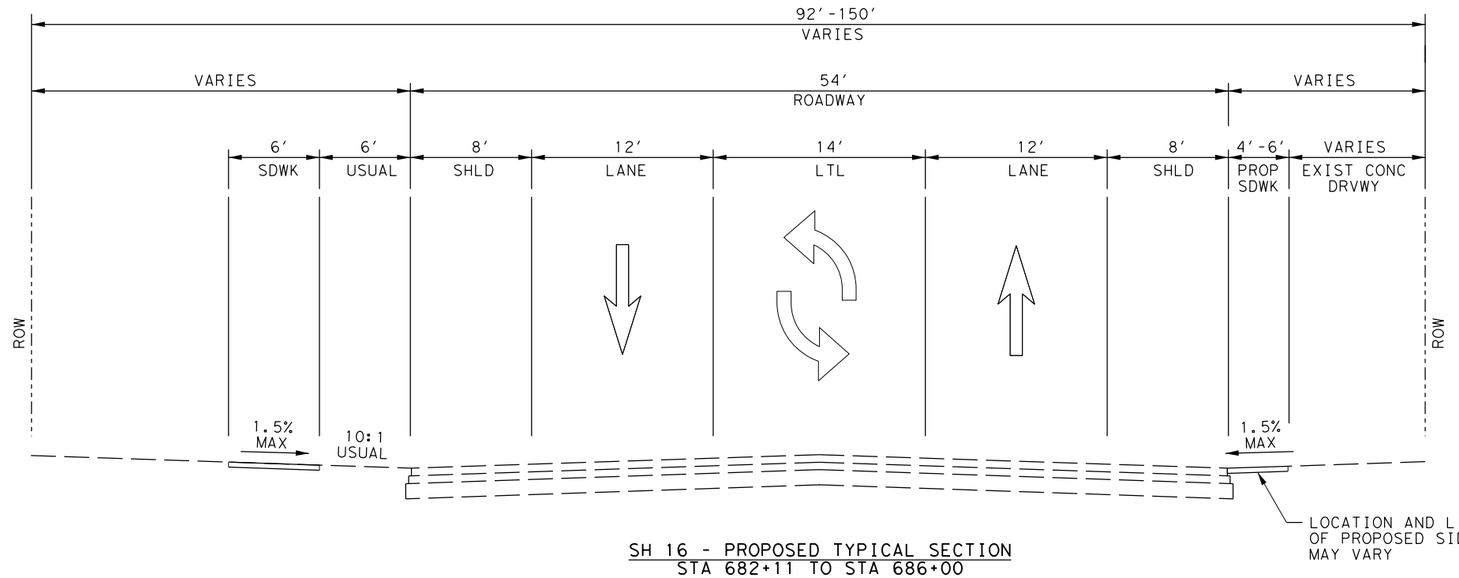


SH 16 - EXISTING TYPICAL SECTION
STA 682+11 TO STA 710+56

NOT TO SCALE



SH 16 - PROPOSED TYPICAL SECTION
STA 682+11 TO STA 686+00

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TYPICAL SECTIONS

SHEET 1 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	7
CONT.	SECT.	JOB	
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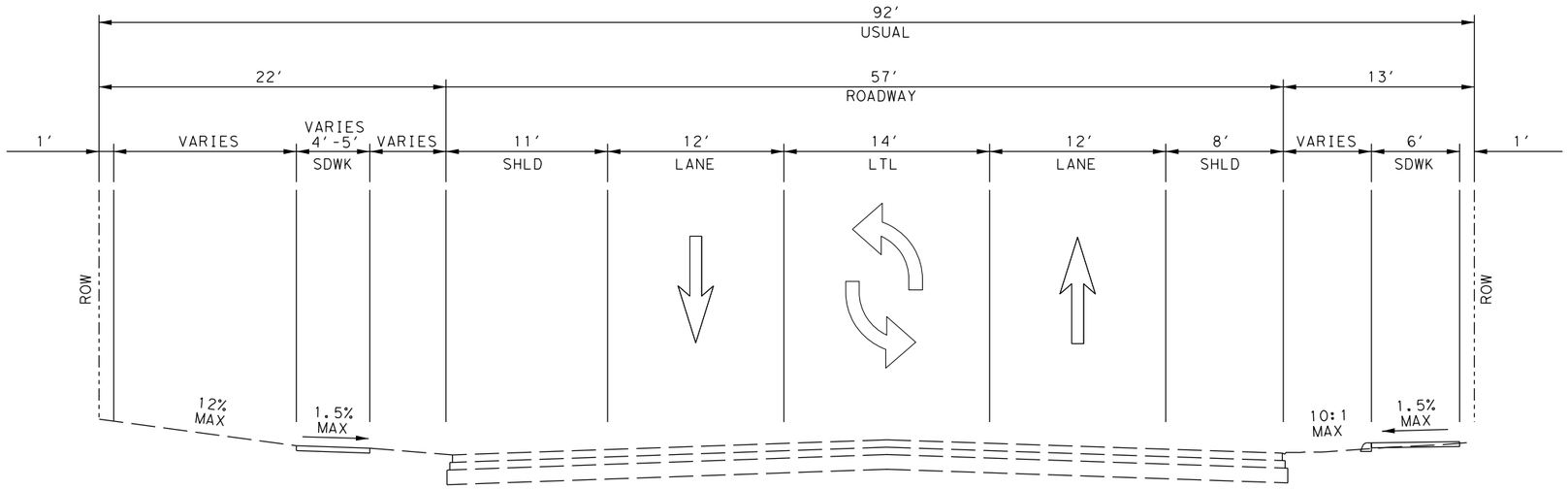

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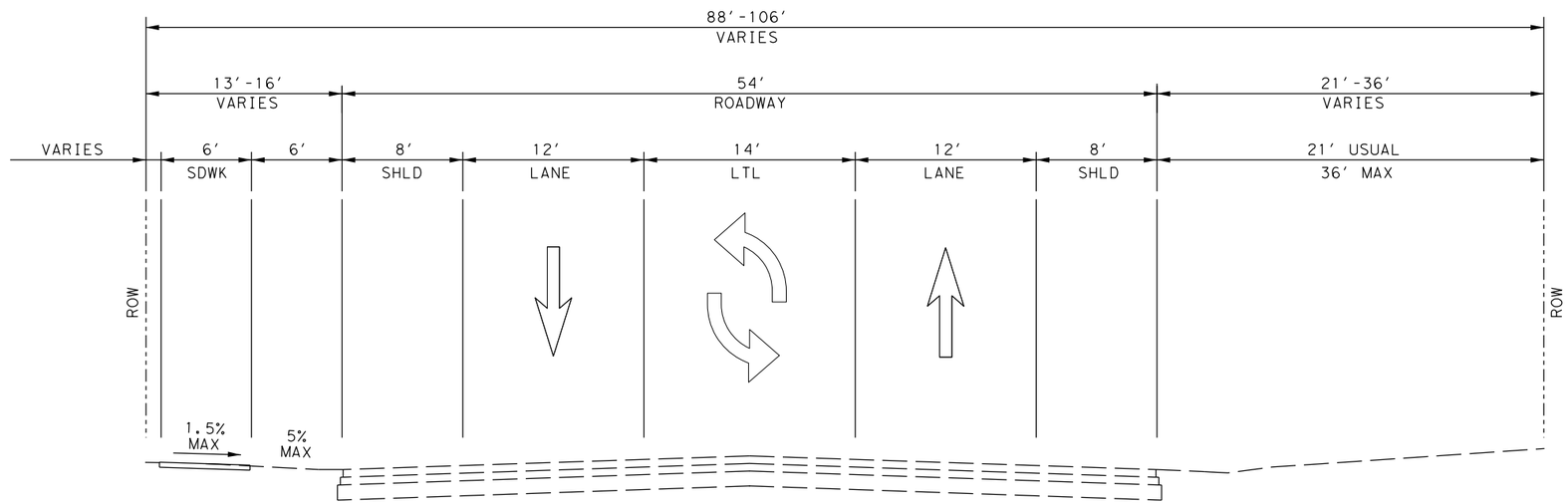

SH 16 - PROPOSED TYPICAL SECTION
STA 694+45 TO STA 696+85

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TYPICAL SECTIONS

SHEET 2 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA,ETC	8
CONT.	SECT.	JOB	
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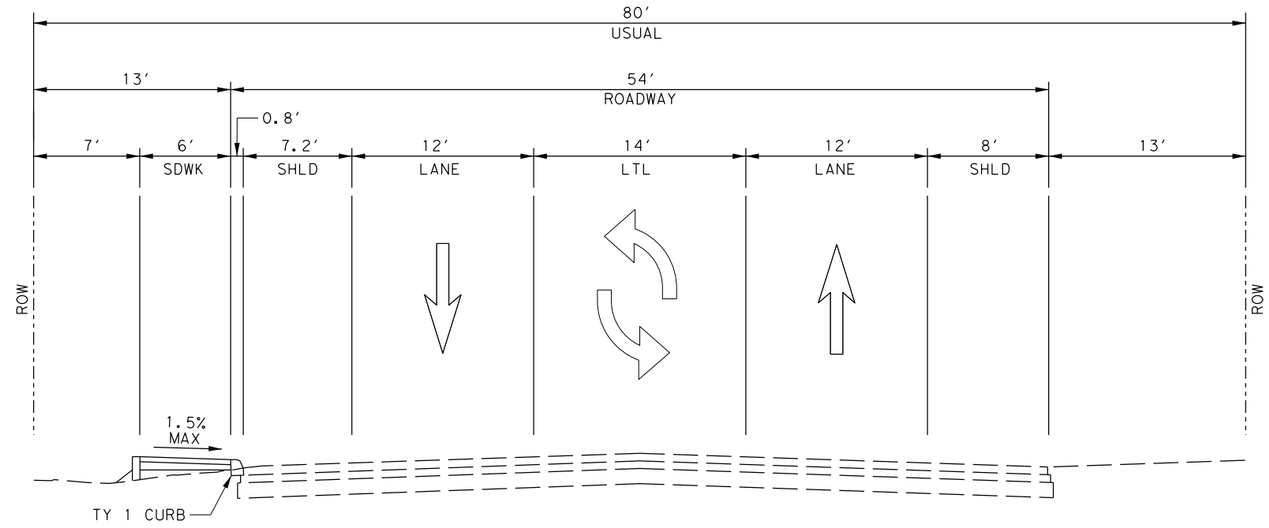

SH 16 - PROPOSED TYPICAL SECTION
STA 696+85 TO STA 698+55

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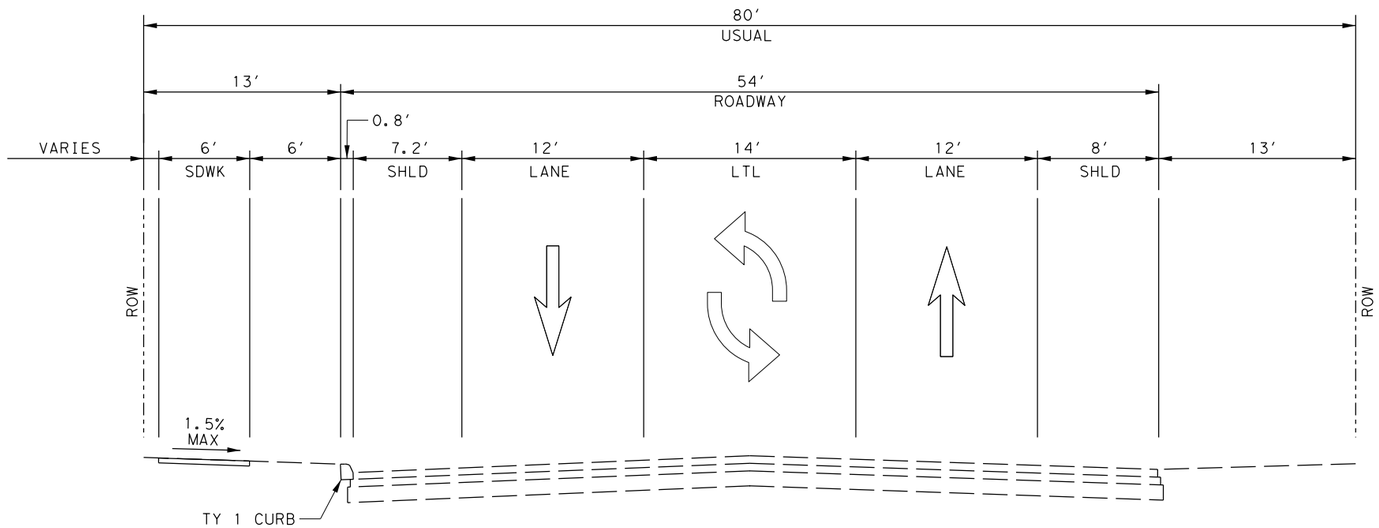

SH 16 - PROPOSED TYPICAL SECTION
STA 698+55 TO STA 700+00

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TYPICAL SECTIONS

SHEET 3 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA,ETC	9
CONT.	SECT.	JOB	
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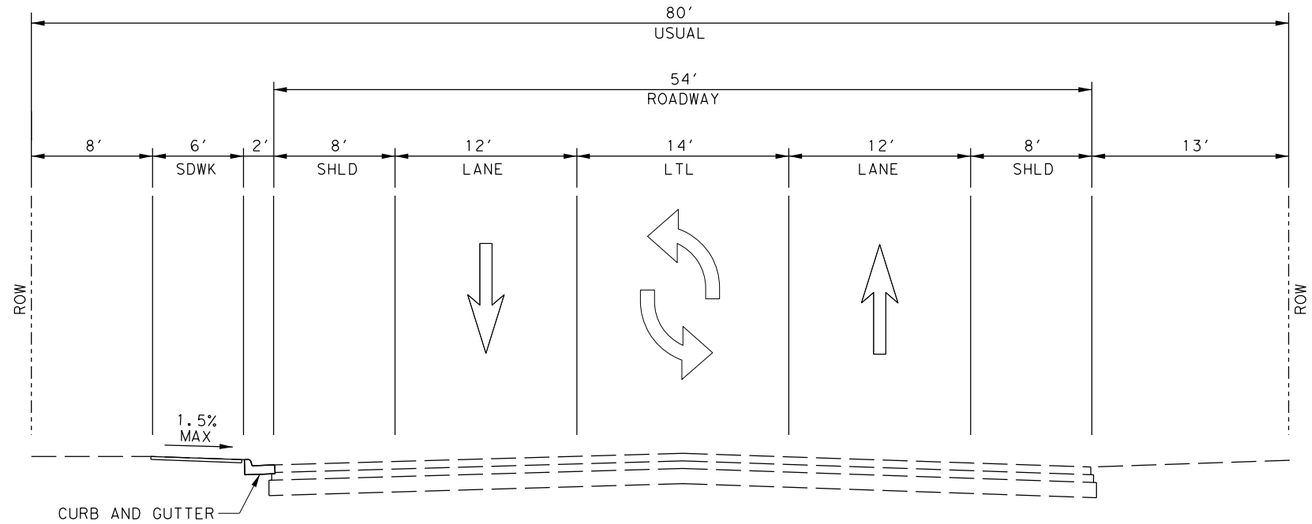

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STA 700+00 TO STA 700+35

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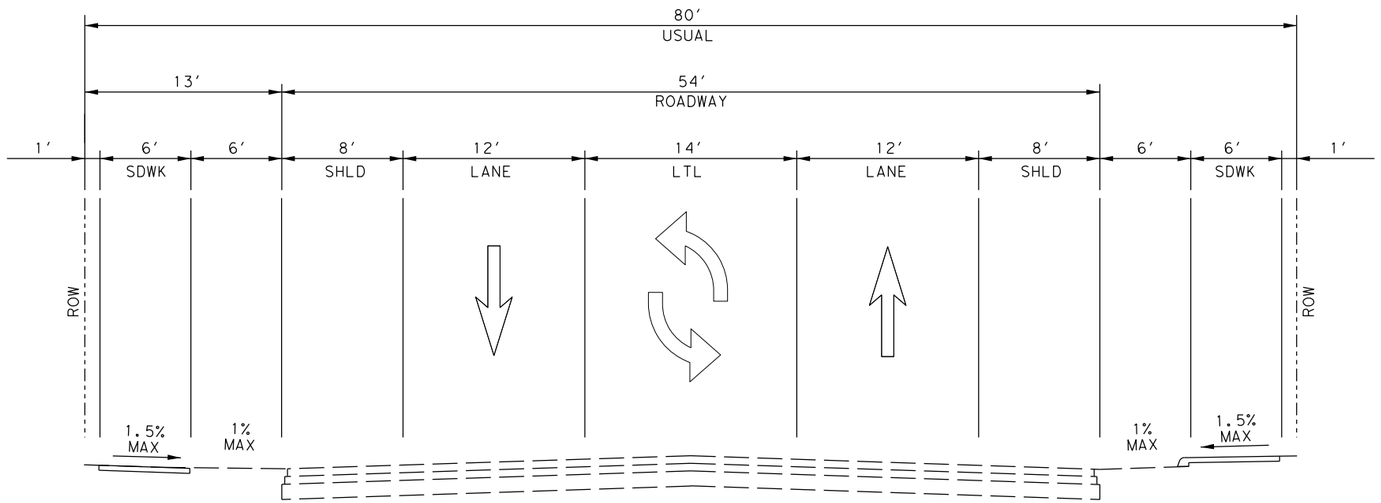

SH 16 - PROPOSED TYPICAL SECTION
STA 700+35 TO STA 702+60

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TYPICAL SECTIONS

SHEET 4 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	10
CONT.	SECT.	JOB	
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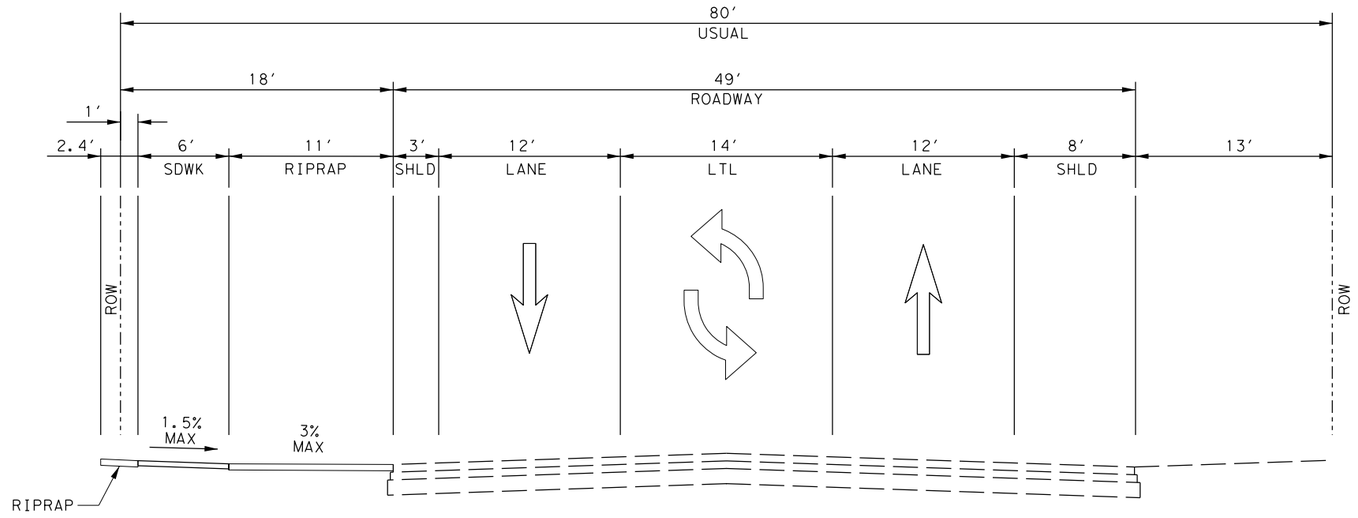

SH 16 - PROPOSED TYPICAL SECTION
STA 702+60 TO STA 704+10

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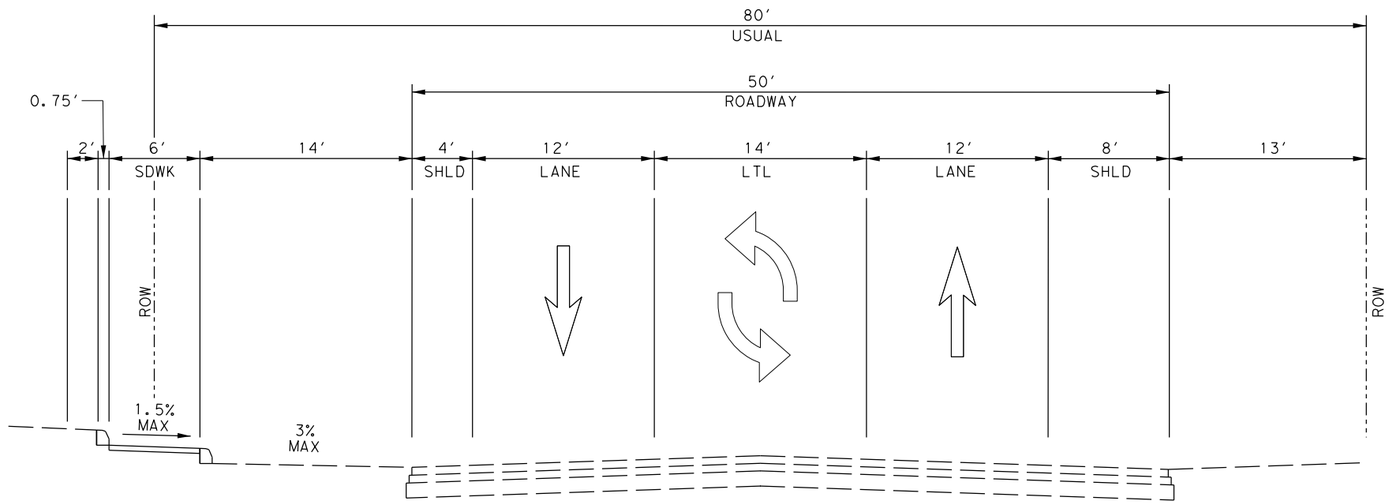

SH 16 - PROPOSED TYPICAL SECTION
STA 704+10 TO STA 706+53

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TYPICAL SECTIONS

SHEET 5 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA,ETC	11
CONT.	SECT.	JOB	
0517	01	048,ETC	

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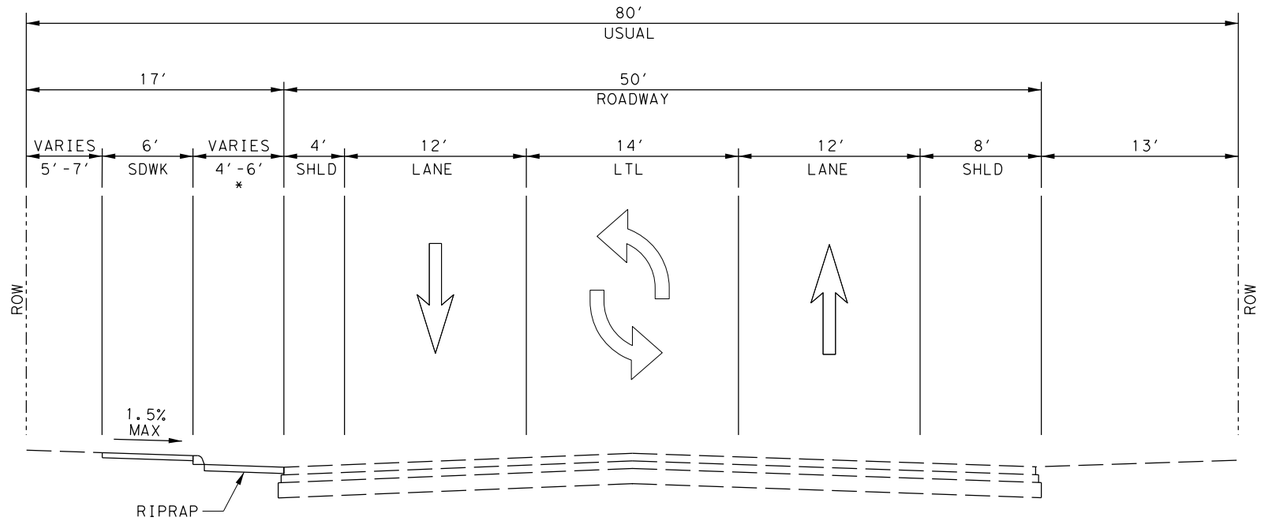

SH 16 - PROPOSED TYPICAL SECTION
STA 706+53 TO STA 709+15

NOT TO SCALE

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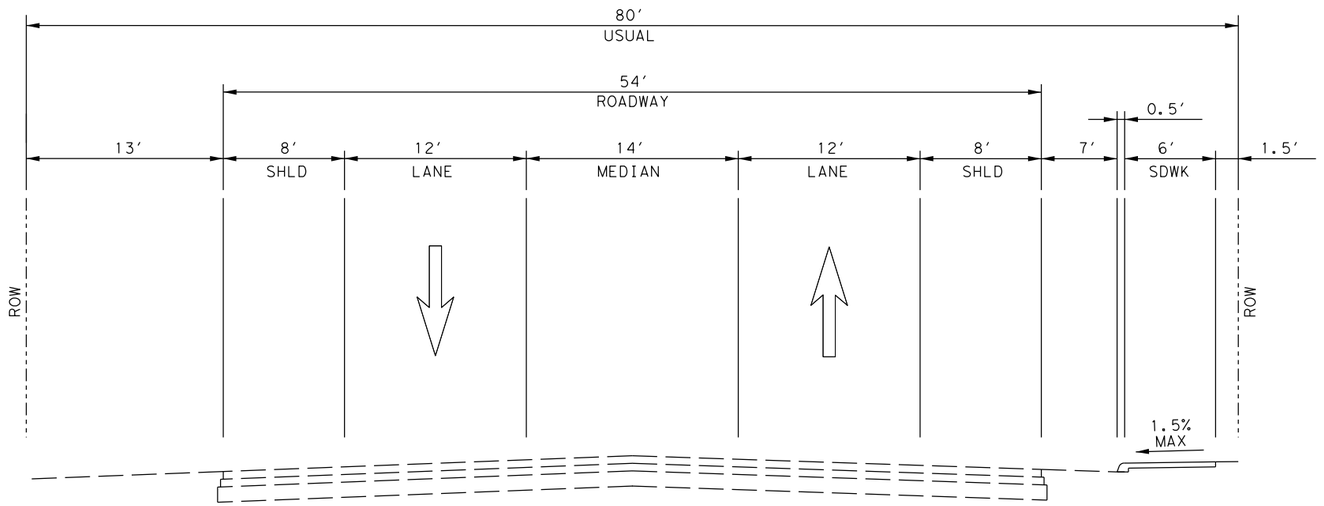
STA 707+18 TO STA 709+15



SH 16 - PROPOSED TYPICAL SECTION
STA 709+15 TO STA 710+56

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8/6/2024

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TYPICAL SECTIONS

SHEET 6 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA,ETC	12
CONT.	SECT.	JOB	
0517	01	048,ETC	

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**********GENERAL NOTES**********
2024 Specification Book (Revised July 19, 2024)

========== Asphalt Concrete Pavement ==========

Type	Location	Depth	Rate/Area	Quant-Tons
D____	Cross Streets	_2”____	_110_lbs/sy/in	___32____

--General--

G-2 Contact the Engineer or the City when construction operations are within 400 feet of a signalized intersection to determine/verify the location of loop detectors, conduit, ground-boxes, etc. Repair or replace any signal equipment damaged by construction operations. The method of repair or replacement shall be pre-approved and inspected. Depending on the type and extent of the damage, the Engineer reserves the right to perform the repair or replacement work and the Contractor will be billed for this work.

City of San Antonio: (210) 207-8642
City of New Braunfels: (830) 221-4049

G-3 Any materials removed and not reused and determined to be salvageable shall be stored within the project limits at an approved location or delivered undamaged to the storage yard as directed. Deface traffic signs so that they will not reappear in public as signs.

G-4 Any sign panels that are adjusted or removed and replaced, shall be done the same workday unless otherwise approved. This work shall be considered subsidiary to Item 502.

G-5 Notify the Engineer at least two weeks prior to a proposed traffic pattern change(s) that will require a revision to traffic signals.

G-6 Locate and reference all manholes and valves within the construction area with station and offset or GPS. Each manhole and valve shall be identified by its owner (SAWS, CPS, etc.). No roadwork will begin until this list has been submitted. All valves and manhole covers have to be accessible at all times, therefore; temp. CTB, material stockpiles, etc. cannot be placed over these valves or covers.

G-7 The Contractor has the option to adjust or construct all manholes and valves to final pavement elevations prior to the final mat of HMA or after final mat of HMA. If between the final elevation adjustment and the final mat of HMA, the manholes and valves are going to be

exposed to traffic, place temporary asphalt around the manhole and valve to provide a +/- 50:1 taper. The cost of elevation adjustment and the concrete apron around the manhole and valve will be part of the manhole and valve work. The asphalt tapers are part of the HMA work.

G-8 Hurricane Evacuation

Hurricane Season is from June 1 thru November 30. As the closest metropolitan city inland from the Texas Coast, the City of San Antonio is a major shelter destination during mandatory hurricane evacuations. As such, planned work zone lane or road closures may be restricted and/or suspended during mandatory hurricane evacuation operations. The District will coordinate these restrictions at a minimum H-120 from any projected impact to the Texas Coast.

No time charges will be made if the Engineer determines that work on the project was impacted by the hurricane.

The Engineer may order changes in the Traffic Control Plan to accommodate evacuation traffic, and may suspend the work, all or in part, to ensure timely completion of this work. All work to implement changes in the Traffic Control Plan will be paid through existing bid prices or through Item 9.5, Force Account. However, the Department will not entertain any request for delay damages, loss of efficiency that may be attributed to the restriction or suspension of road or lane closures, or to changes in the Traffic Control Plan.

G-13 In accordance with the Underground Facility Damage Prevention Act (One Call Bill) the phone number for a utility locator is 811. It is the Contractor's responsibility to plan for utility locators as needed.

G-14 Underground utilities owned by the Texas Department of Transportation may be present within the Right-Of-Way. Call or email the TxDOT offices listed below for locates a minimum of 48 hours in advance of excavation. If city or town owned irrigation facilities are present, call the appropriate department of the local city or town a minimum of 48 hours in advance of excavation. The Contractor is liable for all damages incurred to the above-mentioned utilities when working without having the utilities located prior to excavation.

For signal and ITS locates call TransGuide at 210-731-5136 or email sat_its_locates@txdot.gov for ITS locates and signal.request@txdot.gov for signal locates.

G-15 Contractor questions on this project are to be addressed to the following individual(s):
Area Engineer, – Frances Merecka, P.E. – frances.merecka@txdot.

Contractor questions will be accepted through email, phone and in person by the above individuals. Questions may also be submitted via the Letting Pre-Bid Q&A web page. This

webpage can be accessed from the Notice to Contractors dashboard located at the following Address:
https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

G-16 The Contractor must measure the vertical clearance at each structure after the final surface of the roadway is completed and provide the vertical clearance measurement to the Engineer.

--Item 5--

5-1 Taper ACP placed at curb inlets, traffic inlets and slotted drains.

5-2 A horizontal boom or equivalent equipment is required for construction in the vicinity of the CPS Energy electric lines to provide vertical clearance of equipment during construction. Contact CPS Energy Utility Coordination Group sixteen (16) week in anticipation of pole bracing. The estimated duration for pole bracing is 6 to 10 weeks (or longer if temporary construction easements are required) after invoice is paid. For de-energizing or sleeving of the overhead electrical lines depicted on the plans, please contact CPS Energy Utility Coordination Group sixteen (16) week in anticipation of needed de-energization. The estimated duration for de-energizing is approximately 4 to 6 weeks (after invoice is paid) but could vary on system scenario and back feed requirements. De-energizing may not be possible in all instances or may be restricted during specific periods of time due to load demand. Contractor will be reimbursed for the invoice cost for pole bracing and/or de-energizing or sleeving through force account.

5-3 Prevention of Migratory Bird Nesting

It is anticipated that migratory birds, a protected group of species, may try to nest on bridges, culverts, vegetation, or gravel substrate, at any time of the year. The preferred nesting season for migratory birds is from February 15 through October 1. When practicable, schedule construction operations outside of the preferred nesting season. Otherwise, nests containing migratory birds must be avoided and no work will be performed in the nesting areas until the young birds have fledged.

Structures

Bridge and culvert construction operations cannot begin until swallow nesting prevention is implemented, until after October 1 if it's determined that swallow nesting is actively occurring, or until it's determined swallow nests have been abandoned. If the State installed nesting deterrent on the bridges and culverts, maintain the existing nesting deterrent to prevent swallow nesting until October 1 or completion of the bridge and culvert work, whichever occurs earlier. If new nests are built and occupied after the beginning of the work, do not perform work that can interfere with or discourage swallows from returning to their nests. Prevention of swallow nesting can be performed by one of the following methods:

1. By February 15 begin the removal of any existing mud nests and all other mud placed by swallows for the construction of nests on any portion of the bridge and culverts. The Engineer will inspect the bridges and culverts for nest building activity. If swallows begin nest building, scrape, or wash down all nest sites. Perform these activities daily unless the Engineer determines the need to do this work more frequently. Remove nests and mud through October 1 or until bridge and culvert construction operations are completed.

2. By February 15 place a nesting deterrent (which prevents access to the bridge and culvert by swallows) on the entire bridge (except deck and railing) and culverts. This work is subsidiary to the various bid items.

No extension of time or compensation payment will be granted for a delay or suspension of work caused by nesting swallows.

5-4 Provide a non-intrusive back-up alarm system on all heavy equipment used in close proximity to residential areas. This item is subsidiary to various bid items.

5-5 When a precast or cast-in-place concrete element is included in the plans, a precast concrete alternate may be submitted in accordance with "Standard Operating Procedure for Alternate Precast Proposal Submission" found online at https://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/publications/bridge.html#design. Acceptance or denial of an alternate is at the sole discretion of the Engineer. Impacts to the project schedule and any additional costs resulting from the use of alternates are the sole responsibility of the Contractor.

5-6 Excavation within 5 feet of an existing CPS Energy pole will require pole bracing. Contact CPS Energy utility coordination to request pole bracing (Customer Engineering 210-353-4050). The estimated duration for the pole bracing process is approximately 10 to 15 weeks.

--Item 6--

6-1 Show the stockpile lot and/or sub lot numbers on all tickets for all materials.

6-2 Steel Wrapped or Asbestos Utility Lines:

Existing steel wrapped natural gas and/or asbestos cement (AC) water lines that will no longer be in service are usually abandoned in place (AIP). However, if any of these lines have to be removed for whatever reason (in the way of other construction, to make tie-ins, etc.), comply with Item 6.

If removal of AC water lines is included in the construction contract, then notify the Engineer of proposed dates of removal of the AC water lines in accordance to Item 6. Excavate to the top of the AC water line to allow a separate contractor hired by the State to remove the AC water line. The excavation for the AC water line removal is subsidiary to the work that created the need for the removal (excavation for structures, roadway, a new line, tie-ins, etc.).

6-3 To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit an original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product.
Refer to the Buy America Material Classification Sheet for clarification on material categorization.

The Buy America Material Classification Sheet is located at the below link.
https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html for clarification on material categorization.

--Item 7--

7-1A The project's total disturbed area is 2.48 AC. The disturbed area in all project locations and Contractor project specific locations (PSL's), within 1/4 mile of the project limits, will further establish the authorization requirements for storm water discharges. The department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. Obtain any required authorization from the TCEQ for any PSL's on or off the ROW. When the total area disturbed on the project and PSL's within 1/4 mile of the project exceeds 5 acres, provide a copy of the Contractor NOI for PSL's to the Engineer (to the appropriate MS4 operator when the project is on an off-state system route).

7-2 Notify the Engineer of the disturbed acreage within one (1) mile of the project limits. Obtain authorization from the TCEQ for Contractor PSL's for construction support activities on or off ROW.

7-3B Roadway closures during the following key dates and/or special event are prohibited.
See the general notes under Item 502 for these dates.

7-4 Law Enforcement patrol vehicles must be marked as "Police".

--Item 8--

8-1 Working days will be computed and charged in accordance with Article 8.3.1.4 Standard Day work week.

8-2B A Special Provision to Item 8 for a delayed authorized date to begin work has been included in the contract. The reason for including the Special Provision is for material processing or contractor mobilization.

8-3 Create and maintain a bar chart schedule.

--Item 9--

9-1 When approved, provide uniformed, off-duty law enforcement officers with marked vehicles during work that requires a lane closure. The officer in marked vehicles shall be located as approved to monitor or direct traffic during the closure. The method used to direct traffic at signalized intersections shall be as approved. Additional officers and vehicles may be provided when approved or directed.

Complete the daily tracking form provided by the department and submit invoices that agree with the tracking form for payment at the end of each month approved services were provided.

Show proof of certification by the Texas Commission on Law Enforcement Standards.

All law enforcement personnel used in Work Zone Traffic Control shall be trained for performing duties in work zones and are required to take "Safe and Effective Use of Law Enforcement Personnel in Work Zones" (Course #133119) which can be found online at the following site: www.nhi.fhwa.dot.gov
Certificates of completion should be available to all who finish the course. These should be kept by the officers to substantiate completion when reporting to the work site.

Minimums, scheduling fees, etc. will not be paid; TxDOT will consider paying cancellation fees on a case-by-case basis.

--Item 100--

100-1 Trim and remove brush and trees within the stations noted in the plans and as needed for construction operations. Unless shown otherwise in the plans or a designated non-mow area,

perform trimming or removal for areas to the ROW limits. Trim or remove to provide minimum of 5 ft. of horizontal clearance and 7 ft. of vertical clearance for the following: sidewalks, paths, guard fence, rails, signs, object markers, and structures. Trim to provide a minimum of 12 ft. vertical clearance under all trees.

Obtain approval for proposed method of tree and brush trimming and removal. Vertical flailing equipment is not allowed. Treat damaged or cut branches, roots and/or stumps of all oak trees with a commercial tree wound dressing. Disinfect all pruning tools with a solution of 70% alcohol before moving from one tree to another. Unless otherwise approved remove all resulting vegetative debris from the ROW within 24 hours. The Engineer can stop all construction operations if the dressing, cut and removal requirements are not followed.

100-2 Removal and disposal of existing abandoned utilities that were unable to be identified before letting required to support this project's construction shall be performed under the overall Preparing Right of Way. If you are uncertain whether the utility is active, contact the District Utility Section.

--Item 162--

162-1 Furnish and place Bermuda or St. Augustine grass sod.

--Item 164--

164-1 Drill seeding of permanent grasses requires the use of approved grass seeding equipment capable of properly storing and metering the release of small seeds (such as Bermuda grass) separately from fluffy type seeds (such as bluestems). Equipment manufactured for planting grain crops is acceptable for planting temporary cool season seeds, but not for planting the permanent seed mix.

If performing a permanent seeding in an area with established temporary grass cover and mowing is performed instead of tilling, seed and fertilizer may be distributed simultaneously during "Broadcast Seeding" operations, provided each component is applied at the specified rate.

--Item 166--

166-1 Use a fertilizer with an analysis of 13-13-13 (50% of the total N must be sulfur coated urea) to apply 60 lbs of actual N per acre. This requires 460 lbs of 13-13-13 per acre or .095 lbs per SY of area.

--Item 168--

168-1 Apply vegetative watering as needed to supplement natural rainfall during the vegetation establishment period. Plan quantity of irrigation water is based on the application of a total of 1.3 gal of water each week for each sq. yd. of area that is sodded or seeded. Establishment time is estimated to be 12 weeks for both sod and permanent seed mixes. Temporary seeding will require less time for establishment. Provide a schedule and coordinate watering cycles and rates

per cycle with the Engineer. Obtain approval if the quantity of water to be applied is expected to exceed the plan quantity. Adjust the amount of water applied with each cycle and the number of cycles each wk. according to actual site conditions. Drought or other conditions, as determined by the Engineer, may require the application of supplemental irrigation during hours other than normal working hours.

--Item 305--

305-1B All reclaimable asphalt pavement (RAP) material will be retained by the Contractor.

--Item 316--

316-1 Asphalt season will be year-round but meet temperature limitations specified in the standard specifications for Item 316.

316–2 Ensure that the asphalt for precoating the aggregate and the asphalt used for the surface treatment will not result in a reaction that may adversely affect the bonding of the aggregate and asphalt during the surface treatment operation.
Do not add bag house fines in the production of precoated material.

316-3 Clean all concrete curbs, islands, medians, etc. that get coated with asphalt.

--Item 354--

354-1B Retain planed material.

--Item 401--

401-1 A shrinkage compensator is not required for when used for backfilling pipes.

--Item 420--

420-1 Mass concrete will be measured in place.

--Item 421--

421-1 Use an automated ticket that contains the same information as shown in the standard specification. Submit the ticket for approval prior to use. The concrete producer will contact the District Laboratory or the Engineer's Office (outside the San Antonio area) to inform TxDOT of scheduled structural concrete batching. The Engineer may suspend concrete operations if ticket information is incomplete/incorrect.

421-2 Entrained air is allowed for Class P and Class HES concrete only. Air content testing is waived for all classes of concrete.

421-3 The curing facilities and strength testing equipment is not required for this project.

421-4 Poly-fiber reinforced concrete may be used as an option, with the approval by the Engineer, for riprap, sidewalk, curb/gutter, and mow strip. Use a TxDOT approved manufacturer or producer for the poly-fiber. The poly-fibers shall be combined with the concrete in proportions as recommended by the manufacturer. A concrete mix design must be approved by the Engineer.

--Item 423--

423-1 The backfill material for precast retaining walls shall be approved before placement. Build stockpile(s) in lifts not to exceed 2 feet and a minimum working face of not less than 10 feet, but not more than 20 feet.

--Item 500--

500-1 "Materials on Hand" payments will not be considered in determining percentages for mobilization payments.

--Item 502--

502-1 General

502-1A In addition to providing a Contractor's Responsible Person and a phone number for emergency contact, have an employee available to respond on the project for emergencies and for taking corrective measures within 2 hours or within a reasonable time frame as specified by the Engineer.

502-1C Avoid placing stockpiles, equipment, and other construction materials within the roadway's horizontal clear zone or at any location that will constitute a hazard and will endanger traffic. If a stockpile is placed within the clear zone, address in accordance with the TMUTCD.

502-1D If Nighttime work is required and work is not behind positive barrier then full Class 3 reflective gear is required to be worn by all workers, hard hat halos are required to be worn by the flaggers at flagging stations, TY III barricades are required to be spaced at 500 ft, and a mandatory night work meeting is required.

502-1E The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

502-1F Mounting and moving the mailbox as needed for the various construction phases is subsidiary to Item 502.

502-1G Access to adjoining property must be maintained at all times.

502-2 Barricades, Signs, and Traffic Control Devices

502-2A When advanced warning flashing arrow panels and/or changeable message sign is specified, have one standby unit in good condition at the job site. Standby time shall be considered subsidiary to the bid item.

502-2B After written notification, the time frame is provided on the Form 599 to provide properly maintained signs and barricades before considered in non-compliance with this item.

502-2D Moving an existing sign to a temporary location is subsidiary to Item 502. Installations with permanent supports at permanent locations will be paid for under the applicable bid item(s).

502-2E Cover permanent signs if not used. This is subsidiary to Item 502.

502-3 Lane and Ramp Closures and Detours

502-3A Notify the Engineer in writing 10 business days in advance of any temporary or permanent lane, ramp, connector, etc. closures/detours, restrictions to lane widths, alterations to vertical clearances, or modifications to radii. Any other modifications to the roadway that may adversely affect the mobility of oversized/overweight trucks also require 10 business days advance written notice to the Engineer. At least one lane must always remain open.

502-3B For closures not listed in the TCP; the lane closures are limited to between the hours of 8 am and 5 pm, and at least one lane must remain open at all times.

502-3C At no time shall two consecutive intersecting roadways be closed at one time during construction.

502-3D At no time shall two consecutive ramps be closed at one time during construction or overlay operations.

502-3E Unless otherwise noted in the plans and/or as directed by the Engineer, daily lane closures shall be limited according to the following restrictions:

No lane closures will be permitted for the following dates and/or special events:
Between December 15 and January 1
Fiesta Week and Sales Tax Holidays (Bexar County Only)

Wednesday before Thanksgiving thru the Sunday after Thanksgiving
Saturday and Sunday before Memorial Day and Labor Day
Saturday or Sunday when July 4 falls on a Friday or Monday
Election days (Bexar County Only)
During major events at the Frost Bank Center (Spurs home games, Rodeo, concerts, etc.)
Alamodome, and/or Convention Center (Bexar County Only)

502-4 Traffic Signals

502-4A There are traffic signals at the intersection of SH 97, Peach Street and in front of Jourdanton High School in Jourdanton. Always keep the signals in operation except when necessary for specific installation operations, including any modifications to existing signal heads to always maintain clear visibility. Adjustment of any signal head will be subsidiary to Item 502. When it is necessary for a signal to be turned off, or when left-turn lanes are closed, hire off duty police officers to control the traffic until the signals are back in satisfactory condition.

502-4B Moving or adjustment of traffic signal heads, VIVDS, and radar detection for the purpose of alignment with the shifting of lanes in conjunction with the traffic control plan will be subsidiary to various bid items.

502-4C Coordinate with the appropriate entity (City of San Antonio, City of New Braunfels, etc.) or TxDOT when left-turn lanes are closed and/or for signal timing revisions as necessary.

502-5 Hauling

502-5A The use of rubber-tired equipment will be required for moving dirt or other materials along or across pavement surfaces. Where the contractor desires to move any equipment not licensed for operation on public highways, on or across pavement, they shall protect the pavement from damage as directed/approved by the Engineer.

502-5B Throughout construction operations, the Contractor will be required to conduct their hauling operations in a manner such that vehicles will not haul over previously recompacted subgrade or compacted base material, except in short sections for dumping manipulations.

502-5C The Contractor shall keep the roadway clean and free of dirt or other materials during hauling operations. If the Contractor does not maintain a clean roadway, they shall cease all construction operations, when directed by the Engineer, to clean the roadway to the satisfaction of the Engineer.

--Item 506--

506-1A An Inspector will perform a regularly scheduled SWP3 inspection every 7 calendar days.

506-2 Failure to address items noted on the SW3P inspection report within two report cycles may result in the Department stopping all construction operations, exclusive of time charges, or withholding that month's estimate until the SW3P deficiencies are corrected unless the Engineer determines that the area is too wet to correct SW3P deficiencies.

506-3 Failure to correctly maintain daily monitoring reports and submitting to TxDOT on a daily/weekly basis may result in the monthly estimate being withheld.

--Item 531--

531-1 The curb ramp locations shown in the plans have considered the geometric features of the intersection, traffic signals, and the pavement markings. If anything changes during construction, the location of curb ramps must be adjusted to ensure they meet TAS requirements.

--Item 618--

618-1 It might be necessary to cut concrete for placement of conduit. Saw cut existing concrete, remove the concrete from the steel reinforcement (bars or fabric) and bend the steel to install the conduit. After the conduit has been placed, bend the steel back to its original position and back-fill the trench with an approved concrete. This work is subsidiary to this Item.

--Item 644--

644-1 The wedge anchor system shown on State Standard Sheet SMD (TWT) is not allowed.

644-2 Triangular Slipbase Systems with set screws are not allowed.

--Item 666--

666-1 Use TY II markings (vs. an acrylic or epoxy) on asphalt surfaces as the sealer for the TY I markings, unless otherwise approved by the Engineer.

--Item 672--

672-1 Place all adhesive material directly from the heated dispenser to the pavement. Do not use portable or non-heated containers. Use adhesive of sufficient thickness so that when the marker is pressed into the adhesive, 1/8" or more adhesive will remain under 100% of the marker. The adhesive should extend not less than 1/2" but not more than 1 1/2" beyond the perimeter of the marker.

--Item 677--

677-1 Obtain approval before using the mechanical method for the elimination of existing thermoplastic pavement markings.

--Item 680--

680-1 Furnish and install all required materials and equipment necessary for the complete and operating traffic signal installation at the following intersections:
Peach Street (Jourdanton) and Elm Street (Tilden).

680-2 The locations shown on the plans for signal pole foundations, controller foundations, conduit and other items may be adjusted to better fit field conditions as approved.

Furnish and install a new City of San Antonio Type 332 Cabinet and 2070 controller with Intelight Maxtime software.

680-5 Connect all field wiring to the controller assembly into the polyphaser. The Signal Shop representative will assist in determining how the detection cables are to be connected, and will also program the controller for operation, hook up the malfunction management unit (MMU) or conflict monitor, detector units, and other equipment, and turn on the controller. Have a qualified technician on the project site to place the traffic signals in operation.

680-6 Once final punch list is complete, contractor is allowed to begin flashing signal operations. Signal shall flash for a minimum of 7 days prior to full operation, unless otherwise approved by the Engineer.

680-8 Demonstrate that the field wiring is properly installed. Install the electrical equipment in a neat and workmanlike manner.

680-9 Use the following wiring sequence when connecting signal sections to the cabinet:

Conductor No.	Base Color	Tracer Color	Signal Face
1	Black		Yellow Ball
2	White		Neutral
3	Red		Red Ball
4	Green		Green Ball
5	Orange		Yellow Arrow
6	Blue		Green Arrow

7	White	Black	Spare

680-10 All existing signal equipment with the exception of the signal controller and related equipment become the property of the Contractor. Deliver the controller and related equipment to the Signal shop, located at 4615 NW Loop 410 (corner of IH 410 and Callaghan Road) in San Antonio, Texas or to the Area Office as directed.

All existing signal equipment with the exception of the signal controller and related equipment become the property of the Contractor. Deliver the controller and related equipment to the City of San Antonio Signal shop, located at Northwest Service Center, 6939 W Loop 1604 N) in San Antonio, Texas or to the Area Office as directed.

680-11 Use qualified personnel to respond to and diagnose all trouble calls during the thirty-day test period. Repair any malfunction to Contractor-supplied signal equipment. Provide to the Engineer a local telephone number, not subject to frequent changes and available on a 24-hour basis, for reporting trouble calls. Response time to reported calls must be less than 2 hours. Make appropriate repairs within 24 hours. Place a logbook in the controller cabinet and keep a record of each trouble call reported. Notify the Engineer of each trouble call. Do not clear the error log in the conflict monitor or MMU during the thirty-day test period without approval.

680-14 Provide a submittal compliance matrix with all traffic signal submittals.

680-15 Field verify the depths of the drill shafts to meet the minimum clearances specified in the plans before ordering materials.

680-16 Ensure that all TMS (Traffic Management System) equipment furnished and installed is completely compatible with the existing hardware and software located within the TransGuide operations center (i.e. TransGuide central software). The contractor shall contact the traffic management engineer for details on the system network architecture.

680-17 Contractor shall be responsible for integrating and testing all new TMS equipment and any existing TMS equipment that is relocated into the existing network management system, subsidiary to the various bid items.

Signal heads shall have a minimum of 18.5 feet clearance above roadway surface.

Contractor shall remove and deliver any equipment deemed salvageable by TxDOT to TxDOT SAT HQ located at 4615 NW Loop 410, contact Mark Perez at (210) 218-7430.

--Item 682--

682-1 Pedestrian signals may be by a different manufacturer than the vehicle signal heads.

682-2 Cover all signal faces until placed in operation. This work is subsidiary to various bid items.

682-3 All mounting attachments shall be constructed of steel pipe and mounted as shown on the plans.

682-4 All signal head backplates shall be vented aluminum with a retroreflective border.

682-5 All pedestrian signal heads shall be LED countdown.

--Item 684--

684-1 Provide an extra 10’ for each cable terminating in the controller cabinet. All cables must be continuous without splices from terminal point to terminal point. All proposed signal cable must be #12 AWG stranded copper.

--Item 686 & 687--

686-1 Provide all signal poles from the same manufacturer. Pedestrian poles may be from a different manufacturer.

--Item 688--

688-1 The sealant used for vehicle loop wire must be approved.

688-2 The button placement must be coordinated with the concrete pad to access the button according to ADA and TAS. If any mounting modifications are needed (extensions, brackets, etc.) to meet ADA and TAS requirements the adjustment will be subsidiary to Item 688. The concrete pad (if required) will be paid separately.

688-3 The pedestrian push button must be wired with a 2/C#14 loop detector cable in lieu of a #12 A.W.G. XHHW wire.

688-4 Furnish and install new Polara Enterprises accessible pedestrian signals (APS) push buttons or approved equivalent.

--Item 6185--

6185-1 Two shadow vehicles with TMA will be required for this project. The TMA’s will be measured and paid for by the DAY for each TMA/TA set up and operational on the worksite. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA’s needed for the project. See TMA and TA Summary sheet in the plans.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0517-01-048 **DISTRICT** San Antonio **COUNTY** Atascosa, McMullen
HIGHWAY SH 16

				0517-01-048		0517-02-044		0517-03-037		TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB									
		PROJECT ID		**A00184941**		**A00184947**		**A00184948**			
		COUNTY		**Atascosa**		**McMullen**		**McMullen**			
		HIGHWAY		**SH 16**		**SH 16**		**SH 16**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	104-7006	REMOV CONC (RIPRAP)	SY	9.000						9.000	
	104-7008	REMOV CONC (MEDIANS)	SY			45.000		30.000		75.000	
	104-7011	REMOV CONC (DRIVEWAYS)	SY	452.000		483.000		108.000		1,043.000	
	105-7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	886.000		34.000		150.000		1,070.000	
	110-7003	EXCAV (SPECIAL)	CY	150.000						150.000	
	132-7003	EMBANK (FNL)(OC)(TY B)	CY	75.000						75.000	
	161-7002	COMPOST MANUF TOPSOIL (4")	SY	3,278.000		409.000		210.000		3,897.000	
	162-7002	BLOCK SODDING	SY	3,278.000		409.000		210.000		3,897.000	
	194-7007	RDSIDE AMENITY (WHEEL STOP)	EA			5.000		5.000		10.000	
	341-7015	D-GR HMA TY-C PG64-22	TON	50.000						50.000	
	341-7048	D-GR HMA TY-D PG70-22	TON	32.000						32.000	
	354-7002	PLANE & TEXT ASPH CONC PAV(0" TO 2")	SY	274.000						274.000	
	400-7006	CUT & RESTORING PAV	SY					6.000		6.000	
	420-7002	CL A CONC (MISC)	CY	7.000						7.000	
	420-7008	CL A CONC (COLLAR)	EA	1.000						1.000	
	432-7001	RIPRAP (CONC)(4 IN)	CY	3.500						3.500	
	432-7002	RIPRAP (CONC)(5 IN)	CY			26.000		66.000		92.000	
	450-7059	RAIL (HANDRAIL)(TY B)	LF	154.000						154.000	
	465-7335	INLET (COMPL)(ARMOR CURB SLOT)	EA	4.000						4.000	
	465-7336	INLET (COMP)(TY SIDEWALK BRIDGE)	EA	4.000				3.000		7.000	
	471-7003	GRATE & FRAME	EA	92.000						92.000	
	479-7001	ADJUSTING MANHOLES	EA	2.000						2.000	
	479-7003	ADJUSTING MANHOLES & INLETS	EA					1.000		1.000	
	496-7028	REMOVE STR (BOLLARD)	EA					1.000		1.000	
	500-7001	MOBILIZATION	LS	1.000						1.000	
	502-7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	11.000						11.000	
	503-7002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	4.000						4.000	
	505-7001	TMA (STATIONARY)	DAY	177.000		41.000		41.000		259.000	
	506-7034	CONSTRUCTION PERIMETER FENCE	LF	4,575.000						4,575.000	
	506-7035	SANDBAGS FOR EROSION CONTROL	EA	50.000						50.000	
	506-7044	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	9,150.000						9,150.000	
	506-7046	BIODEG EROSN CONT LOGS (REMOVE)	LF	9,150.000						9,150.000	
	529-7001	CONC CURB (TY I)	LF	292.000		687.000		1,091.000		2,070.000	
	529-7007	CONC CURB (MONO) (TY II)	LF					50.000		50.000	
	529-7016	CONC CURB (TY C1)	LF			60.000		161.000		221.000	
	529-7017	CONC CURB (TY F1)	LF	228.000						228.000	
	529-7018	CONC CURB & GUTTER (ARMOR CURB)	LF					42.000		42.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0517-01-048 **DISTRICT** San Antonio **COUNTY** Atascosa, McMullen
HIGHWAY SH 16

			CONTROL SECTION JOB	**0517-01-048**		**0517-02-044**		**0517-03-037**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00184941**		**A00184947**		**A00184948**			
			COUNTY	**Atascosa**		**McMullen**		**McMullen**			
			HIGHWAY	**SH 16**		**SH 16**		**SH 16**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	530-7006	DRIVEWAYS (CONC)	SY	1,527.000		523.000		2.000		2,052.000	
	531-7001	CONC SIDEWALKS (4")	SY	3,850.000		639.000		775.000		5,264.000	
	531-7002	CONC SIDEWALKS (5")	SY					82.000		82.000	
	531-7003	CONC SIDEWALKS (6")	SY					102.000		102.000	
	531-7005	CURB RAMPS (TY 1)	EA	6.000		7.000		3.000		16.000	
	531-7006	CURB RAMPS (TY 2)	EA			1.000		3.000		4.000	
	531-7007	CURB RAMPS (TY 3)	EA	1.000		2.000				3.000	
	531-7009	CURB RAMPS (TY 6)	EA					3.000		3.000	
	531-7010	CURB RAMPS (TY 7)	EA	335.000		3.000		3.000		341.000	
	531-7011	CURB RAMPS (TY 10)	EA	2.000				1.000		3.000	
	531-7012	CURB RAMPS (TY 20)	EA					2.000		2.000	
	536-7002	CONC MEDIAN	SY			46.000		3.000		49.000	
	560-7012	RELOCATE EXISTING MAILBOX	EA	3.000						3.000	
	618-7030	CONDT (PVC) (SCH 40) (2")	LF			162.000				162.000	
	620-7007	ELEC CONDR (NO.8) BARE	LF	30.000						30.000	
	620-7009	ELEC CONDR (NO.6) BARE	LF			20.000				20.000	
	624-7007	GROUND BOX TY D (162922)	EA			1.000				1.000	
	624-7008	GROUND BOX TY D (162922)W/APRON	EA	9.000						9.000	
	644-7001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA			1.000		2.000		3.000	
	644-7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	14.000		7.000		2.000		23.000	
	644-7067	RELOCATE SM RD SN SUP&AM TY S80	EA			1.000				1.000	
	644-7106	REMOVE SM RD SN (FOUNDATION ONLY)	EA					1.000		1.000	
	666-7123	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	LF	795.000		69.000		80.000		944.000	
	677-7001	ELIM EXT PM & MRKS (4")	LF	24.000						24.000	
	677-7004	ELIM EXT PM & MRKS (8")	LF	9.000						9.000	
	677-7008	ELIM EXT PM & MRKS (24")	LF	495.000		154.000				649.000	
	680-7011	INSTALL HWY TRF SIG (UPGRADE)	EA	1.000						1.000	
	682-7018	PED SIG SEC (LED)(COUNTDOWN)	EA			8.000				8.000	
	684-7009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF			80.000				80.000	
	684-7028	TRF SIG CBL (TY A)(14 AWG)(2 CONDR)	LF			80.000				80.000	
	687-7001	PED POLE ASSEMBLY	EA			5.000				5.000	
	687-7003	RELOCATE PED POLE ASSEMBLY	EA	3.000						3.000	
	688-7001	PED DETECT PUSH BUTTON (APS)	EA			8.000				8.000	
	688-7003	PED DETECTOR CONTROLLER UNIT	EA			2.000				2.000	
	690-7007	REPLACE OF GROUND BOXES	EA	2.000		3.000				5.000	
	690-7030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA			1.000				1.000	
	690-7094	REMOV PED SIG LED TRAF SIG LAMP UNIT	EA			1.000				1.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0517-01-048 **DISTRICT** San Antonio **COUNTY** Atascosa, McMullen
HIGHWAY SH 16

				0517-01-048		0517-02-044		0517-03-037		TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB									
		PROJECT ID		**A00184941**		**A00184947**		**A00184948**			
		COUNTY		**Atascosa**		**McMullen**		**McMullen**			
		HIGHWAY		**SH 16**		**SH 16**		**SH 16**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	690-7105	REROUTE CABLES	LF	80.000		125.000				205.000	
	690-7123	RELOCATE OF PEDESTRIAN PUSH BUTTON	EA	3.000						3.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000						1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000						1.000	

	SUMMARY OF REMOVAL ITEMS								SUMMARY OF ROADWAY ITEMS							
LOCATION	104 7006	104 7008	104 7011	105 7055	354 7002	496 7028	624 7013	644 7106	110 7003	132 7003	161 7002	162 7002	194 7007	341 7015	341 7048	400 7006
	REMOVING CONC (RIPRAP)	REMOVING CONC (MEDIANS)	REMOVING CONC (DRIVEWAYS)	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	PLANE & TEXT ASPH CONC PAV(0" TO 2")	REMOVE STR (BOLLARD)	REMOVE GROUND BOX	REMOVE SM RD SN (FOUNDATION ONLY)	EXCAVATION (SPECIAL)	EMBANKMENT (FINAL) (ORD COMP) (TY B)	COMPOST MANUF TOPSOIL (4")	BLOCK SODDING	ROADSIDE AMENITY (WHEEL STOP)	D-GR HMA TY-C PG64-22	D-GR HMA TY-D PG70-22	CUT & RESTORING PAV
	SY	SY	SY	SY	SY	EA	EA	EA	CY	CY	SY	SY	EA	TON	TON	SY
RDWY SHEET 1 OF 20			54								72	72				
RDWY SHEET 2 OF 20			77	59			1				253	253				
RDWY SHEET 3 OF 20				88			1				362	362				
RDWY SHEET 4 OF 20			88								210	210				
RDWY SHEET 5 OF 20							1				372	372				
RDWY SHEET 6 OF 20				64							228	228				
RDWY SHEET 7 OF 20			52	268			1				142	142				
RDWY SHEET 8 OF 20			25								223	223				
RDWY SHEET 9 OF 20					76		1				224	224			9	
RDWY SHEET 10 OF 20					39						203	203			5	
RDWY SHEET 11 OF 20	6		92		51		1				224	224			6	
RDWY SHEET 12 OF 20					108		1				171	171			12	
RDWY SHEET 13 OF 20											123	123				
RDWY SHEET 14 OF 20	3			45							100	100				
RDWY SHEET 15 OF 20				198			1				18	18				
RDWY SHEET 16 OF 20			64	164							61	61				
RDWY SHEET 17 OF 20							1				117	117				
RDWY SHEET 18 OF 20											79	79				
RDWY SHEET 19 OF 20											96	96				
RDWY SHEET 20 OF 20																
JOURDANTON TOTAL	9		452	886	274		9				3278	3278			32	
CSJ 0517-02-044																
RDWY SHEET 1 OF 12											187	187				
RDWY SHEET 2 OF 12			110	34							91	91				
RDWY SHEET 3 OF 12			373								58	58				
RDWY SHEET 4 OF 12		45									72	72	5			
CSJ 0517-02-044 TOTAL		45	483	34							408	408	5			
CSJ 0517-03-037																
RDWY SHEET 5 OF 12		30		17							26	26	5			6
RDWY SHEET 6 OF 12			84													
RDWY SHEET 7 OF 12			24	31				1								
RDWY SHEET 8 OF 12											11	11				
RDWY SHEET 9 OF 12											112	112				
RDWY SHEET 10 OF 12						1					37	37				
RDWY SHEET 11 OF 12				68							26	26				
RDWY SHEET 12 OF 12				34												
CSJ 0517-03-037 TOTAL		30	108	150		1		1			212	212	5			6
TILDEN TOTAL		75	591	184		1		1			620	620	10			6
INDEFINITE QUANTITIES									150	75				50		
PROJECT TOTALS	**9**	**75**	**1043**	**1070**	**274**	**1**	**9**	**1**	**150**	**75**	**3898**	**3898**	**10**	**50**	**32**	**6**

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SUMMARY OF QUANTITIES

SHEET 1 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		SH 16
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	15
CONT.	SECT.	JOB	
0517	01	048,ETC	

SUMMARY OF ROADWAY ITEMS CONTINUED

LOCATION	420 7002	420 7008	432 7001	432 7002	450 7059	465 6233	465 7335	471 7003	479 7001	479 7004	505 7001	506 7034	506 7035	506 7044	506 7046	529 7001
	CL A CONC (MISC)	CL A CONC (COLLAR)	RIPRAP (CONC)(4 IN)	RIPRAP (CONC)(5 IN)	RAIL (HANDRAIL)(TY B)	INLET (COMP) (TY SIDEWALK BRIDGE)	INLET (COMPL) (ARMOR CURB SLOT)	GRATE & FRAME	ADJUSTING MANHOLES	ADJUSTING MANHOLES (UTILITY BOX)	TMA (STATIONARY)	CONSTRUCTION PERIMETER FENCE	SANDBAGS FOR EROSION CONTROL	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)	CONC CURB (TY I)
	CY	EA	CY	CY	LF	EA	EA	EA	EA	EA	DAY	LF	EA	LF	LF	LF
RDWY SHEET 1 OF 20								3								
RDWY SHEET 2 OF 20								3								
RDWY SHEET 3 OF 20								12								
RDWY SHEET 4 OF 20			1.1		40	2	2	8								26
RDWY SHEET 5 OF 20																
RDWY SHEET 6 OF 20								14								
RDWY SHEET 7 OF 20								4								
RDWY SHEET 8 OF 20								4								
RDWY SHEET 9 OF 20					9			12								77
RDWY SHEET 10 OF 20		1	1.4		105	2	2	8								189
RDWY SHEET 11 OF 20								4	1							
RDWY SHEET 12 OF 20								8	1							
RDWY SHEET 13 OF 20								6								
RDWY SHEET 14 OF 20																
RDWY SHEET 15 OF 20			1													
RDWY SHEET 16 OF 20																
RDWY SHEET 17 OF 20								6								
RDWY SHEET 18 OF 20																
RDWY SHEET 19 OF 20																
RDWY SHEET 20 OF 20																
JOURDANTON TOTAL		1	3.5		154	4	4	92	2							292
CSJ 0517-02-044																
RDWY SHEET 1 OF 12				8												134
RDWY SHEET 2 OF 12				1												34
RDWY SHEET 3 OF 12				11												290
RDWY SHEET 4 OF 12				6												229
CSJ 0517-02-044 TOTAL				26												687
CSJ 0517-03-037																
RDWY SHEET 5 OF 12				16												213
RDWY SHEET 6 OF 12																10
RDWY SHEET 7 OF 12				2		3										251
RDWY SHEET 8 OF 12																
RDWY SHEET 9 OF 12				20												121
RDWY SHEET 10 OF 12				9												150
RDWY SHEET 11 OF 12				14						1						195
RDWY SHEET 12 OF 12				4												151
CSJ 0517-03-037 TOTAL				65		3				1						1091
TILDEN TOTAL				91		3				1						1778
INDEFINITE QUANTITIES	7										177	4575	50	9150	9150	
PROJECT TOTALS	**7**	**1**	**3.5**	**91**	**154**	**7**	**4**	**92**	**2**	**1**	**177**	**4575**	**50**	**9150**	**9150**	**2070**

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SUMMARY OF QUANTITIES

SHEET 2 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	16
CONT.	SECT.	JOB	
0517	01	048, ETC	

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SUMMARY OF ROADWAY ITEMS CONTINUED

LOCATION	529 7007	529 7016	529 7017	529 7018	530 7006	531 7001	531 7002	531 7003	531 7005	531 7006	531 7007	531 7009	531 7010	531 7011	531 7012	536 7002
	CONC CURB (MONO) (TY II)	CONC CURB (TY C1)	CONC CURB (TY F1)	CONC CURB & GUTTER (ARMOR CURB)	DRIVEWAYS (CONC)	CONC SIDEWALKS (4")	CONC SIDEWALKS (5")	CONC SIDEWALKS (6")	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)	CURB RAMPS (TY 3)	CURB RAMPS (TY 6)	CURB RAMPS (TY 7)	CURB RAMPS (TY 10)	CURB RAMPS (TY 20)	CONC MEDIAN
	LF	LF	LF	LF	SY	SY	SY	SY	EA	EA	EA	EA	EA	EA	EA	SY
RDWY SHEET 1 OF 20					54	108			2		1		2			
RDWY SHEET 2 OF 20					136	291										
RDWY SHEET 3 OF 20					88	277							2			
RDWY SHEET 4 OF 20					89	229							1	3		
RDWY SHEET 5 OF 20						309										
RDWY SHEET 6 OF 20					64	242							4			
RDWY SHEET 7 OF 20					350	173							4			
RDWY SHEET 8 OF 20					58	345										
RDWY SHEET 9 OF 20			9			272							4			
RDWY SHEET 10 OF 20			75			306							2			
RDWY SHEET 11 OF 20			144		127	270							2			
RDWY SHEET 12 OF 20						208							2			
RDWY SHEET 13 OF 20						205										
RDWY SHEET 14 OF 20					45	144			2				3			
RDWY SHEET 15 OF 20					228	31							2			
RDWY SHEET 16 OF 20					228	87										
RDWY SHEET 17 OF 20						122			2				2			
RDWY SHEET 18 OF 20					60	103							2			
RDWY SHEET 19 OF 20						128							1			
RDWY SHEET 20 OF 20													1			
JOURDANTON TOTAL			228		1527	3850			6		1		34	3		
CSJ 0517-02-044																
RDWY SHEET 1 OF 12						195			2							
RDWY SHEET 2 OF 12					189	85							2			
RDWY SHEET 3 OF 12					334	202										
RDWY SHEET 4 OF 12		60				157			5	1	2		1			46
CSJ 0517-02-044 TOTAL		60			523	639			7	1	2		3			46
CSJ 0517-03-037																
RDWY SHEET 5 OF 12		161				174		5		1		2	1	1	2	3
RDWY SHEET 6 OF 12					220	45										
RDWY SHEET 7 OF 12				42	64		82	13	1	1						
RDWY SHEET 8 OF 12	150				73	2		84	1	1			2			
RDWY SHEET 9 OF 12						222										
RDWY SHEET 10 OF 12						122										
RDWY SHEET 11 OF 12					98	126										
RDWY SHEET 12 OF 12					47	84			1			1				
CSJ 0517-03-037 TOTAL	150	161		42	502	775	82	102	3	3		3	3	1	2	3
TILDEN TOTAL	150	221		42	1025	1414	82	102	10	4	2	3	6	1	2	49
INDEFINITE QUANTITIES																
PROJECT TOTALS	150	221	228	42	2552	5264	82	102	16	4	3	3	40	4	2	49

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SUMMARY OF QUANTITIES

SHEET 3 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	17
CONT.	SECT.	JOB	
0517	01	048,ETC	

SUMMARY OF ROADWAY ITEMS CONTINUED

LOCATION	560 7012	618 7030	618 7055	620 7007	620 7009	624 7007	624 7008	644 7001	644 7065	644 7067	666 7123	677 7001	677 7004	677 7008	680 7011	682 7018
	RELOCATE EXISTING MAILBOX	CONDT (PVC) (SCH 40) (2")	CONDT (PVC) (SCH 80) (2") (BORE)	ELEC CONDR (NO.8) BARE	ELEC CONDR (NO.6) BARE	GROUND BOX TY D (162922)	GROUND BOX TY D (162922)W /APRON	IN SM RD SN SUP&AM TY10BWG(1) SA(P)	RELOCATE SM RD SN SUP&AM TY 10BWG	RELOCATE SM RD SN SUP&AM TY S80	REFL PAV MRK TY I (W)24"(SLD) (100MIL)	ELIM EXT PM & MRKS (4")	ELIM EXT PM & MRKS (8")	ELIM EXT PM & MRKS (24")	INSTALL HWY TRF SIG (UPGRADE)	PED SIG SEC (LED)(COUNTDOWN)
	EA	LF	LF	LF	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	EA	EA
RDWY SHEET 1 OF 20									1		605	24	9	495		
RDWY SHEET 2 OF 20							1		2							
RDWY SHEET 3 OF 20							1		3							
RDWY SHEET 4 OF 20									1							
RDWY SHEET 5 OF 20							1									
RDWY SHEET 6 OF 20	1								2							
RDWY SHEET 7 OF 20							1		1							
RDWY SHEET 8 OF 20																
RDWY SHEET 9 OF 20							1		3							
RDWY SHEET 10 OF 20																
RDWY SHEET 11 OF 20							1									
RDWY SHEET 12 OF 20							1									
RDWY SHEET 13 OF 20		10		10											1	
RDWY SHEET 14 OF 20		20		20							190					
RDWY SHEET 15 OF 20							1		1							
RDWY SHEET 16 OF 20																
RDWY SHEET 17 OF 20							1									
RDWY SHEET 18 OF 20	2															
RDWY SHEET 19 OF 20																
RDWY SHEET 20 OF 20																
JOURDANTON TOTAL	3	30		30			9		14		795	24	9	495	1	
CSJ 0517-02-044																
RDWY SHEET 1 OF 12									2							
RDWY SHEET 2 OF 12									3							
RDWY SHEET 3 OF 12									3							
RDWY SHEET 4 OF 12		25	37		155	1			1	1	469			154		8
CSJ 0517-02-044 TOTAL		25	37		155	1			9	1	469			154		8
CSJ 0517-03-037																
RDWY SHEET 5 OF 12		91						2	1		90					
RDWY SHEET 6 OF 12																
RDWY SHEET 7 OF 12									1							
RDWY SHEET 8 OF 12																
RDWY SHEET 9 OF 12									1							
RDWY SHEET 10 OF 12																
RDWY SHEET 11 OF 12																
RDWY SHEET 12 OF 12																
CSJ 0517-03-037 TOTAL		91						2	3		90					
TILDEN TOTAL		116	37		155	1		2	12	1	559			154		8
INDEFINITE QUANTITIES																
PROJECT TOTALS	3	146	37	30	155	1	9	2	26	1	1354	24	9	649	1	8

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SUMMARY OF QUANTITIES

SHEET 4 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	18
CONT.	SECT.	JOB	
0517	01	048,ETC	

SUMMARY OF ROADWAY ITEMS CONTINUED

LOCATION	684 7009	684 7028	687 7001	687 7003	688 7001	688 7003	690 7007	690 7030	690 7094	690 7105	690 7123	6001 7002
	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	TRF SIG CBL (TY A)(14 AWG)(2 CONDR)	PED POLE ASSEMBLY	RELOCATE PED POLE ASSEMBLY	PED DETECT PUSH BUTTON (APS)	PED DETECTOR CONTROLLER UNIT	REPLACE OF GROUND BOXES	REMOVAL OF PEDESTRIAN PUSH BUTTONS	REMOV PED SIG LED TRAF SIG LAMP UNIT	REROUTE CABLES	RELOCATE OF PEDESTRIAN PUSH BUTTON	PORTABLE CHANGEABLE MESSAGE SIGN
	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	EA	EA
RDWY SHEET 1 OF 20												
RDWY SHEET 2 OF 20												
RDWY SHEET 3 OF 20												
RDWY SHEET 4 OF 20												
RDWY SHEET 5 OF 20												
RDWY SHEET 6 OF 20												
RDWY SHEET 7 OF 20												
RDWY SHEET 8 OF 20												
RDWY SHEET 9 OF 20												
RDWY SHEET 10 OF 20												
RDWY SHEET 11 OF 20												
RDWY SHEET 12 OF 20												
RDWY SHEET 13 OF 20							1			20		
RDWY SHEET 14 OF 20				3			1			60	3	
RDWY SHEET 15 OF 20												
RDWY SHEET 16 OF 20												
RDWY SHEET 17 OF 20												
RDWY SHEET 18 OF 20												
RDWY SHEET 19 OF 20												
RDWY SHEET 20 OF 20												
JOURDANTON TOTAL				3			2			80	3	
CSJ 0517-02-044												
RDWY SHEET 1 OF 12												
RDWY SHEET 2 OF 12												
RDWY SHEET 3 OF 12												
RDWY SHEET 4 OF 12	620	620	5	2	8	1	3	1	1	160		
CSJ 0517-02-044 TOTAL	620	620	5	2	8	1	3	1	1	160		
CSJ 0517-03-037												
RDWY SHEET 5 OF 12												
RDWY SHEET 6 OF 12												
RDWY SHEET 7 OF 12												
RDWY SHEET 8 OF 12												
RDWY SHEET 9 OF 12												
RDWY SHEET 10 OF 12												
RDWY SHEET 11 OF 12												
RDWY SHEET 12 OF 12												
CSJ 0517-03-037 TOTAL												
TILDEN TOTAL	620	620	5	2	8	1	3	1	1	160		
INDEFINITE QUANTITIES												4
PROJECT TOTALS	**620**	**620**	**5**	**5**	**8**	**1**	**5**	**1**	**1**	**240**	**6**	**4**

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SUMMARY OF QUANTITIES

SHEET 5 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	19
CONT.	SECT.	JOB	
0517	01	048,ETC	

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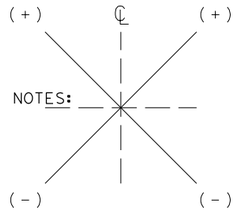
DRIVEWAY	EXIST SLOPE	SLOPE 1	L1	SLOPE 2	L2	ITEM 530-6004 DRIVEWAYS (CONC)(SY)
52-1	-2.61%	-	-	-1.50%	7'	131
53-1	-4.35%	-6.29%	7.67'	-1.50%	6'	59
54-1	-0.44%	-0.81%	5.62'	-1.50%	6'	88
55-1	-0.75%	0.82%	15.67'	-	-	89
57-1	0.05%	-0.33%	9.68'	0.50%	8'	64
58-1	2.52%	2.98%	13.19'	1.50%	6'	31
58-2	-3.86%	6.34%	7.65'	1.50%	8'	52
58-3	3.79%	2.32%	14.02'	1.50%	6'	267
59-1	2.61%	3.49%	7.47'	1.50%	6'	25
59-2	6.90%	7.76%	8.60'	1.50%	4'	33
62-1	4.59%	6.25%	11.25'	1.50%	6'	92
62-2	7.34%	5.17%	11.73'	1.50%	6'	35
65-1	3.19%	7.97%	3.34'	1.50%	8'	81
66-1	4.09%	9.75%	4.15'	1.50%	6'	120
66-2	3.93%	5.17%	11.73'	1.50%	6'	300
69-1	1.80%	1.66%	10.04'	1.50%	6'	60



DRIVEWAY SLOPE SIGN CONVENTION

NOTES:

1. REFERENCE SPECIAL DETAIL SHEET FOR DRIVEWAY CONDITIONS.

2. SEE CROSS-SECTIONS FOR EXISTING GRADES

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DRIVEWAY SUMMARY

SHEET 1 OF 1

FED. RD. DIV. NO:	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	20
CONT.	SECT.	JOB	
0517	01	048,ETC	

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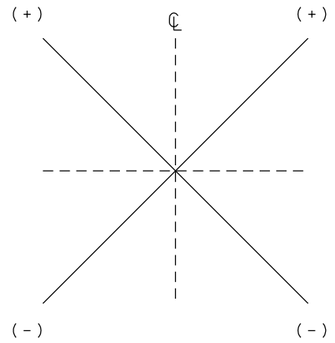
DRIVEWAY	EXISTSLOPE	SLOPE 1	L1	SLOPE 2	L2	SLOPE 3	L3
1	0.93%	-1.50%	4.00'	5.78%	5.89'	N/A	N/A
2	3.50%	8.90%	5.06'	1.50%	6.00'	5.00%	1.00'
3	9.16%	1.50%	4.00'	11.42%	16.37'	N/A	N/A
4	6.01%	1.50%	4.00'	11.64%	16.84'	N/A	N/A
5	5.11%	8.89%	1.80'	1.50%	4.00'	7.57%	6.34'
6	6.97%	10.67%	6.00'	1.50%	4.00'	11.00%	1.00'
7	2.51%	4.69%	7.68'	1.50%	7.00'	N/A	N/A
8	2.35%	4.19%	8.60'	1.50%	6.00'	3.00%	1.00'
9	1.81%	5.53%	6.69'	1.50%	7.00'	N/A	N/A
10	1.70%	1.24%	15.35'	N/A	N/A	N/A	N/A
11	1.61%	0.70%	15.71'	N/A	N/A	N/A	N/A
12	2.05%	1.92%	15.61'	N/A	N/A	N/A	N/A
13	2.00%	1.89%	21.23'	N/A	N/A	N/A	N/A
14	1.73%	4.02%	6.22'	1.50%	11.00'	N/A	N/A
15	2.00%	1.94%	17.00'	N/A	N/A	N/A	N/A
16	5.75%	0.30%	3.00'	1.50%	6.00	12.00%	1.30'

NOTES:

1. REFERENCE SPECIAL DETAIL SHEET FOR DRIVEWAY CONDITIONS.
2. DRIVEWAYS NOT BEING COMPLETELY RECONSTRUCTED HAVE BEEN GIVEN 1' OF MATERIAL ON EACH SIDE OF THE DRIVEWAY TO TIE BACK TO EXISTING.



DRIVEWAY SLOPE SIGN CONVENTION

CivilCorp
ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

STATE OF TEXAS
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96609
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DRIVEWAY SUMMARY - TILDEN

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	21
CONT.	SECT.	JOB	
0517	01	048, ETC	

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SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
5 OF 12												
	5-1	S1-1		36 x 36	X		10BWG	1	SA	P		
		SW16-7PL		24 X 12	X							
	5-2	S1-1		36 x 36	X		10BWG	1	SA	P		
		SW16-7PL		24 X 12	X							

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.

2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.

3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0517	01	049,ETC	SH 16
4-16		DIST	COUNTY		SHEET NO.
8-16		SAT	ATASCOSA,ETC		22

18

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.

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TRAFFIC CONTROL PLAN SEQUENCE OF WORK

(1) THIS PROJECT WILL BE CONSTRUCTED IN (2) PHASES. BEFORE THE COMMENCEMENT OF EACH PHASE, INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS AND BARRICADES AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER. DAILY LANE CLOSURES WILL BE USED IN ACCORDANCE WITH STATE TCP STANDARDS. DROP OFF CONDITIONS OF GREATER THAN 2" MUST HAVE A 3:1 SLOPE AT THE END OF EACH DAY. MAINTAIN ACCESS TO ADJACENT PROPERTIES AND INTERSECTING SIDE STREETS AT ALL TIMES DURING CONSTRUCTION. MATERIAL AND LABOR REQUIRED TO MAINTAIN ACCESS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO ITEM 502.

(2) PLACE TEMPORARY EROSION CONTROL DEVICES AS SHOWN IN PLANS.

(3) PREPARING ROW / REMOVAL OF EXISTING ITEMS TO BE DONE ONLY IN AREAS WHERE WORK IS OCCURING, AS PER THE PHASES NOTED BELOW.

(4) PLANING, SURFACE TREATMENTS AND OVERLAYS SHALL BE PERFORMED IN THE DIRECTION OF TRAFFIC. BEGIN SURFACE CONSTRUCTION ON HIGH SIDE OF ROAD TO AVOID WATER PONDING ISSUES.

(5) THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF ITEM 7, "LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC" AND ITEM 502, "BARRICADES, SIGNS, AND TRAFFIC HANDLING", OF THE STANADARD SPECIFICATIONS, AND TO THE GENERAL NOTES.

(6) LANE CLOSURES WITHIN SCHOOL ZONES WILL BE LIMITED BETWEEN THE HOURS OF 9AM AND 3PM MONDAY THROUGH FRIDAY, UNLESS APPROVED BY THE ENGINEER. THE SCHOOL ZONE IS LOCATED FROM APPROX 130' NORTH OF PEACH ST TO APPROX 500' SOUTH OF TAMARAC ST IN JOURDANTON.

(7) A BRIEF DESCRIPTION OF THESE PHASES ARE AS FOLLOWS:

PHASE 1 (NORTHEAST SIDEWALK CONSTRUCTION)

THE INTENT OF THIS PHASE IS TO CONSTRUCT THE FLATWORK IMPROVEMENTS ON THE NORTHEASTERN (PLAN NORTH) SIDE OF SH 16 (ZANDERSON AVE) BETWEEN AND SH 97 (OAK ST) AND TAMARAC ST.

(1) PLACE WORK ZONE CHANNELING DEVICES AND SHIFT TRAFFIC ACCORDING TO TCP(1-2b)-18, TCP (1-3a)-18, AND AS SHOWN IN PLANS.

(2) CONSTRUCT PROPOSED FLATWORK AS SHOWN IN THE PLANS. DRIVEWAYS SHALL BE RECONSTRUCTED PER PLANS WITHIN TWO (2) CALENDAR DAYS OF REMOVAL.

(3) INSTALL PERMANENT VEGETATION AND REMOVE ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH EROSION CONTROL REQUIREMENTS.

(4) OPEN ALL LANES TO TRAFFIC.

PHASE 2 (SOUTHWEST SIDEWALK CONSTRUCTION)

THE INTENT OF THIS PHASE IS TO CONSTRUCT THE FLATWORK IMPROVEMENTS ON THE SOUTHWESTERN (PLAN SOUTH) SIDE OF SH 16 (ZANDERSON AVE) BETWEEN AND SH 97 (OAK ST) AND TAMARAC ST.

(1) PLACE WORK ZONE CHANNELING DEVICES AND SHIFT TRAFFIC ACCORDING TO TCP(1-2b)-18, TCP (1-3a)-18, AND AS SHOWN IN PLANS.

(2) CONSTRUCT PROPOSED FLATWORK AS SHOWN IN THE PLANS. DRIVEWAYS SHALL BE RECONSTRUCTED PER PLANS WITHIN TWO (2) CALENDAR DAYS OF REMOVAL.

(3) INSTALL PERMANENT VEGETATION AND REMOVE ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH EROSION CONTROL REQUIREMENTS.

(4) ALL SIGNAL WORK TO BE COMPLETED IN THIS PHASE. THE SIGNAL SHALL REMAIN FULLY OPERATION AT ALL TIMES DURING CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE STATE.

(5) OPEN ALL LANES TO TRAFFIC.

4/19/2024

STATE OF TEXAS
SAMUEL J. LUNDQUIST
122185
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PROFESSIONAL ENGINEER

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TCP NARRATIVE

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	23
CONT.	SECT.	JOB	
0517	01	048,ETC	

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TRAFFIC CONTROL PLAN SEQUENCE OF WORK

(1) THIS PROJECT WILL BE CONSTRUCTED IN TWO (2) PHASES. BEFORE COMMENCEMENT OF EACH PHASE, INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS AND BARRICADES AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER. DAILY LANE OR SHOULDER CLOSURES WILL BE USED IN ACCORDANCE WITH STATE TCP STANDARDS. DROP OFF CONDITIONS OF GREATER THAN 2" MUST HAVE A 3:1 SLOPE AT THE END OF EACH DAY. MAINTAIN ACCESS TO ADJACENT PROPERTIES AND INTERSECTING SIDE STREETS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO PROVIDE FULL TIME CONVENIENT INGRESS AND EGRESS TO GAS PUMPS AND MERCANTILE STORE LOCATED AT 401 RIVER STREET. MATERIAL AND LABOR REQUIRED TO MAINTAIN ACCESS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO ITEM 502.
(2) PLACE TEMPORARY EROSION CONTROL DEVICES AS SHOWN IN PLANS.
(3) PREPARING ROW / REMOVAL OF EXISTING ITEMS TO BE DONE ONLY IN AREAS WHERE WORK IS OCCURRING, AS PER THE PHASES NOTED BELOW.
(4) THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF ITEM 7, "LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC" AND ITEM 502, "BARRICADES, SIGNS, AND TRAFFIC HANDLING", OF THE STANDARD SPECIFICATIONS, AND TO THE GENERAL NOTES.
(5) LANE CLOSURES WITHIN SCHOOL ZONES WILL BE LIMITED BETWEEN THE HOURS OF 9AM AND 3PM MONDAY THROUGH FRIDAY, UNLESS APPROVED BY THE ENGINEER. THE SCHOOL ZONE IS LOCATED FROM HACKBERRY ST SOUTH TO APPROX. 375' SOUTH OF SCHOOL ST IN TILDEN.
(6) A BRIEF DESCRIPTION OF THESE PHASES ARE AS FOLLOWS:

PHASE 1 (EAST SIDEWALK CONSTRUCTION

THE INTENT OF THIS PHASE IS TO CONSTRUCT THE FLATWORK IMPROVEMENTS ON THE EASTERN (PLAN EAST) SIDE OF SH 16 / RIVER ST BETWEEN WATER ST AND SCHOOL ST.

(1) IN WORK AREAS LOCATED ADJACENT TO TRAFFIC LANES OR PAVED SHOULDERS, PLACE WORK ZONE CHANNELING DEVICES AND SHIFT TRAFFIC AS REQUIRED ACCORDING TO TCP(1-1a)-18, TCP (1-4a)-18, AND/OR AS DIRECTED/APPROVED BY THE ENGINEER.
(2) CONSTRUCT PROPOSED FLATWORK AS SHOWN IN THE PLANS. DRIVEWAYS SHALL BE RECONSTRUCTED PER PLANS WITHIN TWO (2) CALENDAR DAYS OF REMOVAL.
(3) INSTALL PERMANENT VEGETATION AND REMOVE ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH EROSION CONTROL REQUIREMENTS.
(4) OPEN ALL LANES TO TRAFFIC.

PHASE 2 (WEST SIDEWALK CONSTRUCTION)

THE INTENT OF THIS PHASE IS TO CONSTRUCT THE FLATWORK IMPROVEMENTS ON THE WESTERN (PLAN WEST) SIDE OF SH 16 / RIVER ST BETWEEN WATER ST AND SCHOOL ST.

(1) IN WORK AREAS LOCATED ADJACENT TO TRAFFIC LANES OR PAVED SHOULDERS, PLACE WORK ZONE CHANNELING DEVICES AND SHIFT TRAFFIC AS REQUIRED ACCORDING TO TCP(1-1a)-18, TCP (1-4a)-18, AND/OR AS DIRECTED/APPROVED BY THE ENGINEER.
(2) CONSTRUCT PROPOSED FLATWORK AS SHOWN IN THE PLANS. DRIVEWAYS SHALL BE RECONSTRUCTED PER PLANS WITHIN TWO (2) CALENDAR DAYS OF REMOVAL.
(3) INSTALL PERMANENT VEGETATION AND REMOVE ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH EROSION CONTROL REQUIREMENTS.
(4) ALL TRAFFIC SIGNAL RELATED WORK TO BE COMPLETED THIS PHASE.
(5) OPEN ALL LANES TO TRAFFIC.

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STATE OF TEXAS
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4/12/2024

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TCP NARRATIVE
TILDEN

SHEET 1 OF 1

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA,ETC	
CONT.	SECT.	JOB	24
0517	01	048,ETC	

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SCHEDULE OF TRAFFIC CONTROL DEVICES

LOCATION	USAGE	OBSERVE WARNING SIGNS STATE LAW	WORK ZONE TRAFFIC FINES DOUBLED WHEN WORKERS PRESENT	ROAD WORK AHEAD	NAME ADDRESS CITY STATE CONTRACTOR	END ROAD WORK	* ROAD CONSTRUCTION ⇦ NEXT X MILES NEXT X MILES ⇨	* ROAD CONSTRUCTION ⇦ NEXT X MILES					XXX FEET	XXX FT		XX MPH	RIGHT LANE CLOSED	LEFT LANE CLOSED	LANE ENDS MERGE RIGHT	LANE ENDS MERGE LEFT	ROAD CLOSED XXX FT	ROAD CLOSED AHEAD
	TYPE	R20-3T	G20-9T, R20-5T, R20-5aTP	CW20-1D	G20-6T	G20-2	G20-1aT	G20-1bT R/L	CW1-4R	CW1-4L	CW1-6R	CW1-6L	CW16-2P	CW16-2aP	CW4-2 R/L	CW13-1P	CW20-5TR	CW20-5TL	CW9-2R	CW9-2L	CW20-3C	CW20-3D
1	APPROACHES TO PROJECT	X	X	X	X																	
2	DEPARTURES FROM PROJECT					X																
3	SIDE STREET APPROACHES			X			X	X														
4	SIDE STREET DEPARTURES					X																
*	AS DIRECTED								X	X	X	X	X	X	X	X	X	X	X	X	X	X

SCHEDULE OF TRAFFIC CONTROL DEVICES

LOCATION	USAGE	BE PREPARED TO STOP	DETOUR 1500 FT	DETOUR XXX FT	DETOUR 2500 FT	DETOUR AHEAD			BE PREPARED TO STOP	END DETOUR	DETOUR ⇨	DETOUR ⇦	DETOUR ⇧	NAME	⇦ DETOUR	DETOUR ⇨	ROAD CLOSED TO THRU TRAFFIC	DRIVEWAY ⇨	SIDEWALK CLOSED	BEGIN CONST. ZONE	END CONST. ZONE	ROAD CLOSED
	TYPE	CW3-4	CW20-2A	CW20-2B	CW20-2C	CW20-2D	CW1-6aT	CW20-7	CW3-4	W4-8a	M4-9R	M4-9L	M4-9S	M4-12T	M4-10L	M4-10R	R11-4	D70a	R9-9	R3-9b R3-9aP	R3-9b R3-9dP	R11-2
1	APPROACHES TO PROJECT																					
2	DEPARTURES FROM PROJECT																					
3	SIDE STREET APPROACHES																					
4	SIDE STREET DEPARTURES																					
*	AS DIRECTED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

SCHEDULE OF TRAFFIC CONTROL DEVICES

LOCATION	USAGE	STOP		STAY ALERT TALK OR TEXT LATER	END WORK ZONE	BEGIN ROAD WORK NEXT X MILES																
	TYPE	R1-1	R4-7	G20-10T	G20-2bT	G20-5T	TY III BARRICADE	OTLD	VP-(F) R/L	PLASTIC DRUM	PCMS	STATIC MESSAGE BOARD										
1	APPROACHES TO PROJECT			X		X																
2	DEPARTURES FROM PROJECT				X																	
3	SIDE STREET APPROACHES																					
4	SIDE STREET DEPARTURES																					
*	AS DIRECTED	X	X				X	X	X	X	X	X										

NOTE:

1. CERTAIN SIGNS MUST BE USED IN CONJUNCTION WITH OTHER SIGNS. EXAMPLE: "FLAGGER AHEAD" MUST HAVE A "BE PREPARED TO STOP."

2. BARRICADES AND WARNING SIGNS ON THIS SHEET ARE MINIMAL CONSTRUCTION ZONE, SIGNING, ADDITIONAL BARRICADES, WARNING SIGNS, ARROW PANELS, CONES, ETC. REQUIRED IN ACCORDANCE WITH CURRENT BC STANDARDS AND THE TEXAS MUTCD MAY BE REQUIRED IN AREAS OF ACTUAL CONSTRUCTION.

3. A DISTANCE PLAQUE IN FEET OR MILES MAY BE REQUIRED FOR USE IN CONJUNCTION WITH WARNING SIGNS.

* TO BE USED AT HIGH VOLUME CROSSROADS. TO BE DETERMINED BY THE ENGINEER.

4/19/2024

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SCHEDULE OF BARRICADES

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	25
CONT.	SECT.	JOB	
0517	01	048,ETC	

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① OBSERVE WARNING SIGNS STATE LAW
R20-3T (48x42)

② STAY ALERT — TALK OR TEXT LATER
G20-10T (48x60)

③ WORK ZONE / TRAFFIC FINES DOUBLE / WHEN WORKERS ARE PRESENT
G20-9TP (24x24)
R20-5T (24x30)
R20-5aTP PLAQUE (24x12)

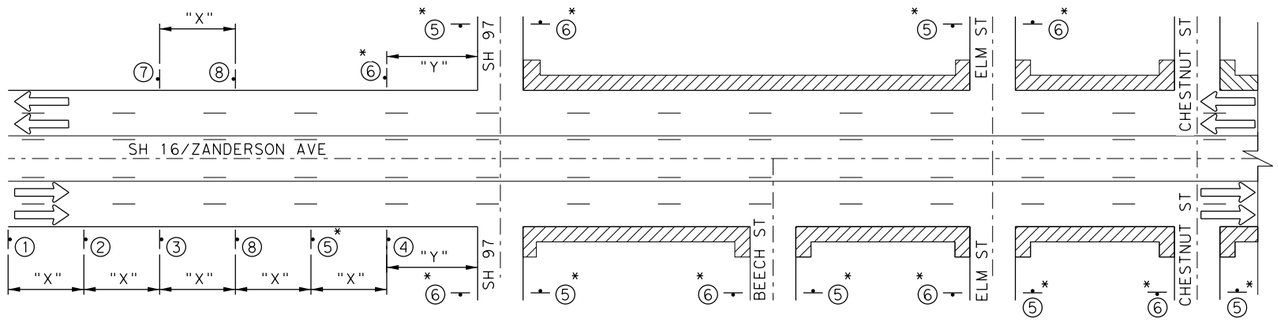
④ BEGIN ROAD WORK NEXT X MILES / NAME ADDRESS CITY STATE / CONTRACTOR
G20-5T (48x24)
G20-6T (48x30)

⑤ * ROAD WORK AHEAD
CW20-1D (36x36)

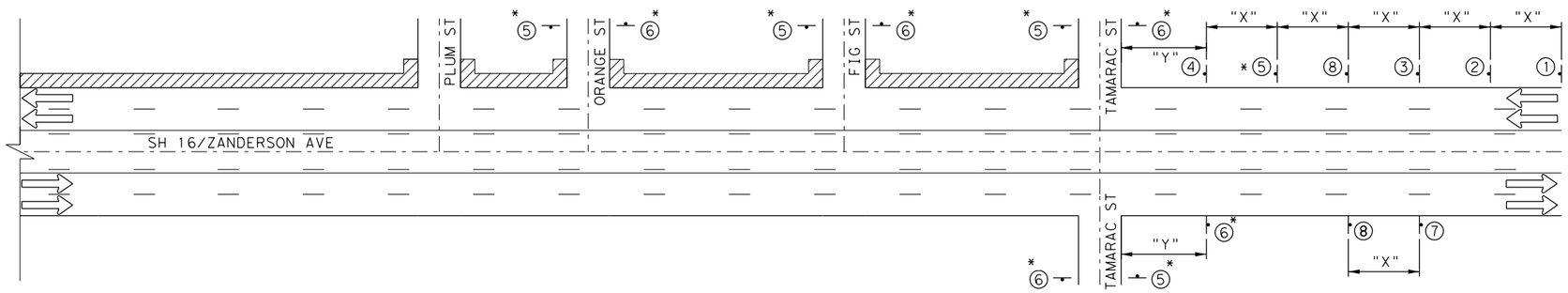
⑥ * END ROAD WORK
G20-2 (48x24)

⑦ END WORK ZONE
G20-2bT (48x24)

⑧ SPEED LIMIT XX
R2-1
(24x30 - SINGLE LANE)
(30x36 - MULTI-LANE)
SEE NOTE 7



SH 16/ZANDERSON AVE FROM SH 97/OAK ST TO CHESTNUT ST
SHEETS 39-44 REFER TO TCP (1-1a) AND TCP (1-4) FOR ADDITIONAL INFORMATION



SH 16/ZANDERSON AVE FROM PLUM ST TO TAMARAC ST
SHEETS 45-55 REFER TO TCP (1-1a) AND TCP (1-4) FOR ADDITIONAL INFORMATION

NOTES:
1. CONTRACTOR SHALL PLACE ADVANCE WARNING SIGNS ACCORDING TO DISTANCE "X" ON STANDARDS BC(2)-14.
2. CONTRACTOR SHALL FIELD VERIFY POSTED SPEED FOR "X" SPACING.
3. SIGN LOCATIONS MAY BE ADJUSTED DUE TO CONDITIONS AS APPROVED BY THE ENGINEER.
4. CONFLICTING SIGNS SHALL BE COVERED BY CONTRACTOR OR AS DIRECTED BY THE ENGINEER.
5. SIGNS SHOWN SHALL BE COORDINATED WITH SPECIFIC WORK TRAFFIC CONTROL DETAILS INCLUDED IN THE PLANS.
6. SIGNS 5 & 6 TO BE MOVED AND PLACED ONLY IN ADVANCE OF WHERE WORK IS BEING PERFORMED.
7. SIGN 8 SHALL DISPLAY APPROPRIATE SPEED LIMIT IN PLACE OF "XX".

LEGEND
- CONSTRUCTION WARNING SIGN
- TRAFFIC FLOW
- WORK ZONE

POSTED SPEED	LONGITUDINAL BUFFER SPACE "Y" DISTANCE
MPH	FT (APPROX)
30	90
35	120
40	155
45	195
50	240
55	295
60	350
65	410
70	475

* SEE NOTE 6 FOR TYPICAL USE OF SIGNS 5 & 6

0 10 20

4/19/2024

STATE OF TEXAS — SAMUEL J. LUNDQUIST — 122185 — LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

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SH 16
JOURDANTON
TRAFFIC CONTROL PLAN ADVANCE WARNING DEVICES

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	26
CONT.	SECT.	JOB	
0517	01	048, ETC	

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① OBSERVE WARNING SIGNS STATE LAW
R20-3T (48x42)

② STAY ALERT — TALK OR TEXT LATER
G20-10T (48x60)

③ WORK ZONE / TRAFFIC FINES DOUBLE / WHEN WORKERS ARE PRESENT
G20-9TP (24x24)
R20-5T (24x30)
R20-5aTP PLAQUE (24x12)

④ BEGIN ROAD WORK NEXT X MILES / NAME ADDRESS CITY STATE / CONTRACTOR
G20-5T (48x24)
G20-6T (48x30)

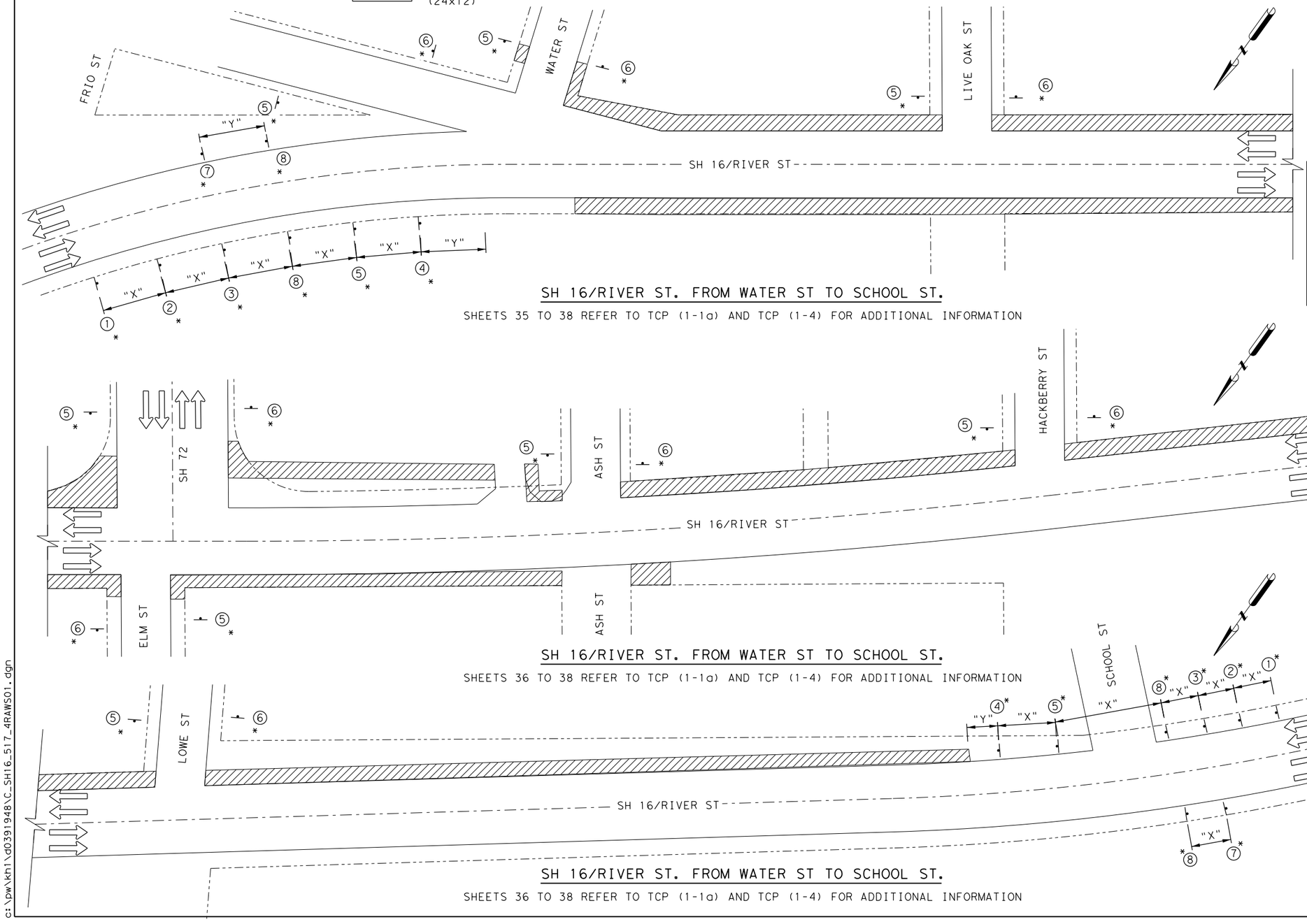
⑤ * ROAD WORK AHEAD
CW20-1D (36x36)

⑥ * END ROAD WORK
G20-2 (48x24)

⑦ END WORK ZONE
G20-2bT (48x24)

⑧ SPEED LIMIT XX
R2-1 (24x30 - SINGLE LANE) (30x36 - MULTI-LANE) SEE NOTE 7

NOTES:
1. CONTRACTOR SHALL PLACE ADVANCE WARNING SIGNS ACCORDING TO DISTANCE "X" ON STANDARDS BC(2)-21.
2. CONTRACTOR SHALL FIELD VERIFY POSTED SPEED FOR "X" SPACING.
3. SIGN LOCATIONS MAY BE ADJUSTED DUE TO CONDITIONS AS APPROVED BY THE ENGINEER.
4. CONFLICTING SIGNS SHALL BE COVERED BY CONTRACTOR OR AS DIRECTED BY THE ENGINEER.
5. SIGNS SHOWN SHALL BE COORDINATED WITH SPECIFIC WORK TRAFFIC CONTROL DETAILS INCLUDED IN THE PLANS.
6. SIGNS 5 & 6 TO BE MOVED AND PLACED ONLY IN ADVANCE OF WHERE WORK IS BEING PERFORMED.
7. SIGN 8 SHALL DISPLAY APPROPRIATE SPEED LIMIT IN PLACE OF "XX".



LEGEND
- CONSTRUCTION WARNING SIGN
- TRAFFIC FLOW
- WORK ZONE

POSTED SPEED	LONGITUDINAL BUFFER SPACE "Y" DISTANCE
MPH	FT (APPROX)
30	90
35	120
40	155
45	195
50	240
55	295
60	350
65	410
70	475

* SEE NOTE 6 FOR TYPICAL USE OF SIGNS 5 & 6

SH 16/RIVER ST. FROM WATER ST TO SCHOOL ST.
SHEETS 35 TO 38 REFER TO TCP (1-1a) AND TCP (1-4) FOR ADDITIONAL INFORMATION

SH 16/RIVER ST. FROM WATER ST TO SCHOOL ST.
SHEETS 36 TO 38 REFER TO TCP (1-1a) AND TCP (1-4) FOR ADDITIONAL INFORMATION

SH 16/RIVER ST. FROM WATER ST TO SCHOOL ST.
SHEETS 36 TO 38 REFER TO TCP (1-1a) AND TCP (1-4) FOR ADDITIONAL INFORMATION

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

STATE OF TEXAS — WIRAT WANICHAKORN — 96609 — LICENSED PROFESSIONAL ENGINEER

4/12/2024

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TRAFFIC CONTROL PLAN
ADVANCE WARNING DEVICES-TILDEN

SHEET 1 OF 1

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA,ETC	27
CONT.	SECT.	JOB	
0517	01	048,ETC	

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP)is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

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.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13 9-07 8-14 5-10 5-21	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		28

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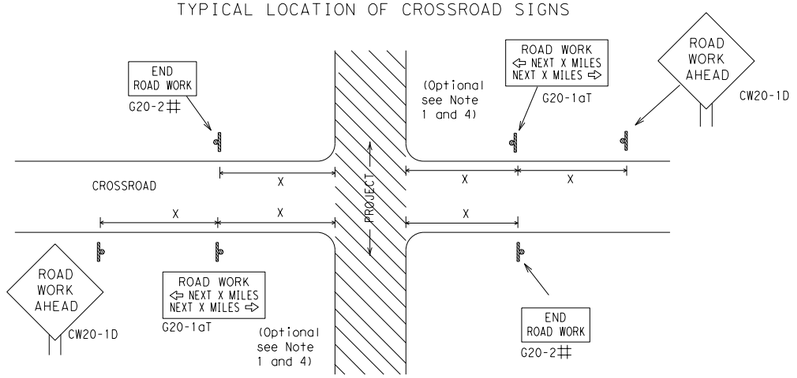
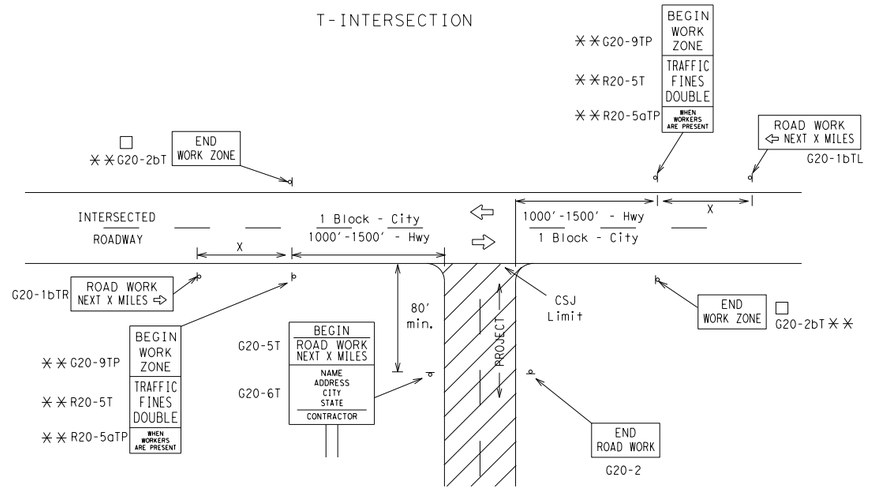
TYPICAL LOCATION OF CROSSROAD SIGNS



May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). 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 road is low volume as per TMUTCD Part 5. 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 "ROAD WORK NEXT X MILES"(G20-1aT)sign shall be required at high volume 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.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. 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.
2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[1,5,6]

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign △ Spacing "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500[2]
60	600[2]
65	700[2]
70	800[2]
75	900[2]
80	1000[2]
✳	✳[3]

✳ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

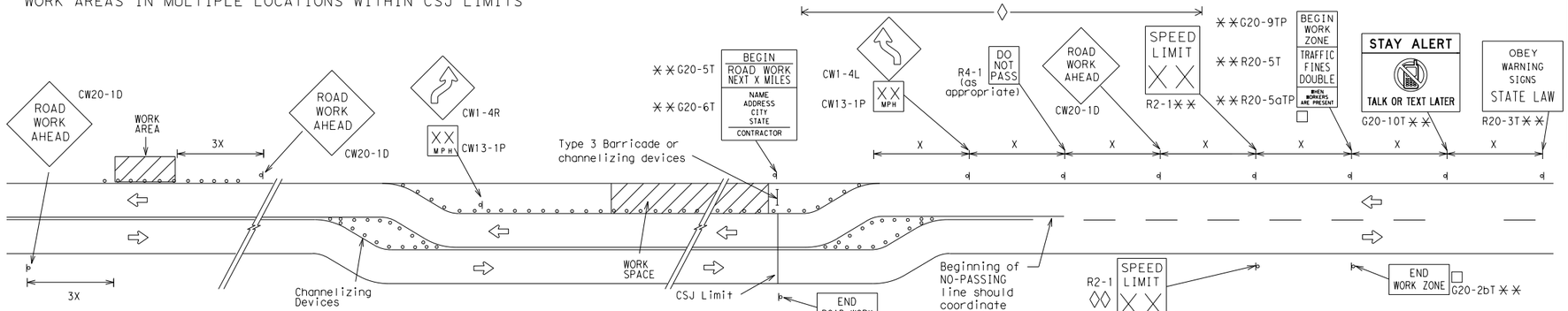
△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

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 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

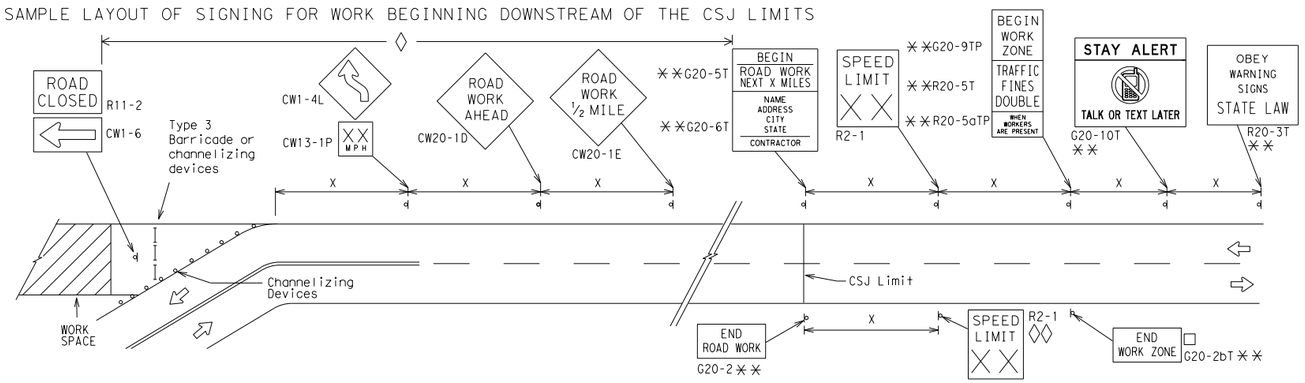
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD 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.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

□ The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

✳✳ CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

◊ Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

◊◊ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND	
⊢⊣	Type 3 Barricade
○ ○ ○	Channelizing Devices
▬	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0517	01	048,ETC	SH16
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	ATASCOSA		29

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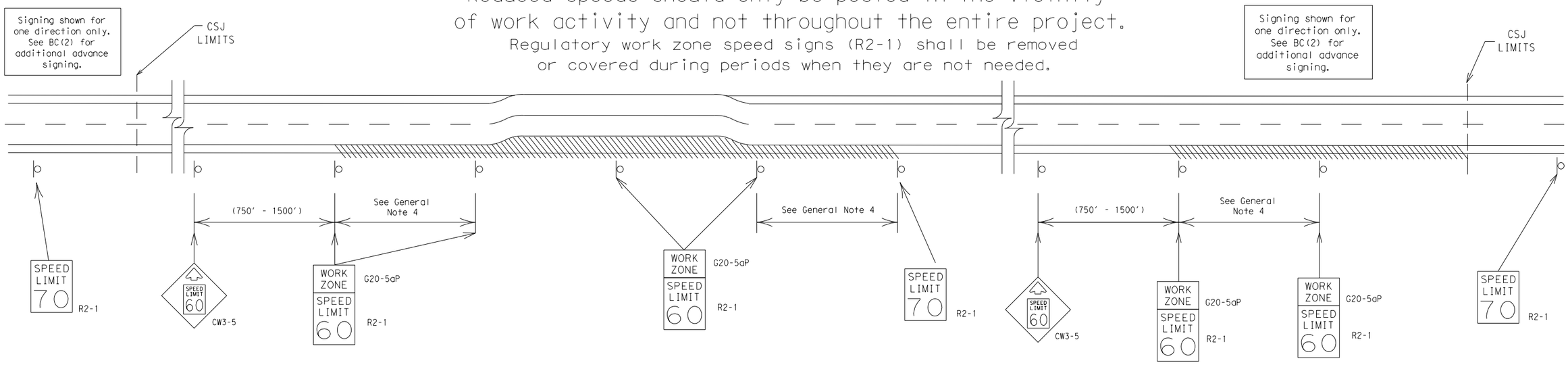
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



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, when approved as described above, should be posted and visible to the motorist when work activity is present. 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 may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered.
(See Removing or Covering on BC(4)).

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum 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 work zone 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 (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the"ADVANCE SPEED LIMIT"(CW3-5)sign, "WORK ZONE"(G20-5aP) plaque and the "SPEED LIMIT"(R2-1)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 as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Law enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13 5-21	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		30

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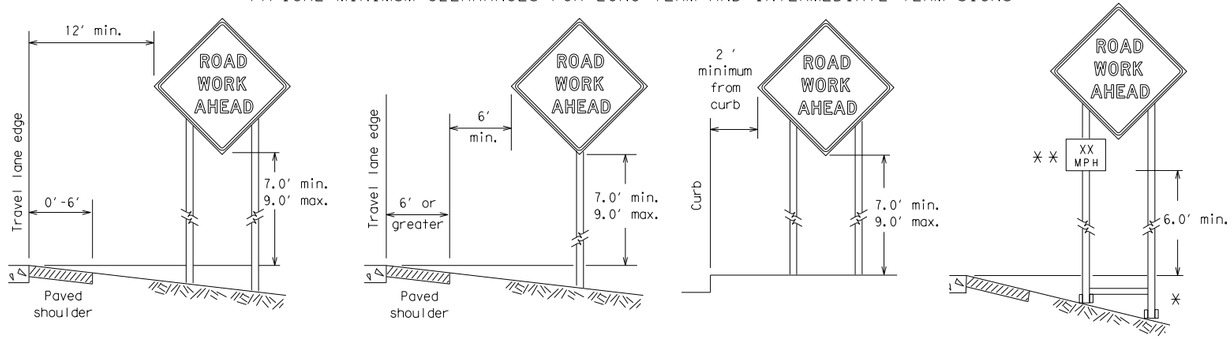
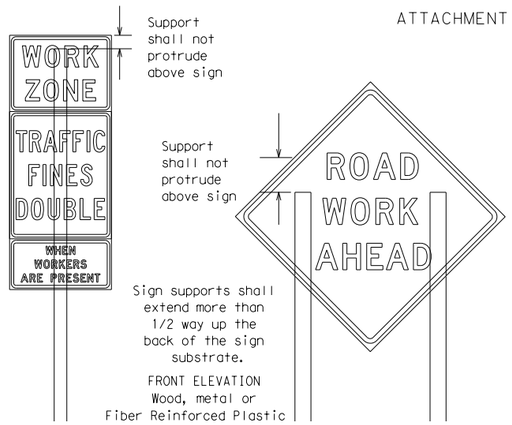
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



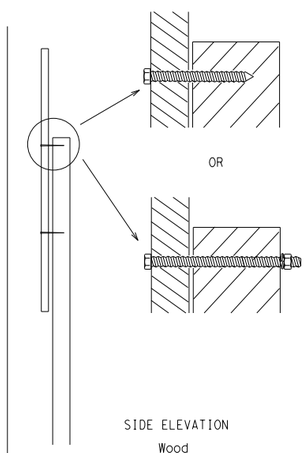
⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

⁎⁎ When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS



FRONT ELEVATION
Wood, metal or
Fiber Reinforced Plastic



SIDE ELEVATION
Wood

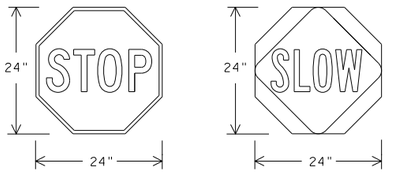
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the spice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
2. STOP/SLOW paddles shall be retroreflectorized when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



Background - Red
Legend & Border - White

Background - Orange
Legend & Border - Black

SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

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, specific service (LOGO), 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. For details for covering large guide signs see the TS-CD standard.
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 standard sheets, TLRS standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets 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. 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.
5. 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.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets.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 the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. 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 inch.
9. 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 6)

1. The types of sign supports, sign mounting height,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 the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration 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 more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

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, except as shown for supplemental plaques mounted below other signs.
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 or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations 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, regardless of the tightness of the weave.
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 face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid 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 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 wooden 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, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of 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 should be used.
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 shall 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. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. 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.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

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REVISIONS	0517	01	048,ETC	SH16
9-07 8-14	DIST	COUNTY		SHEET NO.
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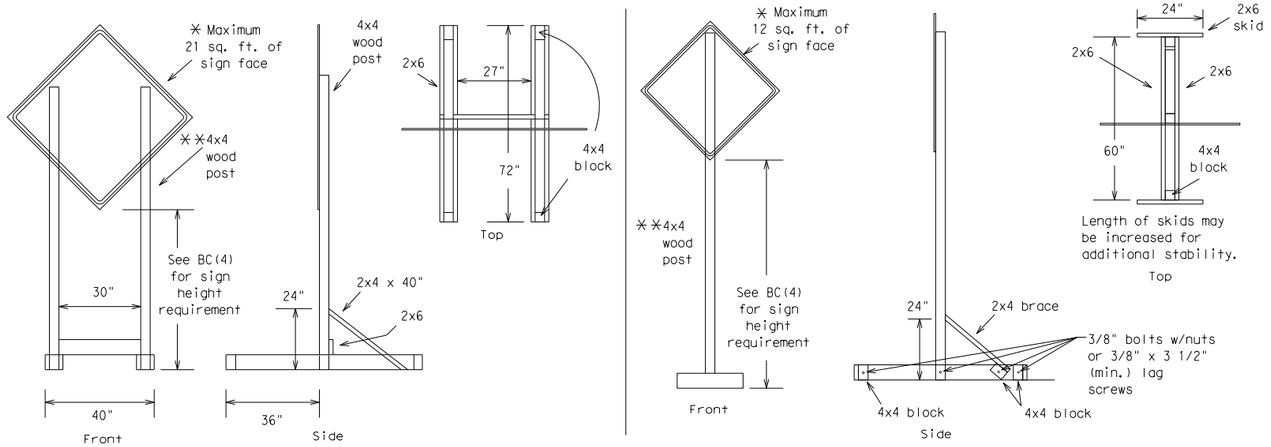
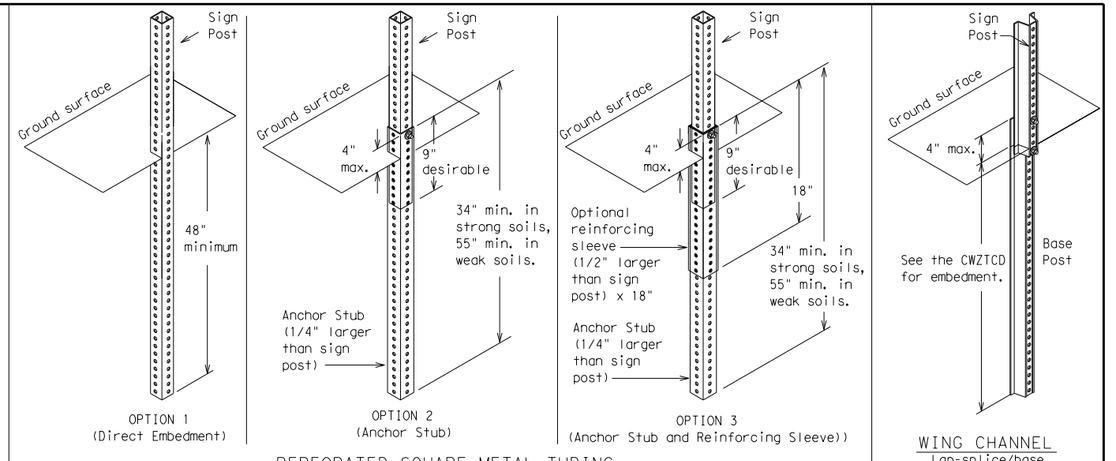


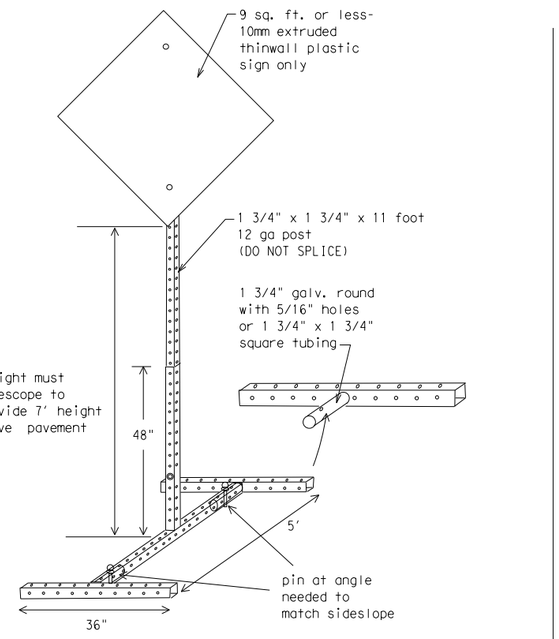
SKID MOUNTED WOOD SIGN SUPPORTS

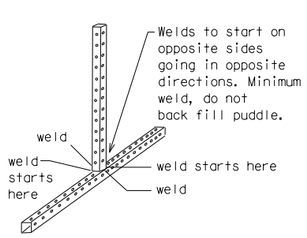
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

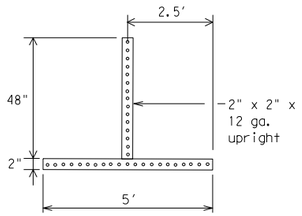


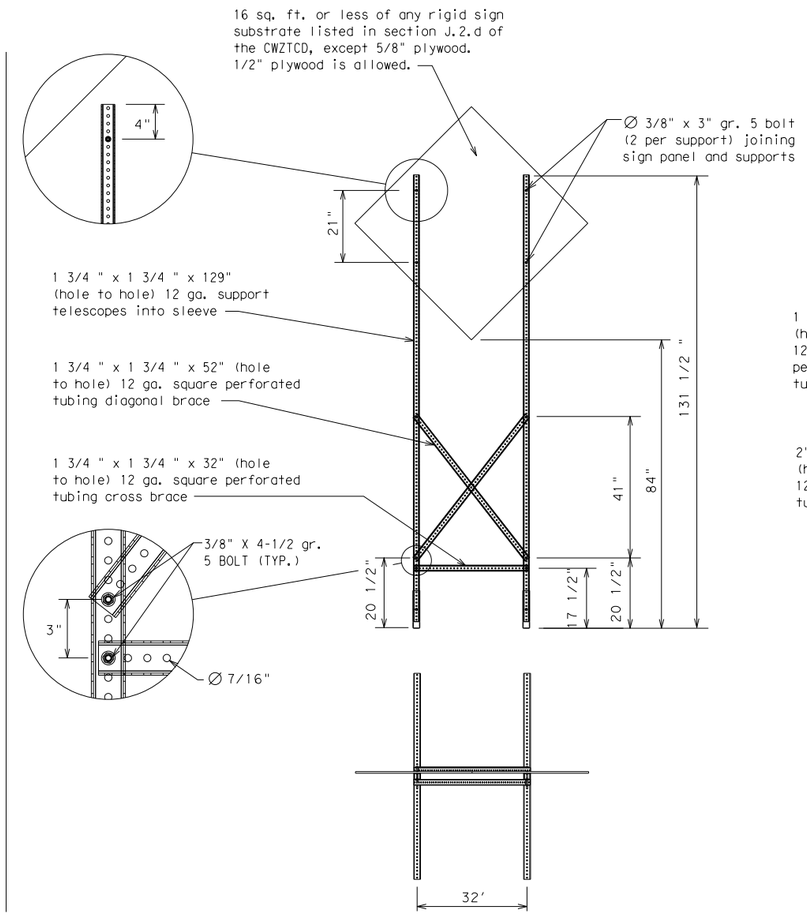
GROUND MOUNTED SIGN SUPPORTS

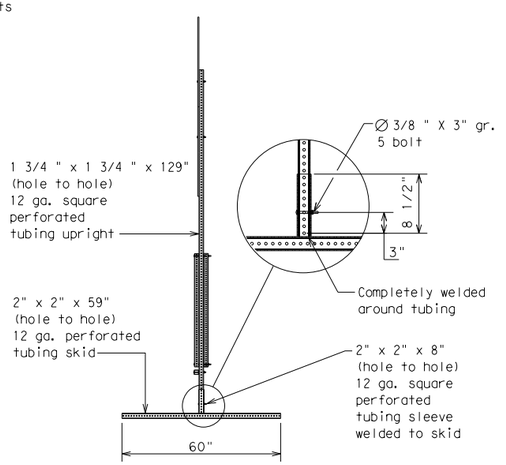
Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation.
Two post installations can be used for larger signs.











SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS

MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. 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."

** Wood 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.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
3. Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
4. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
5. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
6. When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
7. 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.
8. 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 three seconds each.
9. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
10. 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.
11. Do not use the word "Danger" in message.
12. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
13. Do not display messages that scroll horizontally or vertically across the face of the sign.
14. 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, unless shown in the TMUTCD.
15. PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
16. Each line of text should be centered on the message board rather than left or right justified.
17. If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

Roadway designation ≠ IH-number, US-number, SH-number, FM-number

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT
RIGHT X LANES CLOSED	RIGHT X LANES OPEN
CENTER LANE CLOSED	DAYTIME LANE CLOSURES
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE
EXIT CLOSED	RIGHT LN TO BE CLOSED
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI
XXXXXXXX BLVD CLOSED	

Other Condition List

ROADWORK XXX FT	ROAD REPAIRS XXXX FT
FLAGGER XXXX FT	LANE NARROWS XXXX FT
RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
DETOUR X MILE	ROUGH ROAD XXXX FT
ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
BUMP XXXX FT	US XXX EXIT X MILES
TRAFFIC SIGNAL XXXX FT	LANES SHIFT ⁂

⁂ LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

MERGE RIGHT	FORM X LINES RIGHT
DETOUR NEXT X EXITS	USE XXXXX RD EXIT
USE EXIT XXX	USE EXIT I-XX NORTH
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N
TRUCKS USE US XXX N	WATCH FOR TRUCKS
WATCH FOR TRUCKS	EXPECT DELAYS
EXPECT DELAYS	PREPARE TO STOP
REDUCE SPEED XXX FT	END SHOULDER USE
USE OTHER ROUTES	WATCH FOR WORKERS
STAY IN LANE ⁂	

Location List

AT FM XXXX
BEFORE RAILROAD CROSSING
NEXT X MILES
PAST US XXX EXIT
XXXXXXX TO XXXXXXX
US XXX TO FM XXXX

Warning List

SPEED LIMIT XX MPH
MAXIMUM SPEED XX MPH
MINIMUM SPEED XX MPH
ADVISORY SPEED XX MPH
RIGHT LANE EXIT
USE CAUTION
DRIVE SAFELY
DRIVE WITH CARE

⁂⁂ Advance Notice List

TUE-FRI XX AM- X PM
APR XX-XX X PM-X AM
BEGINS MONDAY
BEGINS MAY XX
MAY X-X XX PM - XX AM
NEXT FRI-SUN
XX AM TO XX PM
NEXT TUE AUG XX
TONIGHT XX PM- XX AM

⁂ LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

⁂⁂ See Application Guidelines Note 6.

APPLICATION GUIDELINES

1. Only 1 or 2 phases are to be used on a PCMS.
2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
3. A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
4. A Location Phase is necessary only if a distance or location is not included in the first phase selected.
5. If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
6. For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

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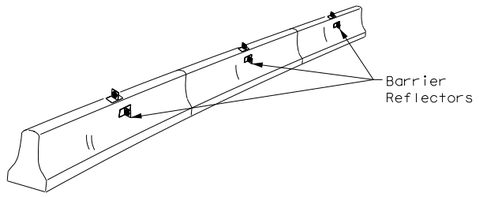
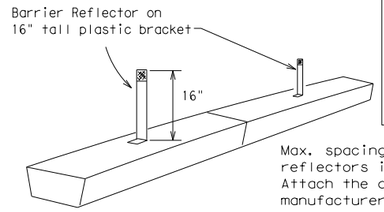
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.

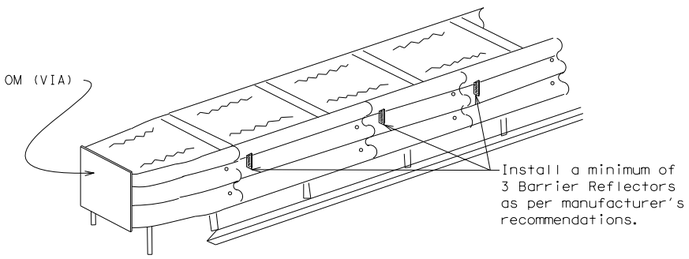


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB)

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

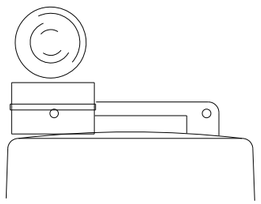


DELINEATION OF END TREATMENTS

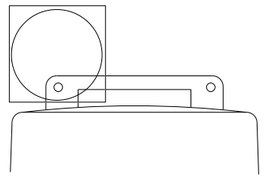
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square.Must have a yellow reflective surface area of at least 30 square inches

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 drums. They are intended to warn of or mark a 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 B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree 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.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

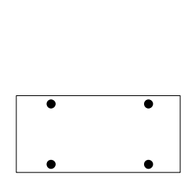
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D 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.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

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 yellow in color and 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 B or Type C.
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.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

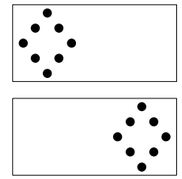
Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board 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 Boards 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 Board.
4. The Flashing Arrow Board should be able to display the following symbols:

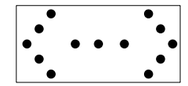


4 CORNER CAUTION

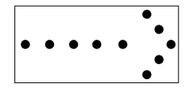
OR



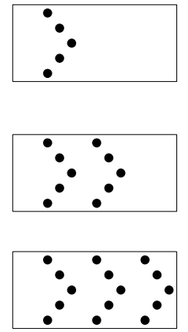
ALTERNATING DIAMOND CAUTION



DOUBLE ARROW



RIGHT/LEFT ARROW
(right arrow shown; left is similar)



RIGHT/LEFT SEQUENTIAL CHEVRON
(right chevron shown; left is similar)

5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board 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 Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

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 Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. 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.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0517	01	048,ETC	SH16
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	ATASCOSA		34

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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. 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).
5. 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.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

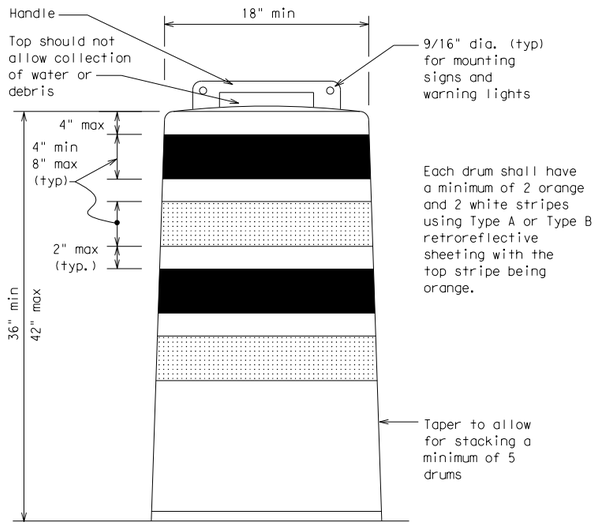
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents 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, warning reflector unit or approved compliant 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 maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

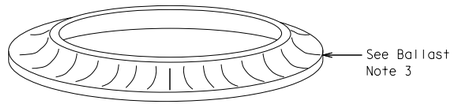
RETROREFLECTIVE SHEETING

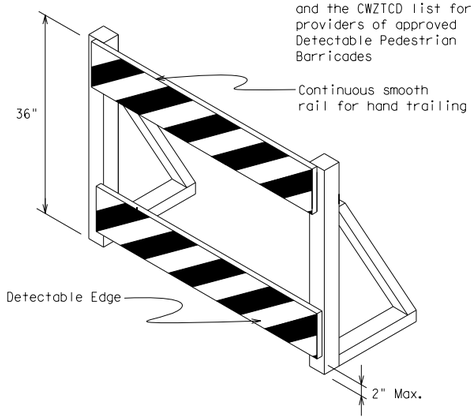
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall 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, 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. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. 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.
5. 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.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.

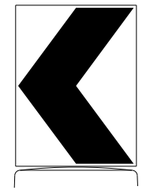




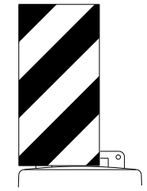


DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, 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 B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. 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, except for the R9 series signs discussed in note 8 below.
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.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0517	01	048,ETC	SH16
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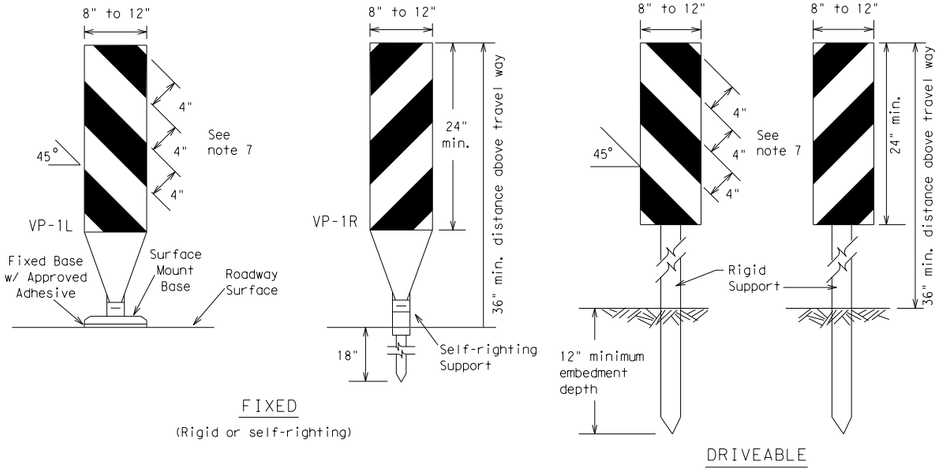
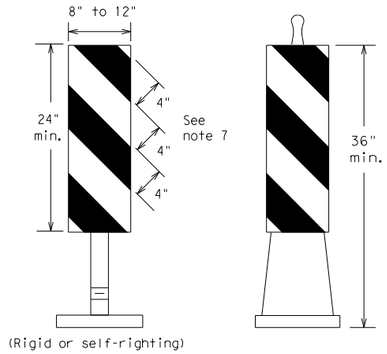


FIXED
(Rigid or self-righting)

DRIVEABLE

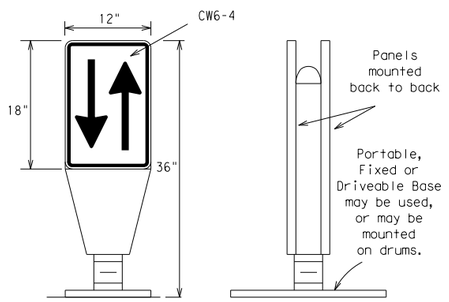


(Rigid or self-righting)

PORTABLE

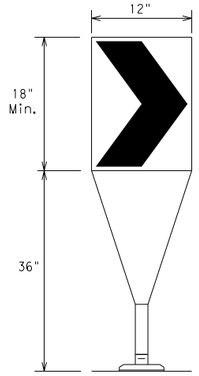
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use 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 and freeways or other high speed roadways, may have more than 270 square inches 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 A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.

VERTICAL PANELS (VPs)



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.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs 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 B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



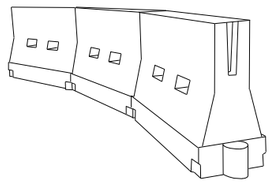
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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 nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS

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, nonreflective, 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 a minimum of 30 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.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

Posted Speed	Formula	Minimum Desirable Taper Lengths ✻✻			Suggested Maximum Spacing of Channelizing Devices	
		10′ Offset	11′ Offset	12′ Offset	On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′
35		205′	225′	245′	35′	70′
40		265′	295′	320′	40′	80′
45	L = WS	450′	495′	540′	45′	90′
50		500′	550′	600′	50′	100′
55		550′	605′	660′	55′	110′
60		600′	660′	720′	60′	120′
65		650′	715′	780′	65′	130′
70		700′	770′	840′	70′	140′
75		750′	825′	900′	75′	150′
80		800′	880′	960′	80′	160′

✻✻Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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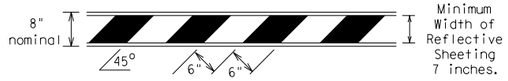
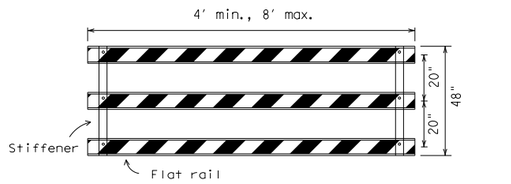
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 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. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
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. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. 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.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



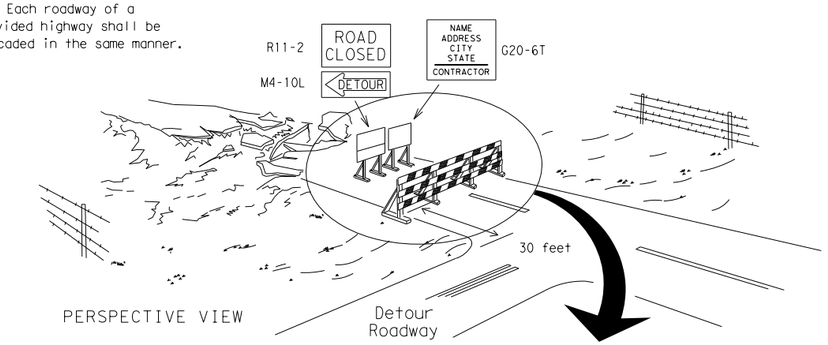
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

TYPICAL PANEL DETAIL
FOR SKID OR POST TYPE BARRICADES

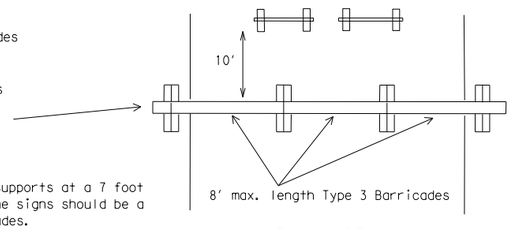
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.

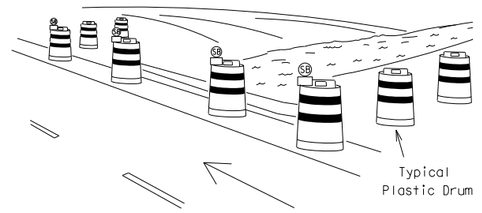
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

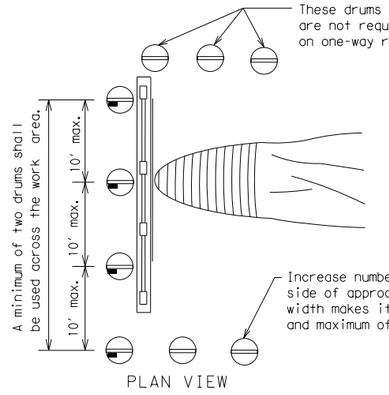
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

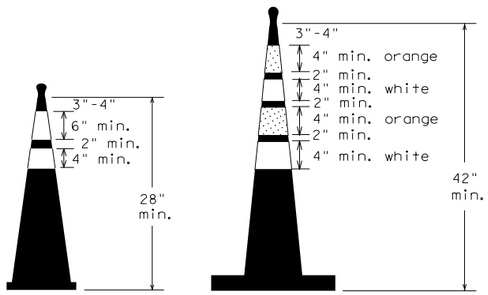
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder 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.



LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

PLAN VIEW

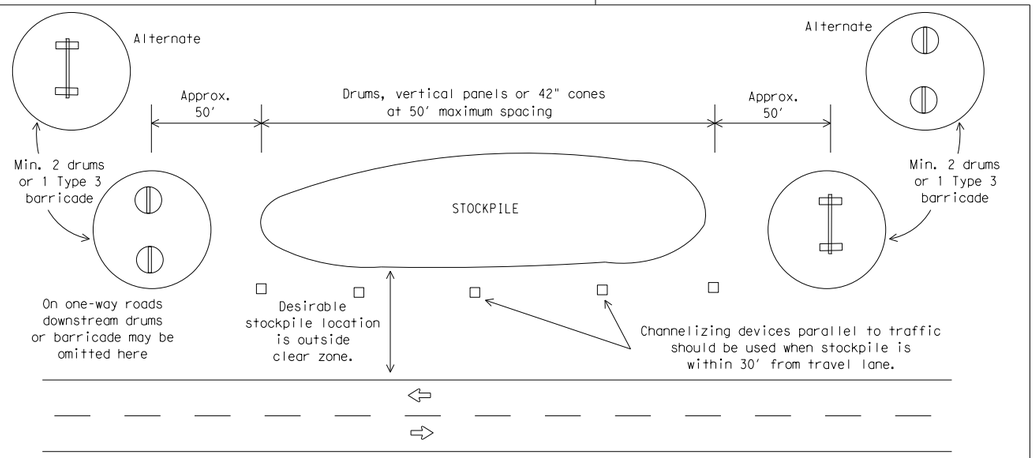
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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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 PASS WITH CARE signs at the beginning of 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(12).
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.

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

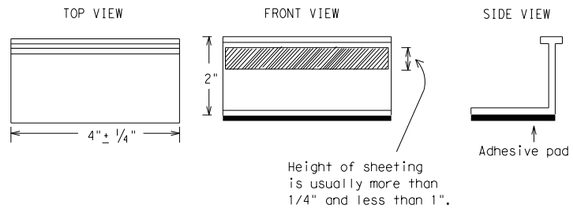
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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 160 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 within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

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 three days, 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 discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
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.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

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.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

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
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

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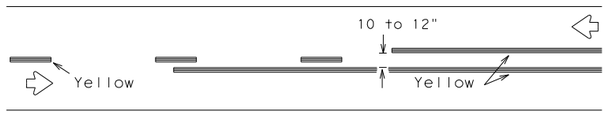
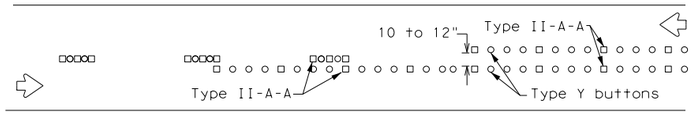
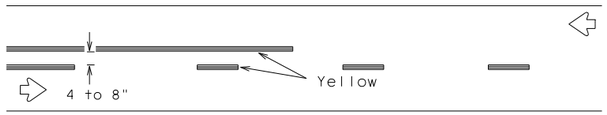
PAVEMENT MARKING PATTERNS



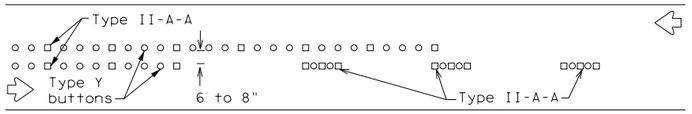
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



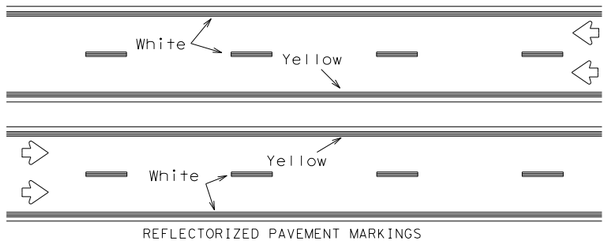
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



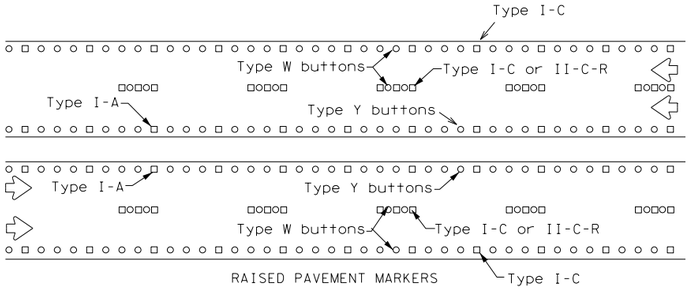
RAISED PAVEMENT MARKERS - PATTERN B

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.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



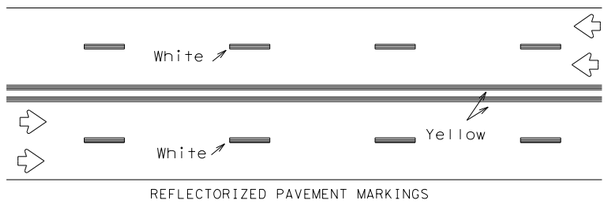
REFLECTORIZED PAVEMENT MARKINGS



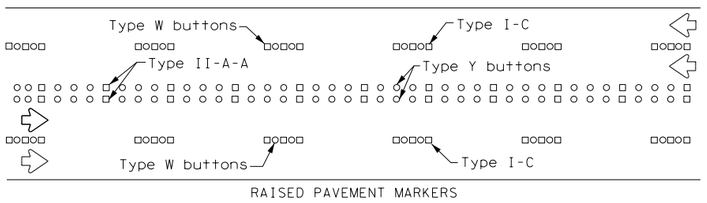
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



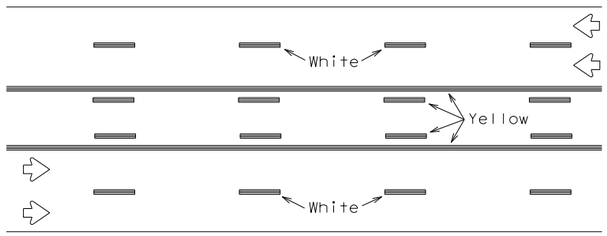
REFLECTORIZED PAVEMENT MARKINGS



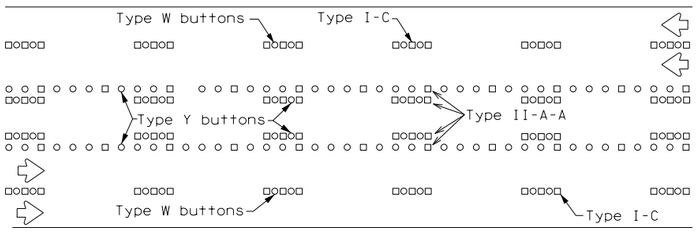
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

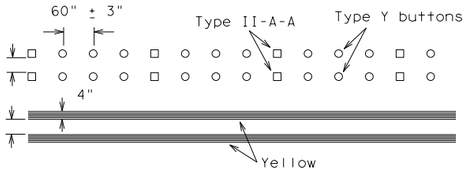
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

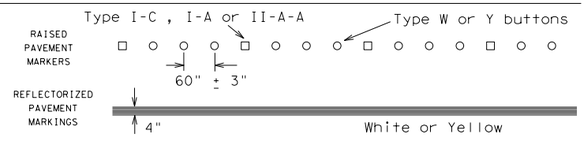
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

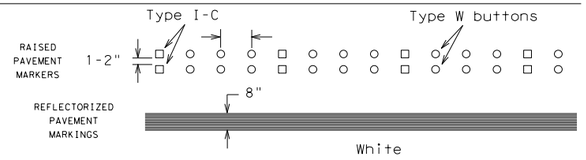


EDGE LINE OR SINGLE NO-PASSING LINE



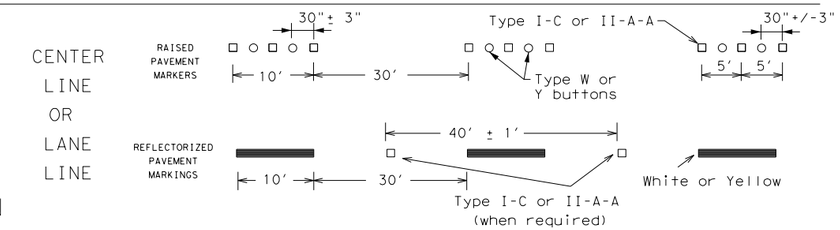
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

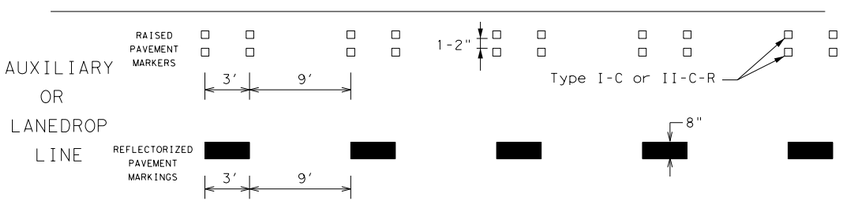


BROKEN LINES

CENTER LINE OR LANE LINE

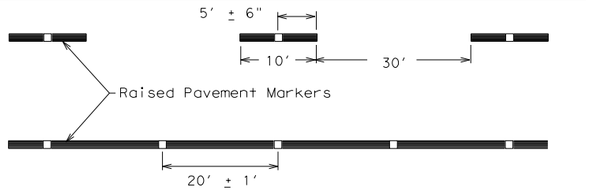


AUXILIARY OR LANEDROP LINE



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

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

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REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		39

106

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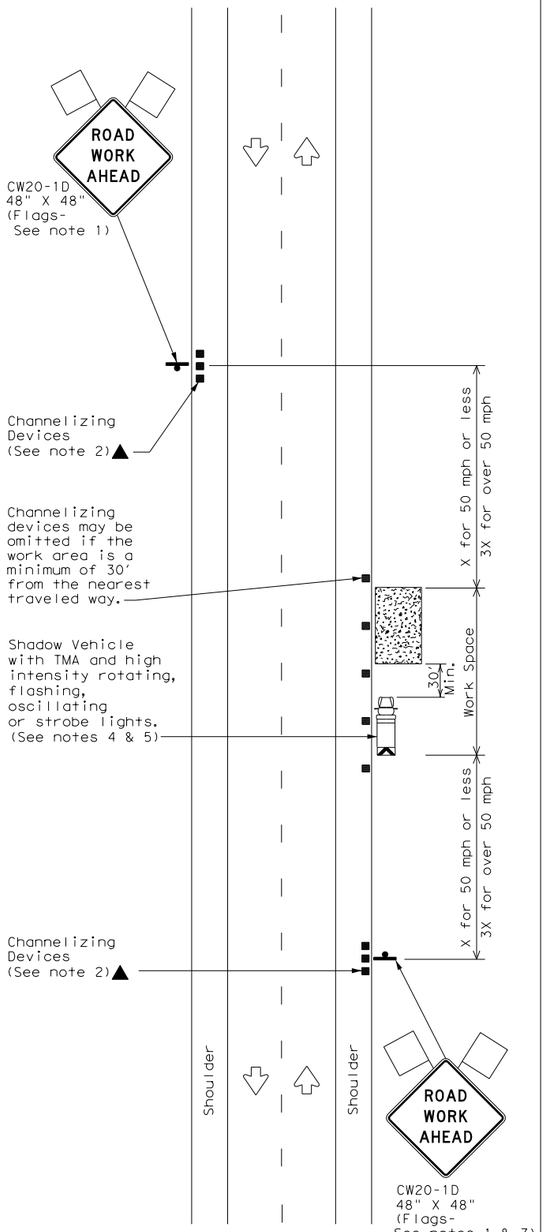
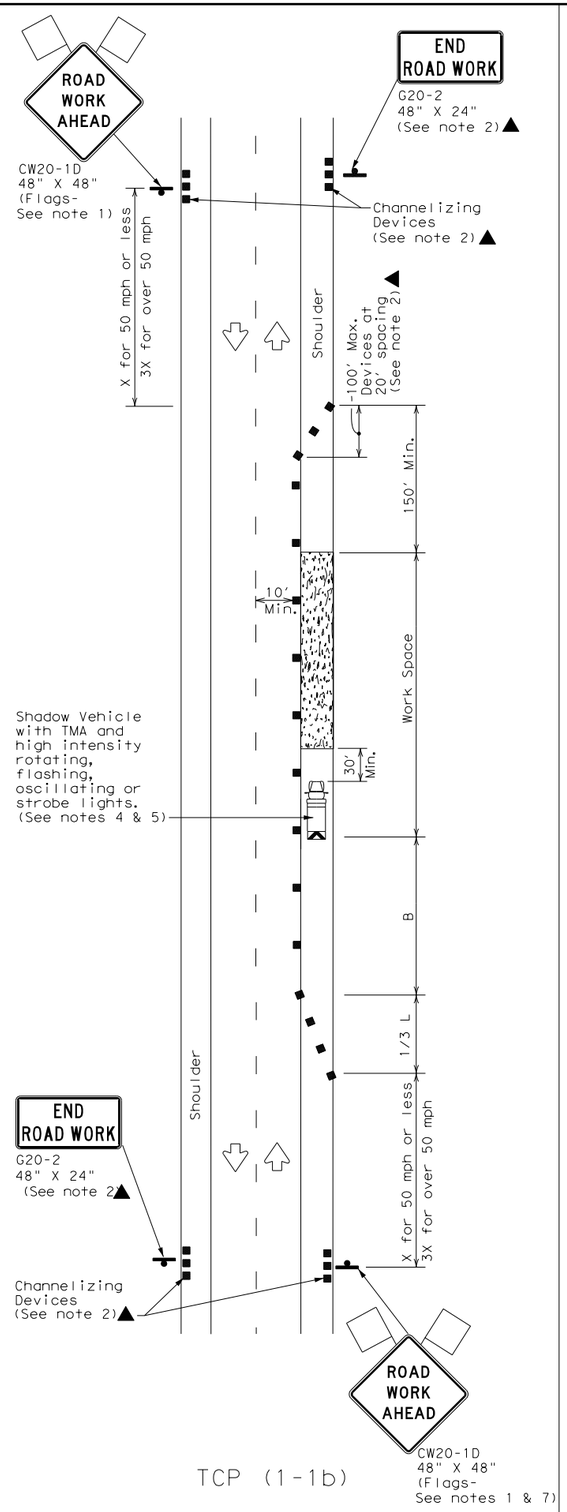


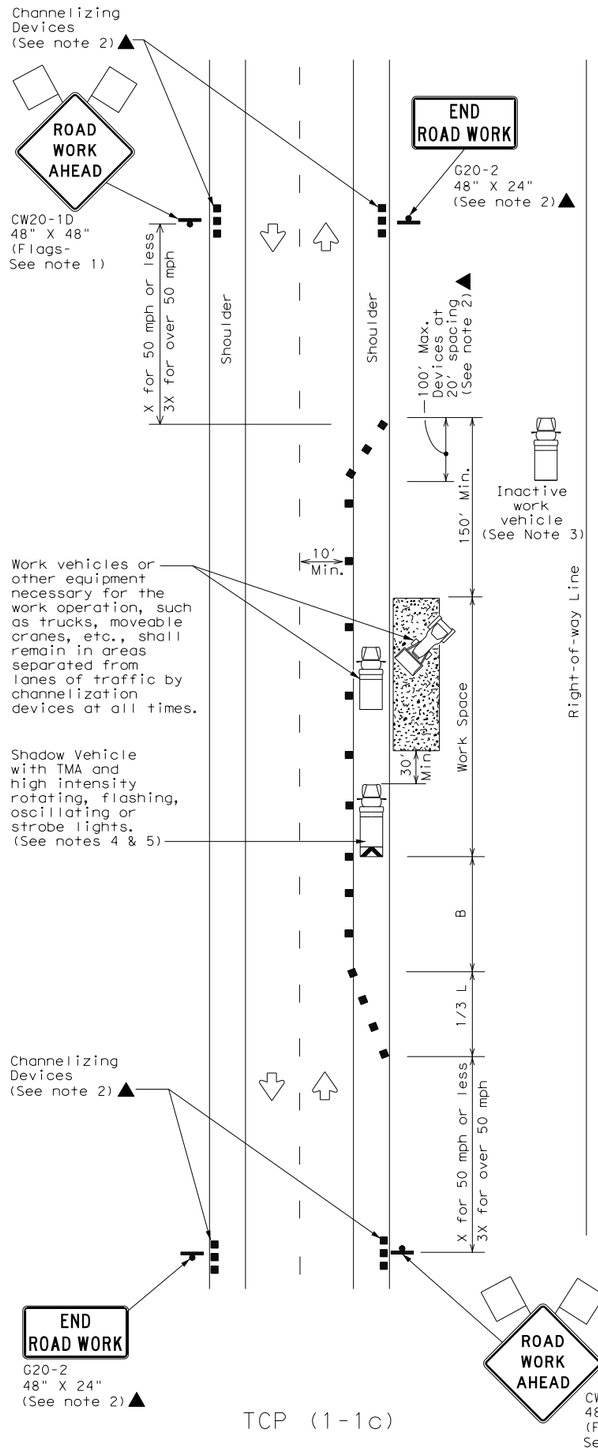
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* 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 where shown 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, or for routine maintenance work, when approved by the Engineer.
3. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		40

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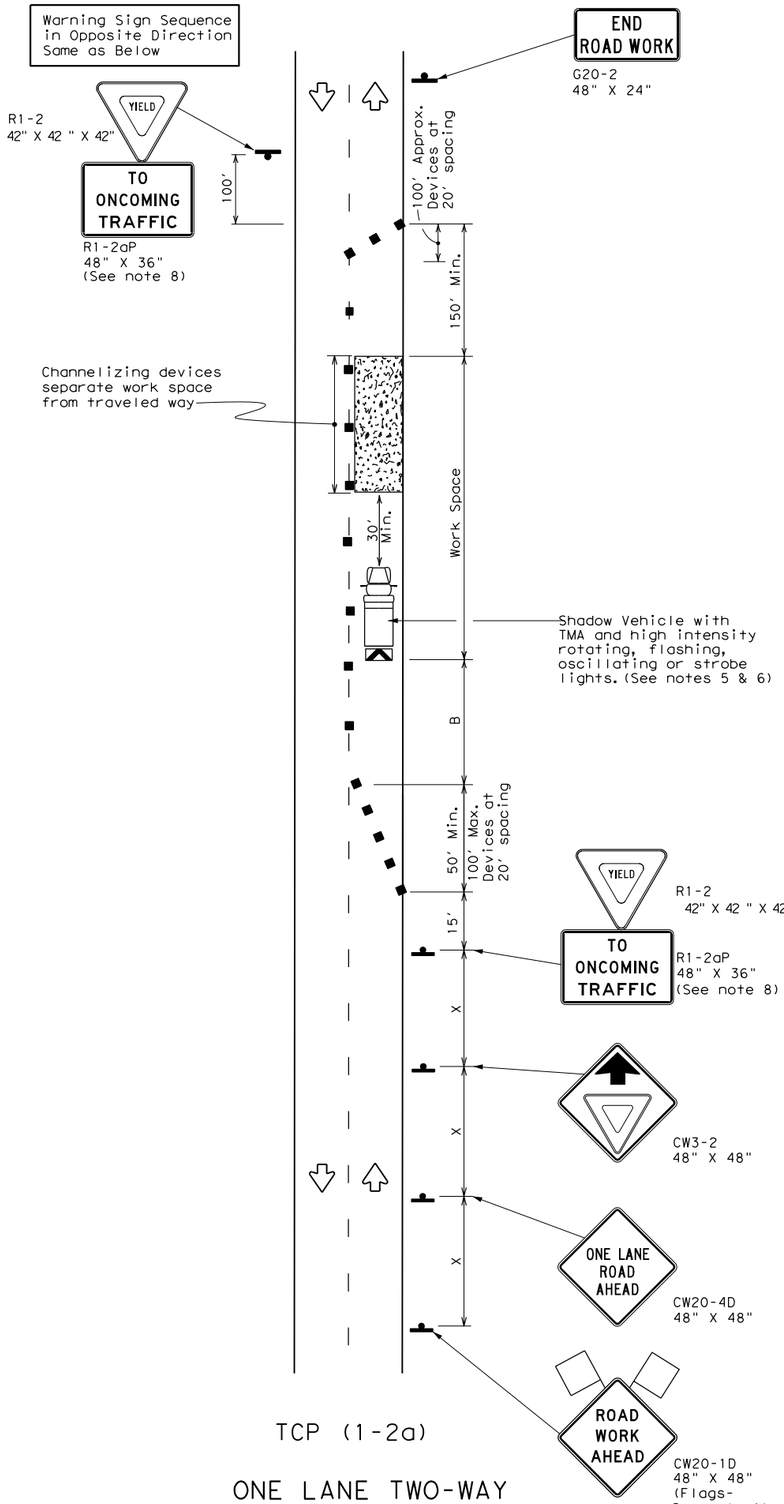
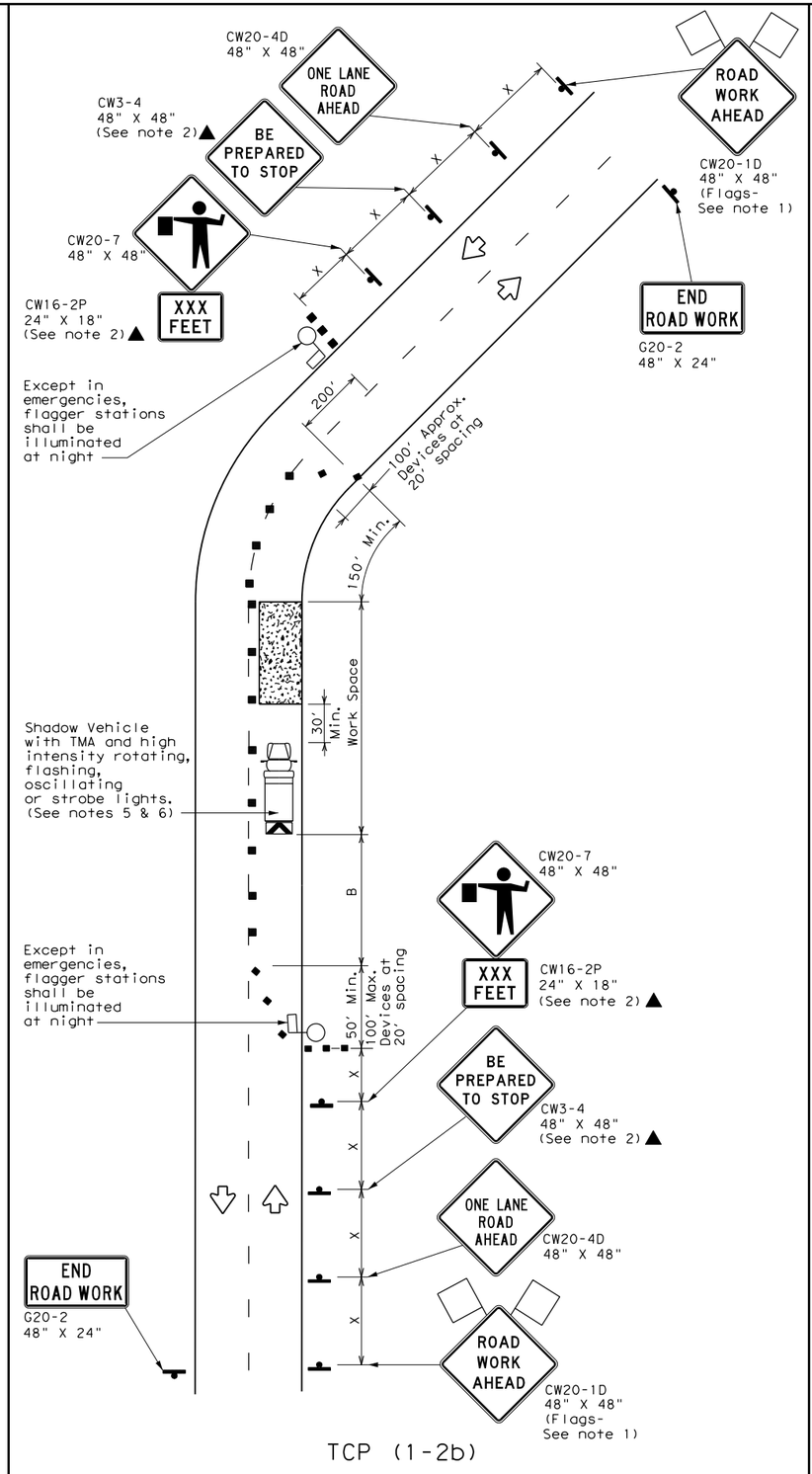


TCP (1-2a)

ONE LANE TWO-WAY CONTROL WITH YIELD SIGNS

(Less than 2000 ADT - See note 7)



TCP (1-2b)

ONE LANE TWO-WAY CONTROL WITH FLAGGERS

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* 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 where shown 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, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

7. R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
8. R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.

TCP (1-2b)

9. Flaggers should use two-way radios or other methods of communication to control traffic.
10. Length of work space should be based on the ability of flaggers to communicate.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
12. Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
13. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(1-2)-18

FILE: tcp1-2-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-90 4-98 2-94 2-12 1-97 2-18	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		41

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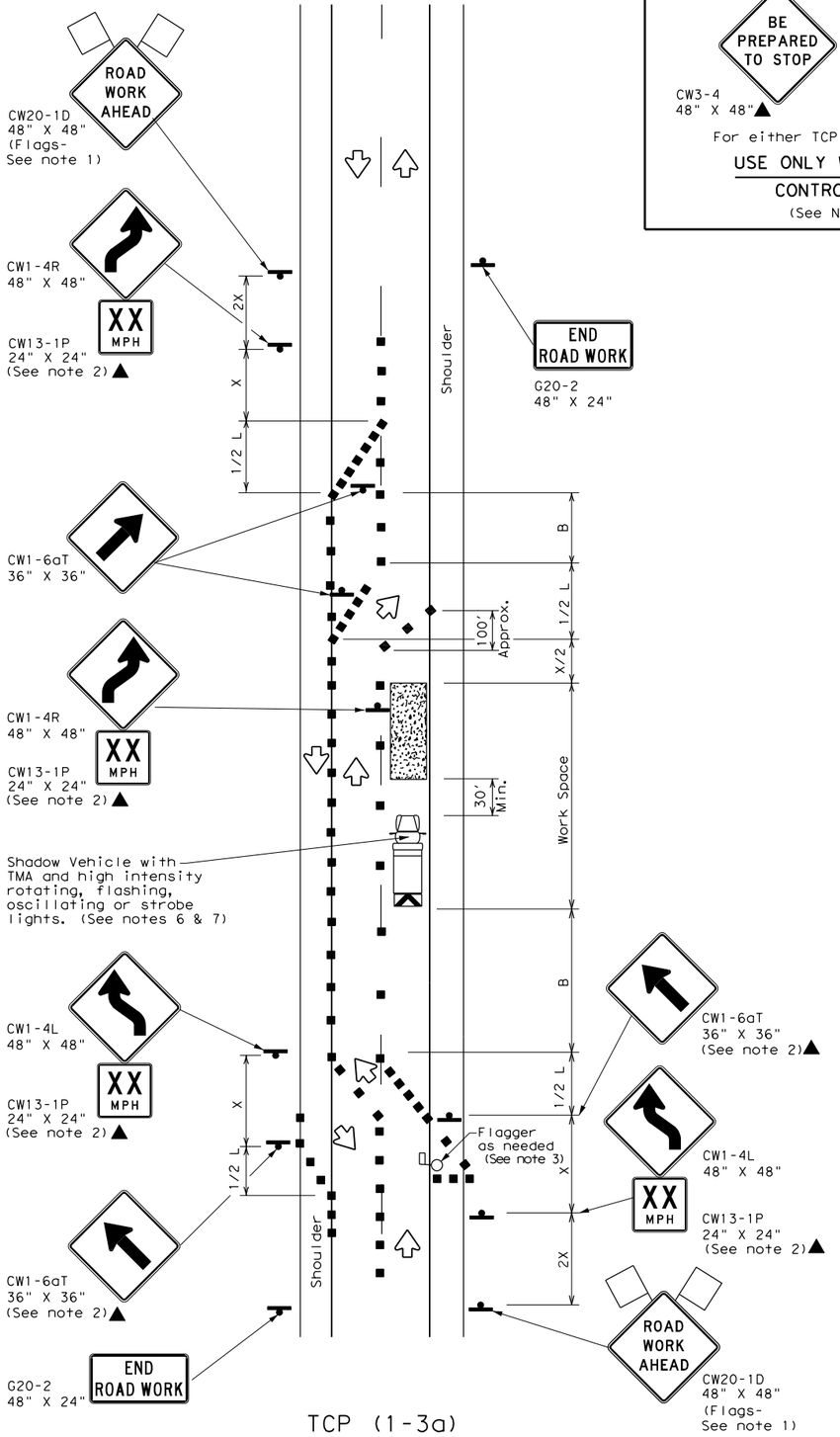
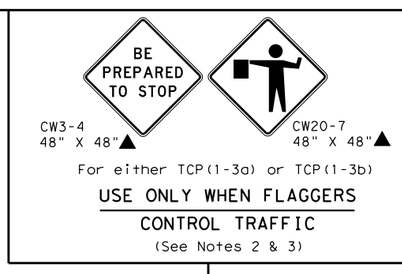
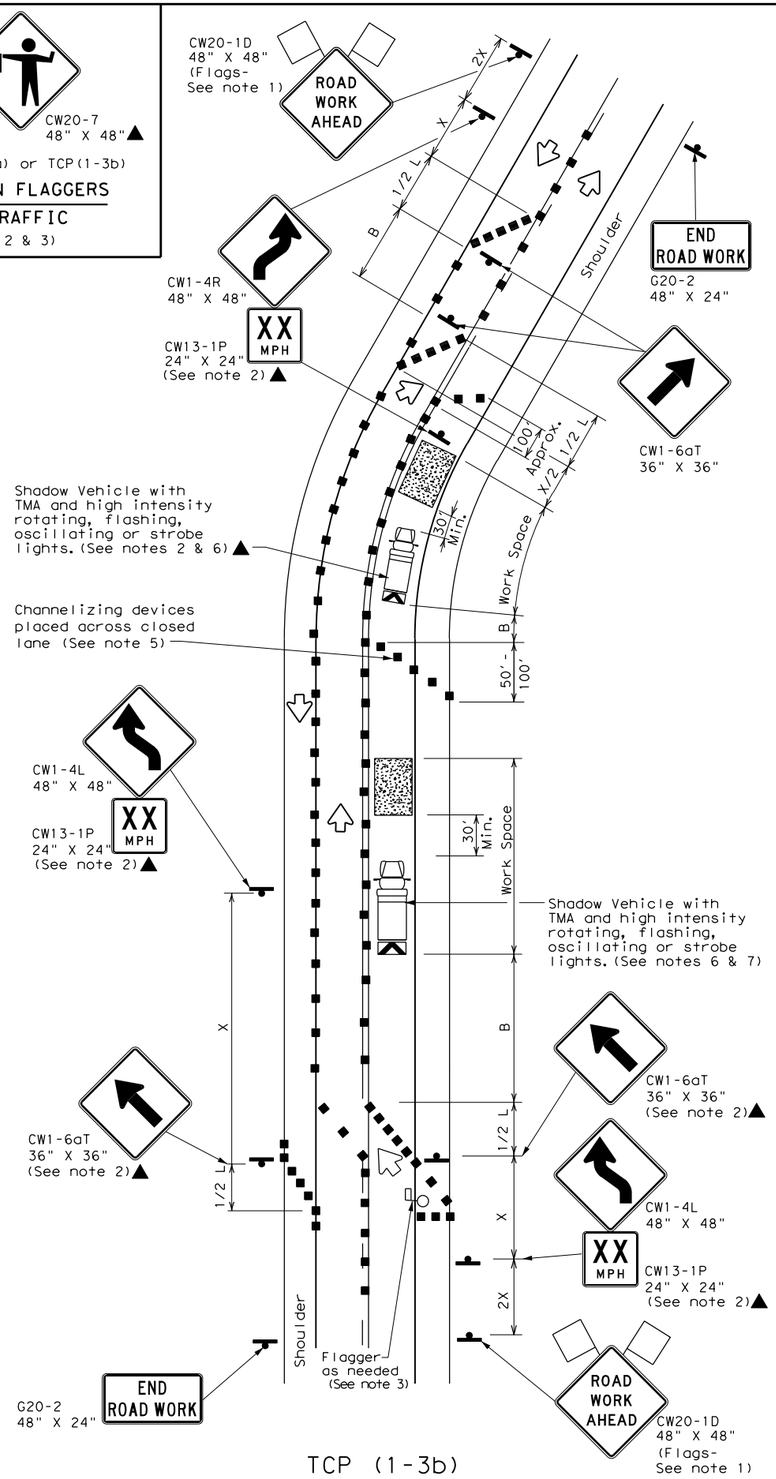


TCP (1-3a)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW





TCP (1-3b)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* 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 where shown 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, or for routine maintenance work, when approved by the Engineer.
3. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Additional flaggers may be positioned in advance of traffic queues to alert traffic to reduce speed.
4. DO NOT PASS, PASS WITH CARE and construction regulatory speed zone signs may be installed downstream of the ROAD WORK AHEAD signs.
5. When the work zone is made up of several work spaces, channelizing devices should be placed laterally across the closed lane to re-emphasize closure. Laterally placed channelizing devices should be repeated every 500 to 1000 feet in urban areas and every 1/4 to 1/2 mile in rural areas.
6. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
8. Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20', or 15' if posted speed are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the area of conflicting markings not the entire work zone.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
TRAFFIC SHIFTS ON TWO LANE ROADS

TCP(1-3)-18

FILE: tcp1-3-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		42

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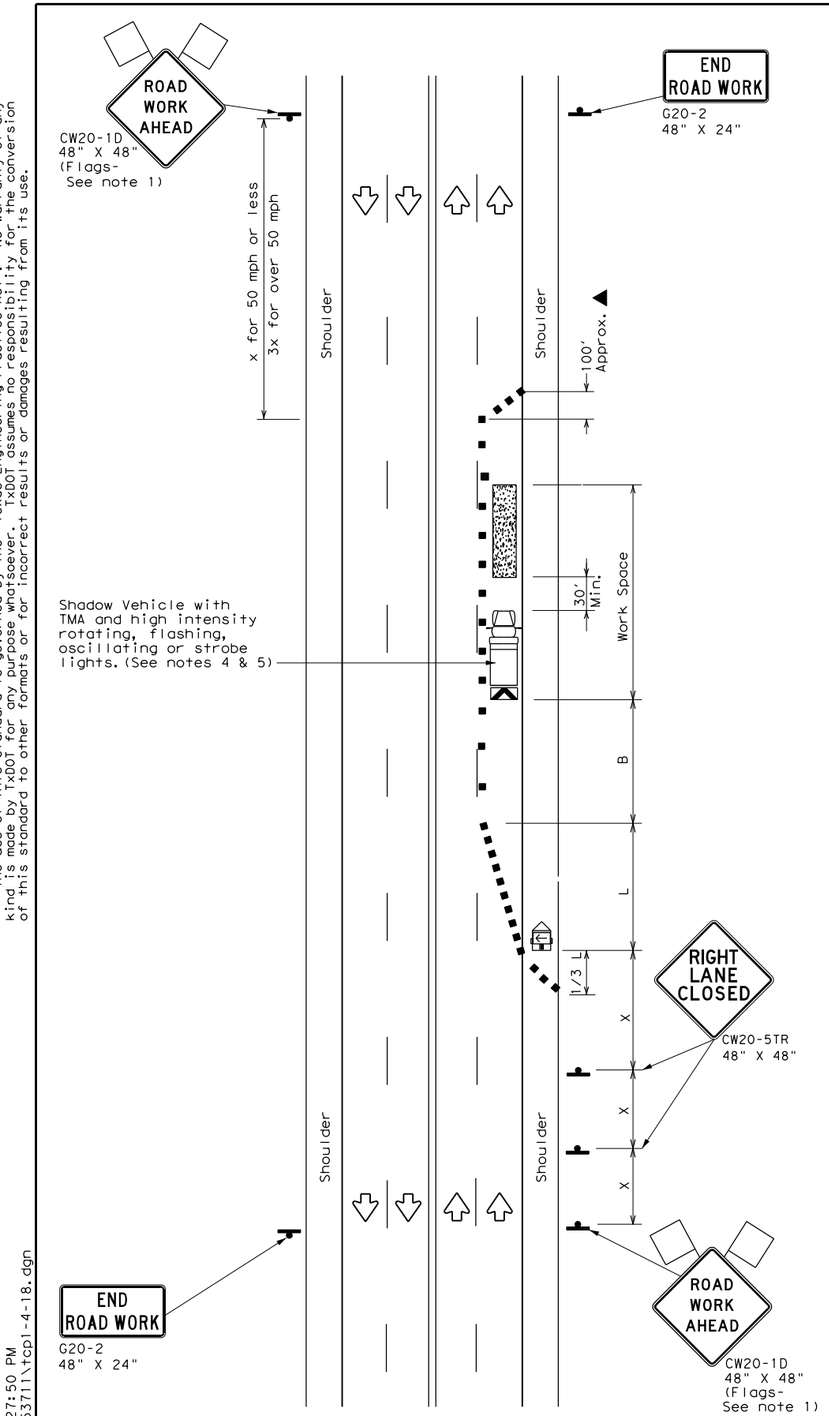
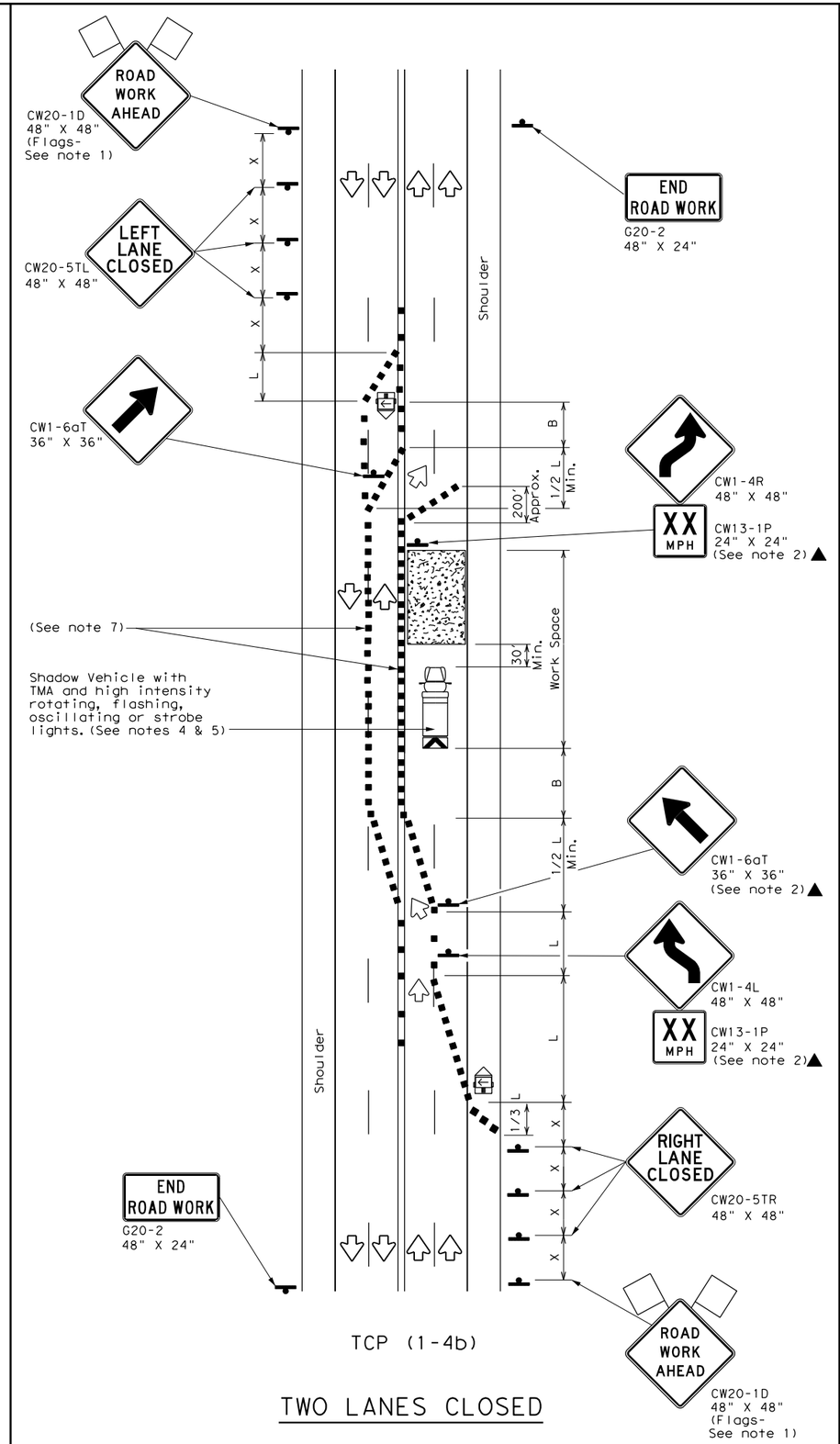


TCP (1-4a)

ONE LANE CLOSED



TCP (1-4b)

TWO LANES CLOSED

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* 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 where shown 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, or for routine maintenance work, when approved by the Engineer.
3. The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-4a)

6. If this TCP is used for a left lane closure , CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline where needed to protect the work space from opposing traffic with the arrow panel placed in the closed lane near the end of the merging taper.

TCP (1-4b)

7. Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(1-4)-18

FILE: tcp1-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0517	01	048,ETC	SH16
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	SAT	ATASCOSA		43
1-97 2-18				

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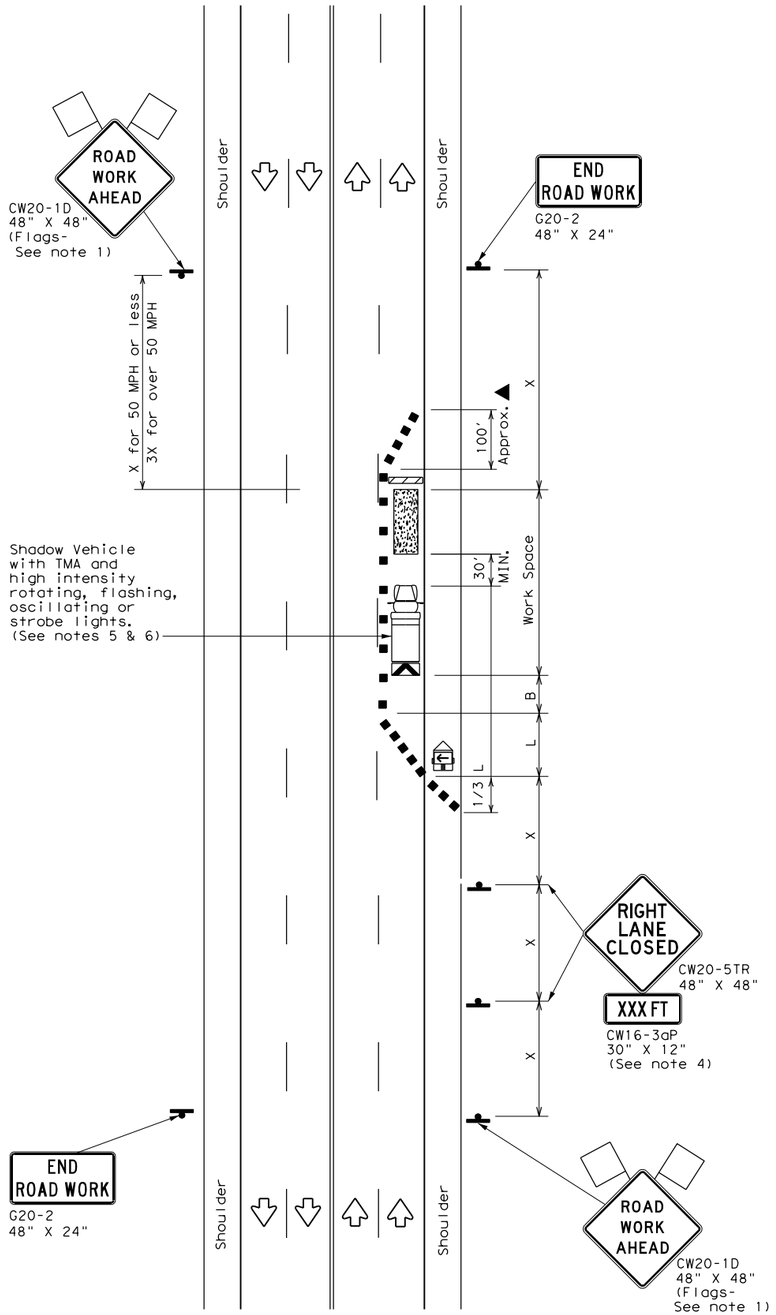
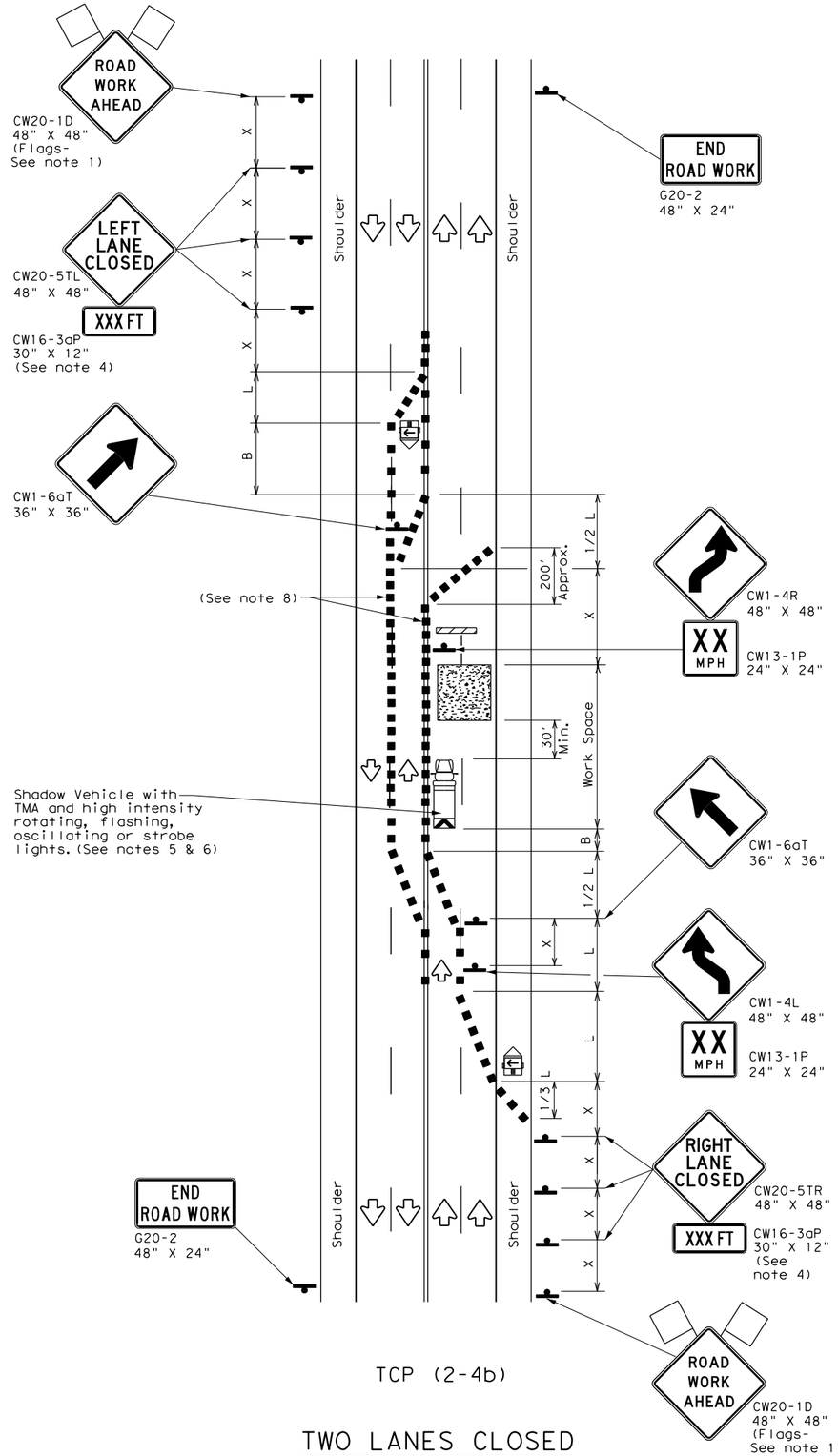


TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* 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 where shown, 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, or for routine maintenance work, when approved by the Engineer.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

7. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED"signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-4b)

8. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

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REVISIONS 8-95 3-03	0517	01	048,ETC	SH16
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	SAT	ATASCOSA		44

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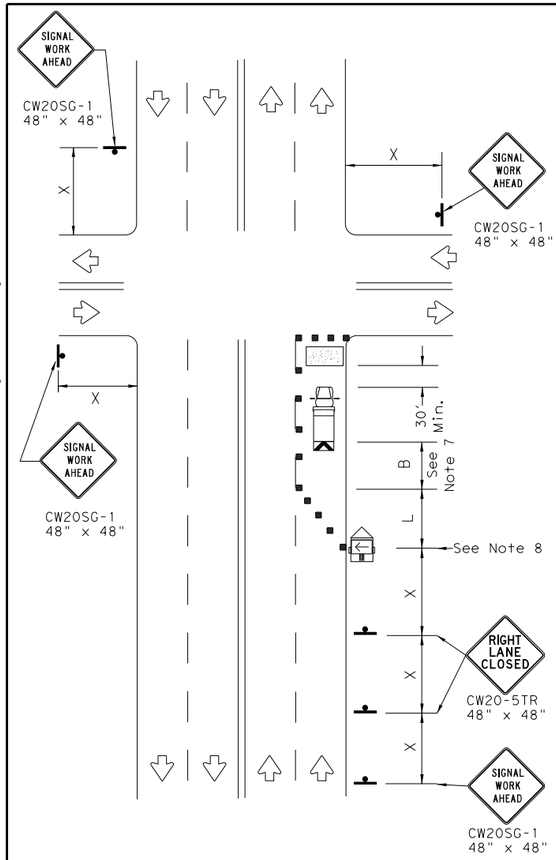
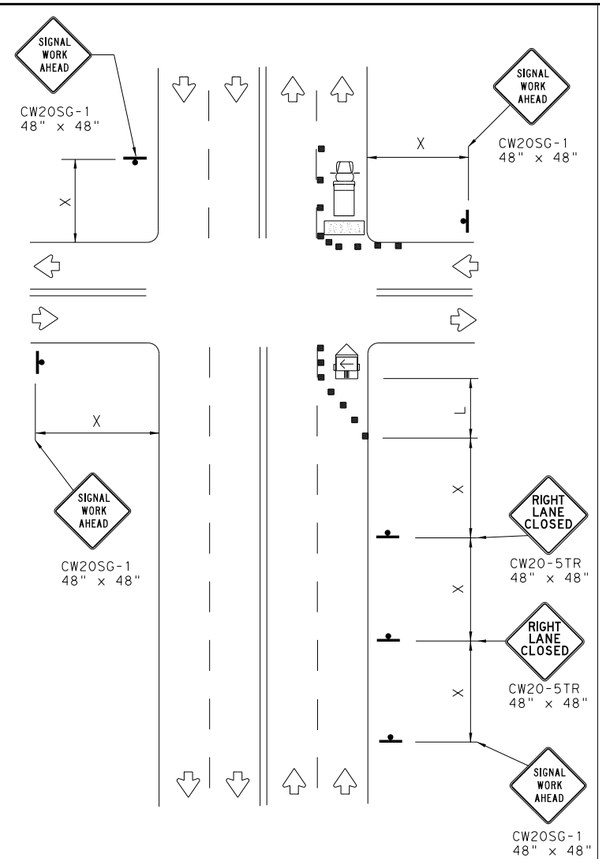


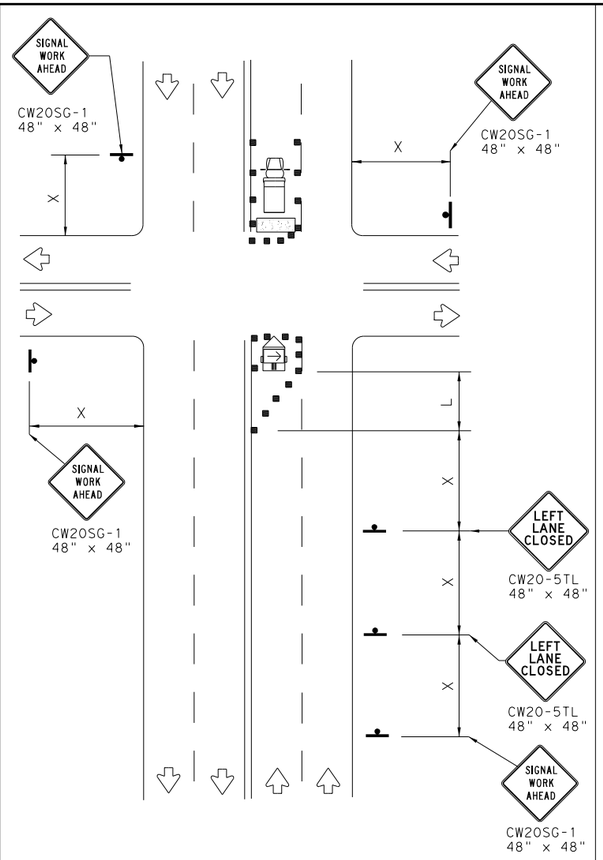
NEAR SIDE LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



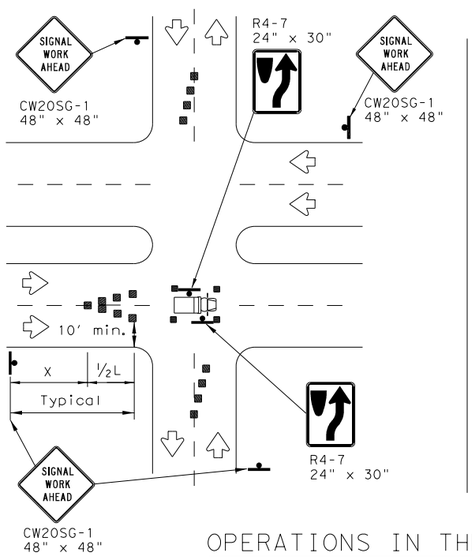
FAR SIDE RIGHT LANE CLOSURE

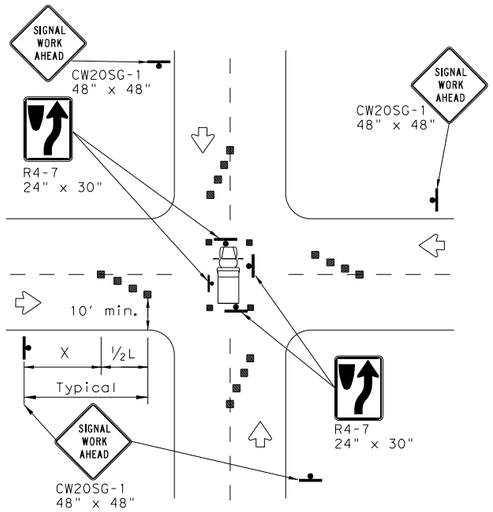
SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE LEFT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY





OPERATIONS IN THE INTERSECTION

SHORT DURATION

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

WORKERS IN BUCKET TRUCKS SHALL NOT WORK ABOVE OPEN LANES OF TRAFFIC.

GENERAL NOTES

1. The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
2. Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
3. Flaggers and Flagger Symbol (CW20-7) signs may be required according to field conditions.
4. Vehicles parked in roadway shall be equipped with at least two high intensity rotating, flashing, oscillating or strobe type lights.
5. High level warning devices (flag trees) may be used at corners of the vehicle.
6. When work operations are performed on existing signals, the signals may be placed in flashing red mode when approved by the engineer. If existing signals do not have power, All-Way Stop (R1-1 and R1-3P) signs may be implemented when approved by the engineer.
7. For Short-Term Stationary work the buffer space "B" from the above table should be used if field conditions permit. For Short Duration (less than 1 hour) any buffer space provided will enhance the safety of the setup.
8. The arrow board at this location may be omitted for Short Duration work if the work vehicle has an arrow board in operation. As an option, the arrow board may be placed at the end of the taper in the closed lane if space is not available at the beginning of the taper.
9. Signs and devices for the NEAR SIDE LANE CLOSURE may be altered for a left lane closure by using a LEFT LANE CLOSED (CW20-5TL) and adding channelizing devices on the centerline to protect the work space from opposing traffic.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC SIGNAL WORK TYPICAL DETAILS

WZ(BTS-1)-13

FILE: wzbts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0517	01	048,ETC	SH16
2-98 10-99 7-13	DIST	COUNTY		SHEET NO.
4-98 3-03	SAT	ATASCOSA		45

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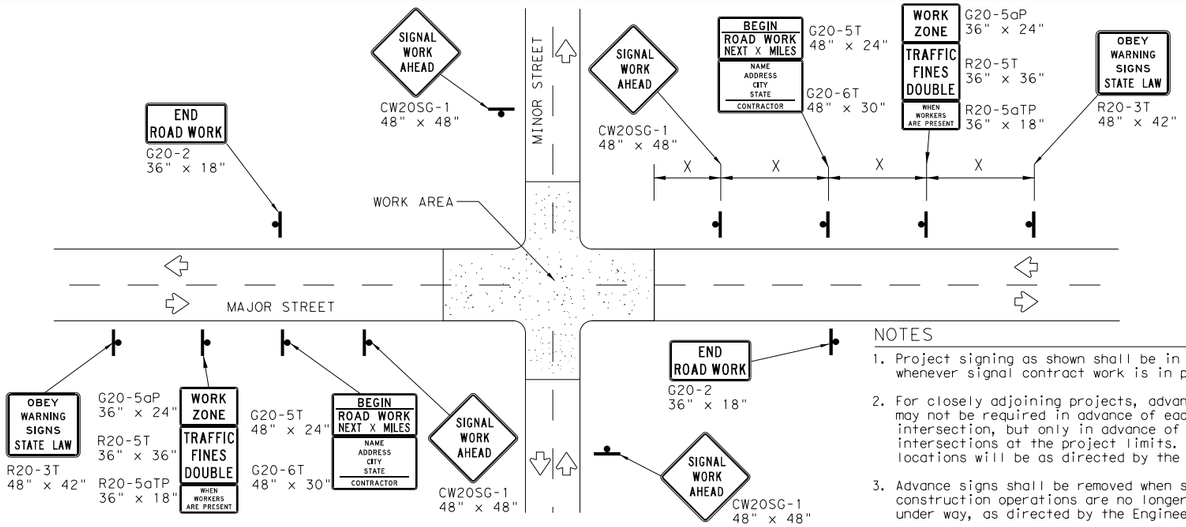


TYPICAL ADVANCE SIGNAL PROJECT SIGNING

FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

NOTES

1. Project signing as shown shall be in place whenever signal contract work is in progress.
2. For 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. Actual locations will be as directed by the Engineer.
3. Advance signs shall be removed when signal construction operations are no longer under way, as directed by the Engineer.
4. Warning sign spacing shown is typical for both directions.
5. See the Table on sheet 1 of 2 for Typical warning sign spacing.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Signs shall be installed and maintained in a straight and plumb condition.
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.
6. The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).
7. The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.
8. Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as directed by the Engineer.
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. Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

DURATION OF WORK

1. Work zone durations are defined in Part 6, Section 6G.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

SIGN MOUNTING HEIGHT

1. Sign height of Long-term/Intermediate-term warning signs shall be as shown on Figure 6F-1 of the TMUTCD.
2. Sign height of Short-term/Short Duration warning signs shall be as shown on Figure 6F-2 of the TMUTCD.
3. 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, unless otherwise approved by the Engineer.
2. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night without damaging the sign sheeting. Burlap, or heavy materials such as plywood or aluminum shall not be used to cover signs.
3. Duct tape or other adhesive material shall NOT be affixed to a sign face.
4. Signs and anchor stubs shall be removed and holes back filled upon completion of the work.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the requirements of the DMS and color usage table shown on this sheet.

SIGN SUPPORT WEIGHTS

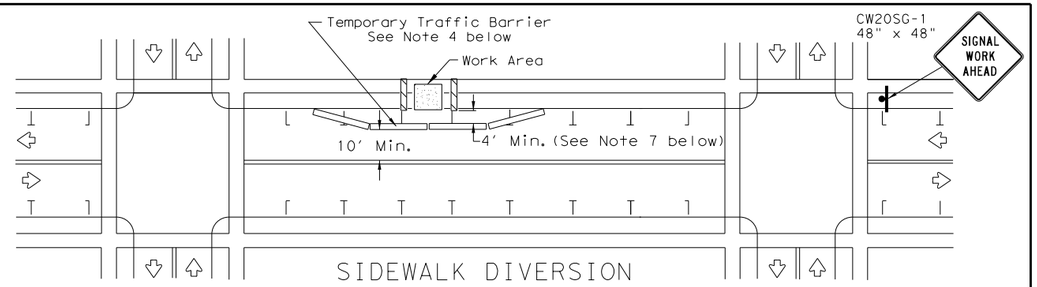
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support 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. Rubber, such as tire inner tubes, shall not be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. 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 fastners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

LEGEND	
	Sign
	Channelizing Devices
	Type 3 Barricade

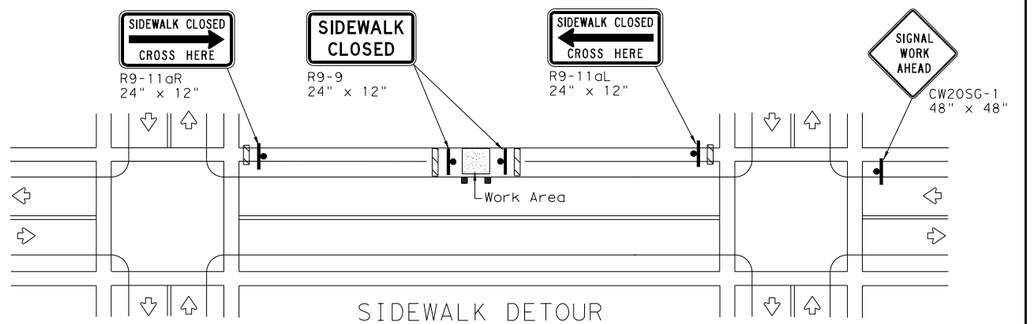
DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL} SHEETING
WHITE	BACKGROUND	TYPE A SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

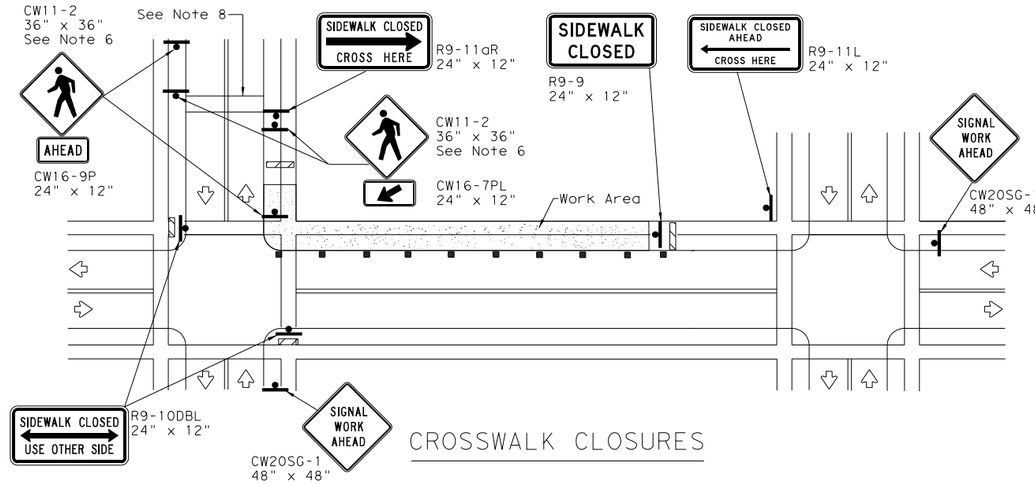
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



SIDEWALK DIVERSION



SIDEWALK DETOUR



CROSSWALK CLOSURES

PEDESTRIAN CONTROL

1. Holes, trenches or other hazards shall be adequately protected by covering, delineating or surrounding the hazard with orange plastic pedestrian fencing or longitudinal channelizing devices, or as directed by the Engineer.
2. "CROSSWALK CLOSURES" as detailed above will require the Engineer's approval prior to installation.
3. R9 series signs shown may be placed on supports detailed on the BC standards or CWZTCD list, or when fabricated from approved lightweight plastic substrates, they may be mounted on top of a plastic drum at or near the location shown.
4. For speeds less than 45 mph longitudinal channelizing devices may be used instead of traffic barriers when approved by the Engineer. Attenuation of blunt ends and installation of water filled devices shall be as per BC(9) and manufacturer's recommendations.
5. Location of devices are for general guidance. Actual device spacing and location must be field adjusted to meet actual conditions.
6. Where pedestrians with visual disabilities normally use the closed sidewalk Detectable Pedestrian Barricades should be used instead of the Type 3 Barricades shown.
7. The width of existing sidewalk should be maintained if practical.
8. Pavement markings for mid-block crosswalks shall be paid for under the appropriate bid items.
9. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

WZ(BTS-2)-13

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© TxDOT	April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS		0517	01	048,ETC	SH16
2-98 10-99 7-13		DIST	COUNTY		SHEET NO.
4-98 3-03		SAT	ATASCOSA		46

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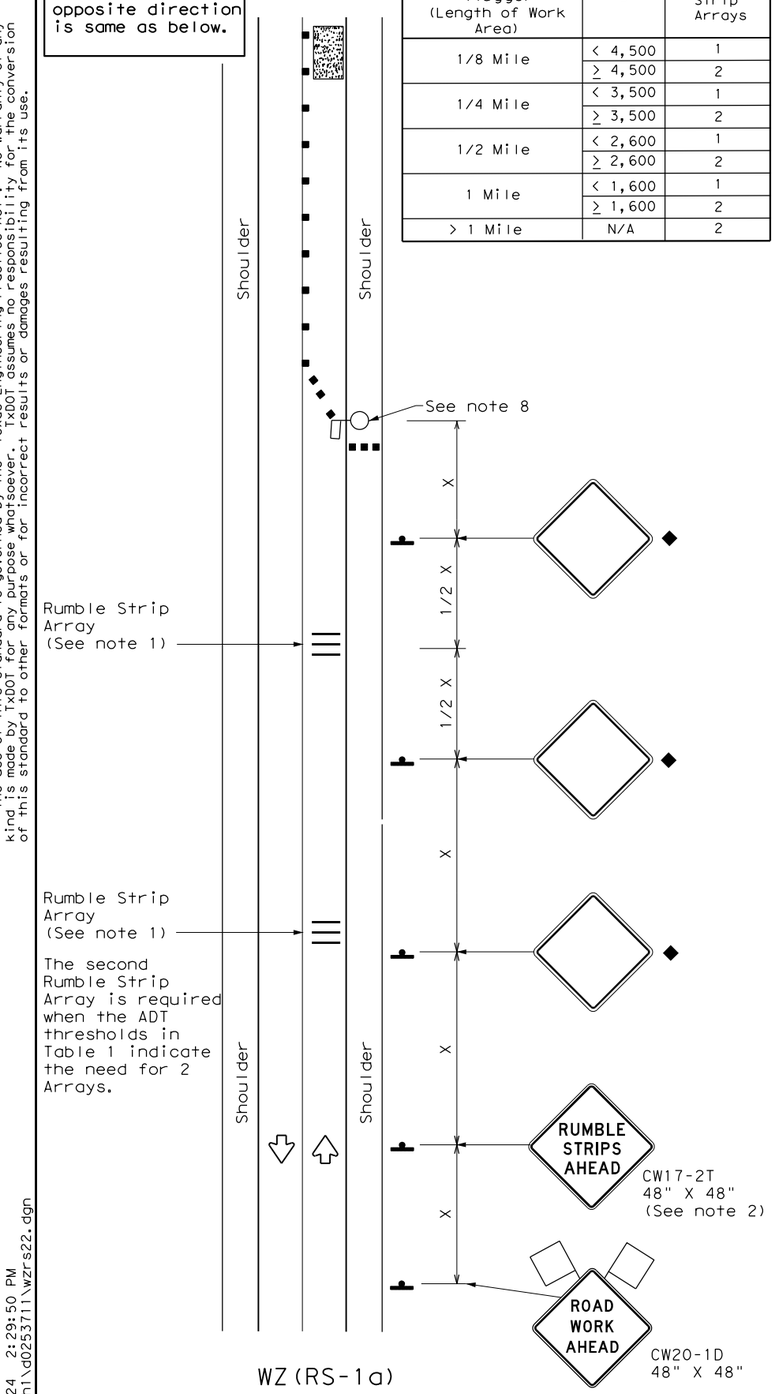
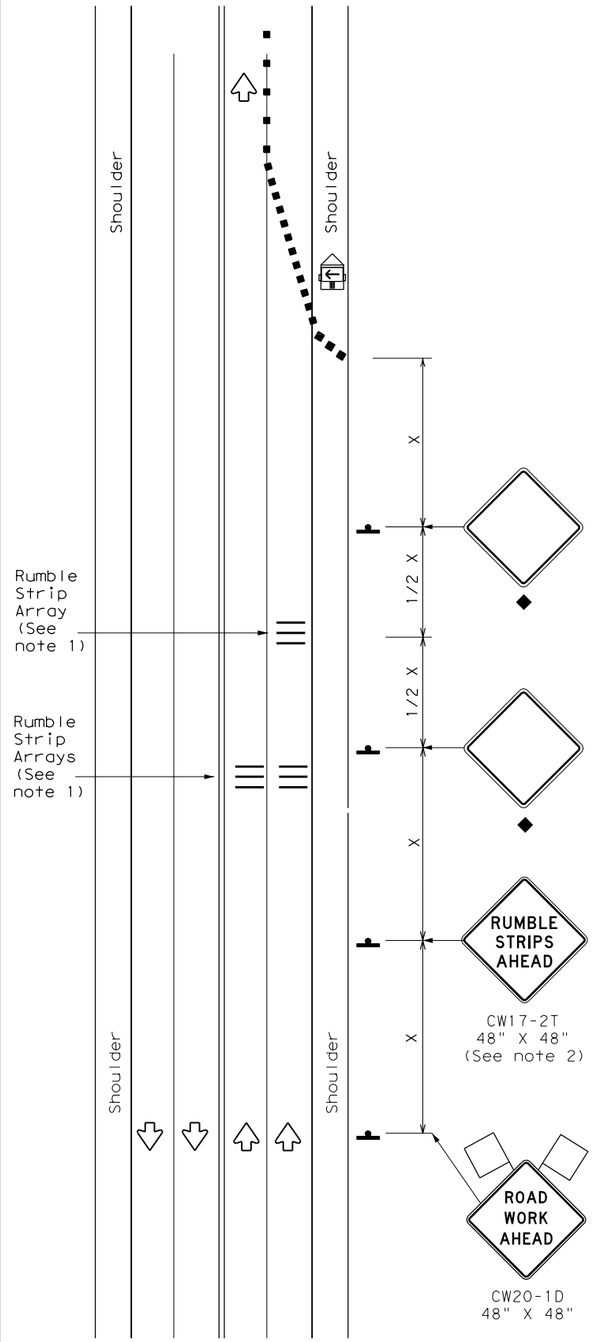
Warning sign and rumble strip sequence in opposite direction is same as below.

TABLE 1		
Flagger to Flagger (Length of Work Area)	ADT	# of Rumble Strip Arrays
1/8 Mile	< 4,500	1
	≥ 4,500	2
1/4 Mile	< 3,500	1
	≥ 3,500	2
1/2 Mile	< 2,600	1
	≥ 2,600	2
1 Mile	< 1,600	1
	≥ 1,600	2
> 1 Mile	N/A	2



WZ(RS-1a)

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



WZ(RS-1b)

RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

1. Each Rumble Strip Array should consist of three rumble strips spaced center to center at the spacing shown in Table 2, placed transverse across the lane at locations shown.
2. The CW17-2T "RUMBLE STRIPS AHEAD" sign should be located after the CW20-1D "ROAD WORK AHEAD sign and spaced as shown. If traffic is observed to be queuing, or is expected to queue beyond the Rumble Strips, the CW17-2T sign and the first Rumble Strip Array may be located upstream of the CW20-1D sign as necessary to provide needed warning.
3. Temporary Rumble Strips will be considered subsidiary to Item 502, and shall be a product listed on the Compliant Work Zone Traffic Control Devices.
4. Remove Temporary Rumble Strips before removing the advanced warning signs.
5. Temporary Rumble Strips should not be used on horizontal curves, loose gravel, soft or bleeding asphalt, heavily rutted pavements or unpaved surfaces.
6. Temporary Rumble Strips shall be installed and maintained as per manufacturer's recommendations.
7. This standard sheet shall be used in conjunction with other appropriate TCP standard, TMUTCD typical application or project specific detail for the project.
8. The one-lane two-way application may utilize a flagger, an Automated Flagger Assistance Device (AFAD) or a Portable Traffic Signal (PTS).
9. Replace defective Temporary Rumble Strips as directed by the Engineer.
10. Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment and written direction from the Engineer.

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Panel	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* 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
	✓	✓		

◆ Signs are for illustrative purposes only. Signs required may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.

* For posted speeds in excess of 65 MPH, it is recommended that spacing is increased as speed limits increase. Increasing space between rumble strips will improve effectiveness.

TABLE 2	
Speed	Approximate distance between strips in an array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
= 60 MPH	20'
≥ 65 MPH	* 35' +

Texas Department of Transportation — Traffic Safety Division Standard

TEMPORARY RUMBLE STRIPS

WZ(RS)-22

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REVISIONS 2-14 1-22 4-16	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		47

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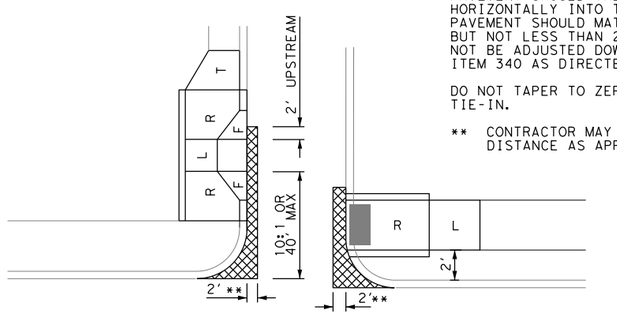
ASPHALT/SEALCOAT ROADWAY

IN AREAS OF ROADWAY CROSS SLOPES EXCEEDING 48:1 LONGITUDINAL SLOPE, EXCAVATE 2' OF PAVEMENT IN FRONT OF RAMP AND TRANSITION THE RAMP LANDING INTO THE EXISTING PAVEMENT. THE PAVEMENT SHOULD THEN BE TRANSITIONED HORIZONTALLY INTO THE EXISTING PAVEMENT AT 10:1. PAVEMENT SHOULD MATCH EXISTING PAVEMENT DEPTH BUT NOT LESS THAN 2" MINIMUM. GUTTERLINES SHOULD NOT BE ADJUSTED DOWNWARD. ASPHALT TO CONFORM TO ITEM 340 AS DIRECTED BY THE ENGINEER.

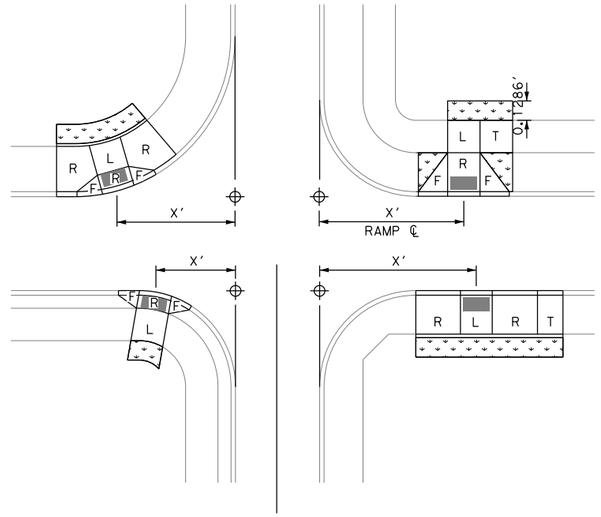
DO NOT TAPER TO ZERO. MINIMUM 1-1/2" DEPTH @ TIE-IN.

** CONTRACTOR MAY EXCEED CROSS SLOPE TRANSITION DISTANCE AS APPROVED BY THE ENGINEER.



X = LENGTH MEASURED FROM PI POINT
F = FLARE (10:1 OR LESS)
R = RAMP (CROSS SLOPE NOT TO EXCEED 48:1, LONGITUDINAL NOT TO EXCEED 12:1)
L = LANDING (SHALL NOT EXCEED 48:1 SLOPE IN ANY DIRECTION)
L1 = SHARED LANDING (SHALL NOT EXCEED 48:1 SLOPE IN ANY DIRECTION)
LS = LEVEL SIDEWALK (SHALL NOT EXCEED 48:1 SLOPE IN ANY DIRECTION) (PAID AS SIDEWALK)
SL = SLOPED SIDEWALK (LONGITUDINAL SLOPES MAY NOT EXCEED 20:1, CROSS SLOPES MAY NOT EXCEED 48:1)
T = TRANSITION (PAID FOR UNDER CONC SIDEWALKS)
TOC = TOP OF CURB
BOC = BACK OF CURB
EOP = EDGE OF PAVEMENT
⊕ = PI POINT MEASURED FROM TANGENTIAL BACK OF CURB OR EDGE OF PAVEMENT INTERSECTION

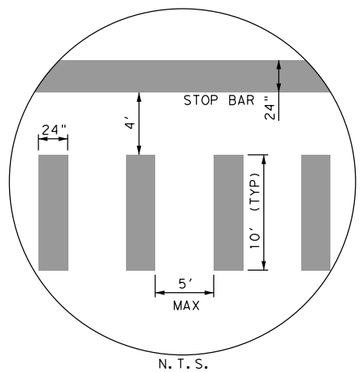
HORIZONTAL RAMP CONTROL



NOTES

1. FLARE (F), RAMP (R), AND LANDING (L), DIRECTLY IN CONTACT WITH THE CURB RAMP ARE PAID FOR UNDER ITEM 531 "CURB RAMPS".
2. LEVEL SIDEWALK (LS) AND RIPRAP (RR) PAID FOR UNDER ITEM 531 "SIDEWALK"
3. ALL CURB RAMPS ARE TO BE 6" IN THICKNESS UNLESS OTHERWISE SHOWN.

TYPICAL CONTINENTAL CROSSWALK DETAIL



N.T.S.

4/19/2024

STATE OF TEXAS
SAMUEL J. LUNDQUIST
122185
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn
F-928

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SPECIAL DETAILS
JOURDANTON/TILDEN

SHEET 1 OF 5

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	48
CONT.	SECT.	JOB	
0517	01	048,ETC	

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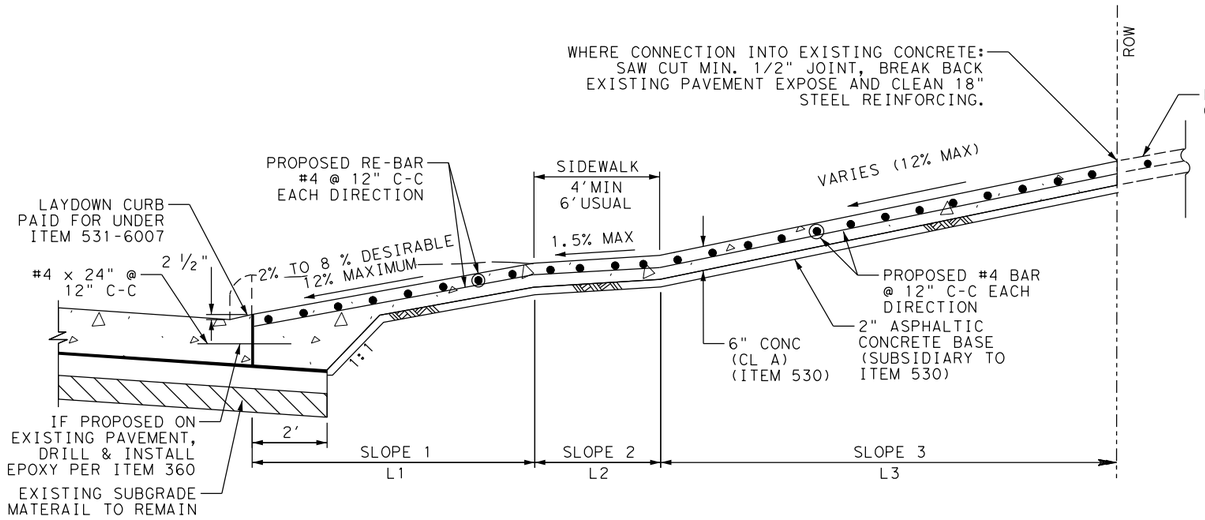
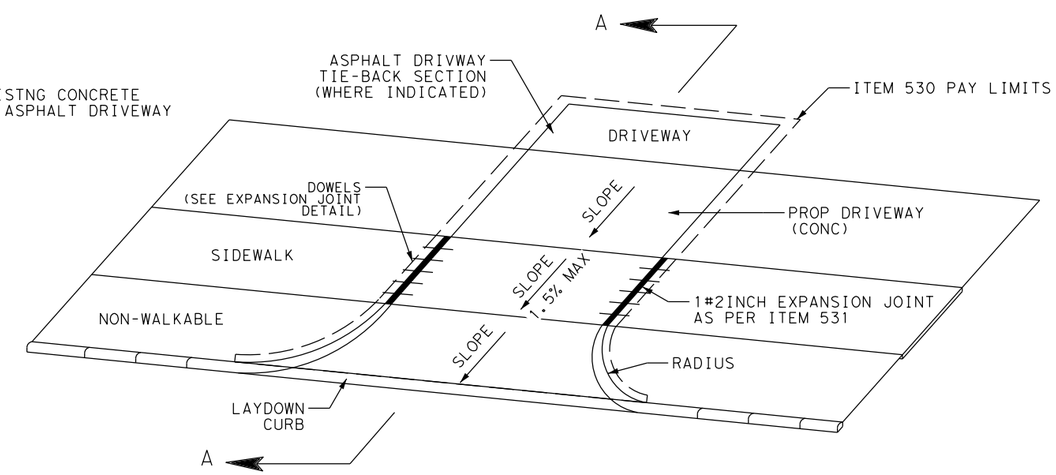


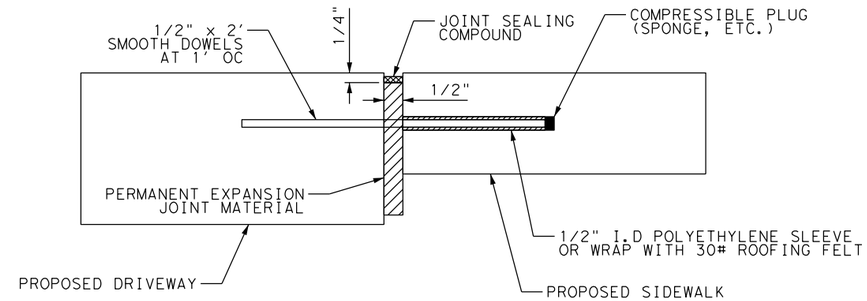
DRIVEWAY SLOPES W/ SIDEWALKS OFFSET FROM CURB
(SECTION A-A)



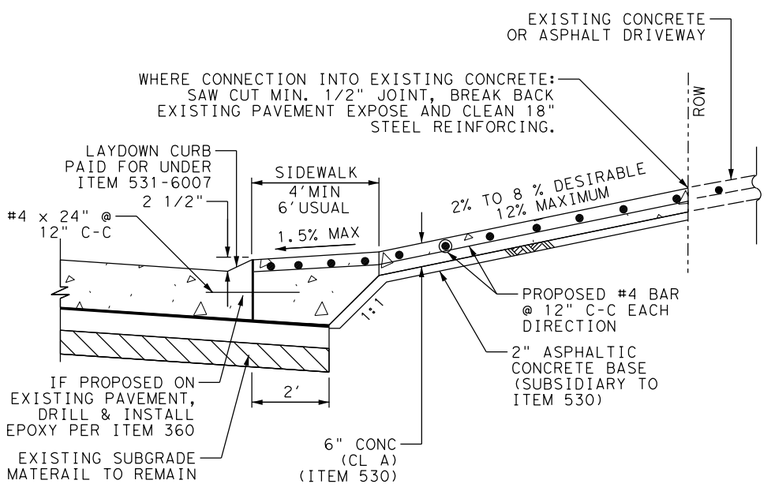
SIDEWALK OFFSET FROM CURB DETAILS

NOTES:

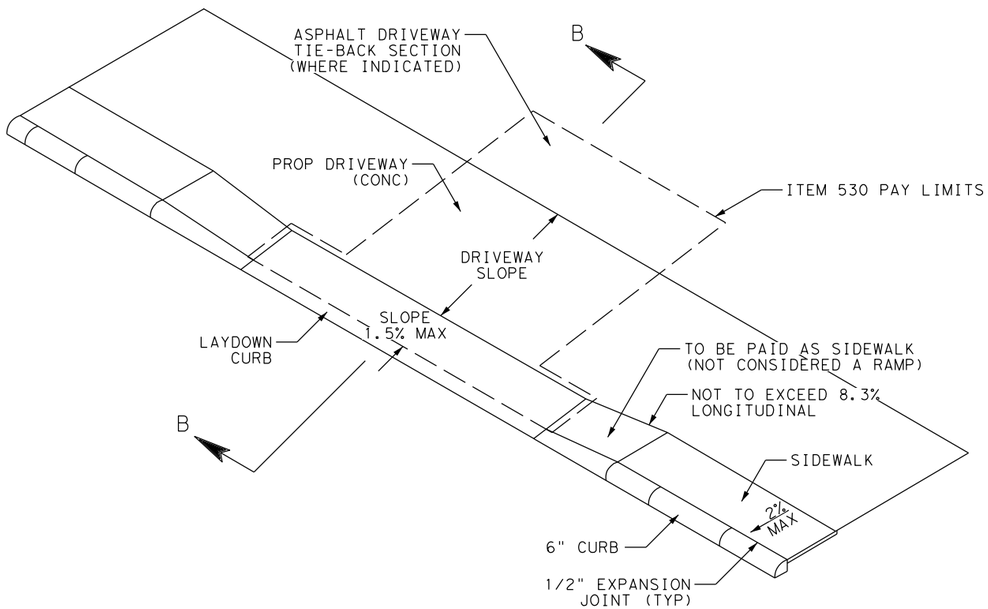
1. ACP DRIVEWAYS WILL CONSIST OF 6" OF ACP HOTMIX ON 6" OF ASPHALTIC CONCRETE BASE OR 6" CEMENT TREATED BASE PAID FOR UNDER ITEM 530.
2. BASE DRIVEWAYS WILL CONSIST OF 6" OF ASPHALTIC CONCRETE BASE OR 6" CEMENT TREATED BASE PAID FOR UNDER ITEM 530.
3. SEE SHEET 6 OF 10 FOR ASPHALT DRIVEWAY TIE IN DETAIL.



EXPANSION JOINT DETAIL



DRIVEWAY SLOPES W/ SIDEWALKS ADJACENT TO CURB
(SECTION B-B)



SIDEWALK ADJACENT TO CURB DETAILS

4/19/2024

STATE OF TEXAS
SAMUEL J. LUNDQUIST
122185
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PROFESSIONAL ENGINEER

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SPECIAL DETAILS
JOURDANTON/TILDEN

SHEET 2 OF 5

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEP 1020 SHEET	SH 16

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CONT.	SECT.	JOB	
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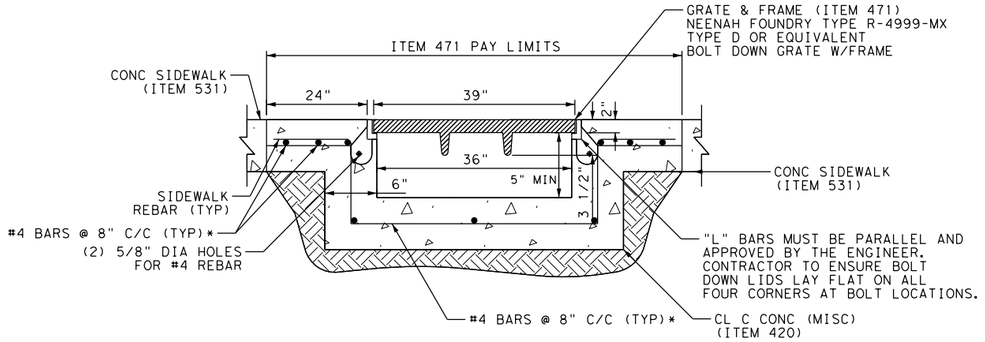
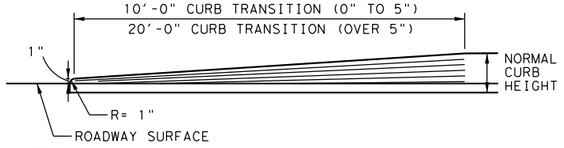
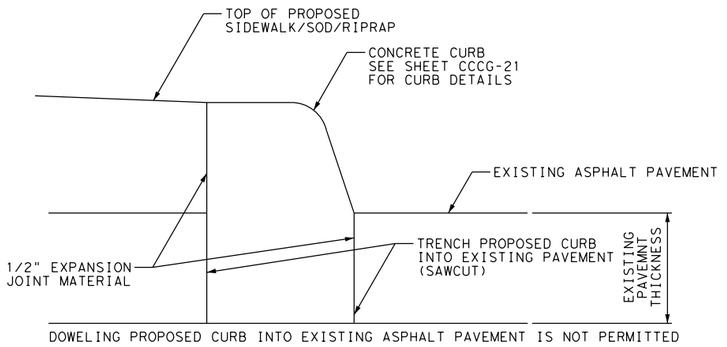


GRATE & FRAME DETAIL
N.T.S.

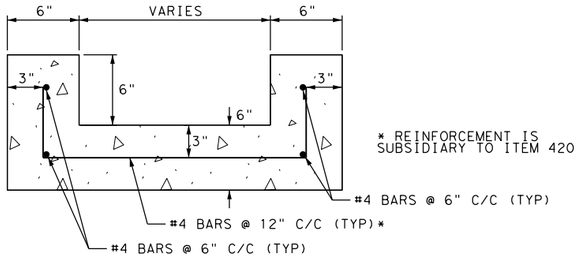


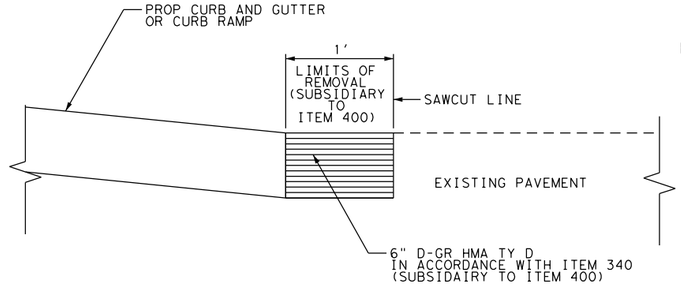
NOTE:
TRANSITIONS FOR CONCRETE CURB ENDS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 529.

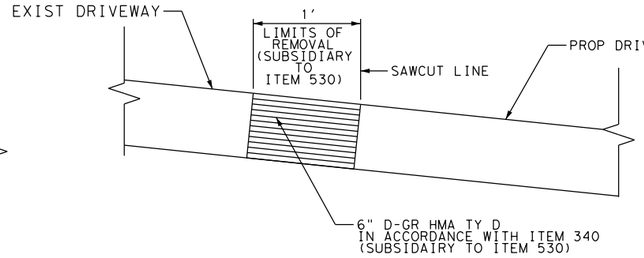
TYPICAL TRANSITION
FOR CONCRETE CURB ENDS



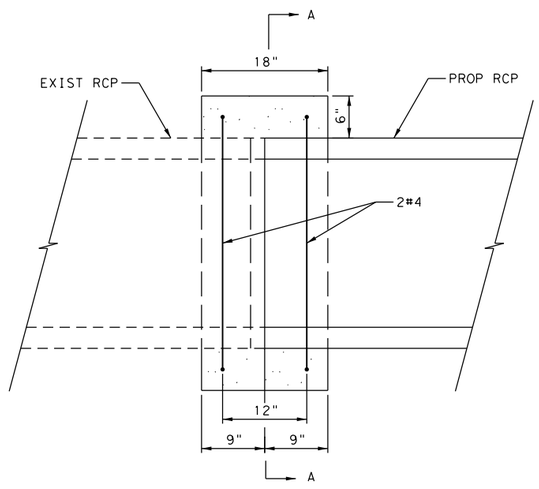
CURB TRENCH DETAIL



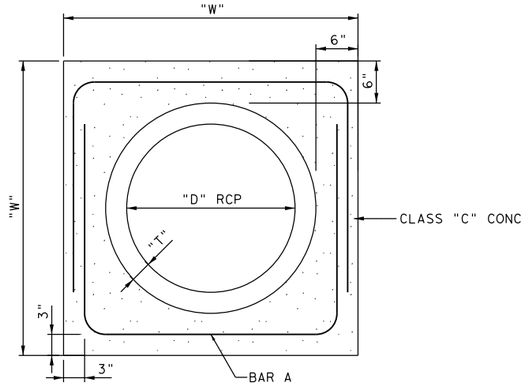




CONCRETE FLUME DETAIL
N.T.S.



SIDE VIEW



SECTION A-A

CONCRETE COLLAR DETAIL

PAVEMENT CUT & RESTORE DETAIL

PROPOSED DRIVEWAY ASPHALT DRIVEWAY TIE IN DETAIL

CONCRETE COLLAR TABLE						
RCP DIA	"T" PIPE THICKNESS	"W" WIDTH	BAR	SIZE	SPACING	CLASS "C" CONCRETE
18"	2.5"	36"	A	#4	12"	0.21 CY
24"	3"	42"	A	#4	12"	0.27 CY
30"	3.5"	49"	A	#4	12"	0.34 CY
36"	4"	56"	A	#4	12"	0.42 CY
42"	4.5"	63"	A	#4	12"	0.50 CY
48"	5"	70"	A	#4	12"	0.58 CY

NOTE:

CONCRETE COLLARS SHALL BE USED ON ANY OR ALL JOINTS AND CONNECTIONS AS DEEMED NECESSARY BY THE ENGINEER IN ORDER TO ENSURE A PROPER WATER TIGHT SEAL ON ALL REINFORCED CONCRETE PIPE CONNECTIONS AS DIRECTED BY THE ENGINEER.

4/19/2024

STATE OF TEXAS
SAMUEL J. LUNDQUIST
122185
LICENSED
PROFESSIONAL ENGINEER

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SPECIAL DETAILS
JOURDANTON/TILDEN

SHEET 3 OF 5

FED.RD. DIV.NO:	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SHEET 2 OF 2 SHEETS	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	50
CONT.	SECT.	JOB	
0517	01	048,ETC	

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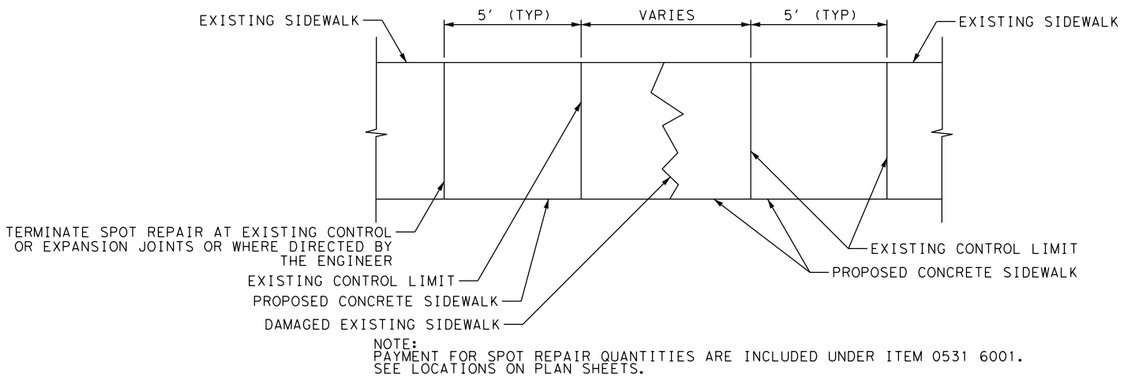
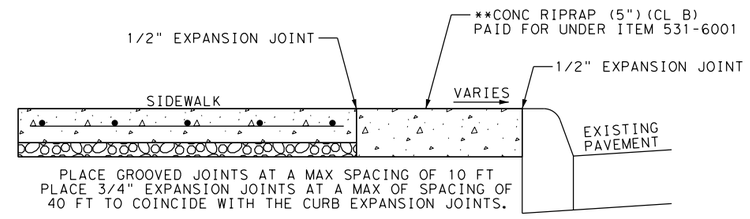
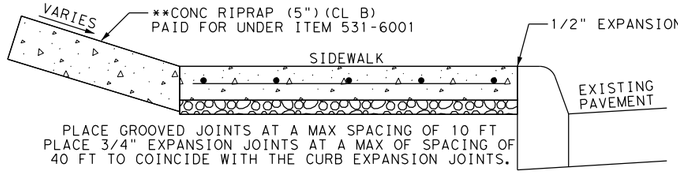


NOTE:
PAYMENT FOR SPOT REPAIR QUANTITIES ARE INCLUDED UNDER ITEM 0531 6001.
SEE LOCATIONS ON PLAN SHEETS.

SPOT REPAIR DETAIL



PLACE GROOVED JOINTS AT A MAX SPACING OF 10 FT
PLACE 3/4" EXPANSION JOINTS AT A MAX OF SPACING OF
40 FT TO COINCIDE WITH THE CURB EXPANSION JOINTS.



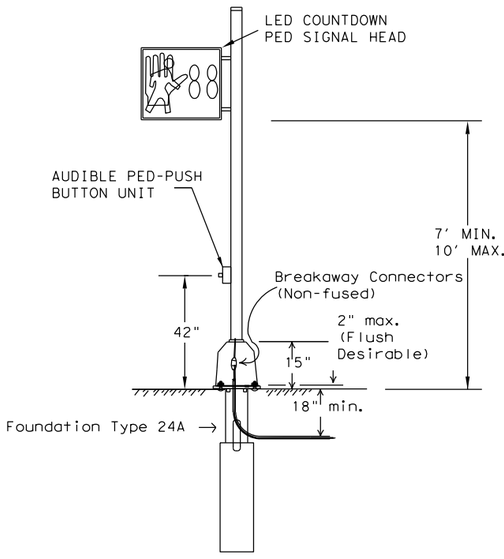
PLACE GROOVED JOINTS AT A MAX SPACING OF 10 FT
PLACE 3/4" EXPANSION JOINTS AT A MAX OF SPACING OF
40 FT TO COINCIDE WITH THE CURB EXPANSION JOINTS.

**CONTRACTOR TO USE NO. 4 REINFORCING BARS AS SPECIFIED IN ITEM 432. CONTRACTOR MAY USE HIGHER STRENGTH CLASS A CONCRETE IN LIEU OF CLASS B.

RIPRAP DETAIL

PED HEADS & PUSH BUTTONS

COUNTDOWN PEDESTRIAN SIGNAL HEAD



PEDESTRIAN POLE DETAILS

NOTES:

1. LONGITUDINAL SLOPE OF SIDEWALKS SHALL NOT EXCEED 5% EXCEPT IN CASES WHERE THE ADJACENT ROADWAY SLOPE EXCEEDS 5%. IF ROADWAY SLOPE EXCEEDS 5%, LONGITUDINAL SLOPE OF SIDEWALK MAY MATCH THAT OF ROADWAY.
2. IF SIDEWALK WIDTH IS LESS THAN 5', PROVIDE 5' x 5' PASSING AREAS AT INTERVALS NOT TO EXCEED 200' SPACING.
3. HEADS WILL BE INSTALLED PER TxMUTCD 2011.
4. FOUNDATIONS WILL BE ADJUSTED IN THE FIELD IN ORDER TO MEET CLEARANCE.
5. ALL ELEVATIONS ARE NOT TO SCALE.
6. PED POLE LOCATION TO BE FLUSH WITH SIDEWALK.

4/19/2024

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SPECIAL DETAILS
JOURDANTON/TILDEN

SHEET 4 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEP 2026 SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	51
CONT.	SECT.	JOB	
0517	01	048,ETC	

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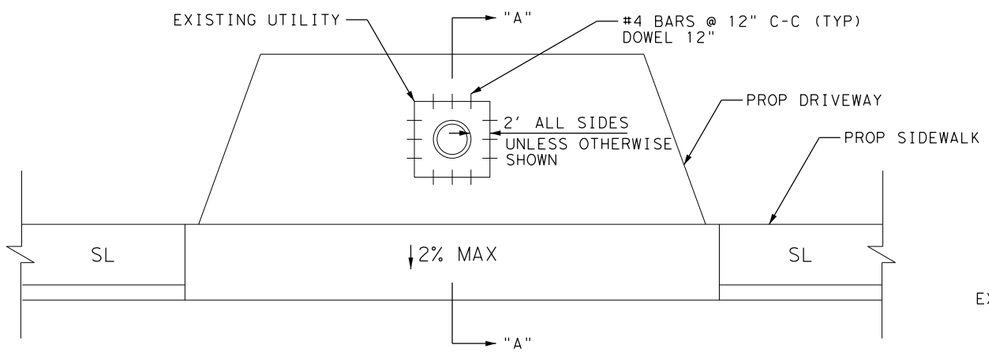
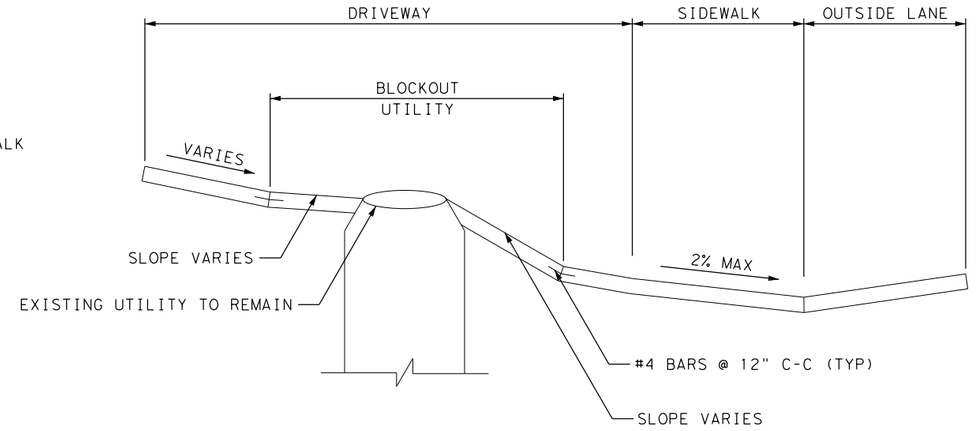
UTILITY BLOCKOUT



SEQUENCE OF WORK:
1. REMOVE EXISTING CONCRETE OR ASPHALT WITHIN LIMITS OF PROPOSED WORK. CONSTRUCT THE FORMWORK FOR PROPOSED IMPROVEMENTS, INCLUDING UTILITY BLOCKOUT AS SHOWN. EXISTING UTILITY RIM TO REMAIN UNDISTURBED.

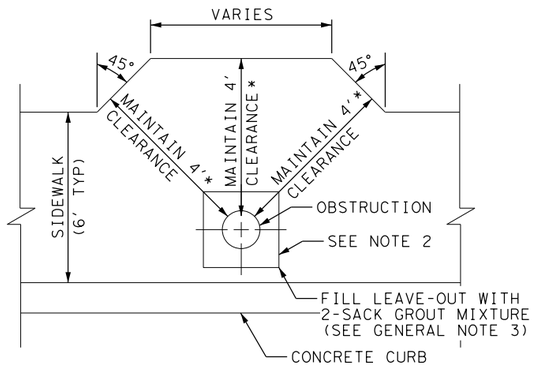
2. CONSTRUCT PROPOSED IMPROVEMENTS EXCEPT WITHIN UTILITY BLOCKOUT AREA. ALLOW TIME TO CURE, REMOVE FORMWORK.

3. DOWEL REINFORCEMENT AS SHOWN. CONSTRUCT IMPROVEMENTS WITHIN UTILITY BLOCKOUT AREA FLUSH WITH RIM OF UTILITY AND SURROUNDING (COMPLETED) IMPROVEMENTS.



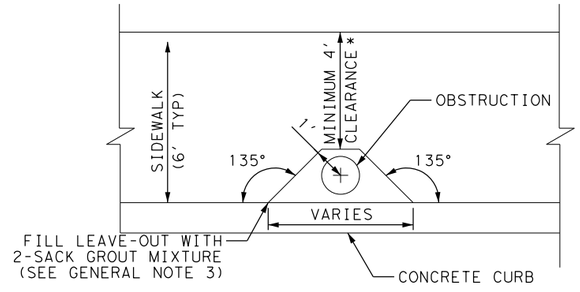
SECTION A-A

OBSTRUCTION CONFLICT



OBSTRUCTION IN SIDEWALK

* UNLESS OTHERWISE SPECIFIED



OBSTRUCTION IN SIDEWALK

* UNLESS OTHERWISE SPECIFIED

NOTES:

1. UTILIZE DETAIL AT OBSTRUCTION ENCROACHMENTS INTO THE PEDESTRIAN ACCESS ROUTE. A MINIMUM UNOBSTRUCTED CLEARANCE OF 4', UNLESS OTHERWISE SPECIFIED, SHOULD BE MAINTAINED AROUND THE OBSTRUCTION MEASURED FROM THE MOST RESTRICTIVE LOCATION OR AS APPROVED BY THE ENGINEER.

2. IF OBSTRUCTION IS LOCATED WITHIN THE SIDEWALK, CONSTRUCT 2' SQUARE CONSTRUCTION JOINT CENTERED ON OBRESTRUCTION TO FACILITATE FUTURE MAINTENANCE WITHOUT FULL SIDEWALK PANEL REMOVAL/REPLACEMENT.

3. THE LEAVE-OUTS SHALL BE FILLED WITH NO MORE THAN A 2-SACK GROUT MIXTURE AND PLACED IN ACCORDANCE WITH SECTION 421.2.F, "MORTAR AND GROUT." PAYMENT FOR FURNISHING AND PLACING THE GROUT MIXTURE WILL BE SUBSIDIARY TO THE PAY ITEM OF CONCRETE SIDEWALKS.

4/19/2024

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SPECIAL DETAILS
JOURDANTON/TILDEN

SHEET 5 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	52
CONT.	SECT.	JOB	
0517	01	048,ETC	

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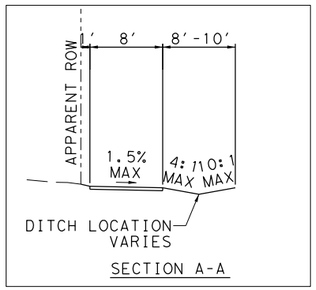

SECTION A-A

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0104 7011	REMOVING CONC (DRIVEWAYS)	SY	54
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	72
0162 7002	BLOCK SODDING	SY	72
0471 7003	GRATE & FRAME	EA	3
0530 7006	DRIVEWAYS (CONC)	SY	54
0531 7001	CONC SIDEWALKS (4")	SY	108
0531 7005	CURB RAMPS (TY 1)	SY	2
0531 7007	CURB RAMPS (TY 3)	SY	1
0531 7010	CURB RAMPS (TY 7)	SY	2
0644 7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666 7123	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	605
0677 7001	ELIM EXT PM & MRKS (4")	EA	24
0677 7004	ELIM EXT PM & MRKS (8")	EA	9
0677 7008	ELIM EXT PM & MRKS (24")	EA	495

NOTES:

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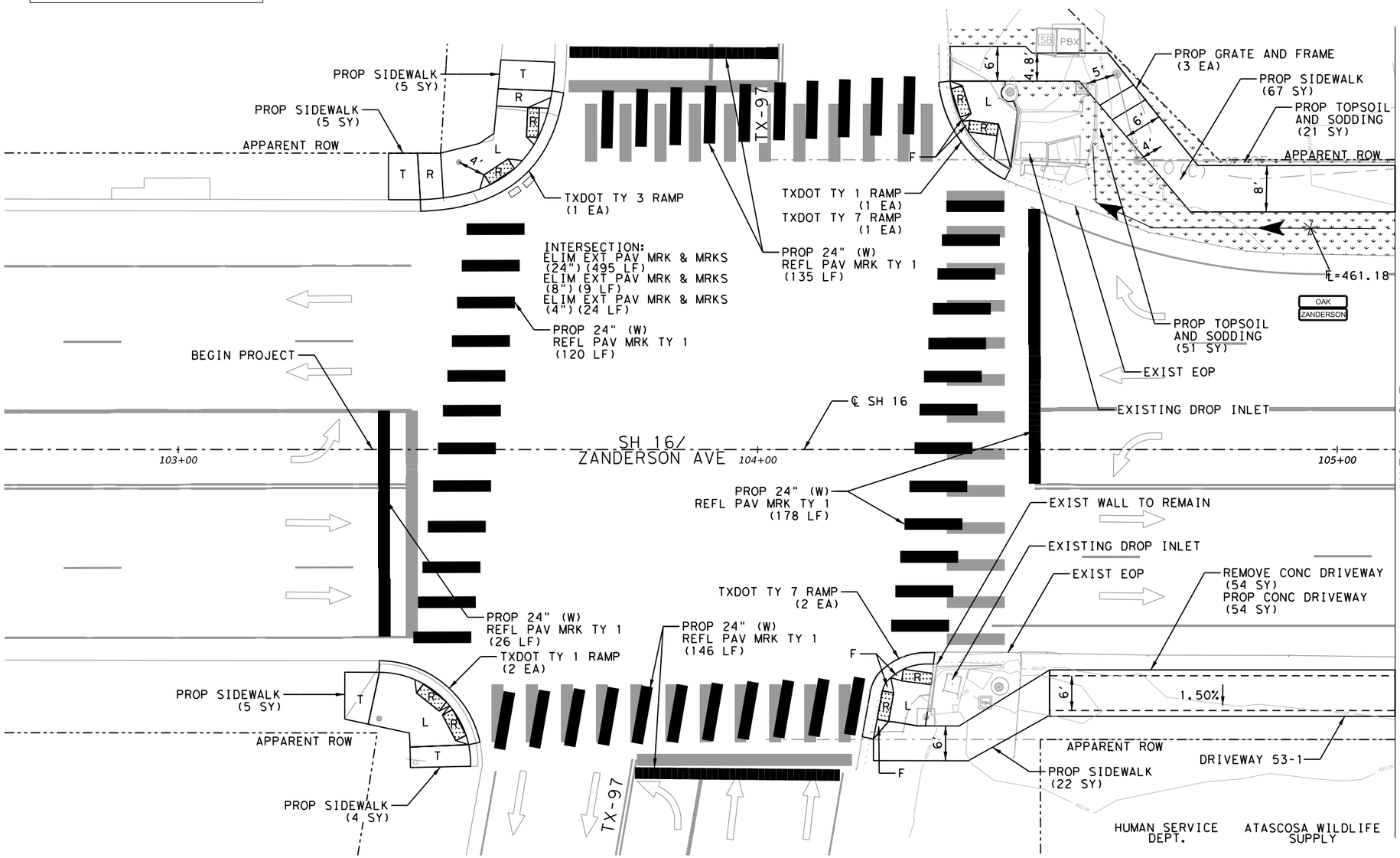
2. LONGITUDINAL SLOPE SIDEWALKS SHALL NOT EXCEED 5% EXCEPT IN CASES WHERE THE ADJACENT ROADWAY SLOPE EXCEEDS 5%. IF ROADWAY SLOPE EXCEEDS 5%, LONGITUDINAL SLOPE OF THE SIDEWALK MAY MATCH THAT OF THE ROADWAY.
3. CONTRACTOR SHALL PERFORM GRADING TO ENSURE POSITIVE FLOW FOR ALL PROPOSED GRATES AND FRAMES



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SIDEWALK PLAN AT SH 97 (OAK ST)

SHEET 1 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		SH 16
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	53
CONT.	SECT.	JOB	
0517	01	048,ETC	

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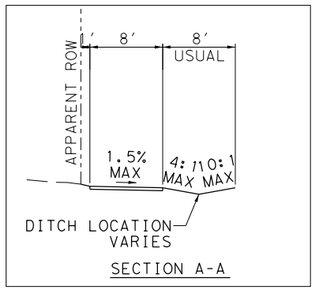
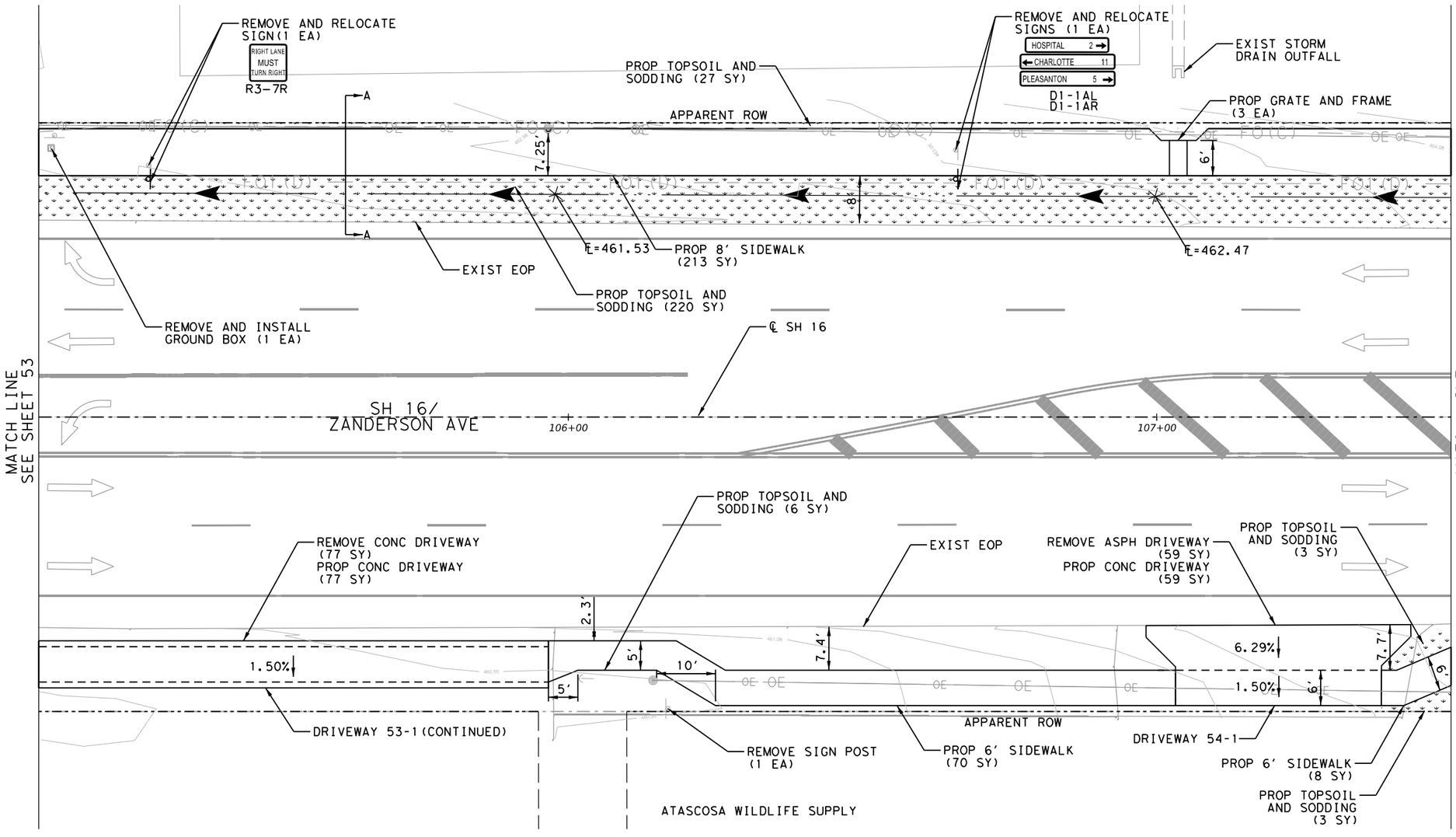


SECTION A-A

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0104 7011	REMOVING CONC (DRIVEWAYS)	SY	77
0105 7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	59
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	253
0162 7002	BLOCK SODDING	SY	253
0471 7003	GRATE & FRAME	EA	3
0530 7006	DRIVEWAYS (CONC)	SY	136
0531 7001	CONC SIDEWALKS (4")	SY	291
0624 7008	GROUND BOX TY D (162922)W/APRON	EA	1
0624 7013	REMOVE GROUND BOX	EA	1
0644 7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2



NOTES:

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3. CONTRACTOR SHALL PERFORM GRADING TO ENSURE POSITIVE FLOW FOR ALL PROPOSED GRATES AND FRAMES

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SIDEWALK PLAN

BETWEEN SH 97 (OAK ST) AND BEECH ST

SHEET 2 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		SH 16
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	54
CONT.	SECT.	JOB	
0517	01	048,ETC	

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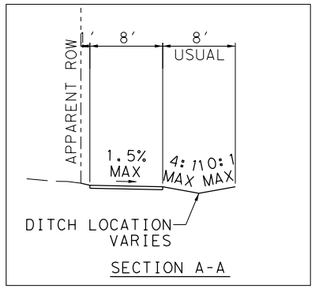

SECTION A-A

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0105 7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	88
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	362
0162 7002	BLOCK SODDING	SY	362
0471 7003	GRATE & FRAME	EA	12
0530 7006	DRIVEWAYS (CONC)	SY	88
0531 7001	CONC SIDEWALKS (4")	SY	277
0531 7010	CURB RAMPS (TY 7)	SY	2
0624 7008	GROUND BOX TY D (162922)W/APRON	EA	1
0624 7013	REMOVE GROUND BOX	EA	1
0644 7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3

NOTES:

* FOR CONTRACTOR INFORMATION ONLY

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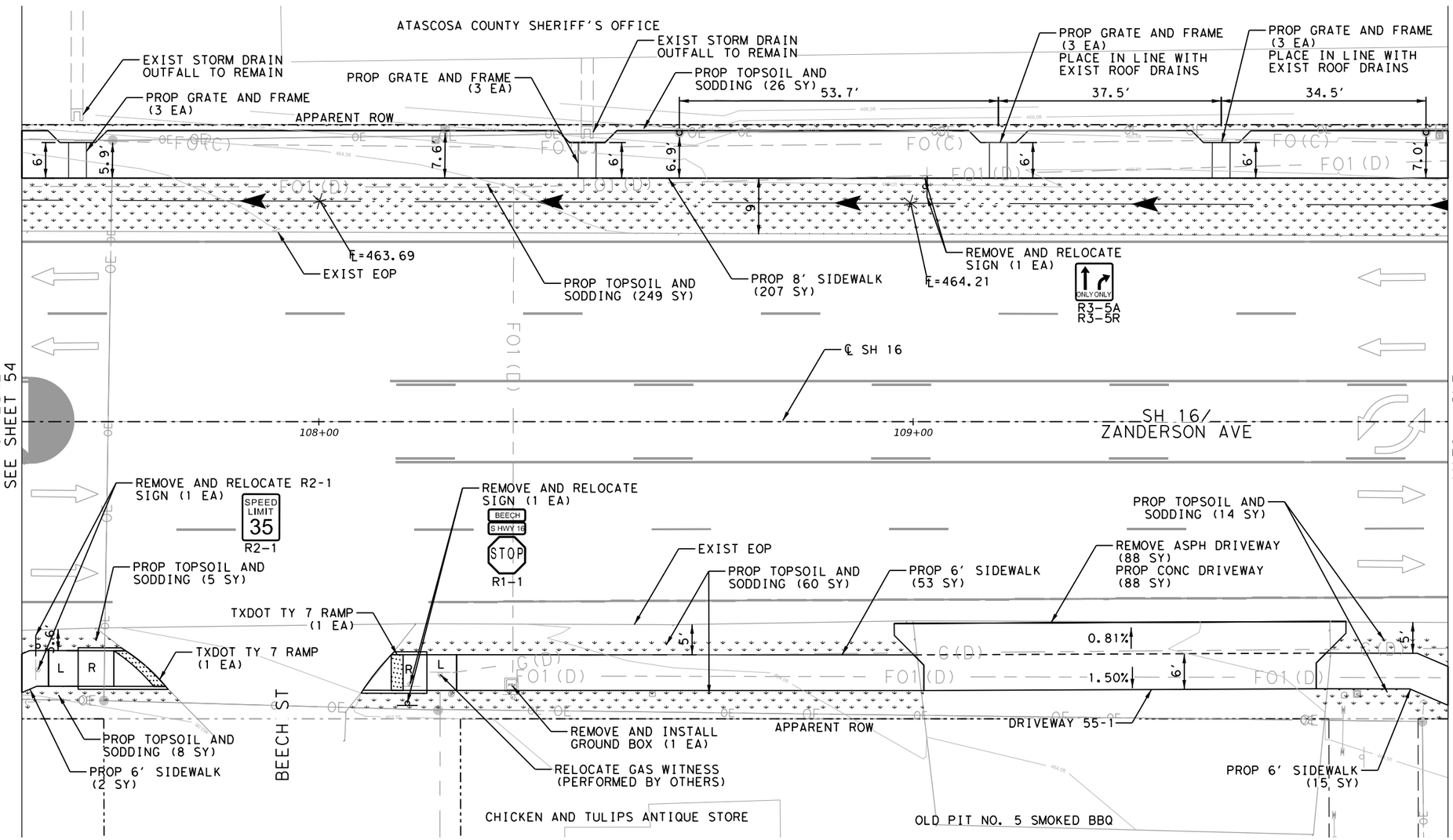
3. CONTRACTOR SHALL PERFORM GRADING TO ENSURE POSITIVE FLOW FOR ALL PROPOSED GRATES AND FRAMES



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8/6/2024

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SIDEWALK PLAN

AT BEECH ST

SHEET 3 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	55
CONT.	SECT.	JOB	
0517	01	048,ETC	

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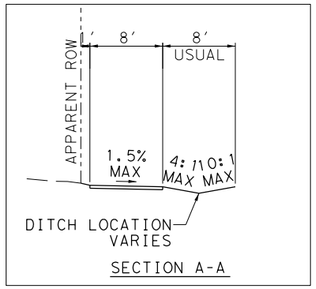

SECTION A-A

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0104 7011	REMOVING CONC (DRIVEWAYS)	SY	88
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	210
0162 7002	BLOCK SODDING	SY	210
0432 7001	RIPRAP (CONC)(4 IN)	CY	1.1
0450 7059	RAIL (HANDRAIL)(TY B)	LF	40
0465 6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	2
0465 7335	INLET (COMPL)(ARMOR CURB SLOT)	EA	2
0471 7003	GRATE & FRAME	EA	8
0529 7001	CONC CURB (TY I)	LF	26
0530 7006	DRIVEWAYS (CONC)	SY	89
0531 7001	CONC SIDEWALKS (4")	SY	229
0531 7010	CURB RAMPS (TY 7)	SY	1
0531 7011	CURB RAMPS (TY 10)	SY	3
0644 7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1

NOTES:

* FOR CONTRACTOR INFORMATION ONLY

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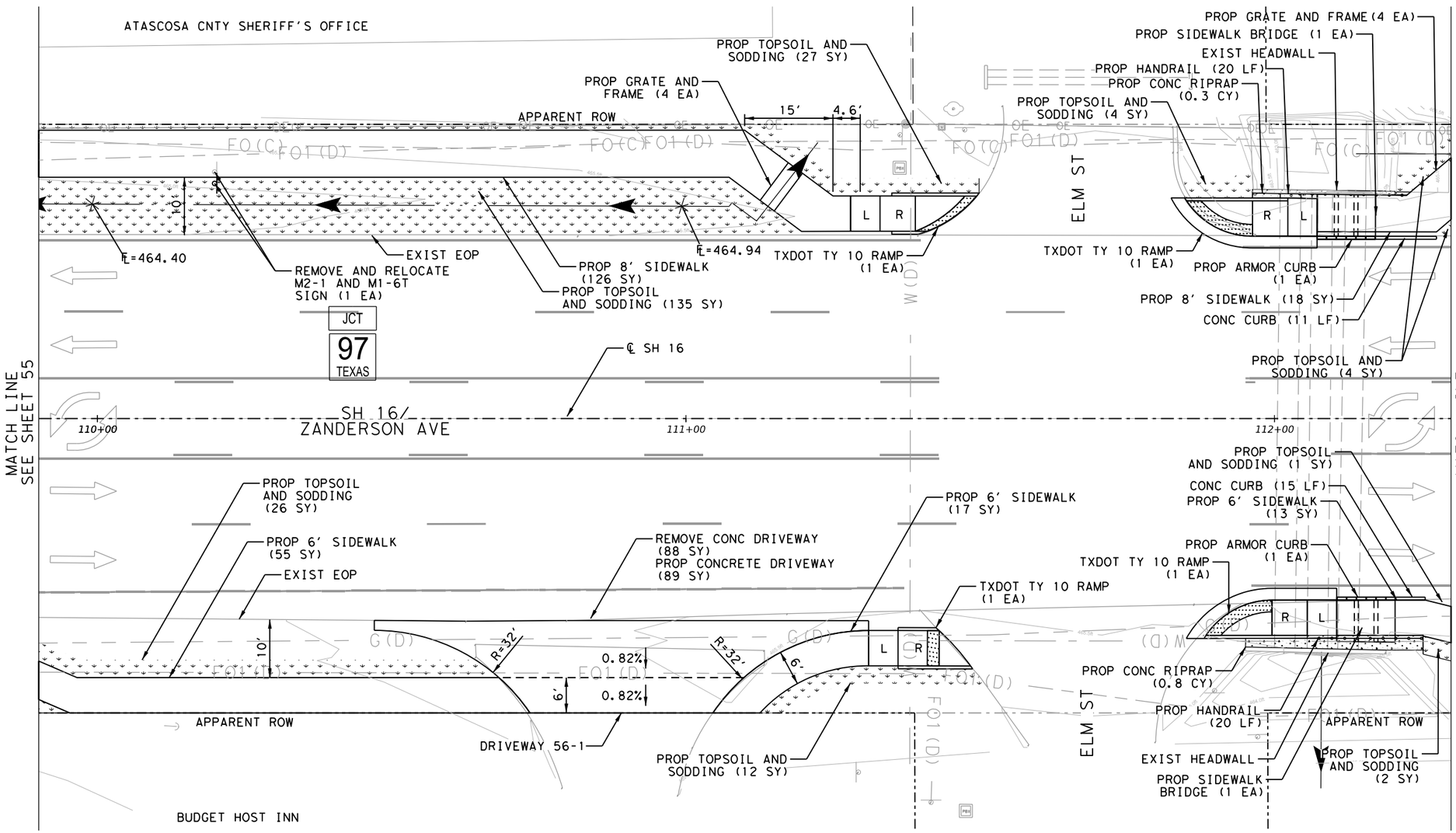
3. CONTRACTOR SHALL PERFORM GRADING TO ENSURE POSITIVE FLOW FOR ALL PROPOSED GRATES AND FRAMES
4. PROPOSED IMPROVEMENTS CAUSE NO ADVERSE IMPACTS TO EXISTING DRAINAGE AT CULVERT CROSSING.



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SIDEWALK PLAN AT ELM ST

SHEET 4 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	56
CONT.	SECT.	JOB	
0517	01	048,ETC	

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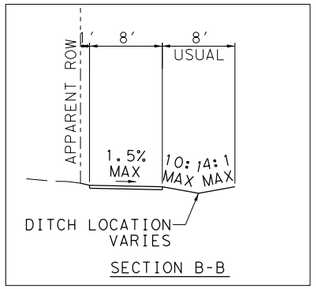

SECTION B-B

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	372
0162 7002	BLOCK SODDING	SY	372
0531 7001	CONC SIDEWALKS (4")	SY	309
0624 7008	GROUND BOX TY D (162922)W/APRON	EA	1
0624 7013	REMOVE GROUND BOX	EA	1

NOTES:

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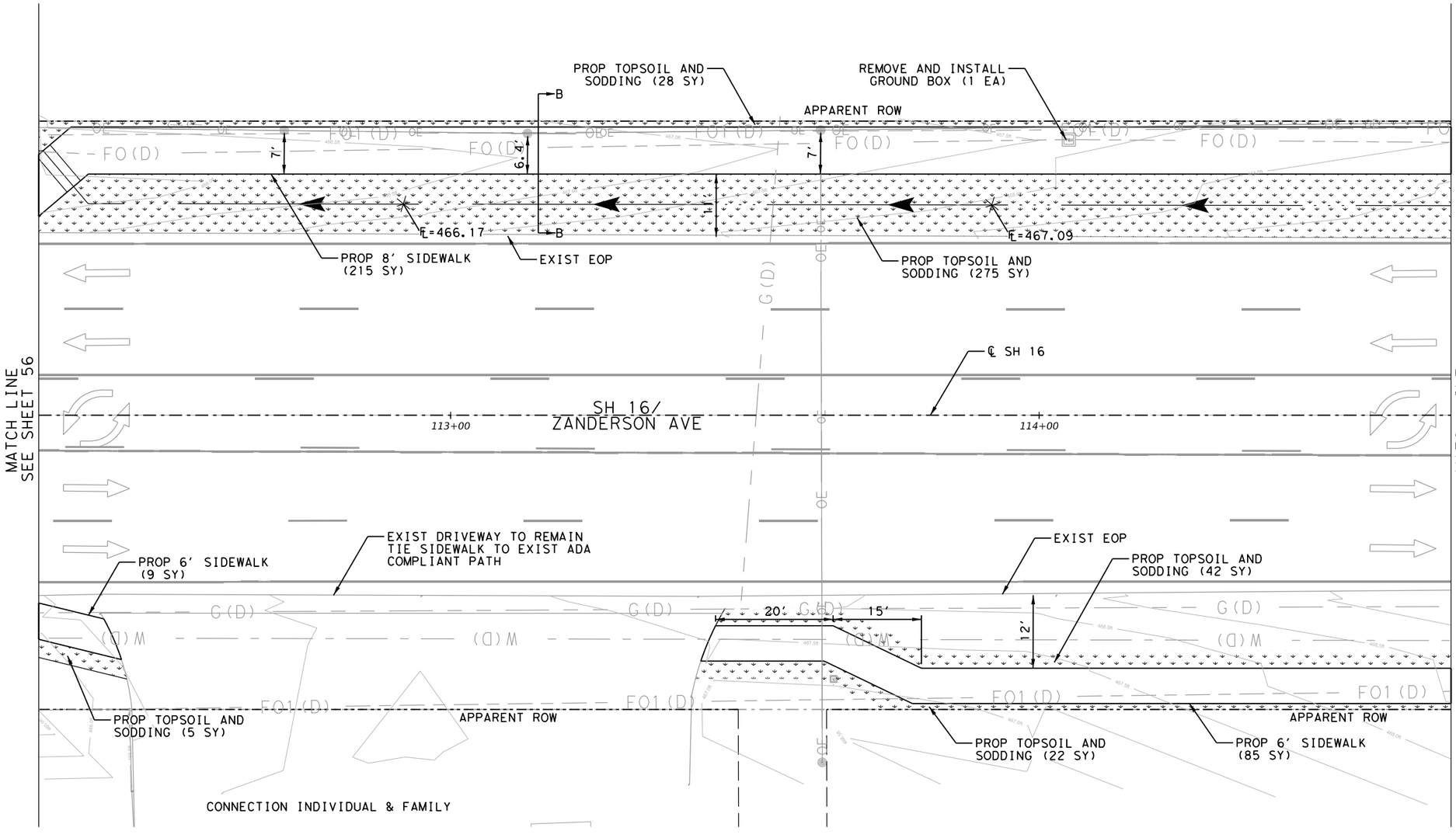
3. CONTRACTOR SHALL PERFORM GRADING TO ENSURE POSITIVE FLOW FOR ALL PROPOSED GRATES AND FRAMES



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SIDEWALK PLAN

BETWEEN
ELM ST AND CHESTNUT ST

SHEET 5 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	57
CONT.	SECT.	JOB	
0517	01	048,ETC	

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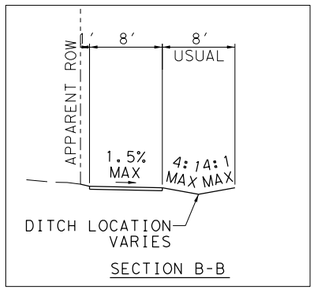

SECTION B-B

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0105 7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	64
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	228
0162 7002	BLOCK SODDING	SY	228
0471 7003	GRATE & FRAME	EA	14
0530 7006	DRIVEWAYS (CONC)	SY	64
0531 7001	CONC SIDEWALKS (4")	SY	242
0531 7010	CURB RAMPS (TY 7)	SY	4
0560 7012	RELOCATE EXISTING MAILBOX	EA	1
0644 7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2

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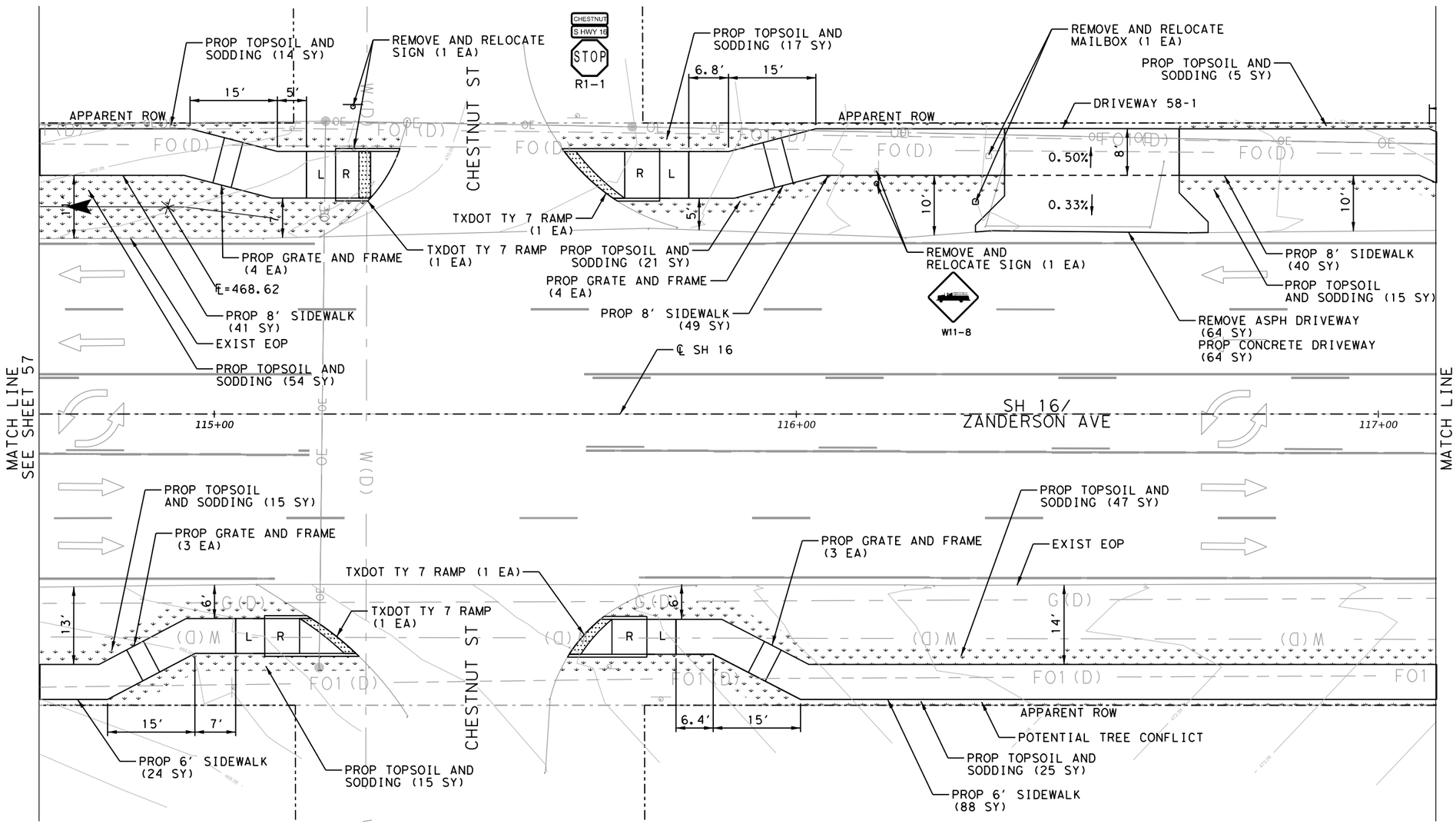

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SIDEWALK PLAN AT CHESTNUT ST

SHEET 6 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	58
CONT.	SECT.	JOB	
0517	01	048,ETC	

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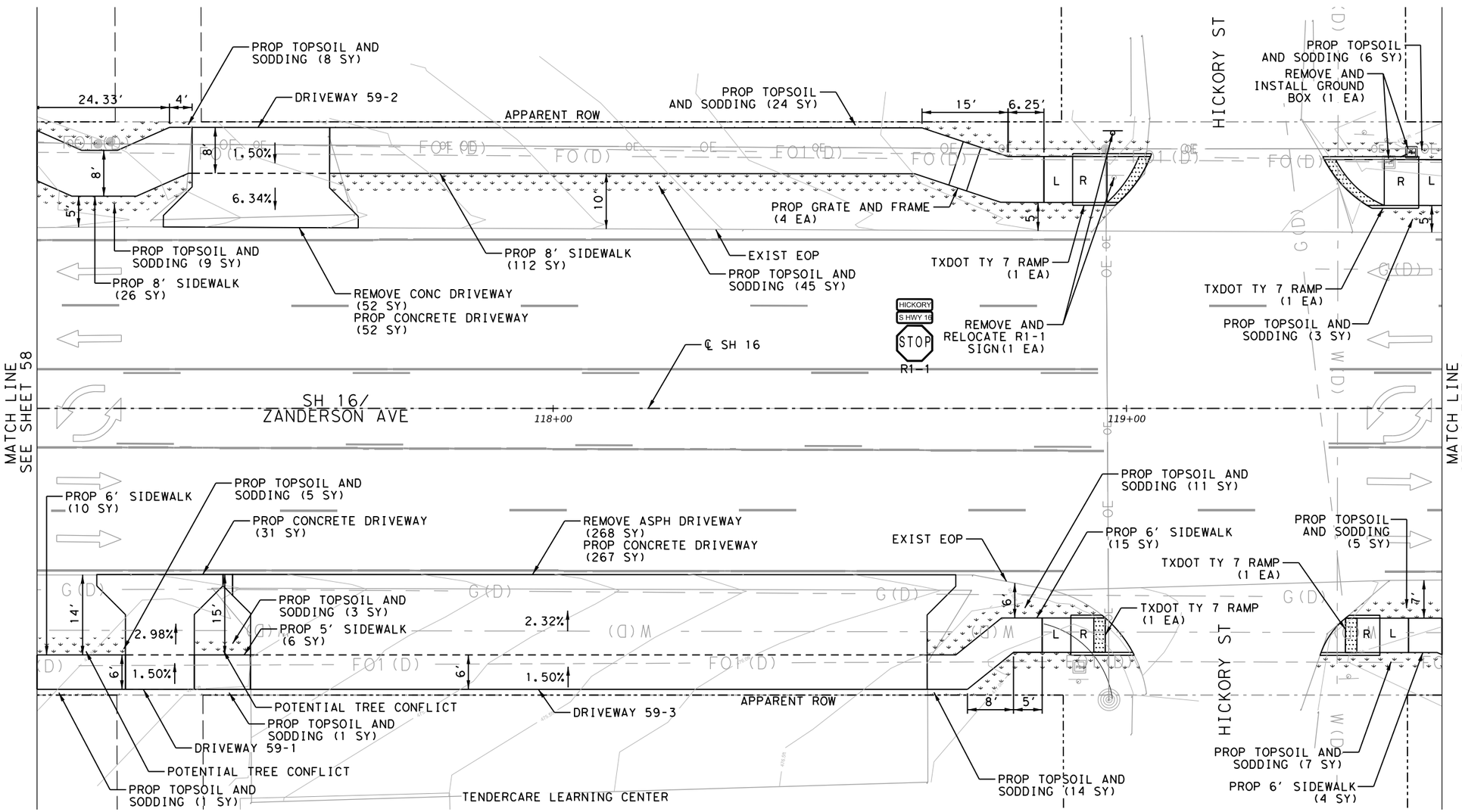
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
			PROPOSED ASPHALT OVERLAY
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		

ITEM	DESCRIPTION	UNIT	QTY
0104 7011	REMOVING CONC (DRIVEWAYS)	SY	52
0105 7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	268
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	142
0162 7002	BLOCK SODDING	SY	142
0471 7003	GRATE & FRAME	EA	4
0530 7006	DRIVEWAYS (CONC)	SY	350
0531 7001	CONC SIDEWALKS (4")	SY	173
0531 7010	CURB RAMPS (TY 7)	SY	4
0624 7008	GROUND BOX TY D (162922)W/APRON	EA	1
0624 7013	REMOVE GROUND BOX	EA	1
0644 7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



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SIDEWALK PLAN AT HICKORY ST

SHEET 7 OF 20

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	59
CONT.	SECT.	JOB	
0517	01	048,ETC	

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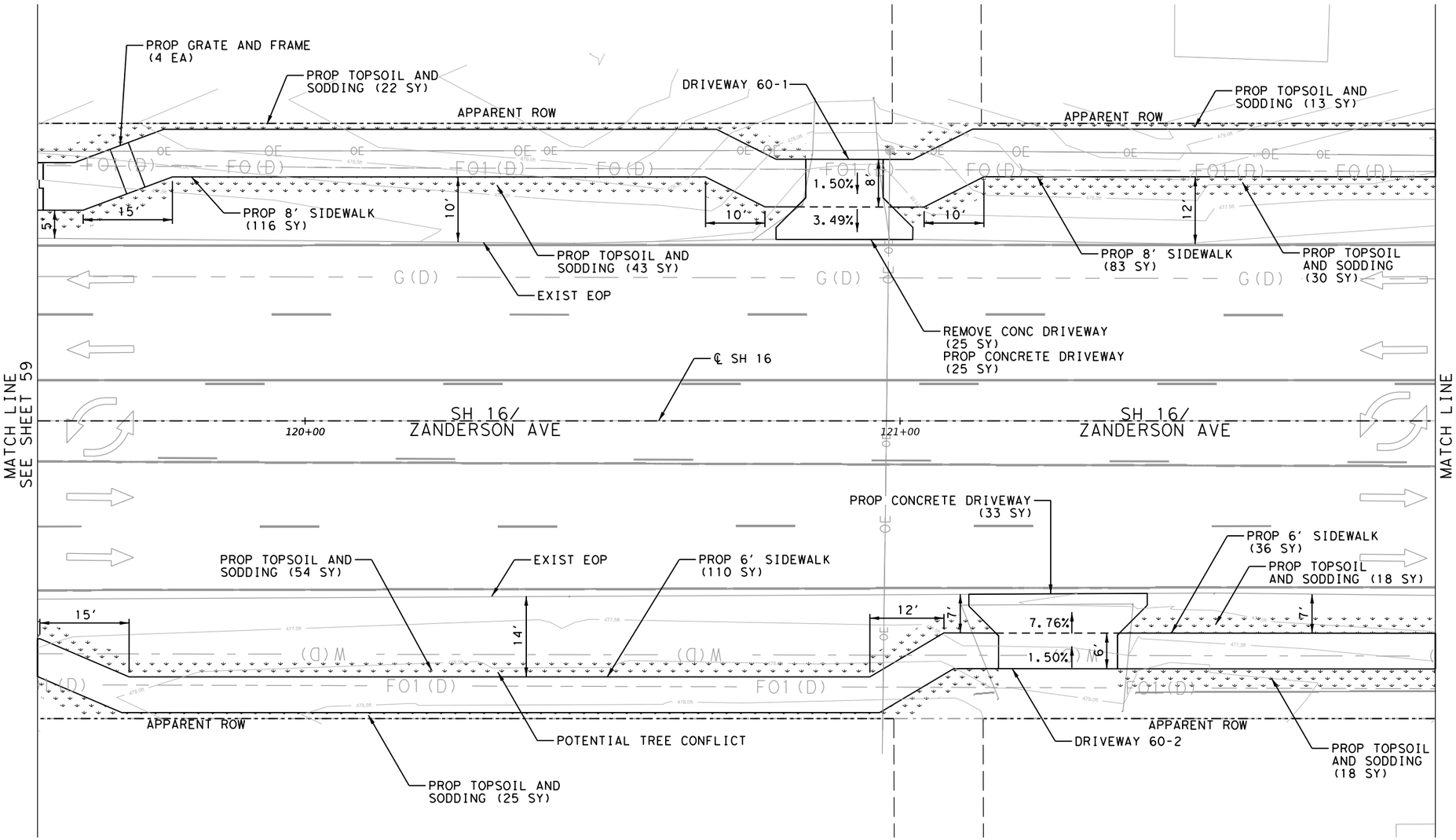
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
			PROPOSED ASPHALT OVERLAY
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		

ITEM	DESCRIPTION	UNIT	QTY
0104 7011	REMOVING CONC (DRIVEWAYS)	SY	25
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	223
0162 7002	BLOCK SODDING	SY	223
0471 7003	GRATE & FRAME	EA	4
0530 7006	DRIVEWAYS (CONC)	SY	58
0531 7001	CONC SIDEWALKS (4")	SY	345



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SIDEWALK PLAN

BETWEEN HICKORY ST AND POPLAR ST

SHEET 8 OF 20

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	60
CONT.	SECT.	JOB	
0517	01	048,ETC	

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LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	224
0162 7002	BLOCK SODDING	SY	224
0341 7048	D-GR HMA TY-D PG70-22	TON	9
0354 7002	PLANE & TEXT ASPH CONC PAV(0" TO 2")	SY	76
0450 7059	RAIL (HANDRAIL)(TY B)	LF	9
0471 7003	GRATE & FRAME	EA	12
0529 7001	CONC CURB (TY I)	LF	77
0529 6016	CONC CURB (TY F1)	LF	9
0531 7001	CONC SIDEWALKS (4")	SY	272
0531 7010	CURB RAMPS (TY 7)	SY	4
0624 7008	GROUND BOX TY D (162922)W/APRON	EA	1
0624 7013	REMOVE GROUND BOX	EA	1
0644 7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3

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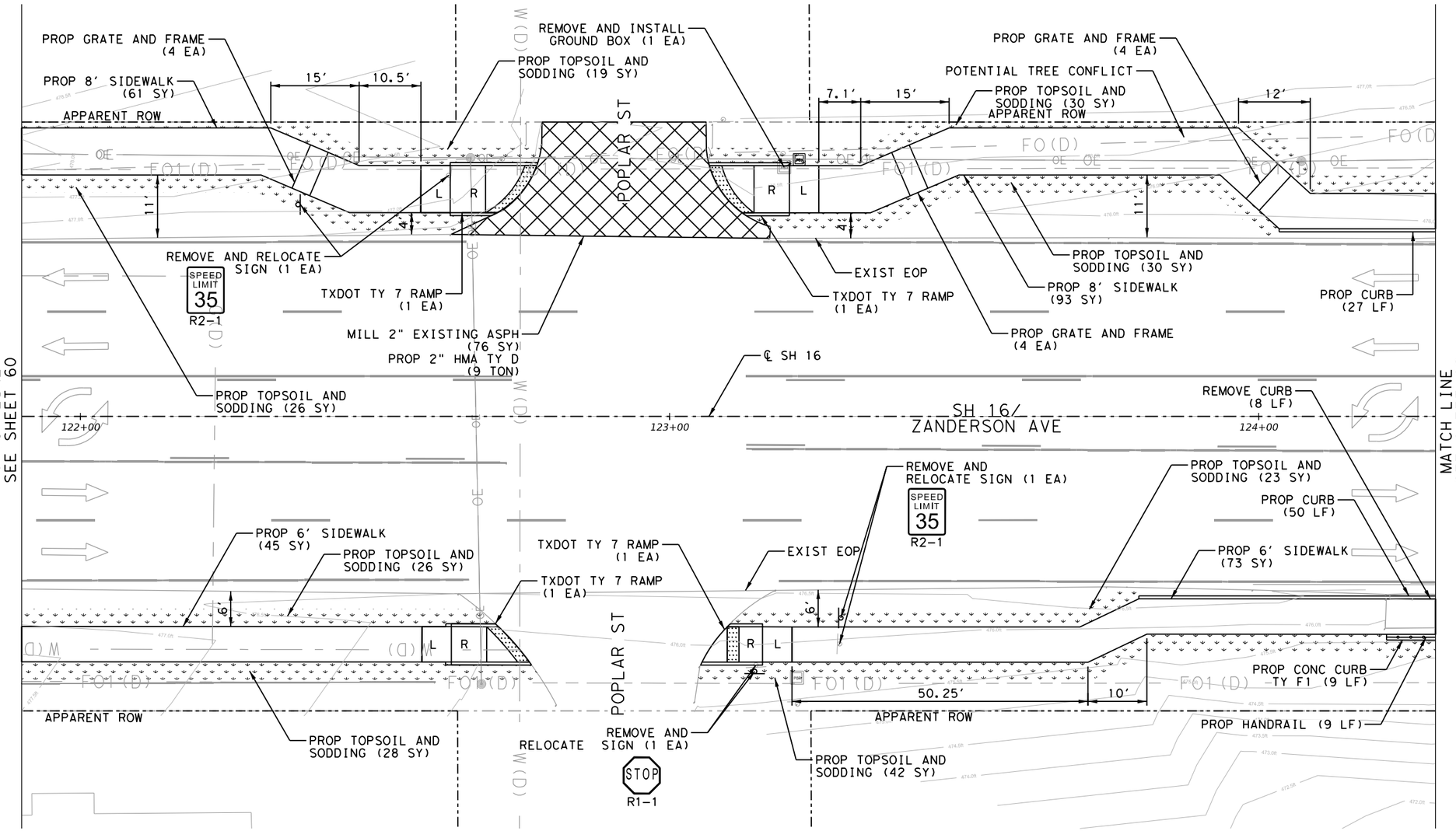

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SIDEWALK PLAN

AT
POPLAR ST

SHEET 9 OF 20

FED. RD. DIV. NO:	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	61
CONT.	SECT.	JOB	
0517	01	048,ETC	

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LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
			PROPOSED ASPHALT OVERLAY
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		

ITEM	DESCRIPTION	UNIT	QTY
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	203
0162 7002	BLOCK SODDING	SY	203
0341 7048	D-GR HMA TY-D PG70-22	TON	5
0354 7002	PLANE & TEXT ASPH CONC PAV(0" TO 2")	SY	39
0420 7008	CL A CONC (COLLAR)	CY	1
0432 7001	RIPRAP (CONC)(4 IN)	CY	1.4
0450 7059	RAIL (HANDRAIL)(TY B)	LF	105
0465 6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	2
0465 7335	INLET (COMPL)(ARMOR CURB SLOT)	EA	2
0471 7003	GRATE & FRAME	EA	8
0529 7001	CONC CURB (TY I)	LF	189
0529 6016	CONC CURB (TY F1)	LF	75
0531 7001	CONC SIDEWALKS (4")	SY	306
0531 7010	CURB RAMPS (TY 7)	SY	2

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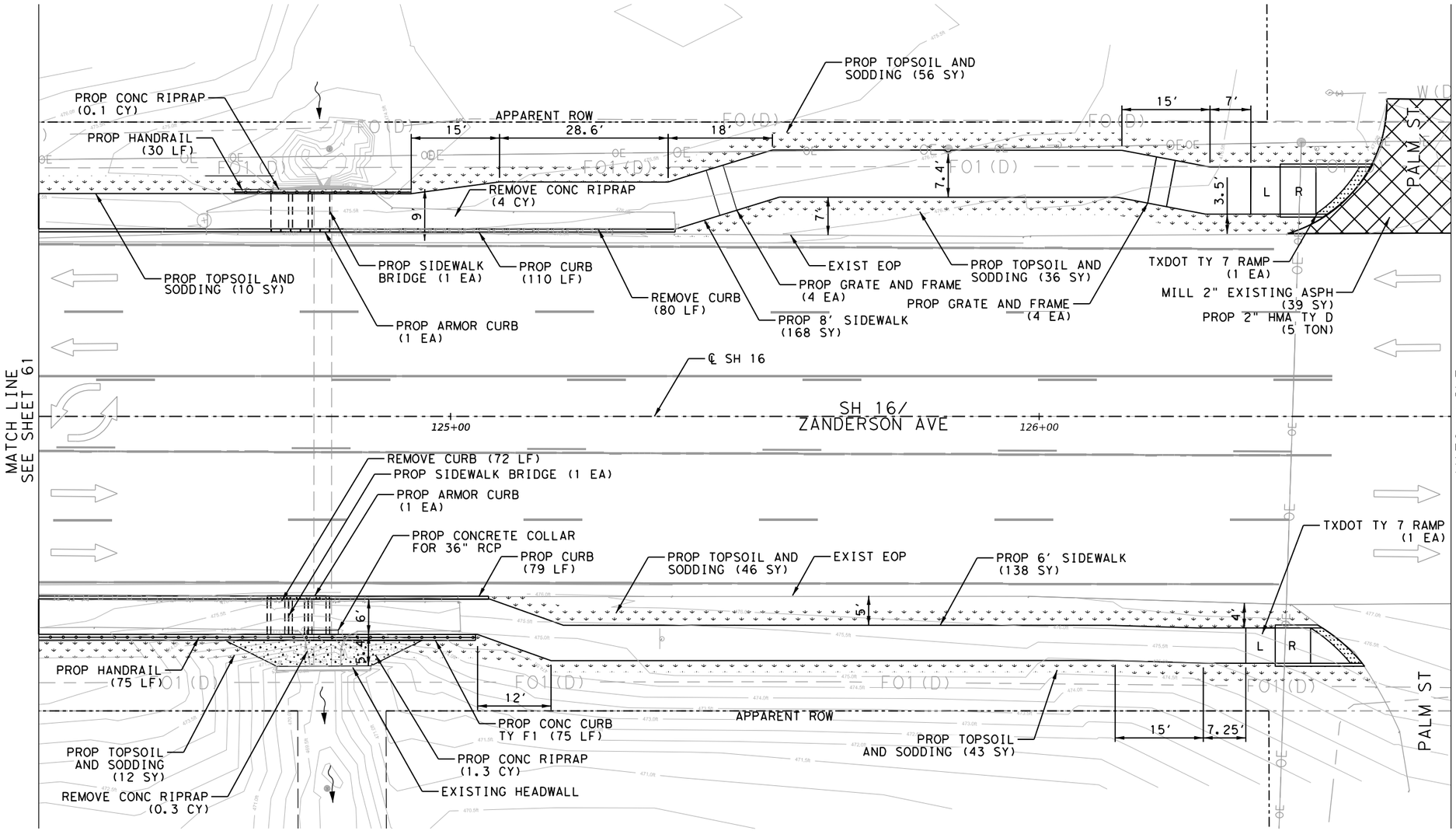

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SIDEWALK PLAN

BETWEEN
POPLAR ST AND PALM ST

SHEET 10 OF 20

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		SH 16
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	62
CONT.	SECT.	JOB	
0517	01	048,ETC	

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LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0104 7006	REMOVING CONC (RIPRAP)	SY	6
0104 7011	REMOVING CONC (DRIVEWAYS)	SY	92
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	224
0162 7002	BLOCK SODDING	SY	224
0341 7048	D-GR HMA TY-D PG70-22	TON	6
0354 7002	PLANE & TEXT ASPH CONC PAV(0" TO 2")	SY	51
0471 7003	GRATE & FRAME	EA	4
0479 7001	ADJUSTING MANHOLES	EA	1
0529 6016	CONC CURB (TY F1)	LF	144
0530 7006	DRIVEWAYS (CONC)	SY	127
0531 7001	CONC SIDEWALKS (4")	SY	270
0531 7010	CURB RAMPS (TY 7)	SY	2
0624 7008	GROUND BOX TY D (162922)W/APRON	EA	1
0624 7013	REMOVE GROUND BOX	EA	1

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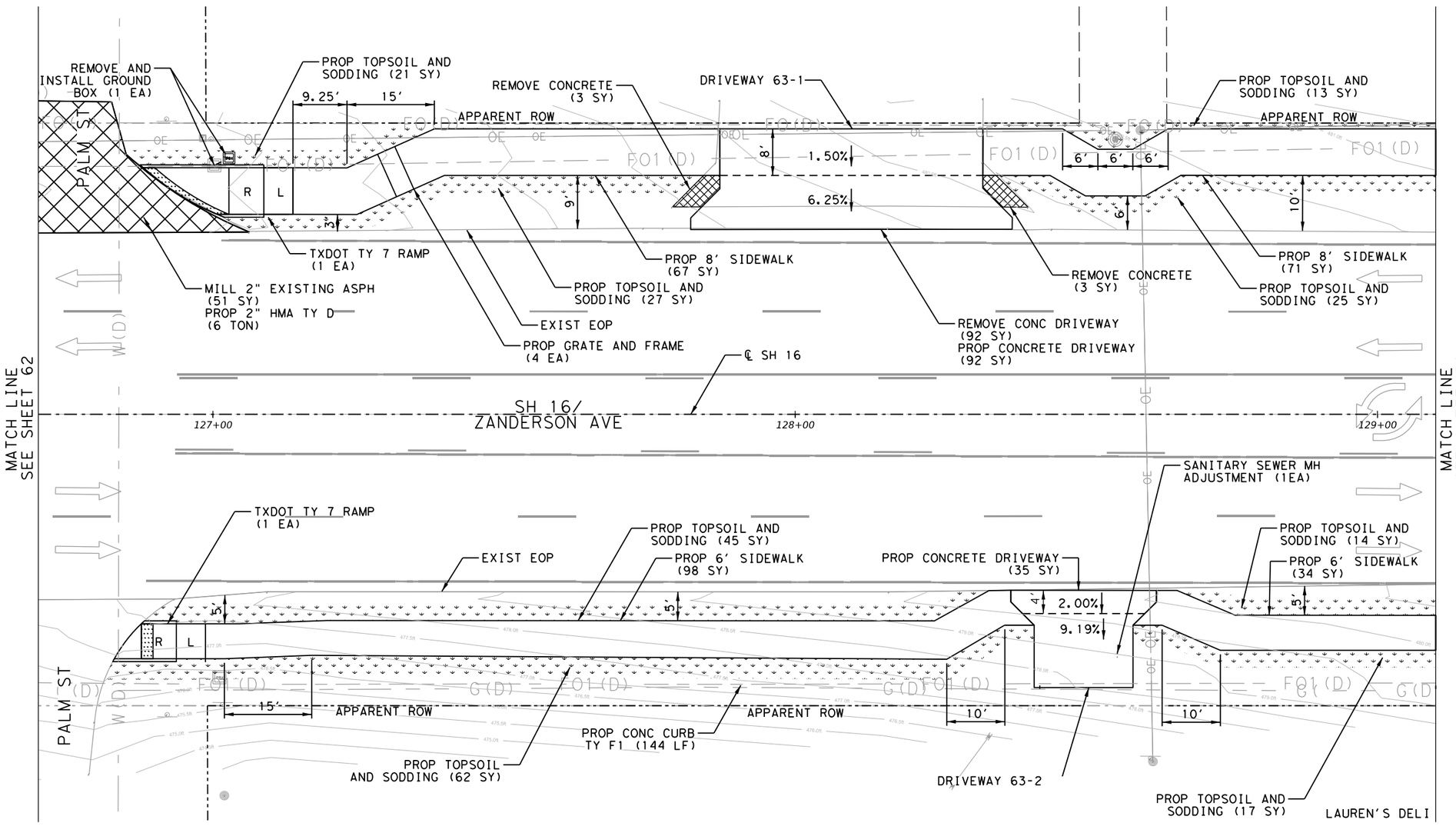

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SIDEWALK PLAN

BETWEEN
PALM ST AND OLIVE ST

SHEET 11 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	63
CONT.	SECT.	JOB	
0517	01	048,ETC	

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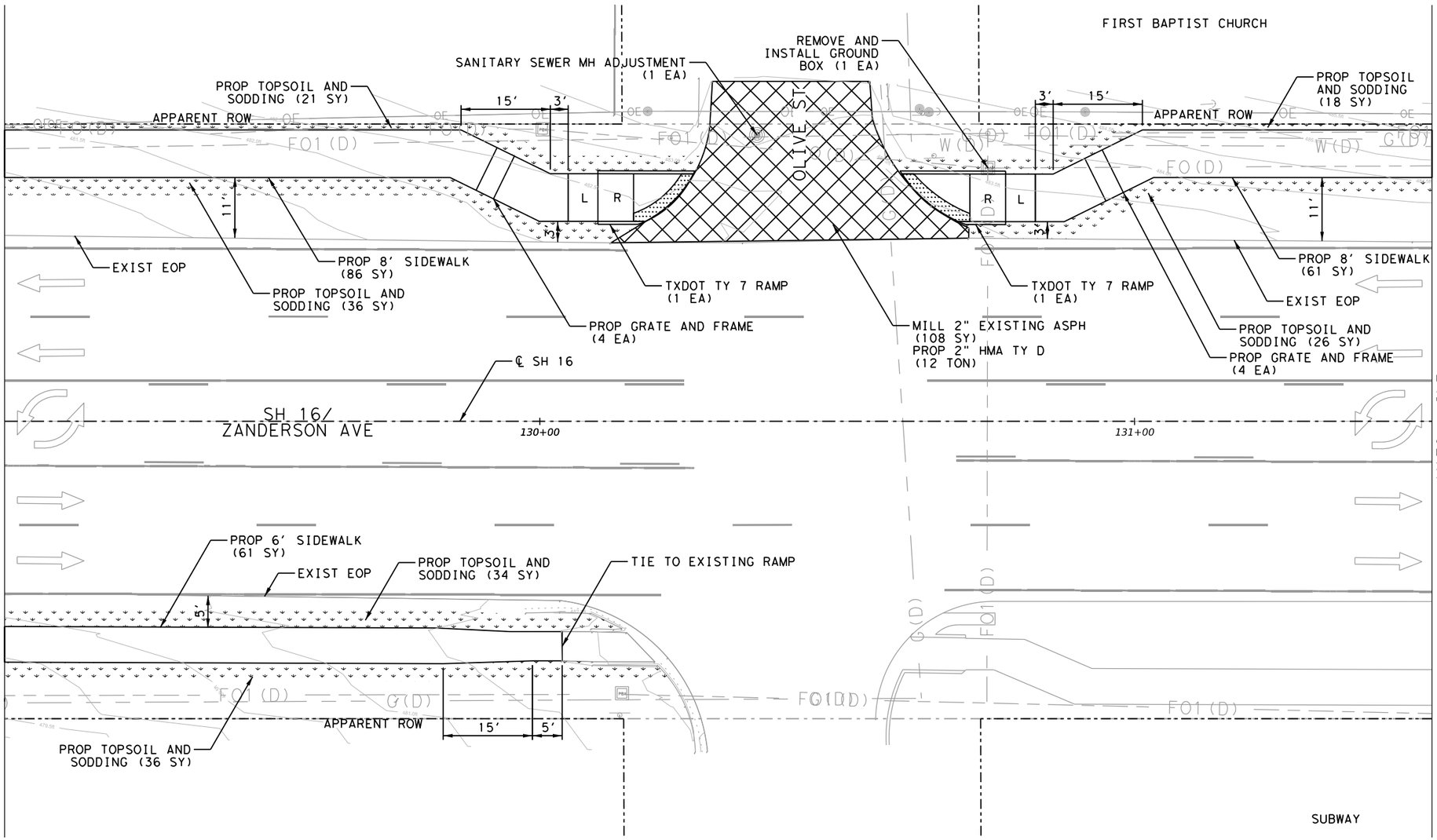
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
			PROPOSED ASPHALT OVERLAY
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		

ITEM	DESCRIPTION	UNIT	QTY
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	171
0162 7002	BLOCK SODDING	SY	171
0341 7048	D-GR HMA TY-D PG70-22	TON	12
0354 7002	PLANE & TEXT ASPH CONC PAV(0" TO 2")	SY	108
0471 7003	GRATE & FRAME	EA	8
0479 7001	ADJUSTING MANHOLES	EA	1
0531 7001	CONC SIDEWALKS (4")	SY	208
0531 7010	CURB RAMPS (TY 7)	SY	2
0624 7008	GROUND BOX TY D (162922)W/APRON	EA	1
0624 7013	REMOVE GROUND BOX	EA	1



NOTES:

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SIDEWALK PLAN AT OLIVE ST

SHEET 12 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	64
CONT.	SECT.	JOB	
0517	01	048,ETC	

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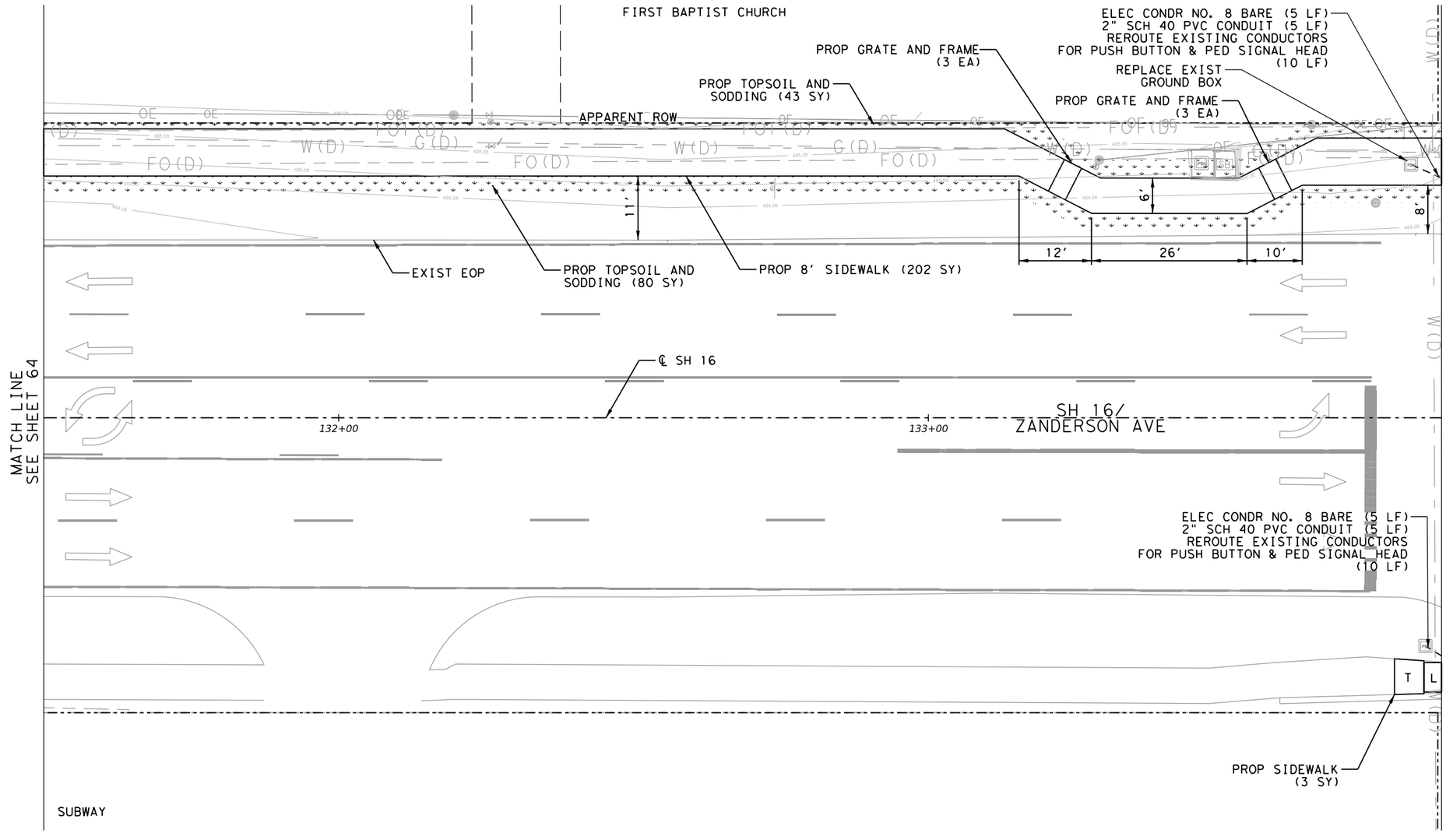
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	123
0162 7002	BLOCK SODDING	SY	123
0471 7003	GRATE & FRAME	EA	6
0531 7001	CONC SIDEWALKS (4")	SY	205
0618 7030	CONDT (PVC) (SCH 40) (2")	LF	10
0620 7007	ELEC CONDR (NO.8) BARE	LF	10
0680 7011	INSTALL HWY TRF SIG (UPGRADE)	EA	1
0690 7007	REPLACE OF GROUND BOXES	EA	1
0690 7105	REROUTE CABLES	EA	20



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SIDEWALK PLAN

BETWEEN OLIVE ST AND PEACH ST

SHEET 13 OF 20

FED. RD. DIV. NO:	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	65
CONT.	SECT.	JOB	
0517	01	048,ETC	

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LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
			PROPOSED ASPHALT OVERLAY
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		

ITEM	DESCRIPTION	UNIT	QTY
0104 7006	REMOVING CONC (RIPRAP)	SY	3
0105 7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	45
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	100
0162 7002	BLOCK SODDING	SY	100
0530 7006	DRIVEWAYS (CONC)	SY	45
0531 7001	CONC SIDEWALKS (4")	SY	144
0531 7005	CURB RAMPS (TY 1)	SY	2
0531 7010	CURB RAMPS (TY 7)	SY	3
0618 7030	CONDT (PVC) (SCH 40) (2")	LF	20
0620 7007	ELEC CONDR (NO.8) BARE	LF	20
0666 7123	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	190
0687 7003	RELOCATE PED POLE ASSEMBLY	EA	3
0690 7007	REPLACE OF GROUND BOXES	EA	1
0690 7105	REROUTE CABLES	EA	60
0690 7123	RELOCATE OF PEDESTRIAN PUSH BUTTON	EA	3

NOTES:

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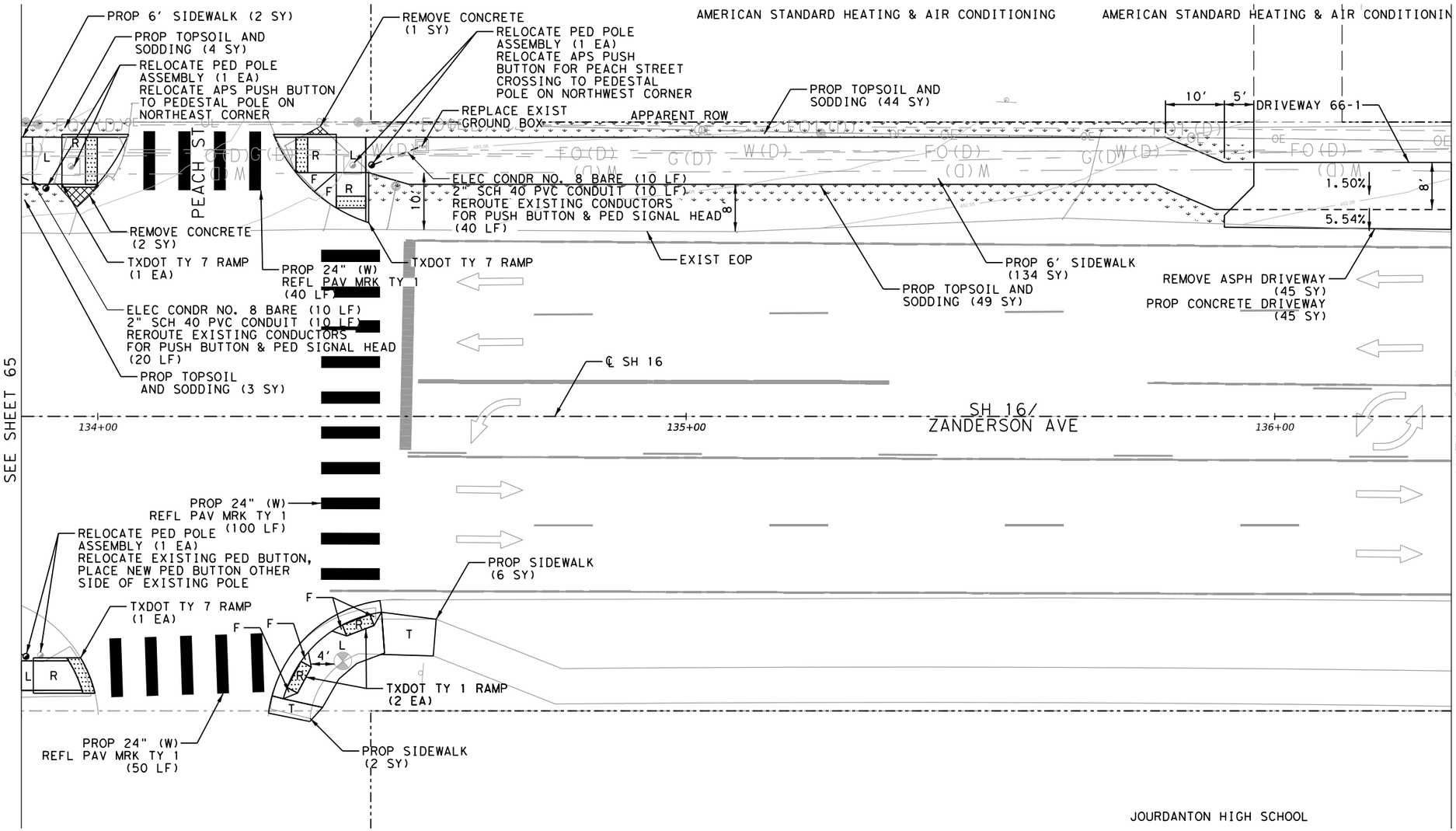
3. CONTRACTOR SHALL PERFORM GRADING TO ENSURE POSITIVE FLOW FOR ALL PROPOSED GRATES AND FRAMES
4. STAKE ALL FOUNDATIIONS FOR APPROVAL BY THE ENGINEER PRIOR TO COMMENCEMENT OF DRILLIING OPERATIONS IN ORDER TO ENSURE NO CONFLICTS WITH UTILITY LINES. UTILIZE TECHNIQUES SUCH AS POTHOLING AND HYDRO EXCAVATION TO LOCATE UTILITIES AND PREVENT DAMAGE.



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SIDEWALK PLAN

AT

PEACH ST

SHEET 14 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	66
CONT.	SECT.	JOB	
0517	01	048,ETC	

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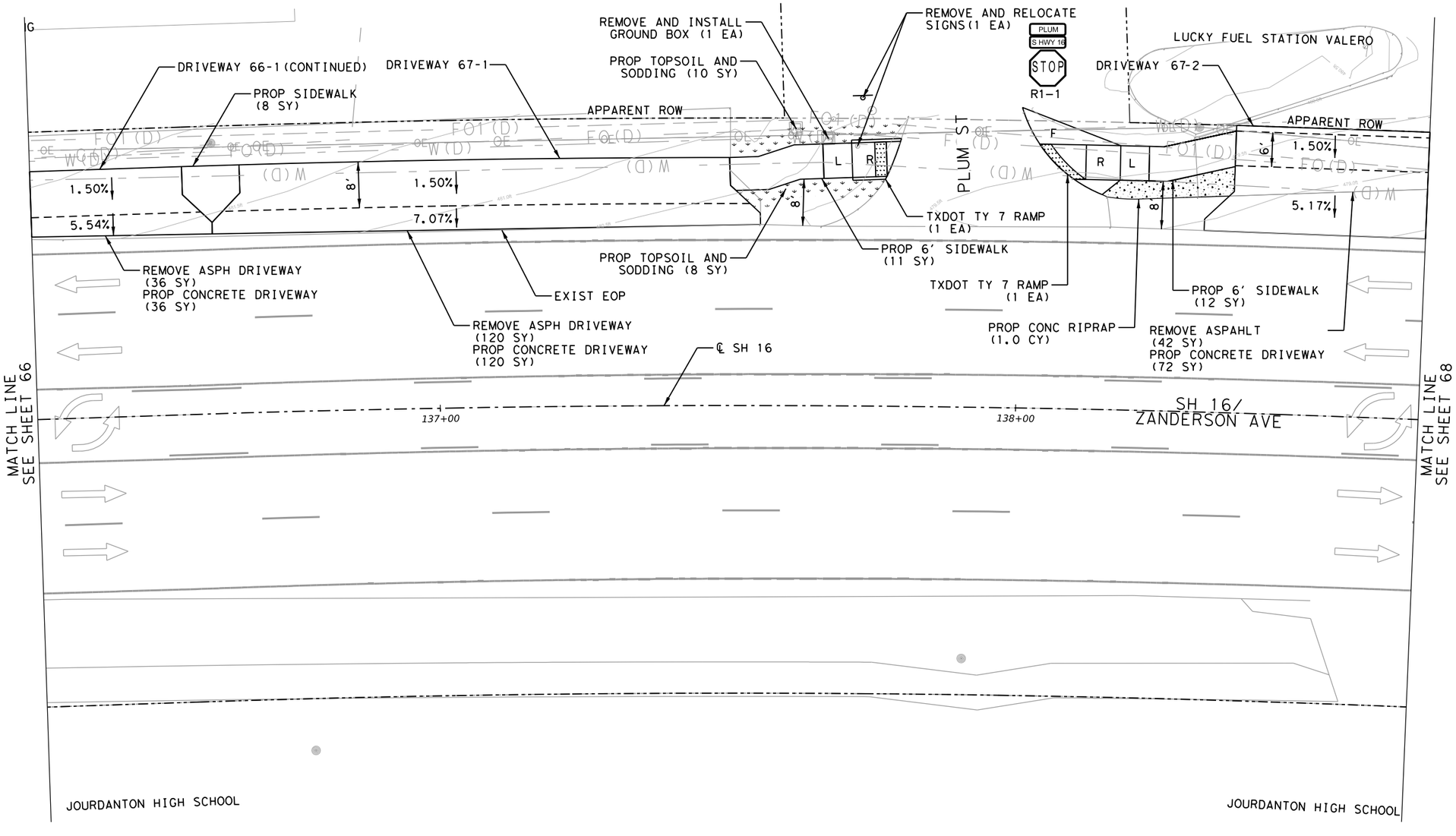
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
			PROPOSED ASPHALT OVERLAY
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		

ITEM	DESCRIPTION	UNIT	QTY
0105 7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	198
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	18
0162 7002	BLOCK SODDING	SY	18
0432 7001	RIPRAP (CONC)(4 IN)	CY	1
0530 7006	DRIVEWAYS (CONC)	SY	228
0531 7001	CONC SIDEWALKS (4")	SY	31
0531 7010	CURB RAMPS (TY 7)	SY	2
0624 7008	GROUND BOX TY D (162922)W/APRON	EA	1
0624 7013	REMOVE GROUND BOX	EA	1
0644 7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



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SIDEWALK PLAN

BETWEEN SH 97 (OAK ST) AND BEECH ST

SHEET 15 OF 20

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	67
CONT.	SECT.	JOB	
0517	01	048,ETC	

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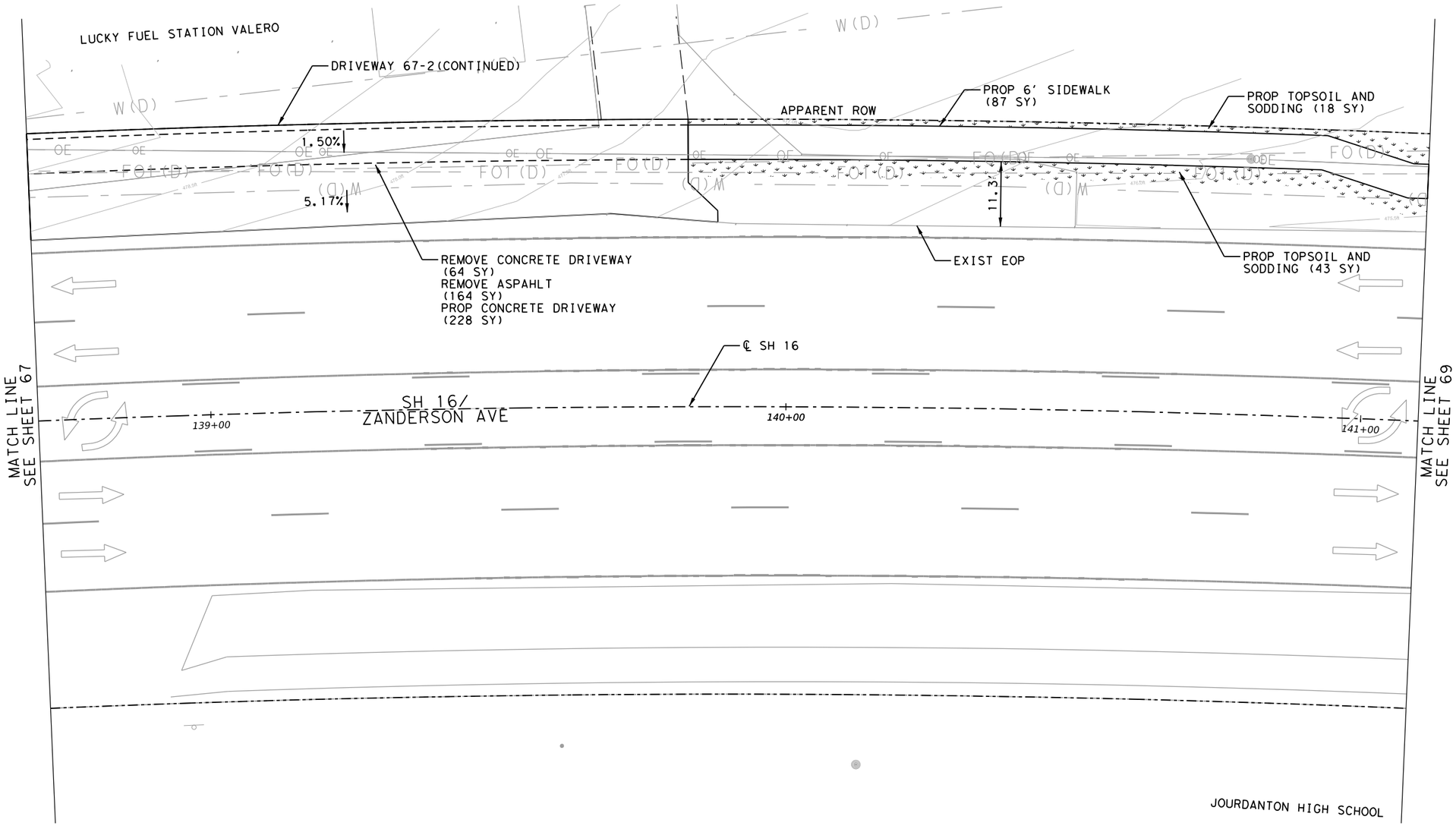
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0104 7011	REMOVING CONC (DRIVEWAYS)	SY	64
0105 7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	164
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	61
0162 7002	BLOCK SODDING	SY	61
0530 7006	DRIVEWAYS (CONC)	SY	228
0531 7001	CONC SIDEWALKS (4")	SY	87



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SIDEWALK PLAN

BETWEEN PEACH ST AND ORANGE ST

SHEET 16 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		SH 16
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	68
CONT.	SECT.	JOB	
0517	01	048,ETC	

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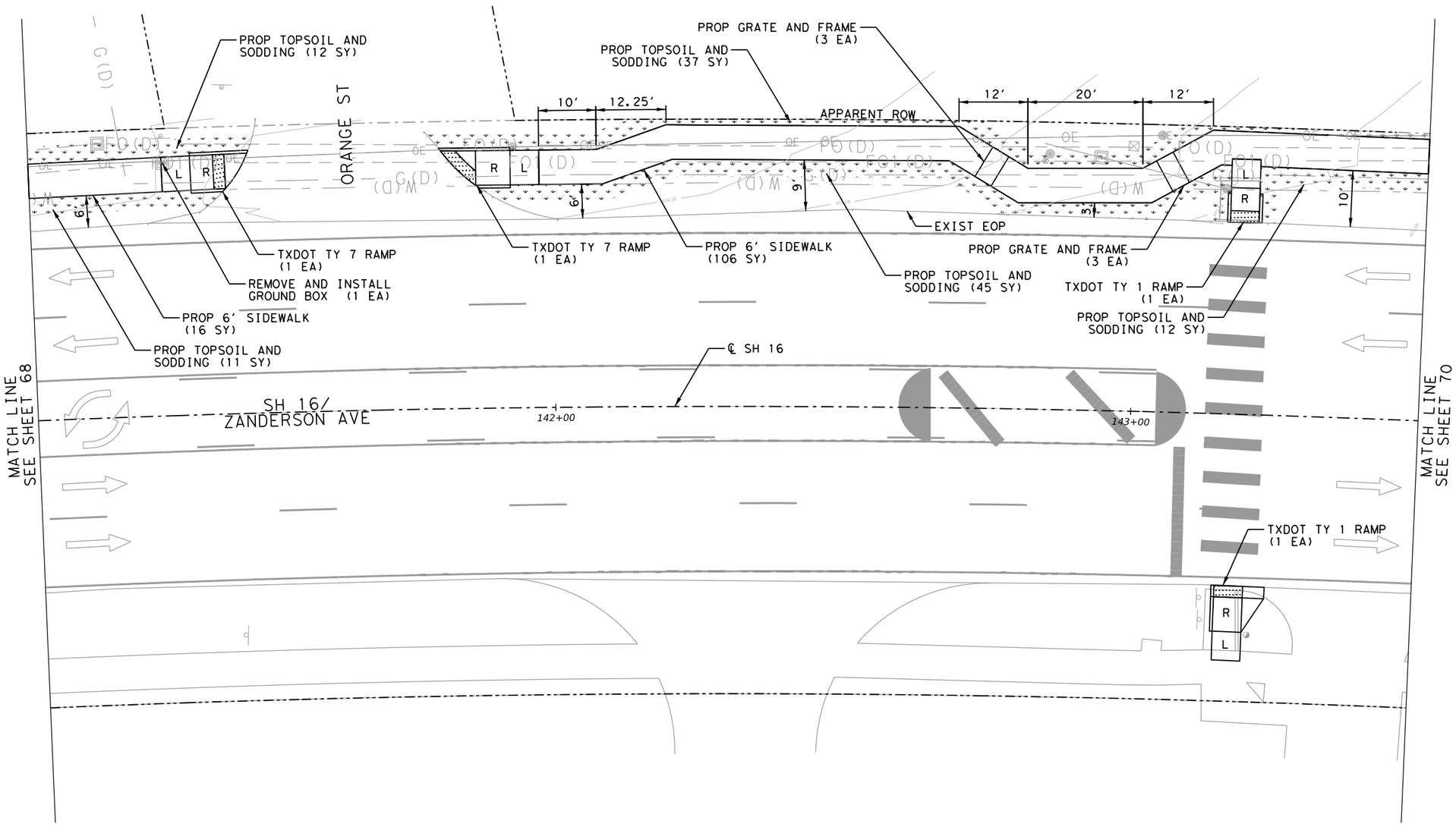
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
			PROPOSED ASPHALT OVERLAY
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		

ITEM	DESCRIPTION	UNIT	QTY
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	117
0162 7002	BLOCK SODDING	SY	117
0471 7003	GRATE & FRAME	EA	6
0531 7001	CONC SIDEWALKS (4")	SY	122
0531 7005	CURB RAMPS (TY 1)	SY	2
0531 7010	CURB RAMPS (TY 7)	SY	2
0624 7008	GROUND BOX TY D (162922)W/APRON	EA	1
0624 7013	REMOVE GROUND BOX	EA	1



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SIDEWALK PLAN

AT ORANGE ST

SHEET 17 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	69
CONT.	SECT.	JOB	
0517	01	048,ETC	

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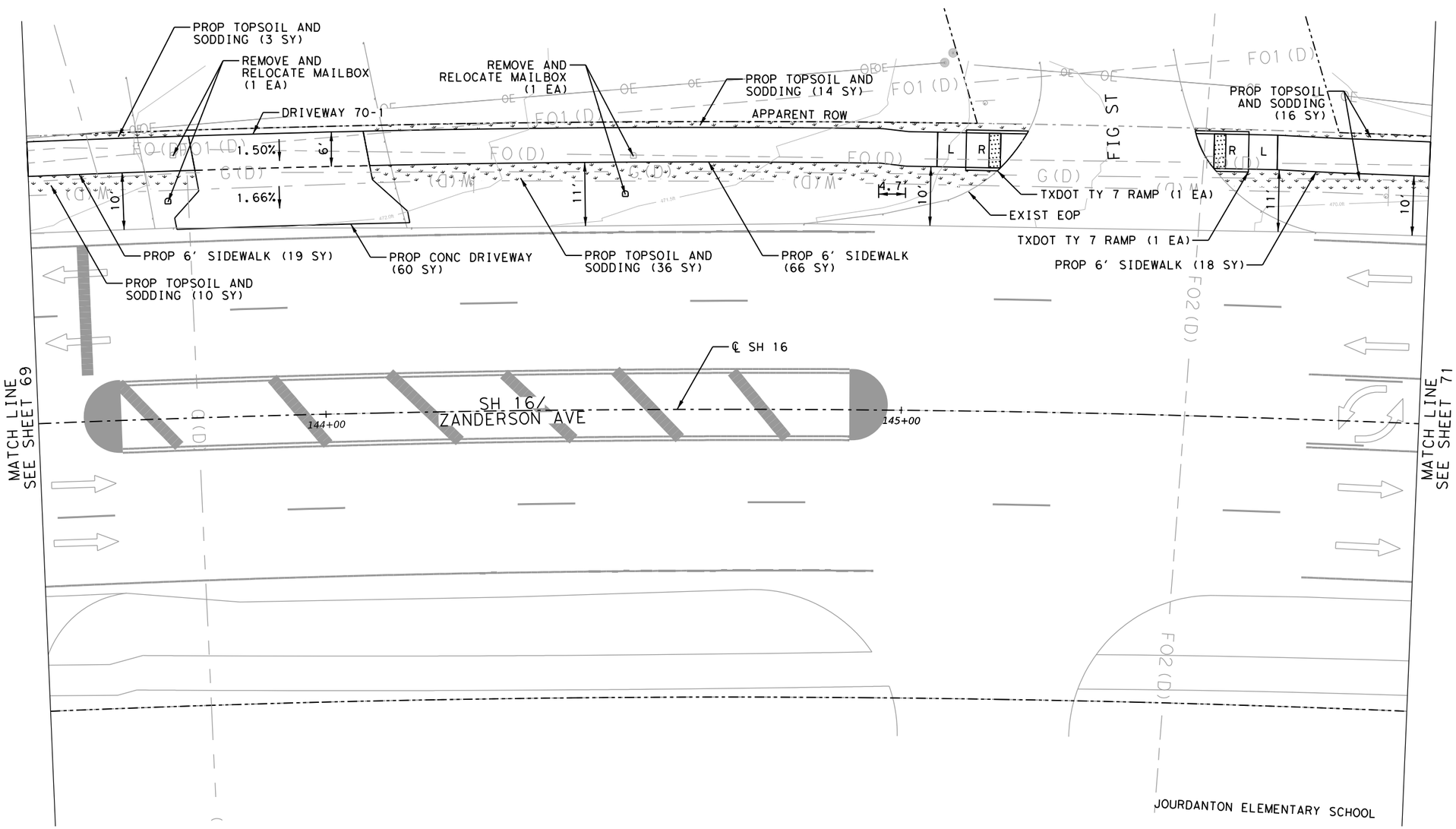
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	79
0162 7002	BLOCK SODDING	SY	79
0530 7006	DRIVEWAYS (CONC)	SY	60
0531 7001	CONC SIDEWALKS (4")	SY	103
0531 7010	CURB RAMPS (TY 7)	SY	2
0560 7012	RELOCATE EXISTING MAILBOX	EA	2



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SIDEWALK PLAN

AT
FIG ST

SHEET 18 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	70
CONT.	SECT.	JOB	
0517	01	048,ETC	

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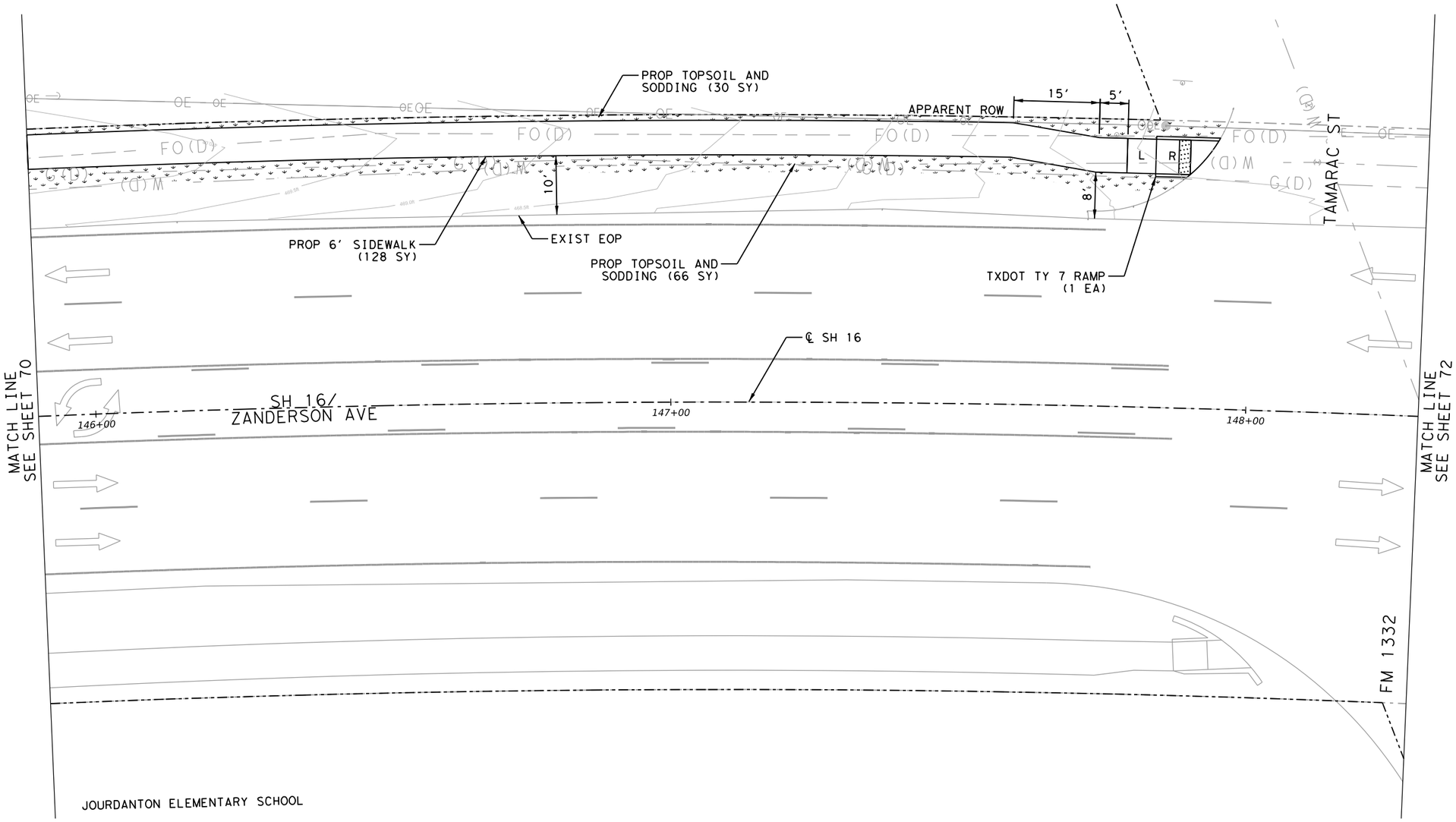
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
			PROPOSED ASPHALT OVERLAY
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		

ITEM	DESCRIPTION	UNIT	QTY
0161 7002	COMPOST MANUF TOPSOIL (4")	SY	96
0162 7002	BLOCK SODDING	SY	96
0531 7001	CONC SIDEWALKS (4")	SY	128
0531 7010	CURB RAMPS (TY 7)	SY	1



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2. LONGITUDINAL SLOPE SIDEWALKS SHALL NOT EXCEED 5% EXCEPT IN CASES WHERE THE ADJACENT ROADWAY SLOPE EXCEEDS 5%. IF ROADWAY SLOPE EXCEEDS 5%, LONGITUDINAL SLOPE OF THE SIDEWALK MAY MATCH THAT OF THE ROADWAY.
3. CONTRACTOR SHALL PERFORM GRADING TO ENSURE POSITIVE FLOW FOR ALL PROPOSED GRATES AND FRAMES

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8/6/2024

STATE OF TEXAS
SAMUEL J. LUNDQUIST
122185
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

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SIDEWALK PLAN

BETWEEN FIG ST AND TAMARAC ST

SHEET 19 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	71
CONT.	SECT.	JOB	
0517	01	048,ETC	

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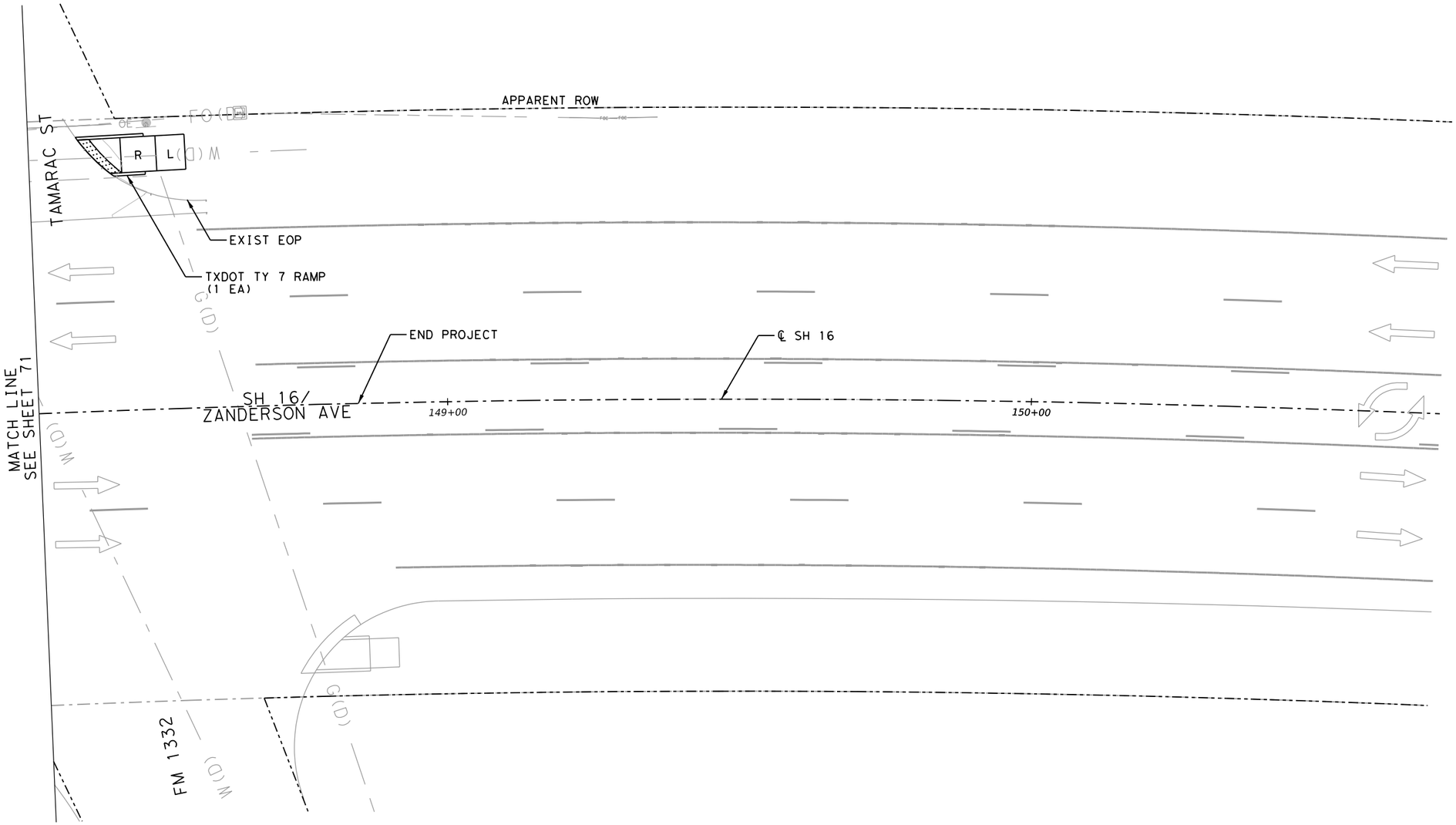
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO2(C)--	FIBER OPTIC (QL C)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--FO(D)--	FIBER OPTIC (ZAYO) (QL D)		PROPOSED RIPRAP
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		PROPOSED ASPHALT OVERLAY

ITEM	DESCRIPTION	UNIT	QTY
0531 7010	CURB RAMPS (TY 7)	SY	1



NOTES:

* FOR CONTRACTOR INFORMATION ONLY

1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. LONGITUDINAL SLOPE SIDEWALKS SHALL NOT EXCEED 5% EXCEPT IN CASES WHERE THE ADJACENT ROADWAY SLOPE EXCEEDS 5%. IF ROADWAY SLOPE EXCEEDS 5%, LONGITUDINAL SLOPE OF THE SIDEWALK MAY MATCH THAT OF THE ROADWAY.
3. CONTRACTOR SHALL PERFORM GRADING TO ENSURE POSITIVE FLOW FOR ALL PROPOSED GRATES AND FRAMES

0 10 20

8/6/2024

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SIDEWALK PLAN

AT TAMARAC

SHEET 20 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	72
CONT.	SECT.	JOB	
0517	01	048,ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

ITEM NO	DESCRIPTION	UNIT	QTY
161-7002	COMPOST MANUF TOPSOIL (4")	SY	187
162-7002	BLOCK SODDING	SY	187
432-7002	RIPRAP (CONC)(5 IN)	CY	8
529-7001	CONC CURB (TY I)	LF	134
531-7001	CONC SIDEWALKS (4")	SY	195
531-7005	CURB RAMPS (TY 1)	EA	2
644-7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2

APPARENT ROW

PROP TY 1 CURB RAMPS (2 EA)

WATER STREET

REMOVE AND RELOCATE EXIST SIGN ASSY (1 EA)

NORTH M3-1
16 TEXAS M1-6T
WEST M3-4
72 TEXAS M1-6T

VACANT LOT

PROP TOPSOIL AND SODDING (21 SY)

REMOVE AND RELOCATE EXIST SIGN (1 EA)

W1-2L

PROP TOPSOIL AND SODDING (15 SY)

PROP TOPSOIL AND SODDING (7 SY)

BEGIN PROP 6' SIDEWALK

PROP 6' SIDEWALK (106 SY)

PROP TOPSOIL AND SODDING (128 SY)

EXIST EOP

℄ SH 16

683+00

684+00

SH 16/ RIVER ST

MATCHLINE STA 684+60

BEGIN PROP 6' SIDEWALK WITH TY I CURB TIE TO EXIST CONCRETE DRIVEWAY

PROP CONC CURB (TY I) (134 LF)

PROP CONCRETE RIPRAP (6 CY)

END PROP 6' SIDEWALK
BEGIN EXIST 4' SIDEWALK

EXIST 4' SIDEWALK CROSSING EXIST DRIVEWAY

PROP 6' SIDEWALK (89 SY)

EXIST EOP

1.5% MAX

PROP CONCRETE RIPRAP (2 CY)

PROP TOPSOIL AND SODDING (16 SY)

APPARENT ROW

EXIST SH 16 PVMT
EXIST CONC FLUME
VAR CONC RIPRAP
9" C1 CURB
6' SDWLK
1'
CONC RIPRAP
ROW
OE
5"

NOTES

1.) CONTRACTOR SHALL ENSURE PROPOSED SIDEWALK, RAMP AND CURB CONSTRUCTION DOES NOT IMPEDE CURRENT DRAINAGE PATTERNS.

0 10' 20'
SCALE: 1" = 20'

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96609
LICENSED PROFESSIONAL ENGINEER

8/6/2024

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SIDEWALK PLAN - TILDEN

SHEET 01 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	73
CONT.	SECT.	JOB	
0517	01	048, ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

ITEM NO	DESCRIPTION	UNIT	QTY
104-7011	REMOV CONC (DRIVEWAYS)	SY	110
105-7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	34
161-7002	COMPOST MANUF TOPSOIL (4")	SY	91
162-7002	BLOCK SODDING	SY	91
432-7002	RIPRAP (CONC)(5 IN)	CY	1
529-7001	CONC CURB (TY I)	LF	34
530-7006	DRIVEWAYS (CONC)	SY	189
531-7001	CONC SIDEWALKS (4")	SY	85
531-7010	CURB RAMPS (TY 7)	EA	2
644-7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3

MATCHLINE STA 684+60

MATCHLINE STA 687+00

APPROXIMATE LIMITS OF FLOODPLAIN

REMOVE AND RELOCATE EXIST SIGN (1 EA)

NO PARKING ON SHOULDER

R8-1dT

PROP TOPSOIL AND SODDING (15 SY)

EXIST TREE TO REMAIN

EXIST PRIVATE SIGN TO BE RELOCATED (BY OTHERS)

TILDEN BAPTIST CHURCH

REMOVE AND RELOCATE EXIST SIGN (1 EA)

NO PARKING ON SHOULDER

R8-1dT

LIVE OAK STREET

APPARENT ROW

WHEELER'S MERCANTILE

PROP CONCRETE DRIVEWAY (110 SY)

PROP TY 7 CURB RAMP (1 EA)(SEE NOTE 2)

ROW

6'

4'

1.5% MAX

PROP 6' SIDEWALK (58 SY)

EXIST EOP

EXIST TELEPHONE PEDESTAL TO REMAIN

PROP TOPSOIL AND SODDING (53 SY)

PROP CONCRETE DRIVEWAY (79 SY)

PROP TY 7 CURB RAMP (1 EA)

EXIST ASPHALT DRIVEWAY TO BE REMOVED (34 SY)
CONSTRUCT NEW 52' CONCRETE DRIVEWAY IN SAME LOCATION

EXIST EOP

1.5% MAX

NOTES

1.) CONTRACTOR SHALL ENSURE PROPOSED SIDEWALK, RAMP AND CURB CONSTRUCTION DOES NOT IMPEDE CURRENT DRAINAGE PATTERNS.

2.) TY 7 CURB RAMP TO TRANSITION AND MATCH EXISTING ASPHALT GRADE ON LIVE OAK ST. AND MATCH GRADE AT PROPOSED CONCRETE DRIVEWAY.

SH 16/ RIVER ST

685+00

686+00

687

℄ SH 16

0 10' 20'

SCALE: 1" = 20'

5' PASSING SPACE

EXIST EOP

EXIST 4' SIDEWALK CROSSING EXIST DRIVEWAY

EXIST CONCRETE DRIVEWAY

1'X 5' PASSING SPACE * (1 SY)

APPARENT ROW

APPROXIMATE LIMITS OF FLOODPLAIN

END EXIST 4' SIDEWALK/ BEGIN PROP 6' SIDEWALK

REMOVE AND RELOCATE EXIST SIGN (1 EA)

NO PARKING ON SHOULDER

R8-1dT

PROP TOPSOIL AND SODDING (12 SY)

POST OFFICE

PROP CONC RIPRAP (1 CY)

PROP 6' SIDEWALK (27 SY)

PROP CONC CURB (TY I)(34 LF)

PROP TOPSOIL AND SODDING (11 SY)

APPARENT ROW

1'

5'

* ONLY CONSTRUCT IF EXIST CROSS-SLOPE EXCEEDS 2% FOR A 5' WIDTH THAT IS MORE THAN 200' FROM EACH END OF THE 4' SIDEWALK

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SIDEWALK PLAN - TILDEN

SHEET 02 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	74
CONT.	SECT.	JOB	
0517	01	048, ETC	

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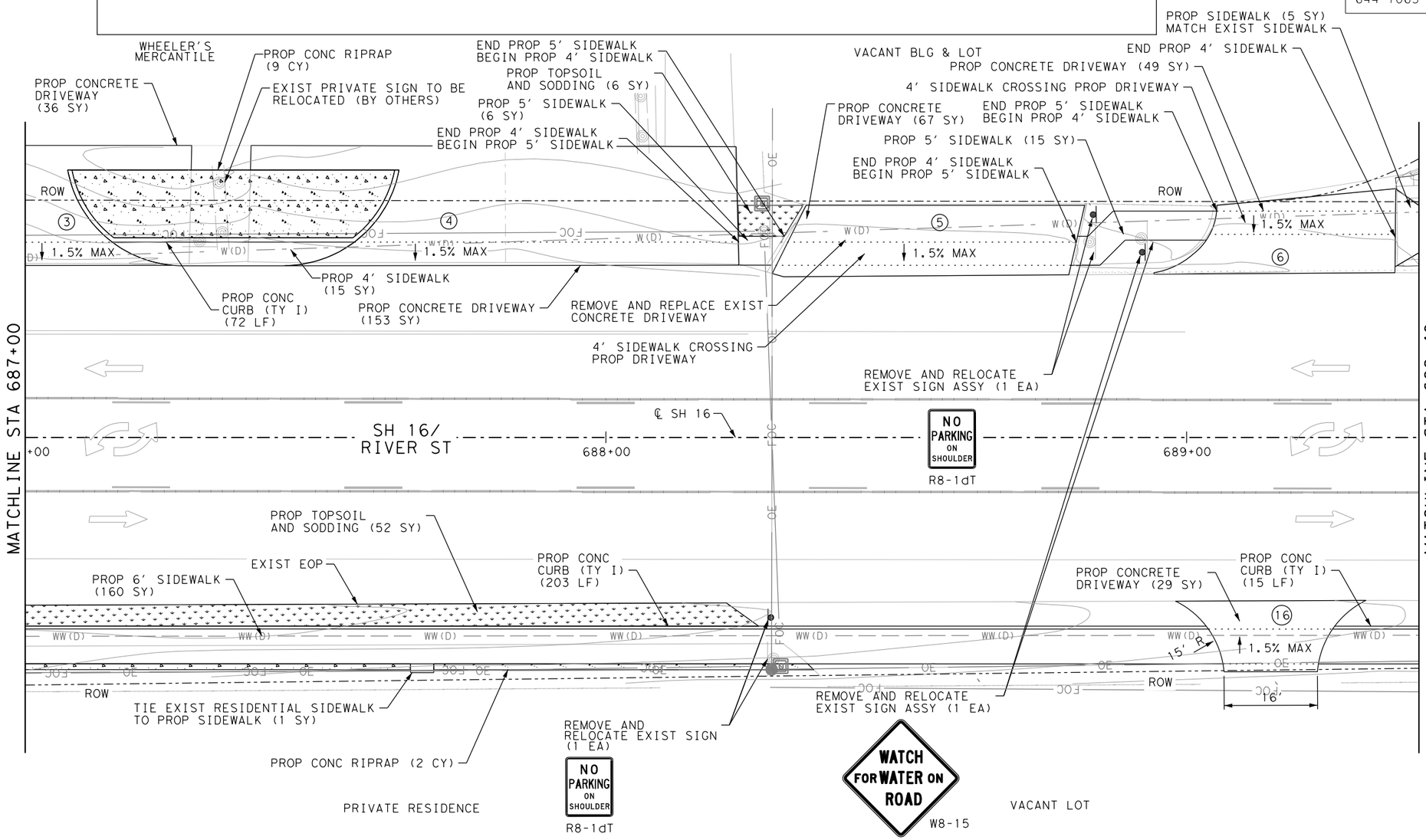
LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

ITEM NO	DESCRIPTION	UNIT	QTY
104-7011	REMOV CONC (DRIVEWAYS)	SY	373
161-7002	COMPOST MANUF TOPSOIL (4")	SY	58
162-7002	BLOCK SODDING	SY	58
432-7002	RIPRAP (CONC)(5 IN)	CY	11
529-7001	CONC CURB (TY I)	LF	290
530-7006	DRIVEWAYS (CONC)	SY	334
531-7001	CONC SIDEWALKS (4")	SY	202
644-7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3



NOTES

1.) CONTRACTOR SHALL ENSURE PROPOSED SIDEWALK, RAMP AND CURB CONSTRUCTION DOES NOT IMPEDE CURRENT DRAINAGE PATTERNS.

0 10' 20'
SCALE: 1" = 20'

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SIDEWALK PLAN - TILDEN

SHEET 03 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	75
CONT.	SECT.	JOB	
0517	01	048, ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- CONDT (PVC) (SCH 40) (2")
- CONDT (PVC) (SCH 80) (2") (BORE)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

NOTES CONT:
4.) PLEASE REFER TO EIPC SHEET (PG 143) REGARDING THC CONDITIONS AND DETAILS REGARDING THE EXISTING ROCK WALL AND HISTORICAL MARKER. CONTRACTOR SHALL RESTORE THE EXISTING STAMPED CONCRETE TO EXISTING CONDITION AFTER CURB RAMP CONSTRUCTION AND SIDEWALK TIE-IN. CONTRACTOR SHALL INCLUDE ALL WORK, LABOR AND MATERIAL REQUIRED TO PROTECT EXISTING ROCK WALL AND RESTORE EXISTING STAMPED CONCRETE AS SUBSIDIARY TO PROPOSED SIDEWALK CONSTRUCTION.

ITEM NO	DESCRIPTION	UNIT	QTY
104-7009	REMOV CONC (MEDIANS)	CY	75
161-7002	COMPOST MANUF TOPSOIL (4")	SY	72
162-7002	BLOCK SODDING	SY	72
194-7007	ROADSIDE AMENITY (WHEEL STOP)	EA	5
432-7002	RIPRAP (CONC)(5 IN)	CY	6
529-7001	CONC CURB (TY I)	LF	229
	CONC CURB (TY C1)	LF	60
531-7001	CONC SIDEWALKS (4")	SY	157
531-7005	CURB RAMPS (TY 1)	EA	5
531-7006	CURB RAMPS (TY 2)	EA	1
531-7007	CURB RAMPS (TY 3)	EA	2
531-7010	CURB RAMPS (TY 7)	EA	1
536-7002	CONC MEDIAN	SY	46
618-7030	CONDT (PVC) (SCH 40) (2")	LF	116
618-7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	37
620-7009	ELEC CONDR (NO.6) BARE	LF	155
624-7007	GROUND BOX TY D (162922)	EA	1
644-7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
644-7067	RELOCATE SM RD SN SUP&AM TY S80	EA	1
666-7036	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	469
677-7008	ELIM EXT PM & MRKS (24")	LF	154
682-7018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
684-7009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	620
684-7028	TRF SIG CBL (TY A)(14 AWG)(2 CONDR)	LF	620
687-7001	PED POLE ASSEMBLY	EA	5
687-7003	RELOCATE PED POLE ASSEMBLY	EA	2
688-7001	PED DETECT PUSH BUTTON (APS)	EA	8
688-7003	PED DETECTOR CONTROLLER UNIT	EA	1
690-7007	REPLACE OF GROUND BOXES	EA	3
690-7030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	1
690-7094	REMOV PED SIG LED TRAF SIG LAMP UNIT	EA	1
690-7105	REROUTE CABLES	LF	160

NOTES
1.) CONTRACTOR SHALL ENSURE PROPOSED SIDEWALK, RAMP AND CURB CONSTRUCTION DOES NOT IMPEDE CURRENT DRAINAGE PATTERNS.
2.) REROUTE EXISTING TRAFFIC SIGNAL CABLES FOR PED HEAD AND PED BUTTON TO NEW POLE.
3.) 2 PED HEADS AND PED BUTTONS WILL BE INSTALLED ON THE SAME POLE.

SCALE: 1" = 20'

PROP 6' SIDEWALK (30 SY) (MED ISLAND) SEE NOTE 4 MATCH EXIST SIDEWALK
INSTALL NEW PED POLE (1 EA)
REMOVE PED BUTTON AND PED HEAD ON EXIST TRAF SIGNAL POLE (SEE NOTE 2.)
REPLACE EXIST GROUND BOX
INSTALL NEW PED POLE (1 EA)
SH 72
REPLACE EXIST GROUND BOX
PROP STOP BAR (14 LF)
PROP STOP BAR (28 LF)
PROP CROSSWALK (100 LF)
McMULLEN COUNTY COURTHOUSE
INSTALL NEW PED POLE (1 EA)
EXIST STAMPED CONCRETE MEDIAN ISLAND
EXIST HISTORICAL MARKERS TO REMAIN
PROP 5' SIDEWALK MATCH EXIST GRADE (42 SY)
EXIST WATER VALVE AND VACUUM BREAKER ASSY TO REMAIN
EXIST SIDEWALK TO REMAIN
ROW
5%
PROP CONC CURB (TY I) (35 LF)
EXIST WHEEL STOPS TO BE SHIFTED 2' TOWARD ROADWAY (5 EA)
TY1 CURB RAMPS (2 EA)(13 SY EA) (MEDIAN ISLAND)
REPLACE EXIST GROUND BOX
EXIST STAMPED CONCRETE MEDIAN ISLAND
TY1 CURB RAMPS (2 EA)(13 SY EA) (MEDIAN ISLAND)
EXIST EOP
PROP 6' SIDEWALK (14 SY) (MED ISLAND) SEE NOTE 4 MATCH EXIST SIDEWALK
CURB RAMP (TY1) (1 EA)
EXIST PED POLE TO BE RELOCATED/INSTALL NEW PED BUTTON AND PED HEAD (1 EA) REOUTE EXISTING CONDUCTORS FOR PED BUTTON & PED HEAD
PROPOSED TEMPORARY CONSTRUCTION LICENSE EXIST ROCK WALL SEE NOTE 4
PROP SIDEWALK (2 SY) MATCH EXIST SIDEWALK
PROP CROSSWALK (100 LF)
PROP STOP BAR (14 LF)
PROP CROSSWALK (110 LF)
PROP STOP BAR (21 LF)
℄ SH 16
690+00
PROP CONCRETE BULBOUT OVER ASPHALT (19 SY CONCRETE SIDEWALK)
PROP CONC CURB (TY I) (47 LF)
SH 16/ RIVER ST
691+00
PROP STOP BAR (14 LF)
PROP STOP BAR (28 LF)
EXIST CROSSWALK STRIPING AND STOP BARS TO BE ELIMINATED (154 LF)
PROP TY 2 CURB RAMP (1 EA)
BEGIN PROP 6' SIDEWALK
PROP 6' SIDEWALK (77 SY)
PROP TOPSOIL & SODDING (3 SY)
PROP CONC CURB (TY I) (30 LF)
PROP 6' SIDEWALK (19 SY)
TY3 CURB RAMPS (2 EA)
EXIST EOP
PROP CROSSWALK (40 LF)
EXIST WASTEWATER MANHOLE TO BE ADJUSTED (BY OTHERS)
3.22'
PROP TOPSOIL AND SODDING (12 SY)
EXIST EOP
PROP CONC CURB (TY I) (117 LF)
END 6' SIDEWALK
BEGIN 5.5' SIDEWALK
PROP TY 7 CURB RAMP (5'WIDE) (1 EA)
INSTALL NEW PED POLE (1 EA)
REMOVE AND RELOCATE EXIST SIGN ASSY (1 EA)
REMOVE AND RELOCATE EXIST SIGN ASSY FROM SHEET 5 OF 12 APPROX STA 693+84(1 EA)
PROP CONC RIPRAP (6 CY)
APPARENT ROW
PROP TY C1 CURB (60 LF)
CONSTRUCT PROP SIDEWALK ADJACENT TO PORCH OF EXIST BUILDING. MATCH GRADE OF TOP OF FINISHED SLAB
PROP CONCRETE RIPRAP (1 CY)
PROP GROUND BOX (1 EA)
INSTALL NEW PED POLE (1 EA) (SEE NOTE 3.)
NO PARKING ON SHOULDER
REMOVE AND RELOCATE EXIST SIGN (1 EA)
R8-1dT
EXIST UTILITY POLE & PEDESTAL TO REMAIN
ELM STREET
M3-3 SOUTH 16 TEXAS
M1-6T
M6-1L
WEST M3-4
72 TEXAS M1-6T
M6-1R
NORTH M3-1
16 TEXAS M1-6T
M6-1R
S1-1
AHEAD S16-9P
PROP TOPSOIL AND SODDING (57 SY)
EXIST PED POLE TO BE RELOCATED/INSTALL NEW PED BUTTON AND PED HEAD (1 EA) REOUTE EXISTING CONDUCTORS FOR PED BUTTON & PED HEAD
HISTORIC BUILDING
MATCHLINE STA 689+40
MATCHLINE STA 691+80

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SIDEWALK PLAN - TILDEN

SHEET 04 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA,ETC	76
CONT.	SECT.	JOB	
0517	01	048,ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

ITEM NO	DESCRIPTION	UNIT	QTY
105-7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	17
161-7002	COMPOST MANUF TOPSOIL (4")	SY	26
162-7002	BLOCK SODDING	SY	26
194-7007	ROADSIDE AMENITY (WHEEL STOP)	EA	5
400-7006	CUT & RESTORING PAV	SY	6
432-7002	RIPRAP (CONC)(5 IN)	CY	16
529-7001	CONC CURB (TY I)	LF	213
	CONC CURB (TY C1)	LF	161
531-7001	CONC SIDEWALKS (4")	SY	174
531-7003	CONC SIDEWALKS (6")	SY	5
531-7006	CURB RAMPS (TY 2)	EA	1
531-7009	CURB RAMPS (TY 6)	EA	2
531-7010	CURB RAMPS (TY 7)	EA	1
531-7011	CURB RAMPS (TY 10)	EA	1
531-7012	CURB RAMPS (TY 20)	EA	2
536-7002	CONC MEDIAN	SY	3
644-7001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	2
644-7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
666-7036	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	90

NOTES

1.) CONTRACTOR SHALL ENSURE PROPOSED SIDEWALK, RAMP AND CURB CONSTRUCTION DOES NOT IMPEDE CURRENT DRAINAGE PATTERNS.

PROPOSED TEMPORARY CONSTRUCTION LICENSE EXIST ROCK WALL SEE NOTE 2
PROP 5' SIDEWALK MATCH EXIST GRADE (64 SY)
PROP CONC CURB (TY I)(20 LF)
EXIST HISTORICAL MARKERS TO REMAIN
MATCH TOP OF EXIST CURB
EXIST FIRE HYDRANT TO REMAIN
PROP TOPSOIL AND SODDING (26 SY)
PROP 5' SIDEWALK (4 SY)
END PROP 5' SIDEWALK
5%
ROW
EXIST WHEEL STOPS TO BE SHIFTED 2' TOWARD ROADWAY (5 EA)
EXIST EOP
REMOVE AND RELOCATE EXIST SIGN ASSY TO SHEET (1 EA) BACK TO BACK
CURB RAMP (TY 20)(2 EA)
PROP CONCRETE RIPRAP (5 CY)
STOP R1-1
R5-2
℄ SH 16
692+00
693+00
SH 16/ RIVER ST
MATCHLINE STA 691+80
PROP 5' SIDEWALK (4 SY)
ABANDONED ROCK BLDG
BEGIN PROP 5' SIDEWALK
INSTALL PROP SIGN (1 EA)
W11-2
5-2
SW16-7PL
ASH STREET
PROP LANDING TO BE CONSTRUCTED APPROX 4" BELOW EXIST CONC ISLAND
CURB RAMPS (TY 6 & 7) (1 EA)
EXIST CONC ISLAND WITH PIPE STRUCTURES (ENCROACHMENT)
PROP CONC CURB (TY I)(38 LF)
PROP CONCRETE BULBOUT OVER ASPHALT SHOULDER (3 SY CONCRETE MEDIAN)
PROP CROSSWALK (90 LF)
END PROP 6' SIDEWALK
PROP TY 2 CURB RAMP (1 EA)
INSTALL PROP SIGN (1 EA)
W11-2
5-1
SW16-7PL
694+00
MATCHLINE STA 694+20
PROP CONC CURB (TY I)(155 LF)
EXIST EOP
4'
PROP 6' SIDEWALK (102 SY)
PROP 6' SIDEWALK 6" (5 SY)
PROP TY 6 CURB RAMP (1 EA)
APPARENT ROW
EXIST POWER POLE TO REMAIN
PROP CONC RIPRAP (11 CY)
PROP TY C1 CURB (161 LF)
END PROP 6" SIDEWALK
PROP TY 10 CURB RAMP (1 EA)
VACANT LOT
ASH STREET
APPARENT ROW
REMOVE AND RELOCATE EXIST SIGN ASSY TO SHEET 4 OF 12 APPROX STA 690+72(1 EA)
S1-1
AHEAD S16-9P
CUT AND RESTORE PAVEMENT 1' WIDE AROUND PROP SIDEWALKS IN ASPHALT PARKING LOT (6 SY) RAMPS AND SIDEWALKS AT THIS LOCATION TO BE 6" THICK

NOTES CONT:
2.) PLEASE REFER TO EPIC SHEET (PG 143) REGARDING THC CONDITIONS AND DETAILS REGARDING THE EXISTING ROCK WALL AND HISTORICAL MARKER. CONTRACTOR SHALL RESTORE THE EXISTING STAMPED CONCRETE TO EXISTING CONDITION AFTER CURB RAMP CONSTRUCTION AND SIDEWALK TIE-IN. CONTRACTOR SHALL INCLUDE ALL WORK, LABOR AND MATERIAL REQUIRED TO PROTECT EXISTING ROCK WALL AND RESTORE EXISTING STAMPED CONCRETE AS SUBSIDIARY TO PROPOSED SIDEWALK CONSTRUCTION.

0 10' 20'
SCALE: 1" = 20'

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

STATE OF TEXAS
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96609
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8/6/2024

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SIDEWALK PLAN - TILDEN

SHEET 05 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA,ETC	77
CONT.	SECT.	JOB	
0517	01	048,ETC	

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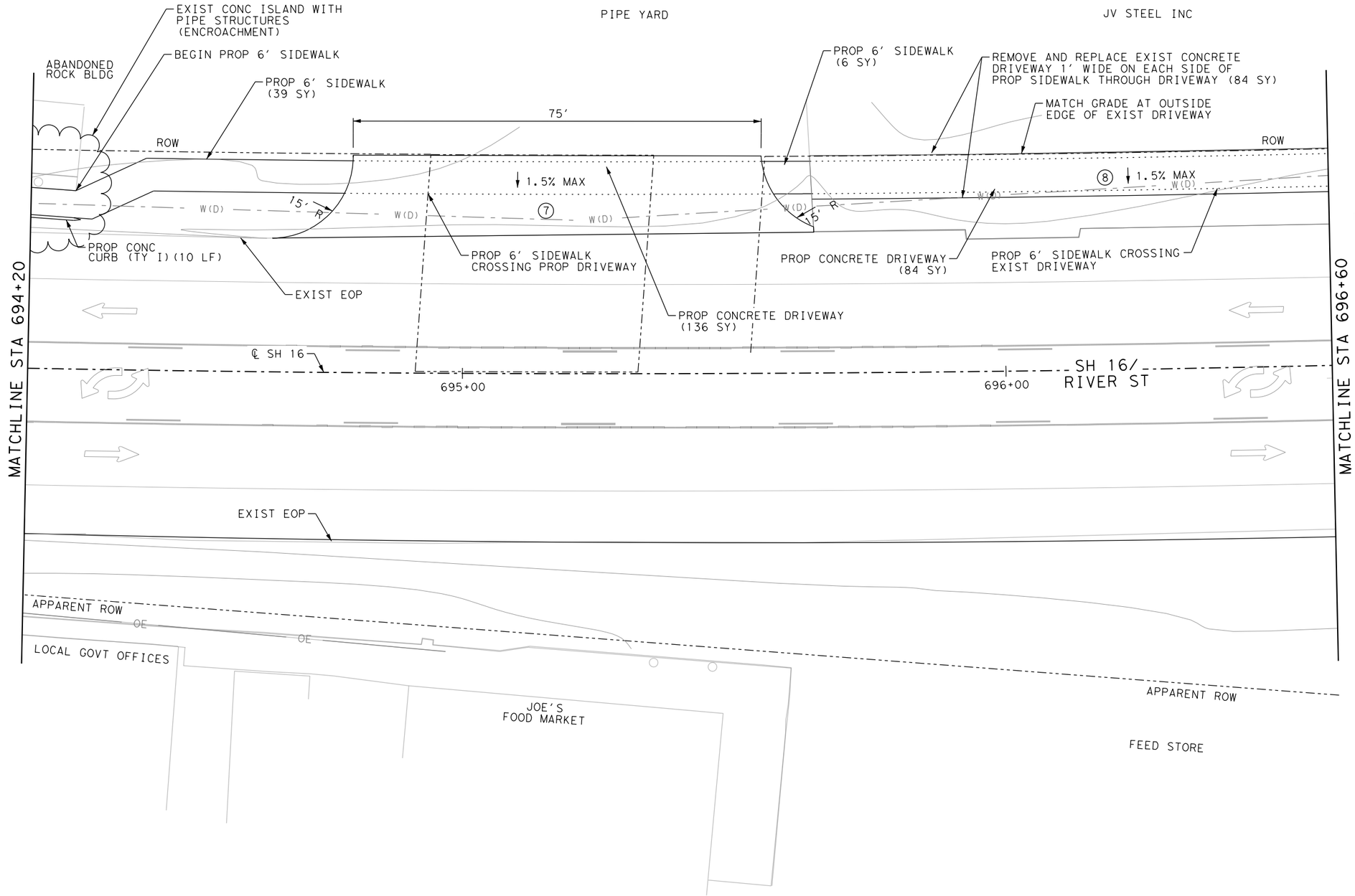
ITEM NO	DESCRIPTION	UNIT	QTY
104-7011	REMOV CONC (DRIVEWAYS)	SY	84
529-7001	CONC CURB (TY I)	LF	10
530-7006	DRIVEWAYS (CONC)	SY	220
531-7001	CONC SIDEWALKS (4")	SY	45

LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING



NOTES

1.) CONTRACTOR SHALL ENSURE PROPOSED SIDEWALK, RAMP AND CURB CONSTRUCTION DOES NOT IMPEDE CURRENT DRAINAGE PATTERNS.

0 10' 20'
SCALE: 1" = 20'

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SIDEWALK PLAN - TILDEN

SHEET 06 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	
CONT.	SECT.	JOB	78
0517	01	048, ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

ITEM NO	DESCRIPTION	UNIT	QTY
104-7011	REMOV CONC (DRIVEWAYS)	SY	24
105-7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	31
422-7012	BRIDGE SIDEWALK	SF	432
432-7002	RIPRAP (CONC)(5 IN)	CY	2
529-7001	CONC CURB (TY I)	LF	251
529-7018	CONC CURB & GUTTER (ARMOR CURB)	LF	42
530-7006	DRIVEWAYS (CONC)	SY	64
531-7002	CONC SIDEWALKS (5")	SY	82
531-7003	CONC SIDEWALKS (6")	SY	13
531-7005	CURB RAMPS (TY 1)	EA	1
531-7006	CURB RAMPS (TY 2)	EA	1
644-7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
644-7106	REMOVE SM RD SN (FOUNDATION ONLY)	EA	1

JV STEEL INC

REMOVE AND RELOCATE EXIST SIGN (1 EA)

STOP

R1-1

HACKBERRY STREET

PROP 6' SIDEWALK CROSSING EXIST DRIVEWAY

PROP SIDEWALK (13 SY)

END PROP 6' SIDEWALK

ROW

PROP CONCRETE RIPRAP (1 CY)

EXIST DROP INLET TO REMAIN

PROP CONCRETE DRIVEWAY (24 SY)

CURB RAMP (TY1)(1 EA)

REMOVE EXIST CONC SIGN FOUNDATION (1 EA)

EXIST CONCRETE SWALE CROSSING STREET INTERSECTION

℄ SH 16

697+00

SH 16/ RIVER ST

698+00

699

MATCHLINE STA 696+60

MATCHLINE STA 699+00

TIE CONCRETE FLOOR OF PROP SIDEWALK BRIDGE TO EXIST CONCRETE RIPRAP FLUME

SAW-CUT AND REMOVE EXIST CURB AROUND CURB RETURN. DOWEL INTO EXIST CONCRETE PVMT W/12" DOWELS @ 18" O/C & CONSTRUCT NEW TY 1 CURB. (REMOVAL SUBSIDIARY TO ITEM 529-6001)

PROP TY 2 CURB RAMP (1 EA)

BEGIN PROP 6' SIDEWALK

PROP 6' TIED SIDEWALK (18 SY)

EXIST CONCRETE FLUME TO REMAIN

TY 1 CURB (84 LF) (SLOPE=+0.41%)

PROP 6' TIED SIDEWALK (17 SY)

EXIST RIPRAP TO BE RECONSTRUCTED EACH SIDEWALK BRIDGE (1 CY TOTAL)

PROP 6' SIDEWALK (6" THICK)(13 SY)

EXIST DROP INLET TO REMAIN

PROP 6' TIED SIDEWALK (34 SY)

18'

1.5% MAX

15' R

EXIST EOP

BEGIN TY 1 CURB (160 LF)

EXIST ASPHALT DRIVEWAY TO BE REMOVED (31 SY)
18 'CONCRETE DRIVEWAY TO BE CONSTRUCTED IN SAME LOCATION

REMOVE AND REPLACE EXIST CONCRETE DRIVEWAY 1' WIDE ON EACH SIDE OF PROP SIDEWALK THROUGH DRIVEWAY (24 SY)

PROP SIDEWALK BRIDGE (144 SF EA) & ARMOR CURB (14 LF EA)
* TY 1 CURB (3.5 LF EACH)

PROP CONCRETE DRIVEWAY (40 SY)

EXIST EOP

APPARENT ROW

CREEK

APPARENT ROW

FEED STORE

NOTES

1.) CONTRACTOR SHALL ENSURE PROPOSED SIDEWALK, RAMP AND CURB CONSTRUCTION DOES NOT IMPEDE CURRENT DRAINAGE PATTERNS.

2.) SIDEWALK TO BE CONSTRUCTED 6" THICK BETWEEN STA 698+62 AND LOWE STREET.

3.) THE PROPOSED IMPROVEMENTS IN THE VICINITY OF THE EXISTING DROP INLET WILL NOT CAUSE ADVERSE IMPACTS TO THE EXISTING DRAINAGE.

0 10' 20'

SCALE: 1" = 20'

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

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SIDEWALK PLAN - TILDEN

SHEET 07 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	79
CONT.	SECT.	JOB	
0517	01	048, ETC	

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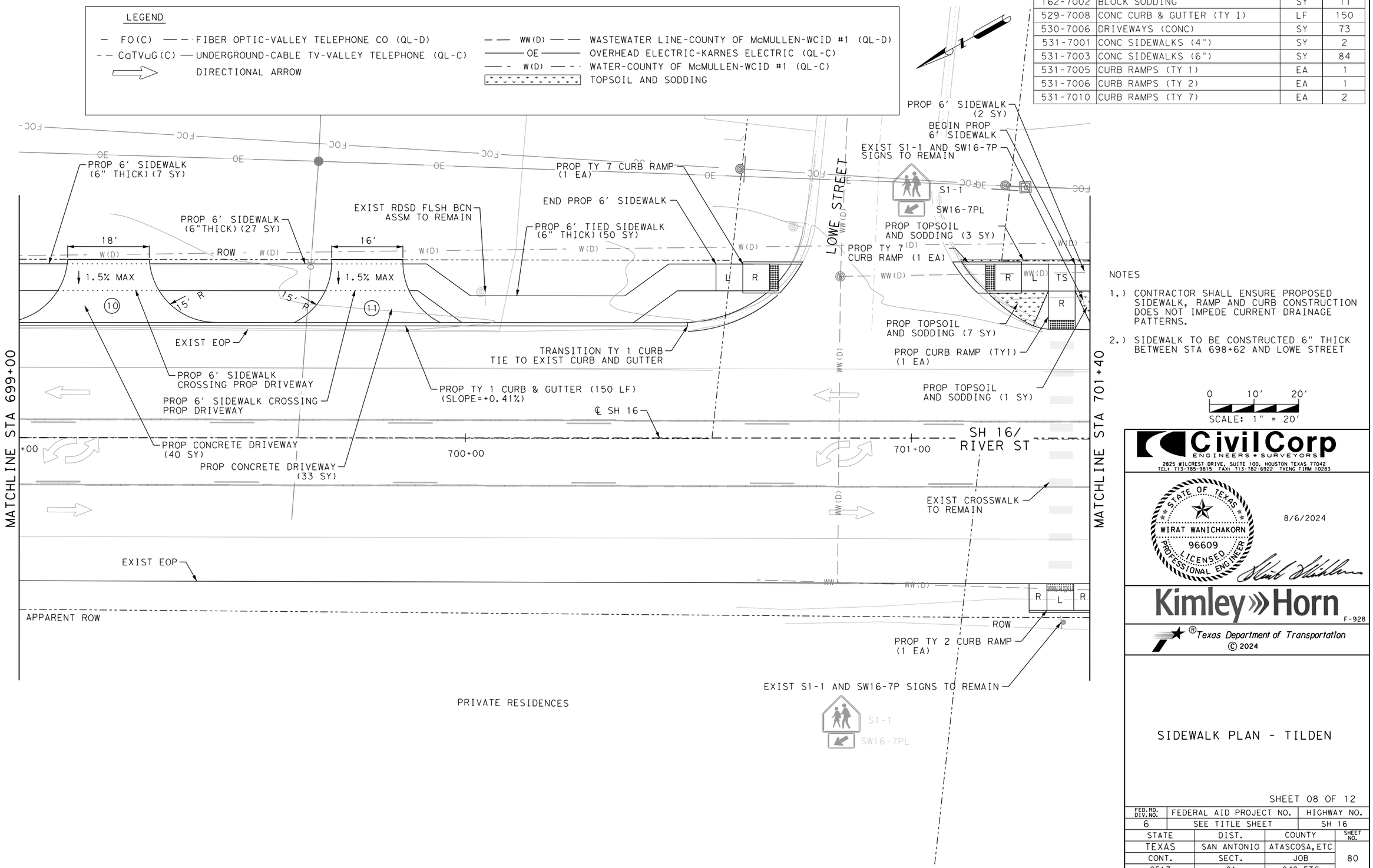
ITEM NO	DESCRIPTION	UNIT	QTY
161-7002	COMPOST MANUF TOPSOIL (4")	SY	11
162-7002	BLOCK SODDING	SY	11
529-7008	CONC CURB & GUTTER (TY I)	LF	150
530-7006	DRIVEWAYS (CONC)	SY	73
531-7001	CONC SIDEWALKS (4")	SY	2
531-7003	CONC SIDEWALKS (6")	SY	84
531-7005	CURB RAMPS (TY 1)	EA	1
531-7006	CURB RAMPS (TY 2)	EA	1
531-7010	CURB RAMPS (TY 7)	EA	2

LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING



NOTES

1.) CONTRACTOR SHALL ENSURE PROPOSED SIDEWALK, RAMP AND CURB CONSTRUCTION DOES NOT IMPEDE CURRENT DRAINAGE PATTERNS.

2.) SIDEWALK TO BE CONSTRUCTED 6" THICK BETWEEN STA 698+62 AND LOWE STREET

0 10' 20'
SCALE: 1" = 20'

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SIDEWALK PLAN - TILDEN

SHEET 08 OF 12

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	80
CONT.	SECT.	JOB	
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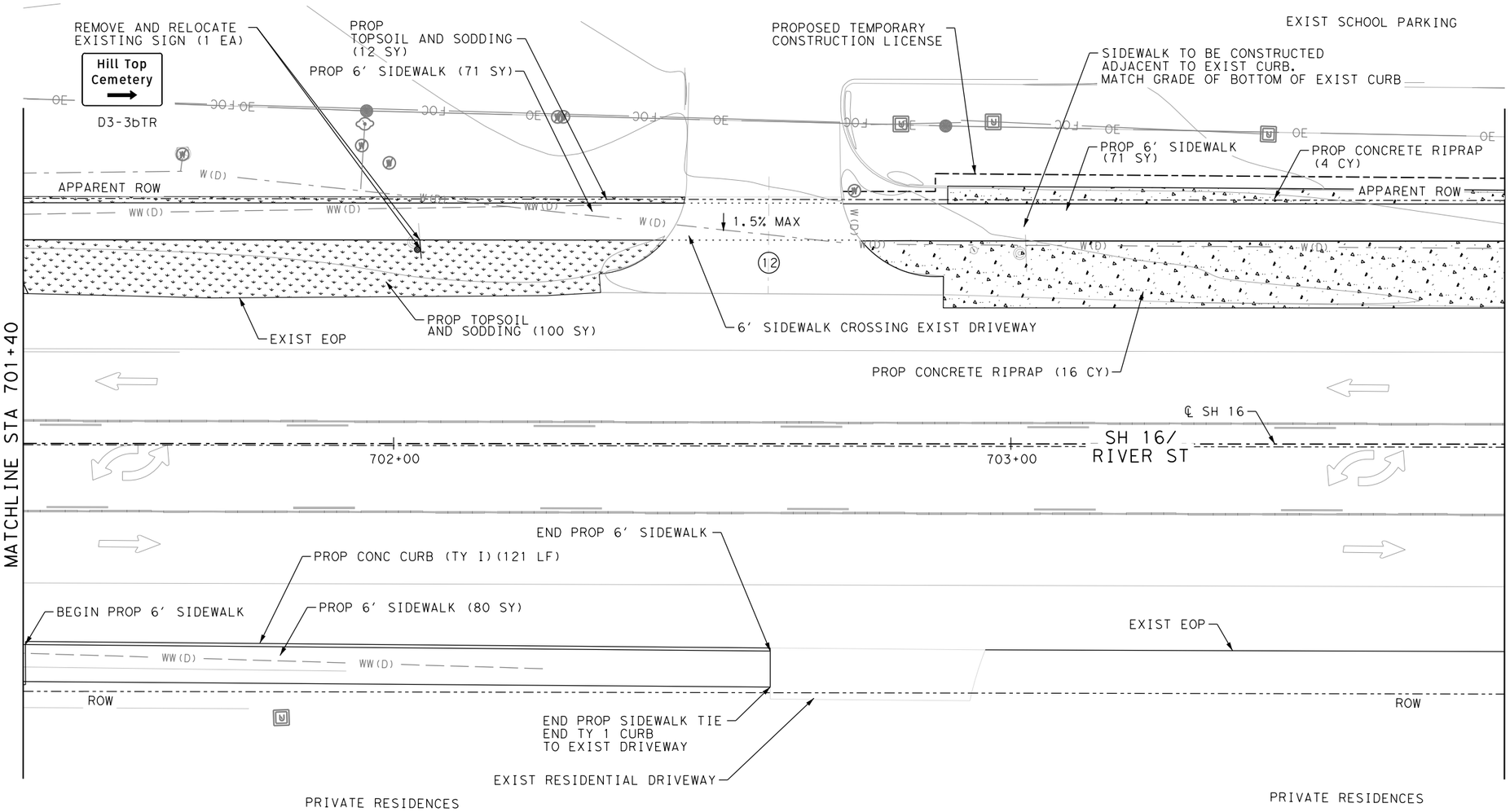
ITEM NO	DESCRIPTION	UNIT	QTY
161-7002	COMPOST MANUF TOPSOIL (4")	SY	112
162-7002	BLOCK SODDING	SY	112
432-7002	RIPRAP (CONC)(5 IN)	CY	20
529-7001	CONC CURB (TY I)	LF	121
531-7001	CONC SIDEWALKS (4")	SY	222
644-7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1

LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING



NOTES

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0 10' 20'
SCALE: 1" = 20'

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SIDEWALK PLAN - TILDEN

SHEET 09 OF 12

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	81
CONT.	SECT.	JOB	
0517	01	048, ETC	

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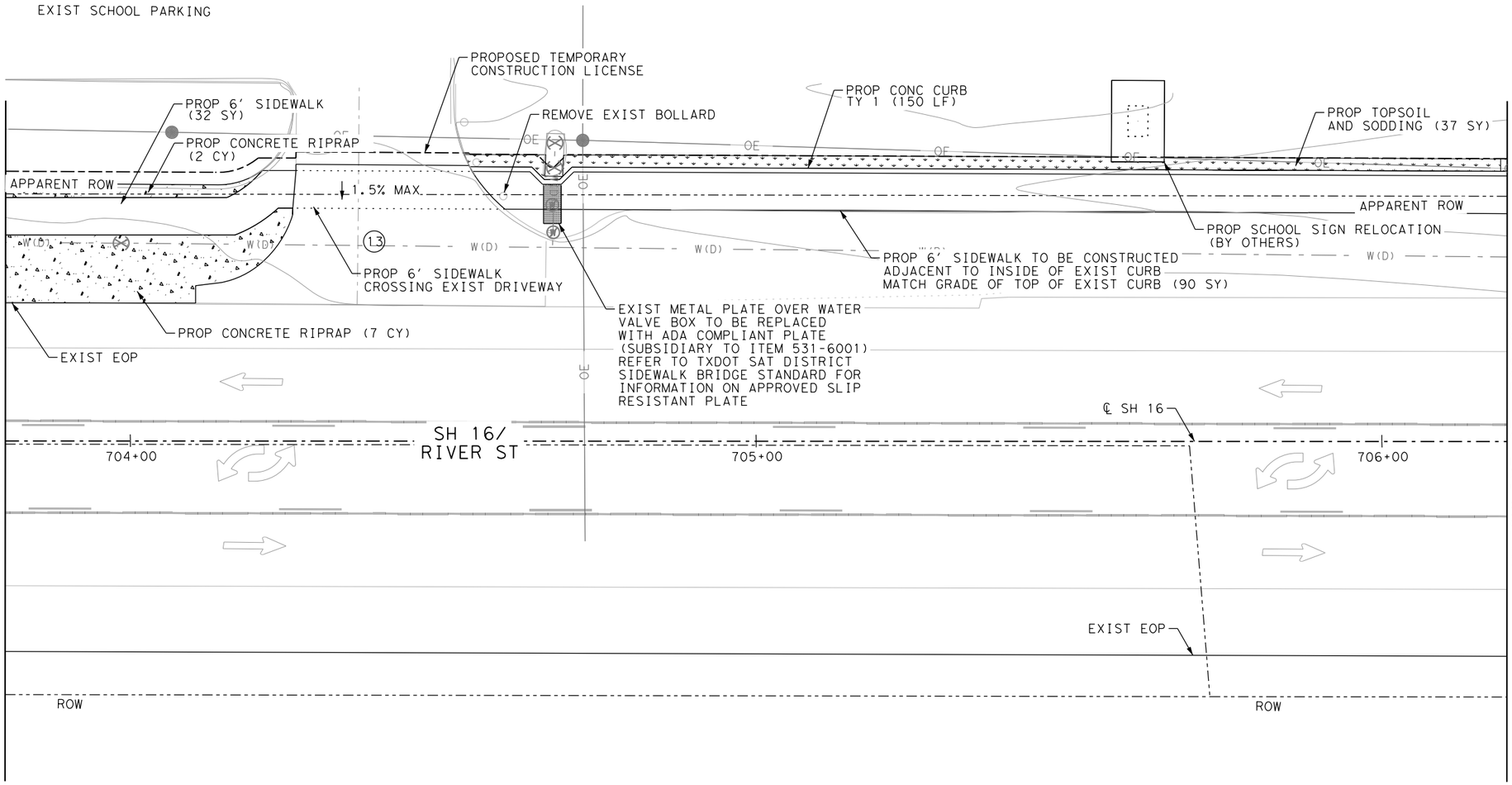
ITEM NO	DESCRIPTION	UNIT	QTY
161-7002	COMPOST MANUF TOPSOIL (4")	SY	37
162-7002	BLOCK SODDING	SY	37
432-7002	RIPRAP (CONC)(5 IN)	CY	9
496-7028	REMOVE STR (BOLLARD)	EA	1
529-7001	CONC CURB (TY I)	LF	150
531-7001	CONC SIDEWALKS (4")	SY	122

LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING



NOTES

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0 10' 20'
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SIDEWALK PLAN - TILDEN

SHEET 10 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA,ETC	82
CONT.	SECT.	JOB	
0517	01	048,ETC	

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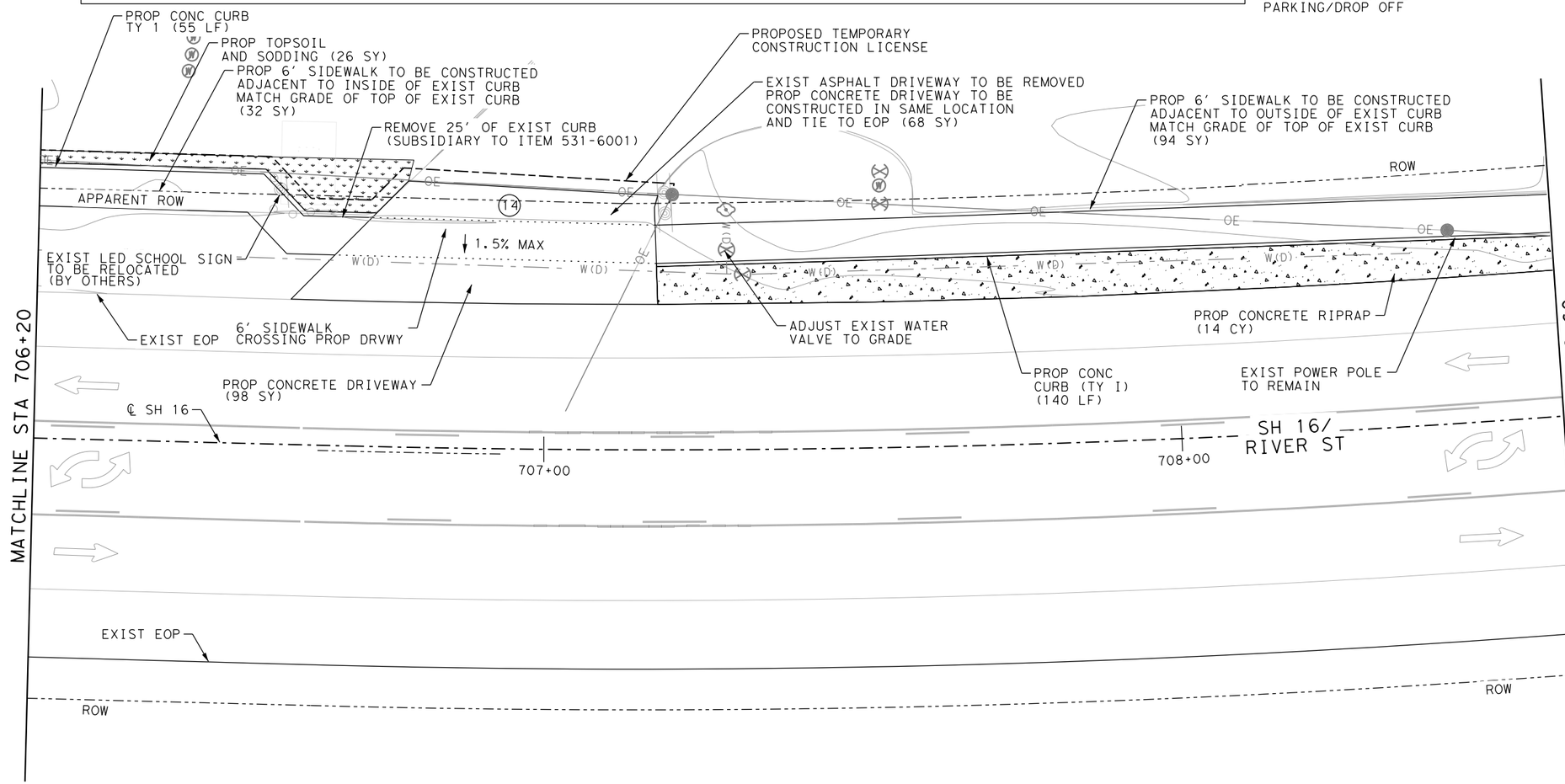
ITEM NO	DESCRIPTION	UNIT	QTY
105-7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	68
161-7002	COMPOST MANUF TOPSOIL (4")	SY	26
162-7002	BLOCK SODDING	SY	26
432-7002	RIPRAP (CONC)(5 IN)	CY	14
529-7001	CONC CURB (TY I)	LF	195
530-7006	DRIVEWAYS (CONC)	SY	98
531-7001	CONC SIDEWALKS (4")	SY	126
	ADJUST VALVE BOX	EA	1

LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

EXIST HIGH SCHOOL PARKING/DROP OFF



NOTES

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0 10' 20'
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SIDEWALK PLAN - TILDEN

SHEET 11 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA,ETC	83
CONT.	SECT.	JOB	
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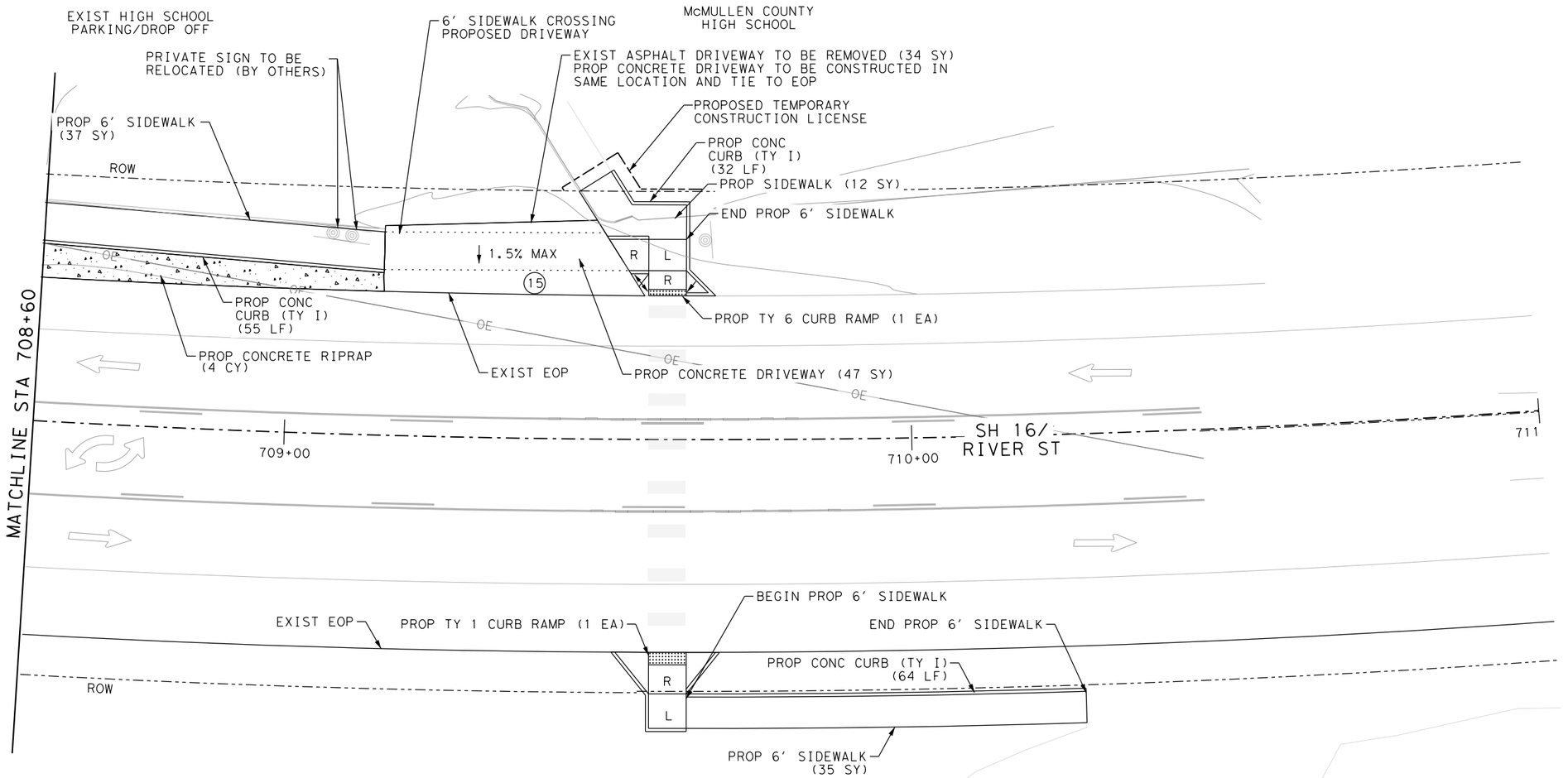
ITEM NO	DESCRIPTION	UNIT	QTY
105-7055	RMV (4"-10") TRT/UNTRT BASE & ASPH PAV	SY	34
432-7002	RIPRAP (CONC)(5 IN)	CY	4
529-7001	CONC CURB (TY I)	LF	151
530-7006	DRIVEWAYS (CONC)	SY	47
531-7001	CONC SIDEWALKS (4")	SY	84
531-7005	CURB RAMPS (TY 1)	EA	1
531-7009	CURB RAMPS (TY 6)	EA	1

LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING



NOTES

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0 10' 20'
SCALE: 1" = 20'

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SIDEWALK PLAN - TILDEN

SHEET 12 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	
CONT.	SECT.	JOB	84
0517	01	048, ETC	

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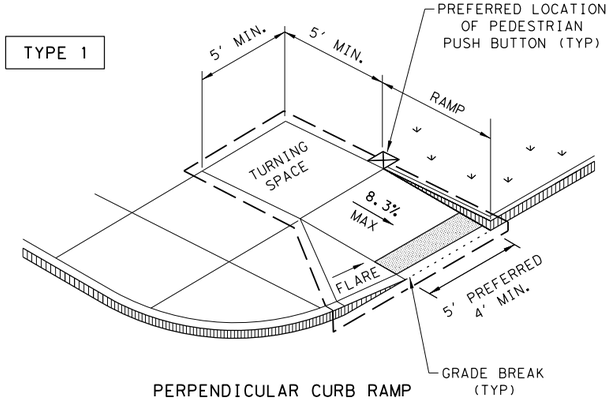
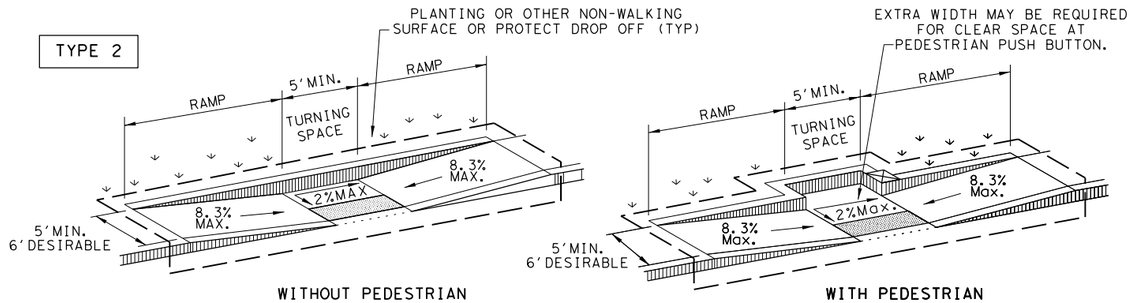


PERPENDICULAR CURB RAMP

TYPE 2

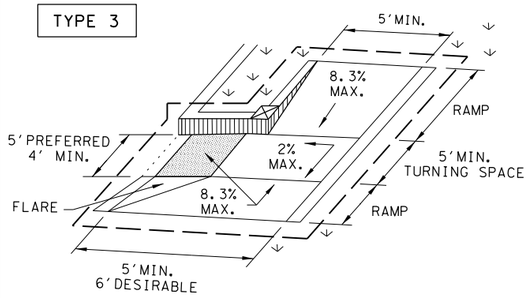


WITHOUT PEDESTRIAN PUSH BUTTON

WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3



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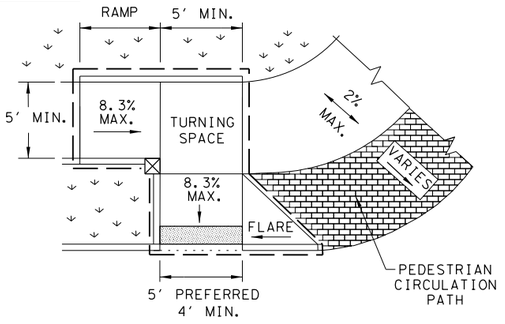
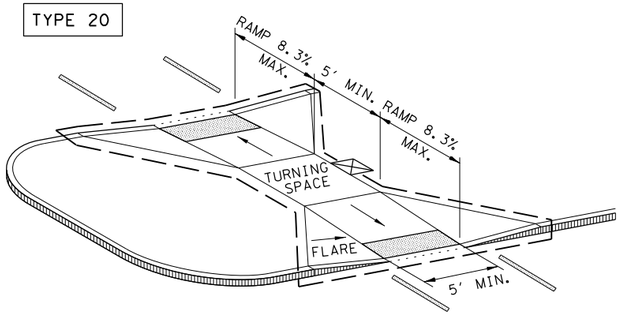


COMBINATION CURB RAMPS

TYPE 20

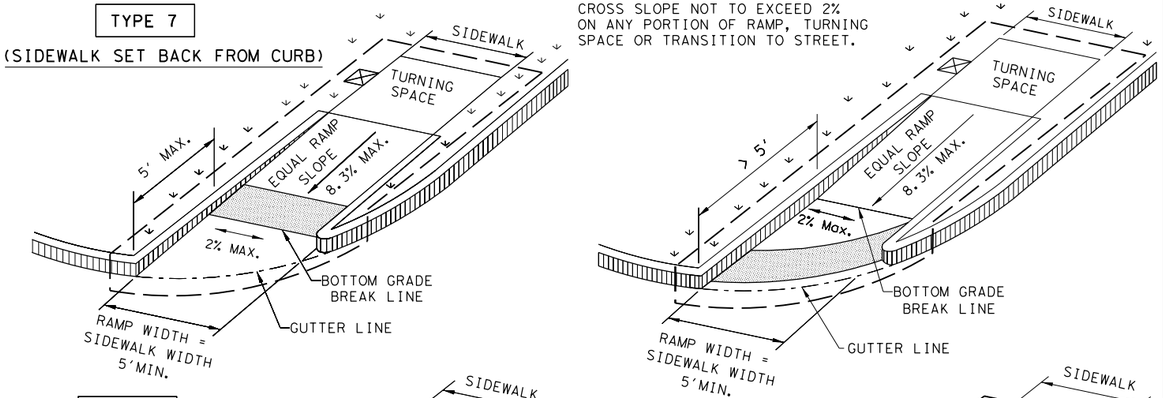


CURB RAMPS AT MEDIAN ISLANDS

TYPE 7

(SIDEWALK SET BACK FROM CURB)

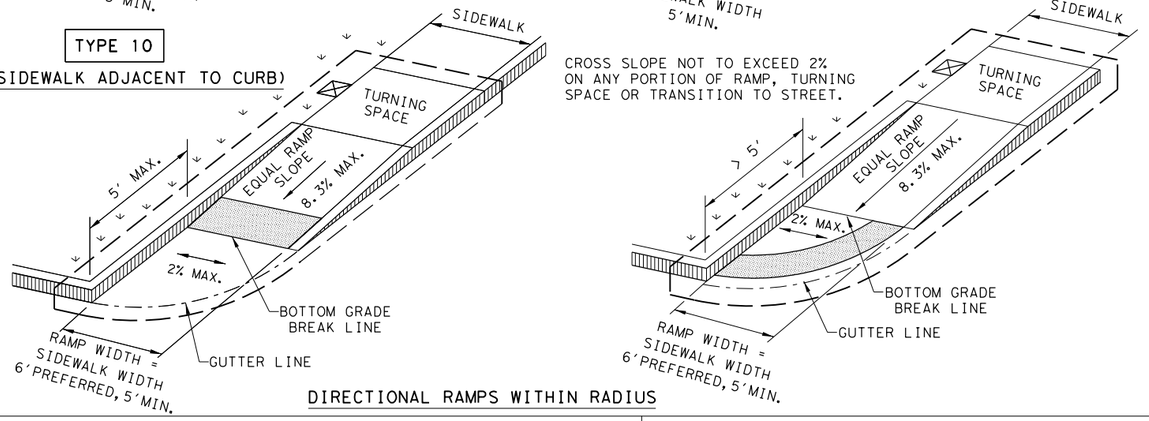
CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



TYPE 10

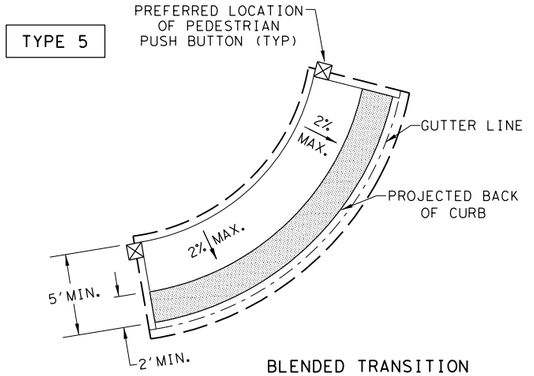
(SIDEWALK ADJACENT TO CURB)

CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



DIRECTIONAL RAMPS WITHIN RADIUS

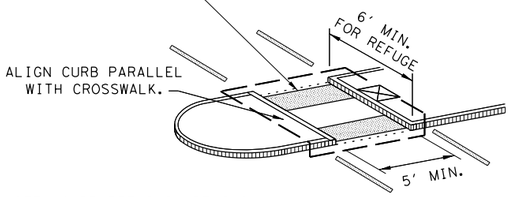
TYPE 5



BLENDED TRANSITION
(FLUSH LANDING)

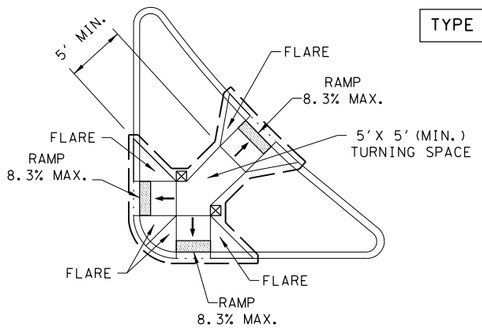
TYPE 21

INSTALL DETECTABLE WARNING SURFACE AT EACH END OF THE CUT-THROUGH RAMP WITH A MINIMUM 2' USUAL SIDEWALK SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.



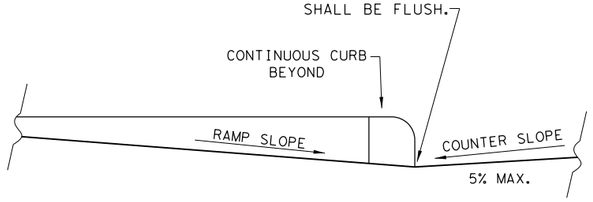
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS

BOTTOM GRADE BREAK OF CURB RAMP WILL NORMALLY BE AT GUTTER LINE. SURFACE SLOPES AT GRADE BREAKS SHALL BE FLUSH.



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0517	01	048, ETC	SH16
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		85

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DATE: 4/19/2024
FILE: c:\pw\khl\d0253718\ped18.dgn

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5′. Where the sidewalk is adjacent to the back of curb, a 6′ sidewalk width is desirable. Where a 5′ sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4′ for short distances. 5′x 5′ passing areas at intervals not to exceed 200′ are required.
5. Turning Spaces shall be 5′x 5′ minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4′x 4′ wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6′ wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5′x 5′ landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicalble standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

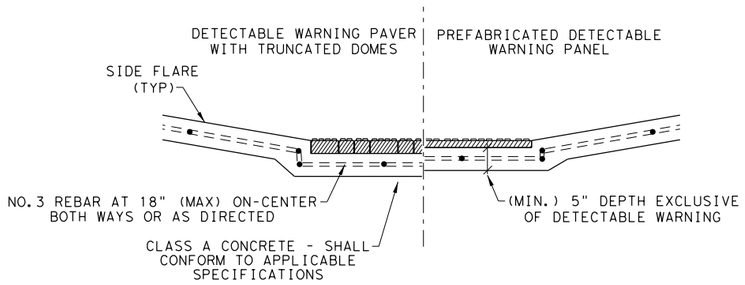
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

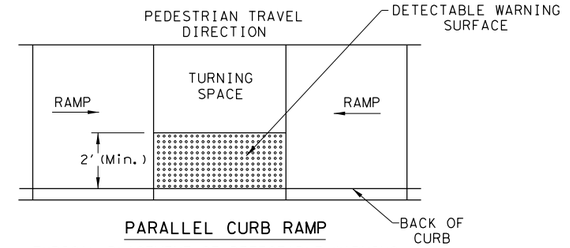
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.



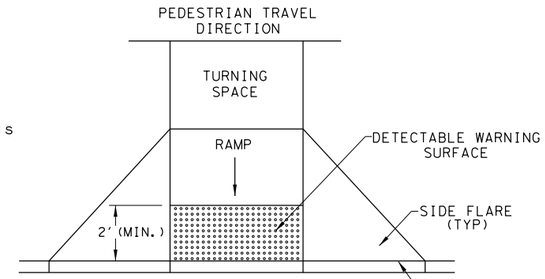
SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS



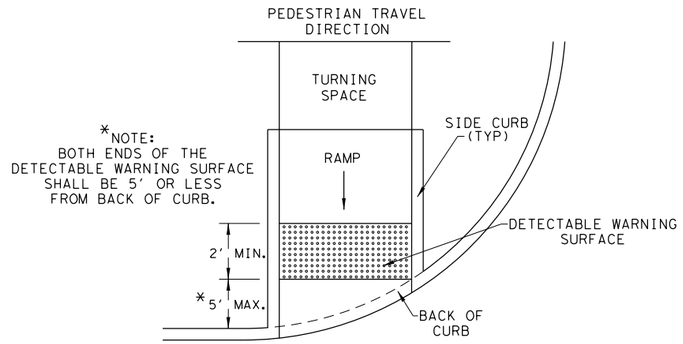
PARALLEL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0517	01	048, ETC	SH16
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY		SHEET NO.
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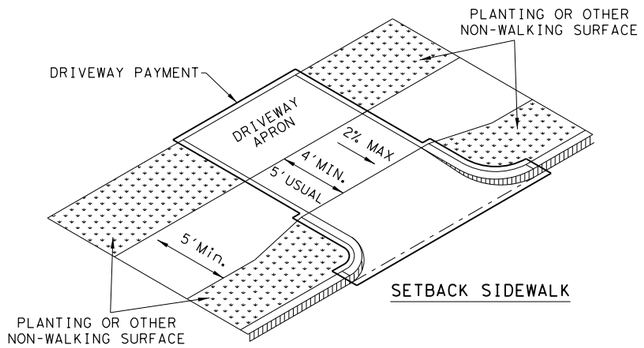
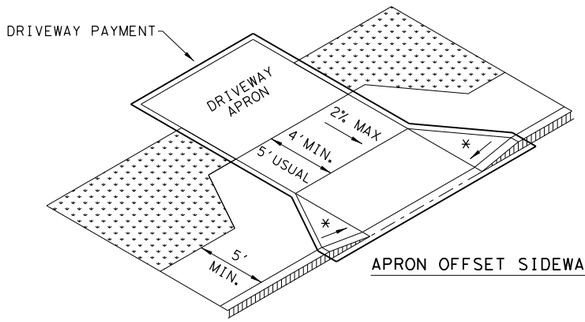
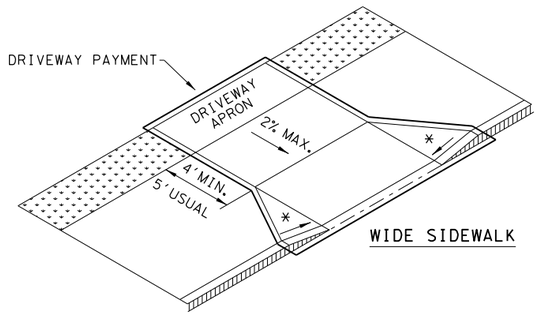
SIDEWALK TREATMENT AT DRIVEWAYS



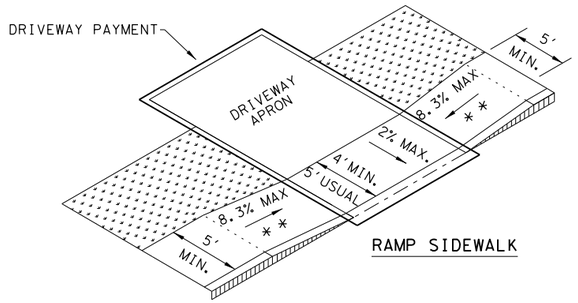
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

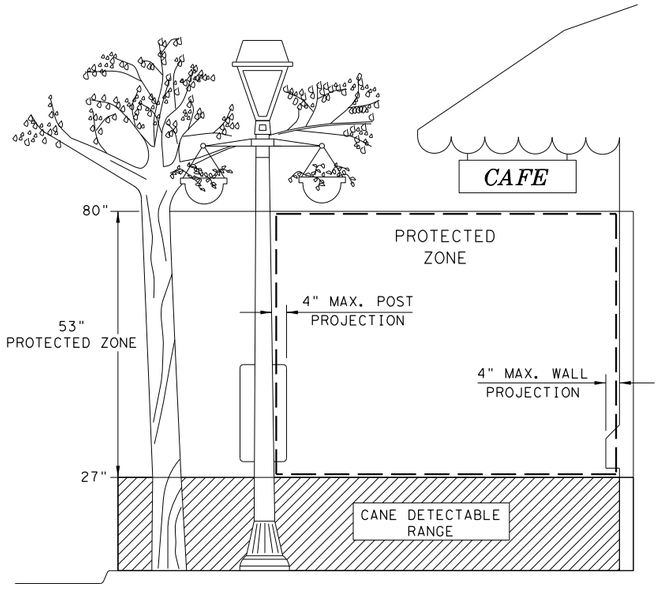


RAMP SIDEWALK

NOTES:

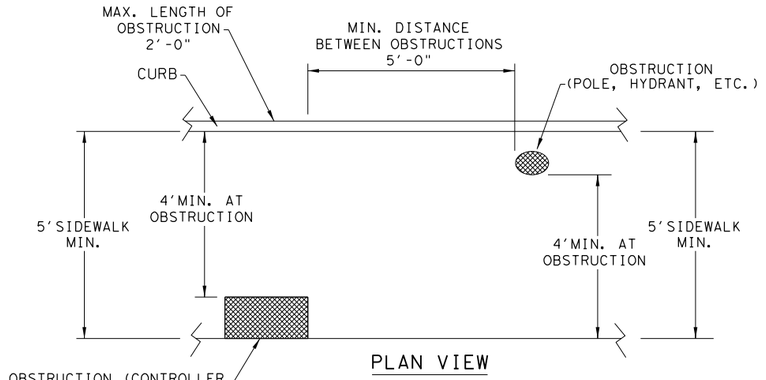
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



PROTECTED ZONE

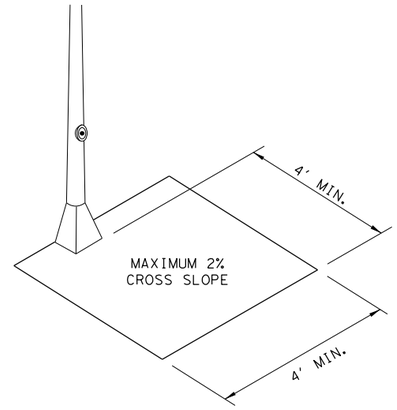
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



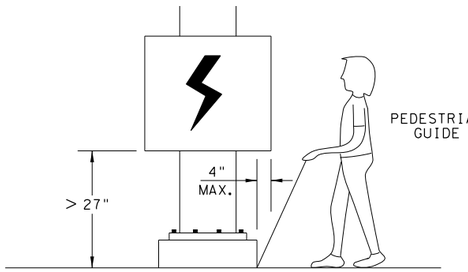
PLAN VIEW

PLACEMENT OF STREET FIXTURES

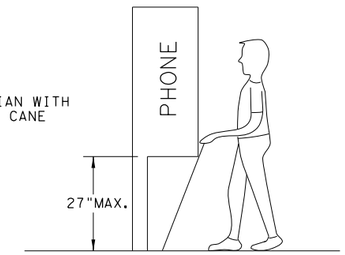
NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.



PROTRUDING OBJECTS OF A HEIGHT ≤ 27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
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REVISIONS	0517	01	048, ETC		SH16
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY			SHEET NO.
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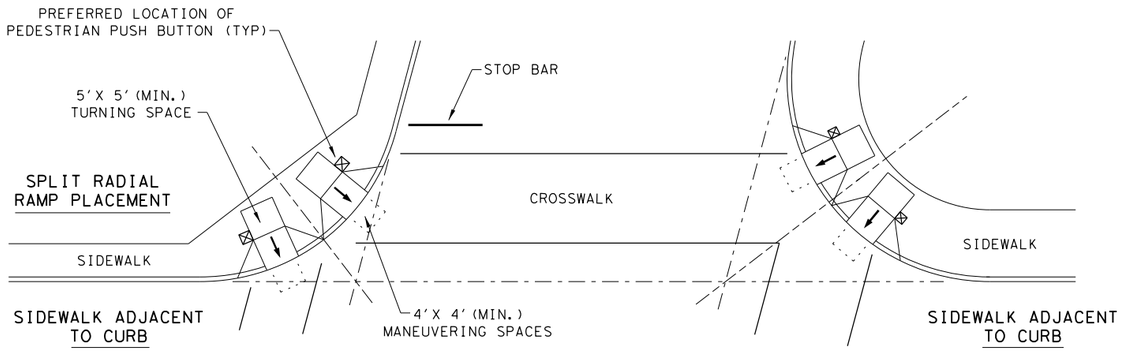
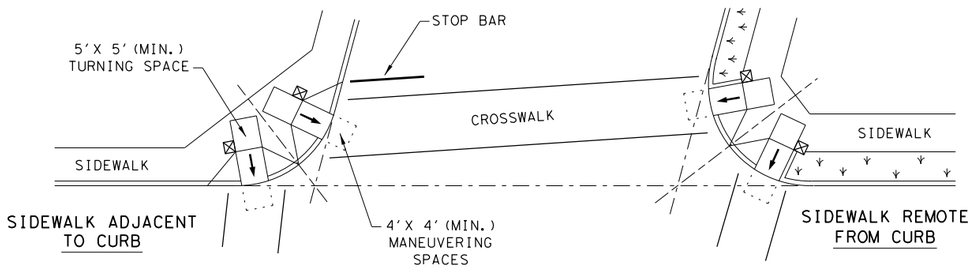
TYPICAL CROSSING LAYOUTS

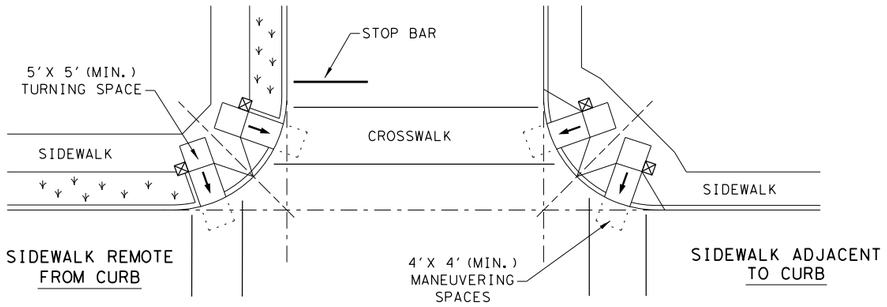
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



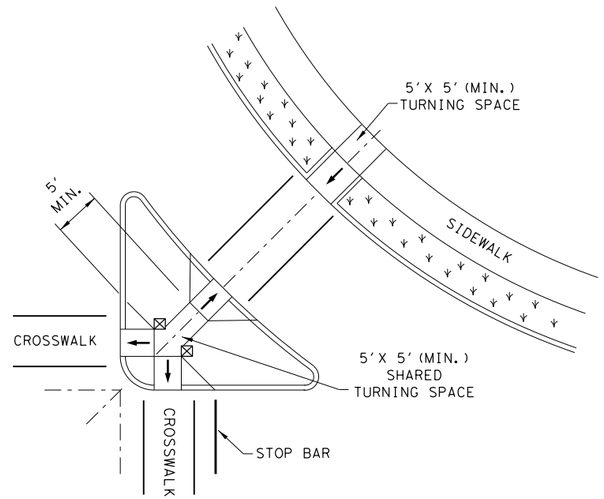
SKEWED INTERSECTION WITH "LARGE" RADIUS



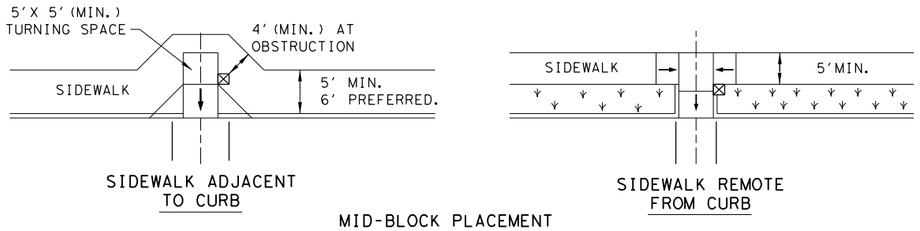
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

SHEET 4 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

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REVISIONS	0517	01	048, ETC		SH16
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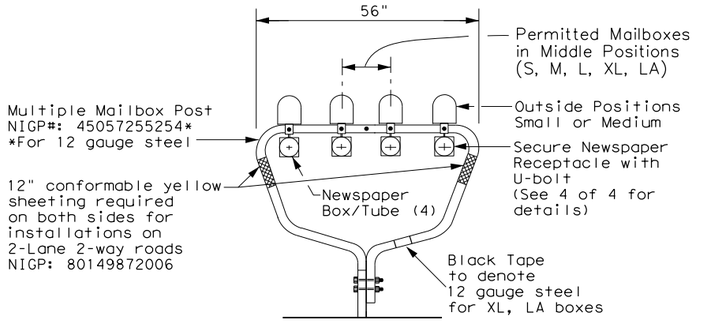
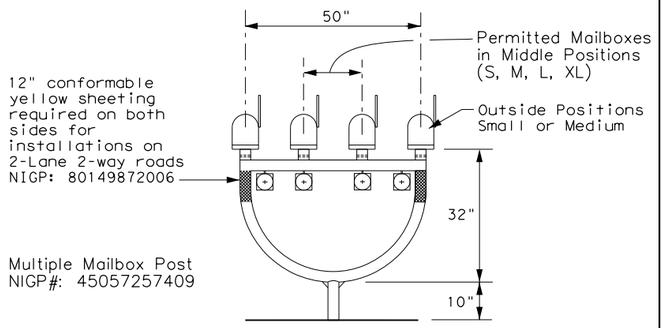
TYPE 1 - MULTIPLE



TYPE 4 - MULTIPLE



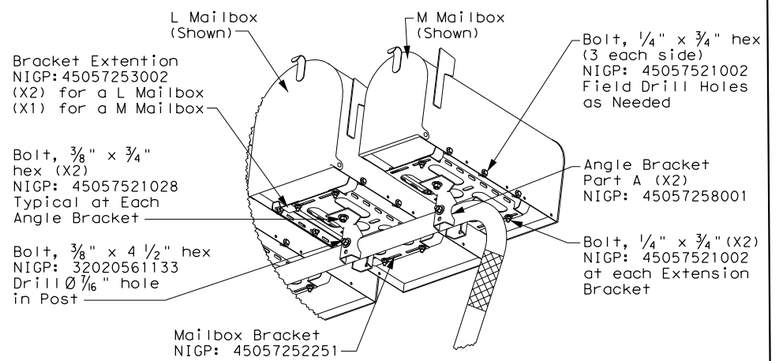
MAILBOX SIZES

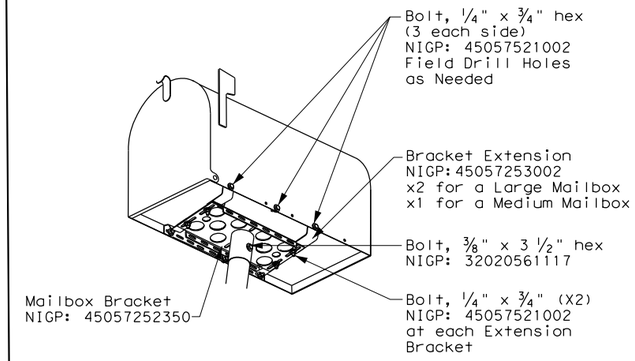
MAILBOX SIZE	TYPICAL DIMENSIONS			MAX **
	LENGTH	WIDTH	HEIGHT	WEIGHT
SMALL	19 ½"	6"	7"	6 LBS
MEDIUM	22 ½" *	8" *	11 ½" *	8 LBS
LARGE	23 ½"	11 ½"	13 ½"	11 LBS
EXTRA LARGE	18"	14"	12"	13 LBS
LOCKABLE	18"	11 ½"	15"	23 LBS

* See Note 1.
** Excluding Molded Plastic on 4 X 4 Post

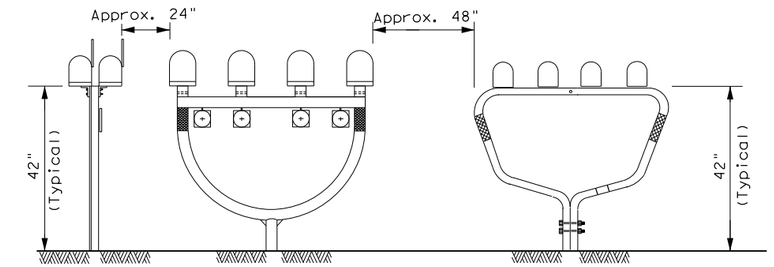
GENERAL NOTES:

1. Dimensions shown (length, width, and height) are typical, not maximums. However, anytime a medium size mailbox is mounted on a single/double mount or on the outside position on a multi mount, the dimensions shown are maximums.
2. Mailboxes shall be made of light weight sheet metal or light weight plastic. Heavy steel, cast iron or decorative mailboxes shall not be used on the state highway system.





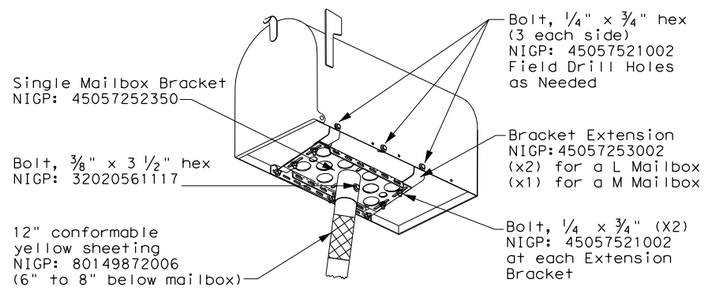
TYPICAL INSTALLATION MEASUREMENTS

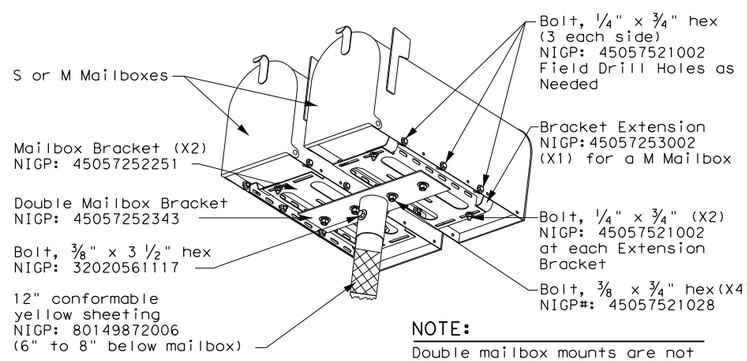


NOTE:

Mailbox installations in sidewalk areas shall be in accordance with the latest TxDOT Design Standard sheets PED-Pedestrian Facilities Curb Ramps.

TYPE 2 and 4 - SINGLE/DOUBLE

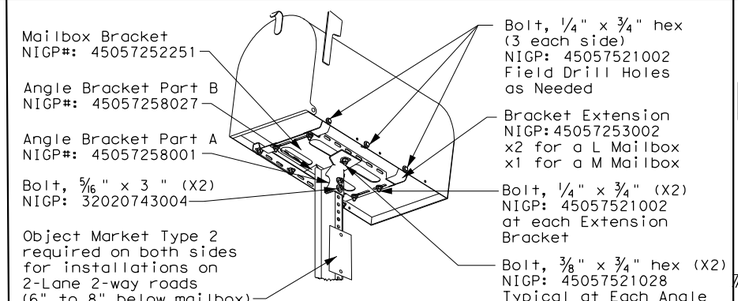


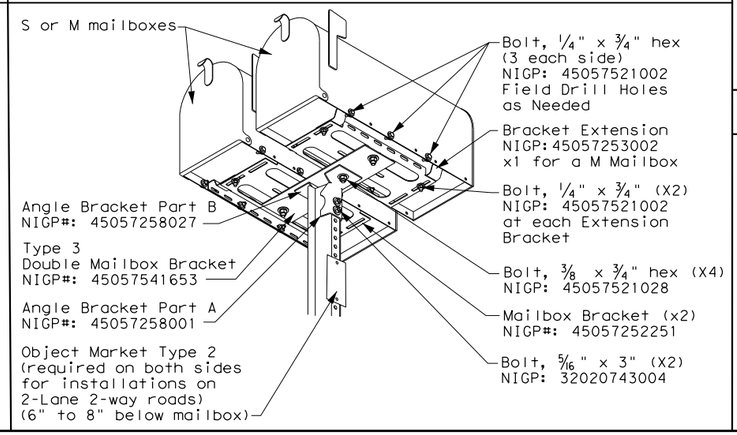


NOTE:

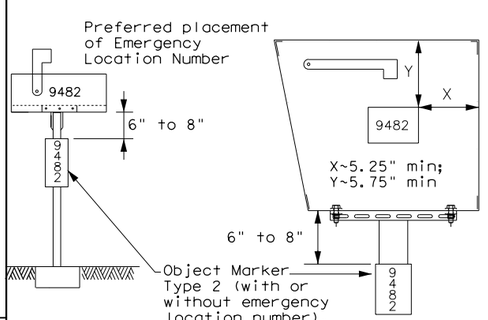
Double mailbox mounts are not allowed with a type 4 multiple mailbox installation

TYPE 3 - SINGLE/DOUBLE





PLACEMENT OF EMERGENCY LOCATION NUMBER

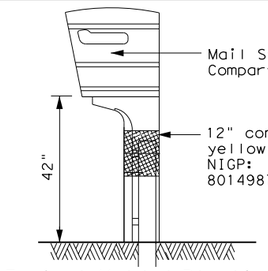


NOTES:

1. Location numbers are provided by homeowner. Minimum size 1" height.
2. Location number is typically placed on the mailbox in a contrasting color.
3. Black numbers may be placed on the Type 2 object marker if the numbers cannot be placed on the mailbox.
4. Alternatively, a green or blue plate with white numbers attached may be mounted below the object marker. Other contrasting color configuration, as approved, may be used.
5. See 3 of 4 for Foundation details.
6. See 4 of 4 for Hardware details.

SHEET 1 OF 4

TYPE 5



Typical Molded Plastic Mailbox

Texas Department of Transportation — Maintenance Division Standard

MAILBOX MOUNTING AND ASSEMBLY

MB(1)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		89

DATE: 4/19/2024 2:36:00 PM
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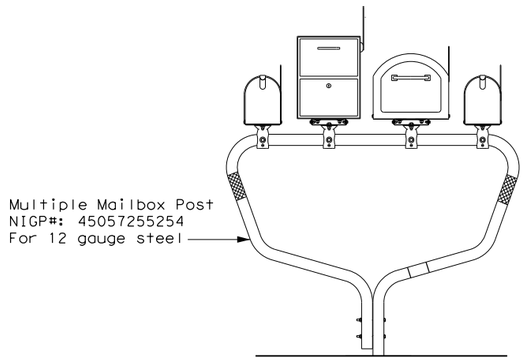
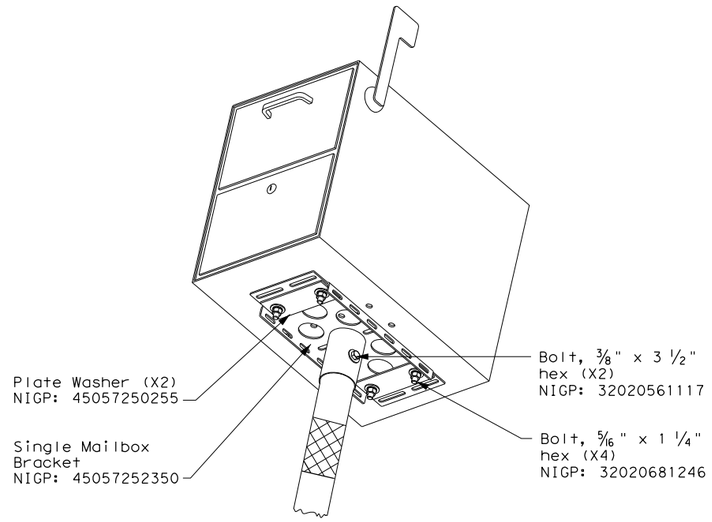
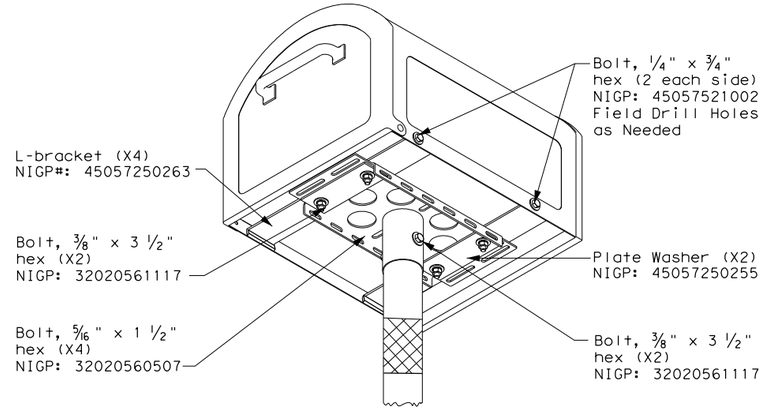
TYPE 1- MULTI LOCKABLE AND XL MAILBOX



TYPE 2/4 - SINGLE LOCKABLE MAILBOX

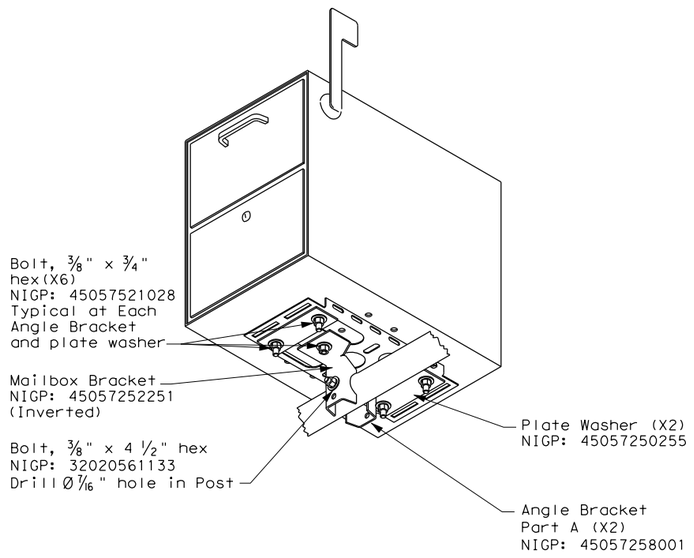


TYPE 2/4 - SINGLE XL MAILBOX

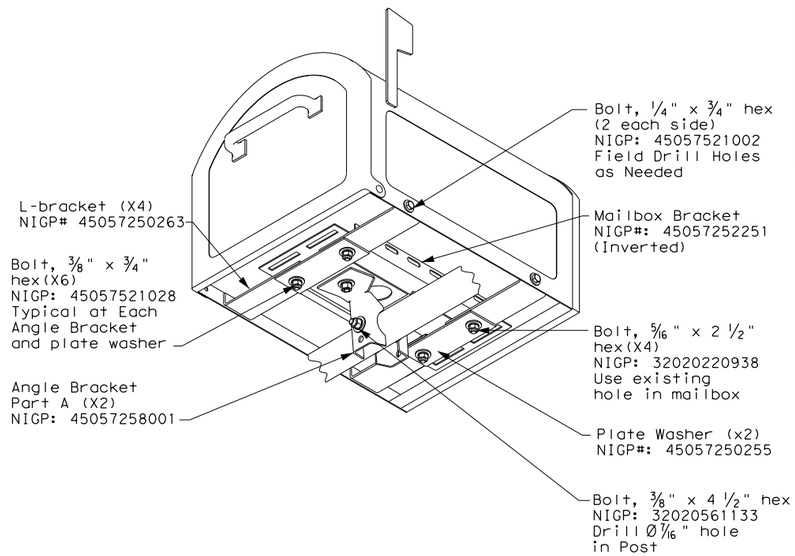


NOTE:
Follow same configuration when mounting an XL mailbox on a Type 4 multi post.

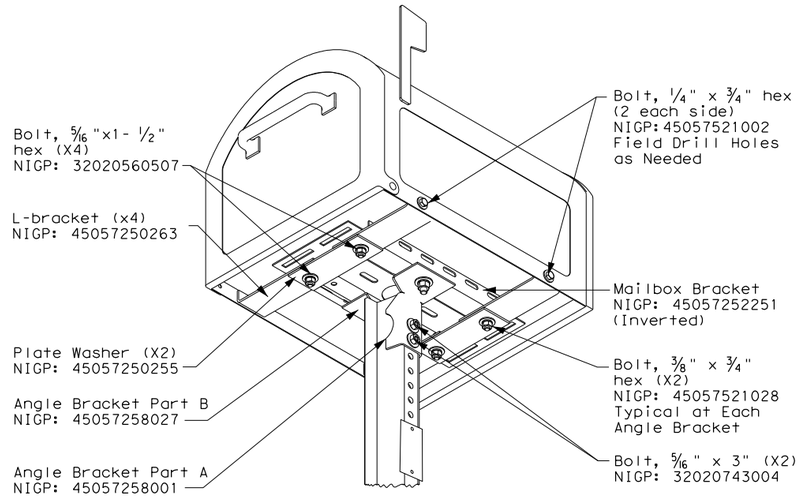
TYPE 1 MULTI – LOCKABLE ARCHITECTURAL (LA)



TYPE 1 MULTI – XL MAILBOX



TYPE 3 - XL MAILBOX MOUNTING



Texas Department of Transportation — Maintenance Division Standard

XL AND LOCKABLE ARCHITECTURAL MAILBOX ASSEMBLY

MB(2)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0517	01	048,ETC	SH16
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	SAT	ATASCOSA		90

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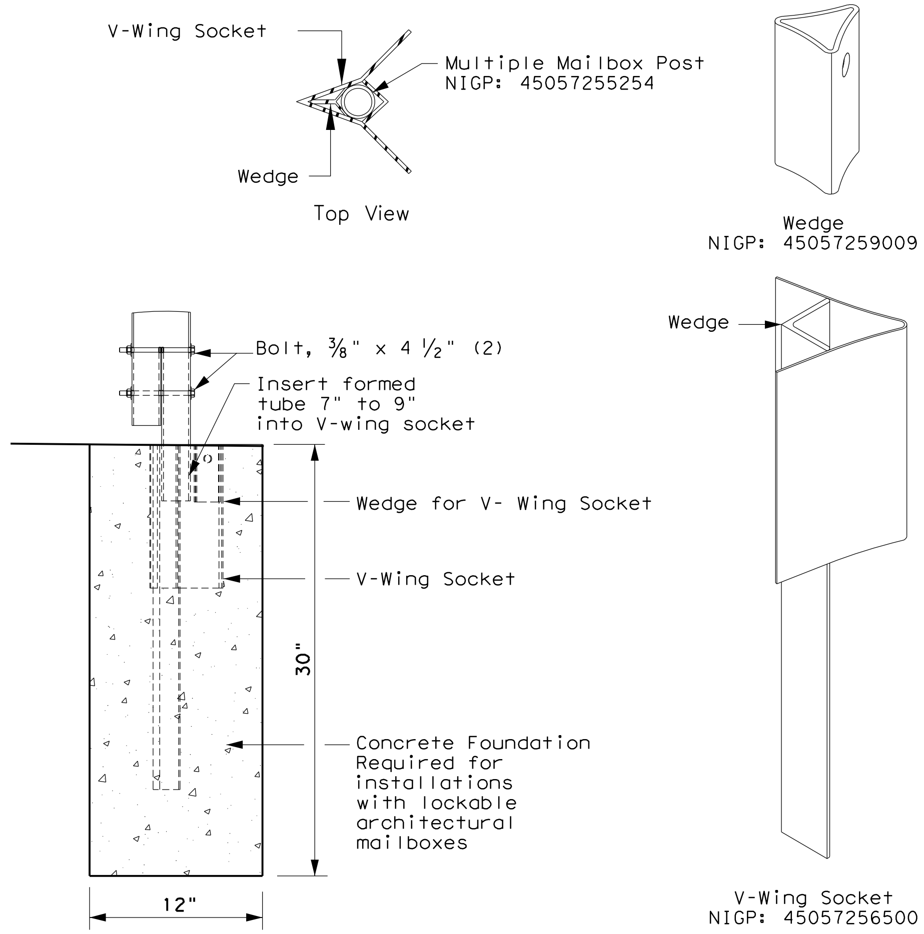
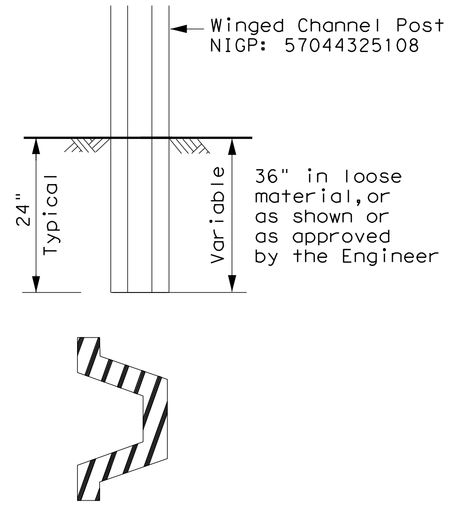
TYPE 1 - SUPPORT/FOUNDATION

Thin Wall Tube w/ V-LOC Anchorage



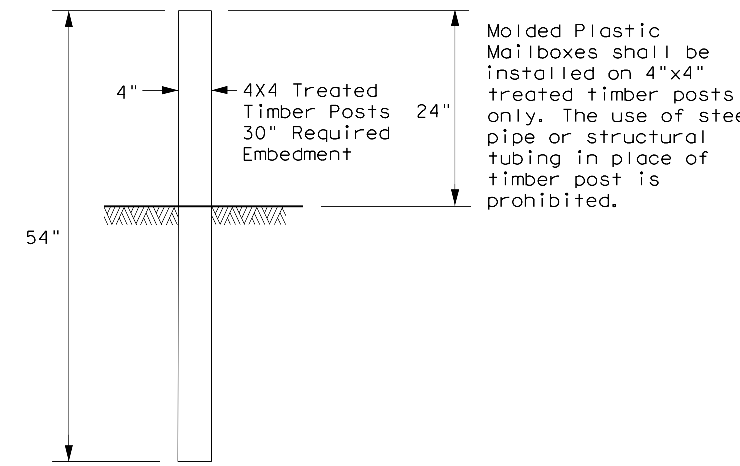
TYPE 3 - SUPPORT/FOUNDATION



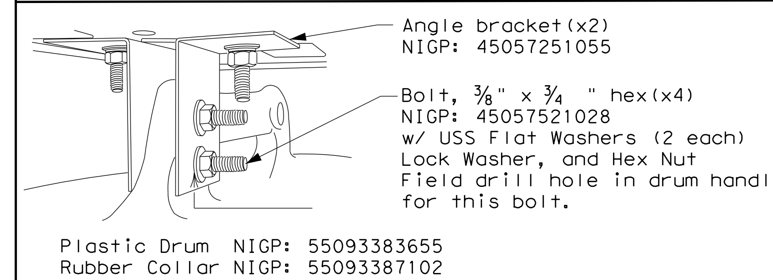
NOTES:

1. Attach Object Marker (OM) facing direction of traffic.
2. OM will also be required on opposite side if installed on a 2-Lane, 2-Way roadway.

TYPE 5 - SUPPORT/FOUNDATION



TYPE 6 - TEMPORARY MAILBOX SUPPORT



Plastic Drum NIGP: 55093383655
Rubber Collar NIGP: 55093387102

NOTES:

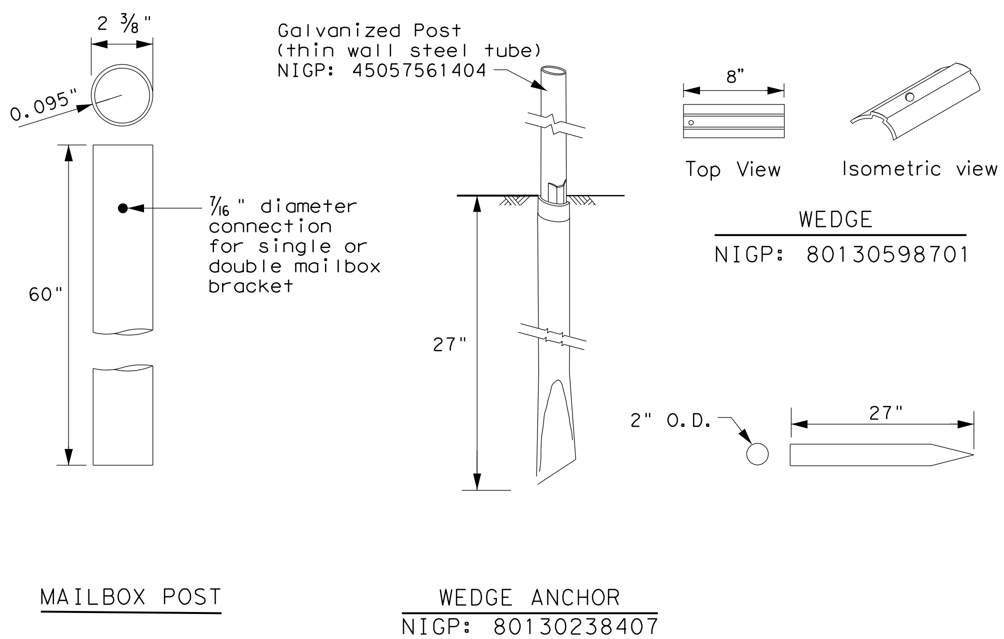
1. Place on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTCD).
2. Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

GENERAL NOTES:

1. Erect post plumb or vertical.
2. When galvanized part is required galvanize in accordance with Item 445.
3. Use a concrete footing as shown or when directed. Concrete footing will be required when soils do not hold the support/foundations in a stable condition, only on Type 1, Type 2, and Type 4

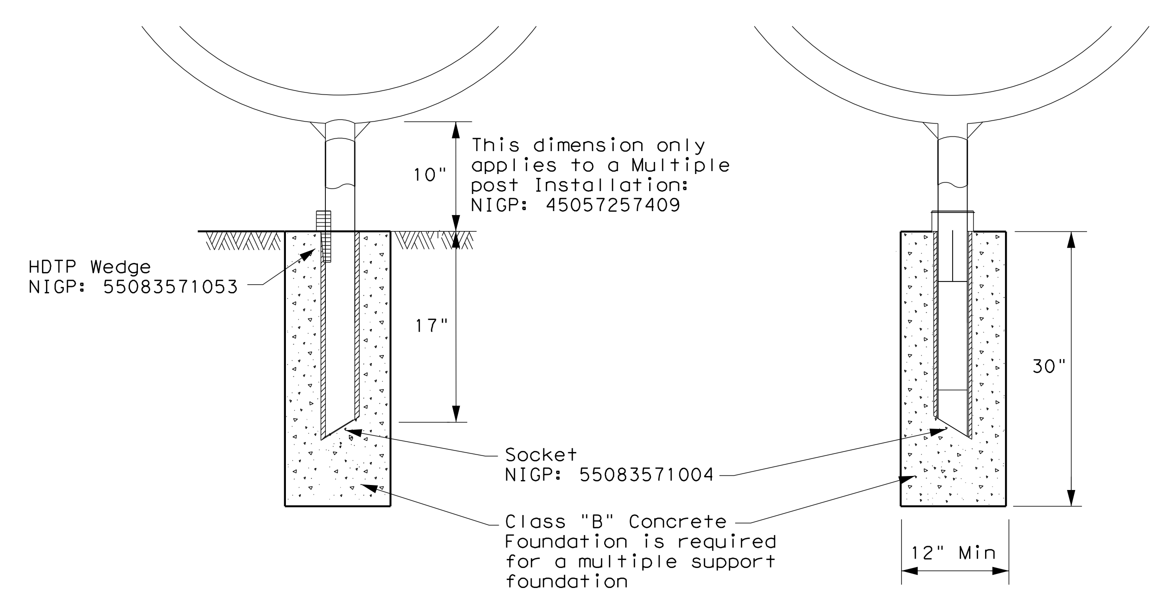
TYPE 2 - SUPPORT/FOUNDATION

Thin Wall Steel Tube w/Wedge Anchor System



TYPE 4 - SUPPORT/FOUNDATION

Whitecoated steel post NIGP: 45057561107
Multiple post NIGP: 45057257409
Recycled Rubber post (RR) NIGP: 45057561057



SHEET 3 OF 4

Texas Department of Transportation — Maintenance Division Standard

MAILBOX SUPPORT AND FOUNDATION

MB(3)-21

FILE: MB-21.dgn	DN:	CK:	DW:	CK:
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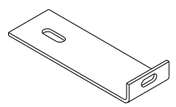
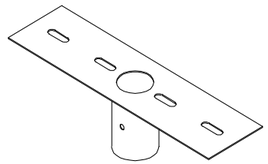
REVISIONS 2/2005 11/2009 4/2015	0517	01	048,ETC	SH16
6/2005 1/2011	DIST		COUNTY	SHEET NO.
11/2006 7/2014	SAT		ATASCOSA	91

DATE: 4/19/2024 2:35:00 PM
FILE:

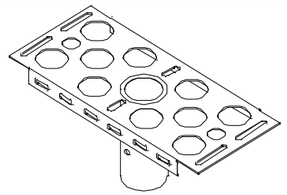
TYPE	TYPE 1	TYPE 2	TYPE 3	TYPE 4			TYPE 5	TYPE 6
Configuration	Multiple	Single or Double	Single or Double	Single	Double	Multiple	Single	Single
Mailbox Size NIGP #	Outside Position: S or M Inside Position: S, M, L, XL, or LA	Single: S, M, L, XL, or LA Double: SS, SM, MM	Single: S, M, L, or XL Double: SS, SM, MM	S, M, L, XL, or LA	SS, SM, or MM	Outside Position: S or M Inside Position: S, M, L, or XL	Molded Plastic	S, or M
Mailbox Post NIGP #	45057255254 (Galvanized Multiple)	45057561404 (Thin Walled Gavanize)	57044325108 (Wing Channel Post)	45057561107 (Thin walled white powder coated) 45057561057 (Recycled Rubber Post: S or M only)	45057561107 (Thin Walled White Powder Coated)	45057257409 (White Powder Coated Multiple)	4x4 Timber	Construction Barrel
Post and Mailbox Hardware NIGP #	45057259009 (Wedge) 45057256500 (V-Wing Socket) 45057253002 (Bracket Extension) 45057252251 (Mailbox Bracket) 45057258001 (Part A Angle Bracket x2) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	80130598701 (Wedge) 80130238407 (Wedge Anchor) 45057253002 (Bracket Extension) 45057252343 (Double MB Bracket) 45057252350 (S. Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket forXL x4)	45057541653 (Type 3 Double Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057253002 (Bracket Extension) 45057258001 (Part A Angle Bracket) 45057258027 (Part B Angle Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057252350 (Single Mailbox Bracket) 45057253002 (Bracket Extension) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252343 (Double Mount Bracket) 45057252251 (Mailbox Bracket x2)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252350 (Single Mount Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	None	45057251055 Angle Bracket (x2)
Foundation Used	Class B Concrete (Required for LA Mailboxes)	Class B Concrete (Required for LA Mailboxes)	None	Class B Concrete (not used with recycled rubber post, required for LA Mailboxes)	Class B Concrete (not required)	Class B Concrete	None	None



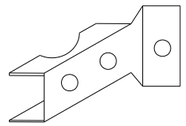
NIGP: 45057250263
L-Bracket x4 for
XL sized mailboxes



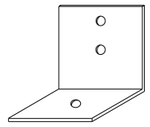
NIGP: 45057252343
Double Mailbox Bracket
For Type 2 and Type 4
double mount



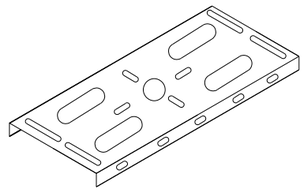
NIGP: 45057252350
Single Mailbox Bracket
For Type 2 single and for
Type 4 single and multi mount



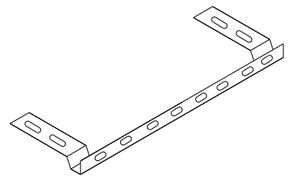
NIGP: 45057258001
Part "A" Angle Bracket
For Type 1 multi (2 per mailbox)
and Type 3 single and double



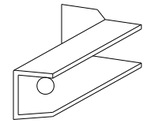
NIGP: 45057251055
Type 6 Angle Bracket
(2 per mailbox)



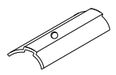
NIGP: 45057252251
Mailbox Bracket
For Type 1 multi and
any double mount (use 2)



NIGP: 45057253002
Bracket Extension
Use 1 for a medium Mailbox
Use 2 for a Large Mailbox



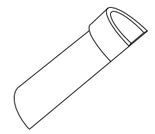
NIGP: 45057258027
Part "B" Angle Bracket
For Type 3 single
and double



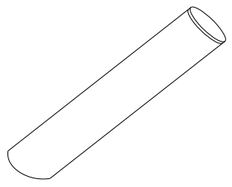
NIGP: 80130598701
Wedge for Type 2

NIGP: 45057250255
Plate Washer for Architecural
and XL Mailboxes

NIGP: 45057541653
Type 3 double mailbox bracket

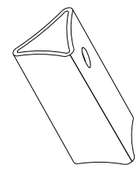


NIGP: 55083571053
Type 4 Mailbox Wedge

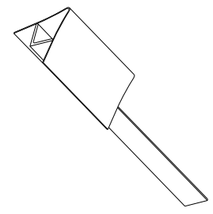


NIGP: 55083571004
Type 4 Mailbox Socket

NIGP: 80130238407
Type 2 Wedge Anchor



NIGP: 45057259009
Wedge for Type 1 V-wing Socket



NIGP: 45057256500
V-wing Socket for
Type 1 Foundation

NIGP #	OBJECT MARKERS AND CONFORMABLE SHEETING
55008311759	Type 2 OM 4"x4" (3 Needed) for Type 3 Wing Channel Post
55008312906	Type 2 OM 6"x12" (1 needed) for Type 3 Wing Channel Post
80149872006	12" Conformable Reflective Yellow Sheeting for Flexible Posts

NOTES:

1. Type 2 object marker in accordance with Traffic Engineering Standard Delineators & Object Markers.
2. A light weight receptacle for newspaper delivery can be attached to mailbox posts if the receptacle does not touch the mailbox, present a hazard to traffic or delivery of the mail, extend beyond the front of the mailbox, or display advertising, except the publication title.

BID CODES FOR CONTRACTS

MB-(X) ASSM TY (XXX) (X)

Type of Mailbox
- S = Single
- D = Double
- M = Multiple
- MP = Molded Plastic

Type of Post
- WC = Winged Channel Post
- RR = Recycled Rubber
- TWW = Thin Walled White Tubing
- TWG = Thin Walled Galvanized Tubing
- TIM = Timber

Type of Foundation
- Ty 1 = V-Loc
- Ty 2 = Wedge Anchor Steel System
- Ty 3 = Winged Channel post
- Ty 4 = Wedge Anchor Plastic System
- Ty 5 = 4 X 4 Post

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Texas Department of Transportation — Maintenance Division Standard

NIGP PARTS LIST AND COMPATIBILITY

MB(4)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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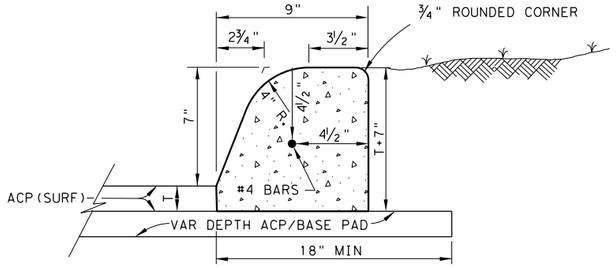
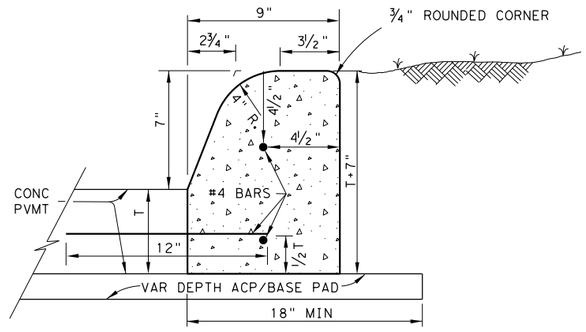


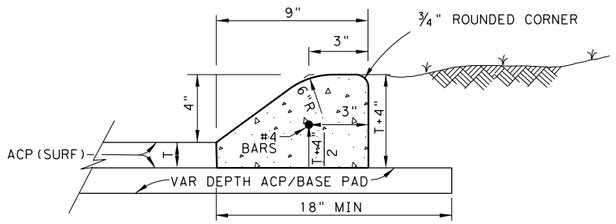
CONCRETE CURB (TYPE 1)

W/ ACP



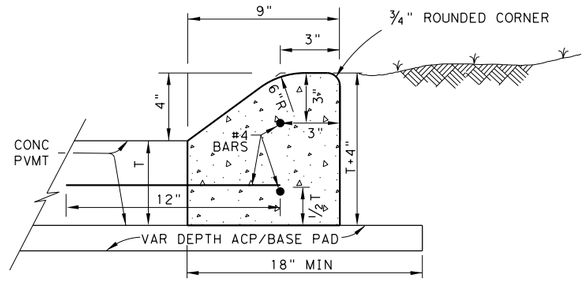
CONCRETE CURB (TYPE 1)

W/ CONC PAVEMENT



CONCRETE CURB (TYPE 2)

W/ ACP

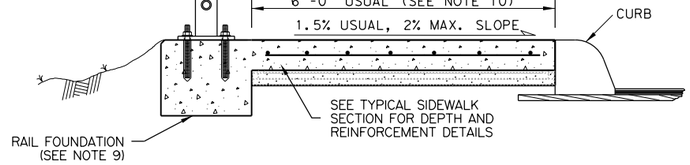


CONCRETE CURB (TYPE 2)

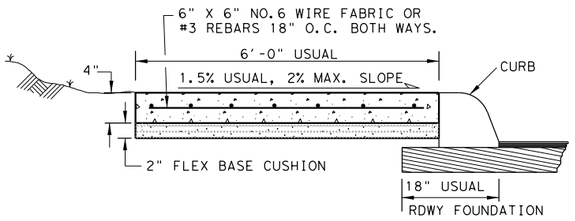
W/ CONC PAVEMENT

GENERAL NOTES:

1. CONCRETE CURB TYPE 1 AND 2 SHOWN SHALL MEET THE MINIMUM SPECIFICATION REQUIREMENTS OF CLASS "A" CONCRETE PER ITEM 529 AND 421.
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. WHERE CONCRETE CURB IS PLACED ON EXISTING CONCRETE PAVEMENT, THE PAVEMENT SHALL BE DRILLED AND THE REINFORCING BARS GROUTED IN PLACE.
4. EXPANSION AND CONTRACTION JOINTS SHALL BE CONSTRUCTED TO MATCH PAVEMENT JOINTS IN ALL CURBS AND CURB AND GUTTER ADJACENT TO JOINTED CONCRETE PAVEMENT. WHERE PLACEMENT OF CURB OR CURB AND GUTTER IS NOT ADJACENT TO CONCRETE PAVEMENT, EXPANSION JOINTS SHALL BE PROVIDED AT STRUCTURES, CURB RETURNS AT STREETS, AND AT LOCATIONS DIRECTED BY THE ENGINEER.
5. VERTICAL AND HORIZONTAL DOWEL BARS AND TRANSVERSE REINFORCING BARS SHALL BE PLACED AT 4 FEET C-C, UNLESS OTHERWISE SHOWN.
6. ONE-HALF INCH EXPANSION JOINT MATERIAL SHALL BE PROVIDED WHERE CURB OR CURB AND GUTTER IS ADJACENT TO SIDEWALK OR RIPRAP. THIS IS SUBSIDIARY TO THE CURB, ITEM 529.
7. LAYDOWN CURB AT DRIVEWAYS WILL BE PAID AS SUBSIDIARY TO ITEM 530.
8. FOR SIDEWALK DETAILS AT DRIVEWAYS, SEE SAN ANTONIO DISTRICT STANDARD "DRIVEWAY DETAILS".
9. SEE PEDESTRIAN HANDRAIL DETAILS STANDARD "PRD" FOR MORE INFORMATION. CONCRETE RAIL FOUNDATION TO BE POURED WITH THE SIDEWALK BUT PAYMENT IS SUBSIDIARY TO ITEM 450 "RAILING".
10. CLEAR SIDEWALK WIDTH EXCLUDING THE PEDESTRIAN RAIL FOUNDATION SHALL BE 6' UNLESS OTHERWISE SPECIFIED IN THE PLANS

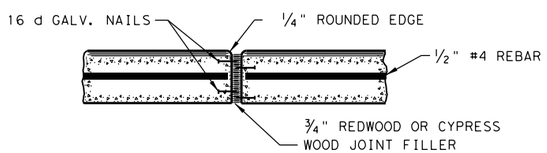


TYPICAL SIDEWALK SECTION
WITH PEDESTRIAN RAIL



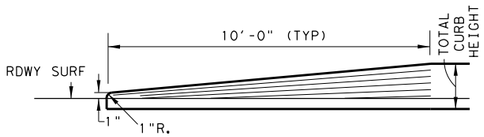
TYPICAL SIDEWALK SECTION

GROOVED JOINTS IN THE SIDE WALK SHALL BE AT A MAX. SPACING OF 10 FT. AND SHALL HAVE ¾" EXPANSION JOINTS AT A MAX. SPACING OF 60' AND TO COINSIDE WITH THE CURB EXP. JOINTS.



TYPICAL CURB EXPANSION JOINT DETAIL

EXPANSION JOINTS TO BE PLACED AT BEGINNING AND END OF CURVES, DRIVEWAYS WHEELCHAIR RAMPS, INLETS, ILLUMINATION/ SIGNAL FOUNDATIONS AND OTHER FIXED OBJECTS.



TRANSITION FOR CONCRETE CURB ENDS

SEE CURB DETAIL FOR REINFORCEMENT

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San Antonio District

MISCELLANEOUS CURB AND SIDEWALK DETAILS

San Antonio District Standard
Sheet (1 of 2)

T:\engdata\Standards\MiscCurbdetails.dgn

ORIGINAL DRAWING DATE:

REVISIONS
09-01-08
10-10-17 sidewalk width equals 6' usual
07-22-20 9" curb + curb w/ conc pvmt det.

PREPARED BY AND FOR USE OF TxDoT.

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
SAT	6		93

COUNTY	CONTROL	SECTION	JOB	HIGHWAY
ATASCOSA	0517	01	048	SH16

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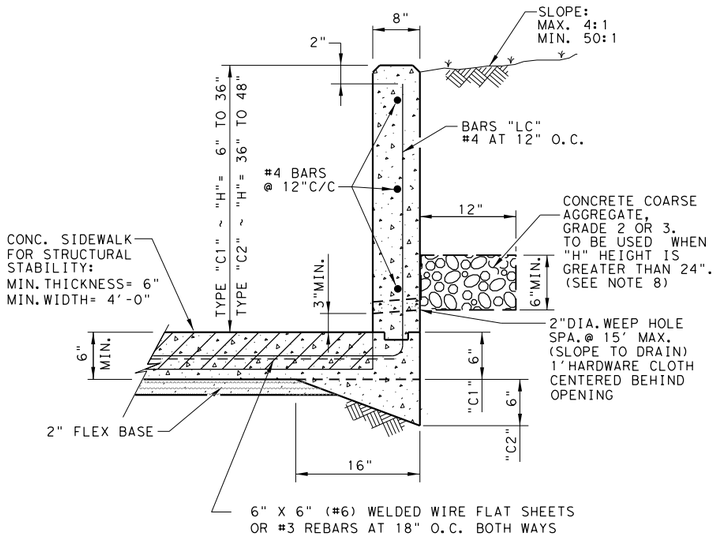
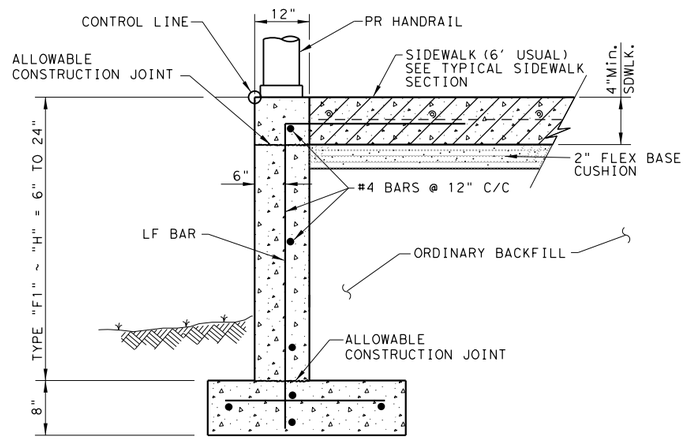


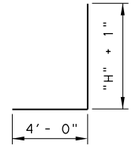
TYPE "C1" & "C2" CURB



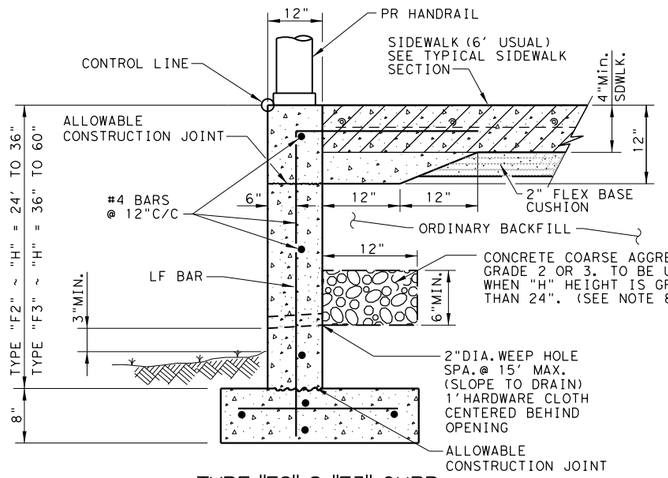
TYPE "F1" CURB

GENERAL NOTES:

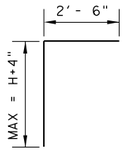
1. CONCRETE FOR CURB TYPE F AND C SHOWN SHALL MEET THE MINIMUM SPECIFICATION REQUIREMENTS OF CLASS "C" CONCRETE PER ITEM 421
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. EXPANSION AND CONTRACTION JOINTS SHALL BE CONSTRUCTED TO MATCH PAVEMENT JOINITS IN ALL CURBS AND CURB AND GUTTER ADJACENT TO JOINTED CONCRETE PAVEMENT. WHERE PLACEMENT OF CURB OR CURB AND GUTTER IS NOT ADJACENT TO CONCRETE PAVEMENT, EXPANSION JOINTS SHALL BE PROVIDED AT STRUCTURES, CURB RETURNS AT STREETS, AND AT LOCATIONS DIRECTED BY THE ENGINEER.
4. VERTICAL AND HORIZONTAL DOWEL BARS AND TRANSVERSE REINFORCING BARS SHALL BE PLACED AT 4 FEET C-C, UNLESS OTHERWISE SHOWN.
5. UNTIL THE SIDEWALK IS COMPLETE, LATERAL SUPPORT FOR THE "F" CURBS WILL BE REQUIRED.
6. IF AGGREGATE IS REQUIRED PER THE DETAIL, IT IS PAID AS SUBSIDIARY TO THE CURB, ITEM 529.



BAR "LC"

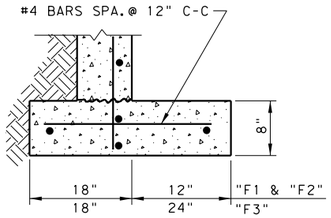


TYPE "F2" & "F3" CURB



BAR "LF"

DESIGN SOIL PARAMETERS:
Soil Unit Wt.= 120 pcf
Phi = 30 Degrees
Cohesion = 50 psf
Min. PI = 15
Max. PI = 30
SURCHARGE:
TYPE F CURB q = 2' Adjacent to sidewalk
Max. slope behind TYPE C Curb = 4:1
Min. Factor of Safety against sliding is 1.5.
Designed in accordance with current AASHTO Standards and Interim Specifications.



FOOTING DETAIL

CLASS C CONCRETE PAID UNDER ITEM 531, SIDEWALK. (NOTE. ADDITIONAL CONCRETE TO MEET THE THICKENED SECTIONS REQUIRED BY THESE DETAILS IS SUBSIDIARY TO ITEM 531, CURB.)

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San Antonio District

MISCELLANEOUS CURB AND SIDEWALK DETAILS

San Antonio District Standard
Sheet (2 of 2)

T:Engdata/Standards/MiscCurbdetails.dgn
ORIGINAL DRAWING DATE:
REVISIONS
09-01-08
10-10-17 sidewalk width equals 6' usual
07-22-20 9" curb + curb w/ conc pvmt det.

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STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT #	SHEET
SAT	6		94

COUNTY	CONTROL	SECTION	JOB	HIGHWAY
ATASCOSA	0517	01	048	SH16

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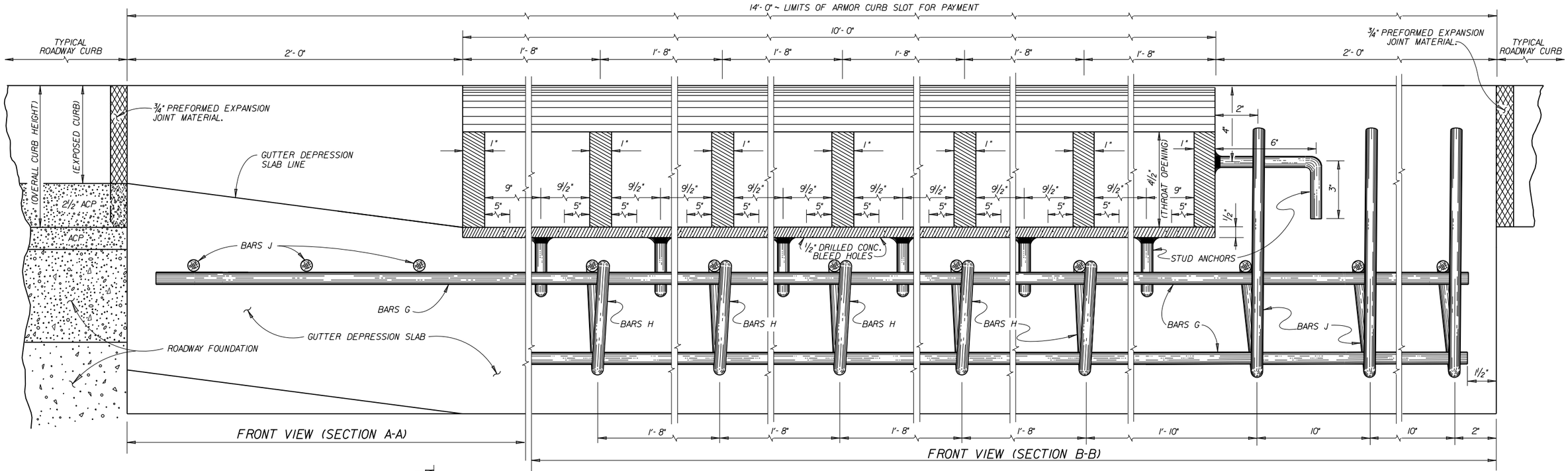

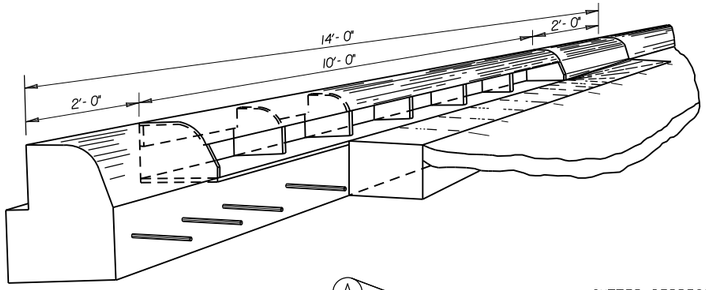

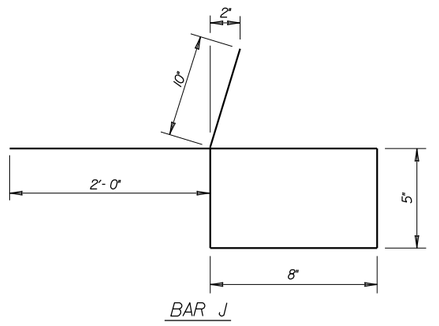

ESTIMATED QUANTITIES
FOR REINFORCING STEEL

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
G	7	#4	SHOWN	13'- 9"	64
H	5	#4	1'- 8"	4'- 6"	15
J	6	#4	8"	5'- 0"	20
TOTAL WEIGHT *				LBS.	99
CONCRETE FOR FOUNDATION *				C.Y.	0.47
CONCRETE FOR GUTTER DEPRESSION *				C.Y.	0.78

STRUCTURAL STEEL FOR ARMOR CURB SLOT		
STUD ANCHORS (1/2" DIA.)	LBS.	3.5
STEEL PLATE	LBS.	451
TOTAL WEIGHT *	LBS.	454.5

* FOR CONTRACTORS INFO ONLY.

GENERAL NOTES:

ALL CONCRETE SHALL BE CL."A".

ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.

ALL SIDES OF ARMOR CURB SLOT AND STUD ANCHORS SHALL BE 1/4" FILLET WELDS.

ALL EXPOSED STRUCTURAL STEEL (ARMOR) SHALL BE GALVANIZED.

ALL EXPOSED EDGES ON ARMOR CURB SHALL RECEIVE A 1/8" BEVEL.

THE SHAPE OF THE TYPICAL ROADWAY CURB SHALL TRANSITION TO THE ARMOR CURB AS APPROVED BY THE ENGINEER.

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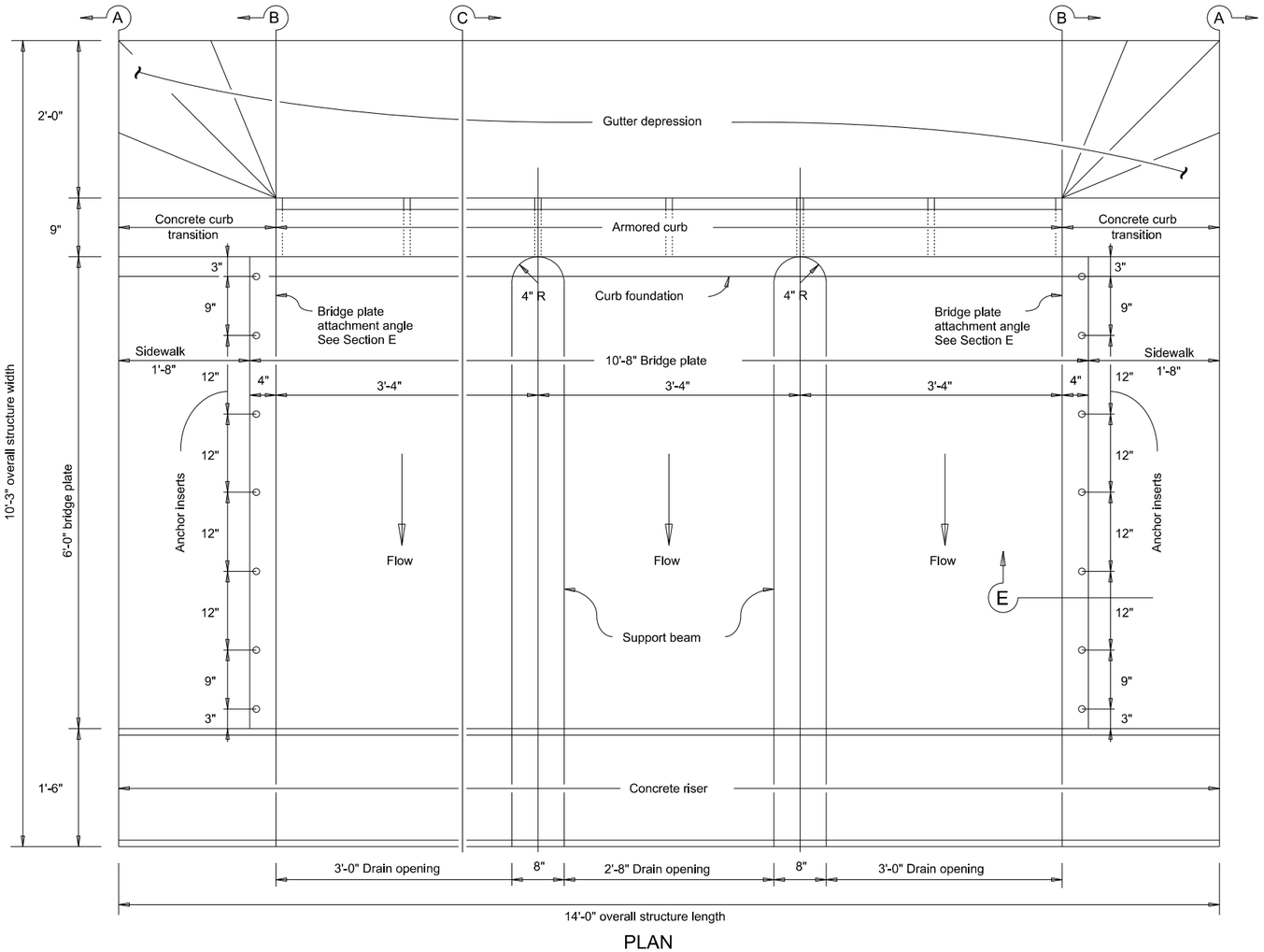
ARMOR CURB SLOT
WITH CONCRETE FOUNDATION
SAN ANTONIO DISTRICT STANDARDS

10/95
REV. 07/01

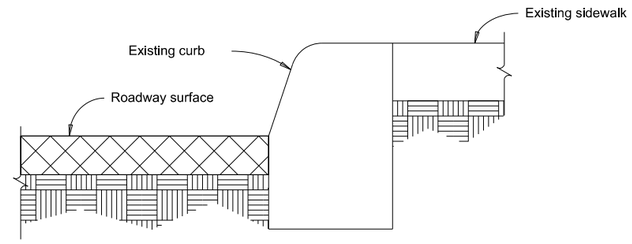
SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			95
STATE	STATE DISTRICT	COUNTY	
TEXAS	SAT	ATASCOSA	
CONT.	SECT.	JOB	HIGHWAY NO.
0517	01	048	SH16

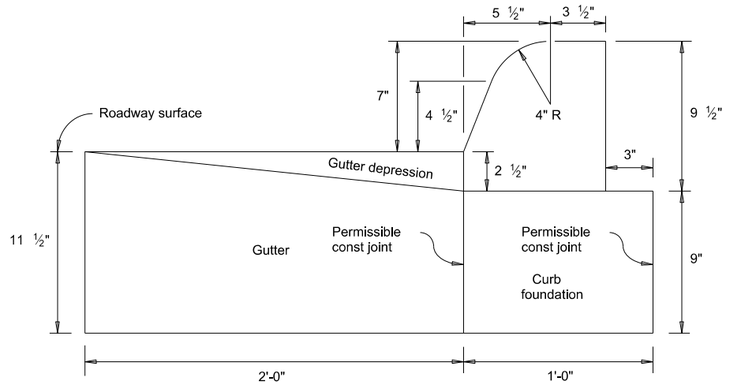
STRUCTURE DESIGN
/BRIDGE/STDS/ARMORCURB.DGN



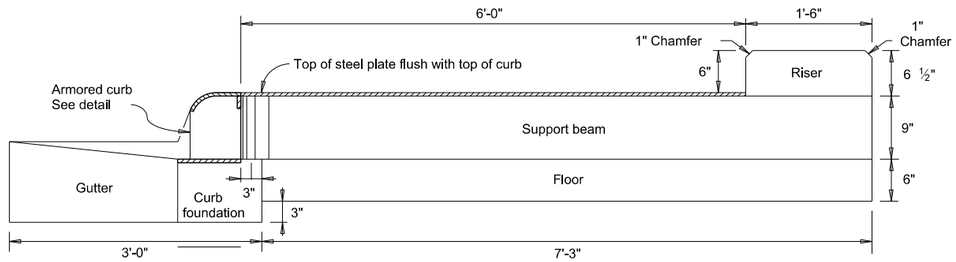
PLAN



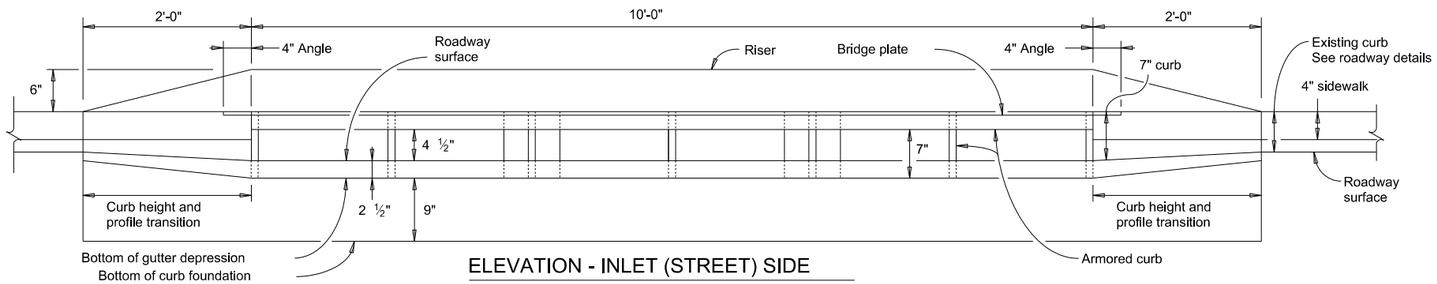
SECTION A



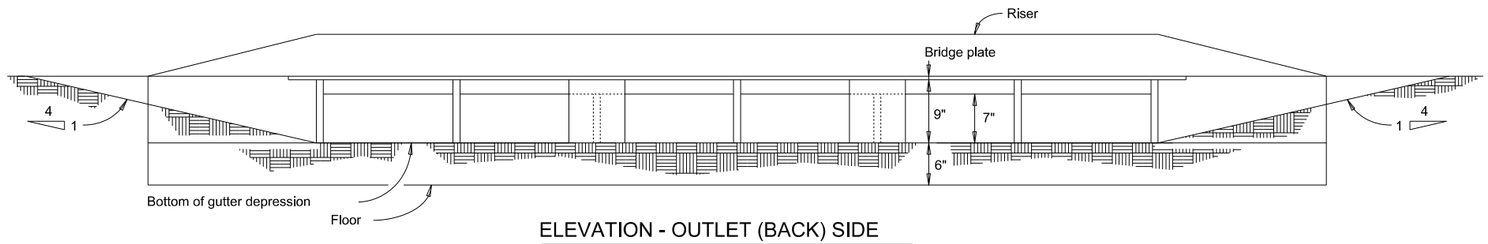
SECTION B DIMENSIONS



SECTION C DIMENSIONS



ELEVATION - INLET (STREET) SIDE



ELEVATION - OUTLET (BACK) SIDE

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions are out-to-out of bar.

Contractor is responsible for verifying all dimensions and quantities in the field before beginning work.

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San Antonio District (Structural Design)
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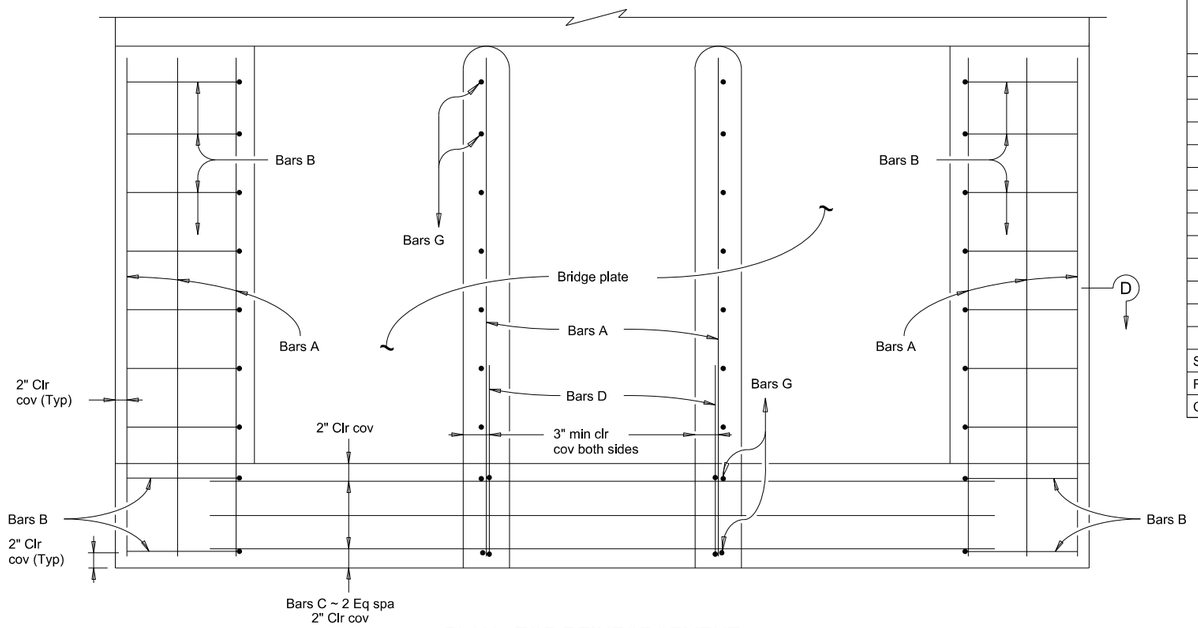
SIDEWALK BRIDGE

SAN ANTONIO DISTRICT STANDARD

DN: BCL	CK:	FILENAME: SA District Sidewalk Bridge.dgn		
DW: SRF	CK:	ORIGINAL DRAWING DATE: January 2020		
DIST	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		COUNTY
SAT	6			ATASCOSA
CONTROL	SECTION	JOB	SHEET NO.	ROUTE
0517	01	048	96	SH 16

REVISIONS:

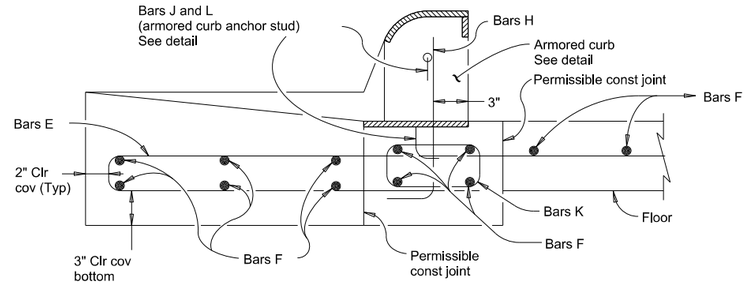


PLAN - TOP REINFORCEMENT

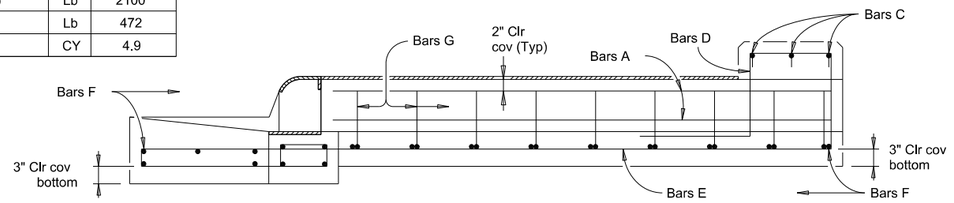
TABLE OF ESTIMATED QUANTITIES

For Contractor information only.

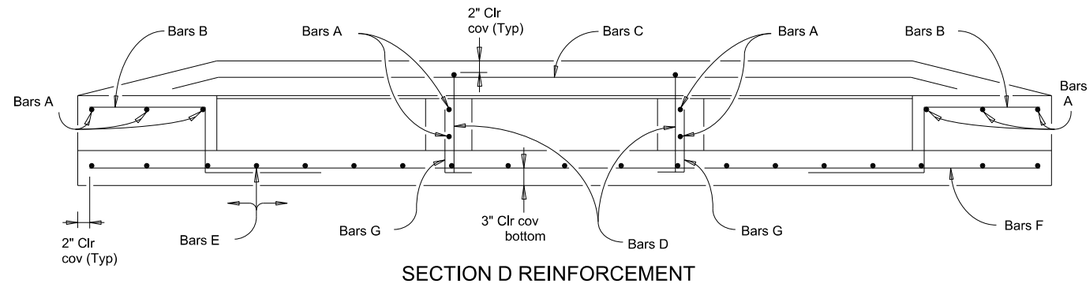
Bar	No.	Size	Length	Weight
A	10	#4	7'-2"	48
B	18	#4	4'-3"	52
C	3	#4	11'-4"	23
D	2	#4	5'-6"	8
E	19	#4	12'-10"	163
F	14	#4	13'-8"	128
G	18	#4	1'-6"	18
H	6	#4	1'-10"	8
I	6	#4	0'-8"	3
J	2	#4	0'-9"	1
K	19	#3	2'-6"	18
L	6	#4	0'-5"	2
Struct. steel (Misc. non bridge)			Lb	2100
Reinforcing Steel			Lb	472
Class "C" Concrete			CY	4.9



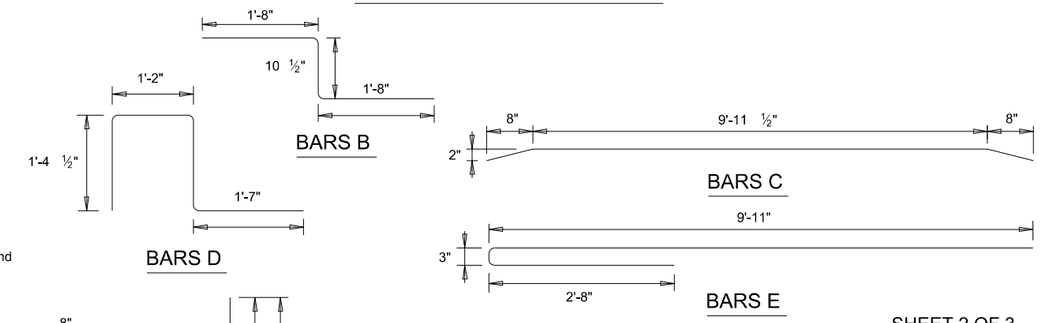
SECTION B REINFORCEMENT

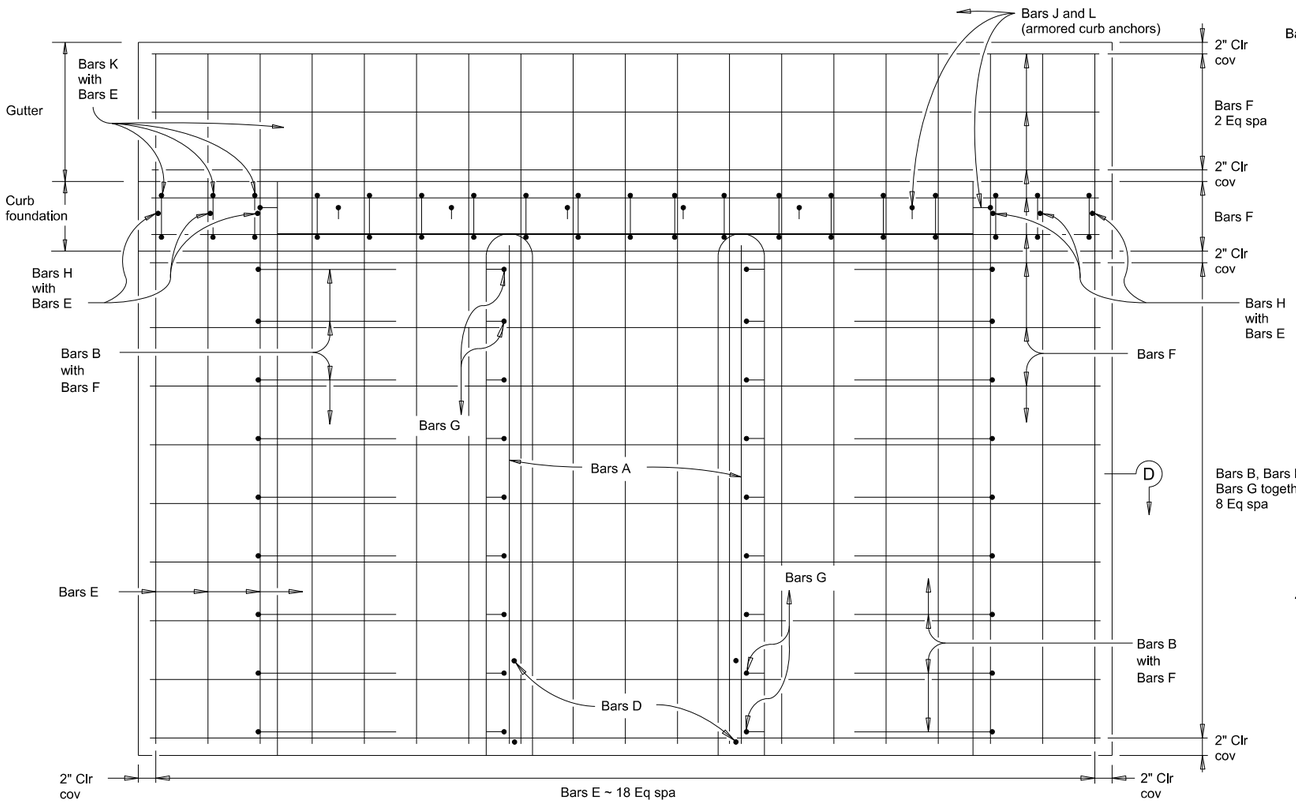


SECTION C REINFORCEMENT



SECTION D REINFORCEMENT





PLAN - BOTTOM REINFORCEMENT

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions are out-to-out of bar.

Contractor is responsible for verifying all dimensions and quantities in the field before beginning work.

SHEET 2 OF 3

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San Antonio District (Structural Design)
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SIDEWALK BRIDGE

SAN ANTONIO DISTRICT STANDARD

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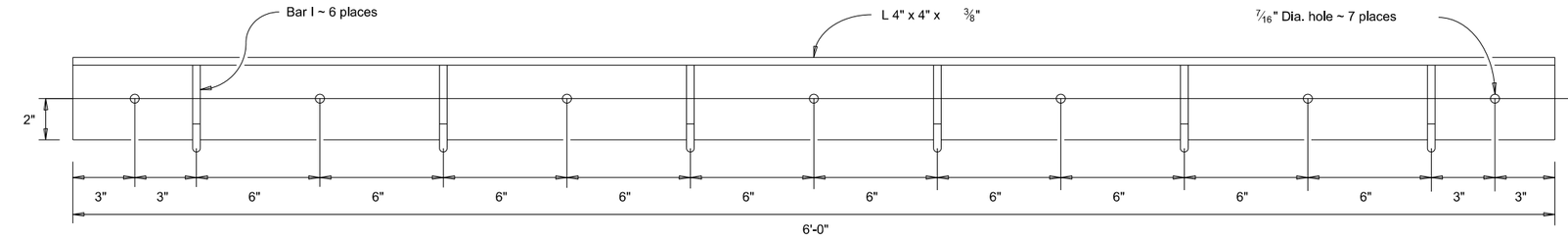
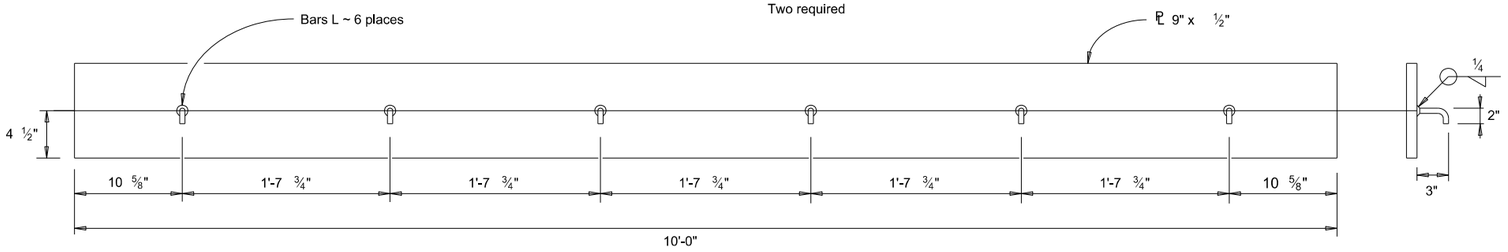
SAT	6			ATASCOSA
CONTROL	SECTION	JOB	SHEET NO.	ROUTE
0517	01	048	97	SH 16

REVISIONS:

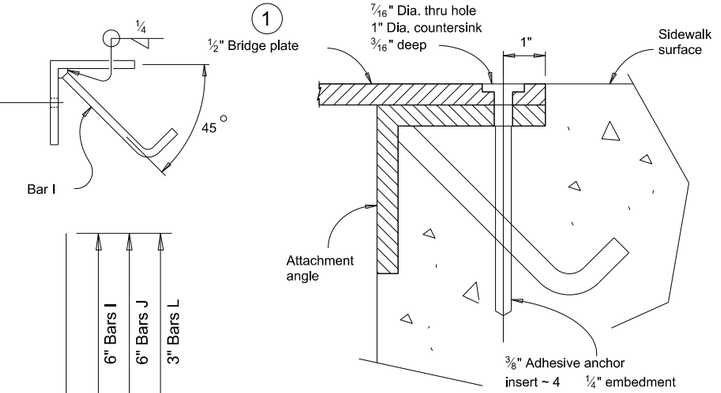


BRIDGE PLATE ATTACHMENT ANGLE

Two required



FLOOR PLATE



SECTION E

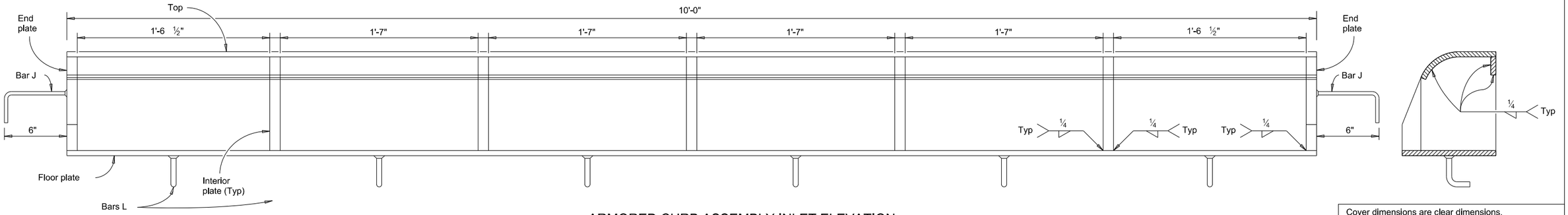
BARS I, J, AND L

APPROVED SLIP RESISTANT PLATE	
Product	Manufacturer Website
Algrip ,'Steel	www.algrip.com
Mebac ®#3, Steel	www.harscoikg.com
SlipNOT ®Grade 2, Steel	www.slipnot.com

(1) Provide cover plates fabricated with a product from this list. No exceptions are permitted.

GENERAL NOTES:

Provide Class A concrete (f'c = 3000 psi).
Provide Grade 60 reinforcing steel.
Structural steel components must be Grade A36.
All exposed edges of the armored curb must receive a 1/8" bevel.
All structural steel components must be galvanized after fabrication in accordance with Item 445, "Galvanizing".
Galvanizing damaged during transport or construction must be repaired in accordance with the Specification.
The bridge plate must be hot-dip galvanized slip resistant steel (see table). Checker or diamond plate is not allowed, nor are slip resistant tapes, films, or non-metallic coatings.
Adhesive anchor system must be HIT HY 150 H.I.S. internally threaded inserts as furnished by Hilti, Inc., Tulsa, OK, or approved equivalent.
Sidewalk bridge, including all labor, armored curb, bridge plate, and other material complete and in place must be paid for under Item 465, "Inlet (Comp) (Ty Sidewalk Bridge)" by location.
Shop drawings will not require the Engineer's approval if fabrication is in accordance with the details shown.



ARMORED CURB ASSEMBLY INLET ELEVATION

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions are out-to-out of bar.

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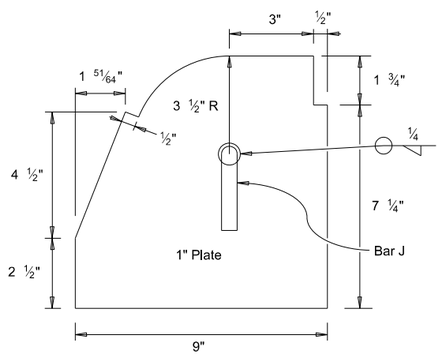
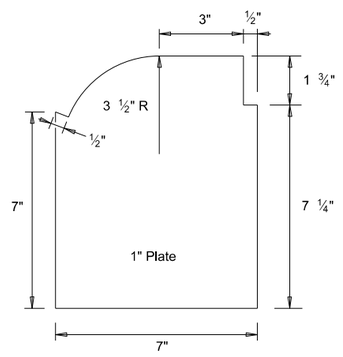


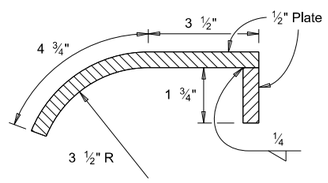
END PLATE

Two required



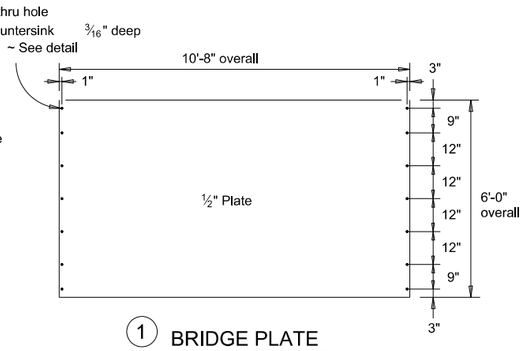
INTERIOR PLATE

Five required



TOP (SECTION)

10'-0" length



(1) BRIDGE PLATE

Hole location dimensions to center of hole

SHEET 3 OF 3

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SIDEWALK BRIDGE

SAN ANTONIO DISTRICT STANDARD

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SAT	6			ATASCOSA
CONTROL	SECTION	JOB	SHEET NO.	ROUTE
0517	01	048	98	SH 16

REVISIONS:

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FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft ④, ⑤, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

NOTES:

① Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

② Foundation Design Loads are the allowable moments and shears at the base of the structure.

③ Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

④ Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

⑤ If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

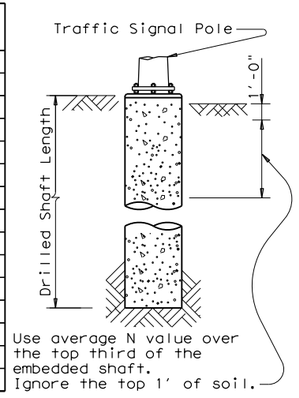
⑥ Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH ⑥ (FEET)				
				24-A	30-A	36-A	36-B	42-A
PEACH ST. NW	10	24-A	1	6				
PEACH ST. NE	10	24-A	1	6				
PEACH ST. SW	10	24-A	1	6				
TOTAL DRILLED SHAFT LENGTHS				18				

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'

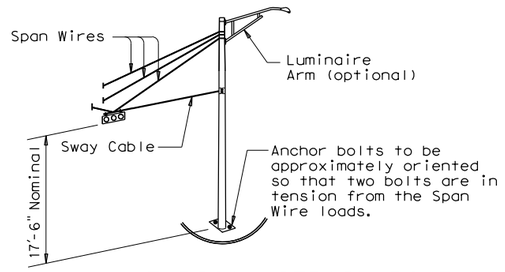


ANCHOR BOLT & TEMPLATE SIZES

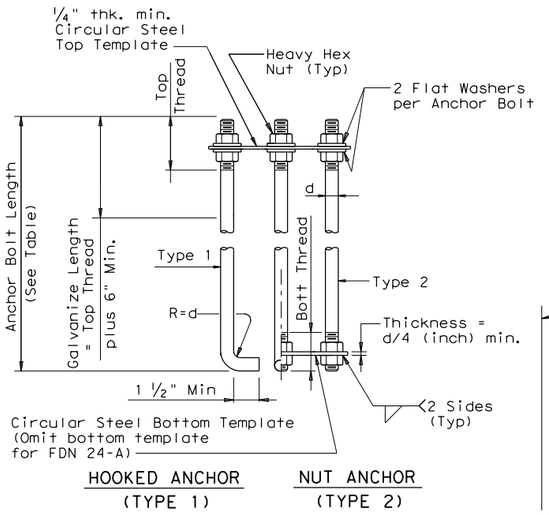
BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.

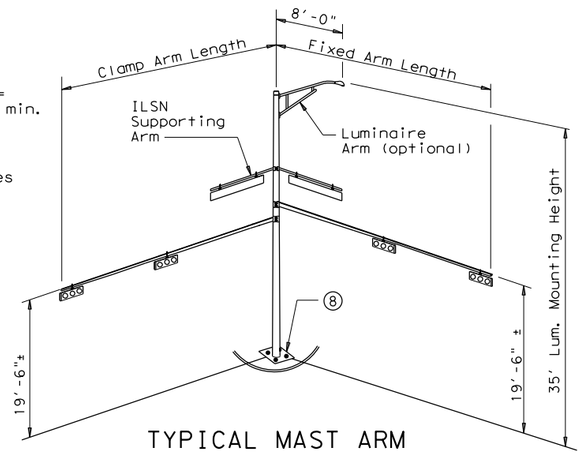
EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.



TYPICAL STRAIN POLE ASSEMBLY



ANCHOR BOLT ASSEMBLY



TYPICAL MAST ARM ASSEMBLY

⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.

FOUNDATION DETAILS

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".

4/19/2024

STATE OF TEXAS · DANIEL A. VECHIOCCO · 122165 · LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

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DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB

REVISIONS: 5-96, 11-99, 1-12

CONT	SECT	JOB	HIGHWAY
0517	01	048,ETC	SH16
DIST	COUNTY		SHEET NO.
SAT	ATASCOSA		99

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

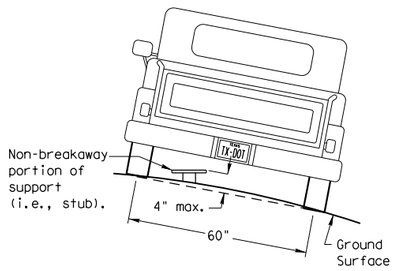
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

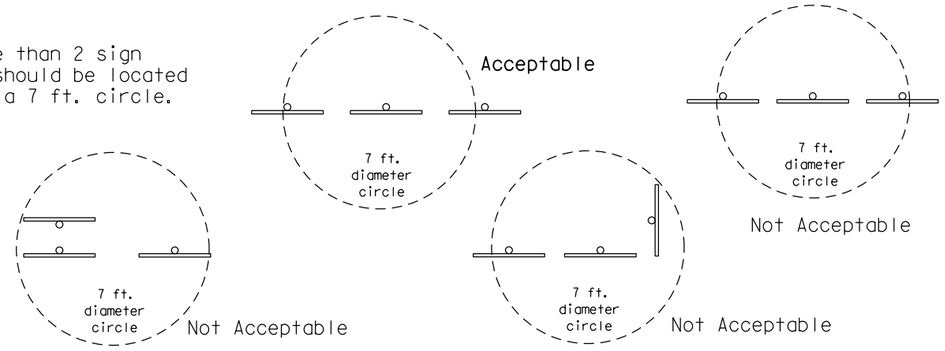
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-1))

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



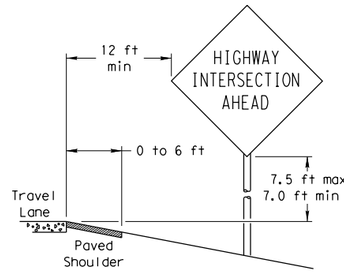
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

No more than 2 sign posts should be located within a 7 ft. circle.



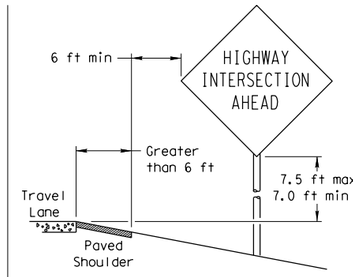
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

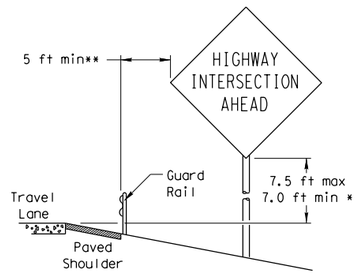
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



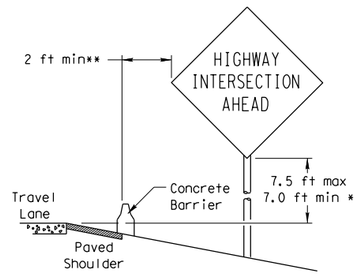
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

BEHIND BARRIER



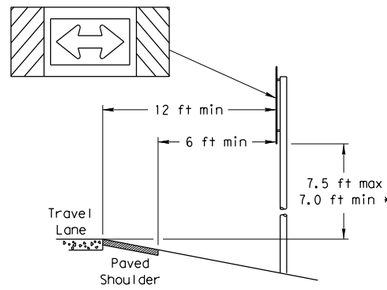
BEHIND GUARDRAIL



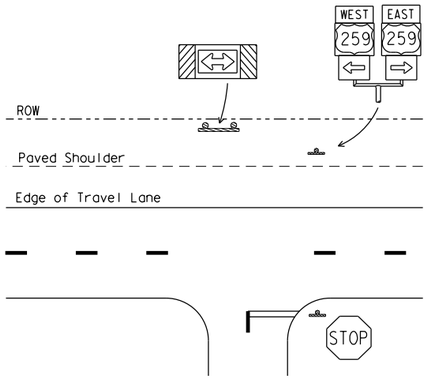
BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

T-INTERSECTION



When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

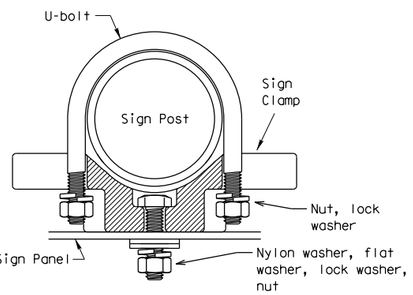
The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

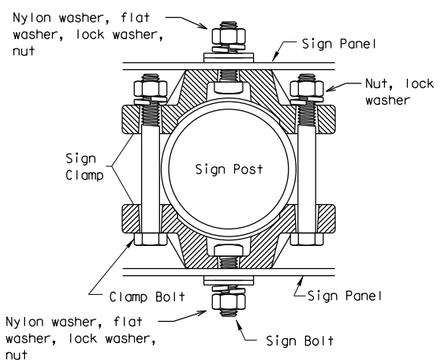


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

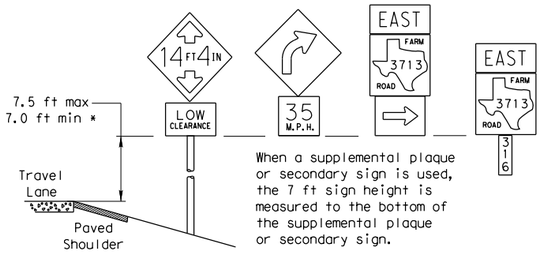
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



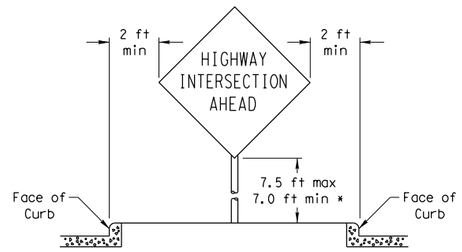
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



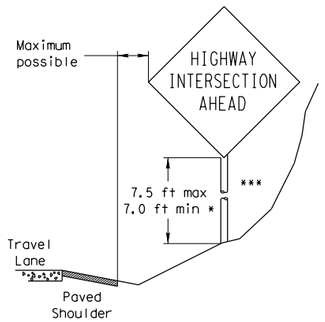
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

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DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

9-08 REVISIONS

CONT	SECT	JOB	HIGHWAY
0517	01	048,ETC	SH16
DIST	COUNTY		SHEET NO.
SAT	ATASCOSA		100

26A

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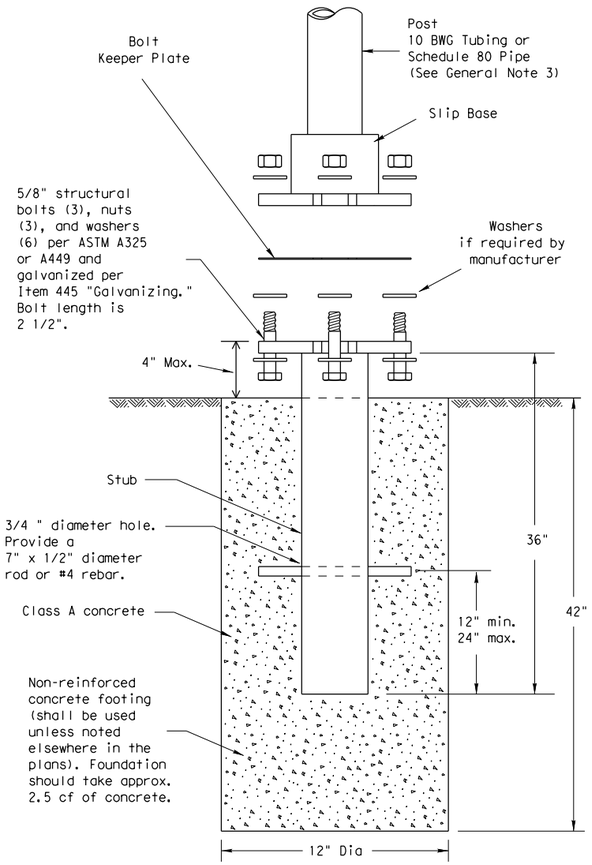
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

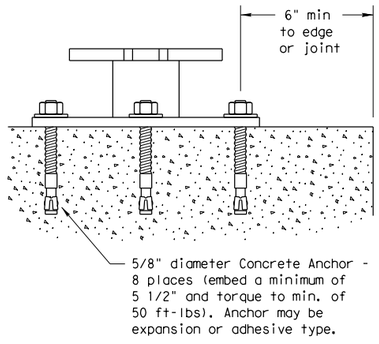
1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Steel tubing per ASTM A500 Gr C
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
   46,000 PSI minimum yield strength
   62,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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REVISIONS 9-08			

CONT	SECT	JOB	HIGHWAY
0517	01	048,ETC	SH16

DIST	COUNTY	SHEET NO.
SAT	ATASCOSA	101

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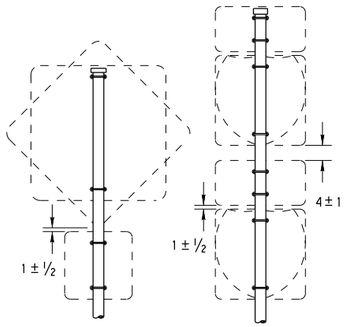
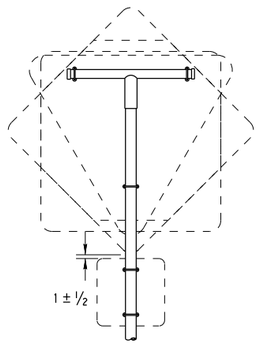


SM RD SGN ASSM TY XXXXX(1)XX(P)



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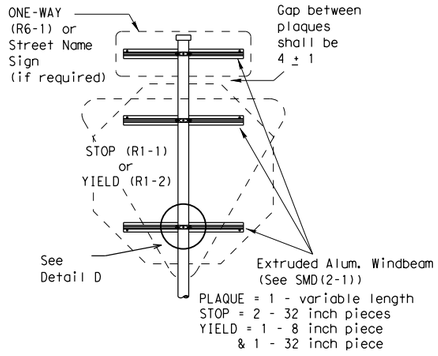

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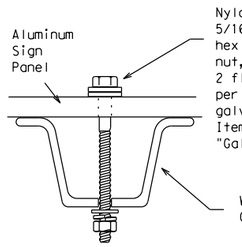
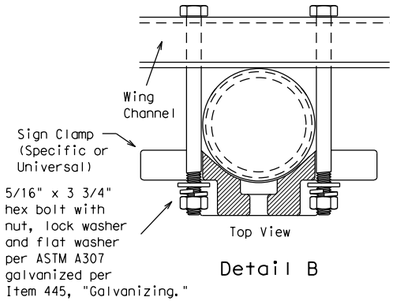


Top View

Detail A



Top View

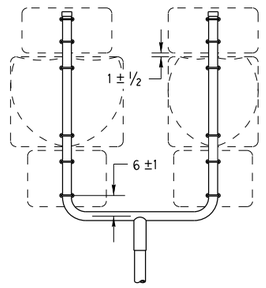
Detail B

GENERAL NOTES:

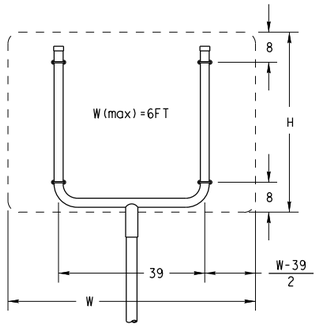
1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.



SM RD SGN ASSM TY XXXXX(1)XX(U)



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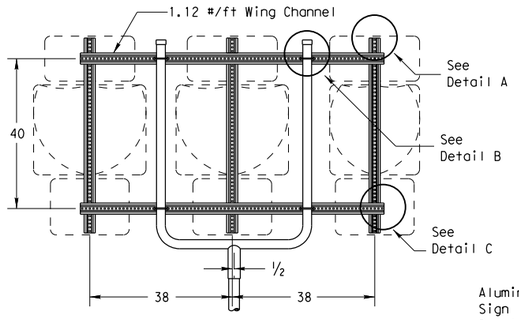
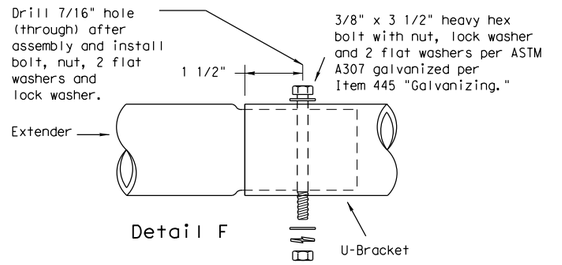
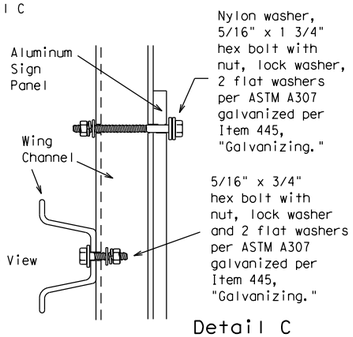


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

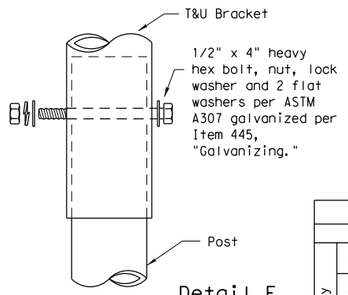


Detail F

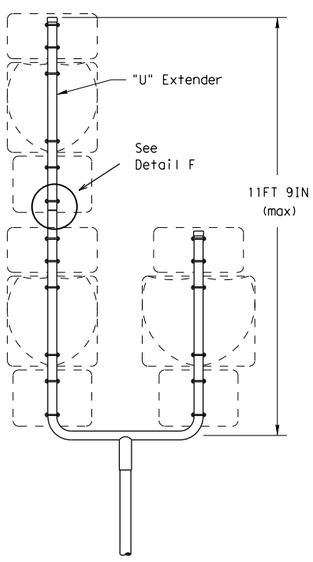
Splices shall only be allowed behind the sign substrate.



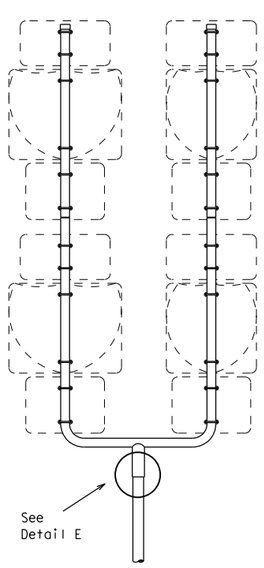
Detail C



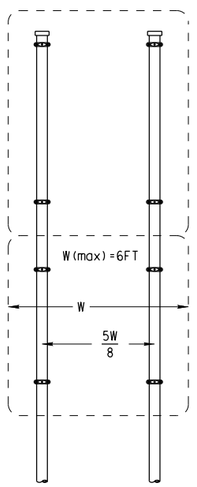
Detail E



SM RD SGN ASSM TY S80(1)XX(U-1EXT)

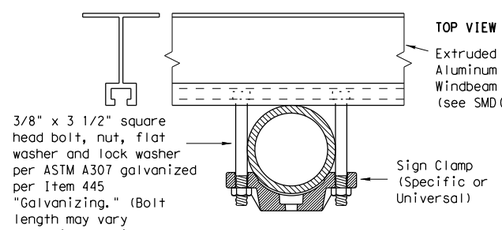


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

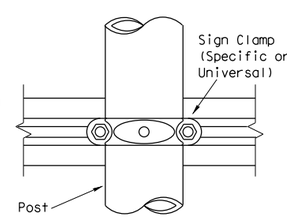


SM RD SGN ASSYM TY XXXXX(2)XX(P)

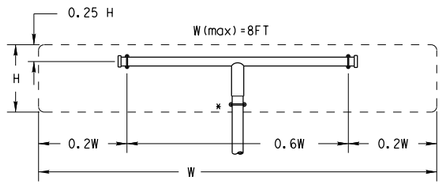
SIDE VIEW



Detail D



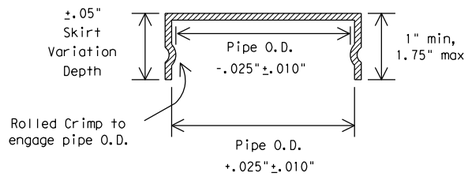
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

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 ASTM B633 Class FE/ZN 8.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

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REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		102

26C

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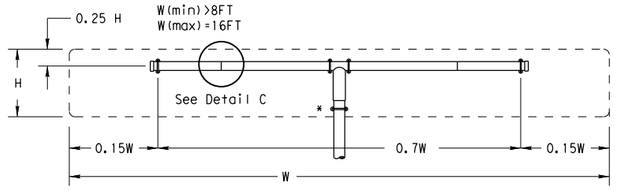
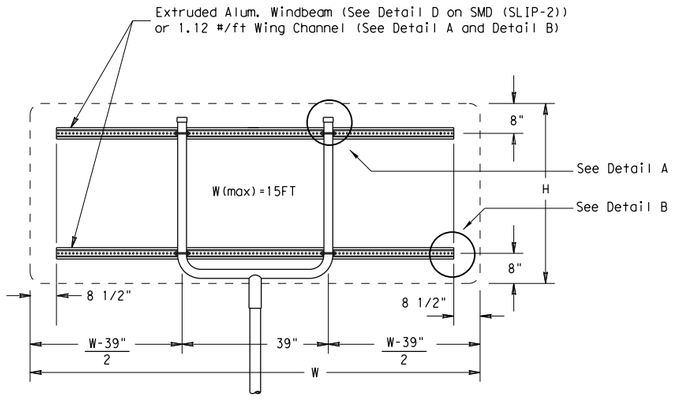
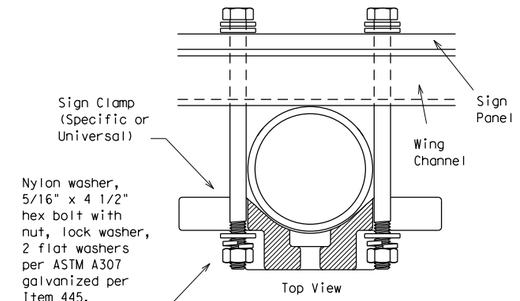


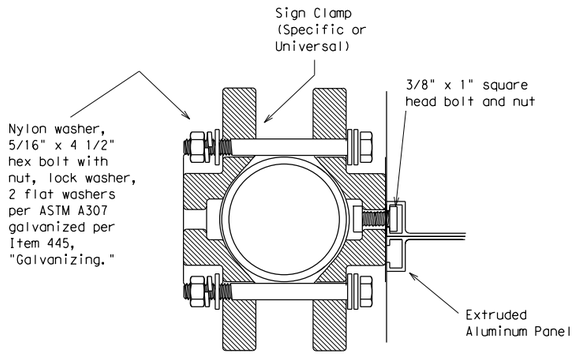
SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



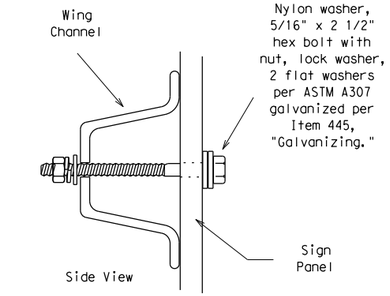
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



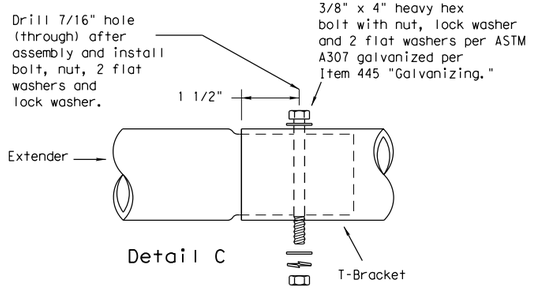
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET

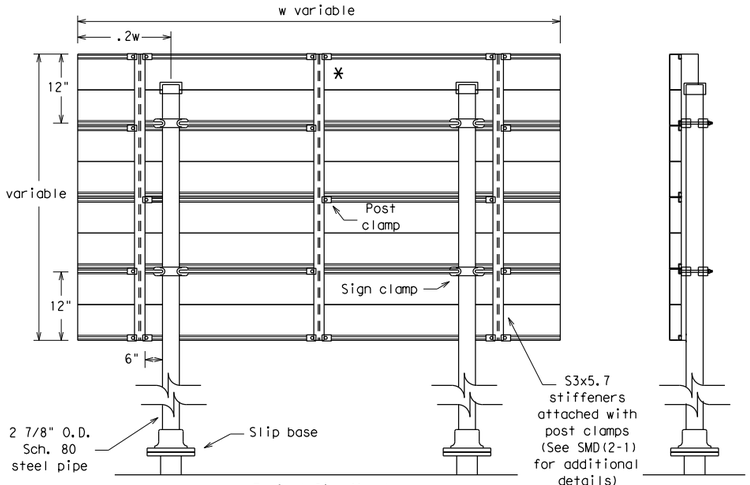


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

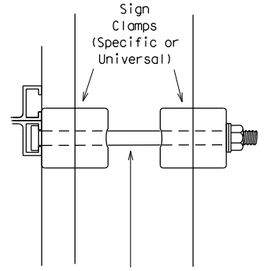


Typical Sign Mount

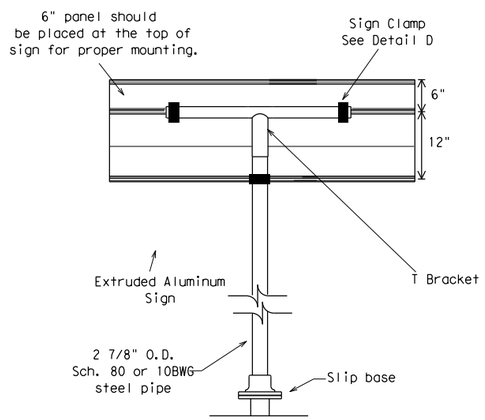
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

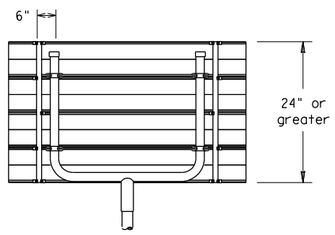
See Detail E
for clamp installation



Detail E



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Sign blanks shall be the sizes and shapes shown on the plans.
10. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
11. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

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REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		103

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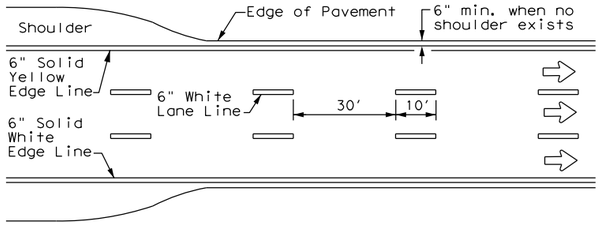
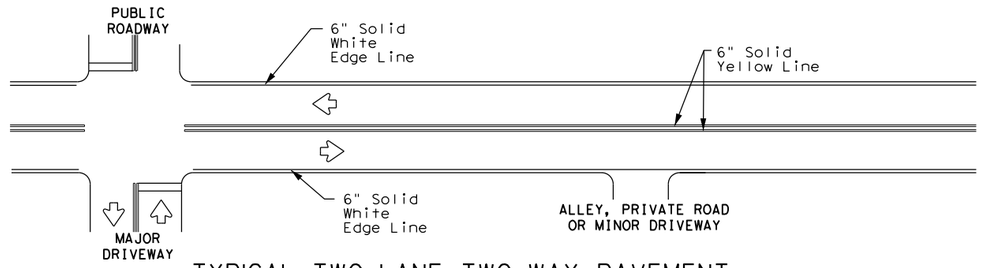
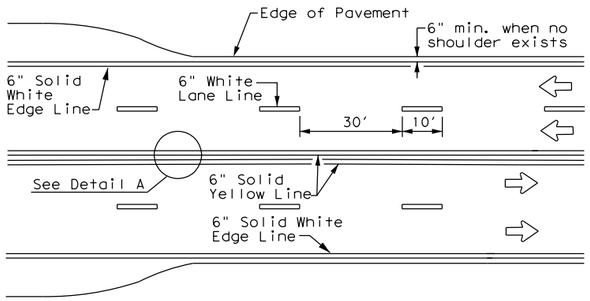
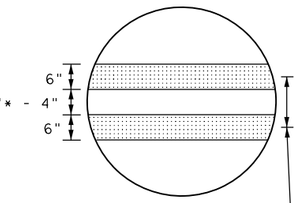


EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS

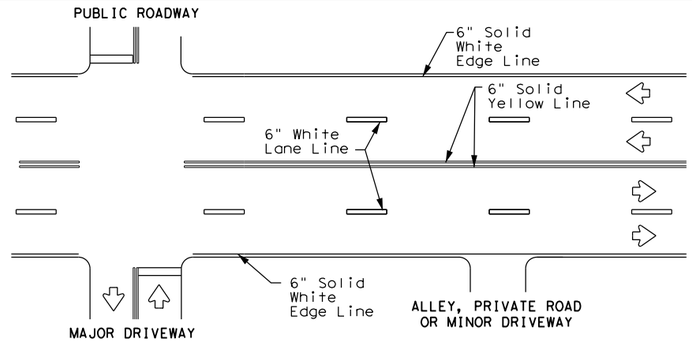




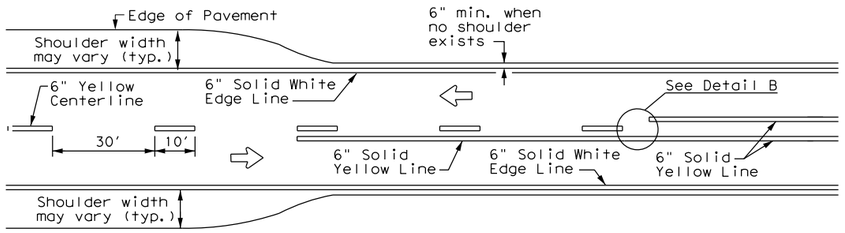
CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS

* 2" minimum for restripe projects when approved by the Engineer.

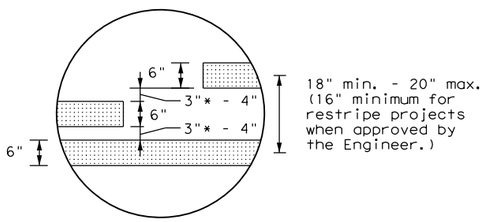
** 8" minimum for restripe projects when approved by the Engineer.



TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS

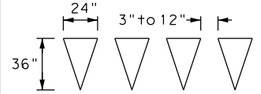


TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



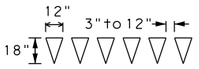
DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.

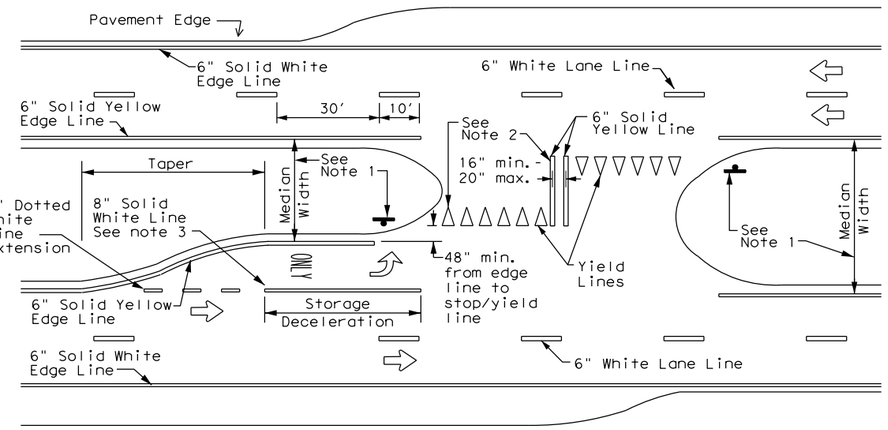


For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



For posted speed on road being marked equal to or less than 40 MPH.



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

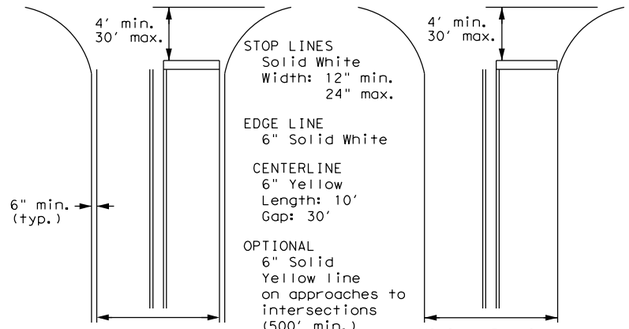
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections.
   Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES,
EDGE LINE & CENTERLINE
Based on Traveled Way and Pavement Widths
for Undivided Roadways

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
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8-95 3-03 12-22	DIST	COUNTY		SHEET NO.
5-00 2-12	SAT	ATASCOSA		104

22A

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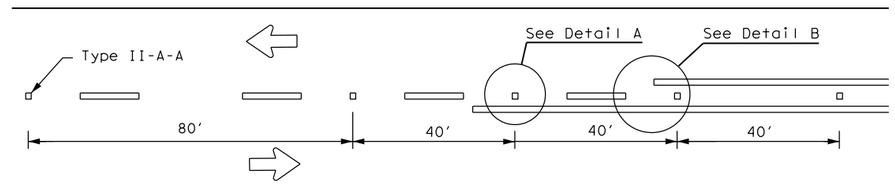
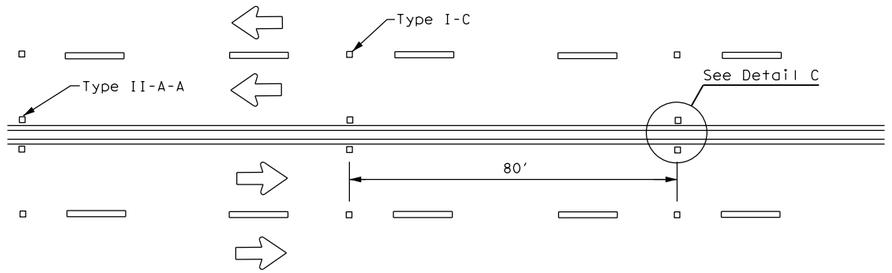
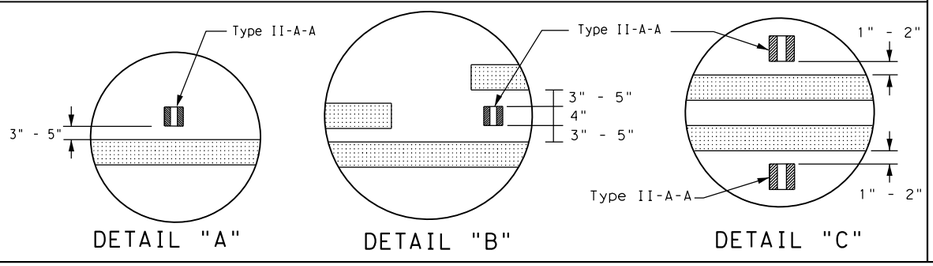
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



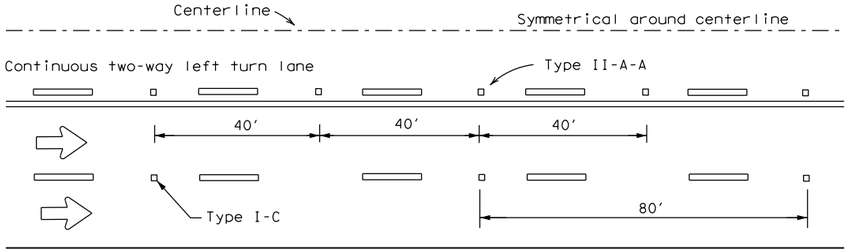
CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



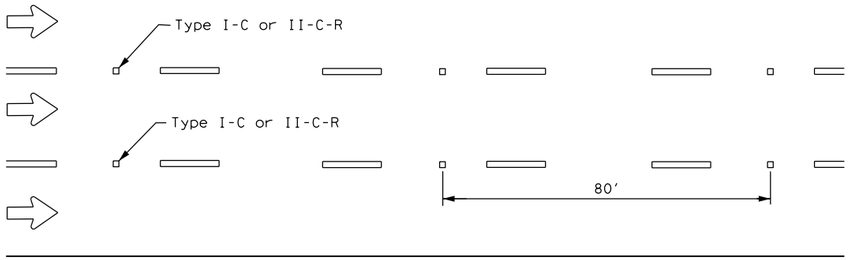
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS



DETAIL "A" DETAIL "B" DETAIL "C"



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



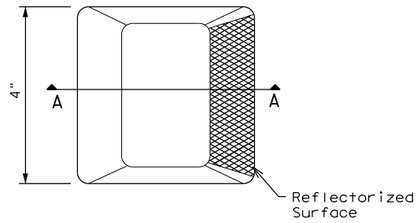
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

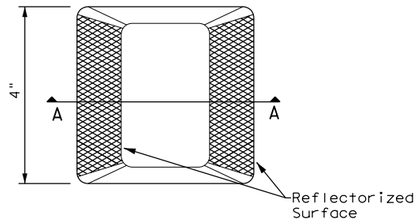
See Note 3.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

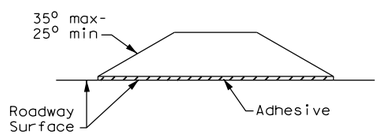
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

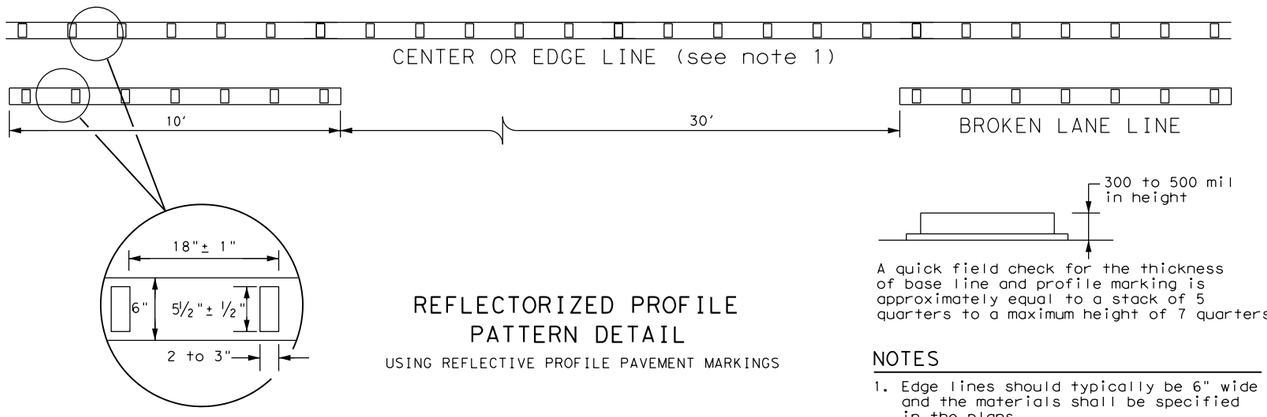


Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



6" EDGE LINE, 6" CENTERLINE OR 6" LANE LINE

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-22

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-77 8-00 6-20 4-92 2-10 12-22 5-00 2-12	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		105

22B

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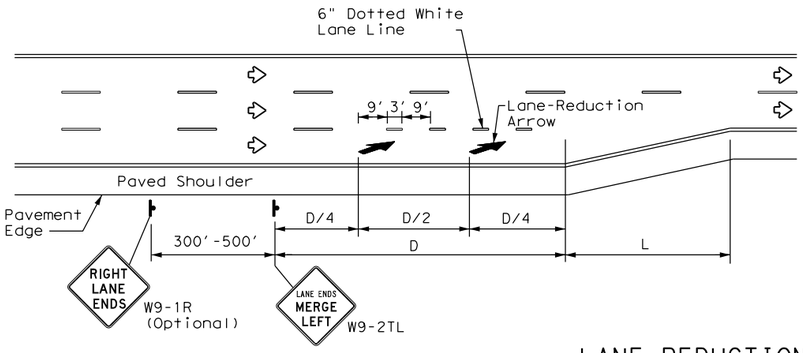
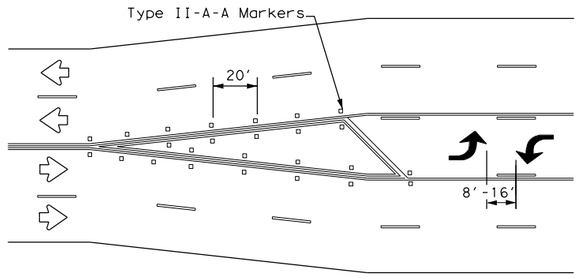


LANE REDUCTION

NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

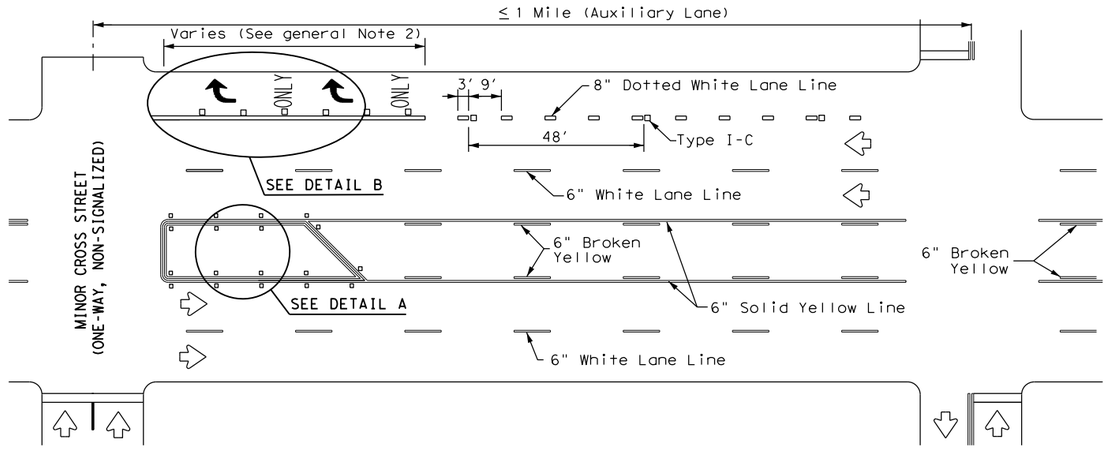
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

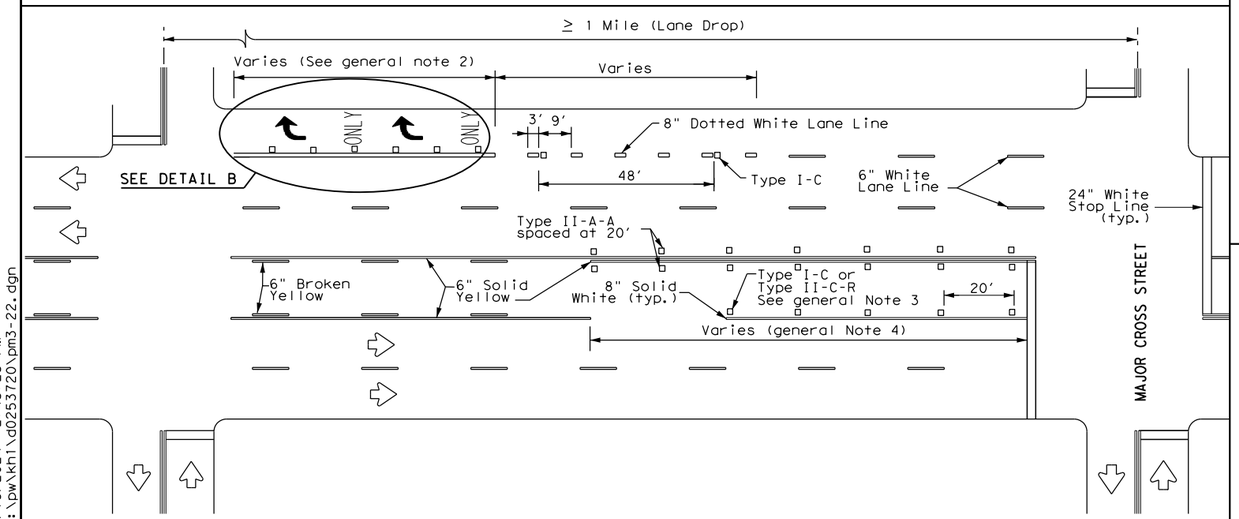
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

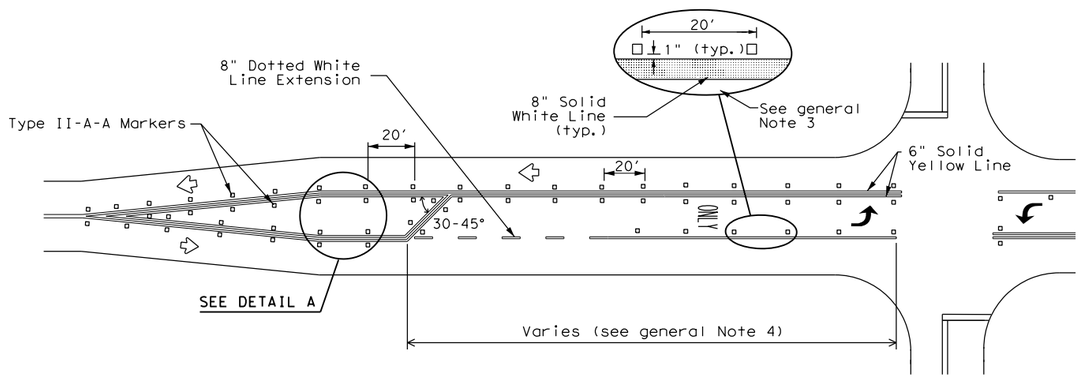
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



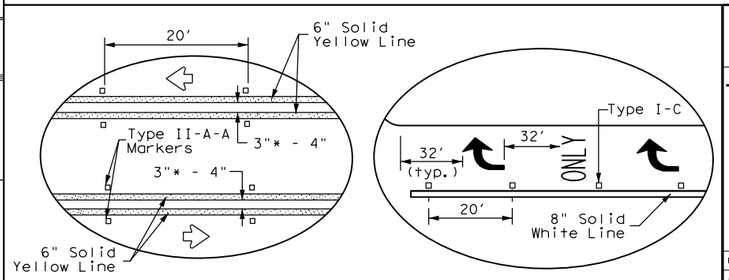
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		106

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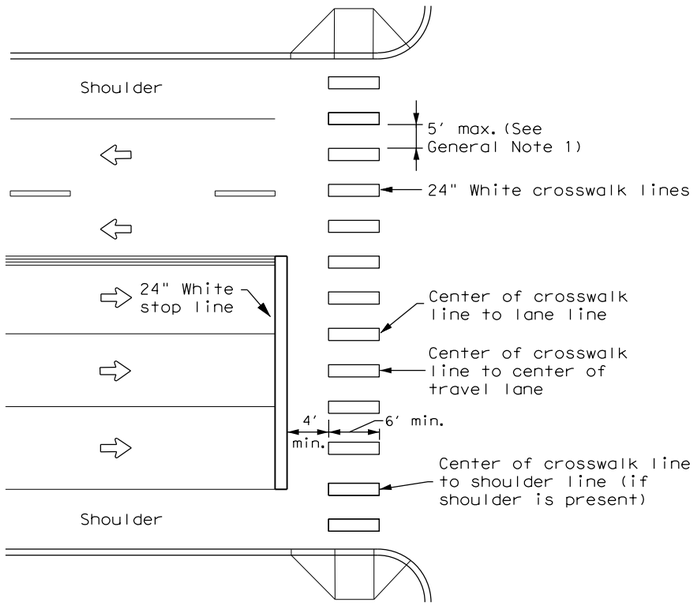


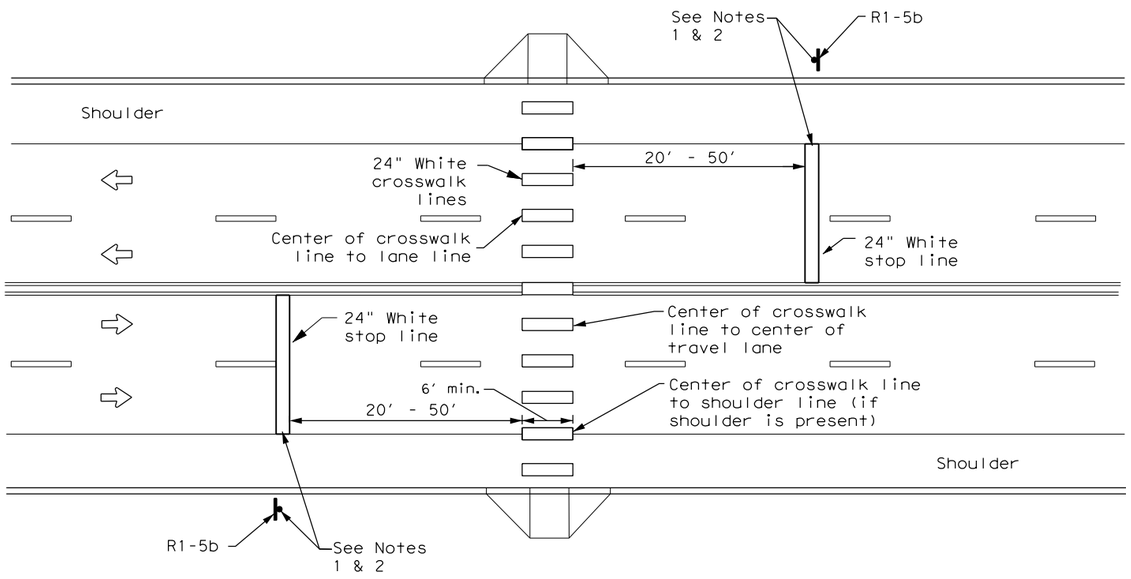
HIGH-VISIBILITY LONGITUDINAL CROSSWALK
AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY
LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock cross walks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-22A

FILE: pm4-22a.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
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6-20	DIST	COUNTY		SHEET NO.
6-22	SAT	ATASCOSA		107
12-22				
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GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.

2. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.

3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is ½ in. or less in diameter.

4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.

5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.

6. When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

1. Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.

2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.

3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

4. Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.

5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.

6. Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.

7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.

9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.

10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.

2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.

3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.

4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.

5. When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."

6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.

7. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.

8. Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.

9. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.

10. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.

11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.

12. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).

13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.

14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

Texas Department of Transportation | Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-14

FILE:	ed1-14.dgn	DN:	CK:	DW:	CK:
© TxDOT	October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS		0517	01	048,ETC	SH16
		DIST	COUNTY		SHEET NO.
		SAT	ATASCOSA		108

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ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.

2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.

3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.

4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.

2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.

3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.

4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.

5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.

6. Support conductors in illumination poles with a J-hook at the top of the pole.

7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.

8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.

9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.

10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.

11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.

2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.

3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.

4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.

5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.

2. Do not place ground rods in the same drilled hole as a timber pole.

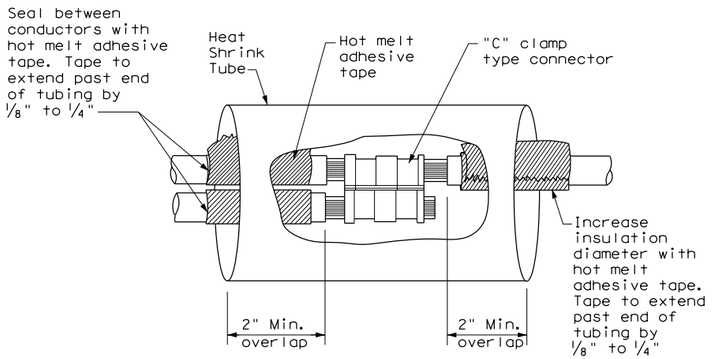
3. Install ground rods so the imprinted part number is at the upper end of the rod.

4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.

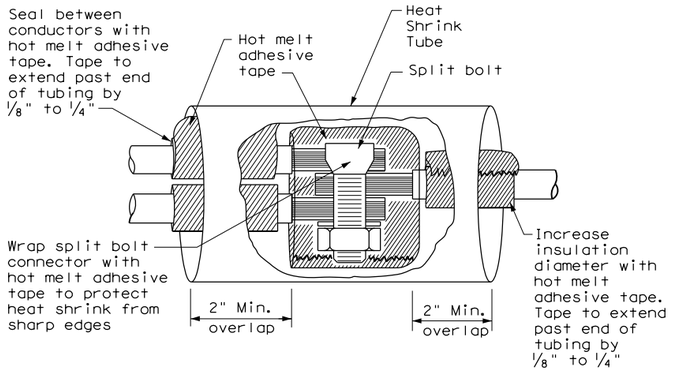
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.

6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.

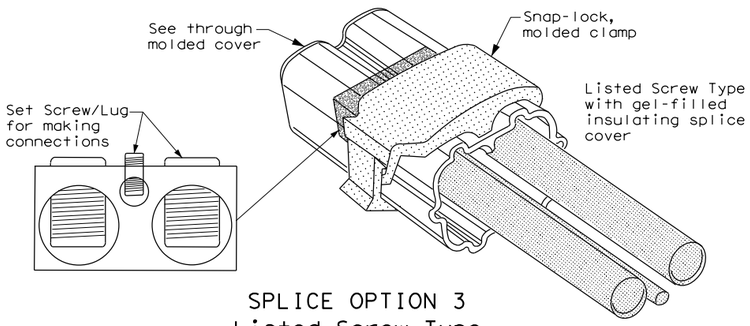
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



SPLICE OPTION 1
Compression Type



SPLICE OPTION 2
Split Bolt Type



SPLICE OPTION 3
Listed Screw Type

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUCTORS

ED(3)-14

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REVISIONS		0517	01	048,ETC	SH16
		DIST	COUNTY		SHEET NO.
		SAT	ATASCOSA		109

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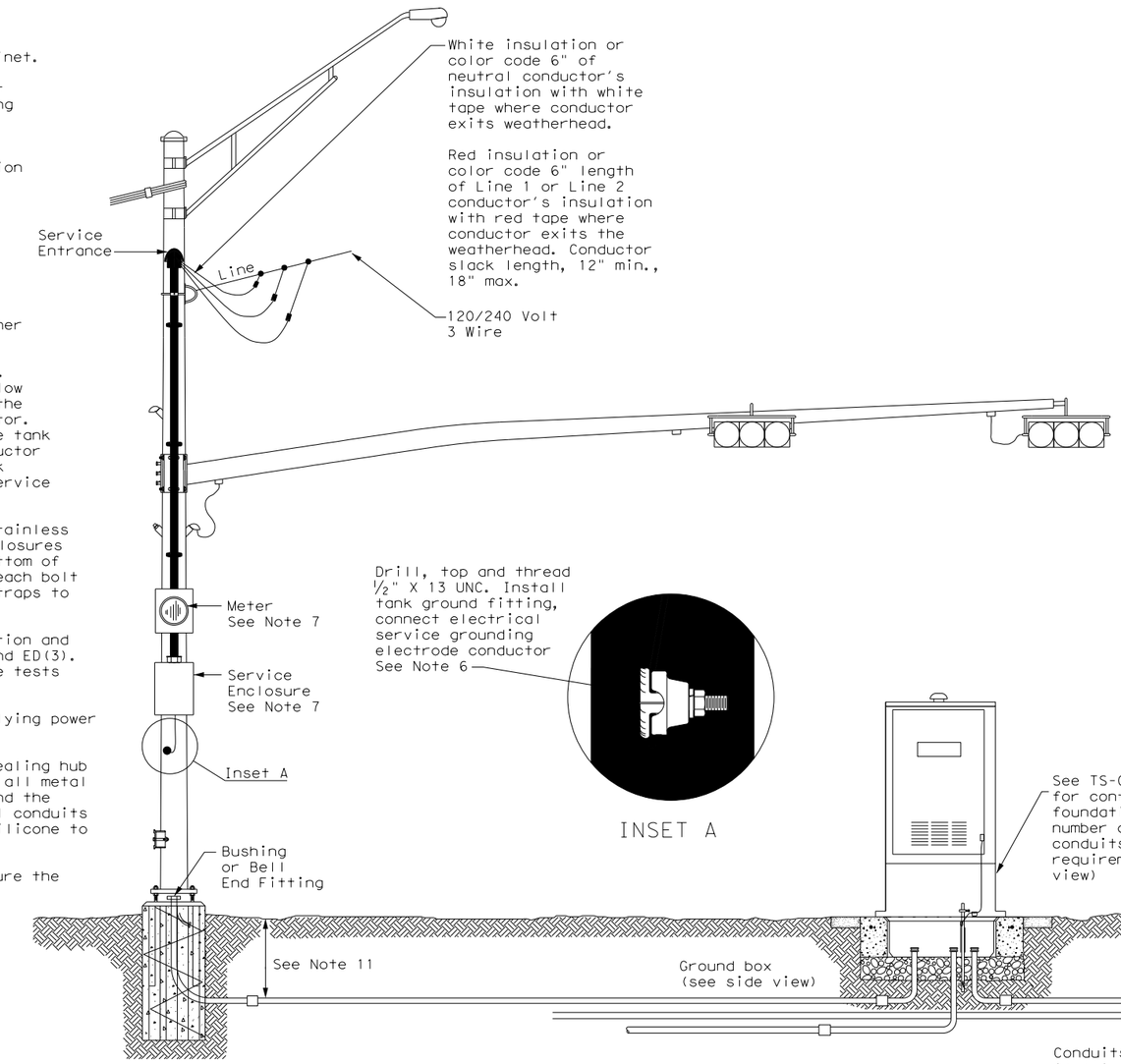
TRAFFIC SIGNAL NOTES

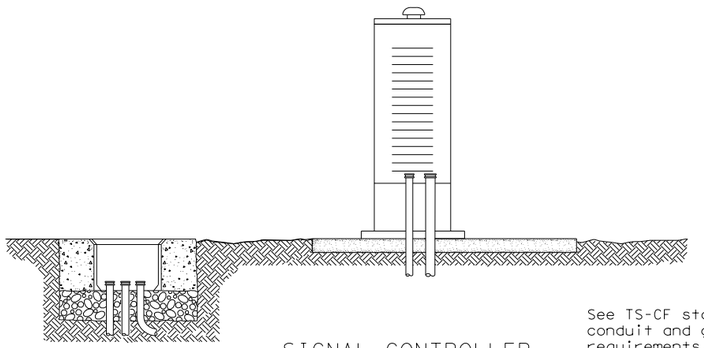
1. Do not pass luminaire conductors through the signal controller cabinet.
2. Include an equipment grounding conductor in all conduits throughout the electrical system. Bond all exposed metal parts to the grounding conductor.
3. Provide roadway luminaires, when required, in accordance with the material and construction sections of Item 610, "Roadway Illumination Assemblies," except for performance testing of luminaires. Test installed roadway luminaires for proper operation as a part of the associated traffic signal system test.
4. If internally illuminated street name signs are approved for use, ground the fixture to the pole with a 12 AWG green XHHW conductor.
5. Bond anchor bolts to rebar cage in two locations using #3 bars or 6 AWG stranded copper conductors. Use listed mechanical connectors rated for embedment in concrete. See TXDOT standard TS-FD for further details.
6. Drill and tap signal poles for ½ in. X 13 UNC tank ground fitting. Provide and install tank ground fitting 4 in. to 6 in. directly below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Connect the electrical service grounding electrode conductor to the tank ground fitting. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. See Inset A detail for further information. Size service entrance conduit and branch circuit conduit as shown in the plans.
7. Mount electrical service enclosure and meter to signal pole with stainless steel bands. Ensure bands are a minimum width of ¾ in. Secure enclosures to bands using two-bolt brackets. Install properly sized stainless steel washers on each bolt in the enclosure. Band or drill and tap properly sized stand-off straps to signal pole for attaching conduit.
8. Conduct pull tests and insulation resistance tests on all illumination and power conductors as required in Item 620 "Electrical Conductors" and ED(3). To prevent electronics damage, do not conduct insulation resistance tests on traffic signal cables after termination.
9. Lock all enclosures and bolt down all ground box covers before applying power to the signal installation.
10. Terminate conduits entering the top of enclosures with a conduit-sealing hub or threaded boss such as meter hub. Install a grounding bushing on all metal conduits not connected to conduit-sealing hub or threaded boss. Bond the grounding bushing to the ground bus with a bonding jumper. Seal all conduits entering enclosures with duct seal or expanding foam. Do not use silicone to seal conduit ends.
11. For all conduits, ensure the burial depth is a minimum of 18". Ensure the minimum burial depth for conduit placed under a roadway is 24".



SIGNAL POLE WITH SERVICE

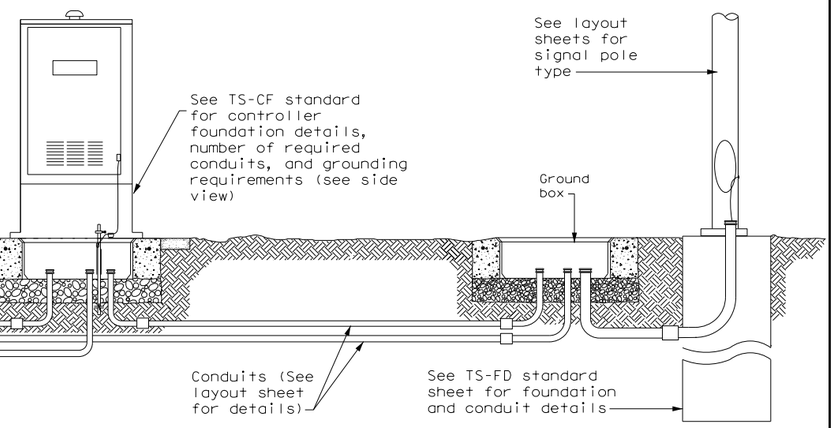
Type T electrical service mounted on signal pole shown as an example. See electrical details, layout sheets, and electrical service data chart for additional details.

INSET A



SIGNAL CONTROLLER SIDE VIEW

See TS-CF standard for conduit and grounding requirements. See layout sheets for ground box locations and any additional conduits that are required.



SIGNAL CONTROLLER FRONT VIEW

SIGNAL POLE

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS

ED(8)-14

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	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		110

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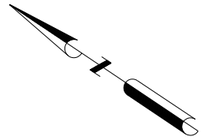
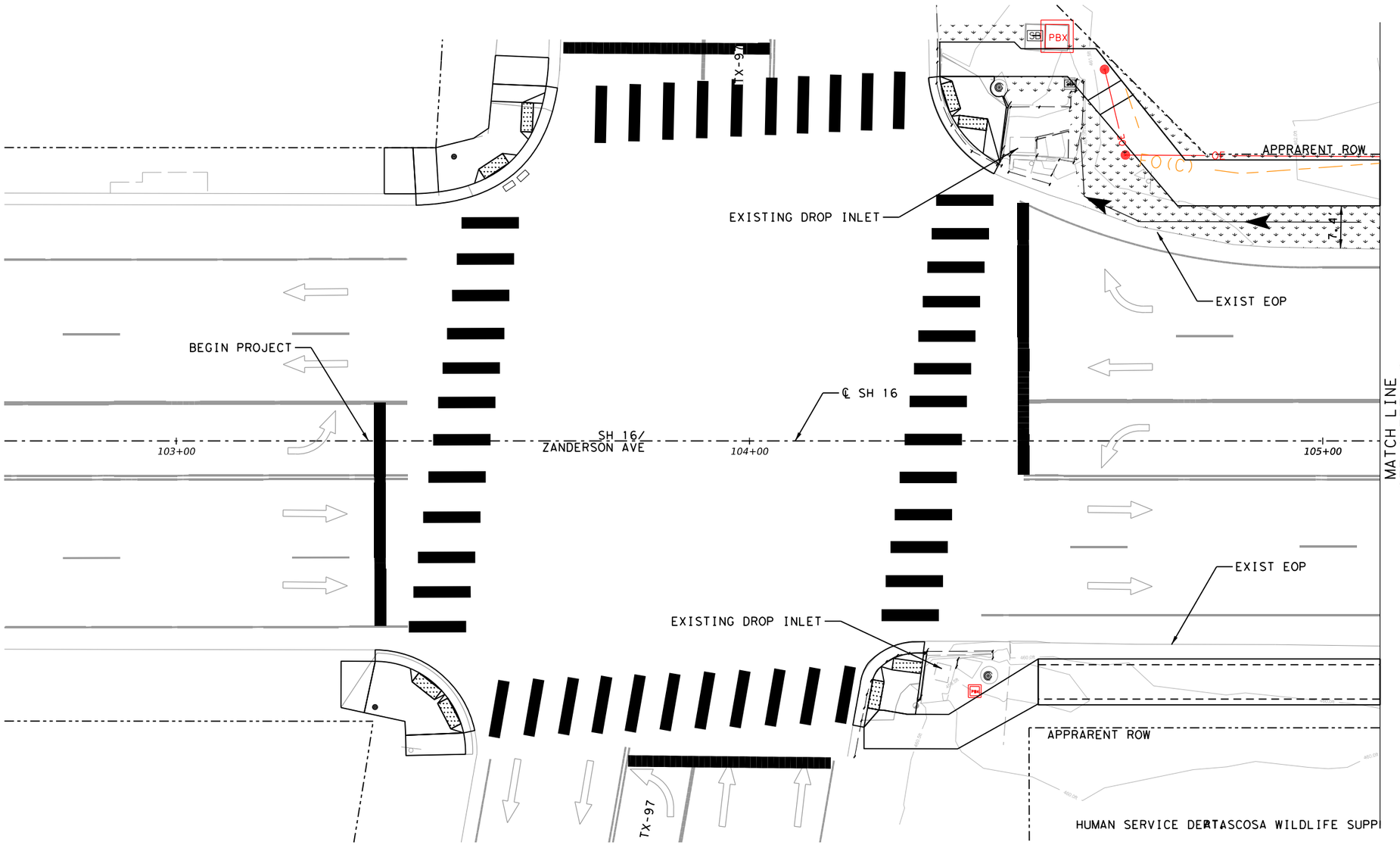
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		





NOTES:

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SH 16
JOURDANTON

UTILITY LAYOUT AT SH 97 (OAK ST)

SHEET 1 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	111
CONT.	SECT.	JOB	
0517	01	048,ETC	

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LEGEND

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——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
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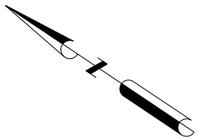

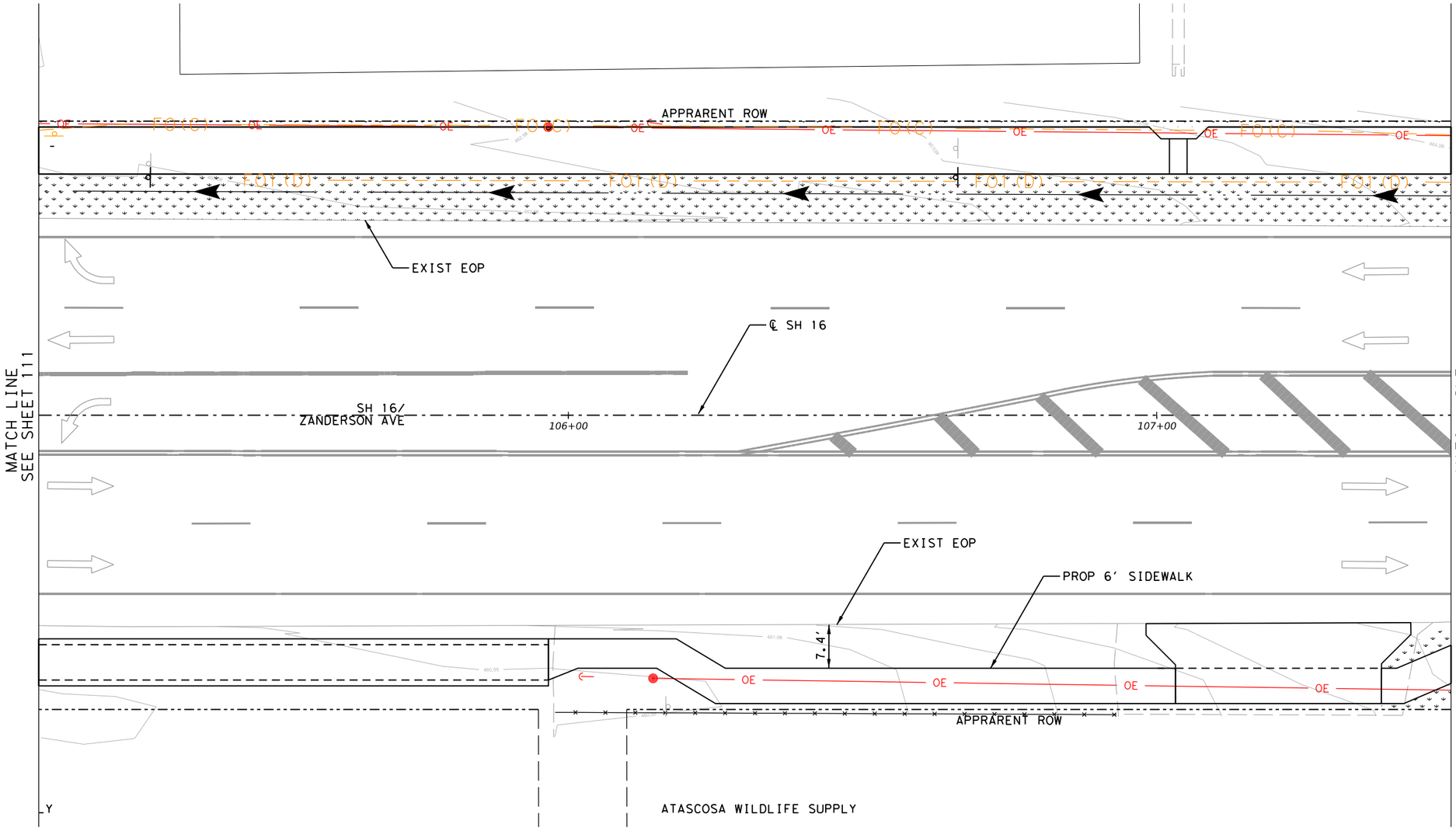

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UTILITY LAYOUT

BETWEEN
SH 97 (OAK ST) AND BEECH ST

SHEET 2 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	112
CONT.	SECT.	JOB	
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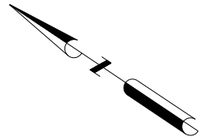

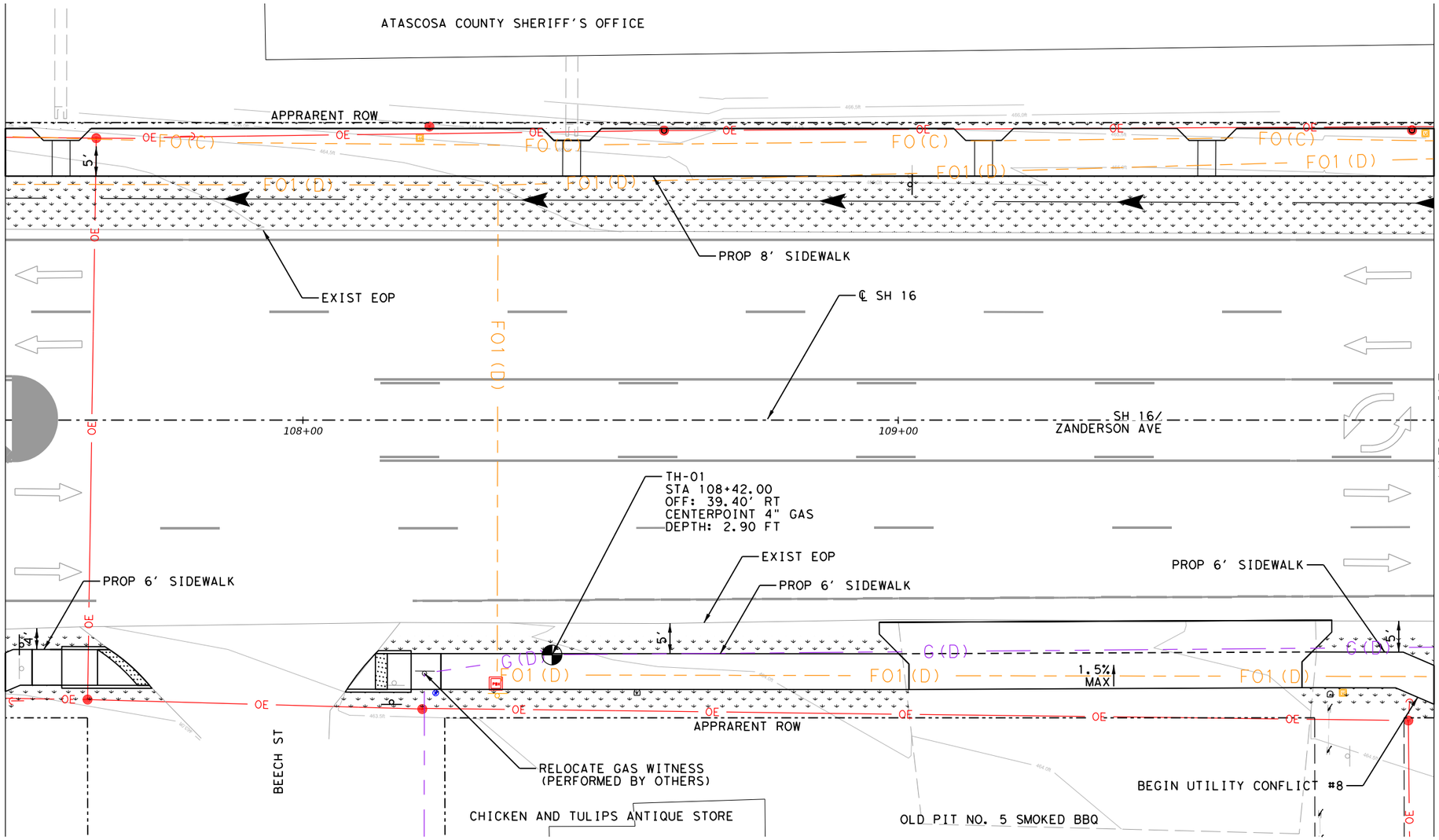

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UTILITY LAYOUT

AT
BEECH ST

SHEET 3 OF 20

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6			SH 16
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	113
CONT.	SECT.	JOB	
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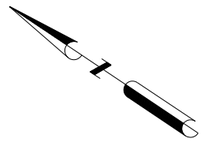

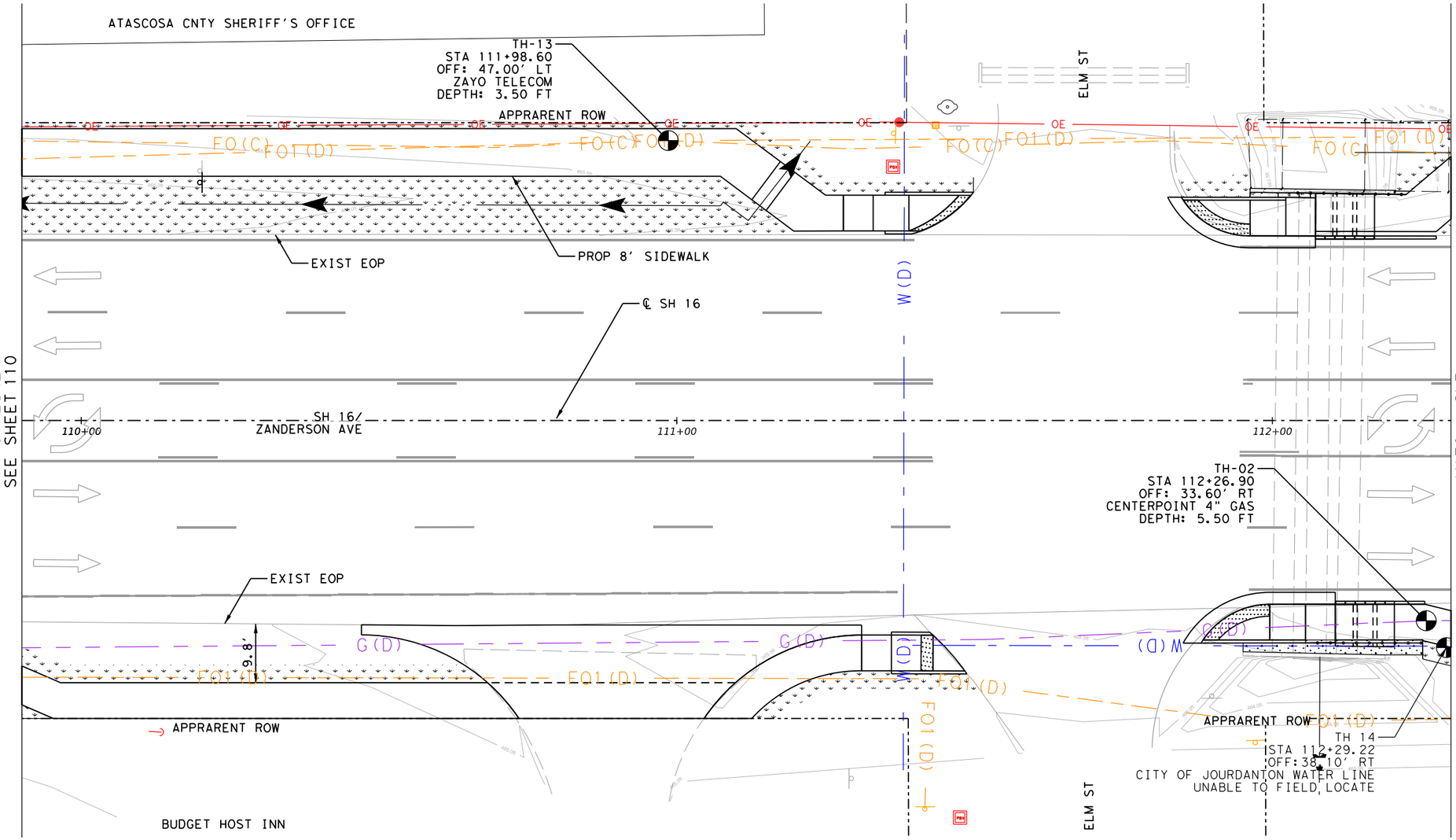

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SH 16
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UTILITY LAYOUT

AT
ELM ST

SHEET 4 OF 20

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6		SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	114
CONT.	SECT.	JOB	
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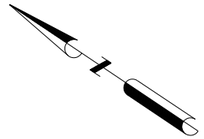

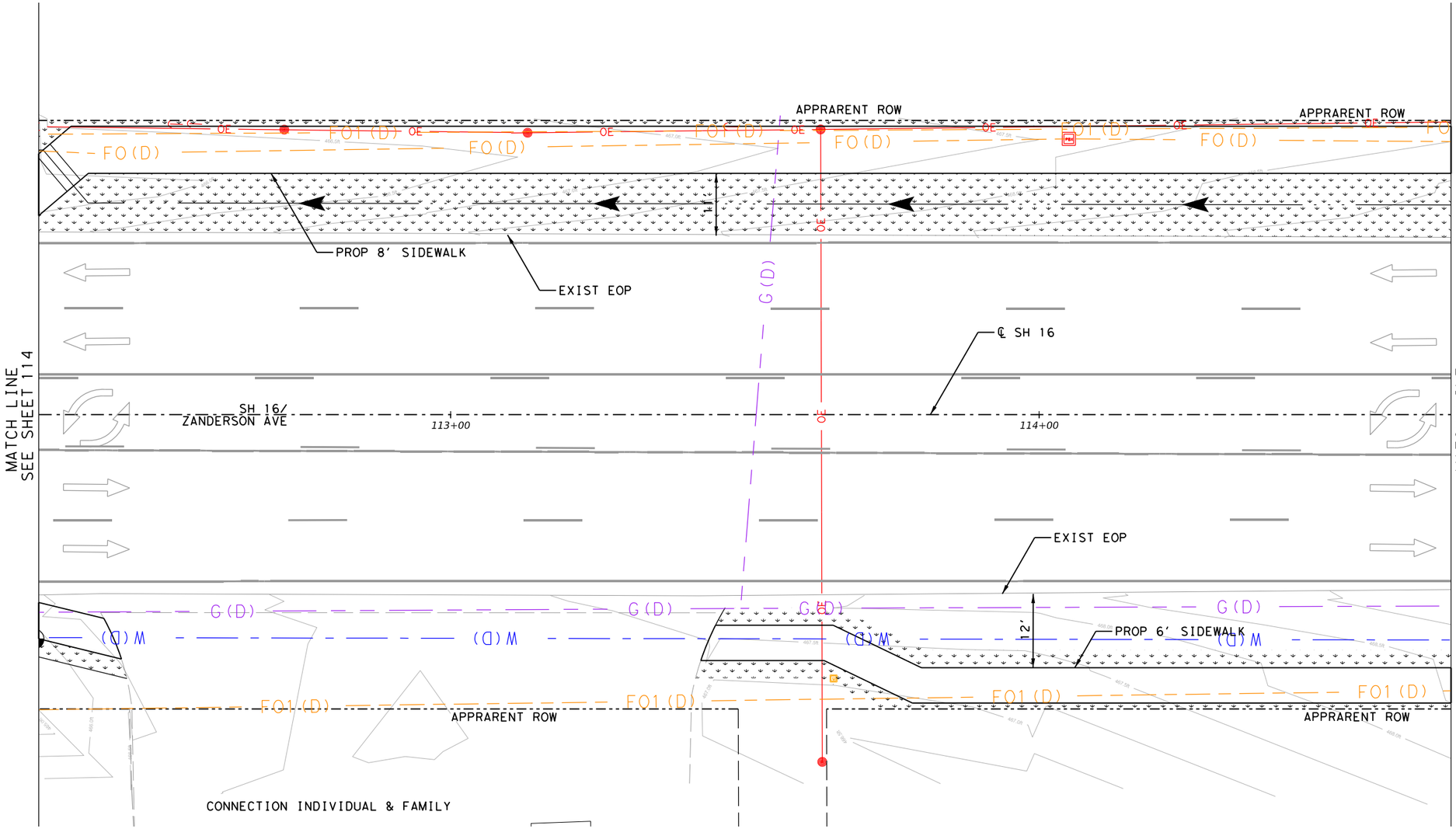

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UTILITY LAYOUT

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6		SH 16

STATE	DIST.	COUNTY	SHEET NO.
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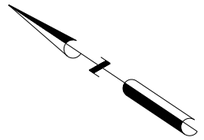

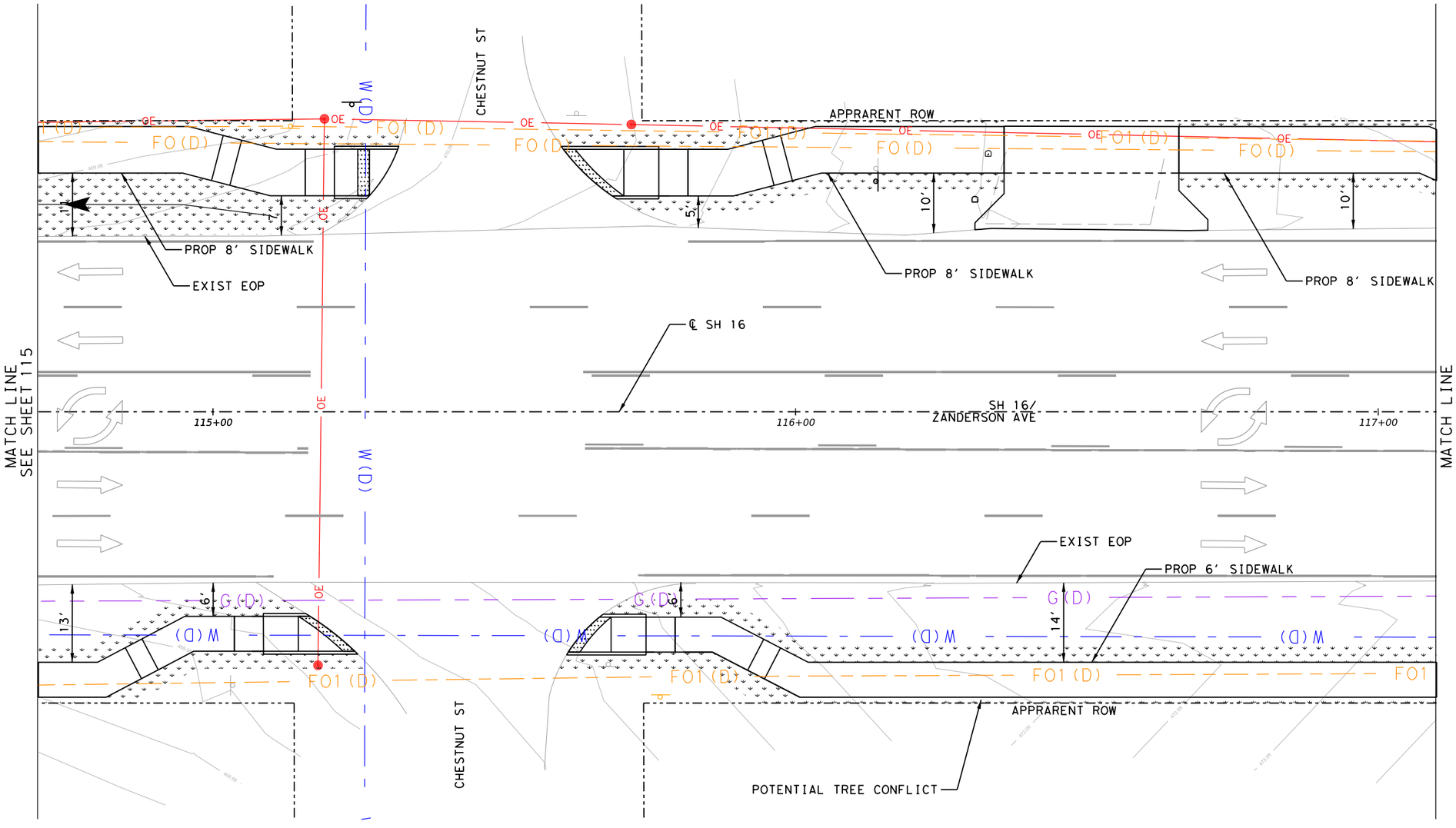

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UTILITY LAYOUT

AT
CHESTNUT ST

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6		SH 16

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TEXAS	SAN ANTONIO	ATASCOSA	116
CONT.	SECT.	JOB	
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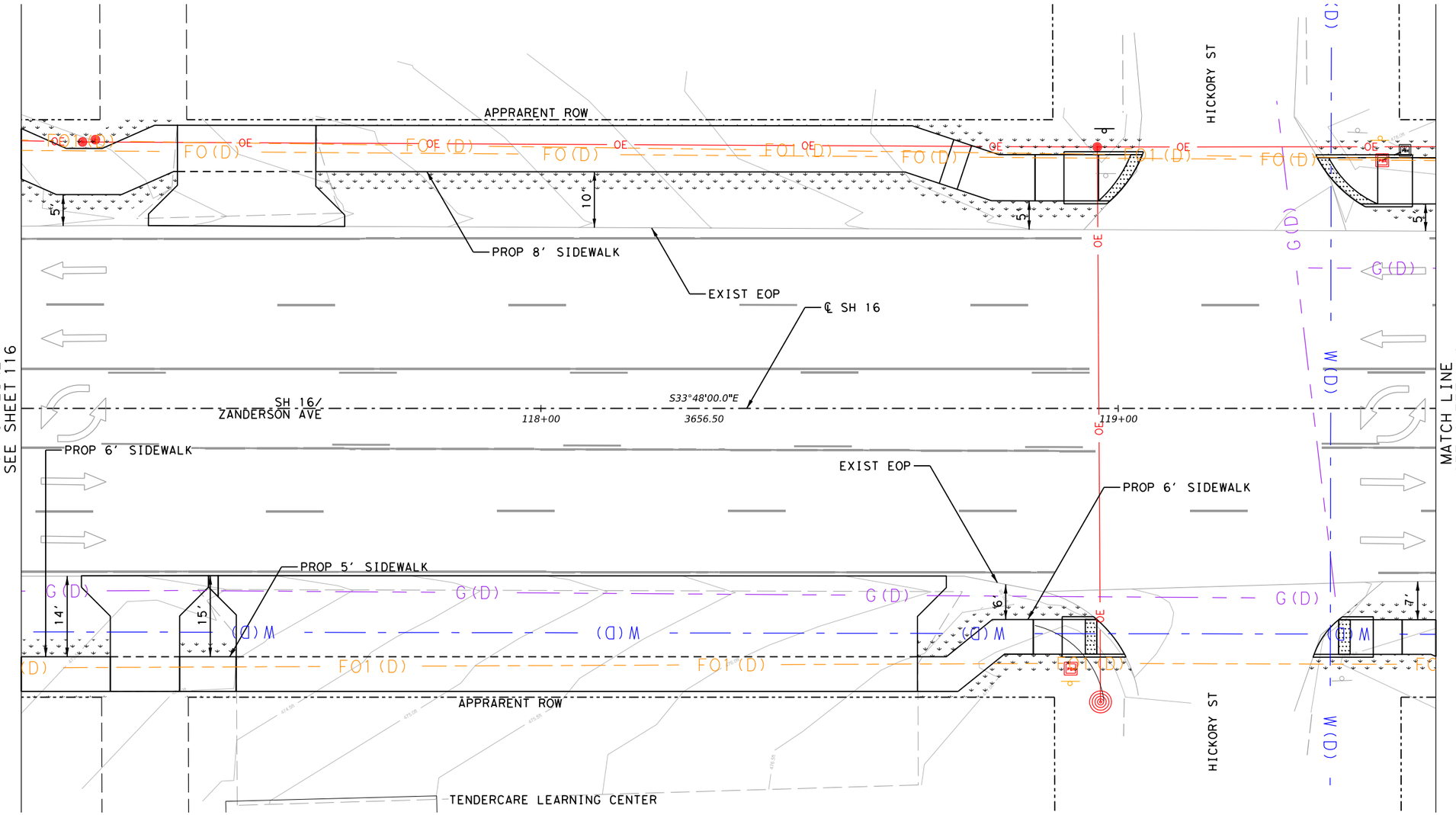
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		



NOTES:

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7/18/2024

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SH 16
JOURDANTON

UTILITY LAYOUT

AT HICKORY ST

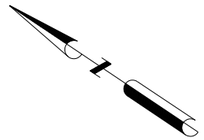
SHEET 7 OF 20

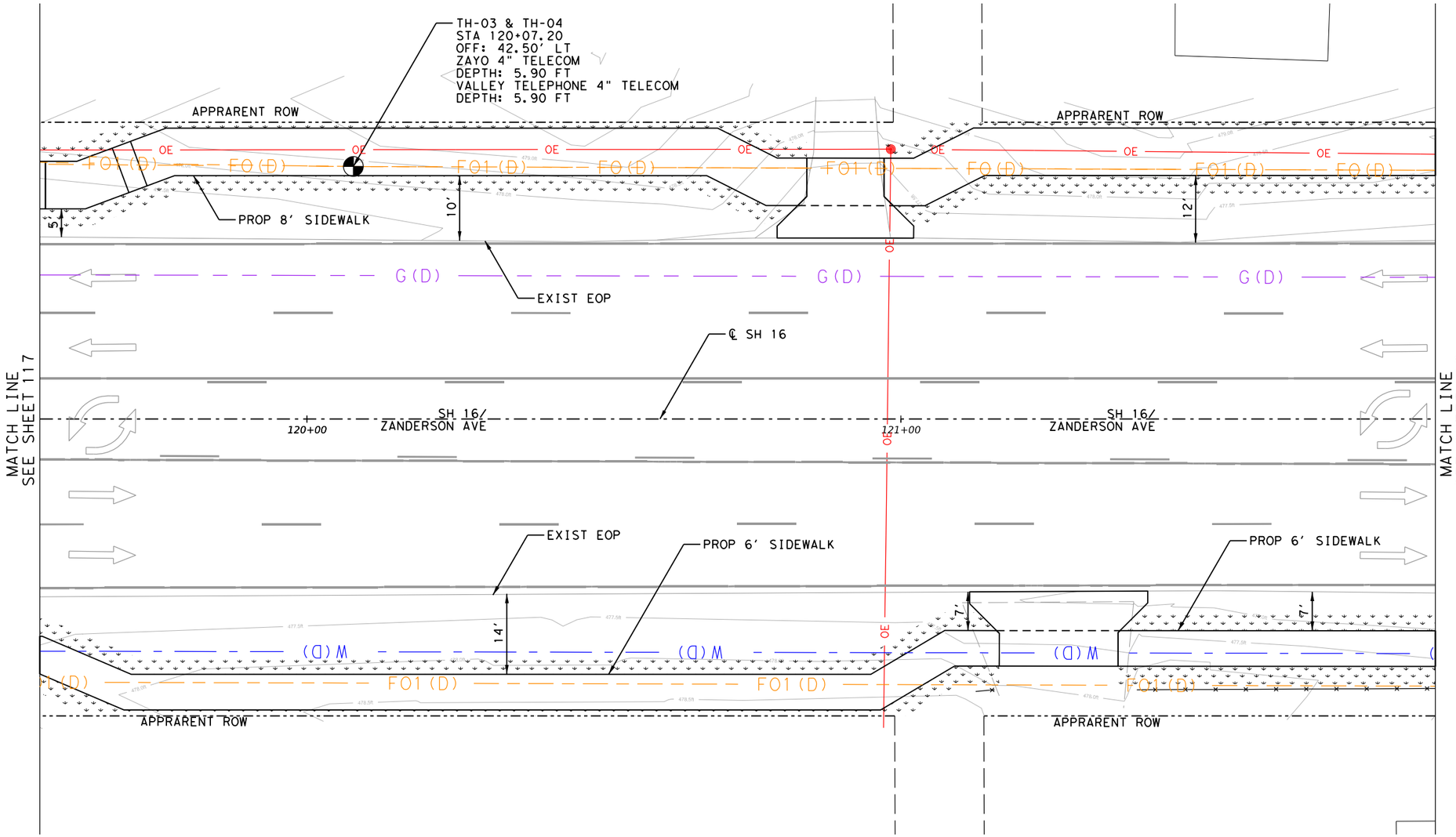
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6			SH 16
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	117
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\kn1\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
PLOTTED: 7/18/2024 5:29:49 PM

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		





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SH 16
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UTILITY LAYOUT

BETWEEN HICKORY ST AND POPLAR ST

SHEET 8 OF 20

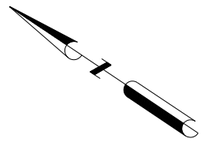
FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

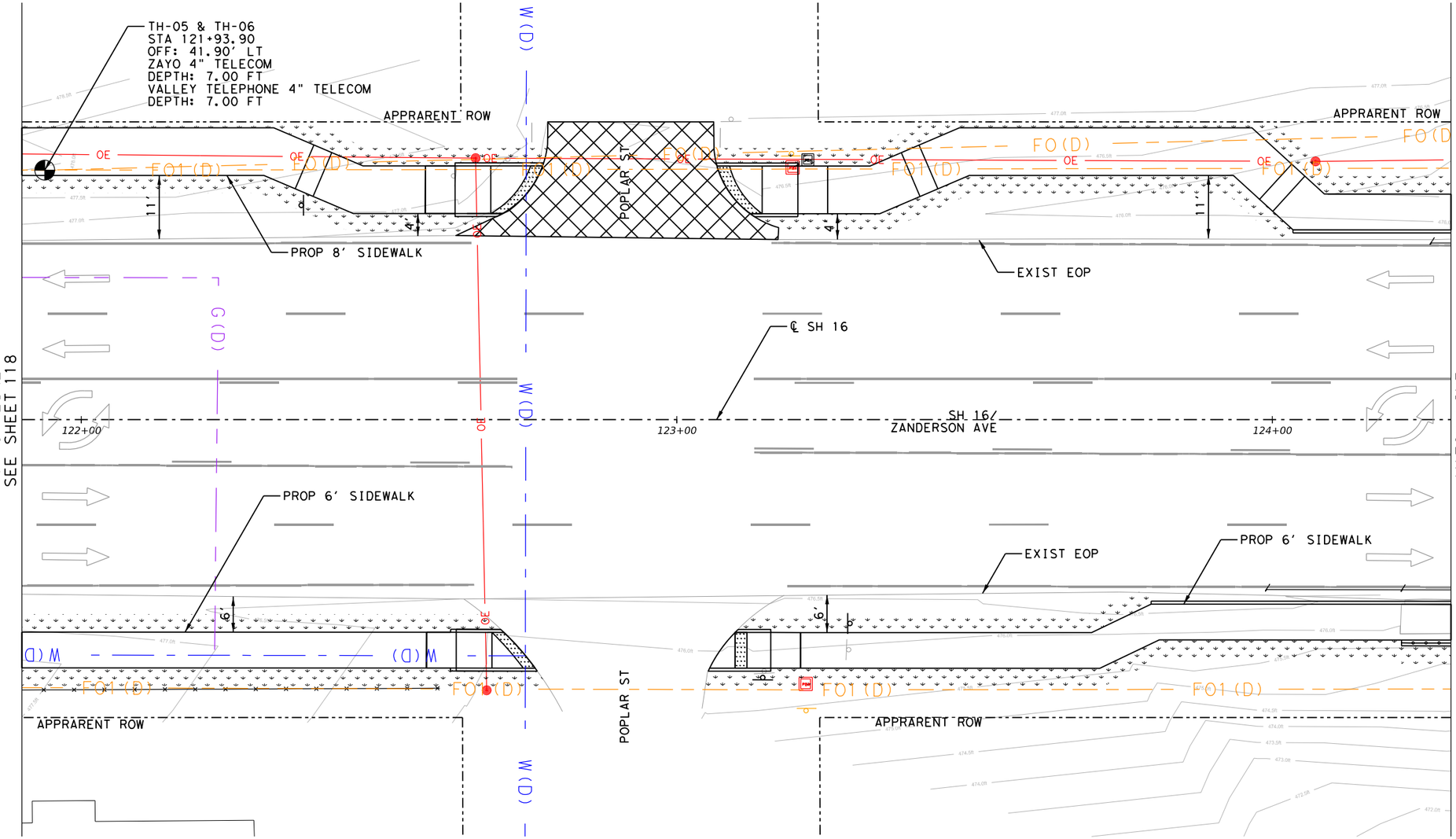
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	118
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\kh1\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
PLOTTED: 7/18/2024 5:29:50 PM

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		





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UTILITY LAYOUT

AT
POPLAR ST

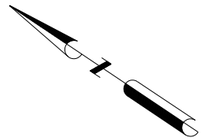
SHEET 9 OF 20

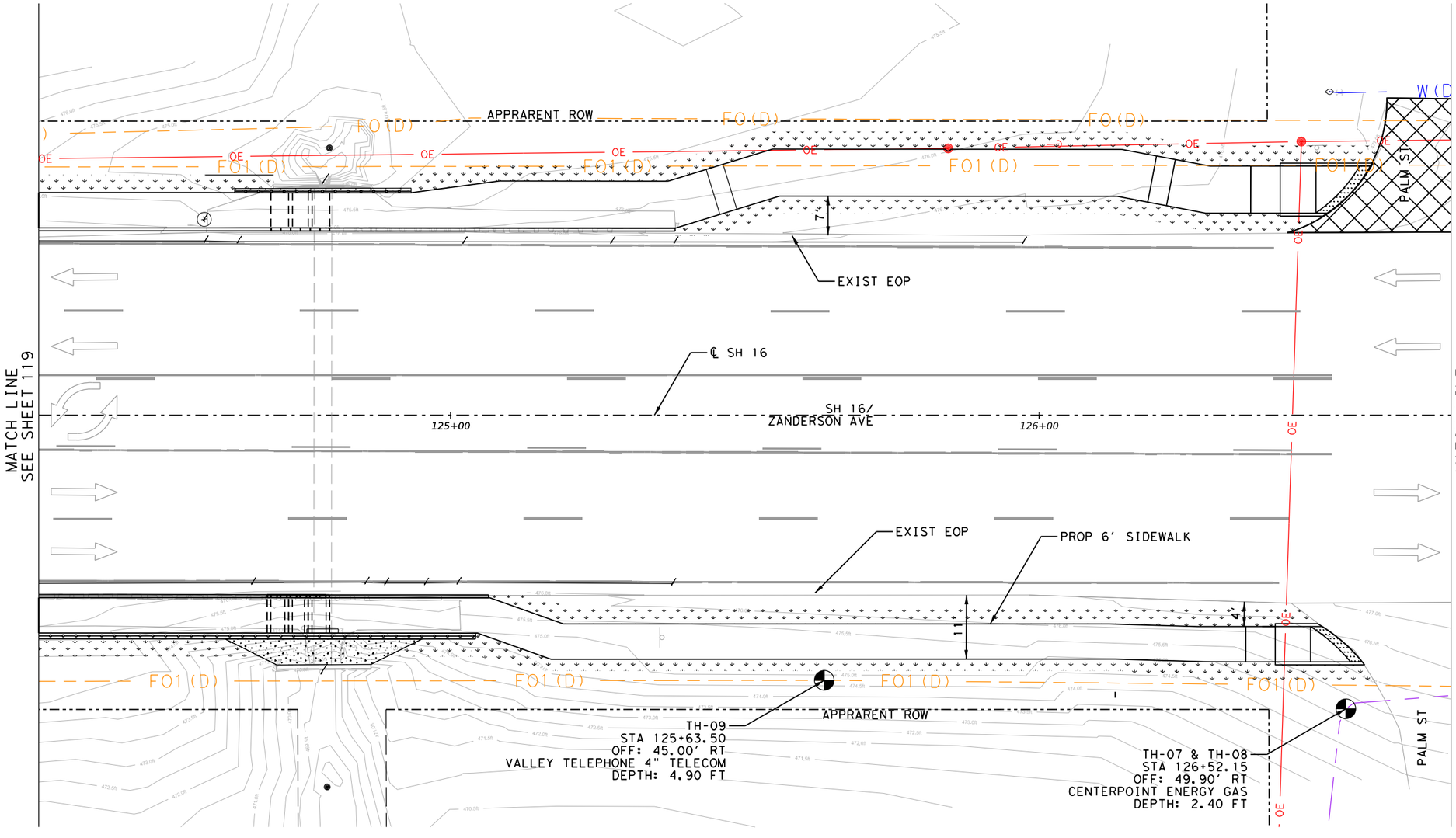
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6			SH 16
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	119
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\krh\d0250712\Sat_MCF_UTILITYLAYOUTS.dgn
PLOTTED: 7/18/2024 5:29:51 PM

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		





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UTILITY LAYOUT

BETWEEN POPLAR ST AND PALM ST

SHEET 10 OF 20

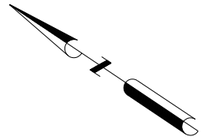
FED. RD. DIV. NO:	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

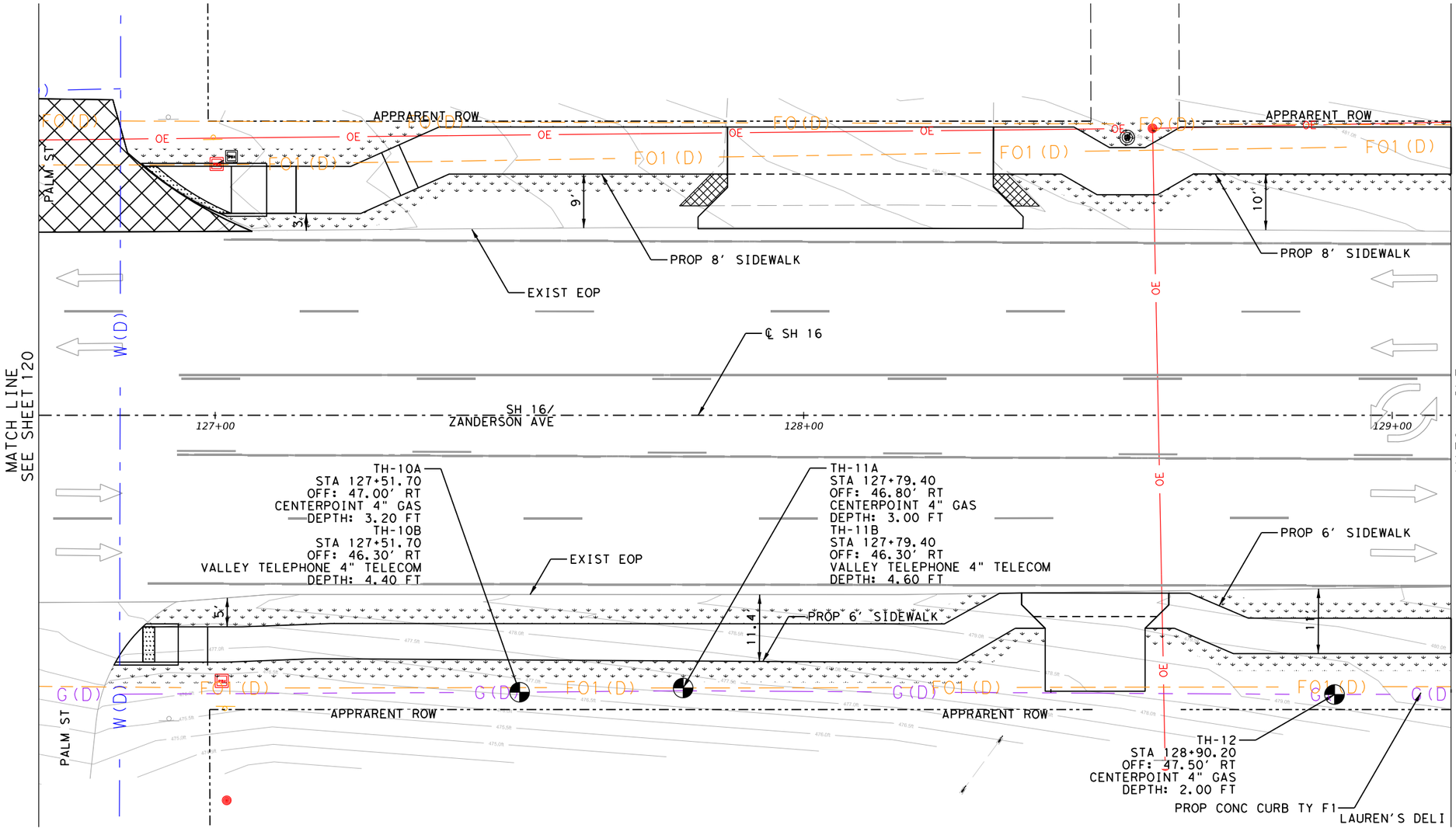
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	120
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\km1\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
PLOTTED: 7/18/2024 5:29:51 PM

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		





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SH 16
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UTILITY LAYOUT

BETWEEN PALM ST AND OLIVE ST

SHEET 11 OF 20

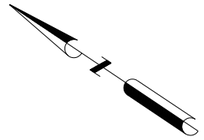
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

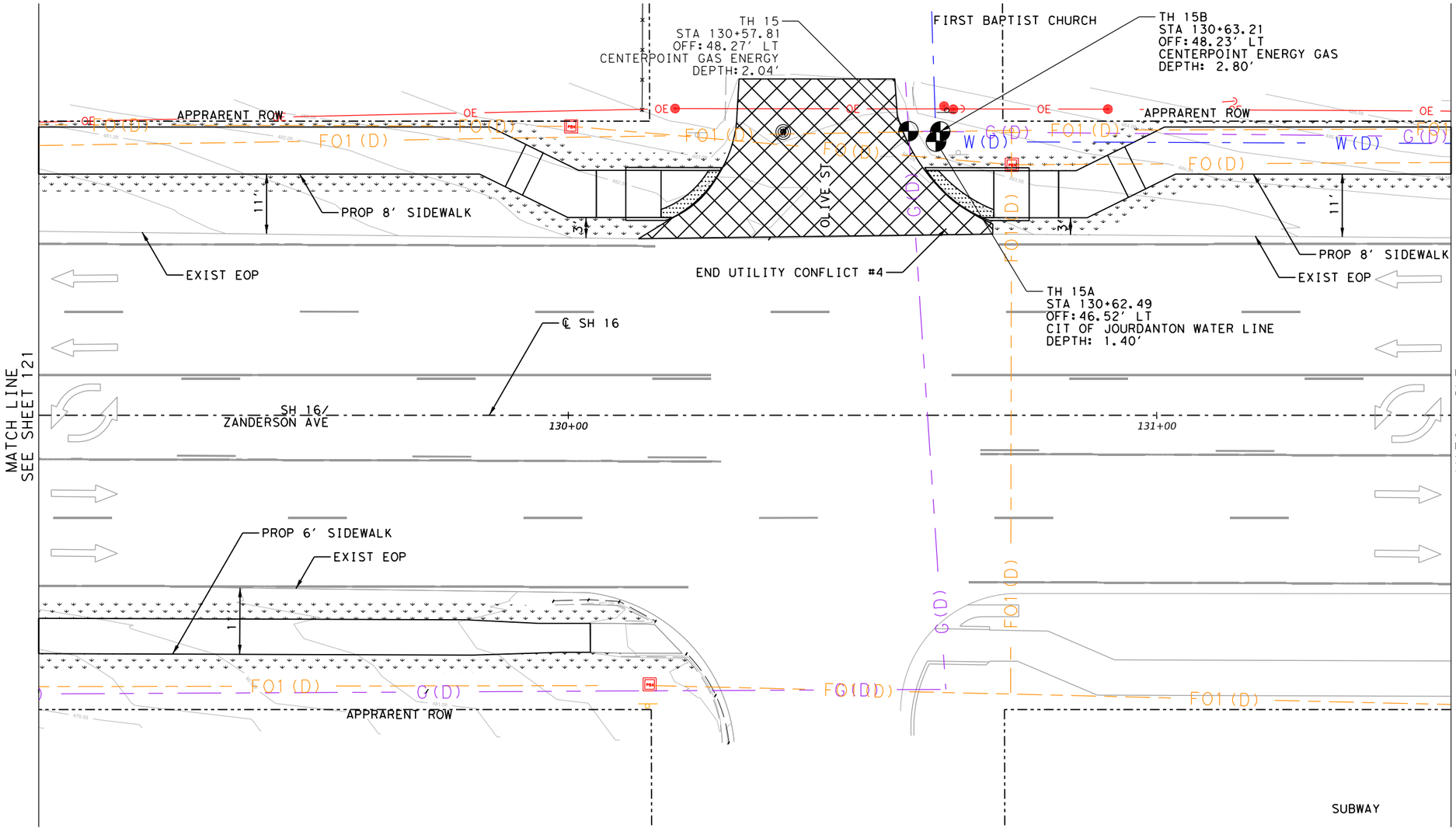
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	121
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\khi\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
PLOTTED: 7/18/2024 5:29:52 PM

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		





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SH 16
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UTILITY LAYOUT

AT
OLIVE ST

SHEET 12 OF 20

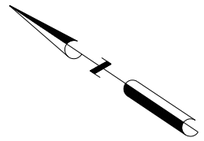
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

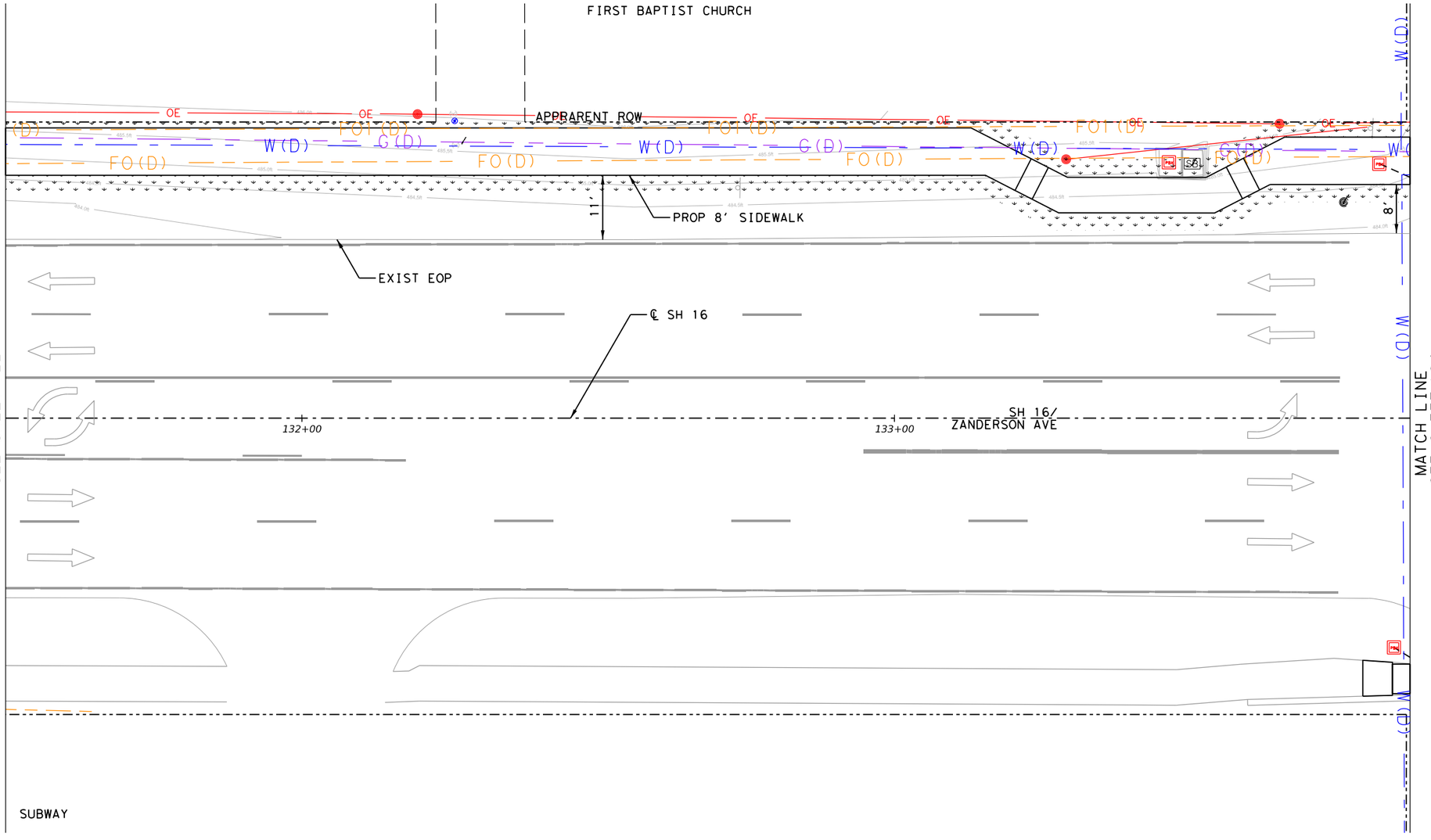
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	122
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\kh1\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
PLOTTED: 7/18/2024 5:29:53 PM

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		





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SH 16
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UTILITY LAYOUT

BETWEEN
OLIVE ST AND PEACH ST

SHEET 13 OF 20

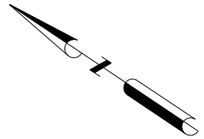
FED. RD. DIV. NO:	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

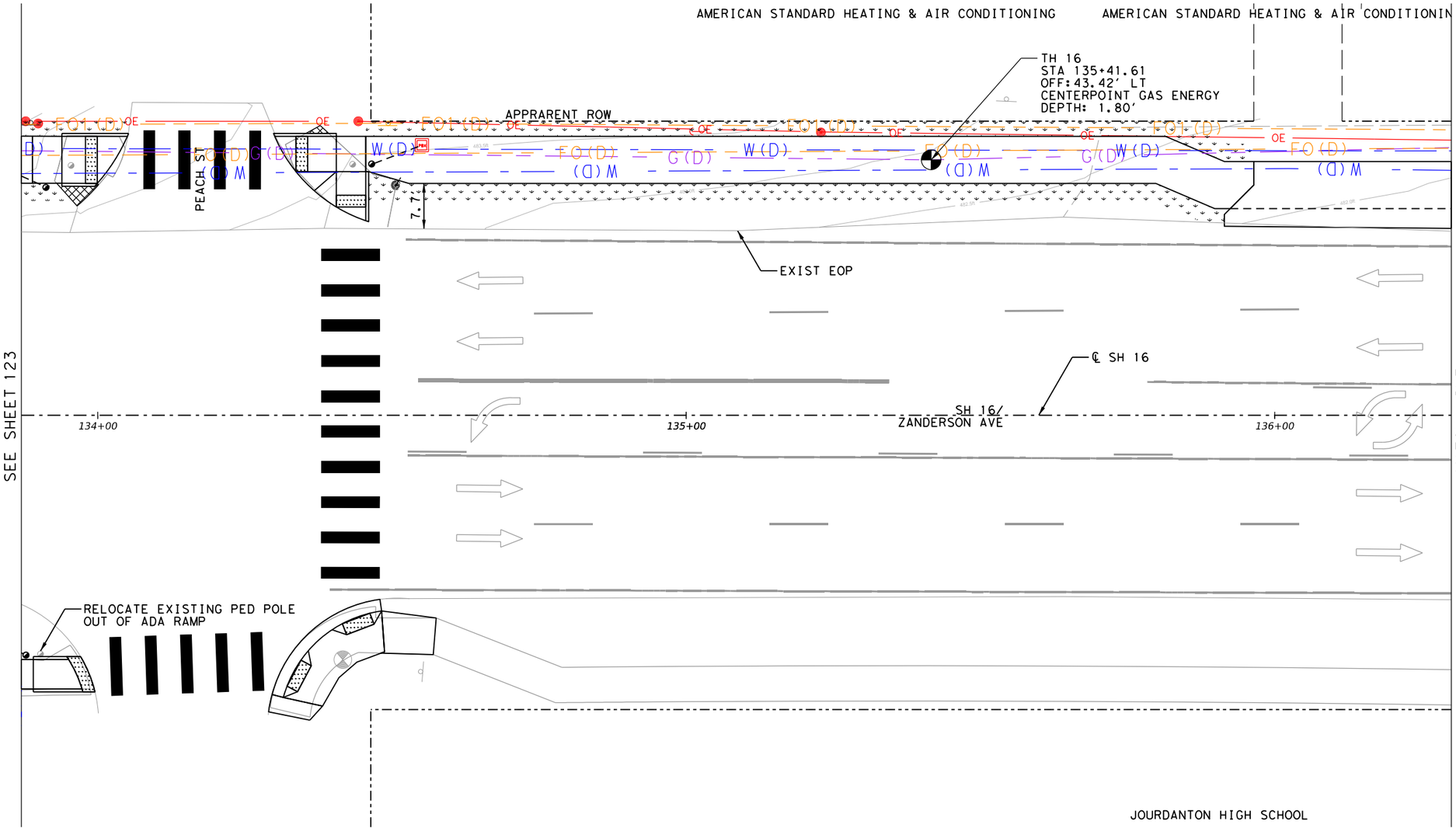
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	123
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\kh1\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
PLOTTED: 7/18/2024 5:29:54 PM

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		





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SH 16
JOURDANTON

UTILITY LAYOUT

AT
PEACH ST

SHEET 14 OF 20

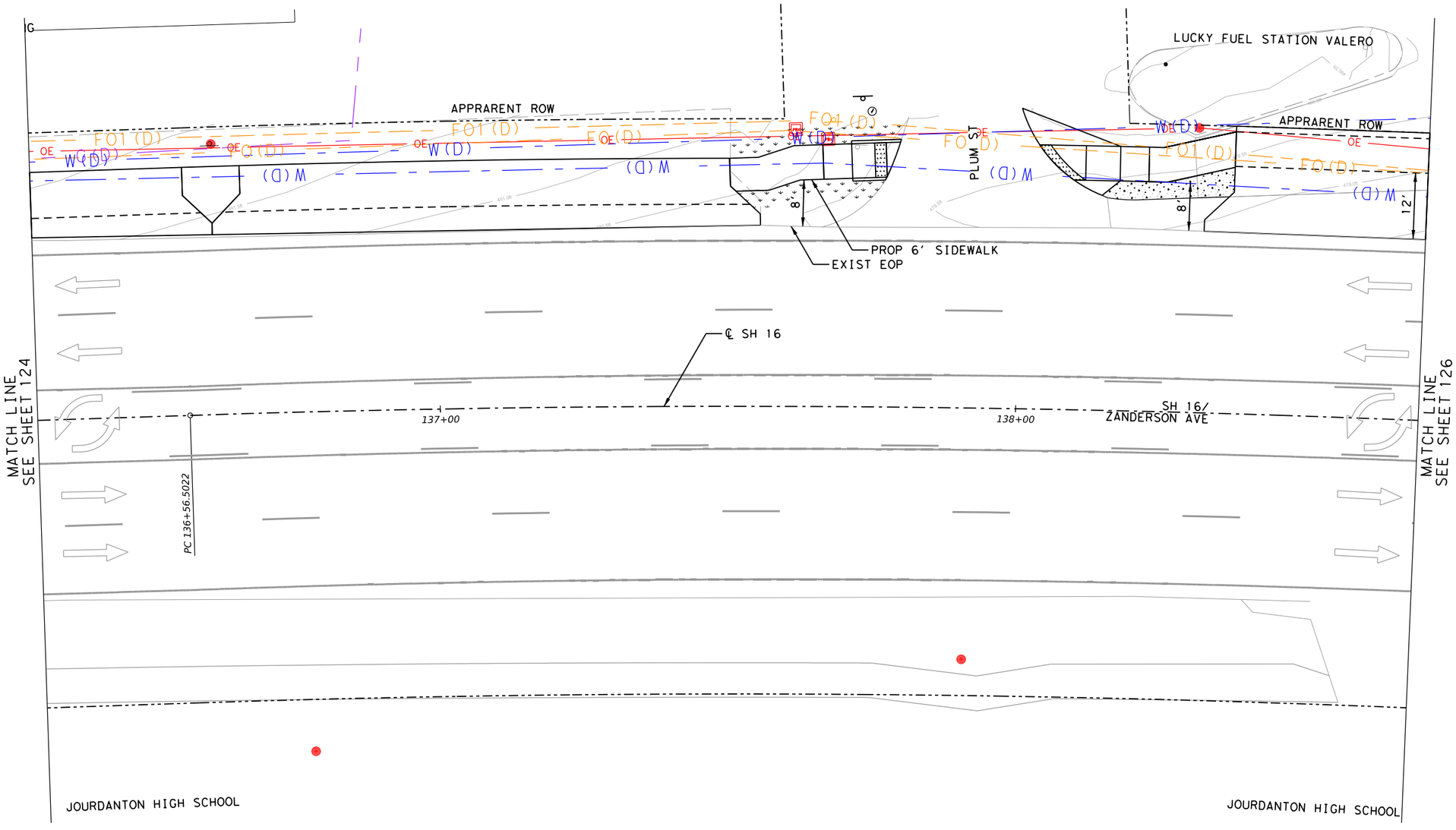
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	124
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\krh\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
PLOTTED: 7/18/2024 5:29:54 PM

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		



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SH 16
JOURDANTON

UTILITY LAYOUT

BETWEEN
SH 97 (OAK ST) AND BEECH ST

SHEET 15 OF 20

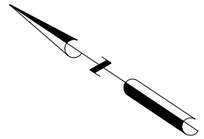
FED. RD. DIV. NO:	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

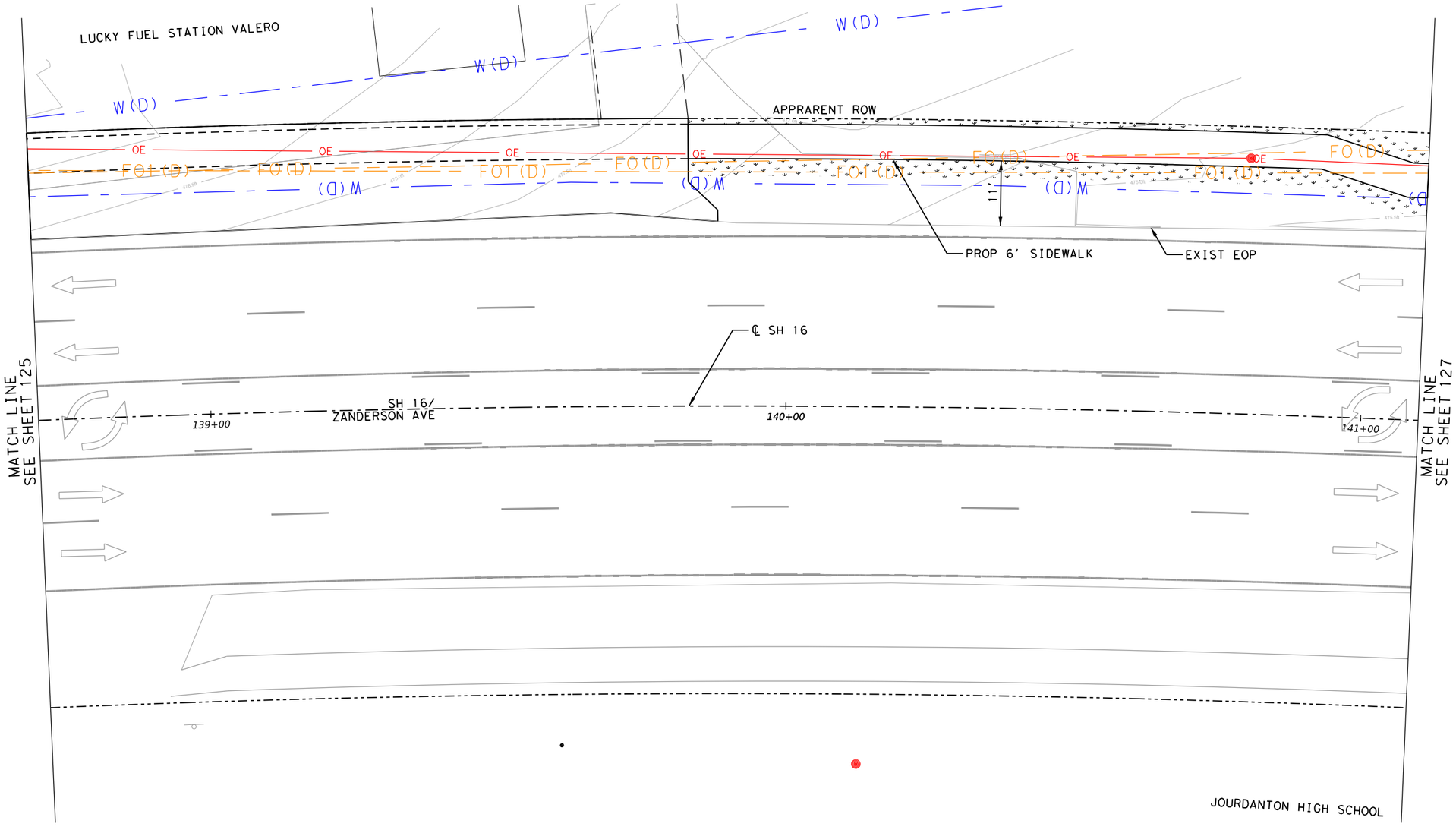
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	125
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\kh1\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
PLOTTED: 7/18/2024 5:29:55 PM

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		





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SH 16
JOURDANTON

UTILITY LAYOUT

BETWEEN
PEACH ST AND ORANGE ST

SHEET 16 OF 20

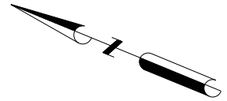
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

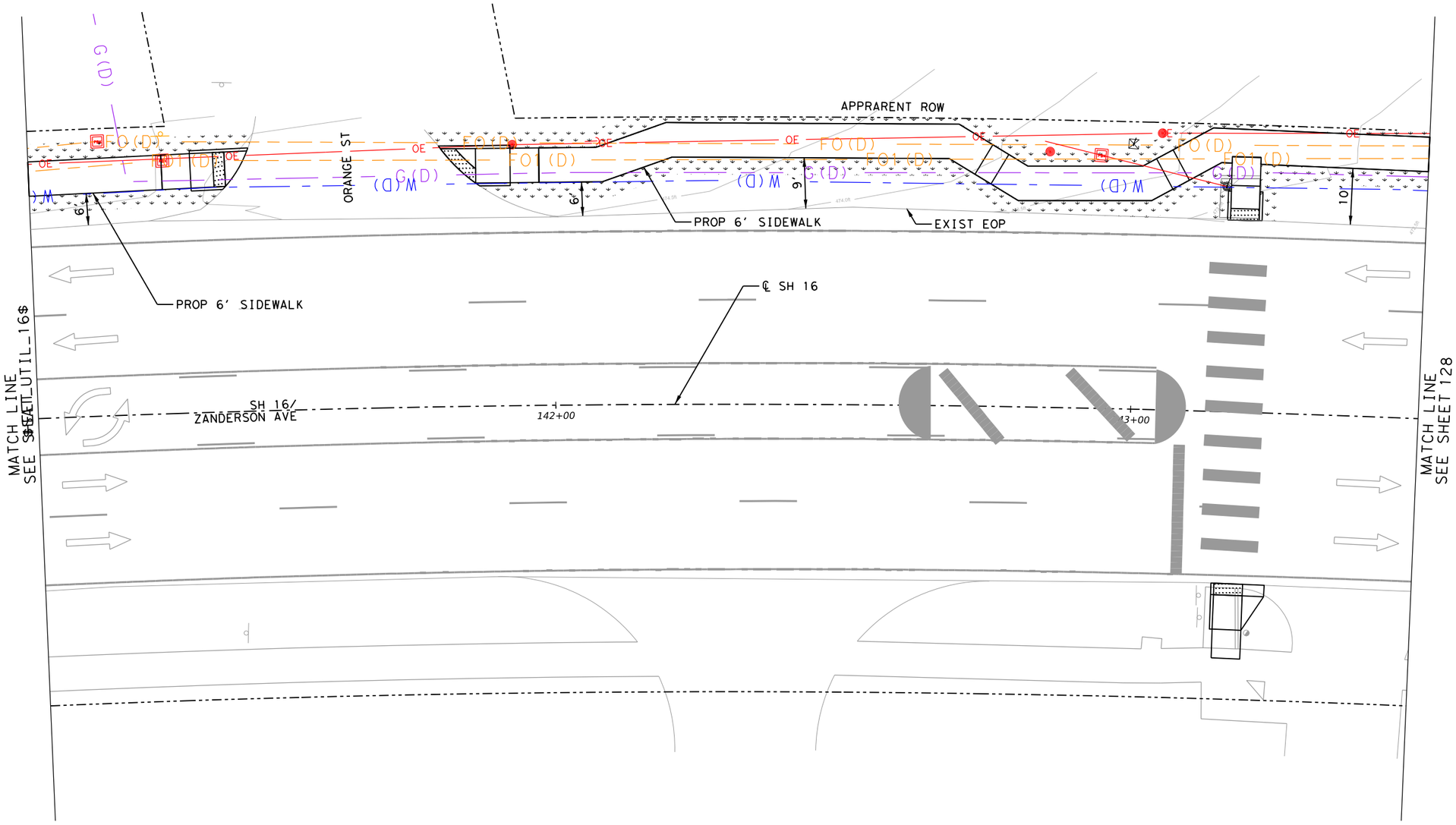
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	126
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\km1\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
PLOTTED: 7/18/2024 5:29:56 PM

LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		





NOTES:

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7/18/2024

STATE OF TEXAS
SAMUEL J. LUNDQUIST
122185
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

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SH 16
JOURDANTON

UTILITY LAYOUT

AT
ORANGE ST

SHEET 17 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	127
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\kh1\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
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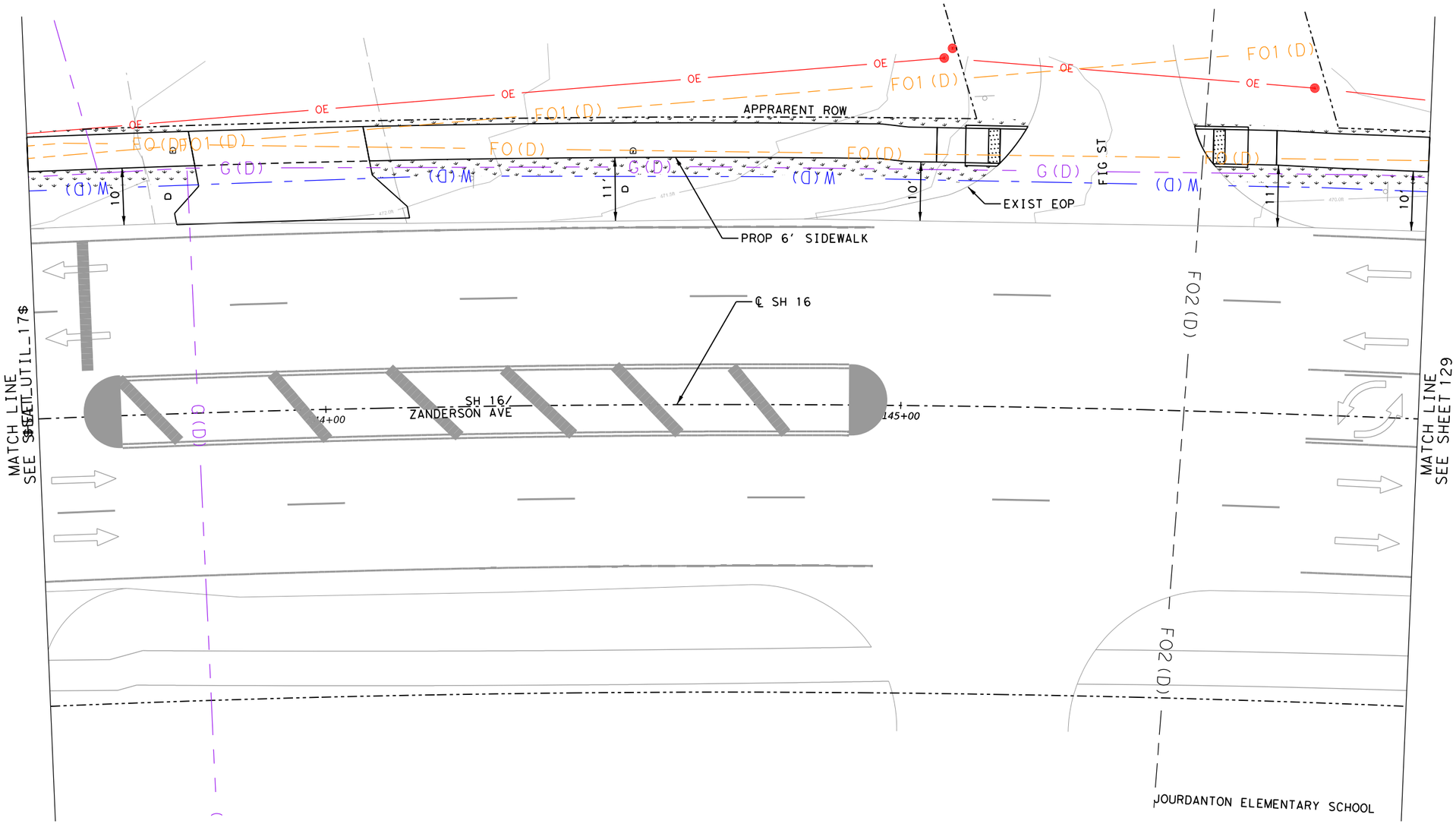
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		



NOTES:

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SH 16
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UTILITY LAYOUT

AT
FIG ST

SHEET 18 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	128
CONT.	SECT.	JOB	
0517	01	048, ETC	

FILENAME: c:\pw\khi\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
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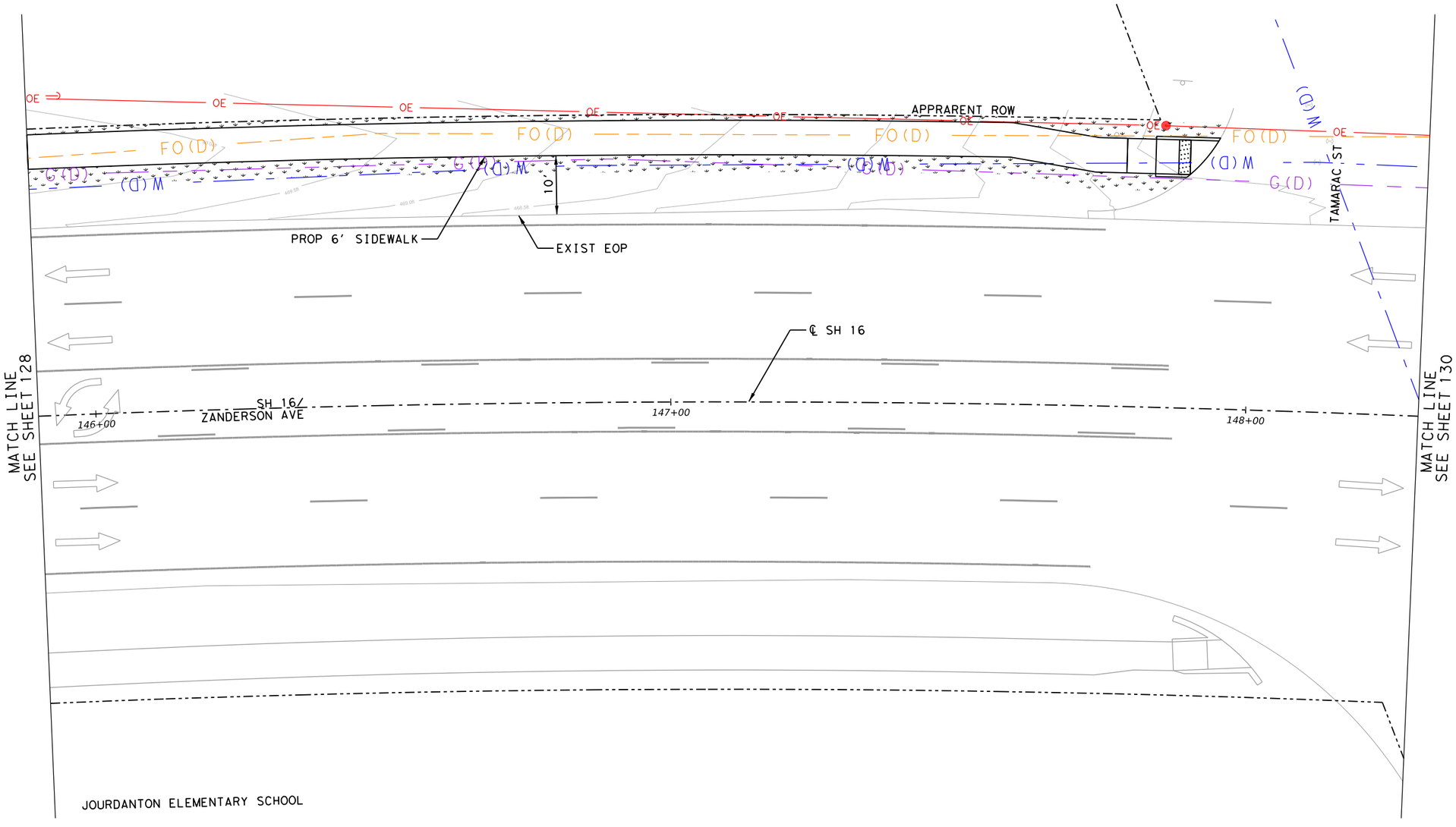
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
---G(D)---	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
---W(D)---	CITY OF JOURDANTON WATER LINE (QL D)		



NOTES:

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UTILITY LAYOUT

BETWEEN
FIG ST AND TAMARAC ST

SHEET 19 OF 20

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	129
CONT.	SECT.	JOB	
0517	01	048,ETC	

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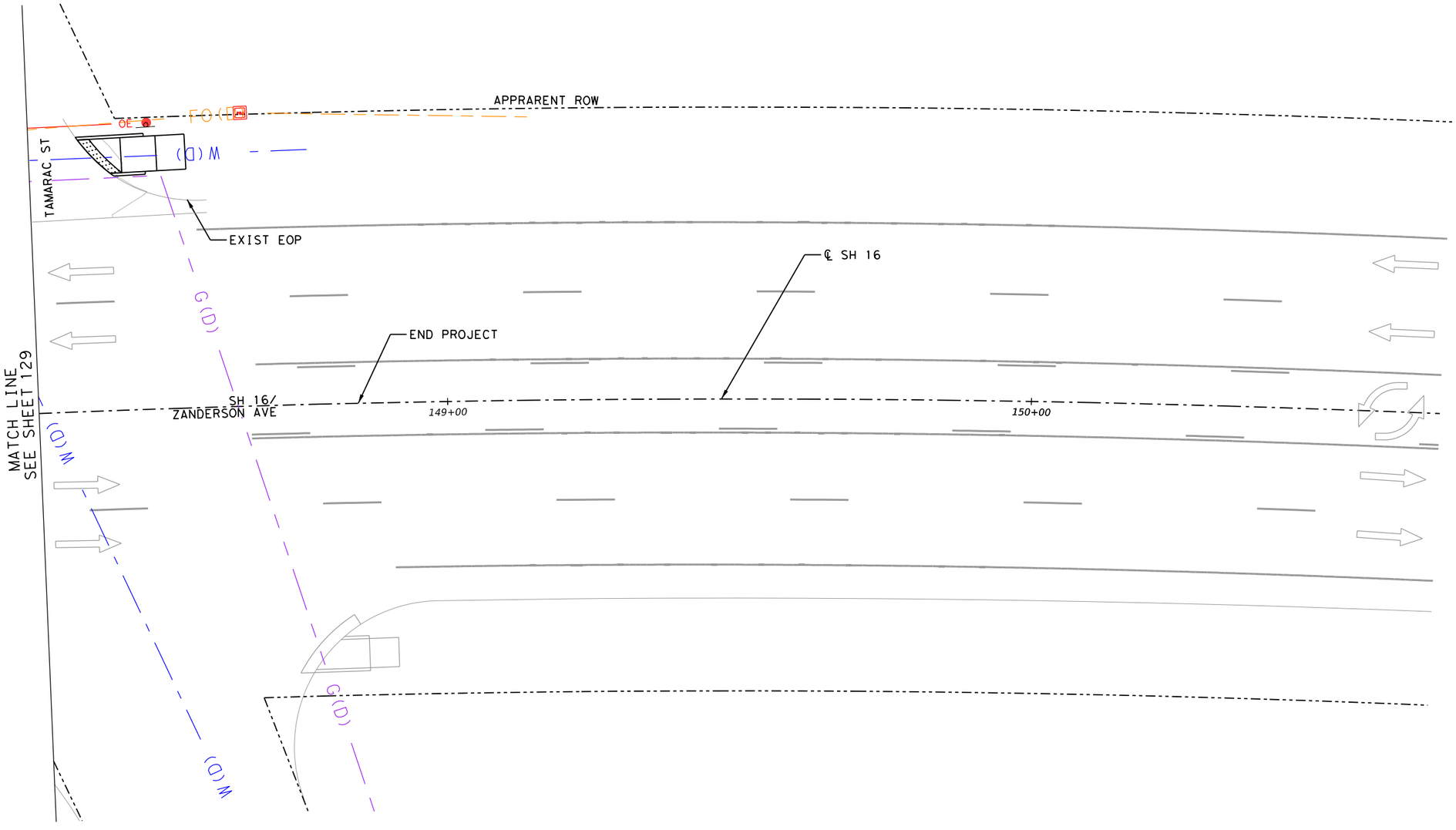
LEGEND

--EuG(C)--	UNDERGROUND ELECTRIC (AEP) (QL C)	--FO(D)--	FIBER OPTIC (ZAYO) (QL D)
——OE——	OVERHEAD ELECTRIC (AEP)	--FO1(D)--	FIBER OPTIC (VALLEY TELEPHONE)(QL D)
--G(D)--	GAS LINE (CENTERPOINT ENERGY)		COMPOST MANUFACTURED TOPSOIL (4")
--FO(C)--	FIBER OPTIC (ZAYO) (QL C)		DIRECTIONAL ARROW
--W(D)--	CITY OF JOURDANTON WATER LINE (QL D)		



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UTILITY LAYOUT

AT TAMARAC

SHEET 20 OF 20

FED.RD. DIV.NO:	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6		SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	130
CONT.	SECT.	JOB	
0517	01	048,ETC	

FILENAME: c:\pw\kh1\d0250712\SAT_MCF_UTILITYLAYOUTS.dgn
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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

NOTES

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APPARENT ROW

WATER STREET

VACANT LOT

W(D)

OE

ROW

FO(C)

PROP 6' SIDEWALK

EXIST EOP

℄ SH 16

683+00

684+00

SH 16/
RIVER ST

MATCHLINE STA 684+60

WW(D)

TH-03
STA 684+43.40
OFF: 34.00' RT (MANHOLE)
MCMULLEN COUNTY WCID #1 WASTEWATER
DEPTH: 6.50 FT

0 10' 20'
SCALE: 1" = 20'

CivilCorp
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2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

STATE OF TEXAS
WIRAT WANICHAKORN
96609
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8/6/2024

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UTILITY LAYOUT - TILDEN

SHEET 01 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	131
CONT.	SECT.	JOB	
0517	01	048, ETC	

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LEGEND

FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)

CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)

DIRECTIONAL ARROW

WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)

OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)

W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)

TOPSOIL AND SODDING

NOTES

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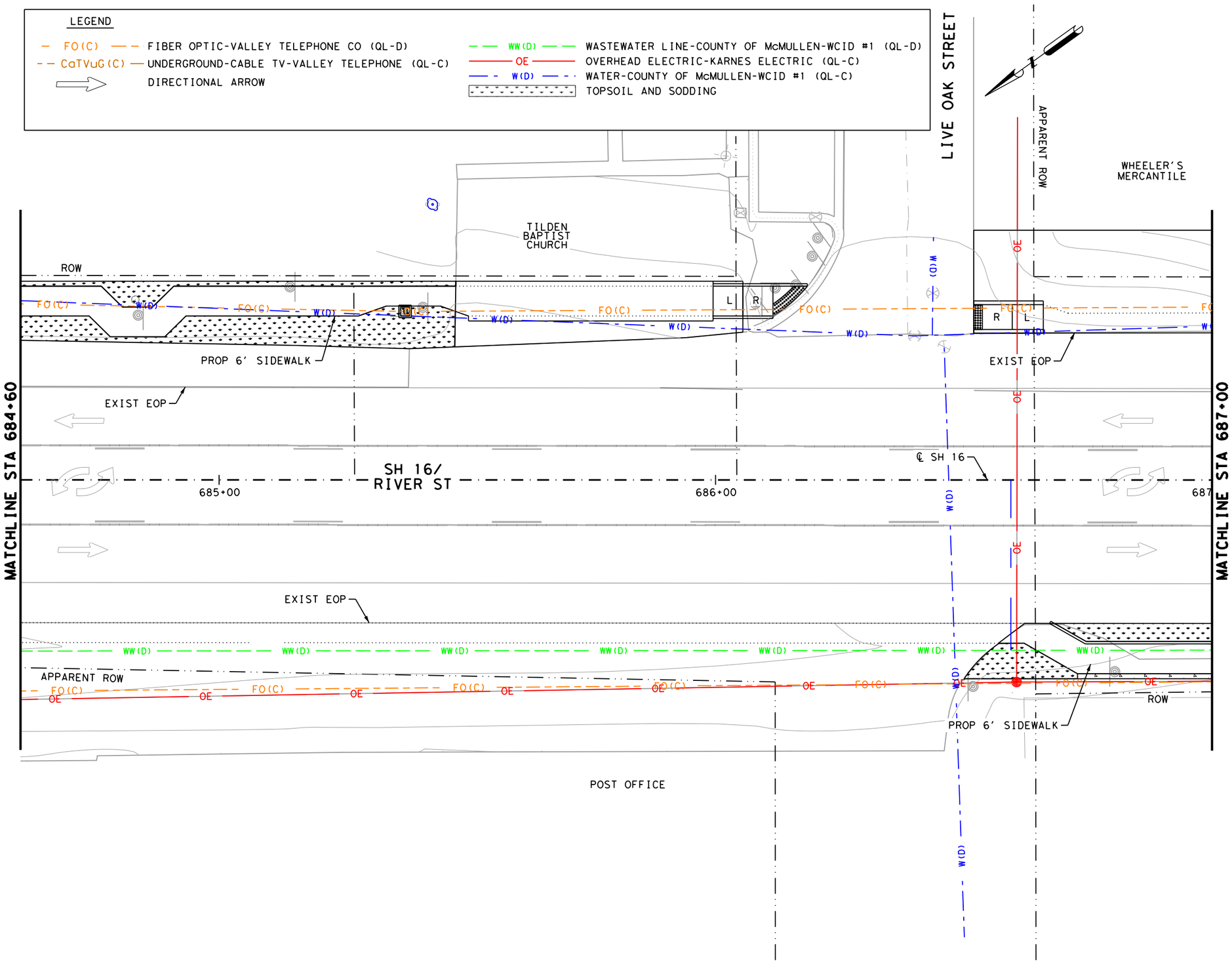

0 10' 20'

SCALE: 1" = 20'

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TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

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UTILITY LAYOUT - TILDEN

SHEET 02 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	132
CONT.	SECT.	JOB	
0517	01	048, ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

NOTES

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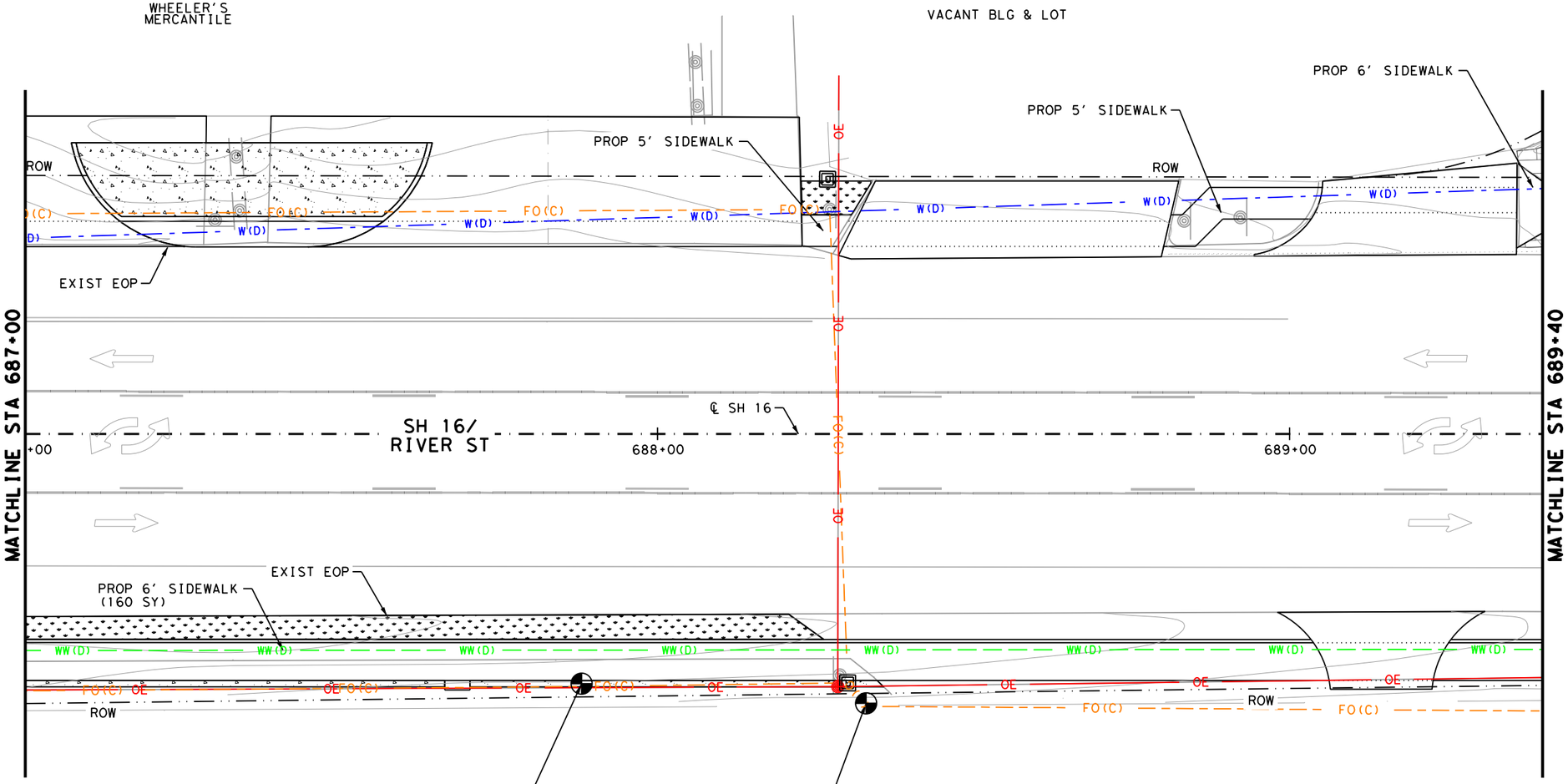

0 10' 20'
SCALE: 1" = 20'

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TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10263

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UTILITY LAYOUT - TILDEN

SHEET 03 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	133
CONT.	SECT.	JOB	
0517	01	048, ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- CONDT (PVC) (SCH 40) (2")
- CONDT (PVC) (SCH 80) (2") (BORE)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

McMULLEN COUNTY COURTHOUSE

NOTES

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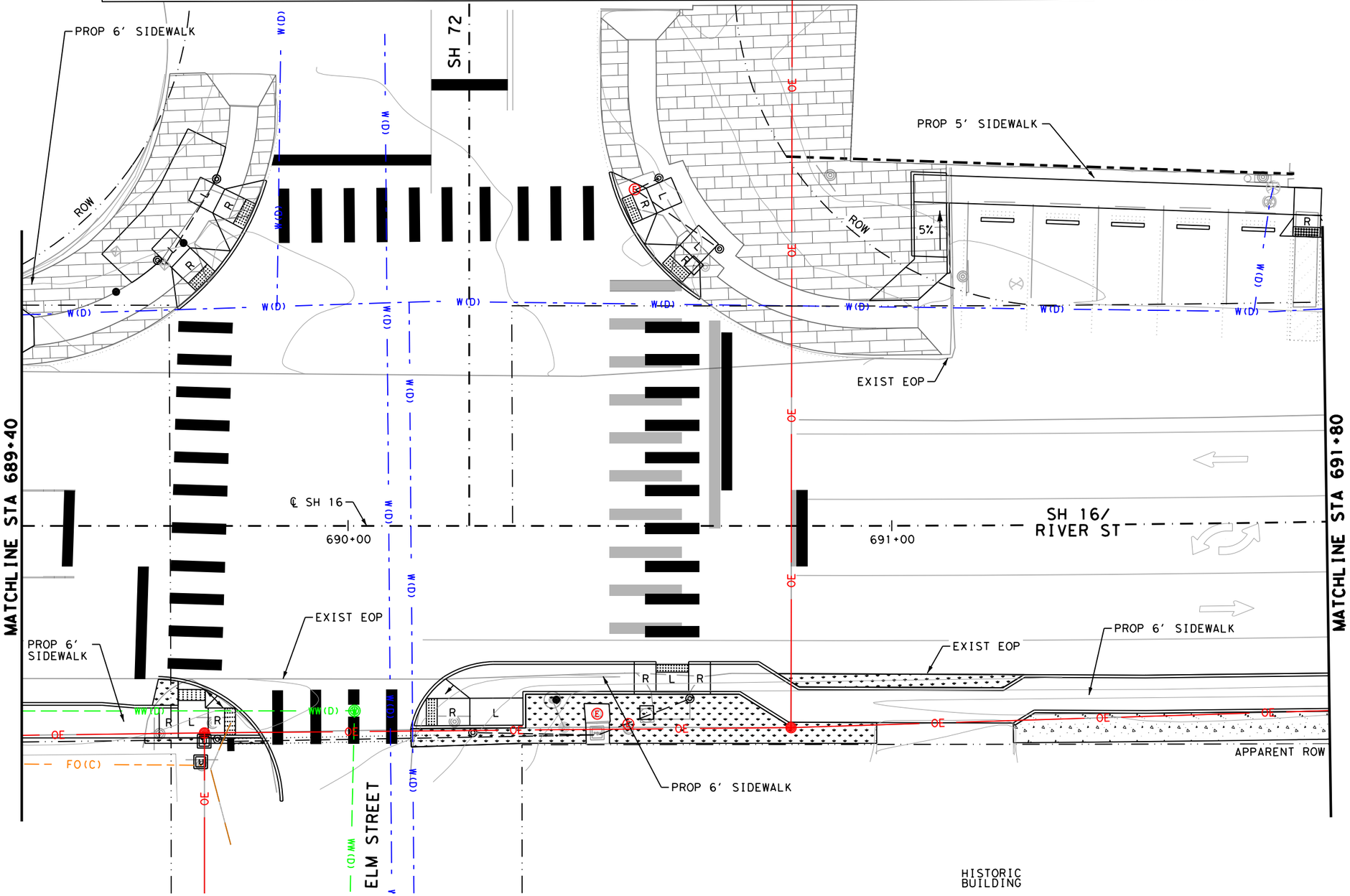

0 10' 20'

SCALE: 1" = 20'

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SHEET 04 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	134
CONT.	SECT.	JOB	
0517	01	048, ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

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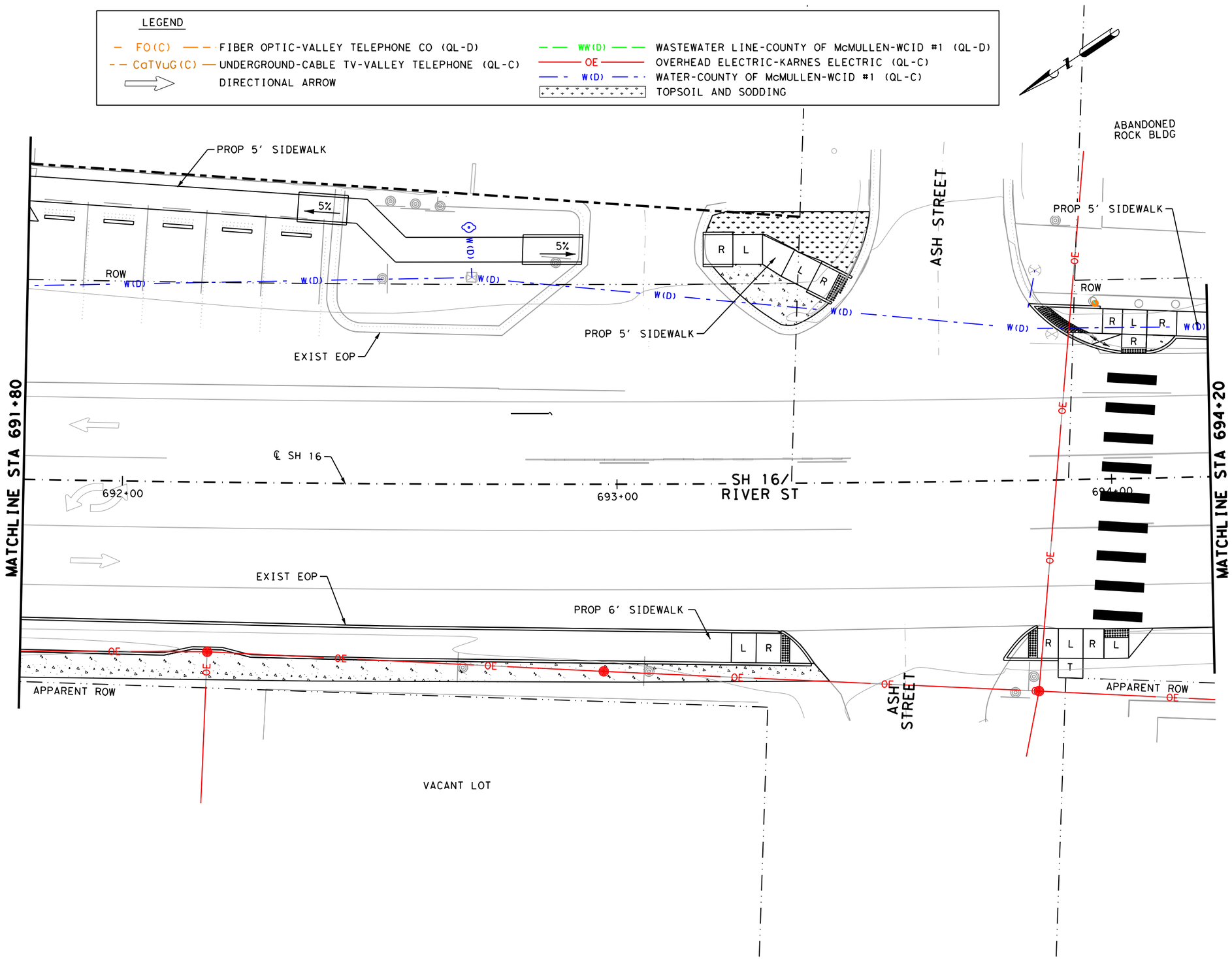

0 10' 20'

SCALE: 1" = 20'

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SHEET 05 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	135
CONT.	SECT.	JOB	
0517	01	048, ETC	

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LEGEND

FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)

CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)

DIRECTIONAL ARROW

WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)

OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)

W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)

TOPSOIL AND SODDING

NOTES

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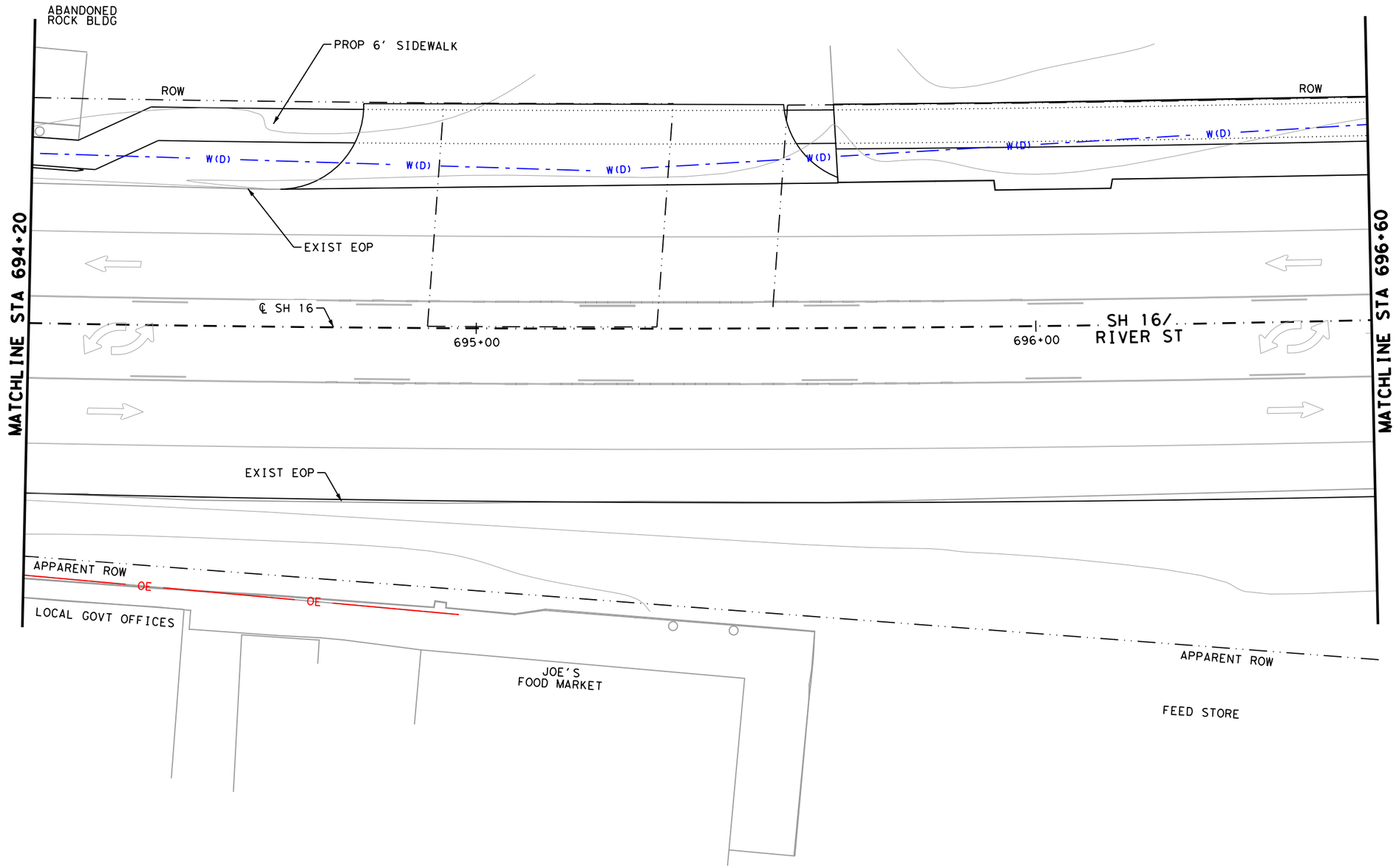
PIPE YARD

JV STEEL INC



0 10' 20'

SCALE: 1" = 20'

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SHEET 06 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	136
CONT.	SECT.	JOB	
0517	01	048, ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
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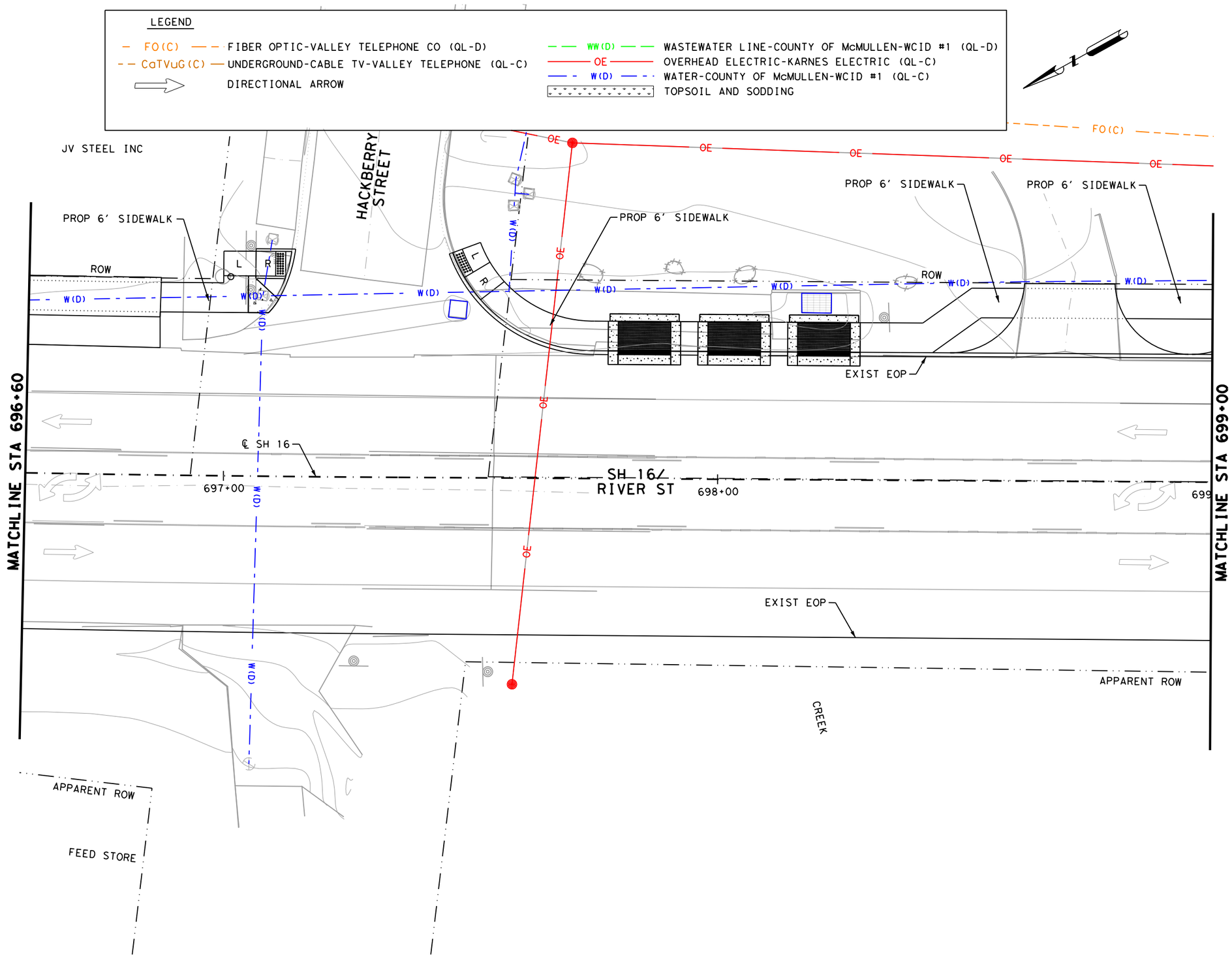

0 10' 20'

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UTILITY LAYOUT - TILDEN

SHEET 07 OF 12

FED.RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	
CONT.	SECT.	JOB	137
0517	01	048, ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

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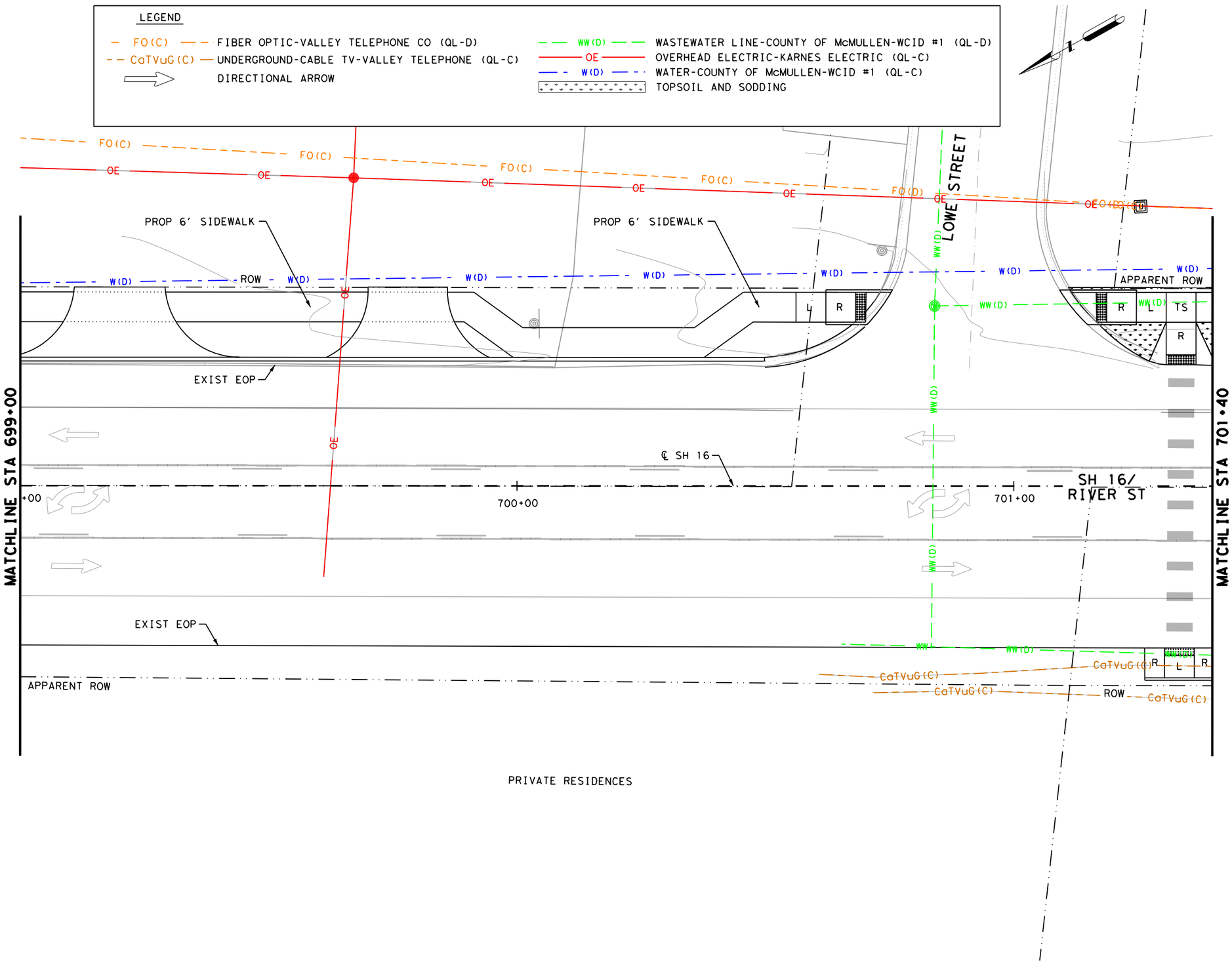

0 10' 20'

SCALE: 1" = 20'

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2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

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UTILITY LAYOUT - TILDEN

SHEET 08 OF 12

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	138
CONT.	SECT.	JOB	
0517	01	048, ETC	

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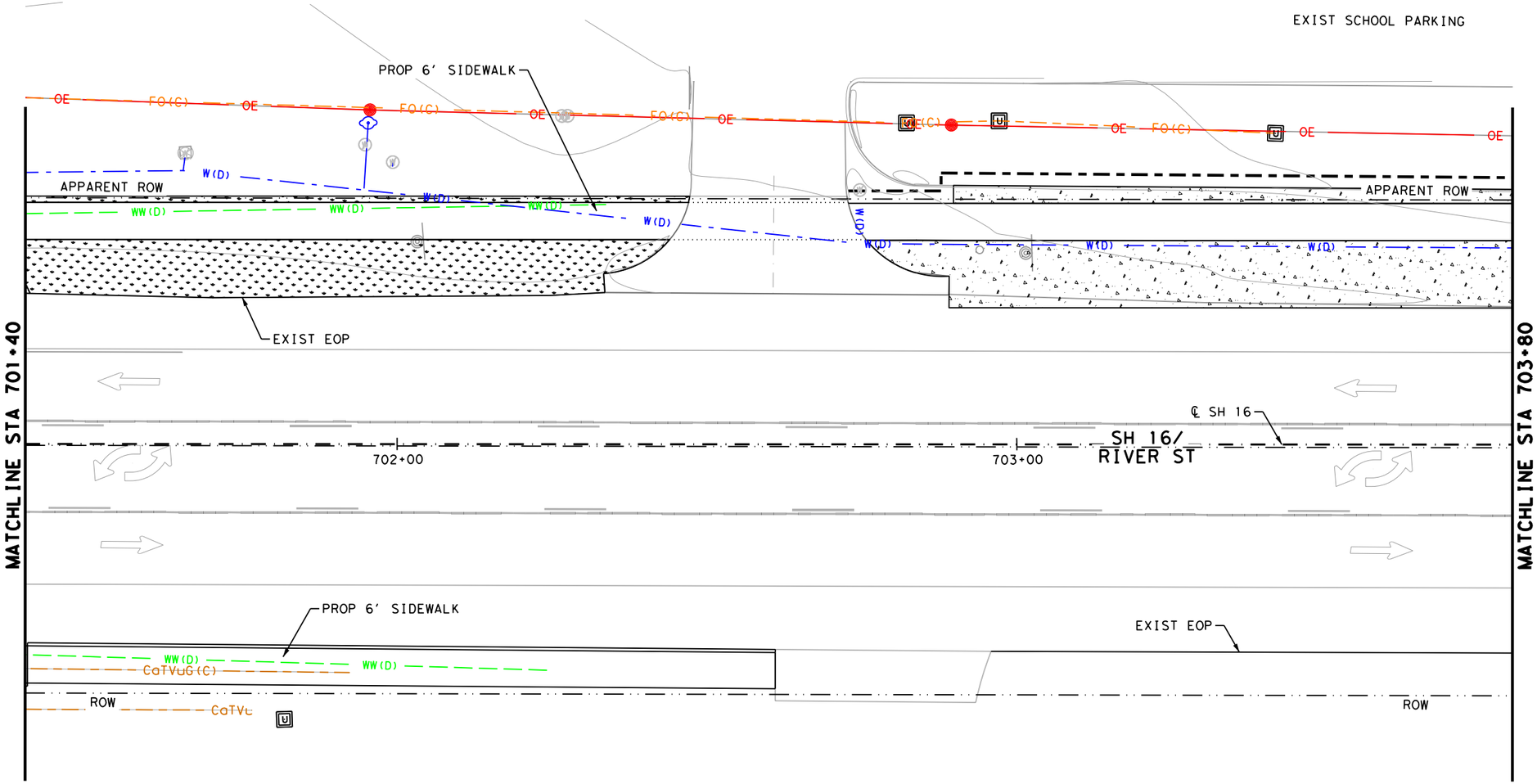
LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

NOTES

* FOR CONTRACTOR INFORMATION ONLY

1.) THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.



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SCALE: 1" = 20'

CivilCorp
ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

STATE OF TEXAS
WIRAT WANICHAKORN
96609
LICENSED PROFESSIONAL ENGINEER

8/6/2024

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UTILITY LAYOUT - TILDEN

SHEET 09 OF 12

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	139
CONT.	SECT.	JOB	
0517	01	048, ETC	

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
- CaTVuG(C) — UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
- DIRECTIONAL ARROW
- WW(D) — WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
- OE — OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
- W(D) — WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
- TOPSOIL AND SODDING

NOTES

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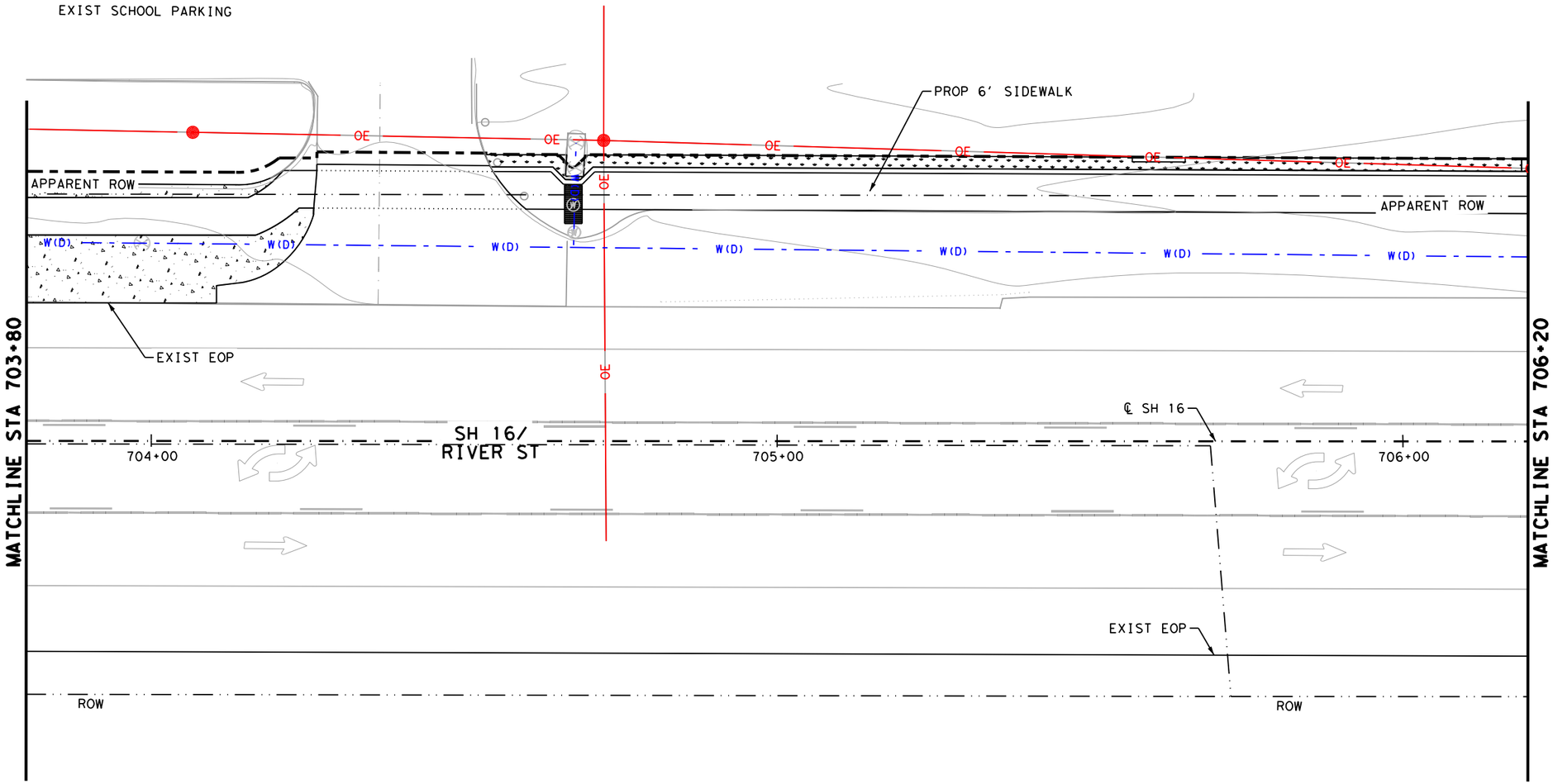

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UTILITY LAYOUT - TILDEN

SHEET 10 OF 12

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	140
CONT.	SECT.	JOB	
0517	01	048, ETC	

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NOTES

* FOR CONTRACTOR INFORMATION ONLY

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LEGEND

- FO(C) — FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
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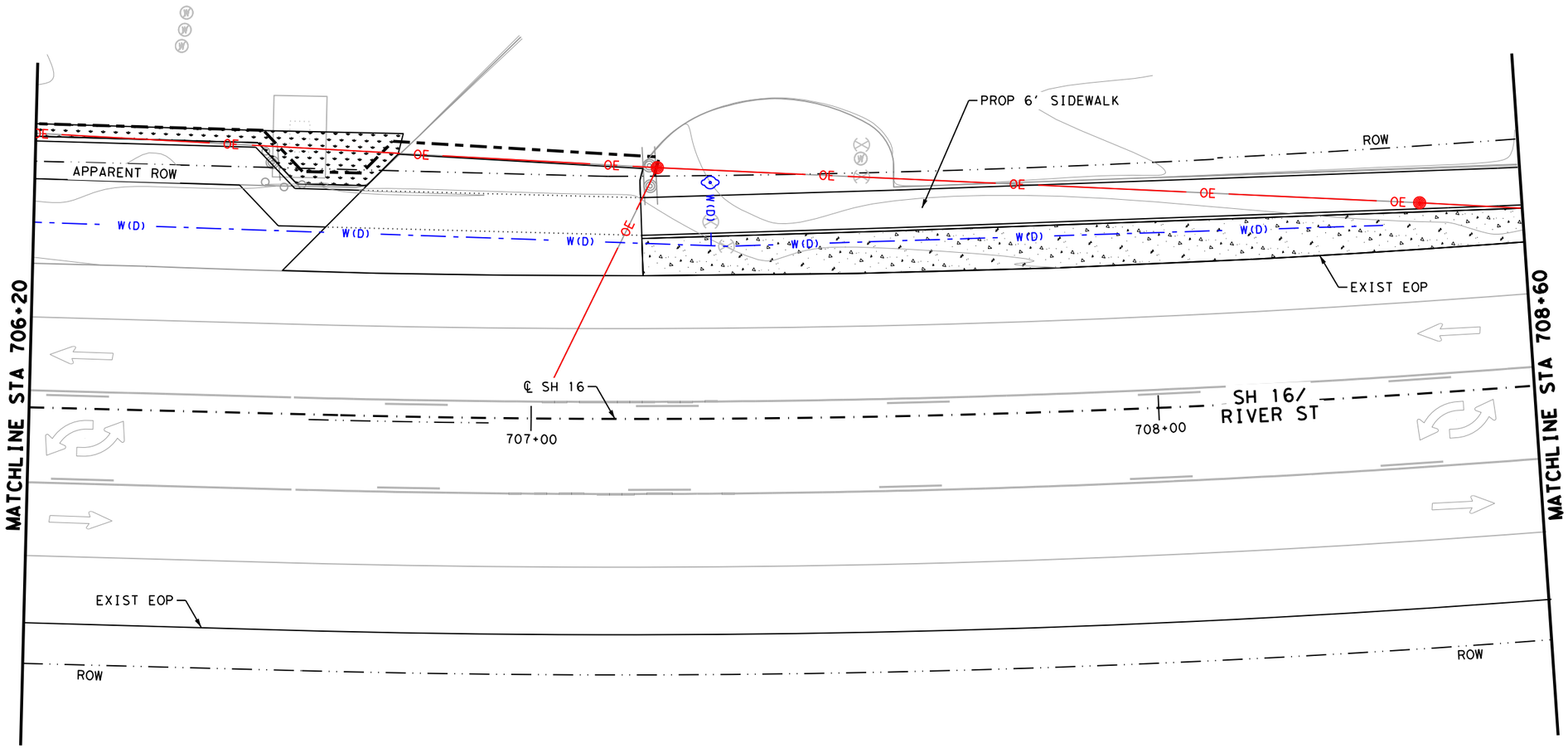
- TOPSOIL AND SODDING

EXIST HIGH SCHOOL PARKING/DROP OFF



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2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10263

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8/6/2024

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UTILITY LAYOUT - TILDEN

SHEET 11 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	141
CONT.	SECT.	JOB	
0517	01	048, ETC	

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LEGEND

FO(C)	FIBER OPTIC-VALLEY TELEPHONE CO (QL-D)
CaTVuG(C)	UNDERGROUND-CABLE TV-VALLEY TELEPHONE (QL-C)
	DIRECTIONAL ARROW
WW(D)	WASTEWATER LINE-COUNTY OF McMULLEN-WCID #1 (QL-D)
OE	OVERHEAD ELECTRIC-KARNES ELECTRIC (QL-C)
W(D)	WATER-COUNTY OF McMULLEN-WCID #1 (QL-C)
	TOPSOIL AND SODDING

NOTES

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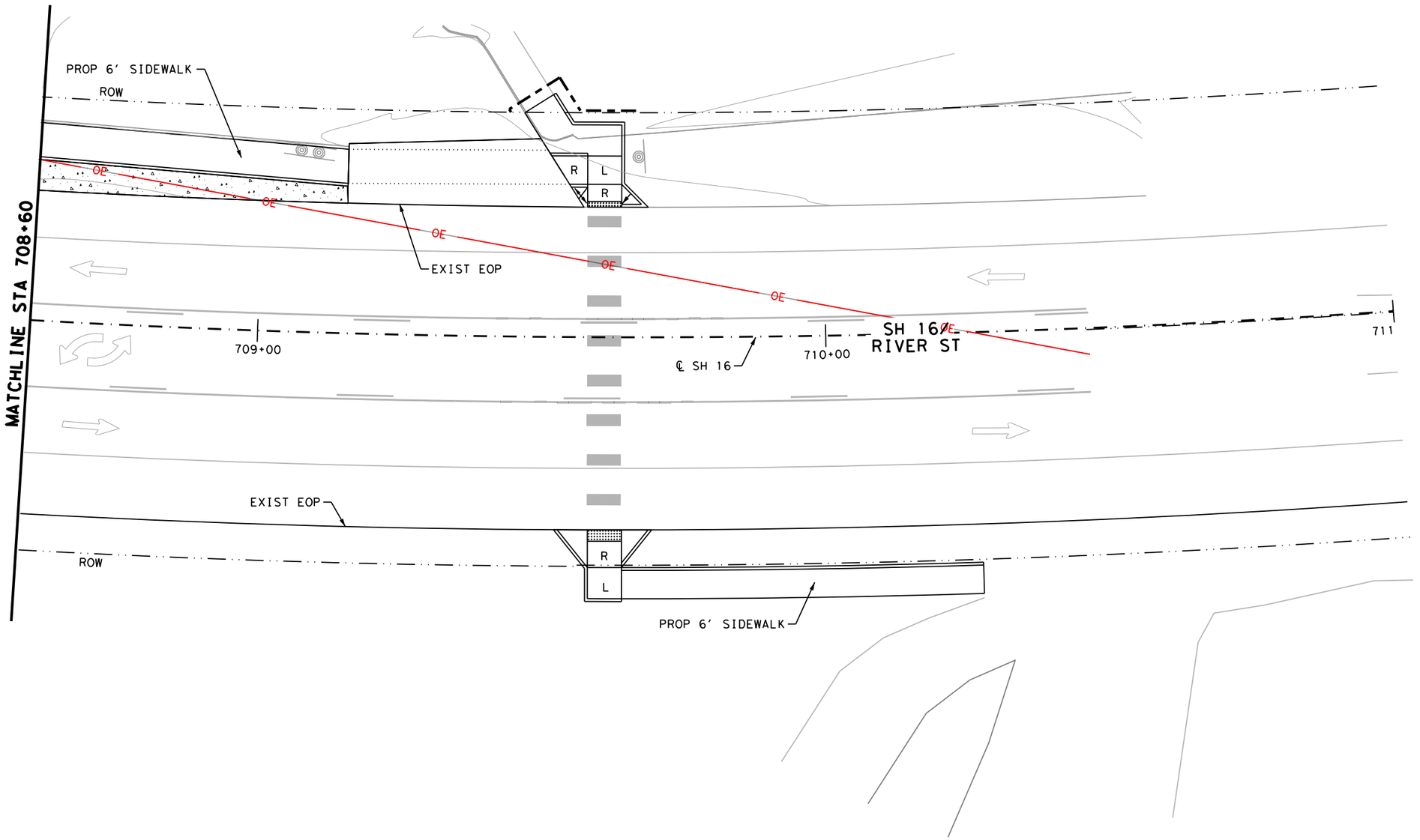

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2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
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UTILITY LAYOUT - TILDEN

SHEET 12 OF 12

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA, ETC	142
CONT.	SECT.	JOB	
0517	01	048, ETC	

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DISCLAIMER:
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I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

Texas Pollutant Discharge Elimination System (TPDES) TXR 150000: Stormwater Discharge Permit or Construction General Permit (CGP) required for projects with 1 or more acres distrubed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000.
2. Comply with the Storm Water Pollution Prevention Plan (SW3P) and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and Texas Commission on Environmental Quality (TCEQ), Environmental Protection Agency (EPA) or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, Contractor shall submit Notice of Intent (NOI) to TCEQ and the Engineer.
5. NOI required: ☐Yes ☒No

Note: If amount of soil disturbance changes, permit requirements may change.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

US Army Corps of Engineers (USACE) Permit required for filling, dredging, excavating or other work in any potential USACE jurisdictional water, such as, rivers, creeks, streams, or wetlands.

The Contractor shall adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required
☐ Nationwide Permit (NWP) 14 - Pre-construction Notice (PCN) not Required
☐ Nationwide Permit 14 - PCN Required
☐ Individual 404 Permit Required
☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices (BMPs) planned to control erosion, sedimentation and post-project total suspended solids (TSS).

1.

2.

3.

4.

401 Best Management Practices: (Not applicable if no USACE permit)

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Sedimentation Chambers
		☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☐ No Action Required ☒ Required Action

Action No.

1. To minimize potential damage to historic structures and materials, contractor must saw cut existing materials (e.g. pavement, curbing, concrete, gravel) 8 to 12 inches away from the historic resource (masonry wall).
2. Contractor shall construct new sidewalk next to the saw cut edge with installation of expansion joint in between. The remaining 8 to 12 inches (e.g. pavement, curbing, concrete, gravel) next to the historic masonry wall must be removed by hand. Expansion joint must be placed between historic masonry wall and new sidewalk.
3. Contractor must prevent damage to historic masonry wall during the entire construction project, especially during removal of existing pavement, curb, concrete, or gravel. During the saw cut and hand removal process, contractor shall exercise utmost caution and shall physically protect historic masonry wall foundation and materials. When pouring concrete for repair or new install, contractor shall prevent splashback of concrete onto historic masonry wall.
4. Contractor must repair or replace in kind, at his own expense, any historic materials damaged in the course of executing the work. Contractor shall locate replacement source for historic materials damaged in the course of the work. TxDOT-Environmental Affairs Division shall be informed of proposed repairs to facilitate consultation with Texas Historical Commission prior to execution of repair work.
5. The Contractor shall contact the District's Environmental Project Manager, Gina Salazar-Dounson at 210-615-6105 should there be questions or concerns when working in the vicinity of the McMullen County Courthouse.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162,164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☐ No Action Required ☒ Required Action

Action No.

1. MIGRATORY BIRD NESTS: Schedule construction activities as needed to meet the following requirements:

   A. Do not remove or destroy any active migratory bird nests (nests containing eggs and/or flightless birds) at any time of year. If there are any active nests, they shall not be removed until the nests become inactive.

   B. On/in structures, if there are any active nests, they shall not be removed until all nests become inactive. After inactive nests are removed and/or before nest activity begins, deterrent materials may be applied to the structures to prevent future nest building.

2. See Item 5 in General Notes.
3.
4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediated area, and contact the Engineer immediately.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropiate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the follwing are detected:
* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Hazardous Materials or Contamination Issues Specific to this Project:

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

Does the project involve the demolition of a span bridge?

☐ Yes ☒ No (No further action required)

If "Yes", a pre- demolition notification must be submitted to the Texas Department of State Health Services. The contractor shall contact TxDOT's Project Engineer 25 calendar days prior to the demolition of the bridges(s) on the project to assist with the notification.

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

7/31/2024

STATE OF TEXAS
SAMUEL J. LUNDQUIST
122185
LICENSED
PROFESSIONAL ENGINEER

Texas Department of Transportation
San Antonio District Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic_2015-10-09_SAT.dgn	DN: TxDOT	CK: TxDOT	DW: BW		CK: GAG	
©TxDOT OCTOBER 2015	CONT	SECT	JOB		HIGHWAY	
REVISIONS	0517	01	048, ETC		SH 16	
	DIST	COUNTY			SHEET NO.	
	SAT	ATASCOSA			143	

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STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with soil disturbing activity and for projects that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
0517-01-048

1.2 PROJECT LIMITS:
From: JOURDANTON - SH 97 /TILDEN-WATER ST

To: JOURDANTON - TAMARAC ST/ TILDEN - 285'N OF MILLER ST

1.3 PROJECT COORDINATES:
BEGIN: (Lat) 28° 55'5.92" N ,(Long) 98° 32'46.96" N

END: (Lat) 28° 54'27.89" N ,(Long) 98° 32'21.78" N

1.4 TOTAL PROJECT AREA (Acres): 4.04

1.5 TOTAL AREA TO BE DISTURBED (Acres): 2.48

1.6 NATURE OF CONSTRUCTION ACTIVITY:
RMPS, SDWK, STR, STRP, TRF

1.7 MAJOR SOIL TYPES:

Soil Type	Description
CL	CLAY
CH	CLAY LOAM
SC	SANDY LOAM

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):
PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

☐ PSLs determined during preconstruction meeting
☐ PSLs determined during construction
☐ No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:
(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

☒ Mobilization
☒ Install sediment and erosion controls
☐ Blade existing topsoil into windrows, prep ROW, clear and grub
☐ Remove existing pavement
☒ Grading operations, excavation, and embankment
☐ Excavate and prepare subgrade for proposed pavement widening
☐ Remove existing culverts, safety end treatments (SETs)
☐ Remove existing metal beam guard fence (MBGF), bridge rail
☒ Install proposed pavement per plans
☐ Install culverts, culvert extensions, SETs
☐ Install mow strip, MBGF, bridge rail
☐ Place flex base
☐ Rework slopes, grade ditches
☐ Blade windrowed material back across slopes
☐ Revegetation of unpaved areas
☒ Achieve site stabilization and remove sediment and erosion control measures
☐ Other: _____
☐ Other: _____
☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

☐ Sediment laden stormwater from stormwater conveyance over disturbed area
☒ Fuels, oils, and lubricants from construction vehicles, equipment, and storage
☐ Solvents, paints, adhesives, etc. from various construction activities
☐ Transported soils from offsite vehicle tracking
☒ Construction debris and waste from various construction activities
☐ Contaminated water from excavation or dewatering pump-out water
☐ Sanitary waste from onsite restroom facilities
☐ Trash from various construction activities/receptacles
☐ Long-term stockpiles of material and waste
☐

☐ Other: _____
☐ Other: _____
☐ Other: _____

1.11 RECEIVING WATERS:
Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

☒ Development of plans and specifications
☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
☒ Post Construction Site Notice
☒ Submit NOI/CSN to local MS4
☒ Perform SWP3 inspections
☒ Maintain SWP3 records and update to reflect daily operations
☒ Complete and submit Notice of Termination to TCEQ
☒ Maintain SWP3 records for 3 years
☐ Other: _____
☐ Other: _____
☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

☒ Day To Day Operational Control
☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
☒ Post Construction Site Notice
☒ Submit NOI/CSN to local MS4
☒ Maintain schedule of major construction activities
☒ Install, maintain and modify BMPs
☒ Complete and submit Notice of Termination to TCEQ
☒ Maintain SWP3 records for 3 years
☐ Other: _____
☐ Other: _____
☐ Other: _____

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity

4/19/2024

STATE OF TEXAS
SAMUEL J. LUNDQUIST
122185
LICENSED
PROFESSIONAL ENGINEER

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

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July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			144
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	ATASCOSA	
CONT.	SECT.	JOB	HIGHWAY NO.
0517	01	048, ETC	SH 16

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- ☐ ☐ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☐ ☐ Temporary Seeding
- ☐ ☒ Permanent Planting, Sodding or Seeding
- ☒ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ ☒ Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☒ Paved Flumes
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- ☒ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Dewatering Controls
- ☐ ☐ Inlet Protection
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Sandbag Berms
- ☐ ☐ Sediment Control Fence
- ☐ ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Vegetated Filter Strips
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- ☐ ☐ Sediment Trap
  - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - ☐ 3,600 cubic feet of storage per acre drained
- ☐ ☐ Sedimentation Basin
  - ☐ Not required (<10 acres disturbed)
  - ☐ Required (>10 acres) and implemented.
    - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - ☐ 3,600 cubic feet of storage per acre drained
  - ☐ Required (>10 acres), but not feasible due to:
    - ☐ Available area/Site geometry
    - ☐ Site slope/Drainage patterns
    - ☐ Site soils/Geotechnical factors
    - ☐ Public safety
    - ☐ Other: _____

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- ☐ Excess dirt/mud on road removed daily
- ☐ Haul roads dampened for dust control
- ☐ Loaded haul trucks to be covered with tarpaulin
- ☐ Stabilized construction exit
- ☐ Daily street sweeping
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- ☐ Chemical Management
- ☐ Concrete and Materials Waste Management
- ☐ Debris and Trash Management
- ☐ Dust Control
- ☐ Sanitary Facilities
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- ☒ Fire hydrant flushings
- ☒ Irrigation drainage
- ☒ Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- ☒ Potable water sources
- ☒ Springs
- ☒ Uncontaminated groundwater
- ☒ Water used to wash vehicles or control dust
- ☒ Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 DEWATERING:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

When dewatering activities are present, a daily inspection will be conducted once per day during those activities and documented in accordance with CGP and TxDOT requirements.

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

4/19/2024

STATE OF TEXAS
SAMUEL J. LUNDQUIST
122185
LICENSED
PROFESSIONAL ENGINEER

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

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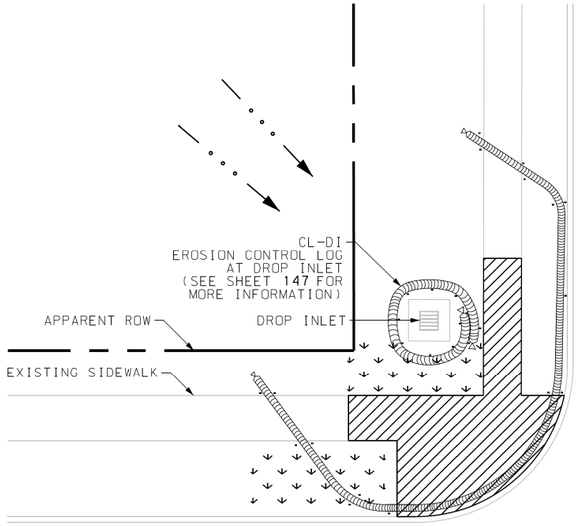
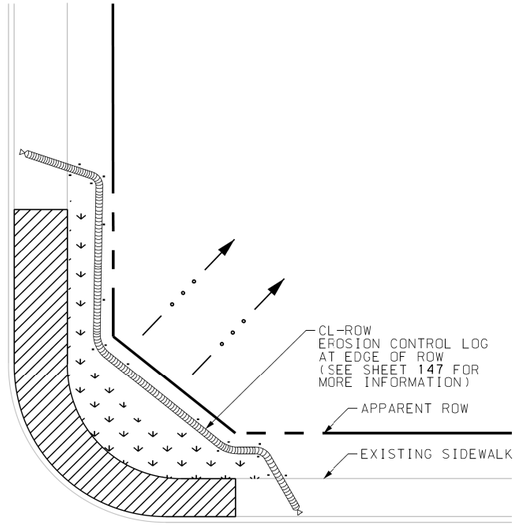
July 2023 Sheet 2 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			145
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	ATASCOSA	
CONT.	SECT.	JOB	HIGHWAY NO.
0517	01	048, ETC	SH 16





NOTES:

REFERENCE ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS (EPIC)AND STORM WATER POLLUTION PREVENTION PLAN (SW3P) SHEETS FOR SPECIFIC CONSTRUCTION CONSIDERATIONS OR REQUIREMENTS.

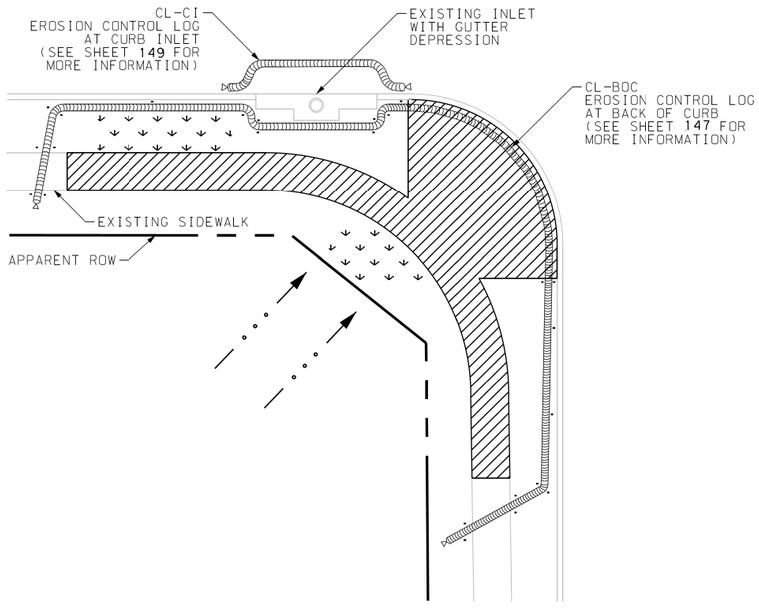
EXAMPLES SHOWN ON THE SHEET ARE FOR GENERAL GUIDANCE AND MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

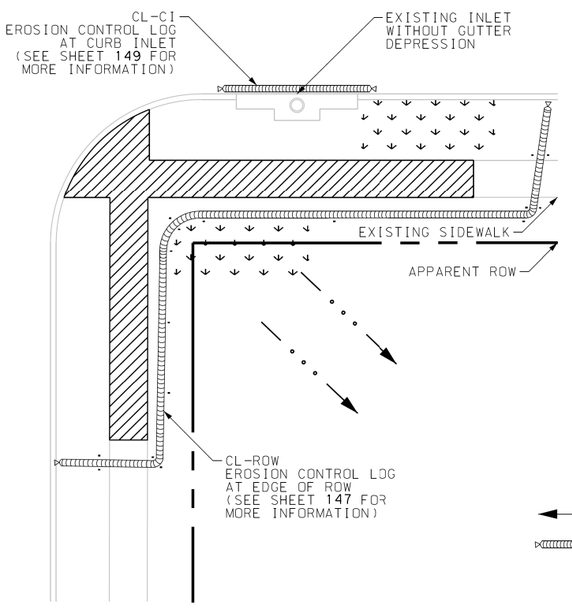
TEMPORARY SEDIMENT CONTROL FENCE MAY BE USED IN LIEU OF EROSION CONTROL LOGS WHERE APPROVED BY THE ENGINEER.

SITE CONDITIONS MAY DICTATE ADDITIONAL COUNTERMEASURES AS DIRECTED BY THE ENGINEER.

USE ADDITIONAL STAKES AS NEEDED TO HOLD IN PLACE (NSPI).

INSTALLATION OF COUNTERMEASURES MUST BE APPROVED BY THEENGINEER PRIOR TO PLACEMENT.





LEGEND

- SODDING
- FLOW DIRECTION
- EROSION CONTROL LOG
- WOOD OR METAL STAKES (AS APPROVED BY THE ENGINEER)
- EXISTING FEATURES
- PROPOSED WORK AREA

4/19/2024

STATE OF TEXAS
SAMUEL J. LUNDQUIST
122185
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

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SW3P GENERAL LAYOUT

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	SH 16

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAN ANTONIO	ATASCOSA	146
CONT.	SECT.	JOB	
0517	01	048,ETC	

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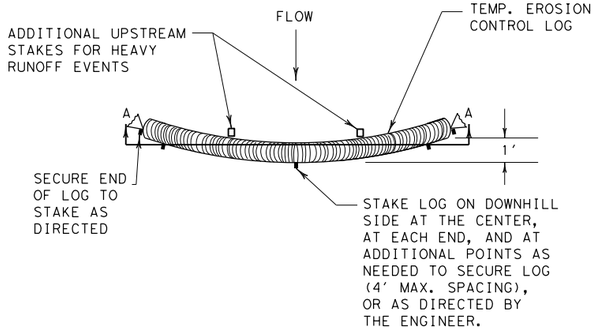
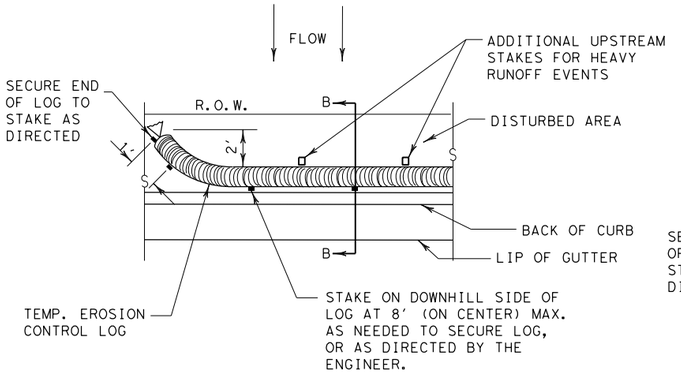
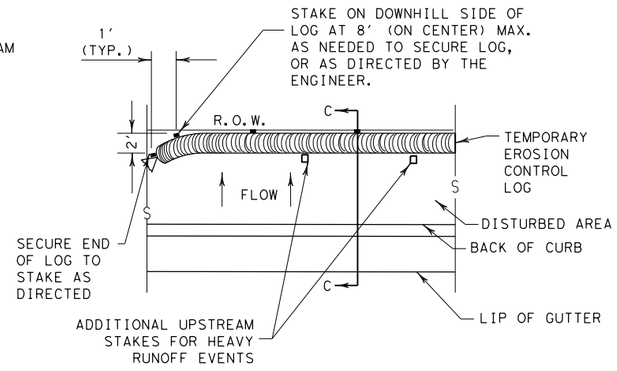


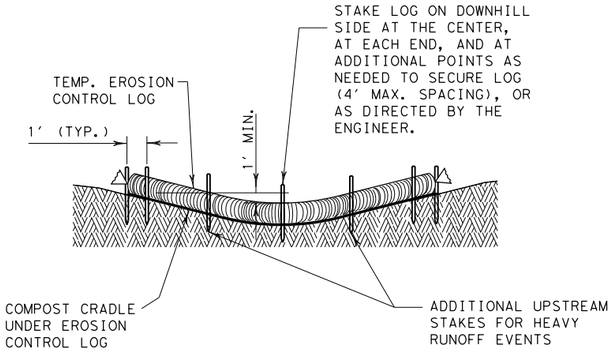
PLAN VIEW



PLAN VIEW



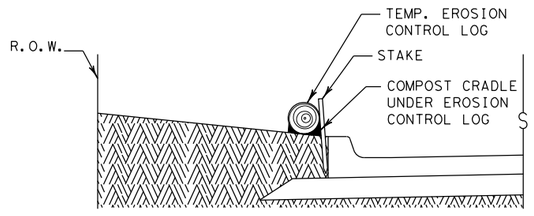
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

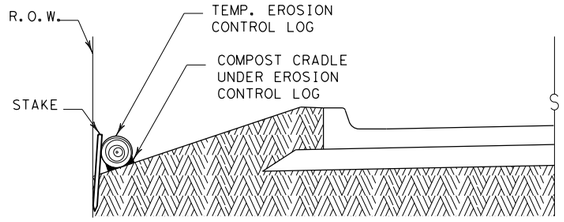
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

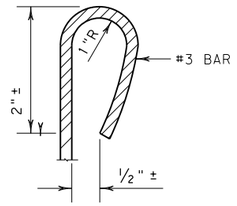
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



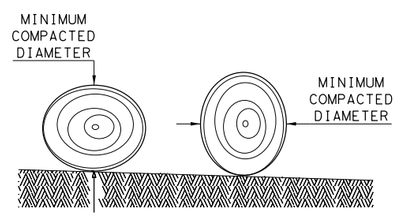
REBAR STAKE DETAIL

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916		DN: TxDOT		CK: KM	DW: LS/PT		CK: LS
© TxDOT: JULY 2016		CONT	SECT	JOB		HIGHWAY	
REVISIONS		0517	01	048,ETC		SH16	
		DIST		COUNTY			SHEET NO.
		SAT		ATASCOSA			147

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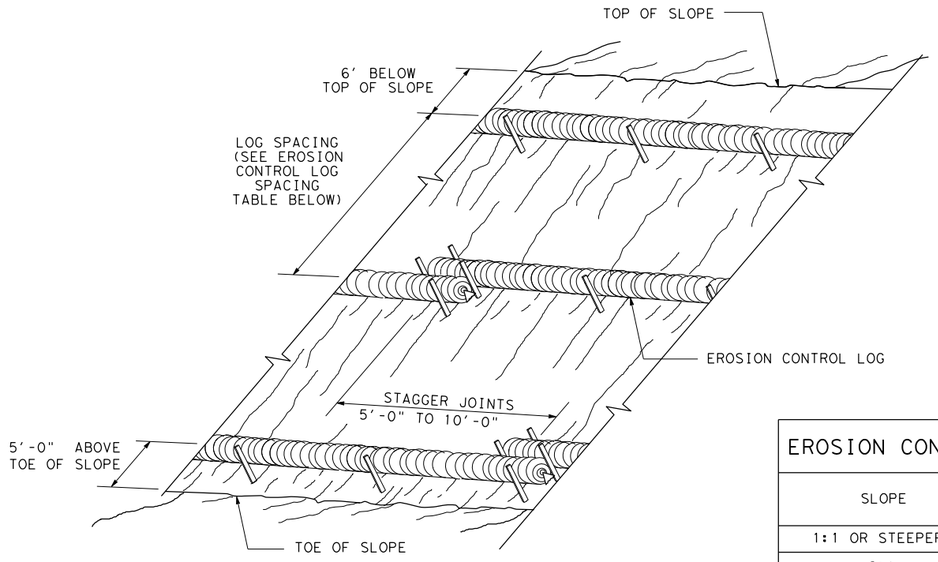
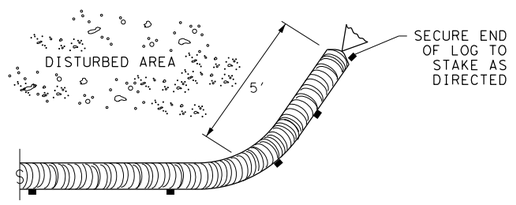


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

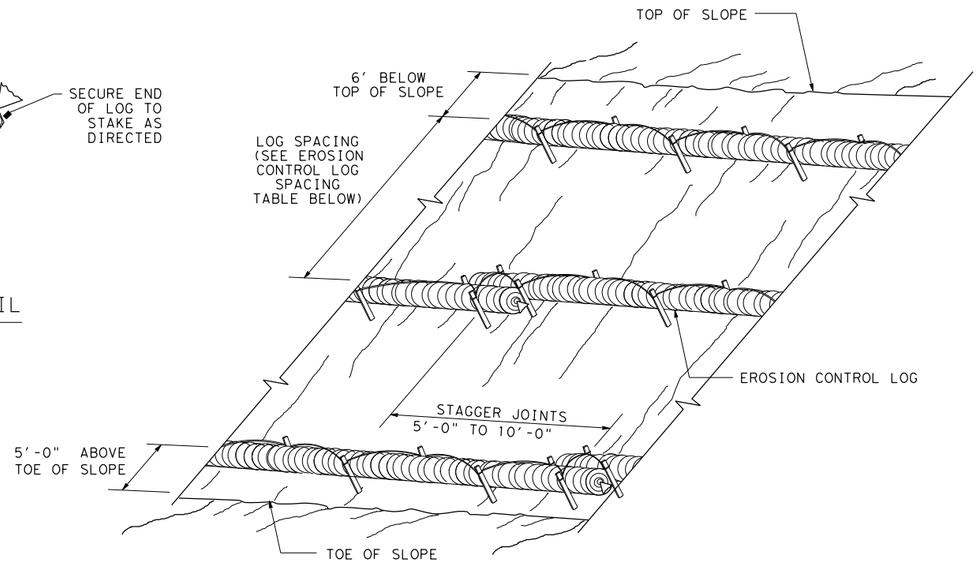
CL-SST



END SECTION RAP DETAIL

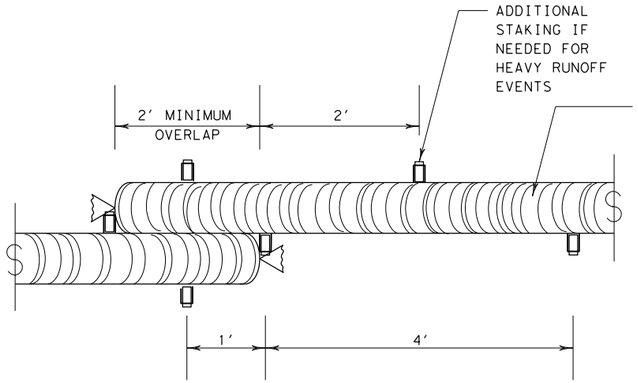
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

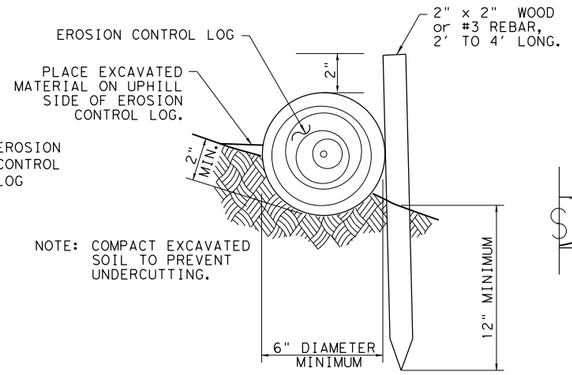
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

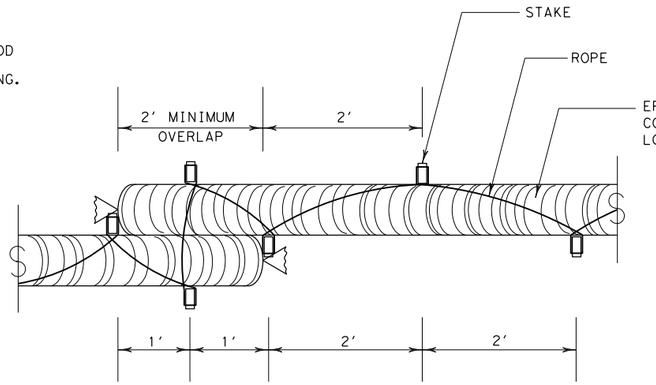


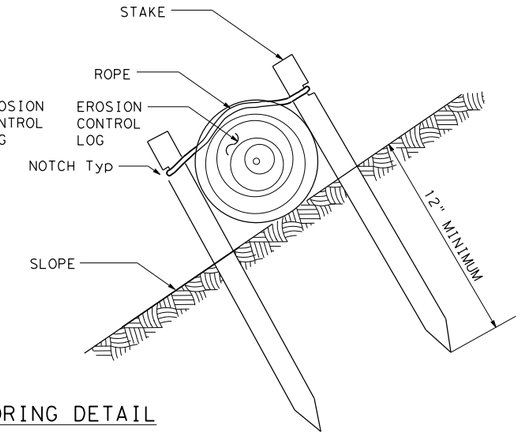


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

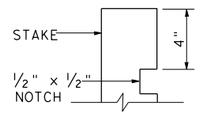
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

SHEET 2 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0517	01	048,ETC	SH16
	DIST	COUNTY		SHEET NO.
	SAT	ATASCOSA		148

DATE: 4/19/2024
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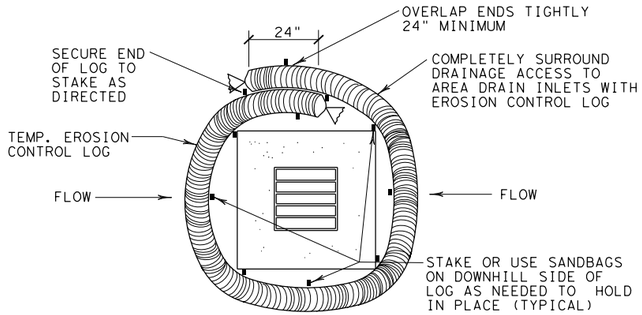
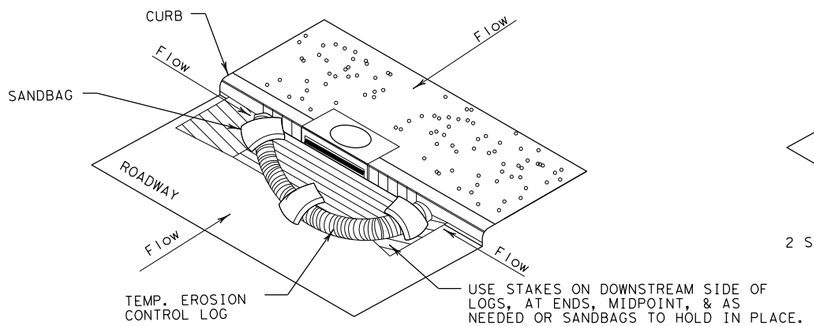


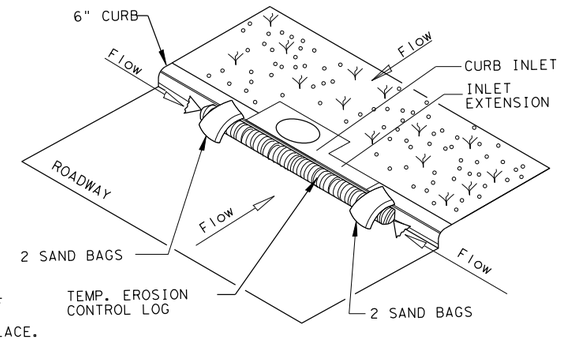
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

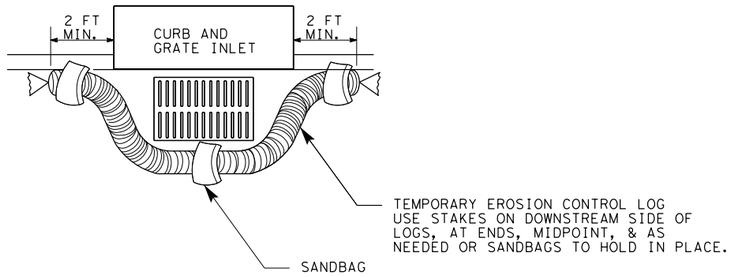
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

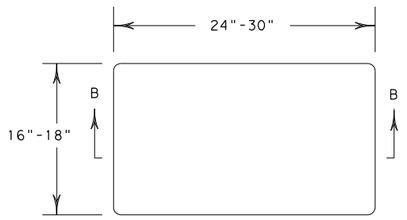
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT		CK: KM		DW: LS/PT		CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY		
REVISIONS	0517	01	048,ETC		SH16		
	DIST	COUNTY			SHEET NO.		
	SAT	ATASCOSA			149		

DATE: 4/19/2024
FILE: c:\pw\kh1\d0253719\ec916.dgn

GENERAL NOTES FOR TREE PROTECTION

1. PROTECT AND INSURE THE CONTINUED GOOD HEALTH OF EXISTING TREES IDENTIFIED ON THE PLANS OR DIRECTED BY THE ENGINEER. PRESERVE ALL EXISTING VEGETATION WITHIN THE PREFERRED ROOT PROTECTION ZONE.

2. SECURE THE SERVICES OF A TREE CARE SPECIALIST TO PERFORM OR OVERSEE ANY OPERATION INVOLVING LIMB PRUNING, ROOT PRUNING, CHEMICAL APPLICATION, OR ASSESSMENT OF THE CONDITION OF TREES OR EFFECTS OF CONSTRUCTION ON TREES DESIGNATED FOR PROTECTION.

3. WITHIN THE PREFERRED ROOT PROTECTION ZONE, NONE OF THE FOLLOWING ACTIVITIES ARE ALLOWED:

PARKING OF ANY VEHICLES; ERECTION OF ANY SHED OR STRUCTURE; STORAGE OF ANY EQUIPMENT OR MATERIALS; USE BY PEOPLE FOR ANY REASON; DUMPING OF ANY LITTER, WASTE MATERIALS, OR LIQUIDS; IMPOUNDMENT OF WATER; ADDITION OF FILL-SOIL; EXCAVATION, BORING, OR TRENCHING OF ANY TYPE

DEFINITIONS

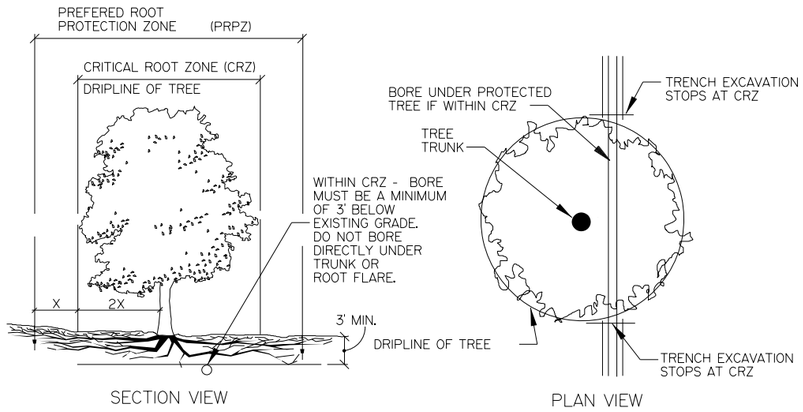
1. DRIPLINE - THE LINE ON THE GROUND DIRECTLY BELOW THE OUTER TIPS OR ENDS OF THE TREE LIMBS.

2. CRITICAL ROOT ZONE (CRZ) - THE GROUND AREA EXTENDING OUT FROM THE TREE TRUNK TO THE DRIPLINE.

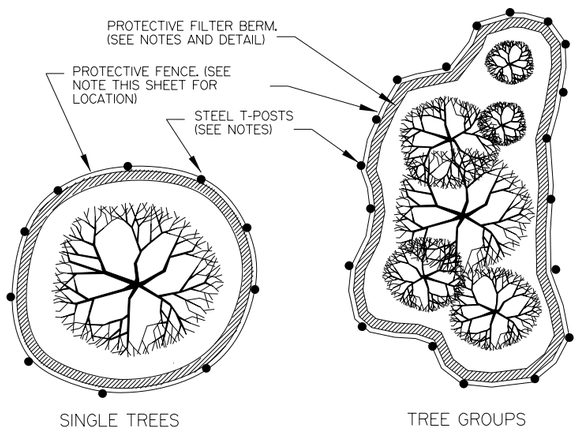
3. PREFERRED ROOT PROTECTION ZONE (PRPZ) - THE GROUND AREA EXTENDING OUT FROM THE TREE TRUNK A DISTANCE EQUAL TO ONE AND ONE HALF OF THE DISTANCE FROM THE TRUNK TO THE DRIPLINE.

4. TREE CARE SPECIALIST - CERTIFIED ARBORIST OR PROFESSIONAL URBAN FORESTER.

5. O.C. - ON CENTER



TRENCHING PAST TREES



PLAN VIEW OF FENCING LAYOUT

CONSTRUCTION METHODS

1. PRIOR TO THE START OF CONSTRUCTION, MARK ALL TREES OR OTHER FEATURES INDICATED ON THE PLANS TO BE PROTECTED WITH YELLOW FLAGGING FOR APPROVAL BY THE ENGINEER.

2. PRIOR TO CONSTRUCTION, PRUNE PROTECTED TREES AS FOLLOWS:
   A. REMOVE ANY DISEASED OR DEAD LIMBS AND CORRECT ANY PREVIOUS IMPROPER PRUNING
   B. REMOVE LIMBS FOR NECESSARY EQUIPMENT ACCESS (AS APPROVED BY THE ENGINEER).
   C. REMOVE LIMBS THAT WILL BE WITHIN TWENTY FEET (20) VERTICAL CLEARANCE OF VEHICLE TRAVEL LANES.
   D. REMOVE LIMBS THAT WILL BE WITHIN TEN FEET (10) VERTICAL CLEARANCE OF PEDESTRIAN AREAS.

3. PERFORM PRUNING USING ONLY TOOLS SPECIFICALLY DESIGNED FOR THE JOB AND IN ACCORDANCE WITH ANSI A300 PRUNING STANDARD. PRUNED MATERIAL BECOMES THE PROPERTY OF THE CONTRACTOR AND WILL BE DISPOSED OF OFF-SITE.

4. ERECT PROTECTIVE FENCING AT ALL TREES, GROUPS OF TREES, OR OTHER FEATURES AS SHOWN ON THE PLANS, OR DESIGNATED BY THE ENGINEER, OR OTHERWISE INDICATED FOR PROTECTION.

5. ERECT PROTECTIVE FENCING FOR TREES AT THE EDGE OF THE PRPZ. PLACE FENCING IN OTHER LOCATIONS ONLY WITH THE APPROVAL OF THE ENGINEER. THE FENCE MATERIAL SHALL BE CHAIN-LINK FENCE.
   A. CHAIN-LINK FENCING SHALL BE SIX-FOOT (6) IN HEIGHT AND SUPPORTED BY EIGHT-FOOT (8) STEEL T-POSTS SPACED SIX FEET (6) O.C., DRIVEN A MINIMUM OF 20" INTO EXISTING GRADE.
   B. THE FENCING SHALL BE CONTINUOUS BETWEEN POSTS AND SHALL BE FIRMLY ATTACHED TO THE POSTS WITH A MINIMUM OF 4 WIRE TIES.

6. PREPARE SIGNS WITH THE FOLLOWNG WORDING, AND INSTALL AT A MINIMUM OF 50' ON CENTER ALONG THE PROTECTIVE FENCING:
   PROTECTED AREA
   DO NOT ENTER
   THIS FENCE MAY NOT BE REMOVED OR MODIFIED WITHOUT THE PERMISSION OF THE ENGINEER
   CONTACT (PHONE NUMBER)

7. IF IT BECOMES NECESSARY TO LOCATE THE PROTECTIVE FENCING WITHIN SIX FEET (6) OF THE TRUNK OF A TREE, SECURE WOOD PLANKING TO THE TRUNK. THE PLANKING SHALL BE NOMINAL 2X4 DIMENSION LUMBER SECURED WITH A ROPE, BAND, OR STRAP OF SUFFICIENT DURABILITY TO REMAIIN IN PLACE FOR THE DURATION OF THE PROJECT. INSTALL PLANKS TO A HEIGHT OF TEN FEET (10) OR TO THE LOWEST MAJOR BRANCHES WHICHEVER IS LOWEST. DO NOT USE NAILS, SCREWS, OR ANY OTHER DAMAGING ATTACHMENTS UNDER ANY CIRCUMSTANCES.

8. ERECT A FILTER BERM COMPOSED OF WOOD CHIPS TO THE DIMENSIONS AND LOCATION SHOWN IN THE DETAILS. USE WOOD CHIPS LESS THAN OR EQUAL TO 5 IN. IN LENGTH WITH 95% PSSING A 2-IN. SCREEN AND LESS THAN 30% PASSING A 1-IN. SCREEN.

9. IMMEDIATELY REMOVE ANY CONCRETE, LIME OR OTHER CHEMICALS ACCIDENTALLY SPILLED WITHIN THE PROTECTED ROOT ZONE. IMMEDIATELY TREAT FOR ACCIDENTAL DAMAGE TO ANY TREE AS DIRECTED BY THE ENGINEER. SECURE THE SERVICES OF A TREE CARE SPECIALIST TO ASSESS AND/OR TREAT FOR THE DAMAGE.

10. MAINTAIN ALL TREE PROTECTION MATERIALS THROUGHOUT ENTIRE LENGTH OF PROJECT. REPAIR ANY DAMAGED TREE PROTECTION MATERIALS IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. ADDITIONAL COMPOST OR MULCH MATERIALS MAY BE REQUIRED.

11. NO TRENCHING, EXCAVATING, FILLING, OR COMPACTION IS ALLOWED WITHIN THE CRITICAL ROOT ZONE EXCEPT AS SPECIFICALLY IDENTIFIED IN THE PLANS OR APPROVED BY THE ENGINEER.

12. IF ROOT REMOVAL OR EXCAVATION IS UNAVOIDABLE WITHIN THE PREFERRED ROOT PROTECTION ZONE, HAND-DIG TO EXPOSE MAJOR TREE ROOTS OF ONE-INCH (1") DIAMETER OR GREATER. ONCE EXPOSED, PRUNE ROOTS WITH SHARP, CLEAN TOOLS DESIGNED FOR THAT PURPOSE. BACKFILL EXPOSED ROOT ENDS AS SOON AS POSSIBLE OR COVERED WITH SIX INCHES (6") SHREDDED HARDWOOD MULCH WITHIN THE SAME DAY OF EXCAVATION.

13. PRUNE ANY ROOTS EXPOSED BY CONSTRUCTION FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOTS ARE NOT TO BE BACKFILLED WITHIN TWO DAYS, COVER THEM WITH A MINIMUM OF SIX INCHES (6") OF SHREDDED HARDWOOD MULCH.

14. SHOULD ACCESS ACROSS THE CRITICAL ROOT ZONE BE NECESSARY, OPEN ONLY THAT PORTION NEEDED FOR ACCESS AND THE COMPLETION OF THE TASK. INSTALL SIX INCHES (6") OF SHREDDED HARDWOOD BARK IN ACCESS AREAS BEFORE ANY WHEELED OR TRACKED VEHICES ENTER THE CRITICAL ROOT ZONE. REPLACE PROTECTIVE FENCING TO ITS ORIGINAL POSITIONS AS SOON AS POSSIBLE AFTER THE CONSTRUCTION TASK IS COMPLETED AND REMOVE THE BARK MULCH LAYER AND STOCKPILE OUTSIDE THE CRITICAL ROOT ZONE.

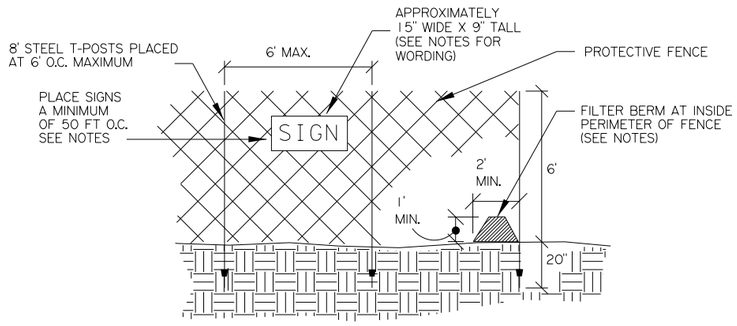
15. FOR PROPOSED UNDERGROUND UTILITIES SHOWN ELSEWHERE IN THE PLANS THAT CROSS THE CRITICAL ROOT ZONE, BORE AT A MINIMUM OF THREE FEET (3) BELOW EXISTING GRADE. TRENCH FOR BORE SHALL NOT INTRUDE INTO CRITICAL ROOT ZONE.

POST CONSTRUCTION

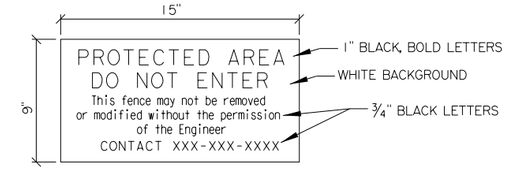
1. UPON THE COMPLETION OF CONSTRUCTION ACTIVITIES, CONDUCT A FINAL ASSESSMENT BY A TREE CARE SPECIALIST TO DETERMINE THE HEALTH AND CONDITION OF THE TREES. THE SPECIALIST SHOULD PROVIDE RECOMMENDATIONS FOR THE FOLLOWING INSPECTION ITEMS FOR NEEDED POST-CONSTRUCTION MEASURES:
   A. DAMAGE TO ANY PART OF THE TREE
   B. CHANGES IN SOILS STRUCTURE SUCH AS COMPACTION, FILLS, EROSION, OR LOSS OF ORGANIC MATTER

IMPLEMENT THE RECOMMENDATIONS MADE BY THE TREE CARE SPECIALIST AS DIRECTED. AT A MINIMUM, PERFORM THE FOLLOWING:
   A. REMOVE TREES THAT MAY HAVE DIED DURING CONSTRUCTION
   B. REMOVE ANY FILL SOIL FROM ROOT ZONES
   C. REPAIR AREAS DAMAGED DURING CONSTRUCTION

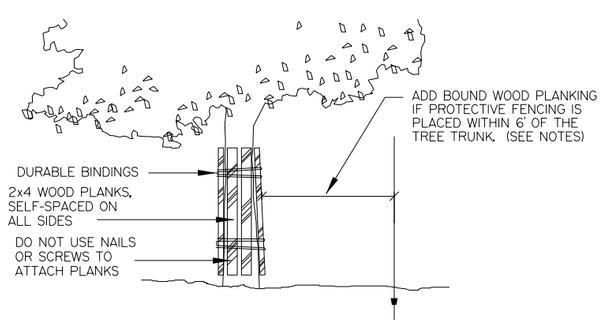
2. AFTER ALL CONSTRUCTION ACTIVITIES HAVE CEASED, REMOVE ALL TREE PROTECTION MATERIALS FROM THE PROJECT SITE. MULCH MAY BE SPREAD OVER THE SITE IN A TWO-INCH THICK MAXIMUM LAYER.



PROTECTIVE FENCE AND SIGN PLACEMENT



SIGNAGE FOR PROTECTED AREAS



WOOD PLANKING INSTALLATION

THIS WORK AND ALL ASSOCIATED MATERIALS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE SUBSIDIARY TO ITEM 100 - PREPARING RIGHT OF WAY.

NOT TO SCALE

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Texas Department of Transportation
San Antonio District

TREE PROTECTION

San Antonio District Standard

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ORIGINAL DRAWING DATE: 12-18-18	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT #			SHEET
REVISIONS	SAT	6				150
- -	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
- -	ATASCOSA		0517	01	048	SH 16
- -						