FED. RD. DIV. NO.	STATE PROJECT NO.		SHEET NO.
6	C 209-1-73, ETC.		1
STATE	STATE DIST.	COUNTY	
TEXAS	WAC	MCLENNAN, ETC	
CONT	SECT.	JOB	HIGHWAY NO.
0209	01	073, ETC.	SL 2, ETC

INDEX OF SHEETS

(1) CSJ: 0209-01-073
HIGHWAY: SL 2
AADT = 18,300 (2019)
= 22,500 (2039)
DESIGN SPEED = MEEC

(2) CSJ: 0209-01-069
HIGHWAY: US 77
AADT = 10,700 (2019)
= 14,300 (2039)
DESIGN SPEED = MEEC

(3A) CSJ: 0909-37-072
HIGHWAY: FM 3370
AADT = 600 (2019)
= 870 (2039)
DESIGN SPEED = MEEC

(3B) CSJ: 0909-37-072
HIGHWAY: FM 308
AADT = 900 (2019)
= 1050 (2039)
HIGHWAY: FM 2114
AADT = 700 (2019)
= 840 (2039)
DESIGN SPEED = MEEC

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

PROJECT: C 209-1-73, ETC.

MCLENNAN COUNTY, ETC
HIGHWAY - SL 2, ETC

CSJ: 0209-01-073, etc.

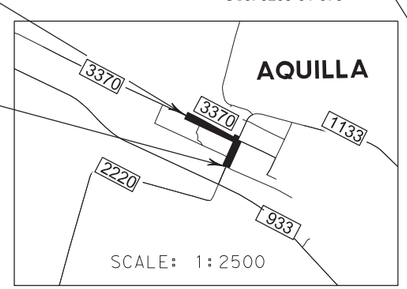
LOCATION	ROADWAY	BRIDGE	TOTAL
CSJ: 0209-01-073	6,492.00 FT. = 1.230 MI.	0.00 FT. = = 0.000 MI.	6,492.00 FT. = 1.230 MI.
CSJ: 0209-01-069	2,172.00 FT. = 0.411 MI.	0.00 FT. = = 0.000 MI.	2,172.00 FT. = 0.411 MI.
CSJ: 0909-37-072	4,110.00 FT. = 0.778 MI.	0.00 FT. = = 0.000 MI.	4,110.00 FT. = 0.778 MI.
TOTAL	12,774.00 FT. = 2.419 MI.	0.00 FT. = = 0.000 MI.	12,774.00 FT. = 2.419 MI.

LIMITS: FROM US 84 (WACO DR) TO IH 35, ETC

FOR THE CONSTRUCTION OF PEDESTRIAN SIDEWALKS
AND CURB RAMPS CONSISTING OF CONSTRUCT ADA RAMPS

END PROJECT
CSJ: 0909-37-072
℄ FM 3370 STA 114+97

BEGIN PROJECT
CSJ: 0909-37-072
℄ FM 3370 STA 100+40



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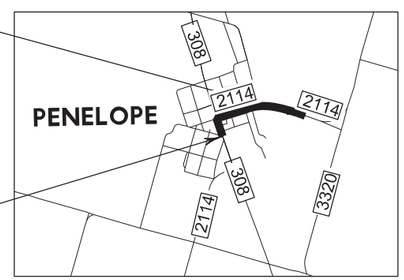
END PROJECT
CSJ: 0909-37-072
℄ FM 2114 222+83

BEGIN PROJECT
CSJ: 0909-37-072
℄ FM 308 STA 100+18



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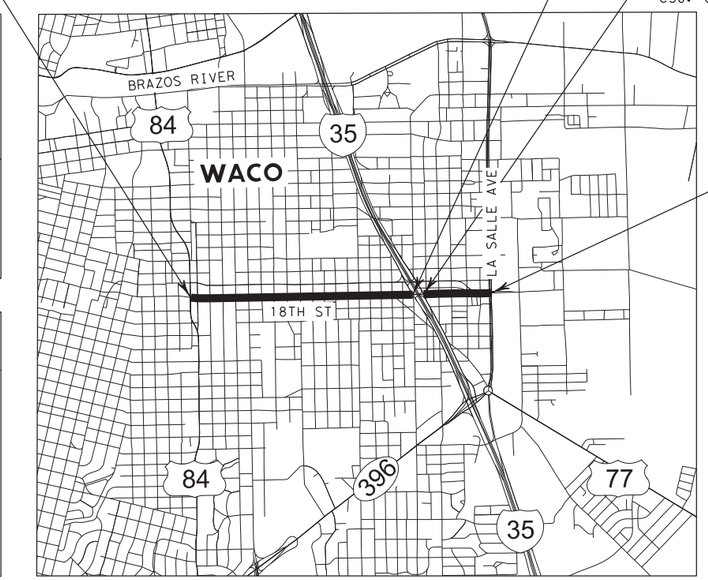
BEGIN PROJECT
US 84 (WACO DR)
℄18TH ST STA 101+43
CSJ: 0209-01-073

END PROJECT
IH 35
℄18TH ST STA 174+94
CSJ: 0209-01-073

BEGIN PROJECT
IH 35
℄ 18TH ST STA 179+83
CSJ: 0209-01-069

END PROJECT
BU 77L (LA SALLE AVE)
℄ 18TH ST STA 200+88
CSJ: 0209-01-069



SCALE: 1:5000

PLANS PREPARED BY:

GLOBAL CIVIL SOLUTIONS, LLC
F-12801

SUBMITTED FOR LETTING: DATE 4/27/2021

M.F. Muwaquet
PROJECT MANAGER
GLOBAL CIVIL SOLUTIONS, LLC

Texas Department of Transportation

RECOMMENDED FOR LETTING: DATE 5/4/2021
, P.E.
AREA ENGINEER

RECOMMENDED FOR LETTING: DATE 05/04/2021
DISTRICT DIRECTOR OF TRANSPORTATION
PLANNING AND DEVELOPMENT

APPR DATE 5/4/2021
DocuSigned by:
Stanley Swiatek
B69BD796DD564C9...
DISTRICT ENGINEER

REGISTERED ACCESSIBILITY SPECIALIST (RAS) INSPECTION REQD.
TDL # NO. TABS2021014693

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: SPECIAL LABOR PROVISIONS FOR STATE PROJECTS (000-008).

EXCEPTIONS: NO CONSTRUCTION AT 18TH ST FROM ℄ 18TH ST STA 121+02 TO STA 131+90 (OVER THE RAILROAD OVERBRIDGE)
EQUATIONS: NONE
RAILROAD CROSSINGS: NONE

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11:14:53 AM
4/27/2021

SHEET	DESCRIPTION
	I GENERAL
1	TITLE SHEET
2	INDEX OF SHEETS
3-5	PROJECT LAYOUT
6,6A-6D	GENERAL NOTES
7,7A	ESTIMATE & QUANTITIES
8-10	SUMMARY OF QUANTITIES
	II TRAFFIC CONTROL PLAN
11	TRAFFIC CONTROL AND SEQUENCE OF OPERATION
	III TRAFFIC CONTROL PLAN STANDARDS
12-23	#BC (1)-21 TO BC (12)-21
24-27	#TCP (1-1)-18 TO TCP (1-4)-18
28-31	#TCP (2-1)-18 TO TCP (2-4)-18
32	#WZ(BTS-1)-13
33	#WZ(BTS-2)-13
	IV ROADWAY
34-61	SL 2 SIDEWLAK PLAN
62-71	US 77 SIDEWLAK PLAN
72-78	FM 3370 SIDEWLAK PLAN
79-90	FM 2114 SIDEWLAK PLAN
91-102	SUMMARY OF SMALL SIGN
103-107	MISCELLANEOUS DETAILS
	V ROADWAY STANDARDS
108-111	#PED-18
112-114	#PRD-13
115	#CCCG-21
116-119	#PM(1)-20 THRU PM(4)-20
120	#SMD (GEN)-08
121-123	#SMD (SLIP-1)-08 THRU SMD (SLIP-3)-08
124	#CONCRETE SIDEWALK DETAILS (WACO DISTRICT STANDARD) (SHEET 1 OF 3)
125	#CONCRETE SIDEWALK DETAILS (WACO DISTRICT STANDARD) (SHEET 2 OF 3)
126-127	#ADA DRIVEWAY DETAILS (MOD)
128-129	#SETP-CD
130	#GF(31)-19
131	#GF(31)MS-19
132	#SGT(11S)31-18
133	#SGT(12S)31-18
	VI ENVIRONMENTAL ISSUES
134	(EPIC) ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS
135	(SW3P) TXDOT STORM WATER POLLUTION PREVENTION PLAN (WACO DISTRICT STANDARD)
136	SW3P GENERAL LAYOUT
	VII ENVIRONMENTAL STANDARDS
137	#EC(1)-16
138-140	#EC(9)-16

THE STANDARD SHEETS (#) SPECIFICALLY IDENTIFIED HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT

M.F.Muwaquet , P.E. 09/28/2021 DATE

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243

F-12801

Texas Department of Transportation

INDEX OF SHEETS

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	2
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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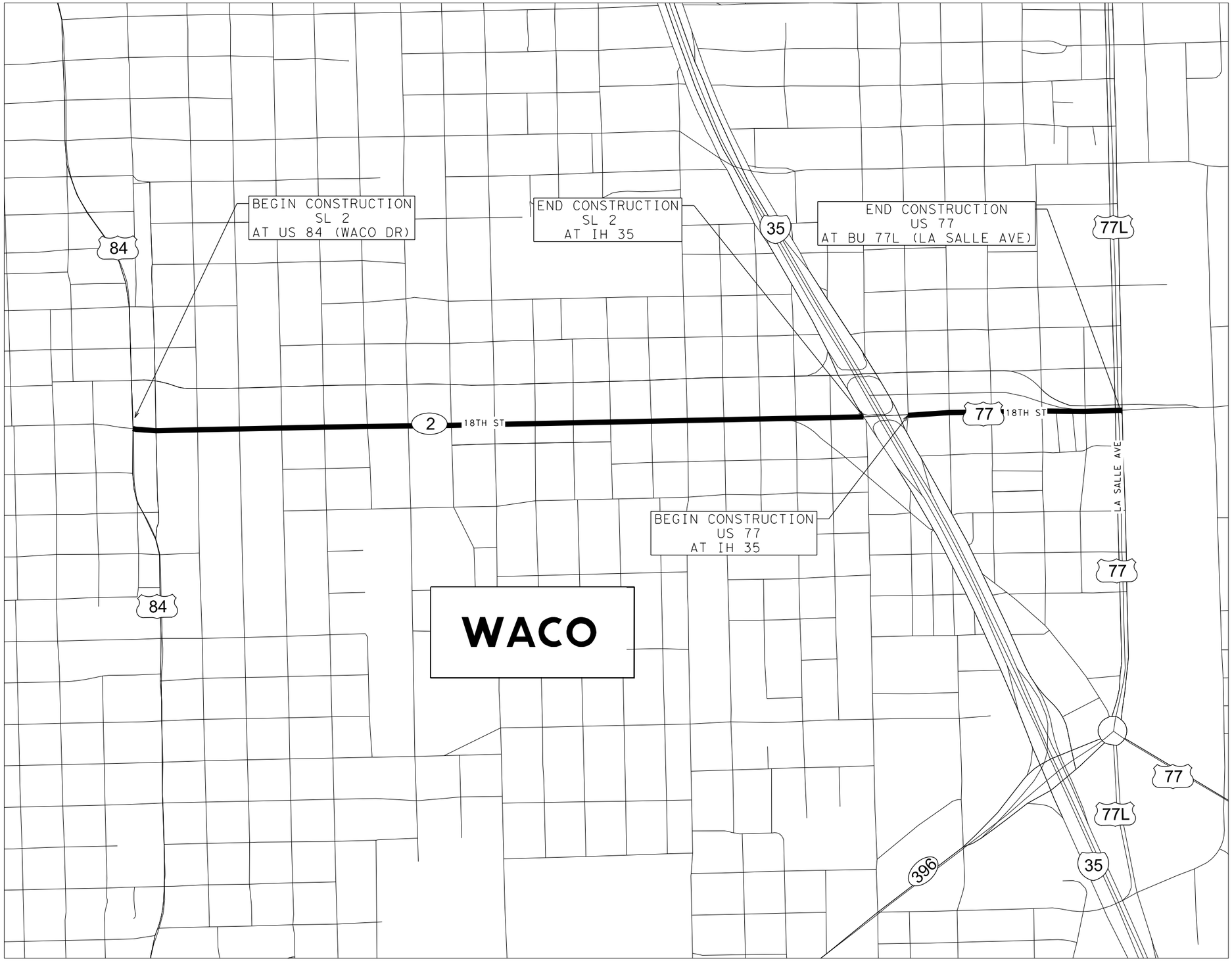
HIGHWAY	FROM	TO
SL 2	US 84 (WACO DR)	IH 35
US 77	IH 35	BU 77L



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0' 500' 1000'

SCALE IN FEET

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243

F-12801

Texas Department of Transportation

PROJECT LAYOUT

WACO, TEXAS

SHEET 1 OF 3

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	3
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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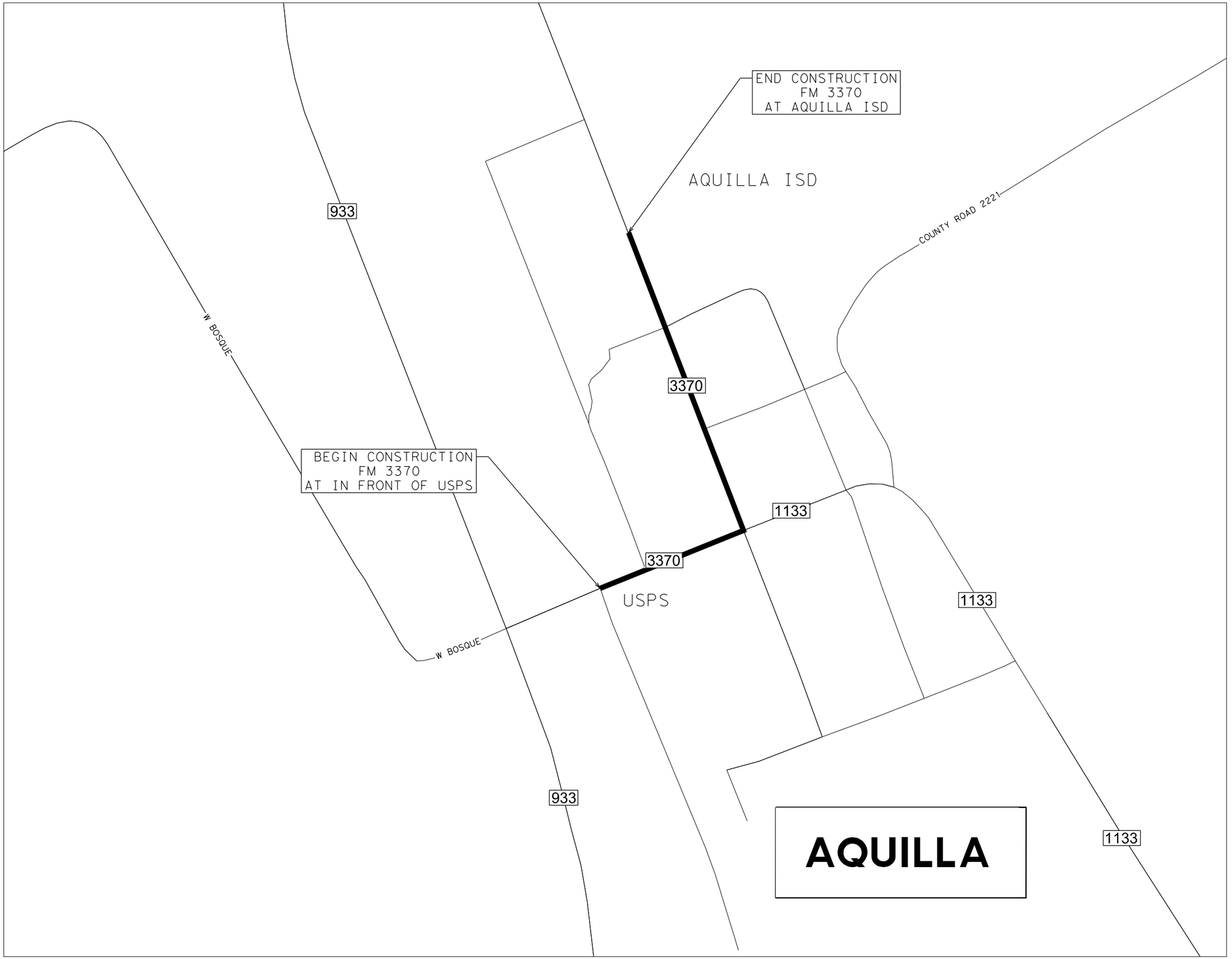
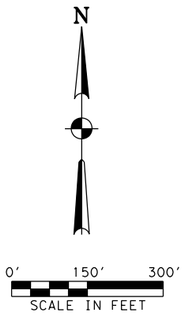
3/30/2021

HIGHWAY	FROM	TO
FM 3370	IN FRONT OF USPS	AQUILLA ISD





STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED
PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

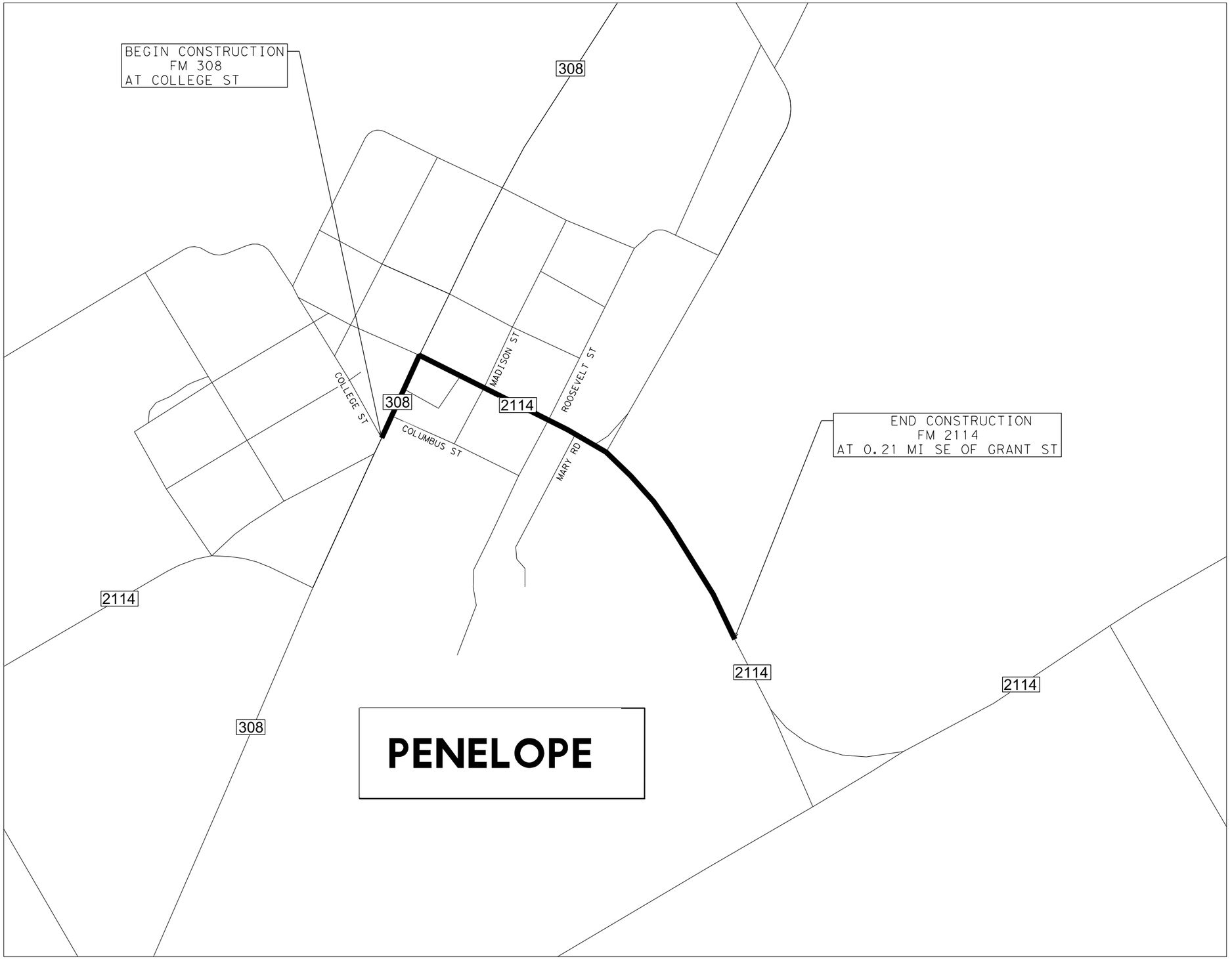
PROJECT LAYOUT

AQUILLA, TEXAS

SHEET 2 OF 3

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	4
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

HIGHWAY	FROM	TO
FM 308	COLLEGE ST	COMMERECE ST
FM 2114	FM 308	0.21 MI SE OF GRANT ST



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SCALE IN FEET

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED
PROFESSIONAL ENGINEER
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

PROJECT LAYOUT

PENELOPE, TEXAS

SHEET 3 OF 3

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	5
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

GENERAL

The construction, operation and maintenance of the proposed project will be consistent with the state implementation plan as prepared by the Texas Commission on Environmental Quality.

The disturbed area for this project, as shown on the plans is 0.9 acres for City of Waco, 0.2 acres for City of Aquilla, and 0.3 acres for town of Penelope. This project requires no coordination or permits with the environmental resources agencies, as outlined in the plan set Environmental Permits, Issues and Commitments. There is a high probability that an environmentally sensitive area could be encountered on the contractor designated Project-Specific Locations (PSL) for this project (haul roads, equipment staging areas, borrow pits, disposal sites, field offices, storage areas, parking areas, etc.). Item 7.6 “Project-Specific Locations”, provides a listing of regulatory agencies that may need to be contacted regarding this project.
Leave all right of way areas undisturbed until actual construction is to be performed in said areas.

Contractor questions on this project are to be emailed to the Waco District at the following address:

Bill Compton - Wacoprebid@txdot.gov, 254-867-2707, 100 S. Loop Dr., Waco, TX
Carmen Chau - Wacoprebid@txdot.gov, 254-867-2794, 100 S. Loop Dr., Waco, TX

Or Via phone or in person to the following individual(s):
Area Engineer’s: Clayton Zacha, P.E. (254) 772-2890
Assistant Area Engineer’s: Jeff Jackson, P.E. (254) 772-2890

All contractor questions will be reviewed by the Area Engineer or Assistant Area Engineer. Once a response is developed, it will be posted to TxDOT’s Public FTP at the following Address:
https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/

All questions submitted that generate a response will be posted through this site. The site is organized by District, Project Type (Construction or Maintenance), Letting Date, CCSJ/Project Name.

GENERAL NOTES

ITEM 2: INSTRUCTIONS TO BIDDERS

This proposed Contract will not include federal funds. Bid tabulations will include stipulations in accordance with 2.11.5.3 “Rubber Additives” and 2.11.5.5 “Home State Bidding Preference”.

ITEM 5: CONTROL OF THE WORK

Underground utilities owned by the Texas Department of Transportation may be present within the Right-Of-Way on this project. For signal, illumination, surveillance, and communications & control maintained by TxDOT, call the TxDOT Traffic Signal Office (254)867-2808 for locates a minimum of 48 hours in advance of excavation. For irrigation systems, call TxDOT Landscape Office (254)867-2726 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 when utilities are damaged due to Contractor’s negligence including, but not limited to, repair or replacement at the Contractor’s expense.

ITEM 6: CONTROL OF MATERIALS

References to manufacturer’s trade name or catalog numbers are for the purpose of identification only and the contractor will be permitted to furnish like materials of other manufacturers provided they are of equal quality and comply with specifications for this project.

ITEM 7: LEGAL RELATIONS AND RESPONSIBILITIES

No significant traffic generator events identified.

If utilizing private property for waste disposal sites, field office sites, equipment storage sites or for any other purpose involved with this project, provide to the Engineer written proof of the property owner's approval of the use of this property. This proof may be in the form of a letter or agreement signed by the property owner or other documents acceptable to the Engineer.

Personal vehicles of the contractor’s employees will not be parked within the right of way at any time including any section closed to public traffic, unless the vehicle is being utilized for construction procedures. However, the contractor’s employees may park on the right of way at the sites where the contractor has his office, equipment and materials storage yard.

ITEM 8: PROSECUTION AND PROGRESS

This Project will be a Standard Workweek in accordance with Article 8.3.1.4.

Meet bi-weekly or at intervals as agreed upon with the engineer to notify him or her of planned work for the upcoming 3-week period.

For this project, provide a Bar Chart progress schedule.

ITEM 104: REMOVING CONCRETE

In those areas where the pavement is not to be overlaid, provide a smooth surface after the curb removal. Planning or grinding is considered an acceptable method at these locations. Measurement and payment is in accordance with this item.

ITEMS 105: REMOVING TREATED AND UNTREATED BASE AND ASPHALT PAVEMENT

Saw existing asphalt along neat lines where portions are to be left in place temporarily or permanently. Sawing is not paid for directly, but is subsidiary to this item.

Take possession of recycled asphalt pavement from the project and recycle the material.

Properly dispose of unsalvageable material at Contractor's expense.

Remove the loose material from the roadway before opening to traffic.

ITEM 160: TOPSOIL

Salvage the existing topsoil from the cut/fill areas. Topsoil not stored in small windrows will be stockpiled in locations with heights no greater than four (4) feet and dumped loose from Contractor equipment. The Contractor will minimize topsoil compaction and limit equipment being driven over stockpiled topsoil.

Additional Topsoil will come from approved sources outside of the ROW. Topsoil must come from a location within six (6) inches of the natural ground surface to ensure it contains nutrients and is not sterile soil. Off ROW top soil will contain a minimum organic content of three & one-half (3.5%) percent, based on soil test results.

ITEM 162: SODDING FOR EROSION CONTROL

Block sod (Bermuda grass) will be cynodon dactylon Bermuda grass cut to a minimum depth (thickness) of one (1) inch. The sod will have the following characteristics: (1) uniformity; (2) good color; (3) free of weeds, weed seed, insects, and disease; (4) healthy, virile root system of dense, thickly matted roots throughout the soil of the sod; (5) adequate moisture to prevent drying out by exposure to the air and sun to the extent as to damage sod.

Prior to laying the block sod, blade the area and rake smooth. Refer to the plans and details for areas to receive the sod. Remove one (1) in. of soil along paved edges and curb lines before laying sod and dress the slope to match all exposed edges after placing the sod.

ITEM 164: SEEDING FOR EROSION CONTROL

Permanent seed mixes for both urban and rural projects including sand or clay soils in the Waco District will be bid and installed to include a minimum of one & one-half (1.5) pounds per acre Green Sprangletop seed and four (4) pounds per acre Bermudagrass seed, with other seed types also being included and quantities remaining unchanged.

ITEM 421: HYDRAULIC CEMENT CONCRETE

Furnish mix designs to the Engineer in a format compatible to the latest version of the Department's Construction Management System (Site Manager). Mix Design templates will be provided by the Engineer.

Supply the Engineer with a list of certified personnel and copies of their current ACI certificates before beginning production and when personnel changes are made. Supply hard copies of calibration reports for testing equipment when required by the Engineer.

ITEM 440: REINFORCEMENT FOR CONCRETE

Fiber Reinforced Concrete (FRC) can be used as a substitute for Non-Structural Class Reinforced Concrete in Mow-Strip and Rip Rap Items. FRC may also be used for other Non-Structural Class Reinforced Concrete Items as approved.

ITEM 464: REINFORCED CONCRETE PIPE

The concrete collars and the connections of pipes to existing or proposed concrete boxes or pipe will not be paid for directly but will be considered subsidiary to the various bid items.

ITEM 479: ADJUSTING MANHOLES AND INLETS

Accept ownership of inlet grates and manhole covers and properly dispose of them outside the limits of the right of way in accordance with federal, state and local regulations.

Submit a plan detailing proposed methods of handling phased construction at manholes and water valves.

ITEM 500: MOBILIZATION

Material On Hand (MOH) will not be used in calculating partial payments for Mobilization.

ITEM 502: BARRICADES, SIGNS, AND TRAFFIC HANDLING

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.

Access will be provided to all business and residences at all times. Where turning radii are limited during phased construction at intersections, provide all weather surfaces such as RAP or base in turning movements to accommodate and to protect the traffic from edge drop-offs. Materials, labor, maintenance and removal for these temporary accesses and radii will not be paid for directly but will be considered subsidiary to the various bid items.

Provide written proposed lane closure information by 1:00 pm on the business day prior to the proposed closures. Do not close lanes when this requirement is not met.

When excavation is required next to a pavement lane carrying traffic and the widening is not completed by the end of the work day, backfill against the edge of the pavement with at least a 3:1 slope using an acceptable material to support vehicular traffic. Carefully remove and dispose of this material when work resumes. Backfilling pavement edges, and the materials required for the work will be subsidiary to this item.

Place barricades and signs in locations that do not obstruct the sight distance of drivers entering the highway from driveways or side streets.

The Contractor Responsible Person(s) (CRP) for Work Zone Traffic Controls will inspect and ensure any deficiencies are corrected each and every day throughout the duration of this contract. Any misaligned or damaged traffic control devices will be repaired as soon as practical after deficiency is discovered.

In addition to providing a Contractor's Responsible Person and a phone number for emergency contact, have an employee(s) available to respond on the project for emergencies and for taking corrective measures within One (1) Hour.

ITEM 506: TEMPROARY EROSION, SEDIMENTATION AND ENVIRONMENTAL CONTROLS

Take all practicable precautions to prevent debris from being discharged into the Waters of Texas or a designated wetland. Install Best Management Practices before demolition begins and maintain them during the demolition. Remove any debris or construction material that escapes containment devices and are discharged into the restricted areas, before the next rain event or within 24 hours of the discharge.

Provide SW3P Signs. Obtain from the Engineer a copy of the project's completed TPDES Storm Water Program Construction Site Notice and Contractor Site Notice. Laminate the sheets and bond with adhesive to 36" X 36" sign blanks. Ensure the sheets remain dry. Apply Type C Blue reflective sheeting as the background and add the text "SW3P" in 5" white lettering, centered at the top. Attach the signs to approved temporary mounts and locate at each of the project limits just inside the right of way line at a readable height or as directed by the Engineer. If the sign cannot be placed outside the clear zone, it must adhere to the TMUTCD. SW3P signs, maintenance, and reposting (for replacement or as needed to ensure readability) will be subsidiary to Item 502.
Leave all right of way areas undisturbed until actual construction is to be performed in said areas.

No soil disturbing activities will begin on any section of TxDOT ROW without adequate sedimentation controls first being installed and functioning at adjacent drainage outfalls. Begin and continuously prosecute the repairs, additions and maintenance of erosion and sedimentation control devices within seven days after the Contractor receives each Form 2118, Field Inspection and Maintenance Report, from the Engineer. Failure of the Contractor to fulfill either of the above requirements places TxDOT in potential non-compliance with permit requirements and may result in withholding estimates or stopping work or both until all environmental permit requirements are fulfilled.

Concrete Washouts are required per the CGP. The Concrete Washout Area(s) structural controls must consist of temporary berms, temporary shallow pits, and/or temporary storage tanks to prevent contaminated runoff and must be lined as to prevent contamination of underlying soil. Ensure pits properly maintained including removal of concrete as not to allow over flow. The location(s) of washout area will be approved by the Engineer. When washout pits are no longer needed, they will be removed and area will be restored to original condition. This work, materials and labor will not be measured or paid for directly but will be subsidiary to Item 506, "Temporary Erosion, Sedimentation, and Environmental Controls."

Cleaning and sweeping of open roadways due to material spillage or loss from Contractor equipment or tires will be the responsibility of the Contractor at no cost to TxDOT. This work will not be charged as Item 738, "Cleaning and Sweeping Highways". Cleaning and sweeping of roadways will be completed as directed, including multiple times per day if necessary, to maintain acceptable roadways for the traveling public and to meet environmental regulations. Construction activities will cease when material deposited on the roadway is not properly removed or when equipment is not available as needed. Adequate construction exits will be planned, constructed and maintained by the Contractor per Item 506, "Temporary Erosion, Sedimentation, and Environmental Controls".

ITEM 529: CONCRETE CURB, GUTTER, AND COMBINED CURB AND GUTTER

Attach machine laid curb to pavement with a two compound epoxy adhesive. Epoxy will be applied to that area of pavement under the machine laid curb and must be a minimum of six (6) inches in width and 0.2 inches (20 mils) thick. The epoxy will be applied uniformly by an approved method.

Provide grooved joints at 10-foot intervals and ¾ inch expansion joint material for doweled curb at the same locations as on the existing pavement.

For Curb and Gutter sections, provide grooved joints at 10-foot intervals and ¾ inch expansion joint material at a maximum of 50-foot centers and at all radius points and inlets.

Curb and Gutter transitions will be paid for by the foot at the unit price for the corresponding curb or curb and gutter section.

Saw joints at the same location as on the existing pavement.

ITEM 531: SIDEWALKS

The locations and details shown on the plans may be field modified by the Engineer.

In areas where there is no curb fillet or concrete pavement, saw cut the existing curb and gutter and remove the curb.

When lack of right of way width or obstructions creates insufficient space, the ramp may be relocated within the right of way when authorized by the Engineer. All deficient ramps will be removed and replaced at the Contractor's expense.

All curbs on curb ramps will not be paid for directly but are considered subsidiary to the various bid items.

Notify the Engineer 48 hours in advance of beginning operations at a new location.

Schedule work such that two-way traffic is provided through all intersections and intersecting streets at all times, unless otherwise authorized by the Engineer.

Limit operations such that no more than 12 separate curb ramp locations are under construction and incomplete at any time, unless otherwise authorized by the Engineer. Do not perform work in more than two cities unless otherwise approved by the Engineer.

Complete construction at curb ramp locations within ten working days. This includes concrete removal, concrete placement, backfilling, surface preparation for pavement markings, prefabricated pavement markings, and repair of existing pavement. Failure to finish within ten working days will result in restricting the number of ramp locations that may be under construction at any given time.

Chicago-brick-red truncated dome brick pavers or an approved equivalent are required for all curb ramps.

Removal and disposal of existing asphaltic concrete is considered subsidiary to this item.

ITEM 644: SMALL ROADSIDE SIGN ASSEMBLIES

Bolt Clamp type will be used on Texas Triangular Slip Base System.

As practical with new construction, leave the existing sign assemblies in place until the proposed foundation, post and sign are in installed, and then remove the old sign assemblies.

Do not leave any sign foundation holes open overnight. Ensure all holes drilled are at least the minimum required depth with no loose material remaining in the hole.

Stake proposed sign locations and receive approval before installation of sign foundations.

Existing Mile Markers Signs are to be relocated to their original location(s) as they were prior to the beginning of the project.

Expanded foam foundations are not permitted.

Cut the bottom of all posts square.

For sign types which design details are not shown on these plans, fabricate according to the “STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS”.

Removed material that is deemed salvageable (signs and posts) will be the property of TxDOT. Deliver salvageable material to the TxDOT Maintenance Office. Remove unsalvageable material.

The Contractor will relocate the existing double-sided street name signs and furnish the post mounted brackets for the street name signs to be paid for as part of the proposed Stop Signs (R1-1). Existing street name signs will be mounted above Stop signs. If damaged while being relocated, the Contractor will furnish new double-sided street name sign at their own expense.

ITEM 666: RETROREFLECTORIZED PAVEMENT MARKINGS

The Contractor will layout the proposed striping in accordance with TxDOT Traffic Control Plan Standards and latest version Texas Manual on Uniform Traffic Control Devices (TMUTCD) and project striping layout sheets. The Engineer will verify proposed striping layout prior to the beginning of striping operations.

The Contractor will locate the beginning and ending points of No Pass Zones.

ITEM 677: ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS

Water blasting method will be used on all final pavement surfaces for removal of temporary or permanent pavement markings.

The following are considered acceptable Pavement Marking Removal methods on this project for non-final pavement surfaces:

Provide 2’ wide strip seals
Water blasting
Mechanical Method

ITEM 6001: PORTABLE CHANGEABLE MESSAGE SIGN

This project will require “full matrix” type portable changeable message signs.

Ensure that the Contractor’s Responsible Person for traffic control can revise messages within thirty (30) minutes of notification.

Furnish 8 portable changeable message signs. The portable changeable message sign(s) will be used for all lane closures as shown on the traffic control plan standard sheets.

Supply portable changeable message sign(s) in accordance with the Traffic Control Plan standard sheets and Article 6f.55 of the Texas Manual on Uniform Traffic Control Devices for Streets and Highways Part VI.

ITEM 6185: TRUCK MOUNTED ATTENUATORS

The total number of truck mounted attenuators (TMA) required when utilizing the traffic control standards are shown in the tables below.

TCP 1 Series	Scenario		Required TMA	
(1-1)-18 / (1-2)-18			1	
(1-3)-18	A	B	1	2
(1-4)-18			1	

TCP 2 Series	Scenario		Required TMA	
(2-1)-18 / (2-2)-18 / (2-4)-18	All		1	
(2-3)-18	A	B	1	2

WZ (BTS) Series	Scenario	Required TMA
(BTS-1)-13	Near Side Lane Closure	1

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 needed for the project for those times per plan requirements. Additional TMAs used that are not specified in the plans in which the contractor expects compensation will require prior approval from the Engineer.

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Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0209-01-073 **DISTRICT** Waco **COUNTY** Hill, McLennan
HIGHWAY SL 2, US 77, Various

			CONTROL SECTION JOB	**0209-01-069**		**0209-01-073**		**0909-37-072**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00132846**		**A00182542**		**A00135091**			
			COUNTY	**McLennan**		**McLennan**		**Hill**			
			HIGHWAY	**US 77**		**SL 2**		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	100-6009	PREPARING ROW (TREE) (6" TO 24" DIA)	EA	1.000		5.000		3.000		9.000	
	104-6013	REMOVING CONC (FOUNDATIONS)	SY			3.700				3.700	
	104-6015	REMOVING CONC (SIDEWALKS)	SY	930.000		1,364.000				2,294.000	
	104-6017	REMOVING CONC (DRIVEWAYS)	SY	279.000		1,842.000				2,121.000	
	104-6028	REMOVING CONC (MISC)	SY			2.000				2.000	
	104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	264.000		843.000		296.000		1,403.000	
	105-6096	REMOV STAB BASE AND ASPH PAV (0"-12")	SY	20.000		184.000		33.000		237.000	
	160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	978.000		1,085.000		965.000		3,028.000	
	162-6002	BLOCK SODDING	SY	978.000		1,085.000		965.000		3,028.000	
	164-6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY					400.000		400.000	
	168-6001	VEGETATIVE WATERING	MG	22.400		23.600		31.600		77.600	
	340-6122	D-GR HMA(SQ) TY-D PG70-22	TON			500.000				500.000	
	432-6001	RIPRAP (CONC)(4 IN)	CY	8.900		73.500		2.700		85.100	
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY					22.700		22.700	
	450-6047	RAIL (HANDRAIL)(TY A)	LF					20.000		20.000	
	464-6003	RC PIPE (CL III)(18 IN)	LF					9.000		9.000	
	467-6358	SET (TY II) (18 IN) (RCP) (4: 1) (C)	EA					2.000		2.000	
	479-6003	ADJUSTING MANHOLES & INLETS	EA	2.000		1.000				3.000	
	479-6004	ADJUSTING MANHOLES (SANITARY)	EA	3.000		1.000		1.000		5.000	
	479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	1.000		1.000				2.000	
	479-6008	ADJUSTING MANHOLES (WATER METER)	EA	5.000		3.000				8.000	
	496-6030	REMOVE STR (BOLLARD)	EA			1.000				1.000	
	500-6001	MOBILIZATION	LS	0.160		0.600		0.240		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO			8.000				8.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1,760.000		5,000.000		3,200.000		9,960.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1,760.000		5,000.000		3,200.000		9,960.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	440.000		1,250.000		800.000		2,490.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	440.000		1,250.000		800.000		2,490.000	
	529-6008	CONC CURB & GUTTER (TY II)	LF	497.000		2,330.000		491.000		3,318.000	
	530-6004	DRIVEWAYS (CONC)	SY	300.000		1,745.000		681.000		2,726.000	
	530-6017	DRIVEWAYS (CONC) (HES)	SY					250.000		250.000	
	531-6001	CONC SIDEWALKS (4")	SY	1,600.000		4,065.000		2,339.000		8,004.000	
	531-6004	CURB RAMPS (TY 1)	EA	14.000		50.000		9.000		73.000	
	531-6005	CURB RAMPS (TY 2)	EA	3.000		3.000		2.000		8.000	
	531-6006	CURB RAMPS (TY 3)	EA	2.000		46.000		3.000		51.000	
	531-6008	CURB RAMPS (TY 5)	EA	2.000		6.000		1.000		9.000	
	531-6010	CURB RAMPS (TY 7)	EA	4.000		26.000		22.000		52.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0209-01-073 **DISTRICT** Waco **COUNTY** Hill, McLennan
HIGHWAY SL 2, US 77, Various

			CONTROL SECTION JOB	**0209-01-069**		**0209-01-073**		**0909-37-072**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00132846**		**A00182542**		**A00135091**			
			COUNTY	**McLennan**		**McLennan**		**Hill**			
			HIGHWAY	**US 77**		**SL 2**		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	531-6013	CURB RAMPS (TY 10)	EA	1.000		6.000				7.000	
	531-6016	CURB RAMPS (TY 21)	EA	1.000		1.000				2.000	
	531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	20.000		558.000		172.000		750.000	
	540-6002	MTL W-BEAM GD FEN (STEEL POST)	LF					256.000		256.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA					2.000		2.000	
	560-6025	RELOCATE EXISTING MAILBOX	EA					1.000		1.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	12.000		34.000		8.000		54.000	
	644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	4.000		14.000		6.000		24.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	541.000		2,710.000		428.000		3,679.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	252.000		564.000		131.000		947.000	
	690-6123	RELOCATE OF PEDESTRIAN PUSH BUTTON	EA	2.000		4.000				6.000	
	5033-6001	FIXED BOLLARD	EA			2.000				2.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.000		2.000		4.000		8.000	
	6027-6009	GROUND BOX (ADJUST)	EA	3.000		19.000				22.000	
	6185-6002	TMA (STATIONARY)	DAY	40.000		40.000		80.000		160.000	
	6185-6003	TMA (MOBILE OPERATION)	HR	30.000		30.000		60.000		120.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS			1.000				1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS			1.000				1.000	

SHT NO	100 6009	104 6013	104 6015	104 6017	104 6028	104 6029	105 6096	160 6003	162 6002	164 6035	168 6001	432 6001	432 6045	450 6047	464 6003	467 6358	479 6003	479 6004	479 6005	479 6008
	PREPARING ROW (TREE) (6" TO 24" DIA)	REMOVING CONC (FOUNDATIONS)	REMOVING CONC (SIDEWALKS)	REMOVING CONC (DRIVEWAYS)	REMOVING CONC (MISC)	REMOVING CONC (CURB OR CURB & GUTTER)	REMOV STAB BASE AND ASPH PAV (0"-12")	FURNISHING AND PLACING TOP SOIL (4")	BLOCK SODDING	DRILL SEEDING (PERM) (RURAL) (CLAY)	VEGETATIVE WATERING	RIPRAP (CONC) (4 IN)	RIPRAP (MOW STRIP)(4 IN)	RAIL (HANDRAIL) (TY A)	RC PIPE (CL III)(18 IN)	SET (TY II) (18 IN) (RCP) (4: 1) (C)	ADJUSTING MANHOLES & INLETS	ADJUSTING MANHOLES (SANITARY)	ADJUSTING MANHOLES (WATER VALVE BOX)	ADJUSTING MANHOLES (WATER METER)
	SY	SY	SY	SY		LF	SY	SY	SY	SY	MG	CY	CY	LF	LF	EA	EA	EA	EA	EA
SHEET 1 of 28		0.3	28	62								0.5								
SHEET 2 of 28			123	66		34		2	2		0.1	9.9								
SHEET 3 of 28				4			39					3.0								
SHEET 4 of 28			101	29		71		129	129		2.3	3.0								1
SHEET 5 of 28			16	241		8	32	101	101		2.0	4.8								
SHEET 6 of 28			54	76		77						0.4								
SHEET 7 of 28			98	28		21		42	42		1.0									
SHEET 8 of 28			106					7	7		0.2									
SHEET 9 of 28			34	92		25	27	24	24		0.6	2.2								
SHEET 10 of 28			14	84		70		5	5		0.1	1.3							1	2
SHEET 11 of 28		0.6		48		48						3.1								
SHEET 12 of 28			25	27	2		19					0.2								
SHEET 13 of 28		2	104	185		50						2.5								
SHEET 14 of 28			38	217		16						1.8								
SHEET 15 of 28			61	71		69		9	9		0.2	8.0								
SHEET 16 of 28			59	102		32		56	56		1.3	7.1					1			
SHEET 17 of 28			31	117		21		58	58		1.3	1.7								
SHEET 18 of 28			14	3		66	48	23	23		0.5									
SHEET 19 of 28			139	73		12		9	9		0.2	2.7								
SHEET 20 of 28			76	103				100	100		2.0	0.3								
SHEET 21 of 28		0.8	111	10		54	6	58	58		1.1	6.2						1		
SHEET 22 of 28	3			94		18	13	110	110		2.5	6.2								
SHEET 23 of 28								10	10		0.2	5.8								
SHEET 24 of 28			28	59		61		152	152		3.5	0.4								
SHEET 25 of 28				17				37	37		0.9	0.2								
SHEET 26 of 28	2							30	30		0.7									
SHEET 27 of 28			57			54		42	42		1.0	0.4								
SHEET 28 of 28			47	34		36		81	81		1.9	1.8								
CSJ: 0209-01-073 (SL 2) TOTALS	**5**	**3.7**	**1364**	**1842**	**2**	**843**	**184**	**1085**	**1085**		**23.6**	**73.5**					**1**	**1**	**1**	**3**
SHEET 1 of 10			94	23		6		107	107		2.5	0.3								2
SHEET 2 of 10				31				84	84		1.9	2.6								
SHEET 3 of 10			27			91		97	97		2.3	0.8								
SHEET 4 of 10				51				35	35		0.8									
SHEET 5 of 10	1		106	21		52		174	174		4.0	0.4								
SHEET 6 of 10			132	35				132	132		3.0									2
SHEET 7 of 10			255	64		45		91	91		2.1						2	1		1
SHEET 8 of 10			229	54				102	102		2.3	3.7						1		
SHEET 9 of 10			62			16		120	120		2.8	1.1						1		
SHEET 10 of 10			25			54	20	36	36		0.7								1	
CSJ: 0209-01-069 (US 77) TOTALS	**1**		**930**	**279**		**264**	**20**	**978**	**978**		**22.4**	**8.9**					**2**	**3**	**1**	**5**
SHEET 1 of 7								38	38		0.9									
SHEET 2 of 7								78	78		1.8									
SHEET 3 of 7								95	95		2.2									
SHEET 4 of 7								38	38		1.0									
SHEET 5 of 7								45	45		1.0									
SHEET 6 of 7								51	51		1.2			20.0	9	2				
SHEET 7 of 7								53	53		1.2									
CSJ: 0909-37-072 (AQUILLA) TOTALS								**398**	**398**		**9.3**			**20**	**9**	**2**				
SHEET 1 of 12								47	47		1.1									
SHEET 2 of 12							33	56	56		1.3									
SHEET 3 of 12						129		28	28		0.6	0.2								
SHEET 4 of 12						152		34	34		0.8									
SHEET 5 of 12						15		100	100		2.3									
SHEET 6 of 12	3							98	98		2.3							1		
SHEET 7 of 12								31	31		0.7									
SHEET 8 of 12								46	46		1.1									
SHEET 9 of 12								52	52	200	5.8	0.7	3.5							
SHEET 10 of 12								28	28	200	5.2		11.3							
SHEET 11 of 12								29	29		0.7	1.8	7.9							
SHEET 12 of 12								18	18		0.4									
CSJ: 0909-37-072 (PENELOPE) TOTALS	**3**					**296**	**33**	**567**	**567**	**400**	**22.3**	**2.7**	**22.7**					**1**		
PROJECT TOTAL	**9**	**3.7**	**2294**	**2121**	**2**	**1403**	**237**	**3028**	**3028**	**400**	**77.6**	**85.1**	**22.7**	**20**	**9**	**2**	**3**	**5**	**2**	**8**

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

PED FACILITY IMPROVEMENT

SUMMARY OF QUANTITIES

SHEET 1 OF 3

DESIGN	FED.RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	8
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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9/28/2021

SHT NO	496 6030	529 6008	530 6004	530 6017	531 6001	531 6004	531 6005	531 6006	531 6008	531 6010	531 6013	531 6016	531 6033	540 6002	544 6001	560 6025	644 6004	644 6068	666 6048	677 6007	690 6123	5033 6001	6027 6009
	REMOVE STR (BOLLARD)	CONC CURB & GUTTER (TY II)	DRIVEWAYS (CONC)	DRIVEWAYS (CONC) (HES)	CONC SIDEWALK (4")	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)	CURB RAMPS (TY 3)	CURB RAMPS (TY 5)	CURB RAMPS (TY 7)	CURB RAMPS (TY 10)	CURB RAMPS (TY 21)	CONC SIDEWALK (SPECIAL) (TY B)	MTL W-BEAM GD FEN (STEEL POST)	GUARDRAIL END TREATMENT (INSTALL)	RELOCATE EXISTING MAILBOX	IN SM RD SN SUP&AM TY10BWG(1)SA (T)	RELOCATE SM RD SN SUP&AM TY 10BWG	REFL PAV MARK TY 1 (W)24"(SLD) (100MIL)	ELIM EXT PAV MRK & MRKS (24")	RELOCATE OF PEDESTRIAN PUSH BUTTON	FIXED BOLLARD	GROUND BOX (ADJUST)
	EA	LF	SY	SY	SY	EA	EA	EA	EA	EA	EA	EA	SY	LF	EA	EA	EA	EA	LF	LF	EA	EA	EA
SHEET 1 of 28			62		23												2						
SHEET 2 of 28		282			223	4		4									2	2	27	15			
SHEET 3 of 28		33	43		29					2								1					
SHEET 4 of 28		172	37		167	6	1	1											340	58			2
SHEET 5 of 28		175	125		224	2												1					
SHEET 6 of 28		58	76		60	3			1	1									410	90			1
SHEET 7 of 28			28		87					3													1
SHEET 8 of 28		16			46	3		2		3									352	62			4
SHEET 9 of 28		90	93		73	2						1											
SHEET 10 of 28		55	78		54	5		2		3									341	41		2	2
SHEET 11 of 28		122			101	8							17						340	40			1
SHEET 12 of 28		69	48		70						2		115					1					
SHEET 13 of 28		80	169		182	6				2								1	365	75			3
SHEET 14 of 28		55	217		193												2						
SHEET 15 of 28		120	86		172	2		3		1							2						
SHEET 16 of 28		51	160		249	4		3		1							4						
SHEET 17 of 28		236	70		283		2										4						
SHEET 18 of 28		118	91		191			2		3	1												
SHEET 19 of 28		322			252	2		3		3							4	1					
SHEET 20 of 28		65	101		137														40				
SHEET 21 of 28	1	54	12		200	2		2	2										302	142	4		5
SHEET 22 of 28		3	13		209			5	3				24				4	2					
SHEET 23 of 28		43	47		150								131				2						
SHEET 24 of 28		13	90		90			8					91				2						
SHEET 25 of 28			17		108			1		2	3		81					4					
SHEET 26 of 28			38		170								77				2						
SHEET 27 of 28		30			176			8					22				2	1					
SHEET 28 of 28		68	44		146	1		2		2							2		193	41			
CSJ: 0209-01-073 (SL 2) TOTALS	**1**	**2330**	**1745**		**4065**	**50**	**3**	**46**	**6**	**26**	**6**	**1**	**558**				**34**	**14**	**2710**	**564**	**4**	**2**	**19**
SHEET 1 of 10		43	30		197	2			1														
SHEET 2 of 10		55	16		172												2						
SHEET 3 of 10		38			214			2		2	1						2	1					
SHEET 4 of 10			85		112												2						
SHEET 5 of 10		26	15		210	5			1	1			20				2						
SHEET 6 of 10		77	100		271												2	1					
SHEET 7 of 10		66			134	3	1										2	2	30	15			
SHEET 8 of 10			54		92																		1
SHEET 9 of 10		129			100	2																	
SHEET 10 of 10		63			98	2	2			1		1							511	237	2		2
CSJ: 0209-01-069 (US 77) TOTALS		**497**	**300**		**1600**	**14**	**3**	**2**	**2**	**4**	**1**	**1**	**20**				**12**	**4**	**541**	**252**	**2**		**3**
SHEET 1 of 7			101	62	88					4								1					
SHEET 2 of 7					195												1						
SHEET 3 of 7		105			75	1		3									3						
SHEET 4 of 7			40		113											1							
SHEET 5 of 7					101	2												1	10				
SHEET 6 of 7			39		68	2							47					1	10				
SHEET 7 of 7					28								125										
CSJ: 0909-37-072 (AQUILLA) TOTALS		**105**	**180**	**62**	**668**	**5**		**3**		**4**			**172**			**1**	**4**	**3**	**20**				
SHEET 1 of 12		39	6		125					4								2	24	23			
SHEET 2 of 12			73		178																		
SHEET 3 of 12		180			127	4			1	2									294	108			
SHEET 4 of 12		152	220		141		2			4							3	1	90				
SHEET 5 of 12		15	33		266												1						
SHEET 6 of 12			99		206					6													
SHEET 7 of 12				119	87					2													
SHEET 8 of 12				69	113																		
SHEET 9 of 12					141																		
SHEET 10 of 12					140									207	1								
SHEET 11 of 12					112									49	1								
SHEET 12 of 12			70		35																		
CSJ: 0909-37-072 (PENELOPE) TOTALS		**386**	**501**	**188**	**1671**	**4**	**2**		**1**	**18**				**256**	**2**		**4**	**3**	**408**	**131**			
PROJECT TOTAL	**1**	**3318**	**2726**	**250**	**8004**	**73**	**8**	**51**	**9**	**52**	**7**	**2**	**750**	**256**	**2**	**1**	**54**	**24**	**3679**	**947**	**6**	**2**	**22**

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243

F-12801

Texas Department of Transportation

PED FACILITY IMPROVEMENT

SUMMARY OF QUANTITIES

SHEET 2 OF 3

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	9
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

P:\Jobs\2020006-Pedestrian TxDOT Waco\CADD\1 GENERAL\9_WACO_DIST_SUMMARY_OF_QUANTITIES_2.dgn
10:31:20 AM
9/28/2021

LOCATION	506 6038	506 6039	506 6041	506 6043	6001 6002	6185 6002	6185 6003
	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)	TMA (MOBILE OPERATION)
	LF	LF	LF	LF	EA	DAY	HR
CSJ: 0209-01-073 (SL 2)	5000	5000	1250	1250	2	40	30
CSJ: 0209-01-069 (US 77)	1760	1760	440	440	2	40	30
CSJ: 0909-37-072 (AQUILLA)	1200	1200	300	300	2	40	30
CSJ: 0909-37-072 (PENELOPE)	2000	2000	500	500	2	40	30
PROJECT TOTAL	**9960**	**9960**	**2490**	**2490**	**8**	**160**	**120**

SPEC ITEM	340 6122
	D-GR HMA(SQ) TY-D PG70-22 *
UNITS	TON
TOTALS	500

* AS APPROVED BY THE ENGINEER

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243

F-12801

Texas Department of Transportation

PED FACILITY IMPROVEMENT

SUMMARY OF QUANTITIES

SHEET 3 OF 3

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	10
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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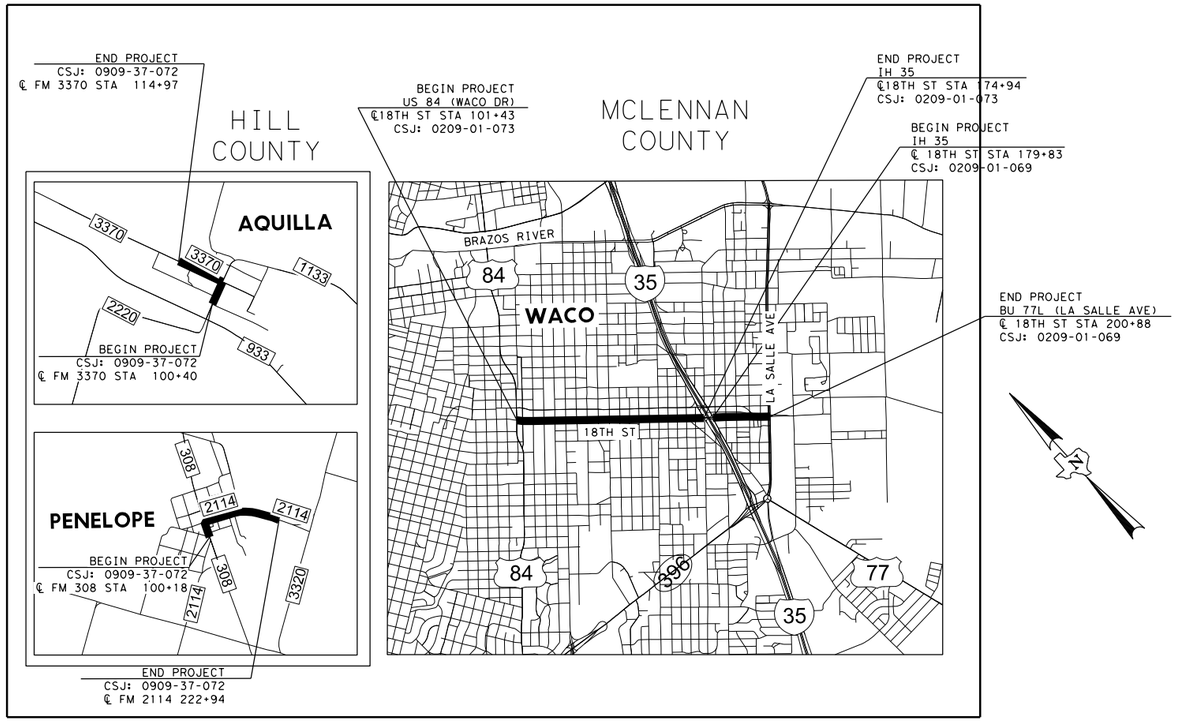


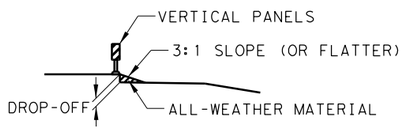
VICINITY MAP

SIGNS G20-1 with plaque or G20-5T, G20-6T, G20-2, G20-2bT, CW20-1D, R20-3T, R20-5T, G20-9TP AND R20-5aTP WILL BE REQUIRED AT PROJECT LIMITS.

CW20-1D AND G20-2 WILL BE REQUIRED AT ALL CROSSROADS.

G20-1a WILL BE REQUIRED AT ALL MAJOR CROSSROADS.

SIGNAGE LEGEND	
G20-1 (48X18) -	ROAD WORK NEXT X MILES or
G20-5T (48X24)-	BEGIN ROAD WORK NEXT X MILES
G20-6T (48X30)-	NAME,ADDRESS, CITY, STATE, CONTRACTOR
G20-9TP (36X30) -	BEGIN WORK ZONE
G20-2bT (36X18) -	END WORK ZONE
R20-3T (48X42)-	OBEY WARNING SIGNS STATE LAW
G20-1a (72X36)-	ROAD WORK NEXT X MILES NEXT X MILES
CW20-1D (48X48)-	ROAD WORK AHEAD
R20-5T (36X36)-	TRAFFIC FINES DOUBLE
R20-5aTP (36X18) -	WHEN WORKERS ARE PRESENT
G20-2 (48X24) -	END ROAD WORK



PAVEMENT EDGE DROP-OFF DETAIL

1. LESS THAN 2 INCHES: CW 8-11 SIGNS ARE REQUIRED.
2. GREATER THAN 2 INCHES: VERTICAL PANELS AND EITHER CW 8-9a OR CW 8-11 SIGNS ARE REQUIRED.
3. THE SAFETY SLOPE WILL BE CONSTRUCTED WITH AN ALL-WEATHER MATERIAL SUCH AS RAP, WHICH IS CLEAN AND FREE OF DEBRIS AND LARGE ROCKS.

NOTE:

ALL TRAFFIC CONTROL DEVICES WILL CONFORM WITH THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" (TMUTCD), AND WILL BE MAINTAINED AS DIRECTED. ADDITIONAL GUIDELINES FOR TRAFFIC CONTROL DEVICES MAY BE FOUND IN THE TMUTCD.

FOR CHANNELING DEVICE PLACEMENT AND SPACING FOR ALL PHASES, REFER TO THE TCP STANDARDS.

GENERAL

A. INSTALL ALL SIGNS, BARRICADES AND TRAFFIC CONTROL DEVICES AS SHOWN AND IN ACCORDANCE WITH THE STANDARD BC SHEETS AND AS DIRECTED.

B. ADDITIONAL SIGNS, BARRICADES OR TRAFFIC CONTROL DEVICES OTHER THAN THOSE SPECIFIED MAY BE REQUIRED FOR THE SAFE MOVEMENT OF TRAFFIC THROUGH THE PROJECT. PAYMENT FOR ALL SUCH SIGNS, BARRICADES OR TRAFFIC CONTROL DEVICES WILL BE CONSIDERED AS SUBSIDIARY TO THE ITEM "BARRICADES, SIGNS AND TRAFFIC HANDLING".

C. WORK SITES WILL BE CAREFULLY MONITORED TO ENSURE THAT TRAFFIC CONTROL MEASURES ARE OPERATING EFFECTIVELY AND THAT ALL DEVICES USED ARE CLEARLY VISIBLE, CLEAN AND IN GOOD REPAIR.

D. THE CONTRACTOR WILL PROVIDE SAFE ACCESS TO AND FROM ALL PRIVATE PROPERTY AT ALL TIMES AND IN ALL WEATHER CONDITIONS.

E. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A DETAILED SCHEDULE OF WORK TO THE PROJECT ENGINEER PRIOR TO THE BEGINNING OF CONSTRUCTION WHICH GENERALLY CONFORMS TO THE SEQUENCE SHOWN ON THE TCP SEQUENCE OF OPERATION.

F. COMPLETE ALL WORK ON PROJECT AS SHOWN ON THE VARIOUS PLAN SHEETS AND IN COMPLIANCE WITH THE GENERAL NOTES OF THIS CONTRACT.

G. ANY REQUEST TO ALTER THE SEQUENCE OF OPERATION OR TRAFFIC CONTROL PLAN WILL BE SUBMITTED TO THE ENGINEER FOR HIS WRITTEN APPROVAL.

SEQUENCE OF OPERATION

1) SET PROJECT BARRICADES.

2) INSTALL REQUIRED TEMPORARY EROSION CONTROL DEVICES.

3) CONSTRUCT PROPOSED SIDEWALK, ADA RAMPS,CULVERT, SAFETY END TREATMENTS, DRIVEWAYS, SIGNS, MAILBOXES, ETC. THIS WORK WILL BE DONE ON ONE SIDE OF THE ROADWAY AT AT TIME, OR AS APPROVED.

4) CONSTRUCT HAND RAIL IN AQUILLA AND MBGF IN BRIDGE CLASS CULVERT IN PENELOPE.

5) WHEN CONSTRUCTION COMPLETE ON ONE SIDE OF ROADWAY, BEGIN WORK ON THE OTHER SIDE OF ROADWAY.

6) PLACE PERMANENT PAVEMENT MARKINGS.

7) COMPLETE ALL OTHER WORK AS SHOWN ON THE PLANS.

8) CLEAN UP PROJECT AND REMOVE TEMPORARY EROSION CONTROL DEVICES AND PROJECT BARRICADES.

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED
PROFESSIONAL ENGINEER
09/26/21

TRAFFIC CONTROL AND SEQUENCE OF OPERATION

FED.RD. DIV.NO.	STATE PROJECT NO.		SHEET NO.
6	(SEE TITLE SHEET)		11
STATE	DIST.	COUNTY	
TEXAS	WACO	MCLENNAN, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0209	01	073,ETC	SL 2, ETC

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DATE:
FILE:

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

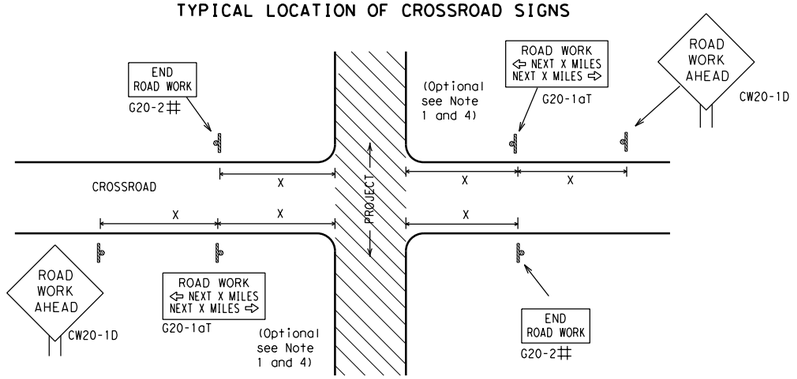
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

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	0209	01	073, ETC	SL 2, ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
5-10 5-21		MCLENNAN, ETC		12

DATE:
FILE:

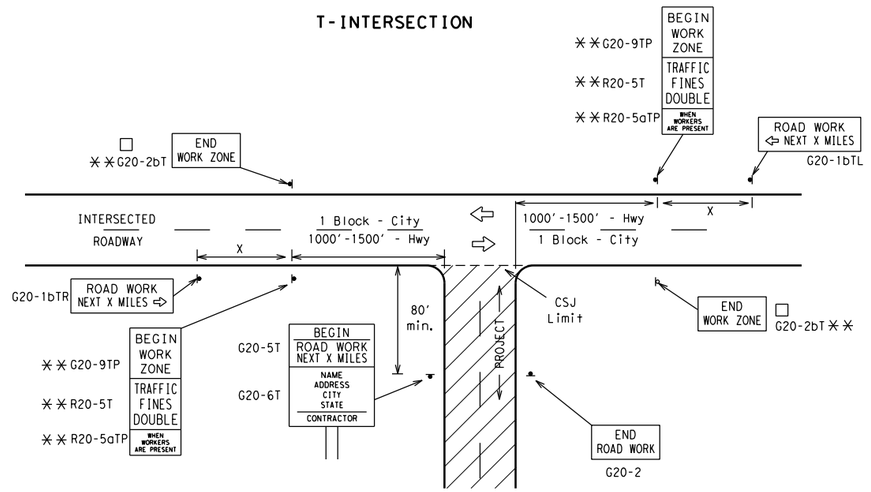
TYPICAL LOCATION OF CROSSROAD SIGNS



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]

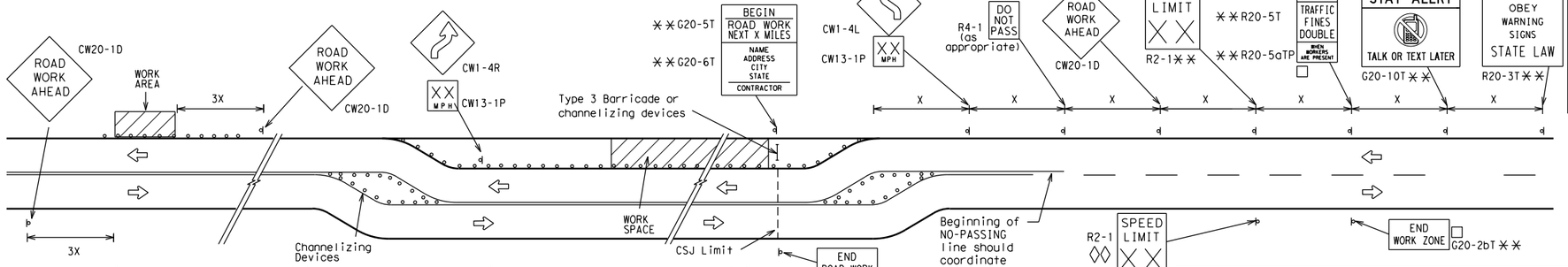
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

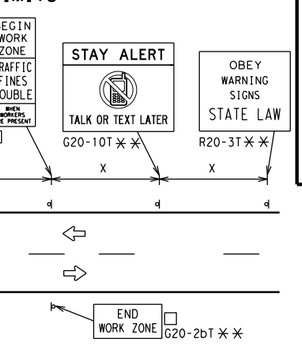
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may 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

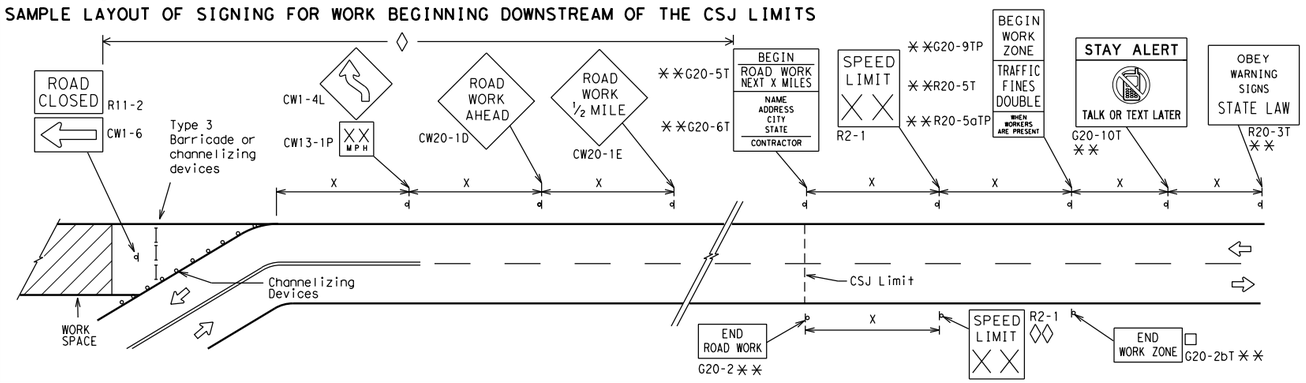


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



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
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21		MCLENNAN, ETC		13

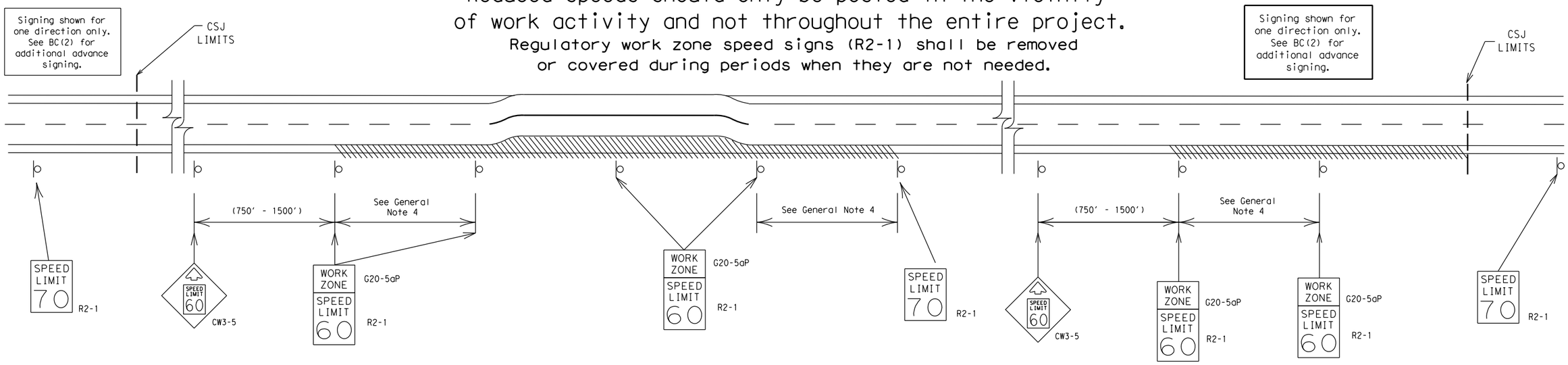
DATE:
FILE:

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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13 5-21	0209	01	073, ETC	SL 2, ETC
	DIST	COUNTY		SHEET NO.
		MCLENNAN, ETC		14

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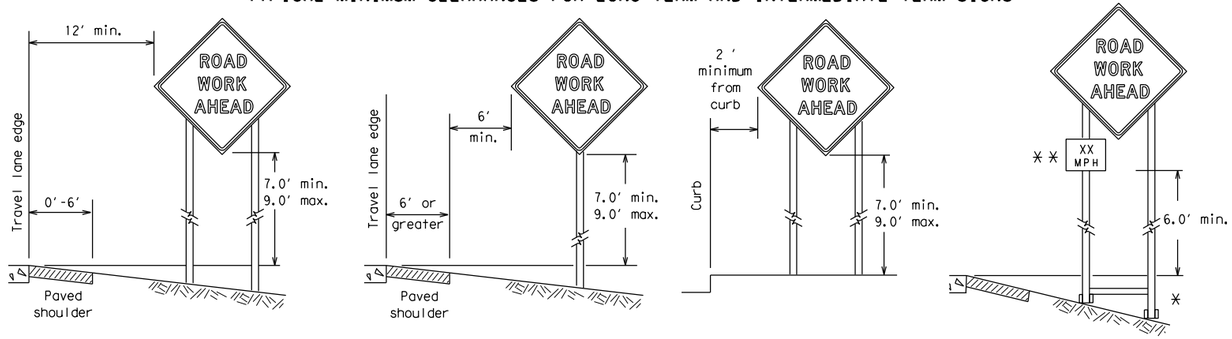
DATE:
FILE:

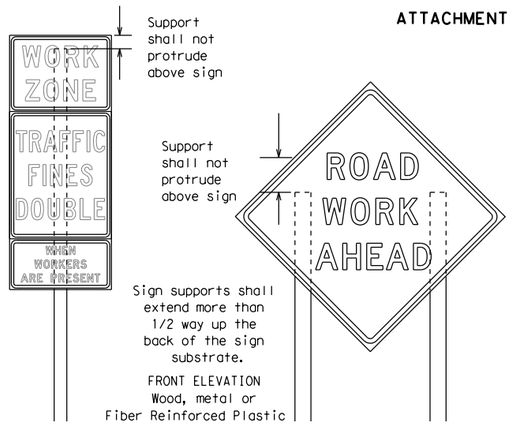
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



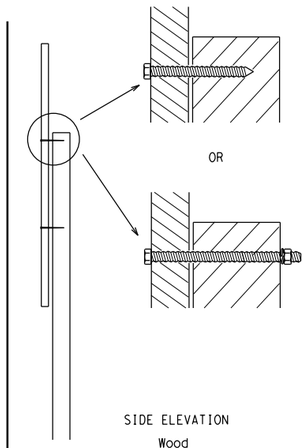
⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

⁎⁎ 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

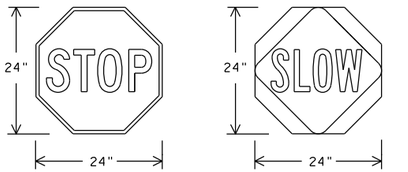
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0209	01	073, ETC	SL 2, ETC
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7-13 5-21		MCLENNAN, ETC		15

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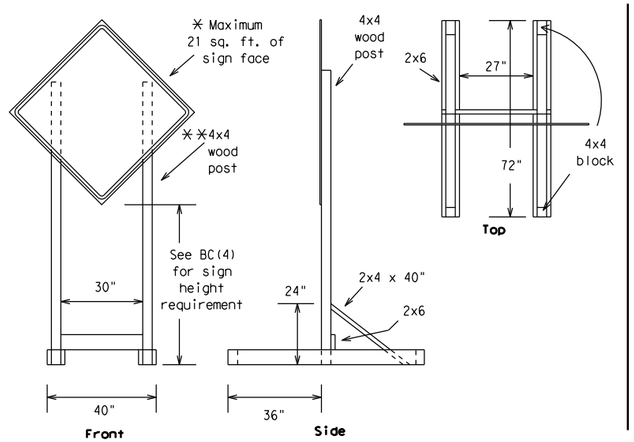
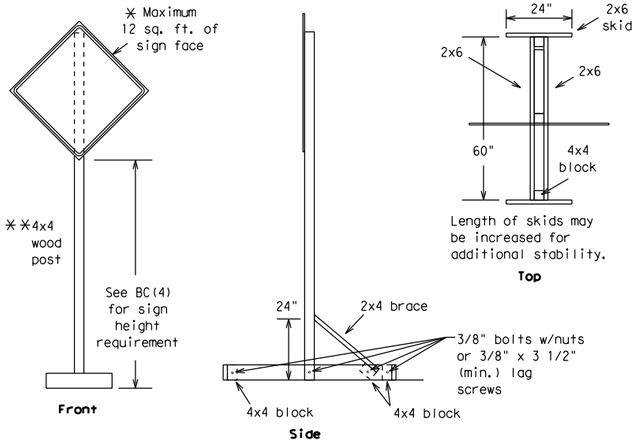
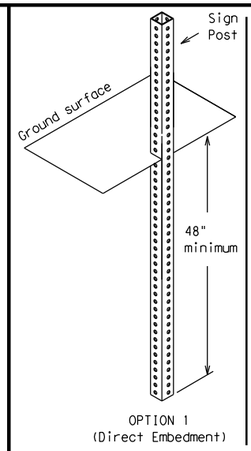
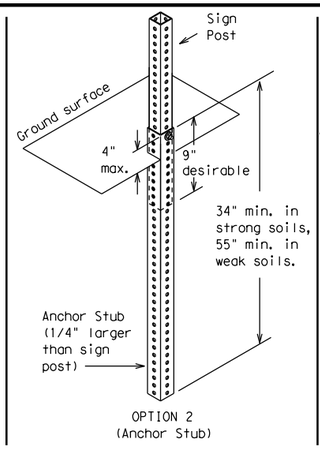


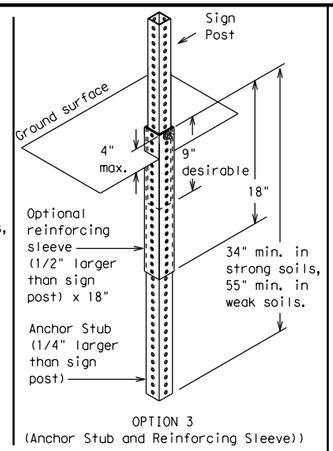


SKID MOUNTED WOOD SIGN SUPPORTS

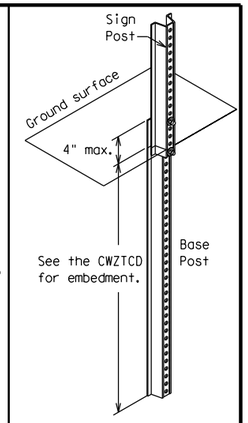
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS







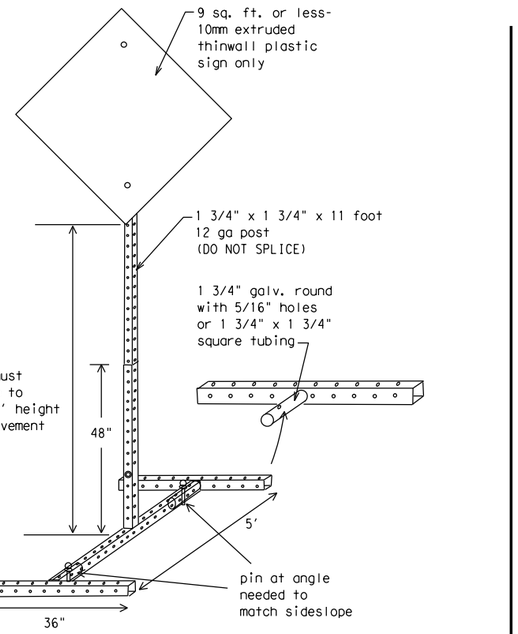
PERFORATED SQUARE METAL TUBING

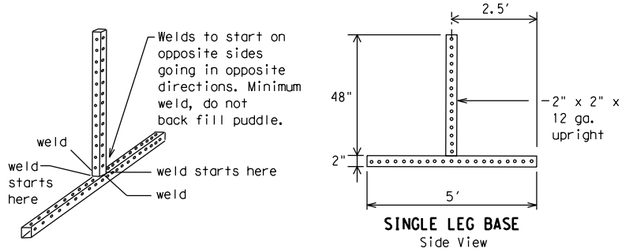


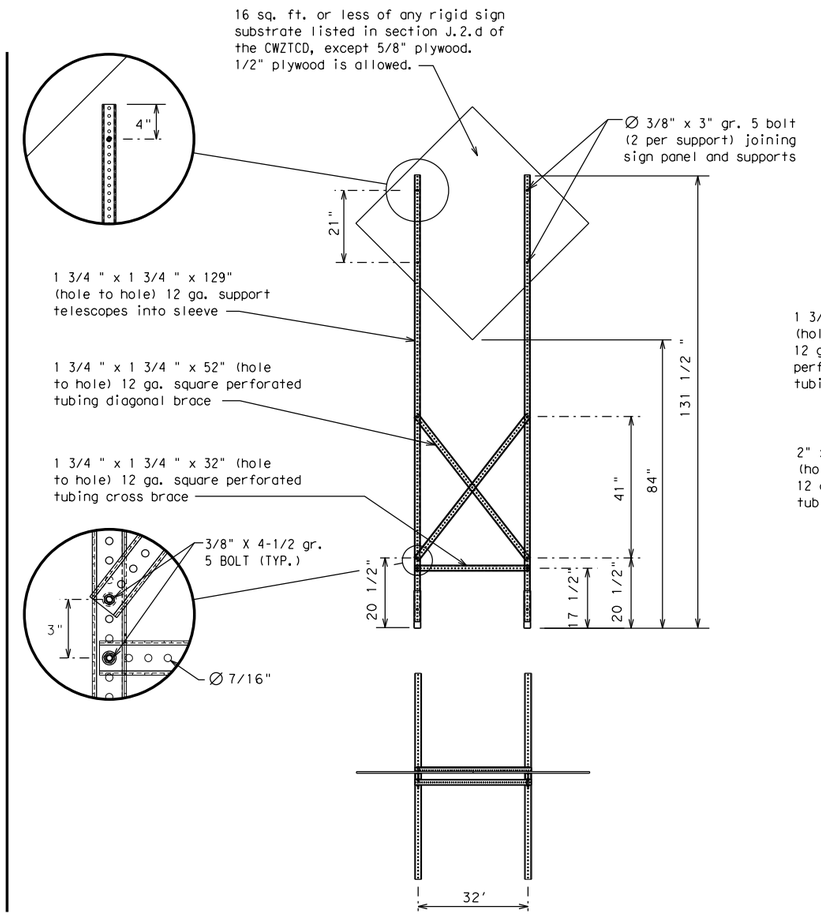
WING CHANNEL
Lap-splice/base bolted anchor

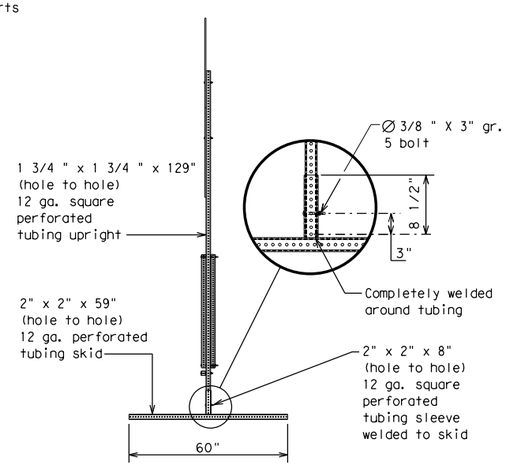
GROUND MOUNTED SIGN SUPPORTS

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

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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
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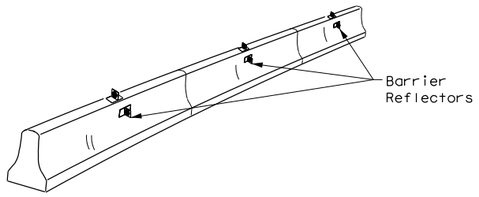
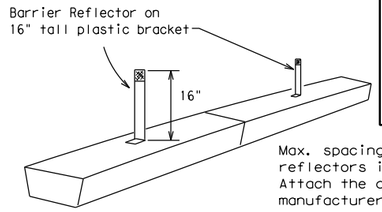
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost 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.

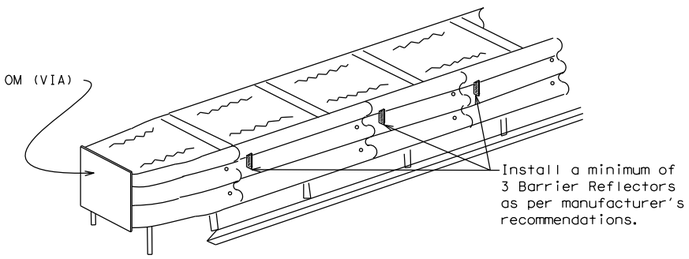


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

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.

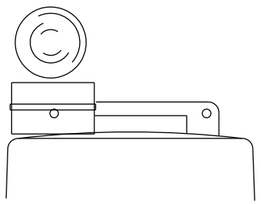


DELINEATION OF END TREATMENTS

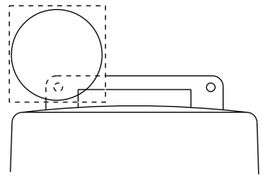
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

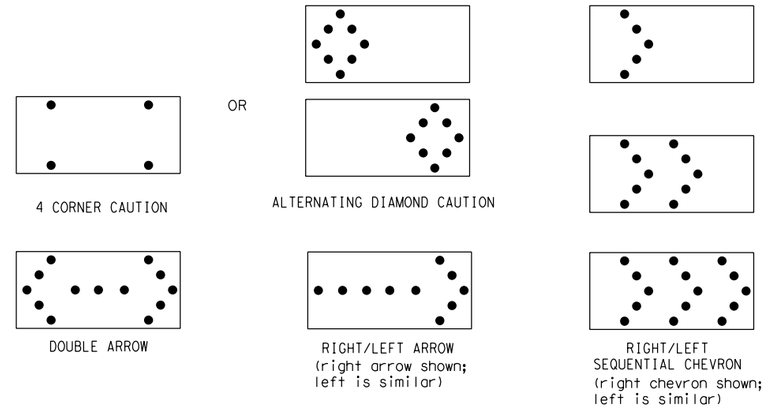
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing 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:



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	0209	01	073, ETC	SL 2, ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21		MCLENNAN, ETC		18

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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:

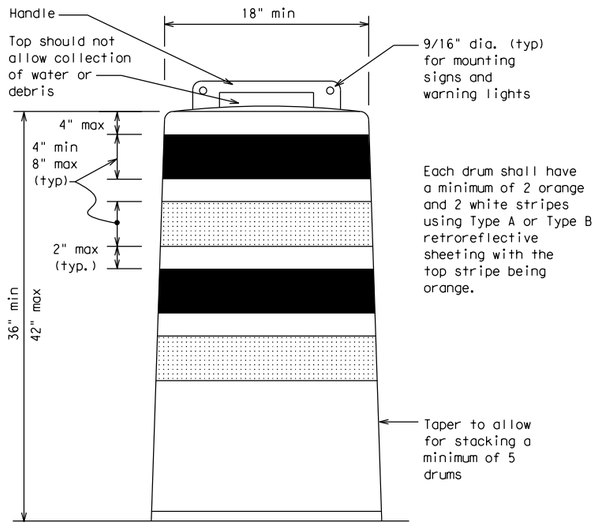
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents 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.

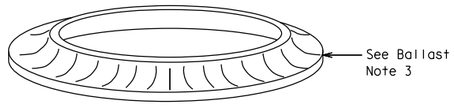
RETROREFLECTIVE SHEETING

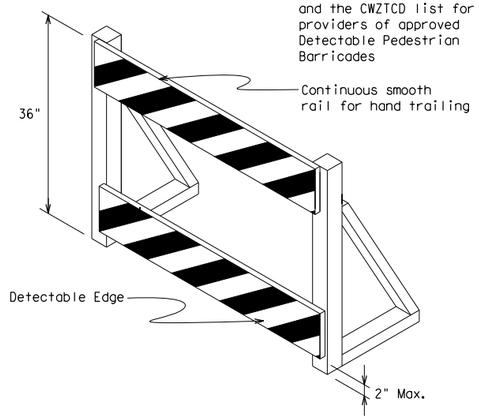
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall 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.

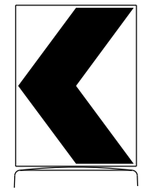




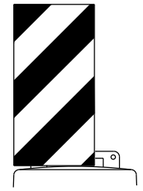


DETECTABLE PEDESTRIAN BARRICADES

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	0209	01	073, ETC	SL 2, ETC
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21		MCLENNAN, ETC		19
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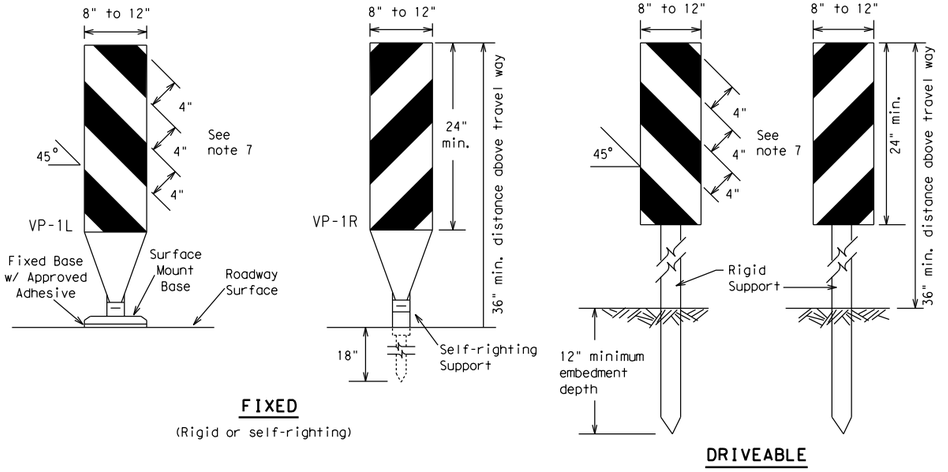
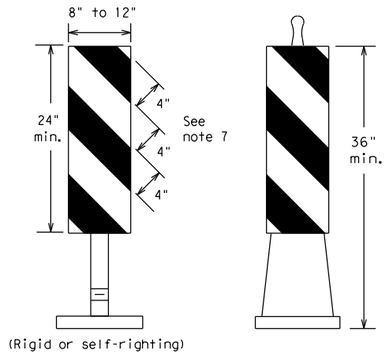


FIXED
(Rigid or self-righting)

DRIVEABLE

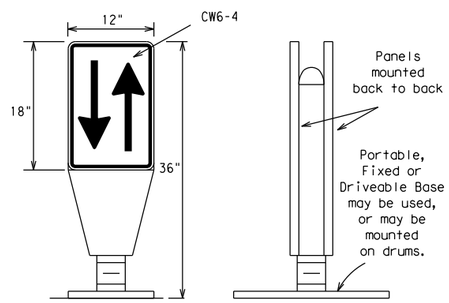


(Rigid or self-righting)

PORTABLE

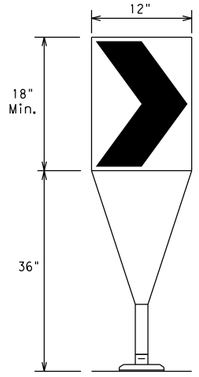
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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)



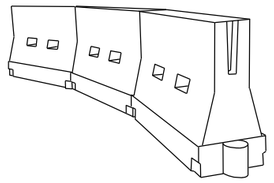
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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 ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	150′	165′	180′	30′	60′
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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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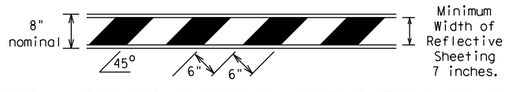
REVISIONS	0209	01	073, ETC	SL 2, ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21		MCLENNAN, ETC		20

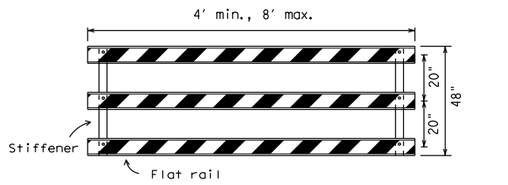
TYPE 3 BARRICADES

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.



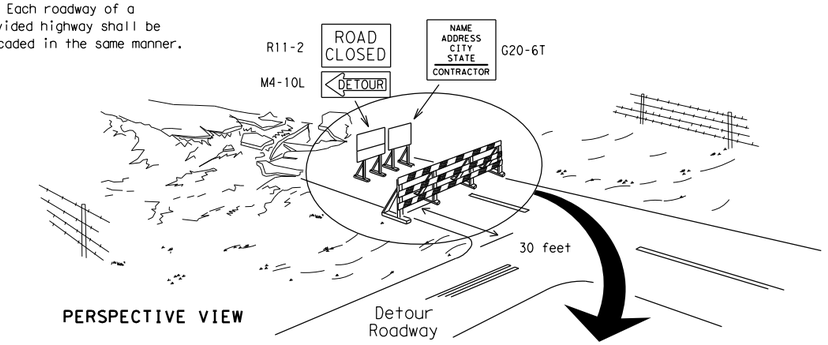
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

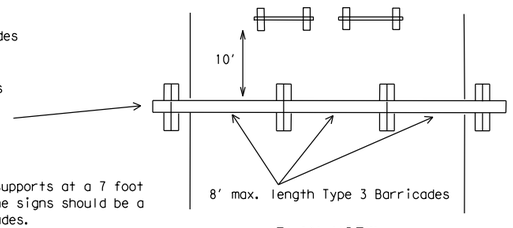
Each roadway of a divided highway shall be barricaded in the same manner.



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.

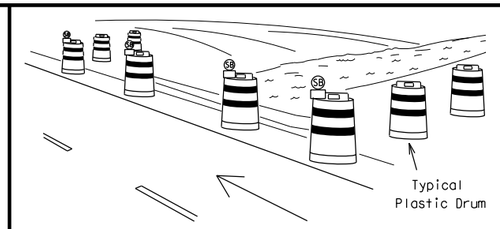
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

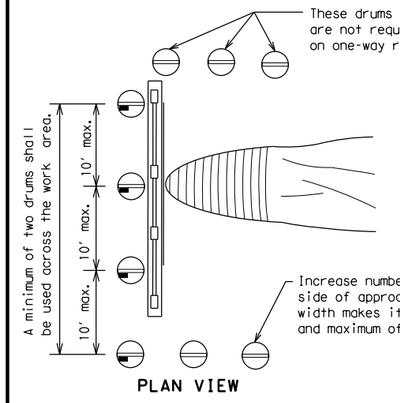
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

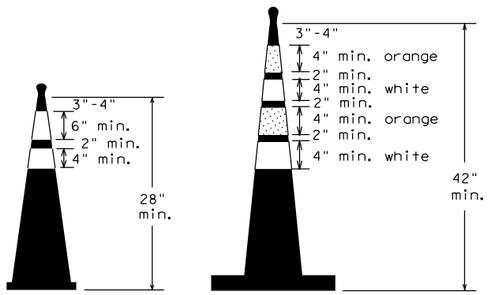
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



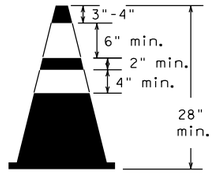
PLAN VIEW

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

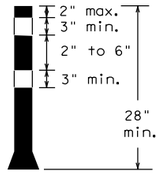
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

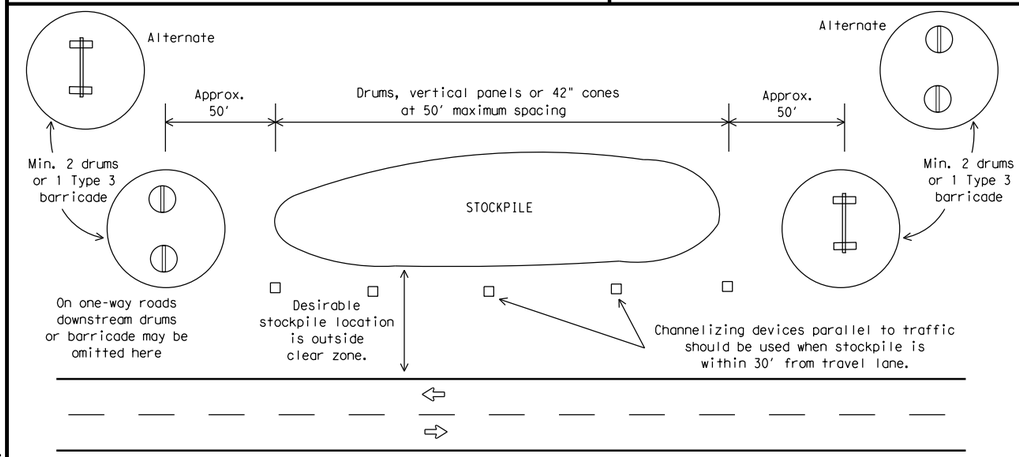


Tubular Marker

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

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SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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

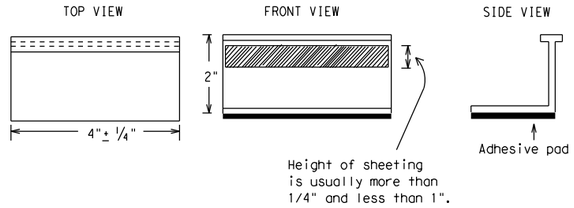
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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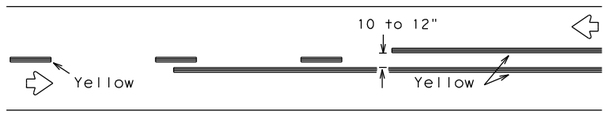
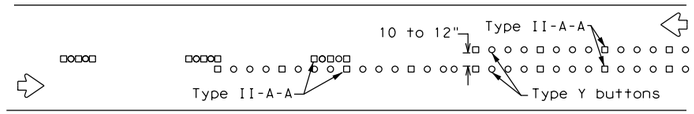
11-02 8-14				

DATE:
FILE:

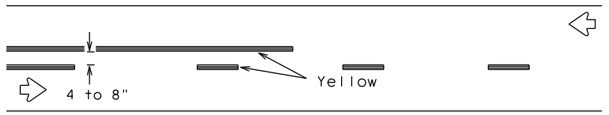
PAVEMENT MARKING PATTERNS



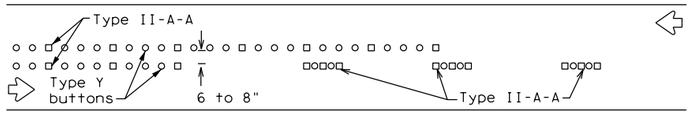
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



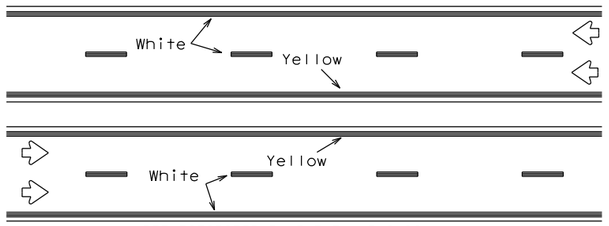
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



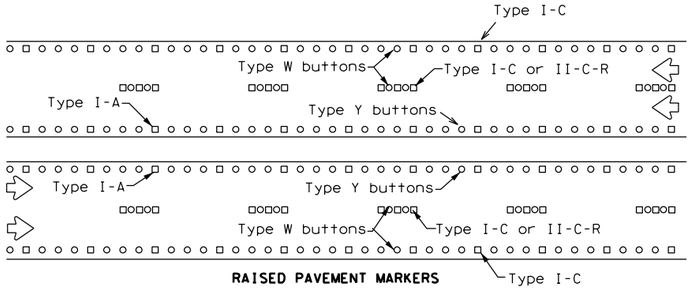
RAISED PAVEMENT MARKERS - PATTERN B

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



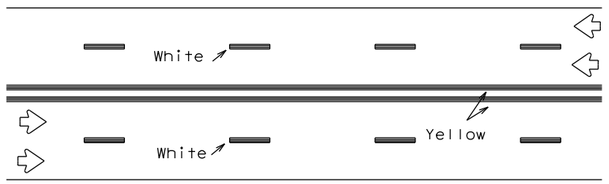
REFLECTORIZED PAVEMENT MARKINGS



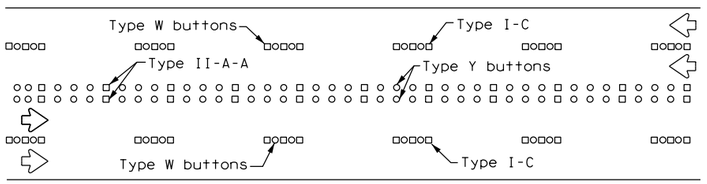
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



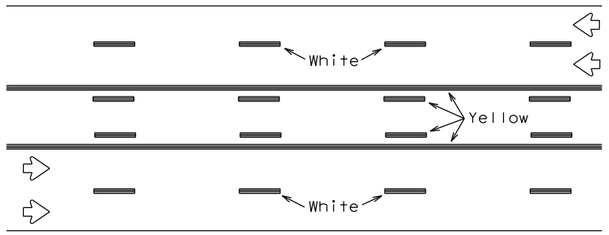
REFLECTORIZED PAVEMENT MARKINGS



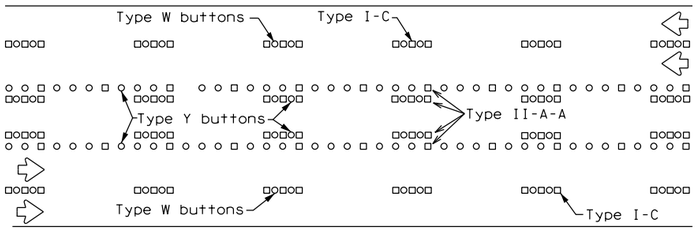
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

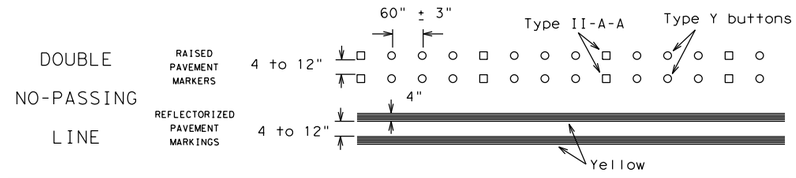
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

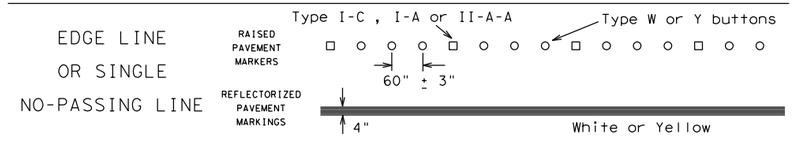
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

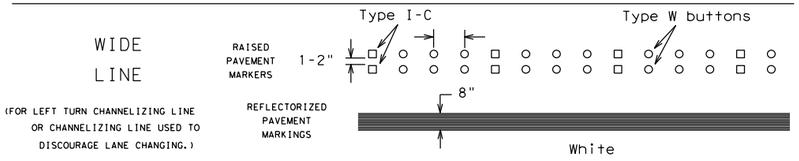


EDGE LINE OR SINGLE NO-PASSING LINE



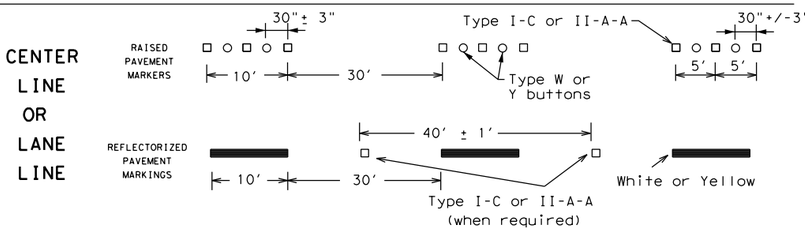
WIDE LINE

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

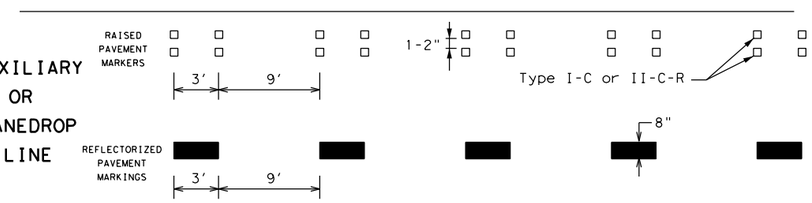


BROKEN LINES

CENTER LINE OR LANE LINE

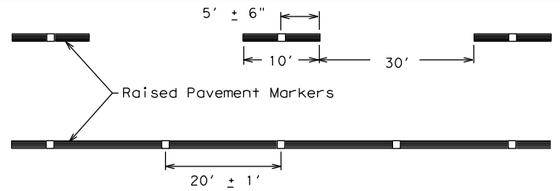


AUXILIARY OR LANEDROP LINE



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

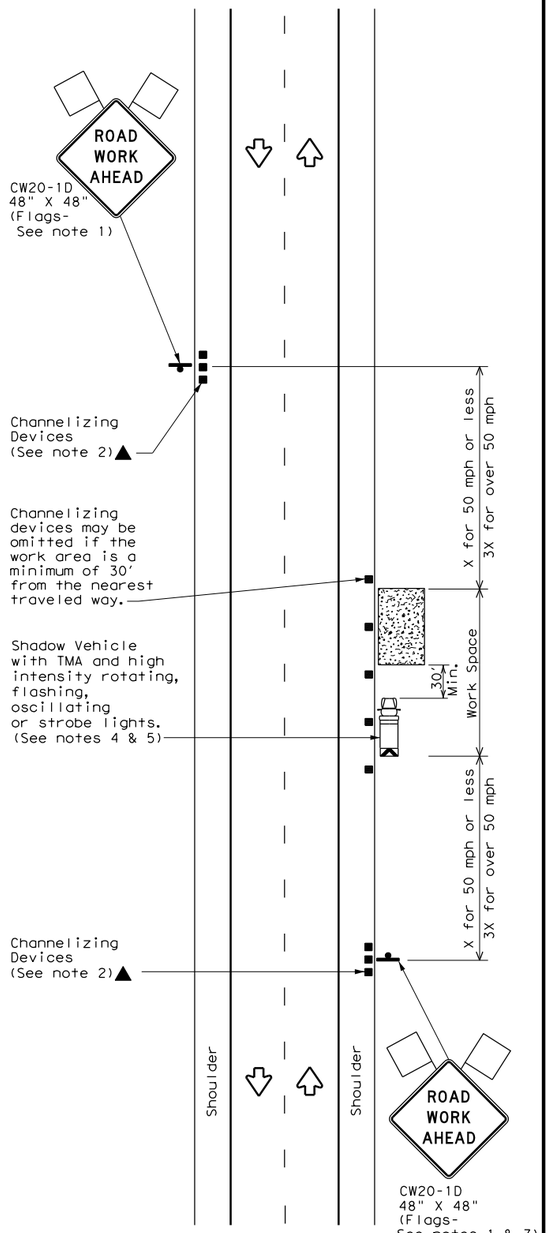
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

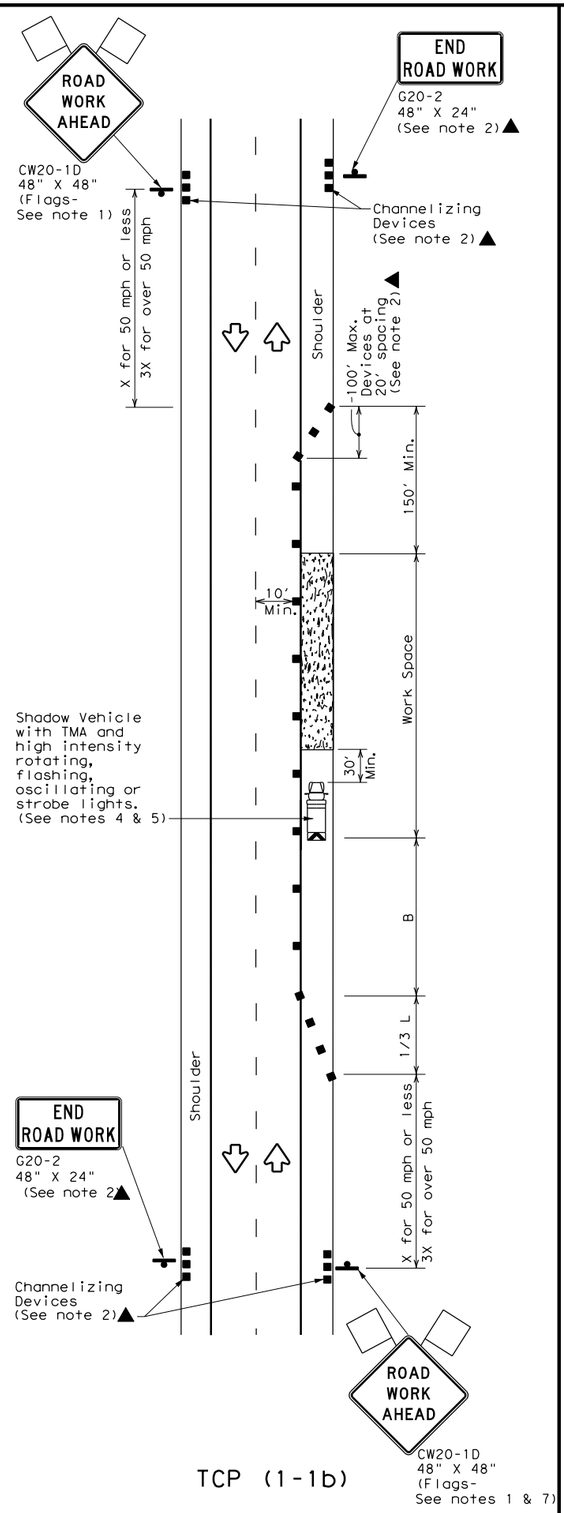
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0209	01	073, ETC	SL 2, ETC
	DIST	COUNTY		SHEET NO.
		MCLENNAN, ETC		23

DATE:
FILE:



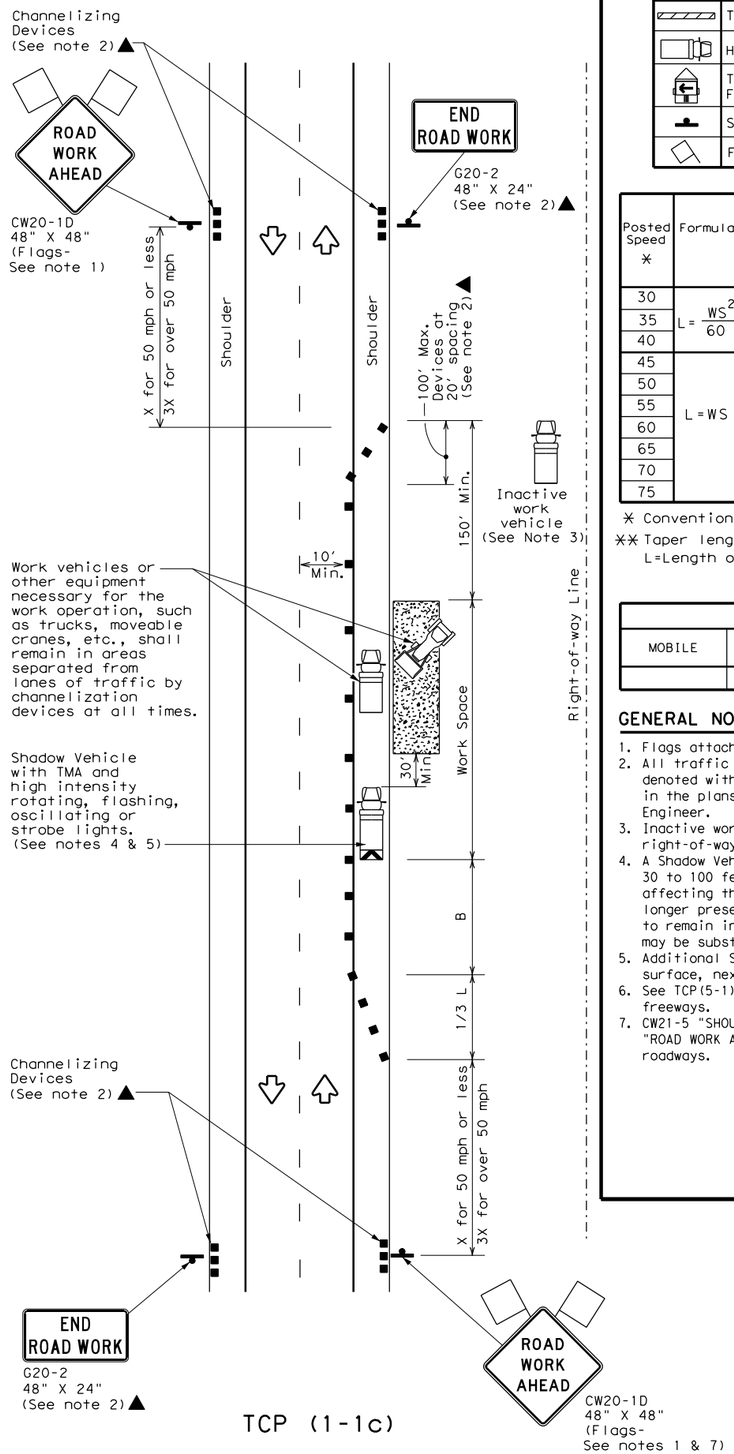
TCP (1-1a)

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

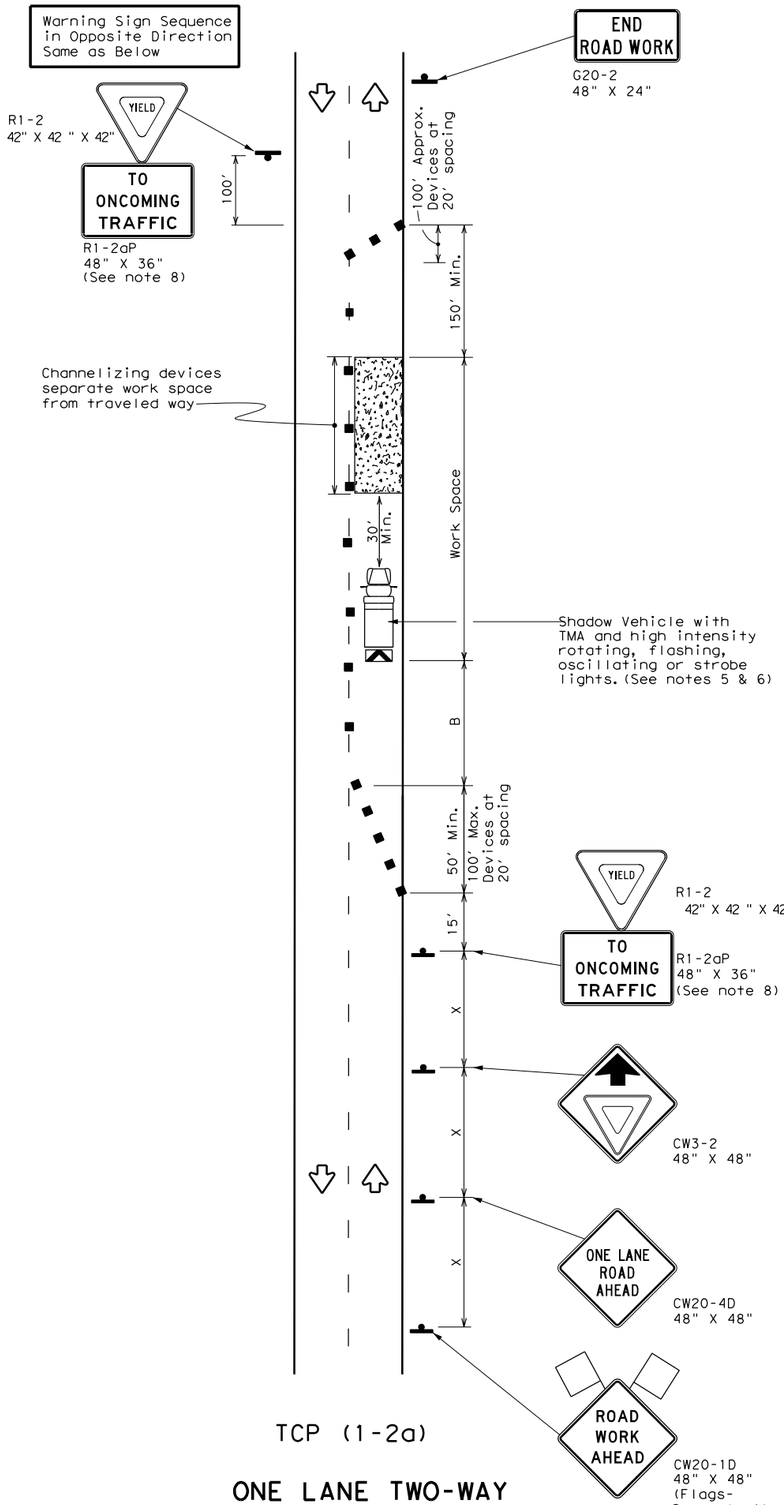
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

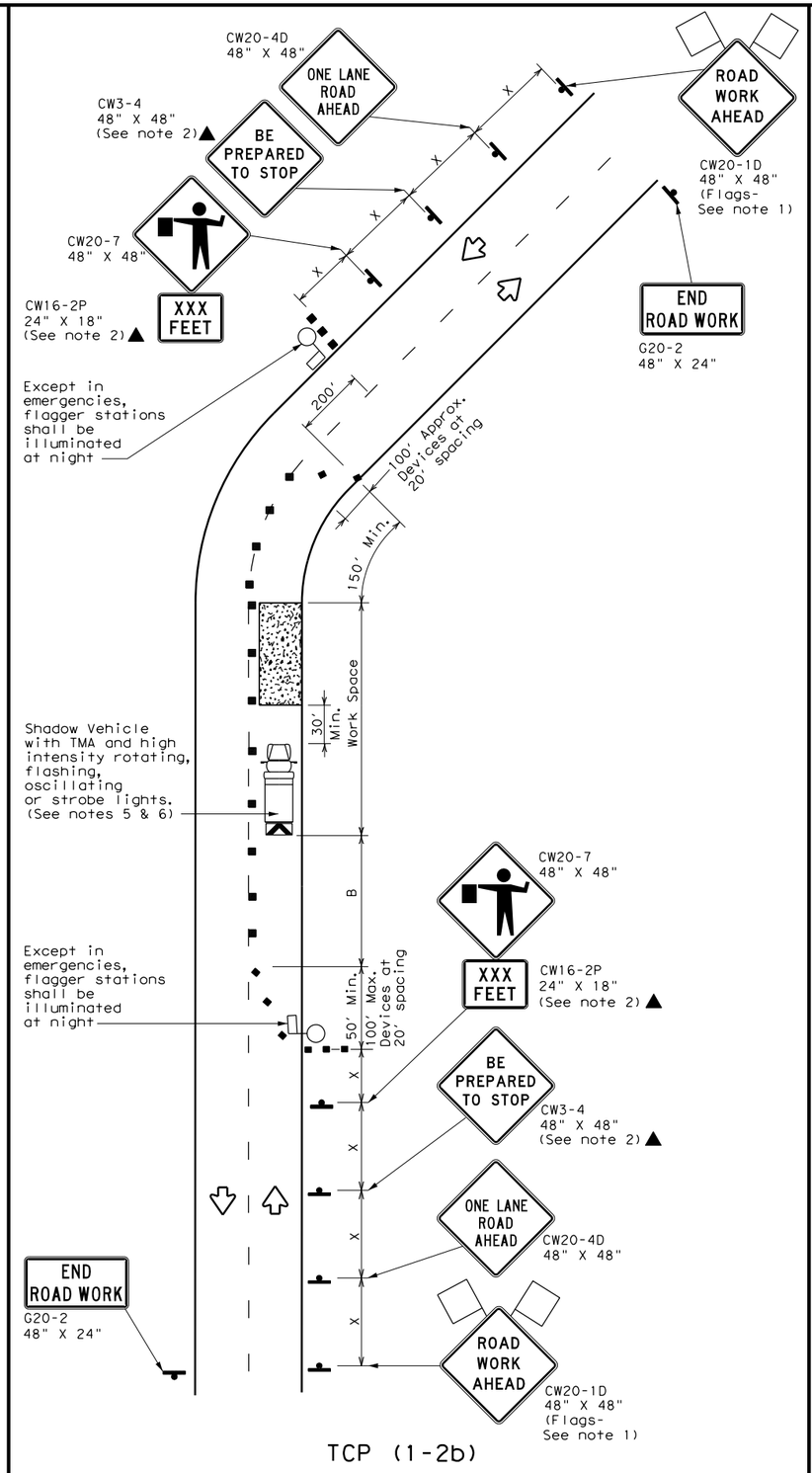
FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	WAC	MCLENNAN, ETC		24
1-97 2-18				

DATE:
FILE:



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

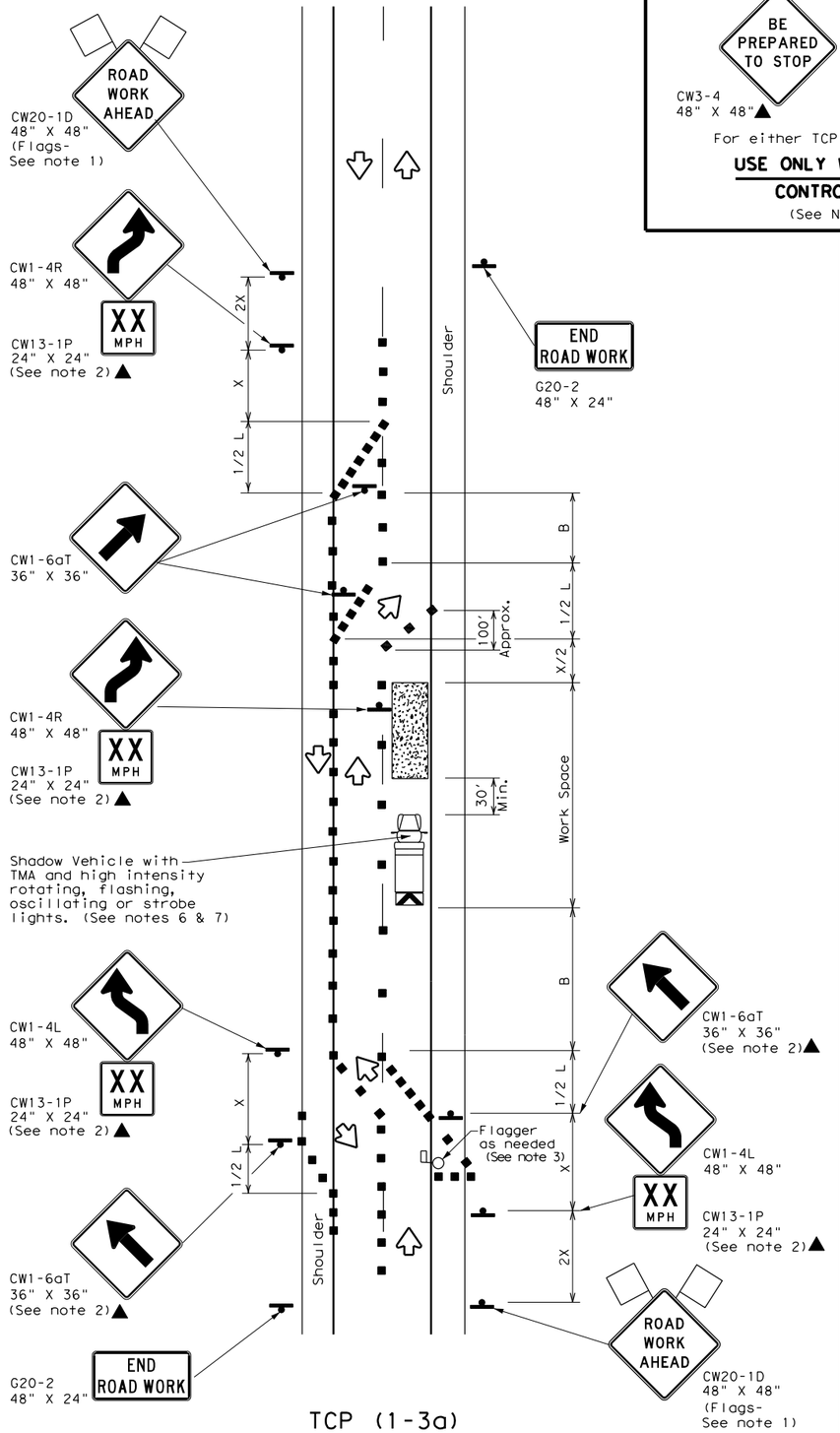
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(1-2)-18

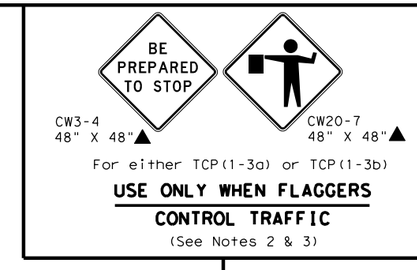
FILE: tcp1-2-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-90 4-98	0209	01	073, ETC	SL 2, ETC
2-94 2-12	DIST	COUNTY		SHEET NO.
1-97 2-18	WAC	MCLENNAN, ETC		25

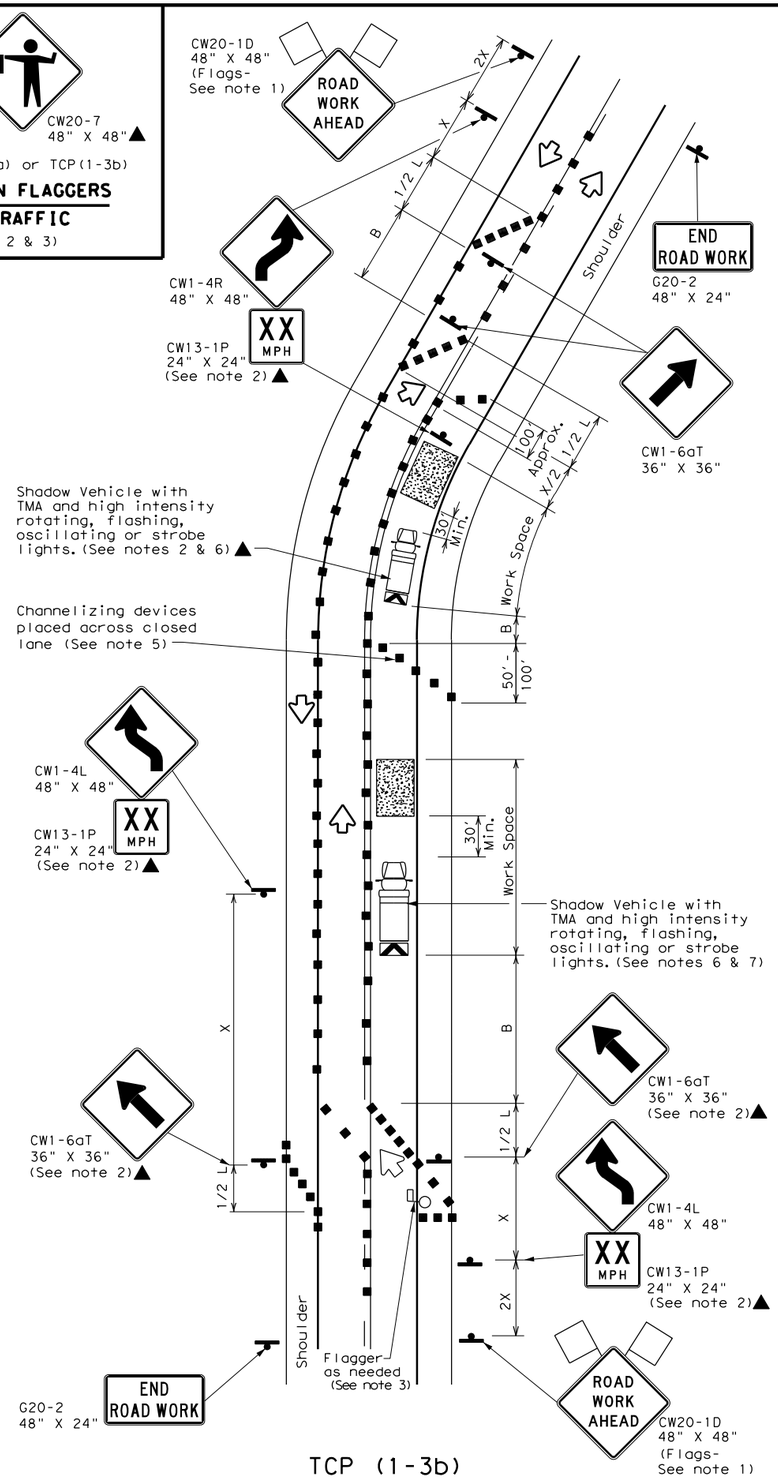
DATE:
FILE:



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	0209	01	073, ETC	SL 2, ETC
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	WAC	MCLENNAN, ETC		26
1-97 2-18				

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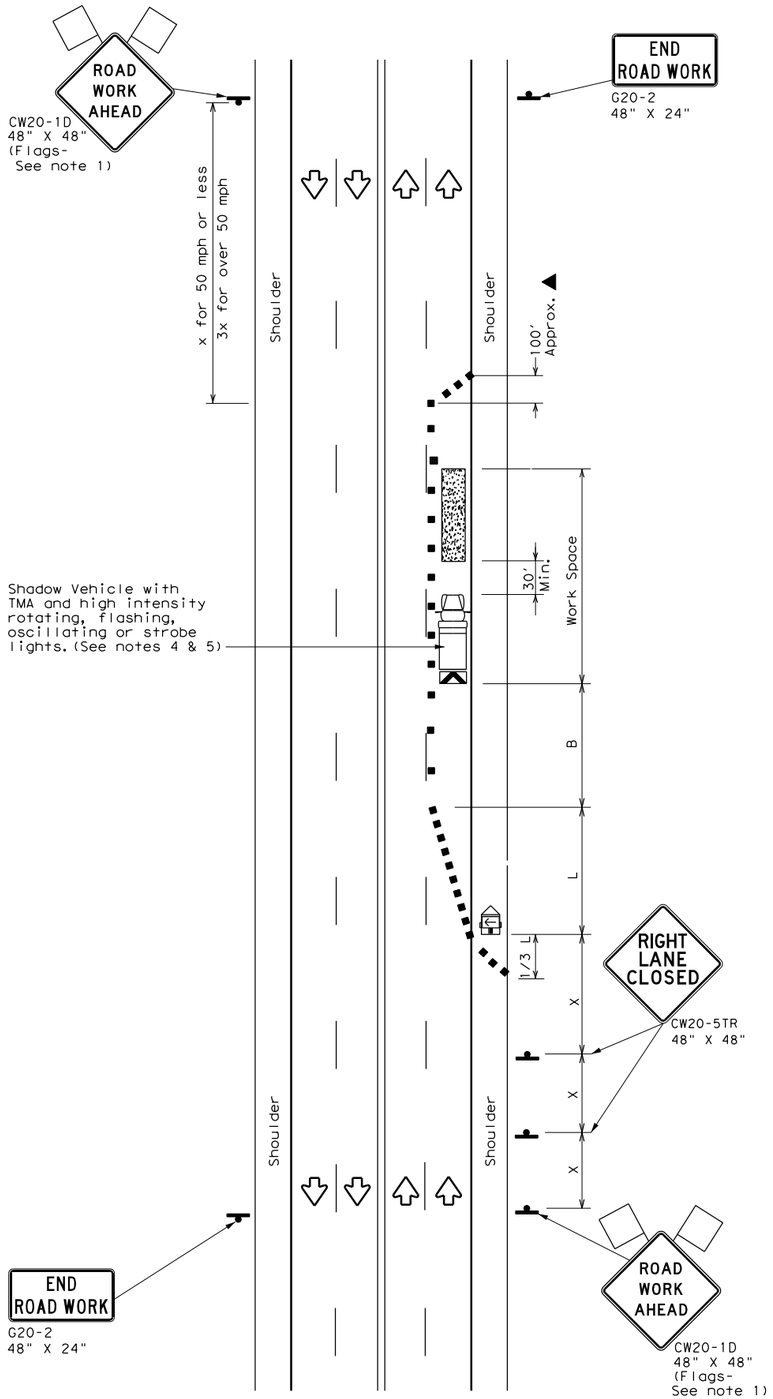
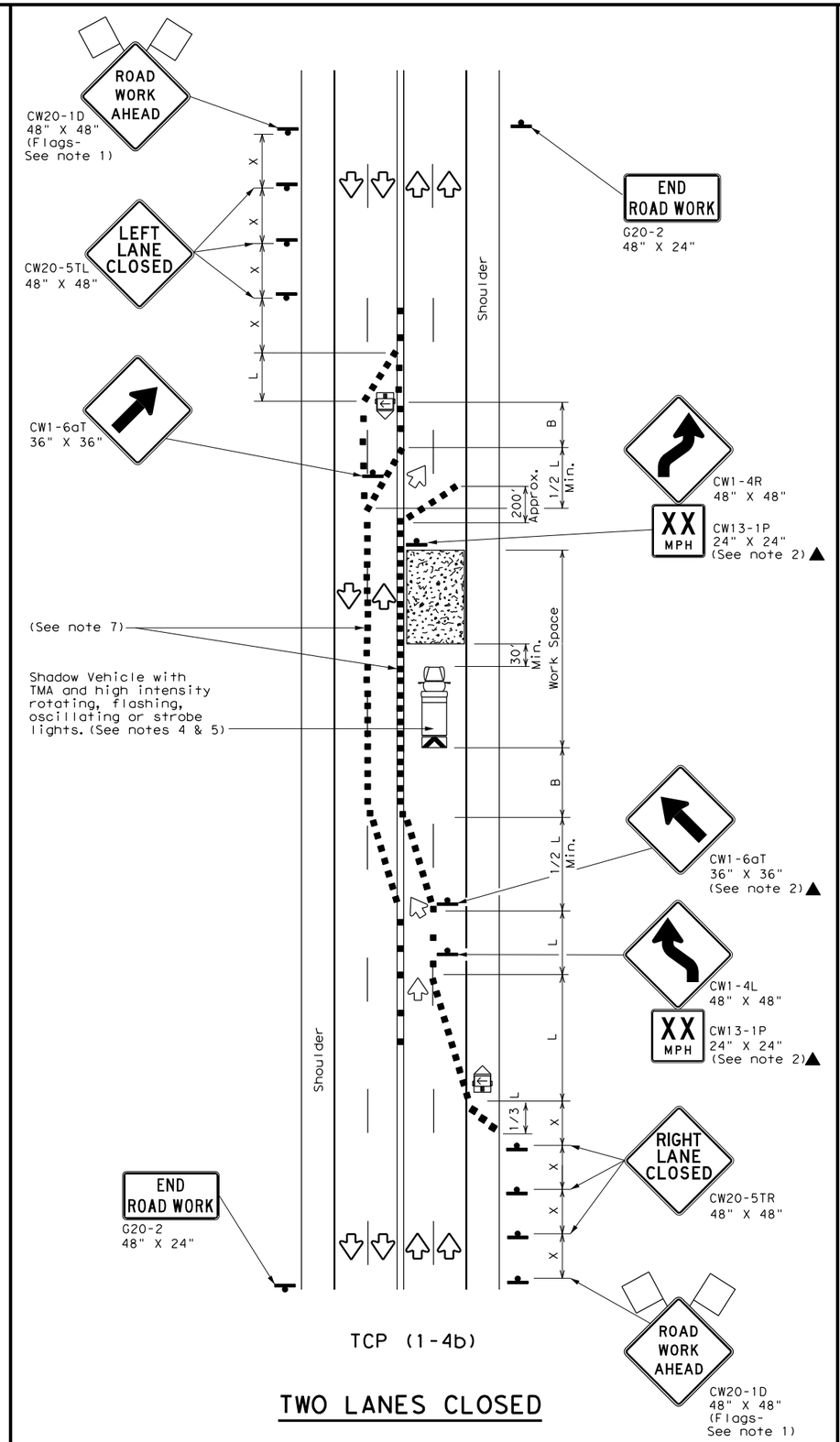
DATE:
FILE:



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	0209	01	073, ETC	SL 2, ETC
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	WAC	MCLENNAN, ETC		27
1-97 2-18				

DATE:
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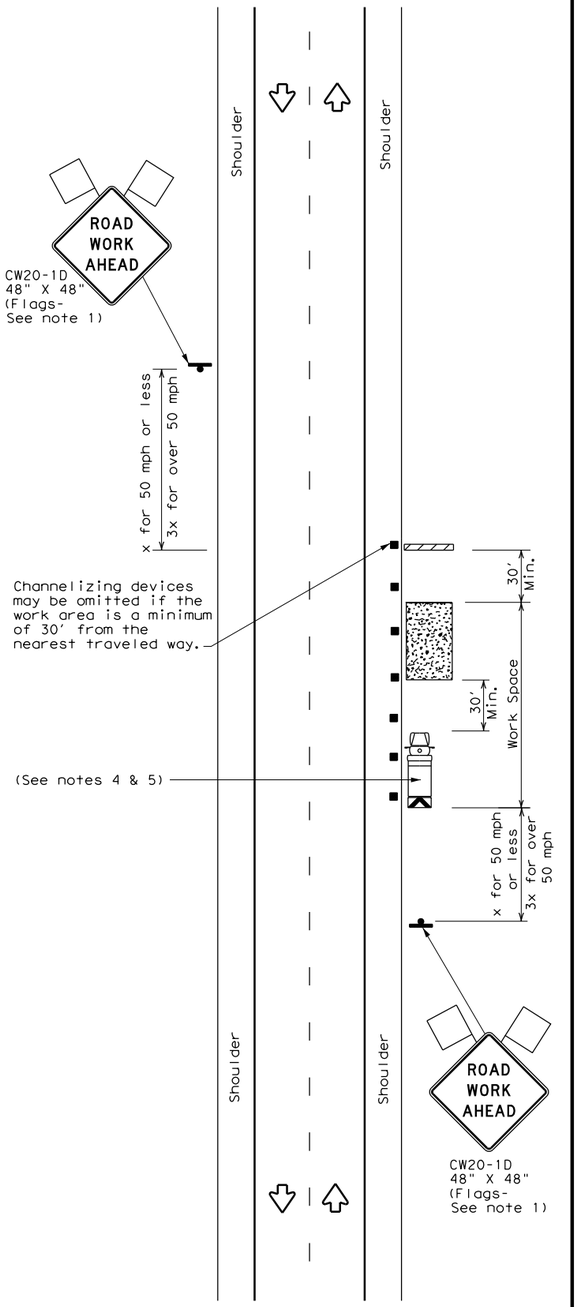
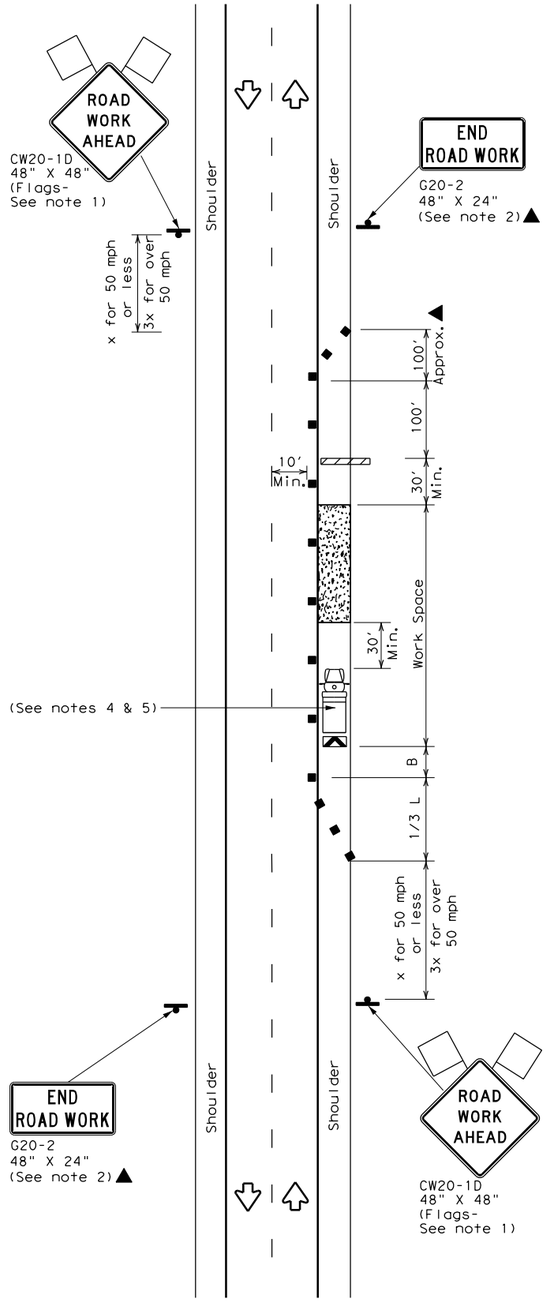


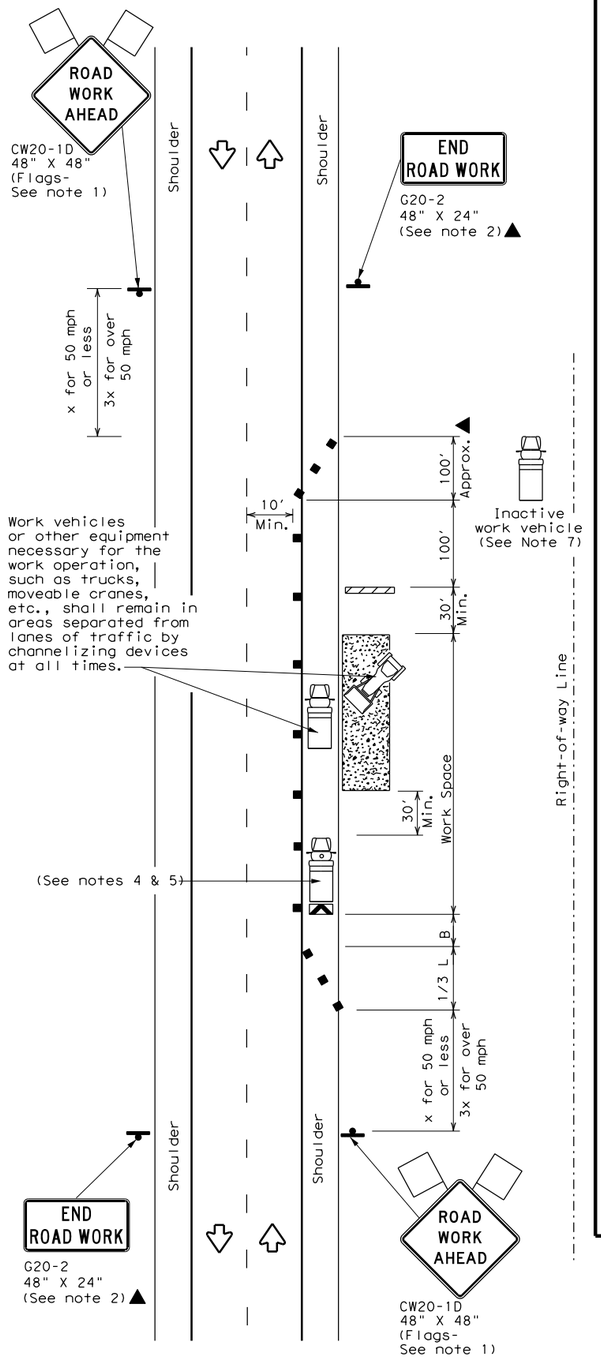
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

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 in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. 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 a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. 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(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	WAC	MCLENNAN, ETC		28
1-97 2-18				

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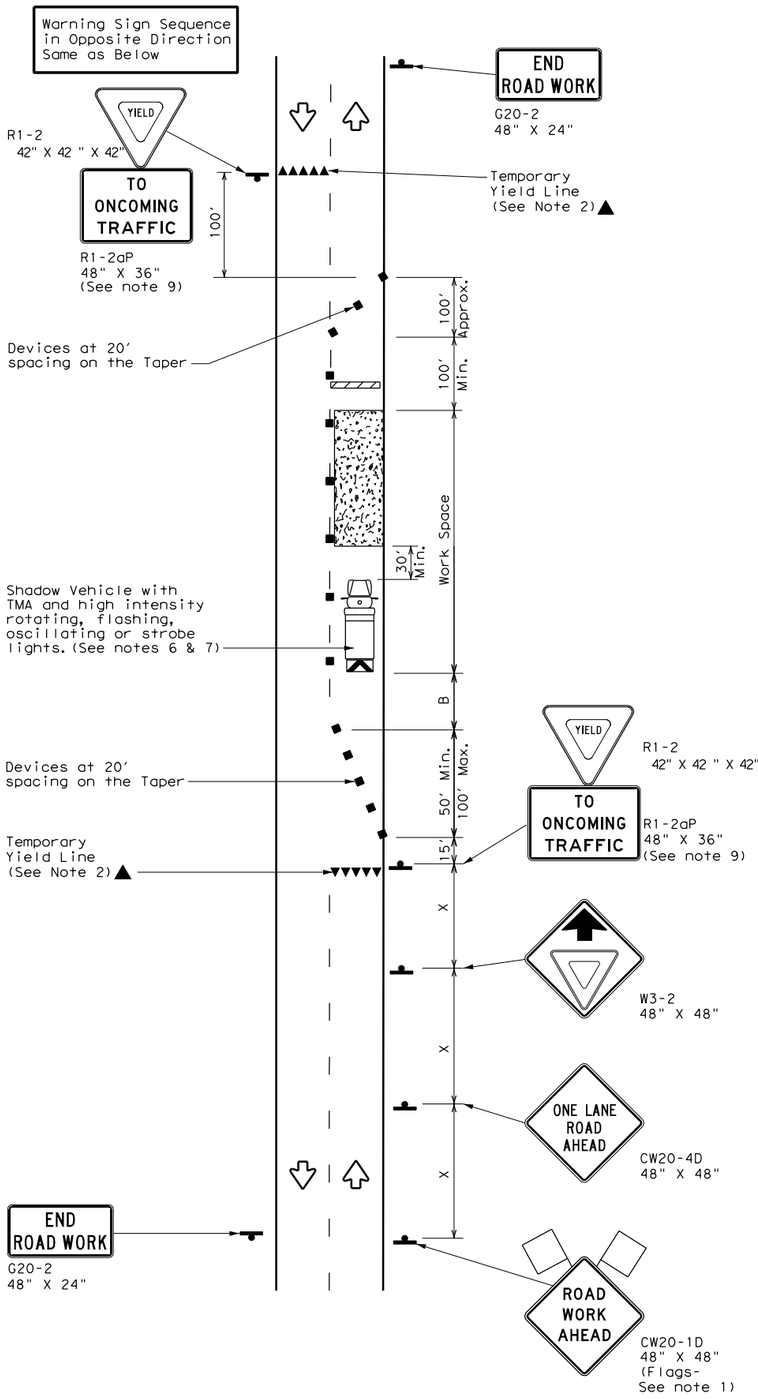
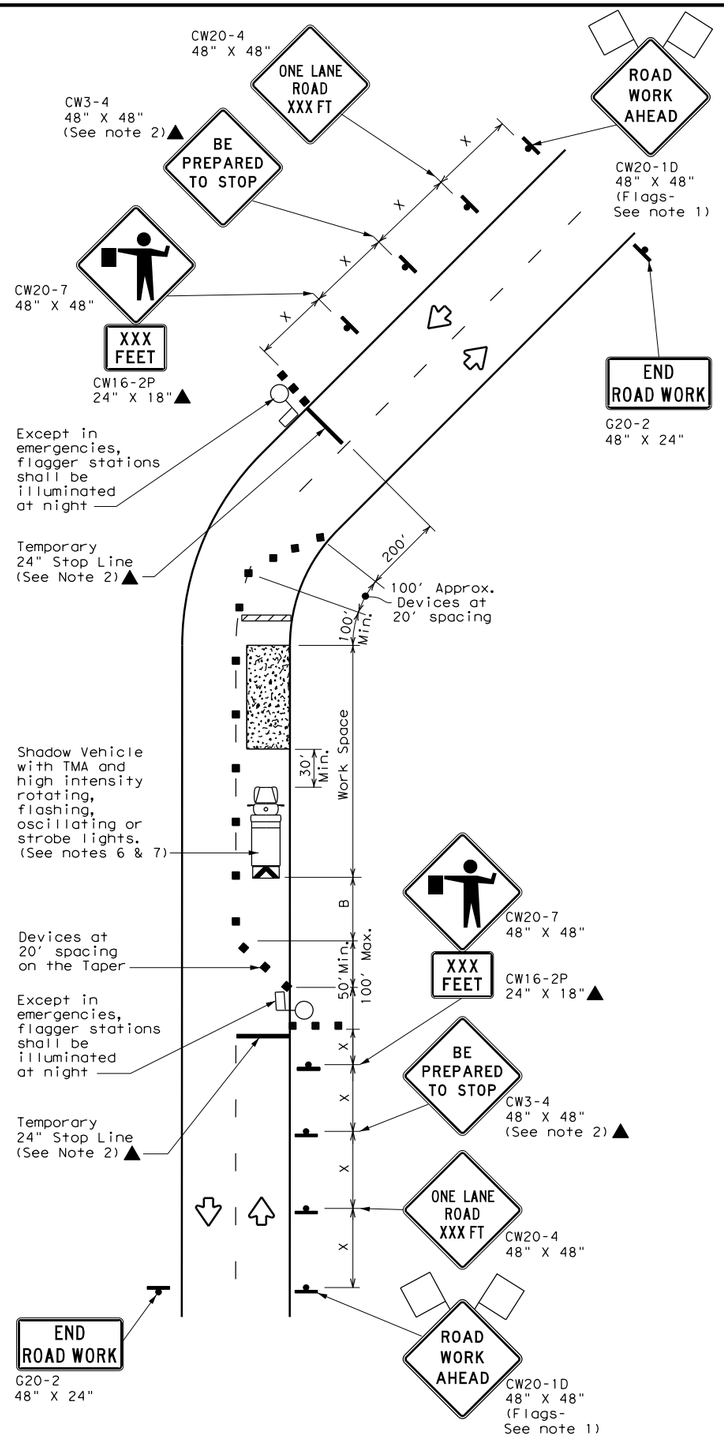


TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)



TCP (2-2b)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
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 CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
4. Flaggers should use two-way radios or other methods of communication to control traffic.
5. Length of work space should be based on the ability of flaggers to communicate.
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 a wider work space.

TCP (2-2a)

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

TCP (2-2b)

10. Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
12. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situtations.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP(2-2)-18

FILE: tcp2-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
8-95 3-03	DIST	COUNTY		SHEET NO.
1-97 2-12	WAC	MCLENNAN, ETC		29
4-98 2-18				

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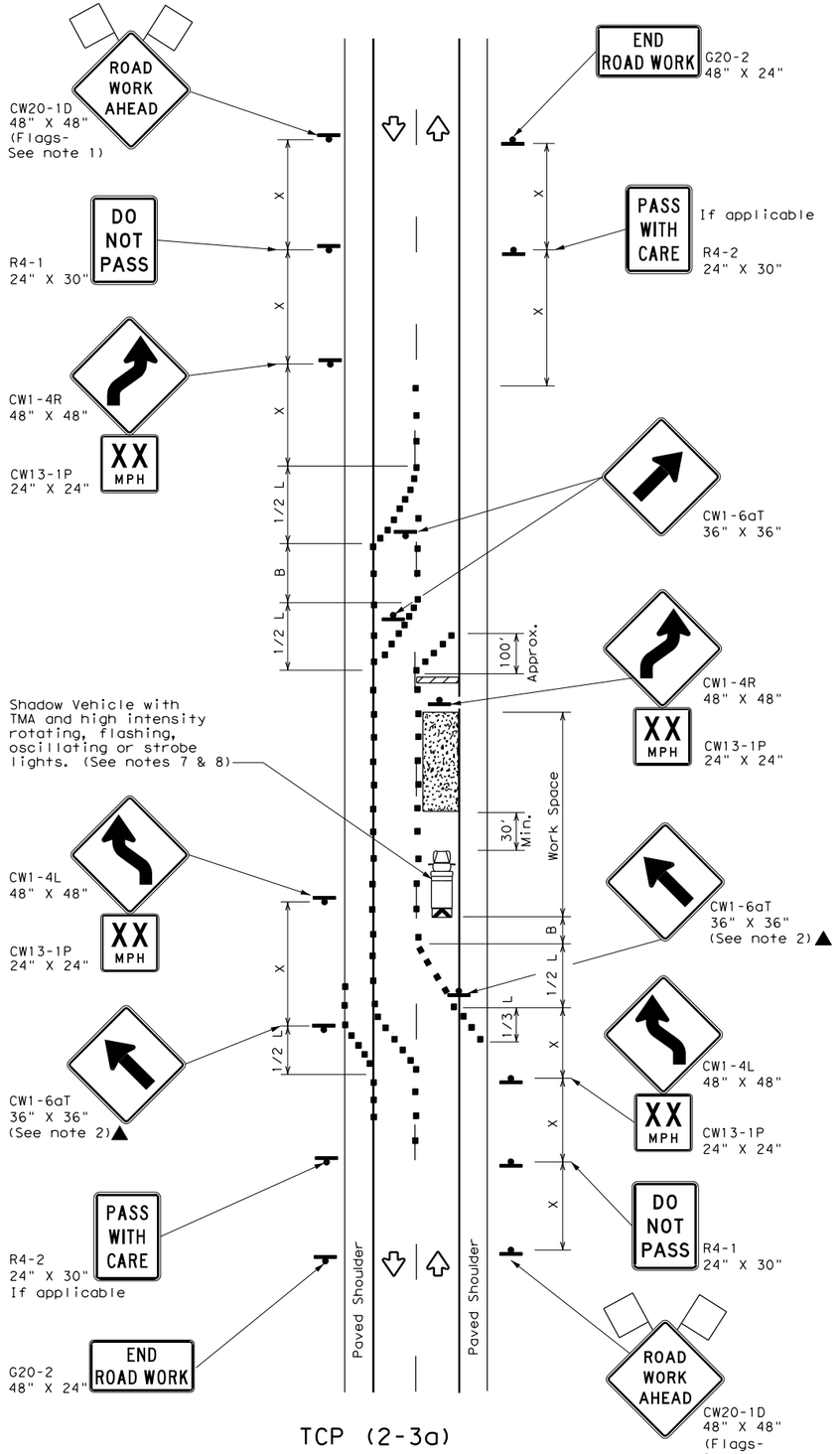
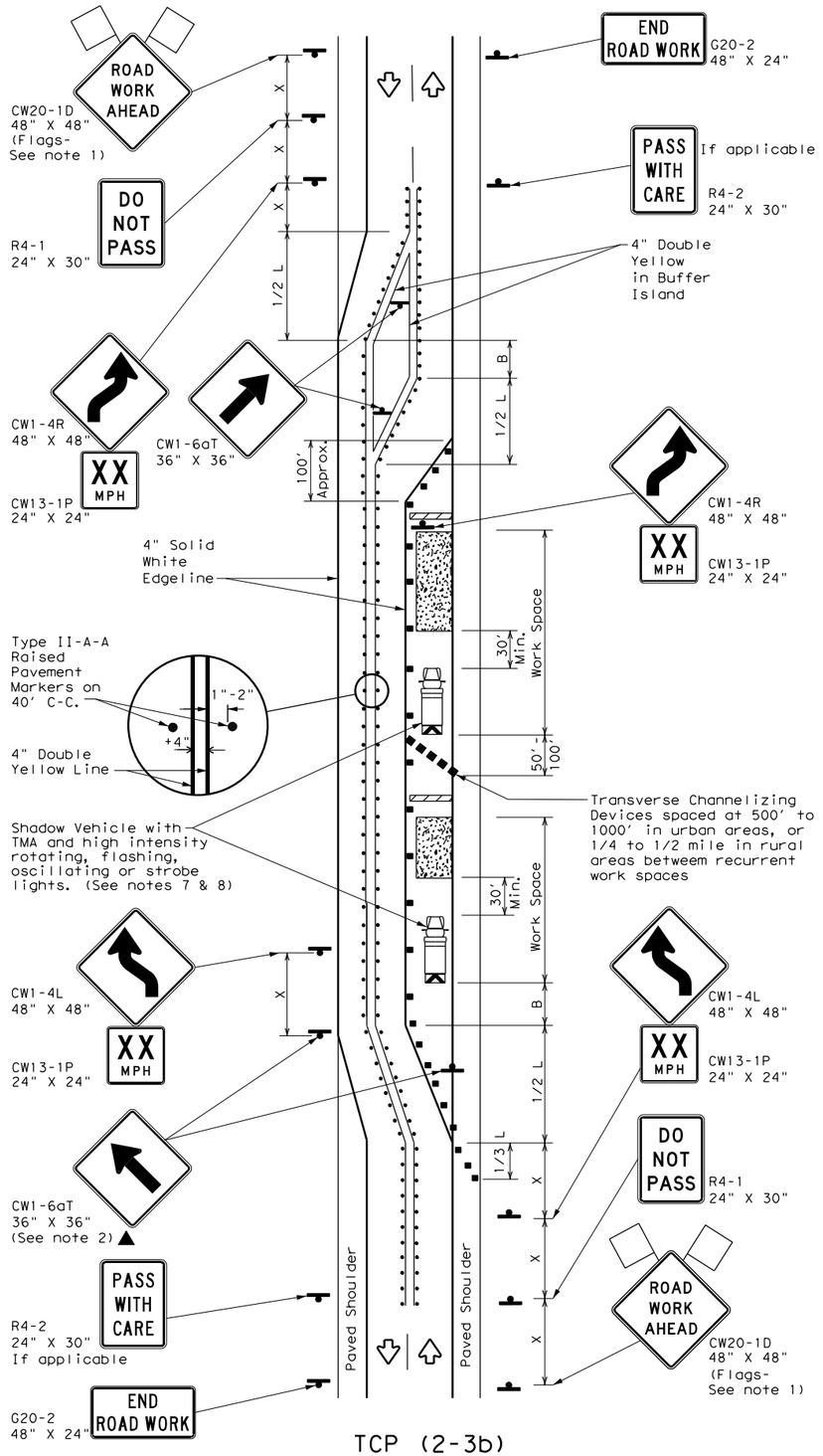


TCP (2-3a)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW



TCP (2-3b)
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		Raised Pavement Markers Ty II-AA
	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
				TCP(2-3b)ONLY
			✓	✓

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. When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
4. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
5. The R4-1 "DO NOT PASS," R4-2 " PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
6. Conflicting pavement marking shall be removed for long term projects.
7. 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.
8. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-3a)

9. Conflicting pavement markings shall be removed for long-term projects. 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 device spacing is intended for the area of the 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(2-3)-18

FILE: tcp(2-3)-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
8-95 3-03	DIST	COUNTY		SHEET NO.
1-97 2-12	WAC	MCLENNAN, ETC		30
4-98 2-18				

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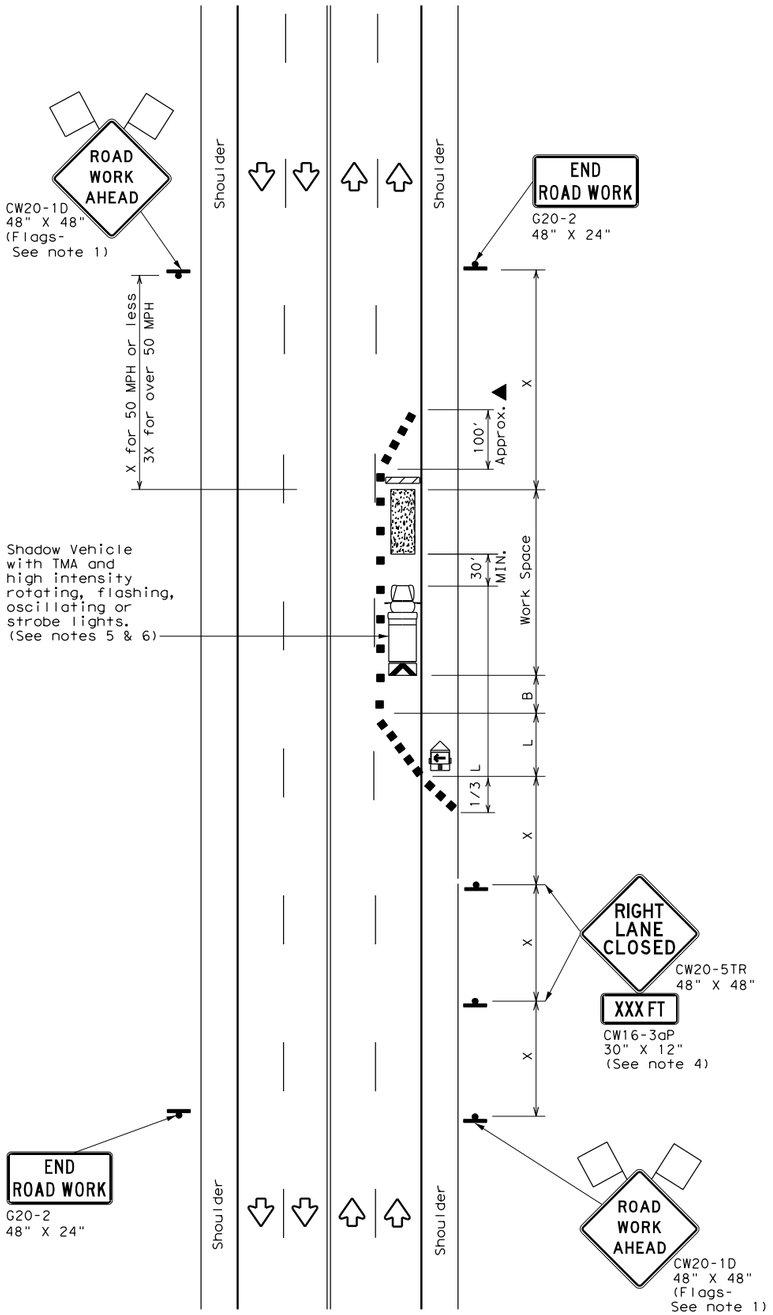
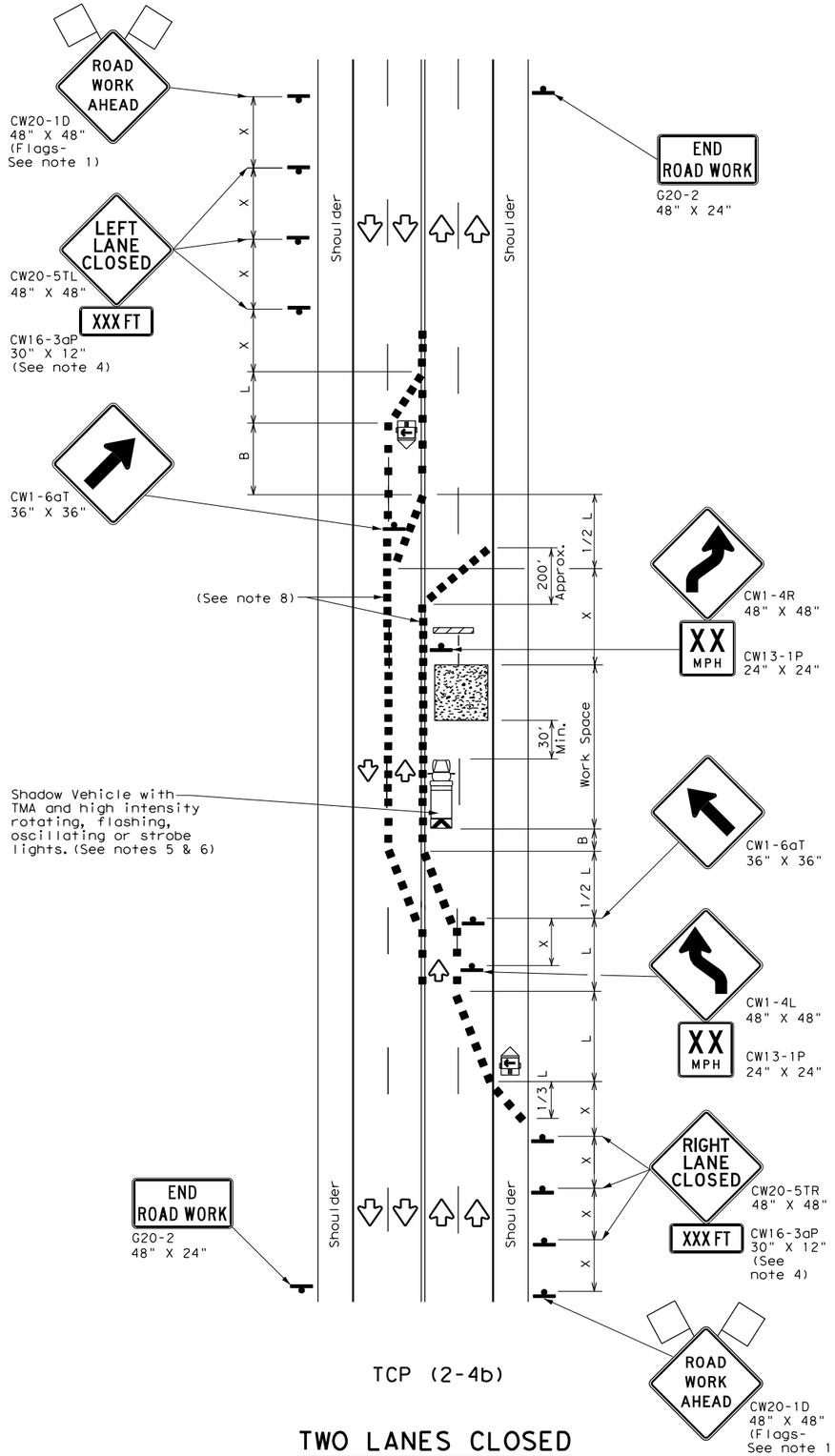


TCP (2-4a)

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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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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4-98 2-18	WAC	MCLENNAN, ETC		31

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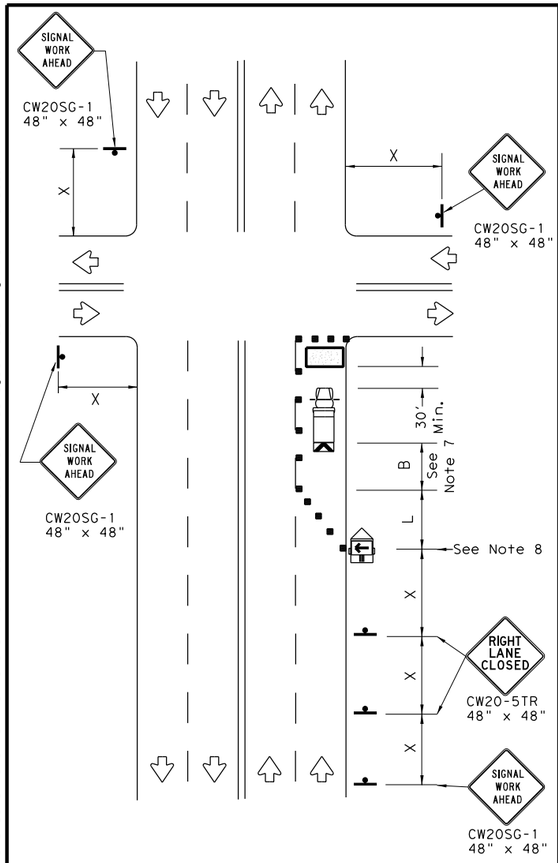
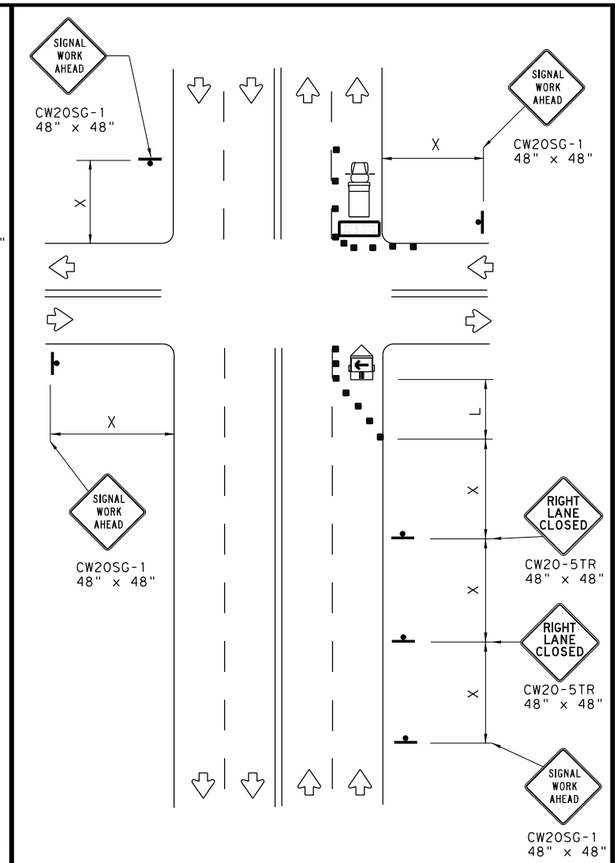


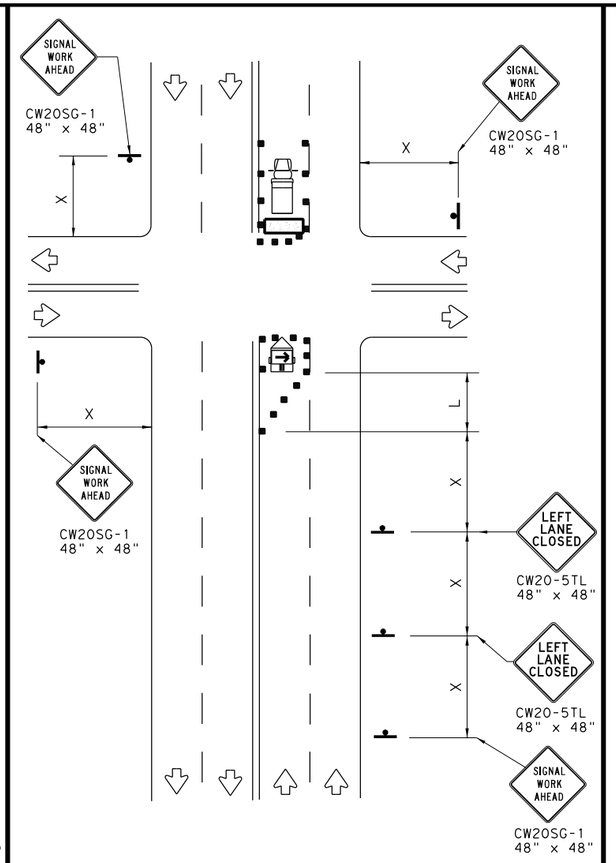
NEAR SIDE LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



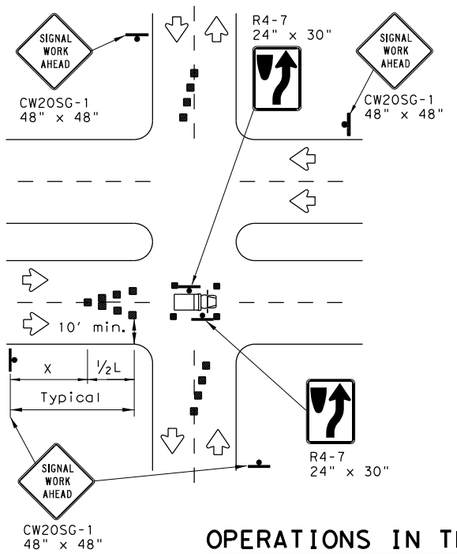
FAR SIDE RIGHT LANE CLOSURE

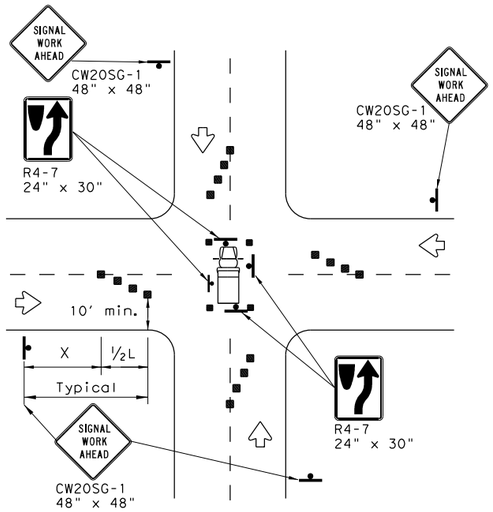
SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE LEFT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY





OPERATIONS IN THE INTERSECTION

SHORT DURATION

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.

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.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC SIGNAL WORK TYPICAL DETAILS

WZ(BTS-1)-13

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©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
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4-98 3-03	WAC	MCLENNAN, ETC		32

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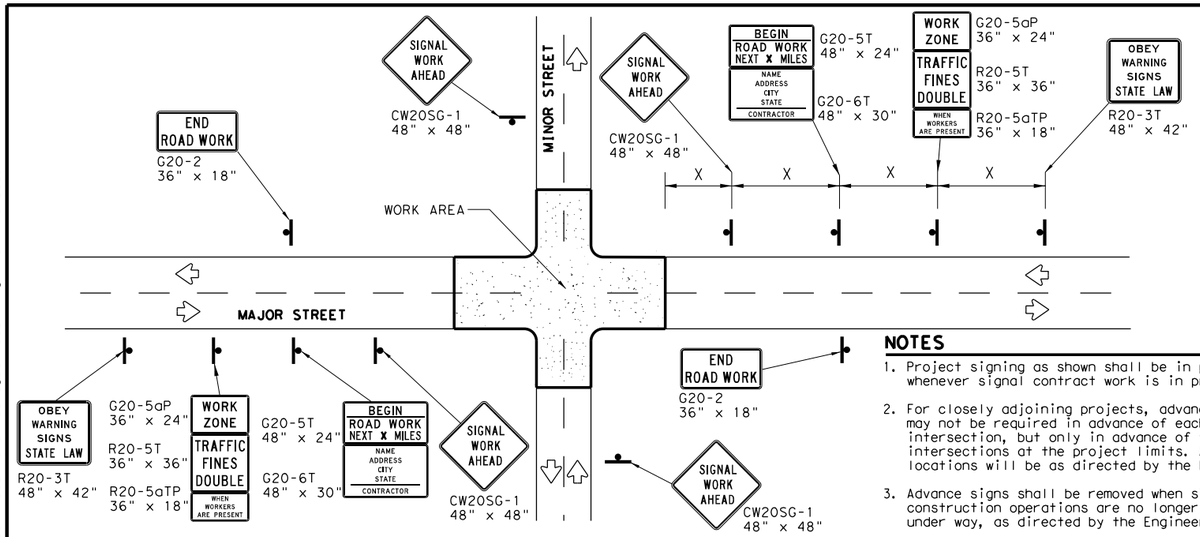


TYPICAL ADVANCE SIGNAL PROJECT SIGNING

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

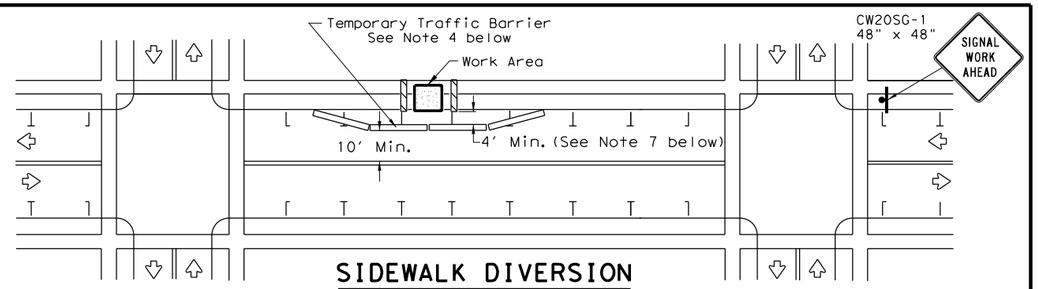
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support 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

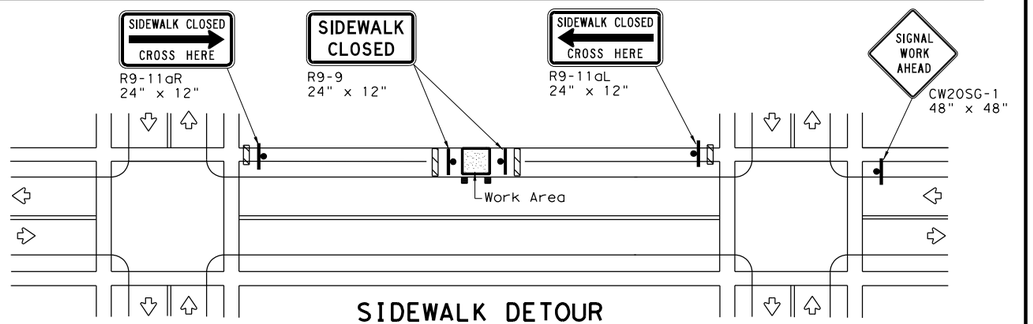
DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

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

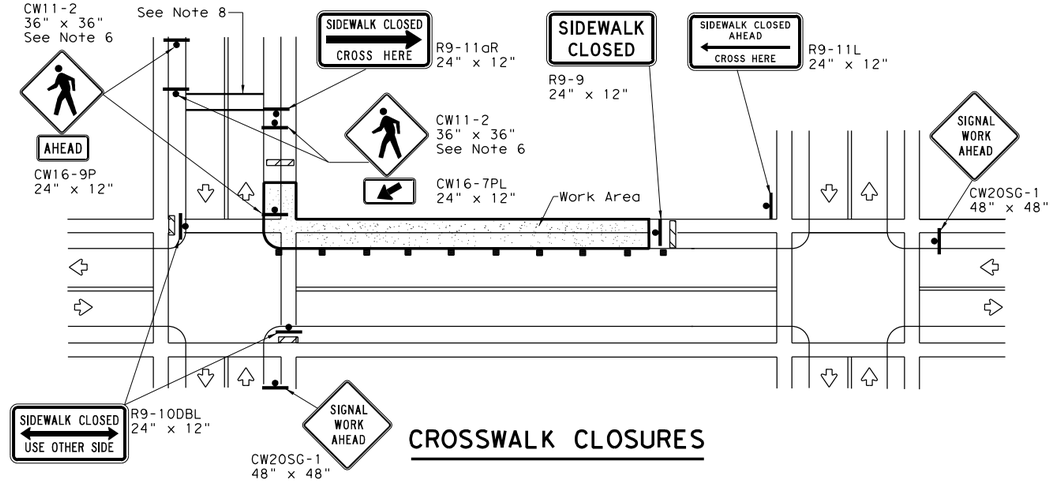
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



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

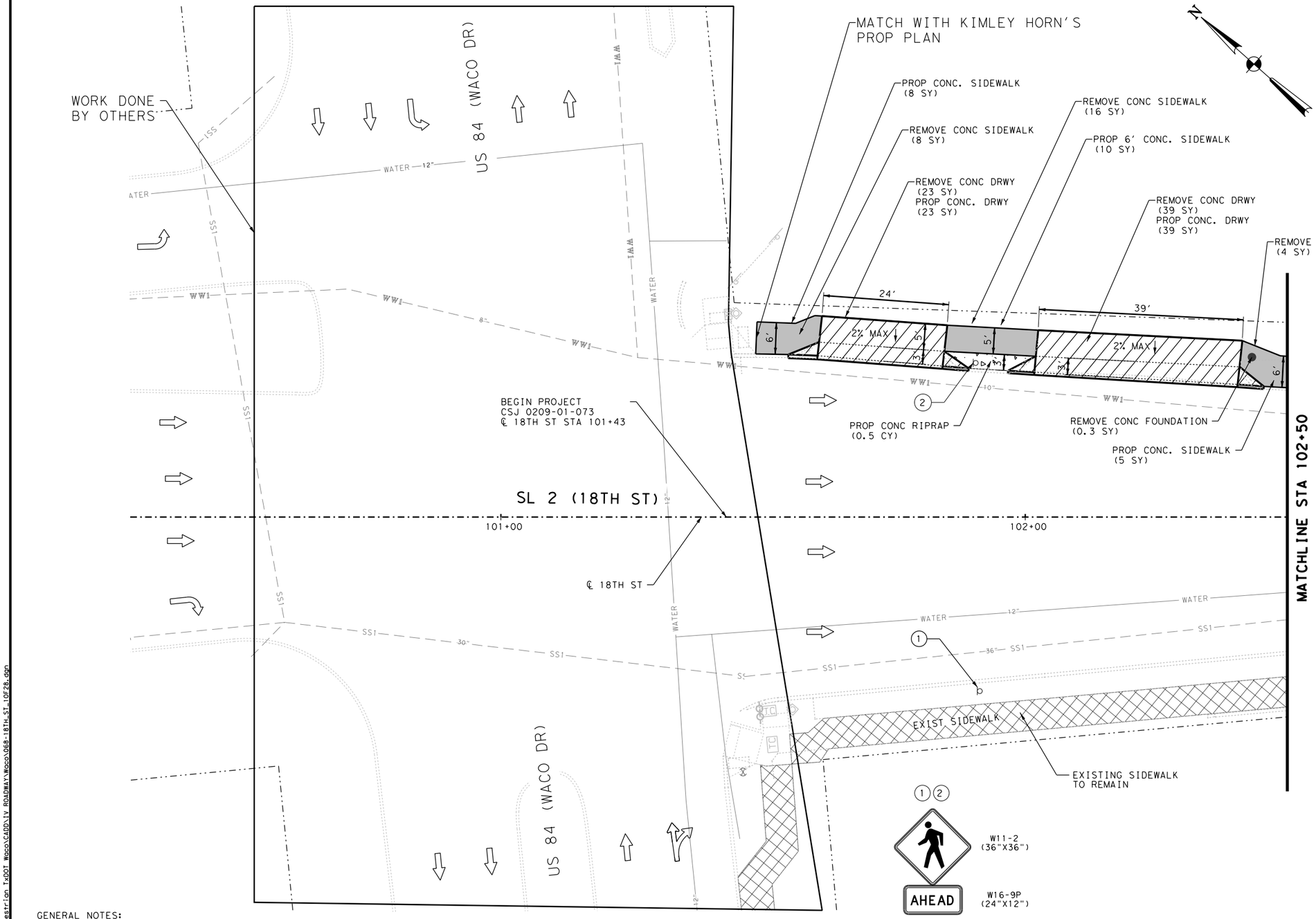
Traffic Operations Division Standard

TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

WZ(BTS-2)-13

FILE: wzbts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
2-98 10-99 7-13	DIST	COUNTY		SHEET NO.
4-98 3-03	WAC	MCLENNAN, ETC		33

ITEM	DESCRIPTION	UNIT	QTY
0104 6013	REMOVING CONC (FOUNDATIONS)	SY	0.3
0104 6015	REMOVING CONC (SIDEWALKS)	SY	28
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	62
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.5
0530 6004	DRIVEWAYS (CONC)	SY	62
0531 6001	CONC SIDEWALK (4")	SY	23
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER LINE
- WASTEWATER LINE
- STORM SEWER LINE
- GAS LINE
- ABANDONED WATER LINE

GENERAL NOTES:

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STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

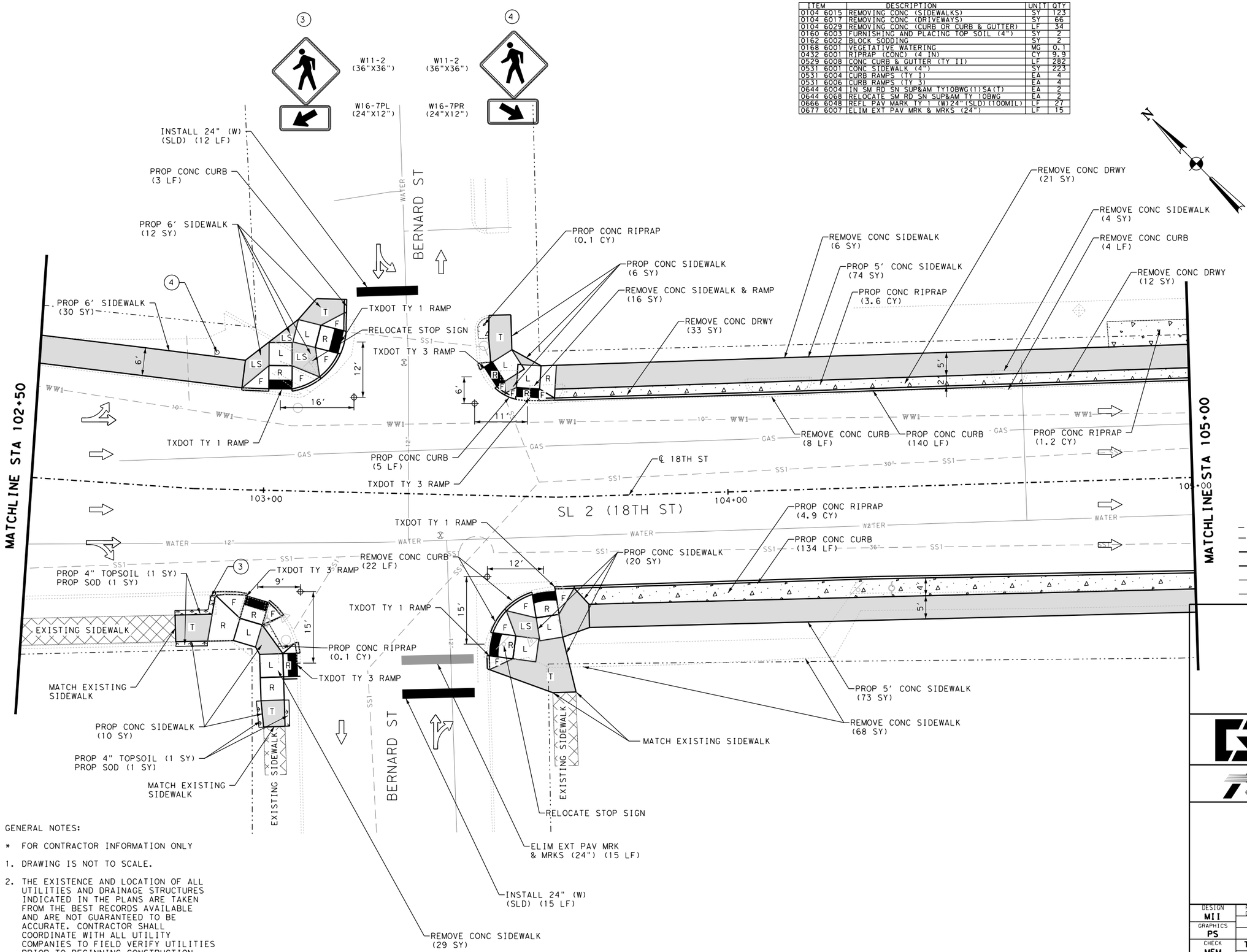
SL 2
SIDEWALK PLAN

BEGIN PROJECT TO STA 102+50
WACO, TEXAS

SHEET 1 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	34
CHECK FS	CONTROL 0209	SECTION 01	JOB 073, ETC	

ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	123
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	66
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	34
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	2
0162 6002	BLOCK SODDING	SY	2
0168 6001	VEGETATIVE WATERING	MG	0.1
0432 6001	RIPRAP (CONC) (4 IN)	CY	9.9
0529 6008	CONC CURB & GUTTER (TY II)	LF	282
0531 6001	CONC SIDEWALK (4")	SY	223
0531 6004	CURB RAMPS (TY 1)	EA	4
0531 6006	CURB RAMPS (TY 3)	EA	4
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	27
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	15



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LEGEND

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- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER — WATER LINE
- WW — WASTEWATER LINE
- SS1 — STORM SEWER LINE
- GAS — GAS LINE
- W1 — ABANDONED WATER LINE

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Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 102+50 TO STA 105+00
WACO, TEXAS

SHEET 2 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	35
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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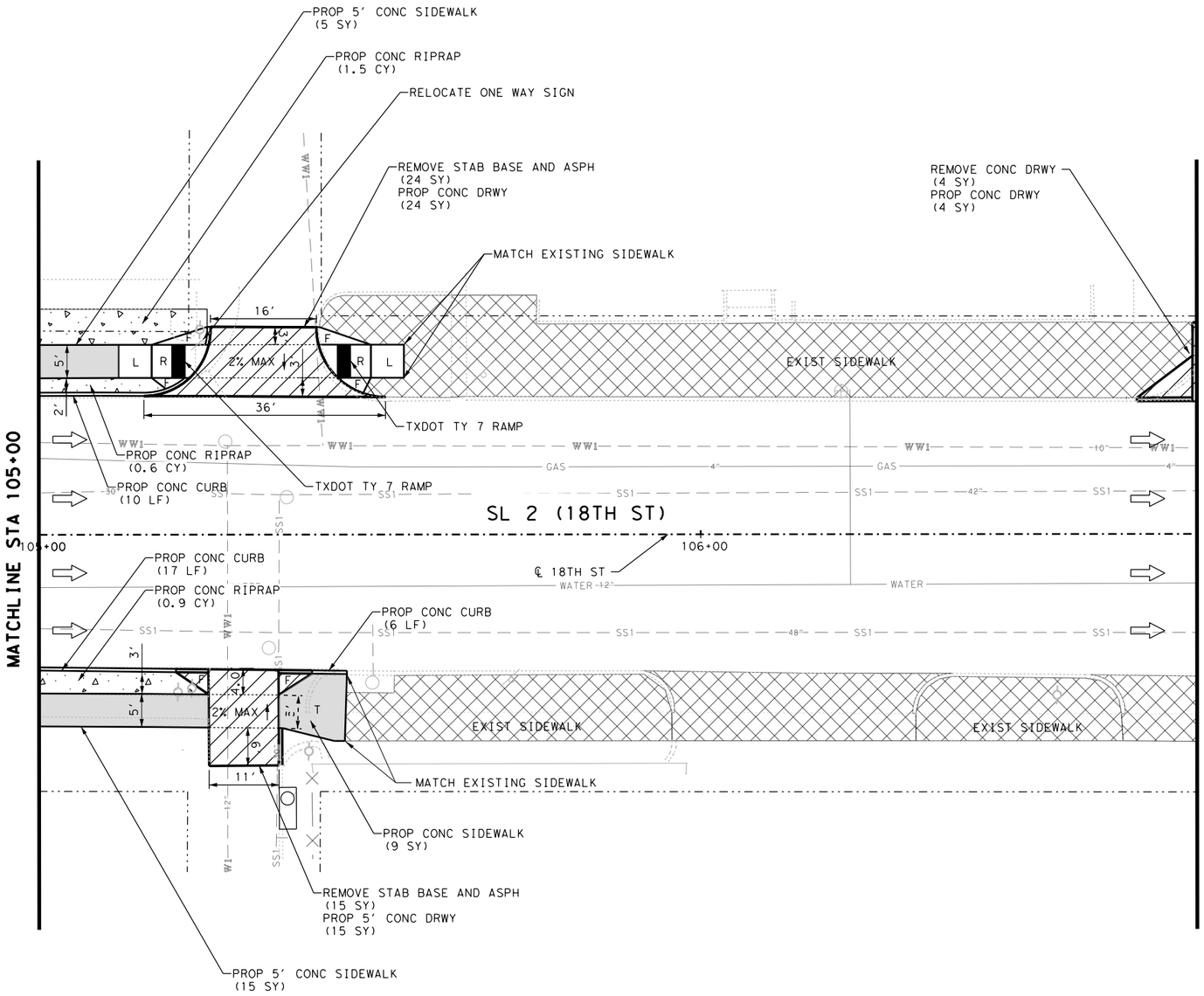
ITEM	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	4
0105 6096	REMOVE STAB BASE AND ASPH PAV (0"-12")	SY	39
0432 6001	RIPRAP (CONC) (4 IN)	CY	3.0
0529 6008	CONC CURB & GUTTER (TY II)	LF	33
0530 6004	DRIVEWAYS (CONC)	SY	43
0531 6001	CONC SIDEWALK (4")	SY	29
0531 6010	CURB RAMPS (TY 7)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



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LEGEND

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- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
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- L LANDING PAD
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- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
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- MAIL BOX
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- WATER VALVE
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- APPARENT ROW
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- SS1 — STORM SEWER LINE
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F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 105+00 TO STA 106+75
WACO, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	36
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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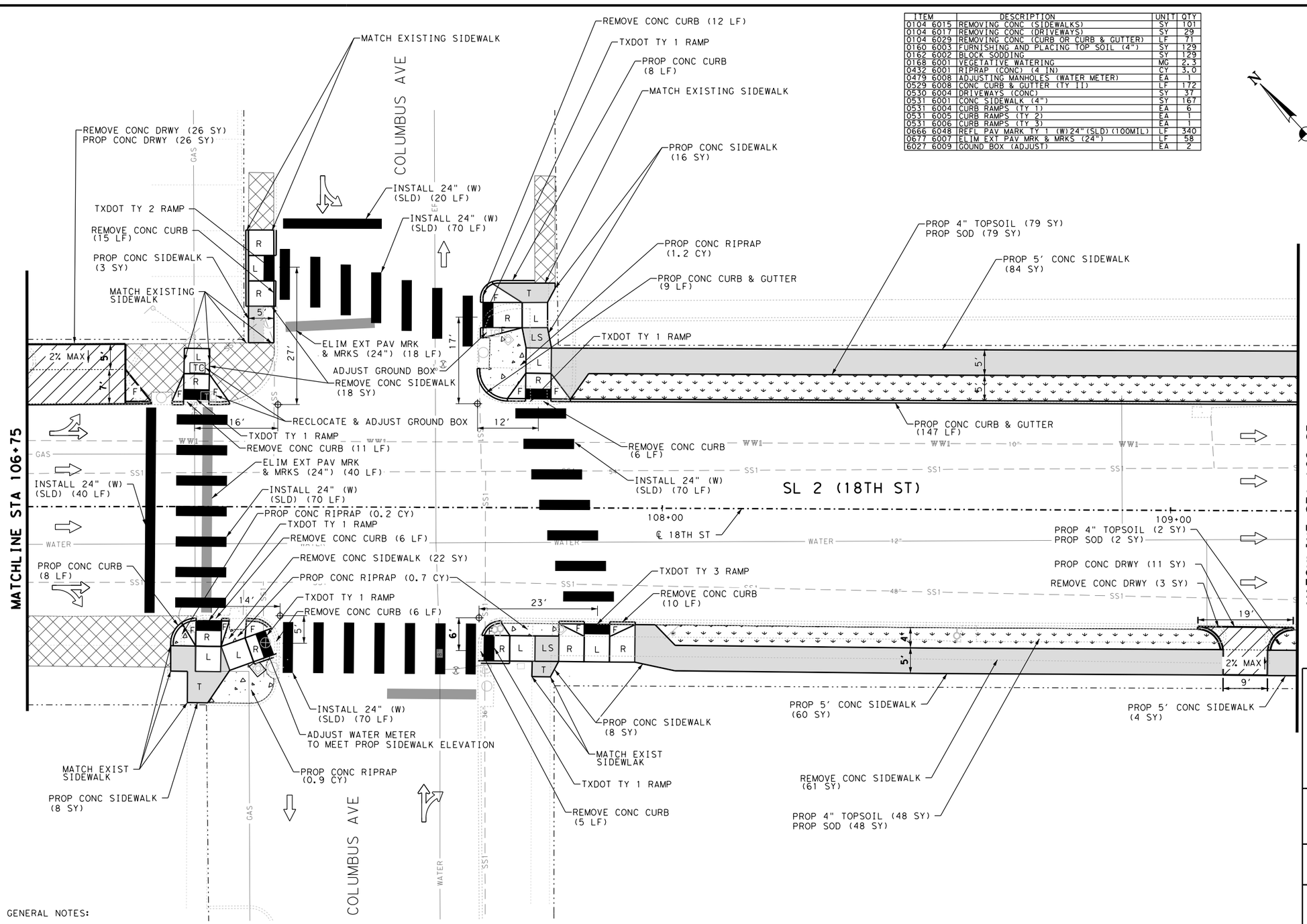
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	101
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	29
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	71
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	129
0162 6002	BLOCK SODDING	SY	129
0168 6001	VEGETATIVE WATERING	MG	2.3
0432 6001	RIPRAP (CONC) (4 IN)	CY	3.0
0479 6008	ADJUSTING MANHOLES (WATER METER)	EA	1
0529 6008	CONC CURB & GUTTER (TY II)	LF	172
0530 6004	DRIVEWAYS (CONC)	SY	37
0531 6001	CONC SIDEWALK (4")	SY	167
0531 6004	CURB RAMPS (TY 1)	EA	6
0531 6005	CURB RAMPS (TY 2)	EA	1
0531 6006	CURB RAMPS (TY 3)	EA	1
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	340
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	58
6027 6009	GOUND BOX (ADJUST)	EA	2



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- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
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- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
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- GUY WIRE
- MAIL BOX
- TREE
- FENCE
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- CONTROL POINT
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- WATER WATER LINE
- WW1 WASTEWATER LINE
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- GAS GAS LINE
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F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 106+75 TO STA 109+25
WACO, TEXAS

SHEET 4 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	37
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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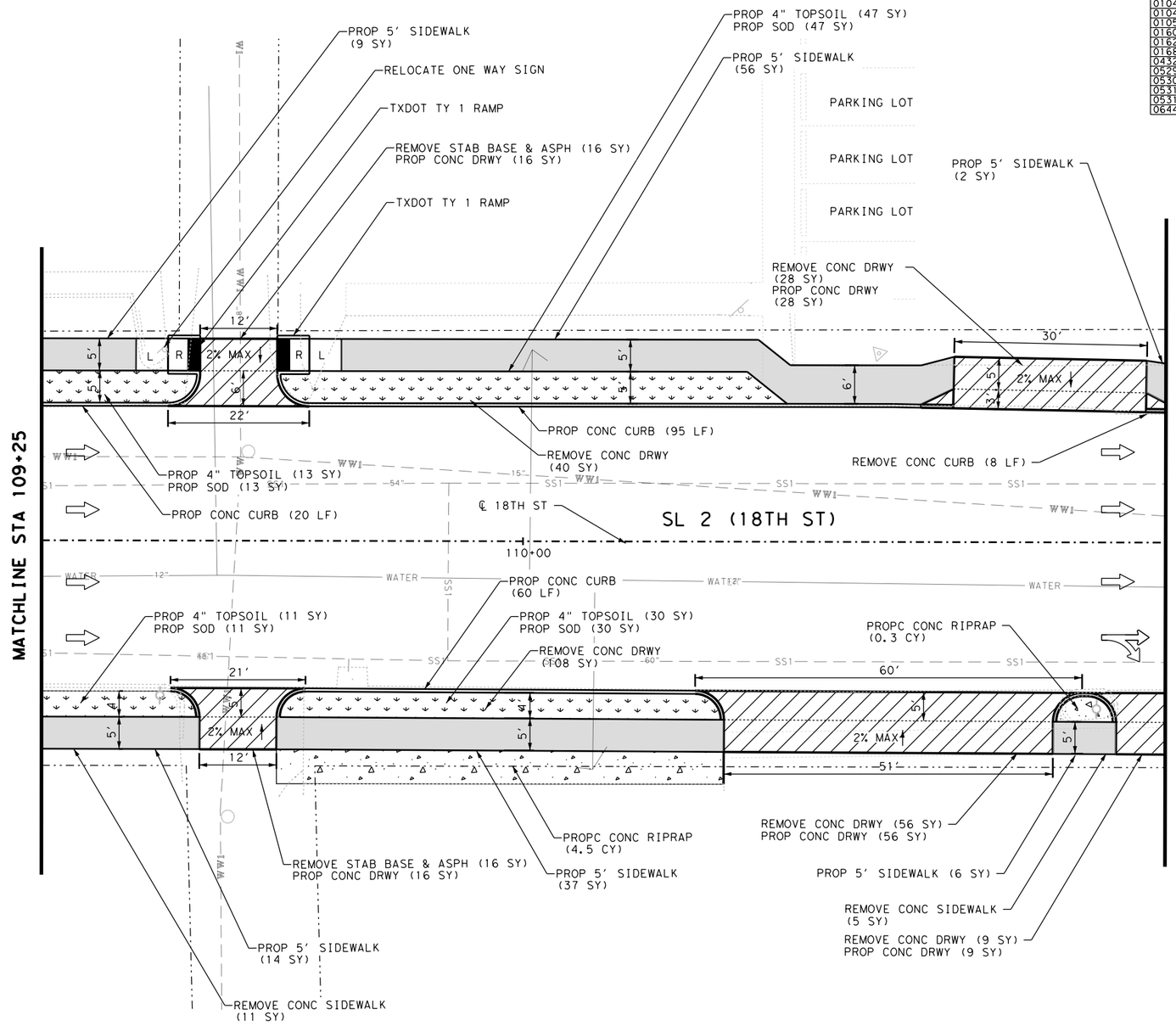
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	16
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	241
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	8
0105 6096	REMOVE STAB BASE AND ASPH PAV (0"-12")	SY	32
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	101
0162 6002	BLOCK SODDING	SY	101
0168 6001	VEGETATIVE WATERING	MG	2.0
0432 6001	RIPRAP (CONC) (4 IN)	CY	4.8
0529 6008	CONC CURB & GUTTER (TY II)	LF	175
0530 6004	DRIVEWAYS (CONC)	SY	125
0531 6001	CONC SIDEWALK (4")	SY	224
0531 6004	CURB RAMPS (TY 1)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



LEGEND

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F-12801

Texas Department of Transportation

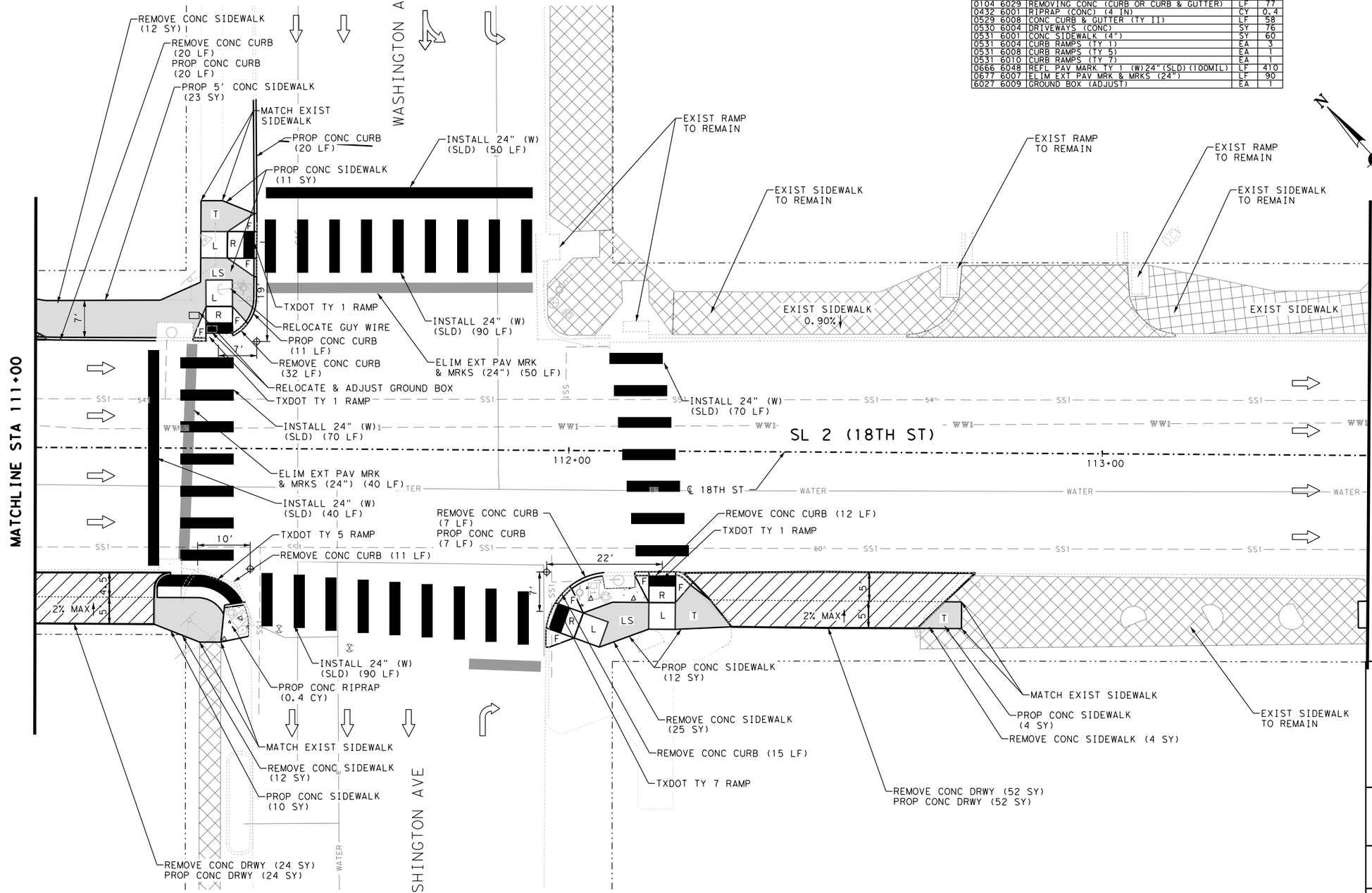
SL 2
SIDEWALK PLAN

STA 109+25 TO STA 111+00
WACO, TEXAS

SHEET 5 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	38
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	54
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	76
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	77
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.4
0529 6008	CONC CURB & GUTTER (TY II)	LF	58
0530 6004	DRIVEWAYS (CONC)	SY	76
0531 6001	CONC SIDEWALK (4")	SY	60
0531 6004	CURB RAMPS (TY 1)	EA	3
0531 6008	CURB RAMPS (TY 5)	EA	1
0531 6010	CURB RAMPS (TY 7)	EA	1
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	410
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	90
6027 6009	GROUND BOX (ADJUST)	EA	1



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F-12801

SL 2
SIDEWALK PLAN

STA 111+00 TO STA 113+50
WACO, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	39
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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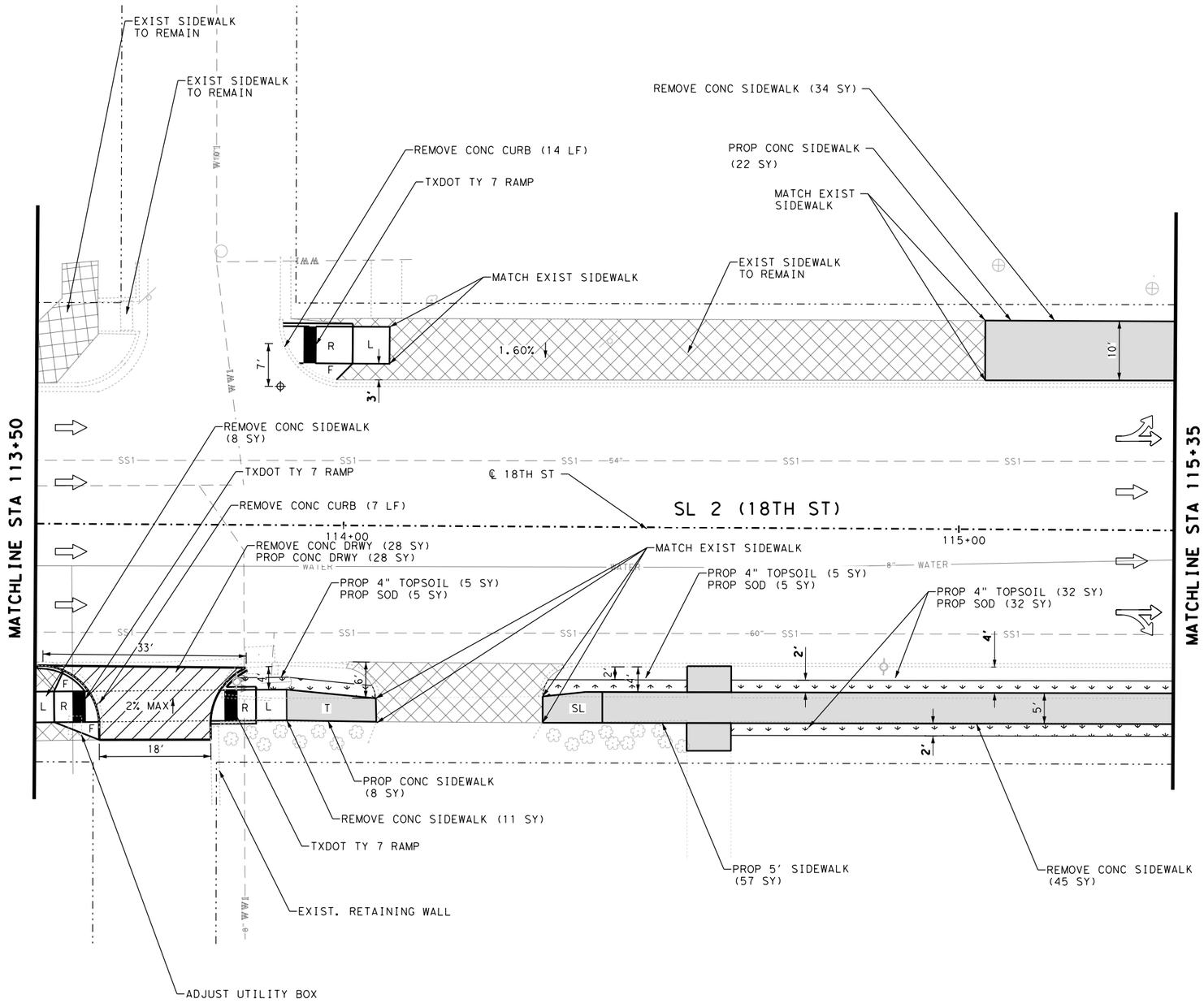
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	98
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	28
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	21
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	42
0162 6002	BLOCK SODDING	SY	42
0168 6001	VEGETATIVE WATERING	MG	1.0
0530 6004	DRIVEWAYS (CONC)	SY	28
0531 6001	CONC SIDEWALK (4")	SY	87
0531 6010	CURB RAMPS (TY 7)	EA	3
6027 6009	GROUND BOX (ADJUST)	EA	1



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER WATER LINE
- WW WASTEWATER LINE
- SS1 STORM SEWER LINE
- GAS GAS LINE
- W1 ABANDONED WATER LINE

GENERAL NOTES:

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STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 113+50 TO STA 115+35
WACO, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	40
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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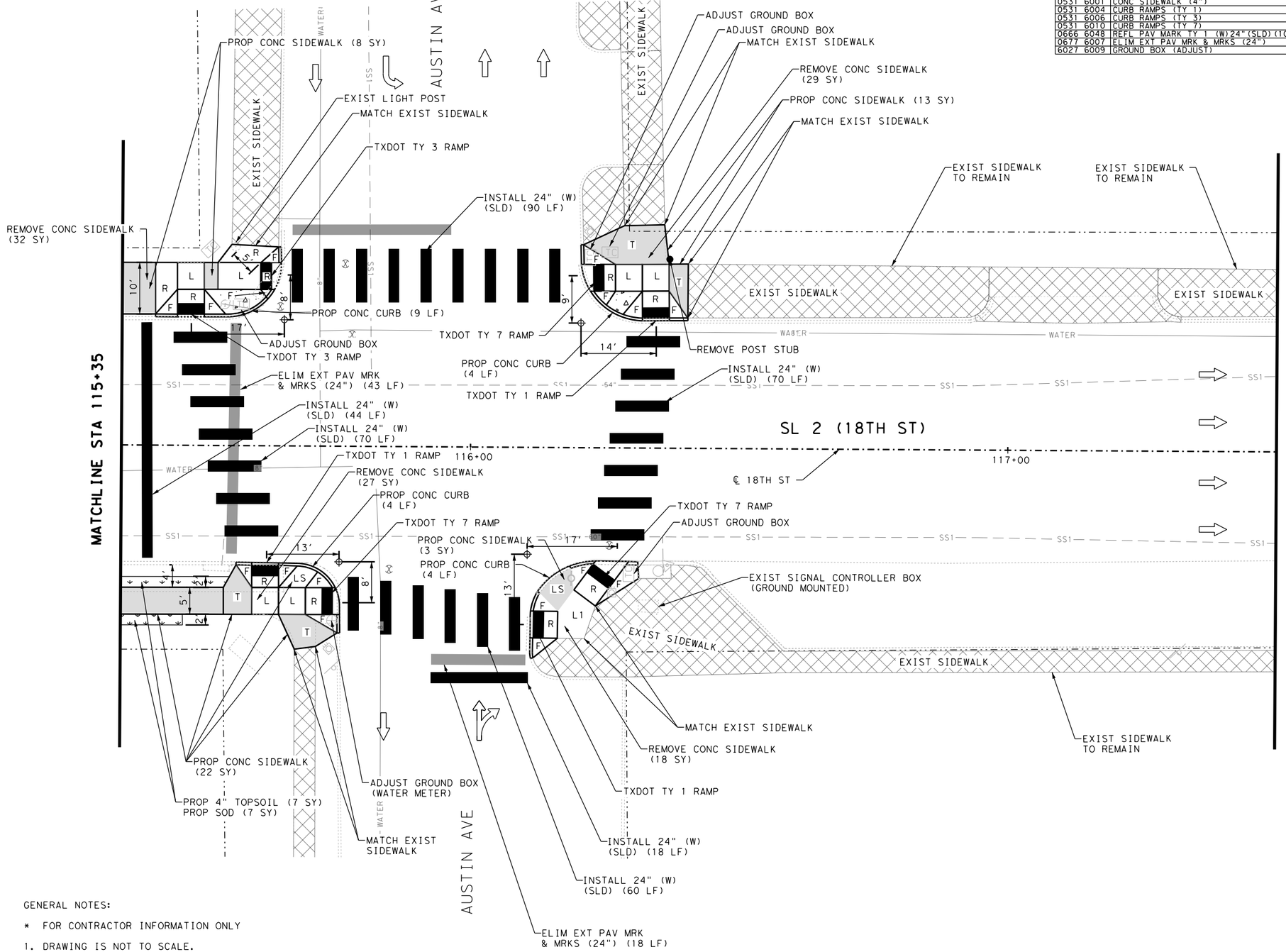
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	106
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	7
0162 6002	BLOCK SODDING	SY	7
0168 6001	VEGETATIVE WATERING	MG	0.2
0529 6008	CONC CURB & GUTTER (TY II)	LF	16
0531 6001	CONC SIDEWALK (4")	SY	46
0531 6004	CURB RAMPS (TY 1)	EA	3
0531 6006	CURB RAMPS (TY 3)	EA	2
0531 6010	CURB RAMPS (TY 7)	EA	3
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	352
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	62
6027 6009	GROUND BOX (ADJUST)	EA	4



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
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- TREE
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- GAS MARKER/METER
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Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 115+35 TO STA 117+50
WACO, TEXAS

SHEET 8 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	41
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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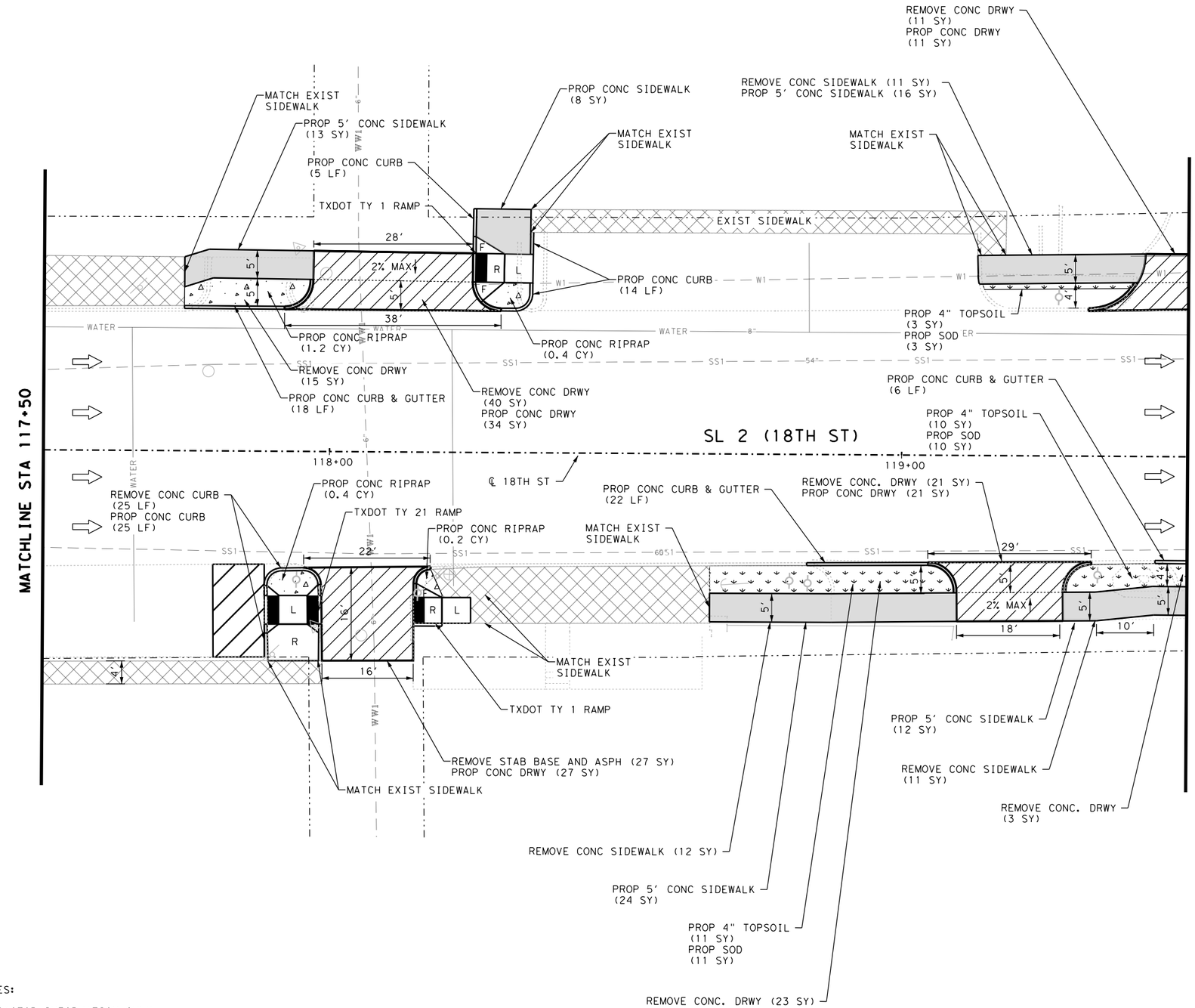
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	34
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	92
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	25
0105 6096	REMOVE STAB BASE AND ASPH PAV (0"-12")	SY	27
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	24
0162 6002	BLOCK SODDING	SY	24
0168 6001	VEGETATIVE WATERING	MG	0.6
0432 6001	RIPRAP (CONC) (4 IN)	CY	2.2
0529 6008	CONC CURB & GUTTER (TY II)	LF	90
0530 6004	DRIVEWAYS (CONC)	SY	93
0531 6001	CONC SIDEWALK (4")	SY	73
0531 6004	CURB RAMPS (TY 1)	EA	2
0531 6016	CURB RAMPS (TY 21)	EA	1



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
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- EXISTING SIDEWALK/DRWY TO REMAIN
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SUITE 220
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F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 117+50 TO STA 119+50
WACO, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	42
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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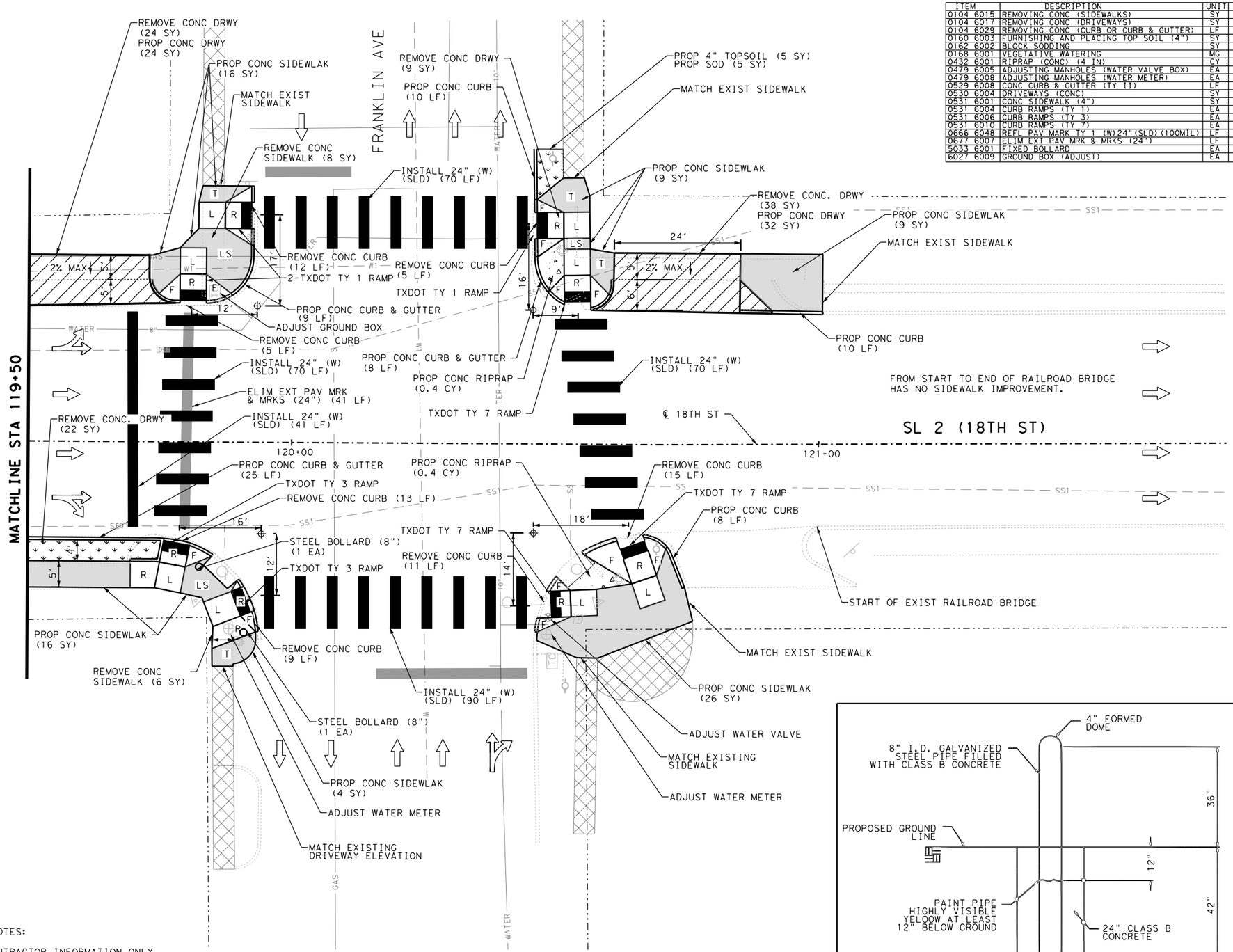
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	14
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	84
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	70
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	5
0162 6002	BLOCK SODDING	SY	5
0168 6001	VEGETATIVE WATERING	MG	0.1
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.8
0479 6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	1
0479 6008	ADJUSTING MANHOLES (WATER METER)	EA	2
0529 6008	CONC CURB & GUTTER (TY II)	LF	70
0530 6004	DRIVEWAYS (CONC)	SY	78
0531 6001	CONC SIDEWALK (4")	SY	80
0531 6004	CURB RAMPS (TY 1)	EA	5
0531 6006	CURB RAMPS (TY 3)	EA	2
0531 6010	CURB RAMPS (TY 7)	EA	3
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	341
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	41
5033 6001	FIXED BOLLARD	EA	2
6027 6009	GROUND BOX (ADJUST)	EA	1



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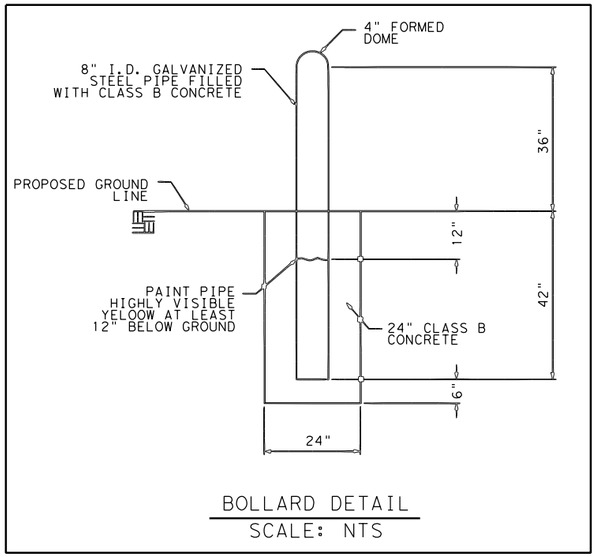

BOLLARD DETAIL
SCALE: NTS

LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
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M.F. Muwaquet
09/26/21

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11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 119+50 TO RAILROAD BRIDGE
WACO, TEXAS

SHEET 10 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	43
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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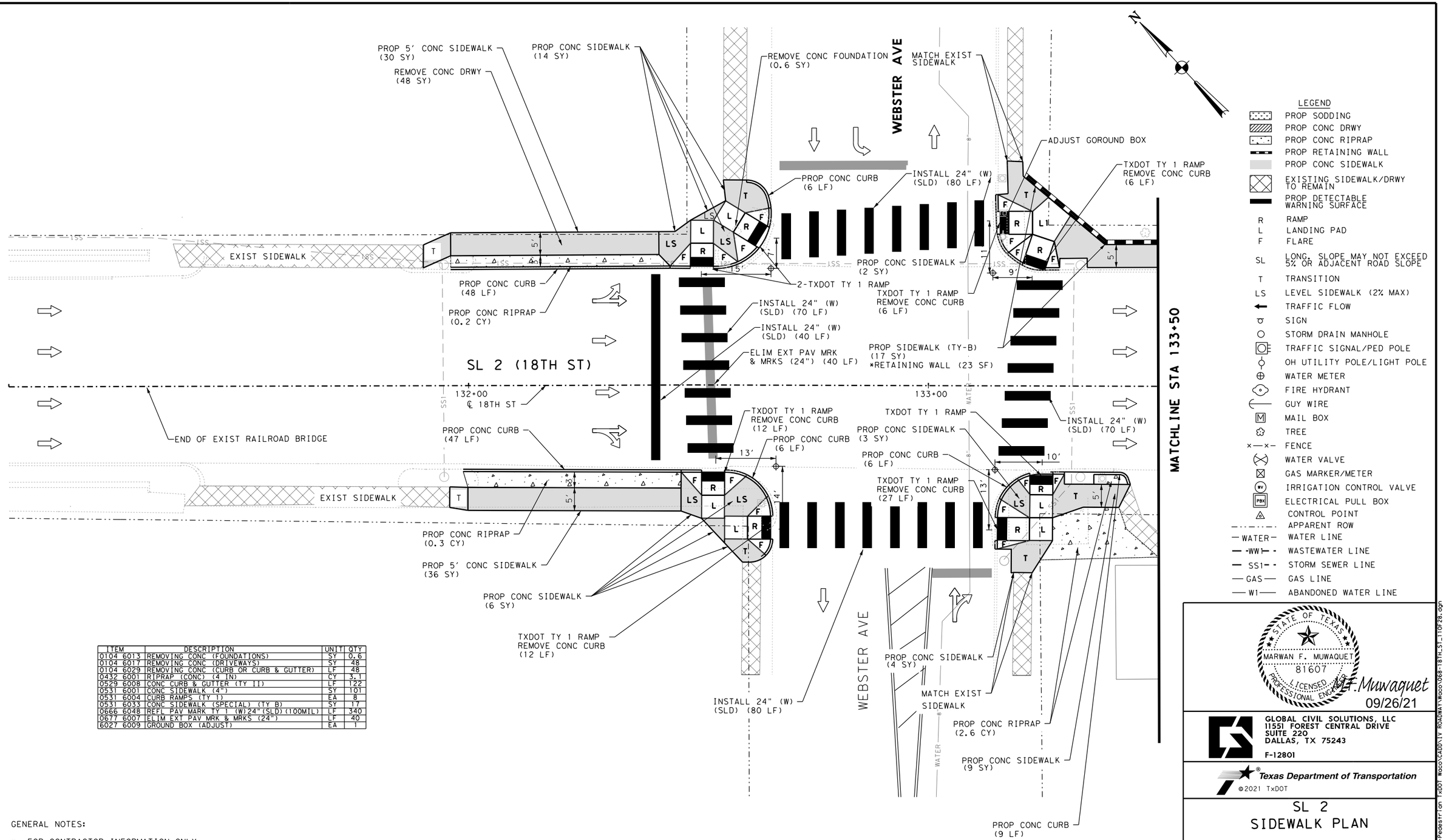

ITEM	DESCRIPTION	UNIT	QTY
0104 6013	REMOVING CONC (FOUNDATIONS)	SY	0.6
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	48
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	48
0432 6001	RIPRAP (CONC) (4 IN)	CY	3.1
0529 6008	CONC CURB & GUTTER (TY II)	LF	122
0531 6001	CONC SIDEWALK (4")	SY	101
0531 6004	CURB RAMPS (TY 1)	EA	8
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	17
0666 6048	REFL PAV MARK TY I (W)24"(SLD)(100MIL)	LF	340
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	40
6027 6009	GROUND BOX (ADJUST)	EA	1

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09/26/21

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SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

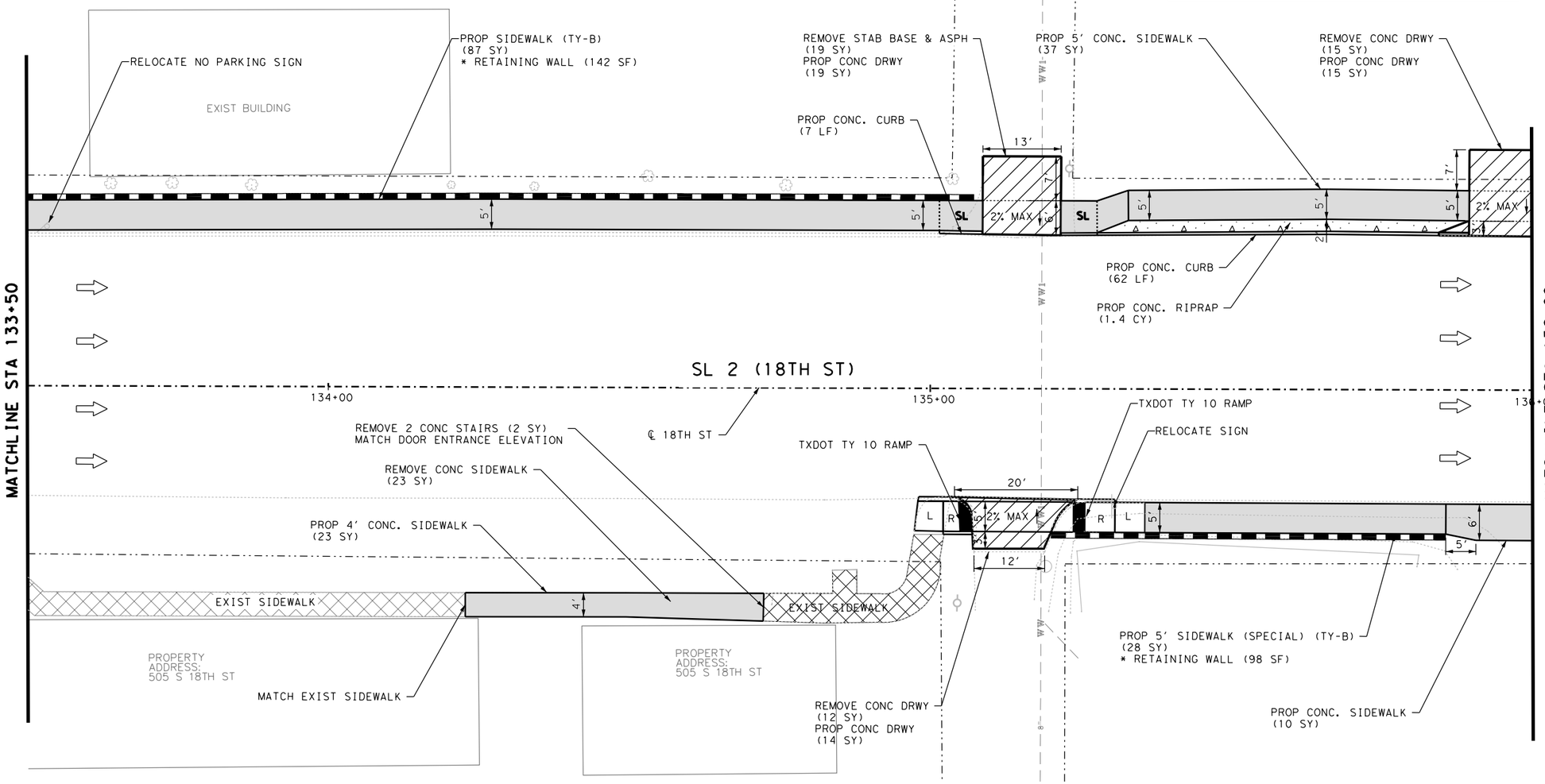
SL 2
SIDEWALK PLAN

RAILROAD BRIDGE TO STA 133+50
WACO, TEXAS

SHEET 11 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	44
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	25
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	27
0104 6028	REMOVING CONC (MISC)	SY	2
0105 6096	REMOVE STAB BASE AND ASPH PAV (0"-12")	SY	19
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.2
0529 6008	CONC CURB & GUTTER (TY II)	LF	69
0530 6004	DRIVEWAYS (CONC)	SY	48
0531 6001	CONC SIDEWALK (4")	SY	70
0531 6013	CURB RAMPS (TY 10)	EA	2
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	115
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
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F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 133+50 TO STA 136+00
WACO, TEXAS

SHEET 12 OF 28

DESIGN	FED.RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	45
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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ITEM	DESCRIPTION	UNIT	QTY
0104 6013	REMOVING CONC (FOUNDATIONS)	SY	2.0
0104 6015	REMOVING CONC (SIDEWALKS)	SY	104
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	185
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	50
0432 6001	RIPRAP (CONC) (4 IN)	CY	2.5
0529 6008	CONC CURB & GUTTER (TY II)	LF	80
0530 6004	DRIVEWAYS (CONC)	SY	169
0531 6001	CONC SIDEWALK (4")	SY	182
0531 6004	CURB RAMPS (TY 1)	EA	6
0531 6010	CURB RAMPS (TY 7)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	365
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	75
6027 6009	GROUND BOX (ADJUST)	EA	3

MATCHLINE STA 136+00

MATCHLINE STA 138+50

SL 2 (18TH ST)

136+00

137+00

138+00

℄ 18TH ST

CLAY AVE

CLAY AVE

MATCH EXIST SIDEWALK

TXDOT TY 1 RAMP

PROP CONC SIDEWALK (19 SY)

REMOVE CONC FOUNDATION (1.4 SY)

PROP CONC SIDEWALK (10 SY)

REMOVE CONC. DRWY (29 SY)
PROP CONC. DRWY (29 SY)

REMOVE CONC. DRWY (57 SY)
PROP CONC. DRWY (57 SY)

PROP CONC SIDEWALK (10 SY)

PROP CONC CURB (5 LF)

INSTALL 24" (W) (SLD) (18 LF)

ELIM EXT PAV MRK & MRKS (24") (18 LF)

PROP CONC CURB (14 LF)

INSTALL 24" (W) (SLD) (70 LF)

PROP CONC CURB (11 LF)

PROP CONC RIPRAP (1.0 CY)

ELIM EXT PAV MRK & MRKS (24") (40 LF)

INSTALL 24" (W) (SLD) (70 LF)

INSTALL 24" (W) (SLD) (40 LF)

TXDOT TY 3 RAMP

REMOVE CONC CURB (13 LF)

RELOCATE NO PARKING SIGN

TXDOT TY 3 RAMP

REMOVE CONC CURB (13 LF)

PROP CONC SIDEWALK (51 SY)

PROP CONC SIDEWALK (12 SY)

MATCH EXIST SIDEWALK

INSTALL 24" (W) (SLD) (80 LF)

PROP CONC RIPRAP (0.6 CY)

ELIM EXT PAV MRK & MRKS (24") (17 LF)

INSTALL 24" (W) (SLD) (17 LF)

PROP CONC RIPRAP (0.9 CY)

MATCH EXIST SIDEWALK

ADJUST GROUNBOX

PROP CONC SIDEWALK (15 SY)

PAYPHONE BOX

REMOVE CONC DRWY (36 SY)
PROP CONC DRWY (36 SY)

REMOVE CONC SIDEWALK (28 SY)

PROP CONC SIDEWALK (28 SY)

2-TXDOT TY 1 RAMP

PROP CONC CURB (10 LF)

REMOVE CONC FOUNDATION (0.6 SY)

REMOVE CONC SIDEWALK (28 SY) & RAMP

PROP CONC CURB (10 LF)

TXDOT TY 1 RAMP

REMOVE CONC SIDEWALK (24 SY)

REMOVE CONC CURB (24 LF)

INSTALL 24" (W) (SLD) (70 LF)

ADJUST GROUNBOX

PROP CONC CURB (5 LF)

REMOVE CONC SIDEWALK (24 SY)

TXDOT TY 1 RAMP

PROP SIDEWALK (13 SY)

ADJUST GROUNBOX

REMOVE CONC DRWY (47 SY)
PROP CONC DRWY (47 SY)

PROP 5' SIDEWALK (24 SY)

REMOVE CONC DRWY (16 SY)

PROP CONC RIPRAP (1.4 CY)

PROP CONC CURB (25 LF)

LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
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- TREE
- FENCE
- WATER VALVE
- GAS MARKER/MEASURE
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER WATER LINE
- WW WASTEWATER LINE
- SS1 STORM SEWER LINE
- GAS GAS LINE
- W1 ABANDONED WATER LINE

GENERAL NOTES:

* FOR CONTRACTOR INFORMATION ONLY

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STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 136+00 TO STA 138+50
WACO, TEXAS

SHEET 13 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	46
CHECK FS	CONTROL 0209	SECTION 01	JOB 073, ETC	

P:\Jobs\2020006-Pedestrian TxDOT Waco\CADD\IV ROADWAY\Waco\068-18TH_ST_130*28.dgn
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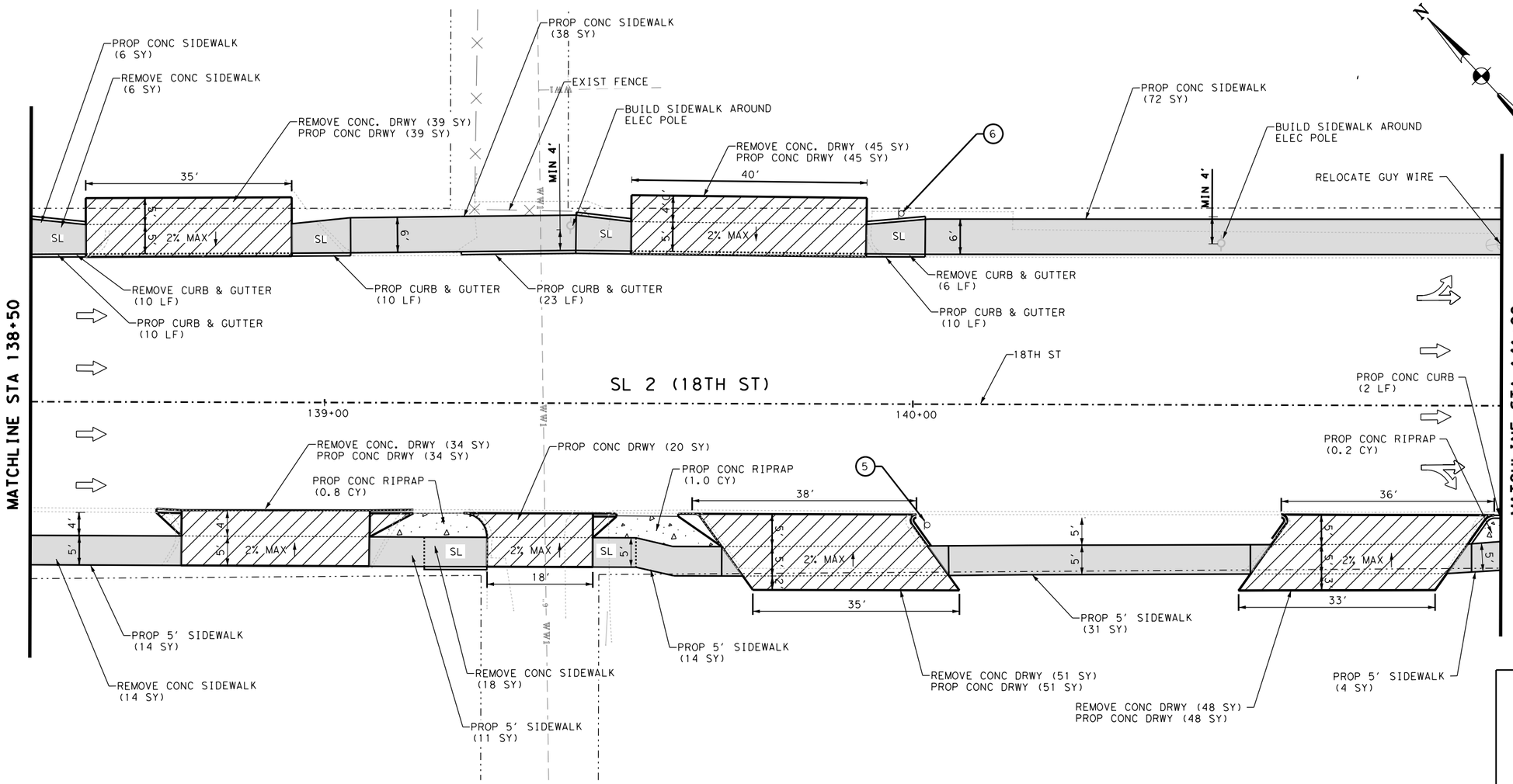
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	38
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	217
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	16
0432 6001	RIPRAP (CONC) (4 IN)	CY	1.8
0529 6008	CONC CURB & GUTTER (TY II)	LF	55
0530 6004	DRIVEWAYS (CONC)	SY	217
0531 6001	CONC SIDEWALK (4")	SY	193
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
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- WW WASTEWATER LINE
- SS1 STORM SEWER LINE
- GAS GAS LINE
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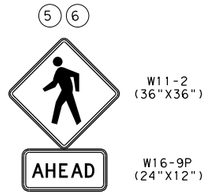

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F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 138+50 TO STA 141+00
WACO, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	47
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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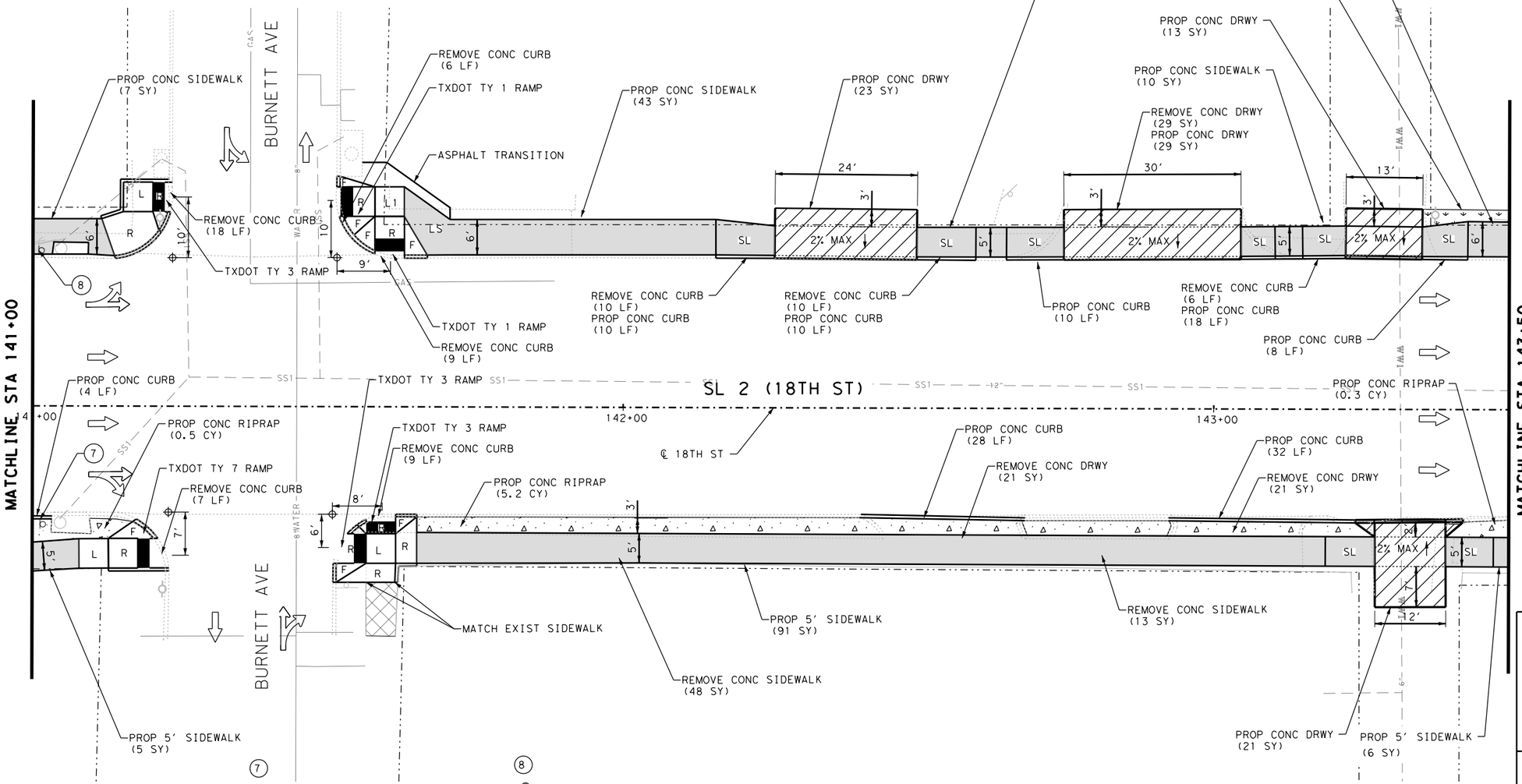
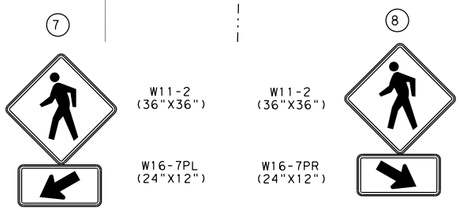
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	61
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	71
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	69
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	9
0162 6002	BLOCK SODDING	SY	9
0168 6001	VEGETATIVE WATERING	MG	0.2
0432 6001	RIPRAP (CONC) (4 IN)	CY	8.0
0529 6008	CONC CURB & GUTTER (TY II)	LF	120
0530 6004	DRIVEWAYS (CONC)	SY	86
0531 6001	CONC SIDEWALK (4")	SY	172
0531 6004	CURB RAMPS (TY 1)	EA	2
0531 6006	CURB RAMPS (TY 3)	EA	3
0531 6010	CURB RAMPS (TY 7)	EA	1
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2





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- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
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- L LANDING PAD
- F FLARE
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- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
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- TRAFFIC SIGNAL/PED POLE
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STATE OF TEXAS
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09/26/21

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SUITE 220
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F-12801

Texas Department of Transportation

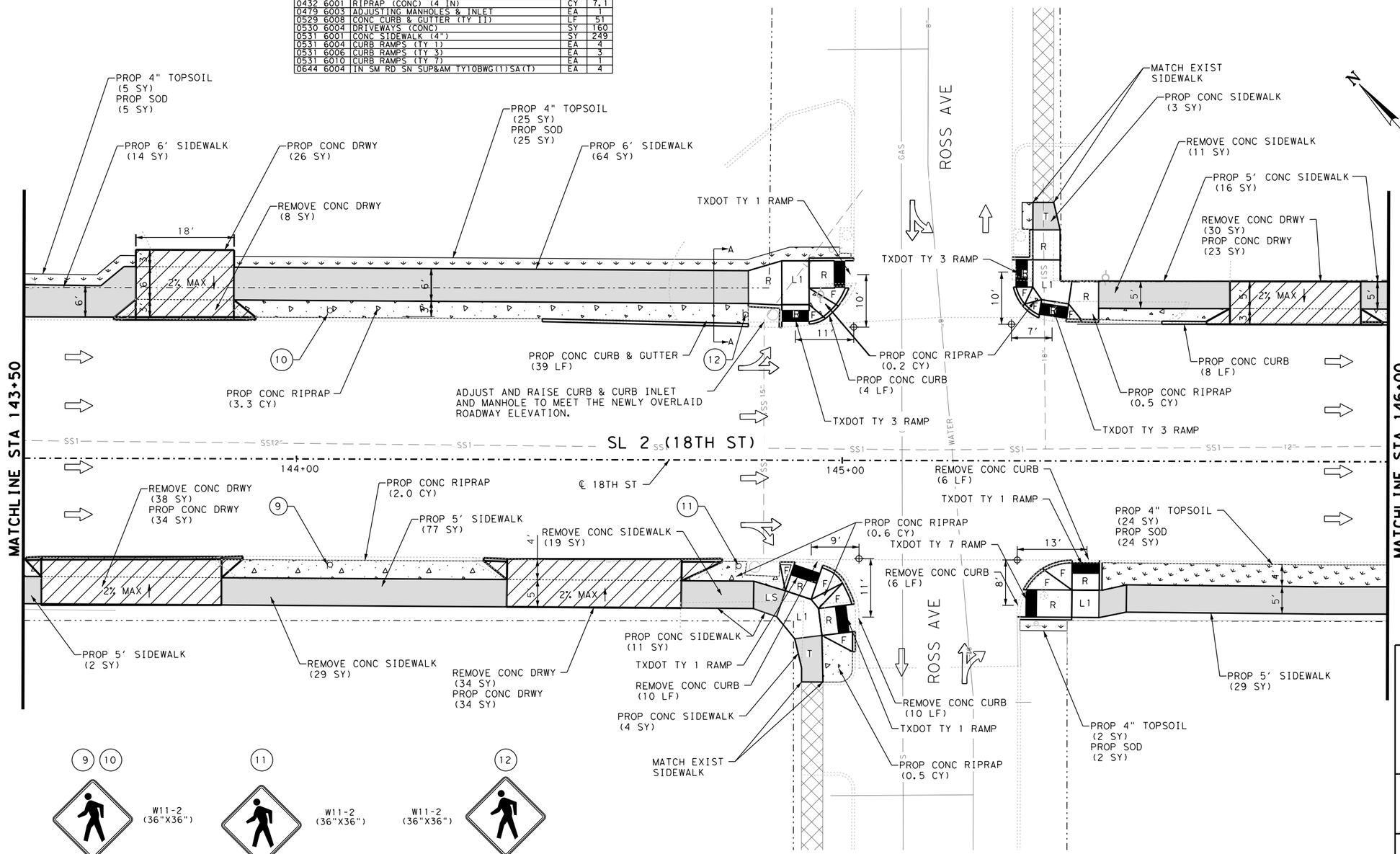
SL 2
SIDEWALK PLAN

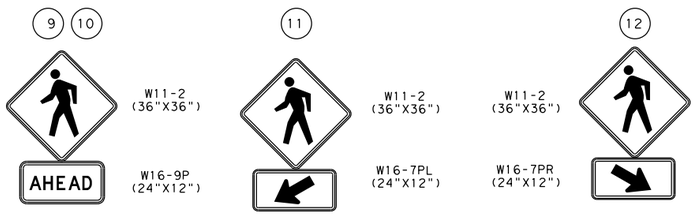
STA 141+00 TO STA 143+50
WACO, TEXAS

SHEET 15 OF 28

DESIGN	FED.RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS: PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: MFM	TEXAS	WAC	MCLENNAN, ETC	48
CHECK: FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	59
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	102
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	32
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	56
0162 6002	BLOCK SODDING	SY	56
0168 6001	VEGETATIVE WATERING	MG	1.3
0432 6001	RIPRAP (CONC) (4 IN)	CY	7.1
0479 6003	ADJUSTING MANHOLES & INLET	EA	1
0529 6008	CONC CURB & GUTTER (TY II)	LF	51
0530 6004	DRIVEWAYS (CONC)	SY	160
0531 6001	CONC SIDEWALK (4")	SY	249
0531 6004	CURB RAMPS (TY 1)	EA	4
0531 6006	CURB RAMPS (TY 3)	EA	3
0531 6010	CURB RAMPS (TY 7)	EA	1
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	4





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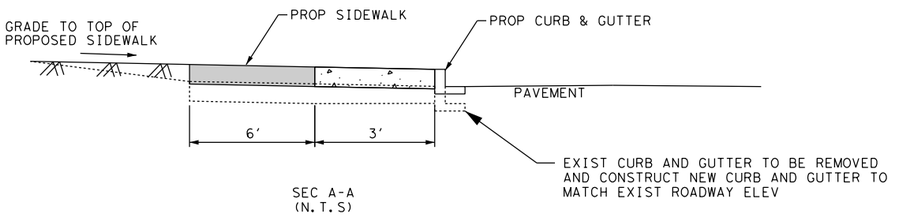

SEC A-A
(N.T.S)

LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
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- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
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STATE OF TEXAS
MARWAN F. MUWAQUET
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M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 143+50 TO STA 146+00
WACO, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	49
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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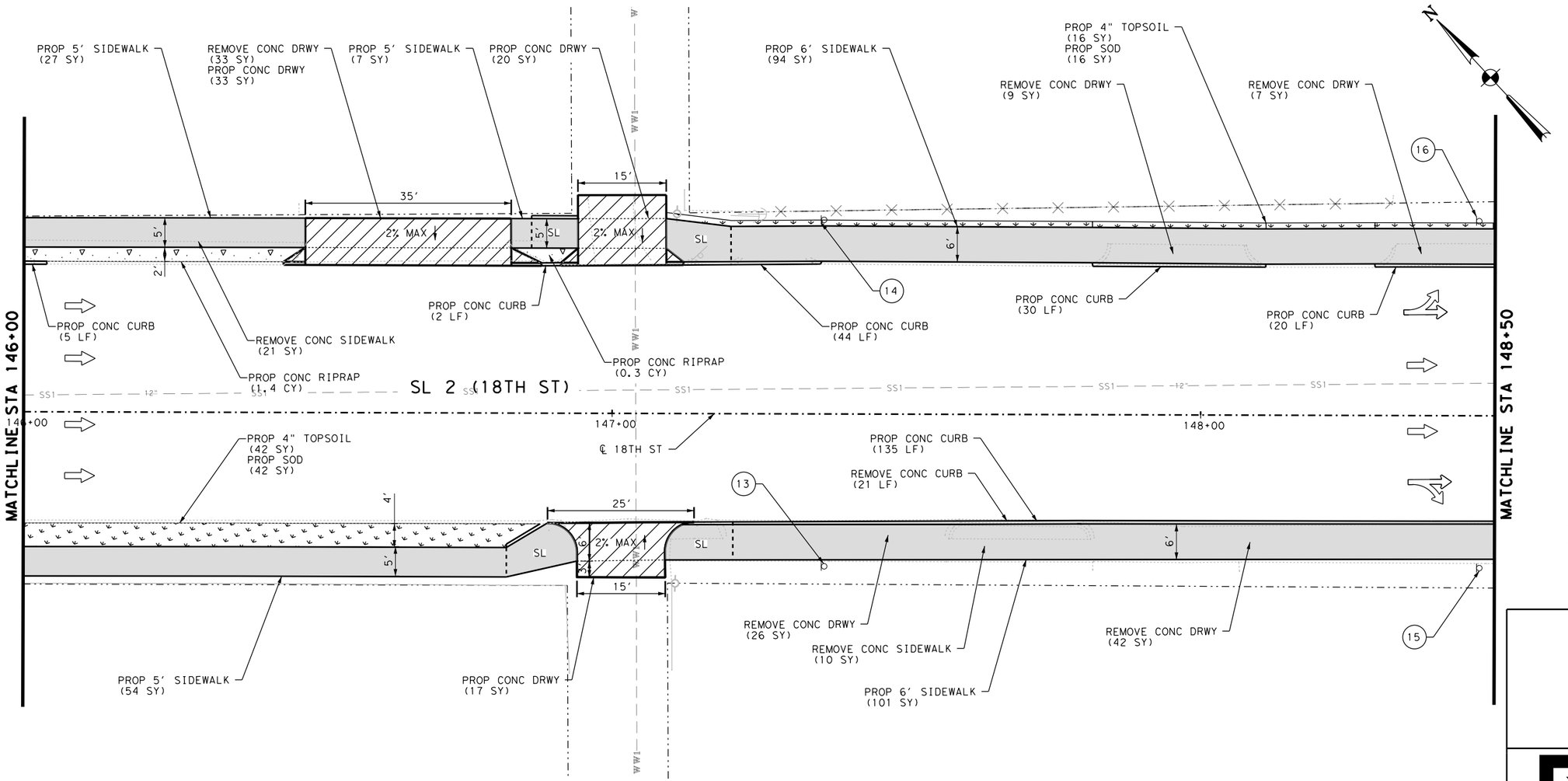
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	31
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	117
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	21
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	58
0162 6002	BLOCK SODDING	SY	58
0168 6001	VEGETATIVE WATERING	MG	1.3
0432 6001	RIPRAP (CONC) (4 IN)	CY	1.7
0529 6008	CONC CURB & GUTTER (TY II)	LF	236
0530 6004	DRIVEWAYS (CONC)	SY	70
0531 6001	CONC SIDEWALK (4")	SY	283
0531 6005	CURB RAMPS (TY 2)	EA	2
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	4



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
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- R RAMP
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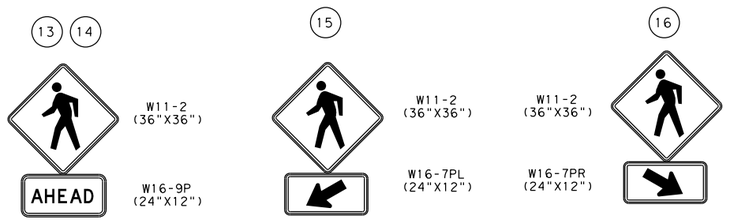

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F-12801

SL 2
SIDEWALK PLAN

STA 146+00 TO STA 148+50
WACO, TEXAS

SHEET 17 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	50
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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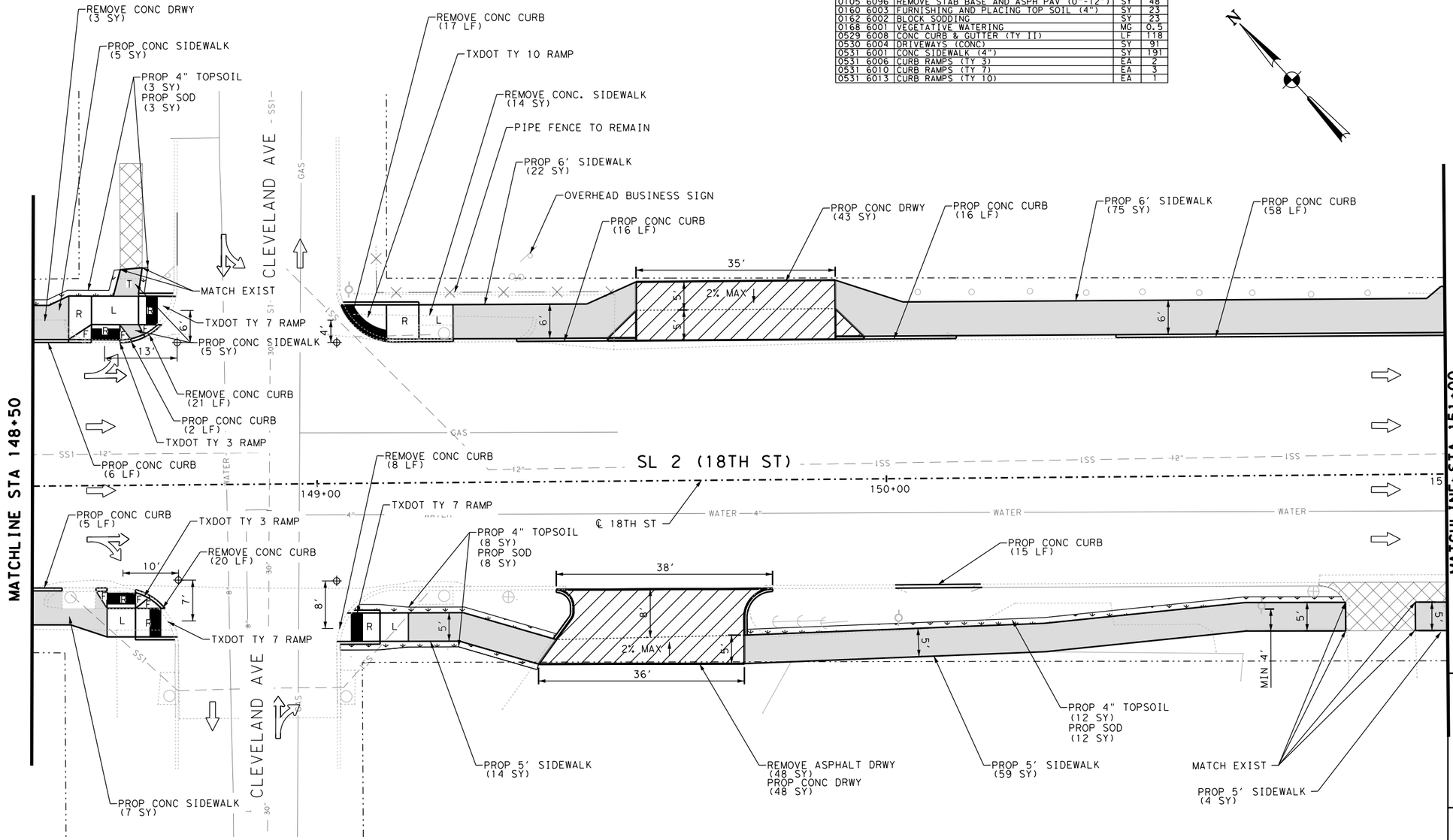
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	14
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	3
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	66
0105 6096	REMOVE STAB BASE AND ASPH PAV (0"-12")	SY	48
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	23
0162 6002	BLOCK SODDING	SY	23
0168 6001	VEGETATIVE WATERING	MG	0.5
0529 6008	CONC CURB & GUTTER (TY II)	LF	118
0530 6004	DRIVEWAYS (CONC)	SY	91
0531 6001	CONC SIDEWALK (4")	SY	191
0531 6006	CURB RAMPS (TY 3)	EA	2
0531 6010	CURB RAMPS (TY 7)	EA	3
0531 6013	CURB RAMPS (TY 10)	EA	1



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Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 148+50 TO STA 151+00
WACO, TEXAS

SHEET 18 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS: PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: MFM	TEXAS	WAC	MCLENNAN, ETC	51
CHECK: FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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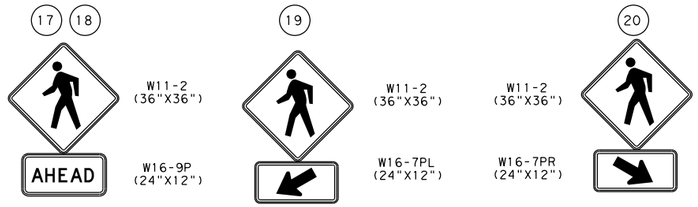
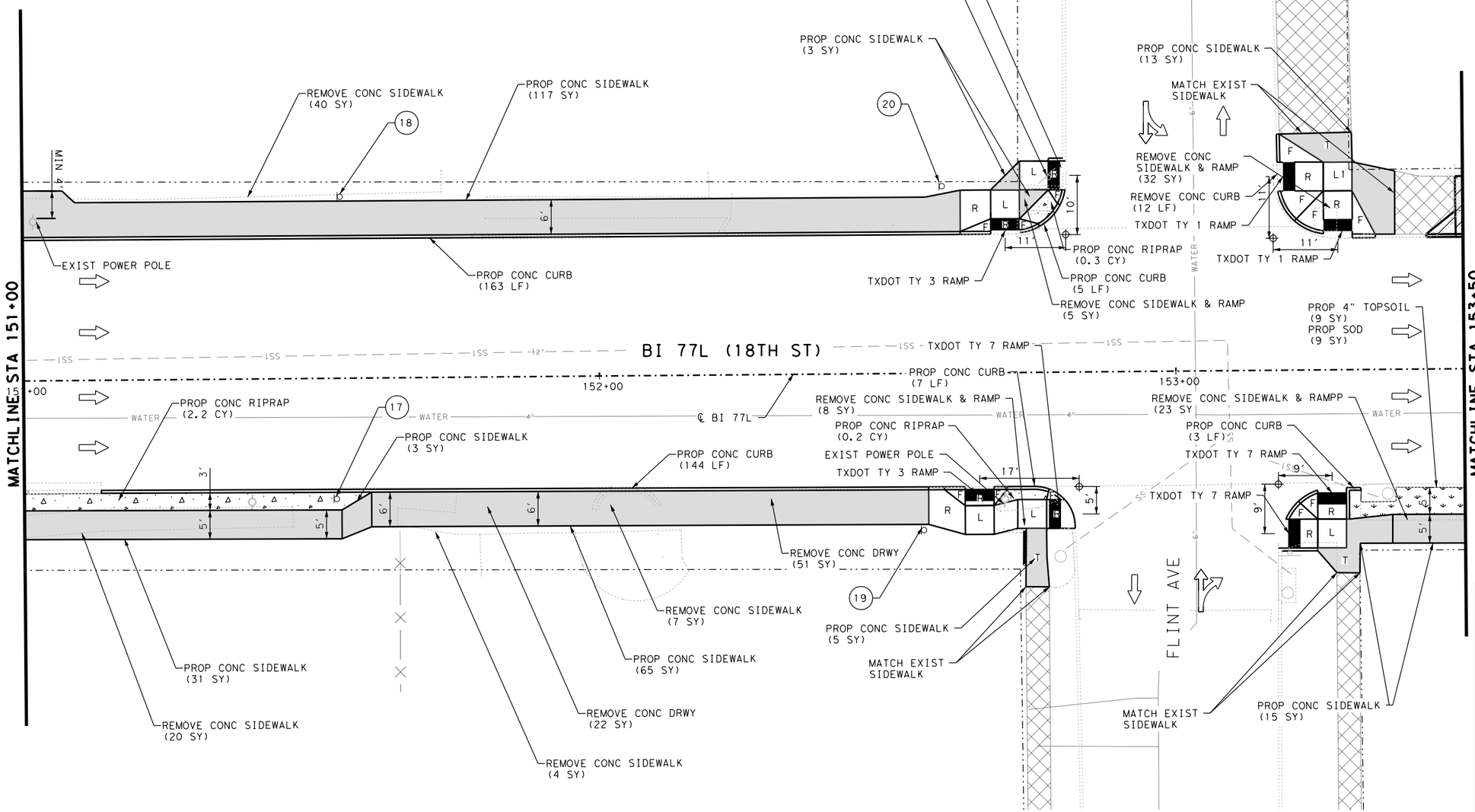
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	139
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	73
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	12
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	9
0162 6002	BLOCK SODDING	SY	9
0168 6001	VEGETATIVE WATERING	MG	0.2
0432 6001	RIPRAP (CONC) (4 IN)	CY	2.7
0529 6008	CONC CURB & GUTTER (TY II)	LF	322
0531 6001	CONC SIDEWALK (4")	SY	252
0531 6004	CURB RAMPS (TY 1)	EA	2
0531 6006	CURB RAMPS (TY 3	EA	3
0531 6010	CURB RAMPS (TY 7)	EA	3
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	4
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1





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MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 151+00 TO STA 153+50
WACO, TEXAS

DESIGN	FED.RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	52
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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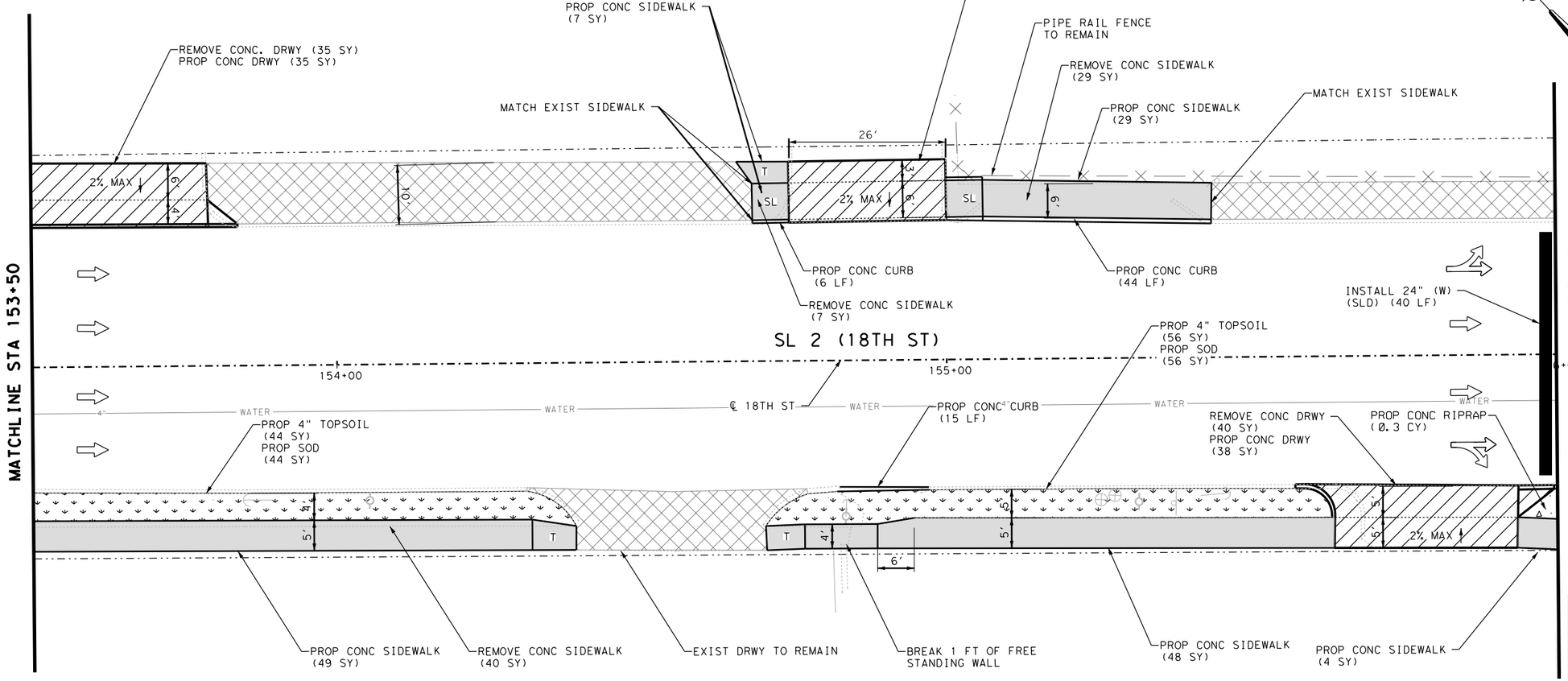
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	76
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	103
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	100
0162 6002	BLOCK SODDING	SY	100
0168 6001	VEGETATIVE WATERING	MG	2.0
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.3
0529 6008	CONC CURB & GUTTER (TY II)	LF	65
0530 6004	DRIVEWAYS (CONC)	SY	101
0531 6001	CONC SIDEWALK (4")	SY	137
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	40



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER LINE
- WASTEWATER LINE
- STORM SEWER LINE
- GAS LINE
- ABANDONED WATER LINE

GENERAL NOTES:

* FOR CONTRACTOR INFORMATION ONLY

1. DRAWING IS NOT TO SCALE.
2. 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.

STATE OF TEXAS
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Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 153+50 TO STA 156+00
WACO, TEXAS

SHEET 20 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	53
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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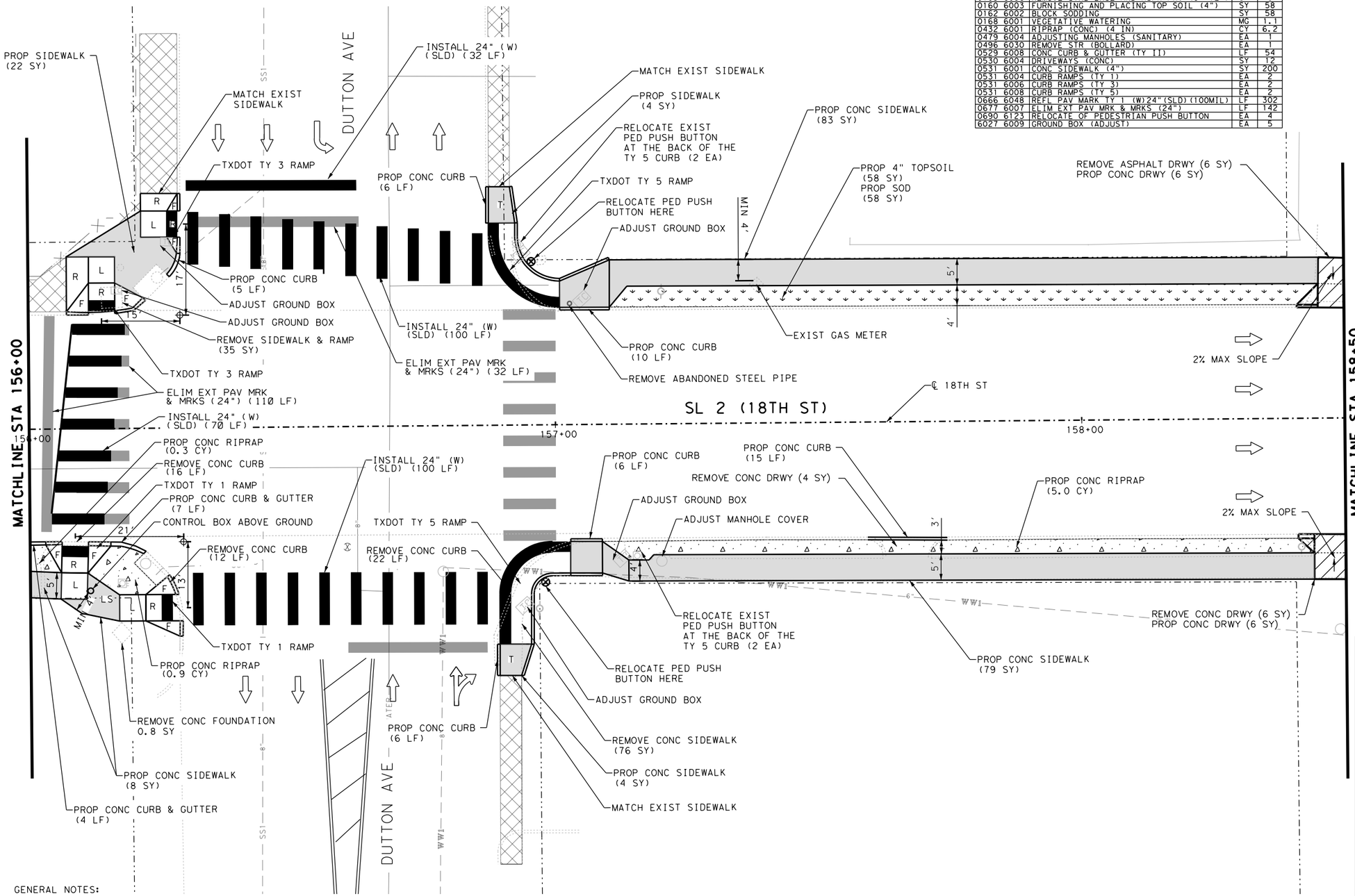
ITEM	DESCRIPTION	UNIT	QTY
0104 6013	REMOVING CONC (FOUNDATIONS)	SY	0.8
0104 6015	REMOVING CONC (SIDEWALKS)	SY	111
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	10
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	54
0105 6096	REMOVE STAB BASE AND ASPH PAV (0"-12")	SY	6
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	58
0162 6002	BLOCK SODDING	SY	58
0168 6001	VEGETATIVE WATERING	MG	1.1
0432 6001	RIPRAP (CONC) (4 IN)	CY	6.2
0479 6004	ADJUSTING MANHOLES (SANITARY)	EA	1
0496 6030	REMOVE STR (BOLLARD)	EA	1
0529 6008	CONC CURB & GUTTER (TY II)	LF	54
0530 6004	DRIVEWAYS (CONC)	SY	12
0531 6001	CONC SIDEWALK (4")	SY	200
0531 6004	CURB RAMPS (TY 1)	EA	2
0531 6006	CURB RAMPS (TY 3)	EA	2
0531 6008	CURB RAMPS (TY 5)	EA	2
0666 6048	REFL PAV MARK TY I (W)24"(SLD)(100MIL)	LF	302
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	142
0690 6123	RELOCATE OF PEDESTRIAN PUSH BUTTON	EA	4
6027 6009	GROUND BOX (ADJUST)	EA	5



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- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
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- R RAMP
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- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
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- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
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- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
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- FENCE
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- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
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- CONTROL POINT
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Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 156+00 TO STA 158+50
WACO, TEXAS

SHEET 21 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	54
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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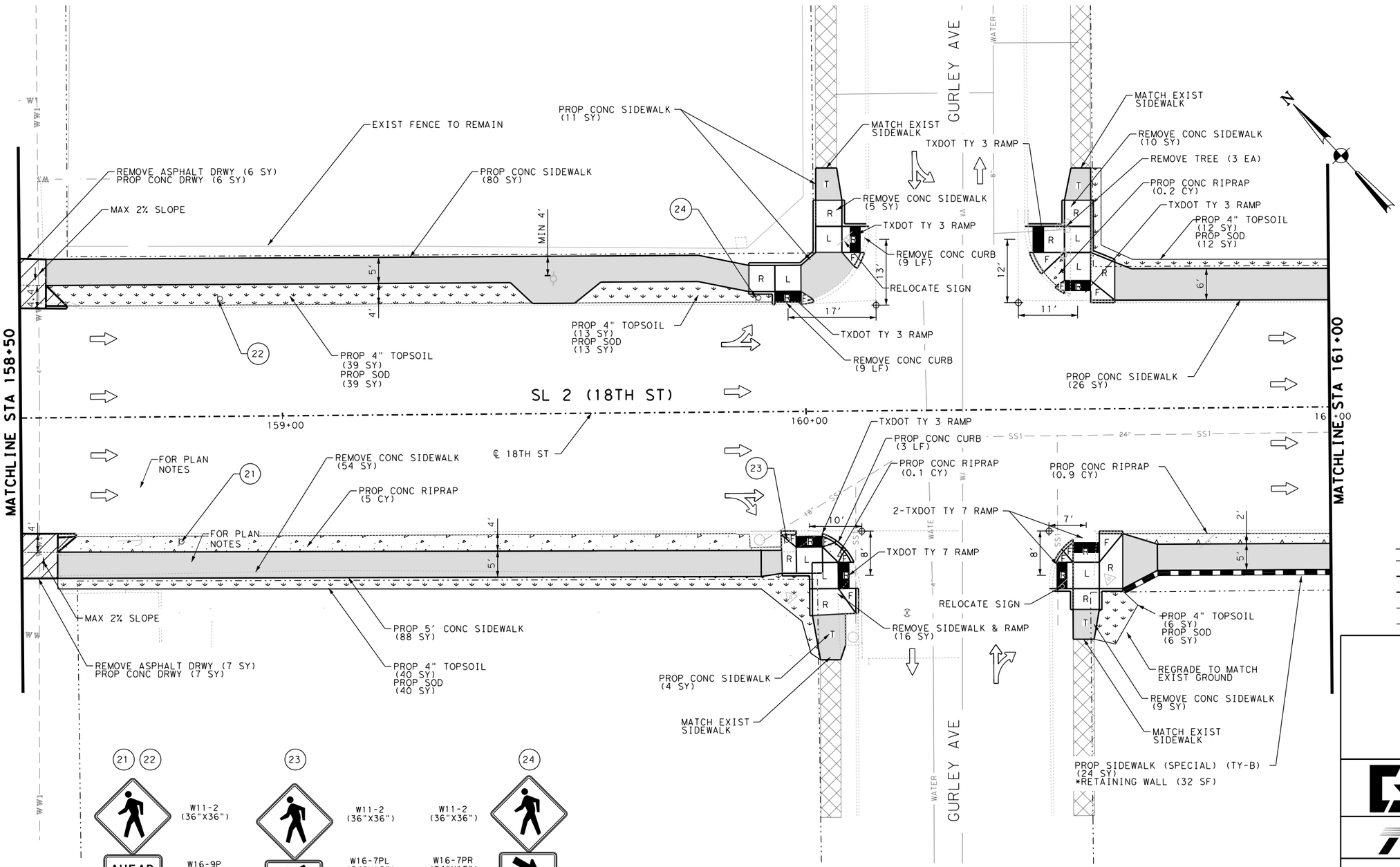

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ITEM	DESCRIPTION	UNIT	QTY
0100 6009	PREPARING ROW (TREE) (6" TO 24" DIA)	EA	3
0104 6015	REMOVING CONC (SIDEWALKS)	SY	94
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	18
0105 6096	REMOVE STAB BASE AND ASPH PAV (0"-12")	SY	13
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	110
0162 6002	BLOCK SODDING	SY	110
0168 6001	VEGETATIVE WATERING	MG	2.53
0432 6001	RIPRAP (CONC) (4 IN)	CY	6.2
0529 6008	CONC CURB & GUTTER (TY II)	LF	3
0530 6004	DRIVEWAYS (CONC)	SY	13
0531 6001	CONC SIDEWALK (4")	SY	209
0531 6006	CURB RAMPS (TY 3)	EA	5
0531 6010	CURB RAMPS (TY 7)	EA	3
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	24
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	4
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2

LEGEND

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F-12801

SL 2
SIDEWALK PLAN

STA 158+50 TO STA 161+00
WACO, TEXAS

SHEET 22 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	55
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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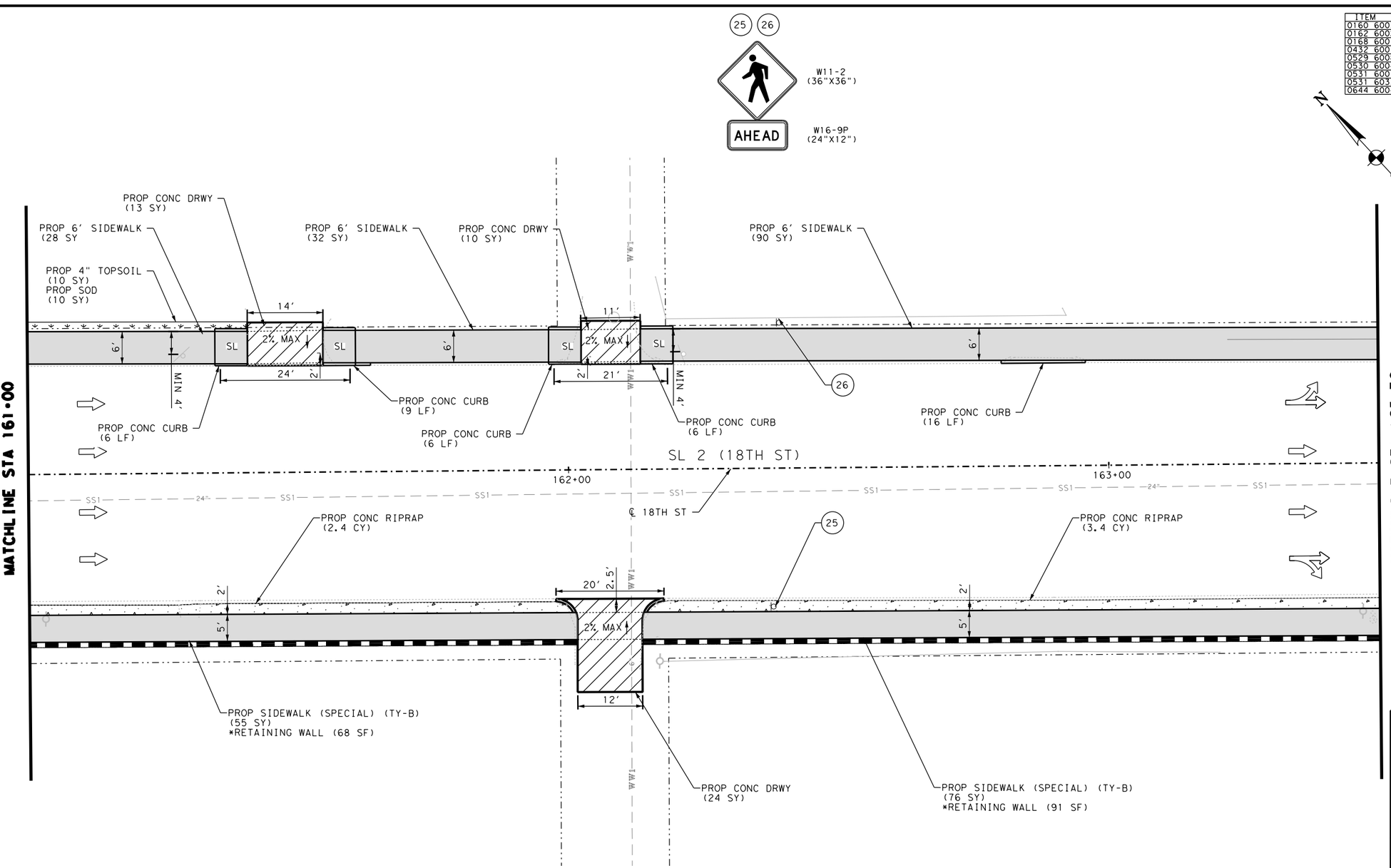
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	10
0162 6002	BLOCK SODDING	SY	10
0168 6001	VEGETATIVE WATERING	MG	0.2
0432 6001	RIPRAP (CONC) (4 IN)	CY	5.8
0529 6008	CONC CURB & GUTTER (TY II)	LF	43
0530 6004	DRIVEWAYS (CONC)	SY	47
0531 6001	CONC SIDEWALK (4")	SY	150
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	131
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2



LEGEND

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Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 161+00 TO STA 163+50
WACO, TEXAS

SHEET 23 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	56
CHECK FS	CONTROL 0209	SECTION 01	JOB 073, ETC	

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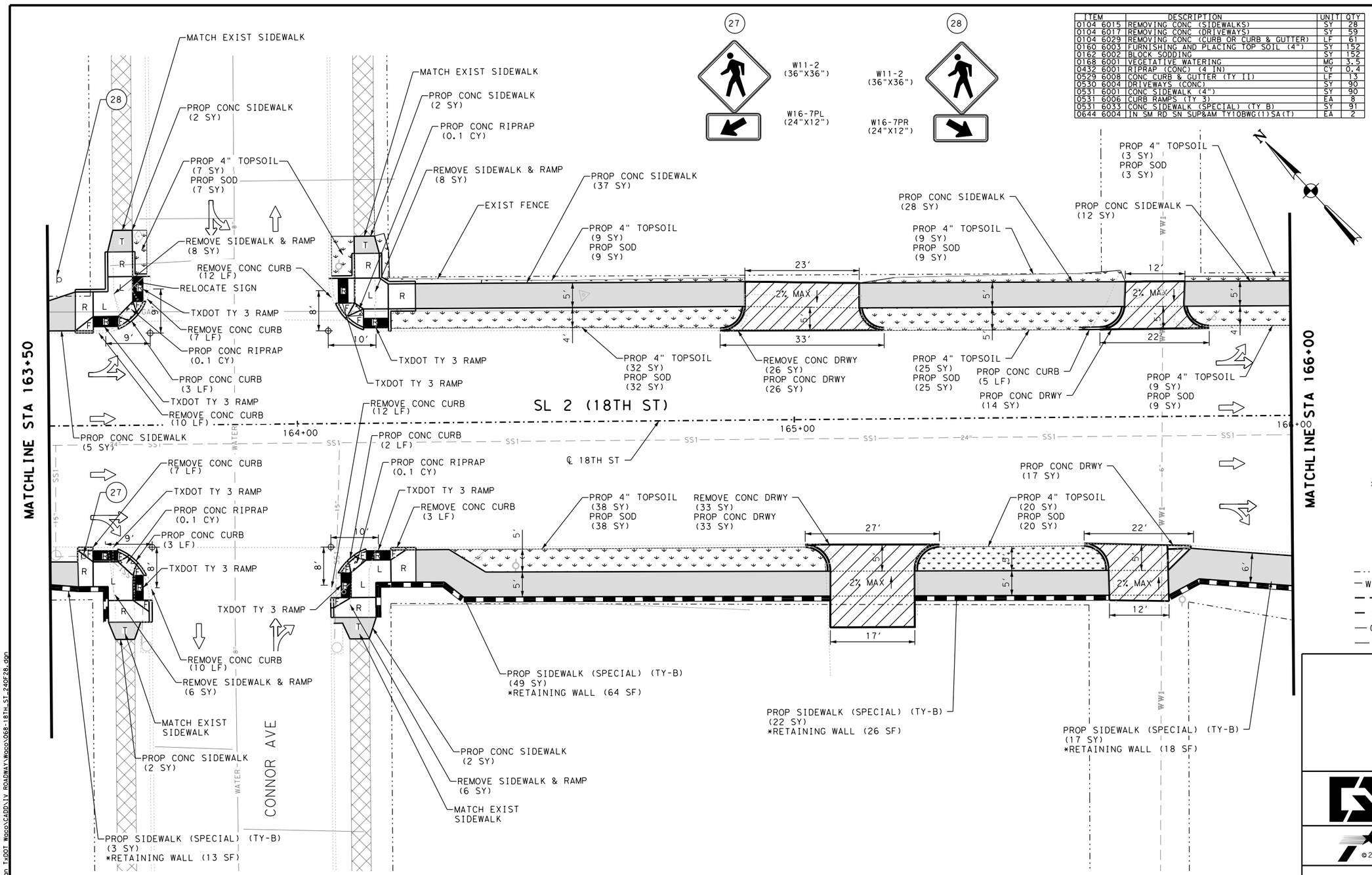

ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	28
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	59
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	61
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	152
0162 6002	BLOCK SODDING	SY	152
0168 6001	VEGETATIVE WATERING	MG	3.5
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.4
0529 6008	CONC CURB & GUTTER (TY II)	LF	13
0530 6004	DRIVEWAYS (CONC)	SY	90
0531 6001	CONC SIDEWALK (4")	SY	90
0531 6006	CURB RAMPS (TY 3)	EA	8
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	91
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2

LEGEND

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- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
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- L LANDING PAD
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- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- M MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- RV IRRIGATION CONTROL VALVE
- PBX ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER WATER LINE
- WW1 WASTEWATER LINE
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Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 163+50 TO STA 166+00
WACO, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	57
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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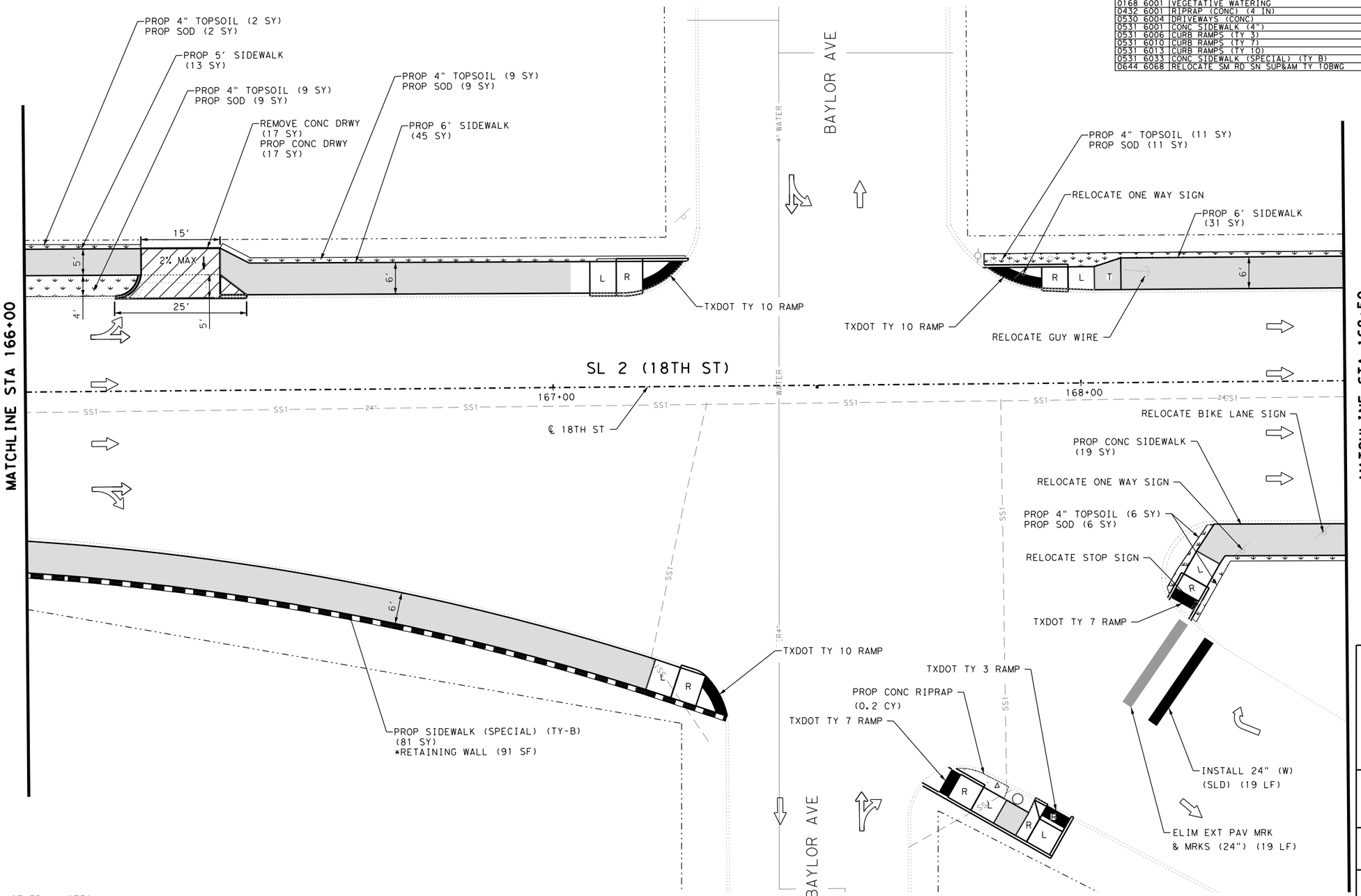
ITEM	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	17
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	37
0162 6002	BLOCK SODDING	SY	37
0168 6001	VEGETATIVE WATERING	MG	0.9
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.2
0530 6004	DRIVEWAYS (CONC)	SY	17
0531 6001	CONC SIDEWALK (4")	SY	108
0531 6006	CURB RAMPS (TY 3)	EA	1
0531 6010	CURB RAMPS (TY 7)	EA	2
0531 6013	CURB RAMPS (TY 10)	EA	3
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	81
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	4



LEGEND

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SL 2
SIDEWALK PLAN

STA 166+00 TO STA 168+50
WACO, TEXAS

SHEET 25 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	58
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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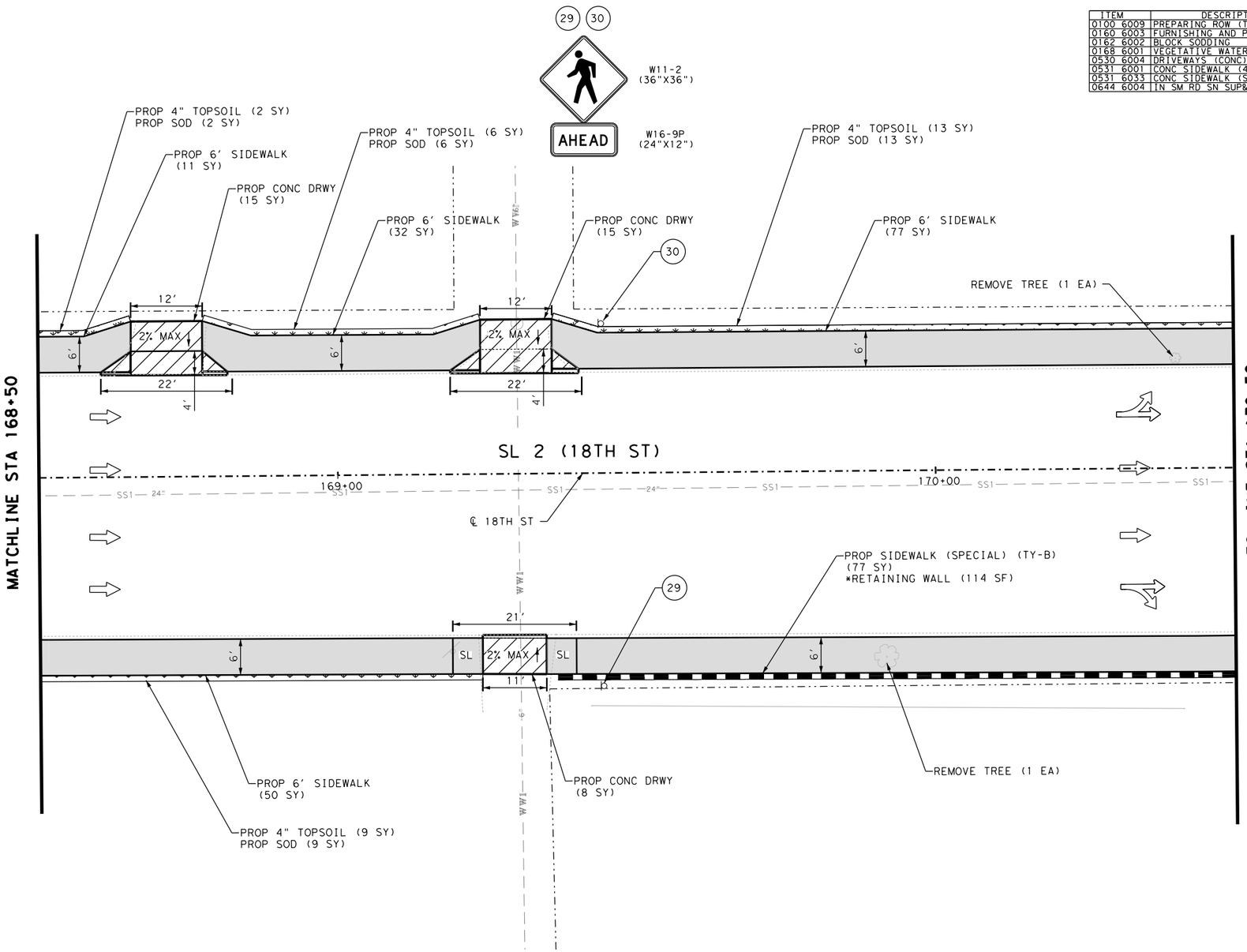
ITEM	DESCRIPTION	UNIT	QTY
0100 6009	PREPARING ROW (TREE) (6" TO 24" DIA)	EA	2
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	30
0162 6002	BLOCK SODDING	SY	30
0168 6001	VEGETATIVE WATERING	MG	0.7
0530 6004	DRIVEWAYS (CONC)	SY	38
0531 6001	CONC SIDEWALK (4")	SY	170
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	77
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2



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- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER WATER LINE
- WW WASTEWATER LINE
- SS1 STORM SEWER LINE
- GAS GAS LINE
- W1 ABANDONED WATER LINE

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 168+50 TO STA 170+50
WACO, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS: PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: MFM	TEXAS	WAC	MCLENNAN, ETC	59
CHECK: FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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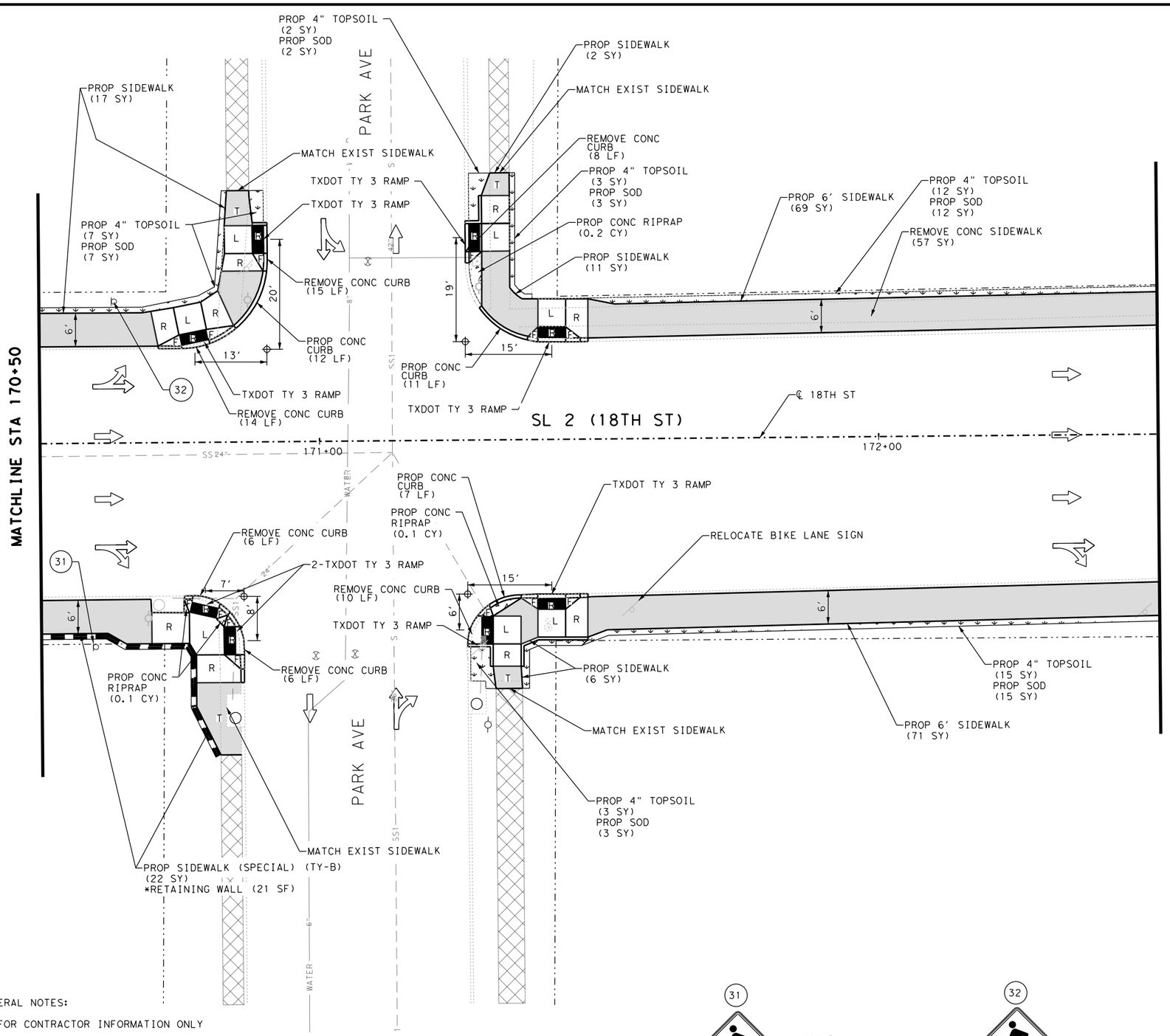

ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	57
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	54
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	42
0162 6002	BLOCK SODDING	SY	42
0168 6001	VEGETATIVE WATERING	MG	1.0
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.4
0529 6008	CONC CURB & GUTTER (TY II)	LF	30
0531 6001	CONC SIDEWALK (4")	SY	176
0531 6006	CURB RAMPS (TY 3)	EA	8
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	22
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1

LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER WATER LINE
- WW WASTEWATER LINE
- SS1 STORM SEWER LINE
- GAS GAS LINE
- W1 ABANDONED WATER LINE

GENERAL NOTES:

* FOR CONTRACTOR INFORMATION ONLY

1. DRAWING IS NOT TO SCALE.
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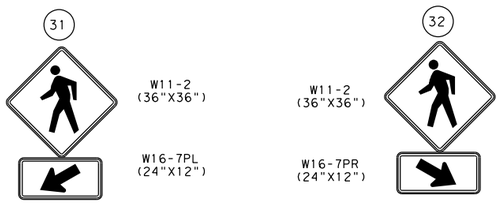

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED
PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

SL 2
SIDEWALK PLAN

STA 170+50 TO STA 172+50
WACO, TEXAS

SHEET 27 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	60
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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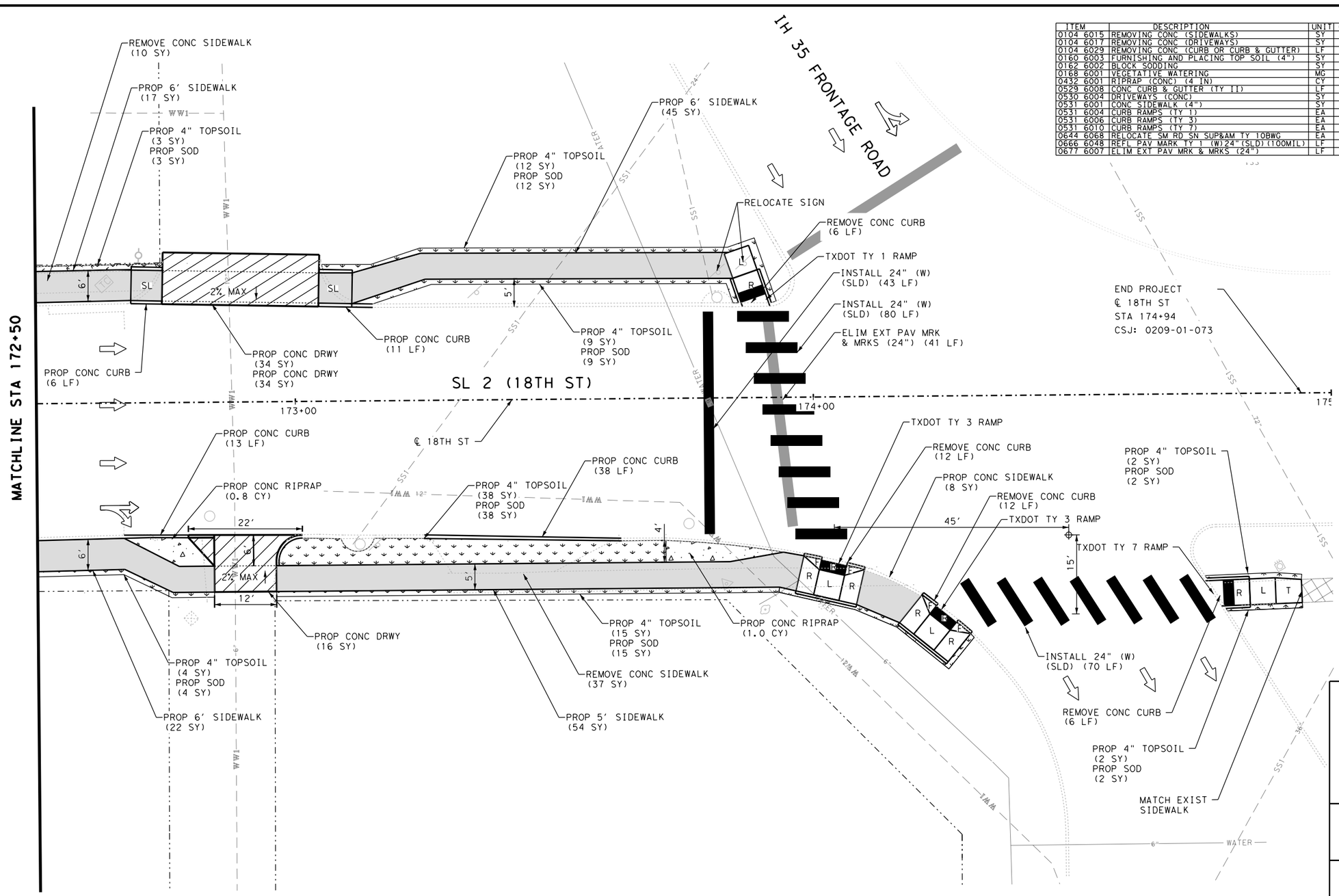

ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	47
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	34
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	36
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	81
0162 6002	BLOCK SODDING	SY	81
0168 6001	VEGETATIVE WATERING	MG	1.9
0432 6001	RIPRAP (CONC) (4 IN)	CY	1.8
0529 6008	CONC CURB & GUTTER (TY II)	LF	68
0530 6004	DRIVEWAYS (CONC)	SY	44
0531 6001	CONC SIDEWALK (4")	SY	146
0531 6004	CURB RAMPS (TY 1)	EA	1
0531 6006	CURB RAMPS (TY 3)	EA	2
0531 6010	CURB RAMPS (TY 7)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	193
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	41

LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
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- WASTEWATER LINE
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GENERAL NOTES:

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(29) (30)

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED
PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

SL 2
SIDEWALK PLAN

STA 172+50 TO END OF PROJECT
WACO, TEXAS

SHEET 28 OF 28

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	61
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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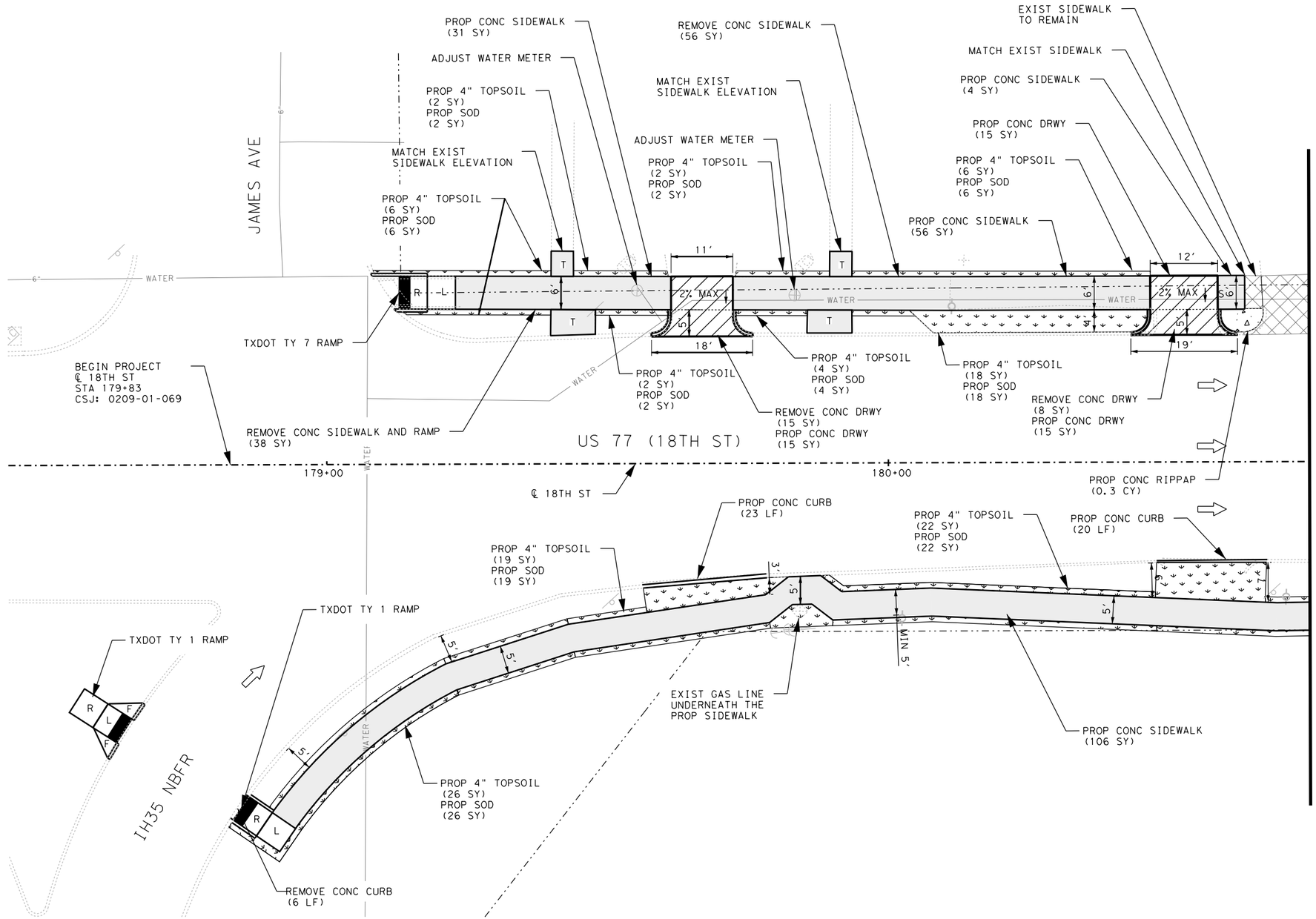

LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
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- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
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- TRAFFIC SIGNAL/PED POLE
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- W1 ABANDONED WATER LINE

ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	94
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	23
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	6
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	107
0162 6002	BLOCK SODDING	SY	107
0168 6001	VEGETATIVE WATERING	MG	2.5
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.3
0479 6008	ADJUSTING MANHOLES (WATER METER)	EA	2
0529 6008	CONC CURB & GUTTER (TY II)	LF	43
0530 6004	DRIVEWAYS (CONC)	SY	30
0531 6001	CONC SIDEWALK (4")	SY	197
0531 6004	CURB RAMPS (TY 1)	EA	2
0531 6010	CURB RAMPS (TY 7)	EA	1

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STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER
09/26/21

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SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

US 77
SIDEWALK PLAN

BEGIN PROJECT TO STA 180+75
WACO, TEXAS

SHEET 1 OF 10

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	62
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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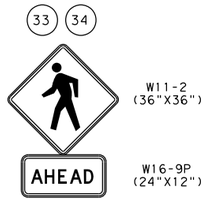
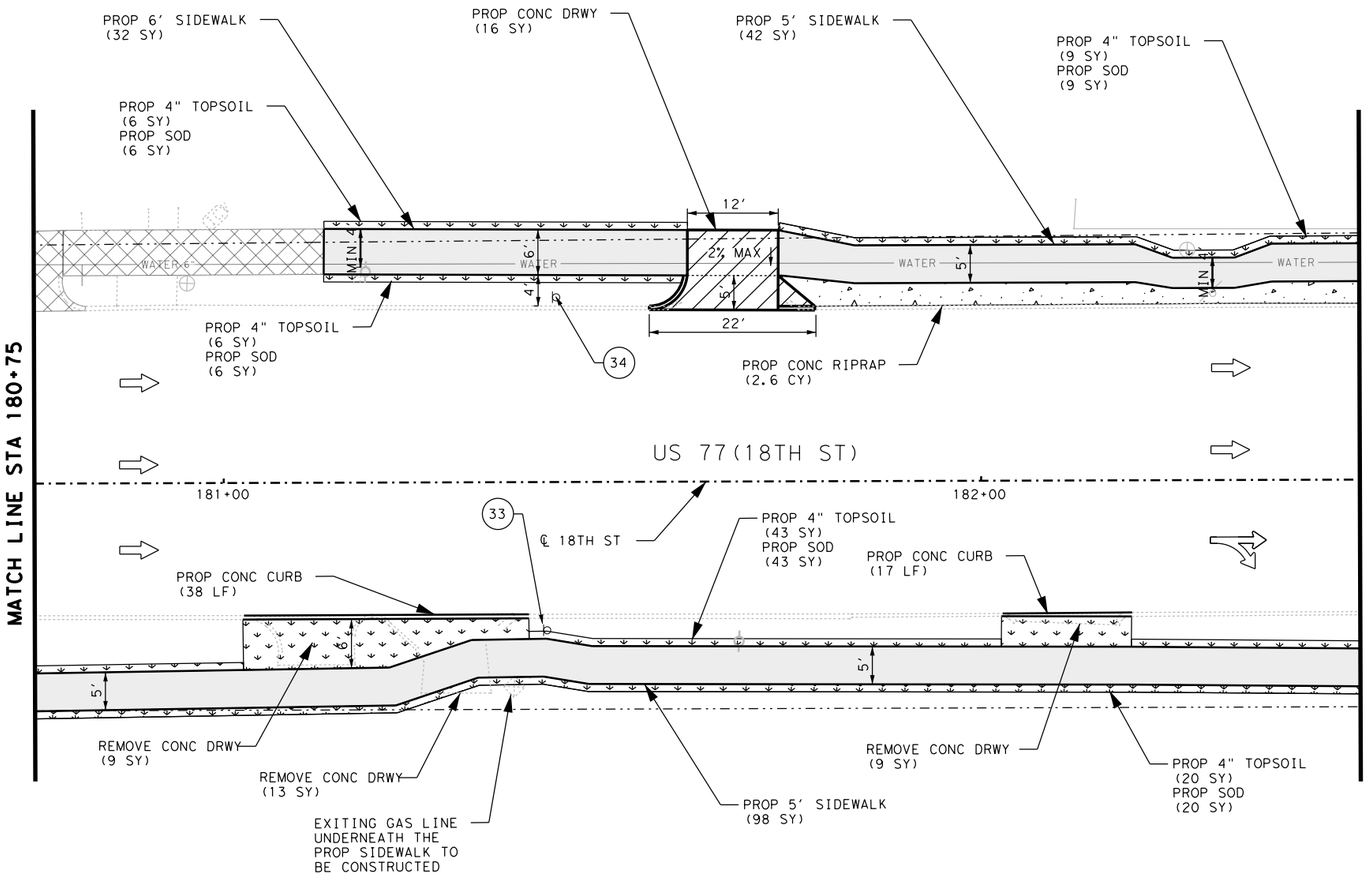
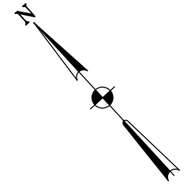
ITEM	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	31
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	84
0162 6002	BLOCK SODDING	SY	84
0168 6001	VEGETATIVE WATERING	MG	1.9
0432 6001	RIPRAP (CONC) (4 IN)	CY	2.6
0529 6008	CONC CURB & GUTTER (TY II)	LF	55
0530 6004	DRIVEWAYS (CONC)	SY	16
0531 6001	CONC SIDEWALK (4")	SY	172
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2







LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
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- R RAMP
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- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
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- LS LEVEL SIDEWALK (2% MAX)
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- SIGN
- STORM DRAIN MANHOLE
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- WATER METER
- FIRE HYDRANT
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- M MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- BV IRRIGATION CONTROL VALVE
- PBX ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER WATER LINE
- WW WASTEWATER LINE
- SS1 STORM SEWER LINE
- GAS GAS LINE
- W1 ABANDONED WATER LINE

GENERAL NOTES:

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STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

US 77
SIDEWALK PLAN

STA 180+75 TO STA 182+50
WACO, TEXAS

SHEET 2 OF 10

DESIGN	FED.RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS: PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: MFM	TEXAS	WAC	MCLENNAN, ETC	63
CHECK: FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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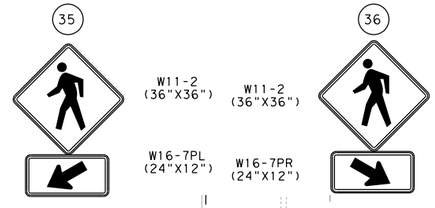
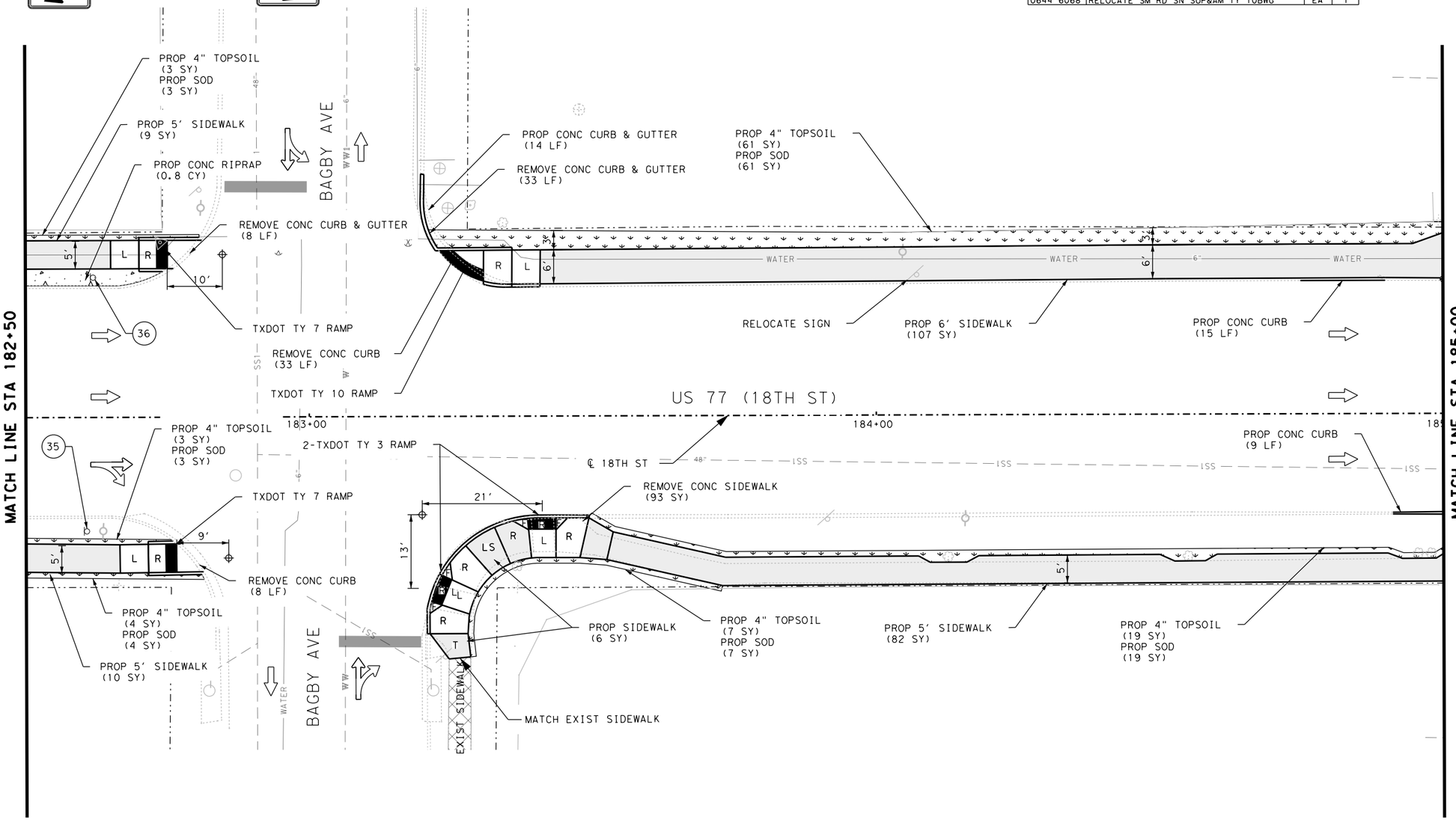
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	27
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	91
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	97
0162 6002	BLOCK SODDING	SY	97
0168 6001	VEGETATIVE WATERING	MG	2.3
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.8
0529 6008	CONC CURB & GUTTER (TY II)	LF	38
0531 6001	CONC SIDEWALK (4")	SY	214
0531 6006	CURB RAMPS (TY 3)	EA	2
0531 6010	CURB RAMPS (TY 7)	EA	2
0531 6013	CURB RAMPS (TY 10)	EA	1
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1





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LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
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- LS LEVEL SIDEWALK (2% MAX)
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- MAIL BOX
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- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER — WATER LINE
- WW1 — WASTEWATER LINE
- SS1 — STORM SEWER LINE
- GAS — GAS LINE
- W1 — ABANDONED WATER LINE

STATE OF TEXAS
MARWAN F. MUWAQUET
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LICENSED PROFESSIONAL ENGINEER
09/26/21

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US 77
SIDEWALK PLAN

STA 182+50 TO STA 185+00
WACO, TEXAS

SHEET 3 OF 10

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	64
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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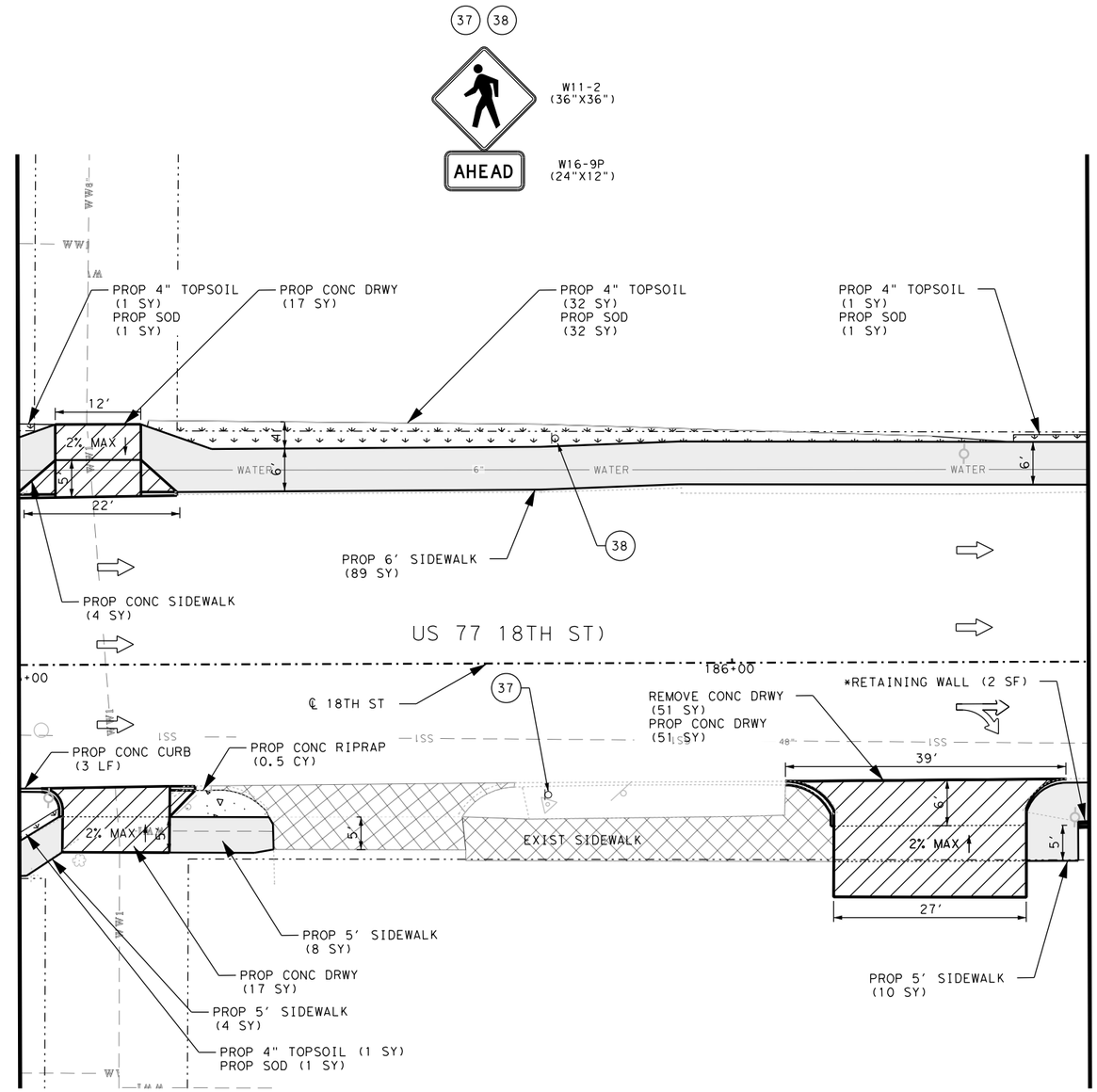

ITEM	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	51
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	35
0162 6002	BLOCK SODDING	SY	35
0168 6001	VEGETATIVE WATERING	MG	0.8
0530 6004	DRIVEWAYS (CONC)	SY	85
0531 6001	CONC SIDEWALK (4")	SY	112
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2

LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
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STATE OF TEXAS
MARWAN F. MUWAQUET
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LICENSED
PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

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SUITE 220
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F-12801

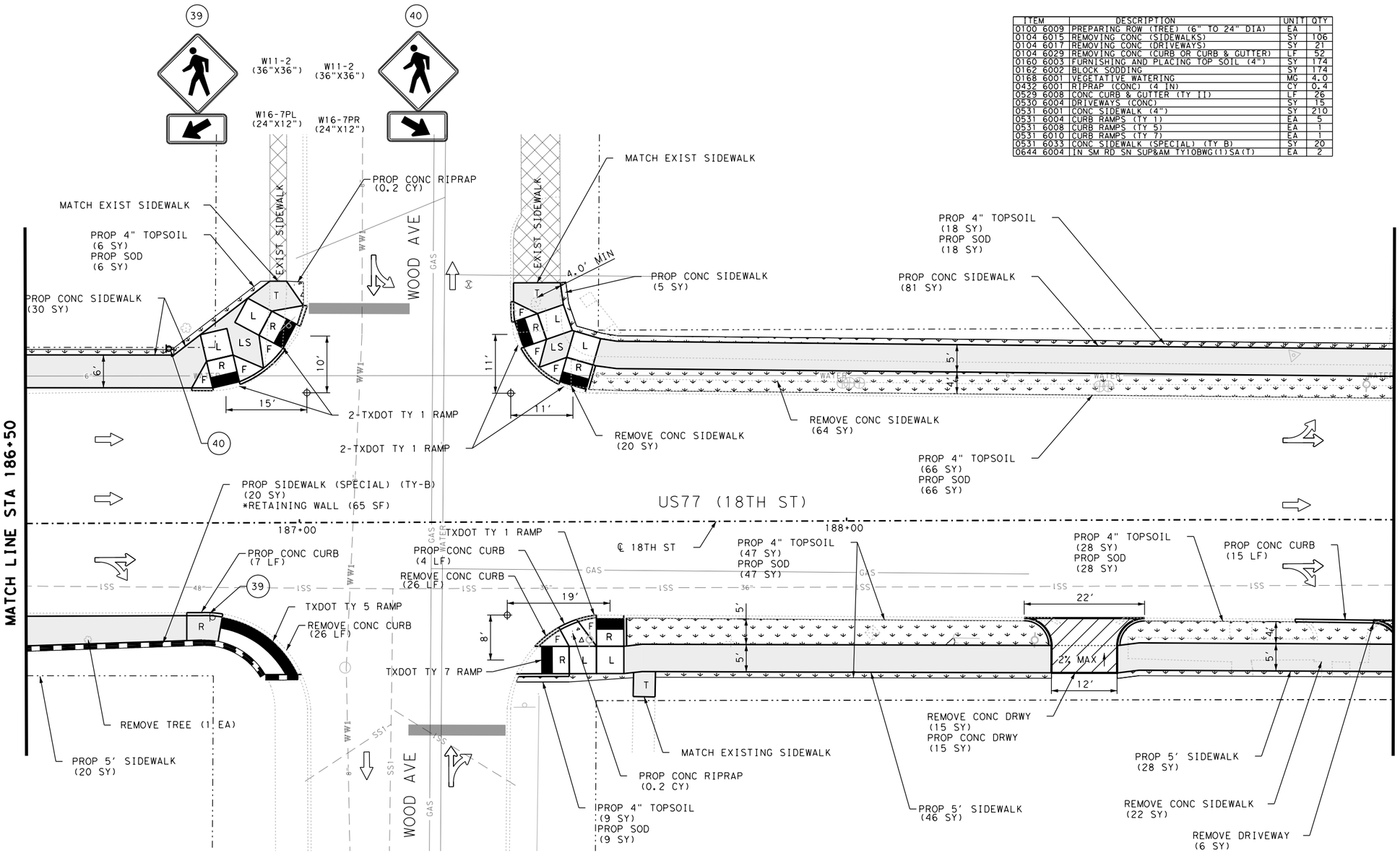
Texas Department of Transportation

US 77
SIDEWALK PLAN

STA 185+00 TO STA 186+50
WACO, TEXAS

SHEET 4 OF 10

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	65
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				



ITEM	DESCRIPTION	UNIT	QTY
0100 6009	PREPARING ROW (TREE) (6" TO 24" DIA)	EA	1
0104 6015	REMOVING CONC (SIDEWALKS)	SY	106
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	21
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	52
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	174
0162 6002	BLOCK SODDING	SY	174
0168 6001	VEGETATIVE WATERING	MG	4.0
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.4
0529 6008	CONC CURB & GUTTER (TY II)	LF	26
0530 6004	DRIVEWAYS (CONC)	SY	15
0531 6001	CONC SIDEWALK (4")	SY	210
0531 6004	CURB RAMPS (TY 1)	EA	5
0531 6008	CURB RAMPS (TY 5)	EA	1
0531 6010	CURB RAMPS (TY 7)	EA	1
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	20
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2

LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER WATER LINE
- WW WASTEWATER LINE
- SS1 STORM SEWER LINE
- GAS GAS LINE
- W1 ABANDONED WATER LINE

GENERAL NOTES:

* FOR CONTRACTOR INFORMATION ONLY

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STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

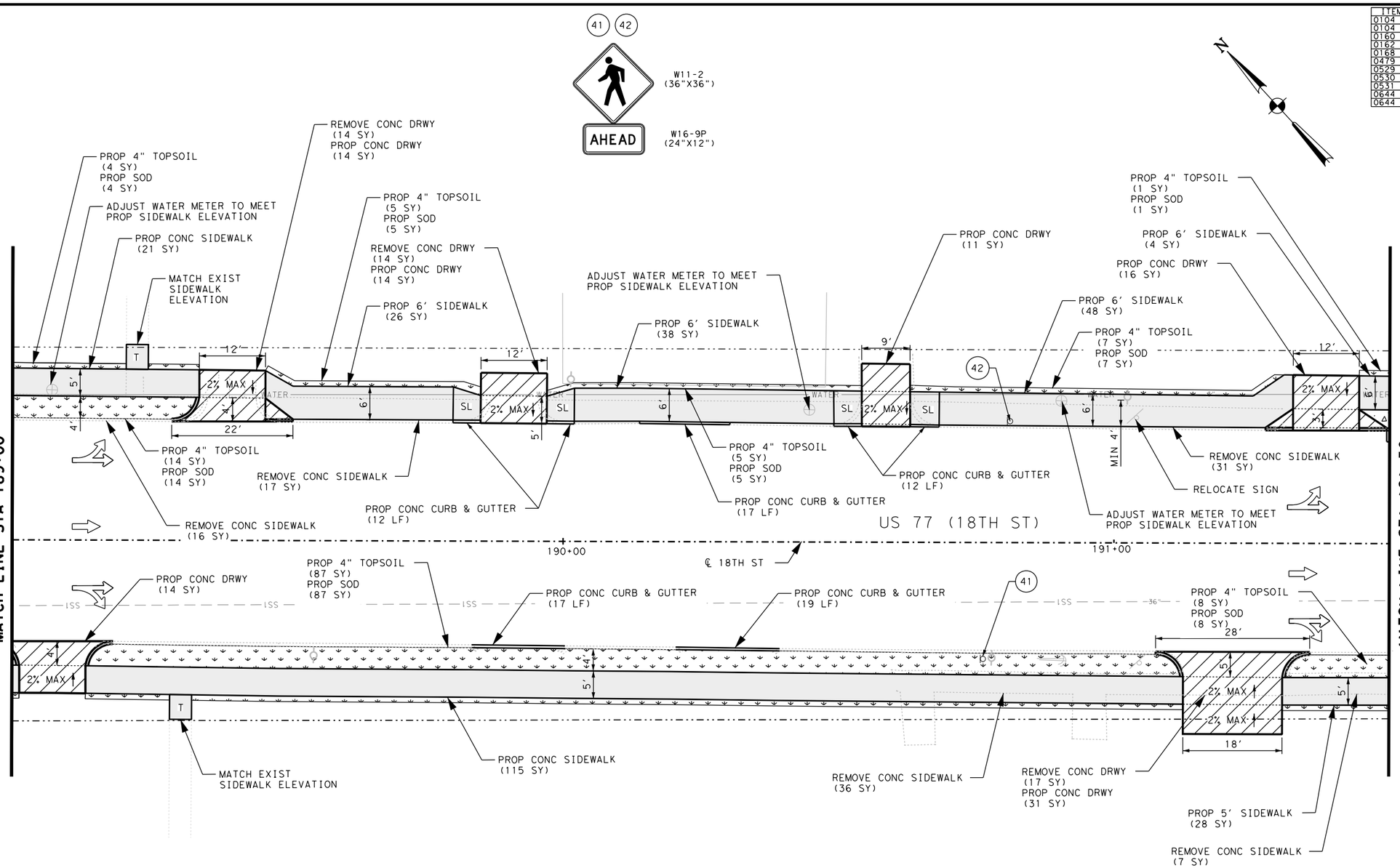
US 77
SIDEWALK PLAN

STA 186+50 TO STA 189+00
WACO, TEXAS

SHEET 5 OF 10

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	66
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	132
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	35
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	132
0162 6002	BLOCK SODDING	SY	132
0168 6001	VEGETATIVE WATERING	MG	3.0
0479 6008	ADJUSTING MANHOLES (WATER METER)	EA	2
0529 6008	CONC CURB & GUTTER (TY II)	LF	77
0530 6004	DRIVEWAYS (CONC)	SY	100
0531 6001	CONC SIDEWALK (4")	SY	271
0644 6004	IN SM RD SN SUP&AM TY1OBWG(1)SA(T)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER WATER LINE
- WW1 WASTEWATER LINE
- SS1 STORM SEWER LINE
- GAS GAS LINE
- W1 ABANDONED WATER LINE

GENERAL NOTES:

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STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

US 77
SIDEWALK PLAN

STA 189+00 TO STA 191+50
WACO, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	67
CHECK FS	CONTROL 0209	SECTION 01	JOB 073, ETC	

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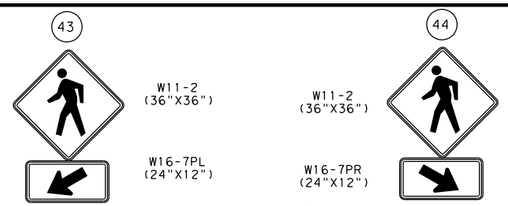
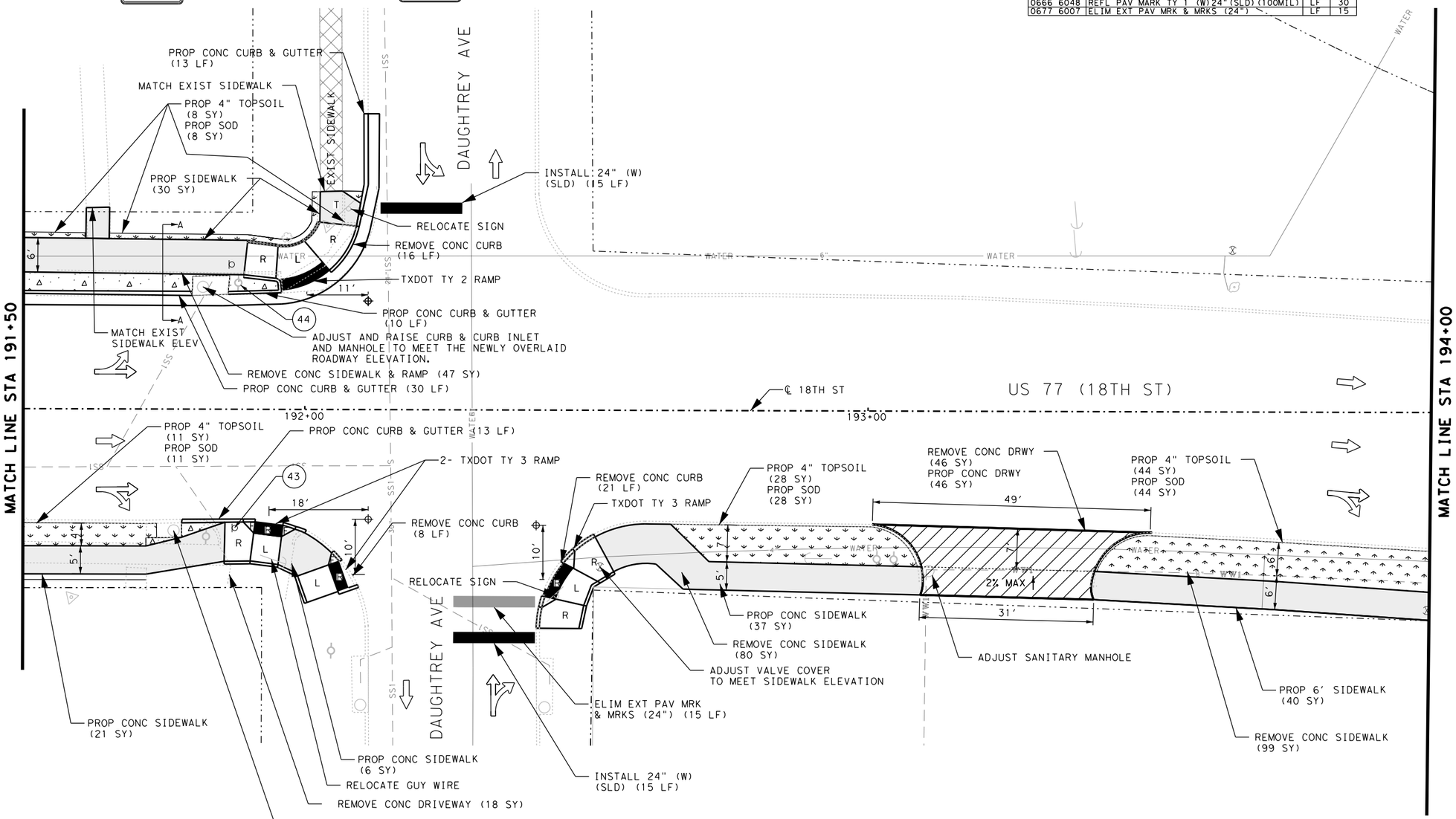
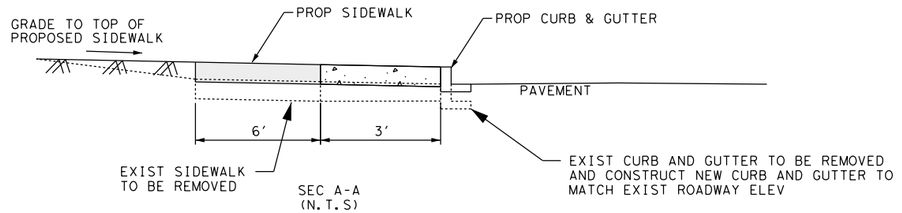
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	255
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	64
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	45
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	91
0162 6002	BLOCK SODDING	SY	91
0168 6001	VEGETATIVE WATERING	MG	2.1
0479 6003	ADJUSTING MANHOLES & INLET	EA	2
0479 6004	ADJUSTING MANHOLES (SANITARY)	EA	1
0479 6008	ADJUSTING MANHOLES (WATER METER)	EA	1
0529 6008	CONC CURB & GUTTER (TY II)	LF	66
0531 6001	CONC SIDEWALK (4")	SY	134
0531 6004	CURB RAMPS (TY 1)	EA	3
0531 6005	CURB RAMPS (TY 2)	EA	1
0644 6004	IN SM RD SN SUP&AM TY1OBWG(1)SA(T)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
0666 6048	REPL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	30
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	15







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LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER WATER LINE
- WWI WASTEWATER LINE
- SSI STORM SEWER LINE
- GAS GAS LINE
- W1 ABANDONED WATER LINE

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

US 77
SIDEWALK PLAN

STA 191+50 TO STA 194+00
WACO, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	68
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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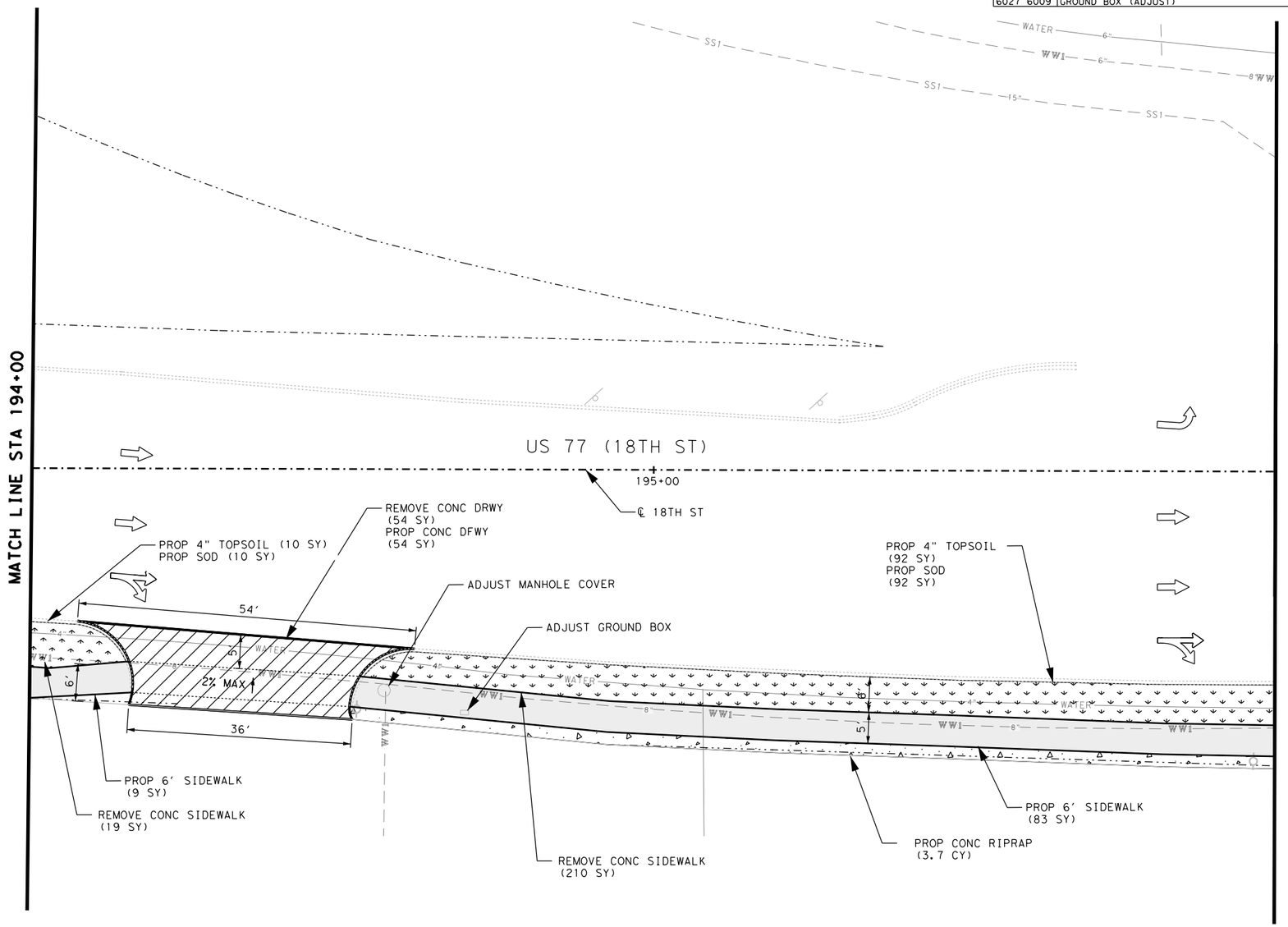
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	229
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	54
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	102
0162 6002	BLOCK SODDING	SY	102
0168 6001	VEGETATIVE WATERING	MG	2.3
0432 6001	RIPRAP (CONC) (4 IN)	CY	3.7
0530 6004	DRIVEWAYS (CONC)	SY	54
0531 6001	CONC SIDEWALK (4")	SY	92
0479 6004	ADJUSTING MANHOLES (SANITARY)	EA	1
6027 6009	GROUND BOX (ADJUST)	EA	1



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LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- M MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- PBX ELECTRICAL PULL BOX
- CONTROL POINT
- APPARENT ROW
- WATER WATER LINE
- WW1 WASTEWATER LINE
- SS1 STORM SEWER LINE
- GAS GAS LINE
- W1 ABANDONED WATER LINE

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
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SUITE 220
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F-12801

Texas Department of Transportation

US 77
SIDEWALK PLAN

STA 194+00 TO STA 196+00
WACO, TEXAS

SHEET 8 OF 10

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	69
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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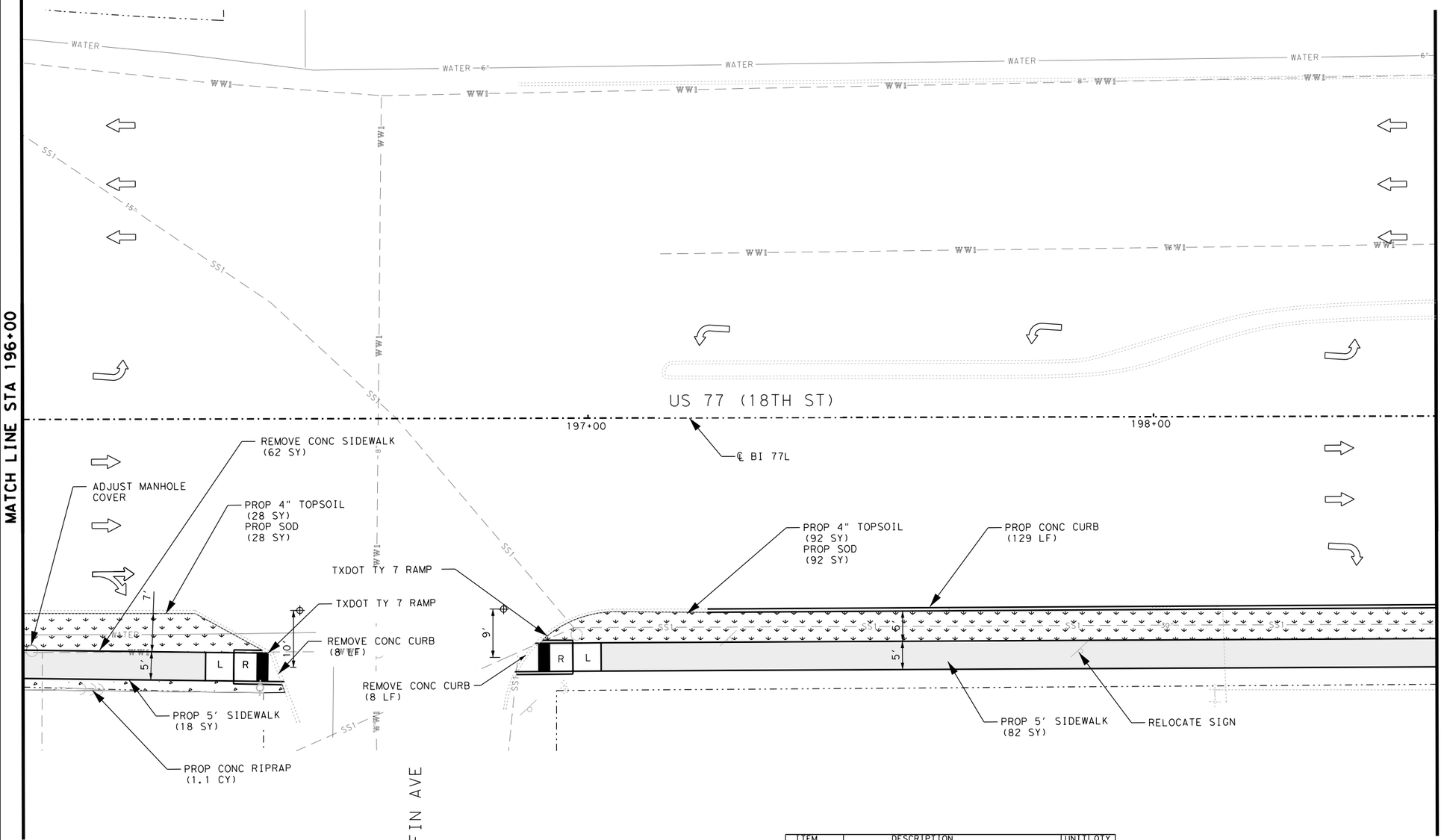

ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	62
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	16
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	120
0162 6002	BLOCK SODDING	SY	120
0168 6001	VEGETATIVE WATERING	MG	2.8
0432 6001	RIPRAP (CONC) (4 IN)	CY	1.1
0479 6004	ADJUSTING MANHOLES (SANITARY)	EA	1
0529 6008	CONC CURB & GUTTER (TY II)	LF	129
0531 6001	CONC SIDEWALK (4")	SY	100
0531 6004	CURB RAMPS (TY 7)	EA	2

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LEGEND

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- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
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- MAIL BOX
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- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
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- APPARENT ROW
- WATER WATER LINE
- WW WASTEWATER LINE
- SS1 STORM SEWER LINE
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- W1 ABANDONED WATER LINE

STATE OF TEXAS
MARWAN F. MUWAQUET
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LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

US 77
SIDEWALK PLAN

STA 196+00 TO STA 198+50
WACO, TEXAS

SHEET 9 OF 10

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	70
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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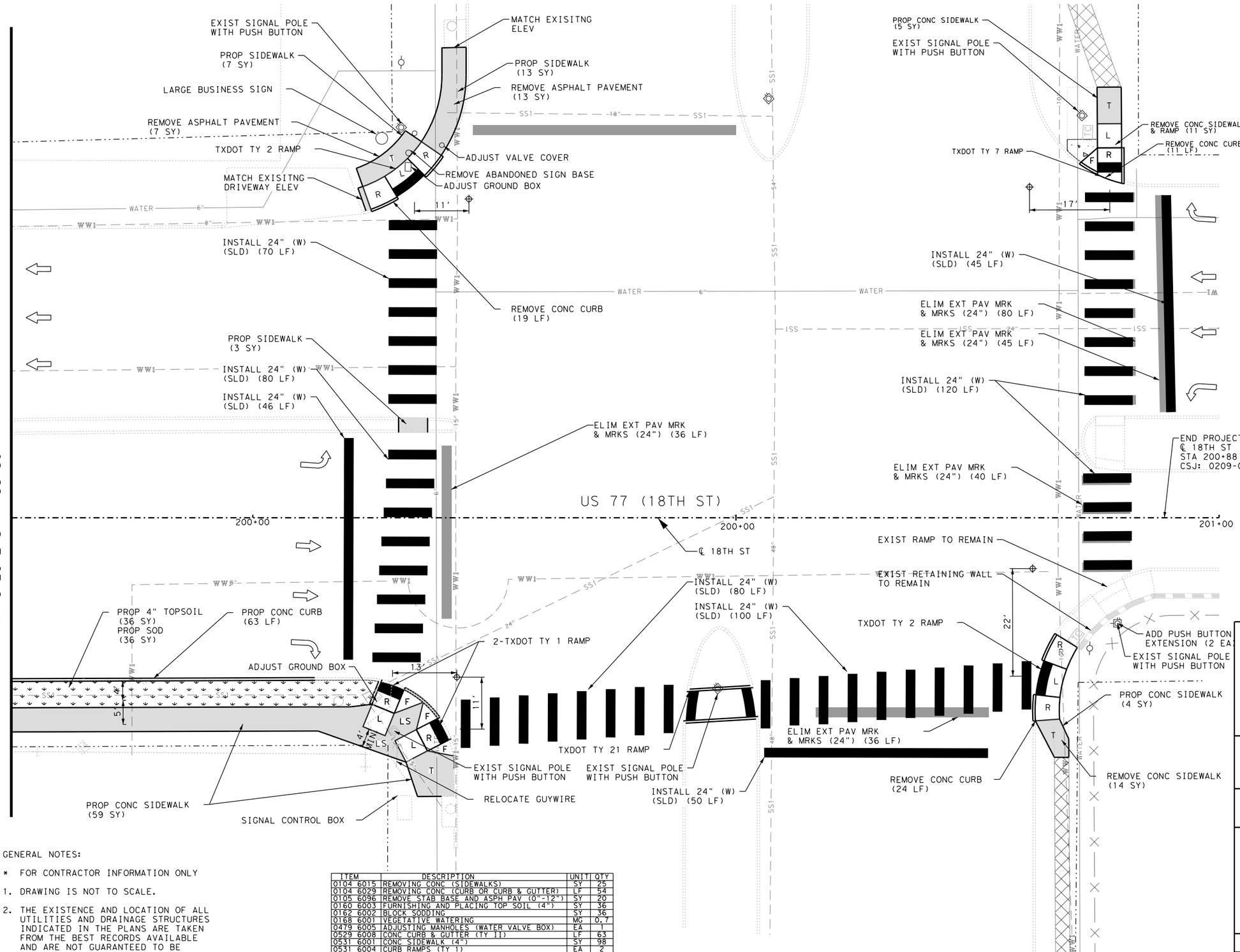

MATCHLINE STA 198+50

LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
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ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALKS)	SY	25
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	54
0105 6096	REMOVE STAB BASE AND ASPH PAV (0"-12")	SY	20
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	36
0162 6002	BLOCK SODDING	SY	36
0168 6001	VEGETATIVE WATERING	MG	0.7
0479 6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	1
0529 6008	CONC CURB & GUTTER (TY II)	LF	63
0531 6001	CONC SIDEWALK (4")	SY	98
0531 6004	CURB RAMPS (TY 1)	EA	2
0531 6005	CURB RAMPS (TY 2)	EA	2
0531 6010	CURB RAMPS (TY 7)	EA	1
0531 6016	CURB RAMPS (TY 21)	EA	1
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	511
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	237
0690 6123	RELOCATE OF PEDESTRIAN PUSH BUTTON	EA	2
6027 6009	ADJUSTING GROUND BOX	EA	2

STATE OF TEXAS
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09/26/21

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SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

US 77
SIDEWALK PLAN

STA 198+50 TO END OF PROJECT
WACO, TEXAS

SHEET 10 OF 10

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	
CHECK	CONTROL	SECTION	JOB	71
MFM	0209	01	073, ETC	
CHECK				
FS				

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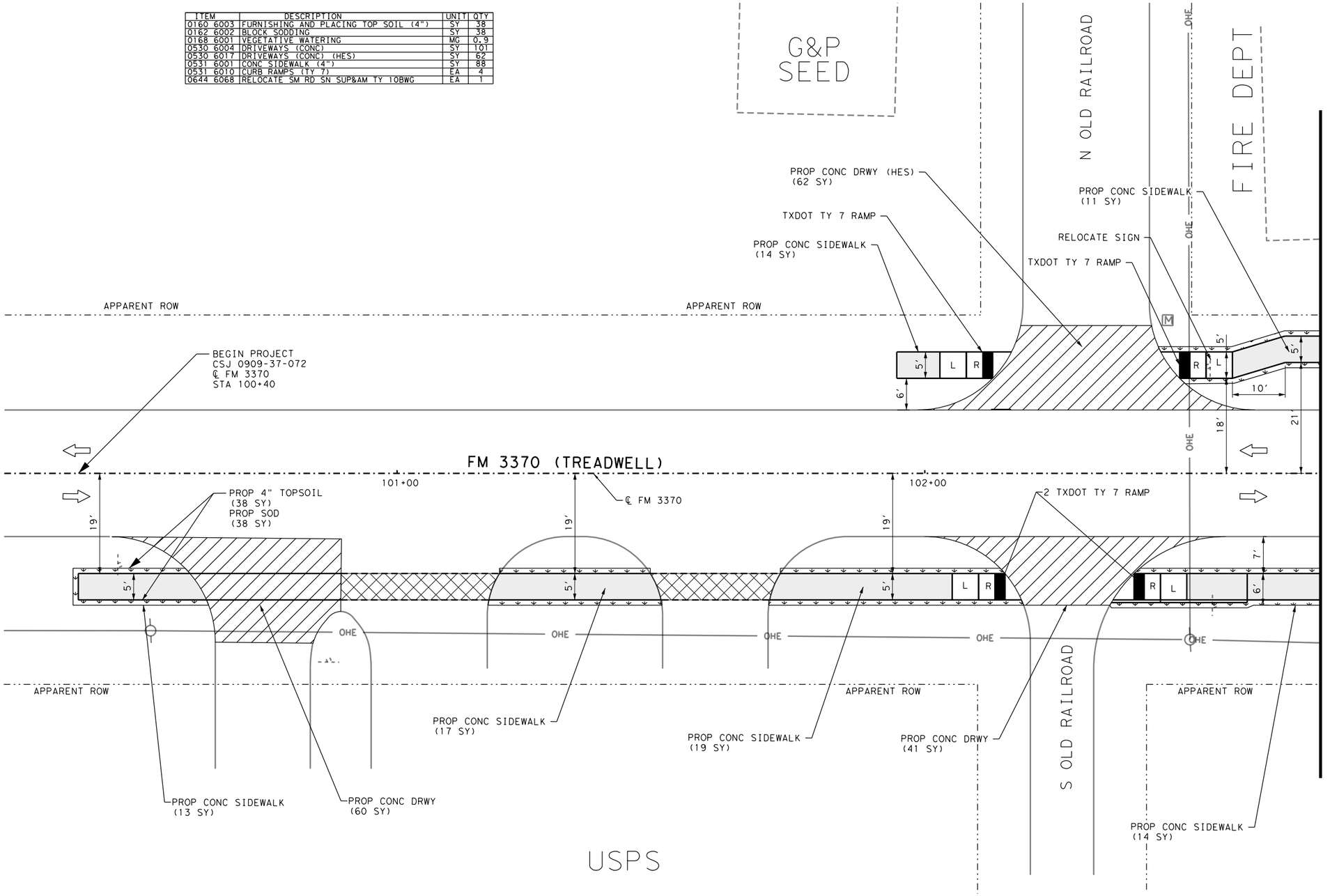
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	38
0162 6002	BLOCK SODDING	SY	38
0168 6001	VEGETATIVE WATERING	MG	0.9
0530 6004	DRIVEWAYS (CONC)	SY	101
0530 6017	DRIVEWAYS (CONC) (HES)	SY	62
0531 6001	CONC SIDEWALK (4")	SY	88
0531 6010	CURB RAMPS (TY 7)	EA	4
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
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- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- OHE OVERHEAD ELECTRICITY

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STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

FM 3370
SIDEWALK PLAN

BEGIN PROJECT TO STA 102+75
AQUILLA, TEXAS

SHEET 1 OF 7

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	72
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

P:\Jobs\2020006-Pedestrian TxDOT Waco\CADD\IV ROADWAY\Aquilla\GV072_AQUILLA_FM3370_1OF7.dgn
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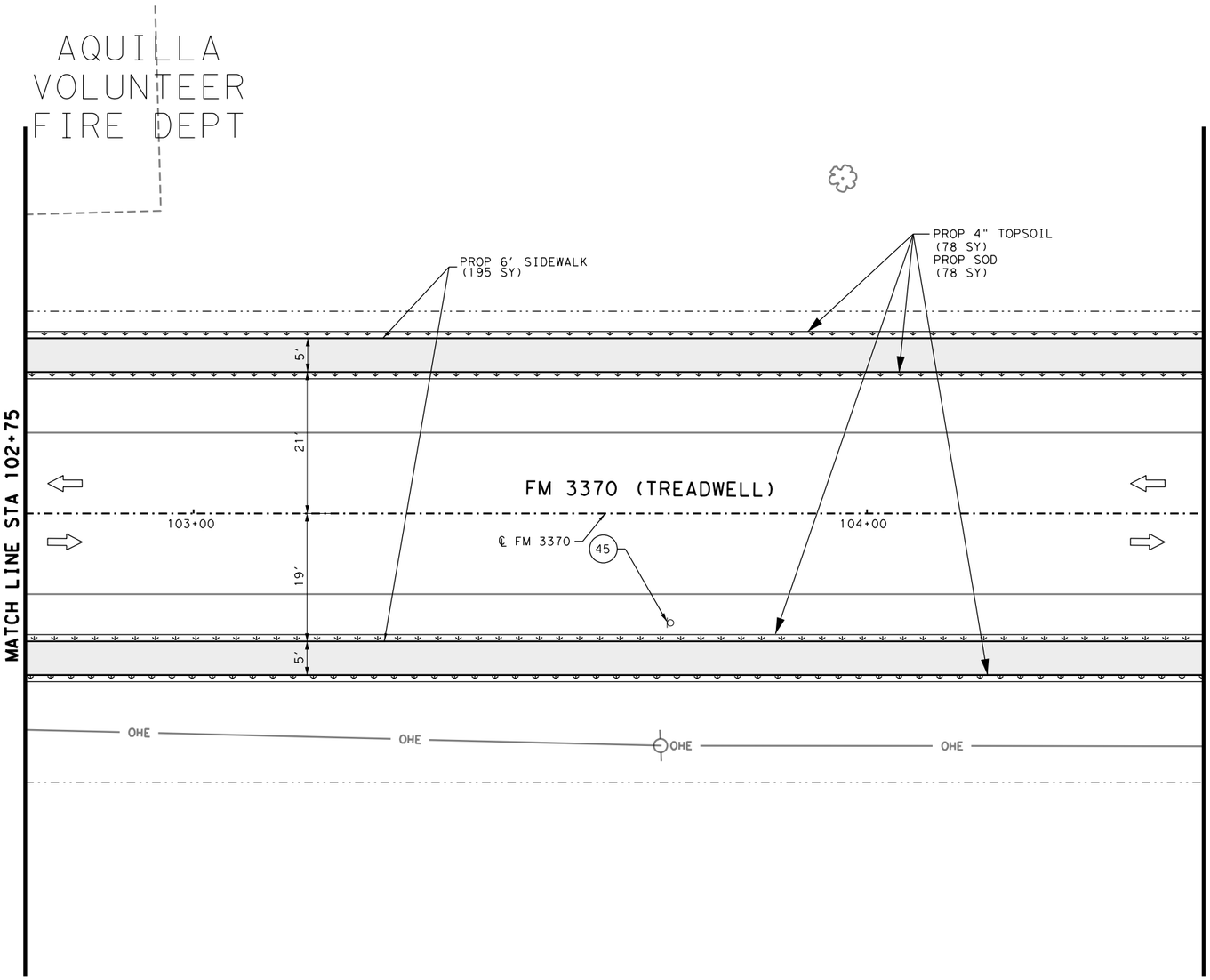
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	78
0162 6002	BLOCK SODDING	SY	78
0168 6001	VEGETATIVE WATERING	MG	1.8
0531 6001	CONC SIDEWALK (4")	SY	195
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	1



GENERAL NOTES:

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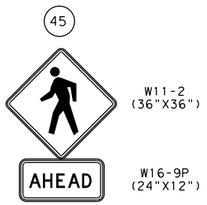


LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- —OHE— OVERHEAD ELECTRICITY

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED
PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243

F-12801

Texas Department of Transportation

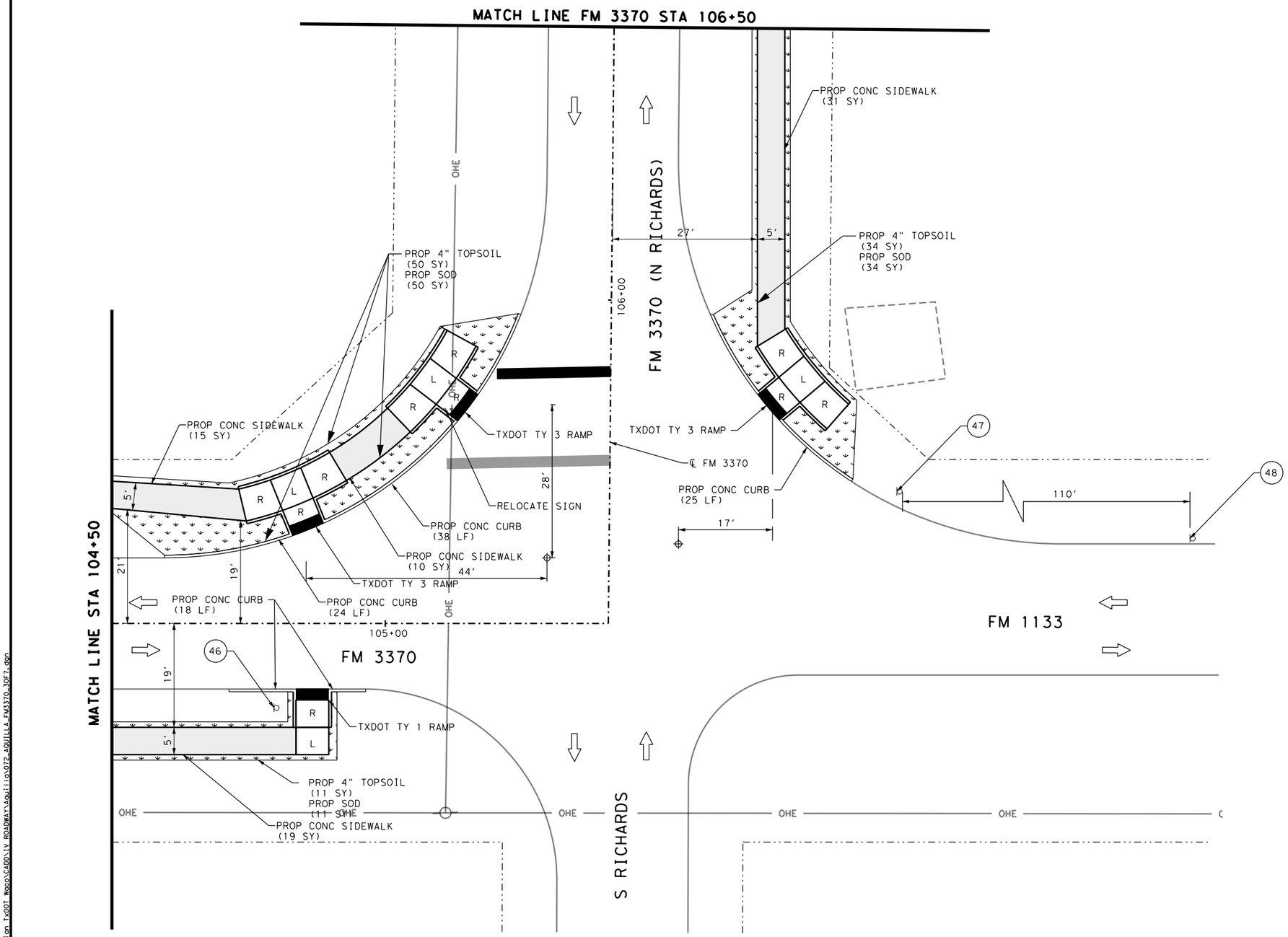
FM 3370
SIDEWALK PLAN

STA 102+75 TO STA 104+50
AQUILLA, TEXAS

SHEET 2 OF 7

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	73
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	95
0162 6002	BLOCK SODDING	SY	95
0168 6001	VEGETATIVE WATERING	MG	2.2
0529 6008	CONC CURB & GUTTER (TY II)	LF	105
0531 6001	CONC SIDEWALK (4")	SY	75
0531 6004	CURB RAMPS (TY 1)	EA	1
0531 6005	CURB RAMPS (TY 3)	EA	3
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	3



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
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- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- OHE OVERHEAD ELECTRICITY

GENERAL NOTES:

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STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

FM 3370
SIDEWALK PLAN

STA 104+50 TO STA 106+50
AQUILLA, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	74
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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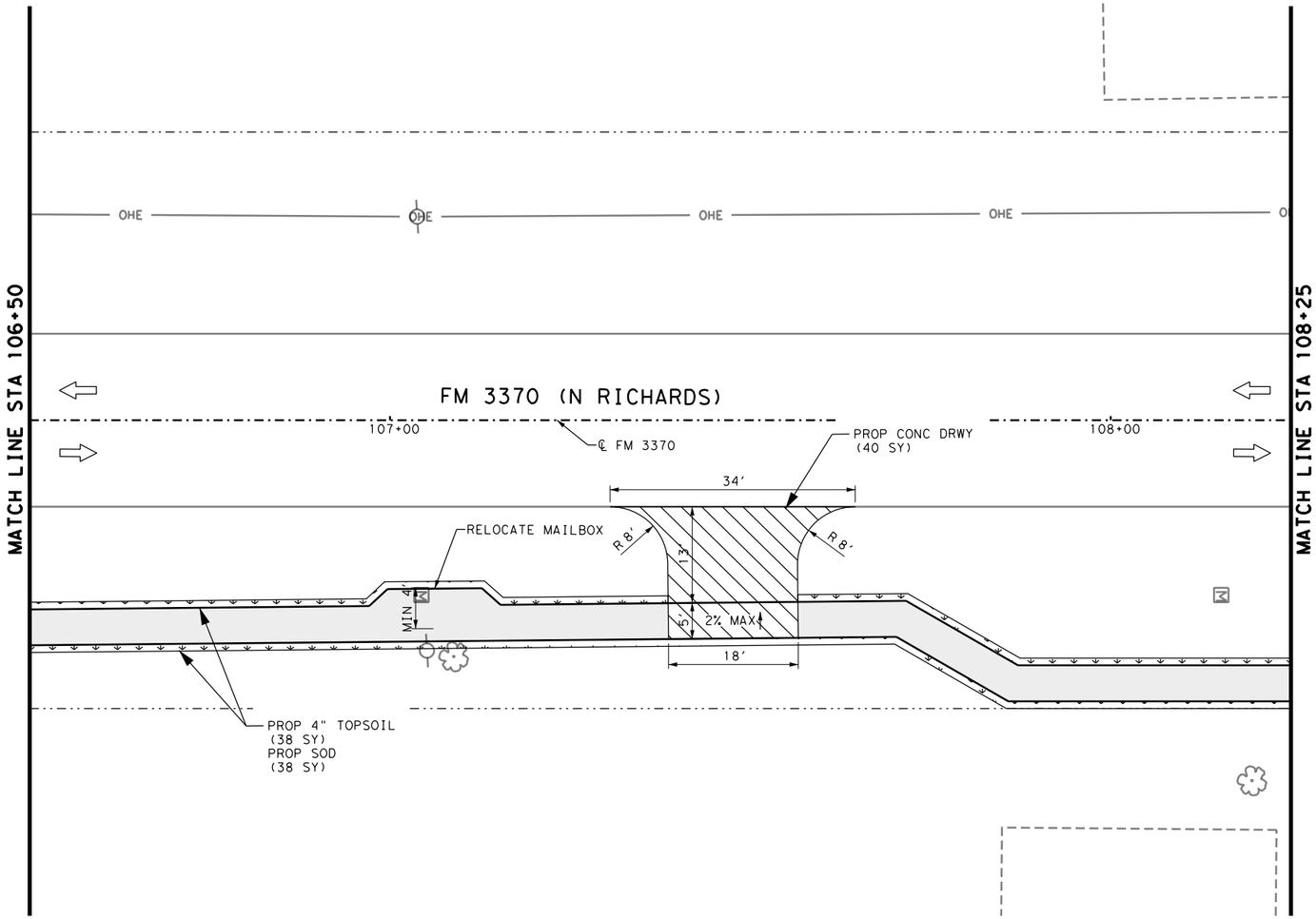
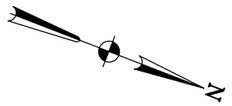
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	38
0162 6002	BLOCK SODDING	SY	38
0168 6001	VEGETATIVE WATERING	MG	1.0
0530 6004	DRIVEWAYS (CONC)	SY	40
0531 6001	CONC SIDEWALK (4")	SY	113
0560 6025	RELOCATE EXISITNG MAILBOX	EA	1





LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
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- ELECTRICAL PULL BOX
- —OHE— OVERHEAD ELECTRICITY

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STATE OF TEXAS
MARWAN F. MUWAQUET
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LICENSED
PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

FM 3370
SIDEWALK PLAN

STA 106+50 TO STA 108+25
AQUILLA, TEXAS

SHEET 4 OF 7

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	75
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
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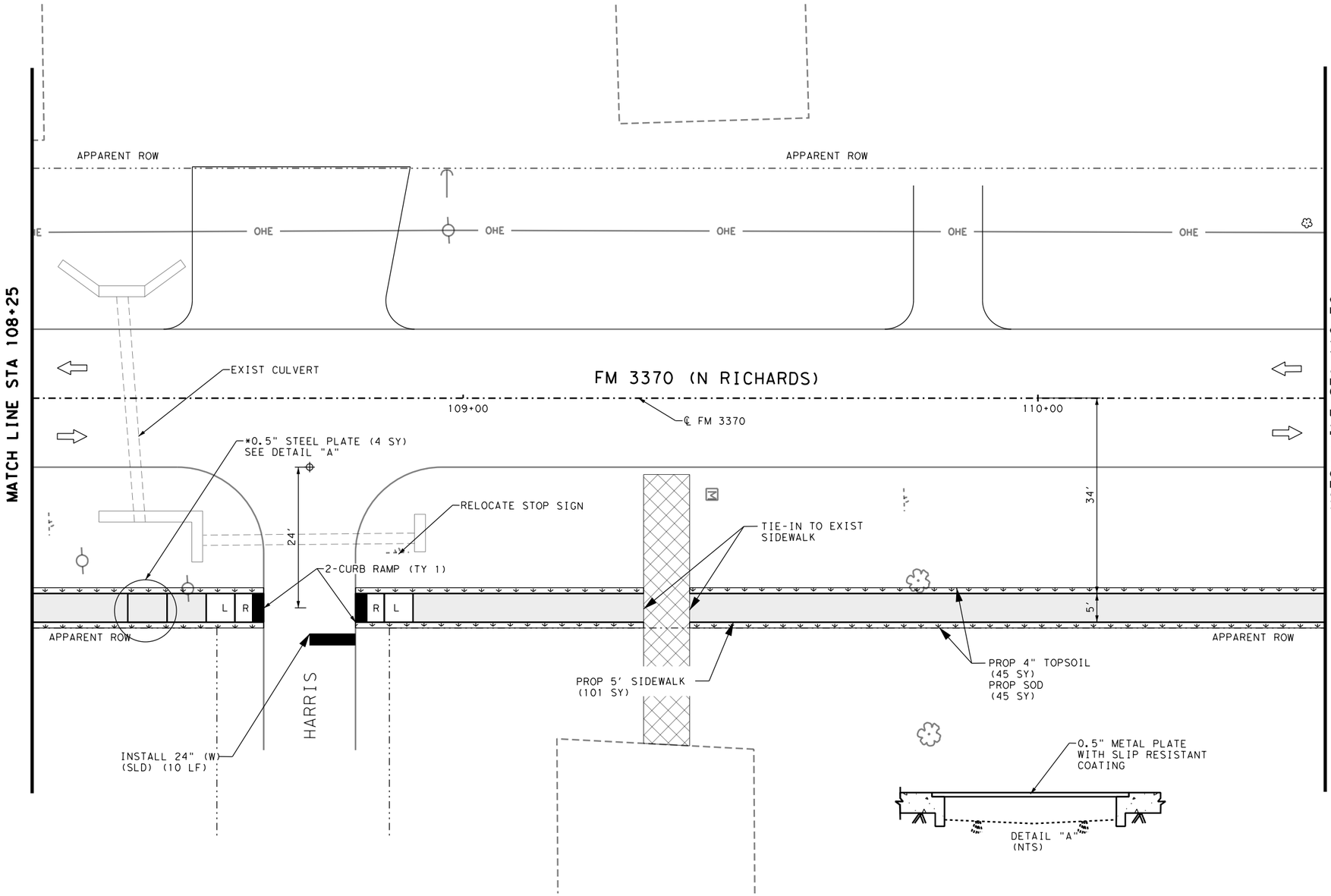
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	45
0162 6002	BLOCK SODDING	SY	45
0168 6001	VEGETATIVE WATERING	MG	1.0
0531 6001	CONC SIDEWALK (4")	SY	101
0531 600	CURB RAMPS (TY 1)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	10



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
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PAYMENT OF STEEL PLATE IS SUBSIDIARY TO ITEM 531

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

FM 3370
SIDEWALK PLAN

STA 108+25 TO STA 110+50
AQUILLA, TEXAS

SHEET 5 OF 7

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	76
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
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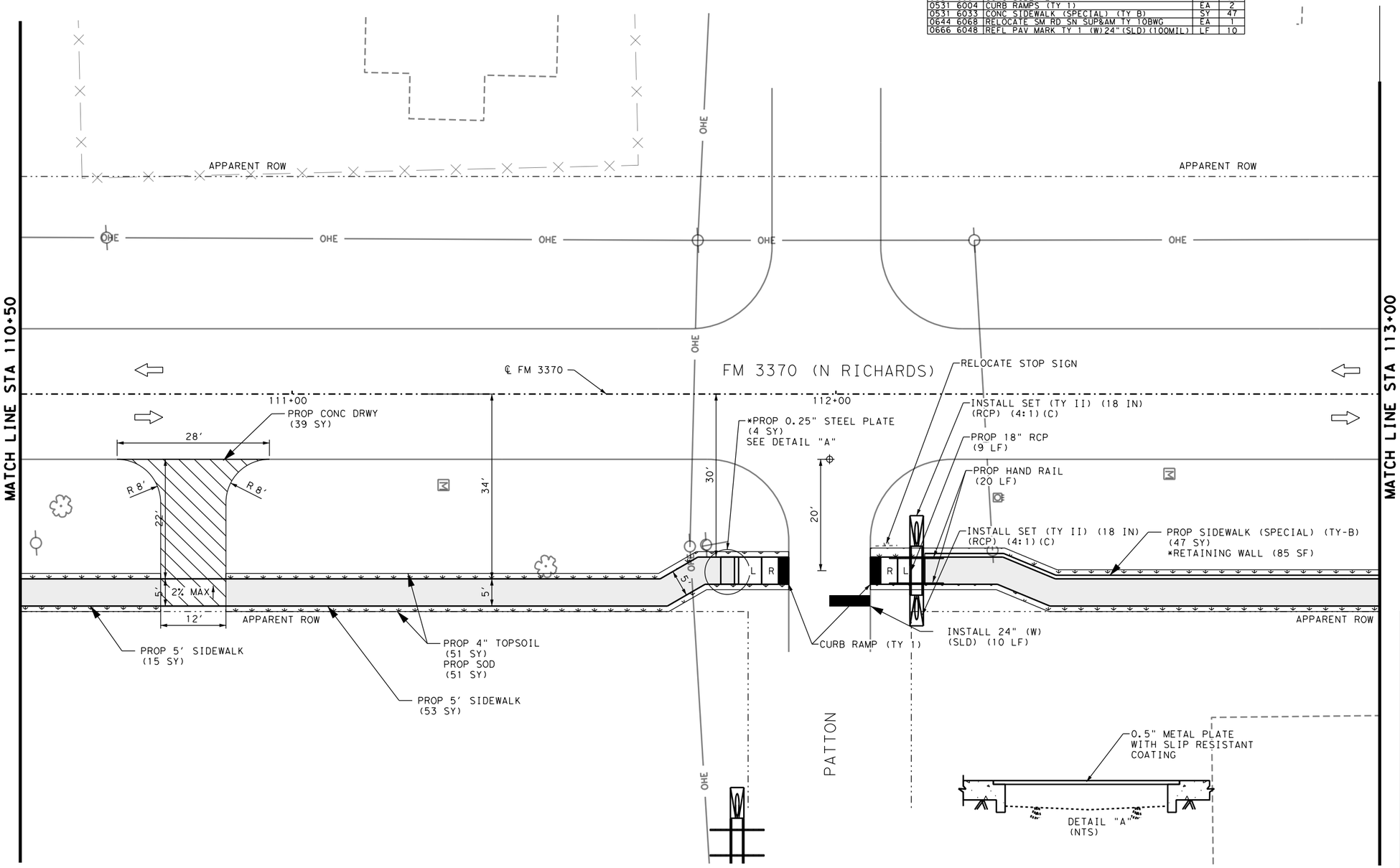
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	51
0162 6002	BLOCK SODDING	SY	51
0168 6001	VEGETATIVE WATERING	MG	1.2
0450 6047	RAIL (HANDRAIL) (TY A)	LF	20
0464 6003	RC PIPE (CL III)(18 IN)	LF	9
0467 6358	SET (TY II) (18 IN) (RCP) (4: 1) (C)	EA	2
0530 6004	DRIVEWAYS (CONC)	SY	39
0531 6001	CONC SIDEWALK (4")	SY	68
0531 6004	CURB RAMPS (TY 1)	EA	2
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	47
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	10



LEGEND

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- PROP CONC DRWY
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- PROP RETAINING WALL
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PAYMENT OF STEEL PLATE IS SUBSIDIARY TO ITEM 531

STATE OF TEXAS
MARWAN F. MUWAQUET
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LICENSED
PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

FM 3370
SIDEWALK PLAN

STA 206+00 TO STA 208+50
AQUILLA, TEXAS

SHEET 6 OF 7

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	77
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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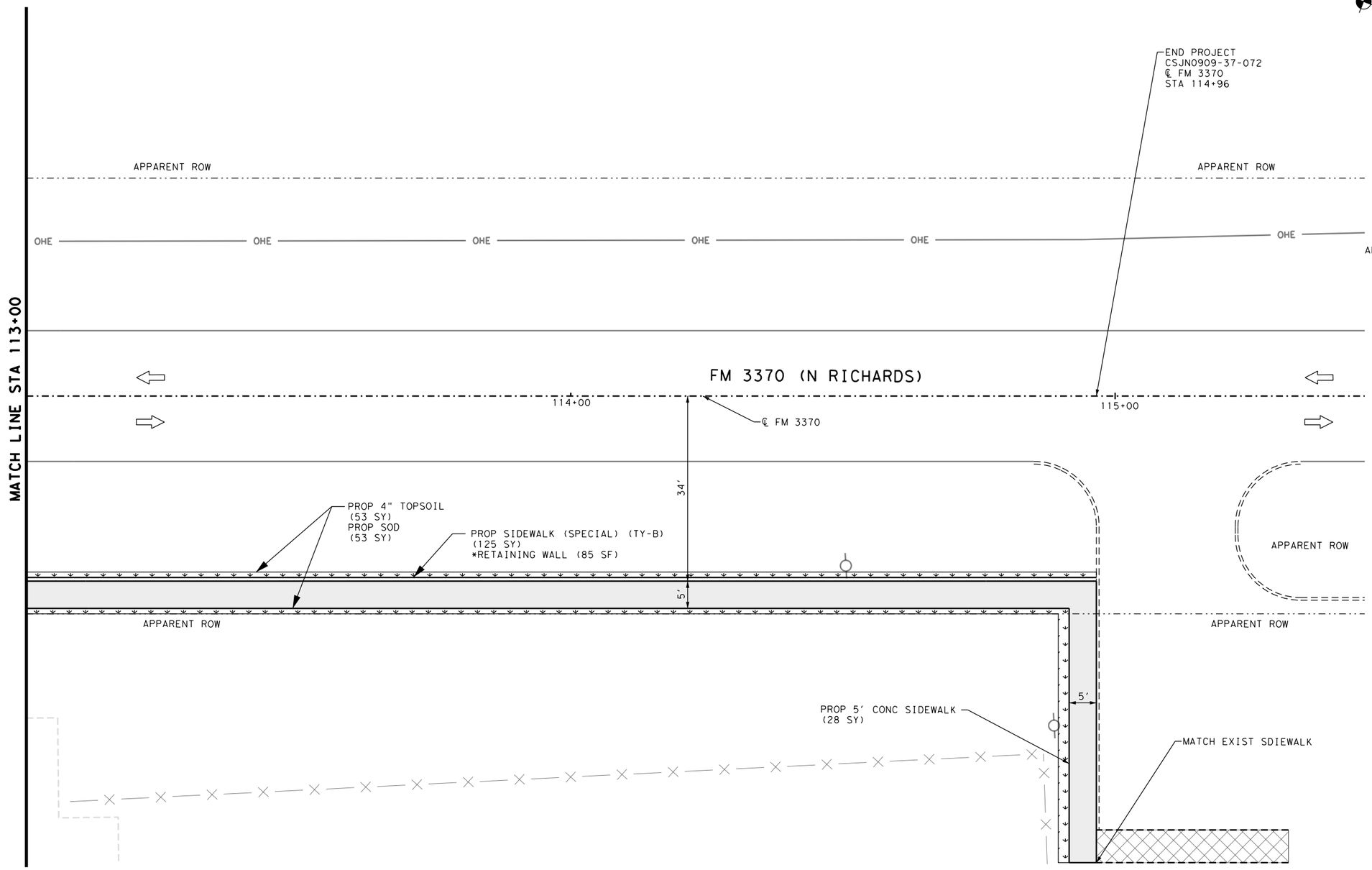
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	53
0162 6002	BLOCK SODDING	SY	53
0168 6001	VEGETATIVE WATERING	MG	1.2
0531 6001	CONC SIDEWALK (4")	SY	28
0531 6033	CONC SIDEWALK (SPECIAL) (TY B)	SY	125



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
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STATE OF TEXAS
MARWAN F. MUWAQUET
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LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

FM 3370
SIDEWALK PLAN

STA 113+00 TO END OF PROJECT
AQUILLA, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	78
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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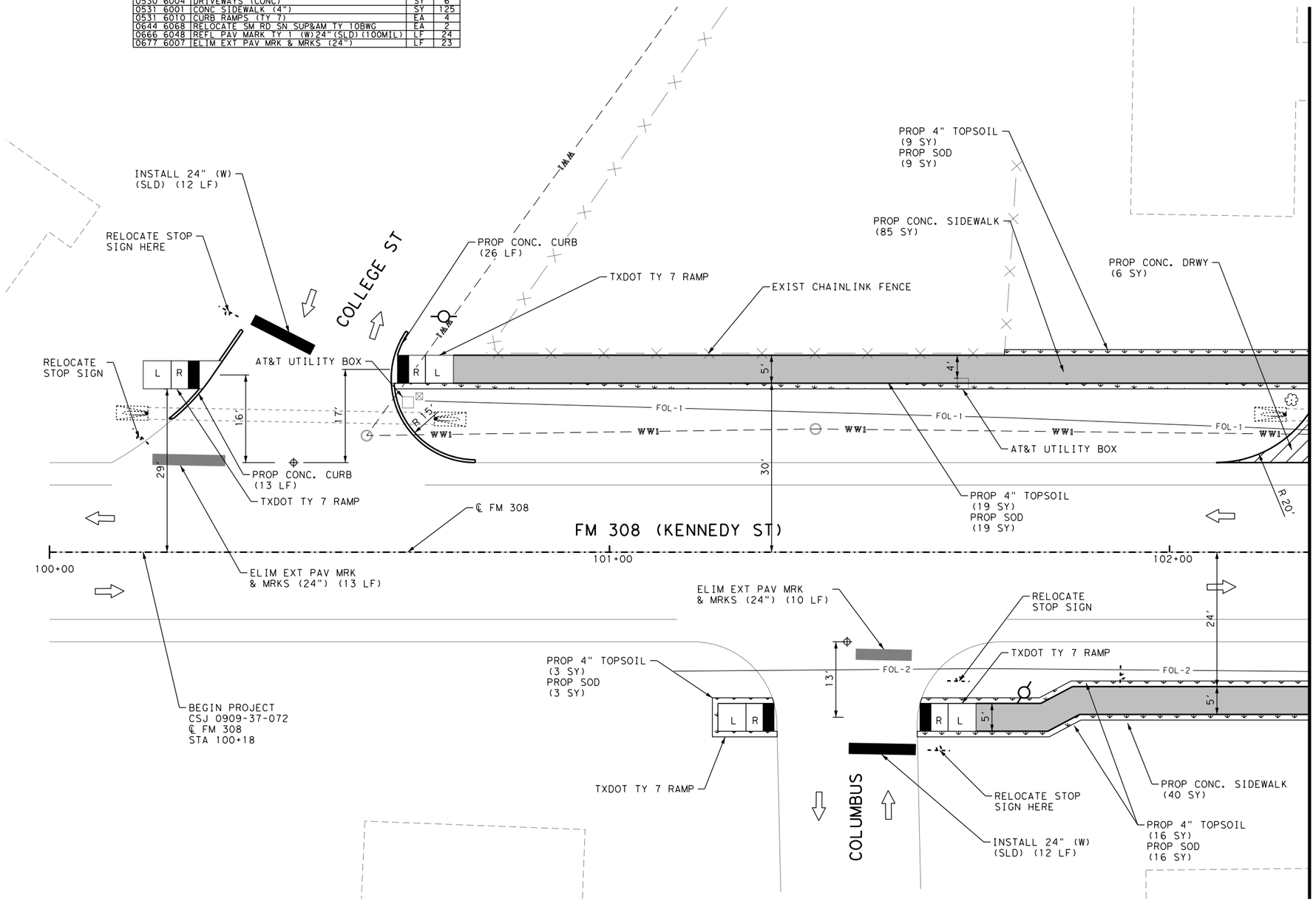
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	47
0162 6002	BLOCK SODDING	SY	47
0168 6001	VEGETATIVE WATERING	MG	1.1
0529 6008	CONC CURB & GUTTER (TY II)	LF	39
0530 6004	DRIVEWAYS (CONC)	SY	6
0531 6001	CONC SIDEWALK (4")	SY	125
0531 6019	CURB RAMPS (TY 7)	EA	4
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	24
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	23



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
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- EXISTING SIDEWALK/DRWY TO REMAIN
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- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- WW1 WASTEWATER LINE
- FOL-1 FIBER OPTIC LINE (AT&T)
- FOL-2 FIBER OPTIC LINE
- UG-CABLE WINDSTREAM INTERNET

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11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

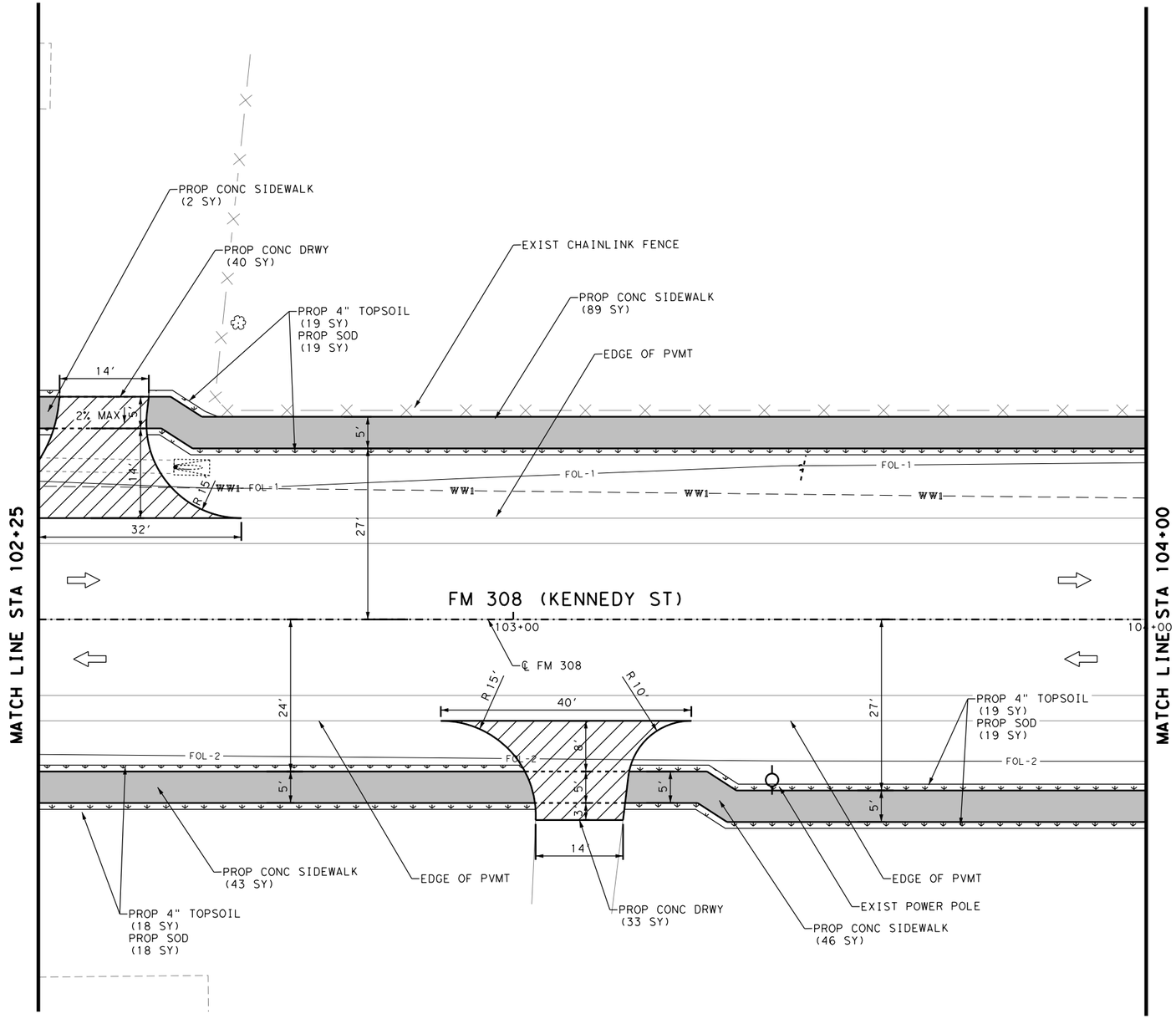
FM 2114
SIDEWALK PLAN

BEGIN PROJECT TO STA 102+25
PENELOPE, TEXAS

SHEET 1 OF 12

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	79
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

ITEM	DESCRIPTION	UNIT	QTY
0105 6096	REMOVE STAB BASE AND ASPH PAV (0"-12")	SY	33
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	56
0162 6002	BLOCK SODDING	SY	56
0168 6001	VEGETATIVE WATERING	MG	1.3
0530 6004	DRIVEWAYS (CONC)	SY	73
0531 6001	CONC SIDEWALK (4")	SY	178



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LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- WW1 WASTEWATER LINE
- FOL-1 FIBER OPTIC LINE (AT&T)
- FOL-2 FIBER OPTIC LINE
- UG-CABLE WINDSTREAM INTERNET

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

FM 2114
SIDEWALK PLAN

STA 102+25 TO STA 104+00
PENELOPE, TEXAS

SHEET 2 OF 12

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	80
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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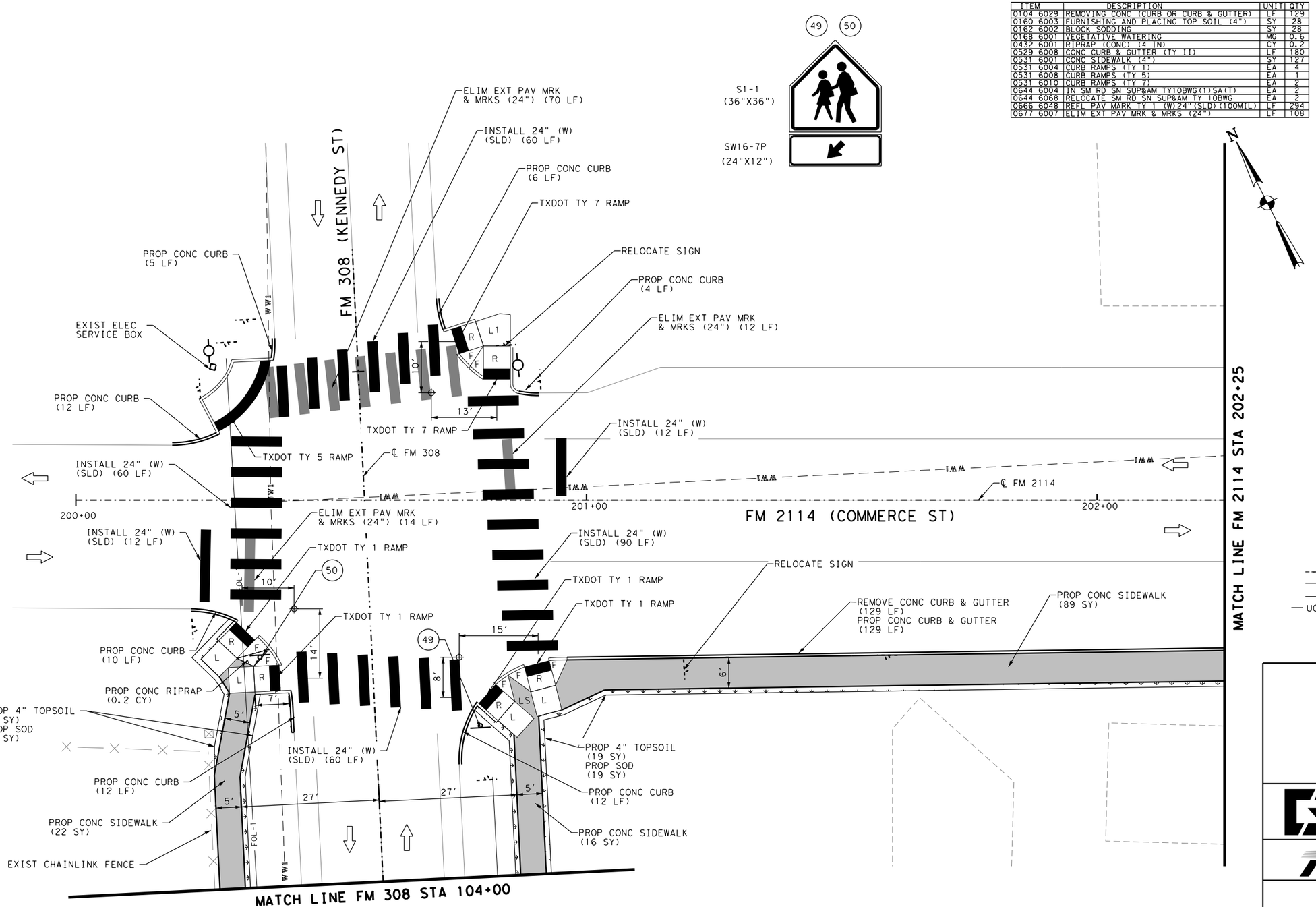
ITEM	DESCRIPTION	UNIT	QTY
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	129
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	28
0162 6002	BLOCK SODDING	SY	28
0168 6001	VEGETATIVE WATERING	MG	0.6
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.2
0529 6008	CONC CURB & GUTTER (TY II)	LF	180
0531 6001	CONC SIDEWALK (4")	SY	127
0531 6004	CURB RAMPS (TY 1)	EA	4
0531 6008	CURB RAMPS (TY 5)	EA	1
0531 6010	CURB RAMPS (TY 7)	EA	2
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	294
0677 6007	ELIM EXT PAV MRK & MRKS (24")	LF	108



LEGEND

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- PROP CONC DRWY
- PROP CONC RIPRAP
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- FOL-1 FIBER OPTIC LINE (AT&T)
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- UG-CABLE WINDSTREAM INTERNET

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F-12801

Texas Department of Transportation

FM 2114
SIDEWALK PLAN

FM 308 STA 104+00 TO
FM 2114 STA 202+25
PENELOPE, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	81
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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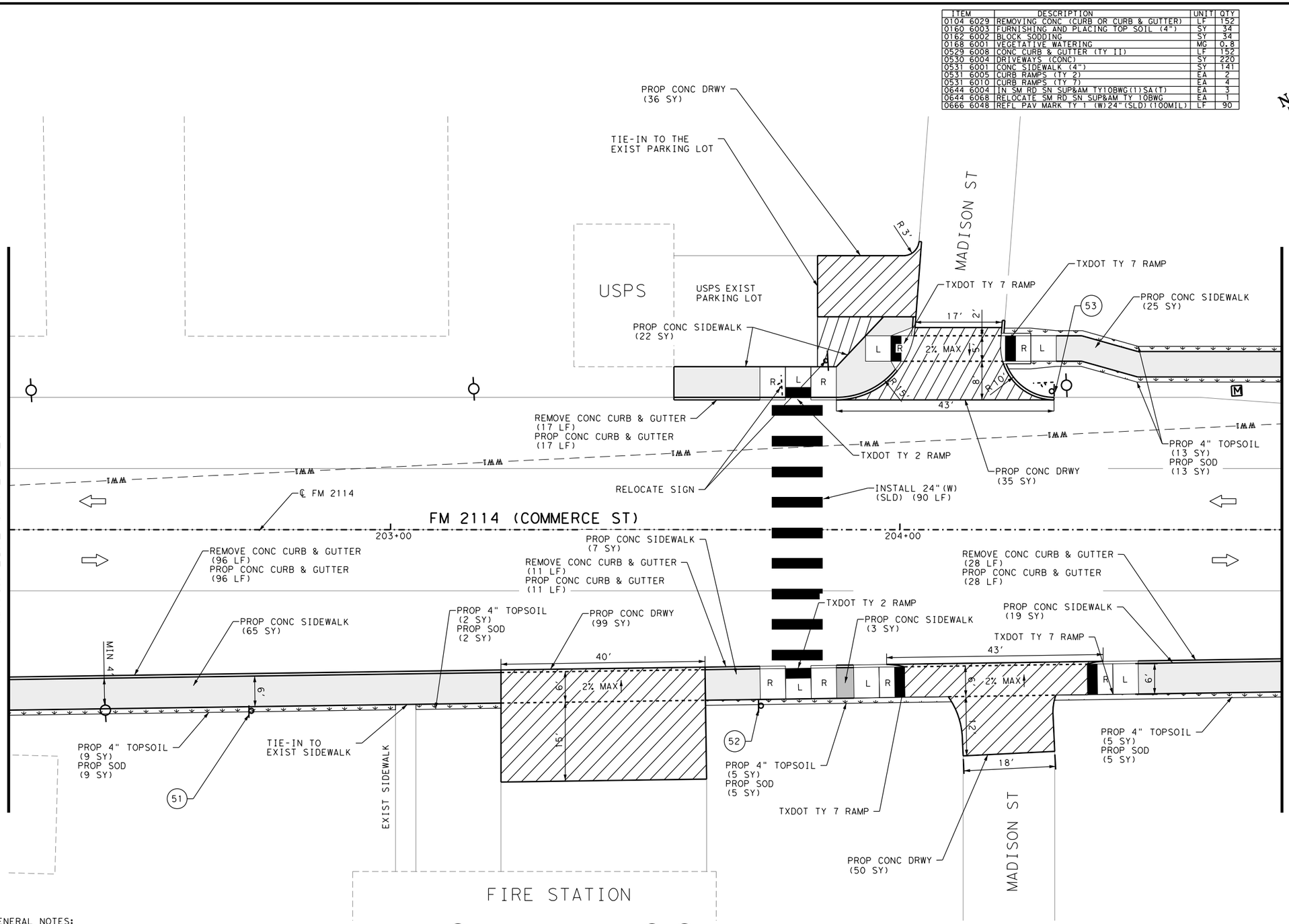
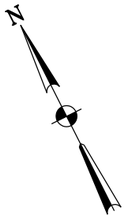
ITEM	DESCRIPTION	UNIT	QTY
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	152
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	34
0162 6002	BLOCK SODDING	SY	34
0168 6001	VEGETATIVE WATERING	MG	0.8
0529 6008	CONC CURB & GUTTER (TY II)	LF	152
0530 6004	DRIVEWAYS (CONC)	SY	220
0531 6001	CONC SIDEWALK (4")	SY	141
0531 6005	CURB RAMPS (TY 2)	EA	2
0531 6010	CURB RAMPS (TY 7)	EA	4
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	3
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666 6048	REFL PAV MARK TY 1 (W)24"(SLD)(100MIL)	LF	90





LEGEND

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- PROP CONC DRWY
- PROP CONC RIPRAP
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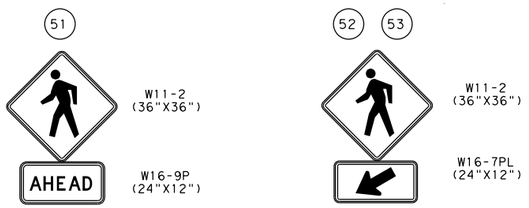

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

FM 2114
SIDEWALK PLAN

STA 202+25 TO STA 204+75
PENELOPE, TEXAS

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	82
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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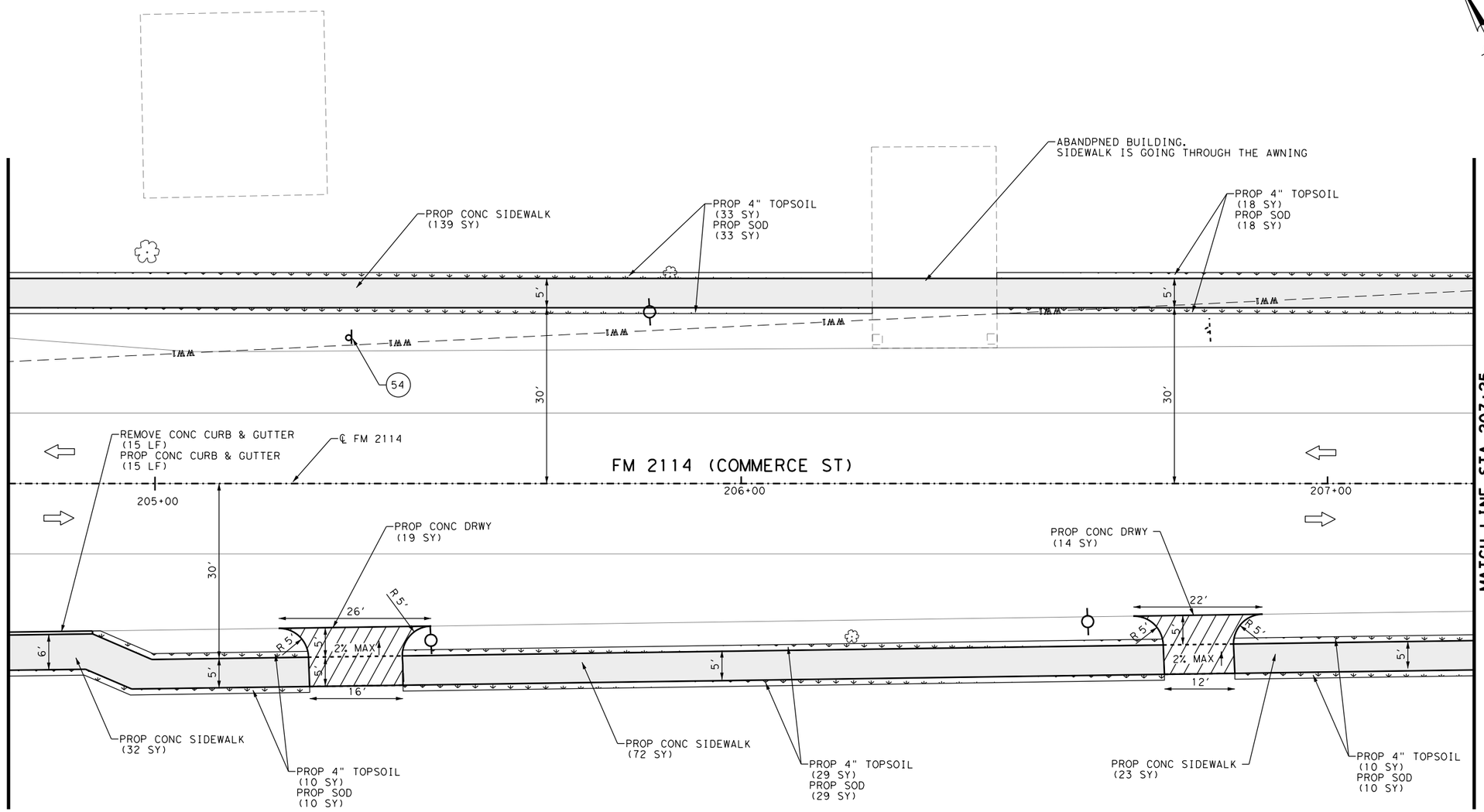
ITEM	DESCRIPTION	UNIT	QTY
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	15
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	100
0162 6002	BLOCK SODDING	SY	100
0168 6001	VEGETATIVE WATERING	MG	2.3
0529 6008	CONC CURB & GUTTER (TY II)	LF	15
0530 6004	DRIVEWAYS (CONC)	SY	33
0531 6001	CONC SIDEWALK (4")	SY	266
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	1



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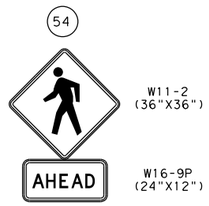

W11-2 (36"X36")

W16-9P (24"X12")

STATE OF TEXAS
MARWAN F. MUWAQUET
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LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

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SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

FM 2114
SIDEWALK PLAN

STA 204+75 TO STA 207+25
PENELOPE, TEXAS

SHEET 5 OF 12

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	83
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

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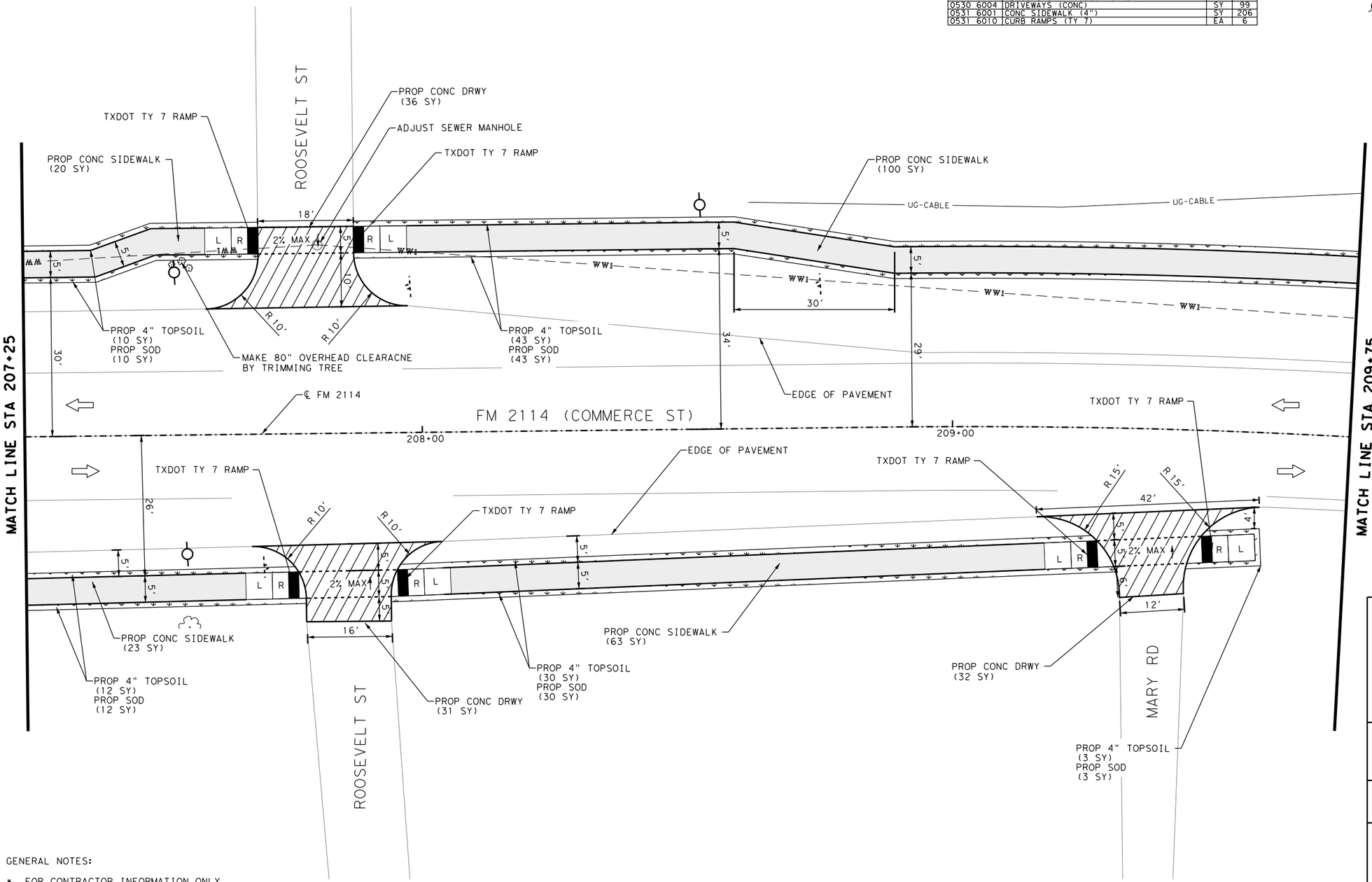
ITEM	DESCRIPTION	UNIT	QTY
0100 6009	PREPARING ROW (TREE) (6" TO 24" DIA)	EA	3
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	98
0162 6002	BLOCK SODDING	SY	98
0168 6001	VEGETATIVE WATERING	MG	2.3
0479 6004	ADJUSTING MANHOLES (SANITARY)	EA	1
0530 6004	DRIVEWAYS (CONC)	SY	99
0531 6001	CONC SIDEWALK (4")	SY	206
0531 6010	CURB RAMPS (TY 7)	EA	6



LEGEND

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LICENSED PROFESSIONAL ENGINEER
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

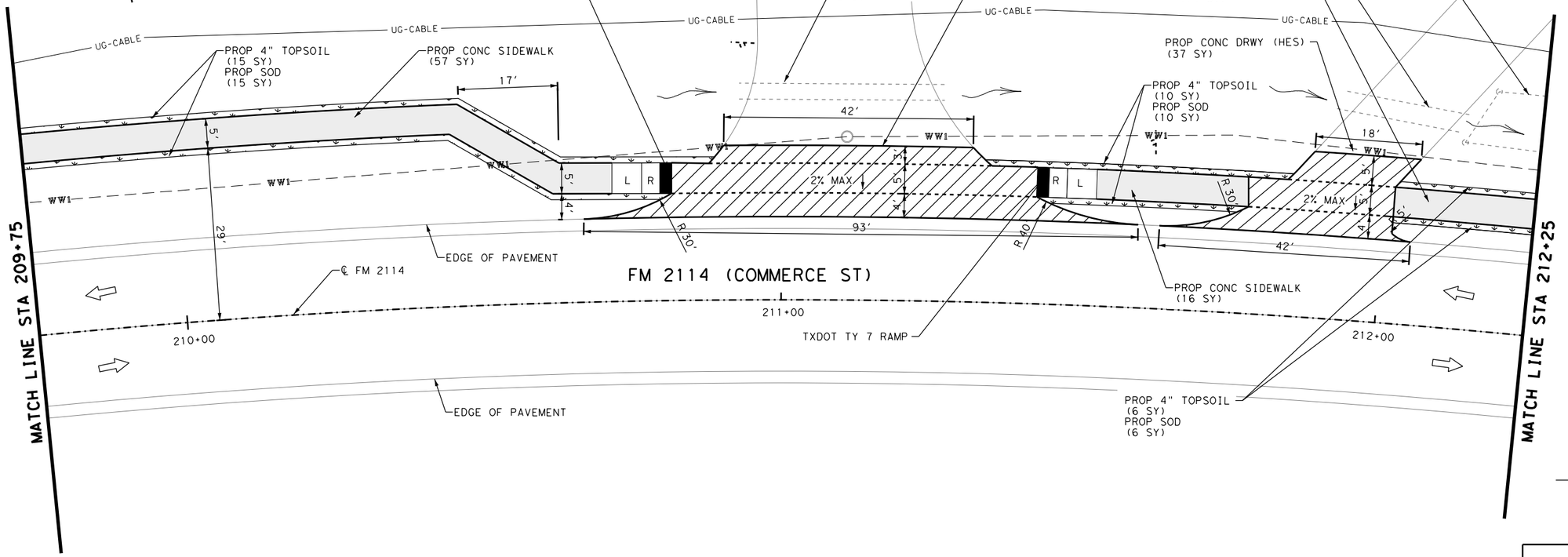
FM 2114
SIDEWALK PLAN

STA 207+25 TO STA 209+75
PENELOPE, TEXAS

SHEET 6 OF 12

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	84
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	31
0162 6002	BLOCK SODDING	SY	31
0168 6001	VEGETATIVE WATERING	MG	0.7
0530 6017	DRIVEWAYS (CONC) (HES)	SY	119
0531 6001	CONC SIDEWALK (4")	SY	87
0531 6010	CURB RAMPS (TY 7)	EA	2



LEGEND

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LICENSED PROFESSIONAL ENGINEER
M.F. Muwaquet
09/26/21

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
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F-12801

Texas Department of Transportation

FM 2114
SIDEWALK PLAN

STA 209+75 TO STA 212+25
PENELOPE, TEXAS

SHEET 7 OF 12

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	85
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

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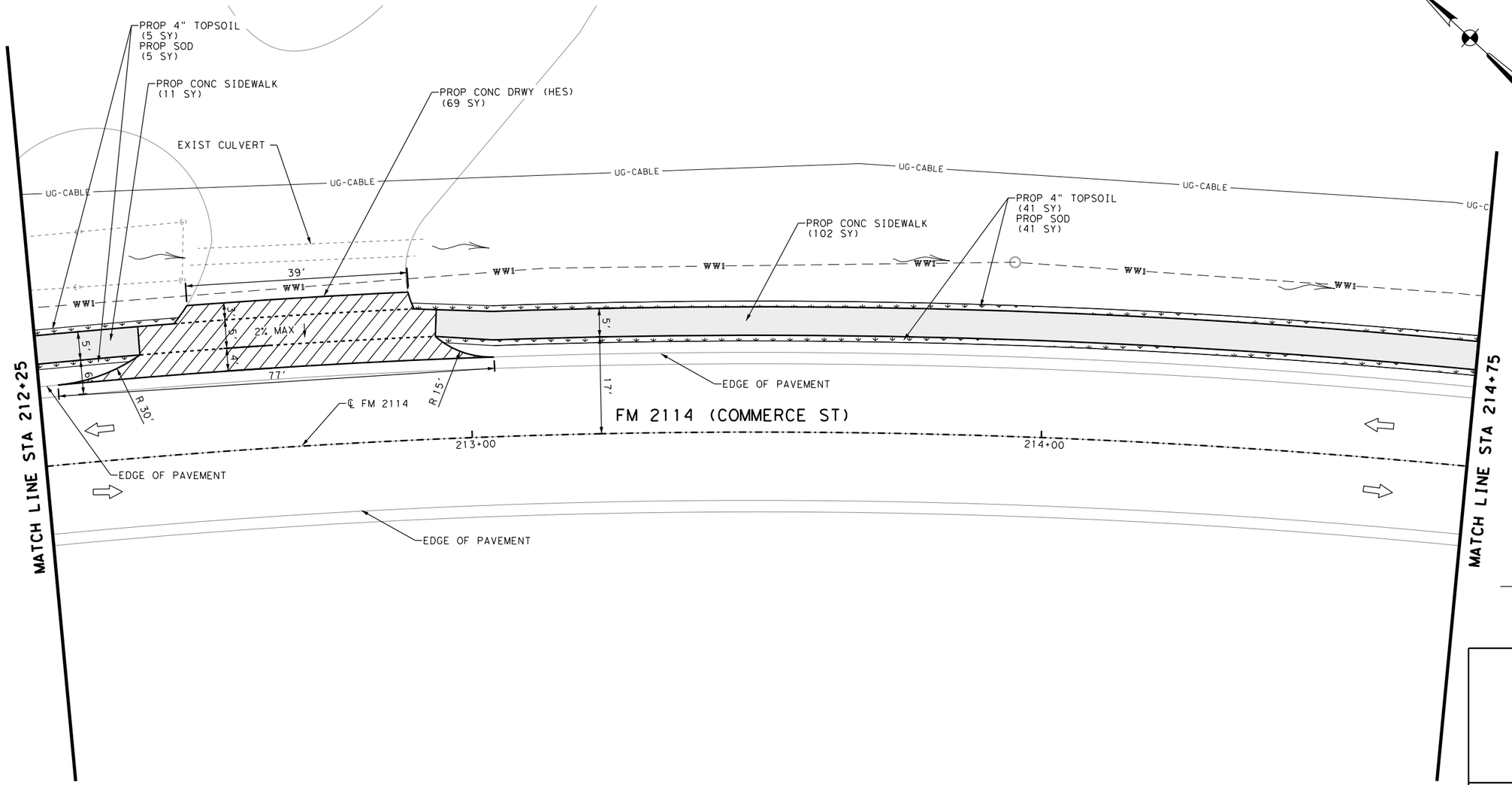
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	46
0162 6002	BLOCK SODDING	SY	46
0168 6001	VEGETATIVE WATERING	MG	1.1
0530 6017	DRIVEWAYS (CONC) (HES)	SY	69
0531 6001	CONC SIDEWALK (4")	SY	113



LEGEND

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M.F. Muwaquet
09/26/21

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DALLAS, TX 75243
F-12801

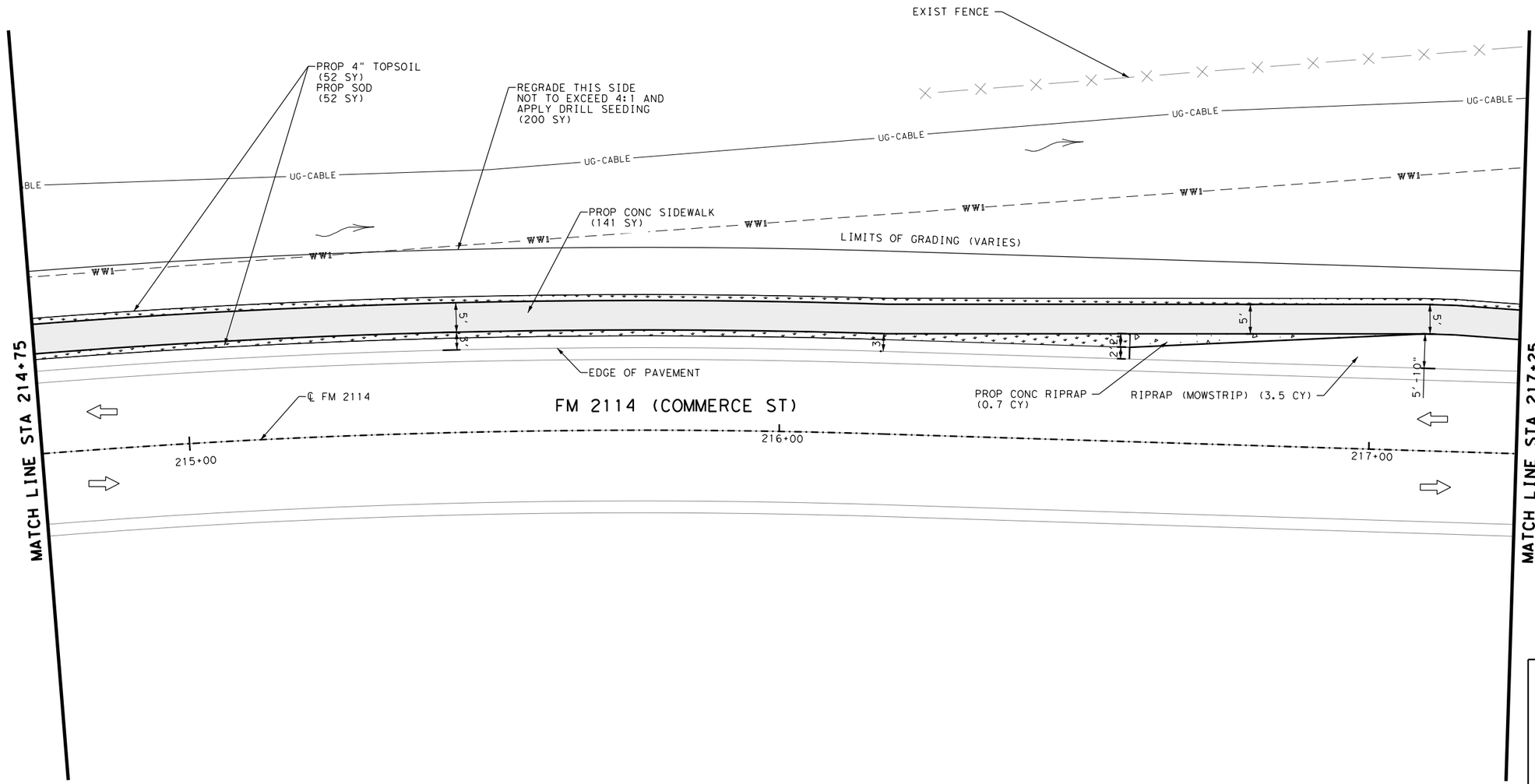
FM 2114
SIDEWALK PLAN

STA 212+25 TO STA 214+75
PENELOPE, TEXAS

SHEET 8 OF 12

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS: PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: MFM	TEXAS	WAC	MCLENNAN, ETC	86
CHECK: FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	52
0162 6002	BLOCK SODDING	SY	52
0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	200
0168 6001	VEGETATIVE WATERING	MG	5.8
0432 6001	RIPRAP (CONC)(4 IN)	CY	0.7
0432 6045	RIPRAP (MOW STRIP)(4 IN)	CY	3.5
0531 6001	CONC SIDEWALK (4")	SY	141



LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- WW1 WASTEWATER LINE
- FOL-1 FIBER OPTIC LINE (AT&T)
- FOL-2 FIBER OPTIC LINE
- UG-CABLE WINDSTREAM INTERNET

GENERAL NOTES:

* FOR CONTRACTOR INFORMATION ONLY

1. DRAWING IS NOT TO SCALE.
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STATE OF TEXAS
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M.F. Muwaquet
09/26/21

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F-12801

Texas Department of Transportation

FM 2114
SIDEWALK PLAN

STA 214+75 TO STA 217+25
PENELOPE, TEXAS

SHEET 9 OF 12

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	87
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

P:\Jobs\2020006-Pedestrian TxDOT Waco\CADD\IV ROADWAY\Penelope\072-PENELOPE_FM2114_SOF12.dgn
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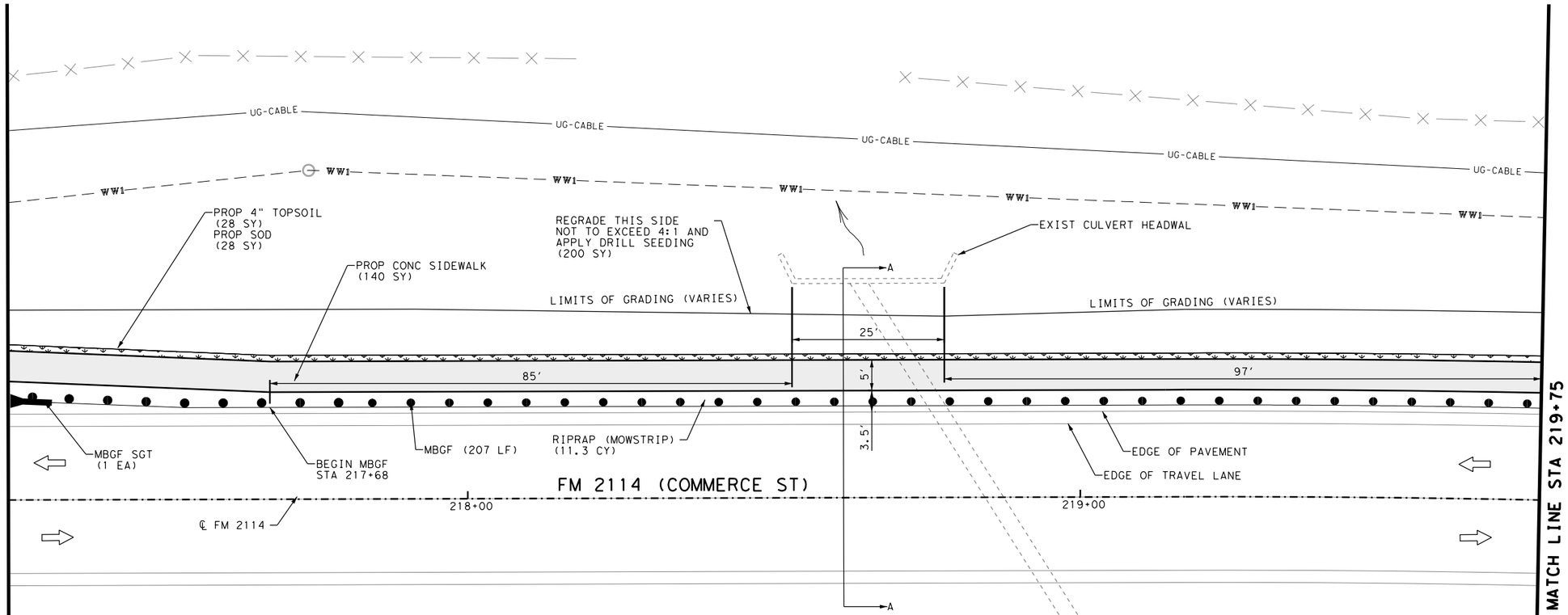
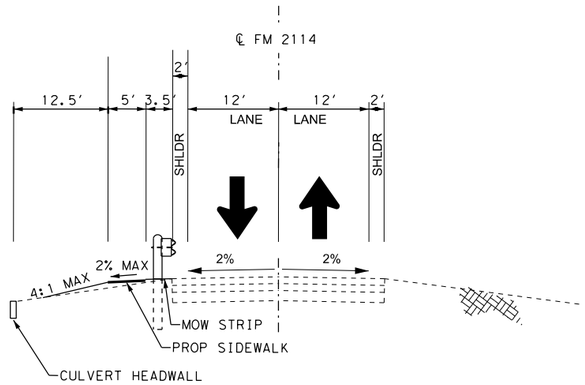
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	28
0162 6002	BLOCK SODDING	SY	28
0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	200
0168 6001	VEGETATIVE WATERING	MG	5.2
0432 6045	RIPRAP (MOW STRIP)(4 IN)	CY	11.3
0531 6001	CONC SIDEWALK (4")	SY	140
0540 6002	MTL W-BEAM GD FEN (STEEL POST)	LF	207
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	1





SECTION A-A

GENERAL NOTES:

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LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- WW1 WASTEWATER LINE
- FOL-1 FIBER OPTIC LINE (AT&T)
- FOL-2 FIBER OPTIC LINE
- UG-CABLE WINDSTREAM INTERNET

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Texas Department of Transportation

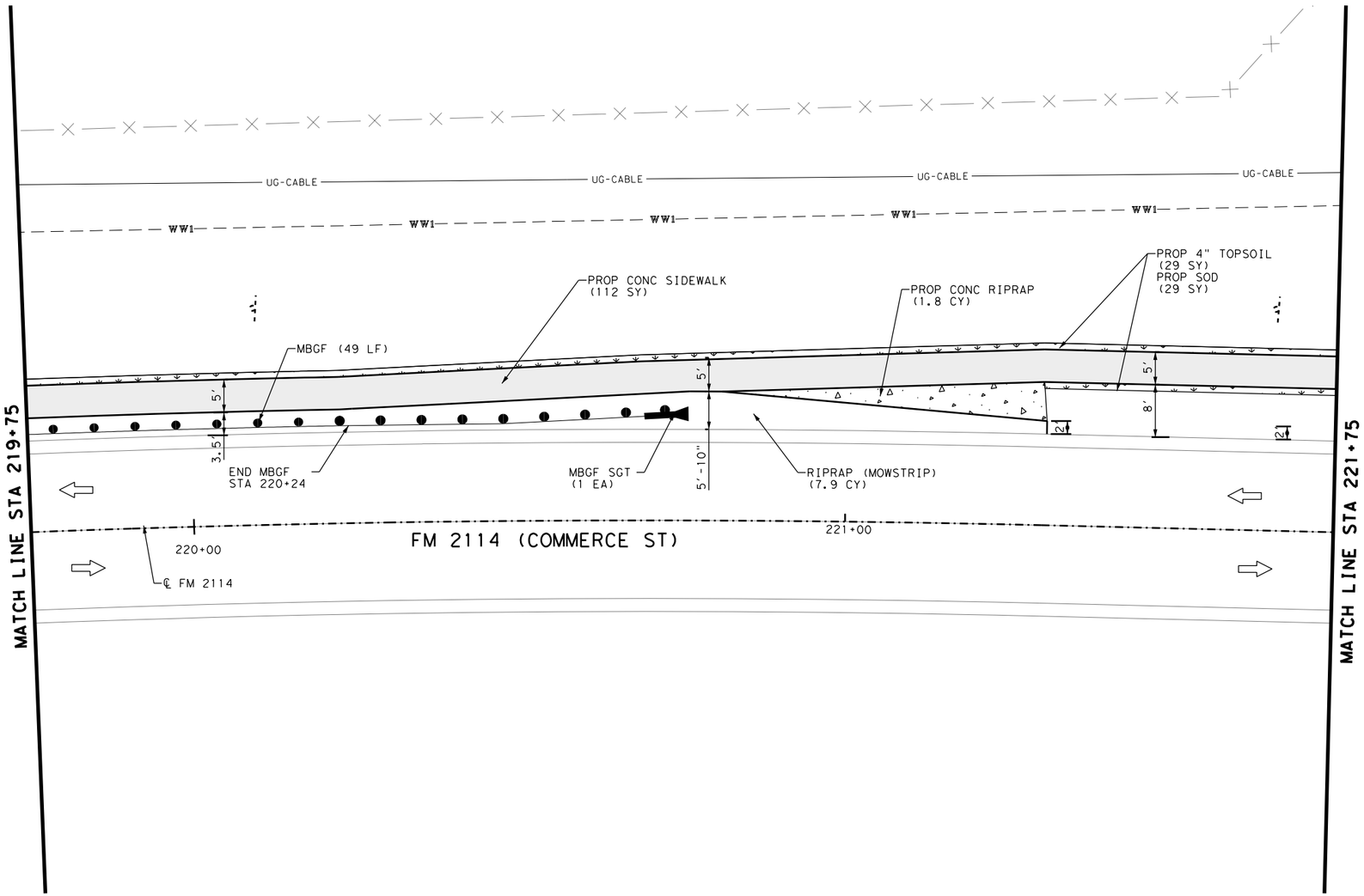
FM 2114
SIDEWALK PLAN

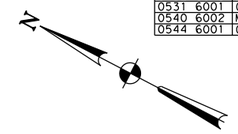
STA 217+25 TO STA 219+75
PENELOPE, TEXAS

SHEET 10 OF 12

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS: PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: MFM	TEXAS	WAC	MCLENNAN, ETC	88
CHECK: FS	CONTROL 0209	SECTION 01	JOB 073, ETC	

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	29
0162 6002	BLOCK SODDING	SY	29
0168 6001	VEGETATIVE WATERING	MG	0.7
0432 6001	RIPRAP (CONC)(4 IN)	CY	1.8
0432 6045	RIPRAP (MOW STRIP)(4 IN)	CY	7.9
0531 6001	CONC SIDEWALK (4")	SY	112
0540 6002	MTL W-BEAM GD FEN (STEEL POST)	LF	49
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	1





LEGEND

- PROP SODDING
- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
- TRAFFIC SIGNAL/PED POLE
- OH UTILITY POLE/LIGHT POLE
- WATER METER
- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- --- WW1 --- WASTEWATER LINE
- —FOL-1— FIBER OPTIC LINE (AT&T)
- —FOL-2— FIBER OPTIC LINE
- —UG-CABLE— WINDSTREAM INTERNET

GENERAL NOTES:

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Texas Department of Transportation

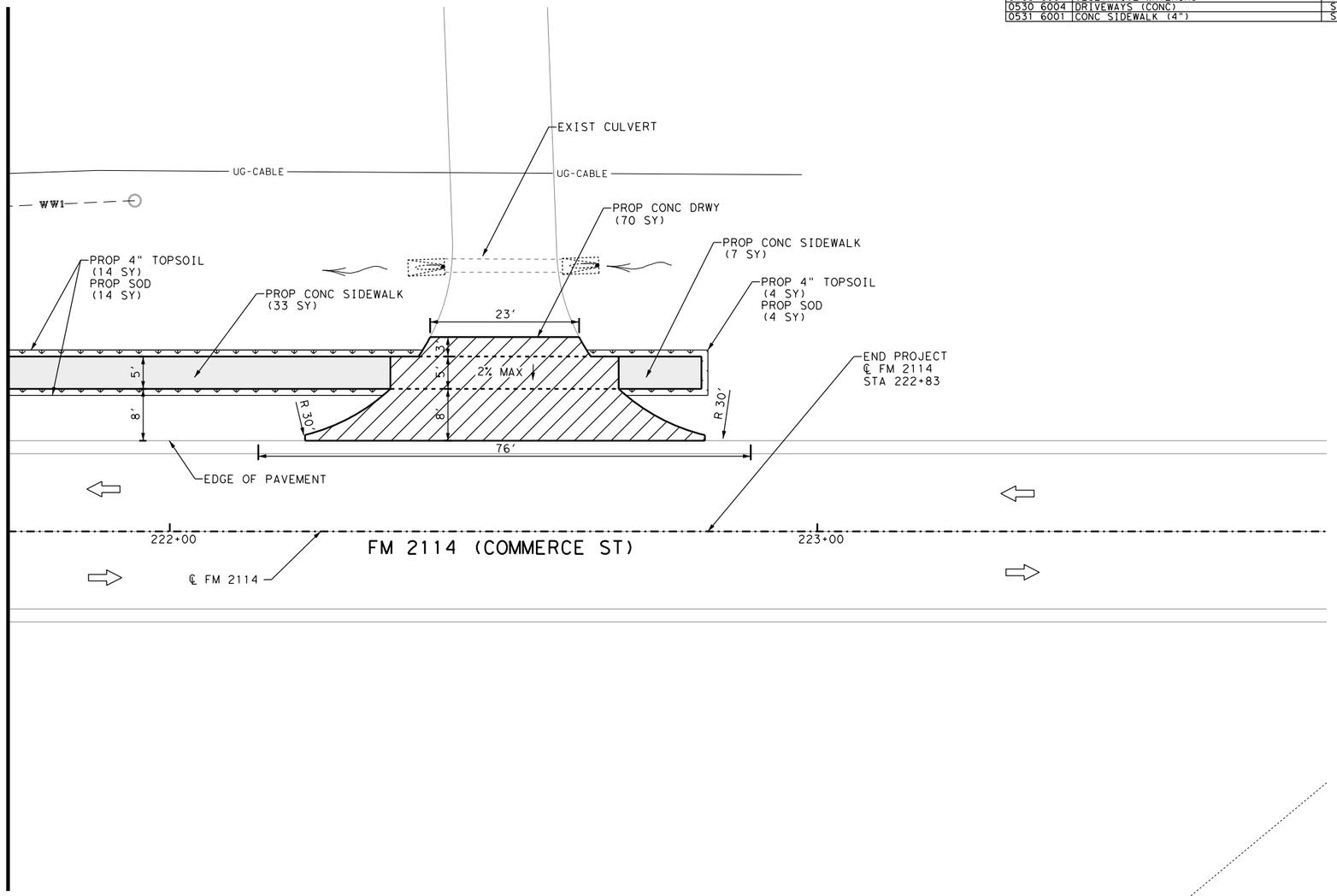
FM 2114
SIDEWALK PLAN

STA 219+75 TO STA 221+75
PENELOPE, TEXAS

SHEET 11 OF 12

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS: PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: MFM	TEXAS	WAC	MCLENNAN, ETC	89
CHECK: FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOP SOIL (4")	SY	18
0162 6002	BLOCK SODDING	SY	18
0168 6001	VEGETATIVE WATERING	MG	0.4
0530 6004	DRIVEWAYS (CONC)	SY	70
0531 6001	CONC SIDEWALK (4")	SY	35



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LEGEND

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- PROP CONC DRWY
- PROP CONC RIPRAP
- PROP RETAINING WALL
- PROP CONC SIDEWALK
- EXISTING SIDEWALK/DRWY TO REMAIN
- PROP DETECTABLE WARNING SURFACE
- R RAMP
- L LANDING PAD
- F FLARE
- SL LONG. SLOPE MAY NOT EXCEED 5% OR ADJACENT ROAD SLOPE
- T TRANSITION
- LS LEVEL SIDEWALK (2% MAX)
- TRAFFIC FLOW
- SIGN
- STORM DRAIN MANHOLE
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- FIRE HYDRANT
- GUY WIRE
- MAIL BOX
- TREE
- FENCE
- WATER VALVE
- GAS MARKER/METER
- IRRIGATION CONTROL VALVE
- ELECTRICAL PULL BOX
- --- WW1 --- WASTEWATER LINE
- —FOL-1— FIBER OPTIC LINE (AT&T)
- —FOL-2— FIBER OPTIC LINE
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Texas Department of Transportation

FM 2114
SIDEWALK PLAN

STA 221+75 TO END OF PROJECT
PENELOPE, TEXAS

SHEET 12 OF 12

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2,ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	90
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

P:\Jobs\2020006-Pedestrian TxDOT Waco\CADD\IV ROADWAY\Penelope\07_PENELOPE_FM2114_120f12.dgn
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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
SHEET 1 OF 28												
34	1	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
	2	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 2 OF 28												
35	3	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
	4	W11-2 W16-7PR		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 14 OF 28												
37	5	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		

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:

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

STATE OF TEXAS
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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

SHEET 1 OF 12

FILE: sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	WAC	MCLENNAN, ETC		91

18

9/26/2021
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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
SHEET 14 OF 28 (CONT)												
47	6	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 15 OF 28												
48	7	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
	8	W11-2 W16-7PR		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 16 OF 28												
49	9	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
	10	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		

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"

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M.F. Muwaquet
09/26/21

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

SHEET 2 OF 12

FILE: sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	WAC	MCLENNAN, ETC		92

18

9/26/2021
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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
SHEET 16 OF 28 (CONT)												
49	11	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
	12	W11-2 W16-7PR		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 17 OF 28												
50	13	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
	14	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
	15	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		

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"

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

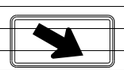
SHEET 3 OF 12

FILE: sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
4-16 8-16	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC		93

18

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
SHEET 17 OF 28 (CONT)												
50	16	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-7PR		24X12								
SHEET 19 OF 28												
	17	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-9P		24X12								
	18	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-9P		24X12								
52												
	19	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-7PL		24X12								
	12	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-7PR		24X12								

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"

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

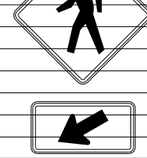
SOSS

SHEET 4 OF 12

FILE:	sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0209	01	073, ETC	SL 2, ETC
4-16		DIST	COUNTY		SHEET NO.
8-16		WAC	MCLENNAN, ETC		94

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
SHEET 22 OF 28												
55	21	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
	22	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
	23	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
	24	W11-2 W16-7PR		36X36 24X12	✓		10BWG	1	SA	T		
56	SHEET 23 OF 28											
	25	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		

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"

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

SHEET 5 OF 12

FILE: sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
4-16 8-16	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC		95

TB

9/26/2021
3:47:54 PM

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
SHEET 23 OF 28 (CONT)												
56	26	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-9P	AHEAD	24X12								
SHEET 24 OF 28												
57	27	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-7PL		24X12								
	28	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-7PR		24X12								
SHEET 26 OF 28												
59	29	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-9P	AHEAD	24X12								
	30	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-9P	AHEAD	24X12								

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

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SUMMARY OF SMALL SIGNS

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SHEET 6 OF 12

FILE: sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0209	01	073, ETC	SL 2, ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	WAC	MCLENNAN, ETC		96

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9/26/2021
3:47:54 PM

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
SHEET 27 OF 28												
60	31	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
	32	W11-2 W16-7PR		36X36 24X12	✓		10BWG	1	SA	T		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
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SUMMARY OF SMALL SIGNS

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SHEET 7 OF 12

FILE:	sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0209	01	073, ETC	SL 2, ETC
4-16		DIST	COUNTY		SHEET NO.
8-16		WAC	MCLENNAN, ETC		97

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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
SHEET 2 OF 10												
63	33	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
	34	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 3 OF 10												
64	35	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
	36	W11-2 W16-7PR		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 4 OF 10												
65	37	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
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SUMMARY OF SMALL SIGNS

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SHEET 8 OF 12

FILE: sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0209	01	073, ETC	SL 2, ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	WAC	MCLENNAN, ETC		98

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9/26/2021
3:47:55 PM

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
SHEET 4 OF 10 (CONT)												
65	38	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 5 OF 10												
66	39	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
	40	W11-2 W16-7PR		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 6 OF 10												
67	41	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
	42	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
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SUMMARY OF SMALL SIGNS

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FILE: sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0209	01	073, ETC	SL 2, ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	WAC	MCLENNAN, ETC		99

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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"	MOUNTING DESIGNATION 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
SHEET 7 OF 10												
68	43	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-7PL		24X12								
	44	W11-2		36X36	✓		10BWG	1	SA	T		
		W16-7PR		24X12								

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
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SUMMARY OF SMALL SIGNS

SOSS

SHEET 10 OF 12

FILE:	sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0209	01	073, ETC	SL 2, ETC
4-16		DIST	COUNTY		SHEET NO.
8-16		WAC	MCLENNAN, ETC		100

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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
SHEET 2 OF 7												
73	45	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 3 OF 7												
74	46	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
	47	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
	48	W11-2 W16-9P		36X36 24X12	✓		10BWG	1	SA	T		

ALUMINUM SIGN BLANKS THICKNESS	
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FILE:

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FILE: sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	WAC	MCLENNAN, ETC		101

TB

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
SHEET 3 OF 12												
81	49	S1-1 SW16-7P		36X36 24X12	✓		10BWG	1	SA	T		
81	49	S1-1 SW16-7P		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 4 OF 12												
	51	W11-2 W16-9P	AHEAD	36X36 24X12	✓		10BWG	1	SA	T		
82	52	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
82	53	W11-2 W16-7PL		36X36 24X12	✓		10BWG	1	SA	T		
SHEET 5 OF 12												
83	54	W11-2 W16-9P	AHEAD	36X36 24X12	✓		10BWG	1	SA	T		

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SUMMARY OF SMALL SIGNS

SOSS

SHEET 12 OF 12

FILE:	sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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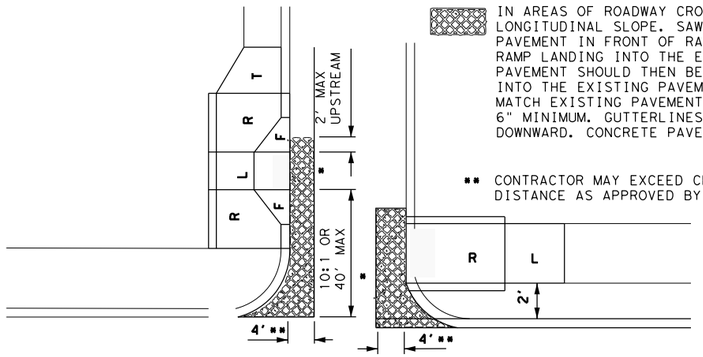
REVISIONS		0209	01	073, ETC	SL 2, ETC
4-16		DIST	COUNTY		SHEET NO.
8-16		WAC	MCLENNAN, ETC		102

TB

CONCRETE ROADWAY OR CURB AND GUTTER SECTION

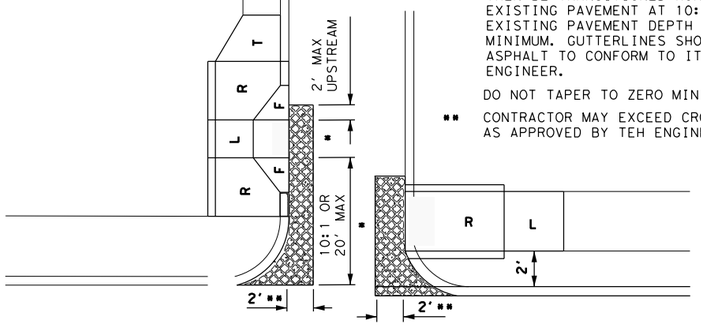


* SAW CUT

IN AREAS OF ROADWAY CROSS SLOPES EXCEEDING 48:1 LONGITUDINAL SLOPE. SAW CUT AND EXCAVATE 4' 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 6" MINIMUM. GUTTERLINES SHOULD NOT BE ADJUSTED DOWNWARD. CONCRETE PAVEMENT TO CONFORM TO ITEM 360.

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

ASPHALT/SEALCOAT ROADWAY



* SAW CUT

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.

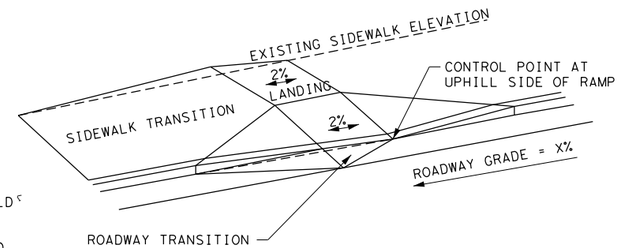
DO NOT TAPER TO ZERO MINIMUM 1 1/2" DEPTH @ TIE IN.

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

SEQUENCE OF WORK NARRATIVE

1. ESTABLISH AND MAINTAIN TRAFFIC CONTROL AND SW3P FEATURES PER THE VARIOUS STANDARDS INCLUDED IN THIS PLAN SET OR AS DIRECTED.
2. REMOVE EXISTING CONCRETE, ASPHALT, FOUNDATIONS, OR OTHER FEATURES WHERE INDICATED IN THE PLANS WITHIN THE AREA OF PROPOSED WORK.
3. EXCAVATE OR BACKFILL AS NECESSARY TO ACHIEVE PROPOSED GRADES, PLACE BEDDING MATERIALS.
4. FORM PROPOSED CONCRETE FEATURES.
5. PLACE CONCRETE OR ASPHALT, REMOVE AND INSTALL PAVEENT MARKINGS, AND RELOCATE SIGNS WHERE INDICATED.
6. REMOVE FORMWORK AND BACKFILL DISTURBED AREAS FOR A SMOOTH FINISHED GRADE. GRADE TO DRAIN AS NECESSARY.
7. PLACE AND IRRIGATE BLOCK SODDING WHERE INDICATED AND AS SPECIFIED.
8. REMOVE ANY DEBRIS, TRAFFIC CONTROL, AND SW3P FEATURES AT THE COMPLETION OF CONSTRUCTION.

ROADWAY TRANSITION



CURB ELEVATION

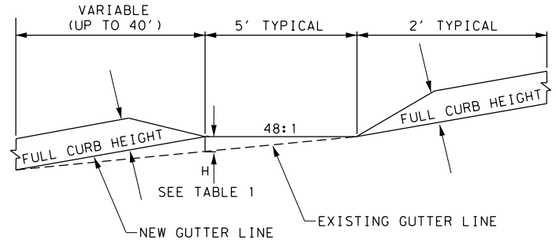


TABLE 1		
DIFFERENTIAL BETWEEN RAMP AND ROADWAY LOGITUDINAL SLOPE	H	
1%	0.04'	0.50"
2%	0.08'	1.00"
3%	0.12'	1.50"
4%	0.16'	2.00"
5%	0.20'	2.40"
6%	0.24'	2.90"

LEGEND

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)

T = TRANSITION (PAID FOR UNDER CONC SIDEWALKS)

X' = LENGTH MEASURED FROM PI POINT

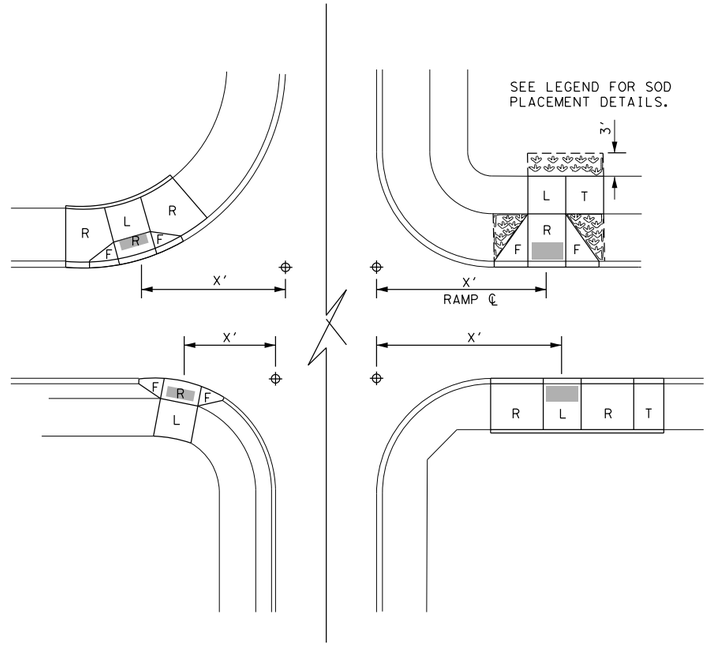
⊕ = PI POINT MEASURED FROM TANGENTIAL CURBLINE INTERSECION

(NSPI) = ITEM IS INCIDENTAL TO CURB RAMP/SIDEWALK CONSTRUTION. (NO SEPARATE PAY ITEM)

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 RAMPS (R)NOT DIRECTLY IN CONTACT WITH TEH CURB RAMPA ARE PAID FOR UNDER ITEM 531 "SIDEWALK".

HORIZONTAL RAMP CONTROL



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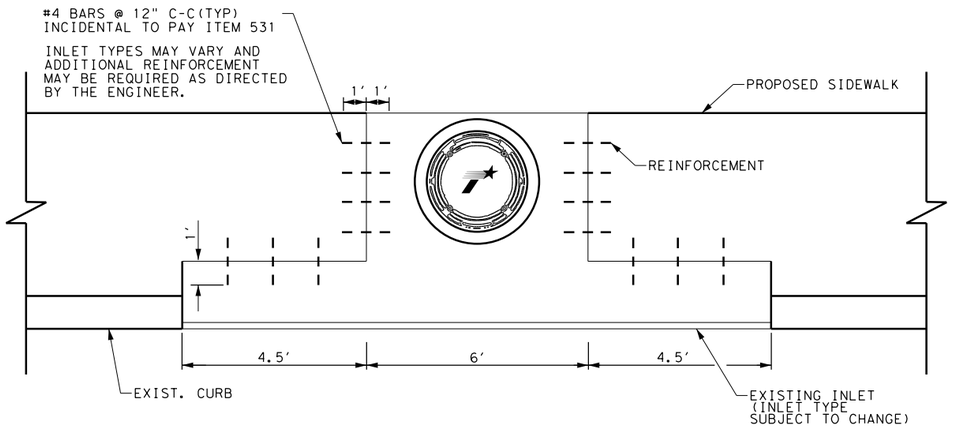
PED FACILITY IMPROVEMENT

MISCELLANEOUS DETAILS

SHEET 1 OF 5

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	103
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				

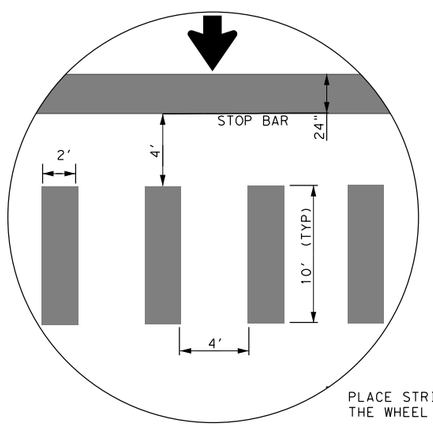


INLET DOWELING DETAIL

N.T.S.

CURB RAMPS

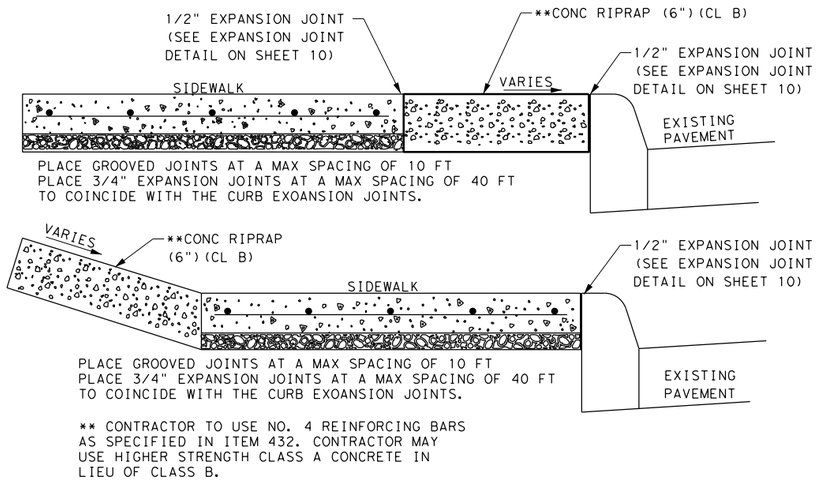
ALL CURB RAMPS ARE TO BE 6" IN THICKNESS
UNLESS OTHERWISE SHOWN



N.T.S.

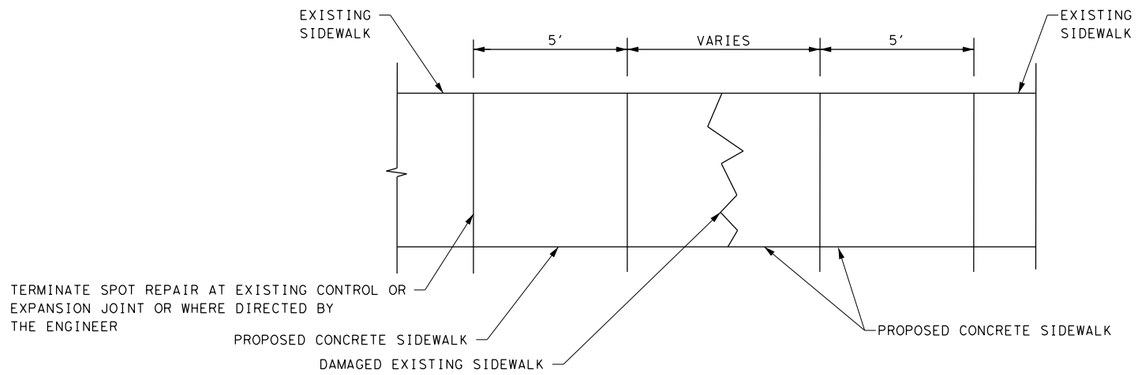
TYPICAL CONTINENTAL CROSSWALK DETAIL

RIPRAP DETAIL



** 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.

SPOT REPAIR DETAIL



NOTE: SPOT REPAIR LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.
PAYMENT FOR SPOT REPAIR IS INCLUDED UNDER ITEM 531. INDEFINITE QUANTITIES.

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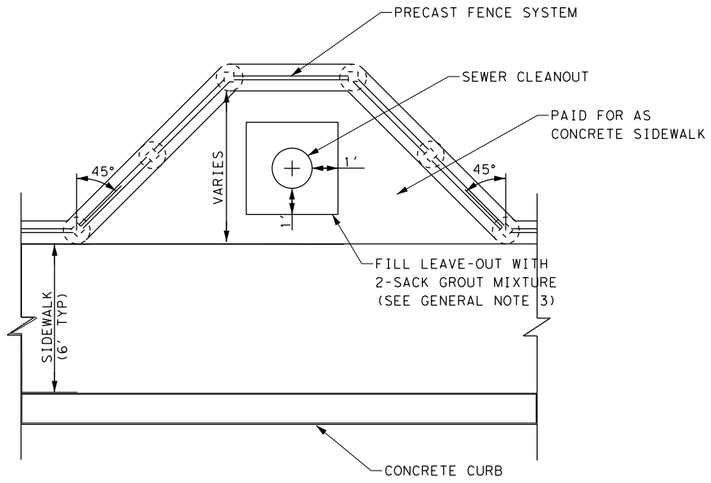
PED FACILITY IMPROVEMENT

MISCELLANEOUS DETAILS

SHEET 2 OF 5

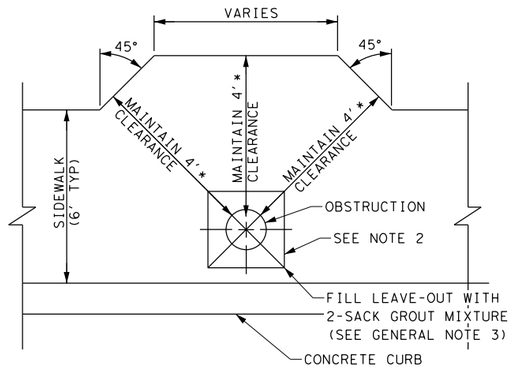
DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	104
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

P:\Jobs\2020006-Pedestrian TxDOT Waco\CADD\1V ROADWAY\104_Miscellaneous Details 2 OF 5.dgn
3:14:10 PM
9/26/2021



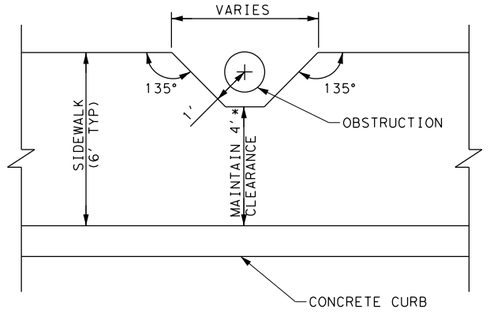
SEWER CLEANOUT BLOCKOUT

N.T.S.



OBSTRUCTION IN SIDEWALK

* UNLESS OTHERWISE SPECIFIED



OBSTRUCTION IN SIDEWALK

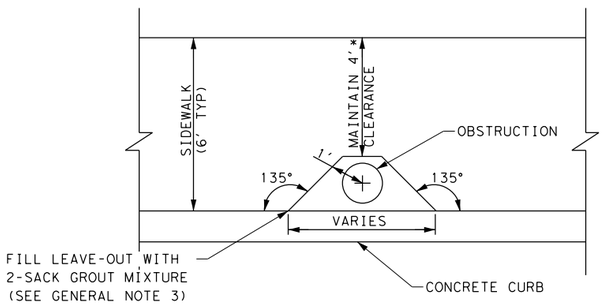
* UNLESS OTHERWISE SPECIFIED

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 OBSTRUCTION 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.



OBSTRUCTION IN SIDEWALK

* UNLESS OTHERWISE SPECIFIED

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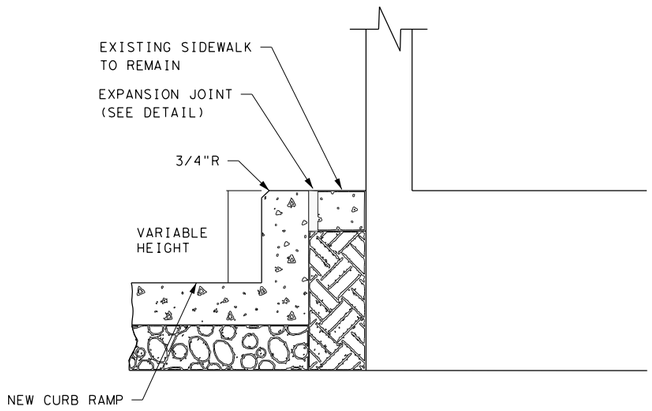
PED FACILITY IMPROVEMENT

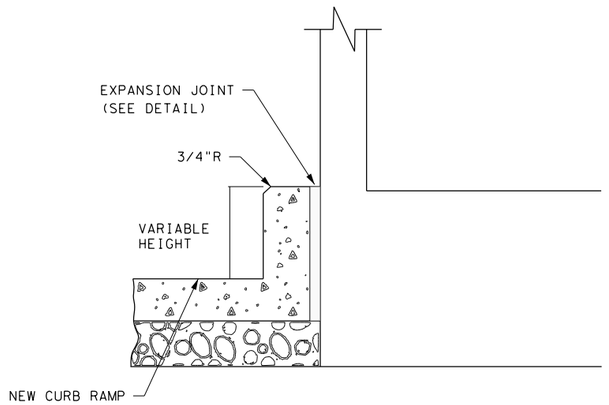
MISCELLANEOUS DETAILS

SHEET 3 OF 5

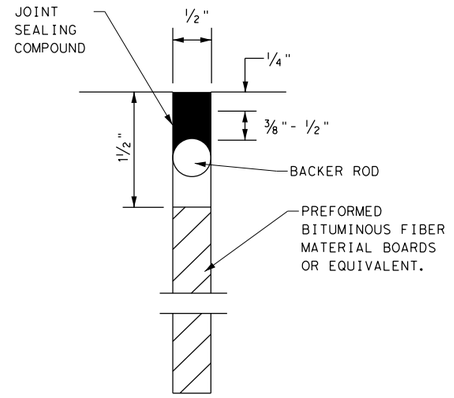
DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	105
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				



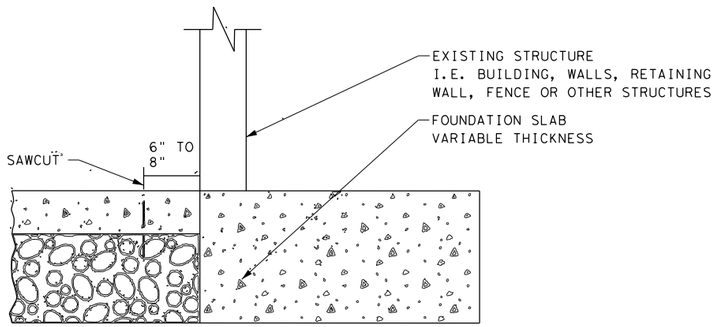
ADJACENT SIDEWALK
TO REMAIN DETAIL



ADJACENT SIDEWALK
REMOVED DETAIL



EXPANSION
JOINT DETAIL



SAWCUT DETAIL

PAVING OPTION @ BUILDING FACE

NOT TO SCALE

GENERAL PROTECTION NOTES FOR BUILDINGS AND HISTORIC STRUCTURES:

1. SAW CUT EXISTING SIDEWALK 6 TO 8 INCHES AWAY FROM PROTECTED BUILDING/STRUCTURE TO MINIMIZE POTENTIAL DAMAGE PRIOR TO DEMOLITION OF WALK.

2. CONTRACTOR IS RESPONSIBLE FOR PREVENTING DAMAGE TO ALL BUILDINGS AND STRUCTURES DURING THE ENTIRE CONSTRUCTION PROJECT, IF DIRECTED BY ENGINEER TO HAND REMOVE EXISTING PAVING ADJACENT TO HISTORIC STRUCTURES. PROTECT FOUNDATION. MATERIALS, ELEVATION AND ENTRYWAYS. DO NOT REMOVE EXISTING MATERIALS IF FACADE(BRICK/STONE.ETC.)UTILIZES THE MATERIALS TO BE REMOVED AS A FOOTING. FOUNDATION OR SUPPORT. IF THIS CONDITION IS OBSERVED. IMMEDIATELY CONTACT ENGINEER AND DO NOT EXCAVATE FURTHER. SEPARATE PAYMENT WILL NOT BE MADE FOR HAND REMOVAL

3. REPAIR OR REPLACE IN KIND, AT NO EXPENSE TO THE DEPARTMENT, ANY DAMAGE TO HISTORIC OR NON-HISTORIC MATERIAL THAT RESULTS FROM AN ACT OF OMISSION ON THE PART OF OR ON BEHALF OF THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR LOCATING A REPLACEMENT SOURCE FOR HISTORIC AND NON-HISTORIC MAERIALS DAMAGED IN THE PROCESS OF CONSTRUCTION. INFORM TXDOT ENVIRONMENTAL AFFAIRS DIVISION (ENV) OF PROPOSED REPAIRS AND/OR DAMAGED AREAS IN ORDER TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION. MATERIAL AND SOURCE SHALL BE APPROVED BY TXDOT ENV PRIOR TO REPLACEMENT.

4. PROTECT BUILDINGS AND STRUCTURE FROM CONCRETE SPLASH UTILIZING A MATERIAL APPROVED BY THE ENGINEER. ANY CONCRETE SPLASH AS A RESULT OF CONSTRUCTION ACTIVITIES MUST BE REMOVED FROM THE BUILDING OR STRUCTURE AT CONTRACTORSS EXPENSE. NO PAYMENT WILL BE MADE FOR BUILDING PROTECTION.

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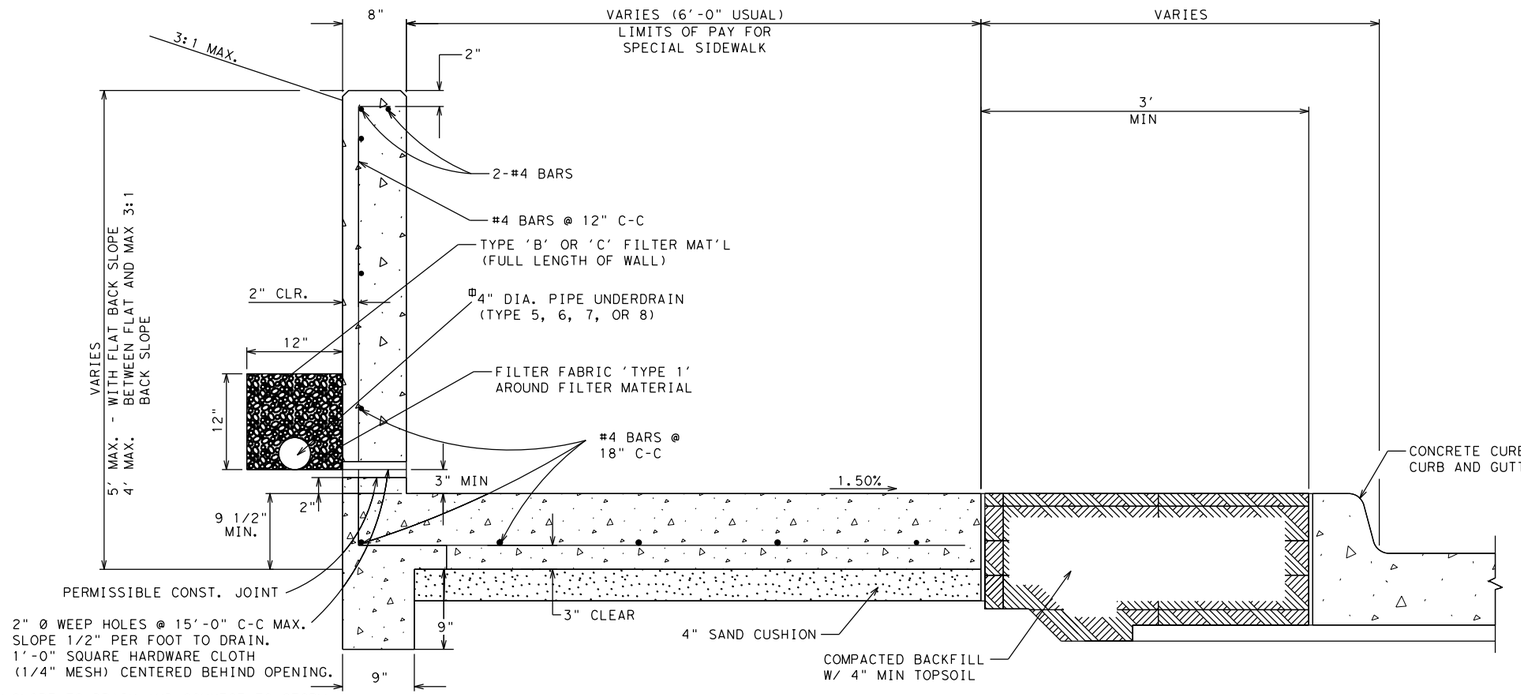
PED FACILITY IMPROVEMENT

MISCELLANEOUS DETAILS

SHEET 4 OF 5

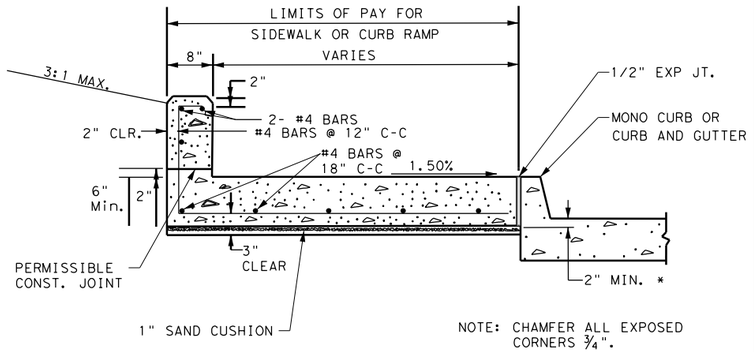
DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	106
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC	
CHECK				
FS				



⏀ SLOPE TO DRAIN AND CONNECT TO STORM DRAIN. IF, IN THE OPINION OF THE ENGINEER, USE OF UNDERDRAIN IS IMPRACTICAL, WEEP HOLES MAY BE USED.

SIDEWALK REMOTE FROM CURB

TYPE B SIDEWALK OR RAMP W/ RETAINING WALL



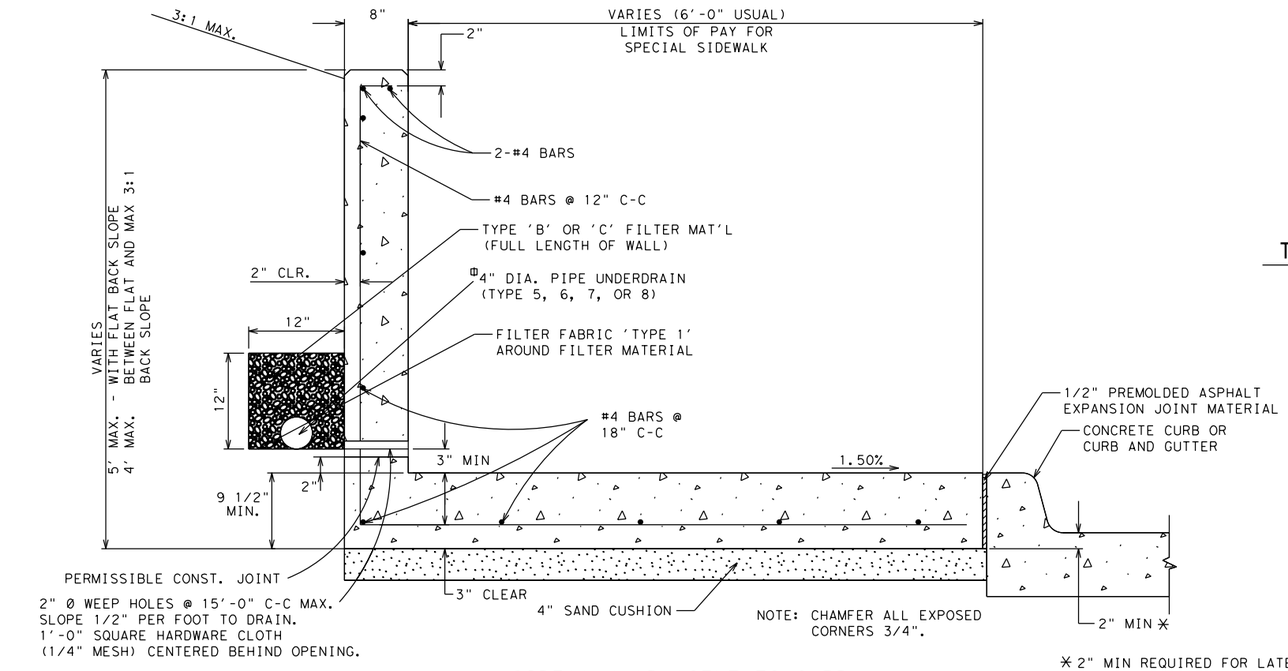
NOTE: CHAMFER ALL EXPOSED CORNERS ¾".

* 2" MIN. REQUIRED FOR LATERAL SUPPORT.

TYPE B SIDEWALK OR RAMP W/ SIDE CURB

N.T.S.

SIDE CURB SUBSIDIARY TO ITEM 531, SIDEWALK OR CURB RAMP

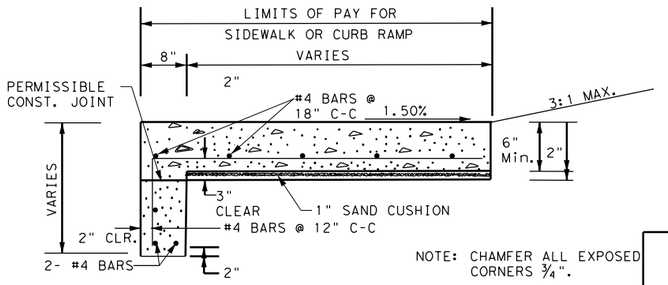


⏀ SLOPE TO DRAIN AND CONNECT TO STORM DRAIN. IF, IN THE OPINION OF THE ENGINEER, USE OF UNDERDRAIN IS IMPRACTICAL, WEEP HOLES MAY BE USED.

✳ 2" MIN REQUIRED FOR LATERAL SUPPORT.

SIDEWALK ADJACENT TO CURB

TYPE B SIDEWALK OR RAMP W/ RETAINING WALL



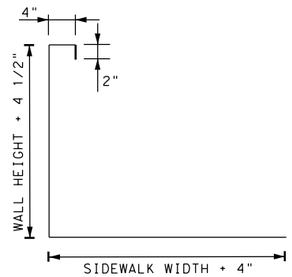
NOTE: CHAMFER ALL EXPOSED CORNERS ¾".

* 2" MIN. REQUIRED FOR LATERAL SUPPORT.

TYPE B SIDEWALK OR RAMP W/ SIDE CURB (INVERTED)

N.T.S.

SIDE CURB SUBSIDIARY TO ITEM 531, SIDEWALK OR CURB RAMP



REINFORCING STEEL DETAIL

N.T.S.

NOTE: CHAMFER ALL EXPOSED CORNERS 3/4".

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PED FACILITY IMPROVEMENT

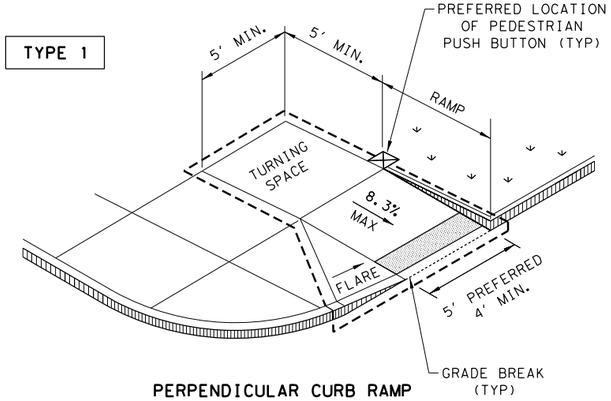
MISCELLANEOUS DETAILS

SHEET 5 OF 5

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS PS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MFM	TEXAS	WAC	MCLENNAN, ETC	107
CHECK FS	CONTROL	SECTION	JOB	
	0209	01	073, ETC	

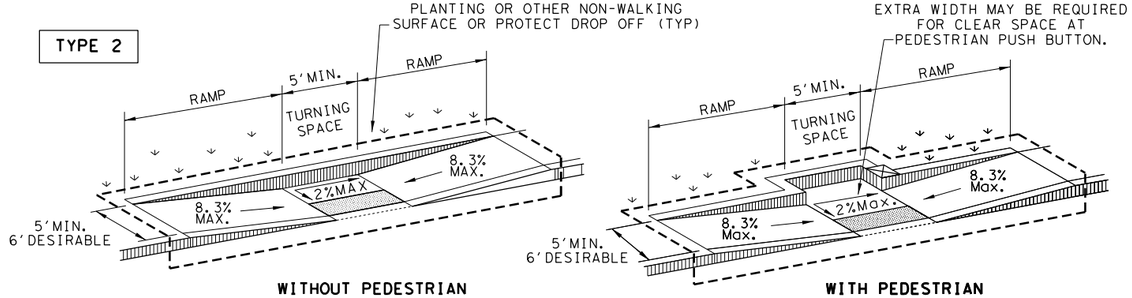
DATE:
FILE:

TYPE 1



PERPENDICULAR CURB RAMP

TYPE 2

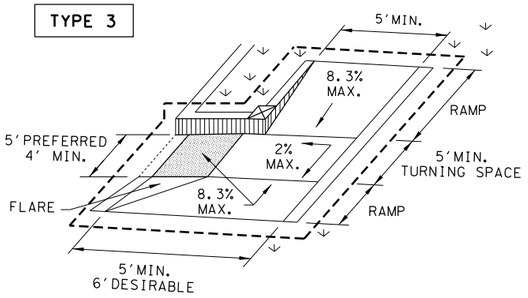


WITHOUT PEDESTRIAN PUSH BUTTON

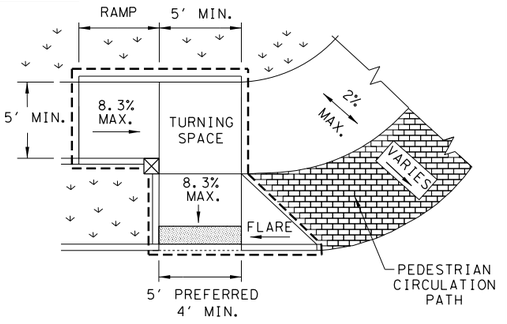
WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3

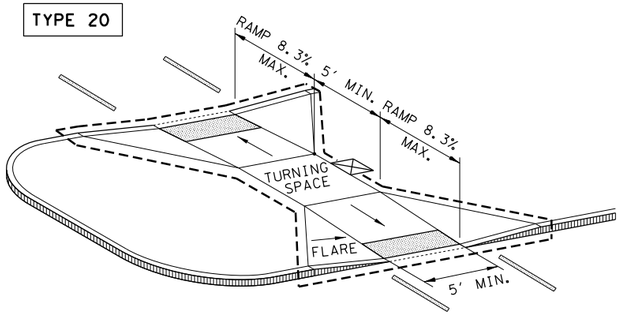


TYPE 6



COMBINATION CURB RAMPS

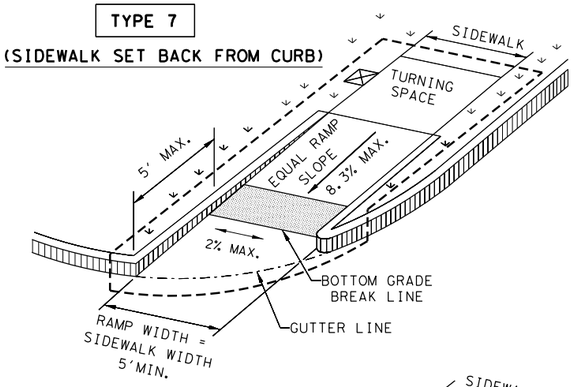
TYPE 20



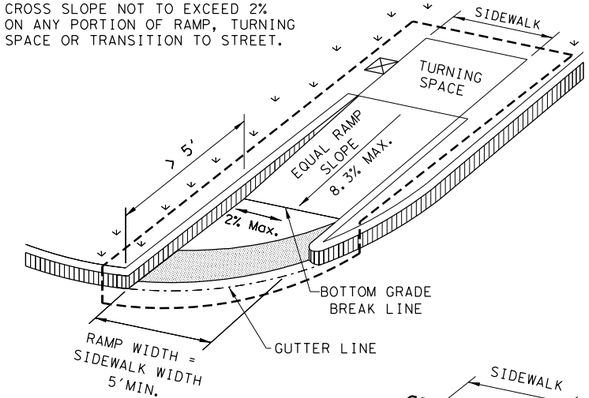
CURB RAMPS AT MEDIAN ISLANDS

TYPE 7

(SIDEWALK SET BACK FROM CURB)

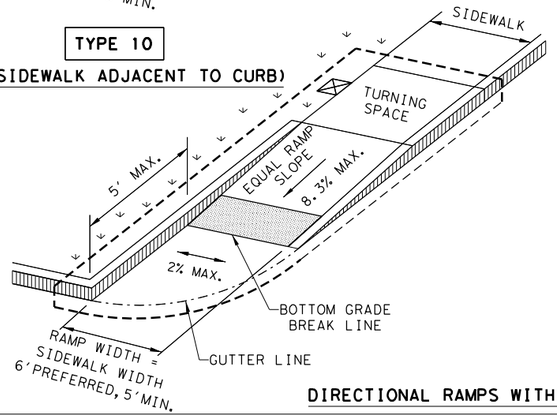


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

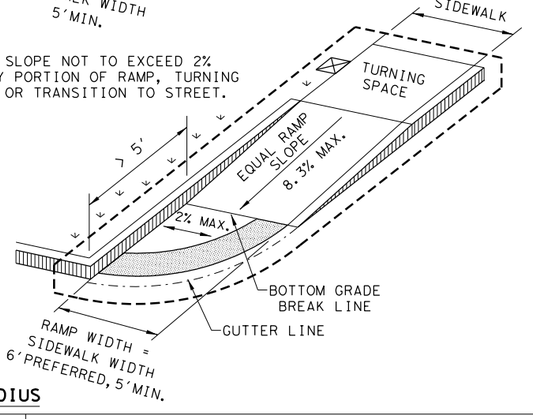


TYPE 10

(SIDEWALK ADJACENT TO CURB)

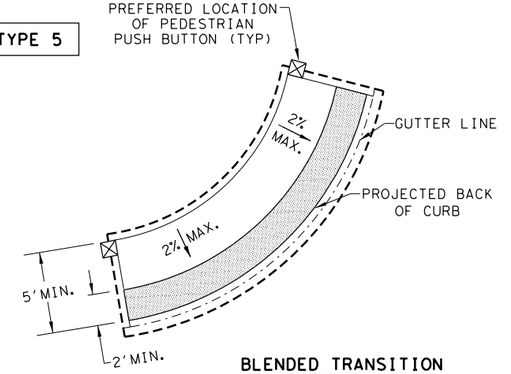


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



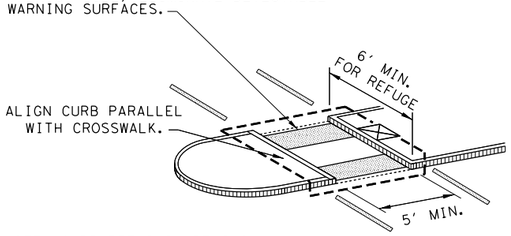
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 5



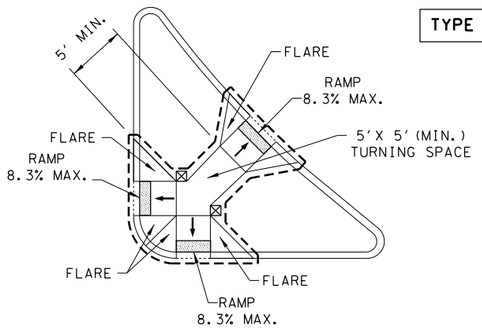
BLENDED TRANSITION
(FLUSH LANDING)

TYPE 21

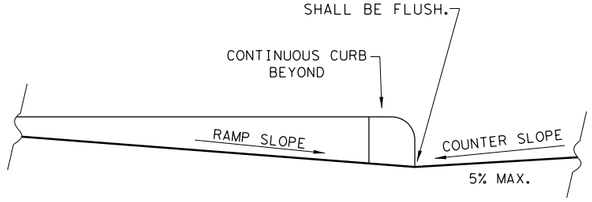


NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS



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	0209	01	073, ETC	SL 2, ETC
REVISED 08,2005	DIST	COUNTY		SHEET NO.
REVISED 06,2012	WAC	MCLENNAN, ETC		108
REVISED 01,2018				

DATE:
FILE:

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

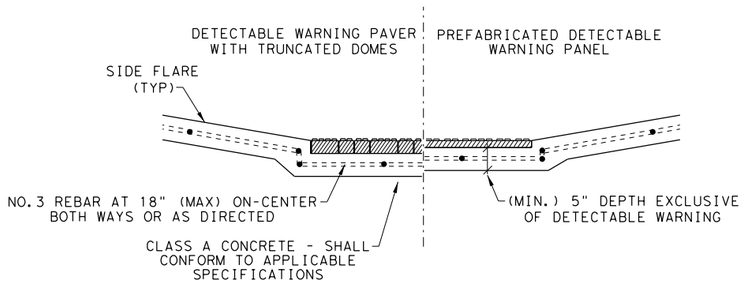
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material 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.

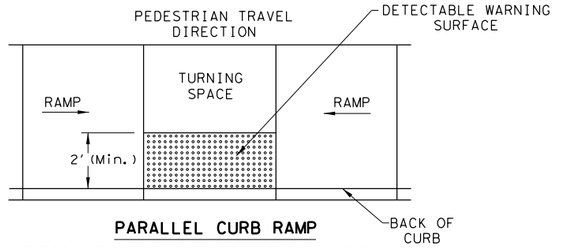
SIDEWALKS

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.



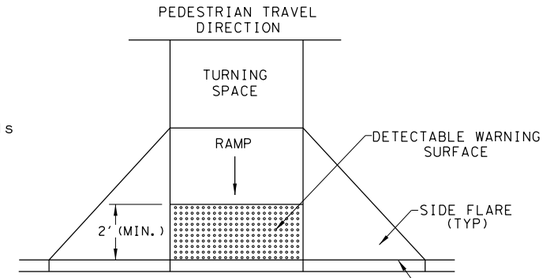
SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS



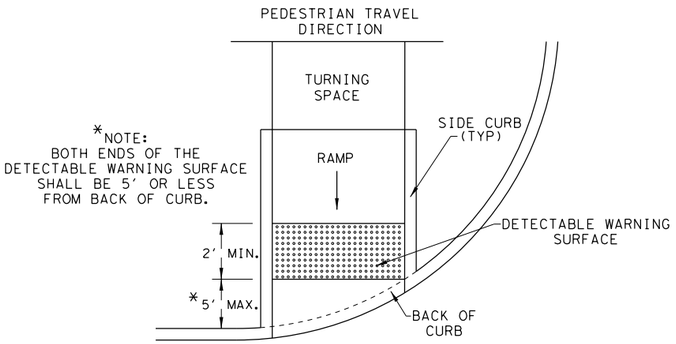
PARALLEL CURB RAMP

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

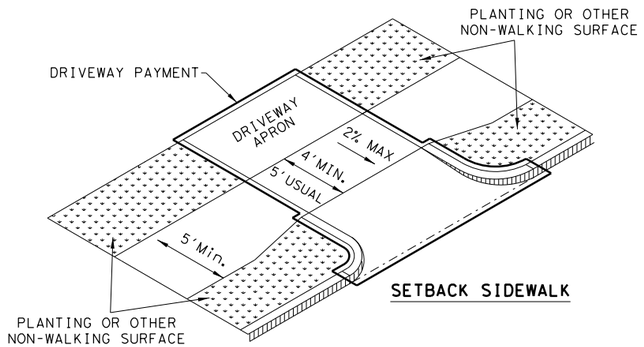
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

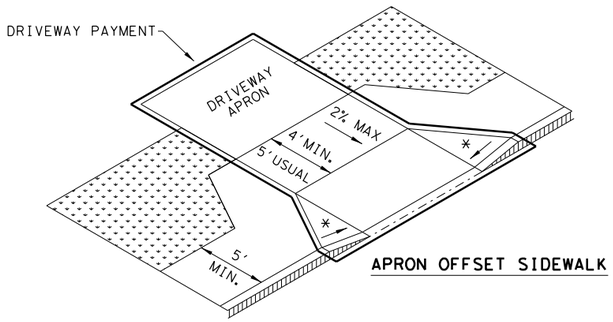
FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG	
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY	
REVISIONS REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	0209	01	073, ETC		SL 2, ETC	
	DIST	COUNTY			SHEET NO.	
	WAC	MCLENNAN, ETC			109	

DATE:
FILE:

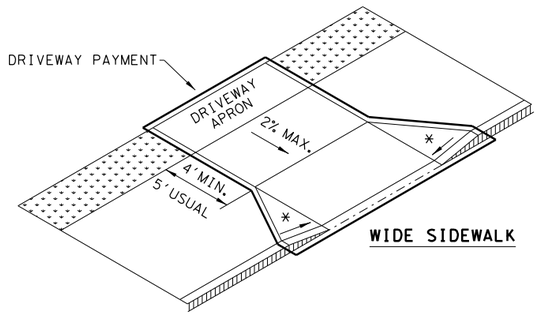
SIDEWALK TREATMENT AT DRIVEWAYS



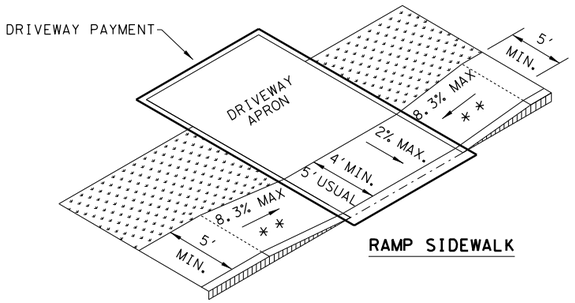
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

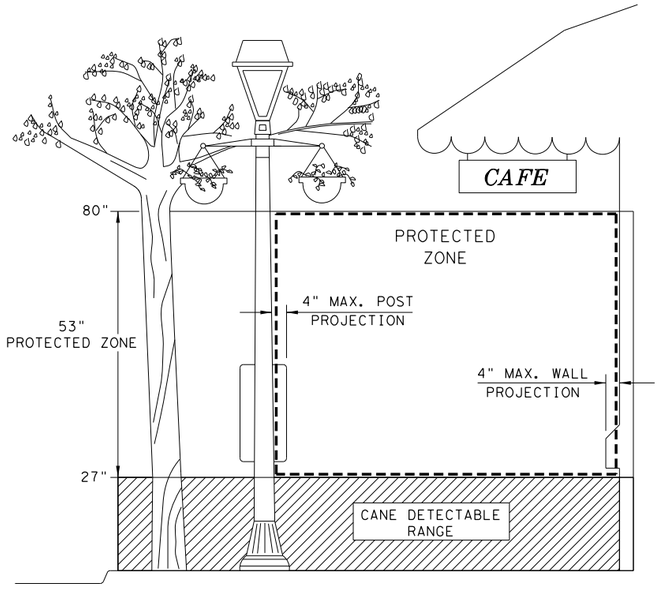


RAMP SIDEWALK

NOTES:

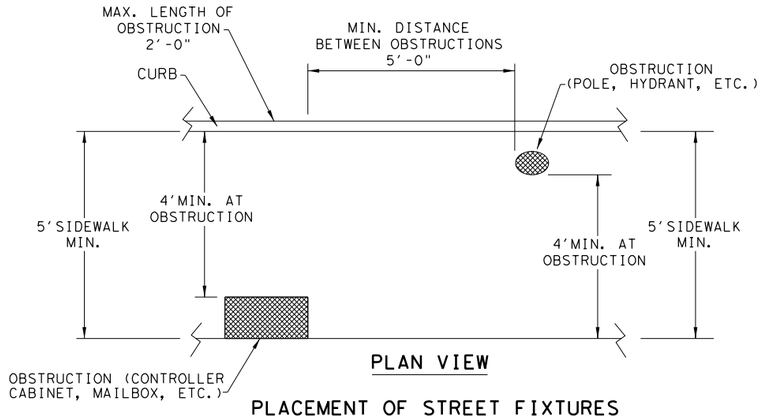
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * 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

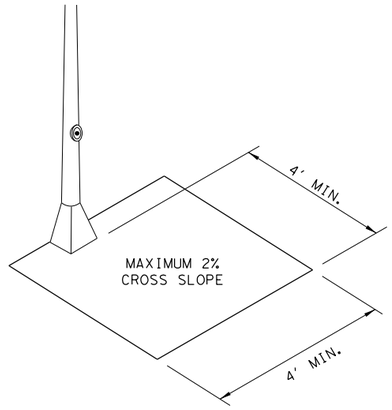
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



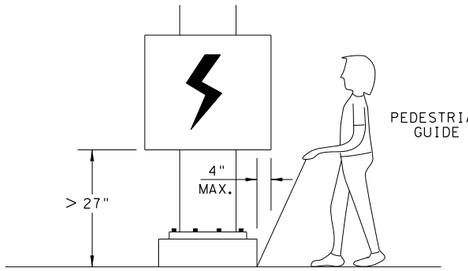
PLAN VIEW

PLACEMENT OF STREET FIXTURES

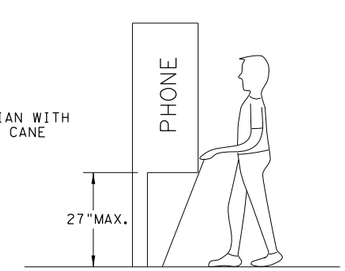
NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



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

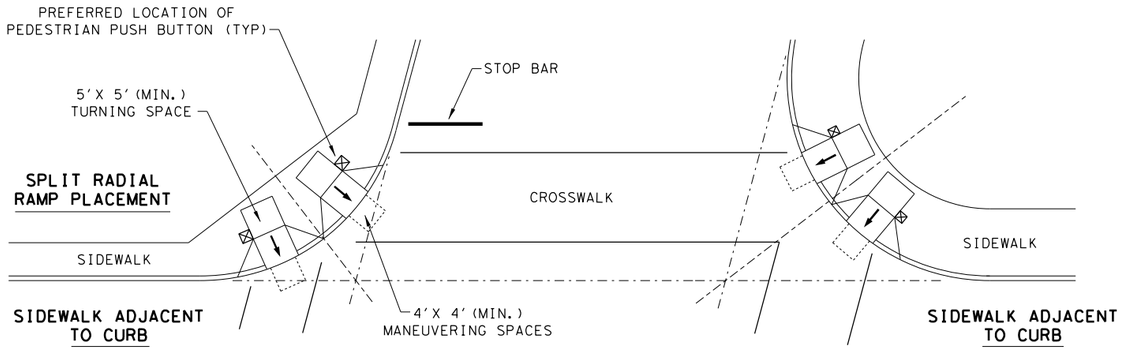
PED-18

FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG	
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY	
REVISIONS	0209	01	073, ETC		SL 2, ETC	
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY			SHEET NO.	
	WAC	MCLENNAN, ETC			110	

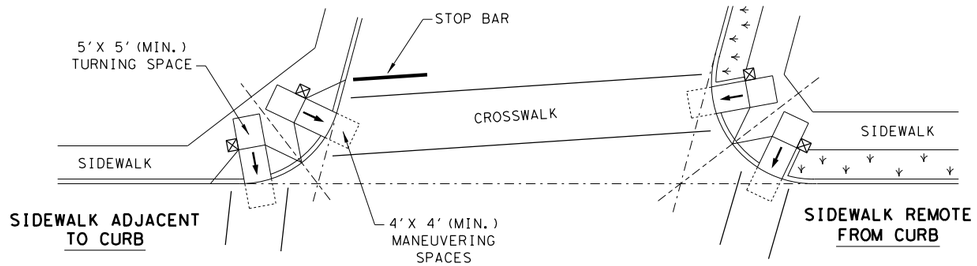
DATE:
FILE:

TYPICAL CROSSING LAYOUTS

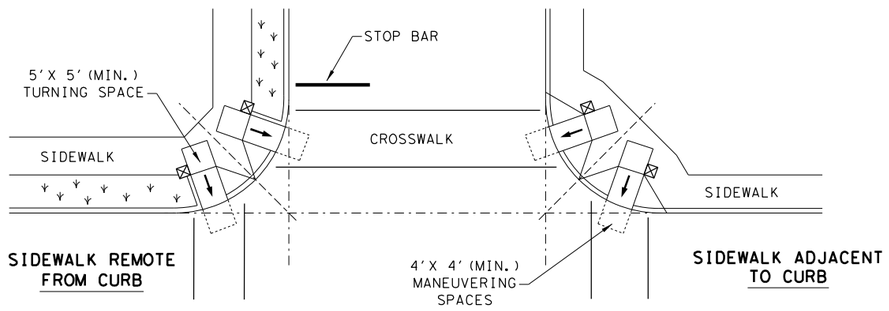
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



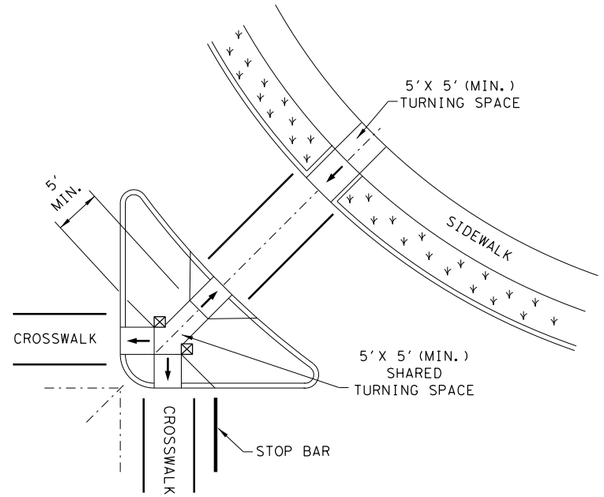
SKEWED INTERSECTION WITH "LARGE" RADIUS



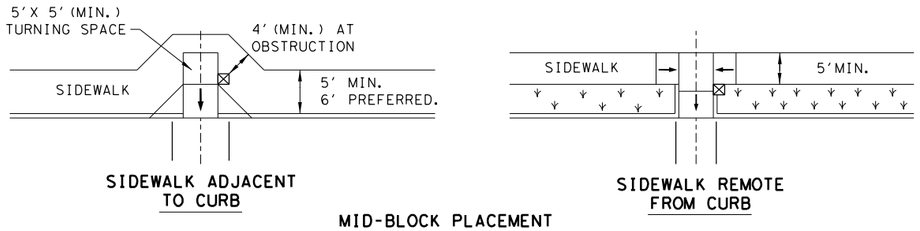
SKEWED INTERSECTION WITH "SMALL" RADIUS



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.

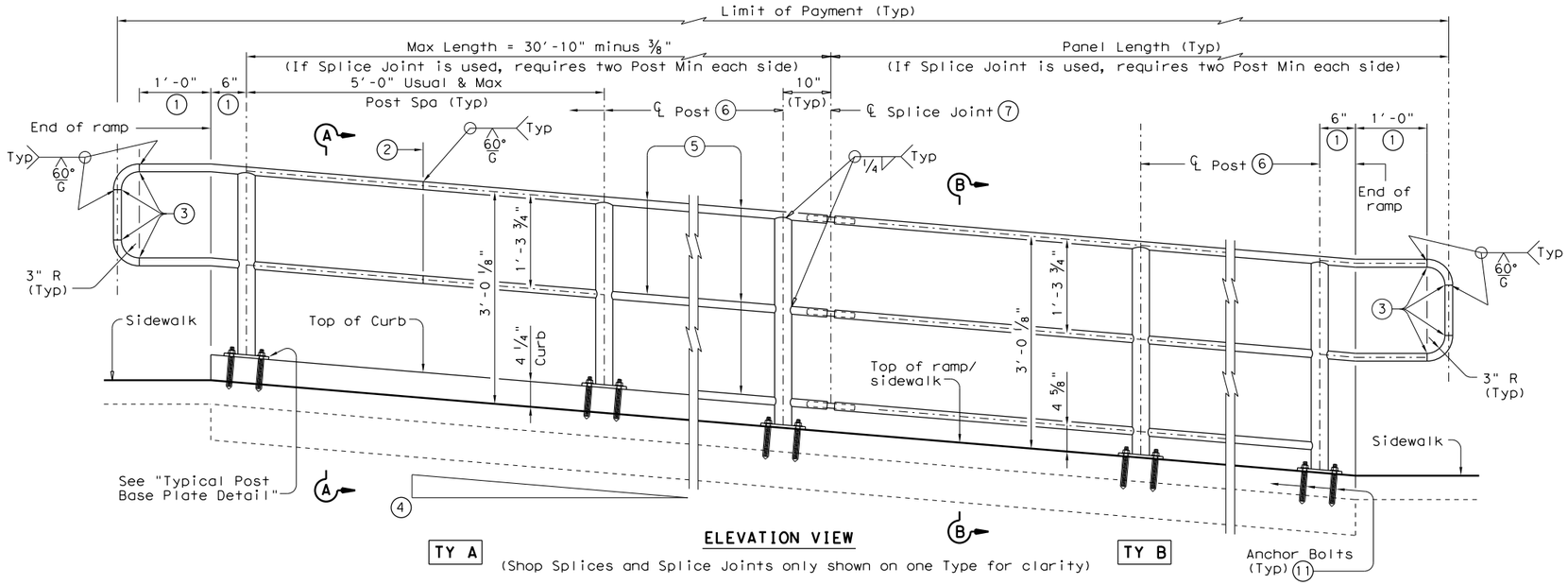
Texas Department of Transportation — Design Division Standard

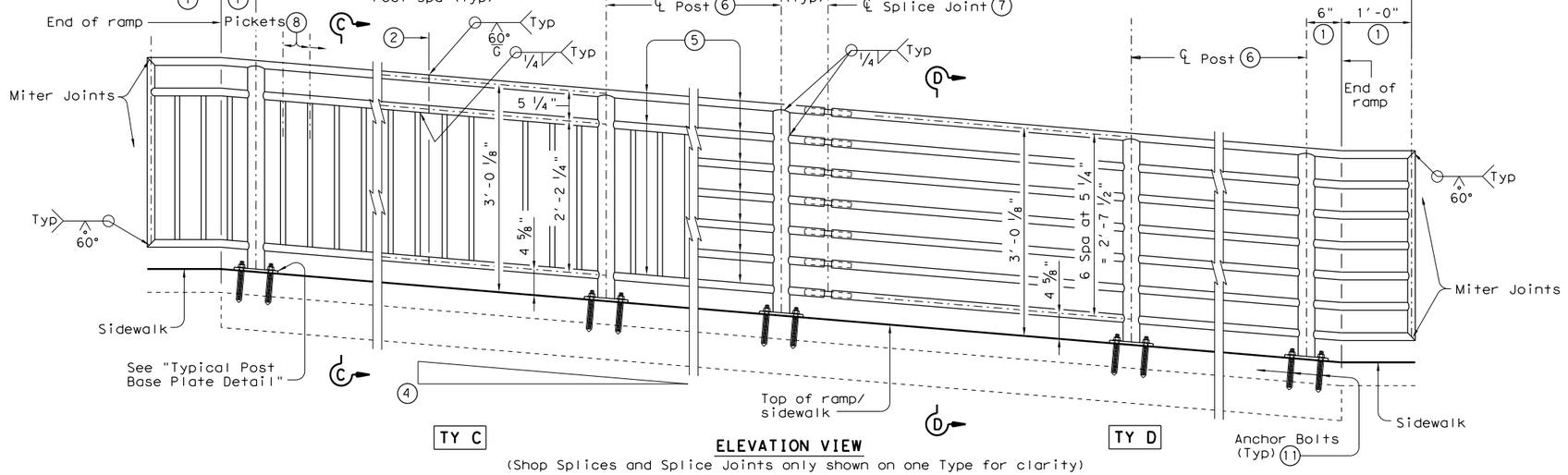
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

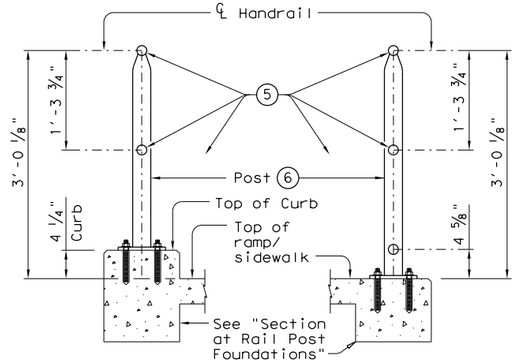
FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS	0209	01	073, ETC		SL 2, ETC
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST		COUNTY		SHEET NO.
	WAC		MCLENNAN, ETC		111

DATE:
FILE:



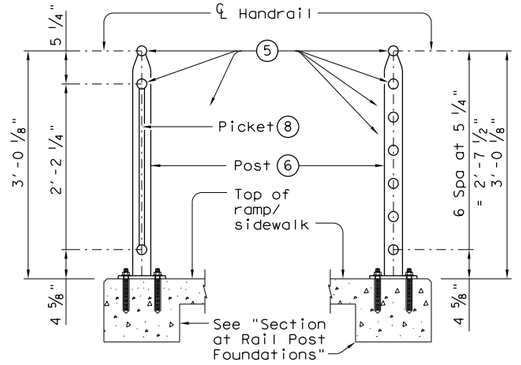


RECOMMENDED USAGE (9)(10)	
Dropoff Height/ Condition	Recommended Rail Options
< 30" dropoff	TY A, TY B, TY C, or TY D
≥ 30" dropoff, or along Bike Path	TY E or TY F



SECTION A-A
(Showing Handrail **TY A**)

SECTION B-B
(Showing Handrail **TY B**)



SECTION C-C
(Showing Handrail **TY C**)

SECTION D-D
(Showing Handrail **TY D**)

(1) Parallel to ground.

(2) One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

(3) Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

(4) See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.

(5) 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

(6) 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.

(7) See "Handrail Fabrication Details" for Splice Joints.

(8) ℄ ⅝" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.

(9) When needed for accessibility (grade > 5 percent) or as needed for pedestrian safety.

(10) Not to be used on bridges.

(11) See "General Notes" for anchor bolt information.

SHEET 1 OF 3

Texas Department of Transportation

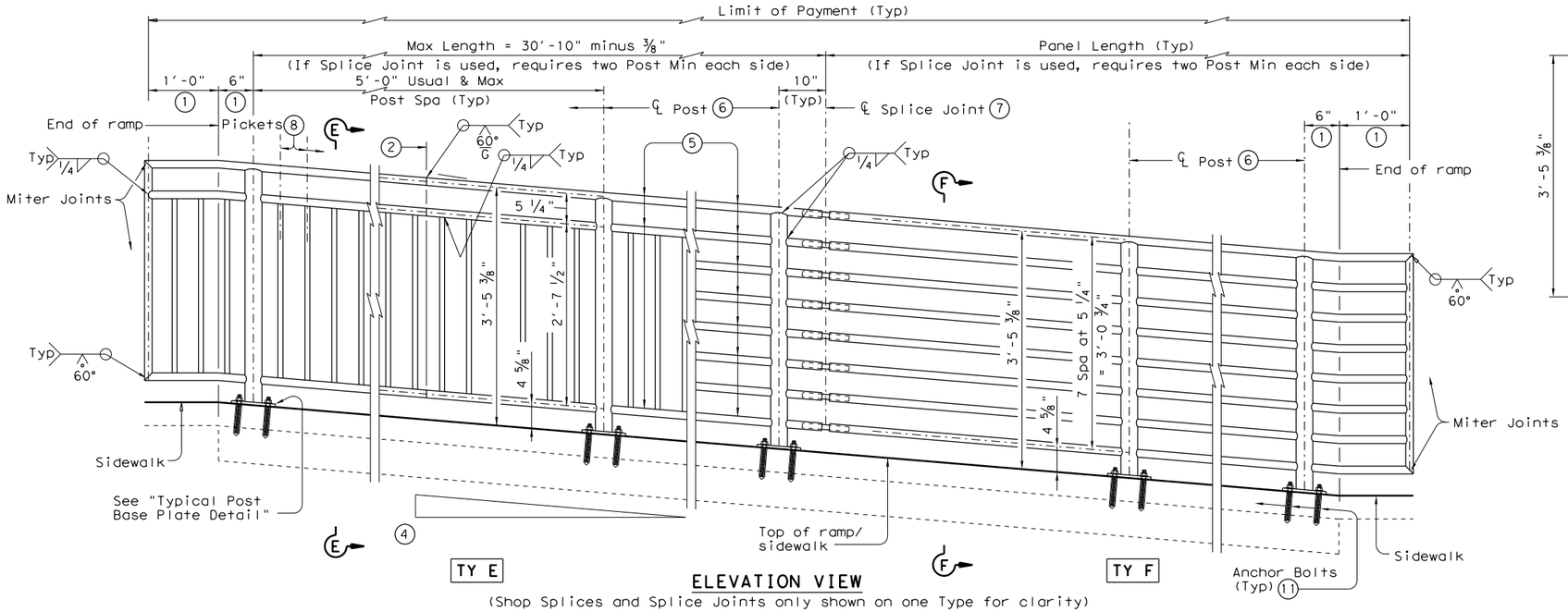
Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

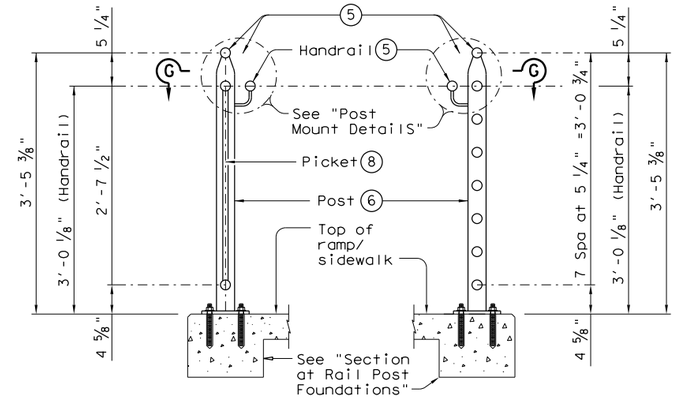
FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
© TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS REVISED MAY, 2013 (VP)	0209	01	073, ETC	SL 2, ETC
	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC		112

DATE:
FILE:



ELEVATION VIEW

(Shop Splices and Splice Joints only shown on one Type for clarity)

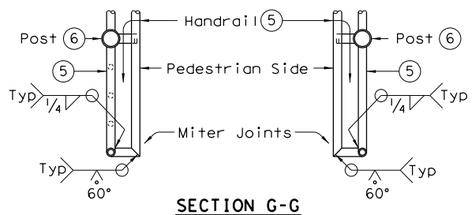


SECTION E-E

(Showing Handrail **TY E**)

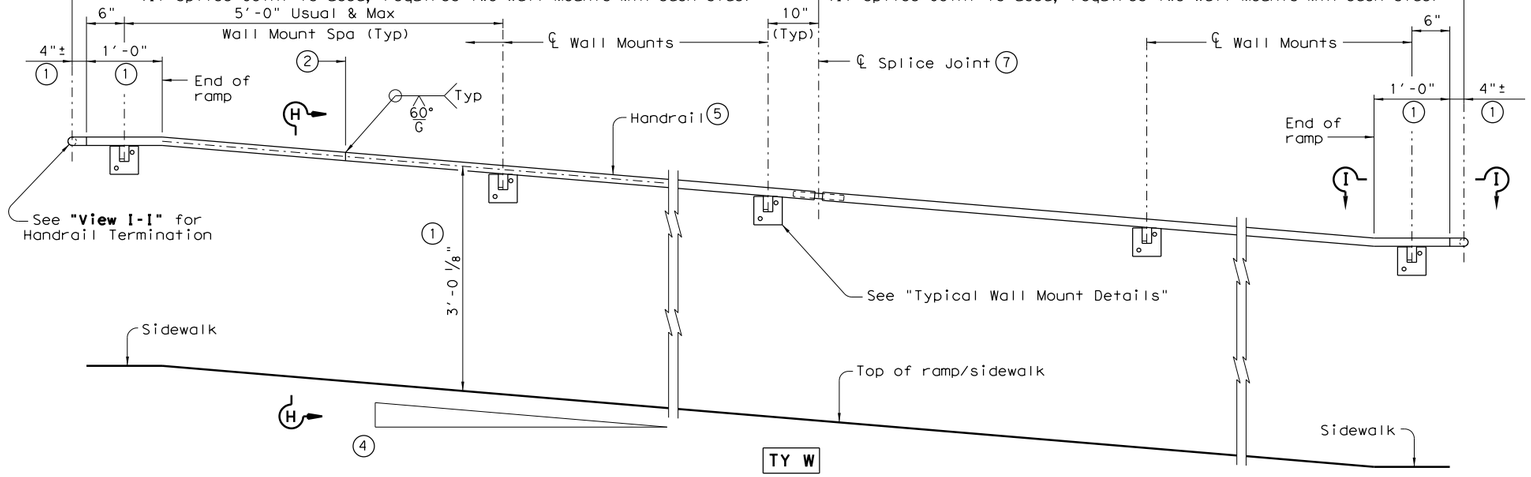
SECTION F-F

(Showing Handrail **TY F**)

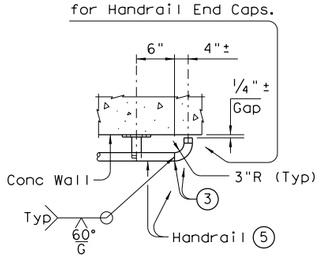


SECTION G-G

(Showing Handrail Termination)

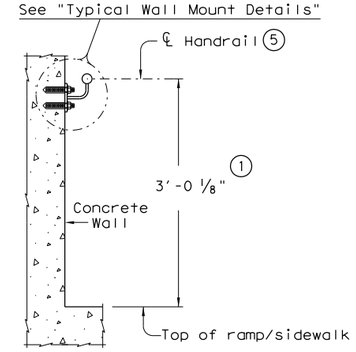


ELEVATION VIEW



VIEW I-I

(Showing Handrail Termination)



SECTION H-H

(Showing Handrail **TY W**)

1. Parallel to ground.
2. One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
3. Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
4. See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
5. 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.
6. 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.
7. See "Handrail Fabrication Details" for Splice Joints.
8. ℄ ⅝" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.
11. See "General Notes" for anchor bolt information.

Texas Department of Transportation

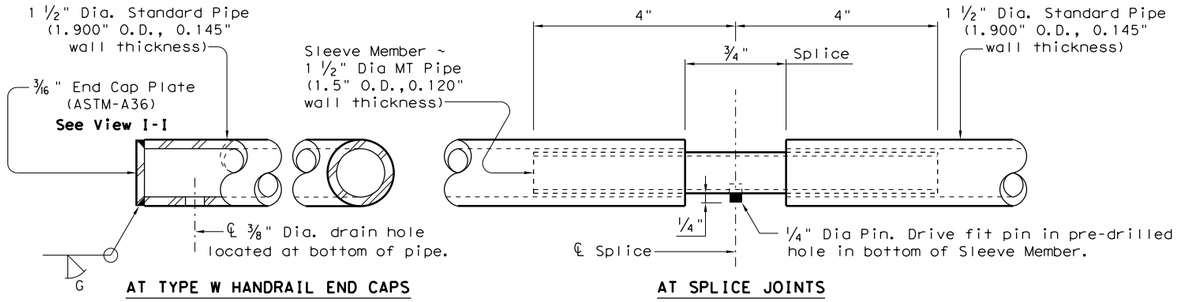
Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

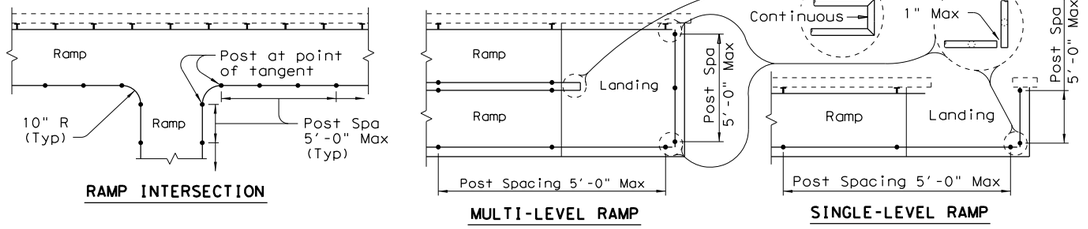
PRD-13

FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS REVISED MAY, 2013 (VP)	0209	01	073, ETC	SL 2, ETC
	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC		113

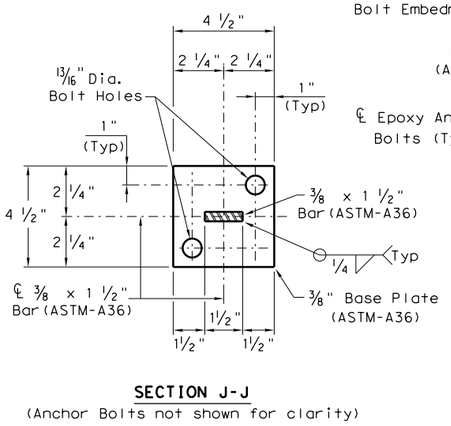
DATE:
FILE:

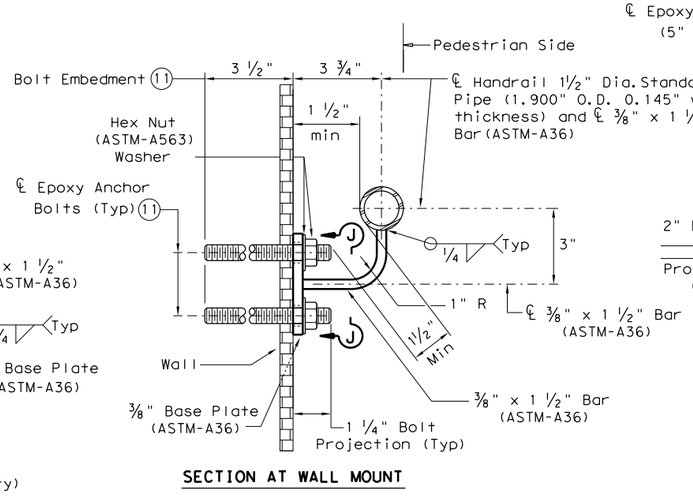


HANDRAIL FABRICATION DETAILS

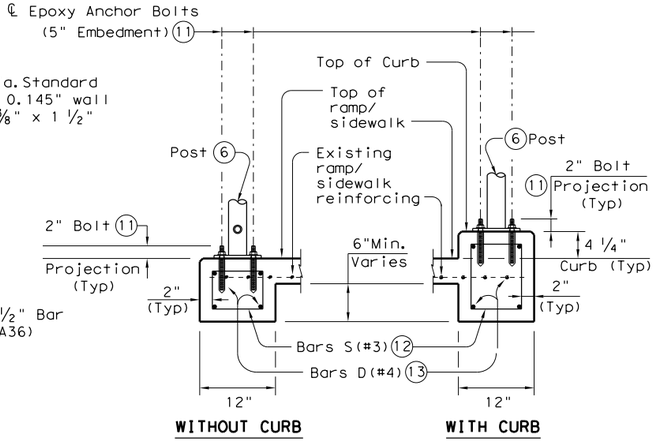


PLAN SHOWING RAIL AT RAMP CONDITIONS





TYPICAL WALL MOUNT DETAILS



SECTION AT RAIL POST FOUNDATIONS

GENERAL NOTES

Designed according to ADAAG, Texas Accessibility Standards, Uniform Building Code, and AASHTO LRFD Specifications.

Handrail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Pipe will conform to ASTM-A53 Grade B or A500 Grade B. Steel plates and steel bars will conform to ASTM-A36. Mechanical tubing (MT) will conform to ASTM A513 Grade 1015 or higher. Galvanize all steel components except reinforcing steel unless noted otherwise.

Concrete for foundations will be in accordance with Item 531 "Sidewalks". All reinforcing steel must be Grade 60. Bar laps, where required, will be as follows: Uncoated ~ #4 = 1'-5" Epoxy coated ~ #4 = 2'-1"

When the plans require painted steel, follow the requirements for painting galvanized steel in Item 446, "Cleaning and Painting Steel". Sleeve Members will receive galvanization and only get field painted after installation unless directed otherwise by Engineer.

Epoxy Anchor bolts for wall mount and post base plate will be ⅝" Dia. ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. ⅝" Dia. threaded rod embedment depth for wall mounts is 3 ½" and embedment depth for post base plate is 5".

Embed threaded rods into concrete with a Type III (Class C) epoxy meeting the requirements of DMS-6100, "Epoxies and Adhesives". Mix and dispense adhesive with the manufacturer's static mixing nozzle/dual cartridge system. Core drill holes (percussion drilling not permitted).

At the contractor's option the post base plate anchor bolts may be cast with the Ramp/Sidewalk (See Cast-in-Place Anchor Bolt Options).

Optional cast-in-place anchor bolts will be ⅝" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer at each bolt. Embedment depth of cast-in-place bolt will be 8" for post base plate.

Handrails and any wall or other surface adjacent to them will be free of any sharp or abrasive elements.

Submit shop drawings to the Engineer unless otherwise noted. For curved handrail applications, fabricate the handrail to the curve if radius is less than 600 ft. Shop drawings are required when rail is fabricated to the curve.

For all handrails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

Drawings will show handrail mount locations with bolts setting, spacing, ramp slope, and/or splice joint locations, and handrail lengths with identification showing where each handrail goes on the layout.

Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

Payment for all items shown is to be included in unit price bid in accordance with Item 450 "Railing" of the type specified.

All exposed edges will be rounded or chamfered to approximately ⅛" by grinding.

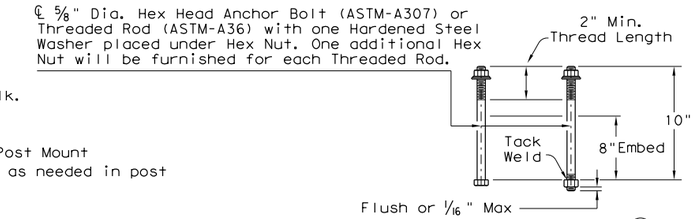
(5) 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

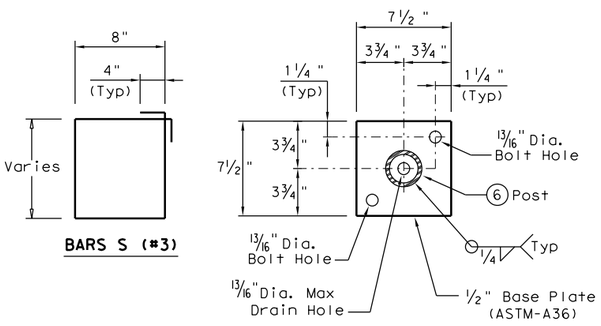
(6) 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). Plumb all posts. See "Post Mount Detail" for crimping and trimming post to fit the diamenter of top rail. Provide holes as needed in post for galvanizing drainage and venting.

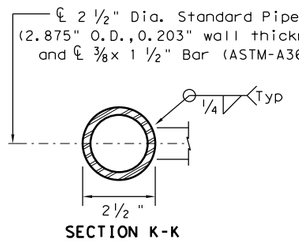
(11) See "General Notes" for anchor bolt information.

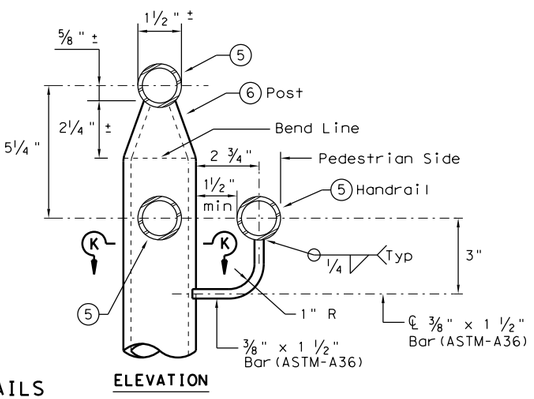
(12) Bars S(#3) spaced at 12" Max (Spaced 3" from outside edge of overall length of Ramp/Sidewalk).

(13) Provide 1 ½" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.









POST MOUNT DETAILS

SHEET 3 OF 3

Texas Department of Transportation

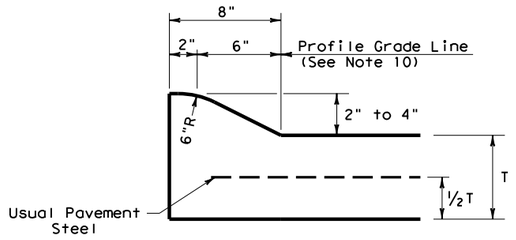
Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

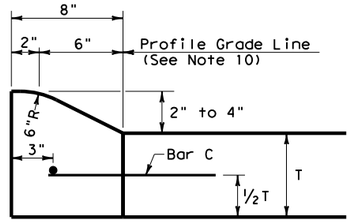
PRD-13

FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS REVISED MAY, 2013 (VP)	0209	01	073, ETC	SL 2, ETC
	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC		114

DATE:
FILE:



TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



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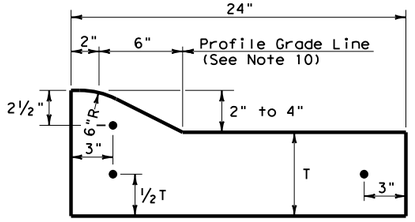
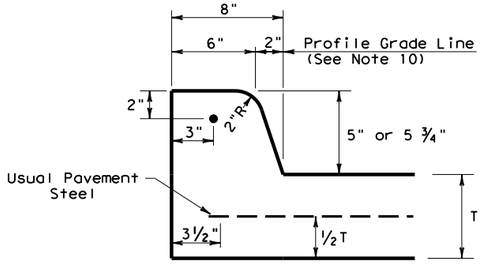
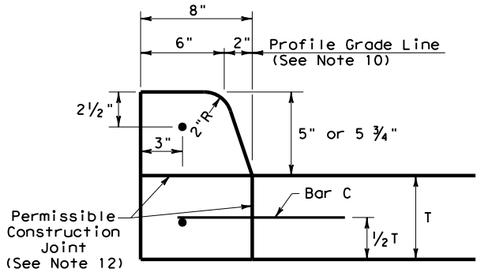


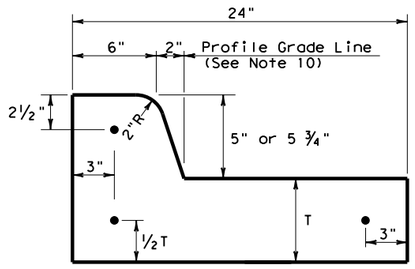
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



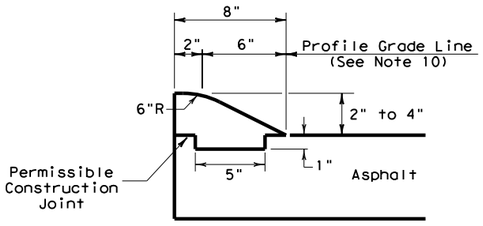
TYPE II CURB (MONOLITHIC)
5" - 5 ¾" HEIGHT



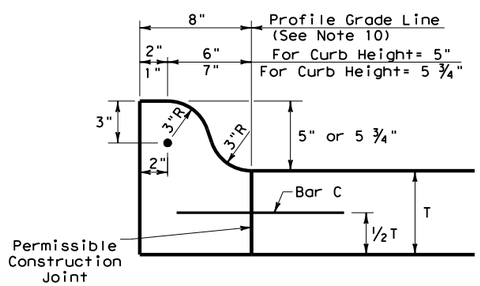
TYPE II CURB
5" - 5 ¾" HEIGHT



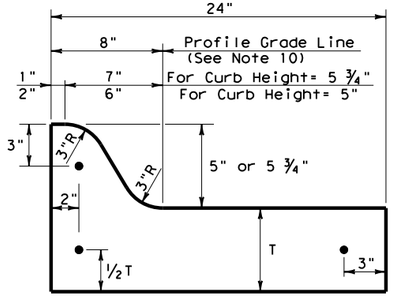
TYPE II CURB AND GUTTER
5" - 5 ¾" HEIGHT



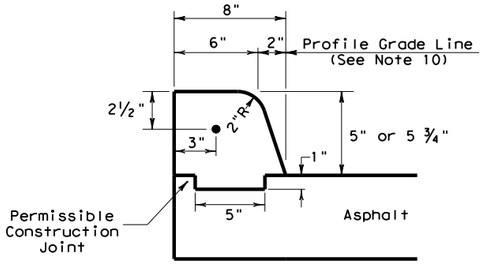
TYPE III CURB (KEYED)
2" - 4" HEIGHT



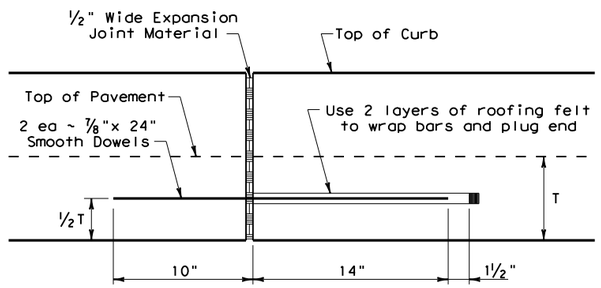
TYPE IIa CURB
5" - 5 ¾" HEIGHT



TYPE IIa CURB AND GUTTER
5" - 5 ¾" HEIGHT

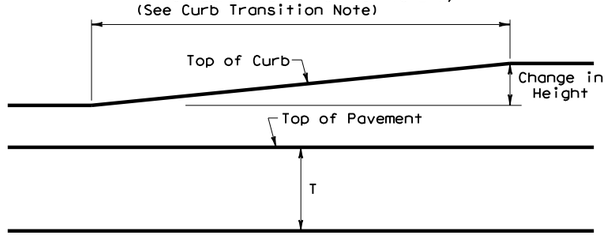


TYPE IV CURB (KEYED)
5" - 5 ¾" HEIGHT



EXPANSION JOINT DETAIL

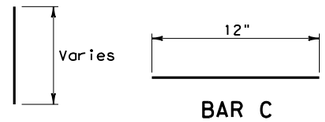
CURB TRANSITION NOTE:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.



CURB TRANSITION
Note: To be paid for as Highest Curb

GENERAL NOTES

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No. 4 unless otherwise shown. The use of fiber reinforced concrete in lieu of reinforcing steel is acceptable. Use fibers meeting the requirements of DMS 4550, "Fibers for Concrete," and dose fibers in accordance with Material Producers List (MPL) "Fibers for Class A and B Concrete Applications."
4. Round exposed sharp edges with a rounding tool, to a minimum radius of ¼ inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is to be placed on existing concrete pavement, Bar B may be drilled and the grouted in place, or may be inserted into fresh concrete.
7. 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.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C~C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
13. Bar B used as needed to support curb reinforcing steel during concrete placement.



BAR B

BAR C

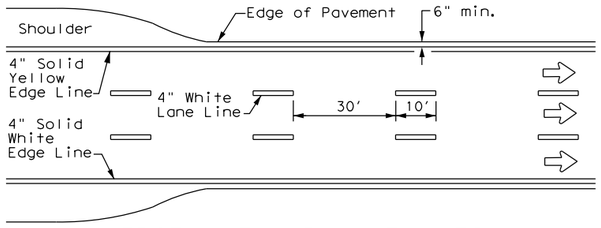
Texas Department of Transportation

Design Division Standard

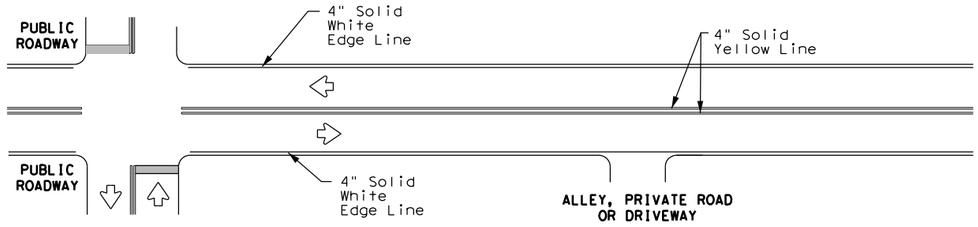
CONCRETE CURB AND CURB AND GUTTER

CCCG-21

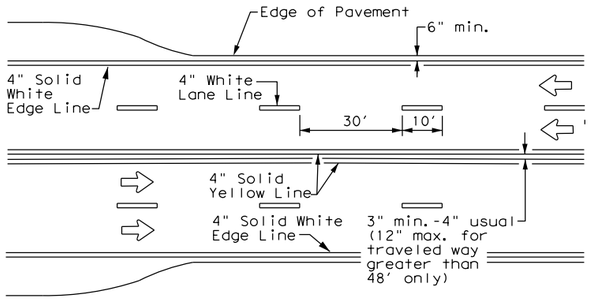
FILE: cccg21.dgn	DN: TXDOT	CK: AN	DW: SS	CK: KM
©TxDOT: FEBRUARY 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC.
	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC.		115



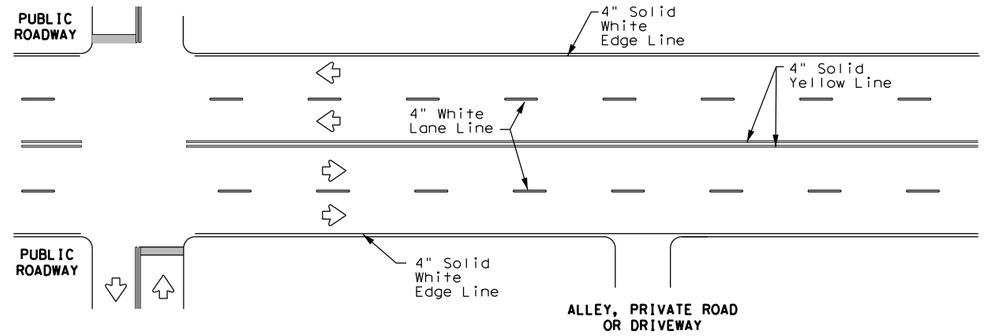
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



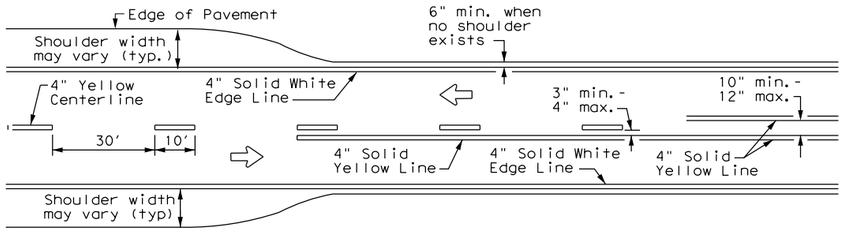
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



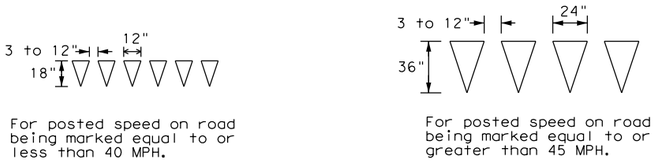
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



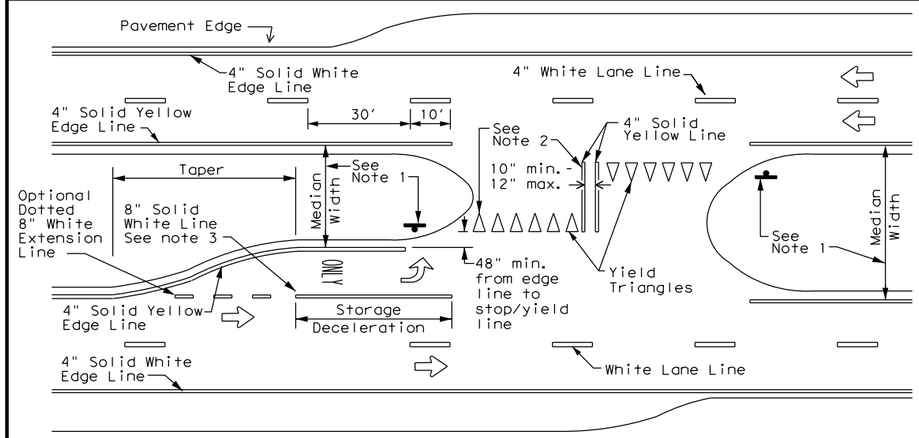
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



YIELD LINES



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 are optional as determined by the Engineer.

2. Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield traingles 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.

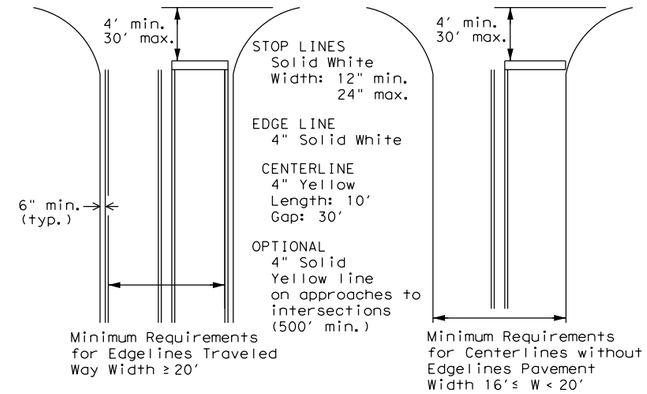
GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines 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 inside of edgeline to the inside of edgeline 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.



GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

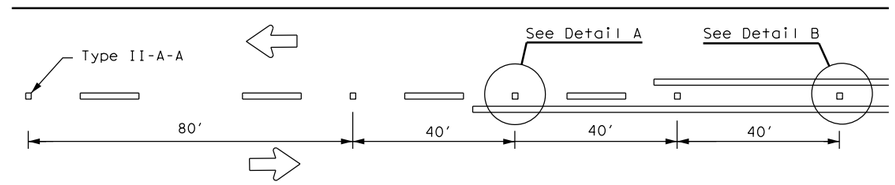
PM(1)-20

FILE: pm1-20.dgn	DN:	CK:	DW:	CK:
© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0209	01	073, ETC	SL 2, ETC
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	WAC	MCLENNAN, ETC		116

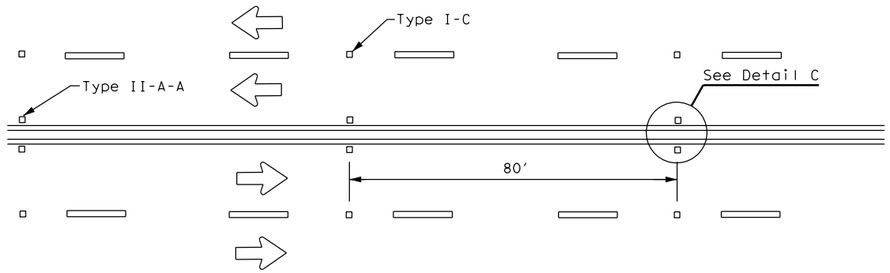
22B

DATE:
FILE:

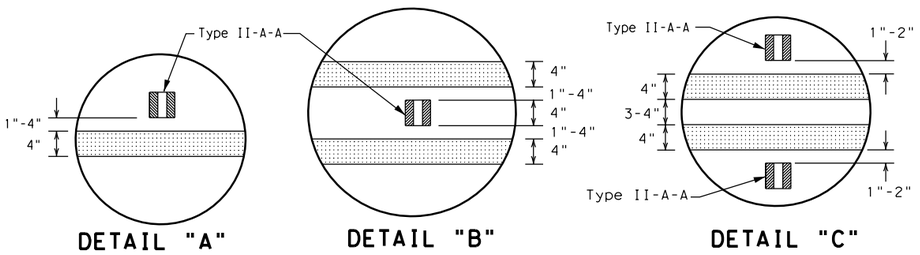
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



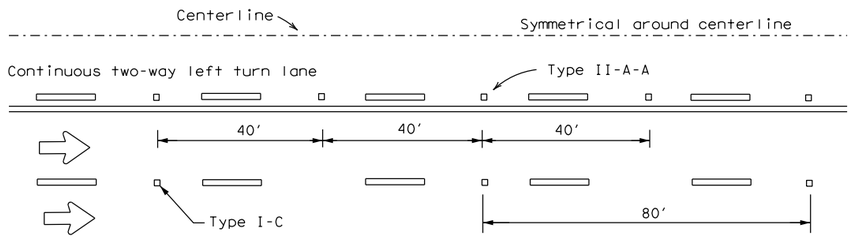
CENTERLINE FOR ALL TWO LANE ROADWAYS



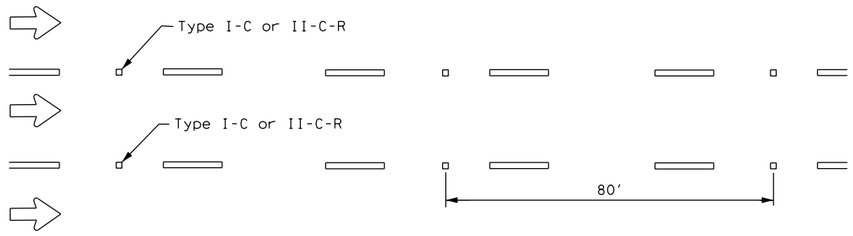
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



DETAIL "A" **DETAIL "B"** **DETAIL "C"**

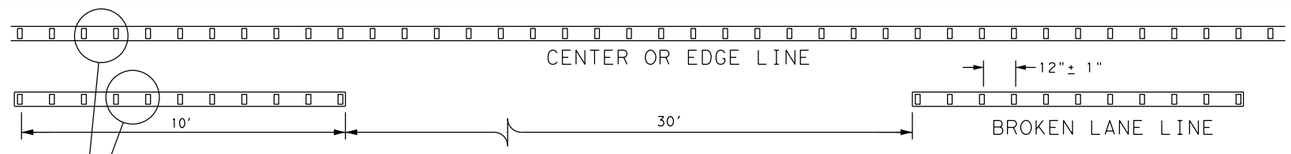


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



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.



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.

4" EDGE LINE, CENTER LINE OR LANE LINE

OPTIONAL 6" EDGE LINE, CENTER LINE OR LANE LINE

NOTE

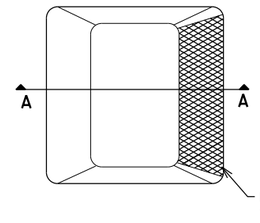
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

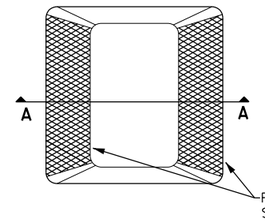
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

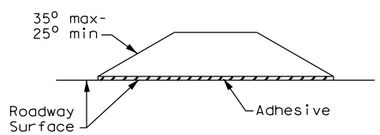
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

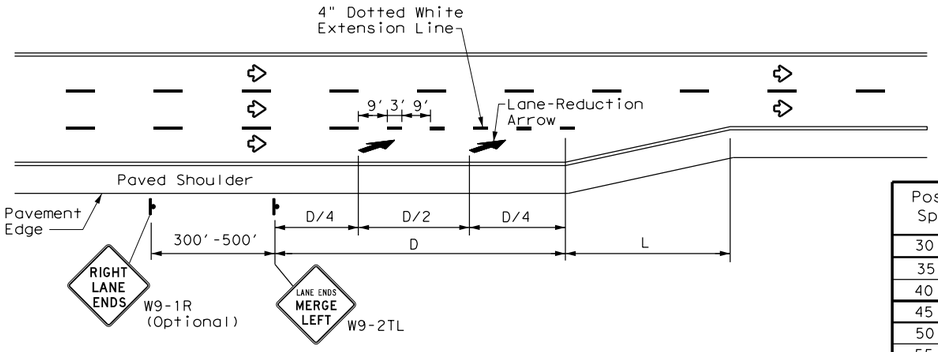
Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-20

FILE: pm2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-92 2-10 5-00 2-12 8-00 6-20	0209	01	073, ETC	SL 2, ETC
	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC		117

22B

DATE:
FILE:

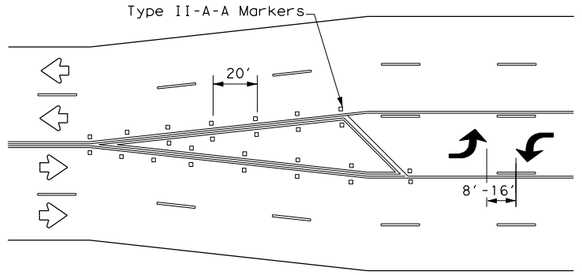


LANE REDUCTION

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	

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 W9-1R "RIGHT LANE ENDS" 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.



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.

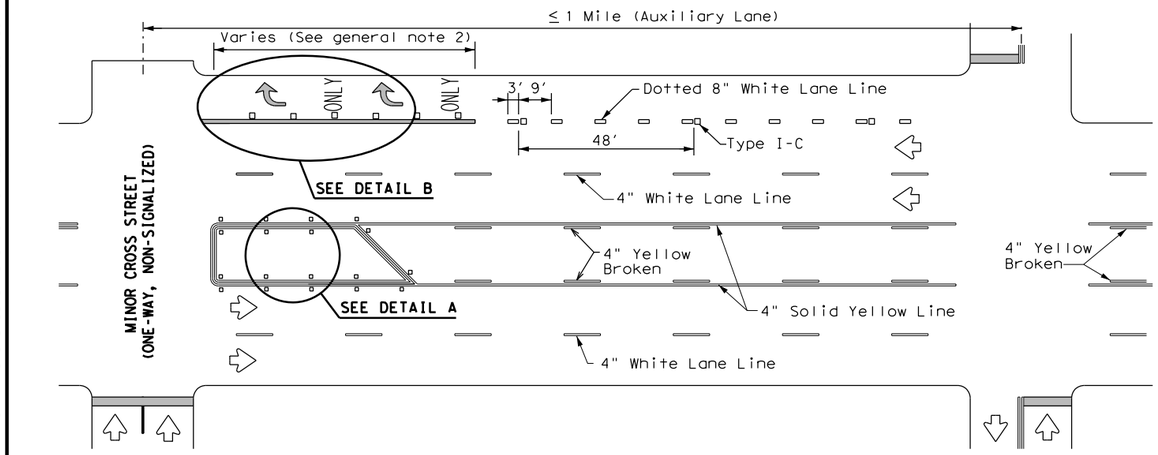
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

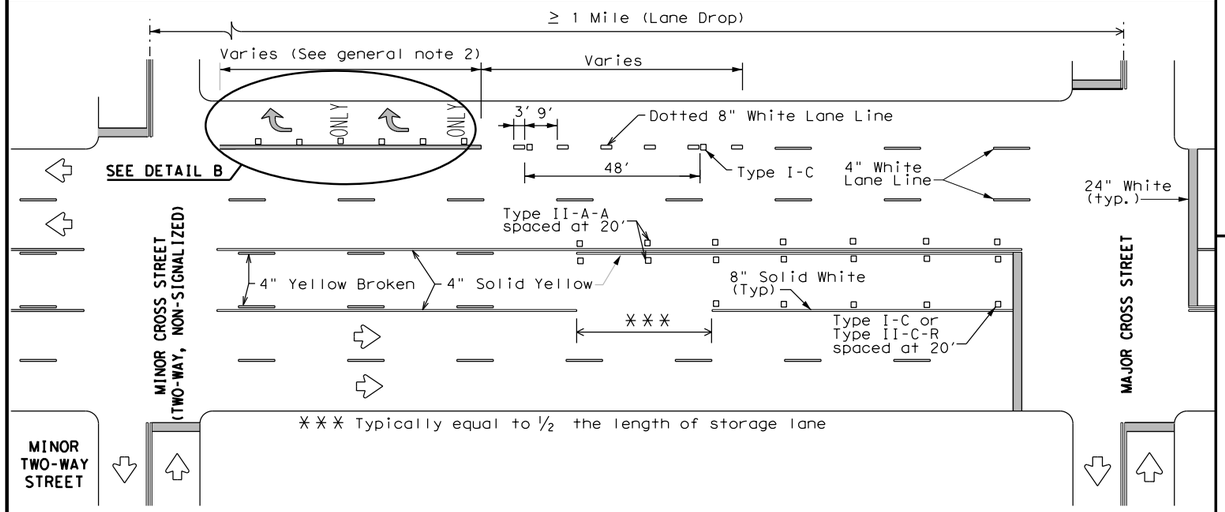
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn 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.

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

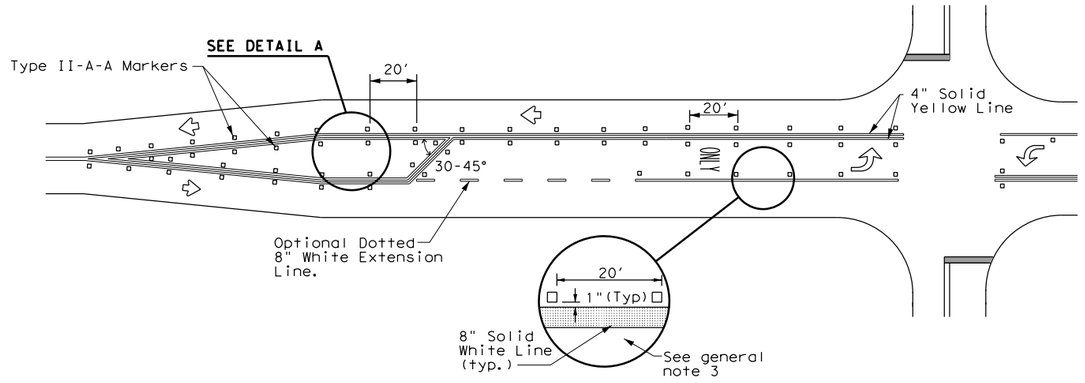
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



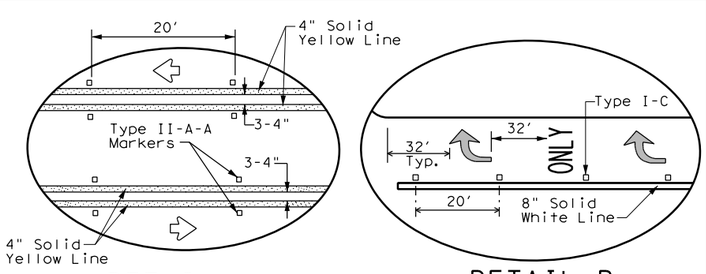
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



Texas Department of Transportation

Traffic Safety Division Standard

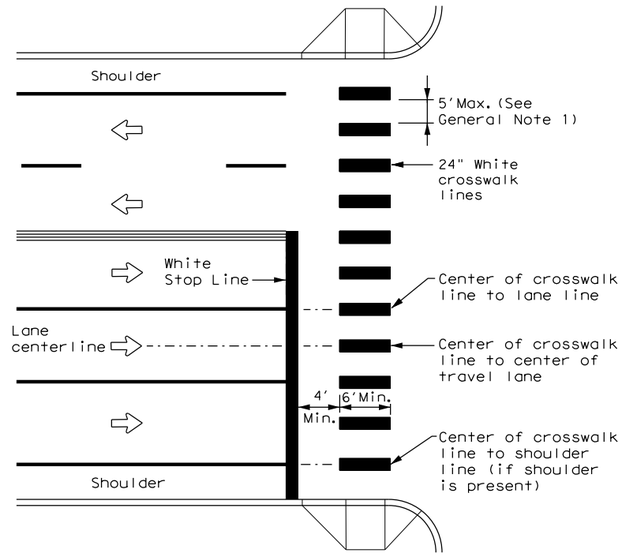
TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

FILE: pm3-20.dgn	DN:	CK:	DW:	CK:
© TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
5-00 2-10	DIST	COUNTY		SHEET NO.
8-00 2-12	WAC	MCLENNAN, ETC		118
3-03 6-20				

22D

DATE:
FILE:

DATE:
FILE:



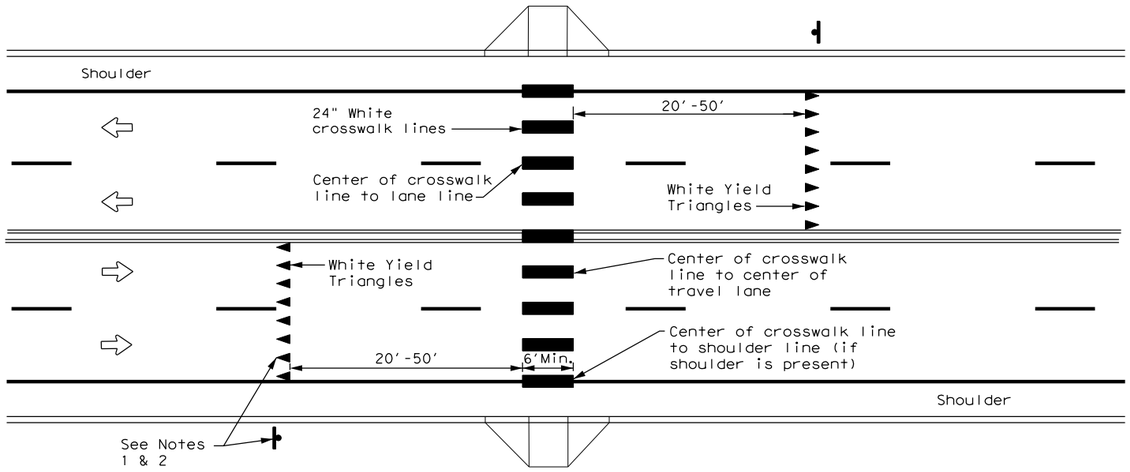
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

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/Yield Triangles 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 MID BLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES

1. Use yield triangles with "Yield Here to Pedestrians" signs at unsignalized mid block crosswalks.
2. Use stop bars with "Stop Here on Red" 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)-20

FILE: pm4-20.dgn	DN:	CK:	DW:	CK:
© TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC		119

220

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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)

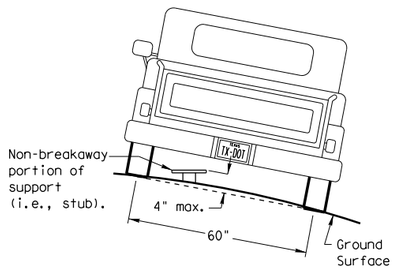
Anchor Type

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

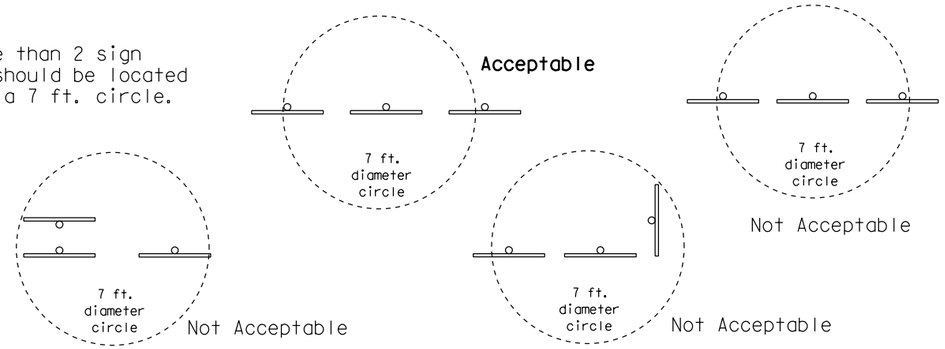
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
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



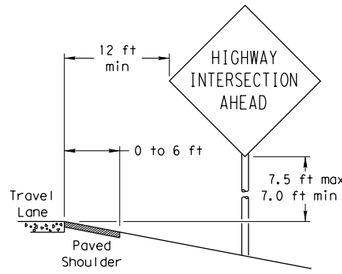
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

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



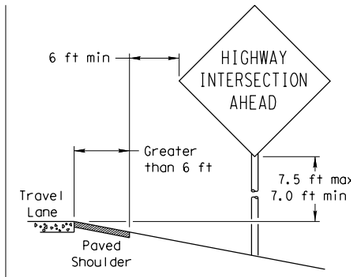
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

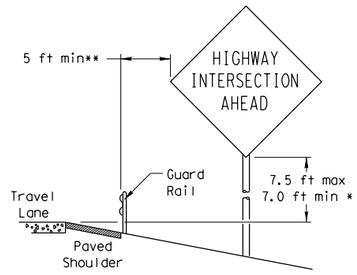
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



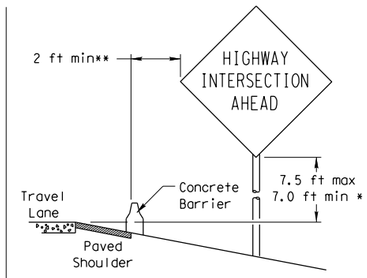
GREATER THAN 6 FT. WIDE

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



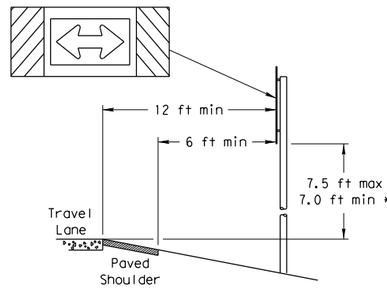
BEHIND GUARDRAIL



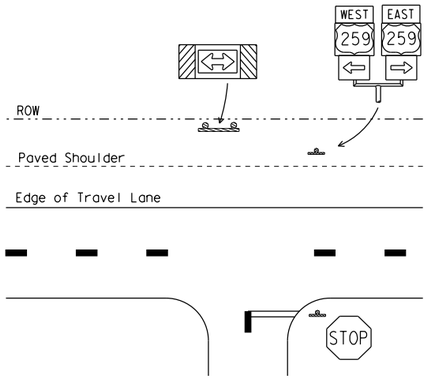
BEHIND CONCRETE BARRIER

**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.

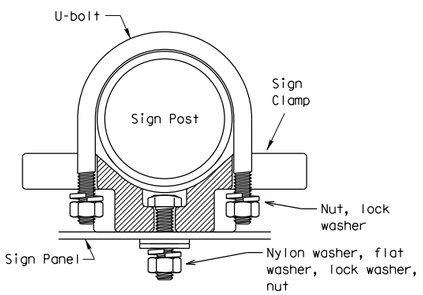
The maximum values may be increased when directed by the Engineer.

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

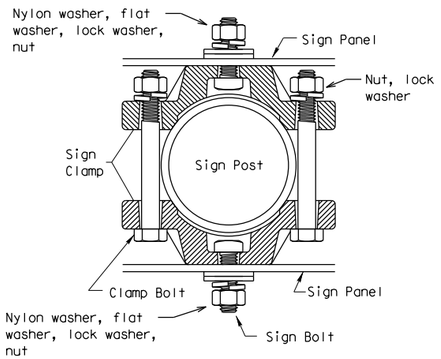
The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs



Back-to-Back Signs



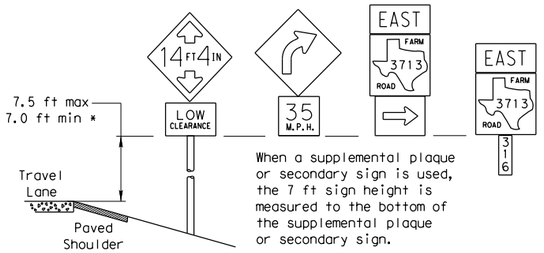
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

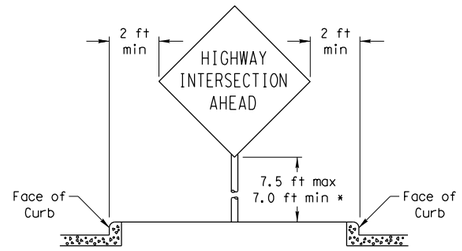
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



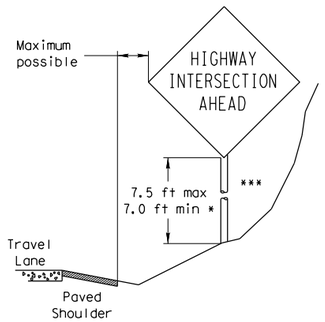
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

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

REVISIONS
9-08

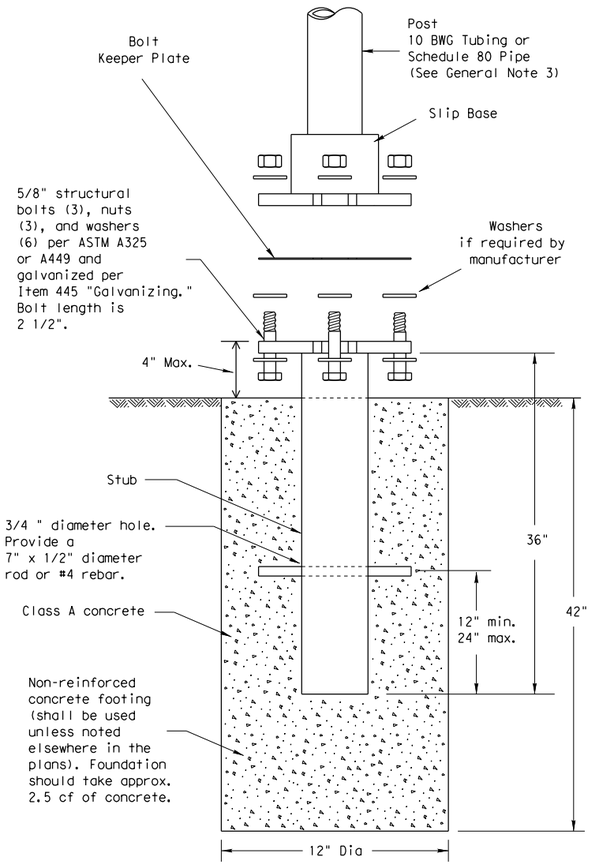
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0209	01	073, ETC	SL 2, ETC

DIST	COUNTY	SHEET NO.
WAC	MCLENNAN, ETC	120

DATE:
FILE:

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.

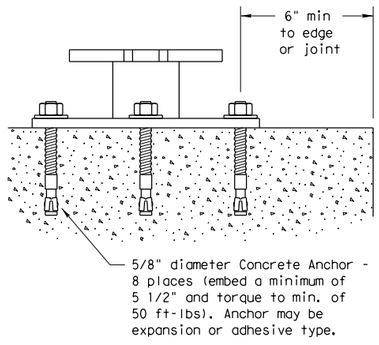
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum 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

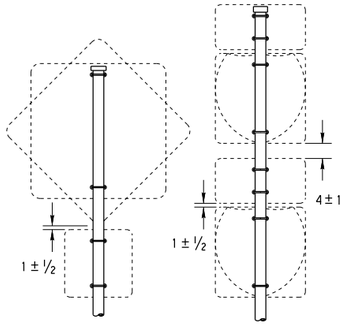
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
9-08

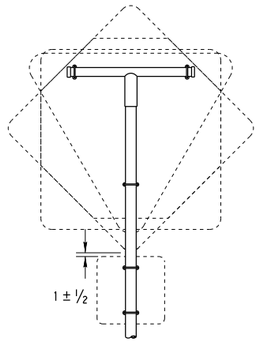
CONT	SECT	JOB	HIGHWAY
0209	01	073, ETC	SL 2, ETC

DIST	COUNTY	SHEET NO.
WAC	MCLENNAN, ETC	121

DATE:
FILE:



SM RD SGN ASSM TY XXXXX(1)XX(P)



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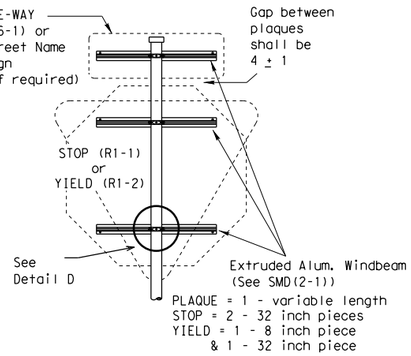
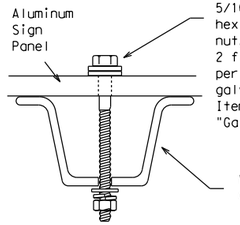
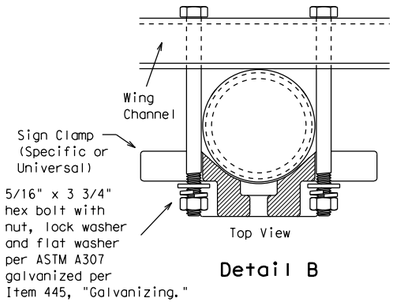


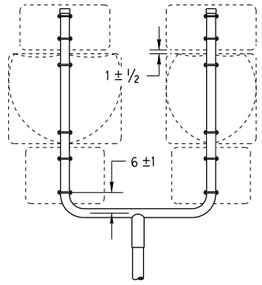
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



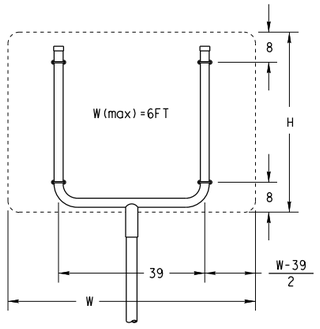
Detail A



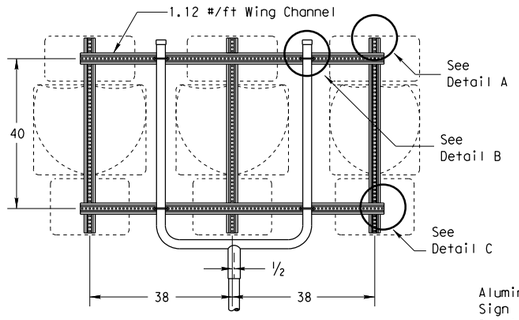
Detail B



SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

Drill 7/16" hole (through) after assembly and install bolt, nut, 2 flat washers and lock washer.

3/8" x 3 1/2" heavy hex bolt with nut, lock washer and 2 flat washers per ASTM A307 galvanized per Item 445 "Galvanizing."

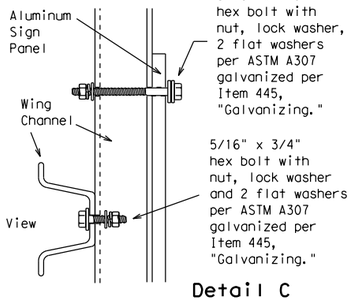
1 1/2"

Extender

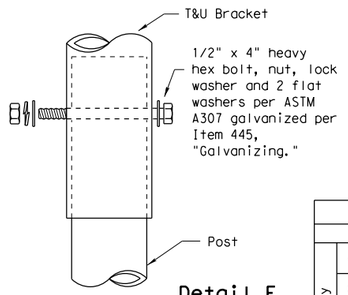
U-Bracket

Detail F

Splices shall only be allowed behind the sign substrate.



Detail C



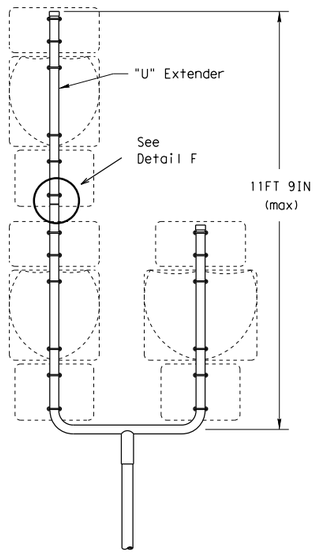
Detail E

GENERAL NOTES:

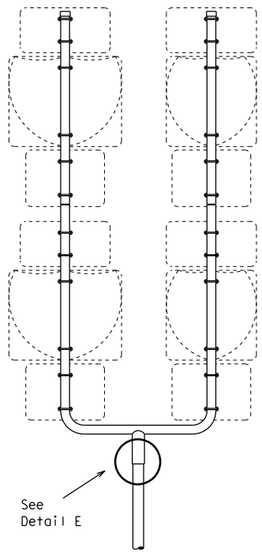
1.

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

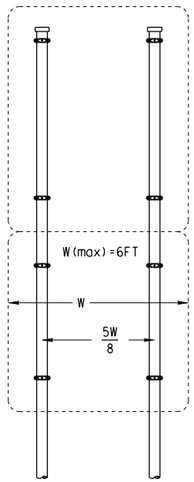
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material 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 S80(1)XX(U-1EXT)

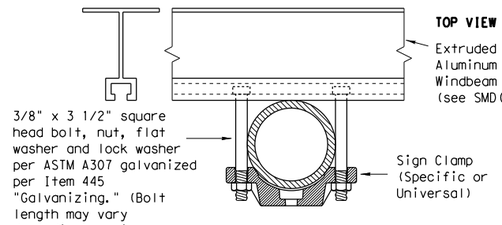


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

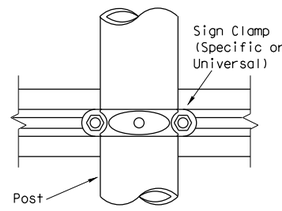


SM RD SGN ASSYM TY XXXXX(2)XX(P)

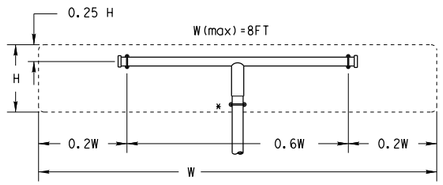
SIDE VIEW



Detail D



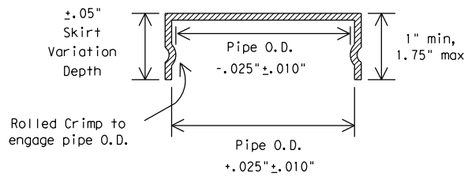
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	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

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

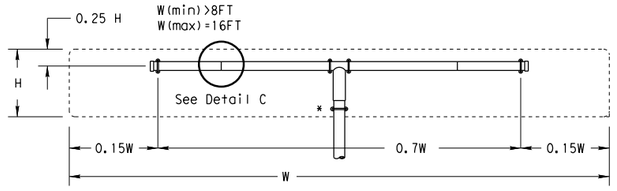
CONT	SECT	JOB	HIGHWAY
0209	01	073, ETC	SL 2, ETC

DIST	COUNTY	SHEET NO.
WAC	MCLENNAN, ETC	122

9-08 REVISIONS

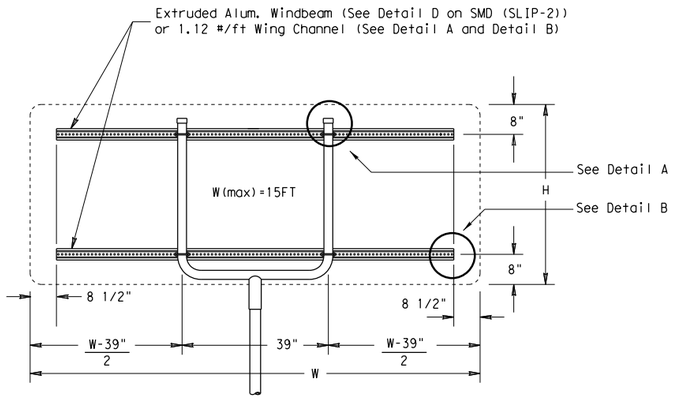
DATE:
FILE:

DATE:
FILE:

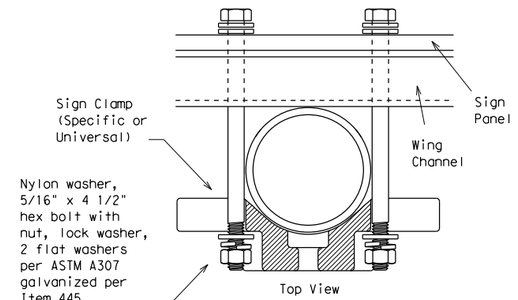


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

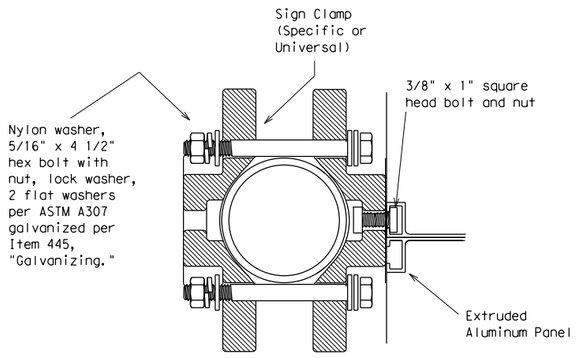
(* - See Note 12)



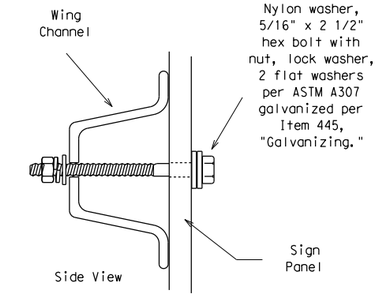
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



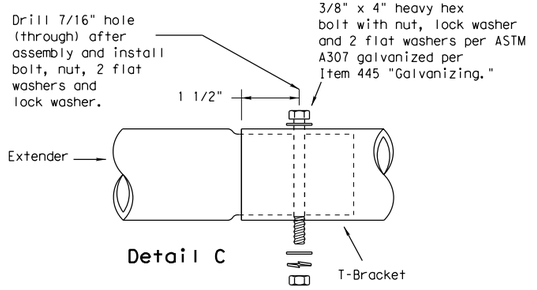
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET

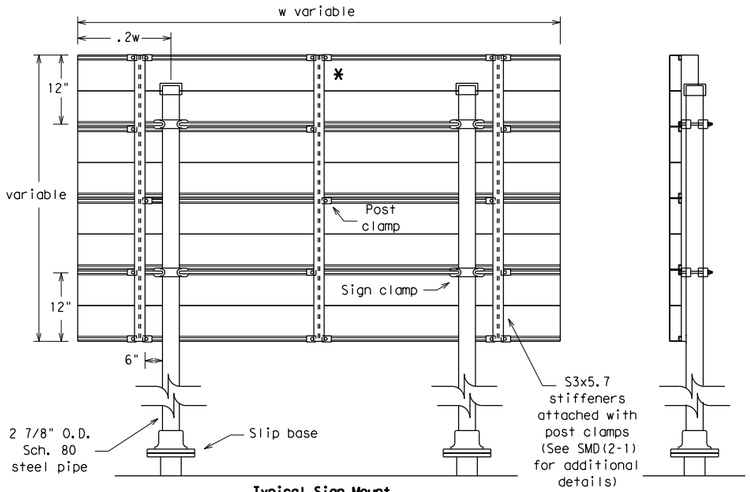


Detail B



Detail C

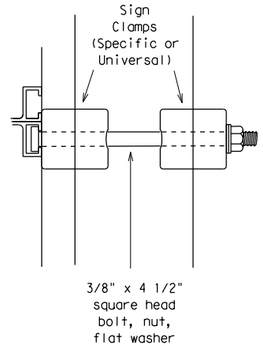
Splices shall only be allowed behind the sign substrate.



Typical Sign Mount

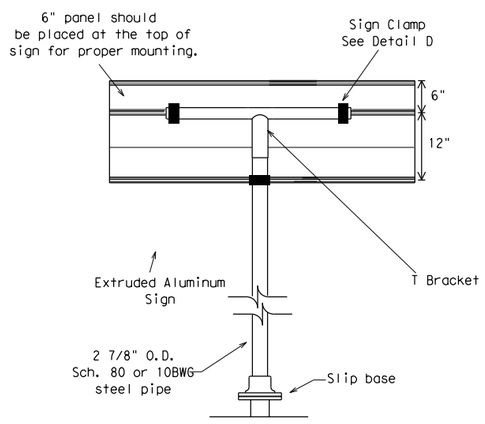
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

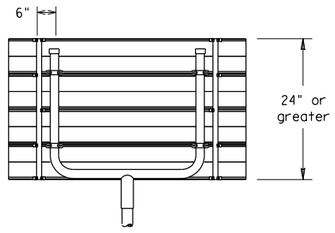


See Detail E
for clamp installation

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.
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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

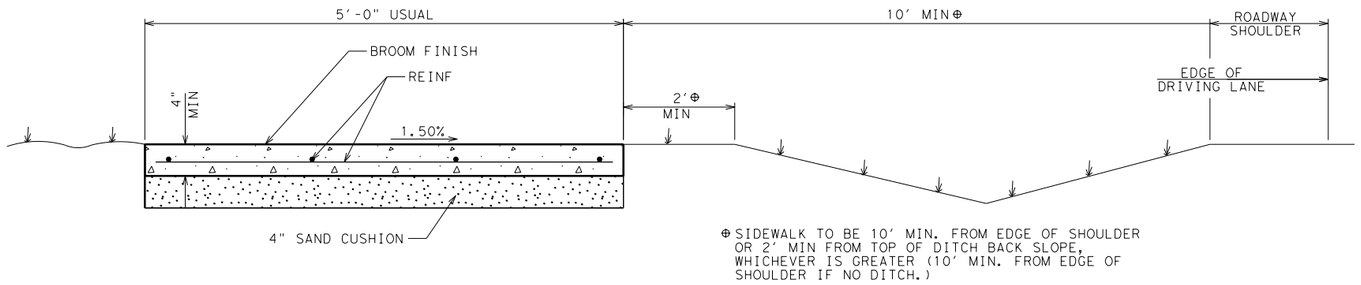
SMD(SLIP-3)-08

REVISIONS
9-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

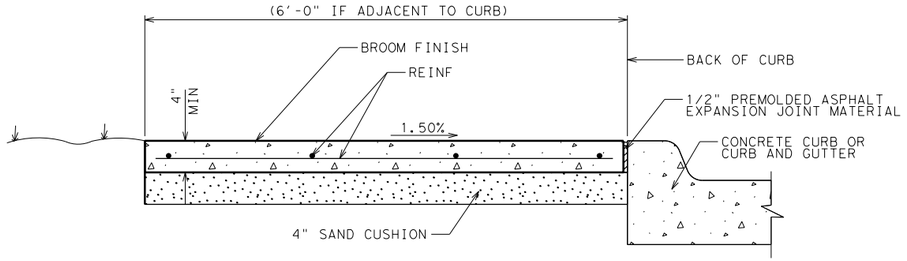
CONT	SECT	JOB	HIGHWAY
0209	01	073, ETC	SL 2, ETC

DIST	COUNTY	SHEET NO.
WAC	MCLENNAN, ETC	123

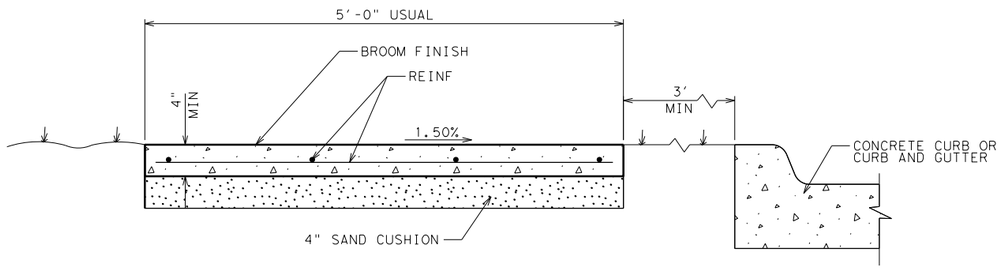


⊕ SIDEWALK TO BE 10′ MIN. FROM EDGE OF SHOULDER OR 2′ MIN FROM TOP OF DITCH BACK SLOPE, WHICHEVER IS GREATER (10′ MIN. FROM EDGE OF SHOULDER IF NO DITCH.)

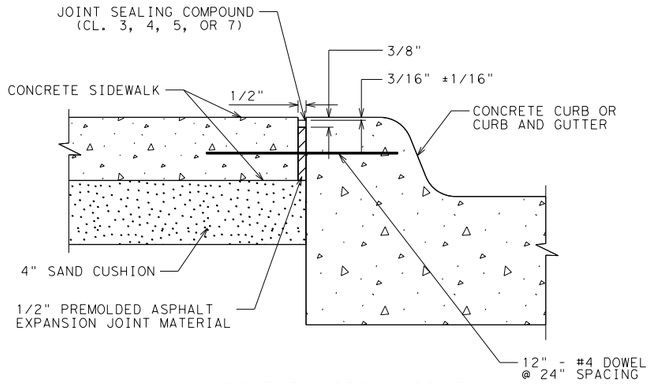
CONCRETE SIDEWALK
(ROADWAY W/O CURB)



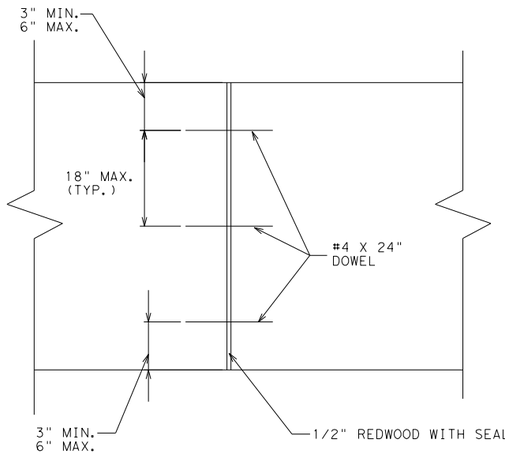
CONCRETE SIDEWALK
(ADJACENT TO CURB)



CONCRETE SIDEWALK
(OFFSET FROM CURB)



1/2" EXPANSION JOINT
(SIDEWALK ADJACENT TO CURB)



TRANSVERSE EXPANSION JOINT

GENERAL NOTES

1. SEE PLAN SHEETS FOR LOCATIONS OF SIDEWALKS AND RETAINING WALLS.
2. SEE TXDOT PED STANDARD FOR ADDITIONAL PEDESTRIAN ELEMENT CRITERIA.
3. CONSTRUCT SIDEWALK IN ACCORDANCE WITH ITEM #531.
4. UNLESS SPECIFIED ELSEWHERE IN THE PLANS TO BE ONLY REINFORCING BARS, THE REINFORCEMENT MAY BE COMPOSED OF REINFORCING BARS, WELDED WIRE REINFORCEMENT (WWR) OR ANY SUITABLE COMBINATION OF BOTH TYPES. UNLESS SPECIFIED ELSEWHERE IN THE PLANS, REINFORCING BARS SHALL BE #3 @ 18" C-C, GRADE 40 WITH LAP SPLICES 40 BAR DIAMETERS LONG. WELDED WIRE REINFORCEMENT (WWR) SHALL BE 6x6-#6 WIRE MESH.
5. ALL DOWELS SHALL BE ADEQUATELY SUPPORTED TO RETAIN PROPER ALIGNMENT.
6. REBAR CHAIRS SHALL BE PLACED ON 4" MAXIMUM SPACING EACH WAY.
7. DRILL & DOWEL INTO EXISTING CURB & GUTTER #4 BARS, 12" @ 24" SPACING.
8. CURING MEMBRANE SHALL BE APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
9. PLACE EXPANSION JOINTS EVERY 40′.
10. EXPANSION JOINTS SHALL ALIGN WITH CURB AND GUTTER JOINTS.
11. PLACE CONTRACTION OR DUMMY JOINTS AT A SPACING EQUAL TO THE WIDTH OF THE WALK.
12. TYPICAL SIDEWALKS SHALL BE FORMED AND POURED AT A MAXIMUM CROSS-SLOPE OF 1.5%. ANY CROSS-SLOPES EXCEEDING 2% WILL NOT BE ACCEPTED.
13. LOGITUDINAL 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 SIDEWALKS MAY MATCH THAT OF ROADWAY.
14. CHANGES IN LEVEL GREATER THAN 1/4 INCH ARE NOT PERMITTED ALONG SIDEWALKS.
15. NEW SIDEWALK SHALL BE CONNECTED TO ALL EXISTING ADJACENT WALKS AND STEPS.
16. MINIMUM COVER OVER REINF SHOULD BE 2". MAXIMUM LATERAL COVER OVER REINF IS 3".
17. WHERE SIDEWALK OR WHEELCHAIR RAMP ADJOINS BACK OF CURB, INLET, POLE OR ANY STRUCTURE, APPROVED EXPANSION MATERIAL SHALL BE USED.
18. IF SIDEWALK WIDTH IS LESS THAN 5′, PROVIDE 5′ X 5′ PASSING AREAS AT INTERVALS NOT TO EXCEED 200′ SPACING.
19. WHERE SIDEWALK WITH RETAINING WALL IS SPECIFIED, RETAINING WALL WILL BE SUBSIDIARY TO THE ITEM, "CONCRETE SIDEWALK (SPECIAL)(RETAINING WALL)", WITH LIMITS OF PAY AS SHOWN HEREON.
20. SIDEWALK EXPANSION JOINTS SHOULD EXTEND THROUGH ADJACENT CONCRETE STRUCTURES SUCH AS CURB AND CURB AND GUTTERS.
21. BRICK SAND UNDER SIDEWALK WILL BE UNACCEPTABLE.

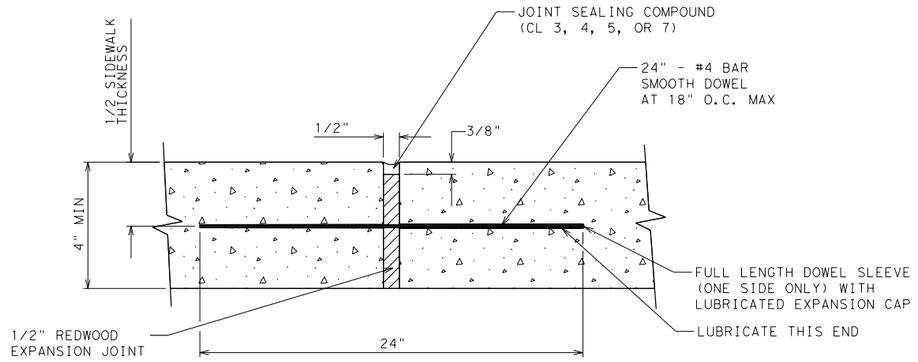
CONCRETE SIDEWALK DETAILS

WACO DISTRICT STANDARD

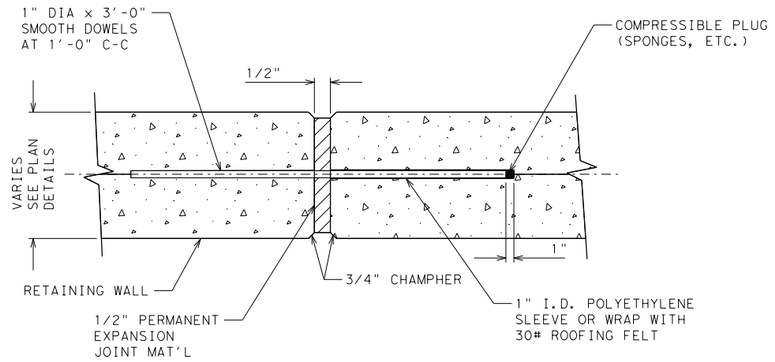
CONCRETE SIDEWALK DETAILS

SHEET 1 OF 3

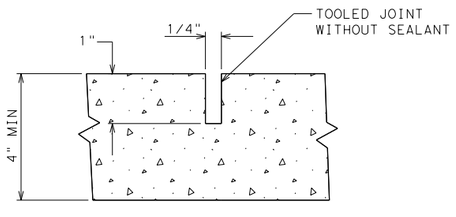
FED.RD. DIV.NO.	STATE PROJECT NO.		SHEET NO.
6	(SEE TITLE SHEET)		124
STATE	DIST.	COUNTY	
TEXAS	WACO	MCLENNAN, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0209	01	073,ETC	SL 2, ETC



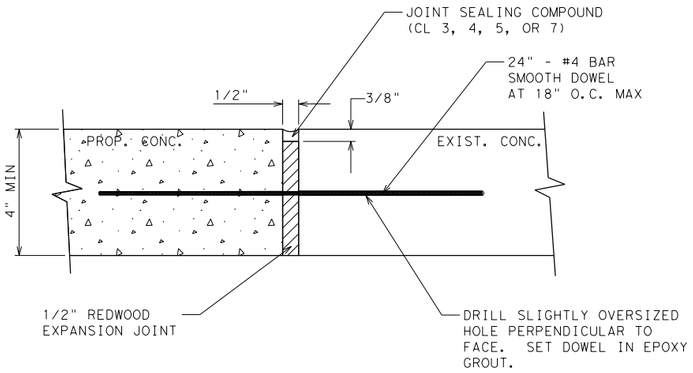
EXPANSION JOINT
(SIDEWALK)



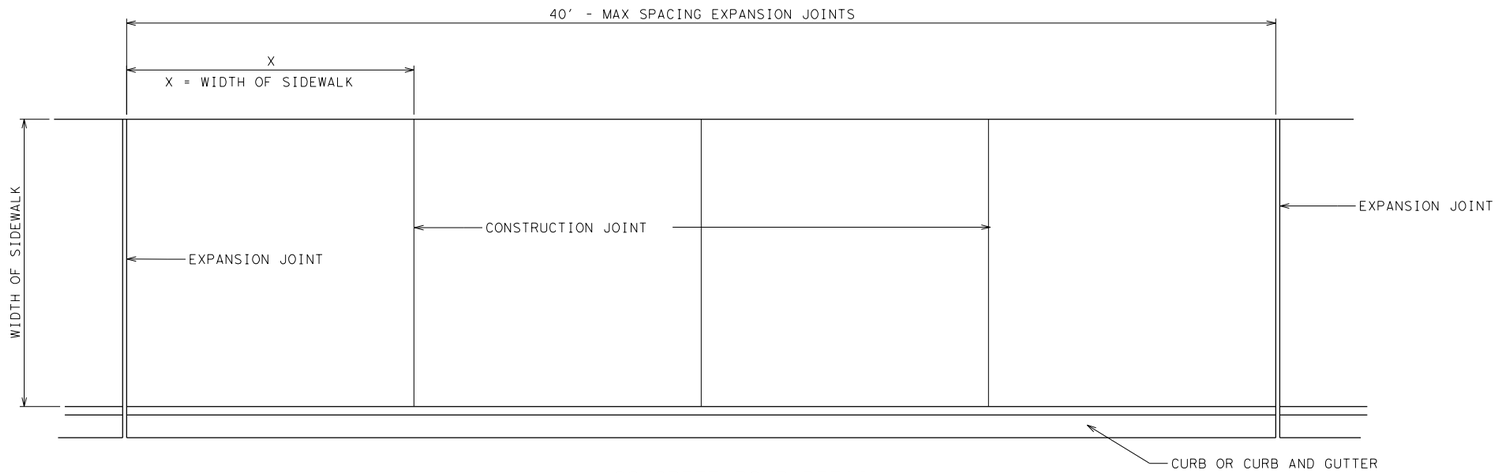
EXPANSION JOINT
(RETAINING WALL)



CONTRACTION JOINT



DOWEL TO EXISTING DETAIL



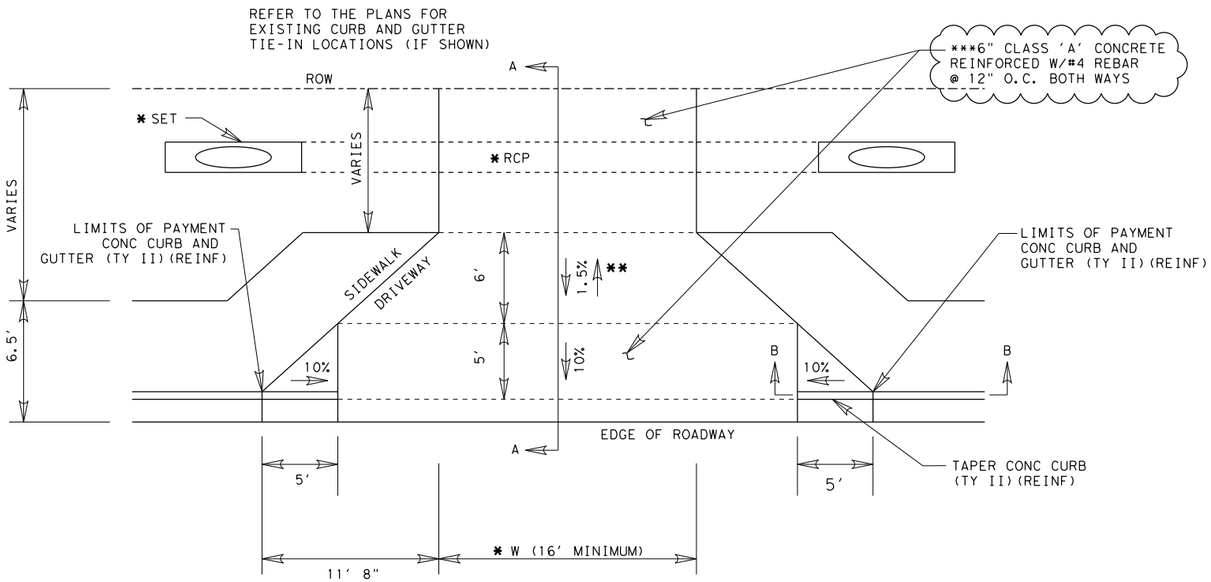
CONCRETE POUR DETAIL

WACO DISTRICT STANDARD

CONCRETE SIDEWALK DETAILS

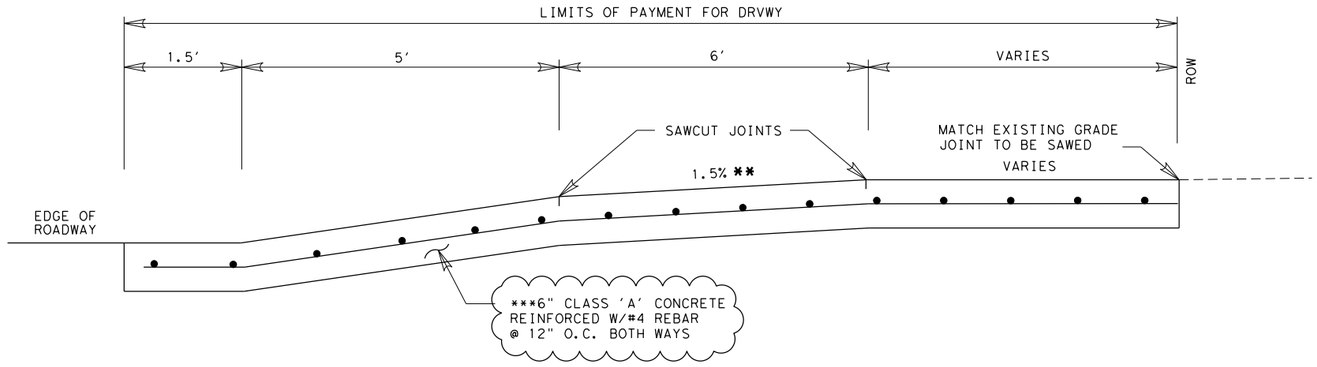
SHEET 2 OF 3

FED.RD. DIV.NO.	SATE PROJECT NO.		SHEET NO.
6	(SEE TITLE SHEET)		125
STATE	DIST.	COUNTY	
TEXAS	WACO	MCLENNAN, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0209	01	073,ETC	SL 2, ETC



DRIVEWAYS (CONC)

DRIVEWAYS (CONC) SHALL CONSIST OF: BLADING AND RESHAPING THE SUBGRADE, ANY EXTRA EMBANKMENT MATERIAL NECESSARY TO ACHIEVE THE PROPER SUBGRADE WIDTH, THE PLACEMENT OF 6" CLASS 'A' CONCRETE, REMOVAL OF ANY EXISTING CONC CURB AND GUTTER, REMOVAL OF ANY EXISTING CONCRETE AND PLACEMENT OF NEW CONC CURB(TY II) (REINF) WITHIN THE LIMITS SHOWN.

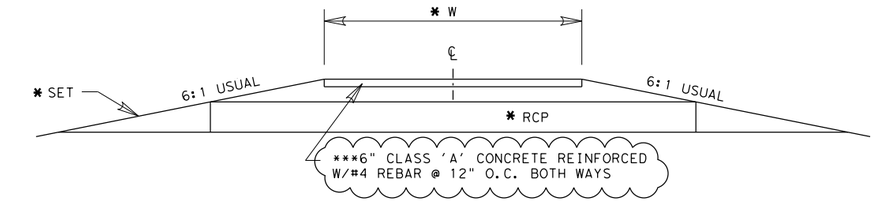


SECTION A-A

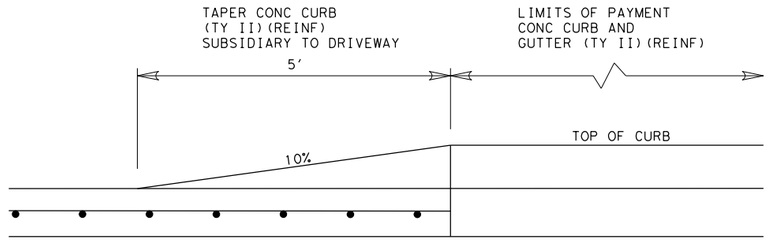
✱ SEE SUMMARY OF DRIVEWAYS FOR: LOCATION, DIMENSION "W" AND RCP/SET DETAILS (IF REQ'D)

✱✱ SIDEWALK CROSS-SLOPE DIRECTION SHALL BE SHOWN ELSEWHERE IN THE PLANS

✱✱✱ FOR DRWY WITH HES CONC SHOWN ON SHEET 72, 85, & 86, USE 8" CLASS 'HES' CONCRETE REINFORCED W/#5 REBAR @ 12" O.C. BOTH WAYS



DRVWY TYPICAL SECTION



SECTION B-B

FOR C&G SECTIONS

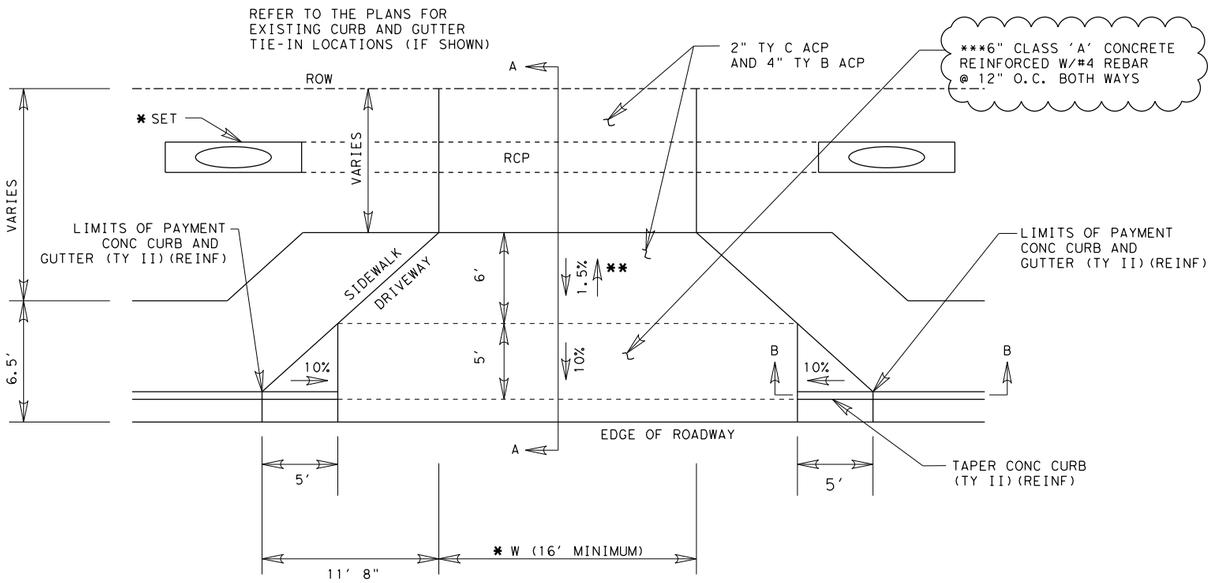
STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED
PROFESSIONAL ENGINEER

M.F. Muwaquet
09/26/21

ADA DRIVEWAY DETAILS (MOD)

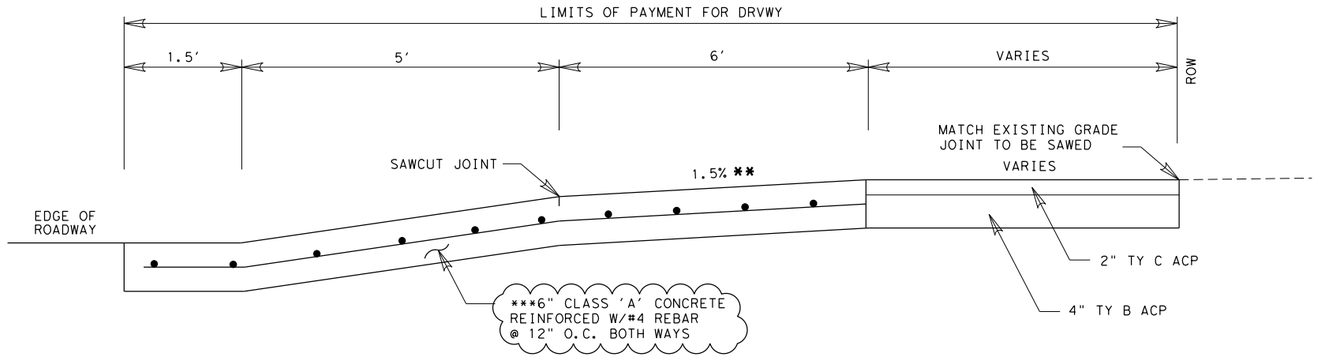
SHEET 1 OF 2

FED.RD. DIV.NO.	STATE PROJECT NO.		SHEET NO.
6	(SEE TITLE SHEET)		126
STATE	DIST.	COUNTY	
TEXAS	WACO	MCLENNAN, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0209	01	073,ETC	SL 2, ETC

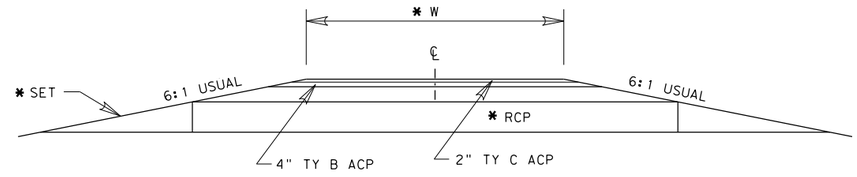


DRIVEWAYS (ACP)

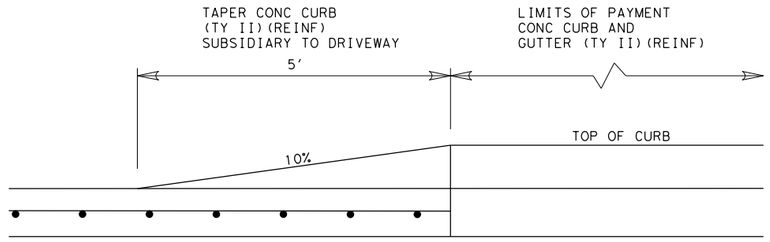
DRIVEWAYS (ACP) SHALL CONSIST OF: BLADING AND RESHAPING THE SUBGRADE, ANY EXTRA EMBANKMENT MATERIAL NECESSARY TO ACHIEVE THE PROPER SUBGRADE WIDTH, THE PLACEMENT OF 6" CLASS 'A' CONCRETE, REMOVAL OF ANY EXISTING CONC CURB AND GUTTER, REMOVAL OF ANY EXISTING CONCRETE, PLACEMENT OF NEW CONC CURB(TY II) (REINF) AND PLACEMENT OF 2" TY C ACP AND 4" TY B ACP WITHIN THE LIMITS SHOWN.



SECTION A-A



DRVWY TYPICAL SECTION



SECTION B-B

FOR C&G SECTIONS

* SEE SUMMARY OF DRIVEWAYS FOR: LOCATION, DIMENSION "W" AND RCP/SET DETAILS (IF REQ'D)

** SIDEWALK CROSS-SLOPE DIRECTION SHALL BE SHOWN ELSEWHERE IN THE PLANS

*** FOR DRWY WITH HES CONC SHOWN ON SHEET 72, 85, & 86, USE 8" CLASS 'HES' CONCRETE REINFORCED W/#5 REBAR @ 12" O.C. BOTH WAYS

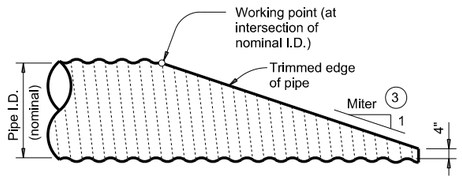
STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED
PROFESSIONAL ENGINEER

Marwan Muwaquet
09/26/21

ADA DRIVEWAY DETAILS (MOD)

SHEET 2 OF 2

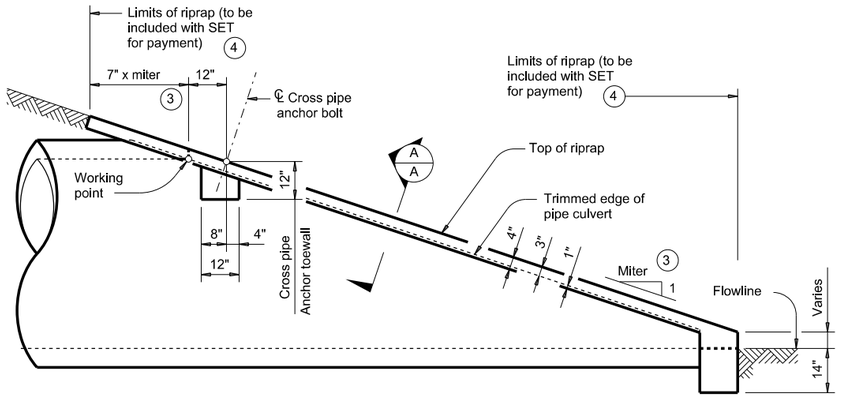
FED.RD. DIV.NO.	STATE PROJECT NO.		SHEET NO.
6	(SEE TITILE SHEET)		127
STATE	DIST.	COUNTY	
TEXAS	WACO	MCLENNAN, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0209	01	073,ETC	SL 2, ETC



NOTE: All pipe runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

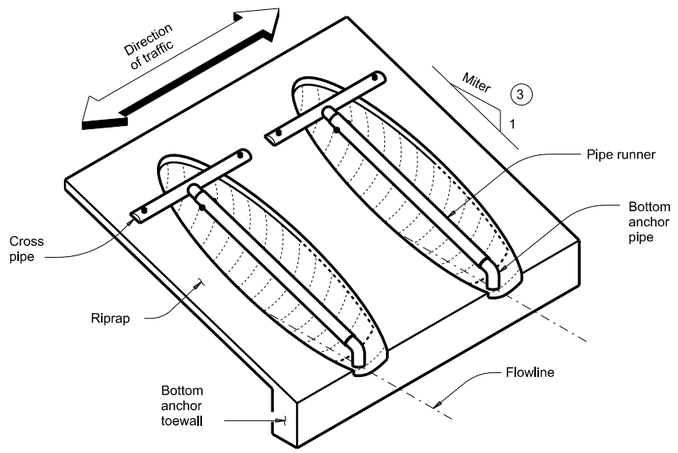
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert. Details of reinforced concrete pipe (RCP) culvert are similar.)



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details of corrugated metal pipe (CMP) culvert are similar. Pipe runners not shown for clarity)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS (1) (2)

Nominal Culvert I.D.	Pipe Culvert Spa ~ G	Cross Pipe Length	Pipe Runner Length											
			3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
			0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
24"	1' - 7"	3' - 5"	N/A	N/A	N/A	5' - 10"	N/A	N/A	N/A	8' - 1"	N/A	N/A	N/A	12' - 9"
27"	1' - 8"	3' - 8"	N/A	N/A	5' - 5"	6' - 11"	N/A	N/A	7' - 7"	9' - 7"	N/A	N/A	11' - 11"	14' - 11"
30"	1' - 10"	3' - 11"	N/A	N/A	6' - 4"	8' - 0"	N/A	N/A	8' - 9"	11' - 0"	N/A	N/A	13' - 8"	17' - 0"
33"	1' - 11"	4' - 2"	6' - 2"	6' - 5"	7' - 3"	9' - 1"	8' - 6"	8' - 10"	10' - 0"	12' - 5"	13' - 3"	13' - 9"	15' - 5"	19' - 2"
36"	2' - 1"	4' - 5"	6' - 11"	7' - 3"	8' - 2"	10' - 2"	9' - 6"	9' - 11"	11' - 2"	13' - 10"	14' - 9"	15' - 3"	17' - 2"	21' - 3"
42"	2' - 4"	4' - 11"	8' - 6"	8' - 10"	9' - 11"	12' - 4"	11' - 7"	12' - 0"	13' - 6"	16' - 8"	17' - 9"	18' - 5"	20' - 8"	25' - 7"
48"	2' - 7"	5' - 5"	10' - 1"	10' - 5"	11' - 9"	N/A	13' - 7"	14' - 2"	15' - 10"	N/A	20' - 9"	21' - 6"	24' - 2"	N/A
54"	3' - 0"	5' - 11"	11' - 8"	12' - 1"	N/A	N/A	15' - 8"	16' - 3"	N/A	N/A	23' - 10"	24' - 8"	N/A	N/A
60"	3' - 3"	6' - 5"	13' - 3"	N/A	N/A	N/A	17' - 9"	N/A	N/A	N/A	26' - 10"	N/A	N/A	N/A

TYPICAL PIPE CULVERT MITERS (3)

Side Slope	0° Skew	15° Skew	30° Skew	45° Skew
3:1	3:1	3.106:1	3.464:1	4.243:1
4:1	4:1	4.141:1	4.619:1	5.657:1
6:1	6:1	6.212:1	6.928:1	8.485:1

CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED (2)

Nominal Culvert I.D.	Single Pipe Culvert	Multiple Pipe Culverts
12" thru 21"	Skews thru 45°	Skews thru 45°
24"	Skews thru 45°	Skews thru 30°
27"	Skews thru 30°	Skews thru 15°
30"	Skews thru 15°	Skews thru 15°
33"	Skews thru 15°	Always required
36"	Normal (no skew)	Always required
42" thru 60"	Always required	Always required

STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS (1)

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10' - 0"
4" STD	4.500"	4.026"	19' - 8"
5" STD	5.563"	5.047"	34' - 2"

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (5)

Nominal Culvert I.D.	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
12"	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8
15"	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
18"	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0
21"	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.2
24"	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.1	1.3
27"	0.7	0.7	0.8	0.9	0.8	0.9	0.9	1.1	1.1	1.1	1.2	1.4
30"	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.6
33"	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.3	1.3	1.4	1.5	1.7
36"	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.4	1.4	1.5	1.6	1.8
42"	1.0	1.0	1.1	1.3	1.2	1.3	1.3	1.6	1.6	1.7	1.8	2.1
48"	1.1	1.1	1.2	N/A	1.4	1.4	1.5	N/A	1.9	1.9	2.1	N/A
54"	1.3	1.3	N/A	N/A	1.6	1.6	N/A	N/A	2.1	2.1	N/A	N/A
60"	1.4	N/A	N/A	N/A	1.7	N/A	N/A	N/A	2.3	N/A	N/A	N/A

(1) Provide pipe runner of the size shown in the tables. Provide cross pipe of the same size as the pipe runner. Provide cross pipe stub out and bottom anchor pipe of the next smaller size pipe as shown in the Standard Pipe Sizes and Max Pipe Runner Lengths table.

(2) This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For 60" culvert pipes, the skew must not exceed 0°.
For 54" culvert pipes, the skew must not exceed 15°.
For 48" culvert pipes, the skew must not exceed 30°.
For all culvert pipe sizes 42" and less, the skew must not exceed 45°.

If the above conditions cannot be met, the designer should consider using a safety end treatment with flared wings. For further information, refer to the TxDOT Roadway Design Manual.

(3) Miter = slope of mitered end of pipe culvert.

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(5) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

DATE:
FILE:

SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

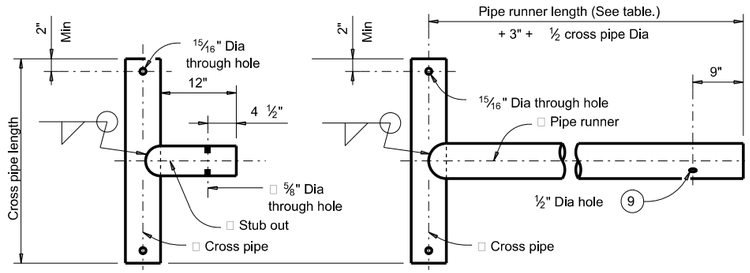
SAFETY END TREATMENT

FOR 12" DIA TO 60" DIA
PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD

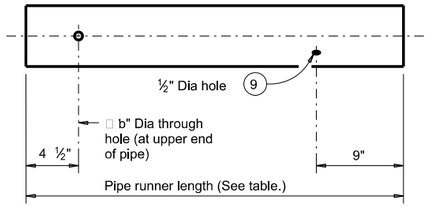
FILE: setpcdse-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC		128

DATE:
FILE:



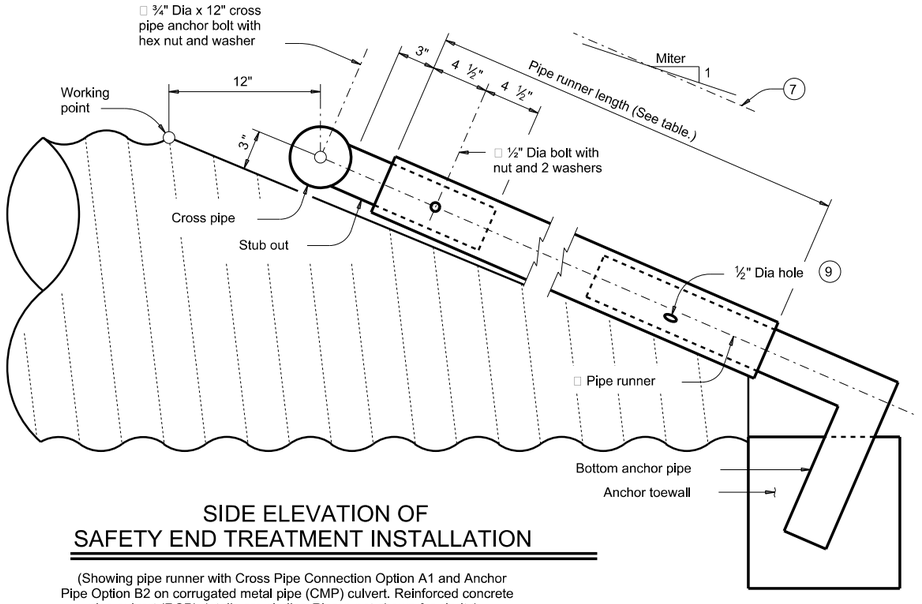
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS



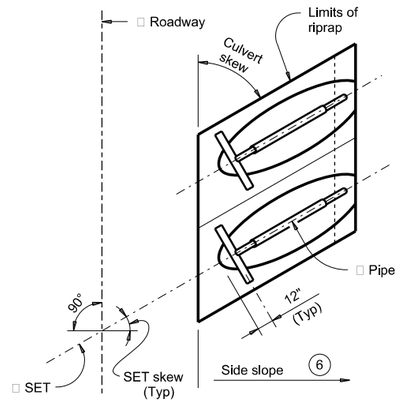
NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS

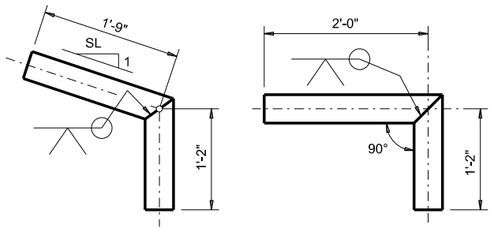


SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

(Showing pipe runner with Cross Pipe Connection Option A1 and Anchor Pipe Option B2 on corrugated metal pipe (CMP) culvert. Reinforced concrete pipe culvert (RCP) details are similar. Riprap not shown for clarity)

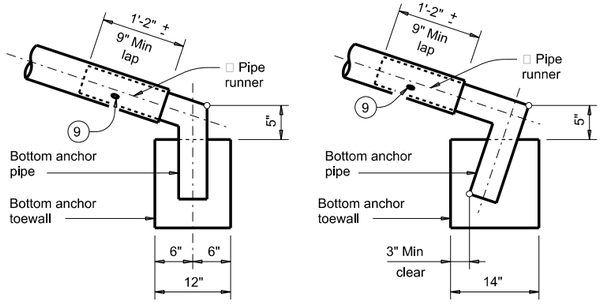


PLAN OF SKEWED INSTALLATION



OPTION B1 OPTION B2

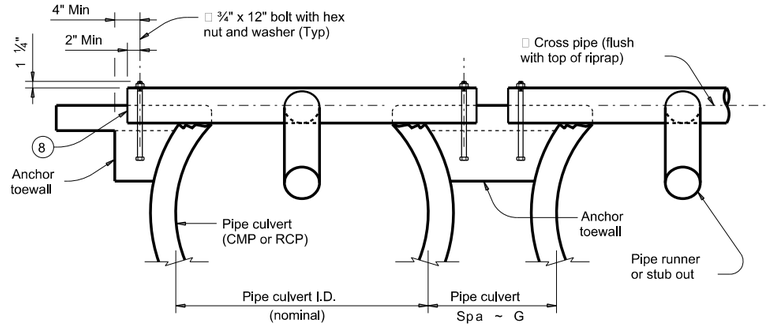
BOTTOM ANCHOR PIPE DETAILS (10)



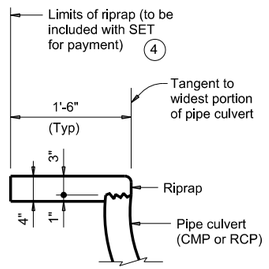
OPTION B1 OPTION B2

BOTTOM ANCHOR TOEWALL DETAILS

(Culvert and riprap not shown for clarity.)



SHOWING CROSS PIPE AND ANCHOR TOEWALL



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SECTION A-A

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(6) Recommended values of side slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.

(7) Note that actual slope of pipe runner may vary slightly from side slope of riprap and trimmed culvert pipe edge.

(8) Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(9) After installation, inspect the ½" hole to ensure that the lap of the pipe runner with the bottom anchor pipe is adequate.

(10) At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MATERIAL NOTES:
Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
Provide pipe runners, cross pipes, and anchor pipes conforming to the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.
Provide ASTM A307 bolts and nuts.
Galvanize all steel components, except concrete reinforcing, after fabrication.
Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:
Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.
Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.
Payment for riprap and toewall is included in the price bid for each safety end treatment.
Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 60" DIA
PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE: setpcdse-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0209	01	073, ETC	SL 2, ETC
	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC		129

DATE:
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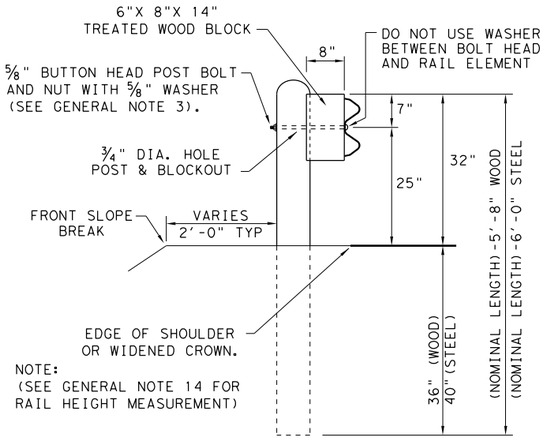
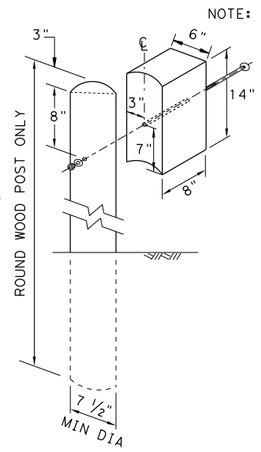
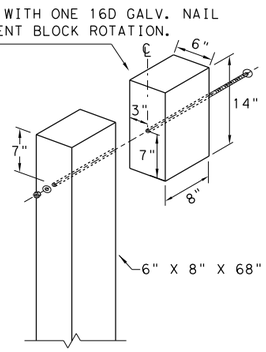


TYPICAL POST PLACEMENT

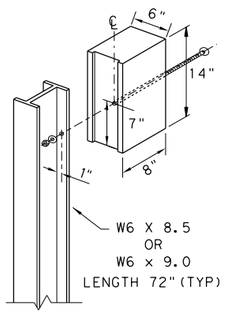


WOOD BLOCK TO ROUND WOOD POST

NOTE: TOENAIL WITH ONE 16D GALV. NAIL TO PREVENT BLOCK ROTATION.

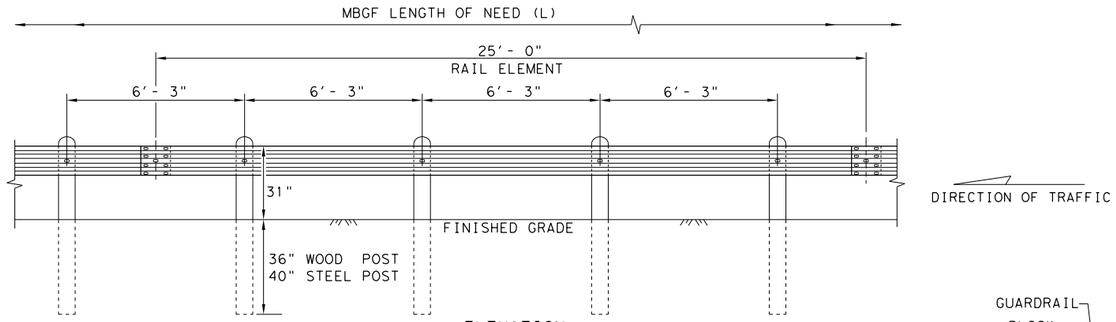


WOOD BLOCK TO RECTANGULAR WOOD POST



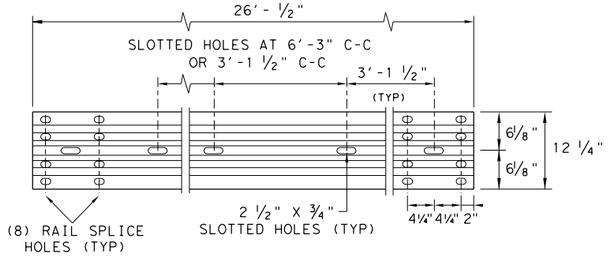
ROUTED WOOD BLOCK TO I-BEAM STEEL POST

NOTE: ** "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.



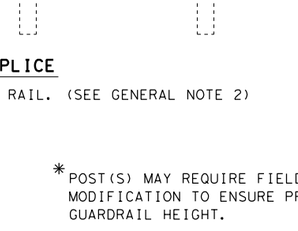
ELEVATION MID-SPAN RAIL SPLICE

SHOWING A 25'- 0" SECTION OF W-BEAM RAIL. (SEE GENERAL NOTE 2)



ELEVATION 25'- 0"(NOM.) W-BEAM SECTION

NOTES: SEE GENERAL NOTE 2 FOR ALLOWABLE RAIL TYPES.
SEE RAIL SPLICE DETAIL FOR REQUIRED HARDWARE.



LOW FILL CULVERT POST

STEEL POST CONNECTION TO CULVERT SLAB (USE WHEN THERE IS LESS THAN 36" COVER OVER CULVERT SLAB).

NOTE: TWO INSTALLATION OPTIONS.

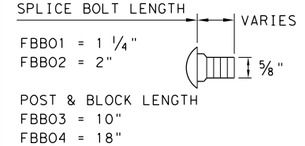
1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. 7/8" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS.
   NOTE: BOLT LENGTH = SLAB PLUS 2 1/4" MIN.

2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE 7/8" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS 1/4" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

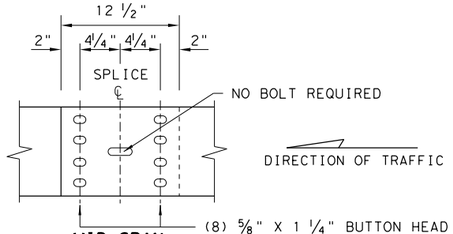
NOTE: TRANSISTIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS.
SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS.
SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

NOTE:
FOUR TYPES OF BUTTON-HEAD GUARD RAIL BOLTS COME WITH A RECCESSED NUT.



BUTTON HEAD BOLT

NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



MID-SPAN RAIL SPLICE DETAIL

NOTE: GF(31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.

GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540,"METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'- 0", OR 12'- 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 1/2" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND 5/8" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210,"COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.

Texas Department of Transportation

Design Division Standard

METAL BEAM GUARD FENCE
TL-3 MASH COMPLIANT
GF(31)-19

FILE: gf3119.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
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	WAC	MCLENNAN, ETC		130

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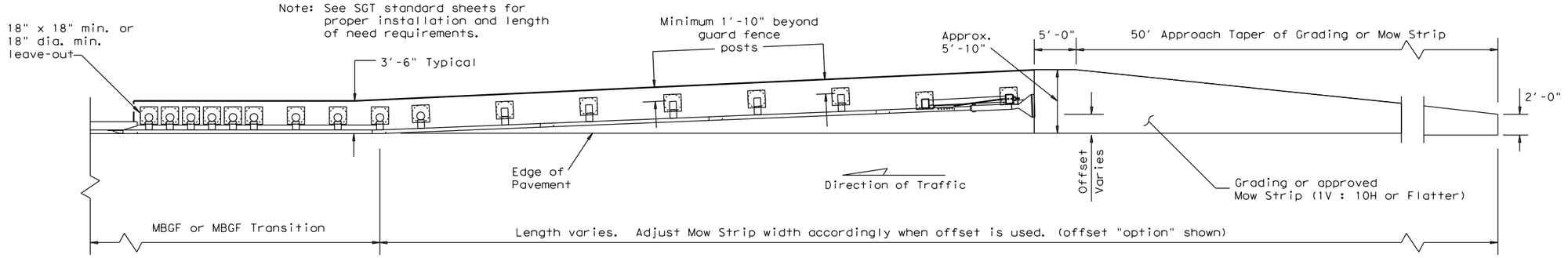
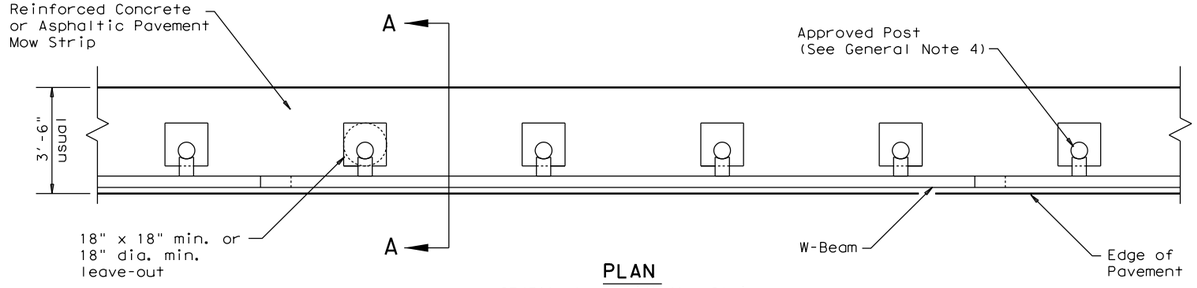
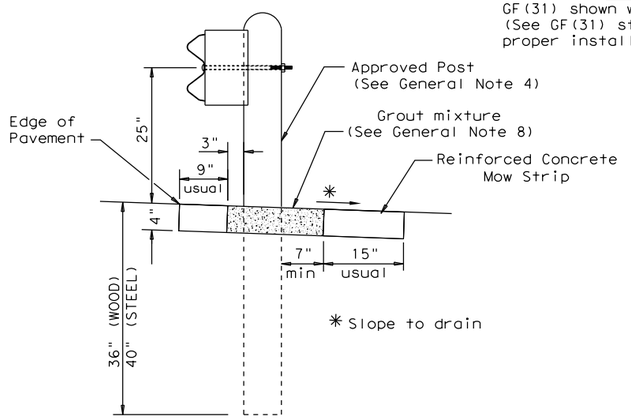


GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS



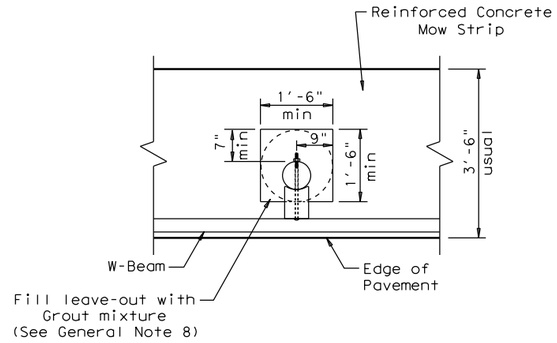
PLAN

GF(31) shown with Mow Strip
(See GF(31) standard sheet for proper installation)



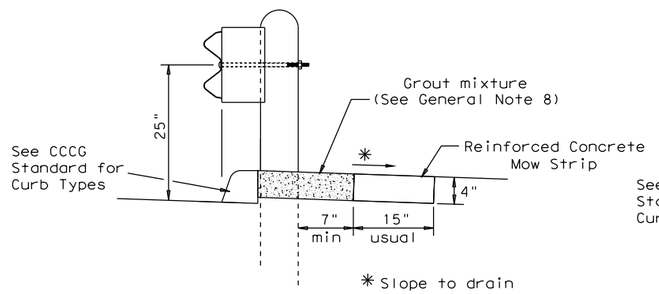
SECTION A-A

Typical



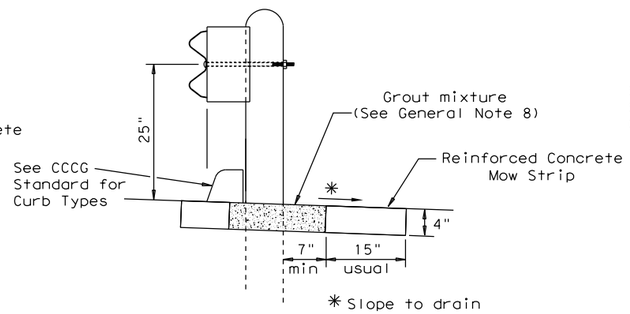
MOW STRIP DETAIL

Reinforced Concrete Mow Strip
with 18" x 18" Square or
18" Dia. minimum leave-out.



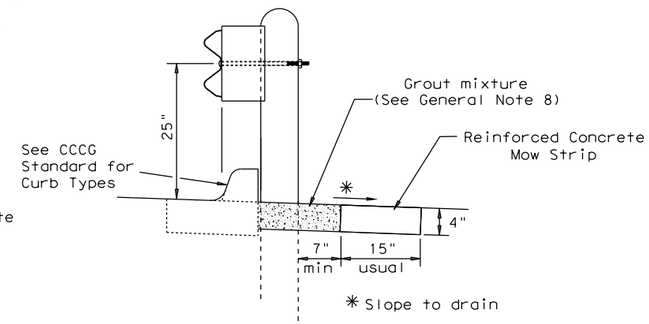
CURB OPTION (1)

This option will increase the post embedment throughout the system.



CURB OPTION (2)

Curb shown on top of mow strip



CURB OPTION (3)

Note: Site Condition(s)

Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.

Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.

GENERAL NOTES

1. This mow strip design is for use with metal beam guard fence, guard fence transitions, and guard fence end treatments. See applicable GF(31) MBGF or GF(31) Transition Standard sheet for additional information.
2. Mow strips shall be reinforced concrete with (wire mesh or synthetic fiber), as shown on the plans and will be paid for under the pertinent bid item. Reinforced concrete shall be placed in accordance with Item 432, "Riprap." The use of the synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Material Producer List (MPL), maintained by TxDOT, Construction Division.
3. The leave-out behind the post shall be a minimum of 7".
4. Only steel (W6 x 8.5 or W6 x 9.0), or 7 ½" Dia. round wood posts are acceptable for use in the mow strip. See GF(31) Standard for additional details.
5. Other curb placement options may be used. Curbs are not considered part of the mow strip and will be paid for under other pertinent bid item.
6. Thickness of the mow strip will be 4".
7. The limits of payment for reinforced concrete will include leave-outs for the posts.
8. The leave-outs shall be filled with a Grout mixture consisting of: 2719 pounds sand, 188 pounds Type 1 or II cement, and 550 pounds of water per cubic yard, with a 28-day compressive strength of approximately 230 psi or less. Provide grout with a consistency that will flow into and completely fill all voids. Due to auger size, larger leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (Suggested Maximum leave-out of 20"). Payment for furnishing and placing the grout mixture will be subsidiary to the pay item of riprap mow strip.

Texas Department of Transportation

Design Division Standard

METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT

GF(31)MS-19

FILE: gf31ms19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG		
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB		HIGHWAY	
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	WAC	MCLENNAN, ETC			131	

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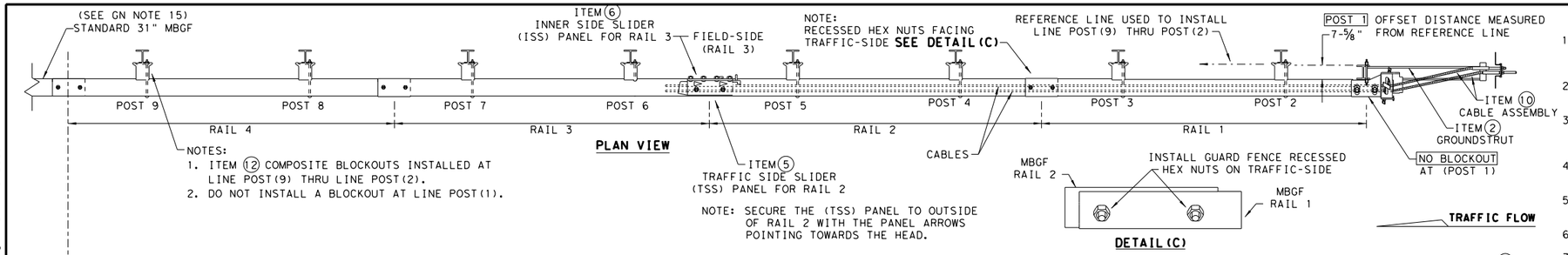

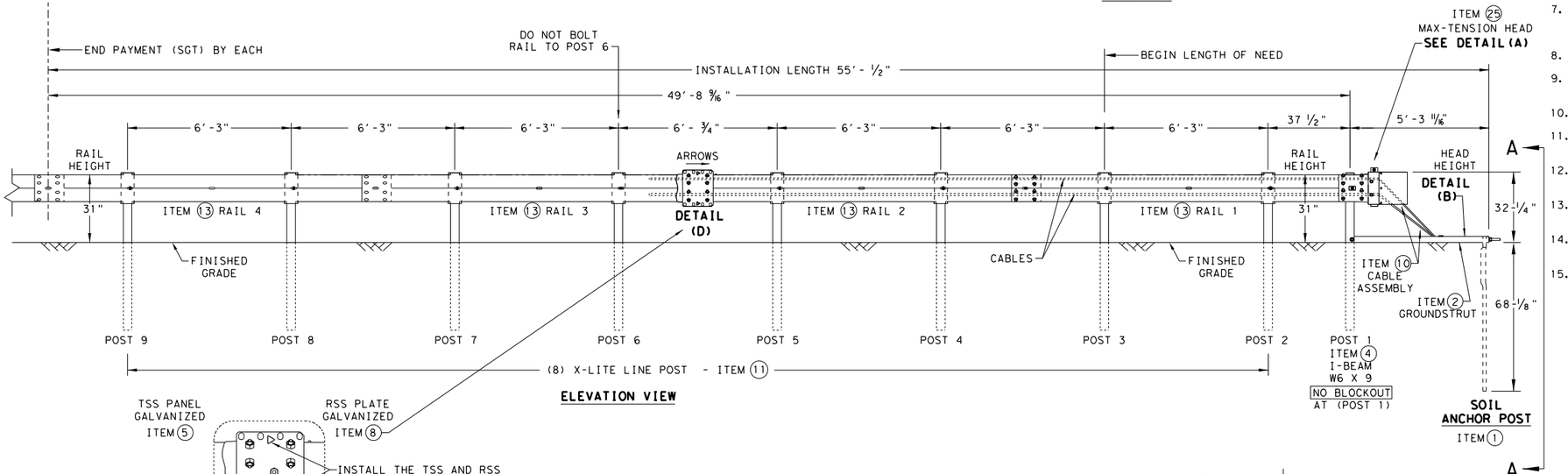

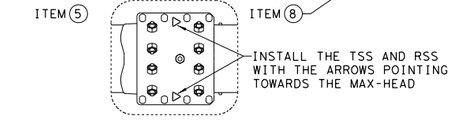

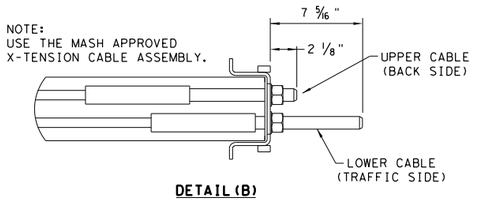

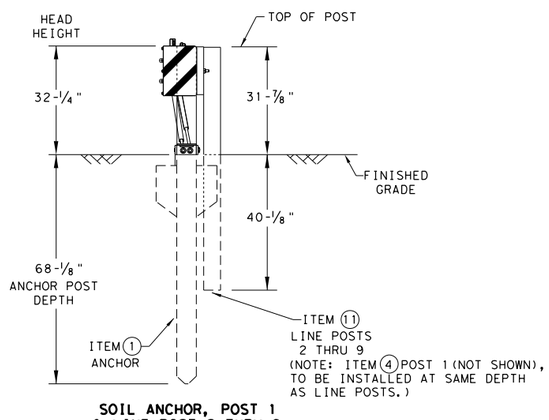

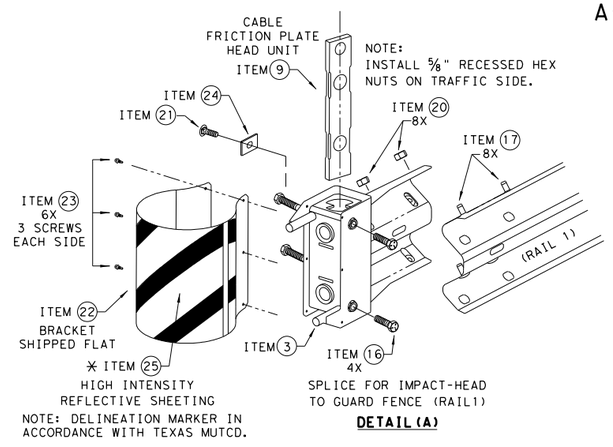

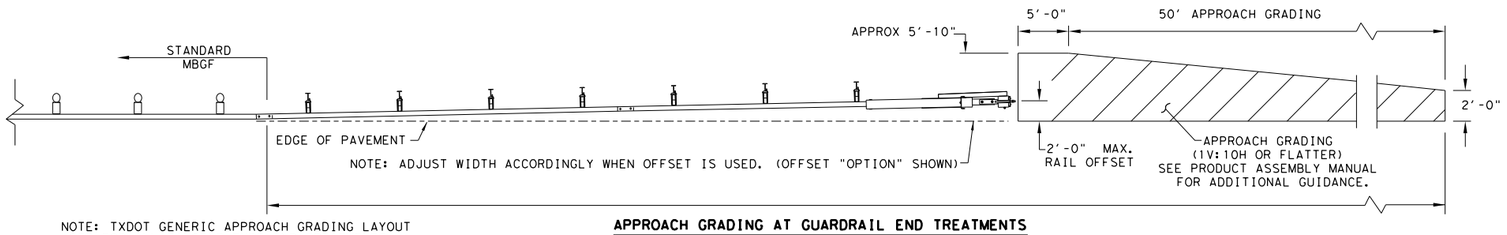

GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: LINDSAY TRANSPORTATION SOLUTIONS (LTS) - BARRIER SYSTEMS, INC. AT (707) 374-6800
2. FOR INSTALLATION, REPAIR, & MAINTENANCE REFER TO THE; MAX-TENSION INSTALLATION INSTRUCTION MANUAL. P/N MANMAX REV D (ECN 3516).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURE'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. ALL STEEL COMPONENTS ARE GALVANIZED PER ASTM A123 OR EQUIVALENT UNLESS OTHERWISE STATED.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POST WITH COMPOSITE BLOCKOUTS.
7. COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST(MPL)FOR CERTIFIED PRODUCERS.
8. REFER TO INSTALLATION MANUAL FOR SPECIFIC PANEL LAPPING GUIDANCE.
9. IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL FOR INSTALLATION GUIDANCE.
10. POSTS SHALL NOT BE SET IN CONCRETE.
11. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POST TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST.
12. MAX-TENSION SYSTEM SHALL NEVER BE INSTALLED WITHIN A CURVED SECTION OF GUARDRAIL.
13. IF A DELINEATION MARKER IS REQUIRED, MARKER SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
14. THE SYSTEM IS SHOWN WITH 12'-6" MBGF PANELS, 25'-0" MBGF PANELS ARE ALSO ALLOWED.
15. A MINIMUM OF 12'-6" OF 12GA. MBGF IS REQUIRED IMMEDIATELY DOWNSTREAM OF THE MAX-TENSION SYSTEM.

	ITEM #	PART NUMBER	DESCRIPTION	QTY
	1	BSI-1610060-00	SOIL ANCHOR - GALVANIZED	1
	2	BSI-1610061-00	GROUND STRUT - GALVANIZED	1
	3	BSI-1610062-00	MAX-TENSION IMPACT HEAD	1
	4	BSI-1610063-00	W6x9 I-BEAM POST 6FT.-GALVANIZED	1
	5	BSI-1610064-00	TSS PANEL - TRAFFIC SIDE SLIDER	1
	6	BSI-1610065-00	ISS PANEL - INNER SIDE SLIDER	1
	7	BSI-1610066-00	TOOTH - GEOMET	1
	8	BSI-1610067-00	RSS PLATE - REAR SIDE SLIDER	1
	9	B061058	CABLE FRICTION PLATE - HEAD UNIT	1
	10	BSI-1610069-00	CABLE ASSEMBLY - MASH X-TENSION	2
	11	BSI-1012078-00	X-LITE LINE POST-GALVANIZED	8
	12	B090534	8" W-BEAM COMPOSITE-BLOCKOUT XT110	8
	13	BSI-4004386	12'-6" W-BEAM GUARD FENCE PANELS 12GA.	4
	14	BSI-1102027-00	X-LITE SQUARE WASHER	1
	15	BSI-2001886	5/8" X 7" THREAD BOLT HH (GR.5)GEOMET	1
	16	BSI-2001885	3/4" X 3" ALL-THREAD BOLT HH (GR.5)GEOMET	4
	17	4001115	5/8" X 1 1/4" GUARD FENCE BOLTS (GR.2)MGAL	48
	18	2001840	5/8" X 10" GUARD FENCE BOLTS MGAL	8
	19	2001636	5/8" WASHER F436 STRUCTURAL MGAL	2
	20	4001116	5/8" RECESSED GUARD FENCE NUT (GR.2)MGAL	59
	21	BSI-2001888	5/8" X 2" ALL THREAD BOLT (GR.5)GEOMET	1
	22	BSI-1701063-00	DELINEATION MOUNTING (BRACKET)	1
	23	BSI-2001887	1/4" X 3/4" SCREW SD HH 410SS	7
	24	4002051	GUARDRAIL WASHER RECT AASHTO FWR03	1
*	25	SEE NOTE BELOW	HIGH INTENSITY REFLECTIVE SHEETING	1
**	26	4002337	8" W-BEAM TIMBER-BLOCKOUT, PDB01B	8
**	27	BSI-4004431	25' W-BEAM GUARDRAIL PANEL,8-SPACE,12GA.	2
	28	MANMAX Rev-(D)	MAX-TENSION INSTALLATION INSTRUCTIONS	1

* TO BE PROVIDED BY DISTRIBUTOR OR CONTRACTOR.

** ALTERNATIVE ITEMS NOT SHOWN.
ITEM(26) 8" WOOD-BLOCKOUTS
ITEM(27) 25'GUARD FENCE PANELS

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE MAX-TENSION END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation

Design Division Standard

MAX-TENSION END TERMINAL
MASH - TL-3
SGT(11S)31-18

FILE: sgt11s3118.dgn	DN: TxDOT	CK: KM	DW: TxDOT	CK: CL
© TxDOT: FEBRUARY 2018	CONT	SECT	JOB	HIGHWAY
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	WAC	MCLENNAN, ETC		132

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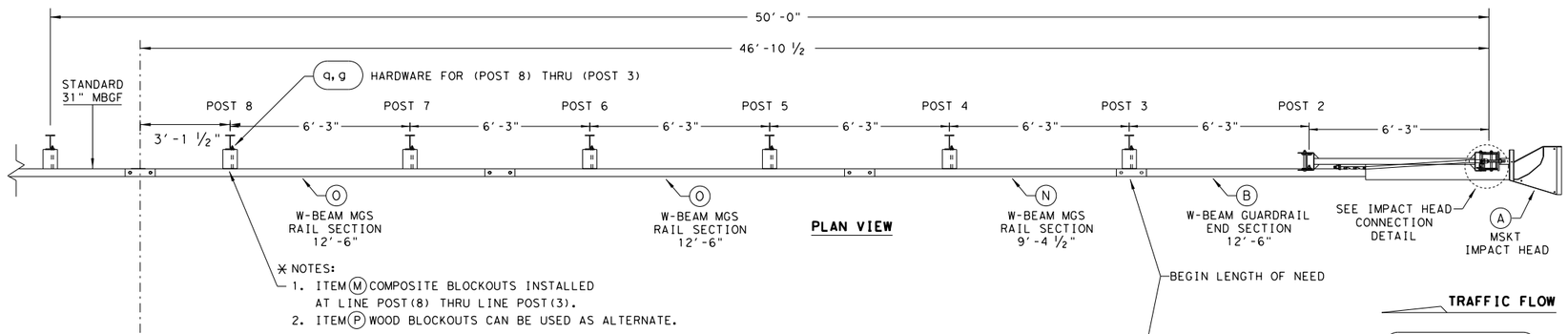


NOTE: SEE (GENERAL NOTE 14) FOR DRIVING CAP INFORMATION.

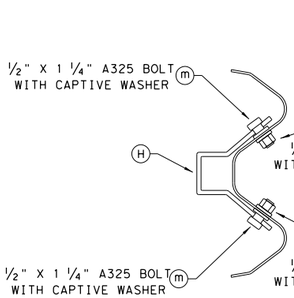
GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: ROAD SYSTEMS, INC. (432)263-2435. 3616 OLD HOWARD COUNTY AIRPORT, BIG SPRING, TX 79720
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE; MSKT END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL (PUBLICATION~062717).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POSTS WITH COMPOSITE BLOCKOUTS.
7. A COMPOSITE MATERIAL BLOCKOUTS THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
8. IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, & REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
9. POSTS SHALL NOT BE SET IN CONCRETE.
10. SYSTEM MUST BE ATTACHED TO STANDARD 31" MBGF.
11. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
12. A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
13. THE SYSTEM IS SHOWN WITH TWO 12'-6" MBGF PANELS, ONE 25'-0" MBGF PANEL IS ALSO ALLOWED IN THEIR PLACE.
14. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POSTS 3-8 TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST. SPECIAL DRIVING CAP TO BE USED ON LOWER POSTS 1 & 2 TO PREVENT DAMAGE TO THE WELDED PLATES.

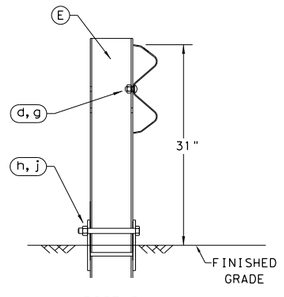
ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM NUMBERS
A	1	MSKT IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303
C	1	POST 1 - TOP (6" X 6" X 1/8" TUBE)	MTPHP1A
D	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
E	1	POST 2 - ASSEMBLY TOP	UHP2A
F	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	GROUND STRUT	MS785
L	6	W6x9 OR W6x8.5 STEEL POST	P621
M	6	COMPOSITE BLOCKOUTS	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 1/2")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MGS RAIL SECTION (25'-0")	G1209
		SMALL HARDWARE	
a	2	5/8" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	5/8" WASHER	W0516
c	2	5/8" HEX NUT	N0516
d	25	5/8" Dia. x 1 1/4" SPLICE BOLT (POST 2)	B580122
e	2	5/8" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	5/8" WASHER	W050
g	33	5/8" Dia. H.G.R NUT	N050
h	1	3/4" Dia. x 8 1/2" HEX BOLT (GRD A449)	B340854A
j	1	3/4" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	1/2" x 1 1/4" A325 BOLT WITH CAPTIVE WASHER	SB12A
n	8	1/2" STRUCTURAL NUTS	N012A
o	8	1 1/16" O.D. x 5/16" I.D. STRUCTURAL WASHERS	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	5/8" x 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" X 18"	E3151

SEE NOTES: ✳

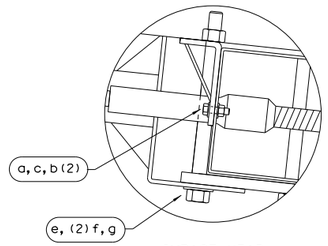
ALTERNATIVE ITEMS NOT SHOWN. ✳✳
✳ ITEM(P) 8" WOOD-BLOCKOUT
✳✳ ITEM(Q) 25'GUARD FENCE PANEL



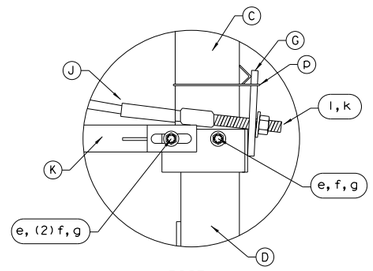
SECTION B-B
ANCHOR BRACKET



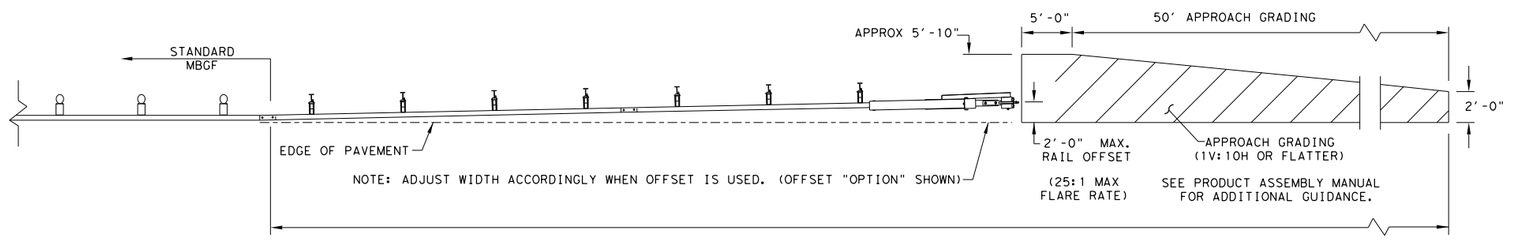
POST 2
SECTION A-A



IMPACT HEAD
CONNECTION DETAIL



POST 1
CONNECTION DETAIL



APPROACH GRADING AT GUARDRAIL END TREATMENTS

TRAFFIC FLOW

NOTE: TXDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE MSKT END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation

Design Division Standard

SINGLE GUARDRAIL TERMINAL

MSKT-MASH-TL-3

SGT(12S)31-18

FILE: sgt12s3118.dgn	DN:TxDOT	CK:KM	DW:VP	CK:CL	
© TxDOT: APRIL 2018	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0209	01	073, ETC	SL 2, ETC	
	DIST	COUNTY		SHEET NO.	
	WAC	MCLENNAN, ETC		133	

DATE:
FILE:

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1. City of Waco, Penelope and Aquilla

2.

☐ 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 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 TCEQ, EPA or other inspectors.

4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required

☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)

☐ Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)

☐ 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 planned to control erosion, sedimentation and post-project TSS.

1.

2.

3.

4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

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	☐ 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.

2.

3.

4.

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. BIRD BMP'S: a) Do not disturb, destroy, or remove active nests, including ground nesting birds, during the nesting season; b) avoid the removal of unoccupied, inactive nests, as practicable; c) prevent the establishment of active nests during the nesting season on TxDOT owned or operated facilities and structures proposed for replacement or repair; d) do not collect, capture, relocate, or transport birds, eggs, young, or active nests without a permit.

2. The Migratory Bird Treaty Act of 1918 states that it unlawdul to kill, capture, collect, posses, buy, sell, trade, or transport any migratory bird, nest, young, feather, egg in part or in whole, without a Federal permit issued in accordance within the Act's policis and regulations. In the event that migratory birds are encountered on-site during project construction, adverse impacts on protected birds, active nests, eggs, and/or young would be avoided and work would not begin until the young have left the nest.

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 immediate area, and contact the Engineer immediately.

LIST OF ABBREVIATIONS

BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SW3P:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
MOA:	Memorandum of Agreement	TCEQ:	Texas Commission on Environmental Quality
MOU:	Memorandum of Understanding	TPDES:	Texas Pollutant Discharge Elimination System
MS4:	Municipal Separate Stormwater Sewer System	TPWD:	Texas Parks and Wildlife Department
MBTA:	Migratory Bird Treaty Act	TxDOT:	Texas Department of Transportation
NOT:	Notice of Termination	T&E:	Threatened and Endangered Species
NWP:	Nationwide Permit	USACE:	U.S. Army Corps of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

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 appropriate 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 following 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

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

☐ Yes ☒ No

If "No", then no further action is required.
If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

☐ Yes ☐ No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

Texas Department of Transportation

Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR	
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY	
REVISIONS 12-12-2011 (DS)	0209	01	073, ETC	SL 2, ETC	
05-07-14 ADDED NOTE SECTION IV.	DIST	COUNTY		SHEET NO.	
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	WAC	MCLENNAN, ETC		134	

SITE DESCRIPTION

PROJECT LIMITS:

STATE SPUR (SL) 2 (FROM US 84 TO IH 35) (CSJ:0209-01-068)
US 77 (FROM IH 35 TO LA SALLE AVE) (CSJ:0209-01-069)
AQUILLA - FM 3370 (FROM IN FRONT OF USPS TO AQUILLA ISD) (CSJ:0909-37-072)
PENELOPE - FM 2114 (FM 308 TO 0.21 MI S OF GRANT ST), FM 308 (COLLEGE ST TO COMMERCE)(CSJ:0909-37-072)

LOCATION MAPS:

Refer to title sheet for project location map.

PROJECT DESCRIPTION:

CURB RAMP AND SIDEWALK IMPROVEMENT

MAJOR SOIL DISTURBING ACTIVITIES:

The major soil disturbing activities for this project will consist of construction of curb ramps, sidewalk, and miscelleneous pedestrian elements.

TOTAL PROJECT AREA:	20.50 AC
TOTAL AREA TO BE DISTURBED:	0.90 AC

EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER:

CSJ 0209-01-068, ETC:
The predominate soil type is Frio Silty Clay.
Vegetative cover is in good condition with 90-95% coverage.

NAME OF RECEIVING WATERS:

For Waco - Waco creek flowing to Brazos River
Segment ID: 480461 48309C0367D

For Aquilla - Dead Horse creek flowing to Brazos River via Aquilla creek
Segment ID: 480242 48217C0550C

For Penelope - Ash creek flowing to Navarro Mills lake
Segment ID: 48864 48217C0600D

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

___ TEMPORARY SEEDING
_X_ PERMANENT PLANTING, SODDING, OR SEEDING
___ MULCHING
___ SOIL RETENTION BLANKET
___ NATURAL BARRIERS OR BUFFER ZONES
___ PRESERVATION OF NATURAL RESOURCES

OTHER: TXR 150000, Part III, Section G, 2 Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating, or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Temporary stabilization must be completed no more than 14 calendar days after initiation of soil stabilization measures, and final stabilization must be achieved prior to termination of permit coverage.

STRUCTURAL PRACTICES:

_I_ SILT FENCES
_I_ HAY BALES
___ SANDBAG OR ROCK BERMS
___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
___ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
___ DIVERSION DIKE AND SWALE COMBINATIONS
___ PIPE SLOPE DRAINS
___ PAVED FLUMES
___ ROCK BEDDING AT CONSTRUCTION EXIT
___ TIMBER MATTING AT CONSTRUCTION EXIT
___ CHANNEL LINERS
___ SEDIMENT TRAPS
___ SEDIMENT BASINS
_I_ STORM INLET SEDIMENT TRAP
___ STONE OUTLET STRUCTURES
_I_ CURBS AND GUTTERS
___ STORM SEWERS
___ VELOCITY CONTROL DEVICES

OTHER:

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

The order of activities will be as follows:

1. Preserve existing vegetative cover as much as possible.
2. Install temporary sediment control fencing, rock berms and other items as shown on plans prior to any soil disturbing activities.
3. Remove existing bridge, construct proposed culvert and roadway and perform any necessary excavation, embankment and grading.
4. Place soil retention blankets and temporary/permanent seeding as shown in the plans and as directed.

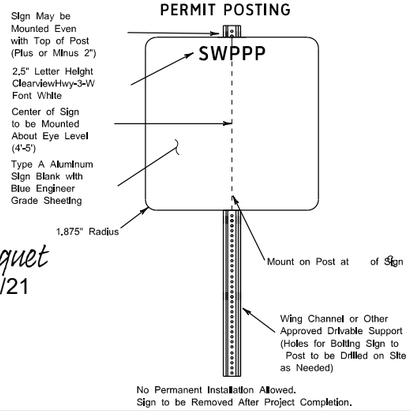
STORM WATER MANAGEMENT:

An integral part of the SWPPP for this project includes the EPIC Sheet, Item 506, Waco District Waters of the US Notes, Waco District Typical Applications for Best Management Practices, Form 2118 TxDOT inspection forms, Contractor daily inspection forms, miscellaneous general notes on environmental requirements, TxDOT EC Standards, 2014 Standard Specifications, TxDOT roadway design drawings, SWPPP design and working BMP drawings, Site Manager Data Base, EMS Stage Gate Inspections and the Waco District environmental folders. The requirements of the TxDOT EMS will be fully implemented including training requirements for Contractors and TxDOT staff.

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED PROFESSIONAL ENGINEER
M.F.Muwaquet
09/26/21

Texas Department of Transportation
Waco District Office
Advanced Project Development
100 South Loop Drive
Waco Texas, 76704-2858

STORM WATER POLLUTION PREVENTION PLAN PERMIT POSTING



OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment best management practices (BMPs) will be maintained in good working order per the environmental notes, details and standards included as part of the project plans and contract documents. BMP repairs will be made at the earliest possible date, but no later than seven calendar days after the inspection report has been completed and immediately after the ground has dried sufficiently to allow equipment access. BMPs damaged by the Contractor will be repaired or replaced immediately. The installation and repair of BMPs at creeks and outfalls will be given priority.

INSPECTION: TxDOT Form 2118 inspections to support TXR150000 and 404 permits will be conducted on a seven day interval on the same day of the week, until permits are terminated. The Contractor will provide daily BMP inspection reports on work days. Stage Gate Inspections and other BMP inspections will be conducted by the District and Area Office Staff based on requirements of the TxDOT Environmental Management System (EMS).

WASTE MATERIALS: Any waste materials generated during construction will be disposed of in accordance with existing federal, state, and local laws.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): At a minimum, any products in the following categories are considered to be hazardous: Fuels, Lubricating products, Asphalt products, or Concrete curing compounds and any additives. In the event of a spill which may be hazardous, clean-up will be done in accordance with federal, state, and local regulations. The Contractor will maintain a list of all chemicals and wastes required for the project; including chemicals used by sub-contractors, and will implement written spill prevention and clean-up plans.

SANITARY WASTE: Sanitary waste from portable units will be collected by a licensed sanitary waste management contractor.

OFF SITE VEHICLE TRACKING:

___ HAUL ROADS DAMPENED FOR DUST CONTROL
_X_ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
_X_ EXCESS DIRT ON ROAD REMOVED DAILY
___ STABILIZED CONSTRUCTION ENTRANCE

REMARKS: Disposal areas, stockpiles, and haul roads will be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas will not be located in any wetland, waterbody or streambed. Construction staging area and vehicle maintenance area will be constructed by the contractor in a manner to minimize the runoff pollutants.

Furnish one SW3P permit posting sign and sign support as detailed on the SW3P Sheet. Install this sign in a location selected by the Engineer. The sign and support should be removed upon completion of the project and is the property of the Contractor. The purchase of the sign and support, installation, relocation(s) if determined necessary by the Engineer and removal at project end will be subsidiary to Item 506.

Sedimentation Basins - Since the area disturbed is less than 10 acres, per outfall location, a sedimentation basin is not required.

Texas Department of Transportation
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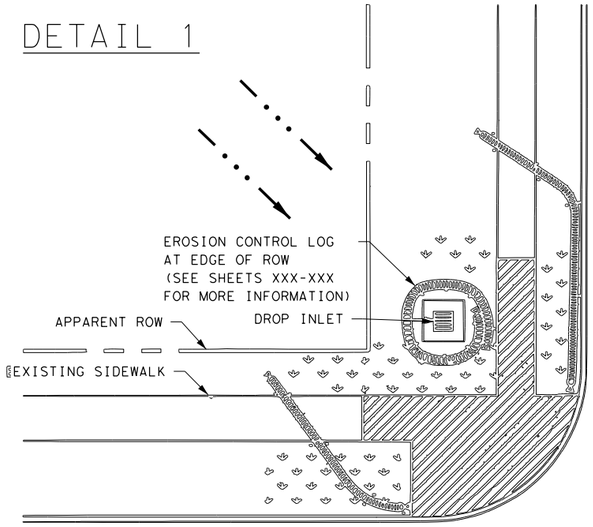
WACO DISTRICT STORM WATER POLLUTION PREVENTION PLAN (SW3P)

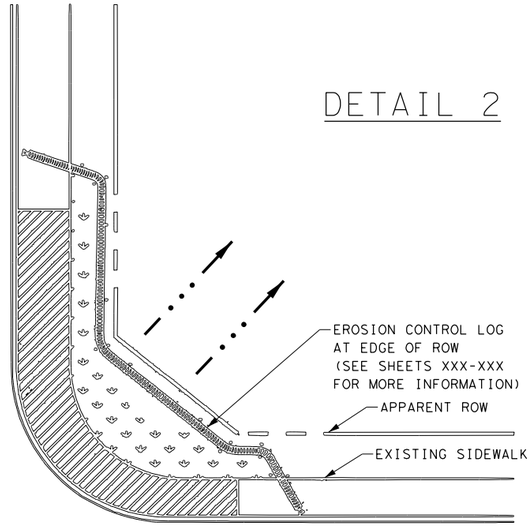
FED.RD. DIV.NO.	STATE PROJECT NO.		SHEET NO.
6	(SEE TITLE SHEET)		135
STATE	DIST.	COUNTY	
TEXAS	WACO	MCLENNAN, ETC	
CONT.	SECT.	JOB	HIGHWAY NO.
0209	01	073, ETC	SL 2, ETC

P:\Jobs\2020006-Pedestrian TxDOT Waco\CADD\VI ENVIRONMENTAL ISSUES\135*TXDOT STORM WATER POLLUTION PREVENTION PLAN (SW3P).dgn

DETAIL 1

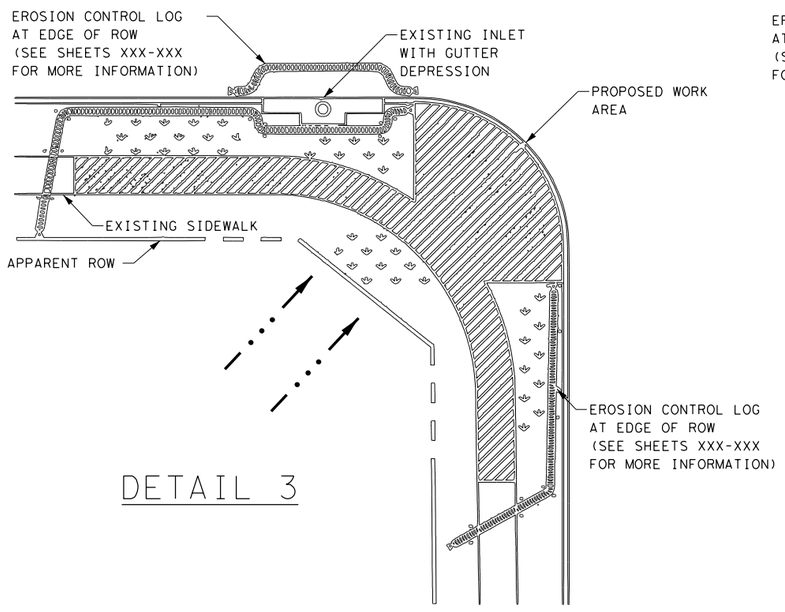


DETAIL 2

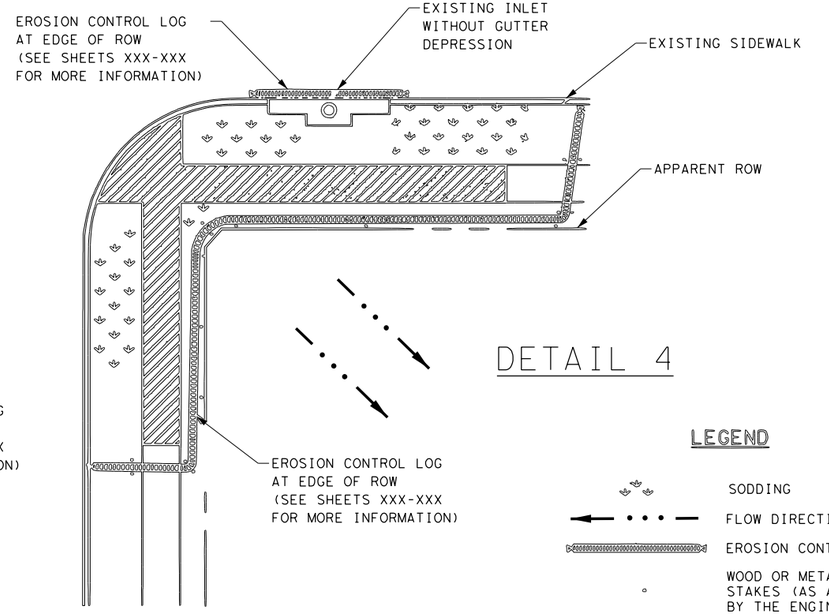


NOTES:
1. REFERENCE ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC) AMD STORM WATER POLLUTION PREVENTION PLAN (SW3P) STANDARDS FOR SPECIFIC CONSTRUCTION CONSIDERATIONS OR REQUIREMENTS.
2. EXAMPLES SHOWN ON THE SHEET ARE FOR GENERAL GUIDANCE AND MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.
3. TEMPORARY SEDIMENT CONTROL FENCE MAY BE USED IN LIEU OF EROSION CONTROL. LOGS WHERE APPROVED BY THE ENGINEER.
4. SITE CONDITIONS MAY DICTATE ADDITIONAL COUNTER MEASURES AS DIRECTED BY THE ENGINEER.
5. USE ADDITIONAL STAKES AS NEEDED TO HOLD IN PLACE (NSPI).
6. INSTALLATION OF COUNTERMEASURES MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.

DETAIL 3



DETAIL 4



LEGEND

- SODDING
- FLOW DIRECTION
- EROSION CONTROL LOG
- WOOD OR METAL STAKES (AS APPROVED BY THE ENGINEER)
- EXISTING FEATURES
- PROPOSED WORK AREA

STATE OF TEXAS
MARWAN F. MUWAQUET
81607
LICENSED
PROFESSIONAL ENGINEER
4/9/2021

GLOBAL CIVIL SOLUTIONS, LLC
11551 FOREST CENTRAL DRIVE
SUITE 220
DALLAS, TX 75243
F-12801

Texas Department of Transportation

SW3P GENERAL LAYOUT

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
MII	6	(SEE TITLE SHEET)		SL2, ETC
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
PS	TEXAS	WAC	MCLENNAN, ETC	136
CHECK	CONTROL	SECTION	JOB	
MFM	0209	01	073, ETC.	
CHECK				
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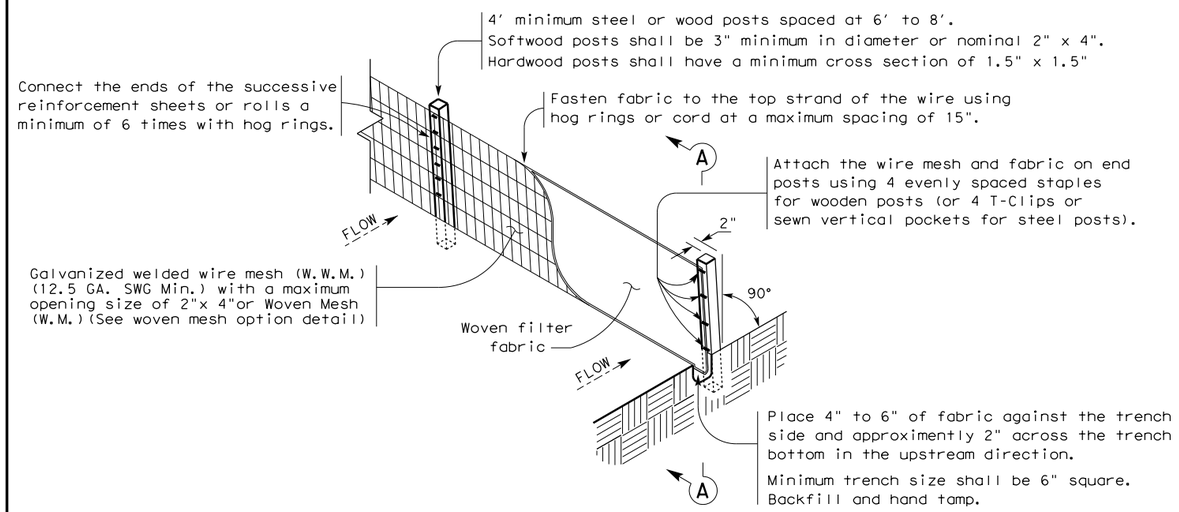
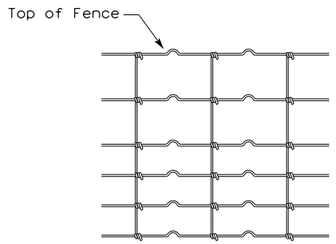
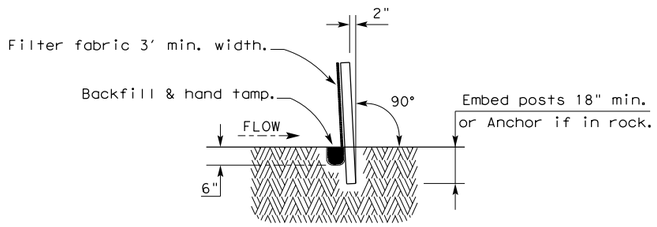
3/26/2021



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

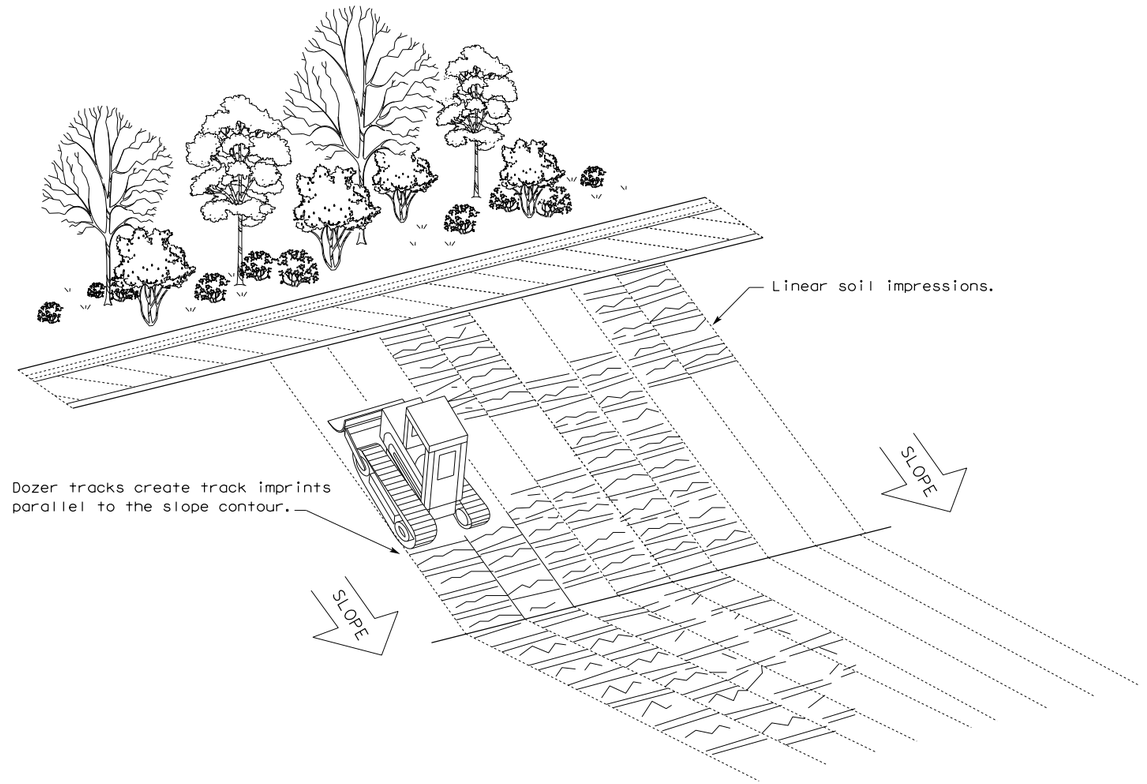
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT		CK: KM		DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY	
REVISIONS	0209	01	073, ETC		SL 2, ETC	
	DIST	COUNTY			SHEET NO.	
	WAC	MCLENNAN, ETC			137	

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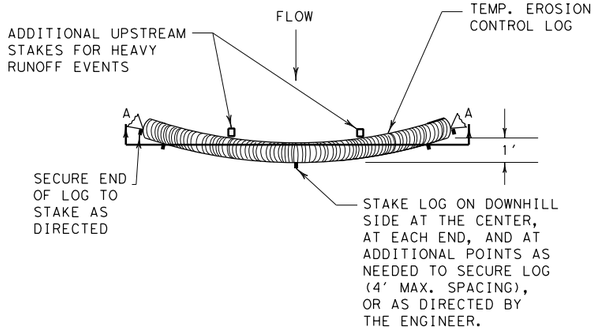
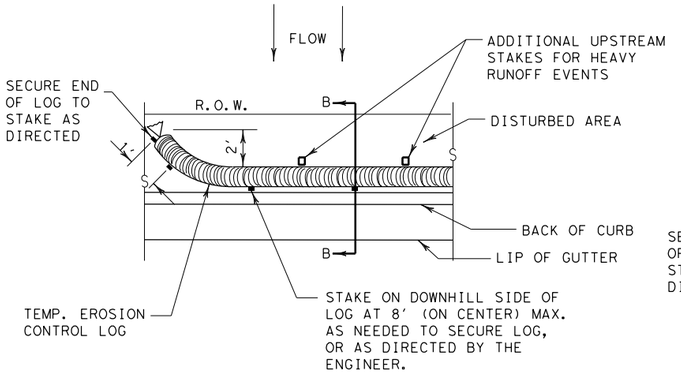


PLAN VIEW



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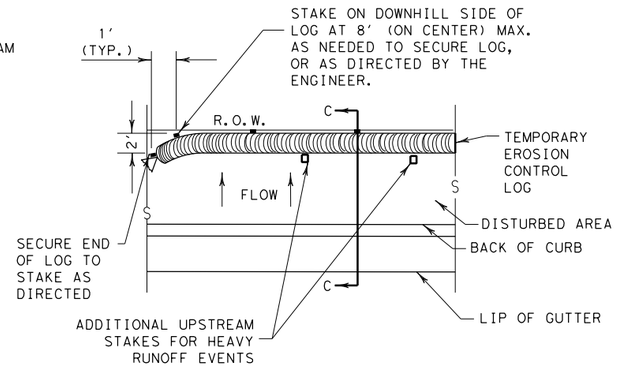

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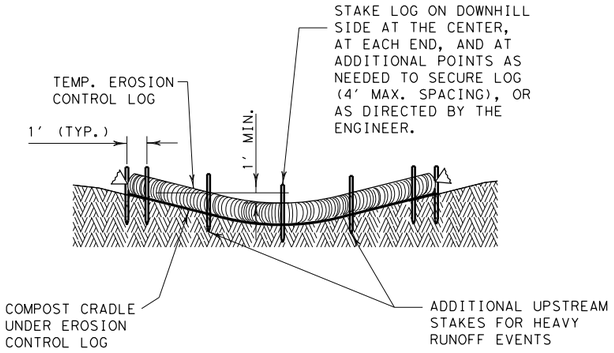
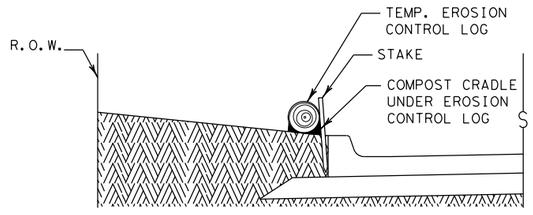


SECTION A-A

EROSION CONTROL LOG DAM

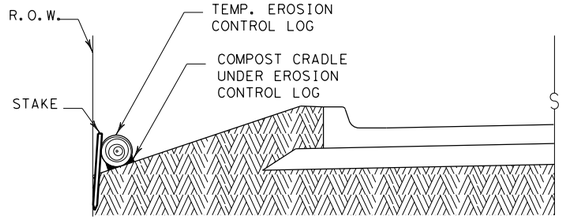
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

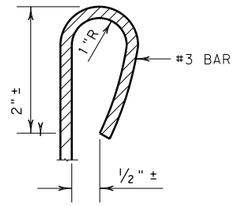
CL-BOC



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.

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.

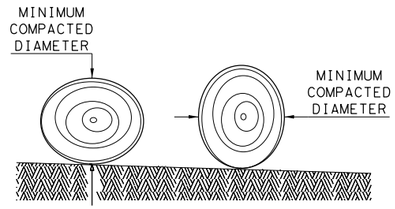
Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

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.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

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	0209	01	073, ETC		SL 2, ETC	
	DIST		COUNTY			SHEET NO.
	WAC		MCLENNAN, ETC			138

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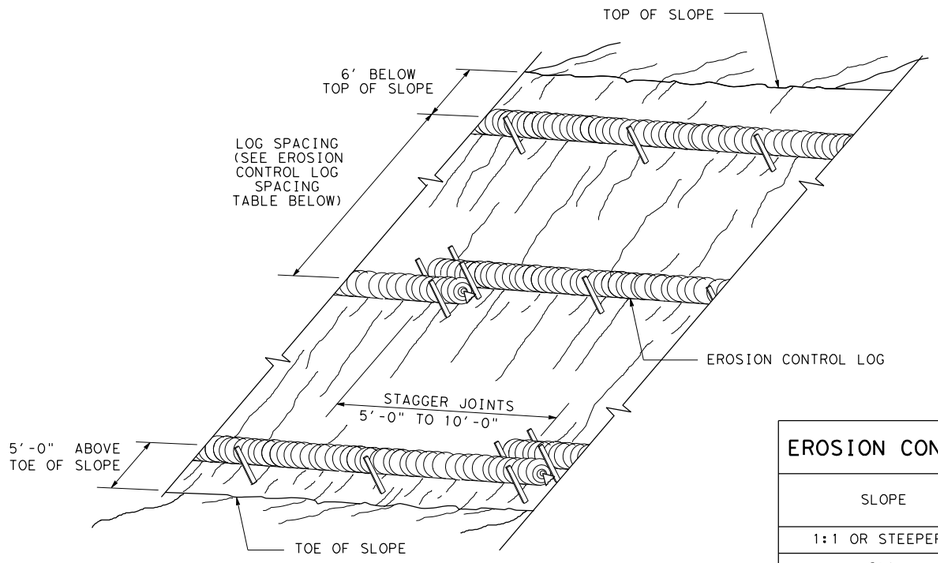
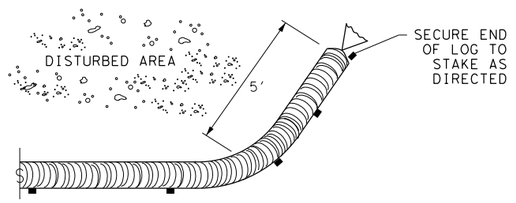


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

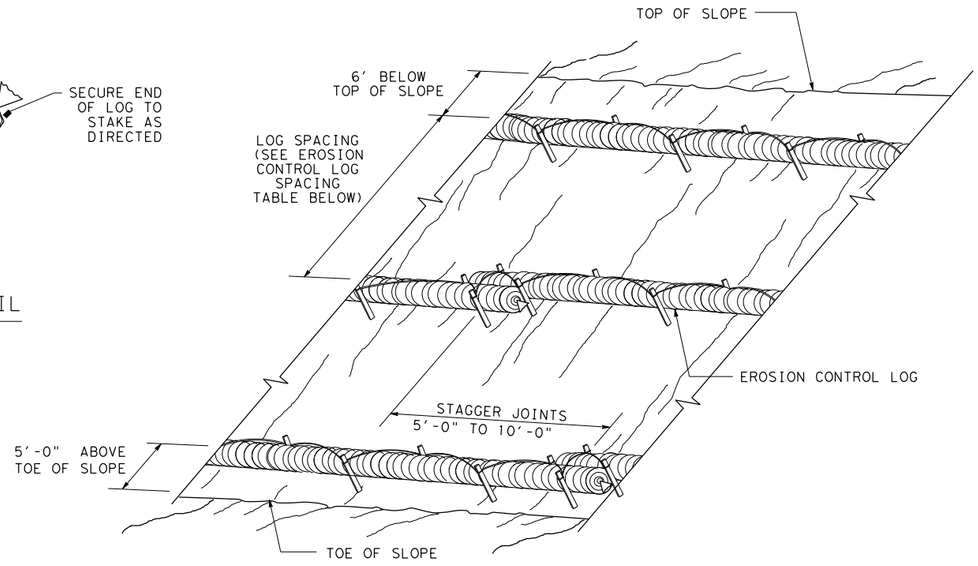
CL-SST



END SECTION RAP DETAIL

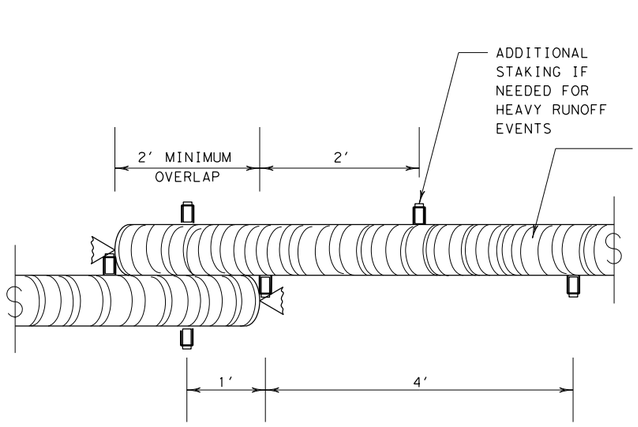
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

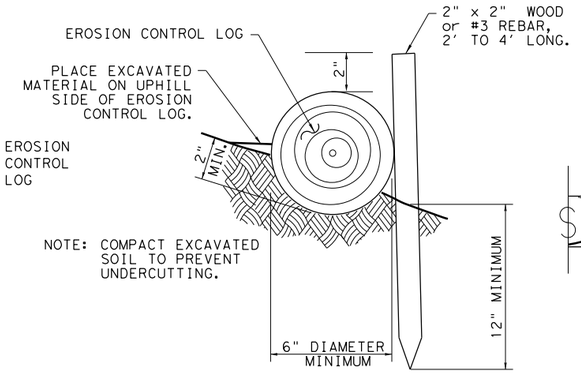
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

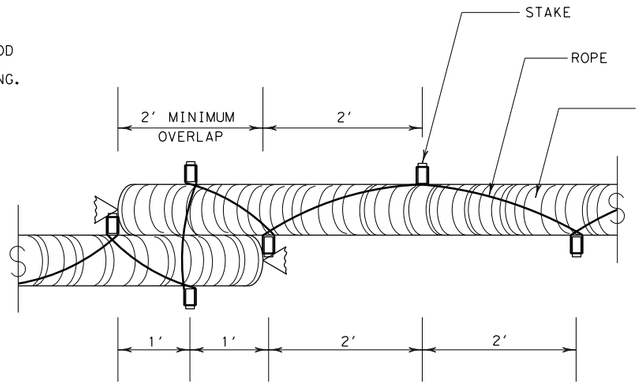


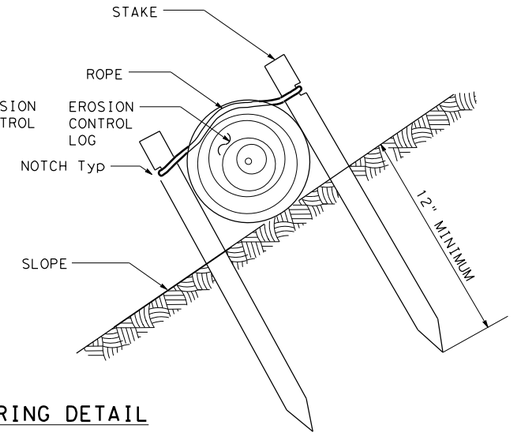


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

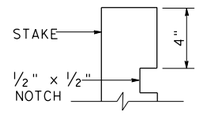
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

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	0209	01	073, ETC	SL 2, ETC
	DIST	COUNTY		SHEET NO.
	WAC	MCLENNAN, ETC		139

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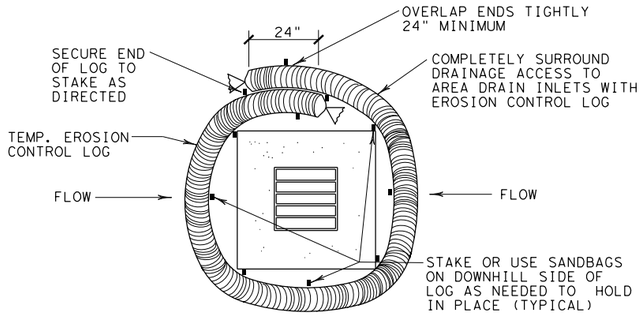
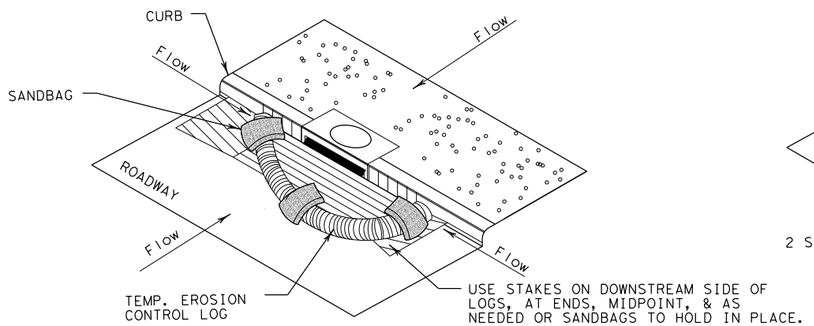


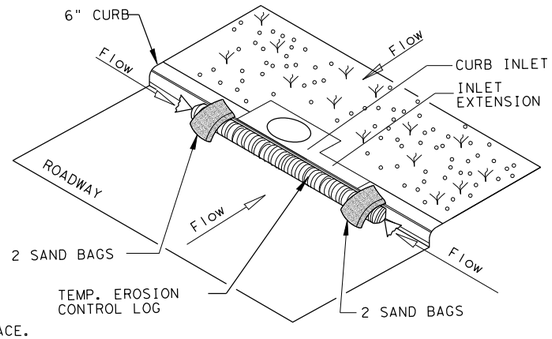
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

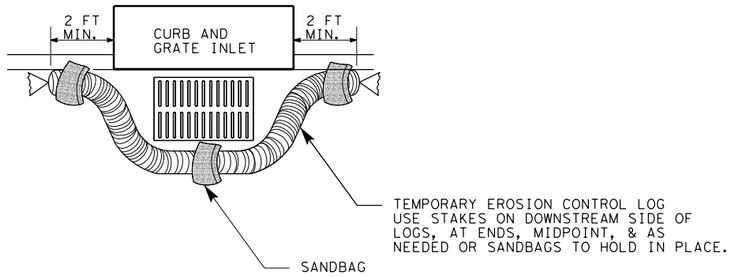
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

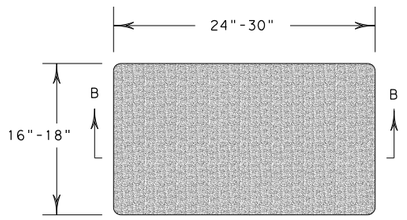
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

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FILE: ec916	DN: TxDOT		CK: KM		DW: LS/PT		CK: LS
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REVISIONS	0209	01	073, ETC		SL 2, ETC		
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