

SEE SHEET 2 FOR  
INDEX OF SHEETS

# STATE OF TEXAS DEPARTMENT OF TRANSPORTATION

POSTED SPEED=45 MPH  
A.D.T. (2020)=66,875  
A.D.T. (2040)=133,750

CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST		COUNTY	SHEET NO.
ELP		EL PASO	1

## PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NO. F 2022(824)

### SL 375 EL PASO COUNTY

NET LENGTH OF ROADWAY= 7,993.92FT. = 1.514 MI.  
 NET LENGTH OF BRIDGE = 000.00FT. = 0.000 MI.  
 NET LENGTH OF PROJECT= 7,993.92FT. = 1.514 MI.

LIMITS: FROM ZARAGOZA RD. TO ALAMEDA AVE.

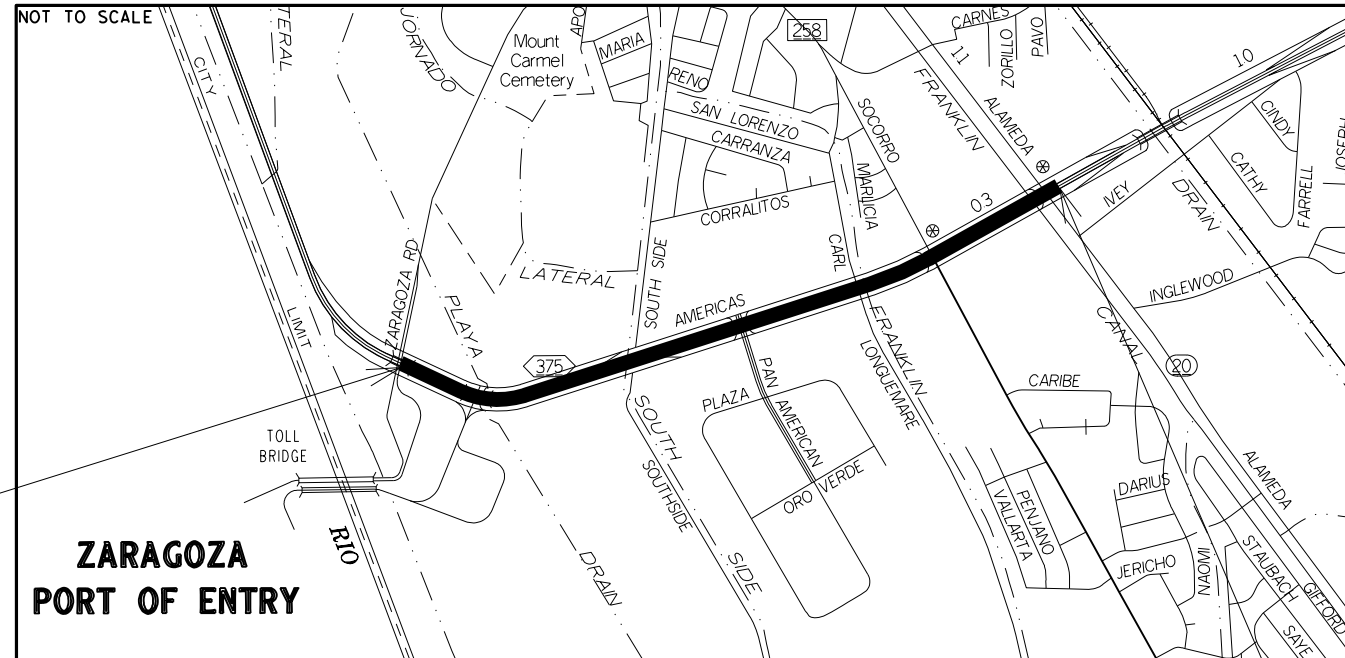
### FOR THE CONSTRUCTION OF HAZARD ELIMINATION & SAFETY CONSISTING OF PEDESTRIAN SIDEWALK AND CURB RAMPS

### FINAL PLANS

CONTRACTOR: \_\_\_\_\_  
 TIME CHARGES BEGAN: \_\_\_\_\_  
 DATE CONTRACTOR BEGAN WORK: \_\_\_\_\_  
 DATE WORK WAS COMPLETED: \_\_\_\_\_  
 DATE WORK WAS ACCEPTED: \_\_\_\_\_  
 TOTAL DAYS CHARGED: \_\_\_\_\_  
 ORIGINAL CONTRACT AMOUNT: \$ \_\_\_\_\_  
 AMOUNT OF CONTRACT AMENDMENTS: \$ \_\_\_\_\_  
 FINAL CONTRACT COST: \$ \_\_\_\_\_

\_\_\_\_\_ 20 \_\_\_\_\_

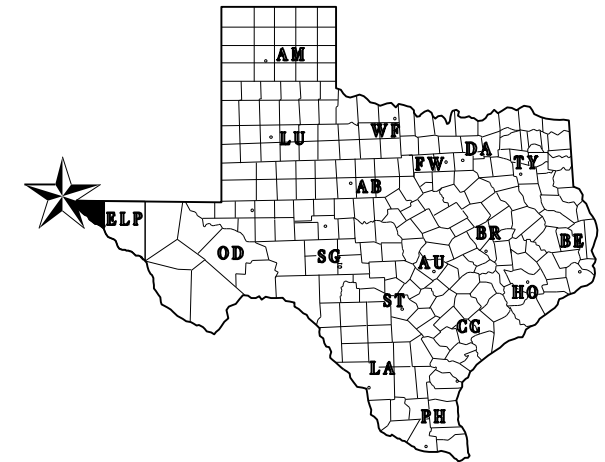
AREA ENGINEER



**BEGIN PROJECT**  
 CSJ: 2552-03-070  
 RM : 48+0.299  
 LAT: 31.6746806  
 LONG: -106.3353822

**ZARAGOZA  
PORT OF ENTRY**

**END PROJECT**  
 CSJ: 2552-03-070  
 RM : 46+0.784  
 LAT: 31.6808397  
 LONG: -106.3115863



KEY TO COUNTIES



*Antonio Santana PE*

6/3/2022

EXCEPTIONS: NONE  
 EQUATIONS: NONE  
 RAILROAD CROSSINGS: NONE

REGISTERED ACCESSIBILITY SPECIALIST  
 (RAS) INSPECTION REQUIRED  
 TDLR No. EABPRJ TABS2022021118

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION,  
 NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS  
 FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS  
 FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, MAY 2012)

REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH  
 BC (1)- 21 THRU BC (12)- 21 AND THE "TEXAS  
 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".



RECOMMENDED FOR LETTING: 6/9/2022  
 DocuSigned by:  
*Eduardo Perales, P.E.*  
 2778C6088PE726 REVIEW COMMITTEE CHAIRMAN

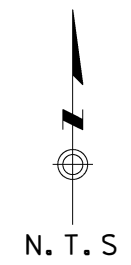
RECOMMENDED FOR LETTING: 6/9/2022  
 DocuSigned by:  
*L. Raul Ortega Jr., P.E.*  
 OF17583707 DISTRICT DIRECTOR OF TRANSPORTATION  
 PLANNING AND DEVELOPMENT

APPROVED FOR LETTING: 6/9/2022  
 DocuSigned by:  
*[Signature]*  
 7A68C5EA0D9498 DISTRICT ENGINEER

DATE: 6/3/2022 1:50:15 PM  
FILE: M:\2552-03-070\4-DESIGN\Plan Set\1. GENERAL SHEETS\TITLESHEET.dgn



DATE: 5/31/2022 7:07:00 PM  
 FILE: M:\2552-03-070\4-DESIGN\NP\ion Set\1. GENERAL SHEETS\PROJECT\PROJECT.LAYOUT.dgn



**BEGIN PROJECT**  
 CSJ: 2552-03-070  
 RM : 48+0.299  
 LAT: 31.6746806  
 LONG: -106.3353822

**END PROJECT**  
 CSJ: 2552-03-070  
 RM : 46+0.784  
 LAT: 31.6808397  
 LONG: -106.3115863

SIDEWALK ALIGNMENTS  
 1-19

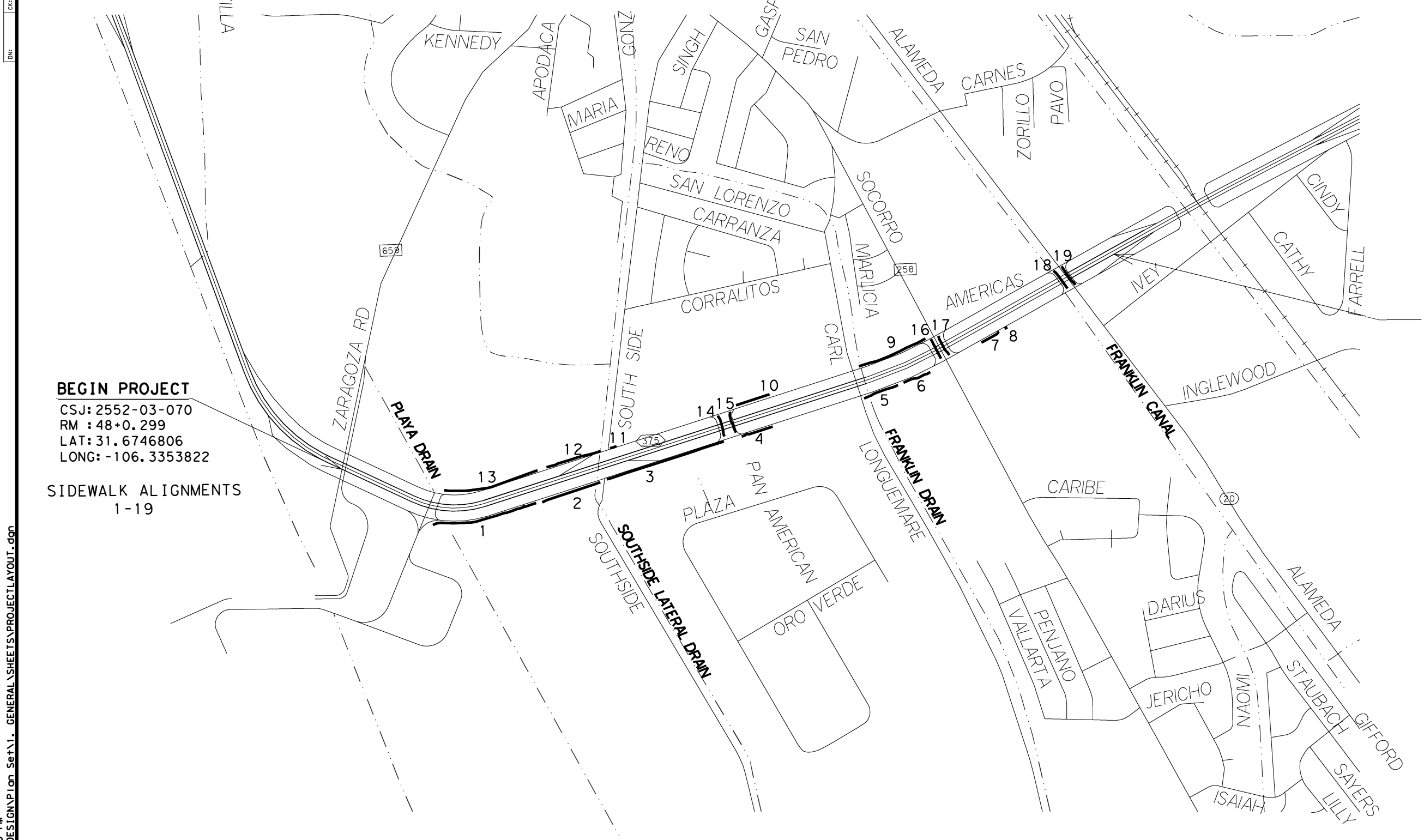


*Antonio Santana PE*  
 6/1/2022

**SL 375  
 SIDEWALK  
 PROJECT LAYOUT**

SHEET 1 OF 1  
 ©2022

CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		3



CONTROL: 2552-03-070

COUNTY: EL PASO

HIGHWAY: SL 375

**General Requirements**

Maintain the entire project area in a neat and orderly manner throughout the duration of the work. Remove all construction litter and undesirable vegetation within the right of way inside the project limits. This work will be subsidiary to the various bid items.

General Project Description – This project consists of pedestrian sidewalks, rail, curb and ramps on SL 375 in El Paso County.

Verify the location, depth and condition of all existing utilities and substructures (whether depicted on the plans or not) and protect them from damage. Contact all utilities and conduct all necessary field investigations to locate all utilities in the project area prior to conducting any excavation.

Adjust all utilities within the sidewalk to the sidewalk finish grade. Match sidewalk elevation to curb elevation. Use Class A concrete for sidewalk, curb and ramps.

Areas specified on the plans as 5” sidewalk may be modified to not less than 5” during construction due to field conditions. All changes require written approval from the engineer.

Work shall only be allowed off peak hours between 9:00 PM to 6:00 AM. Unless otherwise directed by the engineer.

**Traffic**

Contact the Engineer or the City when construction operations are within 400 feet of a signalized intersection to determine/verify the location of loop detectors, conduit, ground-boxes, etc. Repair or replace any signal equipment damaged by construction operations. The method of repair or replacement shall be pre-approved and inspected. This work shall be completed at the Contractor’s expense.

Inform the Engineer and the respective utility companies, when it becomes apparent that the utility lines will interfere with the work in progress.

The following Standard Detail sheets have been modified:

Contractor questions on this project are to be addressed to the following individual(s):

**Monica Ruiz, P.E.**  
**District Construction Engineer**

**Aldo Madrid, P.E.**  
**Director of Construction**

[Monica.Ruiz@txdot.gov](mailto:Monica.Ruiz@txdot.gov)

[Aldo.Madrid@txdot.gov](mailto:Aldo.Madrid@txdot.gov)

Contractor questions will be accepted through email, phone, and in person by the above individuals.

All contractor questions will be reviewed by the Engineer. Once a response is developed, it will be posted to TxDOT’s Public FTP at the following Address:

CONTROL: 2552-03-070

SHEET 4

COUNTY: EL PASO

HIGHWAY: SL 375

<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..

Contact the Department’s El Paso District Signal Shop at [txdotelplocates@txdot.gov](mailto:txdotelplocates@txdot.gov) to request all Department utility line locates within the project limits. The Signal Shop will locate one time only. Record locates for the purpose of refreshing and maintaining all markings throughout the duration of the project.

Contact City of El Paso Streets and Maintenance Department at [linespots@elpasotexas.gov](mailto:linespots@elpasotexas.gov) and [pavementcut@elpasotexas.gov](mailto:pavementcut@elpasotexas.gov) to request all City of El Paso utility line locates within project limits. The City will locate one time only. Record locates for refreshing and maintaining all markings throughout the duration of the project.

**Item 4 – Scope of Work**

Schedule and perform all work to assure proper drainage during the course of construction or maintenance operations. All labor, tools, equipment and supervision required, to ensure drainage, removal, and handling of water shall be considered incidental work.

**Item 7 – Legal Relations and Responsibilities**

Comply with all requirements of the Environmental Permits Issues and Commitments (EPIC) Sheet.

Do not discharge any liquid pollutant from vehicles onto the roadside. Immediately clean spills and dispose in compliance with local, state, and federal regulations to the satisfaction of the Engineer at no additional cost to the Department.

Occupational Safety & Health Administration (OSHA) regulations prohibit operations that bring people or equipment within 10 ft. of an energized electrical line. Where workers and/or equipment may be close to an energized electrical line, notify the electrical power company and make all necessary adjustments to ensure the safety of workers near the energized line.

Obtain any required traffic control permits from the City of El Paso when traffic control devices encroach City ROW or traffic control setup impacts City streets. The contractor shall be responsible for submitting a traffic control plan to the City of El Paso – Streets and Maintenance Department at [tcp@elpasotexas.gov](mailto:tcp@elpasotexas.gov) for review no later than two weeks prior to beginning of construction.

No significant traffic generator events identified.

CONTROL: 2552-03-070

COUNTY: EL PASO

HIGHWAY: SL 375

### Law Enforcement Personnel

Submit charge summary and invoices using the Department forms.

Patrol vehicles must be clearly marked to correspond with the officer's agency and equipped with appropriate lights to identify them as law enforcement. For patrol vehicles not owned by a law enforcement agency, markings will be retroreflective and legible from 100 ft. from both sides and the rear of the vehicle. Lights will be high intensity and visible from all angles.

No payment will be made for law enforcement personnel needed for moving equipment or payment for drive time to/from the event site.

### Item 8 – Prosecution and Progress

Working days will be calculated in accordance with Section 8.3.1., "Standard Workweek."

Create and maintain a Bar Chart schedule

Submit baseline schedule and obtain approval prior to beginning construction. The monthly progress payment will be held if the monthly update is not submitted.

Existing pavement, utilities, structures, etc. damaged as a result of the operations will be repaired at no additional cost to the Department.

Protect from damage and destruction all areas of the right of way, which are not included in the actual limits of the proposed construction areas. Exercise care to prevent damage to trees, vegetation, and other natural features.

Protect trees, shrubs, and other landscape features from abuse, marring, or damage within the actual construction and/or fenced protection areas designated for preservation. Restore any area disturbed or damaged to a condition "as good as" or "better than" prior to start of construction. This work will be at the Contractor's expense.

### Item 9 – Measurement and Payment

Monthly progress payments will be made for items of work completed by the 27<sup>th</sup> day of each month. Any work completed after the 27<sup>th</sup> will be included for payment in the subsequent monthly progress payment.

Submit Material on Hand (MOH) payment requests at least **three (3)** working days before the end of the month for payment consideration on that month's estimate.

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

CONTROL: 2552-03-070

SHEET 4A

COUNTY: EL PASO

HIGHWAY: SL 375

intersections shall be as approved. Additional officers and vehicles may be provided when approved or directed.

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

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

All law enforcement personnel used in Work Zone Traffic Control shall be trained for performing duties in work zones and are required to take "Safe and Effective Use of Law Enforcement Personnel in Work Zones" (Course #133119) which can be found online at the following site: [www.nhi.fhwa.dot.gov](http://www.nhi.fhwa.dot.gov)

Certificates of completion should be available to all who finish the course. These should be kept by the officers in order to substantiate completion when reporting to the work site.

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

### Item 104 – Removing Concrete

All work items required to saw-cut the existing concrete sidewalks, driveways, curb and gutter, etc. as shown on the plans, or as directed is considered subsidiary to this Item.

### Item 132 – Embankment

Scarify and compact top 6 in. of existing roadway as directed before additional embankment or base course is placed. This work is subsidiary to various bid items.

Track the side slopes of the embankment to control erosion. This work will be subsidiary to various bid items.

### Item 479– Adjusting Manholes and Inlets

Coordinate with respective utility owners before adjusting existing utility manholes, meters, valve covers, etc.

Coordinate to complete all required adjustments within project duration acceptable to the Department and each applicable owner.

### Item 500 – Mobilization

The Contractor will be paid in accordance with the associated Item based work performed. This will fully compensate the Contractor for all associated activities.

CONTROL: 2552-03-070

COUNTY: EL PASO

HIGHWAY: SL 375

**Item 502 – Barricades, Signs, and Traffic Handling**

Prior to beginning construction, the Engineer will approve the routing of traffic and sequence of work.

Additional signs and barricades, placed as directed, will be considered subsidiary to this Item.

In accordance with Section 7.2.6.1, designate, in writing, a Contractor Responsible Person (CRP) and a CRP alternate to take full responsibility for the set-up, maintenance, and necessary corrective measures of the traffic control plan. The CRP or CRP alternate must be present at site and implement the initial set up of every traffic control phase/stage, at each location, and/or each call out, for the entire duration of the project.

At the written request of the Engineer, immediately remove the CRP or CRP alternate from the project if, in the opinion of the Engineer, is not competent, not present at initial TCP set-ups, or does not perform in a proper, skillful, or safe manner. These individuals shall not be reinstated without written consent of the Engineer.

CRP and CRP alternate must be trained using Department approved training. Provide a copy of the certificate of completion to the Engineer for project records. Refer to Table 1 for Department approved Training.

CONTROL: 2552-03-070

SHEET 4B

COUNTY: EL PASO

HIGHWAY: SL 375

**Table 1**

**Contractor Responsible Person and Alternate**

Provider	Course Number	Course Title	Duration	Notes
American Traffic Safety Services Association	TCS	Traffic Control Supervisor	2 days	
National Highway Institute	133112	Design and Operation of Work Zone Traffic Control	1 day	Both courses are required to meet minimum required training.
	133113	Work Zone Traffic Control for Maintenance Operations	1 day	
Texas Engineering Extension Services	133112A	Design and Operation of Work Zone Traffic Control	3 days	
University of Texas Arlington Division for Enterprise Development	WKZ421	Traffic Control Supervisor	16 hours	Contact UTA for training needs.

All contractor workers involved with the traffic control implementation and maintenance must participate and complete a Department approved training course. Provide a copy of the certificate of completion to the Engineer for project records. Refer to Table 2 for Department approved training.

CONTROL: 2552-03-070

COUNTY: EL PASO

HIGHWAY: SL 375

Table 2

Other Work Zone Personnel

Provider	Course Number	Course Title	Duration	Notes
American Traffic Safety Services Association	TCT	Traffic Control Technician	1 day	
Texas Engineering Extension Services	HWS002	Work Zone Traffic Control	16 hours	Identical to HWS-410. Counts for 3 year CRP requirement.
National Highway Institute	133116	Maintenance of Traffic for Technicians	5 hours	Web based
National Highway Institute	134109-I	Maintenance Training Series: Basics of Work Zone Traffic Control	1 hour	Free, Web based
University of Texas at Arlington, Division for Enterprise Development	WKZ100	Work Zone Safety: Temporary Traffic Control	4 hours	Note name change. Free, Web based
TxDOT/AGC Joint Development	N/A	Safe Workers Awareness	16 minutes	Videos available through AGC of Texas offices. English & Spanish
		Highway Construction Work Zone Hazards	18 minutes	
AGC America	N/A	Highway Work Zone Safety Training	1 day	
Texas Engineering Extension Service	HWS400	Temporary Traffic Control Worker	4 hours	Contact TEEX, if interested in course
TxDOT/AGC Joint Development	N/A	Work Zone Fundamentals	10 minutes	Videos available through ACT of Texas offices. English & Spanish

CONTROL: 2552-03-070

SHEET 4C

COUNTY: EL PASO

HIGHWAY: SL 375

Contractor may choose to train workers involved with the traffic control implementation and maintenance with a contractor developed training in lieu of Department approved training. Contractor developed training must be equivalent to the Department approved training shown in Table 2. Provide the Engineer a copy of the course curriculum for pre-approval, prior to conducting the contractor developed training. Provide the Engineer a copy of the log of attendees after training completion for project records.

Existing regulatory signs, route marker auxiliaries, guide signs, and warning signs that must be removed due to widening shall be relocated temporarily and erected on approved supports at locations shown in the plans, or as directed. This work will not be paid for directly, but considered subsidiary to this Item.

Notify the Department officials when major traffic changes are to be made, such as detours. Coordinate with the Department on all traffic changes. Advance notification for the following week's work must be made by 5 P.M. on Wednesdays.

If Law Enforcement Personnel is required by the Engineer, coordinate with local law enforcement as directed or agreed. Complete the weekly tracking form provided by the Department and submit invoices with 5% allowance for Law Enforcement payments by Contractor that agree with the tracking form for payment at the end of each month where approved services were provided.

Provide access to intersecting side roads and driveways at all times, unless otherwise directed.

Any approved change to the sequence of work or TCP, must be signed and sealed by a Contractor's Licensed Professional Engineer assuming full responsibility for any additional barricade signs and devices needed.

Use striping operations to channelize traffic into the newly completed roadway, as directed. Maintain shoulders and median areas in a condition capable of serving as emergency paths, as approved. This work will be subsidiary to this Item.

Use portable changeable message signs (PCMS) to alert public of construction two weeks prior to construction.

Use flaggers when directed. Provide two-way radio communication for all flaggers.

Place and maintain sufficient additional warning signs, beacons, delineators, and barricades to always warn and guide the public of all hazards through the construction zone, and as directed.

Use flashing arrow boards on all tapers for each lane closure.

Some signs, barricades, and channelization devices may not be shown at the precise or measured position. Place the barricades, devices, or signs, with approval, in positions to meet field conditions.

CONTROL: 2552-03-070

COUNTY: EL PASO

HIGHWAY: SL 375

Fill any holes left by barricade or sign supports and restore the area to its original condition.

Use Type A flashing warning lights or delineators to mark open excavation, footings, foundations, or other obstructions near lanes that may be open to traffic, as directed.

For additional information pertaining to channelization, signing, spacing details, and flagging procedures required to regulate, warn, and guide traffic through project, refer to the "Barricade and Construction Standards," BC(1)-21 and to the current *Texas Manual on Uniform Traffic Control Devices(TMUTCD)*.

Remove or cover signs that do not apply to current conditions at the end of each day's work.

Repair and/or replace all signs damaged by the public or due to weather events.

#### **Safety Contingency**

The contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancement, to improve the effectiveness of the TCP 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.

#### **Item 506 – Temporary Erosion, Sedimentation, and Environmental Controls**

Place Best Method Practices (BMP's) in locations as designated in the plans or as directed to meet field conditions.

Place rain gauge(s) at locations as designated.

The total disturbed area for this project is **0.30** acres. Establish the authorization requirements for Storm Water Discharges for soil disturbed area in this project, all project locations in the Contract, and Contractor Project Specific Locations (PSLs), within one mile of the project limits. Both the Department and the Contractor shall obtain an authorization to discharge storm water from TCEQ for the construction activities shown on the plans. Obtain required authorization from the TCEQ for any Contractor PSLs for construction support activities on or off right of way.

Best Method Practices (BMP's) may be adjusted to meet field conditions, or as directed. The Engineer will verify all locations prior to placement of BMPs. Maintain and properly place the erosion control measures to prevent storm water pollution to the Waters of the United States, as directed. Within the project limits, keep all inlets functional as long as possible to accept storm water as part of the Storm Water Pollution Prevention Plan (SWP3), as directed.

CONTROL: 2552-03-070

SHEET 4D

COUNTY: EL PASO

HIGHWAY: SL 375

Grading operations will be limited to the catch point of the proposed cross-section.

Preserve any vegetation outside these limits.

#### **Item 529 – Concrete Curb, Gutter and Combined Curb and Gutter**

Use Class A concrete for these Items, unless otherwise shown on the plans. Wire mesh and fibers for concrete will not be allowed. Reinforce all concrete using reinforcement conforming to Item 440, "Reinforcement for concrete," as shown on the plans or as directed.

Construct the curb opening with metal plate configuration detailed in the plans, or as directed, to ensure roadway drainage to the earthen ditch. No direct payment will be made for these features. Payment will be made under this Item. All required manipulations or incidentals required to complete the work will be considered subsidiary to these items.

Perform all requiring grading for proposed concrete curb, gutter, and combined curb and gutter construction as shown on the plans. All grading, including excavation and fill/embankment will be subsidiary to this Item.

After construction, restore the adjacent surface to a condition approved by the Engineer. Consider this work subsidiary to this Item.

#### **Item 530 – Intersections, Driveways, and Turnouts**

The existing roadway and driveways are to be saw-cut to a straight and neat line when proposed sidewalks are being constructed across them. The area then will be cleaned out prior to concrete placement. This work is subsidiary to this Item.

Use Class A or P concrete for all concrete driveways, unless otherwise shown on the plans.

#### **Item 531 – Sidewalk**

The wheelchair ramp dimensions and locations shown in the plans may be adjusted, as directed, to match the field conditions. Any such modification will not be paid directly, but will be subsidiary to this Item.

Modify the sidewalk expansion joint spacing to 20 ft. spacing where waterlines may exist under the sidewalk. This work will not be paid for directly but will be subsidiary to this Item.

Provide textured finish for wheelchair ramps as directed.

Perform all work under this Item to conform to ADA and TDLR standards.

Perform all requiring grading for proposed sidewalks construction as shown on the plans. All grading, including excavation, fill, and embankment will be subsidiary to this Item.



CONTROL: 2552-03-070

COUNTY: EL PASO

HIGHWAY: SL 375

Detectable warning surface for new ramps shall be made from a Department approved surface applied vitrified polymer composite tile, red in color.

**Item 644 – Small Roadside Sign Assemblies**

Stake all sign locations and receive approval prior to sign placement.

The 2-1/2 inch, Schedule 10 post will meet the following requirements:

- 0.120 in. nominal wall thickness
- Seamless or electric-resistance welded steel tubing or pipe
- Steel will be HSLAS Grade 55 per ASTM A1011 or ASTM A1008

Other steel may be used, if it meets the following:

- 55,000 psi minimum yield strength
- 70,000 psi minimum tensile strength
- 20% minimum elongation in 2 in.
- Wall thickness (uncoated) to be within the range of 0.108 in. to 0.132 in. galvanization per ASTM A123 or ASTM A653 G90

For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metalizing with zinc wire per ASTM B833.

Verify all post lengths to ensure the proper sign height. Remove and replace any sign installed incorrectly. This work will be done at no expense to the Department.

Provide Texas Universal Triangular Slip Base Bolt clamp type for all signs as shown on SMD (Slip-1)-08.

As directed, some regulatory and guide signs will be relocated before construction begins. Mark and locate each reference marker perpendicular to the road and along the right of way, or as directed, prior to removal. Re-erect reference markers at their original location upon completion of construction.

All signs removed will remain property of the Department.

**Item 666 –Retroreflectorized Pavement Markings**

Use a pilot line for final striping and remove pilot line after all striping is complete. Removal will be in accordance with the methods specified in Item 677, “Eliminating Existing Pavement Markings and Markers,” and will be subsidiary to this Item.

Air blasting is required as pavement surface preparation.

CONTROL: 2552-03-070

SHEET 4E

COUNTY: EL PASO

HIGHWAY: SL 375

In those areas where existing pavement markings are to be covered or removed, field locate and record the existing pavement markings by survey or other approved method by the Engineer as directed. Place final striping on these locations.

**Item 6185 – Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)**

All TMA Operators must participate in a TMA workshop to be conducted by the El Paso District Safety Office, on the proper use of TMAs, prior to working on Department Right of Way (ROW). A certificate of completion will be issued to TMA Operators that successfully complete the TMA workshop. The certificate of completion must be carried by TMA Operators at all times while working on Department right of way.

Acquire the TCP and TMA Operator's certificates of completion prior to the authorization to begin work. No time suspension will be granted, and no traffic control work will be allowed without certificates of completion.

Therefore, one shadow vehicle with TMA will be required for this type of work. 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 TMAs needed for the project.

The supporting vehicle for the TMA shall have a minimum gross (i.e., ballasted) vehicular weight of 19,000 pounds.

Basis of Estimate for Stationary TMAs			
	TMA(Stationary)		
Standard	Required	Additional	TOTAL
TCP (1-5)-18	1	0	1



CONTROLLING PROJECT ID 2552-03-070

DISTRICT El Paso  
HIGHWAY SL 375

COUNTY El Paso

# Estimate & Quantity Sheet

CONTROL SECTION JOB				2552-03-070		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00177510			
COUNTY				El Paso			
HIGHWAY				SL 375			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	104-6021	REMOVING CONC (CURB)	LF	4,602.000		4,602.000	
	104-6028	REMOVING CONC (MISC)	SY	710.000		710.000	
	132-6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)	CY	600.000		600.000	
	450-6051	RAIL (HANDRAIL)(TY E)	LF	186.000		186.000	
	479-6010	ADJUSTING MANHOLES (ELECTRIC BOX)	EA	1.000		1.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	3.000		3.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	500.000		500.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	500.000		500.000	
	529-6002	CONC CURB (TY II)	LF	4,438.000		4,438.000	
	530-6004	DRIVEWAYS (CONC)	SY	40.000		40.000	
	531-6002	CONC SIDEWALKS (5")	SY	6,207.000		6,207.000	
	531-6004	CURB RAMPS (TY 1)	EA	2.000		2.000	
	531-6010	CURB RAMPS (TY 7)	EA	12.000		12.000	
	531-6034	CURB RAMPS (TY 7)(MOD)	EA	4.000		4.000	
	531-6037	CURB RAMP (TY 1) (MOD)	EA	1.000		1.000	
	542-6001	REMOVE METAL BEAM GUARD FENCE	LF	75.000		75.000	
	542-6002	REMOVE TERMINAL ANCHOR SECTION	EA	2.000		2.000	
	550-6003	CHAIN LINK FENCE (REMOVE)	LF	1,560.000		1,560.000	
	550-6008	CHAIN LINK FENCE (INSTALL) (8')	LF	1,550.000		1,550.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1.000		1.000	
	644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	17.000		17.000	
	647-6002	RELOCATE LRSA	EA	3.000		3.000	
	666-6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	50.000		50.000	
	752-6005	TREE REMOVAL (4" - 12" DIA)	EA	1.000		1.000	
	18	EROSION CONTROL	LS	1.000		1.000	
		LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		SAFETY CONTINGENCY	LS	1.000		1.000	

DATE: 6/24/2022 3:30:38 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\1. GENERAL\SHEETS\QTY SUMMARY REV.dgn

DN:  
 CKS:  
 DM:  
 CK:

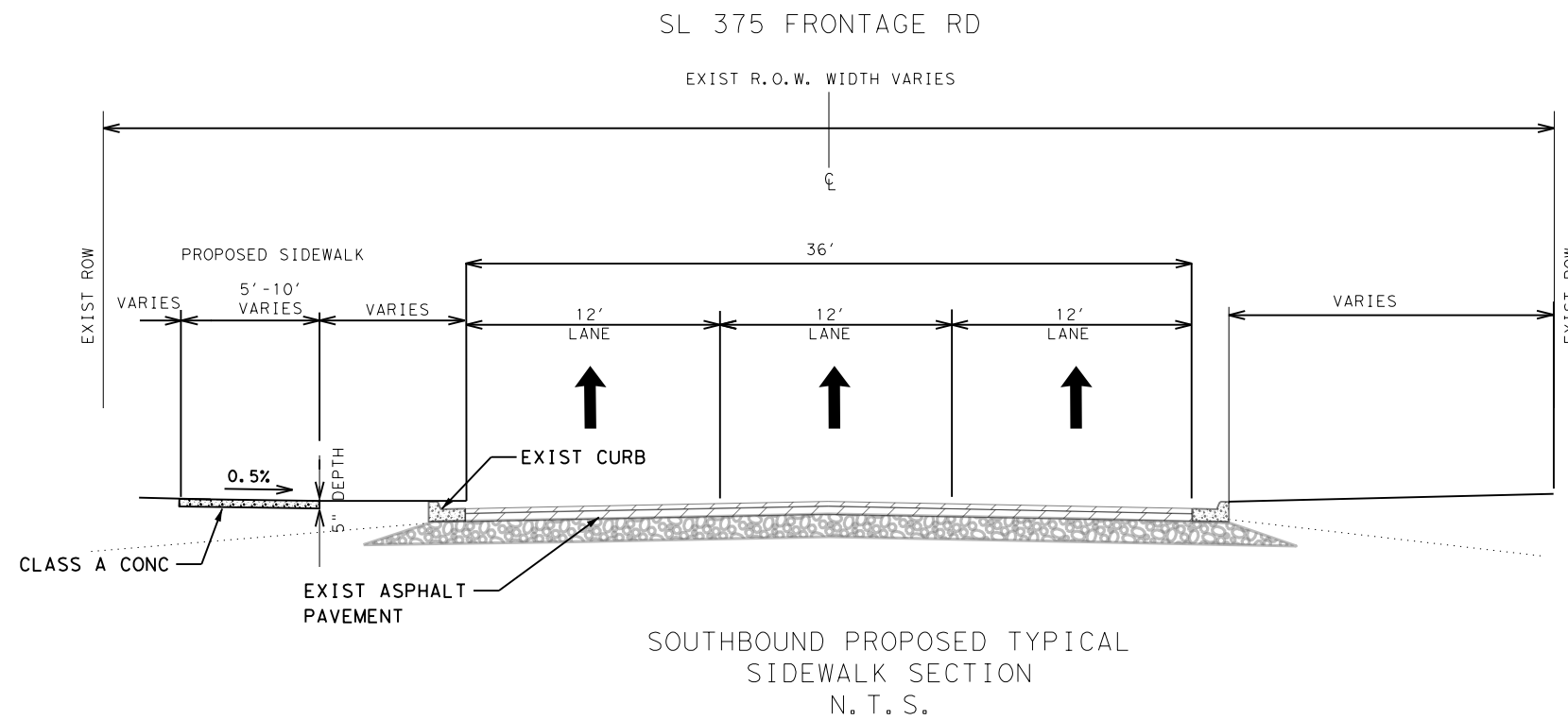
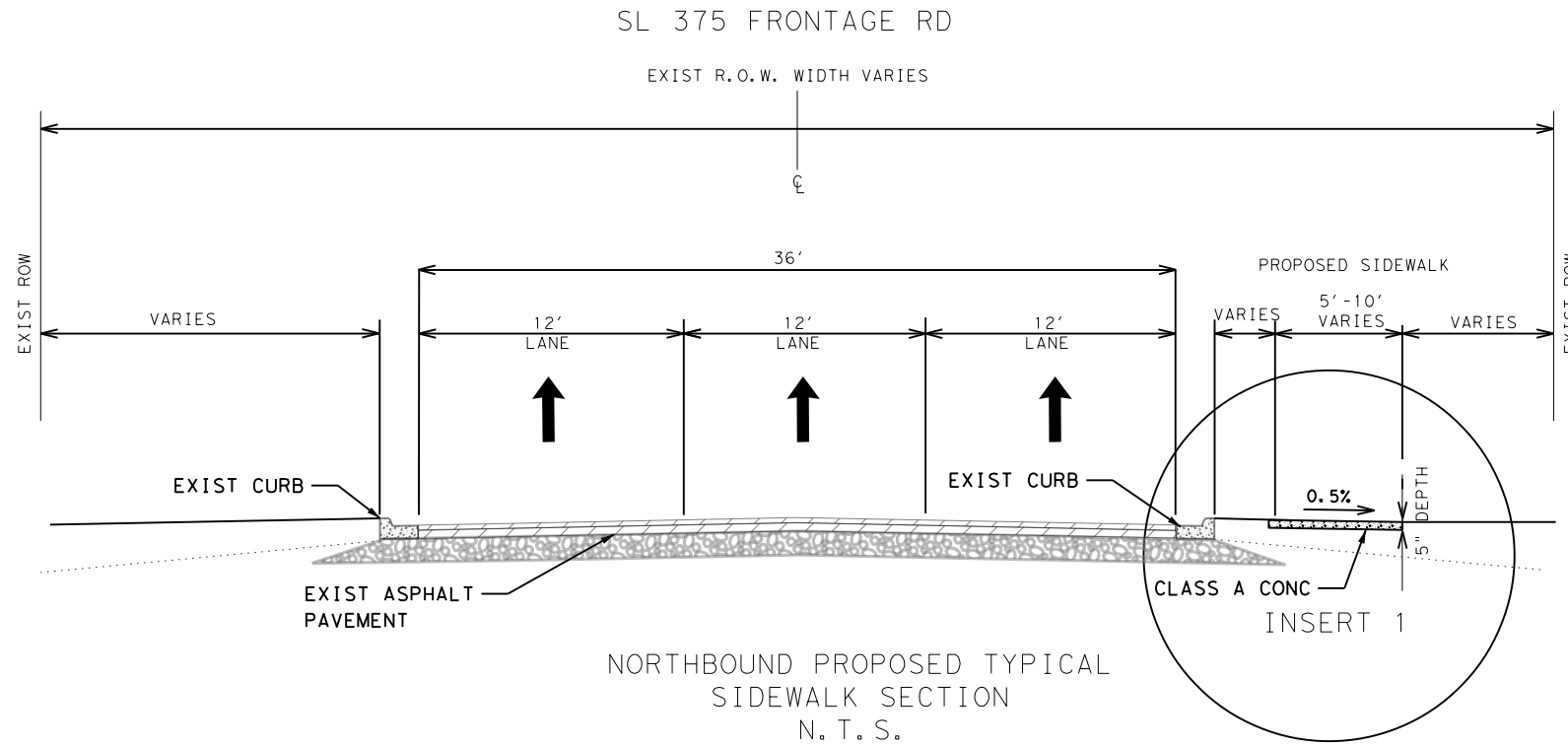
SUMMARY OF ROADWAY ITEMS												
SHEET	132	450	529	530	531	531	531	531	531	550	752	479
	6001	6051	6002	6004	6002	6004	6010	6037	6034	6008	6005	6010
	EMBANKMENT (FINAL) (ORD COMP) (TY A)	RAIL (HANDRAIL) (TY E)	CONC CURB (TY II)	DRIVEWAYS (CONC)	CONC SIDEWALKS (5")	CURB RAMPS (TY 1)	CURB RAMPS (TY 7)	CURB RAMPS (TY 1) (MOD)	CURB RAMPS (TY 7) (MOD)	CHAIN LINK FENCE (INSTALL) (8')	TREE REMOVAL (4" - 12" DIA)	ADJUST MANHOLE (ELECTRIC BOX)
CSJ: 2552-03-070 SL 375	CY	LF	LF	SY	SY	EA	EA	EA	EA	LF	EA	EA
1 OF 6	200	54	1227		1761	1		1		1550		1
2 OF 6	150	62	2096		1515		4		2			
3 OF 6	50		744		1325							
4 OF 6	100	70	118	40	752		3		2		1	
5 OF 6	100		253		585		5					
6 OF 6					269							
<b>PROJECT TOTALS</b>	<b>600</b>	<b>186</b>	<b>4438</b>	<b>40</b>	<b>6207</b>	<b>2</b>	<b>12</b>	<b>1</b>	<b>4</b>	<b>1550</b>	<b>1</b>	<b>1</b>

SUMMARY OF REMOVAL ITEMS					
SHEET	104	104	542	542	550
	6021	6028	6001	6002	6003
	REMOVING CONC (CURB)	REMOVING CONC (MISC)	REMOVE METAL BEAM GUARD FENCE	REMOVE TERMINAL ANCHOR SECTION	CHAIN LINK FENCE (REMOVE)
SL 375 2552-03-070	LF	SY	LF	EA	LF
1 OF 6	1294	60			1560
2 OF 6	2193	25			
3 OF 6	744	15	75	2	
4 OF 6	118	80			
5 OF 6	253	261			
6 OF 6	0	269			
<b>PROJECT TOTALS</b>	<b>4602</b>	<b>710</b>	<b>75</b>	<b>2</b>	<b>1560</b>

SUMMARY OF TRAFFIC ITEMS					
SHEET	502	644	644	647	666
	6001	6001	6068	6002	6047
	BARRICADES, SIGNS AND TRAFFIC HANDLING	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	RELOCATE SM RD SN SUP&AM TY 10BWG	RELOCATE LRSA	REFL PAV MRK TY 1 (W) 24" (SLD) (090 MIL)
	MO	EA	EA	EA	LF
SL 375 2552-03-70	3				
1 OF 6			3		
2 OF 6		1	7		50
3 OF 6			2	2	
4 OF 6			4	1	
5 OF 6					
6 OF 6			1		
<b>PROJECT TOTALS</b>	<b>3</b>	<b>1</b>	<b>17</b>	<b>3</b>	<b>50</b>

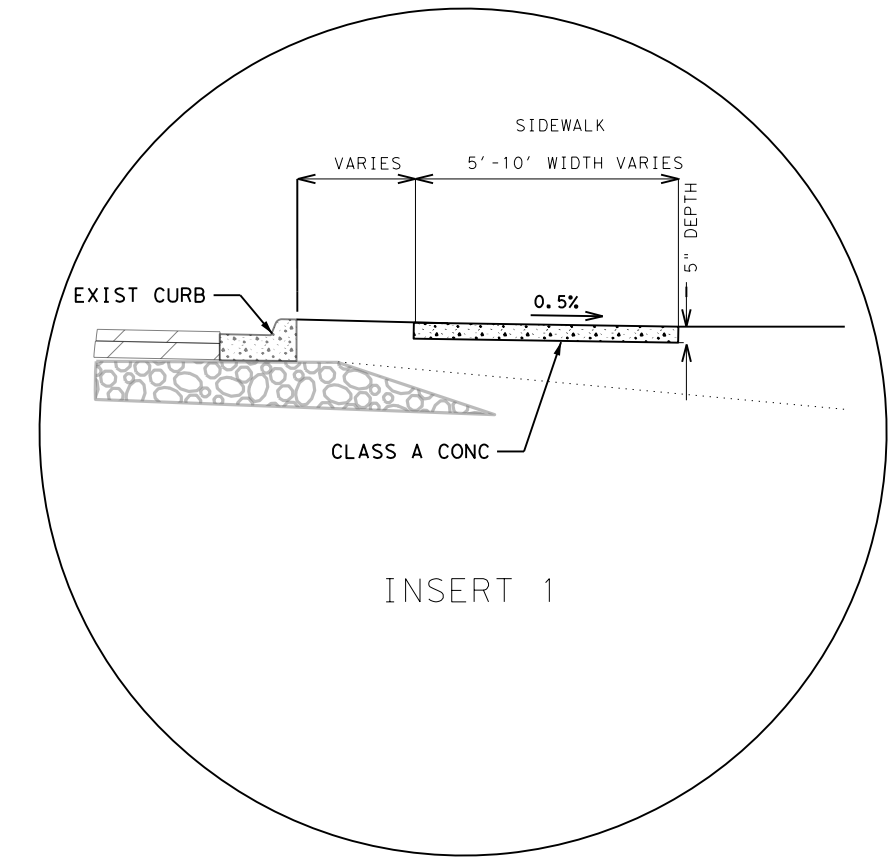
SL 375  
 SIDEWALK  
 QUANTITY SUMMARY

DATE: 6/3/2022 2:53:34 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_SIDEWALK\_TYPICAL.dgn



NOTES:

1. TYPICAL SECTIONS ARE FOR GENERAL INFORMATION ONLY. DO NOT USE FOR QUANTITY CALCULATIONS OR AS A CONSTRUCTION DETAIL.



*Antonio Santana* PE

6/3/2022

SL 375  
 SIDEWALK  
 SIDEWALK TYPICAL  
 SECTION

SHEET 1 OF 1

Texas Department of Transportation			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		7

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/31/2022  
FILE: M:\2552-03-070\4-DESIGN\Environmental\epic.dgn

**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.
- 2.  No Action Required  Required Action

**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:**

<b>Erosion</b>	<b>Sedimentation</b>	<b>Post-Construction TSS</b>
<input type="checkbox"/> Temporary Vegetation	<input checked="" type="checkbox"/> Silt Fence	<input type="checkbox"/> Vegetative Filter Strips
<input type="checkbox"/> Blankets/Matting	<input type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input type="checkbox"/> Mulch	<input type="checkbox"/> Triangular Filter Dike	<input type="checkbox"/> Extended Detention Basin
<input type="checkbox"/> Sodding	<input type="checkbox"/> Sand Bag Berm	<input type="checkbox"/> Constructed Wetlands
<input type="checkbox"/> Interceptor Swale	<input type="checkbox"/> Straw Bale Dike	<input type="checkbox"/> Wet Basin
<input type="checkbox"/> Diversion Dike	<input type="checkbox"/> Brush Berms	<input type="checkbox"/> Erosion Control Compost
<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Mulch Filter Berm and Socks
<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks
<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Vegetation Lined Ditches
	<input type="checkbox"/> Stone Outlet Sediment Traps	<input type="checkbox"/> Sand Filter Systems
	<input type="checkbox"/> Sediment Basins	<input type="checkbox"/> 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.
- 2.
- 3.
- 4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

**LIST OF ABBREVIATIONS**

BMP: Best Management Practice	SPCC: Spill Prevention Control and Countermeasure
CGP: Construction General Permit	SWSP: 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.

 <b>Texas Department of Transportation</b>		<b>Design Division Standard</b>		
<b>ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS</b> <b>EPIC</b>				
FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
12-12-2011 (DS) REVISIONS	2552	03	070	SL 375
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.	ELP	EL PASO	8	

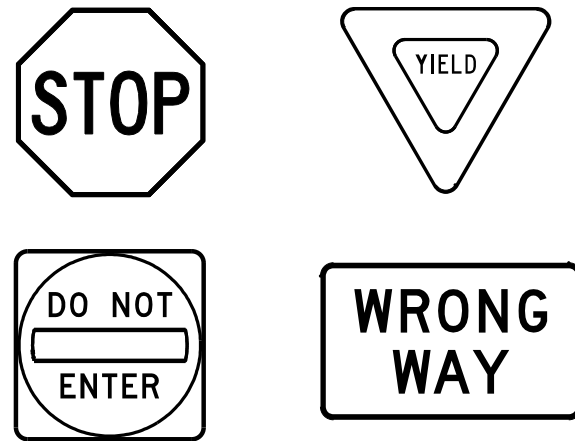


DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 12:01:26 PM  
 FILE: D:\DOCUMENTS\04-DESIGN\Plan Set\2. TCP\tsr4-13.dgn

### REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS

(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



#### REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

### REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

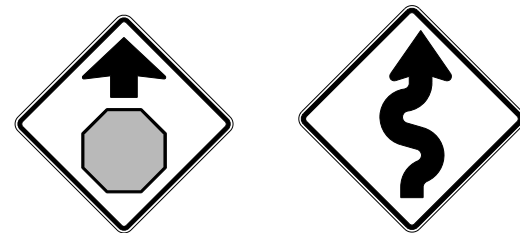
(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



#### TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND, BORDERS AND SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

### REQUIREMENTS FOR WARNING SIGNS



#### TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B <sub>FL</sub> OR C <sub>FL</sub> SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

### REQUIREMENTS FOR SCHOOL SIGNS



#### TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B <sub>FL</sub> OR C <sub>FL</sub> SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

### GENERAL NOTES

- Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
- Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
- Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
- Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
- White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
- Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
- Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
- Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

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

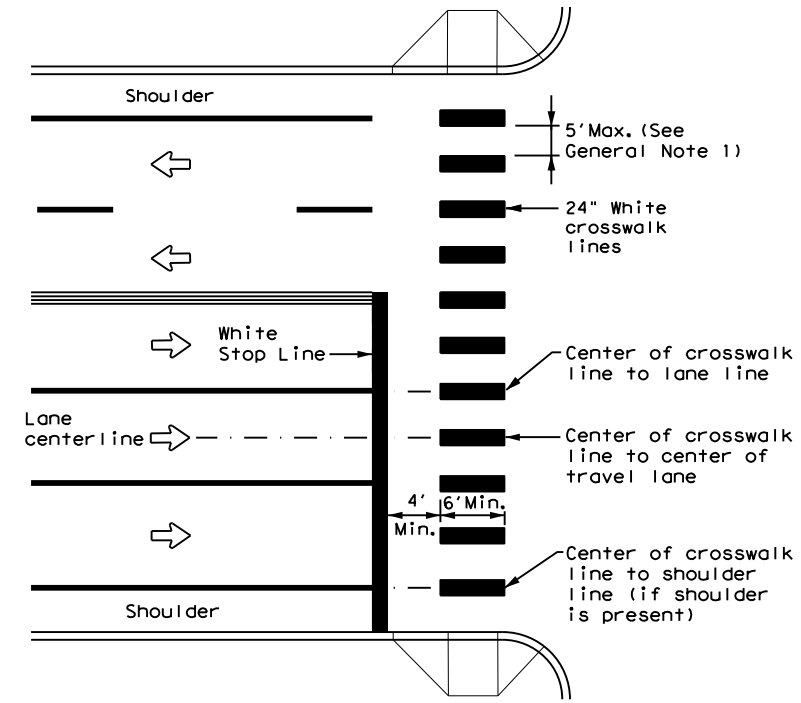
DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website:  
<http://www.txdot.gov/>

				Traffic Operations Division Standard	
<h2>TYPICAL SIGN REQUIREMENTS</h2>					
<h3>TSR(4) - 13</h3>					
FILE:	tsr4-13.dgn	DN:	TxDOT	CK:	TxDOT
© TxDOT	October 2003	CONT:	2552	SECT:	03
REVISIONS		JOB	070	HIGHWAY	SL 375
12-03	7-13	DIST	COUNTY	SHEET NO.	
9-08		ELP	EL PASO		10

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/12/2022 12:01:28 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2. TCP\pm4-20.dgn



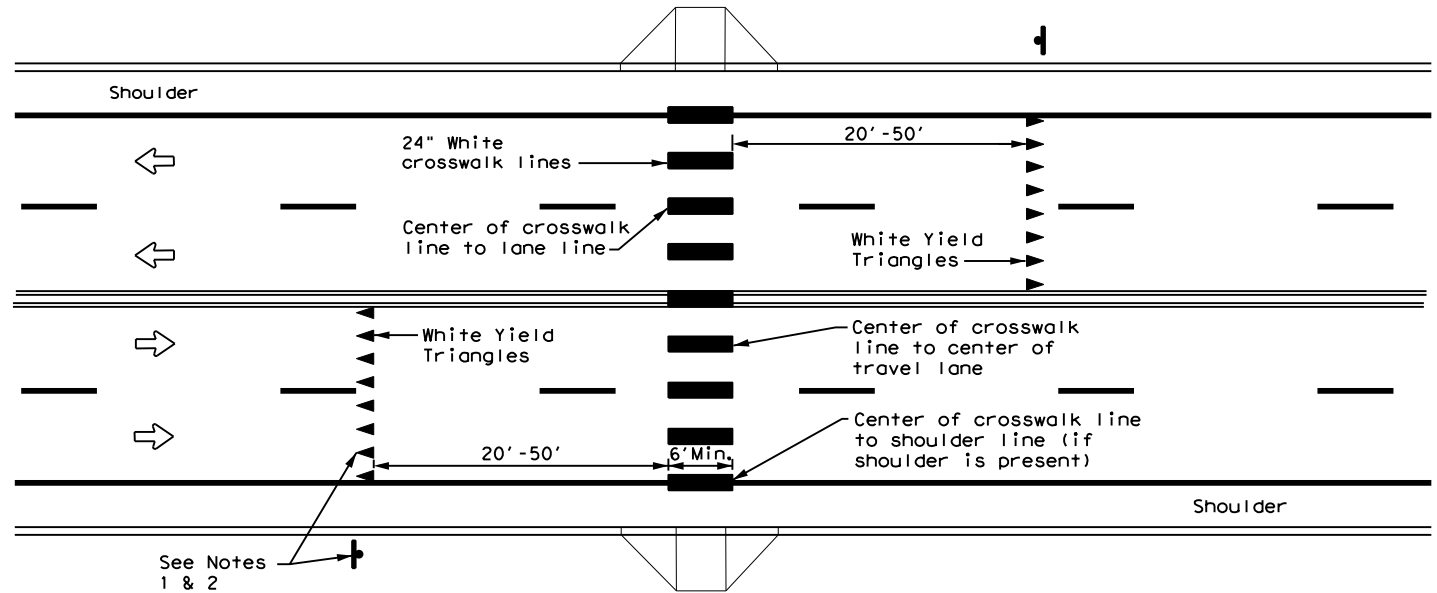
**HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH**

**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**

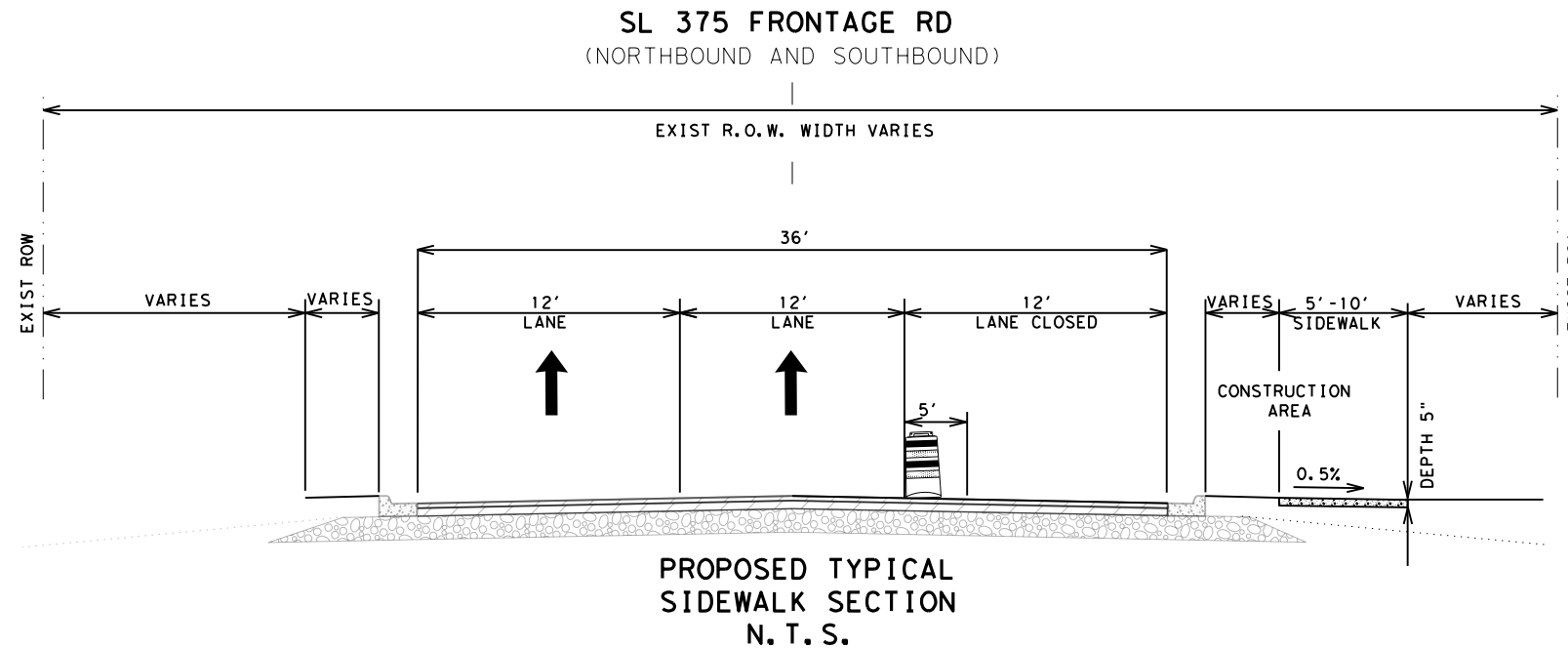
**PM(4) - 20**

FILE: pm4-20.dgn	DN:	CK:	DW:	CK:
© TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	2552	03	070	SL 375
	DIST	COUNTY	SHEET NO.	
	ELP	EL PASO	11	



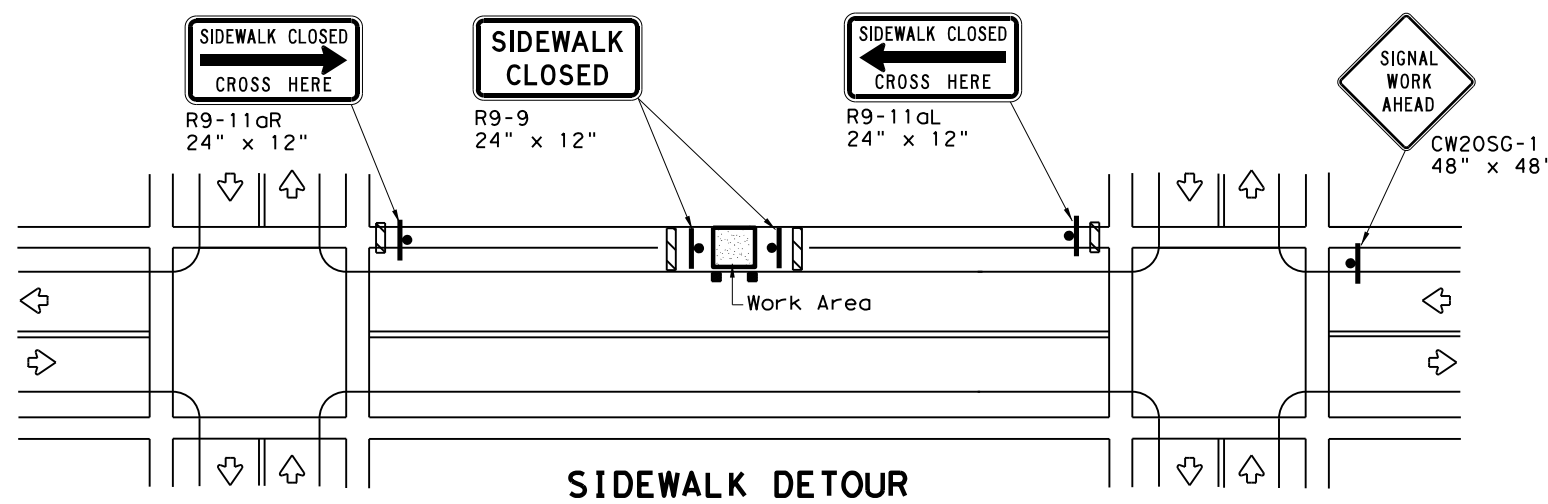
CKE  
 DMF  
 CKE  
 DMF

TYPE OF WORK	STANDARD SHEET	SHEET DESCRIPTION	SHEET DIAGRAM	SUGGESTED USE
CONCRETE SIDEWALKS, CURBS, RAMPS AND PEDESTRIAN RAIL	TCP (1-5) -18	TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS	TCP (1-5a)	ONE LANE CLOSURE



**NOTES:**

1. APPLY TRAFFIC CONTROL PLAN SETUP AS DESCRIBED IN THE TCP SELECTION TABLE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. LANE CLOSURE WILL BE IMPLEMENTED AT DISCRETION OF THE ENGINEER.
2. COORDINATE WITH OVERLAPPING PROJECTS TO PROVIDE A BETTER RIDE WHEN SCHEDULING SEGMENTS.
3. TYPICAL SECTIONS ARE FOR GENERAL INFORMATION ONLY. DO NOT USE FOR QUANTITY CALCULATIONS OR AS A CONSTRUCTION DETAIL.
4. WORK ONLY TO BE ALLOWED OFF PEAK HOURS BETWEEN 9:00 PM TO 6:00 AM, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
5. APPLY SIDEWALK PEDESTRIAN DETOUR AS SHOWN BELOW IN SIDEWALK CONSTRUCTION AREAS.



*Antonio Santana PE*

6/3/2022

**SL 375  
SIDEWALK  
TCP STANDARDS  
AND  
TYPICAL SECTION**

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		12

DATE: 6/3/2022 2:51:53 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2. TCP\TYPICAL\_TCP\_SECTIONS.dgn

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/12/2022 12:02:17 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2\_TCP\TCP STANDARDS\bc-21.dgn

**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).

<b>THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT</b> <a href="http://www.txdot.gov">http://www.txdot.gov</a>
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

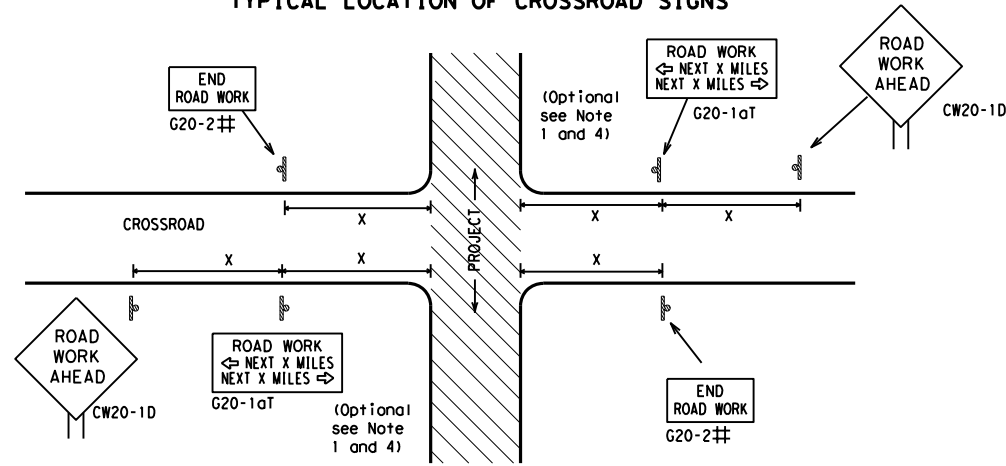
SHEET 1 OF 12

 Texas Department of Transportation		Traffic Safety Division Standard	
<b>BARRICADE AND CONSTRUCTION          GENERAL NOTES          AND REQUIREMENTS</b>			
<b>BC (1) -21</b>			
FILE:	bc-21.dgn	DN:	TxDOT
© TxDOT	November 2002	CK:	TxDOT
		DW:	TxDOT
		CR:	TxDOT
CONT	2552	SECT	03
JOB	070		HIGHWAY
SL	375		
REVISIONS		DIST	COUNTY
4-03	7-13		
9-07	8-14		
5-10	5-21	ELP	EL PASO
			SHEET NO.
			13

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

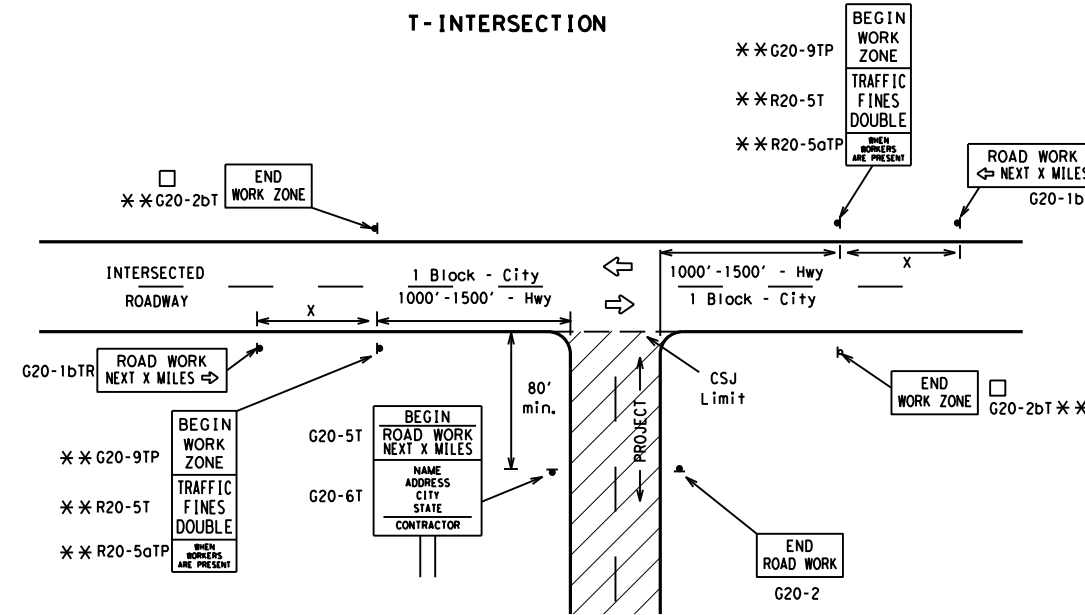
DATE: 5/12/2022 12:02:18 PM  
 FILE: M:\2552-03-0704-DESIGN\Plan Set\2\_TCP\TCP\_STANDARDS\bc-21.dgn

**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)
- 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.
  - 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.
  - 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.
  - 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.
  - Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
  - 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**

- 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.
- 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<sup>1,5,6</sup>**

Sign Number or Series	SIZE		SPACING	
	Conventional Road	Expressway/Freeway	Posted Speed MPH	Sign Δ Spacing "x" Feet (Apprx.)
CW20 <sup>4</sup>	48" x 48"	48" x 48"	30	120
CW21			35	160
CW22			40	240
CW23			45	320
CW25			50	400
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"	55	500 <sup>2</sup>
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"	60	600 <sup>2</sup>
			65	700 <sup>2</sup>
			70	800 <sup>2</sup>
			75	900 <sup>2</sup>
			80	1000 <sup>2</sup>
*			*	* <sup>3</sup>

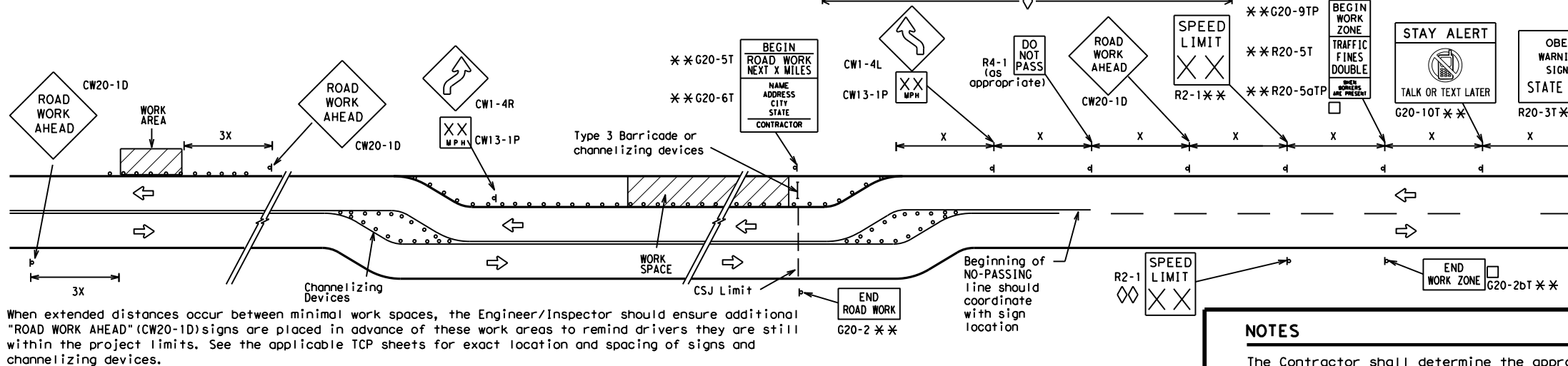
\* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

**GENERAL NOTES**

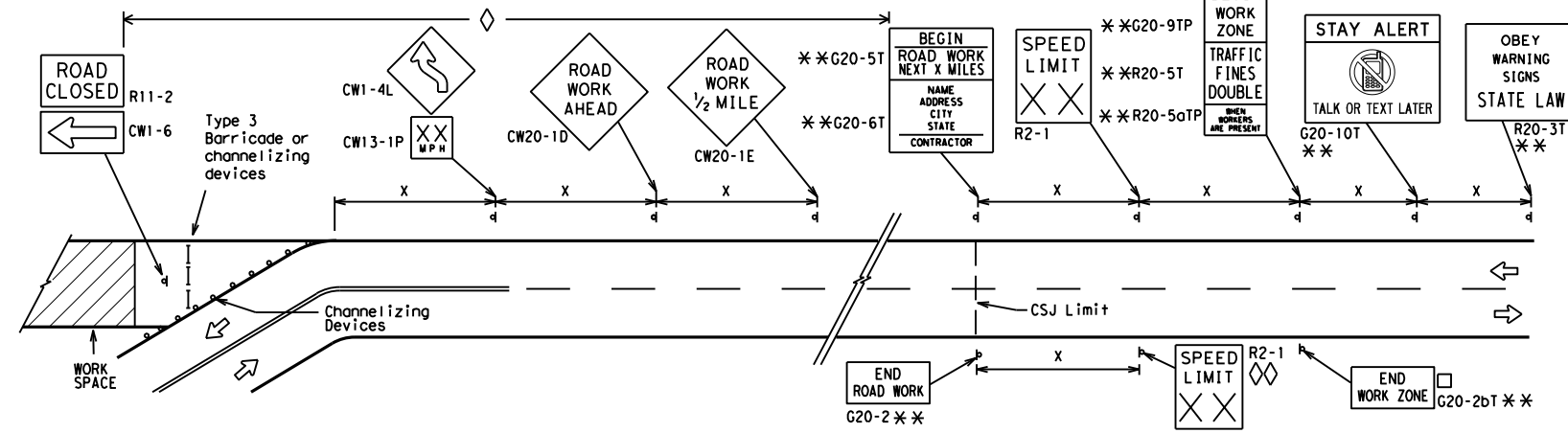
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be 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".
- Only diamond shaped warning sign sizes are indicated.
- 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**

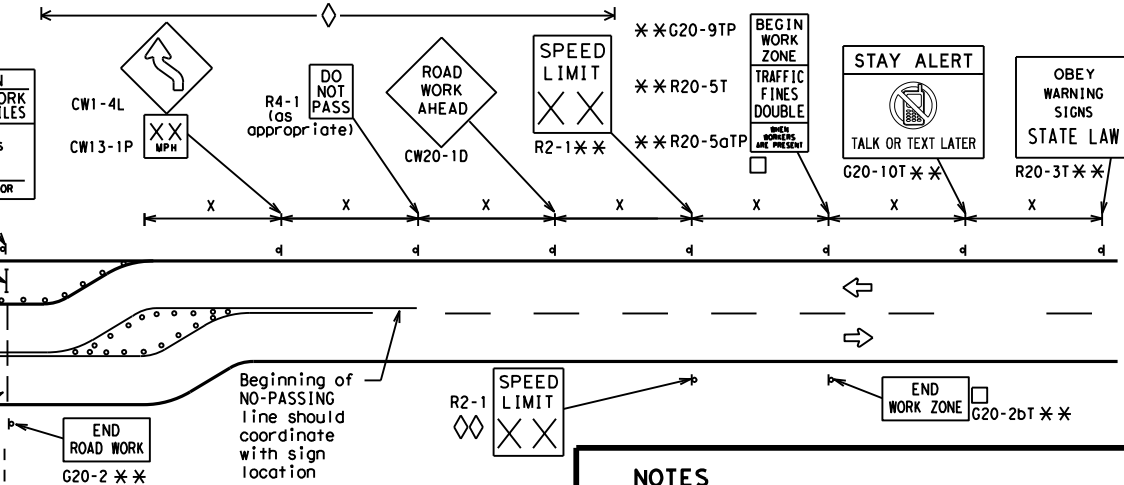


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

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



**SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT 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.

SHEET 2 OF 12



**BARRICADE AND CONSTRUCTION PROJECT LIMIT**

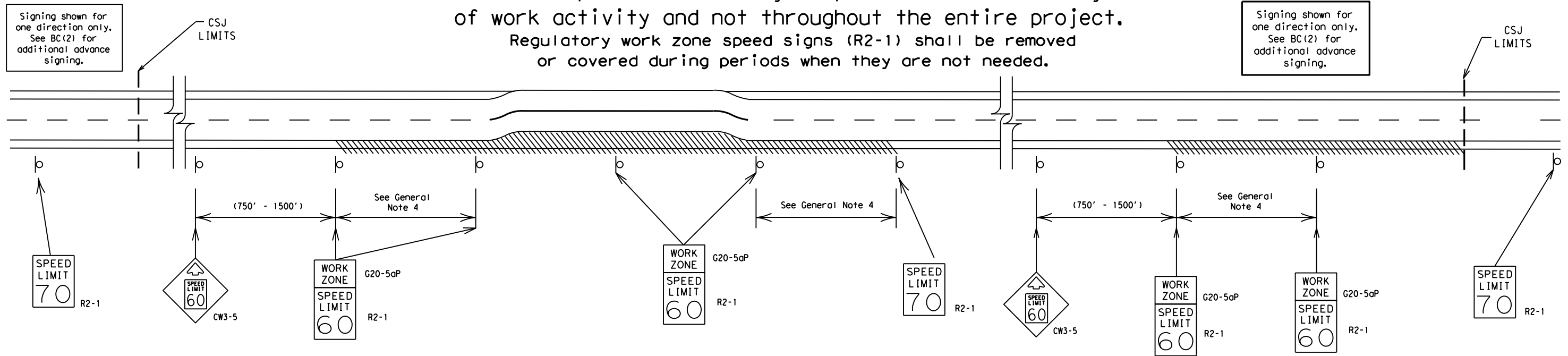
**BC(2)-21**

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	2552	03	070	SL 375
9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	ELP	EL PASO	14	

# 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:

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- 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

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- 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
- Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
- 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.
- Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
- Techniques that may help reduce traffic speeds include but are not limited to:
  - Law enforcement.
  - Flagger stationed next to sign.
  - Portable changeable message sign (PCMS).
  - Low-power (drone) radar transmitter.
  - Speed monitor trailers or signs.
- Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
- 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.

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/12/2022 12:02:20 PM  
FILE: M:\2552-03-070\4-DESIGN\Plan Set\2\_TCP\TCP STANDARDS\bc-21.dgn

SHEET 3 OF 12



## BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

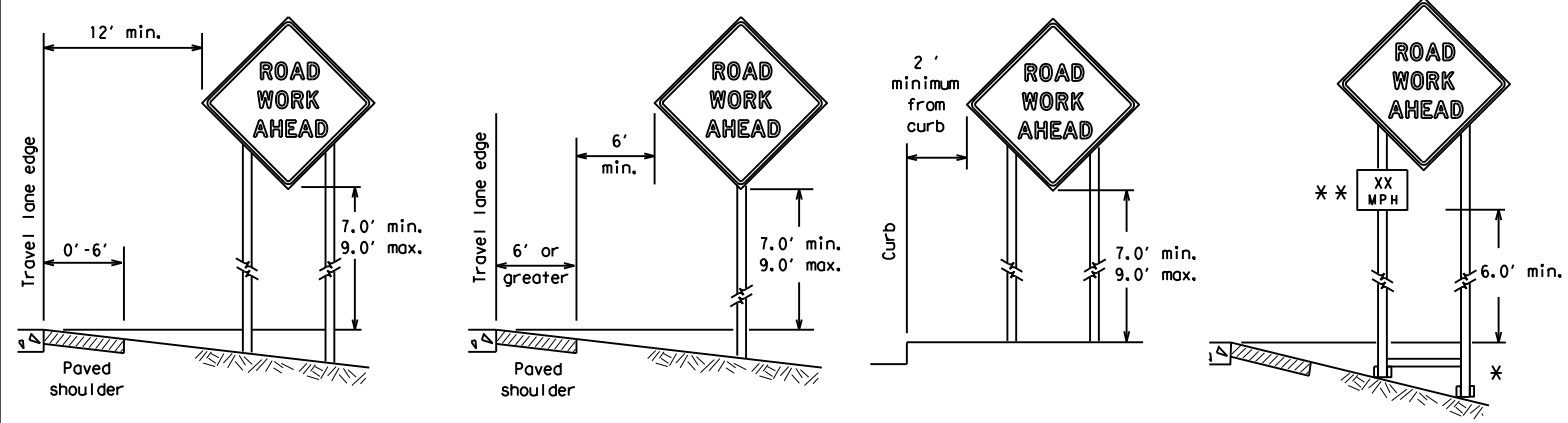
BC (3) - 21

FILE:	bc-21.dgn	DW:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
© TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY				
REVISIONS		2552	03	070	SL 375				
9-07	8-14								
7-13	5-21	DIST	COUNTY	SHEET NO.					
		ELP	EL PASO	15					

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/12/2022 12:02:21 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2\_TCP\TCP\_STANDARDS\bc-21.dgn

**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.

**GENERAL NOTES FOR WORK ZONE SIGNS**

- Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
- Wooden sign posts shall be painted white.
- Barricades shall NOT be used as sign supports.
- 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.
- The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
- The 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.
- 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.
- 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.
- 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)**

- 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.
  - Long-term stationary - work that occupies a location more than 3 days.
  - 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.
  - Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
  - Short, duration - work that occupies a location up to 1 hour.
  - Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

**SIGN MOUNTING HEIGHT**

- 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.
- 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.
- Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
- 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.
- 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**

- 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**

- 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.
- "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
- 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**

- 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).
- White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
- Orange sheeting, meeting the requirements of DMS-8300 Type B<sub>FL</sub> or Type C<sub>FL</sub>, shall be used for rigid signs with orange backgrounds.

**SIGN LETTERS**

- 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**

- When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
- 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.
- 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.
- 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 shall NOT be used to cover signs.
- Duct tape or other adhesive material shall NOT be affixed to a sign face.
- Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

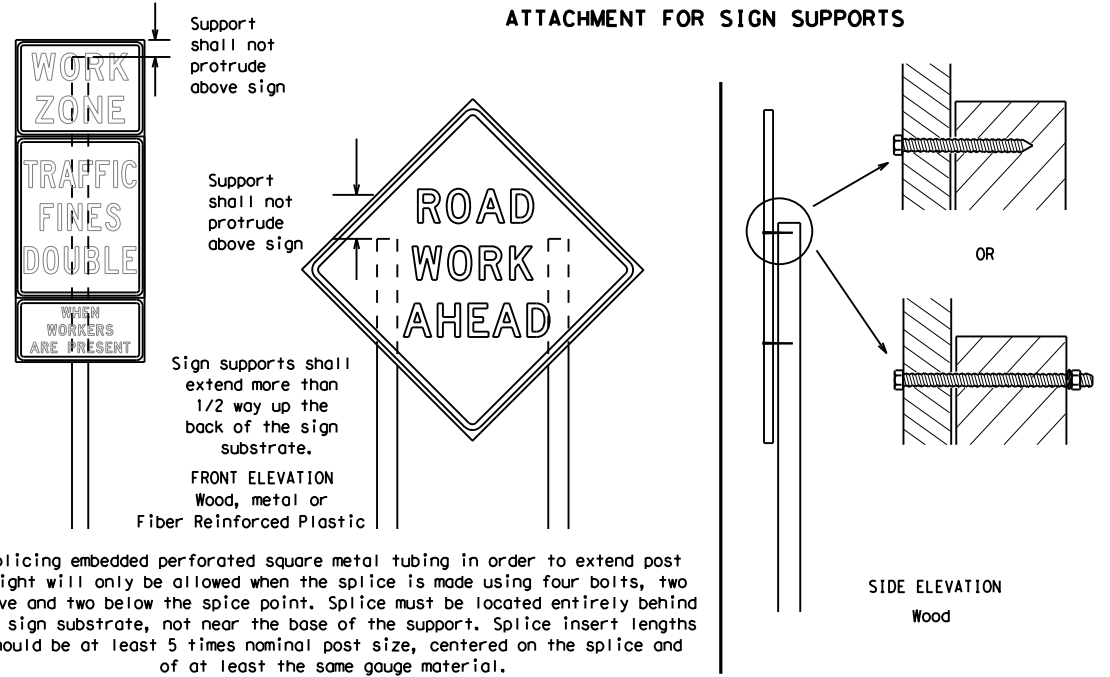
**SIGN SUPPORT WEIGHTS**

- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
- 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.
- 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.
- 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.
- Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

**FLAGS ON SIGNS**

- 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.

**ATTACHMENT FOR SIGN SUPPORTS**



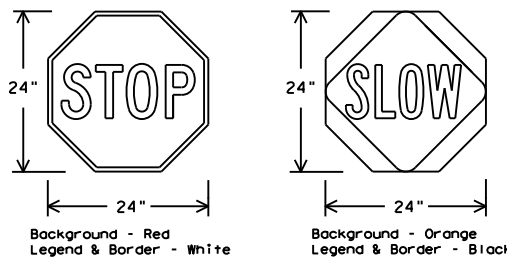
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

**Nails 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 splice 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**

- STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
- STOP/SLOW paddles shall be retroreflectORIZED when used at night.
- STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
- 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.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B <sub>FL</sub> OR C <sub>FL</sub> 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**

- 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.
- 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.
- When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
- 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.
- 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.
- 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.

SHEET 4 OF 12

Texas Department of Transportation  
 Traffic Safety Division Standard

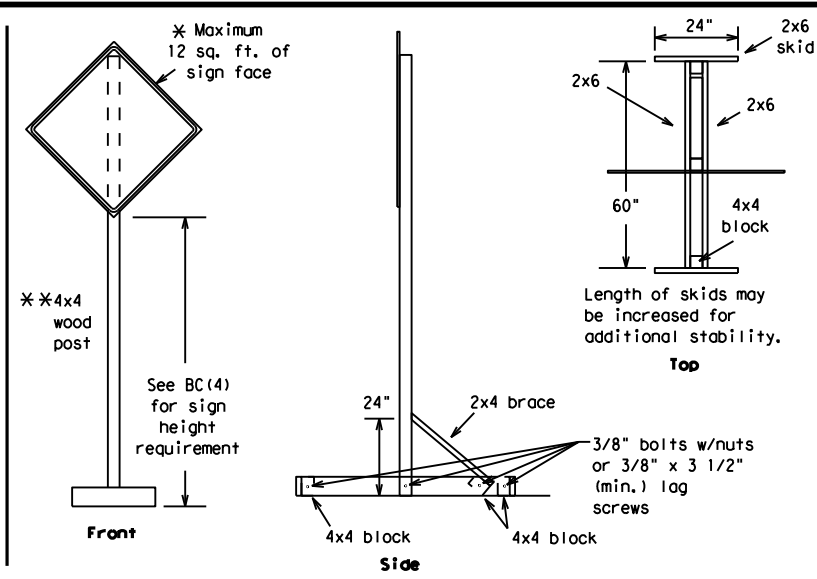
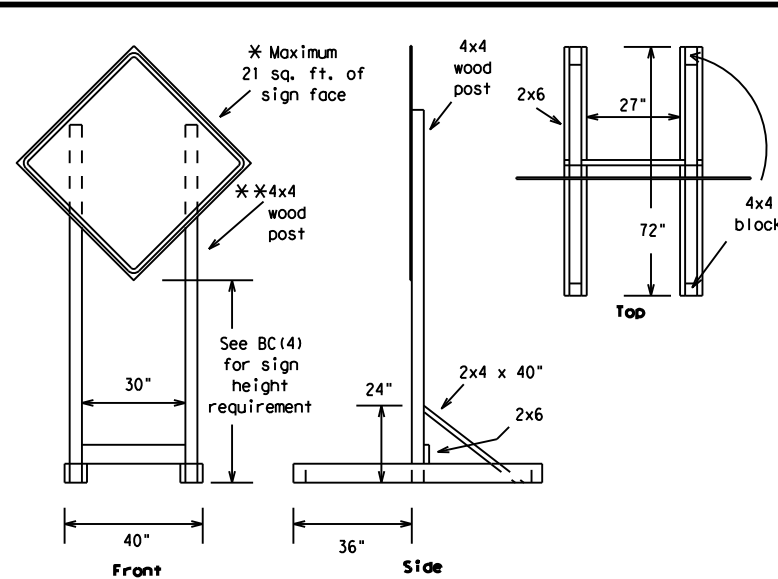
**BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES**

**BC (4) - 21**

FILE: bc-21.dgn	DN: TxDOT	CR: TxDOT	OW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	2552	03	070	SL 375
9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	ELP	EL PASO	16	

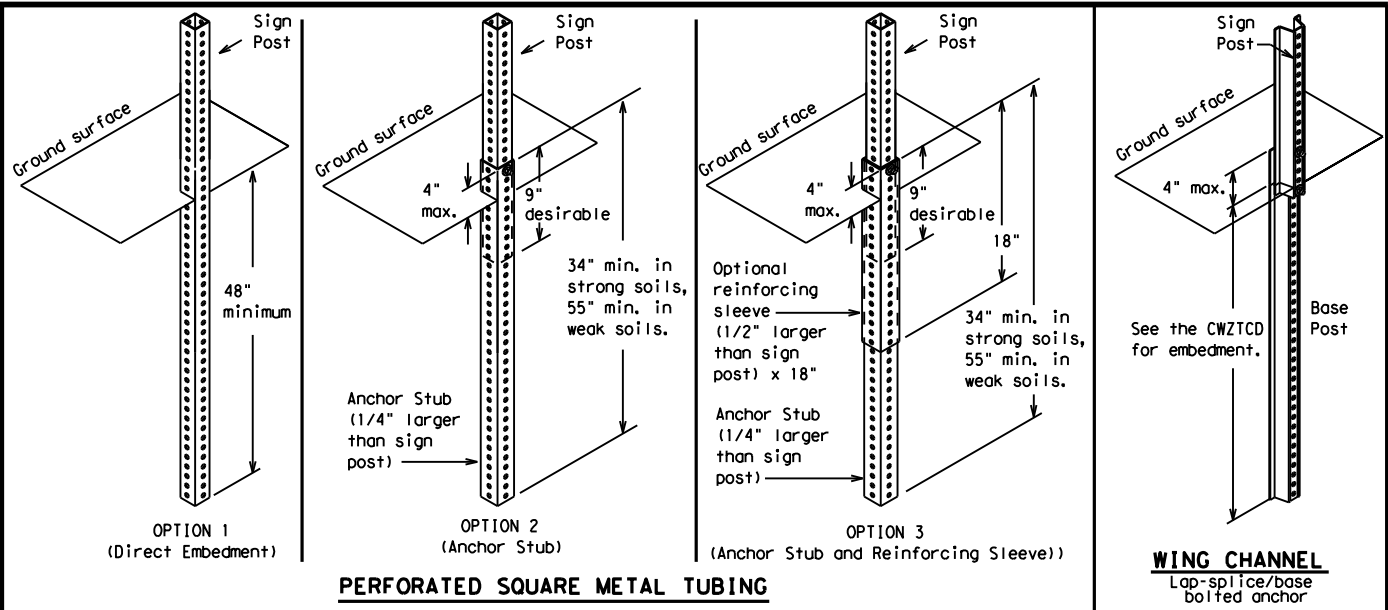
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/12/2022 12:02:22 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2\_TCP\TCP STANDARDS\bc-21.dgn



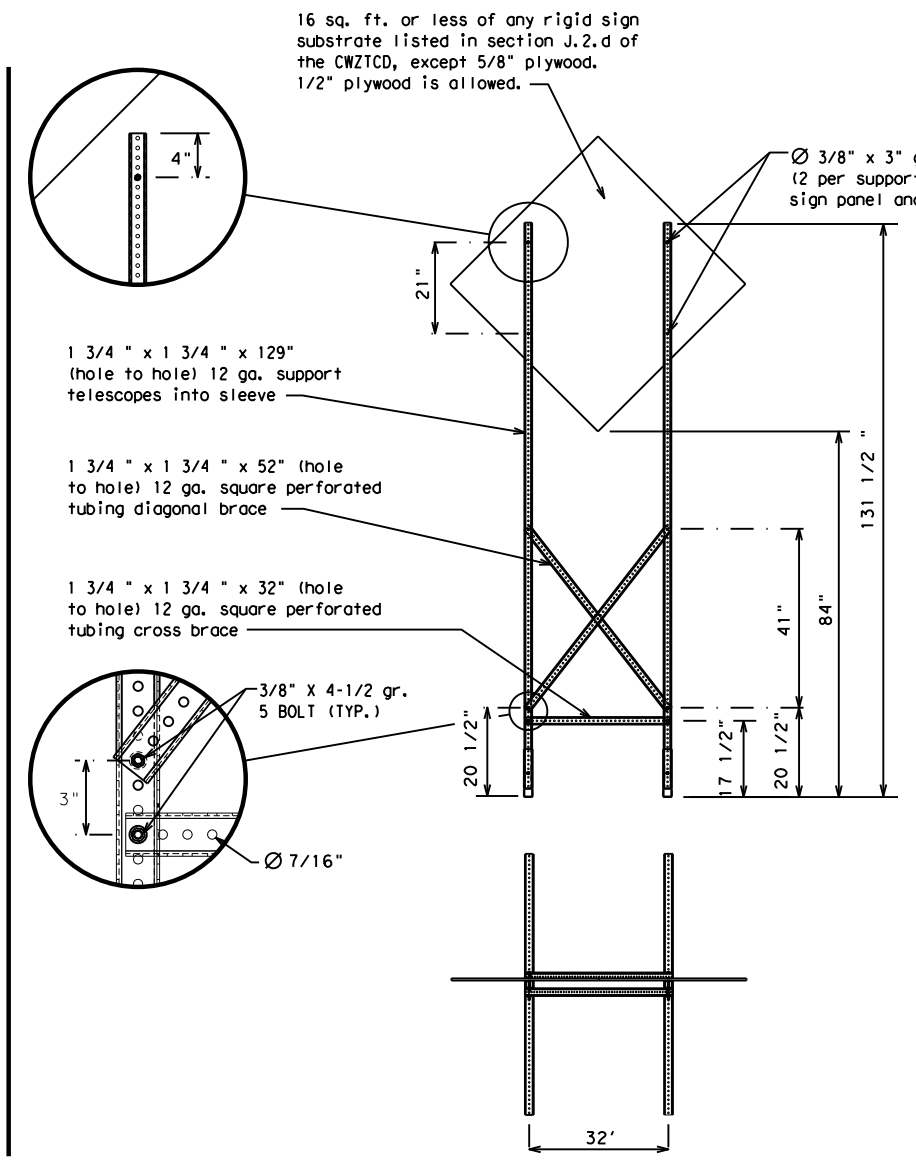
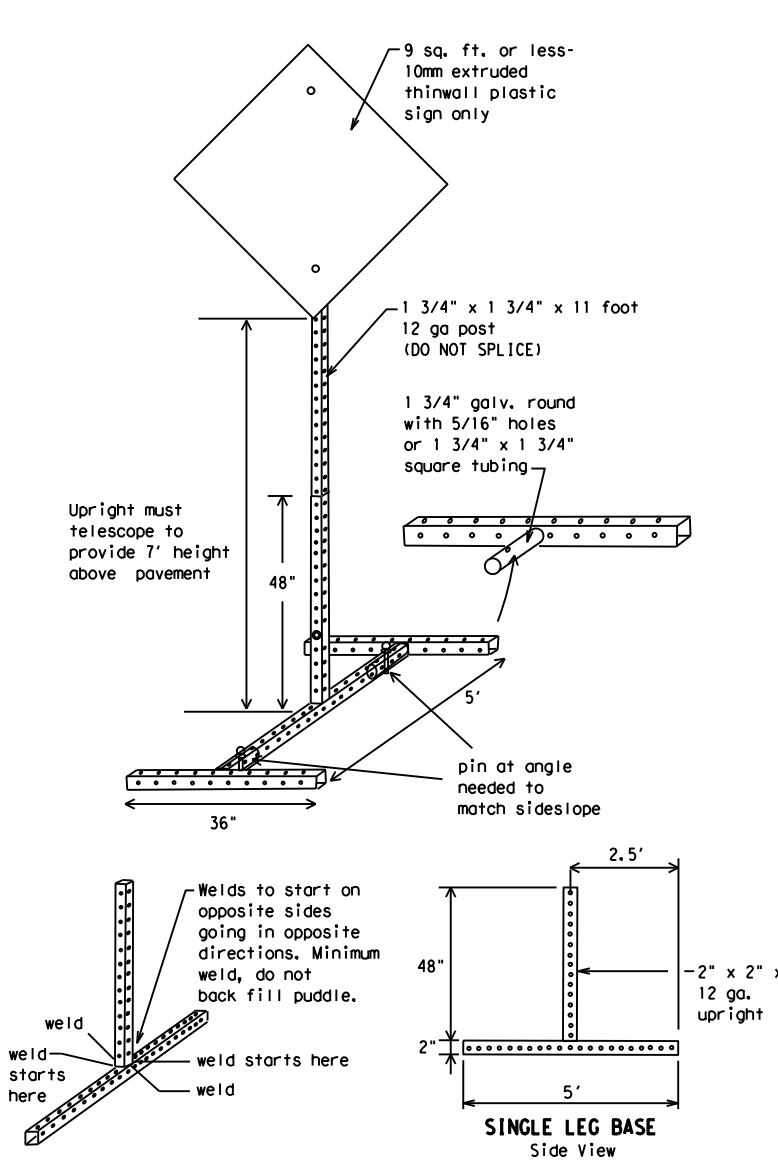
**SKID MOUNTED WOOD SIGN SUPPORTS**

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



**GROUND MOUNTED SIGN SUPPORTS**

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



**SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS**

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

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

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

- GENERAL NOTES**
- 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.
  - No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
  - 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.

**BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT**

**BC(5) - 21**

FILE:	bc-21.dgn	DN:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
©TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY				
REVISIONS		2552	03	070	SL 375				
9-07	8-14	DIST	COUNTY	SHEET NO.					
7-13	5-21	ELP	EL PASO	17					

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

# RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

## PORTABLE CHANGEABLE MESSAGE SIGNS

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- 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.
- 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.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- 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.
- 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.
- Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- 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.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- 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.
- 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.
- Each line of text should be centered on the message board rather than left or right justified.
- 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.

## 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
XXXXXXXX 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

\*\* See Application Guidelines Note 6.

## APPLICATION GUIDELINES

- Only 1 or 2 phases are to be used on a PCMS.
- The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
- A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
- A Location Phase is necessary only if a distance or location is not included in the first phase selected.
- 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.
- 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

- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.
- ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
- AHEAD may be used instead of distances if necessary.
- FT and MI, MILE and MILES interchanged as appropriate.
- AT, BEFORE and PAST interchanged as needed.
- 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

- 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.
- 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.
- 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.
- 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.

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/12/2022 12:02:24 PM  
FILE: M:\2552-03-070\4-DESIGN\Plan Set\2. TCP\TCP STANDARDS\bc-21.dgn

WORD OR PHRASE	ABBREVIATION	WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD	Major	MAJ
Alternate	ALT	Miles	MI
Avenue	AVE	Miles Per Hour	MPH
Best Route	BEST RTE	Minor	MNR
Boulevard	BLVD	Monday	MON
Bridge	BRDG	Normal	NORM
Canal	CANT	North	N
Center	CTR	Northbound	(route) N
Construction Ahead	CONST AHD	Parking	PKING
CROSSING	XING	Road	RD
Detour Route	DETOUR RTE	Right Lane	RT LN
Do Not	DONT	Saturday	SAT
East	E	Service Road	SERV RD
Eastbound	(route) E	Shoulder	SHLDR
Emergency	EMER	Slippery	SLIP
Emergency Vehicle	EMER VEH	South	S
Entrance, Enter	ENT	Southbound	(route) S
Express Lane	EXP LN	Speed	SPD
Expressway	EXPWY	Street	ST
XXXX Feet	XXXX FT	Sunday	SUN
Fog Ahead	FOG AHD	Telephone	PHONE
Freeway	FRWY, FWY	Temporary	TEMP
Freeway Blocked	FWY BLKD	Thursday	THURS
Friday	FRI	To Downtown	TO DWNTN
Hazardous Driving	HAZ DRIVING	Traffic	TRAF
Hazardous Material	HAZMAT	Travelers	TRVLR
High-Occupancy Vehicle	HOV	Tuesday	TUES
Highway	Hwy	Time Minutes	TIME MIN
Hour(s)	HR, HRS	Upper Level	UPR LEVEL
Information	INFO	Vehicles (s)	VEH, VEHS
It Is	ITS	Warning	WARN
Junction	JCT	Wednesday	WED
Left	LFT	Weight Limit	WT LIMIT
Left Lane	LFT LN	West	W
Lane Closed	LN CLOSED	Westbound	(route) W
Lower Level	LWR LEVEL	Wet Pavement	WET PVMT
Maintenance	MAINT	Will Not	WONT

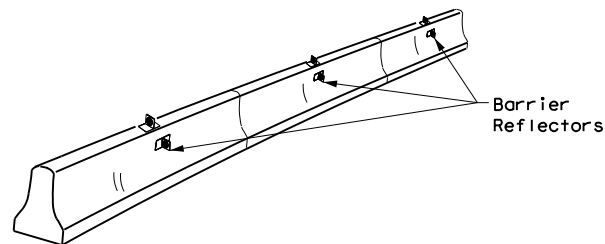
Roadway designation # IH-number, US-number, SH-number, FM-number

<h3>BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)</h3>			
<h2>BC (6) - 21</h2>			
FILE:	bc-21.dgn	DN:	TxDOT
© TxDOT	November 2002	CONT:	SECT:
REVISIONS	2552	03	070
9-07	8-14	DIST:	COUNTY:
7-13	5-21	ELP:	EL PASO
		SHEET NO.:	18

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

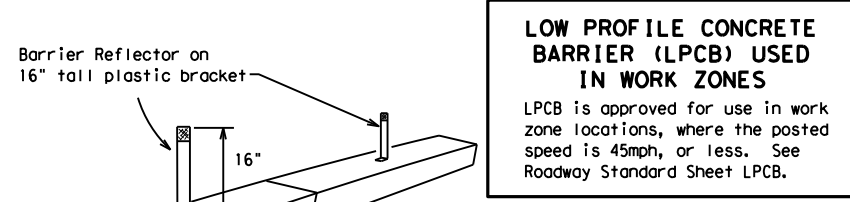
DATE: 5/12/2022 12:02:25 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2\_TCP\TCP STANDARDS\bc-21.dgn

- 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).
- Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.

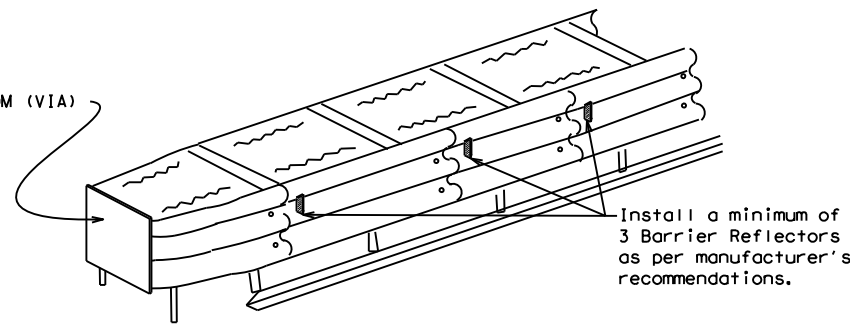


**CONCRETE TRAFFIC BARRIER (CTB)**

- 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.
- 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.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.



**LOW PROFILE CONCRETE BARRIER (LPCB)**

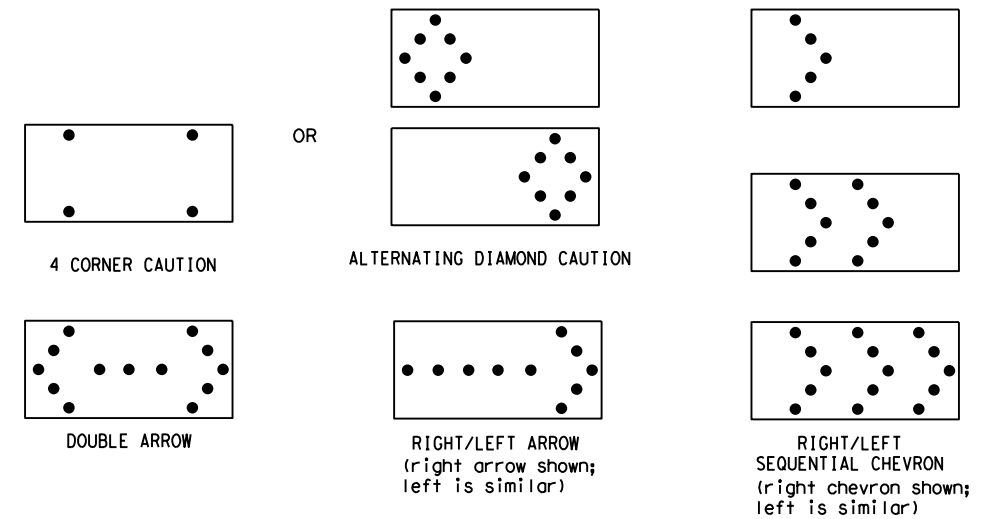


**DELINEATION OF END TREATMENTS**

**END TREATMENTS FOR CTB'S USED IN WORK ZONES**  
 End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

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.

- 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.
- 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.
- 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.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- 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.
- 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.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- 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.
- Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

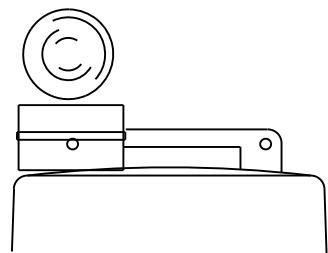
REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

**ATTENTION**  
 Flashing Arrow Boards shall be equipped with automatic dimming devices.

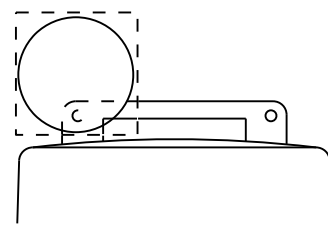
WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

**FLASHING ARROW BOARDS**

SHEET 7 OF 12



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**

- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- 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<sub>FL</sub> or C<sub>FL</sub> Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
- 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".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- 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.
- 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.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

**WARNING LIGHTS MOUNTED ON PLASTIC DRUMS**

- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- 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.
- 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.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- 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**

- 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.
- 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.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- 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.
- 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.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

**TRUCK-MOUNTED ATTENUATORS**

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTCD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- 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.
- 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.



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

**BC (7) -21**

FILE:	bc-21.dgn	DN:	TxDOT	CR:	TxDOT	OW:	TxDOT	CK:	TxDOT
© TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY				
REVISIONS		2552	03	070	SL 375				
9-07	8-14	DIST	COUNTY	SHEET NO.					
7-13	5-21	ELP	EL PASO	19					



DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/12/2022 12:02:26 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2\_TCP\TCP STANDARDS\bc-21.dgn

**GENERAL NOTES**

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- 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.
- 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.
- 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).
- 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.
- 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:

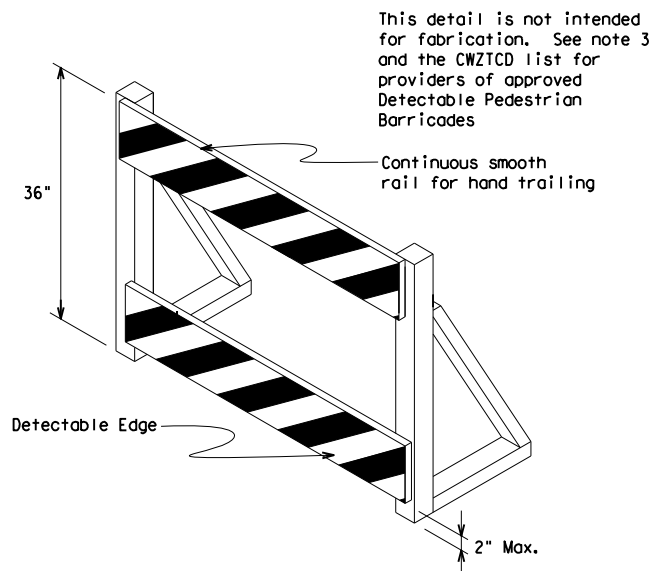
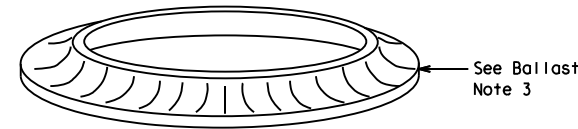
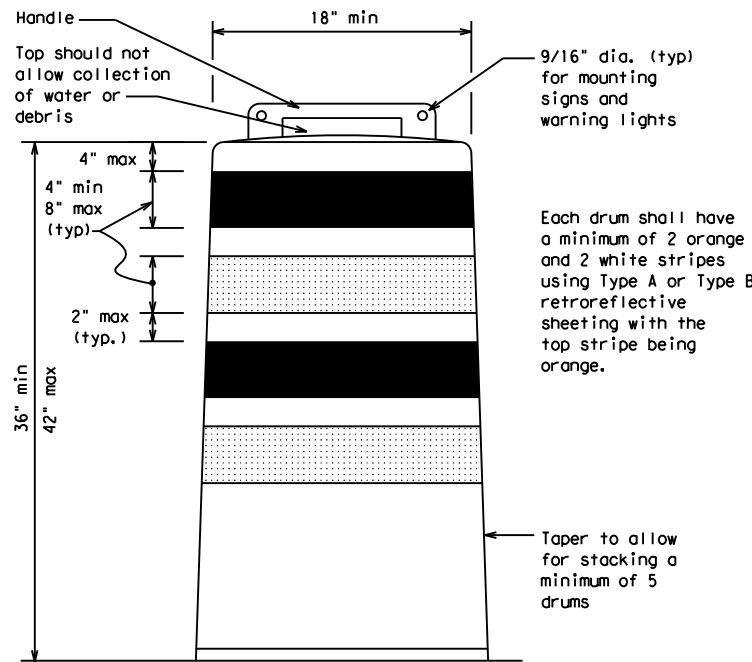
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- 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.
- 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.
- 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.
- 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.
- 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.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

**RETROREFLECTIVE SHEETING**

- 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.
- 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.

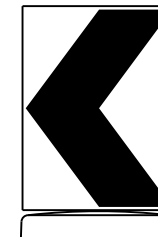
**BALLAST**

- 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.
- 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.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- 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.
- 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.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.

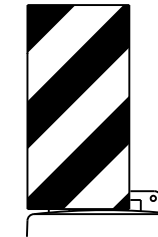


**DETECTABLE PEDESTRIAN BARRICADES**

- 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.
- 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.
- 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.
- 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.
- Warning lights shall not be attached to detectable pedestrian barricades.
- 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**

- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- Chevrons and other work zone signs with an orange background shall be manufactured with Type B<sub>FL</sub> or Type C<sub>FL</sub> Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- 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.
- 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.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- 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.
- 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.

SHEET 8 OF 12



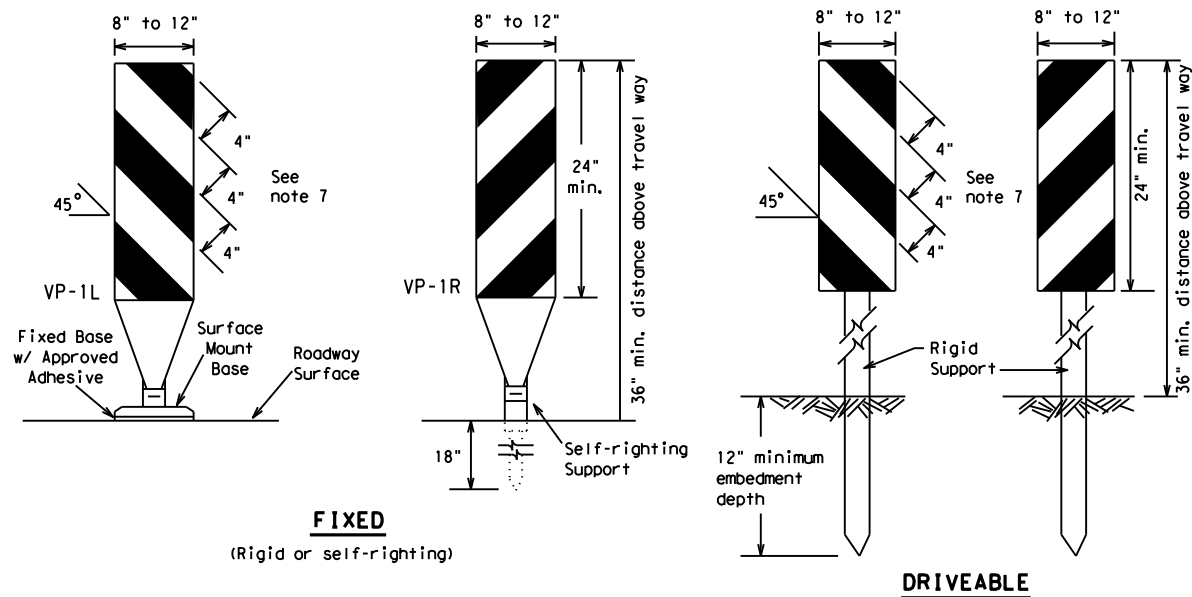
**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

**BC (8) - 21**

FILE:	bc-21.dgn	DN:	TxDOT	CR:	TxDOT	OW:	TxDOT	CK:	TxDOT
© TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY				
REVISIONS		2552	03	070	SL 375				
4-03	8-14								
9-07	5-21	DIST	COUNTY	SHEET NO.					
7-13		ELP	EL PASO	20					

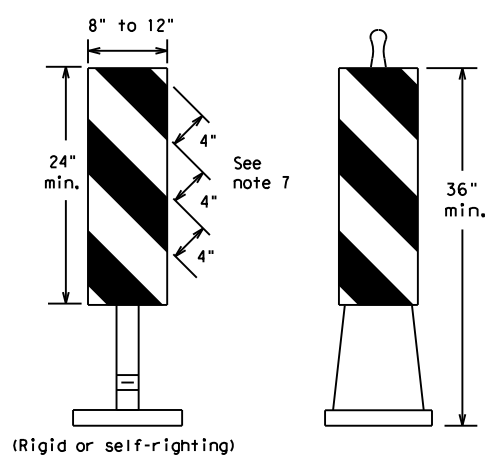
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/12/2022 12:02:28 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2\_TCP\TCP STANDARDS\bc-21.dgn



**FIXED**  
(Rigid or self-righting)

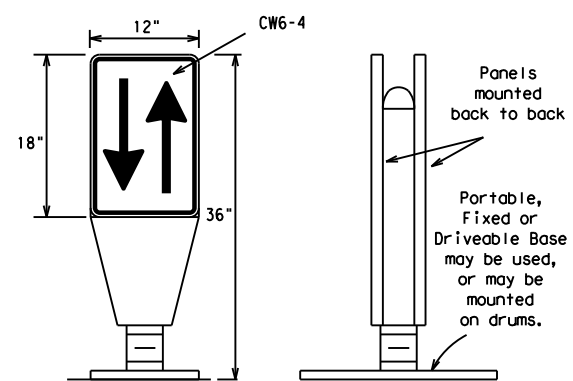
**DRIVEABLE**



**PORTABLE**

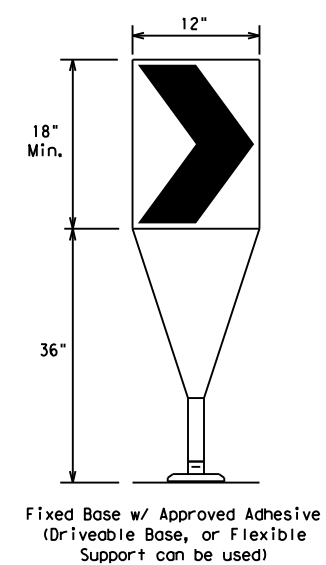
**VERTICAL PANELS (VPs)**

- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- 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.
- 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.
- VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



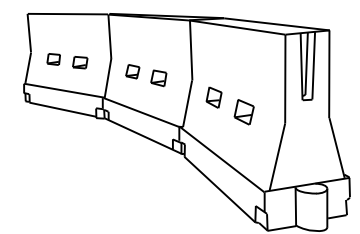
**OPPOSING TRAFFIC LANE DIVIDERS (OTLD)**

- Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
- The OTLD may be used in combination with 42" cones or VPs.
- Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
- The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B<sub>FL</sub> or Type C<sub>FL</sub> conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.



- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- 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.
- 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.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B<sub>FL</sub> or Type C<sub>FL</sub> conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
- 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**



**LONGITUDINAL CHANNELIZING DEVICES (LCD)**

- 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.
- LCDs may be used instead of a line of cones or drums.
- LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
- LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
- 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**

- 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.
- 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.
- 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.
- 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.
- 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**

**GENERAL NOTES**

- 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).
- 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.
- 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).
- 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.
- Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
- 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.
- 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.

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

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

**SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS**

SHEET 9 OF 12



**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

**BC (9) - 21**

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	2552	03	070	SL 375
9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	ELP	EL PASO	21	

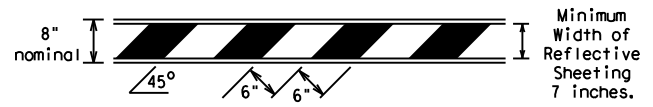
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/12/2022 12:02:29 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2\_TCP\TCP STANDARDS\bc-21.dgn

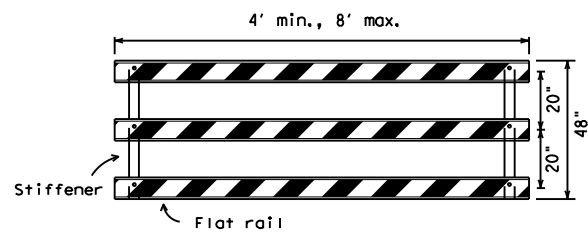
**TYPE 3 BARRICADES**

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.

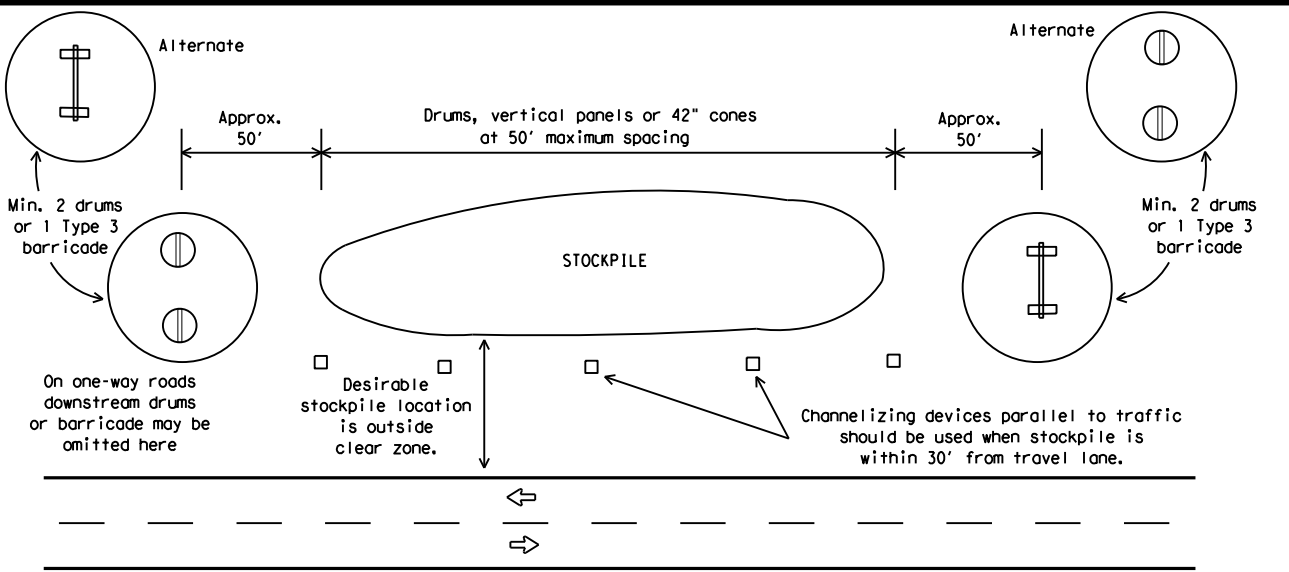


**TYPICAL STRIPING DETAIL FOR BARRICADE RAIL**



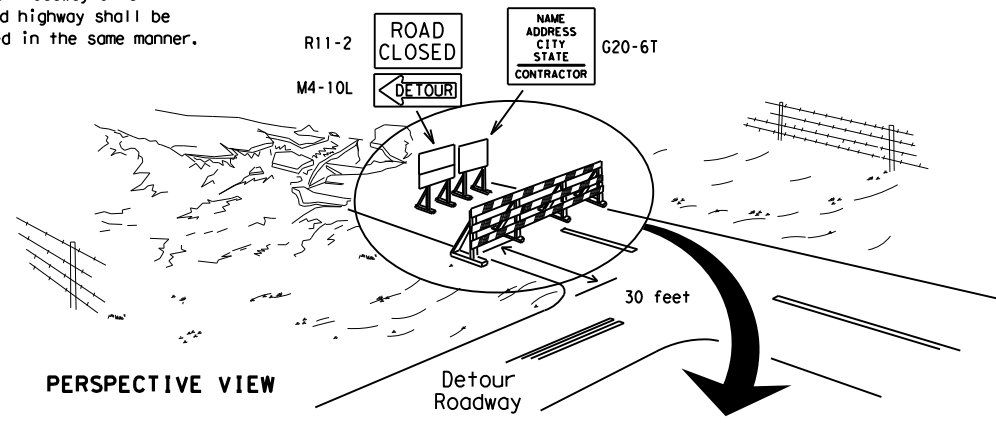
Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

**TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES**



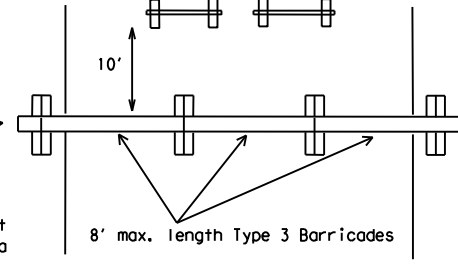
**TRAFFIC CONTROL FOR MATERIAL STOCKPILES**

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



PERSPECTIVE VIEW

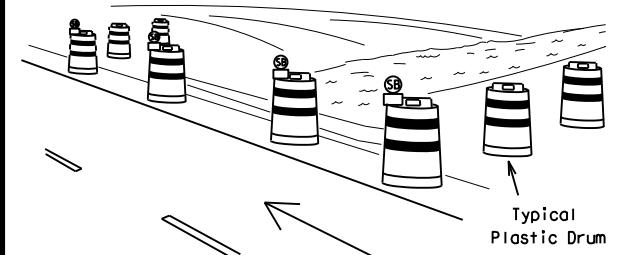
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



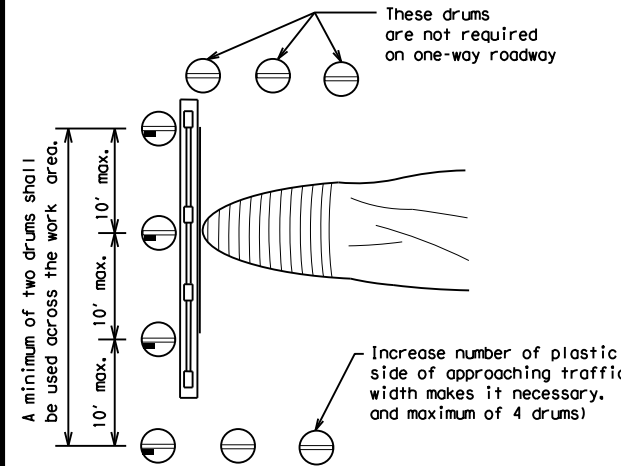
PLAN VIEW

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

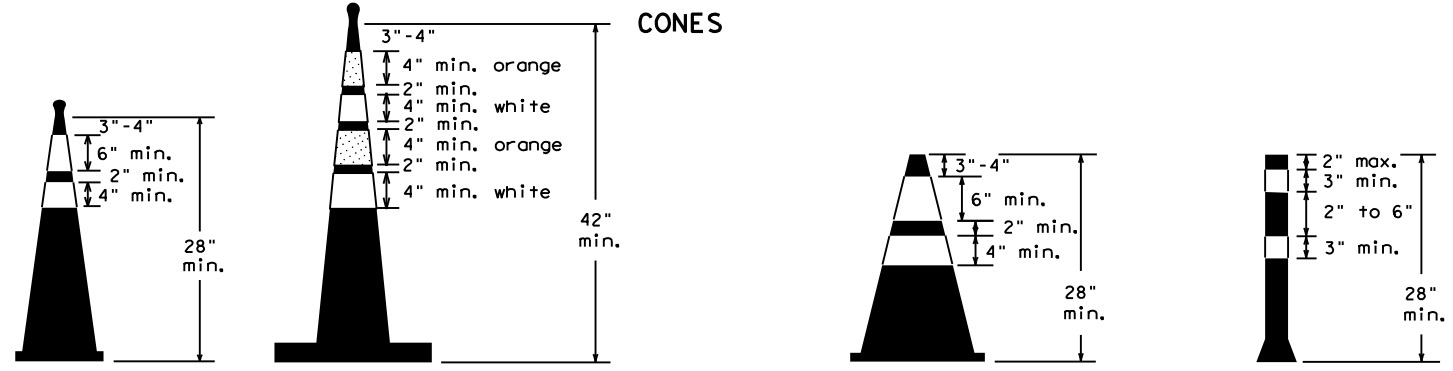


PLAN VIEW

**CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS**

1. Where positive redirection capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.

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



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.

**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

**BC (10) - 21**

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	2552	03	070	SL 375
9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	ELP	EL PASO	22	

## WORK ZONE PAVEMENT MARKINGS

### GENERAL

- 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.
- Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Additional supplemental pavement marking details may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
- 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).
- 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.
- All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

### RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC(12).
- 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

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

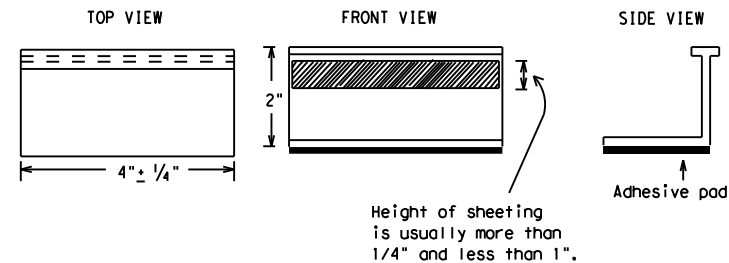
### MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- 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.
- 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.
- 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

- 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.
- 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.
- 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".
- The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
- Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
- Blast cleaning may be used but will not be required unless specifically shown in the plans.
- Over-painting of the markings SHALL NOT BE permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- 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.
- 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**

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- 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.
  - 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.
  - 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.
- Small design variances may be noted between tab manufacturers.
- 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

- Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
- All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
- 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).

SHEET 11 OF 12



## BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

**BC(11)-21**

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	2552	03	070	SL 375
2-98 9-07 5-21	DIST	COUNTY	SHEET NO.	
1-02 7-13	ELP	EL PASO	23	
11-02 8-14				

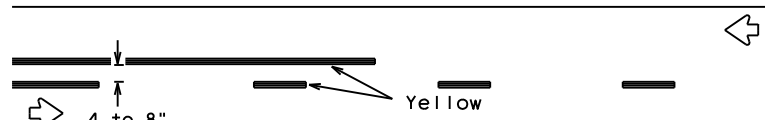
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/12/2022 12:02:30 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2\_TCP\TCP\_STANDARDS\bc-21.dgn

## PAVEMENT MARKING PATTERNS

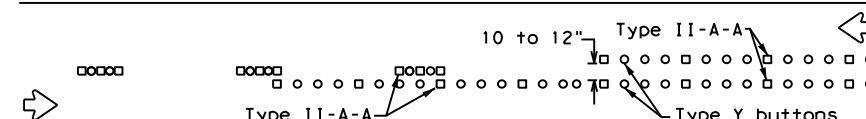


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

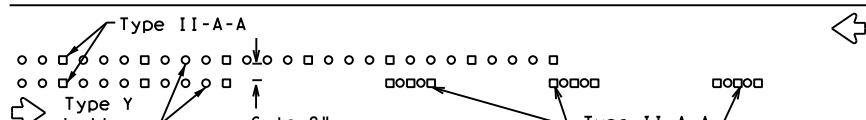


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

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.

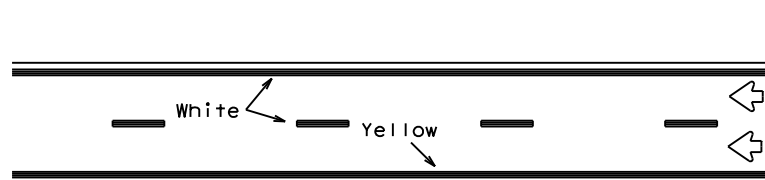


RAISED PAVEMENT MARKERS - PATTERN A



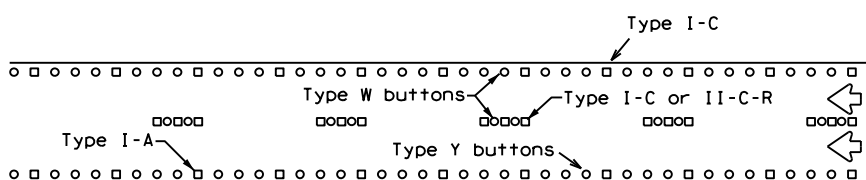
RAISED PAVEMENT MARKERS - PATTERN B

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



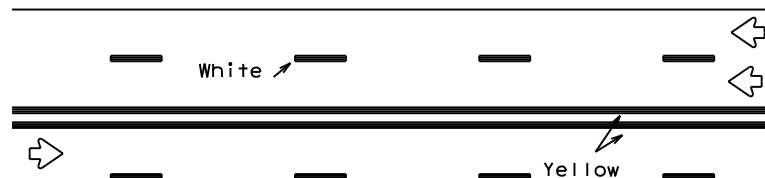
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



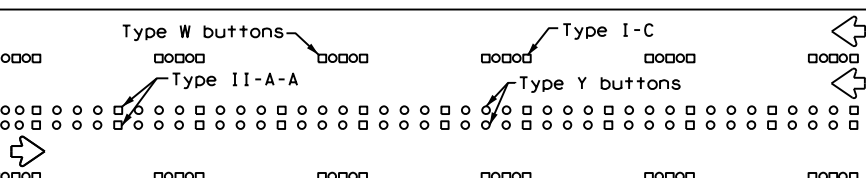
RAISED PAVEMENT MARKERS

## EDGE & LANE LINES FOR DIVIDED HIGHWAY



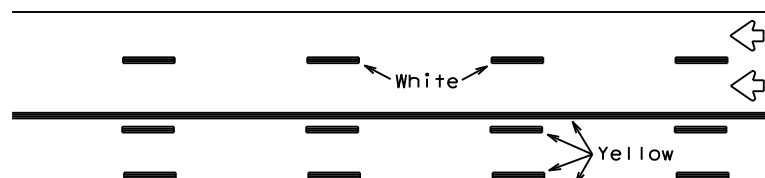
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



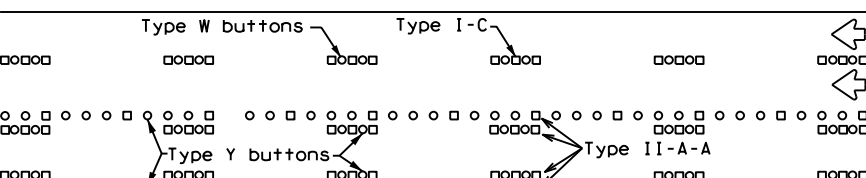
RAISED PAVEMENT MARKERS

## LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

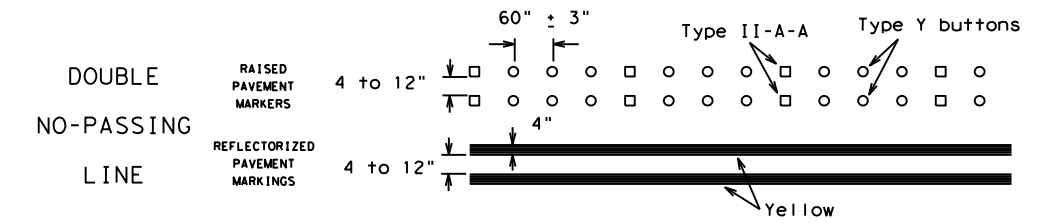
Prefabricated markings may be substituted for reflectORIZED pavement markings.



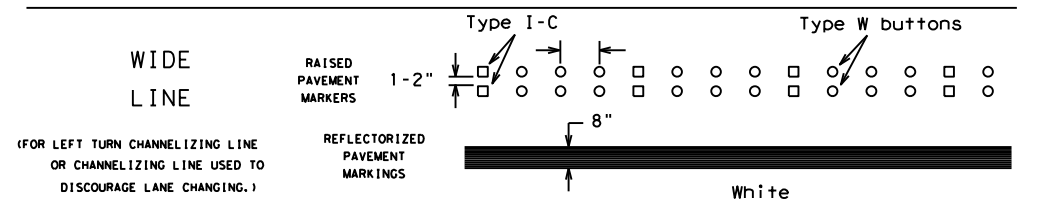
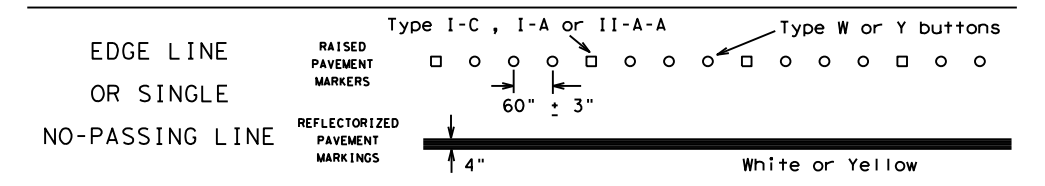
RAISED PAVEMENT MARKERS

## TWO-WAY LEFT TURN LANE

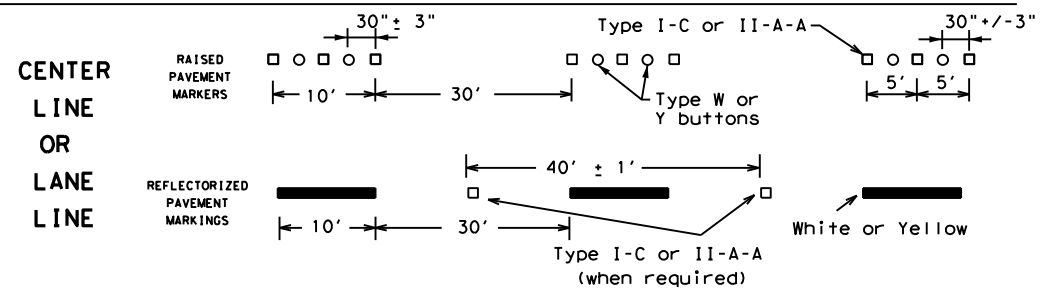
## STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



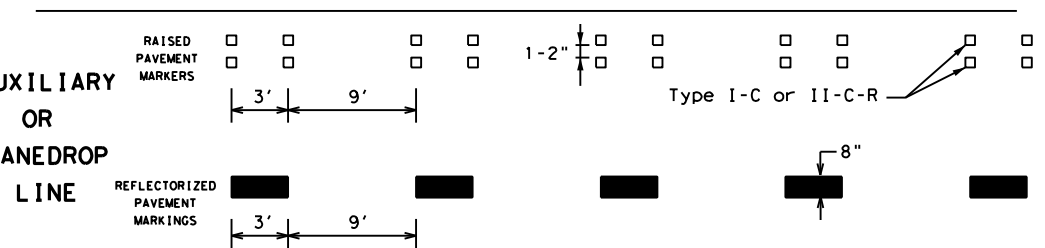
### SOLID LINES



### BROKEN LINES

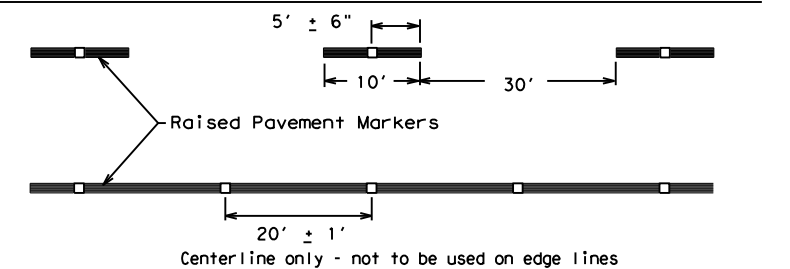


### AUXILIARY OR LANEDROP LINE



### 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.



SHEET 12 OF 12



## BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

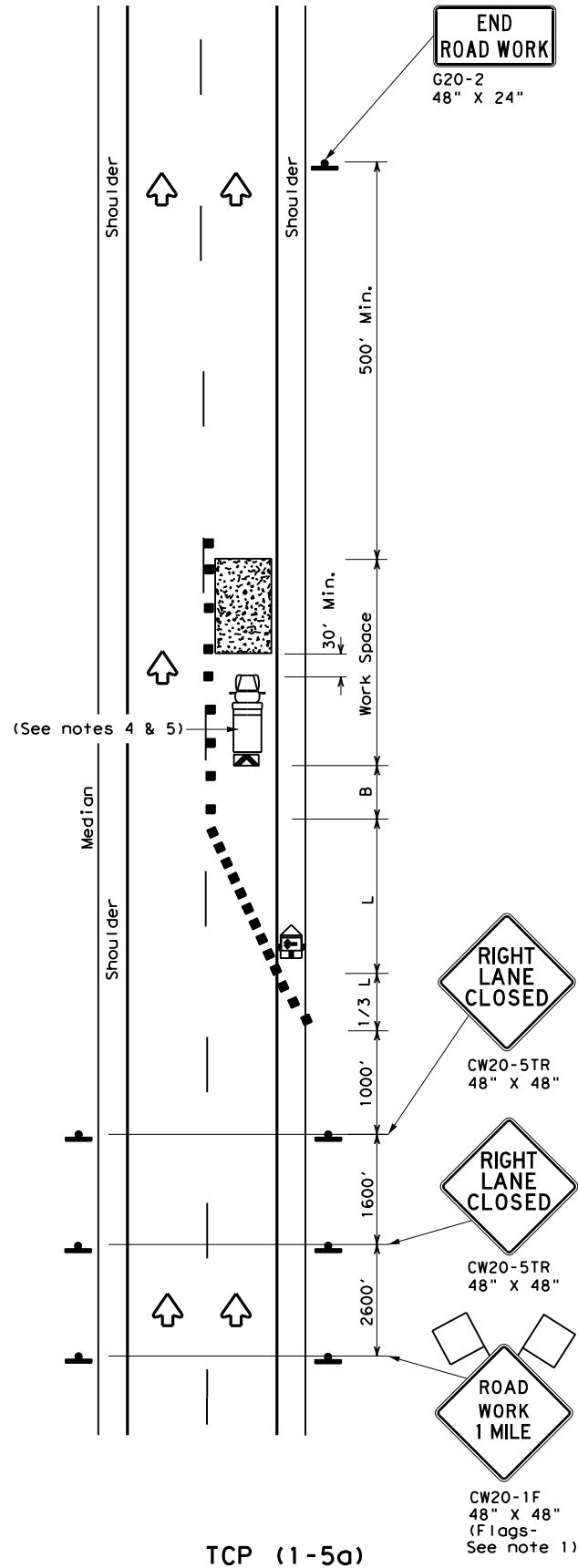
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	2552	03	070	SL 375
1-97 9-07 5-21	DIST	COUNTY	SHEET NO.	
2-98 7-13	ELP	EL PASO	24	
11-02 8-14				

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TXDOT for any purpose whatsoever. TXDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

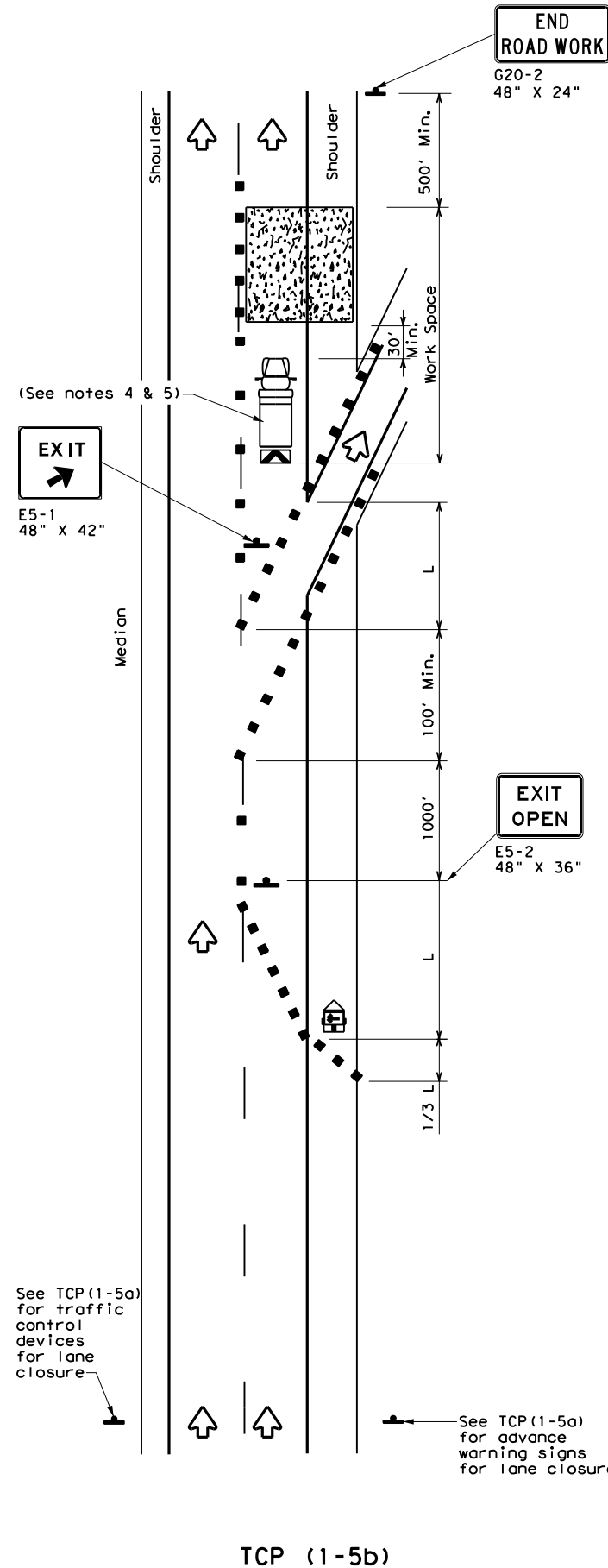
DATE: 5/12/2022 12:02:32 PM  
FILE: M:\2552-03-070\4-DESIGN\Plan Set\2\_TCP\TCP STANDARDS\bc-21.dgn

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

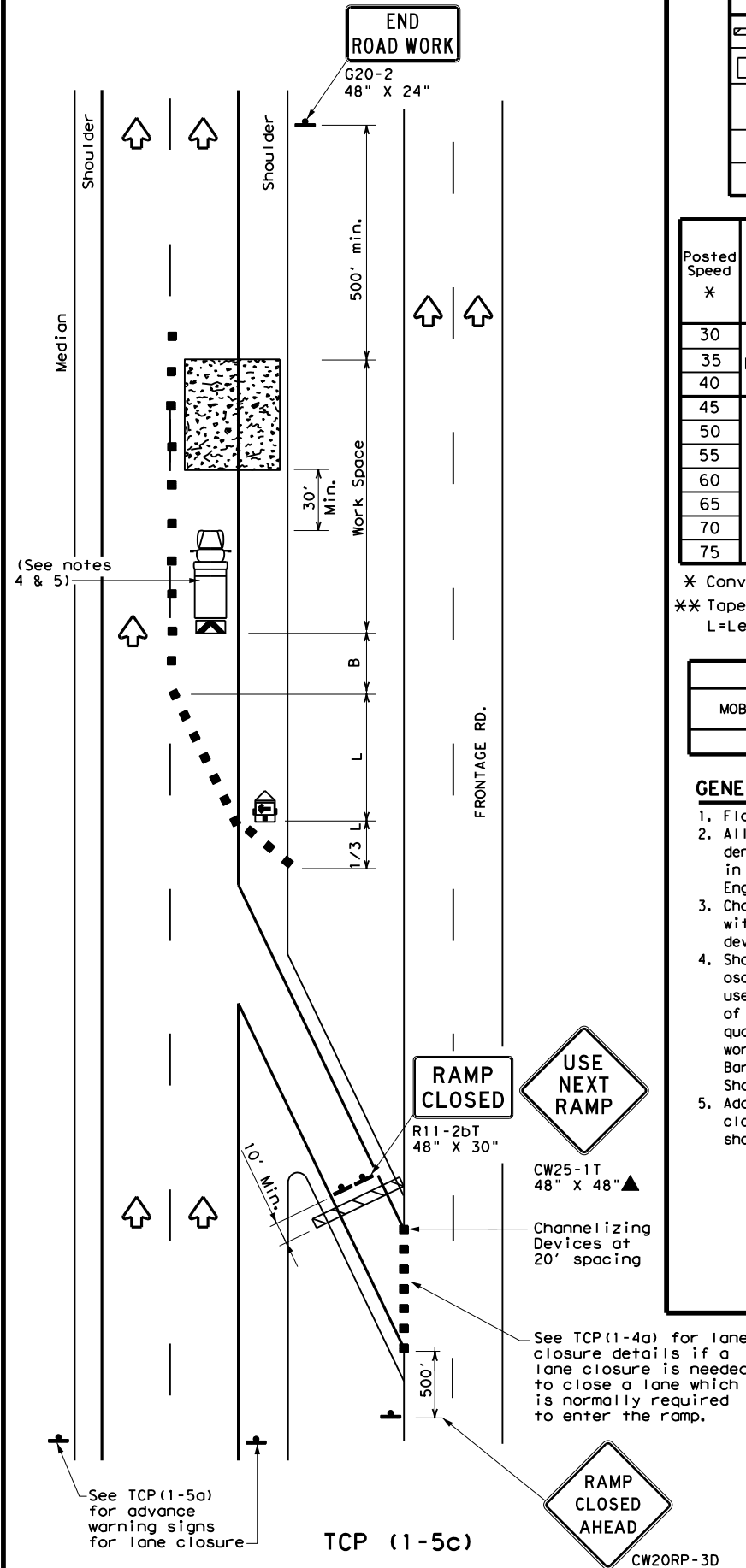
DATE: 5/12/2022 1:22:32 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\2. TCP\tcp1-5-18.dgn



**ONE LANE CLOSURE**



**LANE CLOSURE NEAR EXIT RAMP**



**LANE CLOSURE NEAR ENTRANCE RAMP**

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
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**

- Flags attached to signs where shown, are REQUIRED.
- 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.
- Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
- 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.
- 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.

Texas Department of Transportation

Traffic Operations Division Standard

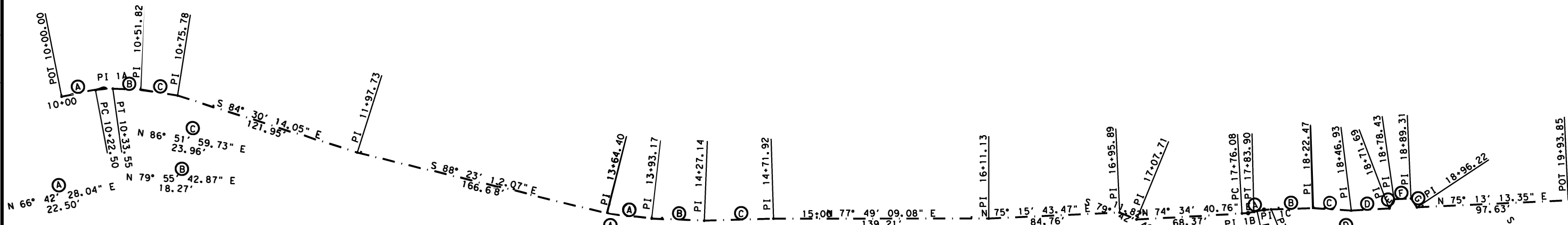
## TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS

### TCP (1-5) - 18

FILE: tcp1-5-18.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
2-18	REVISIONS	2552 03	070	SL 375
	DIST	COUNTY	SHEET NO.	
	ELP	EL PASO	25	

DATE: 5/31/2022 6:50:00 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_2D\_SDWK\_ALG\_SHT1.dgn

**ALIGNMENT SDWK-1**  
 N.T.S



**CURVE 1A**

PI STATION	= 10+28.05
DELTA	= 12° 39' 32.53" (RT)
DEGREE OF CURVE	= 114° 35' 29.61"
TANGENT	= 5.55
LENGTH	= 11.05
RADIUS	= 50.00
PC STATION	= 10+22.50
PT STATION	= 10+33.55

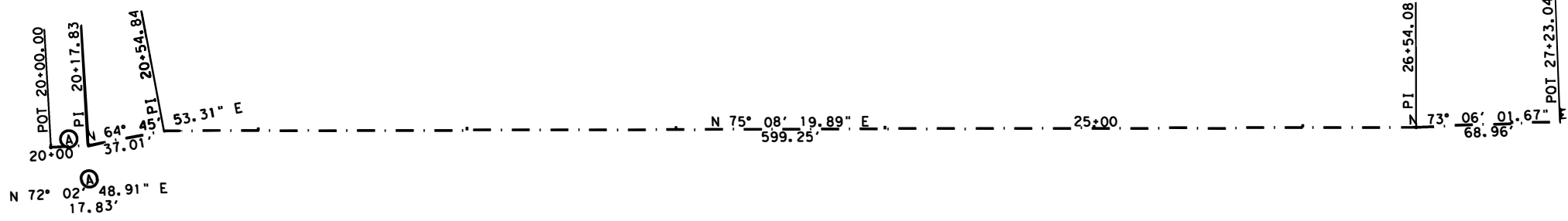
**CURVE 1B**

PI STATION	= 17+80.00
DELTA	= 8° 57' 15.67" (LT)
DEGREE OF CURVE	= 114° 35' 29.61"
TANGENT	= 3.92
LENGTH	= 7.81
RADIUS	= 50.00
PC STATION	= 17+76.08
PT STATION	= 17+83.90

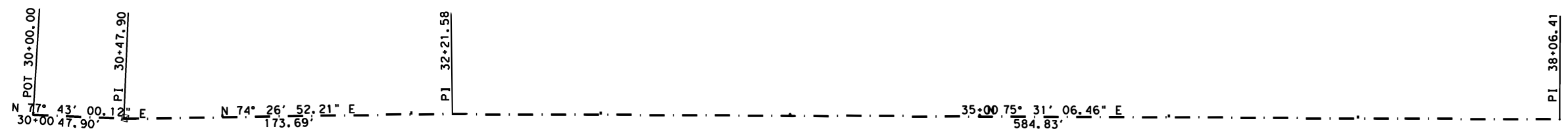
**CURVE 1C**

PI STATION	= 17+90.51
DELTA	= 10° 28' 51.75" (RT)
DEGREE OF CURVE	= 114° 35' 29.61"
TANGENT	= 4.59
LENGTH	= 9.15
RADIUS	= 50.00
PC STATION	= 17+85.92
PT STATION	= 17+95.07

**ALIGNMENT SDWK-2**  
 N.T.S



**ALIGNMENT SDWK-3**  
 N.T.S



*Antonio Santana PE*

6/1/2022

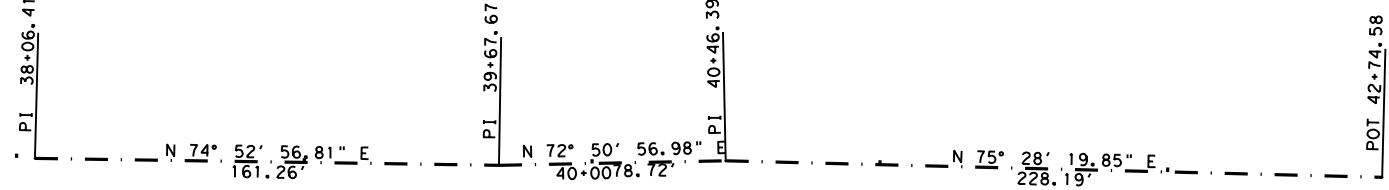
**SL 375  
 SIDEWALK  
 ALIGNMENT 1-3**

SHEET 1 OF 5  
 ©2022

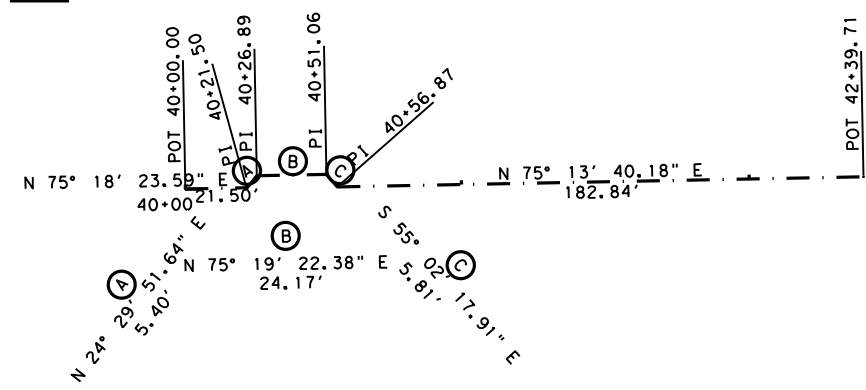
Texas Department of Transportation			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		26

DATE: 6/1/2022 6:07:06 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_2D\_SDWK\_ALG\_SHT2.dgn

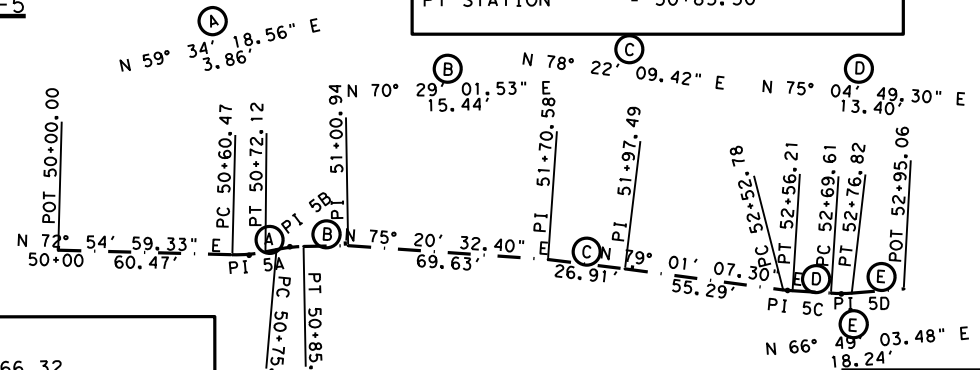
**ALIGNMENT SDWK-3**  
 N.T.S



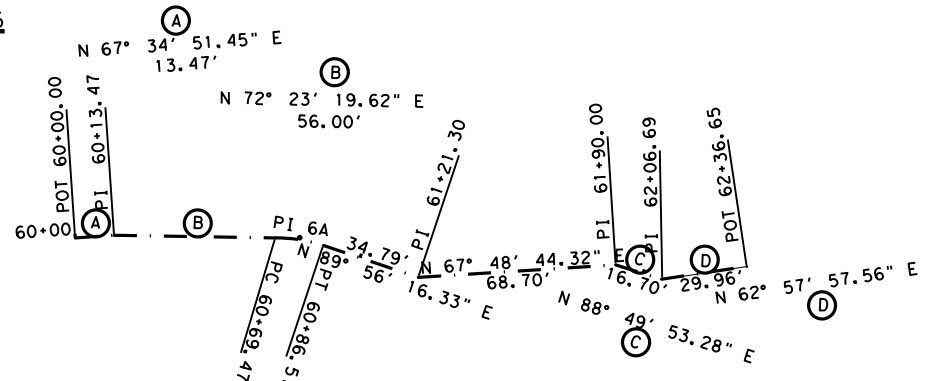
**ALIGNMENT SDWK-4**  
 N.T.S



**ALIGNMENT SDWK-5**  
 N.T.S



**ALIGNMENT SDWK-6**  
 N.T.S



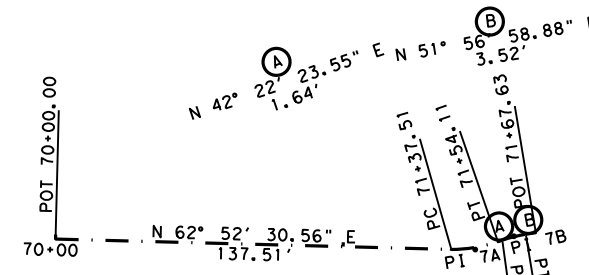
**CURVE 5A**  
 PI STATION = 50+66.32  
 DELTA = 13° 20' 40.79" (LT)  
 DEGREE OF CURVE = 114° 35' 29.61"  
 TANGENT = 5.85  
 LENGTH = 11.65  
 RADIUS = 50.00  
 PC STATION = 50+60.47  
 PT STATION = 50+72.12

**CURVE 5C**  
 PI STATION = 52+54.49  
 DELTA = 3° 56' 18.00" (LT)  
 DEGREE OF CURVE = 114° 35' 29.61"  
 TANGENT = 1.72  
 LENGTH = 3.44  
 RADIUS = 50.00  
 PC STATION = 52+52.78  
 PT STATION = 52+56.21

**CURVE 5D**  
 PI STATION = 52+73.22  
 DELTA = 8° 15' 45.82" (LT)  
 DEGREE OF CURVE = 114° 35' 29.61"  
 TANGENT = 3.61  
 LENGTH = 7.21  
 RADIUS = 50.00  
 PC STATION = 52+69.61  
 PT STATION = 52+76.82

**CURVE 6A**  
 PI STATION = 60+78.07  
 DELTA = 19° 31' 26.84" (RT)  
 DEGREE OF CURVE = 114° 35' 29.61"  
 TANGENT = 8.60  
 LENGTH = 17.04  
 RADIUS = 50.00  
 PC STATION = 60+69.47  
 PT STATION = 60+86.51

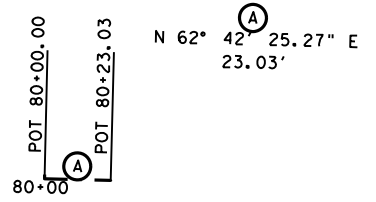
**ALIGNMENT SDWK-7**  
 N.T.S



**CURVE 7A**  
 PI STATION = 71+45.89  
 DELTA = 19° 01' 23.46" (LT)  
 DEGREE OF CURVE = 114° 35' 29.61"  
 TANGENT = 8.38  
 LENGTH = 16.60  
 RADIUS = 50.00  
 PC STATION = 71+37.51  
 PT STATION = 71+54.11

**CURVE 7B**  
 PI STATION = 71+59.94  
 DELTA = 9° 34' 35.36" (RT)  
 DEGREE OF CURVE = 114° 35' 29.61"  
 TANGENT = 4.19  
 LENGTH = 8.36  
 RADIUS = 50.00  
 PC STATION = 71+55.75  
 PT STATION = 71+64.11

**ALIGNMENT SDWK-8**  
 N.T.S



*Antonio Santana PE*

6/1/2022

**SL 375  
 SIDEWALK  
 ALIGNMENT 3-8**

SHEET 2 OF 5

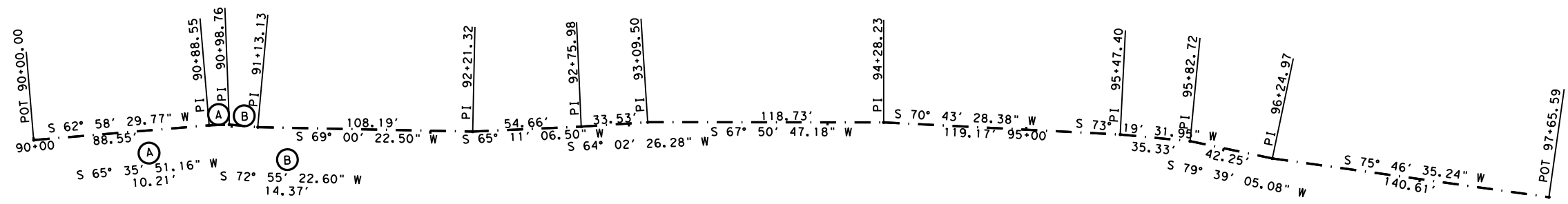
Texas Department of Transportation		©2022	
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		27



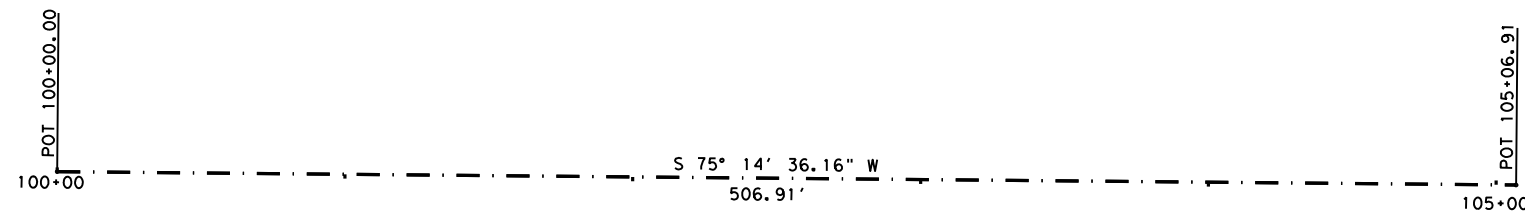
DATE: 6/1/2022 6:05:14 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_2D\_SDWK\_ALG\_SHT3.dgn

CKE:  
 DW:  
 CKE:  
 DW:

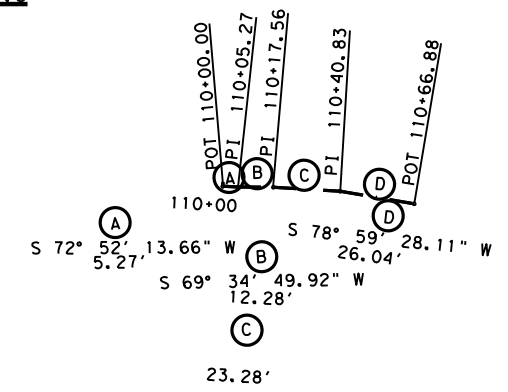
**ALIGNMENT SDWK-9**  
 N.T.S



**ALIGNMENT SDWK-10**  
 N.T.S

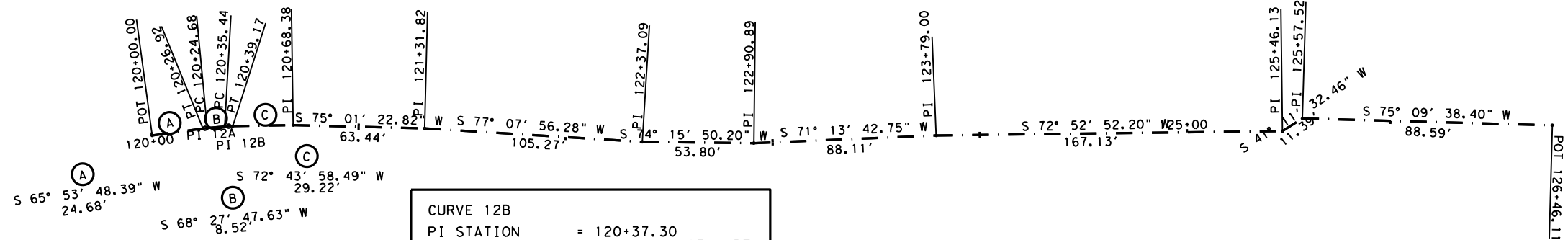


**ALIGNMENT SDWK-11**  
 N.T.S



CURVE 12A	
PI STATION	= 120+25.80
DELTA	= 2° 33' 59.24" (RT)
DEGREE OF CURVE	= 114° 35' 29.61"
TANGENT	= 1.12
LENGTH	= 2.24
RADIUS	= 50.00
PC STATION	= 120+24.68
PT STATION	= 120+26.92

**ALIGNMENT SDWK-12**  
 N.T.S



CURVE 12B	
PI STATION	= 120+37.30
DELTA	= 4° 16' 10.87" (RT)
DEGREE OF CURVE	= 114° 35' 29.61"
TANGENT	= 1.86
LENGTH	= 3.73
RADIUS	= 50.00
PC STATION	= 120+35.44
PT STATION	= 120+39.17



*Antonio Santana PE*

6/1/2022

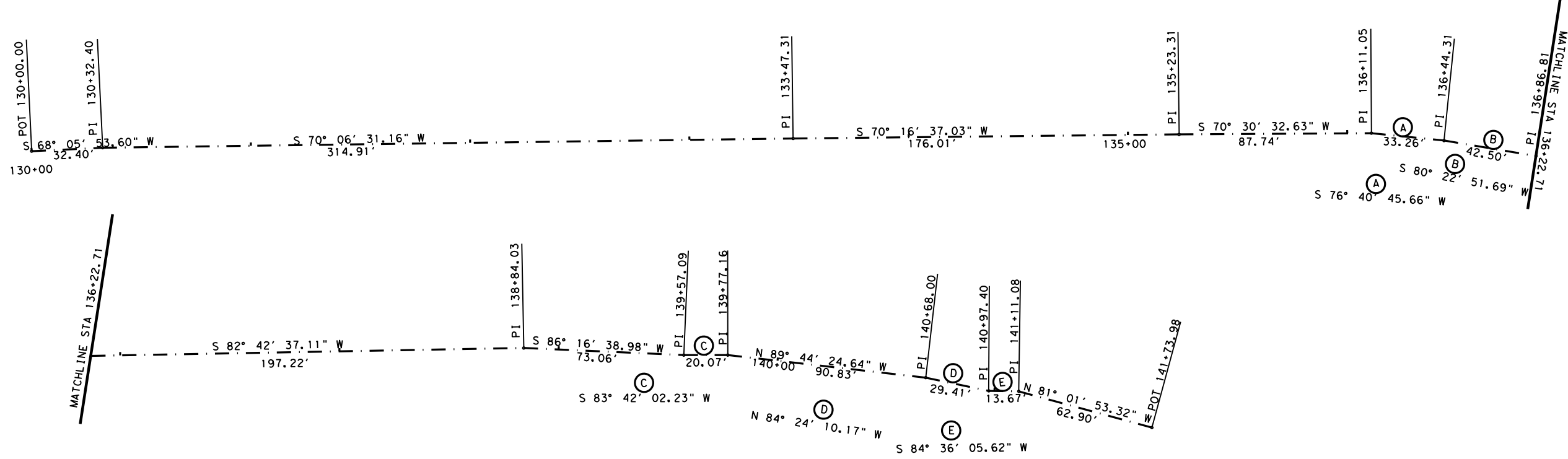
SL 375  
 SIDEWALK  
 ALIGNMENT 9-12

SHEET 3 OF 5  
 ©2022

Texas Department of Transportation			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		28

DWG:   
 CHK:   
 DATE:

**ALIGNMENT SDWK-13**  
N.T.S.



**ALIGNMENT SDWK-15**  
N.T.S.

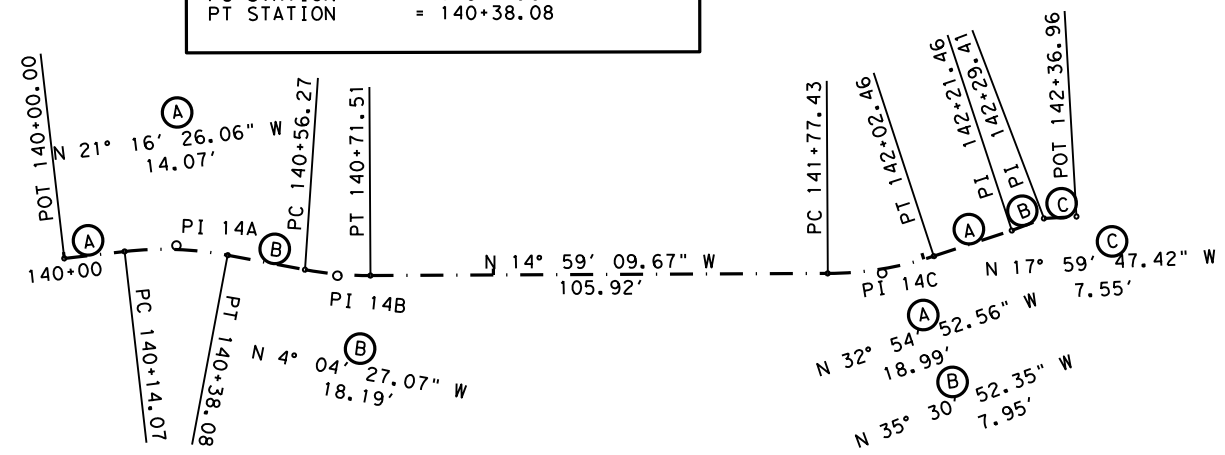
**ALIGNMENT SDWK-14**  
N.T.S.

<b>CURVE 14A</b>	
PI STATION	= 140+26.16
DELTA	= 17° 11' 58.99" (RT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 12.10
LENGTH	= 24.02
RADIUS	= 80.00
PC STATION	= 140+14.07
PT STATION	= 140+38.08

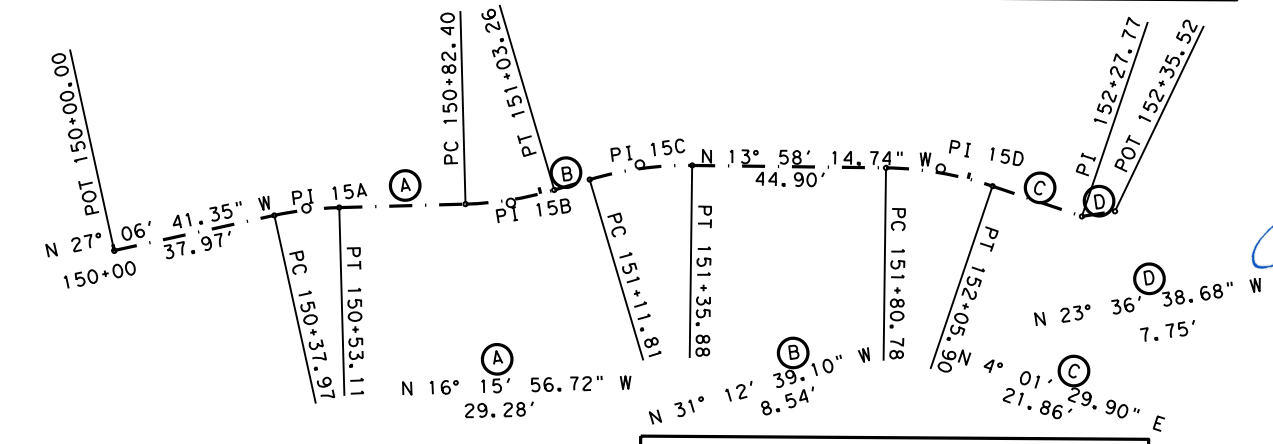
<b>CURVE 14B</b>	
PI STATION	= 140+63.91
DELTA	= 10° 54' 42.60" (LT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 7.64
LENGTH	= 15.24
RADIUS	= 80.00
PC STATION	= 140+56.27
PT STATION	= 140+71.51

<b>CURVE 15A</b>	
PI STATION	= 150+45.56
DELTA	= 10° 50' 44.63" (RT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 7.59
LENGTH	= 15.14
RADIUS	= 80.00
PC STATION	= 150+37.97
PT STATION	= 150+53.11

<b>CURVE 15C</b>	
PI STATION	= 151+23.94
DELTA	= 17° 14' 24.37" (RT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 12.13
LENGTH	= 24.07
RADIUS	= 80.00
PC STATION	= 151+11.81
PT STATION	= 151+35.88



<b>CURVE 14C</b>	
PI STATION	= 141+90.05
DELTA	= 17° 55' 42.89" (LT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 12.62
LENGTH	= 25.03
RADIUS	= 80.00
PC STATION	= 141+77.43
PT STATION	= 142+02.46



<b>CURVE 15B</b>	
PI STATION	= 150+92.89
DELTA	= 14° 56' 42.39" (LT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 10.49
LENGTH	= 20.87
RADIUS	= 80.00
PC STATION	= 150+82.40
PT STATION	= 151+03.26

<b>CURVE 15D</b>	
PI STATION	= 151+93.45
DELTA	= 17° 59' 44.63" (RT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 12.67
LENGTH	= 25.13
RADIUS	= 80.00
PC STATION	= 151+80.78
PT STATION	= 152+05.90



*Antonio Santana PE*

6/1/2022

**SL 375  
SIDEWALK  
ALIGNMENT 13-15**

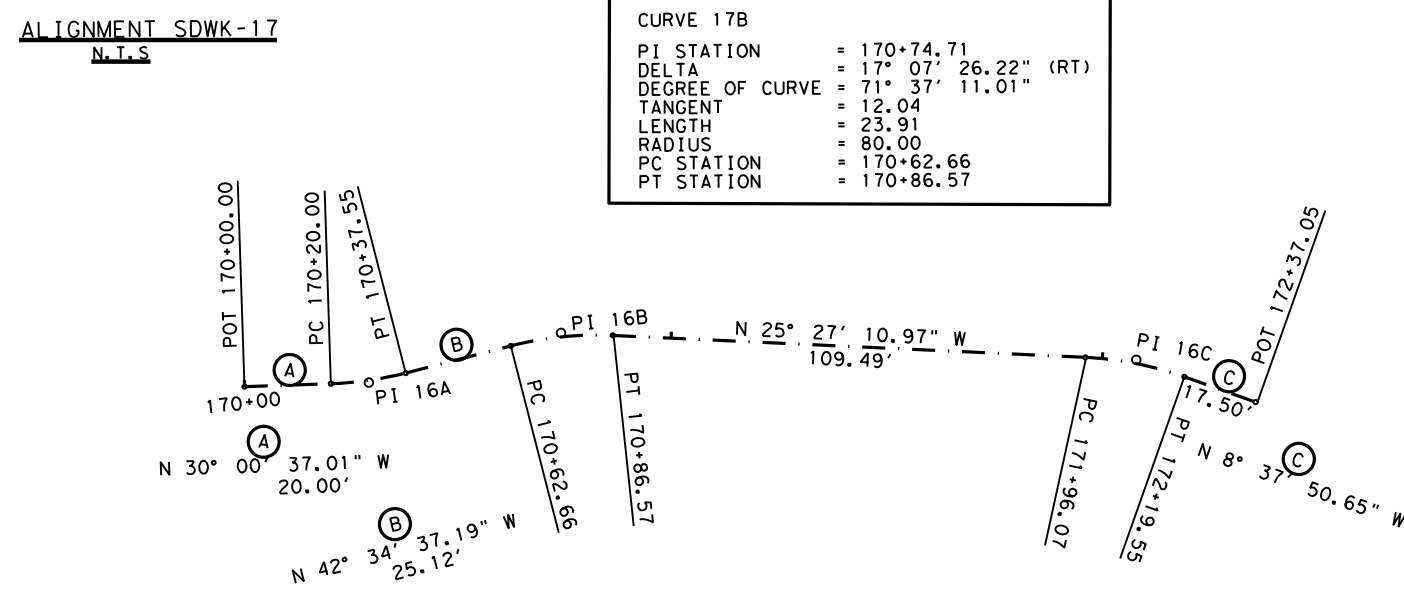
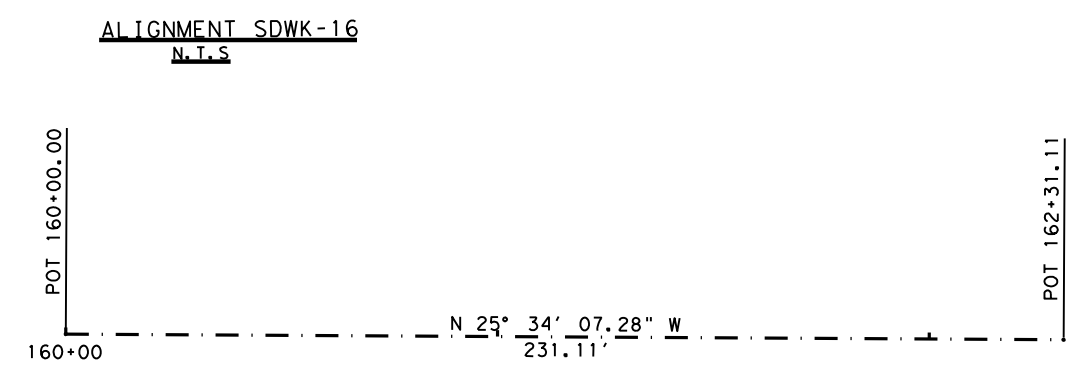
DATE: 6/1/2022 6:08:58 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_2D\_SDWK\_ALG\_SHT14.dgn

SHEET 4 OF 5  
©2022

CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		29

DATE: 6/1/2022 6:10:29 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_2D\_SDWK\_ALG\_SHT5.dgn

DWG: C&G  
 DATE: C&G  
 CHK: C&G



**CURVE 17B**

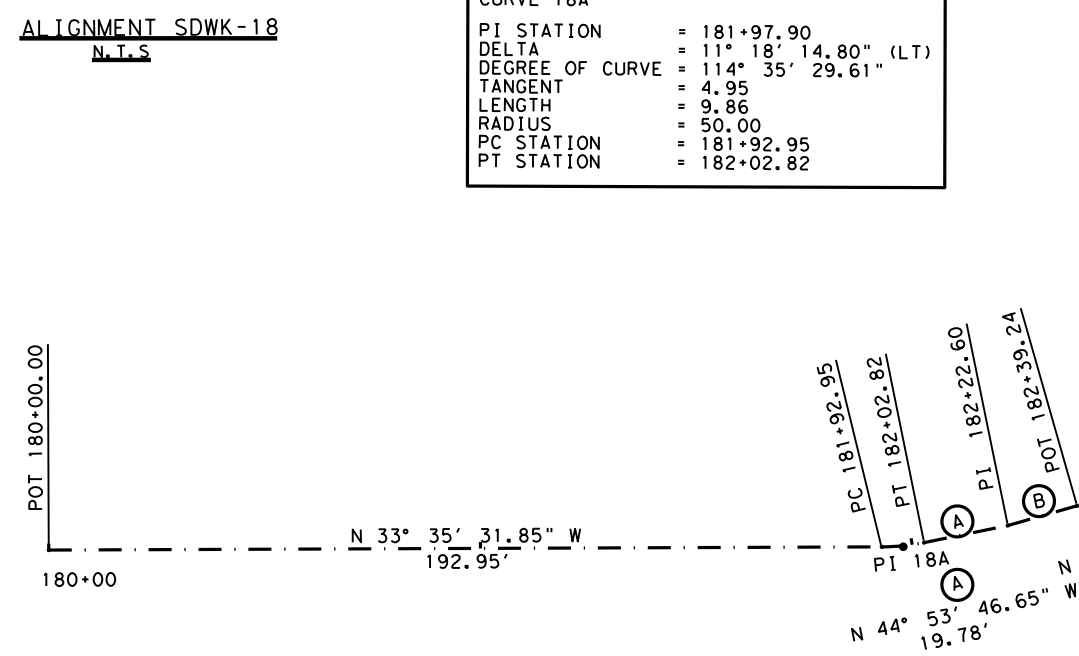
PI STATION	= 170+74.71
DELTA	= 17° 07' 26.22" (RT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 12.04
LENGTH	= 23.91
RADIUS	= 80.00
PC STATION	= 170+62.66
PT STATION	= 170+86.57

**CURVE 17A**

PI STATION	= 170+28.81
DELTA	= 12° 34' 00.17" (LT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 8.81
LENGTH	= 17.55
RADIUS	= 80.00
PC STATION	= 170+20.00
PT STATION	= 170+37.55

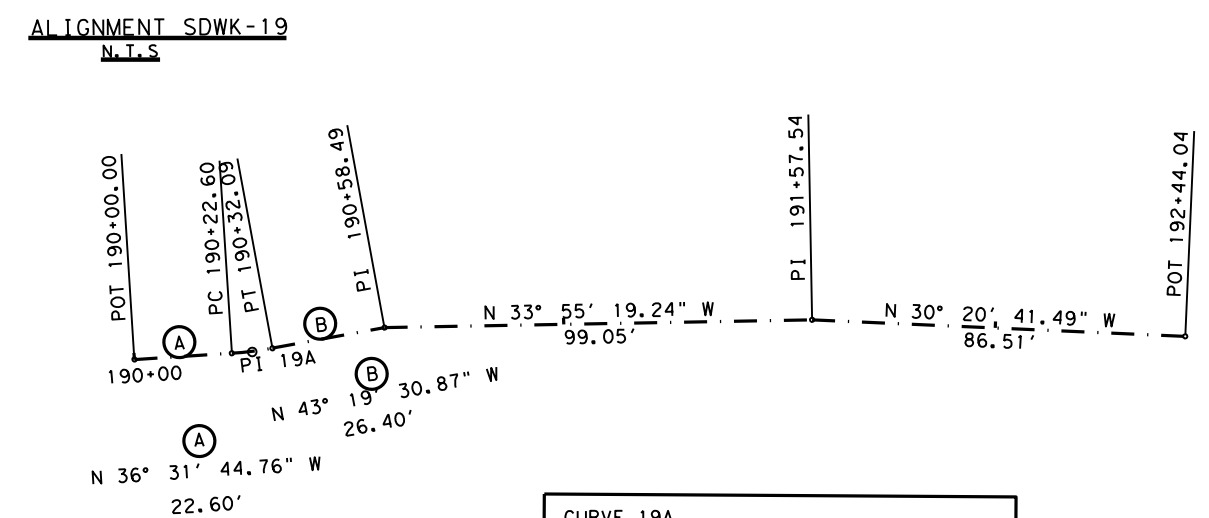
**CURVE 17C**

PI STATION	= 172+07.89
DELTA	= 16° 49' 20.31" (RT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 11.83
LENGTH	= 23.49
RADIUS	= 80.00
PC STATION	= 171+96.07
PT STATION	= 172+19.55



**CURVE 18A**

PI STATION	= 181+97.90
DELTA	= 11° 18' 14.80" (LT)
DEGREE OF CURVE	= 114° 35' 29.61"
TANGENT	= 4.95
LENGTH	= 9.86
RADIUS	= 50.00
PC STATION	= 181+92.95
PT STATION	= 182+02.82



**CURVE 19A**

PI STATION	= 190+27.35
DELTA	= 6° 47' 46.11" (LT)
DEGREE OF CURVE	= 71° 37' 11.01"
TANGENT	= 4.75
LENGTH	= 9.49
RADIUS	= 80.00
PC STATION	= 190+22.60
PT STATION	= 190+32.09



*Antonio Santana PE*









6/1/2022

SL 375  
 SIDEWALK  
 ALIGNMENT 16-19

SHEET 5 OF 5  
 ©2022

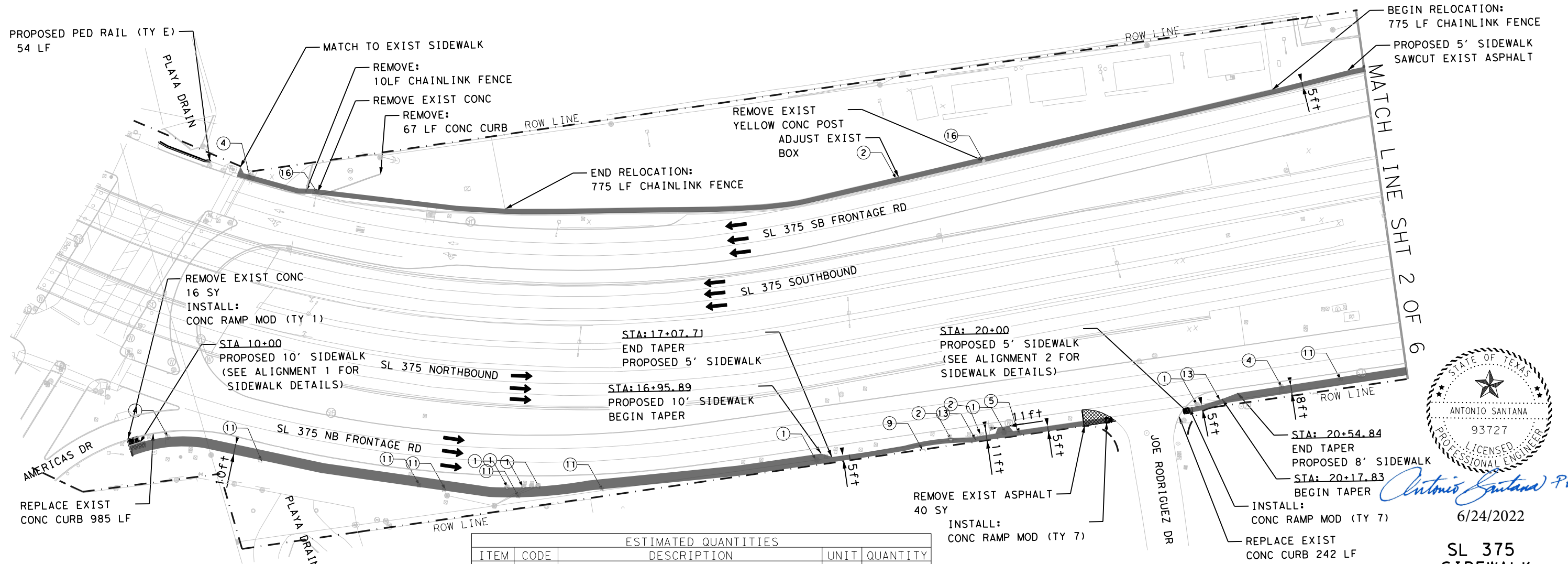
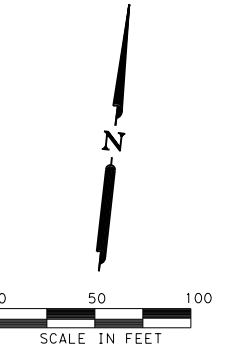
Texas Department of Transportation			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		30

PROPOSED LEGEND

-  PROPOSED 5" SIDEWALK
-  PROPOSED 6" SIDEWALK (DRIVEWAY)
-  PROPOSED RAMP WITH DETECTABLE WARNING
-  PROPOSED CURB
-  EXIST ROW
-  PROPOSED SIGN
-  REMOVE EXISTING CONCRETE
-  REMOVE EXISTING ASPHALT
- ① PROTECT EXIST POWER POLE
- ② ADJUST/REPLACE EXIST BOX
- ③ AVOID/PROTECT EXIST SIGN
- ④ RELOCATE EXIST SIGN
- ⑤ AVOID/PROTECT EXIST GAS VALVE
- ⑥ AVOID/PROTECT EXIST WATER VALVE
- ⑦ AVOID/PROTECT EXIST FIRE HYDRANT
- ⑧ AVOID/PROTECT EXIST WATER METER
- ⑨ AVOID/PROTECT EXIST STRUCTURE
- ⑩ AVOID/PROTECT EXIST TREE/SHURB
- ⑪ AVOID/PROTECT EXIST TRAFFIC BOX
- ⑫ AVOID/PROTECT TELEPHONE PEDESTAL
- ⑬ AVOID/PROTECT EXIST GUY WIRE
- ⑭ ADJUST EXIST MANHOLE
- ⑮ REMOVE EXIST M.B.G.F
- ⑯ REMOVE EXIST STRUCTURE

NOTES:

1. THE LOCATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION ACTIVITIES.
2. NEW SIDEWALK AND CURB RAMPS SHALL COMPLY WITH ADA REQUIREMENTS.
3. SIDEWALK RAMPS NOTED AS BID ITEM (MOD) ARE TO BE THE WIDTH OF THE ATTACHED SIDEWALK. ALL SIDEWALKS SHOWN AS 5' ATTACH TO CURB RAMP (TYPE 7) BID ITEM
4. SIDEWALK ELEVATION SHALL MATCH EXISTING CURB ELEVATION.
5. DPS INSPECTION CHAINLINK FENCE IS TO BE RELOCATED FOR THE CONSTRUCTION OF 5' SIDEWALK BEHIND CONCRETE BARRIER.
6. CONTRACTOR TO SAWCUT NEATLY AT INTERFACE WITH EXISTING HMAC. ANY DAMAGE TO EXISTING HMAC BY THE CONTRACTOR WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
7. PEDESTRIAN RAIL TO BE INSTALLED ADJACENT TO THE SIDEWALK TO PROTECT PEDESTRIANS FROM DROP-OFF AREAS.
8. RELOCATE SIGNS AWAY FROM PEDESTRIAN PATH IN THE IMMEDIATE VICINITY.



ESTIMATED QUANTITIES				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
104	6021	REMOVING CONC (CURB)	LF	1294
104	6028	REMOVING CONC (MISC)	SY	60
450	6051	RAIL (HANDRAIL) (TY E)	LF	54
531	6002	CONC SIDEWALKS (5")	SY	1761
529	6002	CONC CURB (TY II)	LF	1227
531	6010	CURB RAMPS (TY 7)	EA	2
531	6037	CURB RAMP (TY 1) (MOD)	EA	1
550	6003	CHAIN LINK FENCE (REMOVE)	LF	1560
550	6008	CHAIN LINK FENCE (INSTALL) (8')	LF	1550
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3
479	6010	ADJUST MANHOLES (ELECTRIC BOX)	EA	1



*Antonio Santana PE*

6/24/2022

SL 375  
SIDEWALK  
ROADWAY SHEETS

DATE: 6/24/2022 3:02:18 PM  
FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_SDWK\_PLN\_SHT1.dgn

SHEET 1 OF 6			
©2022			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		31

# SIGNING AND STRIPING LEGEND

(A) R1-5bL (36X36)

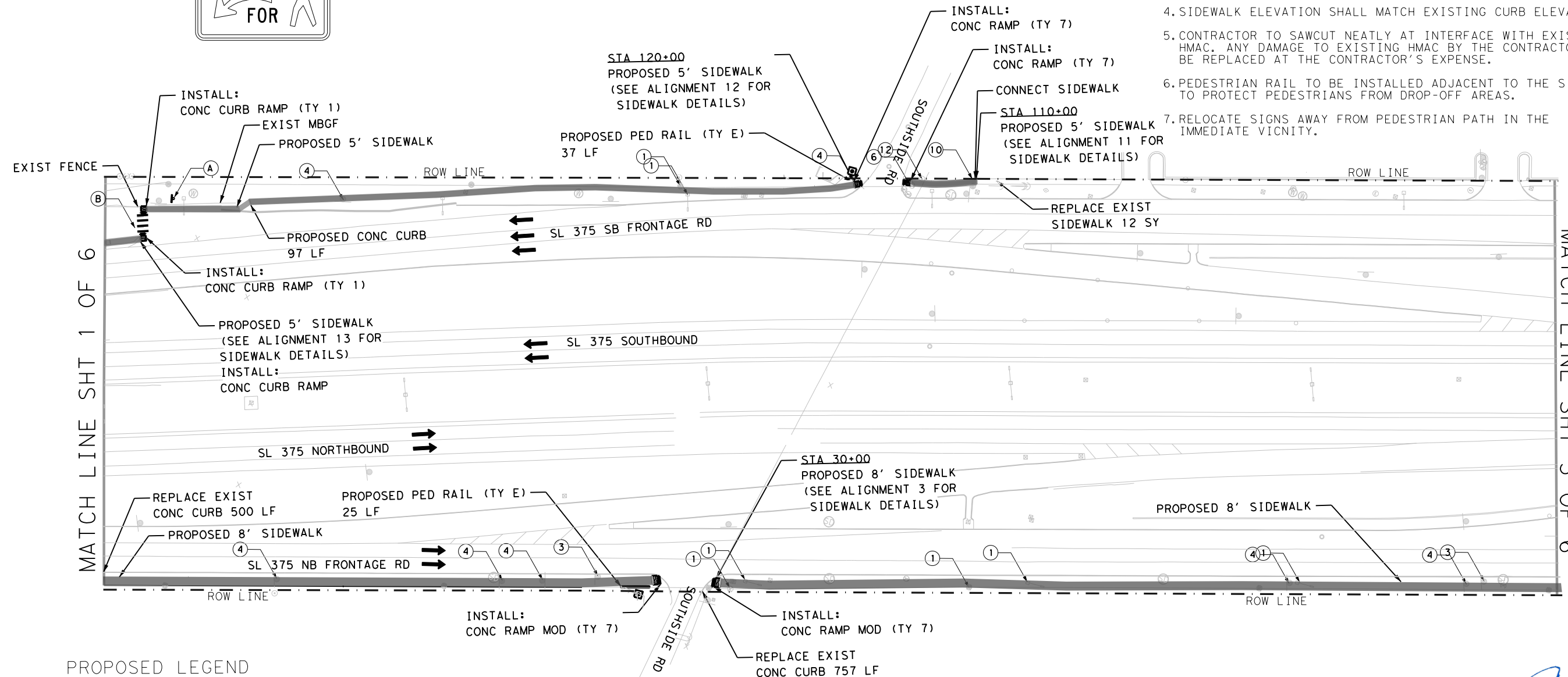
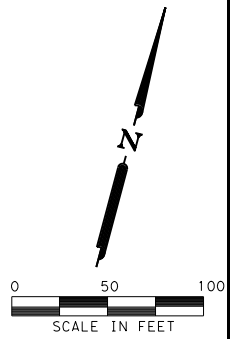


## PROPOSED STRIPING

(B) 24" REFL PAV MRK (W) (SLD) (PIANO BARS)

## NOTES:

1. THE LOCATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION ACTIVITIES.
2. NEW SIDEWALK AND CURB RAMPS SHALL COMPLY WITH ADA REQUIREMENTS.
3. SIDEWALK RAMPS NOTED AS BID ITEM (MOD) ARE TO BE THE WIDTH OF THE ATTACHED SIDEWALK. ALL SIDEWALKS SHOWN AS 5' ATTACH TO CURB RAMP (TYPE 7) BID ITEM
4. SIDEWALK ELEVATION SHALL MATCH EXISTING CURB ELEVATION.
5. CONTRACTOR TO SAWCUT NEATLY AT INTERFACE WITH EXISTING HMAC. ANY DAMAGE TO EXISTING HMAC BY THE CONTRACTOR WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
6. PEDESTRIAN RAIL TO BE INSTALLED ADJACENT TO THE SIDEWALK TO PROTECT PEDESTRIANS FROM DROP-OFF AREAS.
7. RELOCATE SIGNS AWAY FROM PEDESTRIAN PATH IN THE IMMEDIATE VICINITY.



## PROPOSED LEGEND

- |                                       |                                       |
|---------------------------------------|---------------------------------------|
| PROPOSED 5" SIDEWALK                  | (5) AVOID/PROTECT EXIST GAS VALVE     |
| PROPOSED 6" SIDEWALK (DRIVEWAY)       | (6) AVOID/PROTECT EXIST WATER VALVE   |
| PROPOSED RAMP WITH DETECTABLE WARNING | (7) AVOID/PROTECT EXIST FIRE HYDRANT  |
| PROPOSED CURB                         | (8) AVOID/PROTECT EXIST WATER METER   |
| EXIST ROW                             | (9) AVOID/PROTECT EXIST STRUCTURE     |
| PROPOSED SIGN                         | (10) AVOID/PROTECT EXIST TREE/SHURB   |
| REMOVE EXISTING CONCRETE              | (11) AVOID/PROTECT EXIST TRAFFIC BOX  |
| REMOVE EXISTING ASPHALT               | (12) AVOID/PROTECT TELEPHONE PEDESTAL |
| (1) PROTECT EXIST POWER/LIGHT POLE    | (13) AVOID/PROTECT EXIST GUY WIRE     |
| (2) ADJUST EXIST TRAFFIC BOX          | (14) ADJUST EXIST MANHOLE             |
| (3) AVOID/PROTECT EXIST SIGN          | (15) REMOVE EXIST M. B. G. F          |
| (4) RELOCATE EXIST SIGN               | (16) REMOVE EXIST STRUCTURE           |

ESTIMATED QUANTITIES				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
104	6021	REMOVING CONC (CURB)	LF	2193
104	6028	REMOVING CONC (MISC)	SY	25
450	6051	RAIL (HANDRAIL) (TY E)	LF	62
529	6002	CONC CURB (TY II)	LF	2096
531	6002	CONC SIDEWALKS (5")	SY	1515
531	6004	CURB RAMPS (TY 1)	EA	2
531	6010	CURB RAMPS (TY 7)	EA	2
531	6034	CURB RAMPS (TY 7) (MOD)	EA	2
644	6001	IN SM RD SN SUP&AM TY10WG(1)SA(P)	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	7



*Antonio Santana PE*  
6/24/2022

























## SL 375 SIDEWALK ROADWAY SHEETS

SHEET 2 OF 6 ©2022

Texas Department of Transportation			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		32

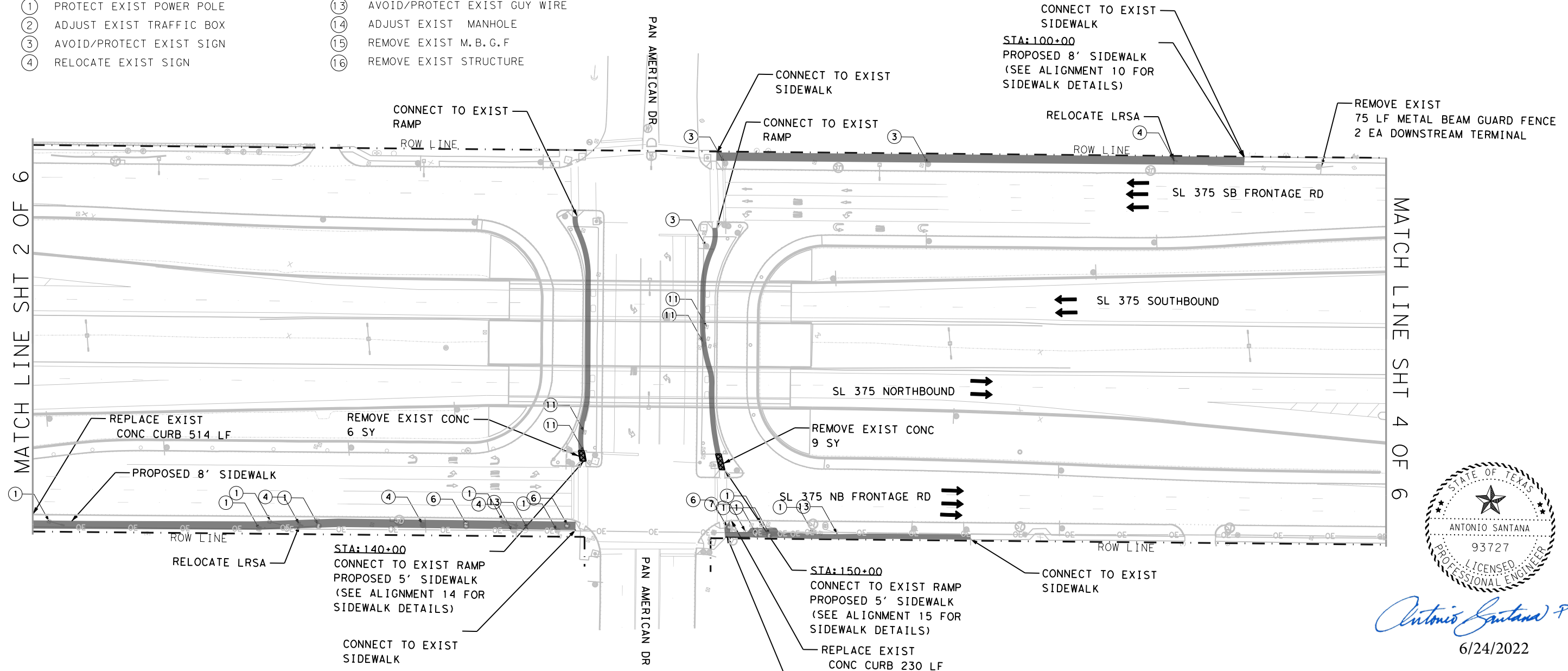
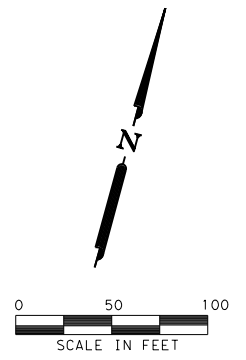
DATE: 6/24/2022 3:03:43 PM FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_SDWK\_PLN\_SHT2.dgn

PROPOSED LEGEND

-  PROPOSED 5" SIDEWALK
-  PROPOSED 6" SIDEWALK (DRIVEWAY)
-  PROPOSED RAMP WITH DETECTABLE WARNING
-  PROPOSED CURB
-  EXIST ROW
-  PROPOSED SIGN
-  REMOVE EXISTING CONCRETE
-  REMOVE EXISTING ASPHALT
-  PROTECT EXIST POWER POLE
-  ADJUST EXIST TRAFFIC BOX
-  AVOID/PROTECT EXIST SIGN
-  RELOCATE EXIST SIGN
-  AVOID/PROTECT EXIST GAS VALVE
-  AVOID/PROTECT EXIST WATER VALVE
-  AVOID/PROTECT EXIST FIRE HYDRANT
-  AVOID/PROTECT EXIST WATER METER
-  AVOID/PROTECT EXIST STRUCTURE
-  AVOID/PROTECT EXIST TREE/SHURB
-  AVOID/PROTECT EXIST TRAFFIC BOX
-  AVOID/PROTECT TELEPHONE PEDESTAL
-  AVOID/PROTECT EXIST GUY WIRE
-  ADJUST EXIST MANHOLE
-  REMOVE EXIST M.B.G.F
-  REMOVE EXIST STRUCTURE

NOTES:

1. THE LOCATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION ACTIVITIES.
2. NEW SIDEWALK AND CURB RAMPS SHALL COMPLY WITH ADA REQUIREMENTS.
3. SIDEWALK ELEVATION SHALL MATCH EXISTING CURB ELEVATION.
4. RELOCATE SIGNS AWAY FROM PEDESTRIAN PATH IN THE IMMEDIATE VICINITY.



MATCH LINE SHT 2 OF 6

MATCH LINE SHT 4 OF 6

ESTIMATED QUANTITIES				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
104	6021	REMOVING CONC (CURB)	LF	744
529	6002	CONC CURB (TY II)	LF	744
104	6028	REMOVING CONC (MISC)	SY	15
531	6002	CONC SIDEWALKS (5")	SY	1325
542	6001	REMOVE METAL BEAM GUARD FENCE	LF	75
542	6002	REMOVE TERMINAL ANCHOR SECTION	EA	2
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
647	6002	RELOCATE LRSA	EA	2



*Antonio Santana PE*

6/24/2022









**SL 375  
SIDEWALK  
ROADWAY SHEETS**

DATE: 6/24/2022 3:05:11 PM  
FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_SDWK\_PLN\_SHT3.dgn

SHEET 3 OF 6

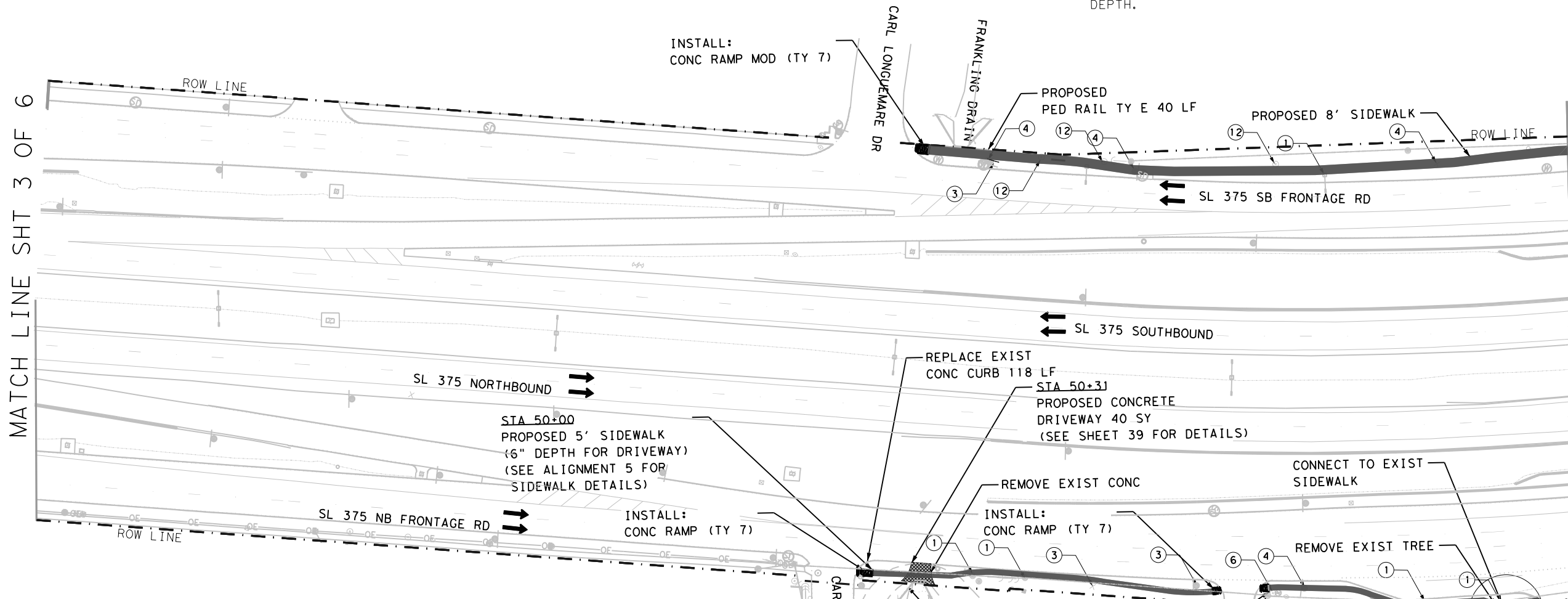
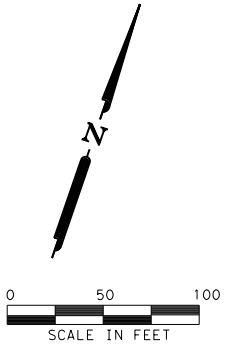
©2022			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		33

PROPOSED LEGEND

-  PROPOSED 5" SIDEWALK
-  PROPOSED 6" SIDEWALK (DRIVEWAY)
-  PROPOSED RAMP WITH DETECTABLE WARNING
-  PROPOSED CURB
-  EXIST ROW
-  PROPOSED SIGN
-  REMOVE EXISTING CONCRETE
-  REMOVE EXISTING ASPHALT
- ① PROTECT EXIST POWER POLE
- ② ADJUST EXIST TRAFFIC BOX
- ③ AVOID/PROTECT EXIST SIGN
- ④ RELOCATE EXIST SIGN
- ⑤ AVOID/PROTECT EXIST GAS VALVE
- ⑥ AVOID/PROTECT EXIST WATER VALVE
- ⑦ AVOID/PROTECT EXIST FIRE HYDRANT
- ⑧ AVOID/PROTECT EXIST WATER METER
- ⑨ AVOID/PROTECT EXIST STRUCTURE
- ⑩ AVOID/PROTECT EXIST TREE/SHURB
- ⑪ AVOID/PROTECT EXIST TRAFFIC BOX
- ⑫ AVOID/PROTECT TELEPHONE PEDESTAL
- ⑬ AVOID/PROTECT EXIST GUY WIRE
- ⑭ ADJUST EXIST MANHOLE
- ⑮ REMOVE EXIST M.B.G.F
- ⑯ REMOVE EXIST STRUCTURE

NOTES:

1. THE LOCATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION ACTIVITIES.
2. NEW SIDEWALK AND CURB RAMPS SHALL COMPLY WITH ADA REQUIREMENTS.
3. SIDEWALK RAMPS NOTED AS BID ITEM (MOD) ARE TO BE THE WIDTH OF THE ATTACHED SIDEWALK. ALL SIDEWALKS SHOWN AS 5' ATTACH TO CURB RAMP (TYPE 7) BID ITEM
4. SIDEWALK ELEVATION SHALL MATCH EXISTING CURB ELEVATION.
5. PEDESTRIAN RAIL TO BE INSTALLED ADJACENT TO THE SIDEWALK TO PROTECT PEDESTRIANS FROM DROP-OFF AREAS.
6. RELOCATE SIGNS AWAY FROM PEDESTRIAN PATH IN THE IMMEDIATE VICINITY.
7. IN AREAS WHERE DRIVEWAYS EXIST SIDEWALK SHALL BE 6" IN DEPTH.



ESTIMATED QUANTITIES				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
104	6021	REMOVING CONC (CURB)	LF	118
104	6028	REMOVING CONC (MISC)	SY	80
450	6051	RAIL (HANDRAIL) (TY E)	LF	70
529	6002	CONC CURB (TY II)	LF	118
530	6004	DRIVEWAYS (CONC)	SY	40
531	6002	CONC SIDEWALKS (5")	SY	752
531	6010	CURB RAMPS (TY 7)	EA	3
531	6034	CURB RAMPS (TY 7) (MOD)	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	4
647	6002	RELOCATE LRSA	EA	1
752	6005	TREE REMOVAL (4" - 12" DIA)	EA	1



*Antonio Santana PE*









6/24/2022

**SL 375  
SIDEWALK  
ROADWAY SHEETS**

SHEET 4 OF 6			
©2022			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		34

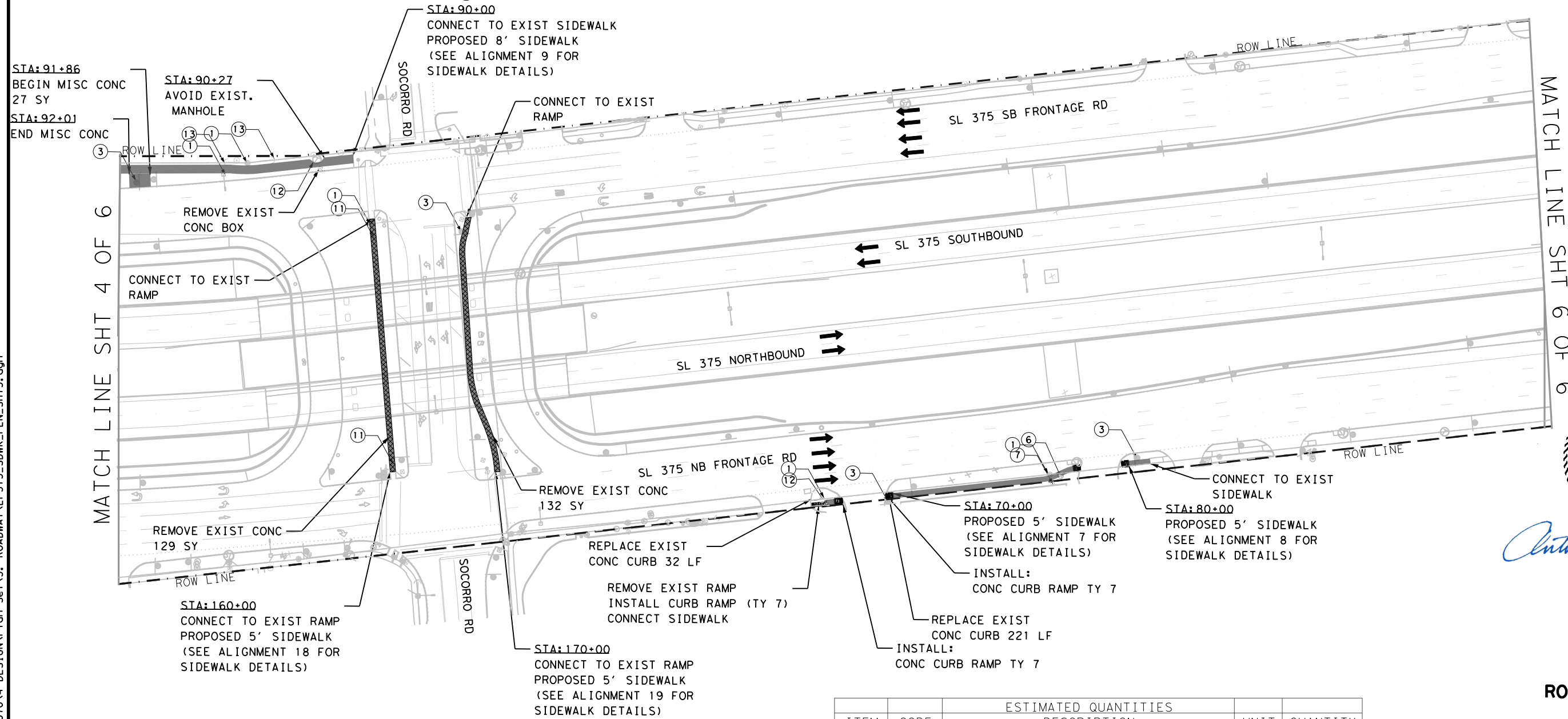
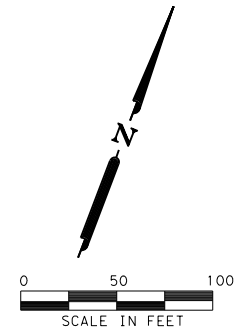
DATE: 6/24/2022 3:45:28 PM  
FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_SDWK\_PLN\_SHT4.dgn

PROPOSED LEGEND

-  PROPOSED 5" SIDEWALK
-  PROPOSED 6" SIDEWALK (DRIVEWAY)
-  PROPOSED RAMP WITH DETECTABLE WARNING
-  PROPOSED CURB
-  EXIST ROW
-  PROPOSED SIGN
-  REMOVE EXISTING CONCRETE
-  REMOVE EXISTING ASPHALT
- ① PROTECT EXIST POWER POLE
- ② ADJUST EXIST TRAFFIC BOX
- ③ AVOID/PROTECT EXIST SIGN
- ④ RELOCATE EXIST SIGN
- ⑤ AVOID/PROTECT EXIST GAS VALVE
- ⑥ AVOID/PROTECT EXIST WATER VALVE
- ⑦ AVOID/PROTECT EXIST FIRE HYDRANT
- ⑧ AVOID/PROTECT EXIST WATER METER
- ⑨ AVOID/PROTECT EXIST STRUCTURE
- ⑩ AVOID/PROTECT EXIST TREE/SHURB
- ⑪ AVOID/PROTECT EXIST TRAFFIC BOX
- ⑫ AVOID/PROTECT TELEPHONE PEDESTAL
- ⑬ AVOID/PROTECT EXIST GUY WIRE
- ⑭ ADJUST EXIST MANHOLE
- ⑮ REMOVE EXIST M.B.G.F
- ⑯ REMOVE EXIST STRUCTURE

NOTES:

1. THE LOCATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION ACTIVITIES.
2. NEW SIDEWALK AND CURB RAMPS SHALL COMPLY WITH ADA REQUIREMENTS.
3. SIDEWALK ELEVATION SHALL MATCH EXISTING CURB ELEVATION.
4. RELOCATE SIGNS AWAY FROM PEDESTRIAN PATH IN THE IMMEDIATE VICINITY.
5. AVOID EXISTING MANHOLES



*Antonio Santana PE*  
6/24/2022

SL 375  
SIDEWALK  
ROADWAY SHEETS

		ESTIMATED QUANTITIES		
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
104	6021	REMOVING CONC (CURB)	LF	253
104	6028	REMOVING CONC (MISC)	SY	261
529	6002	CONC CURB (TY II)	LF	253
531	6002	CONC SIDEWALKS (5")	SY	585
531	6010	CURB RAMPS (TY 7)	EA	5

DATE: 6/24/2022 3:12:49 PM  
FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_SDWK\_PLN\_SHT5.dgn

Texas Department of Transportation			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		35

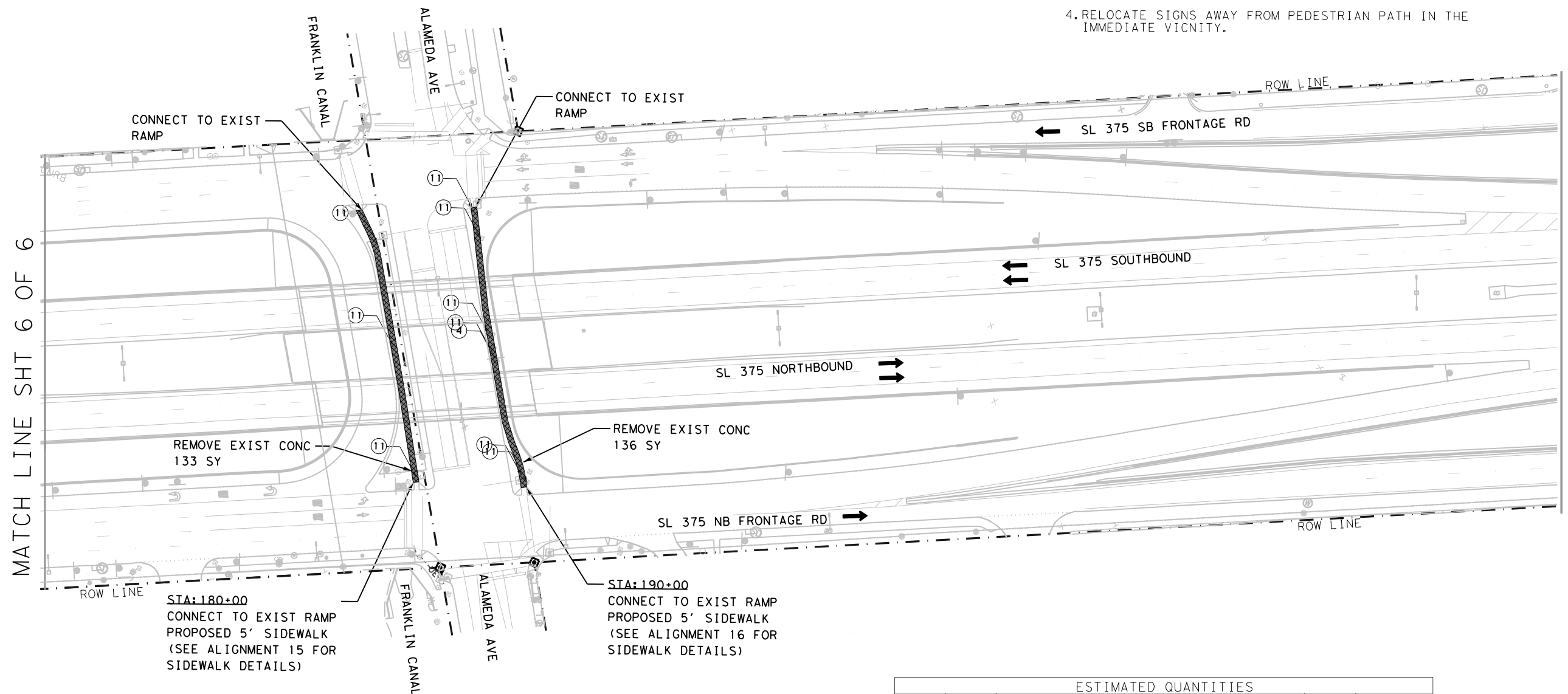
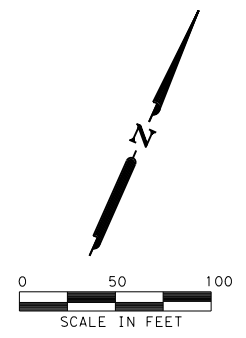


DATE: 6/24/2022 3:49:44 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_SDWK\_PLN\_SHT6.dgn

MATCH LINE SHT 6 OF 6

NOTES:

1. THE LOCATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION ACTIVITIES.
2. NEW SIDEWALK AND CURB RAMPS SHALL COMPLY WITH ADA REQUIREMENTS.
3. SIDEWALK ELEVATION SHALL MATCH EXISTING CURB ELEVATION.
4. RELOCATE SIGNS AWAY FROM PEDESTRIAN PATH IN THE IMMEDIATE VICINITY.



PROPOSED LEGEND

- |   |                                       |   |                                  |
|---|---------------------------------------|---|----------------------------------|
|   | PROPOSED 5" SIDEWALK                  | ⑤ | AVOID/PROTECT EXIST GAS VALVE    |
|   | PROPOSED 6" SIDEWALK (DRIVEWAY)       | ⑥ | AVOID/PROTECT EXIST WATER VALVE  |
|   | PROPOSED RAMP WITH DETECTABLE WARNING | ⑦ | AVOID/PROTECT EXIST FIRE HYDRANT |
|   | PROPOSED CURB                         | ⑧ | AVOID/PROTECT EXIST WATER METER  |
|   | EXIST ROW                             | ⑨ | AVOID/PROTECT EXIST STRUCTURE    |
|   | PROPOSED SIGN                         | ⑩ | AVOID/PROTECT EXIST TREE/SHURB   |
|   | REMOVE EXISTING CONCRETE              | ⑪ | AVOID/PROTECT EXIST TRAFFIC BOX  |
|   | REMOVE EXISTING ASPHALT               | ⑫ | AVOID/PROTECT TELEPHONE PEDESTAL |
| ① | PROTECT EXIST POWER POLE              | ⑬ | AVOID/PROTECT EXIST GUY WIRE     |
| ② | ADJUST EXIST TRAFFIC BOX              | ⑭ | ADJUST EXIST MANHOLE             |
| ③ | AVOID/PROTECT EXIST SIGN              | ⑮ | REMOVE EXIST M. B. G. F          |
| ④ | RELOCATE EXIST SIGN                   | ⑯ | REMOVE EXIST STRUCTURE           |

ESTIMATED QUANTITIES				
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY
104	6028	REMOVING CONC (MISC)	SY	269
531	6002	CONC SIDEWALKS (5")	SY	269
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



*Antonio Santana PE*

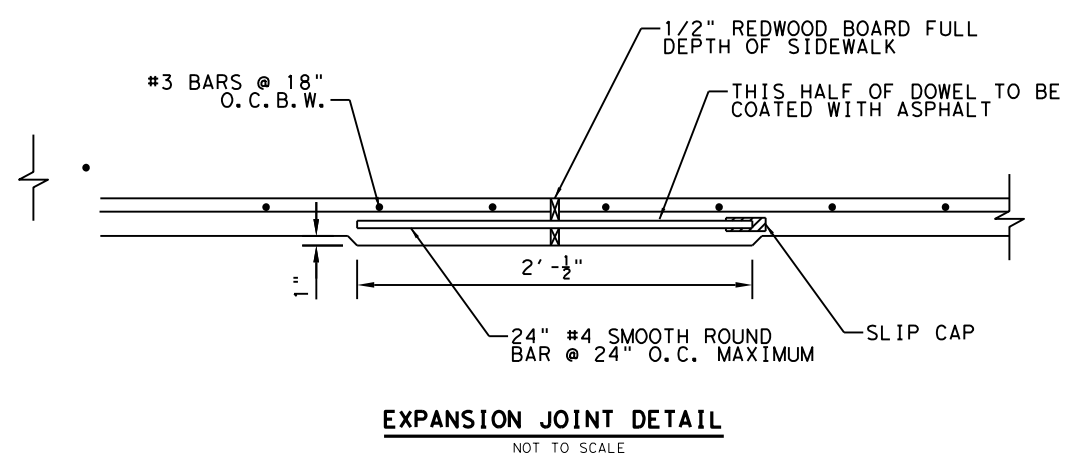
6/24/2022

SL 375  
 SIDEWALK  
 ROADWAY SHEETS

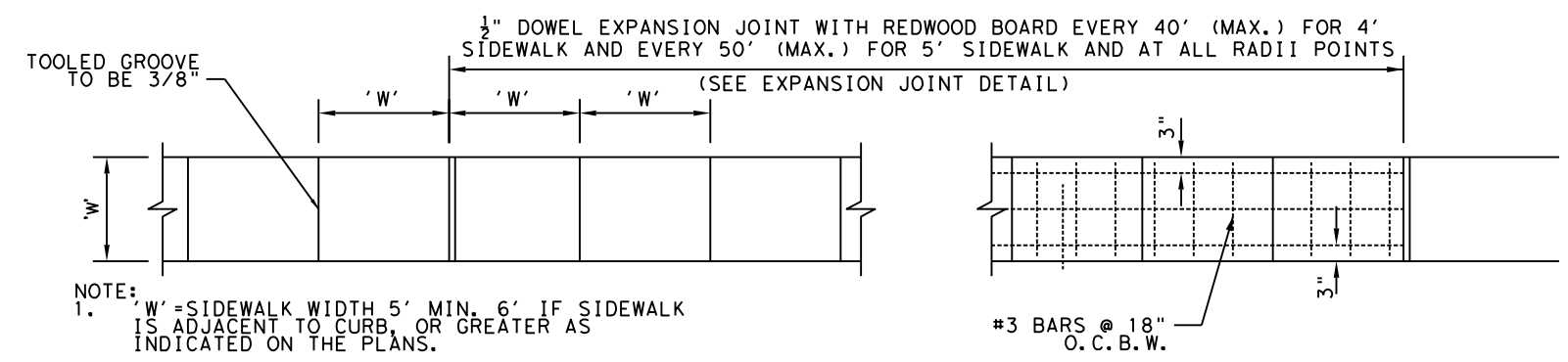
SHEET 6 OF 6  
©2022

CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		36

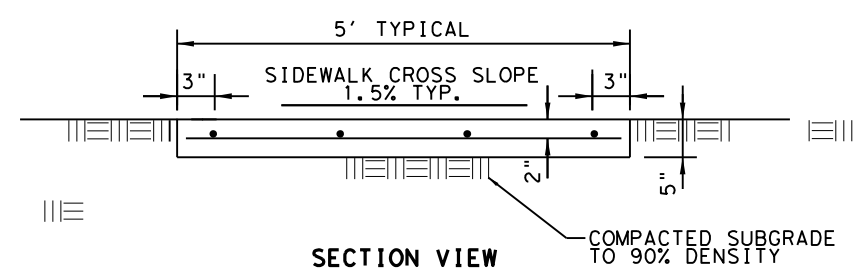
DATE: 5/31/2022 4:06:09 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\SIDEWALK DETAILS\LP375\_SIDEWALK\_DETAIL\_01.dgn



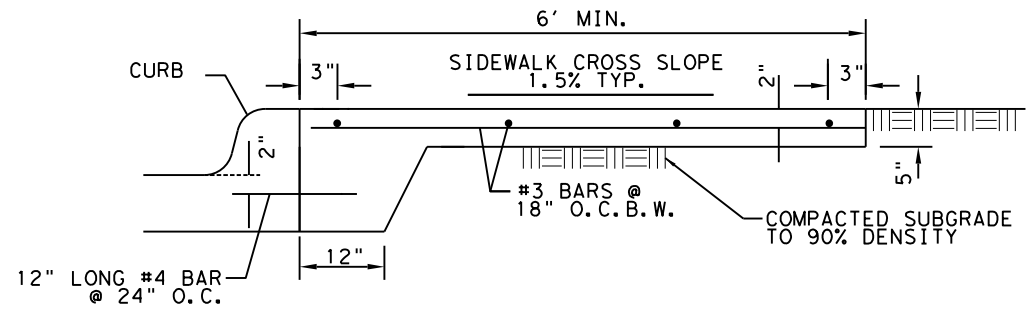
**EXPANSION JOINT DETAIL**  
NOT TO SCALE



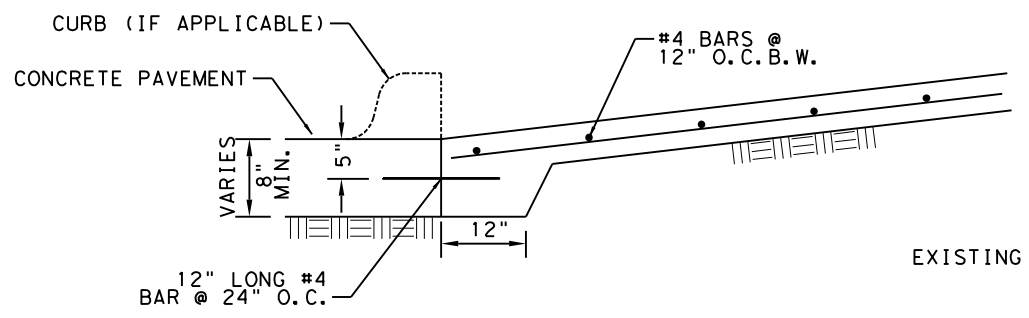
**PLAN REINFORCED CONCRETE SIDEWALK**  
NOT TO SCALE



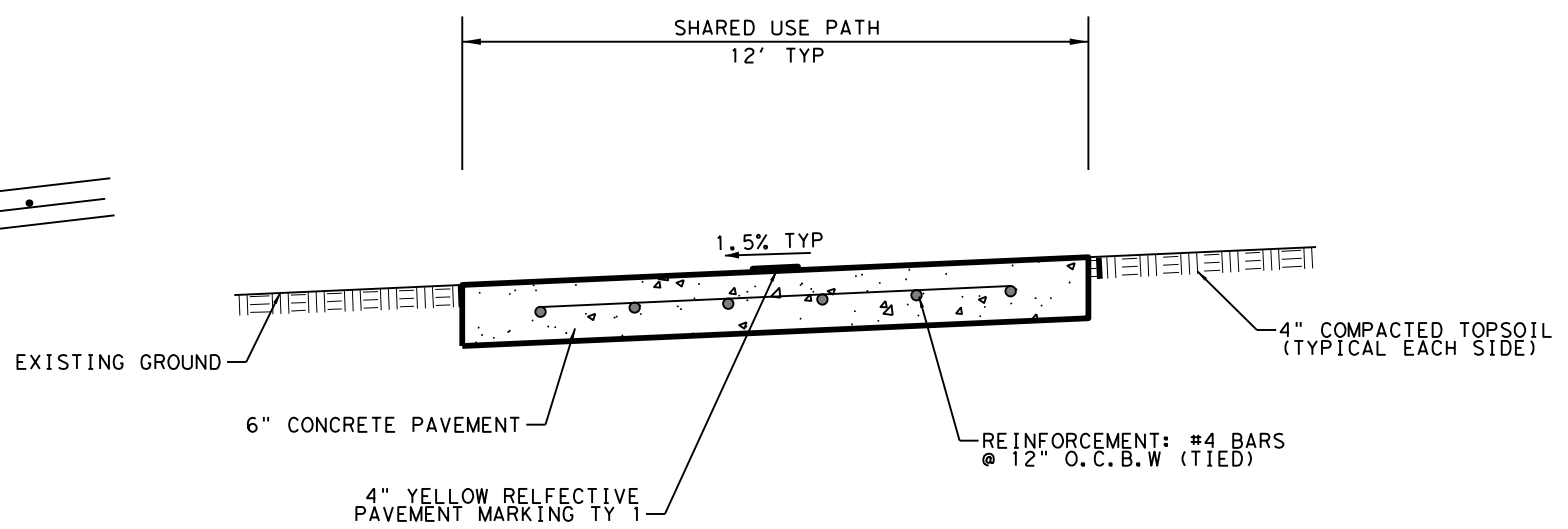
**SECTION VIEW SIDEWALK WITH NO CURB**  
NOT TO SCALE



**SECTION VIEW SIDEWALK ADJACENT TO CURB**  
NOT TO SCALE



**SECTION VIEW RAMP TIE-IN AT PAVEMENT**  
NOT TO SCALE



**SECTION VIEW SHARED USE PATH**  
NOT TO SCALE



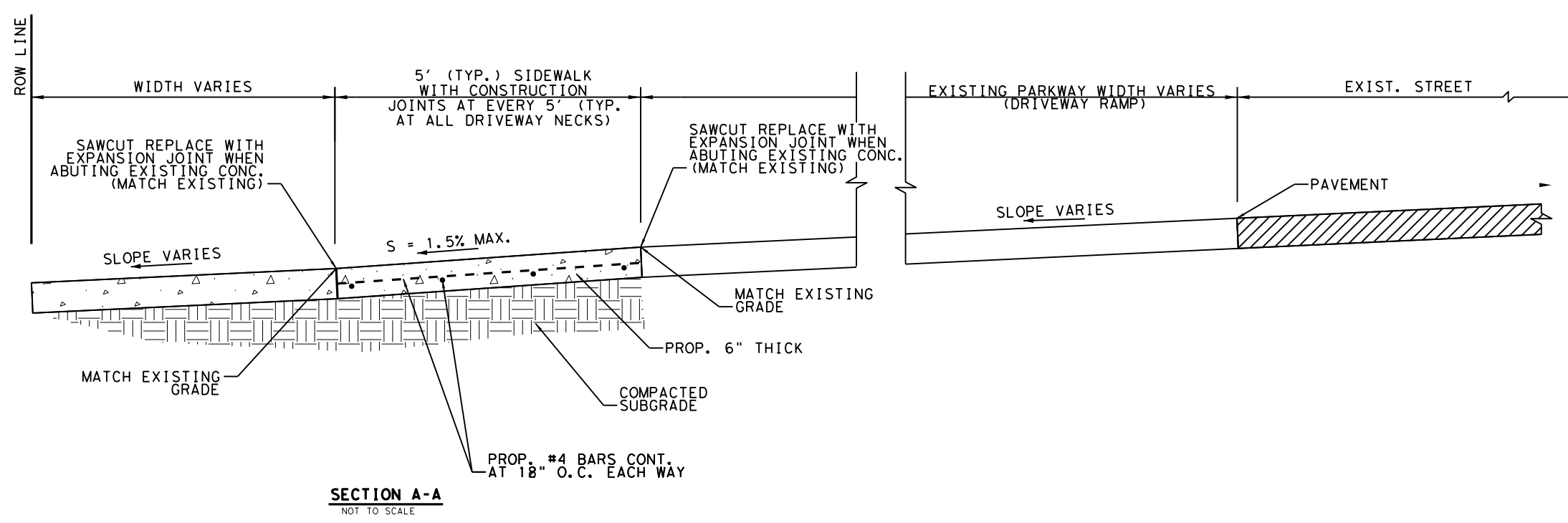
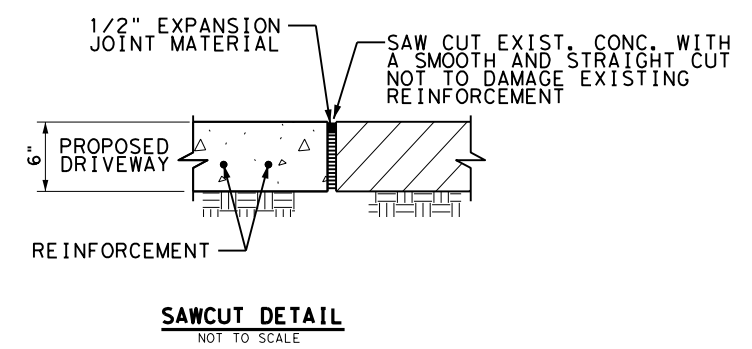
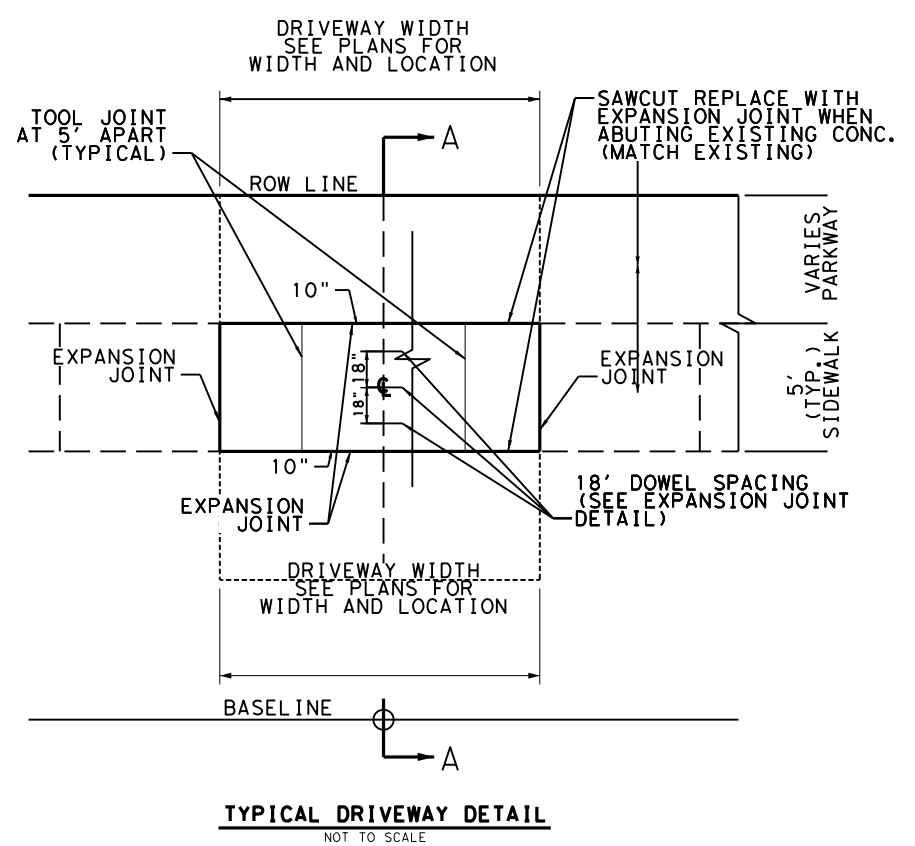
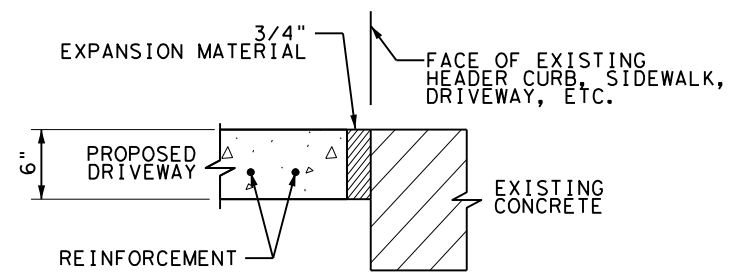
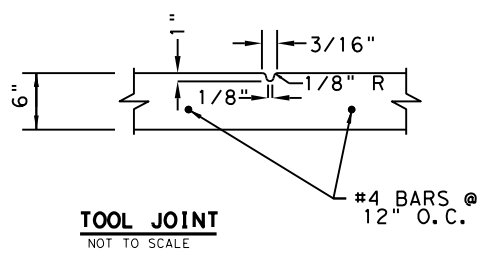
*Antonio Santana PE*  
6/1/2022

**SL 375 SIDEWALK SIDEWALK DETAILS**

SHEET 1 OF 2 ©2022

Texas Department of Transportation			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		37

CHK: \_\_\_\_\_  
 DWF: \_\_\_\_\_  
 CKE: \_\_\_\_\_  
 DNE: \_\_\_\_\_



*Antonio Santana PE*

6/1/2022

**SL 375  
SIDEWALK  
SIDEWALK DETAILS**

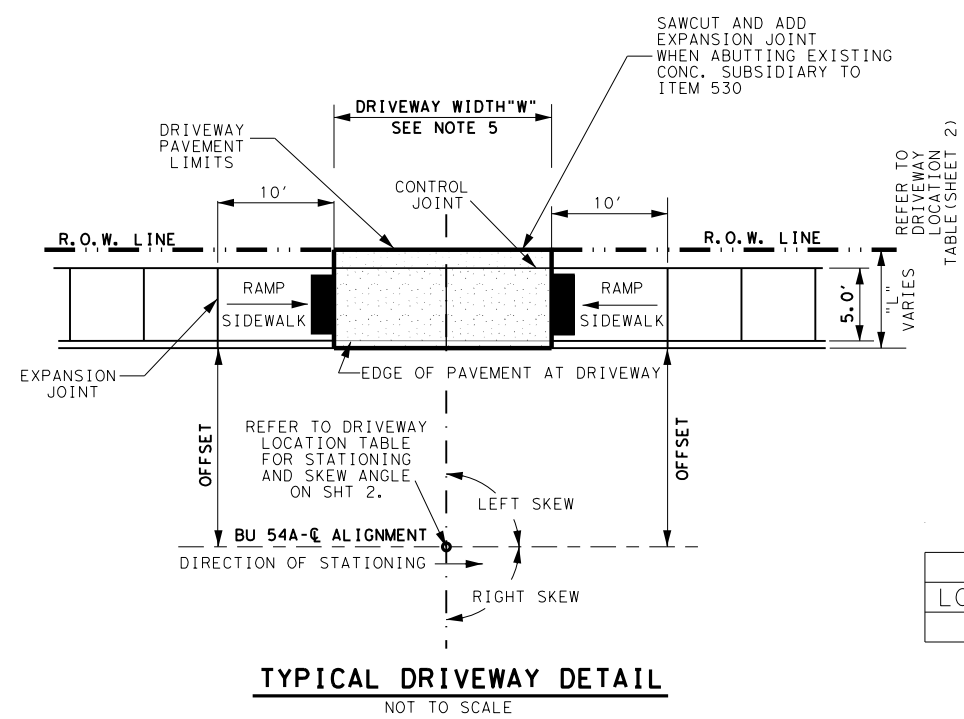
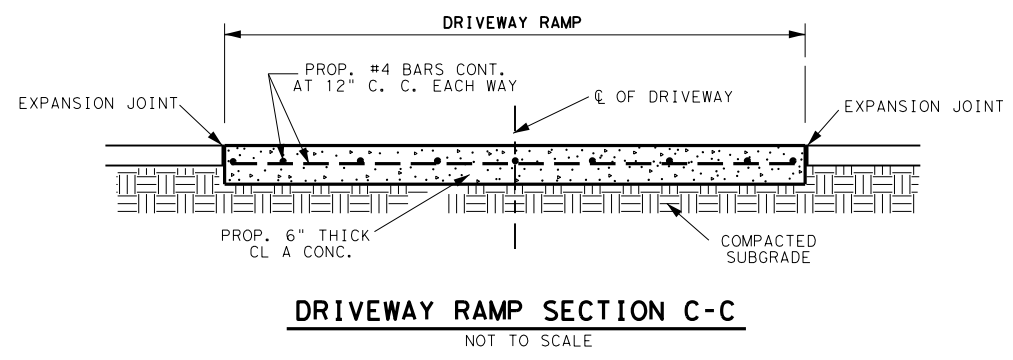
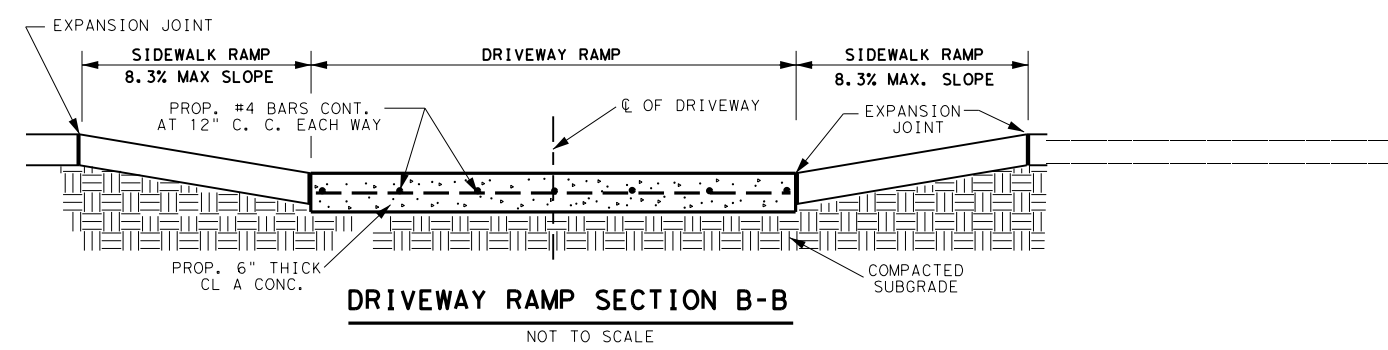
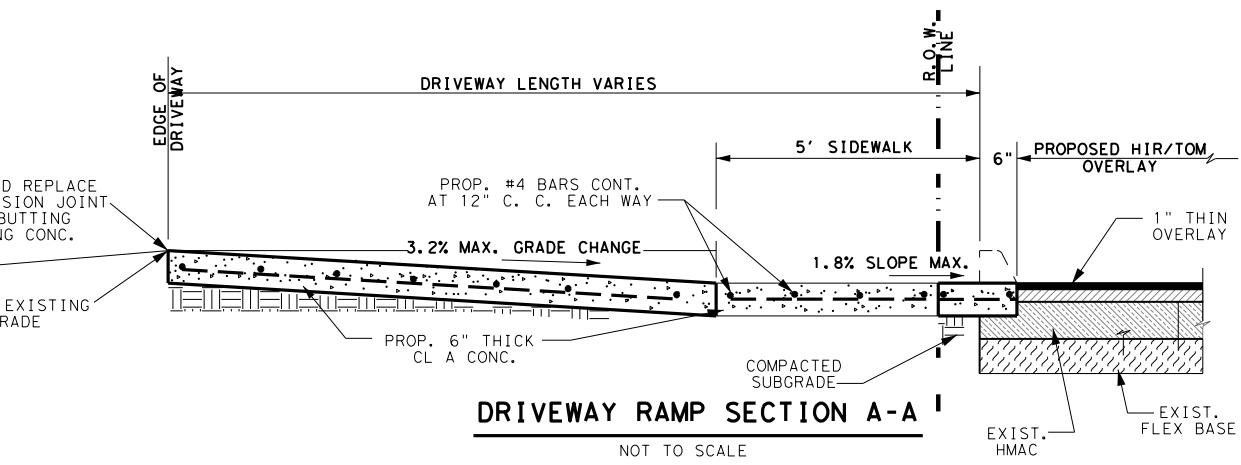
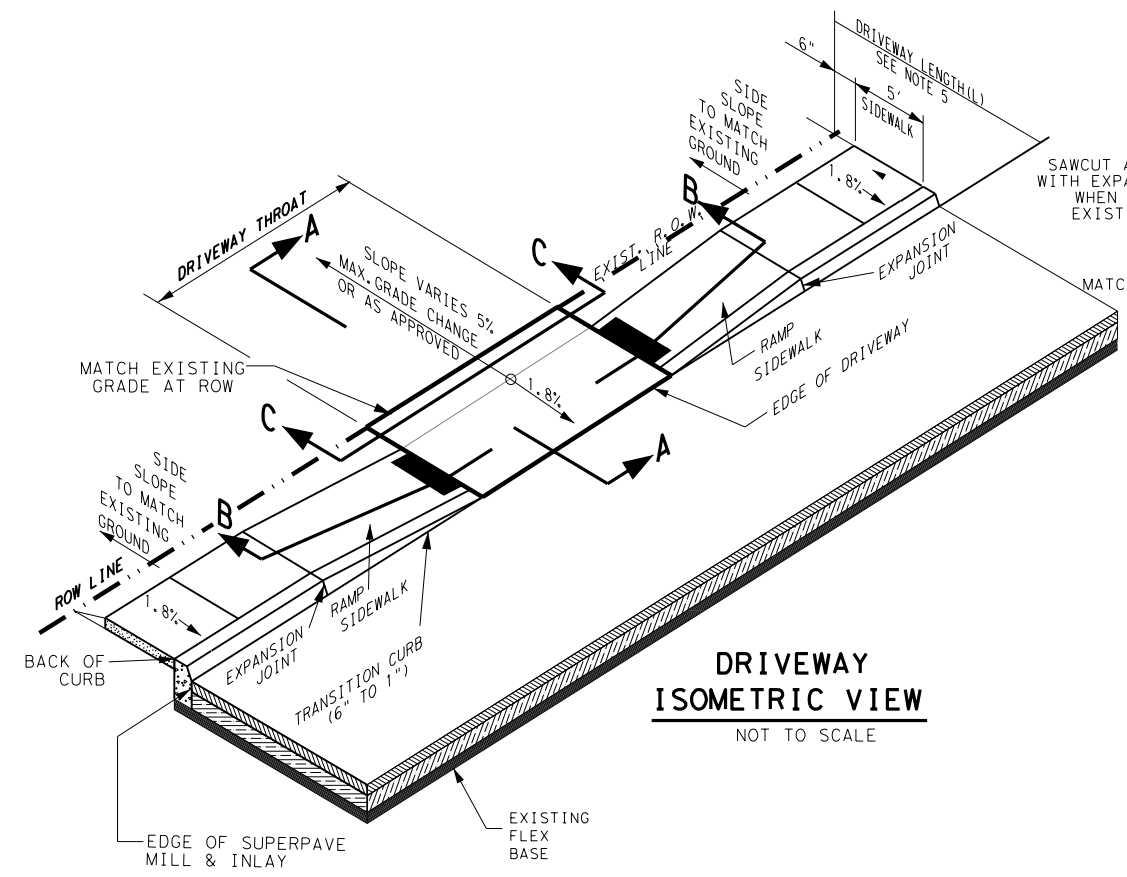
SHEET 2 OF 2  
©2022

Texas Department of Transportation			
CONT	SECT	JOB	HIGHWAY
2552	03	070	SL 375
DIST	COUNTY		SHEET NO.
ELP	EL PASO		38

DATE: 5/31/2022 4:17:47 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\SIDEWALK DETAILS\LP375\_SIDEWALK\_DETAIL\_02.dgn

C&G  
 DWF  
 C&G  
 DWF

- NOTES:
1. ALL DRIVEWAYS ARE PROPOSED LOCATIONS AS NOTED ON PLAN SHEETS.
  3. REFER TO TXDOT PED-18 STANDARD TO ENSURE ADA SLOPE COMPLIANCE.
  4. REFER TO SIDEWALK DETAILS FOR TRANSITION & JOINT INFO, EDGE OF PAVEMENT INFO.
  5. SEE TABLE 1 BELOW FOR DRIVEWAY LOCATION INFORMATION.



**DRIVEWAY LOCATION**

TABLE 1  
DRIVEWAY LOCATION (NORTH/SOUTHBOUND)

LOCATION	WIDTH "W" (FT)	LENGTH "L" (FT)	SY	DIRECTION	OFFSET	SKEW
1	20	17	40	NORTHBOUND		



*Antonio Santana PE*

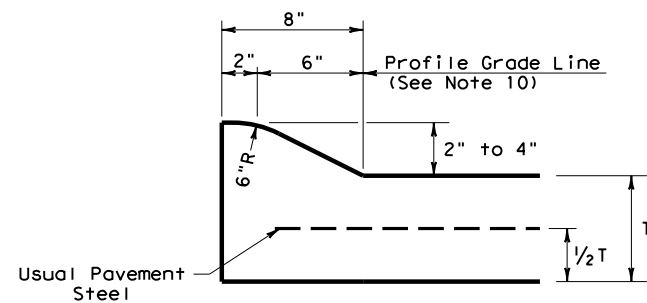
6/24/2022

**SL 375  
SIDEWALK  
DRIVEWAY DETAILS**

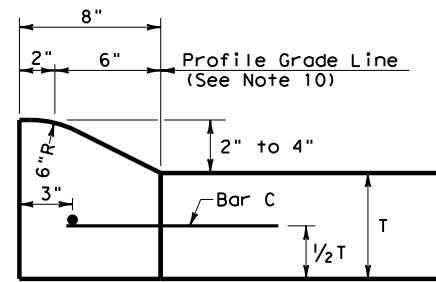
DATE: 6/24/2022 3:24:18 PM  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\LP375\_RDWY\_DETAILS.dgn

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

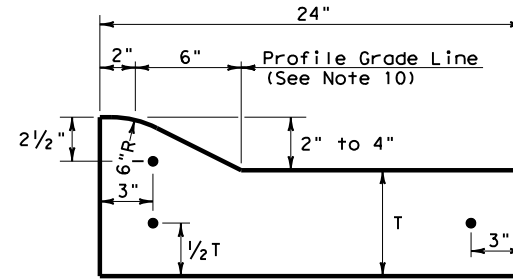
DATE: FILE:



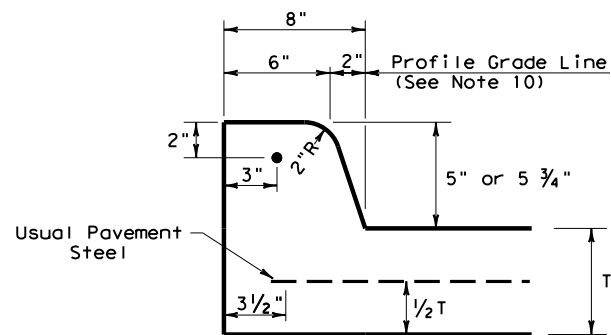
**TYPE I CURB (MONOLITHIC)  
2" - 4" HEIGHT**



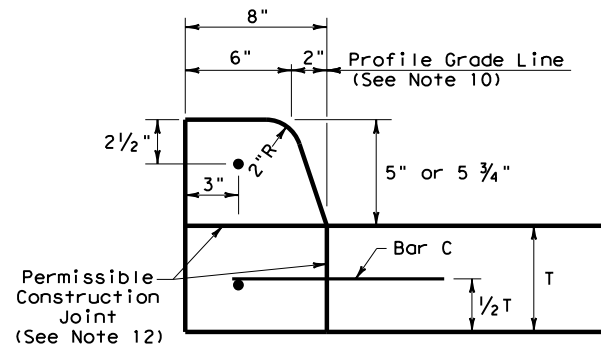
**TYPE I CURB  
2" - 4" HEIGHT**



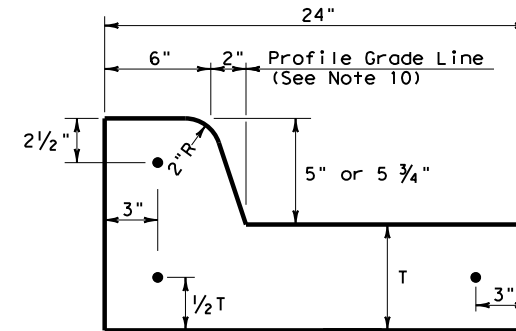
**TYPE I CURB AND GUTTER  
2" - 4" HEIGHT**



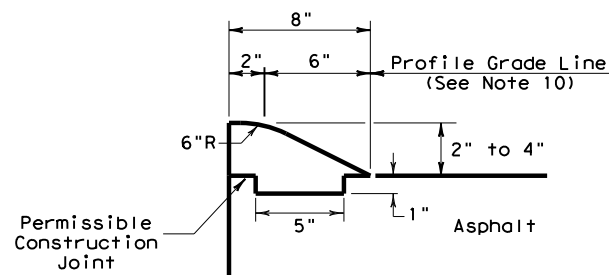
**TYPE II CURB (MONOLITHIC)  
5" - 5 3/4" HEIGHT**



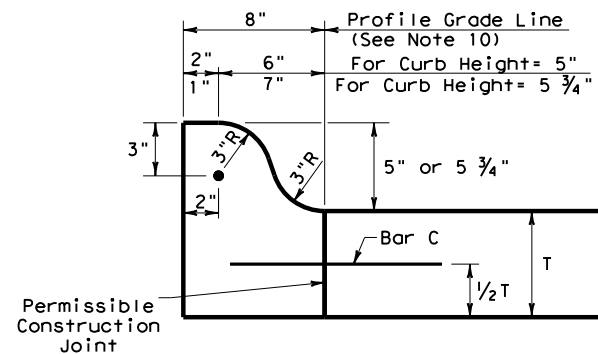
**TYPE II CURB  
5" - 5 3/4" HEIGHT**



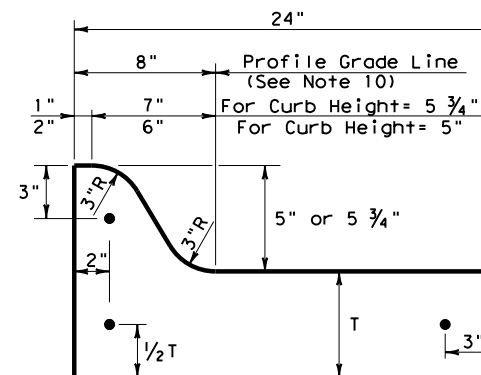
**TYPE II CURB AND GUTTER  
5" - 5 3/4" HEIGHT**



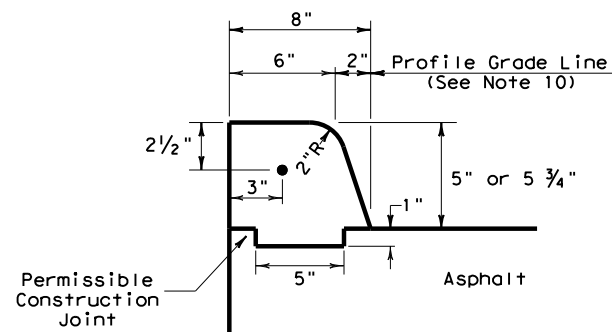
**TYPE III CURB (KEYED)  
2" - 4" HEIGHT**



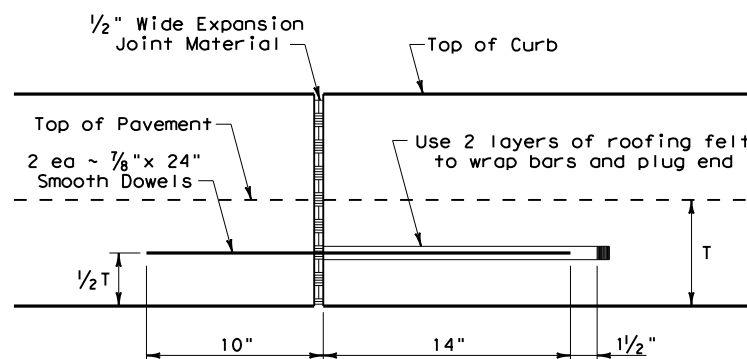
**TYPE IIa CURB  
5" - 5 3/4" HEIGHT**



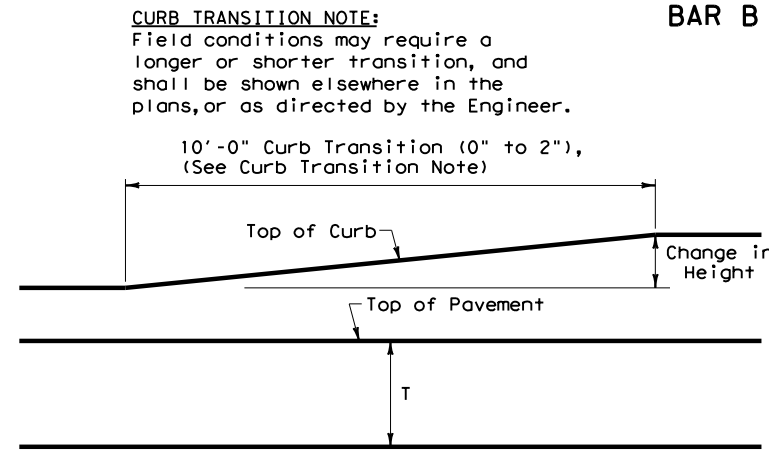
**TYPE IIa CURB AND GUTTER  
5" - 5 3/4" HEIGHT**



**TYPE IV CURB (KEYED)  
5" - 5 3/4" HEIGHT**



**EXPANSION JOINT DETAIL**

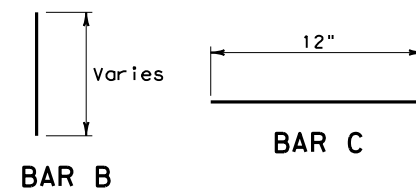


**CURB TRANSITION**

Note: To be paid for as Highest Curb

**GENERAL NOTES**

- All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
- Concrete shall be Class A.
- 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."
- Round exposed sharp edges with a rounding tool, to a minimum radius of 1/4 inch.
- All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
- 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.
- 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.
- Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C-C.
- Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
- Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
- One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
- 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.
- Bar B used as needed to support curb reinforcing steel during concrete placement.

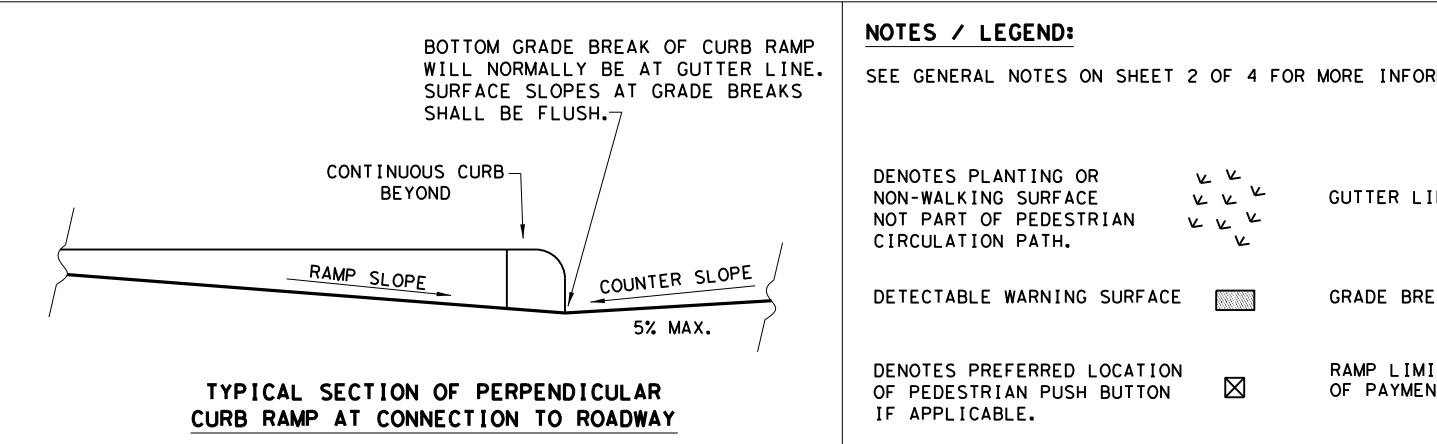
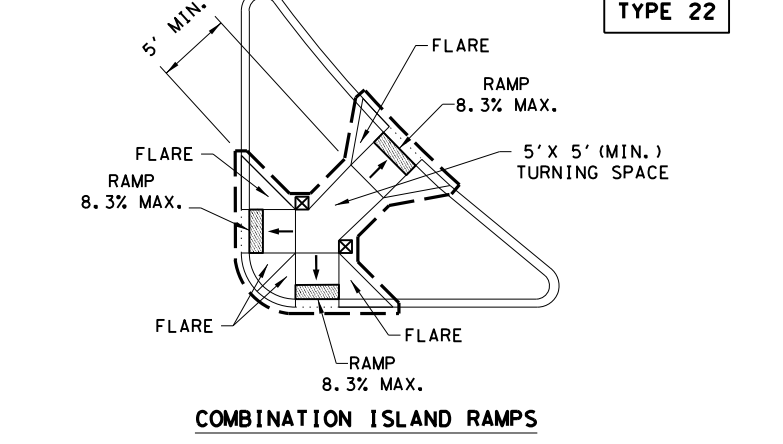
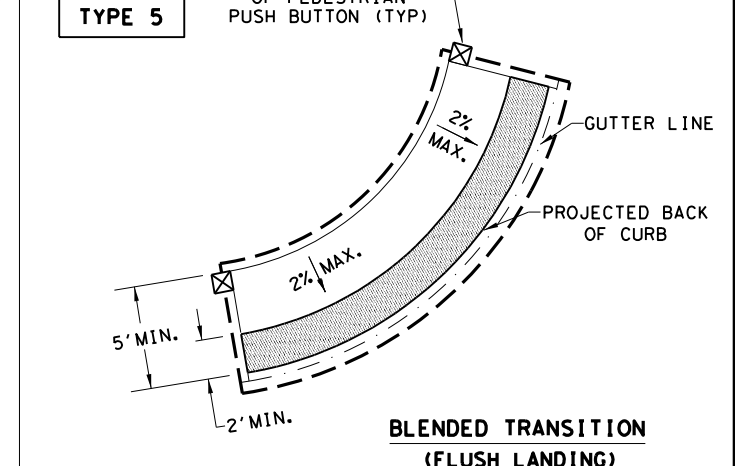
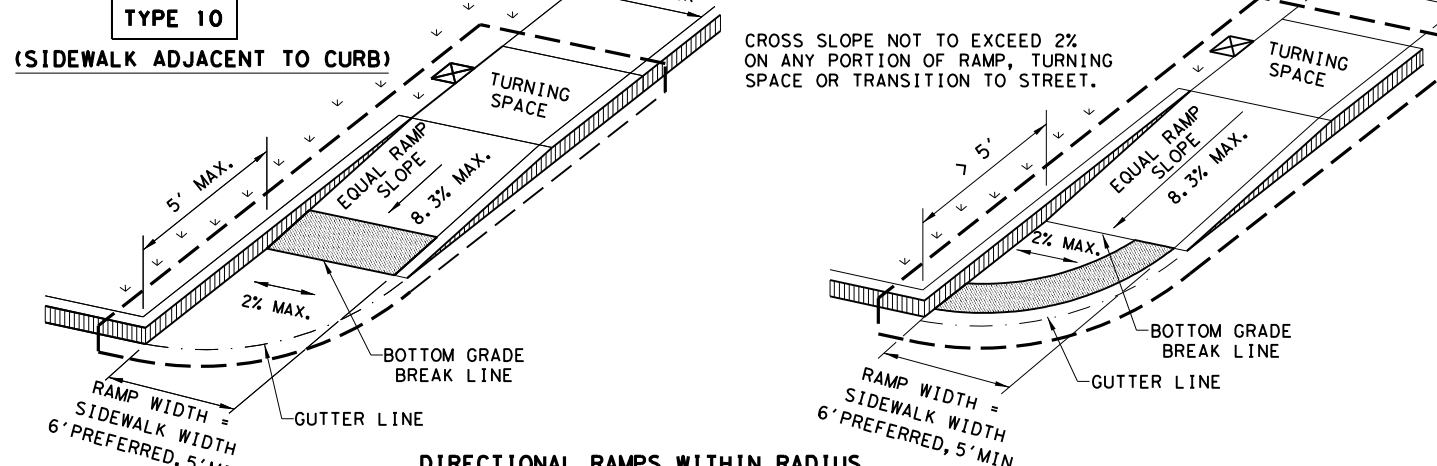
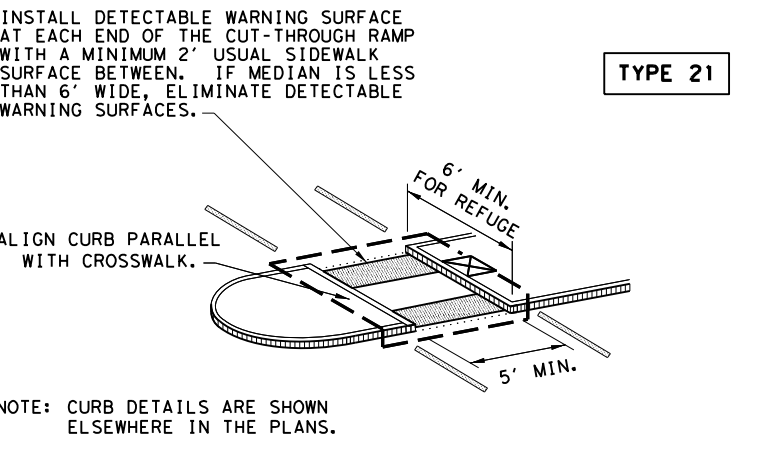
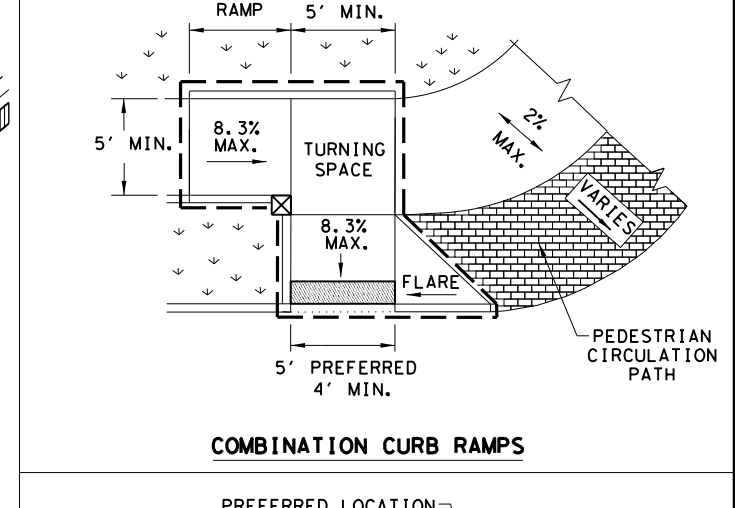
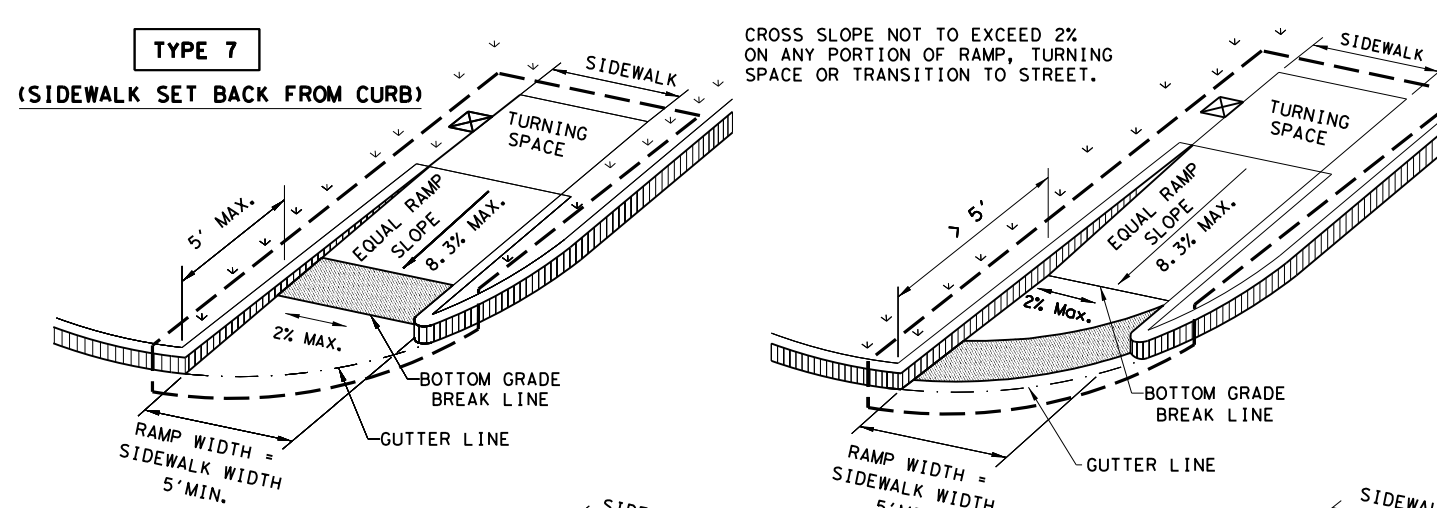
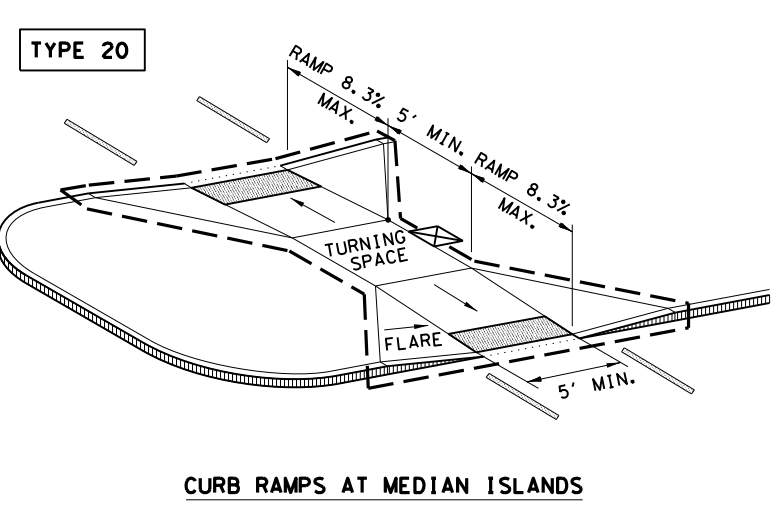
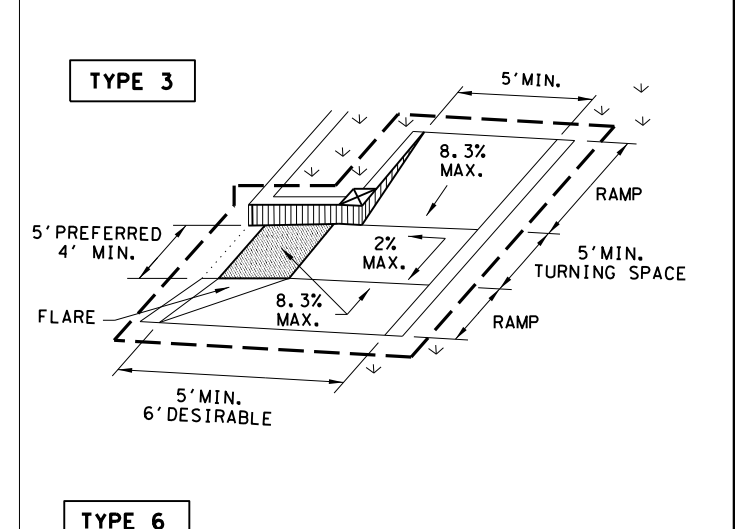
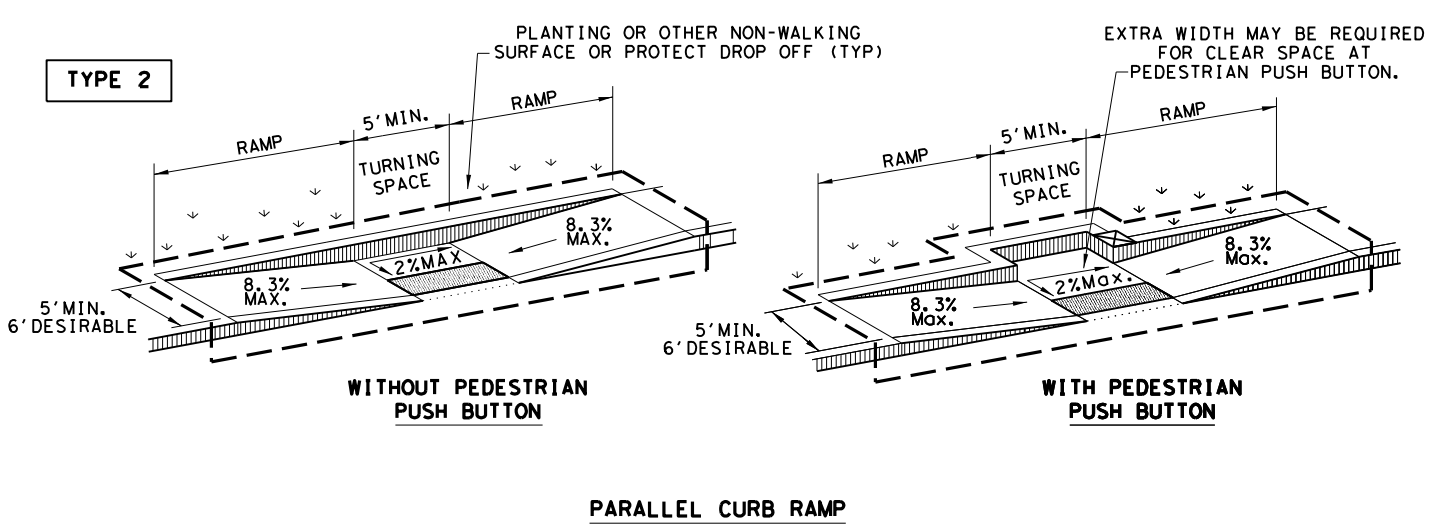
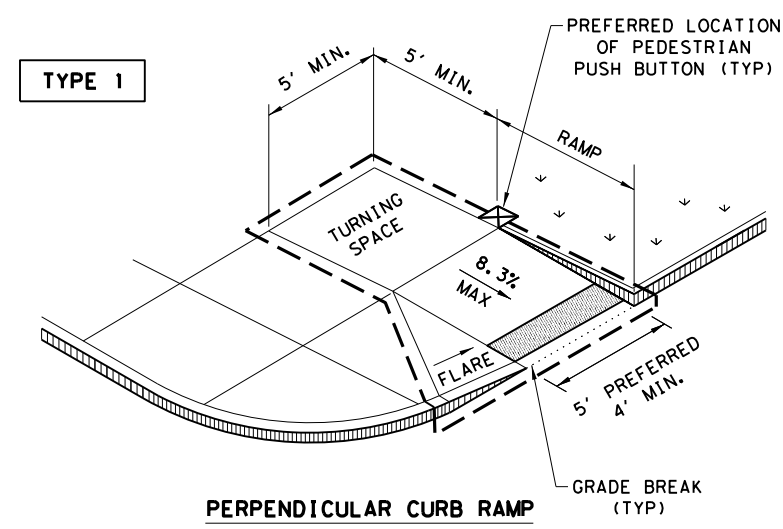


**CURB TRANSITION NOTE:**  
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.

				Design Division Standard	
<b>CONCRETE CURB AND GUTTER</b>					
<b>CCCG-21</b>					
FILE: cccg21.dgn	DN: TxDOT	CK: AN	DW: SS	CK: KM	
© TxDOT: FEBRUARY 2021	CONT	SECT	JOB	HIGHWAY	
REVISIONS	2552	03	070	SL 375	
	DIST	COUNTY		SHEET NO.	
	ELP	EL PASO		40	

DATE: 5/16/2022  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\ROADWAY STANDARDS\ped18.dgn

DISCLAIMER:  
 The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



SHEET 1 OF 4

**PEDESTRIAN FACILITIES CURB RAMPS**

**PED-18**

Design Division Standard

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	2552	03	070	SL 375
REVISED 08, 2005	DIST	COUNTY	SHEET NO.	
REVISED 06, 2012	ELP	EL PASO	41	
REVISED 01, 2018				

**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.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

Detectable Warning Surface: [Symbol]

Grade Break: [Symbol]

Ramp Limits of Payment: [Symbol]

Gutter Line: [Symbol]

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/31/2022  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\ROADWAY STANDARDS\ped18.dgn

## GENERAL NOTES

### CURB RAMP

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 applicable standards may remain in place unless otherwise shown on the plans.

### DETECTABLE WARNING MATERIAL

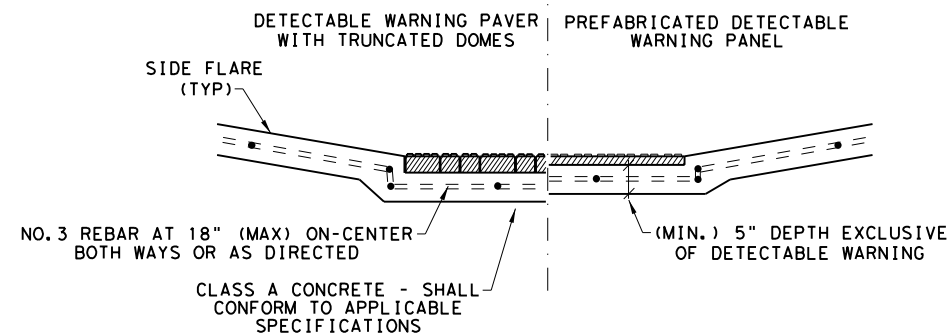
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material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

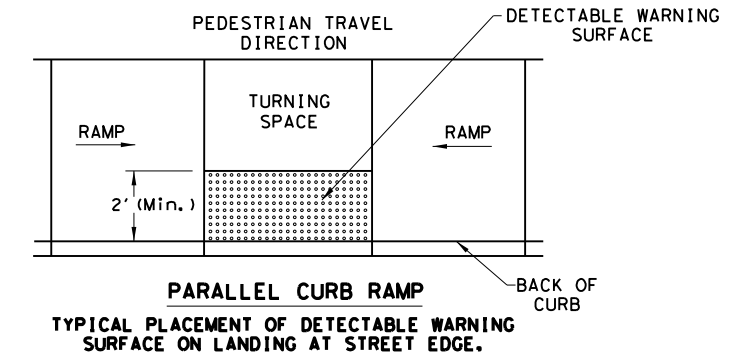
### SIDEWALKS

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.

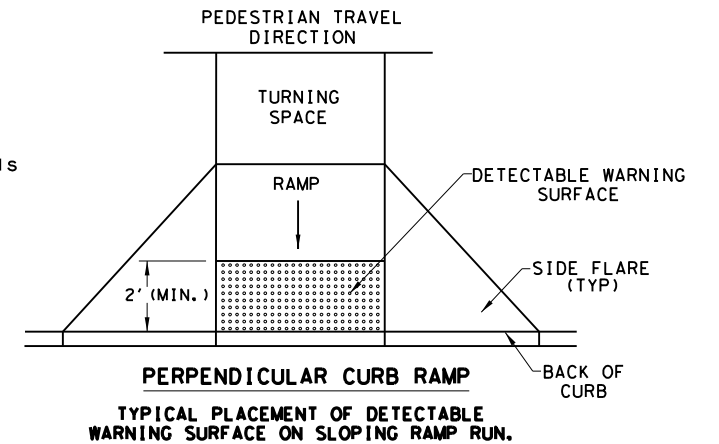


SECTION VIEW DETAIL  
 CURB RAMP AT DETECTIBLE WARNINGS

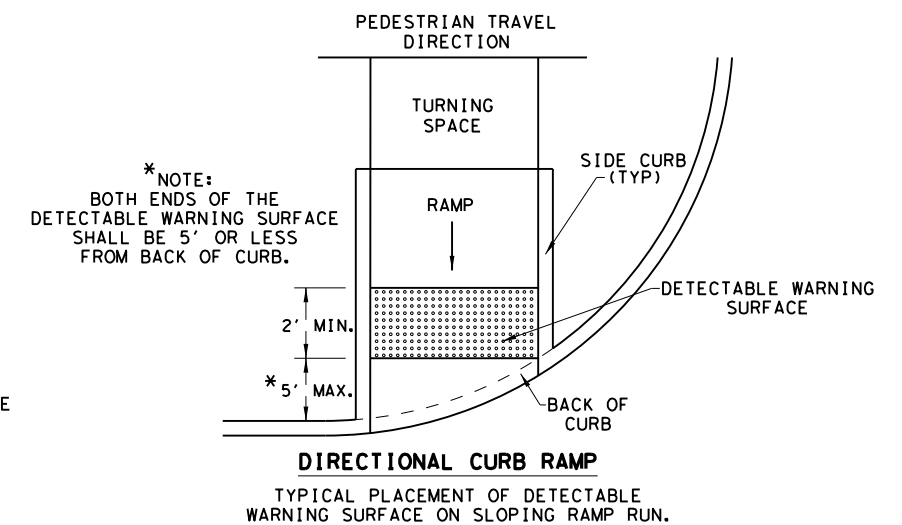
### DETECTABLE WARNING SURFACE DETAILS



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.



\* NOTE:  
 BOTH ENDS OF THE  
 DETECTABLE WARNING SURFACE  
 SHALL BE 5' OR LESS  
 FROM BACK OF CURB.

DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

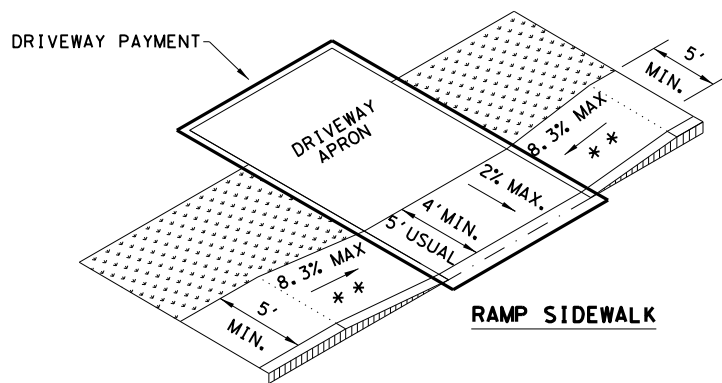
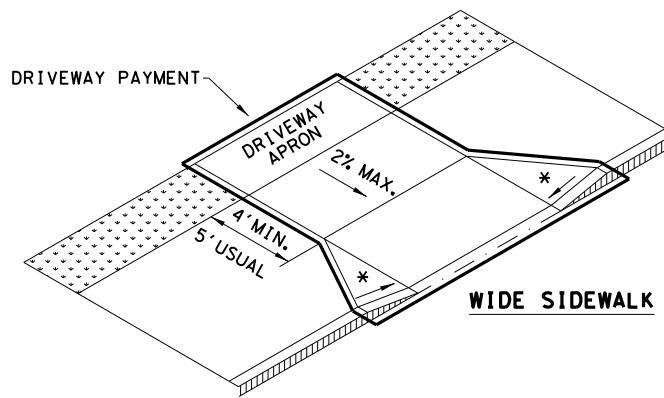
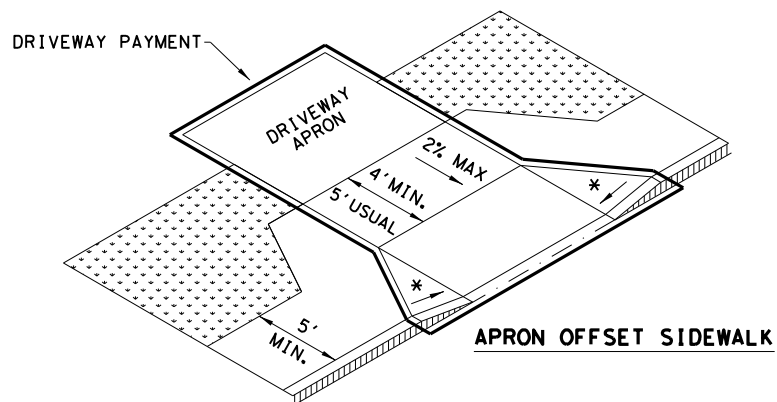
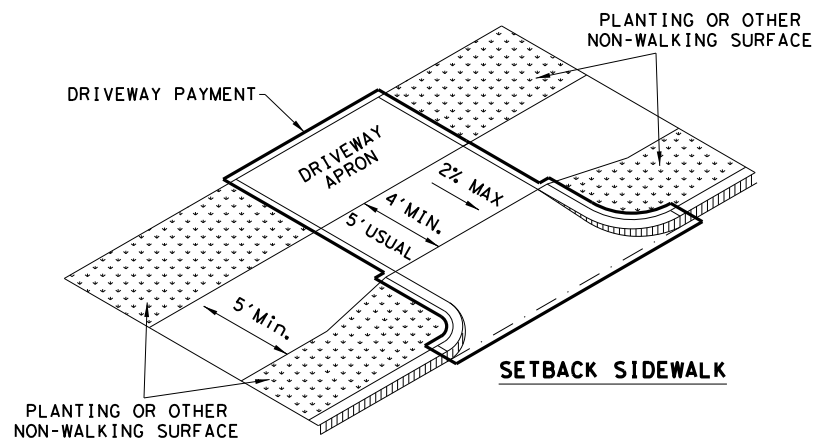
SHEET 2 OF 4

		Design Division Standard	
<h1>PEDESTRIAN FACILITIES</h1> <h2>CURB RAMP</h2> <h3>PED-18</h3>			
FILE: ped18	DN: TxDOT	DW: VP	CK: KM
© TxDOT: MARCH, 2002	CONT	SECT	JOB
REVISIONS	2552 03	070	SL 375
REVISED 08, 2005	DIST	COUNTY	SHEET NO.
REVISED 06, 2012	ELP	EL PASO	42
REVISED 01, 2018			

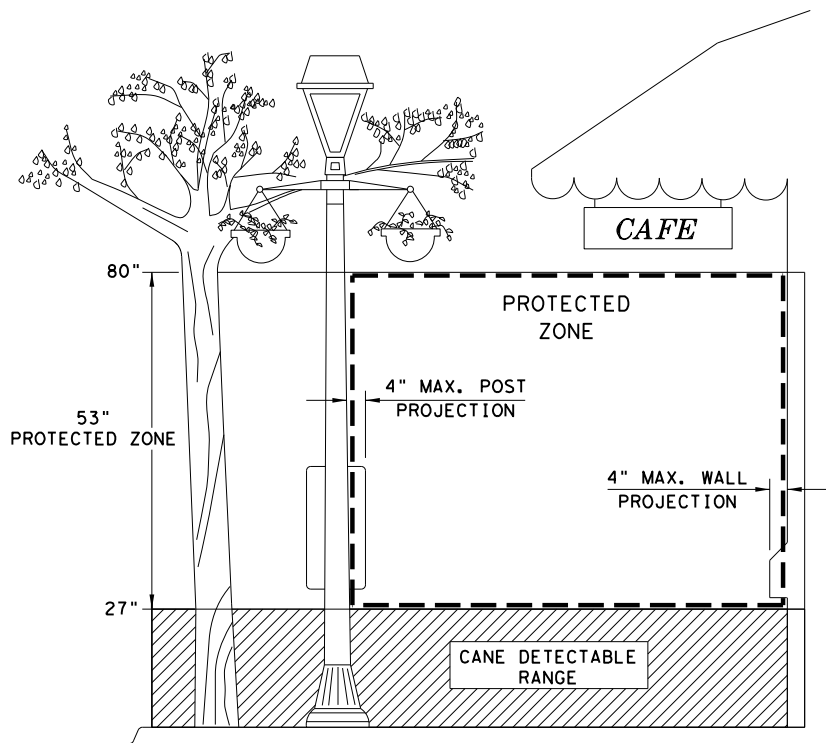
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/18/2022  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\ROADWAY STANDARDS\ped18 2 of 4.dgn

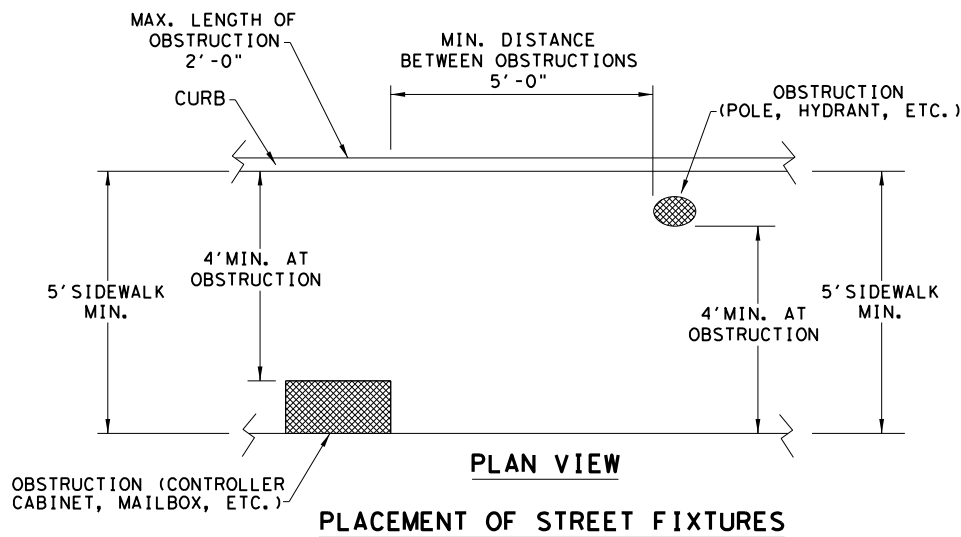
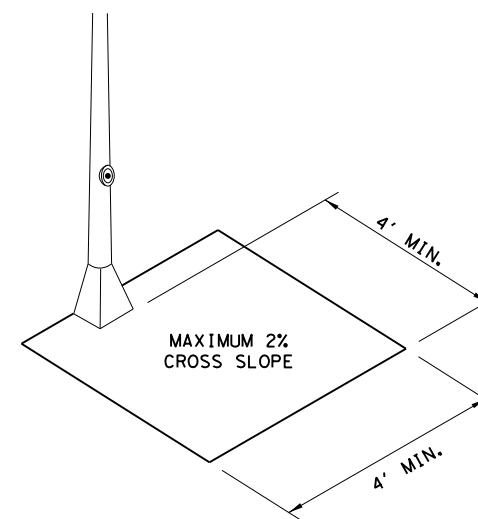
**SIDEWALK TREATMENT AT DRIVEWAYS**



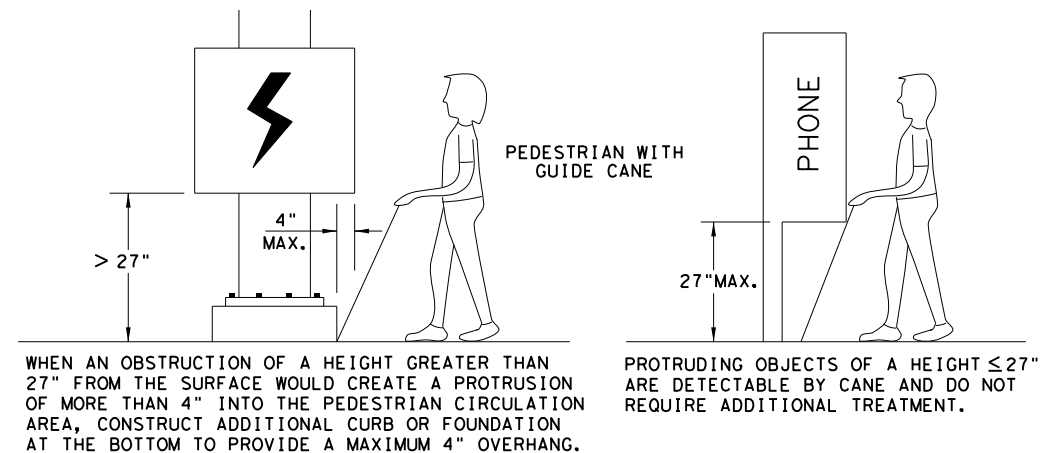
NOTES:  
 \* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.  
 \* \* IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



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



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



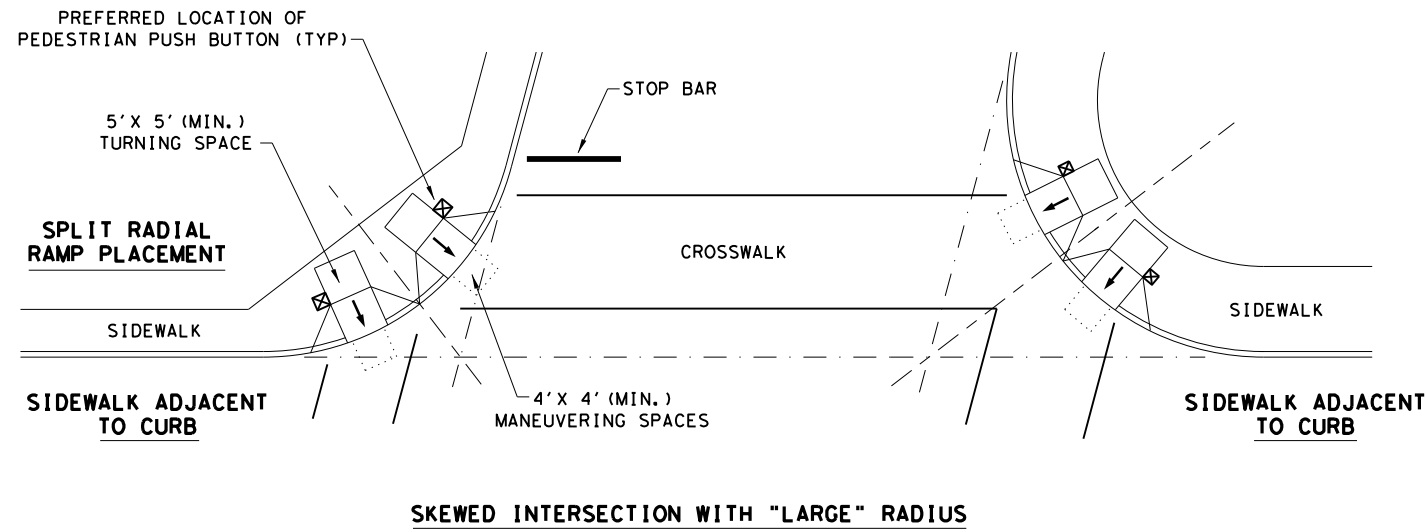
SHEET 3 OF 4

		Design Division Standard	
<b>PEDESTRIAN FACILITIES</b> <b>CURB RAMPS</b> <b>PED-18</b>			
FILE: ped18	DN: TxDOT	DW: VP	CK: KM
© TxDOT: MARCH, 2002	CONT: 2552	SECT: 03	JOB: 070
REVISIONS	2552	03	070
REVISOR: 08, 2005	DIST: ELP	COUNTY: EL PASO	SHEET NO. 43
REVISOR: 06, 2012			
REVISOR: 01, 2018			

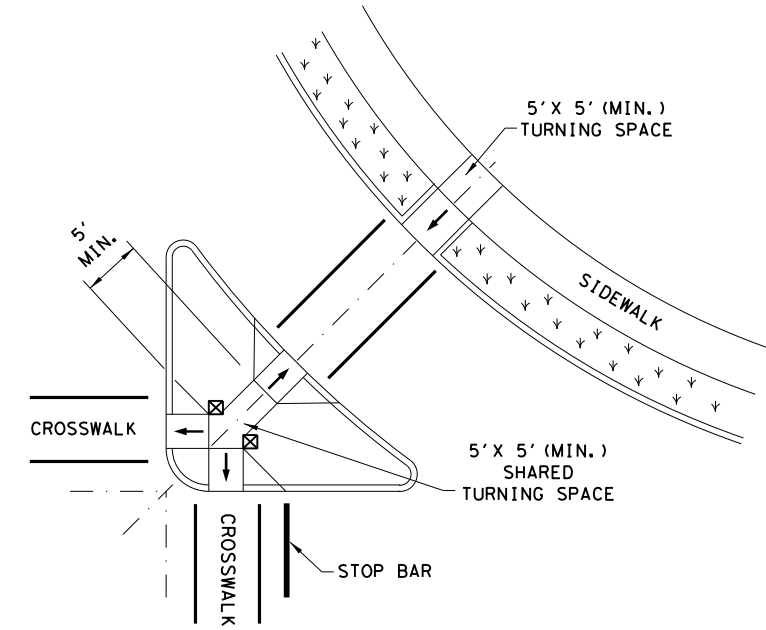


DATE: 5/18/2022  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\ROADWAY STANDARDS\ped18 2 of 4.dgn  
 DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

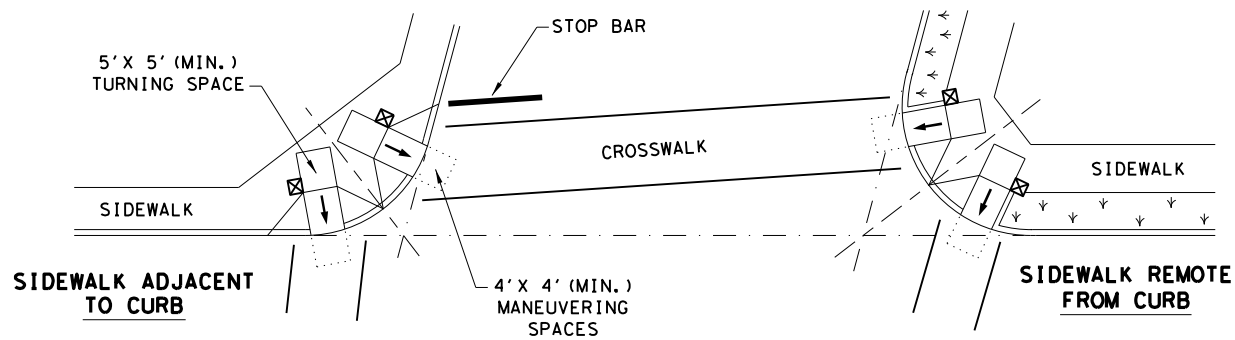
**TYPICAL CROSSING LAYOUTS**  
**SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS**



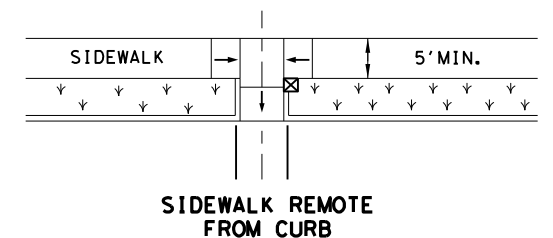
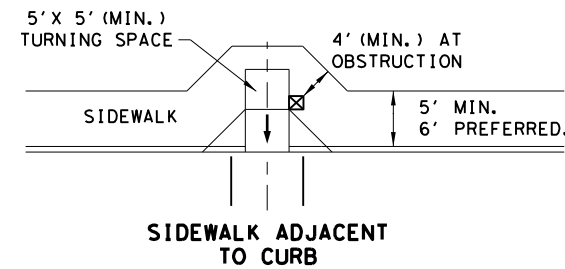
**SKewed INTERSECTION WITH "LARGE" RADIUS**



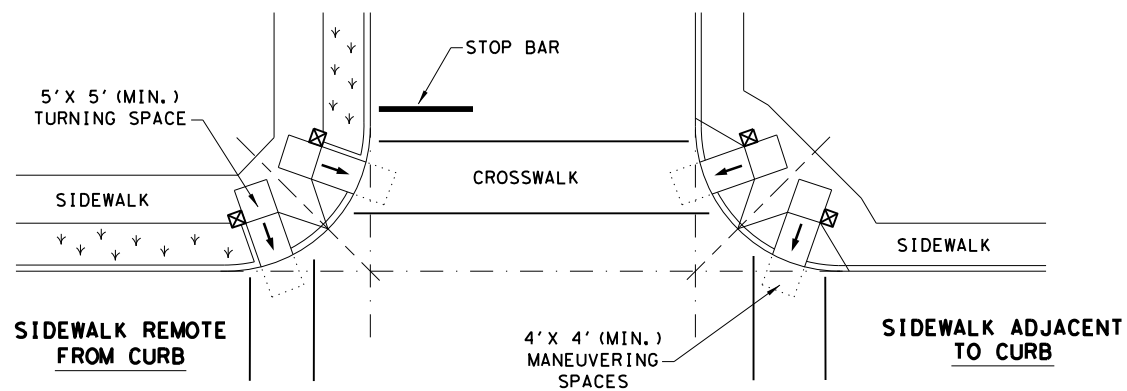
**AT INTERSECTION  
W/FREE RIGHT TURN & ISLAND**



**SKewed INTERSECTION WITH "SMALL" RADIUS**



**MID-BLOCK PLACEMENT  
PERPENDICULAR RAMPS**



**NORMAL INTERSECTION WITH "SMALL" RADIUS**

**LEGEND:**

SHOWS DOWNWARD SLOPE. →

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

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. ↙ ↘ ↗ ↖

SHEET 4 OF 4



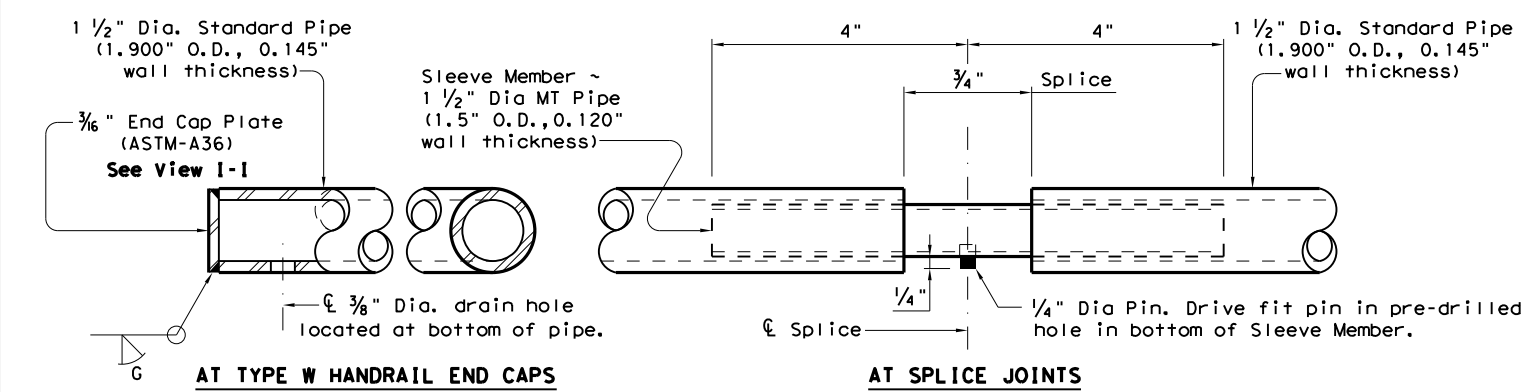
**PEDESTRIAN FACILITIES**  
**CURB RAMPS**

**PED-18**

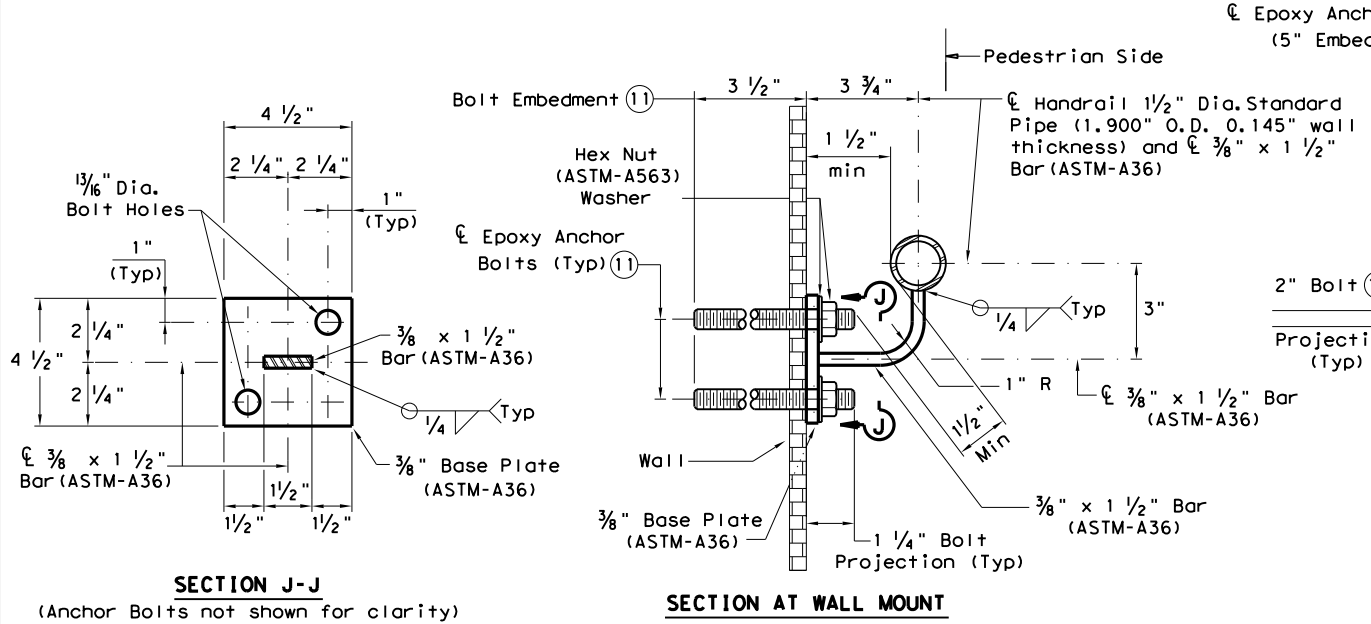
FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	2552	03	070	SL 375
REVISED 08, 2005	DIST	COUNTY	SHEET NO.	
REVISED 06, 2012	ELP	EL PASO	44	
REVISED 01, 2018				

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/16/2022  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\ROADWAY STANDARDS\prdl3.dgn

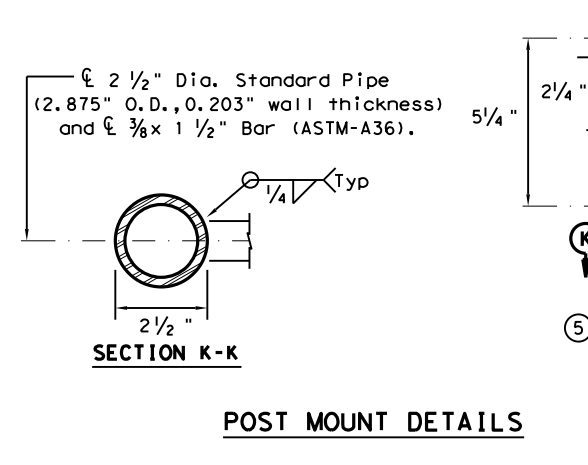
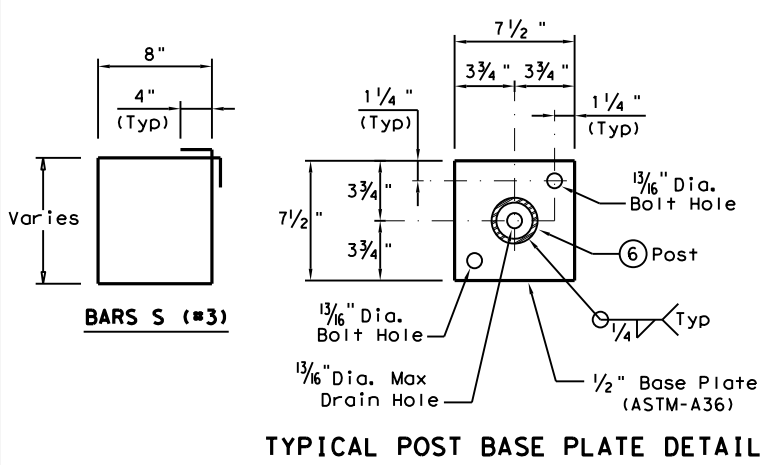


**HANDRAIL FABRICATION DETAILS**

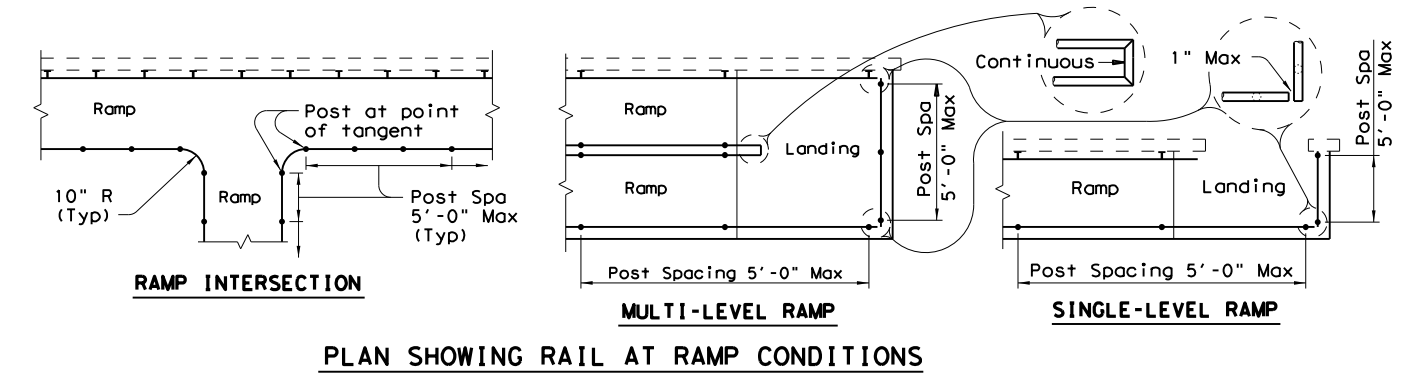


**TYPICAL WALL MOUNT DETAILS**

- (5) 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.
- (6) 2 1/2" 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 diameter 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 1/2" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.



**POST MOUNT DETAILS**



**PLAN SHOWING RAIL AT RAMP CONDITIONS**

**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 5/8" Dia. ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. 3/8" Dia. threaded rod embedment depth for wall mounts is 3 1/2" 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, "Epoxyes 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 5/8" 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.

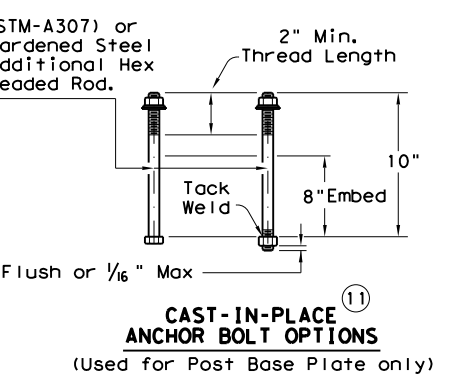
For all handrails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

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.

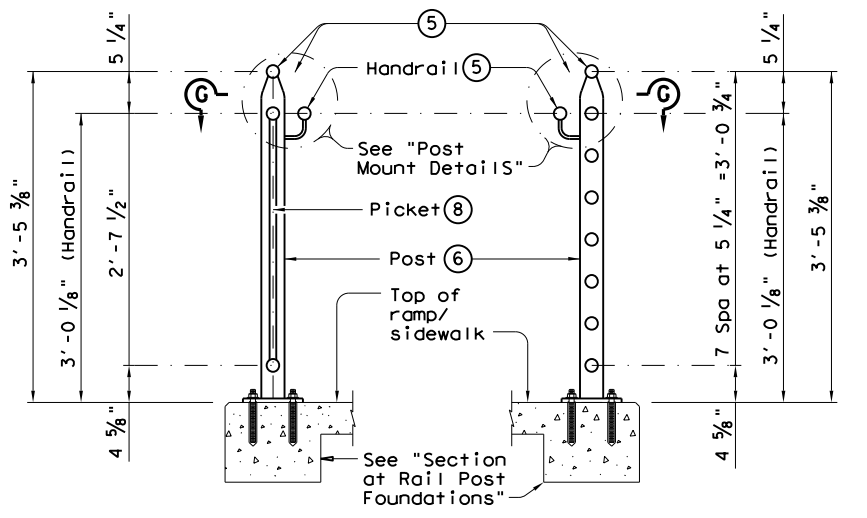
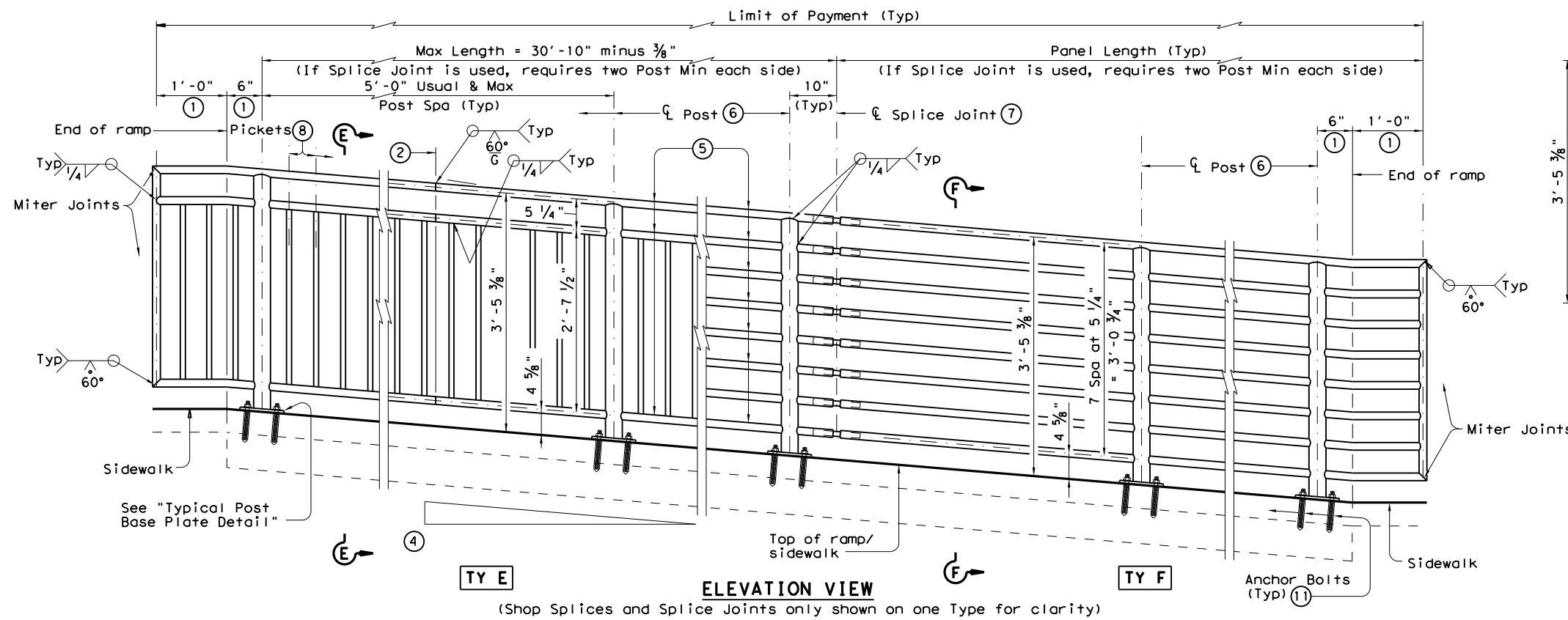
All exposed edges will be rounded or chamfered to approximately 1/8" by grinding.



		Design Division Standard	
<h2>PEDESTRIAN HANDRAIL DETAILS</h2> <h3>PRD-13</h3>			
FILE: prdl3.dgn	DN: TxDOT	CK: AM	DW: JTR
© TxDOT December 2006	CONT	SECT	JOB
REVISIONS	2552	03	070
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.
	ELP	EL PASO	45

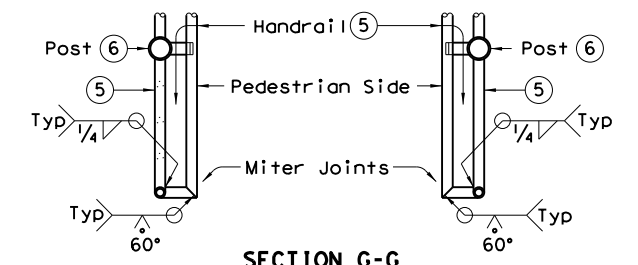
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/18/2022  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\ROADWAY STANDARDS\prdl3.dgn

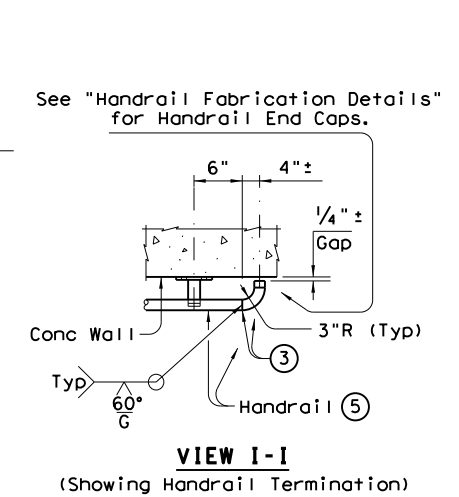
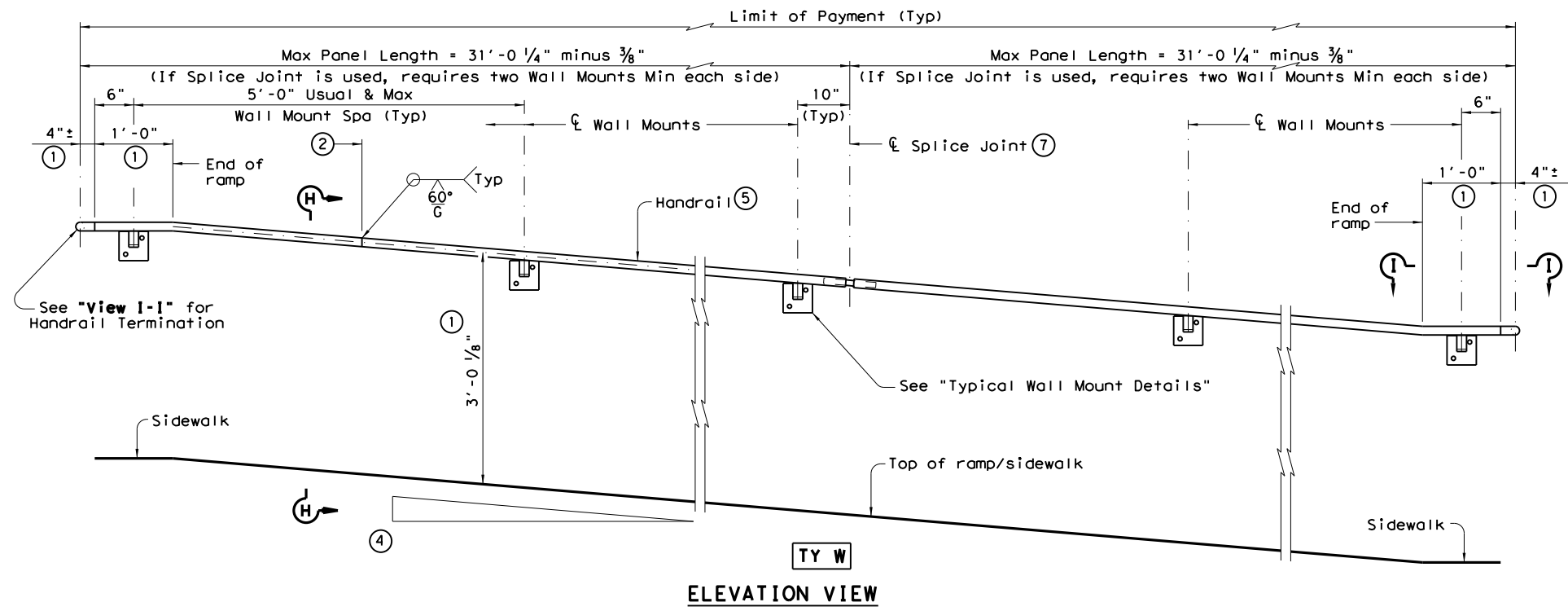


**SECTION E-E**  
 (Showing Handrail TY E)

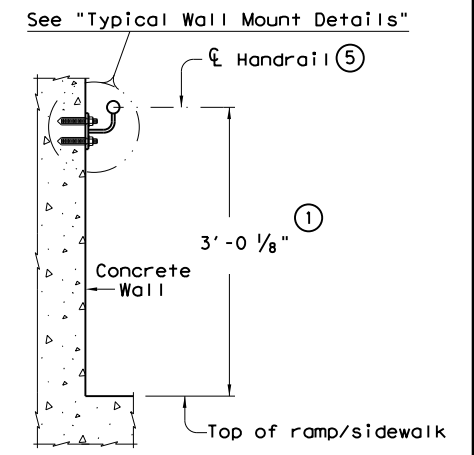
**SECTION F-F**  
 (Showing Handrail TY F)



**SECTION G-G**  
 (Showing Handrail Termination)



**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 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.
- ⑥ 2 1/2" 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 1/2" Dia. Round Bar equal spacing at 4 1/2" Max. Plumb all pickets.
- ⑪ See "General Notes" for anchor bolt information.

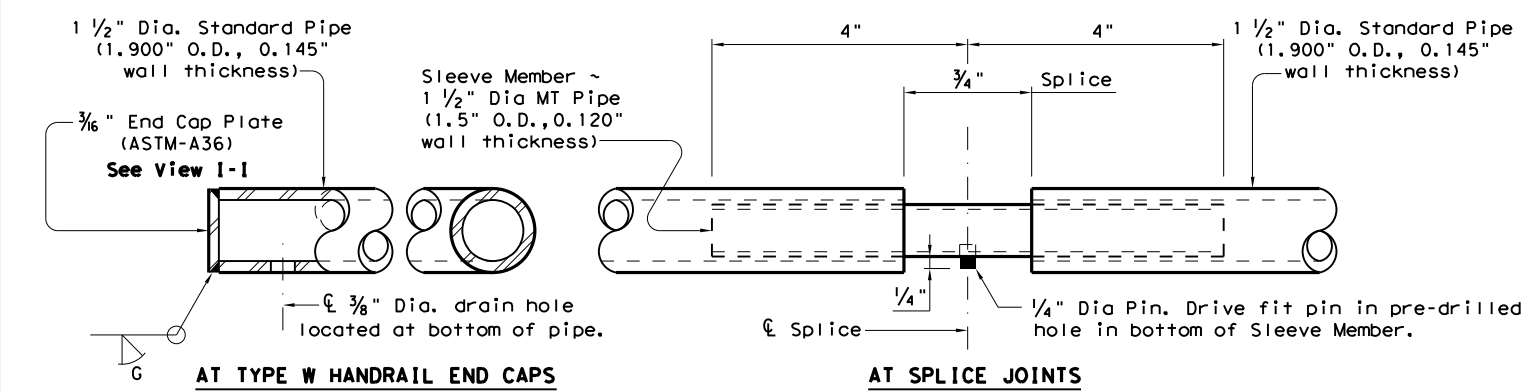
SHEET 2 OF 3



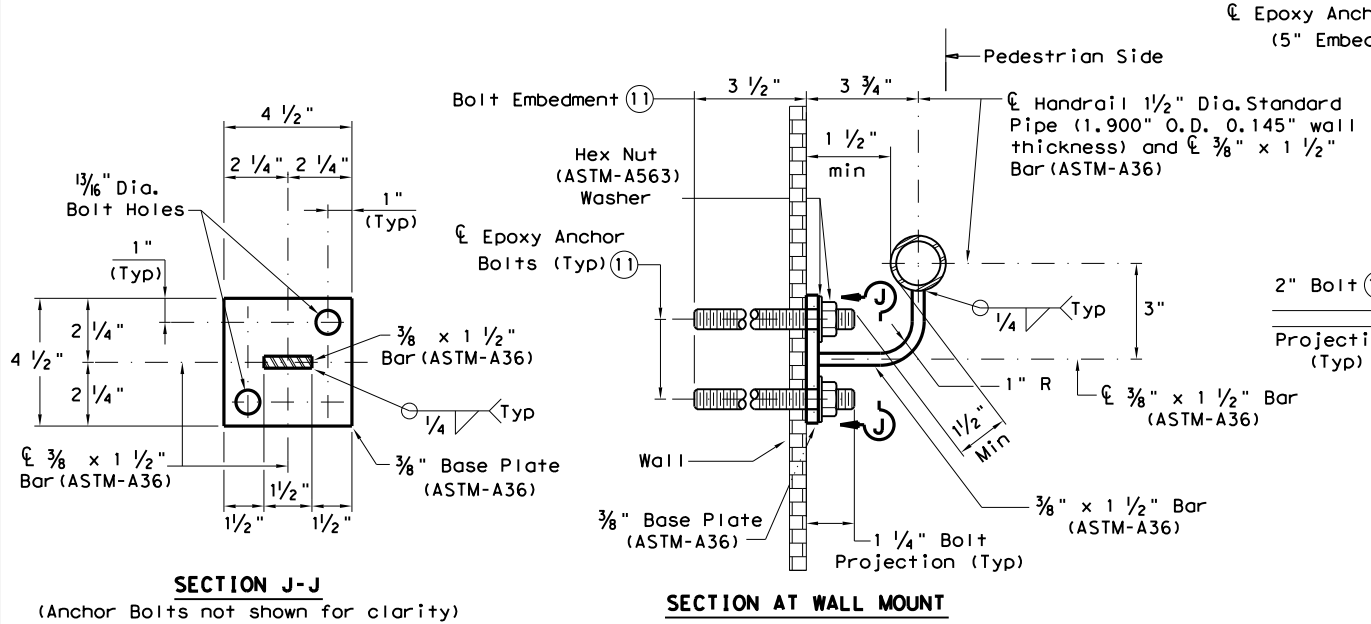
## PEDESTRIAN HANDRAIL DETAILS PRD-13

FILE: prdl3.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
© TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	2552	03	070	SL 375
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.	
	ELP	EL PASO	46	

DATE: 5/18/2022  
 FILE: M:\2552-03-070\4-DESIGN\Plan Set\3. ROADWAY\ROADWAY STANDARDS\prdl3.dgn  
 DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

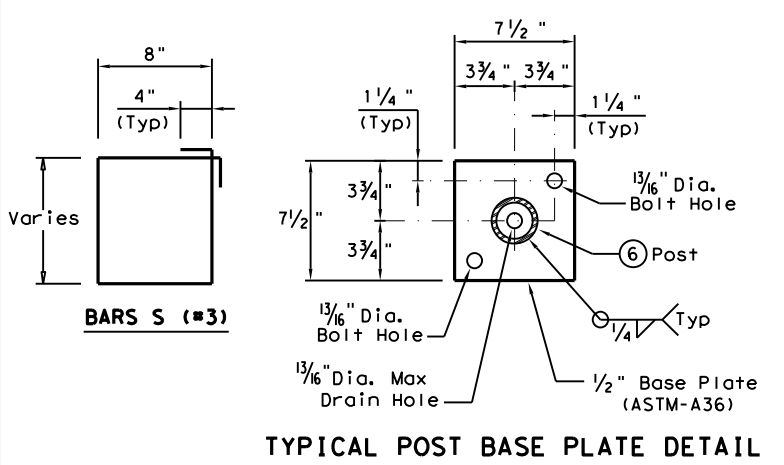


**HANDRAIL FABRICATION DETAILS**

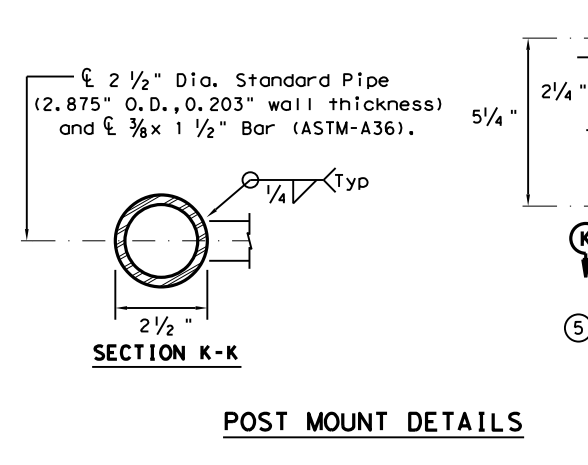


**TYPICAL WALL MOUNT DETAILS**

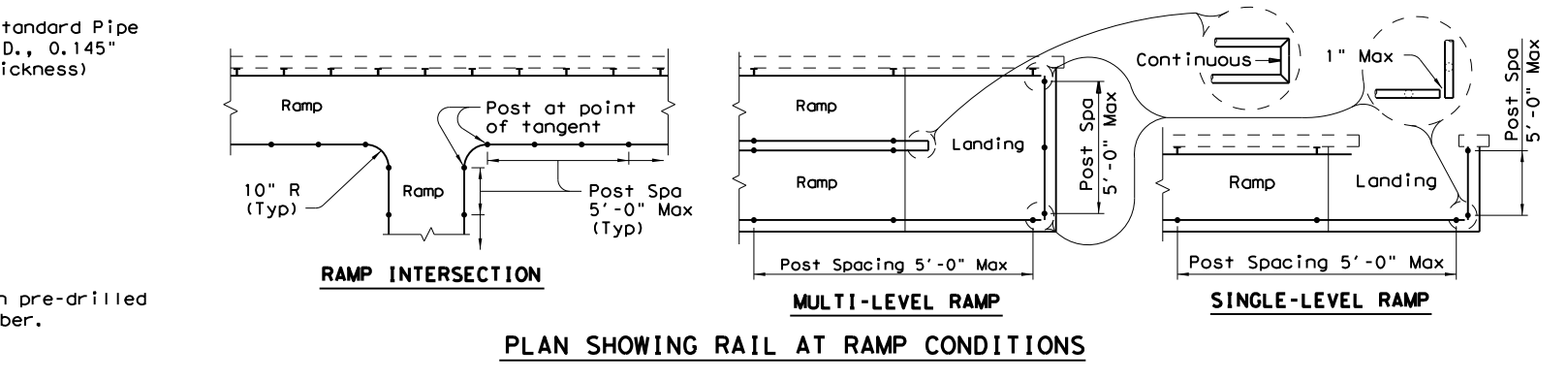
- ⑤ 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.
- ⑥ 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). Plumb all posts. See "Post Mount Detail" for crimping and trimming post to fit the diameter 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 1/2" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.



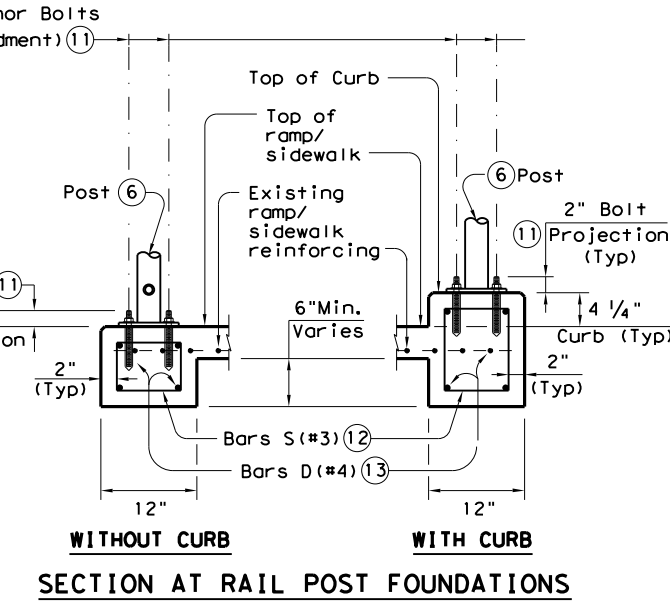
**TYPICAL POST BASE PLATE DETAIL**



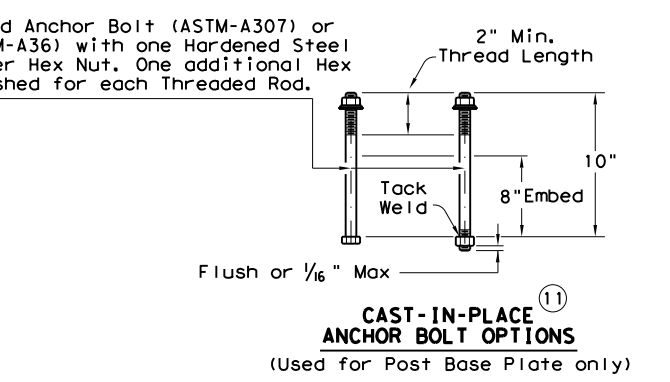
**POST MOUNT DETAILS**



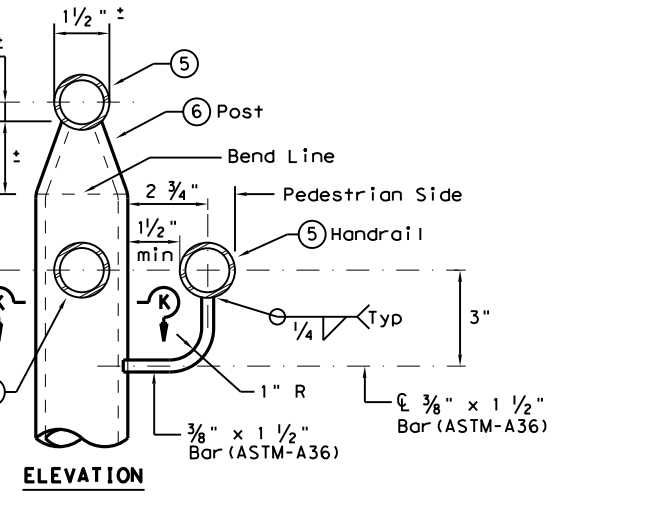
**PLAN SHOWING RAIL AT RAMP CONDITIONS**



**SECTION AT RAIL POST FOUNDATIONS**



**CAST-IN-PLACE ANCHOR BOLT OPTIONS**  
(Used for Post Base Plate only)



**ELEVATION**

**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 5/8" Dia. ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. 3/8" Dia. threaded rod embedment depth for wall mounts is 3 1/2" 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, "Epoxyes 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 5/8" 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 1/8" by grinding.

		Design Division Standard	
<h2>PEDESTRIAN HANDRAIL DETAILS</h2> <h3>PRD-13</h3>			
FILE: prdl3.dgn	DN: TxDOT	CK: AM	DW: JTR
© TxDOT December 2006	CONT	SECT	JOB
REVISIONS	2552	03	070
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.
	ELP	EL PASO	47



**STORM WATER POLLUTION PREVENTION PLAN (SWP3):**

This SWP3 has been developed in accordance with TPDES General Permit TXR150000. The operator, The Texas Department of Transportation ensures that Project specifications provide that adequate BMPs have been developed for this project. The contractor shall be the party responsible for implementing the BMPs described herein. The contractor shall implement changes approved by the Project Engineer to the SWP3 within the times specified in the SWP3 or the TPDES General Permit. Operators affected by modifications to specifications will be notified in a timely manner.

**1. SITE OR PROJECT DESCRIPTION:**

**NATURE OF THE CONSTRUCTION ACTIVITY:** SEE TITLE SHEET

**POTENTIAL POLLUTANTS AND SOURCES:**

<i>Sediment laden storm water</i>	<i>Construction vehicles and storage areas</i>
<i>Construction debris and waste</i>	<i>Various construction activities</i>
<i>Sanitary waste</i>	<i>Restroom facilities</i>
<i>Trash</i>	
<i>Storm water conveyance over disturbed areas</i>	

BEGINNING LATITUDE: 31° 40' 28.85" N      ENDING LATITUDE: 31° 40' 51.02" N  
 BEGINNING LONGITUDE: -106° 20' 7.38" W      ENDING LONGITUDE: -106° 18' 41.71" W

**SEQUENCE OF ACTIVITIES THAT WILL DISTURB SOILS:**

1. CONSTRUCT SIDEWALK, PEDESTRIAN RAIL, RAMPS AND CURBS
2. CLEAN UP PROJECT
- 3.
- 4.

**AREAS:**

TOTAL AREA OF PROJECT: 0.60 ACRES  
 TOTAL AREA OF SOIL DISTURBANCE: 0.60 ACRES  
 TOTAL AREA OFF-SITE:  
 WEIGHTED RUNOFF COEFFICIENT (BEFORE AND AFTER CONSTRUCTION):

**DATA DESCRIBING THE SOIL:**

**GENERAL LOCATION MAP:** SEE PROJECT LAYOUT SHEET 3

**DETAILED SITE MAP:** SEE SWP3 SITE PLAN SHEETS.

**THE LOCATION AND DESCRIPTION OF CONCRETE AND ASPHALT PLANTS:**

**NAME OF RECEIVING WATERS:**

**A COPY OF TPDES CGP TXR150000 IS INCLUDED IN THE SWP3 FILE.**

**REMARKS:** See Environmental Assessment report for environmental, archeological, and historical documentation.

**401 WATER QUALITY CERTIFICATION:** YES \_\_\_\_\_ NO X

**2. BEST MANAGEMENT PRACTICES (BMPs):**

**EROSION AND SEDIMENT CONTROLS:** Erosion and sediment controls have been designed to retain sediment on-site. Controls shall be utilized to reduce off site transport of suspended sediments and pollutants if it is necessary to pump water from the site. Control measures shall be installed per specifications or as directed. Sediment must be removed from controls per the plan requirements or manufacturer's recommendations, but no later than the time that design capacity has been reduced by 50%. If sediment escapes the site, accumulations will be removed to minimize further negative effects. Controls will be developed to limit the off site transportation of litter, construction debris, and construction materials.

**INTERIM (INT), PERMANENT (PER), AND 401 CERTIFICATION BMP'S:**

EROSION CONTROLS:	401	INT	PER	SEDIMENT CONTROLS:	401	INT	PER
<input checked="" type="checkbox"/> <i>Compaction &amp; Tracking of slopes</i>		X		<input checked="" type="checkbox"/> <i>Silt Fence</i>		X	
<input type="checkbox"/> <i>Diversion Dike</i>				<input type="checkbox"/> <i>Rock Berm</i>			
<input checked="" type="checkbox"/> <i>Preserve Existing Vegetation</i>		X		<input type="checkbox"/> <i>Buffer Zones</i>			
<input checked="" type="checkbox"/> <i>Soil Stabilization</i>		X	X	<input type="checkbox"/> <i>Vegetative Filter Strips</i>			
<input type="checkbox"/> <i>Permanent Vegetation</i>				<input type="checkbox"/> <i>Ditch Block</i>			
<input type="checkbox"/> <i>No Erosion Controls are Required.</i>				<input type="checkbox"/> <i>Erosion Control Logs</i>			

**POST CONSTRUCTION TSS CONTROL (401 CERTIFICATION ONLY):**

- |   |   |
|---|---|
| <input type="checkbox"/> <i>Vegetation Lined Drainage Ditch</i> | <input type="checkbox"/> <i>Grassy Swales</i>   |
| <input type="checkbox"/> <i>Retention/Irrigation</i>            | <input type="checkbox"/> <i>Vegetative Filter Strips</i>                              |
| <input type="checkbox"/> <i>Erosion Control Compost</i>         | <input checked="" type="checkbox"/> <i>No Post Construction TSS Control Required.</i> |

**SEQUENCE OR SCHEDULE OF IMPLEMENTATION:**

1. Install initial storm pollution prevention measures, i.e. silt fencing.
- 2.
- 3.
- 4.
- 5.
- 6.

The El Paso District of the Texas Department of Transportation uses Site-Manager, a computer based construction record-keeping system. Documentation describing major grading activities, temporary or permanent cessation of construction, and stabilization measures is a part of this system and is incorporated by reference into this SWPPP. Stabilization measures must be initiated within 14 days when practicable in portions of the site where construction has temporarily or permanently ceased, if earth disturbing activities will not be resumed within 21 days.

**3. STRUCTURAL CONTROL PRACTICES:** Structural control practices for this project are listed elsewhere herein.

**4. PERMANENT STORM WATER CONTROLS:** Structural control practices installed during construction will be maintained and inspected after construction has ceased on the site and until final stabilization is attained. Unless specified in the plans, after project acceptance TxDOT will assume maintenance responsibilities for the controls and measures. Other permanent controls include existing and proposed riprap at culvert inlets and outlets, diversion dikes, swales, retaining walls, and other similar devices.

**5. OTHER CONTROLS:** OFF-SITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST: The off site vehicle tracking of sediments shall be minimized by removal of excess dirt from the road and at entrances to the work site. The generation of dust will be minimized as directed by the Project Engineer by dampening haul roads and covering haul trucks with a tarpaulin.

**CONSTRUCTION AND WASTE MATERIALS:** The contractor will maintain a clean, orderly construction site. Construction waste including trash, rubble, scrap and vegetation shall be disposed of in lidded dumpsters or in a manner approved by the Project Engineer. Disposal methods must meet Federal, State, and Local waste management guidelines. No construction waste will be buried or burned on site. Spoils disposal, material storage, and materials resulting from the destruction of existing roads and structures shall be stored in areas designated by the Project Engineer and protected from run-off. All waterways shall be cleared of temporary embankment, temporary bridges, matting, false work, piling, debris, or other obstructions placed during construction operations, that are not part of the finished work, as soon as practicable. All excess soil generated by the construction will be collected and disposed of by the contractor. Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, water body, or stream bed.

**POLLUTANT SOURCES FROM AREAS OTHER THAN CONSTRUCTION:** Staging areas and vehicle maintenance areas shall be located and constructed in a manner to minimize the runoff of pollutants. If potential pollutant sources are identified after the start of construction, controls and measures shall be implemented as directed by the Project Engineer.

**5. OTHER CONTROLS (CONT):**

**DEDICATED ASPHALT PLANTS:** Asphalt or asphaltic material for this project will be produced off site. If the project requires a dedicated asphalt plant and the plant within 1 mile of the project limits it will be considered an off site PSL. Consideration shall be given to on site plant and storage facilities and measures implemented as directed by the Project Engineer.

**DEDICATED CONCRETE PLANTS:** Cement or Concrete material for this project will be produced off site. If the project requires a dedicated concrete plant and the plant is within 1 mile of the project limits it will be considered an off site PSL. Consideration shall be given to on site plant and storage facilities and measures implemented as directed by the Project Engineer. Concrete trucks shall be washed or washed out in locations designated by the Project Engineer. The locations shall be protected by a berm sufficient to contain all waste and wash water. Wash water shall not be allowed to enter any storm drainage system or waterway. The residual material and contaminated soil shall be collected and disposed of in accordance with Federal, State, and Local guidelines. Staging areas and vehicle maintenance areas shall be located and constructed in a manner to minimize the runoff of pollutants.

**HAZARDOUS MATERIALS AND SPILL REPORTING:** The contractor shall take appropriate measures to prevent, minimize, and control the spillage or leakage of hazardous materials and any associated wastes on site and in maintenance and staging areas. Hazardous materials shall include but are not limited to paints, acids, solvents, asphalt products, chemical additives, curing compounds, oils, fuels, and lubricants. Hazardous materials shall not be stored, accumulated, or transported in open containers subject to precipitation or spillage, but shall be stored, accumulated, or transported in closed containers of the type recommended by the manufacturer. In the event of a spill the Project Engineer should be contacted immediately. All spills shall be immediately cleaned and any contaminated soil removed and disposed of in accordance with Local, State, and Federal laws. Fuel tanks shall be protected by a secondary containment, such as a lined berm, capable of containing 1.5 times the capacity of the tank, or as approved by the Project Engineer.

**OFF SITE PSLs:** All off site project specific locations including dedicated asphalt plants, concrete plants, or utility installations, required by the contractor, are the contractor's responsibility. The contractor shall secure all permits required by local, state, or federal laws for off site PSLs. The contractor shall provide diagrams and areas of disturbance for all PSL's within 1 mile of the project.

**SANITARY FACILITIES:** All sanitary or septic wastes that are generated onsite shall be treated and disposed of in accordance with state and local regulations. Raw sewage or septage shall not be discharged or buried on site. Precaution shall be taken to prevent illicit discharges to storm water. Licensed waste management contractors shall be required to dispose of sanitary waste. Porta johns will be required for the construction site or as directed by the Project Engineer.

**VELOCITY DISSIPATION DEVICES:** Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as shown in the plans or as directed by the Project Engineer to provide a non-erosive flow velocity from the structure to a watercourse so that the natural physical and biological characteristics and functions are maintained and protected.

**6. APPROVED STATE AND LOCAL PLANS:** This SWP3 is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or storm water management site plans or permits approved by federal, state, or local officials.

**7. MAINTENANCE:** Control measures shall be properly installed according to specifications. If inspections or other information indicates a control has been installed, used, or is performing inadequately, the contractor must replace or modify the control as soon as practicable after discovery. Control measures shall be maintained in effective operating condition. If inspections determine that BMPs are not operating effectively maintenance will be performed as necessary to continue the effectiveness of the controls. Maintenance must be accomplished as soon as practicable. Controls adjacent to creeks, culverts, bridges, and water crossings shall have priority. Controls that have been disabled, run over, removed, or otherwise rendered ineffective must be corrected immediately upon discovery.

**8. INSPECTION OF CONTROLS:** A TxDOT inspector will inspect disturbed areas of the site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Sediment and erosion controls measures identified in the SWP3 will be inspected to ensure that they are operating correctly. Locations where vehicles enter or exit the site will be inspected for evidence of off-site vehicle tracking. Inspections will be conducted every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. The SWP3 will be modified based on the result of these inspections. Revisions will be completed within 7 Calendar days following the inspection. Revised implementation schedules will be described in the SWP3 and implemented as soon as practicable. Rain gages will be maintained on site for the duration of the project. Reports summarizing the scope of the inspections are included in the SWP3 file.

**9. NON-STORM WATER COMPONENTS:** The contractor shall be required to implement appropriate pollution prevention controls and measures for all eligible non-storm water components of the discharge as approved and directed by the Project Engineer.

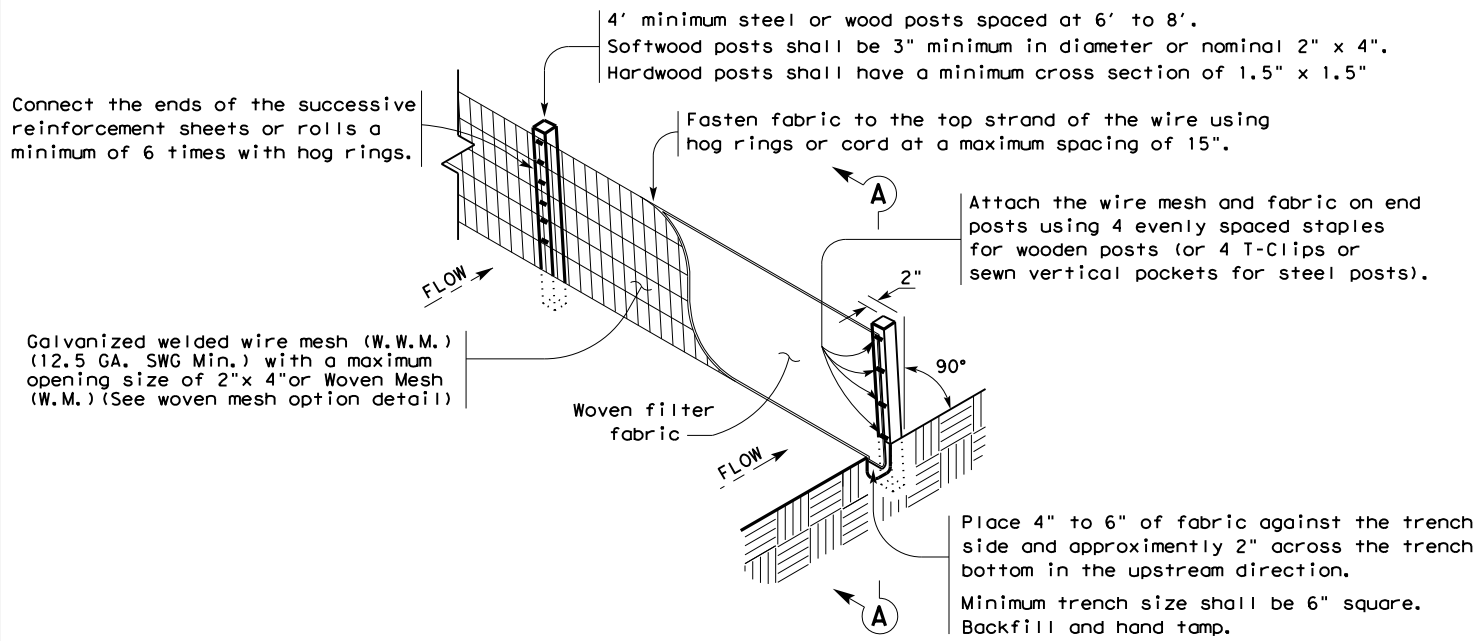


**TxDOT STORM WATER POLLUTION PREVENTION PLAN (SWP3)**



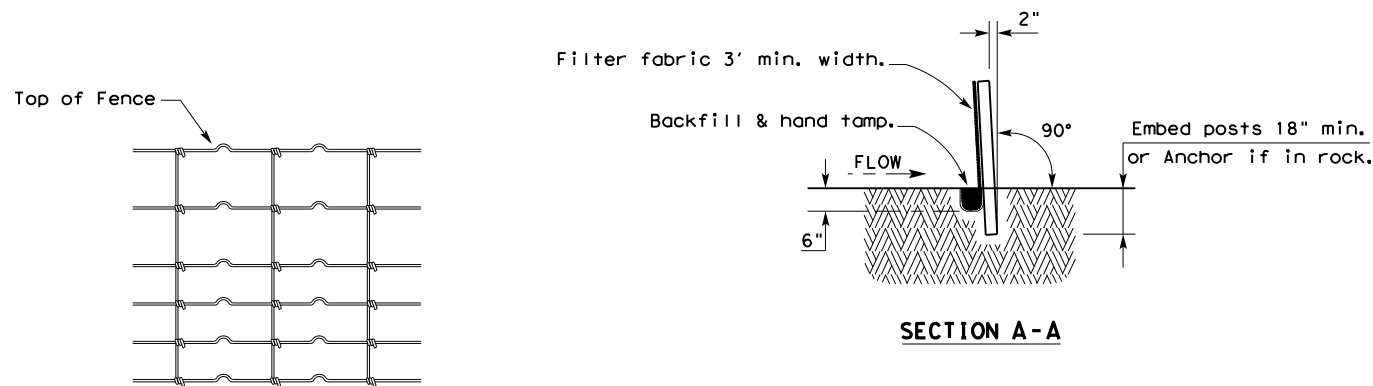
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			49
STATE	STATE DIST.	COUNTY	
TEXAS	ELP	EL PASO	
CONT.	SECT.	JOB	HIGHWAY NO.
2552	03	070	SL 375

50A6E2022  
 MF 12E52-03-070.4-DESIGN.Plan\_Set\9. ENVIRONMENTAL\ec116.dgn  
 DISCLAIMER: This standard is made by TxDOT for any purpose whatsoever. No warranty of any kind is made by TxDOT for any purpose whatsoever. The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



**TEMPORARY SEDIMENT CONTROL FENCE**

SCF



**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<sup>2</sup>. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

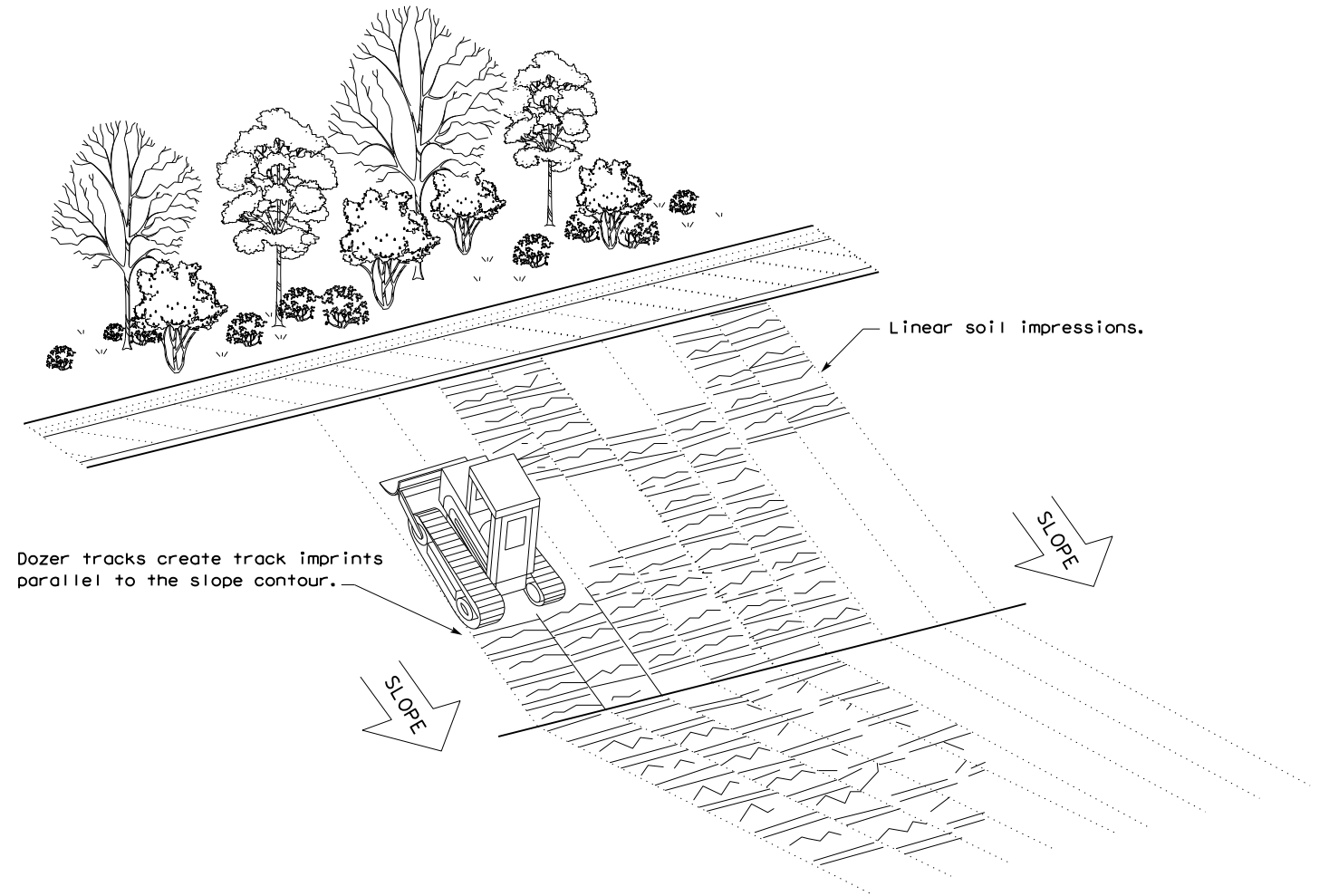
**LEGEND**

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 continuous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



**VERTICAL TRACKING**

				Design Division Standard	
<b>TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES FENCE &amp; VERTICAL TRACKING</b> <b>EC(1)-16</b>					
FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS	2552	03	070	SL 375	
	DIST	COUNTY	SHEET NO.		
	ELP	EL PASO	50		